
The Nautical Almanac 2026



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The Nautical Almanac

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fair winds, clear skies & following seas

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Acknowledgment and Credits

Dr. Enno Rodegerdts

The Nautical Almanac *Daily Pages* and Sun Almanacs found on our site were originally created from PyAlmanac written by the great Norwegian sailor Enno Rodegerdts. PyAlmanac used PyEphem to generate the almanacs and LaTeX provided the final formatting. Visit Dr. Rodegerdts site and learn of his voyages at <https://sv-inua.net/>

Without his work TheNauticalAlmanac.com wouldn't exist

Andrew Bauer

Mr. Bauer has taken the initial work of Dr. Rodegerdts and improved it to the excellence found in the following Daily Pages. Attending foremost to the accuracy of data and then formatting Mr. Bauer created SkyAlmanac which draws from Brandon Rhodes work *Ephem* and *Skyfield* and provides a clear arrangement of figures required for celestial navigation. He has also created the separate *Declination of the Sun and Planets* and *Local Mean Time of Meridian Passage* you'll find near the end of this almanac.

His work was determined, tireless and efficient. In our mutual writing across many lines of longitude he has always been pleasant, friendly and most affable.

As he has said, *"The art of celestial navigation should be promoted, not discouraged, even in the modern day"*.

To both of these men we all owe a large debt of gratitude and thanks

Disclaimer and Warning

Prior to use verify the accuracy of The Nautical Almanac or data you download from our site. They SHOULD NOT and MUST NOT be relied upon for celestial navigation work of any sorts or any purpose whatsoever. You use them at your own risk or peril.

Errors & Corrections

Contact us if you find any significant errors and describe the correction that should be made.



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2026

January

wk	Su	M	Tu	W	Th	F	Sa
1					1	2	3
2	4	5	6	7	8	9	10
3	11	12	13	14	15	16	17
4	18	19	20	21	22	23	24
5	25	26	27	28	29	30	31

February

wk	Su	M	Tu	W	Th	F	Sa
6	1	2	3	4	5	6	7
7	8	9	10	11	12	13	14
8	15	16	17	18	19	20	21
9	22	23	24	25	26	27	28

March

wk	Su	M	Tu	W	Th	F	Sa
10	1	2	3	4	5	6	7
11	8	9	10	11	12	13	14
12	15	16	17	18	19	20	21
13	22	23	24	25	26	27	28
14	29	30	31				

April

wk	Su	M	Tu	W	Th	F	Sa
14				1	2	3	4
15	5	6	7	8	9	10	11
16	12	13	14	15	16	17	18
17	19	20	21	22	23	24	25
18	26	27	28	29	30		

May

wk	Su	M	Tu	W	Th	F	Sa
18						1	2
19	3	4	5	6	7	8	9
20	10	11	12	13	14	15	16
21	17	18	19	20	21	22	23
22	24	25	26	27	28	29	30
23	31						

June

wk	Su	M	Tu	W	Th	F	Sa
23		1	2	3	4	5	6
24	7	8	9	10	11	12	13
25	14	15	16	17	18	19	20
26	21	22	23	24	25	26	27
27	28	29	30				

July

wk	Su	M	Tu	W	Th	F	Sa
27				1	2	3	4
28	5	6	7	8	9	10	11
29	12	13	14	15	16	17	18
30	19	20	21	22	23	24	25
31	26	27	28	29	30	31	

August

wk	Su	M	Tu	W	Th	F	Sa
31							1
32	2	3	4	5	6	7	8
33	9	10	11	12	13	14	15
34	16	17	18	19	20	21	22
35	23	24	25	26	27	28	29
36	30	31					

September

wk	Su	M	Tu	W	Th	F	Sa
36			1	2	3	4	5
37	6	7	8	9	10	11	12
38	13	14	15	16	17	18	19
39	20	21	22	23	24	25	26
40	27	28	29	30			

October

wk	Su	M	Tu	W	Th	F	Sa
40					1	2	3
41	4	5	6	7	8	9	10
42	11	12	13	14	15	16	17
43	18	19	20	21	22	23	24
44	25	26	27	28	29	30	31

November

wk	Su	M	Tu	W	Th	F	Sa
45	1	2	3	4	5	6	7
46	8	9	10	11	12	13	14
47	15	16	17	18	19	20	21
48	22	23	24	25	26	27	28
49	29	30					

December

wk	Su	M	Tu	W	Th	F	Sa
49			1	2	3	4	5
50	6	7	8	9	10	11	12
51	13	14	15	16	17	18	19
52	20	21	22	23	24	25	26
1	27	28	29	30	31		

2026

Day of Week, Week Number, Day of Year, Remaining Days of Year

Day of Month	1		Days remaining	Week number
	January			
	Day of Week	Day of Year		
1	Thu	1	364	1
2	Fri	2	363	
3	Sat	3	362	
4	Sun	4	361	2
5	Mon	5	360	
6	Tue	6	359	
7	Wed	7	358	
8	Thu	8	357	
9	Fri	9	356	
10	Sat	10	355	
11	Sun	11	354	3
12	Mon	12	353	
13	Tue	13	352	
14	Wed	14	351	
15	Thu	15	350	
16	Fri	16	349	
17	Sat	17	348	
18	Sun	18	347	4
19	Mon	19	346	
20	Tue	20	345	
21	Wed	21	344	
22	Thu	22	343	
23	Fri	23	342	
24	Sat	24	341	
25	Sun	25	340	5
26	Mon	26	339	
27	Tue	27	338	
28	Wed	28	337	
29	Thu	29	336	
30	Fri	30	335	
31	Sat	31	334	

Day of Month	2		Days remaining	Week number
	February			
	Day of Week	Day of Year		
1	Sun	32	333	6
2	Mon	33	332	
3	Tue	34	331	
4	Wed	35	330	
5	Thu	36	329	
6	Fri	37	328	
7	Sat	38	327	
8	Sun	39	326	7
9	Mon	40	325	
10	Tue	41	324	
11	Wed	42	323	
12	Thu	43	322	
13	Fri	44	321	
14	Sat	45	320	
15	Sun	46	319	8
16	Mon	47	318	
17	Tue	48	317	
18	Wed	49	316	
19	Thu	50	315	
20	Fri	51	314	
21	Sat	52	313	
22	Sun	53	312	9
23	Mon	54	311	
24	Tue	55	310	
25	Wed	56	309	
26	Thu	57	308	
27	Fri	58	307	
28	Sat	59	306	

Day of Month	3		Days remaining	Week number
	March			
	Day of Week	Day of Year		
1	Sun	60	305	10
2	Mon	61	304	
3	Tue	62	303	
4	Wed	63	302	
5	Thu	64	301	
6	Fri	65	300	
7	Sat	66	299	
8	Sun	67	298	11
9	Mon	68	297	
10	Tue	69	296	
11	Wed	70	295	
12	Thu	71	294	
13	Fri	72	293	
14	Sat	73	292	
15	Sun	74	291	12
16	Mon	75	290	
17	Tue	76	289	
18	Wed	77	288	
19	Thu	78	287	
20	Fri	79	286	
21	Sat	80	285	
22	Sun	81	284	13
23	Mon	82	283	
24	Tue	83	282	
25	Wed	84	281	
26	Thu	85	280	
27	Fri	86	279	
28	Sat	87	278	
29	Sun	88	277	14
30	Mon	89	276	
31	Tue	90	275	

Day of Month	4		Days remaining	Week number
	April			
	Day of Week	Day of Year		
1	Wed	91	274	14
2	Thu	92	273	
3	Fri	93	272	
4	Sat	94	271	
5	Sun	95	270	15
6	Mon	96	269	
7	Tue	97	268	
8	Wed	98	267	
9	Thu	99	266	
10	Fri	100	265	
11	Sat	101	264	
12	Sun	102	263	16
13	Mon	103	262	
14	Tue	104	261	
15	Wed	105	260	
16	Thu	106	259	
17	Fri	107	258	
18	Sat	108	257	
19	Sun	109	256	17
20	Mon	110	255	
21	Tue	111	254	
22	Wed	112	253	
23	Thu	113	252	
24	Fri	114	251	
25	Sat	115	250	
26	Sun	116	249	18
27	Mon	117	248	
28	Tue	118	247	
29	Wed	119	246	
30	Thu	120	245	

Day of Month	5		Days remaining	Week number
	May			
	Day of Week	Day of Year		
1	Fri	121	244	18
2	Sat	122	243	
3	Sun	123	242	19
4	Mon	124	241	
5	Tue	125	240	
6	Wed	126	239	
7	Thu	127	238	
8	Fri	128	237	
9	Sat	129	236	
10	Sun	130	235	20
11	Mon	131	234	
12	Tue	132	233	
13	Wed	133	232	
14	Thu	134	231	
15	Fri	135	230	
16	Sat	136	229	
17	Sun	137	228	21
18	Mon	138	227	
19	Tue	139	226	
20	Wed	140	225	
21	Thu	141	224	
22	Fri	142	223	
23	Sat	143	222	
24	Sun	144	221	22
25	Mon	145	220	
26	Tue	146	219	
27	Wed	147	218	
28	Thu	148	217	
29	Fri	149	216	
30	Sat	150	215	
31	Sun	151	214	23

Day of Month	6		Days remaining	Week number
	June			
	Day of Week	Day of Year		
1	Mon	152	213	23
2	Tue	153	212	
3	Wed	154	211	
4	Thu	155	210	
5	Fri	156	209	
6	Sat	157	208	
7	Sun	158	207	24
8	Mon	159	206	
9	Tue	160	205	
10	Wed	161	204	
11	Thu	162	203	
12	Fri	163	202	
13	Sat	164	201	
14	Sun	165	200	25
15	Mon	166	199	
16	Tue	167	198	
17	Wed	168	197	
18	Thu	169	196	
19	Fri	170	195	
20	Sat	171	194	
21	Sun	172	193	26
22	Mon	173	192	
23	Tue	174	191	
24	Wed	175	190	
25	Thu	176	189	
26	Fri	177	188	
27	Sat	178	187	
28	Sun	179	186	27
29	Mon	180	185	
30	Tue	181	184	

Day of Week, Week Number, Day of Year, Remaining Days of Year

Day of Month	7		Days remaining	Week number
	July			
	Day of Week	Day of Year		
1	Wed	182	183	27
2	Thu	183	182	
3	Fri	184	181	
4	Sat	185	180	
5	Sun	186	179	28
6	Mon	187	178	
7	Tue	188	177	
8	Wed	189	176	
9	Thu	190	175	
10	Fri	191	174	
11	Sat	192	173	
12	Sun	193	172	29
13	Mon	194	171	
14	Tue	195	170	
15	Wed	196	169	
16	Thu	197	168	
17	Fri	198	167	
18	Sat	199	166	
19	Sun	200	165	30
20	Mon	201	164	
21	Tue	202	163	
22	Wed	203	162	
23	Thu	204	161	
24	Fri	205	160	
25	Sat	206	159	
26	Sun	207	158	31
27	Mon	208	157	
28	Tue	209	156	
29	Wed	210	155	
30	Thu	211	154	
31	Fri	212	153	

Day of Month	8		Days remaining	Week number
	August			
	Day of Week	Day of Year		
1	Sat	213	152	31
2	Sun	214	151	32
3	Mon	215	150	
4	Tue	216	149	
5	Wed	217	148	
6	Thu	218	147	
7	Fri	219	146	
8	Sat	220	145	
9	Sun	221	144	33
10	Mon	222	143	
11	Tue	223	142	
12	Wed	224	141	
13	Thu	225	140	
14	Fri	226	139	
15	Sat	227	138	
16	Sun	228	137	34
17	Mon	229	136	
18	Tue	230	135	
19	Wed	231	134	
20	Thu	232	133	
21	Fri	233	132	
22	Sat	234	131	
23	Sun	235	130	35
24	Mon	236	129	
25	Tue	237	128	
26	Wed	238	127	
27	Thu	239	126	
28	Fri	240	125	
29	Sat	241	124	
30	Sun	242	123	36
31	Mon	243	122	

Day of Month	9		Days remaining	Week number
	September			
	Day of Week	Day of Year		
1	Tue	244	121	36
2	Wed	245	120	
3	Thu	246	119	
4	Fri	247	118	
5	Sat	248	117	
6	Sun	249	116	37
7	Mon	250	115	
8	Tue	251	114	
9	Wed	252	113	
10	Thu	253	112	
11	Fri	254	111	
12	Sat	255	110	
13	Sun	256	109	38
14	Mon	257	108	
15	Tue	258	107	
16	Wed	259	106	
17	Thu	260	105	
18	Fri	261	104	
19	Sat	262	103	
20	Sun	263	102	39
21	Mon	264	101	
22	Tue	265	100	
23	Wed	266	99	
24	Thu	267	98	
25	Fri	268	97	
26	Sat	269	96	
27	Sun	270	95	40
28	Mon	271	94	
29	Tue	272	93	
30	Wed	273	92	

Day of Month	10		Days remaining	Week number
	October			
	Day of Week	Day of Year		
1	Thu	274	91	40
2	Fri	275	90	
3	Sat	276	89	
4	Sun	277	88	41
5	Mon	278	87	
6	Tue	279	86	
7	Wed	280	85	
8	Thu	281	84	
9	Fri	282	83	
10	Sat	283	82	
11	Sun	284	81	42
12	Mon	285	80	
13	Tue	286	79	
14	Wed	287	78	
15	Thu	288	77	
16	Fri	289	76	
17	Sat	290	75	
18	Sun	291	74	43
19	Mon	292	73	
20	Tue	293	72	
21	Wed	294	71	
22	Thu	295	70	
23	Fri	296	69	
24	Sat	297	68	
25	Sun	298	67	44
26	Mon	299	66	
27	Tue	300	65	
28	Wed	301	64	
29	Thu	302	63	
30	Fri	303	62	
31	Sat	304	61	

Day of Month	11		Days remaining	Week number
	November			
	Day of Week	Day of Year		
1	Sun	305	60	45
2	Mon	306	59	
3	Tue	307	58	
4	Wed	308	57	
5	Thu	309	56	
6	Fri	310	55	
7	Sat	311	54	
8	Sun	312	53	46
9	Mon	313	52	
10	Tue	314	51	
11	Wed	315	50	
12	Thu	316	49	
13	Fri	317	48	
14	Sat	318	47	
15	Sun	319	46	47
16	Mon	320	45	
17	Tue	321	44	
18	Wed	322	43	
19	Thu	323	42	
20	Fri	324	41	
21	Sat	325	40	
22	Sun	326	39	48
23	Mon	327	38	
24	Tue	328	37	
25	Wed	329	36	
26	Thu	330	35	
27	Fri	331	34	
28	Sat	332	33	
29	Sun	333	32	49
30	Mon	334	31	

Day of Month	12		Days remaining	Week number
	December			
	Day of Week	Day of Year		
1	Tue	335	30	49
2	Wed	336	29	
3	Thu	337	28	
4	Fri	338	27	
5	Sat	339	26	
6	Sun	340	25	50
7	Mon	341	24	
8	Tue	342	23	
9	Wed	343	22	
10	Thu	344	21	
11	Fri	345	20	
12	Sat	346	19	
13	Sun	347	18	51
14	Mon	348	17	
15	Tue	349	16	
16	Wed	350	15	
17	Thu	351	14	
18	Fri	352	13	
19	Sat	353	12	
20	Sun	354	11	52
21	Mon	355	10	
22	Tue	356	9	
23	Wed	357	8	
24	Thu	358	7	
25	Fri	359	6	
26	Sat	360	5	
27	Sun	361	4	1
28	Mon	362	3	
29	Tue	363	2	
30	Wed	364	1	
31	Thu	365	0	

Useful Information

Time Signals- by telephone

WWV 303-499-7111 **WWVH** 808-335-4363

CHU **English:** 613-745-1576 (CHU provides only Eastern time announcements)
French: 613-745-9426

Time signals- by Radio

WWV (Fort Collins, Colorado)	2.5, 5, 10, 15, 20 MHz (male voice)
WWVH (Kauai, Hawaii)	2.5, 5, 10, 15 MHz (female voice)
CHU (Ottawa, Canada)	3330, 7850, and 14,670 kHz (USB)

Bowditch 2024- *The American Practical Navigator*

https://TheNauticalAlmanac.com/2024_Bowditch- American Practical Navigator.html

Organized in a convenient and useful manner. Download the Chapters, Parts or Tables you want or the entire work.

Sight Reduction Tables

Pub. No. 249 Download individual Latitudes or Volumes

Epoch 2025 https://thenauticalalmanac.com/Pub_No_249_Epoch_2025.html

Epoch 2020 https://www.thenauticalalmanac.com/Pub_No_249_Epoch_2020.html

Pub. No. 229 Download individual Volumes covering a range of Latitudes

https://TheNauticalAlmanac.com/Pub_No_229.html

Sight Reduction Forms & Methods

<https://www.TheNauticalAlmanac.com/Methods.html>

Celestial Navigation

useful Formulas

About Calculators

The Casio *fx-300ES Plus* is an inexpensive calculator at about 11 USD. It features *natural input* so you enter a formula just as it would be written on paper. Entering degrees, minutes and seconds is very simple. The Casio *fx-300ES Plus* has 9 memory locations and you can review many of the previous entries you make using a special key on the calculator.

Determine Hc using a calculator

The formula

$$Hc = \text{asin}[\sin(\text{Declination}) * \sin(\text{Latitude}) + \cos(\text{Latitude}) * \cos(\text{Declination}) * \cos(\text{LHA})]$$

As it would be entered into the Casio calculator Note- Sin^{-1} is the arc-sin key

$$\text{Sin}^{-1}(\text{Sin}(\text{Ap Latitude}) \times \text{Sin}(\text{Declination}) + \text{Cos}(\text{Ap Latitude}) \times \text{Cos}(\text{Declination}) \times \text{Cos}(\text{LHA}))$$

Declination is the declination of the Celestial body you're observing. When the heavenly body's declination is *Contrary* name to your Ap Latitude enter a negative sign before it.

Latitude "The AP latitude is chosen to be the nearest whole degree in latitude to the DR latitude." *from Bowditch 2019 Vol. 1 Chapter 19 section 1902 p. 310* Consider this to be where you are, think you are or where you would like to determine Hc for. Typically, you'll be using an *Assumed position Latitude* or *Ap Latitude* as it's called. *See Bowditch 2019 Vol. 1 Chapter 19 section 1902 p. 310*

About LHA determination

Assumed Position longitude ($\alpha\lambda$) "The AP longitude is that nearest the DR longitude resulting in a whole degree of LHA for the observed body." *From Bowditch 2019 Vol. 1 Chapter 19 section 1902 p. 310*

In Western Longitudes *see Bowditch 2019 Vol. 1 Chapter 19 section 1905 p. 313*

LHA is the Local Hour Angle derived by subtracting your Assumed Longitude ($\alpha\lambda$) whole degree value from the whole degree **GHA** (Greenwich Hour Angle) value. If GHA is less than the $\alpha\lambda$ then add 360° to it then subtract the $\alpha\lambda$. *Ignore the arc minutes of GHA and $\alpha\lambda$.*

Example when GHA is less than $\alpha\lambda$ **GHA** = $43^\circ 25.2'$ $\alpha\lambda$ = W $55^\circ 15.1'$

$$360^\circ + 43^\circ = 403^\circ \quad \text{Then....} 403^\circ - 55^\circ = 348^\circ \text{ (LHA)}$$

In Eastern Longitudes *see Bowditch 2019 Vol. 1 Chapter 19 section 1905 p. 313*

LHA, in Eastern Longitudes, is determined by adding the entire GHA figure (degrees and minutes) to the whole degree figure of the Assumed longitude ($\alpha\lambda$) *plus* the amount of arc minutes required to get to the next degree of the GHA. If the resulting LHA figure is greater than 360° then subtract 360° from the figure to obtain the LHA.

Example- **GHA** = $58^\circ 01.2'$ $\alpha\lambda$ = E $9^\circ 10.1'$ (ignore the 10.1')

Step 1- *get GHA degree difference;* $59^\circ - 58^\circ 01.2' = 0^\circ 58.8'$

Step 2- *add $\alpha\lambda$ degrees to difference found in step 1;* $9^\circ + 0^\circ 58.8' = 9^\circ 58.8'$ $\alpha\lambda$

Step 3- *get LHA;* $58^\circ 01.2' + 9^\circ 58.8' = 68^\circ$ (LHA)

Why would you want to determine Hc using a calculator?

It's faster than looking up in Pub. No. 249 and Pub. No. 229, highly accurate and you don't need a lot of printed out pages of Latitudes from Pub. No. 249 and Pub. No. 229. Pub. No. 249 Vol. 2 & 3 don't cover any declination greater than 29 degrees so you'd have to use Pub. No. 229 which is extremely large.

Celestial Navigation

Determine Z

$$Z = \arccos[(\sin(\text{Declination}) - \sin(\text{AP Latitude}) \times \sin(\text{Hc})) \div (\cos(\text{AP Latitude}) \times \cos(\text{Hc}))]$$

As it would be entered into the Casio calculator... Note- $\cos^{-1}$ is the arc-cosine key

$$\cos^{-1}((\sin(\text{Declination}) - \sin(\text{AP Latitude}) \times \sin(\text{Hc})) \div (\cos(\text{AP Latitude}) \times \cos(\text{Hc})))$$

If the heavenly body's declination is *Contrary name* to the Ap Latitude enter a negative sign before it.

To obtain Zn see the rules below for Northern and Southern latitudes.

Determine Z independent of Hc

$$Z = \tan^{-1} \left(\frac{\sin \text{LHA}}{(\cos L \tan d) - (\sin L \cos \text{LHA})} \right)$$

"L" is latitude and "d" is declination. When the heavenly body's declination is *Contrary name* to your Ap Latitude enter a negative sign before it.

As it would be entered into the Casio calculator... Note- $\tan^{-1}$ is the arc-tangent key

$$Z = \tan^{-1} ((\sin(\text{LHA}) \div (\cos(\text{AP latitude}) \times \tan(\text{declination}) - (\sin(\text{AP latitude}) \times \cos(\text{LHA}))))$$

The sign convention used in the calculation of this azimuth formula is as follows:

from Bowditch Chapter 22 CALCULATIONS AND CONVERSIONS, page 331

- 1) If latitude and declination are of contrary name, declination is treated as a negative quantity;
- 2) If the local hour angle is greater than 180° , it is treated as a negative quantity. If the azimuth angle as calculated is negative, add 180° to obtain the desired value.

To obtain Zn apply the following rules

<u>In Northern Latitudes</u>	<u>In Southern Latitudes</u>
LHA greater than 180° Zn=Z	LHA greater than 180° Zn= $180^\circ - Z$
LHA less than 180° Zn= $360^\circ - Z$	LHA less than 180° Zn= $180^\circ + Z$

Determine Refraction $0.96 \div \tan \text{ of } (H_a)$

Gives good results down to about 8° from the horizon but not less.

Refraction (good overall formula from 90° to below 8° from the horizon)

$$R_0 = \cot \left(H_a + \frac{7.31}{H_a + 4.4} \right)$$

As it would be entered into the Casio calculator...

$$1 \div \tan((H_a + (7.31 \div (H_a + 4.4)))$$

Both refraction formulas use the standard pressure and temperature of;

1010 mb 10° C
29.83 in 53° F

Determine Dip using feet

0.97 x (Square Root of *He* (Height of Eye) in feet)

Determine Dip using meters

1.76 x (Square Root of *He* (Height of eye) in meters)

Rules to Calculate Latitude using the Sun- Noon-Sight

1- Latitude and declination *Same name* but latitude is greater than declination:

$$\text{Latitude} = (90^\circ - H_o) + \text{declination}$$

2- Latitude and declination *Same name* but declination greater than latitude:

$$\text{Latitude} = \text{Declination} - (90^\circ - H_o)$$

3- Latitude and declination *Contrary name*:

$$\text{Latitude} = (90^\circ - H_o) - \text{Declination}$$

To get AP longitude (needed for plotting the LOP)

In Western longitudes

Combine the DR Longitude figure with only the minutes (of arc) of the total GHA figure. The Ap λ figure will be used when plotting the LOP on the UPS.

In Eastern longitudes

In Eastern longitudes the Ap λ is determined as follows;

DR longitude + (0°60' *minus* GHA minutes of arc)

Example- E 075° + (0°60' – 0° 02')= 75° 58' Ap longitude



fair winds...clear skies and following seas
TheNauticalAlmanac.com

Explanation of The Nautical Almanac Daily Pages

1	Date and Time based on GMT/UT
2	Mer. pass- meridian passage of Aries at the Prime Meridian- Greenwich- 0°. Time figure is GMT/UT.
3	Planet or Moon GHA v value and planet or Moon declination d value. v- “The change in hour angle arising from v of the body at the time of the sight observation is accounted for with the <i>v correction</i> .” <i>Source- Bowditch 2017, Chapter 19- Sight Reduction p. 313.</i> The planet’s v is positive unless preceded by a minus sign which is sometimes the case with Venus. The sign of the Moon’s v is positive. d- “The change in declination of the body at the time of the sight observation is accounted for with the <i>d correction</i> .” <i>Source- Bowditch 2017, Chapter 19- Sight Reduction p. 313.</i> The sign of the Moon or planet’s d correction is determined by the declination trend- positive if successive declination values increase and negative if they decrease. Corrections for both v and d are found in the Increments and Corrections pages of The Nautical Almanac. To find the correction for either v or d enter the Increments and Corrections pages for the minutes in time of the observation and find the value in the v and d corr. columns Find the v , or d , value in the left side of one of the three columns. To the right of that value is the v , or d , correction. Be sure to add or subtract the values depending upon the <i>sign</i> of the value as mentioned above.
	Example for v & d correction- June 10, 2020 GMT- 21:19:10 Body- Moon
	GHA= 247° 20.6’ v = 12.1’ GHA increment 4° 34.4’ v- correction for 12.1’ + <u>0° 03.9’</u> GHA= 251° 58.9’ Dec= S 17° 43.8’ d= 8.9’ d- correction for 8.9’ <u>- 0° 02.9’</u> dec= S 17° 40.9’ <i>declination trend is decreasing so the sign of d correction is negative</i>
4	m- is the <i>magnitude</i> or brightness of the planet. A bright planet will have a <i>minus</i> sign beside the figure. A fainter planet will have no sign beside its magnitude figure.
5	Stars- SHA, Sidereal Hour Angle, and Declination. 59 stars are listed. Typically, only 57 stars are used for navigational purposes in both Northern and Southern Hemispheres. Here you’ll also find Polaris and Scheat. In the Northern Hemisphere Polaris is often used for determination of latitude.
6	Mer. pass- planet meridian passage time at the Prime Meridian- Greenwich- 0°. Time figure is GMT/UT.
7	SHA- planet SHA. Planet SHA is calculated by subtracting Aries GHA from planet GHA. If planet GHA figure is less than Aries GHA, add 360° to planet GHA and then subtract Aries GHA.
8	Horizontal parallax- for Venus and Mars. Horizontal parallax is the angle subtended by half the Earth’s diameter as viewed from the planet in minutes of arc.
9	SD- Semi-diameter of the Sun in minutes of arc. One half of the angular width of the Sun as observed on earth.
10	d- the daily average change, per hour, in the Sun’s declination in minutes of arc.

11	SD- Semi-diameter of the Moon in minutes of arc. Semi-diameter is one half of the angular width of the Moon, as observed on earth.
12	HP- the angle between two lines, one from the center of the Moon to the center of the Earth, the other from the center of the Moon to the edge of the Earth. This angle is about 56', but it changes slightly from day to day as the distance to the Moon changes along its elliptical path around the Earth. Source- <i>starpark.com</i>
13	Sun- Eqn. of Time- Basically the Equation of Time (EoT) is the difference between clock time and time seen on a sundial. This is comparing "clock time", as a mechanical measurement of time, and the sundial being time determined by the position of the Sun at any given moment. The figures listed are for 00^h and 12^h. Using the EoT you can get fairly accurate determination of when Meridian Passage (Local Apparent Noon) occurs at your position. Unshaded EoT values are subtracted from 12:00 to get Meridian Passage. Shaded EoT values are added to 12:00 to get Meridian Passage. An Equation of Time chart (as a curve) is provided in each almanac on TheNauticalAlmanac.com Example- Meridian Passage on May 30, 2020 equals 12:00 – EoT of 2 minutes 21 seconds MP= 11:57:39 <i>Local Apparent Noon</i> Example- Meridian Passage on August 25, 2020 equals 12:00 + EoT of 1 minute 59 seconds MP= 12:01:59 <i>Local Apparent Noon</i>
14	Sun- Mer. Pass just to the right of the Eqn. of Time is the approximate GMT/UT when the Sun crosses The Prime Meridian (at Greenwich) for that specific date.
15	Moon- Mer. Pass- is the approximate GMT/UT when the Moon crosses The Prime Meridian (at Greenwich) or the 180° line of longitude. Upper means the GMT/UT when the Moon crosses The Prime Meridian (Greenwich). Lower means the GMT/UT when the Moon crosses the 180° line of longitude.
16	Moon- Age- this is the number of days past a new Moon. Typically, there are 29 days in a lunar month. Moon- %- the amount of the Moon's illumination. 100% would be a full moon. 49% would be about ½ of the Moon is illuminated. A 3 day range percentage is provided but only one graphic for the phase.
17* see notes at bottom	(morning) Twilight- Naut.- the approximate GMT/UT when morning Nautical Twilight begins. Nautical twilight is the time when the center of the sun is 12° below the horizon and the horizon is visible enough to be used for marine sextant observations. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	(morning) Twilight- Civil- the approximate GMT/UT of morning civil twilight starts when the geometric center of the sun is 6° below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	Sunrise- the approximate GMT/UT when the Sun is 0° 50' (semi-diameter plus refraction) below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.

17* see notes at bottom	Sunset- the approximate GMT/UT when the Sun is 0° 50' (semi-diameter plus refraction) below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	(evening) Twilight- Civil- the approximate GMT/UT of evening civil twilight that ends when the geometric center of the sun is 6° below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
17* see notes at bottom	(evening) Twilight- Naut.- the approximate GMT/UT of when evening Nautical Twilight ends. Nautical twilight is the time when the center of the sun is 12° below the horizon and the horizon is no longer visible enough to be used for sextant observations. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time.
18* see notes at bottom	Moonrise- the approximate GMT/UT when the Moon is about 0° 05' to 0° 10' below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time under the specific day.
18* see notes at bottom	Moonset- the approximate GMT/UT when the Moon is about 0° 05' to 0° 10' below the horizon. First locate your approximate Latitude in the Lat. column and then follow across horizontally to the right to find the time under the specific day.

* Note-

☐ means the Sun or Moon remains continuously above the horizon on that day.

—:— can also mean twilight lasts all night

■ means the Sun or Moon remains continuously below the horizon on that day.

—:— means Moon does not rise or set on that day but may have risen or set the previous day or following day.

* **Note-** Time of Sunrise, Sunset, Moonrise, Moonset and twilight is based on GMT/UT of the event at 0° (Greenwich) and can be considered as approximate LMT (Local Mean Time) with a tolerance of +/- 30 minutes depending on where you are within a time zone.

Wednesday, February 24, 2021

Explanation_of_The_Nautical_Almanac_Daily_Pages.odt

January 01, 02 ,03 (Fri., Sat., Sun.)

Aries			Venus			Mars			Jupiter			Saturn			Stars		
Fri	GHA	Dec	GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec		SHA	Dec	
0	100°32.5	181°58.1	S23°38.5	318°04.0	N18°45.1	131°37.2	S13°36.5	275°29.9	N00°18.5						Alpheratz	357°46.2	29°09.0
1	115°35.0	196°57.1	38.4	333°06.8	45.4	146°39.2	36.4	290°32.3	18.5						Ankaa	353°18.1	-42°15.2
2	130°37.4	211°56.1	38.3	348°09.6	45.6	161°41.2	36.2	305°34.7	18.5						Schedar	349°43.6	56°35.9
3	145°39.9	226°55.1	· · 38.2	3°12.4	· · 45.8	176°43.2	· · 36.0	320°37.1	· · 18.5						Diphda	348°58.3	-17°55.9
4	160°42.4	241°54.2	38.1	18°15.2	46.0	191°45.1	35.8	335°39.5	18.5						Achernar	335°28.3	-57°11.3
5	175°44.8	256°53.2	38.0	33°18.1	46.2	206°47.1	35.7	350°41.9	18.5						Hamal	328°03.5	23°30.8
6	190°47.3	271°52.2	S23°37.9	48°20.9	N18°46.5	221°49.1	S13°35.5	5°44.3	N00°18.5						Polaris	318°47.1	89°18.8
7	205°49.8	286°51.3	37.8	63°23.7	46.7	236°51.1	35.3	20°46.7	18.5						Akamar	315°19.9	-40°16.0
8	220°52.2	301°50.3	37.7	78°26.5	46.9	251°53.0	35.1	35°49.2	18.5						Menkar	314°17.5	4°07.8
9	235°54.7	316°49.3	· · 37.6	93°29.4	· · 47.1	266°55.0	· · 35.0	50°51.6	· · 18.4						Mirfak	308°43.7	49°54.0
10	250°57.2	331°48.4	37.5	108°32.2	47.3	281°57.0	34.8	65°54.0	18.4						Aldebaran	290°52.0	16°31.9
11	265°59.6	346°47.4	37.4	123°35.0	47.6	296°59.0	34.6	80°56.4	18.4						Rigel	281°14.1	-8°11.4
12	281°02.1	1°46.4	S23°37.3	138°37.9	N18°47.8	312°00.9	S13°34.4	95°58.8	N00°18.4						Capella	280°37.8	46°00.6
13	296°04.5	16°45.5	37.2	153°40.7	48.0	327°02.9	34.3	111°01.2	18.4						Bellatrix	278°34.4	6°21.5
14	311°07.0	31°44.5	37.1	168°43.5	48.2	342°04.9	34.1	126°03.6	18.4						Elnath	278°15.5	28°37.0
15	326°09.5	46°43.5	· · 37.0	183°46.4	· · 48.5	357°06.8	· · 33.9	141°06.0	· · 18.4						Alnilam	275°48.6	-1°11.7
16	341°11.9	61°42.6	36.9	198°49.2	48.7	12°08.8	33.7	156°08.4	18.4						Betelgeuse	271°03.7	7°24.5
17	356°14.4	76°41.6	36.8	213°52.0	48.9	27°10.8	33.6	171°10.8	18.4						Canopus	263°56.7	-52°42.1
18	11°16.9	91°40.6	S23°36.7	228°54.9	N18°49.1	42°12.8	S13°33.4	186°13.2	N00°18.3						Sirius	258°35.5	-16°43.6
19	26°19.3	106°39.6	36.5	243°57.7	49.4	57°14.7	33.2	201°15.7	18.3						Adara	255°14.1	-28°59.2
20	41°21.8	121°38.7	36.4	259°00.6	49.6	72°16.7	33.0	216°18.1	18.3						Procyon	245°01.9	5°12.0
21	56°24.3	136°37.7	· · 36.3	274°03.4	· · 49.8	87°18.7	· · 32.9	231°20.5	· · 18.3						Pollux	243°30.3	28°00.0
22	71°26.7	151°36.7	36.2	289°06.3	50.0	102°20.7	32.7	246°22.9	18.3						Avior	234°18.6	-59°32.4
23	86°29.2	166°35.8	36.1	304°09.1	50.3	117°22.6	32.5	261°25.3	18.3						Suhail	222°54.0	-43°28.3
Mer.pass.:17:14			v-1.0 d0.1 m-3.8			v2.8 d0.2 m-0.7			v2.0 d0.2 m-2.0			v2.4 d-0.0 m0.9					

Sat	GHA	Dec	GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	101°31.7	181°34.8	S23°36.0	319°12.0	N18°50.5	132°24.6	S13°32.3	276°27.7	N00°18.3					
1	116°34.1	196°33.8	35.8	334°14.8	50.7	147°26.6	32.2	291°30.1	18.3					
2	131°36.6	211°32.9	35.7	349°17.7	51.0	162°28.6	32.0	306°32.5	18.3					
3	146°39.0	226°31.9	· · 35.6	4°20.5	· · 51.2	177°30.5	· · 31.8	321°34.9	· · 18.3					
4	161°41.5	241°30.9	35.5	19°23.4	51.4	192°32.5	31.6	336°37.3	18.2					
5	176°44.0	256°30.0	35.3	34°26.2	51.6	207°34.5	31.5	351°39.8	18.2					
6	191°46.4	271°29.0	S23°35.2	49°29.1	N18°51.9	222°36.4	S13°31.3	6°42.2	N00°18.2					
7	206°48.9	286°28.0	35.1	64°31.9	52.1	237°38.4	31.1	21°44.6	18.2					
8	221°51.4	301°27.1	34.9	79°34.8	52.3	252°40.4	30.9	36°47.0	18.2					
9	236°53.8	316°26.1	· · 34.8	94°37.7	· · 52.6	267°42.4	· · 30.8	51°49.4	· · 18.2					
10	251°56.3	331°25.1	34.7	109°40.5	52.8	282°44.3	30.6	66°51.8	18.2					
11	266°58.8	346°24.2	34.5	124°43.4	53.0	297°46.3	30.4	81°54.2	18.2					
12	282°01.2	1°23.2	S23°34.4	139°46.3	N18°53.3	312°48.3	S13°30.2	96°56.6	N00°18.2					
13	297°03.7	16°22.2	34.3	154°49.1	53.5	327°50.2	30.1	111°59.1	18.2					
14	312°06.1	31°21.3	34.1	169°52.0	53.7	342°52.2	29.9	127°01.5	18.2					
15	327°08.6	46°20.3	· · 34.0	184°54.9	· · 54.0	357°54.2	· · 29.7	142°03.9	· · 18.1					
16	342°11.1	61°19.3	33.8	199°57.7	54.2	12°56.2	29.5	157°06.3	18.1					
17	357°13.5	76°18.4	33.7	215°00.6	54.4	27°58.1	29.3	172°08.7	18.1					
18	12°16.0	91°17.4	S23°33.6	230°03.5	N18°54.7	43°00.1	S13°29.2	187°11.1	N00°18.1					
19	27°18.5	106°16.5	33.4	245°06.4	54.9	58°02.1	29.0	202°13.5	18.1					
20	42°20.9	121°15.5	33.3	260°09.3	55.1	73°04.0	28.8	217°16.0	18.1					
21	57°23.4	136°14.5	· · 33.1	275°12.1	· · 55.4	88°06.0	· · 28.6	232°18.4	· · 18.1					
22	72°25.9	151°13.6	33.0	290°15.0	55.6	103°08.0	28.5	247°20.8	18.1					
23	87°28.3	166°12.6	32.8	305°17.9	55.9	118°09.9	28.3	262°23.2	18.1					
Mer.pass.:17:11			v-1.0 d0.1 m-3.8			v2.9 d0.2 m-0.8			v2.0 d0.2 m-1.9			v2.4 d-0.0 m0.9		

Sun	GHA	Dec	GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	102°30.8	181°11.6	S23°32.7	320°20.8	N18°56.1	133°11.9	S13°28.1	277°25.6	N00°18.1					
1	117°33.3	196°10.7	32.5	335°23.7	56.3	148°13.9	27.9	292°28.0	18.1					
2	132°35.7	211°09.7	32.4	350°26.6	56.6	163°15.9	27.8	307°30.4	18.1					
3	147°38.2	226°08.7	· · 32.2	5°29.4	· · 56.8	178°17.8	· · 27.6	322°32.9	· · 18.0					
4	162°40.6	241°07.8	32.0	20°32.3	57.0	193°19.8	27.4	337°35.3	18.0					
5	177°43.1	256°06.8	31.9	35°35.2	57.3	208°21.8	27.2	352°37.7	18.0					
6	192°45.6	271°05.8	S23°31.7	50°38.1	N18°57.5	223°23.7	S13°27.0	7°40.1	N00°18.0					
7	207°48.0	286°04.9	31.6	65°41.0	57.8	238°25.7	26.9	22°42.5	18.0					
8	222°50.5	301°03.9	31.4	80°43.9	58.0	253°27.7	26.7	37°44.9	18.0					
9	237°53.0	316°03.0	· · 31.2	95°46.8	· · 58.2	268°29.6	· · 26.5	52°47.4	· · 18.0					
10	252°55.4	331°02.0	31.1	110°49.7	58.5	283°31.6	26.3	67°49.8	18.0					
11	267°57.9	346°01.0	30.9	125°52.6	58.7	298°33.6	26.2	82°52.2	18.0					
12	283°00.4	1°00.1	S23°30.7	140°55.5	N18°59.0	313°35.5	S13°26.0	97°54.6	N00°18.0					
13	298°02.8	15°59.1	30.6	155°58.4	59.2	328°37.5	25.8	112°57.0	18.0					
14	313°05.3	30°58.1	30.4	171°01.3	59.5	343°39.5	25.6	127°59.4	18.0					
15	328°07.8	45°57.2	· · 30.2	186°04.2	· · 59.7	358°41.4	· · 25.4	143°01.9	· · 18.0					
16	343°10.2	60°56.2	30.1	201°07.1	18°59.9	13°43.4	25.3	158°04.3	17.9					
17	358°12.7	75°55.3	29.9	216°10.0	19°00.2	28°45.4	25.1	173°06.7	17.9					
18	13°15.1	90°54.3	S23°29.7	231°13.0	N19°00.4	43°47.3	S13°24.9	188°09.3	N00°17.9					
19	28°17.6	105°53.3	29.5	246°15.9	00.7	58°49.3	24.7	203°11.5	17.9					
20	43°20.1	120°52.4	29.4	261°18.8	00.9	73°51.3	24.6	218°13.9	17.9					
21	58°22.5	135°51.4	· · 29.2	276°21.7	· · 01.2	88°53.3	· · 24.4	233°16.4	· · 17.9					
22	73°25.0	150°50.4	29.0	291°24.6	01.4	103°55.2	24.2	248°18.8	17.9					
23	88°27.5	165°49.5	28.8	306°27.5	01.7	118°57.2	24.0	263°21.2	17.9					
Mer.pass.:17:07			v-1.0 d0.2 m-3.8			v2.9 d0.2 m-0.8			v2.0 d0.2 m-1.9			v2.4 d-0.0 m0.9		

Jan 01 Fri	SHA	Mer.pass
Venus	81°25.5	11:53
Mars	217°31.4	02:47
Jupiter	31°04.7	15:12
Saturn	174°57.4	05:37

Jan 02 Sat	SHA	Mer.pass
Venus	80°03.2	11:54
Mars	217°40.3	02:43
Jupiter	30°53.0	15:08
Saturn	174°56.1	05:33

Jan 03 Sun	SHA	Mer.pass
Venus	78°40.8	11:56
Mars	217°50.0	02:38
Jupiter	30°41.1	15:05
Saturn	174°54.8	05:29

Horizontal parallax	
Venus:	0.1
Mars:	0.2

1

17

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2020 January 01 to Jan. 03

Sun				Moon			
Wed	GHA	Dec		GHA	v	Dec	HP
0	179° 13.7	S23° 03.5		110° 56.9	15.3'	S09° 58.5	10.7' 54.3'
1	194° 13.4	03.3		125° 31.3	15.4'	09° 47.8	10.7' 54.3'
2	209° 13.1	03.1		140° 05.7	15.4'	09° 37.1	10.7' 54.3'
3	224° 12.8	03.0		154° 40.1	15.5'	09° 26.3	10.8' 54.3'
4	239° 12.5	02.8		169° 14.6	15.5'	09° 15.5	10.8' 54.3'
5	254° 12.2	02.6		183° 49.1	15.5'	09° 04.7	10.8' 54.2'
6	269° 11.9	S23° 02.4		198° 23.6	15.6'	S08° 53.8	10.9' 54.2'
7	284° 11.6	02.2		212° 58.2	15.6'	08° 42.9	10.9' 54.2'
8	299° 11.3	02.0		227° 32.8	15.6'	08° 32.0	10.9' 54.2'
9	314° 11.0	01.8		242° 07.5	15.7'	08° 21.0	11.0' 54.2'
10	329° 10.7	01.6		256° 42.2	15.7'	08° 10.0	11.0' 54.2'
11	344° 10.4	01.4		271° 16.9	15.7'	07° 59.0	11.0' 54.2'
12	359° 10.1	S23° 01.2		285° 51.7	15.8'	S07° 48.0	11.1' 54.2'
13	14° 09.8	01.0		300° 26.4	15.8'	07° 36.9	11.1' 54.2'
14	29° 09.5	00.8		315° 01.2	15.8'	07° 25.8	11.1' 54.2'
15	44° 09.2	00.6		329° 36.1	15.9'	07° 14.7	11.1' 54.2'
16	59° 08.9	00.4		344° 10.9	15.9'	07° 03.5	11.2' 54.2'
17	74° 08.6	00.2		358° 45.8	15.9'	06° 52.3	11.2' 54.2'
18	89° 08.3	S23° 00.0		13° 20.7	15.9'	S06° 41.1	11.2' 54.2'
19	104° 08.0	22° 59.7		27° 55.7	16.0'	06° 29.9	11.2' 54.2'
20	119° 07.7	59.5		42° 30.7	16.0'	06° 18.7	11.3' 54.2'
21	134° 07.5	59.3		57° 05.6	16.0'	06° 07.4	11.3' 54.2'
22	149° 07.2	59.1		71° 40.6	16.0'	05° 56.1	11.3' 54.2'
23	164° 06.9	58.9		86° 15.7	16.0'	05° 44.8	11.3' 54.2'
SD.=16.3 d=0.2				S.D.=14.8			

Thu				Moon			
Thu	GHA	Dec		GHA	v	Dec	HP
0	179° 06.6	S22° 58.7		100° 50.7	16.1'	S05° 33.4	11.3' 54.2'
1	194° 06.3	58.5		115° 25.8	16.1'	05° 22.1	11.4' 54.2'
2	209° 06.0	58.3		130° 00.9	16.1'	05° 10.7	11.4' 54.2'
3	224° 05.7	58.1		144° 36.0	16.1'	04° 59.3	11.4' 54.2'
4	239° 05.4	57.9		159° 11.1	16.1'	04° 47.9	11.4' 54.2'
5	254° 05.1	57.6		173° 46.3	16.1'	04° 36.5	11.4' 54.2'
6	269° 04.8	S22° 57.4		188° 21.4	16.2'	S04° 25.0	11.5' 54.2'
7	284° 04.5	57.2		202° 56.6	16.2'	04° 13.5	11.5' 54.2'
8	299° 04.2	57.0		217° 31.7	16.2'	04° 02.1	11.5' 54.2'
9	314° 03.9	56.8		232° 06.9	16.2'	03° 50.6	11.5' 54.2'
10	329° 03.6	56.6		246° 42.1	16.2'	03° 39.0	11.5' 54.2'
11	344° 03.3	56.3		261° 17.3	16.2'	03° 27.5	11.5' 54.2'
12	359° 03.0	S22° 56.1		275° 52.6	16.2'	S03° 16.0	11.5' 54.2'
13	14° 02.8	55.9		290° 27.8	16.2'	03° 04.4	11.6' 54.2'
14	29° 02.5	55.7		305° 03.0	16.2'	02° 52.8	11.6' 54.2'
15	44° 02.2	55.5		319° 38.3	16.2'	02° 41.3	11.6' 54.2'
16	59° 01.9	55.2		334° 13.5	16.2'	02° 29.7	11.6' 54.2'
17	74° 01.6	55.0		348° 48.8	16.3'	02° 18.1	11.6' 54.2'
18	89° 01.3	S22° 54.8		3° 24.0	16.3'	S02° 06.5	11.6' 54.2'
19	104° 01.0	54.6		17° 59.3	16.3'	01° 54.8	11.6' 54.2'
20	119° 00.7	54.3		32° 34.5	16.3'	01° 43.2	11.6' 54.2'
21	134° 00.4	54.1		47° 09.8	16.3'	01° 31.6	11.6' 54.2'
22	149° 00.1	53.9		61° 45.0	16.3'	01° 19.9	11.7' 54.2'
23	163° 59.8	53.7		76° 20.3	16.3'	01° 08.2	11.7' 54.3'
SD.=16.3 d=0.2				S.D.=14.8			

Fri				Moon			
Fri	GHA	Dec		GHA	v	Dec	HP
0	178° 59.5	S22° 53.4		90° 55.5	16.2'	S00° 56.6	11.7' 54.3'
1	193° 59.3	53.2		105° 30.8	16.2'	00° 44.9	11.7' 54.3'
2	208° 59.0	53.0		120° 06.0	16.2'	00° 33.2	11.7' 54.3'
3	223° 58.7	52.7		134° 41.3	16.2'	00° 21.5	11.7' 54.3'
4	238° 58.4	52.5		149° 16.5	16.2'	S00° 09.9	11.7' 54.3'
5	253° 58.1	52.3		163° 51.7	16.2'	N00° 01.8	11.7' 54.3'
6	268° 57.8	S22° 52.0		178° 26.9	16.2'	N00° 13.5	11.7' 54.3'
7	283° 57.5	51.8		193° 02.1	16.2'	00° 25.2	11.7' 54.3'
8	298° 57.2	51.6		207° 37.3	16.2'	00° 36.9	11.7' 54.3'
9	313° 56.9	51.3		222° 12.5	16.2'	00° 48.6	11.7' 54.3'
10	328° 56.6	51.1		236° 47.7	16.2'	01° 00.3	11.7' 54.3'
11	343° 56.4	50.8		251° 22.8	16.1'	01° 12.0	11.7' 54.4'
12	358° 56.1	S22° 50.6		265° 58.0	16.1'	N01° 23.7	11.7' 54.4'
13	13° 55.8	50.4		280° 33.1	16.1'	01° 35.4	11.7' 54.4'
14	28° 55.5	50.1		295° 08.2	16.1'	01° 47.1	11.7' 54.4'
15	43° 55.2	49.9		309° 43.3	16.1'	01° 58.8	11.7' 54.4'
16	58° 54.9	49.6		324° 18.4	16.1'	02° 10.5	11.7' 54.4'
17	73° 54.6	49.4		338° 53.4	16.0'	02° 22.2	11.7' 54.4'
18	88° 54.3	S22° 49.2		353° 28.4	16.0'	N02° 33.9	11.7' 54.4'
19	103° 54.0	48.9		8° 03.5	16.0'	02° 45.6	11.7' 54.4'
20	118° 53.8	48.7		22° 38.4	16.0'	02° 57.3	11.7' 54.4'
21	133° 53.5	48.4		37° 13.4	16.0'	03° 09.0	11.7' 54.5'
22	148° 53.2	48.2		51° 48.4	15.9'	03° 20.6	11.7' 54.5'
23	163° 52.9	47.9		66° 23.3	15.9'	03° 32.3	11.7' 54.5'
SD.=16.3 d=0.2				S.D.=14.8			

Lat.	Twilight		Sunrise	Sunset	Twilight	
	Naut.	Civil			Civil	Naut.
N 72°	08:23	10:41	■	■	13:27	15:45
N 70°	08:05	09:49	■	■	14:19	16:03
68°	07:50	09:16	■	■	14:52	16:18
66°	07:37	08:53	■	■	15:15	16:31
64°	07:26	08:34	■	■	15:34	16:41
62°	07:17	08:18	■	■	15:45	16:51
60°	07:09	08:05	■	■	15:06	16:59
N 58°	07:02	07:54	■	■	16:14	17:06
56°	06:56	07:44	■	■	16:24	17:12
54°	06:50	07:35	■	■	16:32	17:18
52°	06:44	07:28	■	■	16:40	17:24
50°	06:39	07:20	■	■	16:09	16:47
45°	06:28	07:05	■	■	16:29	17:03
N 40°	06:18	06:52	■	■	16:46	17:16
35°	06:08	06:40	■	■	17:00	17:28
30°	06:00	06:30	■	■	17:12	17:38
20°	05:44	06:11	■	■	17:32	17:56
N 10°	05:28	05:54	■	■	17:50	18:13
0°	05:11	05:38	■	■	18:08	18:30
S 10°	04:53	05:20	■	■	18:25	18:48
20°	04:31	05:00	■	■	18:43	19:08
30°	04:02	04:35	■	■	19:05	19:32
35°	03:44	04:20	■	■	19:17	19:47
40°	03:21	04:03	■	■	19:32	20:05
45°	03:02	03:41	■	■	19:50	20:27
S 50°	02:08	03:12	■	■	20:11	20:55
52°	01:42	02:57	■	■	20:22	21:10
54°	01:02	02:40	■	■	20:34	21:27
56°	■	02:19	■	■	20:47	21:48
58°	■	01:51	■	■	21:04	22:15
S 60°	■	01:08	■	■	21:23	22:58

Lat.	Moonrise			Moonset		
	Wed	Thu	Fri	Wed	Thu	Fri
N 72°	12:37	12:18	12:00	21:58	23:43	---
N 70°	12:26	12:13	12:02	22:06	23:44	---
68°	12:17	12:10	12:03	22:14	23:45	---
66°	12:09	12:07	12:04	22:20	23:46	---
64°	12:02	12:04	12:05	22:25	23:47	---
62°	11:57	12:02	12:06	22:29	23:48	---
60°	11:52	12:00	12:07	22:33	23:49	---
N 58°	11:48	11:58	12:08	22:36	23:49	---
56°	11:44	11:56	12:08	22:39	23:50	---
54°	11:40	11:55	12:09	22:42	23:50	---
52°	11:37	11:54	12:10	22:44	23:51	---
50°	11:34	11:52	12:10	22:46	23:51	---
45°	11:28	11:50	12:11	22:51	23:52	---
N 40°	11:23	11:48	12:12	22:55	23:52	---
35°	11:18	11:46	12:13	22:58	23:53	---
30°	11:14	11:44	12:14	23:01	23:54	---
20°	11:07	11:41	12:15	23:06	23:54	---
N 10°	11:01	11:39	12:16	23:11	23:55	---
0°	10:55	11:36	12:17	23:15	23:56	---
S 10°	10:49	11:34	12:18	23:19	23:57	---
20°	10:43	11:31	12:19	23:24	23:57	---
30°	10:36	11:28	12:20	23:29	23:58	---
35°	10:32	11:26	12:21	23:31	23:59	---
40°	10:27	11:25	12:22	23:35	23:59	---
45°	10:21	11:22	12:23	23:38	---	00:00
S 50°	10:15	11:20	12:24	23:43	---	00:00
52°	10:12	11:18	12:25	23:45	---	00:01
54°	10:08	11:17	12:25	23:47	---	00:01
56°	10:05	11:15	12:26	23:49	---	00:01
58°	10:01	11:14	12:27	23:52	---	00:02
S 60°	09:56	11:12	12:28	23:55	---	00:02

Day	Sun		Mer. Pass	Moon		Age 6-8 34-53%
	Eqn. of Time 00 ^h mm:ss	12 ^h mm:ss		Upper Mer. Pass. hh:mm	Lower Mer. Pass. hh:mm	
01	03:05	03:20	12:03	17:05	04:44	
02	03:34	03:48	12:04	17:46	05:26	
03	04:02	04:16	12:04	18:27	06:06	

9

Information in the data page footers

Information pertaining to the IERS EOP data has been added to the odd data page footers if using MiKTeX or TeX Live (2020 or later). The International Earth Rotation Service (IERS) provides accurate data (updated weekly) on the Earth Orientation Parameters (EOP).

Earth's speed of rotation is not constant, i.e. the day length fluctuates.¹ This is due to *internal torques* caused by relative movements and mass redistribution of Earth's core, mantle, oceans, atmosphere, and cryosphere. This has an immediate impact on the GHA values of all celestial objects.

The IERS monitors and measures several parameters taking the actual speed of Earth's rotation into account. Their measured data begins on 2nd January 1973. Predictive data begins following the last day of (obtained) data and extends about 360 days into the future. (The IERS results are published with a delay of about 18-hours between the date of publication and the last available date with measured EOP.²) These Nautical Almanac daily pages take the (measured or predicted) UT1-UTC values into account providing highly accurate navigational data especially if the predictions are fairly recent.

As long as either measured or predicted data is available the footer will show:

IERS Earth Orientation data as of dd-mmm-yyyy

This indicates that IERS EOP data is in use - older dates are measured; newer dates are predictions.

If the final date of IERS prediction data is on the current data page, the footer shows:

IERS Earth Orientation predictions end dd-mmm-yyyy

Pages with dates beyond the final date of IERS prediction data have the following footer:

No IERS EOP prediction data available

Skyfield then defaults to using the ΔT and leap second files that ship with Skyfield internally.

The footers mentioned are only displayed as long as **'uselERS = True'** is set in *config.py* to enable use of IERS EOP data.

Brief historical overview

The story begins with the XEphem astronomical library, which is declared 'end of life' by its author, Elwood Charles Downey, as no further updates are planned. He generously gave permission for use of XEphem code in Ephem (also known as Pyephem), an astronomical library authored by Brandon Rhodes. Enno Rodergerdts (<https://sv-inua.net/>) created the original Nautical Almanac 'daily pages' in Pyalmanac using Python 2 and LaTeX. After contacting him I obtained permission for its future enhancement and maintenance. Pyalmanac uses Ephem.

Meanwhile Brandon Rhodes was working on a far more sophisticated astronomical library, Skyfield. This was 'state of the art' and clearly surpassed the 'Jean Meeus'-based Pyephem/Ephem. Skyfield uses NASA's NAIF (Navigation and Ancillary Information Facility) SPICE algorithms. The results agree with those from the HORIZONS System (*operated by NASA JPL (Jet Propulsion Laboratory) SSD (Solar System Dynamics) group, not by NAIF*). This in turn implies that celestial positions calculated by Skyfield agree with those generated by the United States Naval Observatory and their *Astronomical Almanac* to within 0.0005 arcseconds (half a milliarcsecond).

Pyephem was then in 'maintenance mode'. Clearly Pyalmanac needed adaptation to use Skyfield, and thus SFalmanac was born. However its performance was poor regarding the calculation of 'events' such as: sunrise, sunset, moonrise, moonset, civil twilight start/end and nautical twilight start/end. An interim (faster) solution was required.

A hybrid application, originally named Skyalmanac, was developed using Ephem to calculate 'events' and Skyfield for the rest. This was indeed much faster at the cost of poorer 'event time' data. It took a while to find a better solution: multiprocessing, which was built into SFalmanac. This now could compare to the execution times in Pyalmanac but with improved data.

New functionality was added to SFalmanac, e.g. lunar phase as a graphic; Lunar Distance tables and charts. The original Skyalmanac is deprecated and has now been replaced with the latest SFalmanac code, so Skyalmanac and SFalmanac are now identical apart from the name. Since April 2019 <http://thenauticalalmanac.com> has been publishing Celestial Navigation related material with software provided here.

¹https://en.wikipedia.org/wiki/Day_length_fluctuations

²<https://hpiers.obspm.fr/eoppc/bul/bul/explanatory.html>

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	100°39.7	180°36.3	S23°37.3	176°47.0	S23°43.2	347°32.3	N21°58.7	103°16.9	S03°35.8	347°32.3	N21°58.7	103°16.9	S03°35.8	
1	115°42.2	195°35.4	37.2	191°47.3	43.0	27°35.1	58.8	118°19.2	35.7	27°35.1	58.8	118°19.2	35.7	
2	130°44.7	210°34.4	37.1	206°47.7	42.9	17°37.9	58.9	133°21.5	35.7	17°37.9	58.9	133°21.5	35.7	
3	145°47.1	225°33.4	•• 37.0	221°48.1	•• 42.7	32°40.7	•• 58.9	148°23.9	•• 35.6	32°40.7	•• 58.9	148°23.9	•• 35.6	
4	160°49.6	240°32.5	36.8	236°48.5	42.5	47°43.5	59.0	163°26.2	35.5	47°43.5	59.0	163°26.2	35.5	
5	175°52.1	255°31.5	36.7	251°48.9	42.4	62°46.3	59.0	178°28.5	35.5	62°46.3	59.0	178°28.5	35.5	
6	190°54.5	270°30.5	S23°36.6	266°49.2	S23°42.2	77°49.1	N21°59.1	193°30.9	S03°35.4	77°49.1	N21°59.1	193°30.9	S03°35.4	
7	205°57.0	285°29.6	36.4	281°49.6	42.0	92°52.0	59.1	208°33.2	35.3	92°52.0	59.1	208°33.2	35.3	
8	220°59.4	300°28.6	36.3	296°50.0	41.8	107°54.8	59.2	223°35.5	35.3	107°54.8	59.2	223°35.5	35.3	
9	236°01.9	315°27.6	•• 36.2	311°50.4	•• 41.7	122°57.6	•• 59.3	238°37.9	•• 35.2	122°57.6	•• 59.3	238°37.9	•• 35.2	
10	251°04.4	330°26.7	36.0	326°50.8	41.5	138°00.4	59.3	253°40.2	35.0	138°00.4	59.3	253°40.2	35.0	
11	266°06.8	345°25.7	35.9	341°51.1	41.3	153°03.2	59.4	268°42.5	35.1	153°03.2	59.4	268°42.5	35.1	
12	281°09.3	0°24.7	S23°35.7	356°51.5	S23°41.2	168°06.0	N21°59.4	283°44.9	S03°35.0	168°06.0	N21°59.4	283°44.9	S03°35.0	
13	296°11.8	15°23.8	35.6	11°51.9	41.0	183°08.8	59.5	298°47.2	34.9	183°08.8	59.5	298°47.2	34.9	
14	311°14.2	30°22.8	35.5	26°52.3	40.8	198°11.6	59.5	313°49.5	34.9	198°11.6	59.5	313°49.5	34.9	
15	326°16.7	45°21.8	•• 35.3	41°52.7	•• 40.6	213°14.4	•• 59.6	328°51.9	•• 34.8	41°52.7	•• 40.6	213°14.4	•• 59.6	
16	341°19.2	60°20.9	35.2	56°53.0	40.5	228°17.3	59.7	343°54.2	34.7	56°53.0	40.5	228°17.3	59.7	
17	356°21.6	75°19.9	35.0	71°53.4	40.3	243°20.1	59.7	358°56.5	34.7	71°53.4	40.3	243°20.1	59.7	
18	11°24.1	90°18.9	S23°34.9	86°53.8	S23°40.1	258°22.9	N21°59.8	13°58.9	S03°34.6	86°53.8	S23°40.1	13°58.9	S03°34.6	
19	26°26.6	105°18.0	34.7	101°54.2	39.9	273°25.7	59.8	29°01.2	34.5	101°54.2	39.9	273°25.7	59.8	
20	41°29.0	120°17.0	34.6	116°54.6	39.8	288°28.5	59.9	44°03.5	34.5	116°54.6	39.8	288°28.5	59.9	
21	56°31.5	135°16.0	•• 34.4	131°54.9	•• 39.6	303°31.3	21°59.9	59°05.8	•• 34.4	131°54.9	•• 39.6	303°31.3	21°59.9	
22	71°33.9	150°15.1	34.3	146°55.3	39.4	318°34.1	22°00.0	74°08.2	34.3	146°55.3	39.4	318°34.1	22°00.0	
23	86°36.4	165°14.1	34.1	161°55.7	39.2	333°37.0	00.1	89°10.5	34.3	161°55.7	39.2	333°37.0	00.1	
Mer.pass. 17:15 ν -1.0' d 0.1' m -3.90 ν 0.4' d 0.2' m 1.12 ν 2.8' d 0.1' m -2.67 ν 2.3' d 0.1' m 1.01														

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	101°38.9	180°13.2	S23°34.0	176°56.1	S23°39.1	348°39.8	N22°00.1	104°12.8	S03°34.2	176°56.1	S23°39.1	348°39.8	N22°00.1	104°12.8
1	116°41.3	195°12.2	33.8	191°56.5	38.9	3°42.6	00.2	119°15.2	34.1	191°56.5	38.9	3°42.6	00.2	119°15.2
2	131°43.8	210°11.2	33.7	206°56.8	38.7	18°45.4	00.2	134°17.5	34.1	206°56.8	38.7	18°45.4	00.2	134°17.5
3	146°46.3	225°10.3	•• 33.5	221°57.2	•• 38.5	33°48.2	•• 00.3	149°19.8	•• 34.0	221°57.2	•• 38.5	33°48.2	•• 00.3	149°19.8
4	161°48.7	240°09.3	33.3	236°57.6	38.3	48°51.0	00.3	164°22.2	33.9	236°57.6	38.3	48°51.0	00.3	164°22.2
5	176°51.2	255°08.3	33.2	251°58.0	38.2	63°53.8	00.4	179°24.5	33.9	251°58.0	38.2	63°53.8	00.4	179°24.5
6	191°53.7	270°07.4	S23°33.0	266°58.4	S23°38.0	78°56.6	N22°00.5	194°26.8	S03°33.8	266°58.4	S23°38.0	78°56.6	N22°00.5	194°26.8
7	206°56.1	285°06.4	32.8	281°58.7	37.8	93°59.5	00.5	209°29.1	33.7	281°58.7	37.8	93°59.5	00.5	209°29.1
8	221°58.6	300°05.4	32.7	296°59.1	37.6	109°02.3	00.6	224°31.5	33.7	296°59.1	37.6	109°02.3	00.6	224°31.5
9	237°01.1	315°04.5	•• 32.5	311°59.5	•• 37.4	124°05.1	•• 00.6	239°33.8	•• 33.6	311°59.5	•• 37.4	124°05.1	•• 00.6	239°33.8
10	252°03.5	330°03.5	32.3	326°59.9	37.2	139°07.9	00.7	254°36.1	33.5	326°59.9	37.2	139°07.9	00.7	254°36.1
11	267°06.0	345°02.5	32.2	342°00.3	37.1	154°10.7	00.7	269°38.5	33.5	342°00.3	37.1	154°10.7	00.7	269°38.5
12	282°08.4	0°01.6	S23°32.0	357°00.6	S23°36.9	169°13.5	N22°00.8	284°40.8	S03°33.4	357°00.6	S23°36.9	169°13.5	N22°00.8	284°40.8
13	297°10.9	15°00.6	31.8	12°01.0	36.7	184°16.3	00.9	299°43.1	33.3	12°01.0	36.7	184°16.3	00.9	299°43.1
14	312°13.4	29°59.7	31.7	27°01.4	36.5	199°19.2	00.9	314°45.4	33.3	27°01.4	36.5	199°19.2	00.9	314°45.4
15	327°15.8	44°58.7	•• 31.5	42°01.8	•• 36.3	214°22.0	•• 01.0	329°47.8	•• 33.2	42°01.8	•• 36.3	214°22.0	•• 01.0	329°47.8
16	342°18.3	59°57.7	31.3	57°02.2	36.1	229°24.8	01.0	344°50.1	33.1	57°02.2	36.1	229°24.8	01.0	344°50.1
17	357°20.8	74°56.8	31.1	72°02.5	36.0	244°27.6	01.1	359°52.4	33.0	72°02.5	36.0	244°27.6	01.1	359°52.4
18	12°23.2	89°55.8	S23°31.0	87°02.9	S23°35.8	259°30.4	N22°01.1	14°54.8	S03°33.0	87°02.9	S23°35.8	259°30.4	N22°01.1	14°54.8
19	27°25.7	104°54.8	30.8	102°03.3	35.6	274°33.2	01.2	29°57.1	32.9	102°03.3	35.6	274°33.2	01.2	29°57.1
20	42°28.2	119°53.9	30.6	117°03.7	35.4	289°36.0	01.3	44°59.4	32.8	117°03.7	35.4	289°36.0	01.3	44°59.4
21	57°30.6	134°52.9	•• 30.4	132°04.1	•• 35.2	304°38.9	•• 01.3	60°01.7	•• 32.8	132°04.1	•• 35.2	304°38.9	•• 01.3	60°01.7
22	72°33.1	149°52.0	30.2	147°04.4	35.0	319°41.7	01.4	75°04.1	32.7	147°04.4	35.0	319°41.7	01.4	75°04.1
23	87°35.6	164°51.0	30.1	162°04.8	34.8	334°44.5	01.4	90°06.4	32.6	162°04.8	34.8	334°44.5	01.4	90°06.4
Mer.pass. 17:11 ν -1.0' d 0.2' m -3.90 ν 0.4' d 0.2' m 1.12 ν 2.8' d 0.1' m -2.67 ν 2.3' d 0.1' m 1.01														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	102°38.0	179°50.0	S23°29.9	177°05.2	S23°34.6	349°47.3	N22°01.5	105°08.7	S03°32.6		
1	117°40.5	194°49.1	29.7	192°05.6	34.4	4°50.1	01.5	120°11.0	32.5		
2	132°42.9	209°48.1	29.5	207°06.0	34.3	19°52.9	01.6	135°13.4	32.4		
3	147°45.4	224°47.2	•• 29.3	222°06.3	•• 34.1	34°55.8	•• 01.7	150°15.7	•• 32.4		
4	162°47.9	239°46.2	29.1	237°06.7	33.9	49°58.6	01.7	165°18.0	32.3		
5	177°50.3	254°45.2	28.9	252°07.1	33.7	65°01.4	01.8	180°20.3	32.2		
6	192°52.8	269°44.3	S23°28.7	267°07.5	S23°33.5	80°04.2	N22°01.8	195°22.7	S03°32.2		
7	207°55.3	284°43.3	28.5	282°07.9	33.3	95°07.0	01.9	210°25.0	32.1		
8	222°57.7	299°42.4	28.3	297°08.2	33.1	110°09.8	01.9	225°27.3	32.0		
9	238°00.2	314°41.4	•• 28.1	312°08.6	•• 32.9	125°12.7	•• 02.0	240°29.6	•• 32.0		
10	253°02.7	329°40.4	27.9	327°09.0	32.7	140°15.5	02.1	255°32.0	31.9		
11	268°05.1	344°39.5	27.7	342°09.4	32.5	155°18.3	02.1	270°34.3	31.8		
12	283°07.6	359°38.5	S23°27.5	357°09.8	S23°32.3	170°21.1	N22°02.2	285°36.6	S03°31.7		
13	298°10.1	14°37.6	27.3	12°10.2	32.1	185°23.9	02.2	300°38.9	31.7		
14	313°12.5	29°36.6	27.1	27°10.5	31.9	200°26.7	02.3	315°41.3	31.6		
15	328°15.0	44°35.6	•• 26.9	42°10.9	•• 31.7	215°29.6	•• 02.3	330°43.6	•• 31.5		
16	343°17.4	59°34.7	26.7	57°11.3	31.5	230°32.4	02.4	345°45.9	31.5		
17	358°19.9	74°33.7	26.5	72°11.7	31.4	245°35.2	02.5	0°48.2	31.4		
18	13°22.4	89°32.8	S23°26.3	87°12.1	S23°31.2	260°38.0	N22°02.5	15°50.6	S03°31.3		
19	28°24.8	104°31.8	26.1	102°12.4	31.0	275°40.8	02.6	30°52.2	31.2		
20	43°27.3	119°30.9	25.9	117°12.8	30.8	290°43.6	02.6	45°55.2	31.3		
21	58°29.8	134°29.9	•• 25.7	132°13.2	•• 30.6	305°46.5	•• 02.7	60°57.5	•• 31.1		
22	73°32.2	149°28.9	25.5	147°13.6	30.4	320°49.3	02.7	75°59.9	31.1		
23	88°34.7	164°28.0	25.3	162°14.0	30.2	335°52.1	02.8	91°02.2	31.0		
Mer.pass. 17:07			1° -1.0' d 0.2' m -3.90			1° 0.4' d 0.2' m 1.12			1° 23.2' d 0.1' m -2.67		
									1° 23.2' d 0.1' m 1.01		

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	103°37.2	179°27.0	S23°25.0	177°14.3	S23°30.0	350°54.9	N22°02.9	106°04.5	S03°30.9										
1	118°39.6	194°26.1	24.8	192°14.7	29.8	5°57.7	02.9	121°06.8	30.8										
2	133°42.1	209°25.1	24.6	207°15.1	29.6	21°00.5	03.0	136°09.2	30.8										
3	148°44.6	224°24.2	24.4	222°15.5	29.4	36°03.4	03.0	151°11.5	30.7										
4	163°47.0	239°23.2	24.2	237°15.9	29.2	51°06.2	03.1	166°13.8	30.6										
5	178°49.5	254°22.3	23.9	252°16.3	29.0	66°09.0	03.1	181°16.1	30.6										
6	193°51.9	269°21.3	S23°37.2	267°16.6	S23°38.7	81°11.8	N22°03.2	196°18.4	S03°30.5										
7	208°54.4	284°20.3	23.5	282°17.0	28.5	96°14.6	03.3	211°20.8	30.4										
8	223°56.9	299°19.4	23.3	297°17.4	28.3	111°17.4	03.3	226°23.1	30.4										
9	238°59.3	314°18.4	23.0	312°17.8	28.1	126°20.3	03.4	241°25.4	30.3										
10	254°01.8	329°17.5	22.8	327°18.2	27.9	141°23.1	03.4	256°27.7	30.2										
11	269°04.3	344°16.5	22.6	342°18.5	27.7	156°25.9	03.5	271°30.1	30.1										
12	284°06.7	359°15.6	S23°22.3	357°18.9	S23°27.5	171°28.7	N22°03.5	286°32.4	S03°30.1										
13	299°09.2	14°14.6	22.1	12°19.3	27.3	186°31.5	03.6	301°34.7	30.0										
14	314°11.7	29°13.7	21.9	27°19.7	27.1	201°34.4	03.6	316°37.0	29.9										
15	329°14.1	44°12.7	21.6	42°20.1	26.9	216°37.2	03.7	331°39.3	29.9										
16	344°16.6	59°11.8	21.4	57°20.5	26.7	231°40.0	03.8	346°41.7	29.8										
17	359°19.1	74°10.8	21.2	72°20.8	26.5	246°42.8	03.8	1°44.0	29.7										
18	14°21.5	89°09.8	S23°20.9	87°21.2	S23°26.3	261°45.6	N22°03.9	16°46.3	S03°29.6										
19	29°24.0	104°08.9	20.7	102°21.6	26.1	276°48.4	03.9	31°48.6	29.6										
20	44°26.4	119°07.9	20.5	117°22.0	25.9	291°51.3	04.0	46°50.9	29.5										
21	59°28.9	134°07.0	20.2	132°22.4	25.6	306°54.1	04.0	61°53.3	29.4										
22	74°31.4	149°06.0	20.0	147°22.7	25.4	321°56.9	04.1	76°55.6	29.4										
23	89°33.8	164°05.1	19.7	162°23.1	25.2	336°59.7	04.2	91°57.9	29.3										
Mer.pass. 17:03				ν -1.0° d 0.2' m -3.90				ν 0.4° d 0.2' m 1.11				ν 2.8° d 0.1' m -2.68				ν 2.3° d 0.1' m 1.01			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	104°36.3	179°04.1	S23°19.5	177°23.5	S23°25.0	352°02.5	N22°04.2	107°00.2	S03°29.2				
1	119°38.8	194°03.2	19.2	192°23.9	24.8	7°05.4	04.3	122°02.5	29.2				
2	134°41.2	209°02.2	19.0	207°24.3	24.6	22°08.2	04.3	137°04.9	29.1				
3	149°43.7	224°01.3	18.7	222°24.7	24.4	37°11.0	04.4	152°07.2	29.0				
4	164°46.2	239°00.3	18.5	237°25.0	24.2	52°13.8	04.4	167°09.5	28.9				
5	179°48.6	254°59.4	18.2	252°25.4	24.0	67°16.6	04.5	182°11.8	28.9				
6	194°51.1	269°58.4	S23°18.0	267°25.8	S23°23.7	82°19.5	N22°04.6	197°14.1	S03°28.8				
7	209°53.6	284°57.5	17.7	282°26.2	23.5	97°22.3	04.6	212°16.5	28.7				
8	224°56.0	299°56.5	17.5	297°26.6	23.3	112°25.1	04.7	227°18.8	28.6				
9	239°58.5	314°55.6	17.2	312°26.9	23.1	127°27.9	04.7	242°21.1	28.6				
10	255°00.9	329°54.6	17.0	327°27.3	22.9	142°30.7	04.8	257°23.4	28.5				
11	270°03.4	344°53.7	16.7	342°27.7	22.7	157°33.6	04.8	272°25.7	28.4				
12	285°05.9	359°52.7	S23°16.4	357°28.1	S23°22.4	172°36.4	N22°04.9	287°28.0	S03°28.4				
13	300°08.3	13°51.8	16.2	12°28.5	22.2	187°39.2	05.0	302°30.4	28.3				
14	315°10.8	28°50.8	15.9	27°28.9	22.0	202°42.0	05.0	317°32.7	28.2				
15	330°13.3	43°49.9	15.6	42°29.2	21.8	217°44.8	05.1	332°35.0	28.1				
16	345°15.7	58°48.9	15.4	57°29.6	21.6	232°47.7	05.1	347°37.3	28.1				
17	0°18.2	73°48.0	15.1	72°30.0	21.4	247°50.5	05.2	2°39.6	28.0				
18	15°20.7	88°47.0	S23°14.8	87°30.4	S23°21.1	262°53.3	N22°05.2	17°41.9	S03°27.9				
19	30°23.1	103°46.1	14.6	102°30.8	20.9	277°56.1	05.3	32°44.3	27.9				
20	45°25.6	118°45.1	14.3	117°31.2	20.7	292°58.9	05.4	47°46.6	27.8				
21	60°28.0	133°44.2	14.0	132°31.5	20.5	308°01.8	05.4	62°48.9	27.7				
22	75°30.5	148°43.3	13.8	147°31.9	20.3	323°04.6	05.5	77°51.2	27.6				
23	90°33.0	163°42.3	13.5	162°32.3	20.0	338°07.4	05.5	92°53.5	27.6				
Mer.pass. 16:59		ν -1.0° d 0.2' m -3.90			ν 0.4° d 0.2' m 1.10			ν 2.8° d 0.1' m -2.68			ν 2.3° d 0.1' m 1.01		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	105°35.4	178°41.4	S23°13.2	177°32.7	S23°19.8	353°10.2	N22°05.6	107°55.8	S03°27.5										
1	120°37.9	193°40.4	12.9	192°33.1	19.6	8°13.0	05.6	122°58.2	27.4										
2	135°40.4	208°39.5	12.7	207°33.5	19.4	23°15.9	05.7	138°00.5	27.4										
3	150°42.8	223°38.5	12.4	222°33.8	19.1	38°18.7	05.8	153°02.8	27.3										
4	165°45.3	238°37.6	12.1	237°34.2	18.9	53°21.5	05.8	168°05.1	27.2										
5	180°47.8	253°36.6	11.8	252°34.6	18.7	68°24.3	05.9	183°07.4	27.1										
6	195°50.2	268°35.7	S23°11.5	267°35.0	S23°18.5	83°27.1	N22°05.9	198°09.7	S03°27.1										
7	210°52.7	283°34.7	11.2	282°35.4	18.2	98°30.0	06.0	213°12.1	27.0										
8	225°55.2	298°33.8	11.0	297°35.8	18.0	113°32.8	06.0	228°14.4	26.9										
9	240°57.6	313°32.9	10.7	312°36.1	17.8	128°35.6	06.1	243°16.7	26.8										
10	256°00.1	328°31.9	10.4	327°36.5	17.6	143°38.4	06.1	258°19.0	26.8										
11	271°02.5	343°31.0	10.1	342°36.9	17.3	158°41.2	06.2	273°21.3	26.7										
12	286°05.0	358°30.0	S23°09.8	357°37.3	S23°17.1	173°44.1	N22°06.3	288°23.6	S03°26.6										
13	301°07.5	13°29.1	09.5	12°37.7	16.9	188°46.9	06.3	303°25.9	26.5										
14	316°09.9	28°28.1	09.2	27°38.1	16.7	203°49.7	06.4	318°28.3	26.5										
15	331°12.4	43°27.2	08.9	42°38.4	16.4	218°52.5	06.4	333°30.6	26.4										
16	346°14.9	58°26.3	08.6	57°38.8	16.2	233°55.4	06.5	348°32.9	26.3										
17	1°17.3	73°25.3	08.3	72°39.2	16.0	248°58.2	06.5	3°35.2	26.3										
18	16°19.8	88°24.4	S23°08.0	87°39.6	S23°15.7	264°01.0	N22°06.6	18°37.5	S03°26.2										
19	31°22.3	103°23.4	07.7	102°40.0	15.5	279°03.8	06.7	33°39.8	26.1										
20	46°24.7	118°22.5	07.4	117°40.4	15.3	294°06.6	06.7	48°42.1	26.0										
21	61°27.2	133°21.5	07.1	132°40.7	15.0	309°09.5	06.8	63°44.5	25.9										
22	76°29.7	148°20.6	06.8	147°41.1	14.8	324°12.3	06.8	78°46.8	25.8										
23	91°32.1	163°19.7	06.5	162°41.5	14.6	339°15.1	06.9	93°49.1	25.8										
Mer.pass. 16:55				ν -0.9° d 0.3' m -3.90				ν 0.4° d 0.2' m 1.10				ν 2.8° d 0.1' m -2.68				ν 2.3° d 0.1' m 1.01			

Stars	SHA	Dec
Alpheratz	357°34.0	29°14.2
Ankaa	353°06.4	-42°10.1
Schedar	349°30.1	56°41.1
Diphda	348°46.5	-17°50.7
Achernar	335°19.4	-57°06.5
Hamal	327°50.1	23°35.3
Polaris	313°18.8	89°22.7
Acamar	315°10.9	-40°12.2
Menkar	314°05.1	4°11.5
Mirafak	308°26.7	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.3
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elath	278°00.4	28°37.8
Alnilam	275°36.6	-1°11.1
Betelgeuse	270°50.8	7°24.7
Canopus	263°51.5	-52°44.2
Sirius	258°25.1	-16°45.1
Adhara	255°04.8	-29°00.4
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°55.7
Avior	234°13.8	-59°35.7
Suhail	225°45.3	-43°32.1
Miaplacidus	221°37.3	-69°49.2
Alphard	217°46.7	-8°56.3
Regulus	207°33.3	11°50.3
Dubhe	193°39.7	61°36.3
Denebola	182°24.0	14°25.4
Geniah	175°42.7	-17°41.2
Acrux	172°59.1	-63°14.3
Gacrux	171°50.7	-57°15.3
Alioth	166°12.2	58°48.8
Spica	158°21.5	-11°17.8
Alkaid	152°51.5	49°10.7
Hadar	148°35.0	-60°29.7
Menkent	145°47.3	-36°29.7
Arcturus	139°39.4	-60°56.6
Rigel Kent.	137°20.4	74°02.5
Kochab	136°55.3	-16°09.0
Alphecca	126°03.3	26°37.4
Antares	121°15.1	-26°29.3
Atria	107°09.1	69°04.3
Shaula	102°02.1	-15°45.4

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	106°34.6	178°18.7	S23°06.2	177°41.9	S23°14.3	354°17.9	N22°06.9	108°51.4	S03°25.7					
1	121°37.0	193°17.8	05.9	192°42.3	14.1	9°20.7	07.0	123°53.7	25.7					
2	136°39.5	208°16.8	05.9	207°42.7	13.9	24°23.6	07.1	138°50.2	25.6					
3	151°42.0	223°15.9	•• 05.3	222°43.0	•• 13.6	39°26.4	•• 07.1	153°58.3	•• 25.5					
4	166°44.4	238°15.0	05.0	237°43.4	13.4	54°29.2	07.2	169°00.6	25.4					
5	181°46.9	253°14.0	04.7	252°43.8	13.2	69°32.0	07.2	184°03.0	25.4					
6	196°49.4	268°13.1	S23°04.4	267°44.2	S23°12.9	84°34.9	N22°07.3	199°05.3	S03°25.3					
7	211°51.8	283°12.2	04.0	282°44.6	12.7	99°37.7	07.3	214°07.6	25.2					
8	226°54.3	298°11.2	03.7	297°45.0	12.5	114°40.5	07.4	229°09.9	25.1					
9	241°56.8	313°10.3	•• 03.4	312°45.4	•• 12.2	129°43.3	•• 07.4	244°12.2	•• 25.1					
10	256°59.2	328°09.3	03.1	327°45.7	12.0	144°46.1	07.5	259°14.5	25.0					
11	272°01.7	343°08.4	02.8	342°46.1	11.7	159°49.0	07.6	274°16.8	24.9					
12	287°04.1	358°07.5	S23°02.5	357°46.5	S23°11.5	174°51.8	N22°07.6	289°19.1	S03°24.8					
13	302°06.6	13°06.5	02.1	12°46.9	11.3	189°54.6	07.7	304°21.4	24.8					
14	317°09.1	28°05.6	01.8	27°47.3	11.0	204°57.4	07.7	319°23.8	24.7					
15	332°11.5	43°04.7	•• 01.5	42°47.7	•• 10.8	220°00.3	•• 07.8	334°26.1	•• 24.6					
16	347°14.0	58°03.7	01.2	57°48.0	10.5	235°03.1	07.8	349°28.4	24.5					
17	2°16.5	73°02.8	00.8	72°48.4	10.3	250°05.9	07.9	4°30.7	24.5					
18	17°18.9	88°01.9	S23°00.5	87°48.8	S23°10.1	265°08.7	N22°08.0	19°33.0	S03°24.4					
19	32°21.4	103°00.9	23°00.2	102°49.2	09.8	280°11.5	08.0	34°35.3	24.3					
20	47°23.9	118°00.0	22°59.8	117°49.6	09.8	295°14.4	08.1	49°37.6	24.2					
21	62°26.3	132°59.0	•• 59.5	132°50.0	•• 09.3	310°17.2	•• 08.1	64°39.9	•• 24.2					
22	77°28.8	147°58.1	59.2	147°50.4	09.1	325°20.0	08.2	79°42.2	24.1					
23	92°31.3	162°57.2	58.8	162°50.7	08.8	340°22.8	08.2	94°44.5	24.0					
Mer.pass. 16:51 ν -0.9° d 0.3' m -3.90 ν 0.4° d 0.2' m 1.09 ν 2.8° d 0.1' m -2.68 ν 2.3° d 0.1' m 1.01														

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	107°33.7	177°56.2	S22°58.5	177°51.1	S23°08.6	355°25.7	N22°08.3	109°46.9	S03°23.9
1	122°36.2	192°55.3	58.2	192°51.5	08.4	10°28.5	08.3	124°49.2	23.9
2	137°38.6	207°54.4	57.8	207°51.9	08.1	25°31.3	08.4	139°51.5	23.8
3	152°41.1	222°53.4	•• 57.5	222°52.3	•• 07.9	40°34.1	•• 08.5	154°53.8	•• 23.7
4	167°43.6	237°52.5	57.2	237°52.7	07.6	55°36.9	08.5	169°56.1	23.6
5	182°46.0	252°51.6	56.8	252°53.1	07.4	70°39.8	08.6	184°58.4	23.6
6	197°48.5	267°50.7	S22°56.5	267°53.4	S23°07.1	85°42.6	N22°08.6	200°00.7	S03°23.5
7	212°51.0	282°49.7	56.1	282°53.8	06.9	100°45.4	08.7	215°03.0	23.4
8	227°53.4	297°48.8	55.8	297°54.2	06.6	115°48.2	08.7	230°05.3	23.3
9	242°55.9	312°47.9	•• 55.4	312°54.6	•• 06.4	130°51.1	•• 08.8	245°07.6	•• 23.3
10	257°58.4	327°46.9	55.1	327°55.0	06.1	145°53.9	08.9	260°09.9	23.2
11	273°00.8	342°46.0	54.7	342°55.4	05.9	160°56.7	08.9	275°12.3	23.1
12	288°03.3	357°45.1	S22°54.4	357°55.8	S23°05.6	175°59.5	N22°09.0	290°14.6	S03°23.0
13	303°05.8	12°44.1	54.0	12°56.1	05.4	191°02.4	09.1	305°16.9	23.0
14	318°08.2	27°43.2	53.7	27°56.5	05.1	206°05.2	09.1	320°19.2	22.9
15	333°10.7	42°42.3	•• 53.3	42°56.9	•• 04.9	221°08.0	•• 09.1	335°21.5	•• 22.8
16	348°13.1	57°41.4	53.0	57°57.3	04.6	236°10.8	09.2	350°23.8	22.7
17	3°15.6	72°40.4	52.6	72°57.7	04.4	251°13.6	09.2	5°26.1	22.7
18	18°18.1	87°39.5	S22°52.3	87°58.1	S23°04.1	266°16.5	N22°09.3	20°28.4	S03°22.6
19	33°20.5	102°38.6	51.9	102°58.5	03.9	281°19.3	09.4	35°30.7	22.5
20	48°23.0	117°37.6	51.5	117°58.8	03.6	296°22.1	09.4	50°33.0	22.4
21	63°25.5	132°36.7	•• 51.2	132°59.2	•• 03.4	311°24.9	•• 09.5	65°35.3	•• 22.4
22	78°27.9	147°35.8	50.8	147°59.6	03.1	326°27.8	09.5	80°37.6	22.3
23	93°30.4	162°34.9	50.5	163°00.0	02.9	341°30.6	09.6	95°39.9	22.2
Mer.pass. 16:47 ν -0.9° d 0.3' m -3.90 ν 0.4° d 0.2' m 1.09 ν 2.8° d 0.1' m -2.68 ν 2.3° d 0.1' m 1.02									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	108°32.9	177°33.9	S22°50.1	178°00.4	S23°02.6	356°33.4	N22°09.6	110°42.2	S03°22.1
1	123°35.3	192°33.0	49.7	193°00.8	02.4	11°36.2	09.7	125°44.5	22.0
2	138°37.8	207°32.1	49.4	208°01.2	02.1	26°39.1	09.7	140°46.9	22.0
3	153°40.2	222°31.2	•• 49.0	223°01.6	•• 01.8	41°41.9	•• 09.8	155°49.2	•• 21.9
4	168°42.7	237°30.2	48.6	238°01.9	01.6	56°44.7	09.9	170°51.5	21.8
5	183°45.2	252°29.3	48.3	253°02.3	01.3	71°47.5	09.9	185°53.8	21.7
6	198°47.6	267°28.4	S22°47.9	268°02.7	S23°01.1	86°50.3	N22°10.0	200°56.1	S03°21.7
7	213°50.1	282°27.5	47.5	283°03.1	00.8	101°53.2	10.0	215°58.4	21.6
8	228°52.6	297°26.5	47.1	298°03.5	00.6	116°56.0	10.1	231°00.7	21.5
9	243°55.0	312°25.6	•• 46.8	313°03.9	•• 00.3	131°58.8	•• 10.1	246°03.0	•• 21.4
10	258°57.5	327°24.7	46.4	328°04.3	23°00.8	147°01.6	10.2	261°05.3	21.4
11	274°00.0	342°23.8	46.0	343°04.7	22°59.8	162°04.5	10.3	276°07.6	21.3
12	289°02.4	357°22.8	S22°45.6	358°05.0	S22°59.5	177°07.3	N22°10.3	291°09.9	S03°21.2
13	304°04.9	12°21.9	45.2	13°05.4	59.3	192°10.1	10.4	306°12.2	21.1
14	319°07.4	27°21.0	44.9	28°05.8	59.0	207°12.9	10.4	321°14.5	21.0
15	334°09.8	42°20.1	•• 44.5	43°06.2	•• 58.7	222°15.8	•• 10.5	336°16.8	•• 21.0
16	349°12.3	57°19.2	44.1	58°06.6	58.5	237°18.6	10.5	351°19.1	20.9
17	4°14.7	72°18.2	43.7	73°07.0	58.2	252°21.4	10.6	6°21.4	20.8
18	19°17.2	87°17.3	S22°43.3	88°07.4	S22°57.9	267°24.2	N22°10.6	21°23.7	S03°20.7
19	34°19.7	102°16.4	42.9	103°07.8	57.7	282°27.1	10.7	36°26.0	20.7
20	49°22.1	117°15.5	42.6	118°08.1	57.4	297°29.9	10.8	51°28.3	20.6
21	64°24.6	132°14.6	•• 42.2	133°08.5	•• 57.1	312°32.7	•• 10.8	66°30.6	•• 20.5
22	79°27.1	147°13.6	41.8	148°08.9	56.9	327°35.5	10.9	81°32.9	20.4
23	94°29.5	162°12.7	41.4	163°09.3	56.6	342°38.3	10.9	96°35.2	20.3
Mer.pass. 16:43 ν -0.9° d 0.4' m -3.90 ν 0.4° d 0.3' m 1.09 ν 2.8° d 0.1' m -2.68 ν 2.3° d 0.1' m 1.02									

Stars	SHA	Dec
Alpheratz	357°34.0	29°14.2
Ankaa	353°06.4	-42°10.1
Schedar	349°30.2	56°41.1
Diphda	348°46.5	-17°50.7
Achernar	335°19.5	-57°06.5
Hamal	327°50.1	23°35.3
Polaris	313°20.1	89°22.7
Acamar	315°10.5	-40°12.2
Menkar	314°05.1	4°11.5
Mirafak	308°26.7	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.3
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elath	278°00.4	28°37.8
Alnilam	275°36.6	-1°11.1
Betelgeuse	270°50.8	7°24.7
Canopus	263°51.5	-52°42.6
Sirius	258°25.1	-16°45.1
Adhara	255°04.8	-29°00.5
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.7
Avior	234°13.8	-59°35.5
Suhail	222°45.3	-43°42.2
Miaplacidus	217°37.3	-69°49.3
Alphard	217°46.7	-8°46.3
Regulus	207°33.3	11°50.3
Dubhe	193°39.6	61°36.3
Denebola	182°24.0	14°25.4
Geniah	175°42.7	-17°41.2
Acrux	172°59.1	-63°14.4
Gacrux	171°50.6	-57°15.3
Alioth	166°12.2	55°48.8
Spica	158°21.4	-11°17.8
Alkaid	152°51.4	49°10.7
Henkar	148°35.0	-60°29.7
Merid	147°56.7	-36°29.7
Antares	145°47.3	19°02.6
Arcturus	139°39.4	-60°56.3
Rigel Kent.	137°20.4	74°02.5
Kochab	136°13.2	-16°09.0
Zuben'ubi	126°03.3	26°37.4
Alphecca	112°15.1	-26°29.3
Antares	107°09.1	-69°04.3
Atria	102°02.1	-15°45.4
Sabik	96°09.6	-37°07.3
Rasalhague	95°58.1	12°32.4
Eltanin	90°42.3	51°29.0
Kaus Aus.	83°31.8	-34°22.3
Vega	80°33.1	38°48.4
Nunki	75°47.1	-26°15.9
Altair	61°59.5	8°56.2
Peacock	53°05.0	-56°39.2
Deneb	49°25.7	45°22.5
Enif	33°38.2	9°59.7
Al Na'ir	27°32.2	-46°50.3
Fomalhaut	15°13.8	-29°29.2
Scheat	13°44.6	28°13.6
Markab	13°29.2	15°20.8

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	109°32.0	177°11.8	S22°41.0	178°09.7	S22°56.4	357°41.2	N22°11.0	111°37.5	S03°20.3					
1	124°34.5	192°10.9		40.6	193°10.1	56.1		12°44.0		11.0		126°39.8	20.2	
2	139°36.9	207°10.0		40.2	208°10.5	55.8		27°46.8		11.1		141°42.2	20.1	
3	154°39.4	222°09.1	..	39.8	223°10.9	..	55.6	42°49.6	..	11.2		156°44.5	..	20.0
4	169°41.9	237°08.1		39.4	238°11.2	55.3		57°52.5		11.2		171°46.8	20.0	
5	184°44.3	252°07.2		39.0	253°11.6	55.0		72°55.3		11.3		186°49.1	19.9	
6	199°46.8	267°06.3	S22°38.6	268°12.0	S22°54.7	87°58.1	N22°11.3	201°51.4	S03°19.8					
7	214°49.2	282°05.4		38.2	283°12.4	54.5		103°00.9		11.4		216°53.7	19.7	
8	229°51.7	297°04.5		37.8	298°12.8	54.2		118°03.8		11.4		231°56.0	19.6	
9	244°54.2	312°03.6	..	37.4	313°13.2	..	53.9	133°06.6	..	11.5		246°58.3	..	19.6
10	259°56.6	327°02.6		37.0	328°13.6	53.7		148°09.4		11.5		262°00.6	19.5	
11	274°59.1	342°01.7		36.6	343°14.0	53.4		163°12.2		11.6		277°02.9	19.4	
12	290°01.6	357°00.8	S22°36.2	358°14.4	S22°53.1	178°15.1	N22°11.6	292°05.2	S03°19.3					
13	305°04.0	11°59.9		35.8	13°14.7	52.9		193°17.9		11.7		307°07.5	19.2	
14	320°06.5	26°59.0		35.3	28°15.1	52.6		208°20.7		11.8		322°09.8	19.2	
15	335°09.0	41°58.1	..	34.9	43°15.5	..	52.3	223°23.5	..	11.8		337°12.1	..	19.1
16	350°11.4	56°57.2		34.5	58°15.9	52.0		238°26.3		11.9		352°14.4	19.0	
17	5°13.9	71°56.2		34.1	73°16.3	51.8		253°29.2		11.9		7°16.7	18.9	
18	20°16.3	86°55.3	S22°33.7	88°16.7	S22°51.5	268°32.0	N22°12.0	22°19.0	S03°18.9					
19	35°18.8	101°54.4		33.3	103°17.1	51.2		283°34.8		12.0		37°21.3	18.8	
20	50°21.3	116°53.5		32.9	118°17.5	50.9		298°37.6		12.1		52°23.6	18.7	
21	65°23.7	131°52.6	..	32.4	133°17.9	..	50.7	313°40.5	..	12.1		67°25.9	..	18.6
22	80°26.2	146°51.7		32.0	148°18.3	50.4		328°43.3		12.2		82°28.2	18.5	
23	95°28.7	161°50.8		31.6	163°18.6	50.1		343°46.1		12.2		97°30.5	18.5	
Mer.pass. 16:39 ν -0.9° d 0.4' m -3.90 ν 0.4° d 0.3' m 1.09 ν 2.8° d 0.1' m -2.68 ν 2.3° d 0.1' m 1.02														

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	110°31.1	176°49.9	S22°31.2	178°19.0	S22°49.8	358°48.9	N22°12.3	112°32.8	S03°18.4					
1	125°33.6	191°49.0		30.8	193°19.4	49.6		13°51.8		12.4		127°35.1	18.3	
2	140°36.1	206°48.0		30.3	208°19.8	49.3		28°54.6		12.4		142°37.4	18.2	
3	155°38.5	221°47.1	..	29.9	223°20.2	..	49.0	43°57.4	..	12.5		157°39.7	..	18.1
4	170°41.0	236°46.2		29.5	238°20.6	48.7		59°00.2		12.5		172°42.0	18.1	
5	185°43.5	251°45.3		29.0	253°21.0	48.4		74°03.1		12.6		187°44.3	18.0	
6	200°45.9	266°44.4	S22°28.6	268°21.4	S22°48.2	89°05.9	N22°12.6	202°46.6	S03°17.9					
7	215°48.4	281°43.5		28.2	283°18.8	47.9		104°08.7		12.7		217°48.9	17.8	
8	230°50.8	296°42.6		27.8	298°22.2	47.6		119°11.5		12.7		232°51.2	17.7	
9	245°53.3	311°41.7	..	27.3	313°22.5	..	47.3	134°14.4	..	12.8		247°53.5	..	17.7
10	260°55.8	326°40.8		26.9	328°22.9	47.0		149°17.2		12.9		262°55.8	17.6	
11	275°58.2	341°39.9		26.5	343°23.3	46.8		164°20.0		12.9		277°58.1	17.5	
12	291°00.7	356°39.0	S22°26.0	358°23.7	S22°46.5	179°22.8	N22°13.0	293°00.4	S03°17.4					
13	306°03.2	11°38.1		25.6	13°24.1	46.2		194°25.6		17.3		308°02.7	17.3	
14	321°05.6	26°37.2		25.1	28°24.5	45.9		209°28.5		17.3		323°05.0	..	17.2
15	336°08.1	41°36.3	..	24.7	43°24.9	..	45.6	224°31.3	..	13.1		338°07.2	..	17.3
16	351°10.6	56°35.4		24.3	58°25.3	45.3		239°34.1		13.2		353°09.5	17.1	
17	6°13.0	71°34.5		23.8	73°25.7	45.1		254°36.9		13.2		8°11.8	17.0	
18	21°15.5	86°33.5	S22°23.4	88°26.1	S22°44.8	269°38.9	N22°13.3	23°14.1	S03°16.9					
19	36°18.0	101°32.6		22.9	103°26.4	44.5		284°42.6		13.4		38°16.4	16.9	
20	51°20.4	116°31.7		22.5	118°26.8	44.2		299°45.2		13.4		53°18.7	16.8	
21	66°22.9	131°30.8	..	22.0	133°27.2	..	43.9	314°48.4	..	13.5		68°21.0	..	16.7
22	81°25.3	146°29.9		21.6	148°27.6	43.6		329°51.1		13.5		83°23.3	16.6	
23	96°27.8	161°29.0		21.1	163°28.0	43.3		344°53.9		13.6		98°25.6	16.5	
Mer.pass. 16:35 ν -0.9° d 0.4' m -3.90 ν 0.4° d 0.3' m 1.09 ν 2.8° d 0.1' m -2.68 ν 2.3° d 0.1' m 1.02														

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	111°30.3	176°28.1	S22°20.7	178°28.4	S22°43.1	359°56.7	N22°13.6	113°27.9	S03°16.5					
1	126°32.7	191°27.2		20.2	193°28.8	42.8		14°59.5		13.7		128°30.2	16.4	
2	141°35.2	206°26.3		19.8	208°29.2	42.5		30°02.4		13.7		143°32.5	16.3	
3	156°37.7	221°25.4	..	19.3	223°29.6	..	42.5	45°05.2	..	13.8		158°34.8	..	16.2
4	171°40.1	236°24.5		18.9	238°30.0	41.9		60°08.0		13.8		173°37.1	16.1	
5	186°42.6	251°23.6		18.4	253°30.4	41.6		75°10.8		13.9		188°39.4	16.1	
6	201°45.1	266°22.7	S22°18.0	268°30.8	S22°41.3	90°13.6	N22°14.0	203°41.7	S03°16.0					
7	216°47.5	281°21.8		17.5	283°31.1	41.0		105°16.5		14.0		218°44.0	15.9	
8	231°50.0	296°20.9		17.0	298°31.5	40.7		120°19.3		14.1		233°46.3	15.8	
9	246°52.4	311°20.0	..	16.6	313°31.9	..	40.4	135°22.1	..	14.1		248°48.6	..	15.7
10	261°54.9	326°19.1		16.1	328°32.3	40.2		150°24.9		14.2		263°50.9	15.6	
11	276°57.4	341°18.2		15.6	343°32.7	39.9		165°27.8		14.2		278°53.2	15.6	
12	291°59.8	356°17.3	S22°15.2	358°33.1	S22°39.6	180°36.0	N22°14.3	293°55.3	S03°15.5					
13	307°02.3	11°16.5		14.7	13°33.5	39.3		195°33.4		14.3		308°57.8	15.4	
14	322°04.8	26°15.6		14.2	28°33.9	39.0		210°36.2		14.4		324°00.1	15.3	
15	337°07.2	41°14.7	..	13.8	43°34.3	..	38.7	225°39.1	..	14.4		339°02.3	..	15.2
16	352°09.7	56°13.8		13.3	58°34.7	38.4		240°41.9		14.5		354°04.6	15.2	
17	7°12.2	71°12.9		12.8	73°35.1	38.1		255°44.7		14.6		9°06.9	15.1	
18	22°14.6	86°12.0	S22°12.4	88°35.5	S22°37.8	270°47.5	N22°14.6	24°09.2	S03°15.0					
19	37°17.1	101°11.1		11.9	103°35.9	37.5		285°50.3		14.7		39°11.5	14.9	
20	52°19.6	116°10.2		11.4	118°36.3	37.2		300°53.2		14.7		54°13.8	14.8	
21	67°22.0	131°09.3	..	10.9	133°36.6	..	36.9	315°56.0	..	14.8		69°16.1	..	14.7
22	82°24.5	146°08.4		10.5	148°37.0	36.6		330°58.8		14.8		84°18.4	14.5	
23	97°26.9	161°07.5		10.0	163°37.4	36.3		346°01.6		14.9		99°20.7	14.6	
Mer.pass. 16:31 ν -0.9° d 0.5' m -3.90 ν 0.4° d 0.3' m 1.09 ν 2.8° d 0.1' m -2.68 ν 2.3° d 0.1' m 1.02														

Stars		
	SHA	Dec
Alpheratz	357°34.0	29°14.2
Ankaa	353°06.4	-42°10.1
Schedar	349°30.2	56°41.1
Diphda	348°46.5	-17°50.7
Achernar	335°19.5	-57°06.5
Hamal	327°50.2	23°35.3
Polaris	313°21.4	89°25.7
Acamar	315°10.9	-40°12.2
Menkar	314°05.1	4°11.5
Mirfak	308°26.8	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.3
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elnath	278°00.5	28°37.8
Anilam	275°36.6	-1°11.2
Betelgeuse	270°50.8	7°24.7
Canopus	263°51.5	-52°42.6
Sirius	258°25.1	-16°45.2
Adhara	255°04.8	-29°00.5
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.7
Avior	234°13.8	-59°35.5
Suhail	222°45.3	-43°32.2
Miaplacidus	221°37.3	-69°49.3
Alphard	217°46.6	-8°46.3
Regulus	207°33.3	11°50.3
Dubhe	193°39.6	61°36.3
Denebola	182°24.0	14°25.4
Geniah	175°42.6	-17°41.2
Acrux	172°59.0	-63°14.4
Gacrux	171°50.6	-57°15.3
Alioth	166°12.2	55°48.8
Spica	158°21.4	-11°17.9
Alkaid	152°51.4	49°10.7
Hadar	148°35.0	-60°29.7
Menkent	147°56.7	-36°29.8
Arcturus	145°47.2	19°02.6
Rigel Kent.	139°39.4	-60°56.3
Kochab	137°20.3	74°02.5
Zuben 'ul	136°55.2	-16°09.0
Alphecca	126°03.2	26°37.4
Antares	112°15.1	-26°29.3
Atria	107°09.0	-69°04.3
Sabik	102°02.1	-15°45.4
Shaula	96°09.6	-37°07.3
Rasalhague	95°58.1	12°32.4
Eltanin	90°42.3	51°28.9
Kaus Aust.	83°31.8	-34°22.3
Vega	80°33.1	38°48.4
Nunki	75°47.1	-26°15.9
Altair	61°59.5	8°56.2
Peacock	53°05.0	-56°39.2
Deneb	49°25.5	45°22.4
Enif	33°38.2	9°59.7
Al Na'ir	27°32.2	-46°50.3
Fomalhaut	15°13.8	-29°29.2
Scheat	13°44.6	28°13.6
Markab	13°29.2	15°20.8
Jan 10 Sat	SHA	Mer- pass
Venus	67°39.8	12.12
Mars	68°37.7	12.07
Jupiter	248°09.2	00.09
Saturn	2°05.6	16.31
Jan 11 Sun	SHA	Mer- pass
Venus	66°18.7	12.13
Mars	67°47.9	12.06
Jupiter	248°17.8	00.05
Saturn	2°01.6	16.27
Jan 12 Mon	SHA	Mer- pass
Venus	64°57.9	12.15
Mars	66°58.1	12.06
Jupiter	248°26.4	00.00
Saturn	1°57.7	16.24
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	112°29.4	176°06.6	S22°09.5	178°37.8	S22°36.0	1°04.5	N22°14.9	114°23.0	S03°14.5										
1	127°31.9	191°05.7	09.0	193°38.2	35.7	16°07.3	15.0	129°25.3	14.4										
2	142°34.3	206°04.8	08.0	208°38.6	35.4	31°10.1	15.0	144°27.6	14.3										
3	157°36.8	221°03.9	07.0	223°39.0	35.1	46°12.9	15.1	159°29.9	14.3										
4	172°39.3	236°03.1	06.0	238°39.4	34.8	61°15.8	15.2	174°32.2	14.2										
5	187°41.7	251°02.2	07.1	253°39.8	34.5	76°18.6	15.2	189°34.5	14.1										
6	202°44.2	266°01.3	S22°06.6	268°40.2	S22°34.2	91°21.4	N22°15.3	204°36.7	S03°14.0										
7	217°46.7	281°00.4	06.1	283°40.6	33.9	106°24.2	15.3	219°39.0	13.8										
8	232°49.1	295°59.5	05.6	298°41.0	33.6	121°27.0	15.4	234°41.3	13.9										
9	247°51.6	310°58.6	05.1	313°41.4	33.3	136°29.9	15.4	249°43.6	13.8										
10	262°54.1	325°57.7	04.7	328°41.8	33.0	151°32.7	15.5	264°45.9	13.7										
11	277°56.5	340°56.8	04.2	343°42.2	32.7	166°35.5	15.5	279°48.2	13.6										
12	292°59.0	355°55.9	S22°03.7	358°42.6	S22°32.4	181°38.3	N22°15.6	294°50.5	S03°13.5										
13	308°01.4	10°55.1	03.2	13°42.9	32.1	196°41.2	15.6	309°52.8	13.4										
14	323°03.9	25°54.2	02.7	28°43.3	31.8	211°44.0	15.7	324°55.1	13.3										
15	338°06.4	40°53.3	02.2	43°43.7	31.5	226°46.8	15.7	339°57.4	13.3										
16	353°08.8	55°52.4	01.7	58°44.1	31.2	241°49.6	15.8	354°59.7	13.2										
17	8°11.3	70°51.5	01.2	73°44.5	30.9	256°52.5	15.9	10°02.0	13.1										
18	23°13.8	85°50.6	S22°00.7	88°44.9	S22°30.6	271°55.3	N22°15.9	25°40.2	S03°13.0										
19	38°16.2	100°49.7	22°00.2	103°45.3	30.3	286°58.1	16.0	40°06.5	12.9										
20	53°18.7	115°48.9	21°59.7	118°45.7	30.0	302°00.9	16.0	55°08.8	12.9										
21	68°21.2	130°48.0	21°59.2	133°46.1	29.7	317°03.7	16.1	70°11.1	12.8										
22	83°23.6	145°47.1	58.7	148°46.5	29.3	332°06.6	16.1	85°13.4	12.7										
23	98°26.1	160°46.2	58.2	163°46.9	29.0	347°09.4	16.2	100°15.7	12.6										
Mer.pass. 16:27				ν -0.9° d 0.5' m -3.90				ν 0.4° d 0.3' m 1.09				ν 2.8° d 0.1' m -2.68				ν 2.3° d 0.1' m 1.02			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	113°28.5	175°45.3	S21°57.7	178°47.3	S22°28.7	2°12.2	N22°16.2	115°18.0	S03°12.5
1	128°31.0	190°44.4	57.2	193°47.7	28.4	17°15.0	16.3	130°20.3	12.4
2	143°33.5	205°43.6	56.6	208°48.1	28.1	32°17.9	16.3	145°22.6	12.4
3	158°35.9	220°42.7	56.1	223°48.5	27.8	47°20.7	16.4	160°24.9	12.3
4	173°38.4	235°41.8	55.6	238°48.9	27.5	62°23.5	16.4	175°27.1	12.2
5	188°40.9	250°40.9	55.1	253°49.3	27.2	77°26.3	16.5	190°29.4	12.1
6	203°43.3	265°40.0	S21°54.6	268°49.7	S22°26.9	92°29.1	N22°16.6	205°31.7	S03°12.0
7	218°45.8	280°39.2	54.1	283°50.1	26.6	107°32.0	16.6	220°34.0	11.9
8	233°48.3	295°38.3	53.6	298°50.5	26.2	122°34.8	16.7	235°36.3	11.9
9	248°50.7	310°37.4	53.0	313°50.9	25.9	137°37.6	16.7	250°38.6	11.8
10	263°53.2	325°36.5	52.5	328°51.3	25.6	152°40.4	16.8	265°40.9	11.7
11	278°55.7	340°35.6	52.0	343°51.6	25.3	167°43.2	16.8	280°43.2	11.6
12	293°58.1	355°34.8	S21°51.5	358°52.0	S22°25.0	182°46.1	N22°16.9	295°45.5	S03°11.5
13	309°00.6	10°33.9	51.0	13°52.4	24.7	197°48.9	16.9	310°47.7	11.4
14	324°03.0	25°33.0	50.4	28°52.8	24.4	212°51.7	17.0	325°50.0	11.3
15	339°05.5	40°32.1	49.9	43°53.2	24.0	227°54.5	17.0	340°52.3	11.3
16	354°08.0	55°31.3	49.4	58°53.6	23.7	242°57.4	17.1	355°54.6	11.2
17	9°10.4	70°30.4	48.9	73°54.0	23.4	258°00.2	17.1	10°56.9	11.1
18	24°12.9	85°29.5	S21°48.3	88°54.4	S22°23.1	273°03.0	N22°17.2	25°59.2	S03°11.0
19	39°15.4	100°28.6	47.8	103°54.8	22.8	288°05.8	17.3	41°01.5	10.9
20	54°17.8	115°27.8	47.3	118°55.2	22.5	303°08.6	17.3	56°03.3	10.8
21	69°20.3	130°26.9	46.8	133°55.6	22.1	318°11.5	17.4	71°06.0	10.8
22	84°22.8	145°26.0	46.2	148°56.0	21.8	333°14.3	17.4	86°08.3	10.7
23	99°25.2	160°25.1	45.7	163°56.4	21.5	348°17.1	17.5	101°10.6	10.6

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	114°27.7	175°24.3	S21°45.2	178°56.8	S22°21.2	3°19.9	N22°17.5	116°12.9	S03°10.5										
1	129°30.2	190°23.4	44.6	193°57.2	20.9	18°22.8	17.6	131°15.2	10.4										
2	144°32.6	205°22.5	44.1	208°57.6	20.5	33°25.6	17.6	146°17.5	10.3										
3	159°35.1	220°21.7	43.5	223°58.0	20.2	48°28.4	17.7	161°19.8	10.3										
4	174°37.5	235°20.8	43.0	238°58.4	19.9	63°31.2	17.7	176°22.1	10.2										
5	189°40.0	250°19.9	42.5	253°58.8	19.6	78°34.0	17.8	191°24.3	10.1										
6	204°42.5	265°19.0	S21°41.9	268°59.2	S22°19.3	93°36.9	N22°17.8	206°26.6	S03°10.0										
7	219°44.9	280°18.2	41.4	283°59.6	18.9	108°39.7	17.9	221°28.9	09.9										
8	234°47.4	295°17.3	40.8	299°00.0	18.6	123°42.5	17.9	236°31.2	09.8										
9	249°49.9	310°16.4	40.3	314°00.4	18.3	138°45.3	18.0	251°33.5	09.7										
10	264°52.3	325°15.6	39.7	329°00.8	18.0	153°48.1	18.1	266°35.8	09.7										
11	279°54.8	340°14.7	39.2	344°01.2	17.6	168°51.0	18.1	281°38.1	09.6										
12	294°57.3	355°13.8	S21°38.6	359°01.6	S22°17.3	183°53.8	N22°18.2	296°40.3	S03°09.5										
13	309°59.7	10°13.0	38.1	14°02.0	17.0	198°56.6	18.2	311°42.6	09.4										
14	325°02.2	25°12.1	37.5	29°02.4	16.7	213°59.4	18.3	326°44.9	09.3										
15	340°04.7	40°11.2	37.0	44°02.8	16.3	229°02.2	18.3	341°47.2	09.2										
16	355°07.1	55°10.4	36.4	59°03.2	16.0	244°05.1	18.4	356°49.5	09.1										
17	10°09.6	70°09.5	35.9	74°03.6	15.7	259°07.9	18.4	11°51.8	09.1										
18	25°12.0	85°08.6	S21°35.3	89°04.0	S22°15.4	274°10.7	N22°18.5	26°54.0	S03°09.0										
19	40°14.5	100°07.8	34.8	104°04.4	15.0	289°13.5	18.5	41°56.3	08.9										
20	55°17.0	115°06.9	34.2	119°04.8	14.7	304°16.3	18.6	56°58.6	08.8										
21	70°19.4	130°06.1	33.7	134°05.2	14.4	319°19.2	18.6	72°00.9	08.7										
22	85°21.9	145°05.2	33.1	149°05.6	14.0	334°22.0	18.7	87°03.2	08.6										
23	100°24.4	160°04.3	32.5	164°06.0	13.7	349°24.8	18.7	102°05.5	08.5										
Mer.pass. 16:19				ν -0.9° d 0.5' m -3.90				ν 0.4° d 0.3' m 1.09				ν 2.8° d 0.1' m -2.67				ν 2.3° d 0.1' m 1.02			

Stars		
	SHA	Dec
Alpheratz	357°34.0	29°14.2
Ankaa	353°06.4	-42°10.1
Schedar	349°30.2	56°41.1
Diphda	348°46.5	-17°50.7
Achernar	335°19.5	-57°06.5
Hamal	327°50.2	23°35.2
Polaris	313°22.5	89°22.7
Acamar	315°10.9	-40°12.2
Menkar	314°05.1	4°11.5
Mirfak	308°26.8	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.3
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elath	278°00.5	28°37.8
Alnilam	275°36.6	-1°11.2
Betelgeuse	270°50.8	7°24.7
Canopus	263°51.5	-52°42.6
Sirius	258°25.1	-16°45.2
Adhara	255°04.8	-29°00.5
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.7
Avior	234°13.8	-59°35.5
Suhail	222°45.3	-43°32.2
Miaplacidus	221°37.2	-69°49.3
Alphard	217°46.6	-8°46.3
Regulus	207°33.3	11°50.3
Dubhe	193°39.5	61°36.3
Denebola	182°23.9	14°25.4
Geniah	175°42.6	-17°41.2
Acrux	172°59.0	-63°14.4
Gacrux	171°50.6	-57°15.3
Alioth	166°12.1	55°48.8
Spica	158°21.4	-11°17.9
Alkaid	152°51.4	49°10.6
Hadar	148°34.9	-60°29.7
Menkent	147°56.7	-36°29.8
Arcturus	145°47.2	19°02.6
Rigel Kent.	139°39.3	-60°56.3
Kochab	137°20.2	74°02.5
Zuben 'ubi	136°55.2	-16°09.0
Alphecca	126°03.2	26°37.4
Antares	112°15.1	-26°29.3
Atria	107°09.0	-69°04.3
Satiks	102°02.1	-15°45.4
Shaula	96°09.6	-37°07.3
Rasalhague	95°58.1	12°32.3
Eltanin	90°42.3	51°28.9
Kaus Aust.	83°31.8	-34°32.2
Vega	80°33.1	38°48.3
Nunki	75°47.1	-26°19.5
Altair	61°59.5	8°56.2
Peacock	53°05.0	-56°39.1
Deneb	49°25.7	45°22.4
Enif	33°38.2	9°59.7
Al Na'ir	27°32.2	-46°50.3
Fomalhaut	15°13.8	-56°39.1
Scheat	13°44.6	28°16.8
Markab	13°29.3	15°20.8
Jan 13 Tue	SHA	Mer-pass.
Venus	63°37.2	12:16
Mars	66°08.4	12:05
Jupiter	248°35.1	23:51
Saturn	1°53.6	16:20
Jan 14 Wed	SHA	Mer-pass.
Venus	62°16.8	12:18
Mars	65°18.7	12:05
Jupiter	248°43.7	23:47
Saturn	1°49.4	16:16
Jan 15 Thu	SHA	Mer-pass.
Venus	60°56.6	12:19
Mars	64°29.1	12:04
Jupiter	248°52.2	23:42
Saturn	1°45.2	16:13
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	GHA	Dec	GHA	GHA	GHA	Dec	GHA	GHA	GHA	GHA	Dec	GHA	GHA	GHA	Dec
0	115°26.8	175°03.5	S21°32.0	179°06.4	S22°13.4	4°27.6	N22°18.8	117°07.8	S03°08.5			117°07.8	S03°08.5			117°07.8	S03°08.5		
1	130°29.3	190°02.6	31.0	194°06.8	13.1	19°30.4	18.8	132°10.0	08.4			132°10.0	08.4			132°10.0	08.4		
2	145°31.8	205°01.7	30.9	209°07.2	12.7	34°33.3	18.9	147°12.3	08.3			147°12.3	08.3			147°12.3	08.3		
3	160°34.2	220°00.9	•• 30.3	224°07.6	•• 12.4	49°36.1	•• 19.0	162°14.6	•• 08.2			162°14.6	•• 08.2			162°14.6	•• 08.2		
4	175°36.7	235°00.0	29.7	239°08.0	12.1	64°38.9	19.0	177°16.9	08.1			177°16.9	08.1			177°16.9	08.1		
5	190°39.2	249°59.2	29.2	254°08.4	11.7	79°41.7	19.1	192°19.2	08.0			192°19.2	08.0			192°19.2	08.0		
6	205°41.6	264°58.3	S21°28.6	269°08.8	S22°11.4	94°44.5	N22°09.1	207°21.5	S03°07.9			207°21.5	S03°07.9			207°21.5	S03°07.9		
7	220°44.1	279°57.4	28.0	284°09.2	11.1	109°47.4	19.2	222°23.7	07.9			222°23.7	07.9			222°23.7	07.9		
8	235°46.5	294°56.6	27.5	299°09.6	10.7	124°50.2	19.2	237°26.0	07.8			237°26.0	07.8			237°26.0	07.8		
9	250°49.0	309°55.7	•• 26.9	314°10.0	•• 10.4	139°53.0	•• 19.3	252°28.3	•• 07.7			252°28.3	•• 07.7			252°28.3	•• 07.7		
10	265°51.5	324°54.9	•• 26.3	329°10.4	•• 10.1	154°55.8	19.3	267°30.6	07.6			267°30.6	07.6			267°30.6	07.6		
11	280°53.9	339°54.0	25.7	344°10.8	09.7	169°58.6	19.4	282°32.9	07.5			282°32.9	07.5			282°32.9	07.5		
12	295°56.4	354°53.2	S21°25.2	359°11.2	S22°09.4	185°01.5	N22°19.4	297°35.1	S03°07.4			297°35.1	S03°07.4			297°35.1	S03°07.4		
13	310°58.9	369°52.3	24.6	374°11.6	09.1	200°04.3	19.5	312°37.4	07.3			312°37.4	07.3			312°37.4	07.3		
14	326°01.3	384°51.5	24.0	389°12.0	08.7	215°07.1	19.5	327°39.7	07.3			327°39.7	07.3			327°39.7	07.3		
15	341°03.8	399°50.6	•• 23.4	404°12.4	•• 08.4	230°09.9	•• 19.6	342°42.0	•• 07.2			342°42.0	•• 07.2			342°42.0	•• 07.2		
16	356°06.3	414°49.7	22.8	419°12.8	08.1	245°12.7	19.6	357°44.3	07.1			357°44.3	07.1			357°44.3	07.1		
17	11°08.7	69°48.9	22.3	74°13.2	07.7	260°15.6	19.7	12°46.6	07.0			12°46.6	07.0			12°46.6	07.0		
18	26°12.1	84°48.0	S21°21.7	89°13.6	S22°07.4	275°18.4	N22°19.7	27°48.8	S03°06.9			27°48.8	S03°06.9			27°48.8	S03°06.9		
19	41°13.7	99°47.2	21.1	104°14.0	07.0	290°21.2	19.8	42°51.1	06.8			42°51.1	06.8			42°51.1	06.8		
20	56°16.1	114°46.3	20.5	119°14.4	06.7	305°24.0	19.8	57°53.4	06.7			57°53.4	06.7			57°53.4	06.7		
21	71°18.6	129°45.5	•• 19.9	134°14.8	•• 06.4	320°26.8	•• 19.9	72°55.7	•• 06.6			72°55.7	•• 06.6			72°55.7	•• 06.6		
22	86°21.0	144°44.6	19.3	149°15.2	06.0	335°29.6	20.0	87°58.0	06.6			87°58.0	06.6			87°58.0	06.6		
23	101°23.5	159°43.8	18.8	164°15.6	05.7	350°32.5	20.0	103°00.2	06.5			103°00.2	06.5			103°00.2	06.5		
Mer.pass. 16:16				ν -0.9° d 0.6' m -3.90				ν 0.4° d 0.3' m 1.09				ν 2.8° d 0.1' m -2.67				ν 2.3° d 0.1' m 1.02			

Sat	GHA	GHA	Dec	GHA	GHA	Dec	GHA	GHA	GHA	Dec	GHA	GHA	GHA	GHA	Dec	GHA	GHA	GHA	Dec
0	116°26.0	174°42.9	S21°18.2	179°16.0	S22°05.3	5°35.3	N22°20.1	118°02.5	S03°06.4			118°02.5	S03°06.4			118°02.5	S03°06.4		
1	131°28.4	189°42.1	17.6	194°16.4	05.0	20°38.1	20.1	133°04.8	06.3			133°04.8	06.3			133°04.8	06.3		
2	146°30.9	204°41.2	17.0	209°16.8	04.7	35°40.9	20.2	148°07.1	06.2			148°07.1	06.2			148°07.1	06.2		
3	161°33.4	219°40.4	•• 16.4	224°17.2	•• 04.3	50°43.7	•• 20.2	163°09.4	•• 06.1			163°09.4	•• 06.1			163°09.4	•• 06.1		
4	176°35.8	234°39.5	15.8	239°17.6	04.0	65°46.6	20.2	178°11.6	06.0			178°11.6	06.0			178°11.6	06.0		
5	191°38.3	249°38.7	15.2	254°18.0	03.6	80°49.4	20.3	193°13.9	06.0			193°13.9	06.0			193°13.9	06.0		
6	206°40.8	264°37.8	S21°14.6	269°18.4	S22°03.3	95°52.2	N22°20.4	208°16.2	S03°05.9			208°16.2	S03°05.9			208°16.2	S03°05.9		
7	221°43.2	279°37.0	14.0	284°18.8	02.9	110°55.0	20.4	223°18.5	05.8			223°18.5	05.8			223°18.5	05.8		
8	236°45.7	294°36.1	13.4	299°19.2	02.6	125°57.8	20.5	238°20.8	05.7			238°20.8	05.7			238°20.8	05.7		
9	251°48.1	309°35.3	•• 12.8	314°19.6	•• 02.3	141°00.6	•• 20.5	253°23.0	•• 05.6			253°23.0	•• 05.6			253°23.0	•• 05.6		
10	266°50.6	324°34.4	12.2	329°20.0	01.9	156°03.5	20.6	268°25.3	05.5			268°25.3	05.5			268°25.3	05.5		
11	281°53.1	339°33.6	11.6	344°20.4	01.6	171°06.3	20.6	283°27.6	05.4			283°27.6	05.4			283°27.6	05.4		
12	296°55.5	354°32.7	S21°11.0	359°20.8	S22°01.2	186°09.1	N22°20.7	298°29.9	S03°05.3			298°29.9	S03°05.3			298°29.9	S03°05.3		
13	311°58.0	369°31.9	10.4	374°21.2	00.9	201°11.9	20.7	313°32.2	05.3			313°32.2	05.3			313°32.2	05.3		
14	327°00.5	384°31.1	09.8	389°21.7	00.5	216°14.7	20.8	328°34.4	05.2			328°34.4	05.2			328°34.4	05.2		
15	342°02.9	399°30.2	•• 09.2	404°22.1	•• 00.2	231°17.5	•• 20.8	343°36.7	•• 05.1			343°36.7	•• 05.1			343°36.7	•• 05.1		
16	357°05.4	414°29.4	08.6	419°22.5	07.9	258°23.0	20.9	358°39.0	05.0			358°39.0	05.0			358°39.0	05.0		
17	12°07.9	69°28.5	08.0	74°22.9	05.9	261°23.2	20.9	13°41.3	04.9			13°41.3	04.9			13°41.3	04.9		
18	27°10.3	84°27.7	S21°07.4	89°23.3	S21°59.1	276°26.0	N22°21.0	28°43.5	S03°04.8			28°43.5	S03°04.8			28°43.5	S03°04.8		
19	42°12.8	99°26.8	06.8	104°23.7	05.8	291°28.8	21.0	43°45.8	04.7			43°45.8	04.7			43°45.8	04.7		
20	57°15.3	114°26.0	06.2	119°24.1	05.1	306°31.6	21.1	58°48.1	04.6			58°48.1	04.6			58°48.1	04.6		
21	72°17.7	129°25.2	•• 05.6	134°24.5	•• 05.8	321°34.5	•• 21.1	73°50.4	•• 04.5			73°50.4	•• 04.5			73°50.4	•• 04.5		
22	87°20.2	144°24.3	05.0	149°24.9	05.7	336°37.3	21.2	88°52.7	04.5			88°52.7	04.5			88°52.7	04.5		
23	102°22.6	159°23.5	04.3	164°25.3	04.3	351°40.1	21.3	103°54.9	04.4			103°54.9	04.4			103°54.9	04.4		
Mer.pass. 16:12				ν -0.9° d 0.6' m -3.90				ν 0.4° d 0.3' m 1.09				ν 2.8° d 0.1' m -2.67				ν 2.3° d 0.1' m 1.03			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	117°25.1	174°22.6	S21°03.7	179°25.7	S21°57.0	6°42.9	N22°21.3	118°57.2	S03°04.3
1	132°27.6	189°21.8	03.1	194°26.1	56.7	21°45.7	21.4	133°59.5	04.2
2	147°30.0	204°21.0	02.5	209°26.5	56.3	36°48.5	21.4	149°01.8	04.1
3	162°32.5	219°20.1	•• 01.9	224°26.9	•• 56.0	51°51.3	•• 21.5	164°04.1	•• 04.0
4	177°35.0	234°19.3	01.3	239°27.3	55.6	66°54.2	21.5	179°06.3	03.9
5	192°37.4	249°18.4	00.6	254°27.7	55.3	81°57.0	21.6	194°08.6	03.8
6	207°39.9	264°17.6	S21°00.0	269°28.1	S21°54.9	96°59.8	N22°21.6	209°10.9	S03°03.8
7	222°42.4	279°16.8	20°59.4	284°28.5	54.6	112°02.6	21.7	224°13.2	03.7
8	237°44.8	294°15.9	58.8	299°28.9	54.2	127°05.4	21.7	239°15.4	03.6
9	252°47.3	309°15.1	•• 58.1	314°29.3	•• 53.9	142°08.2	•• 21.8	254°17.7	•• 03.5
10	267°49.8	324°14.3	57.5	329°29.8	53.5	157°11.1	21.8	269°20.0	03.4
11	282°52.2	339°13.4	56.9	344°30.2	53.2	172°13.9	21.9	284°22.3	03.3
12	297°54.7	354°12.6	S20°56.3	359°30.6	S21°52.8	187°16.7	N22°21.9	299°24.5	S03°03.2
13	312°57.1	9°11.8	55.6	14°31.0	52.4	202°19.5	22.0	314°26.8	03.1
14	327°59.6	24°10.9	55.0	29°31.4	52.1	217°22.3	22.0	329°29.1	03.0
15	343°02.1	39°10.1	•• 54.4	44°31.8	•• 51.7	232°25.1	•• 22.1	344°31.4	•• 03.0
16	358°04.5	54°09.3	53.7	59°32.2	51.4	247°28.0	22.1	359°33.7	02.9
17	13°07.0	69°08.4	53.1	74°32.6	51.0	262°30.8	22.2	14°35.9	02.8
18	28°09.5	84°07.6	S20°52.5	89°33.0	S21°50.7	277°33.6	N22°22.2	29°38.2	S03°02.7
19	43°11.9	99°06.8	51.8	104°33.4	50.3	292°36.4	22.3	44°40.5	02.6
20	58°14.4	114°05.9	51.2	119°33.8	49.9	307°39.2	22.3	59°42.8	02.5
21	73°16.9	129°05.1	•• 50.6	134°34.2	•• 49.6	322°42.0	•• 22.4	74°45.0	•• 02.4
22	88°19.3	144°04.3	49.6	149°34.6	49.2	337°44.8	22.4	89°47.3	02.3
23	103°21.8	159°03.5	49.3	164°35.0	48.9	352°47.7	22.5	104°49.6	02.2
Mer.pass.	16°08'	U-0.8' D 0.6'	m -3.90	U 0.4' D 0.4'	m 1.09	U 2.8' D 0.1'	m -2.67	U 2.3' D 0.1'	m 1.03

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	118°24.3	174°02.6	S20°48.6	179°35.4	S21°48.5	7°50.5	N22°22.5	119°51.9	S03°02.2					
1	133°26.7	189°01.8	48.0	194°35.9	48.1	22°53.3	22.6	134°54.1	02.1					
2	148°29.2	204°01.0	47.4	209°36.3	47.8	37°56.1	22.6	149°56.4	02.0					
3	163°31.6	219°00.2	46.7	224°36.7	47.4	52°58.9	22.7	164°58.7	01.9					
4	178°34.1	233°59.3	46.1	239°37.1	47.1	68°01.7	22.7	180°00.9	01.8					
5	193°36.6	248°58.5	45.4	254°37.5	46.7	83°04.5	22.8	195°03.2	01.7					
6	208°39.0	263°57.7	S20°44.8	269°37.9	S21°46.3	98°07.4	N22°22.8	210°05.5	S03°01.6					
7	223°41.5	278°56.8	44.1	284°38.3	46.0	113°10.2	22.9	225°07.8	01.5					
8	238°44.0	293°56.0	43.5	299°38.7	45.6	128°13.0	22.9	240°10.0	01.4					
9	253°46.4	308°55.2	42.8	314°39.1	45.2	143°15.8	23.0	255°12.3	01.3					
10	268°48.9	323°54.4	42.2	329°39.5	44.9	158°18.6	23.0	270°14.6	01.3					
11	283°51.4	338°53.6	41.5	344°39.9	44.5	173°21.4	23.1	285°16.9	01.2					
12	298°53.8	353°52.7	S20°40.9	359°40.3	S21°44.1	188°24.2	N22°23.1	300°19.1	S03°01.1					
13	313°56.3	8°51.9	40.2	14°40.8	43.8	203°27.0	23.2	315°21.4	01.0					
14	328°58.8	23°51.1	39.6	29°41.2	43.4	218°29.9	23.2	330°23.7	00.9					
15	344°01.2	38°50.3	38.9	44°41.6	43.0	233°32.7	23.3	345°26.0	00.8					
16	359°03.7	53°49.5	38.3	59°42.0	42.7	248°35.5	23.3	0°28.2	00.7					
17	14°06.1	68°48.6	37.6	74°42.4	42.3	263°38.3	23.4	15°30.5	00.6					
18	29°08.6	83°47.8	S20°36.9	89°42.8	S21°41.9	278°41.1	N22°23.4	30°32.8	S03°00.5					
19	44°11.1	98°47.0	36.3	104°43.2	41.6	293°43.9	23.5	45°35.0	00.4					
20	59°13.5	113°46.2	35.6	119°43.6	41.2	308°46.7	23.5	60°37.3	00.4					
21	74°16.0	128°45.4	34.9	134°44.0	40.8	323°49.5	23.6	75°39.6	00.3					
22	89°18.5	143°44.5	34.3	149°44.4	40.5	338°52.4	23.6	90°41.9	00.2					
23	104°20.9	158°43.7	33.6	164°44.9	40.1	353°55.2	23.7	105°44.1	00.1					
Mer.pass. 16:04 ν -0.8° d 0.6' m -3.90 ν 0.4° d 0.4' m 1.09 ν 2.8° d 0.1' m -2.67 ν 2.3° d 0.1' m 1.03														

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	119°23.4	173°42.9	S20°33.0	179°45.3	S21°39.7	8°58.0	N22°23.8	120°46.4	S03°00.0
1	134°25.9	188°42.1	32.3	194°45.7	39.3	24°00.8	23.8	135°48.7	02°59.9
2	149°28.3	203°41.3	31.6	209°46.1	39.0	39°03.6	23.9	150°51.0	59.8
3	164°30.8	218°40.5	30.9	224°46.5	38.6	54°06.4	23.9	165°53.2	59.7
4	179°33.2	233°39.6	30.3	239°46.9	38.2	69°09.2	24.0	180°55.5	59.6
5	194°35.7	248°38.8	29.6	254°47.3	37.9	84°12.0	24.0	195°57.8	59.5
6	209°38.2	263°38.0	S20°28.9	269°47.7	S21°37.5	99°14.9	N22°24.1	211°00.0	S02°59.4
7	224°40.6	278°37.2	28.3	284°48.1	37.1	114°17.7	24.1	226°02.3	59.4
8	239°43.1	293°36.4	27.6	299°48.6	36.7	129°20.5	24.2	241°04.6	59.3
9	254°45.6	308°35.6	26.9	314°49.0	36.4	144°23.3	24.2	256°06.9	59.2
10	269°48.0	323°34.8	26.2	329°49.4	36.0	159°26.1	24.3	271°09.1	59.1
11	284°50.5	338°34.0	25.6	344°49.8	35.6	174°28.9	24.3	286°11.4	59.0
12	299°53.0	353°33.2	S20°24.9	359°50.2	S21°35.2	189°31.7	N22°24.4	301°13.7	S02°58.9
13	314°55.4	8°32.3	24.2	14°50.6	34.9	204°34.5	24.4	316°15.9	58.8
14	329°57.9	23°31.5	23.5	29°51.0	34.5	219°37.3	24.5	331°18.2	58.7
15	345°00.4	38°30.7	22.8	44°51.4	34.1	234°40.1	24.5	346°20.5	58.6
16	0°02.8	53°29.9	22.2	59°51.8	33.7	249°43.0	24.6	1°22.7	58.5
17	15°05.3	68°29.1	21.5	74°52.3	33.3	264°45.8	24.6	16°25.0	58.4
18	30°07.7	83°28.3	S20°20.8	89°52.7	S21°33.0	279°48.6	N22°24.7	31°27.3	S02°58.4
19	45°10.2	98°27.5	20.1	104°53.1	32.6	294°51.4	24.7	46°29.6	58.3
20	60°12.7	113°26.7	19.4	119°53.5	32.2	309°54.2	24.8	61°31.8	58.2
21	75°15.1	128°25.9	18.7	134°53.9	31.8	324°57.0	24.8	76°34.1	58.1
22	90°17.6	143°25.1	18.0	149°54.3	31.4	339°59.8	24.9	91°36.4	58.0
23	105°20.1	158°24.3	17.3	164°54.7	31.1	355°02.6	24.9	106°38.6	57.9
Mer.pass. 16:00 ν -0.8° d 0.7' m -3.90 ν 0.4° d 0.4' m 1.09 ν 2.8° d 0.1' m -2.67 ν 2.3° d 0.1' m 1.03									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	120°22.5	173°23.5	S20°16.7	179°55.2	S21°30.7	10°05.4	N22°24.9	121°40.9	S02°57.8
1	135°25.0	188°22.7	16.0	194°55.6	30.3	25°08.2	25.0	136°43.2	57.7
2	150°27.5	203°21.9	15.3	209°56.0	29.9	40°11.1	25.0	151°45.4	57.6
3	165°29.9	218°21.1	14.6	224°56.4	29.5	55°13.9	25.1	166°47.7	57.5
4	180°32.4	233°20.3	13.9	239°56.8	29.2	70°16.7	25.1	181°50.0	57.4
5	195°34.9	248°19.5	13.2	254°57.2	28.8	85°19.5	25.2	196°52.2	57.3
6	210°37.3	263°18.7	S20°12.5	269°57.6	S21°28.4	100°22.3	N22°25.2	211°54.5	S02°57.3
7	225°39.8	278°17.9	11.8	284°58.1	28.0	115°25.1	25.3	226°56.8	57.2
8	240°42.2	293°17.1	11.1	299°58.5	27.6	130°27.9	25.3	241°59.0	57.1
9	255°44.7	308°16.3	10.4	314°58.9	27.2	145°30.7	25.4	257°01.3	57.0
10	270°47.2	323°15.5	09.7	329°59.3	26.9	160°33.5	25.4	272°03.6	56.9
11	285°49.6	338°14.7	09.0	344°59.7	26.5	175°36.3	25.5	287°05.8	56.8
12	300°52.1	353°13.9	S20°08.3	0°00.1	S21°26.1	190°39.1	N22°25.5	302°08.1	S02°56.7
13	315°54.6	8°13.1	07.6	15°00.5	25.7	205°41.9	25.6	317°10.4	56.6
14	330°57.0	23°12.3	06.9	30°01.0	25.3	220°44.8	25.6	332°12.7	56.5
15	345°59.5	38°11.5	06.2	45°01.4	24.9	235°47.6	25.7	347°14.9	56.4
16	1°02.0	53°10.7	05.5	60°01.8	24.5	250°50.4	25.8	2°17.2	56.3
17	16°04.4	68°09.9	04.7	75°02.2	24.1	265°53.2	25.7	17°19.5	56.2
18	31°06.9	83°09.1	S20°04.0	90°02.6	S21°23.8	280°56.0	N22°25.8	32°21.7	S02°56.1
19	46°09.9	98°08.3	03.3	105°03.0	23.4	295°58.8	25.9	47°24.4	56.0
20	61°11.8	113°07.5	02.6	120°03.4	23.0	311°01.6	25.9	62°26.3	56.1
21	76°14.3	128°06.7	01.9	135°03.9	22.6	326°04.4	26.0	77°28.5	55.9
22	91°16.7	143°05.9	01.2	150°04.3	22.2	341°07.2	26.0	92°30.8	55.8
23	106°19.2	158°05.1	00.5	165°04.7	21.8	356°10.0	26.1	107°33.1	55.7
Mer.pass. 15:56 ν -0.8° d 0.7' m -3.90 ν 0.4° d 0.4' m 1.09 ν 2.8° d 0.0' m -2.66 ν 2.3° d 0.1' m 1.03									

Stars		
SHA	Dec	
Alpheratz	357°34.0	29°14.2
Ankaa	353°06.4	-42°10.1
Schedar	349°30.2	56°41.1
Diphda	348°46.5	-17°50.7
Achernar	335°19.6	-51°06.5
Hamal	327°50.2	23°35.2
Polaris	313°25.0	89°22.8
Acamar	315°11.0	-40°12.2
Menkar	314°05.1	4°11.5
Mirafak	308°26.8	49°57.4
Aldebaran	298°34.8	16°33.7
Rigel	281°02.8	-8°10.4
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elath	278°00.5	28°37.8
Alnilam	275°36.6	-1°11.2
Betelgeuse	270°50.8	7°24.7
Canopus	263°51.5	-52°42.7
Sirius	258°25.1	-16°45.2
Adhara	255°04.8	-29°00.5
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.7
Avior	234°13.7	-59°35.5
Suhail	222°45.2	-43°32.2
Miaplacidus	221°37.2	-69°46.3
Alphard	217°46.6	-8°46.3
Regulus	207°33.2	11°50.3
Dubhe	193°39.5	61°36.3
Denebola	182°23.9	14°25.4
Geniah	175°42.6	-17°41.2
Acrux	172°58.9	-63°44.4
Gacrux	171°50.5	-57°15.4
Alioth	166°12.0	55°48.7
Spica	158°21.3	-11°17.9
Alkaid	152°13.3	49°10.6
Hamid	148°34.8	-36°29.7
Menkar	147°56.6	-36°29.8
Arcturus	145°47.1	19°02.6
Rigel Kent.	139°39.2	-60°56.6
Kochab	137°20.1	74°02.5
Zuben'ubi	136°55.1	-16°09.0
Alphecca	126°03.2	26°37.4
Antares	112°15.0	-26°29.3
Atria	107°08.9	-69°04.2
Sabik	102°02.0	-15°45.4
Shaula	96°09.5	-37°07.3
Rasalhague	95°58.0	12°32.3
Eltanin	90°42.3	51°28.9
Kaus Aus.	83°31.7	-34°22.3
Vega	80°33.0	38°48.3
Nunki	75°47.0	-26°15.9
Altair	61°59.4	8°56.2
Peacock	53°05.0	-56°39.1
Deneb	49°25.7	45°22.4
Enif	33°38.2	9°59.7
Al Na'ir	27°32.2	-46°50.2
Fomalhaut	15°13.8	-29°29.2
Scheat	13°44.6	28°13.5
Markab	13°29.3	15°20.8
Jan 19 Mon		
Venus	55°38.4	12°25
Mars	61°11.2	1

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	121°21.7	173°04.3	S19°59.8	180°05.1	S21°21.4	11°12.8	N22°26.1	122°35.3	S02°55.6					
1	136°24.1	188°03.5	59.0	195°05.5	21.0	26°15.6	26.2	137°37.6	55.5					
2	151°26.6	203°02.7	58.3	210°05.9	20.6	41°18.4	26.2	152°39.8	55.4					
3	166°29.1	218°02.0	57.6	225°06.4	20.2	56°21.2	26.3	167°42.1	55.3					
4	181°31.5	233°01.2	56.9	240°06.8	19.8	71°24.0	26.4	182°44.4	55.2					
5	196°34.0	248°00.4	56.2	255°07.2	19.5	86°26.8	26.3	197°46.6	55.1					
6	211°36.5	262°59.6	S19°55.4	270°07.6	S21°19.1	101°29.7	N22°26.4	212°48.9	S02°55.0					
7	226°38.9	277°58.8	54.7	285°08.0	18.7	116°32.5	26.5	227°51.2	54.9					
8	241°41.4	292°58.0	54.0	300°08.5	18.3	131°35.3	26.5	242°53.2	54.8					
9	256°43.8	307°57.2	53.3	315°08.9	17.9	146°38.1	26.6	257°55.7	54.8					
10	271°46.3	322°56.4	52.5	330°09.3	17.5	161°40.9	26.6	272°58.0	54.7					
11	286°48.8	337°55.7	51.8	345°09.7	17.1	176°43.7	26.7	288°00.2	54.6					
12	301°51.2	352°54.9	S19°51.1	0°10.1	S21°16.7	191°46.5	N22°26.7	303°02.5	S02°54.5					
13	316°53.7	7°54.1	50.4	15°10.5	16.3	206°49.3	26.8	318°04.8	54.4					
14	331°56.2	22°53.3	49.6	30°11.0	15.9	221°52.1	26.8	333°07.0	54.3					
15	346°58.6	37°52.5	48.9	45°11.4	15.5	236°54.9	26.9	348°09.3	54.2					
16	2°01.1	52°51.7	48.2	60°11.8	15.1	251°57.7	26.9	3°11.6	54.1					
17	17°03.6	67°51.0	47.4	75°12.2	14.7	267°00.5	27.0	18°13.8	54.0					
18	32°06.0	82°50.2	S19°46.7	90°12.6	S21°14.3	282°03.3	N22°27.0	33°16.1	S02°53.9					
19	47°08.5	97°49.4	46.0	105°13.1	13.9	297°06.1	27.1	48°18.4	53.8					
20	62°11.0	112°48.6	45.2	120°13.5	13.5	312°08.9	27.1	63°20.6	53.7					
21	77°13.4	127°47.8	44.5	135°13.9	13.1	327°11.7	27.2	78°22.9	53.6					
22	92°15.9	142°47.0	43.8	150°14.3	12.7	342°14.5	27.2	93°25.1	53.5					
23	107°18.3	157°46.3	43.0	165°14.7	12.3	357°17.3	27.2	108°27.4	53.4					
Mer.pass. 15:52 ν -0.8' d 0.7' m -3.90 ν 0.4' d 0.4' m 1.10 ν 2.8' d 0.0' m -2.66 ν 2.3' d 0.1' m 1.03														

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	122°20.8	172°45.5	S19°42.3	180°15.1	S21°11.9	12°20.1	N22°27.3	123°29.7	S02°53.4					
1	137°23.3	187°44.7	41.5	195°15.6	11.5	27°22.9	27.3	138°31.9	53.3					
2	152°25.7	202°43.9	40.8	210°16.0	11.1	42°25.7	27.4	153°34.2	53.2					
3	167°28.2	217°43.2	40.1	225°16.4	10.7	57°28.5	27.4	168°36.5	53.1					
4	182°30.7	232°42.4	39.3	240°16.8	10.3	72°31.3	27.5	183°37.7	53.0					
5	197°33.1	247°41.6	38.6	255°17.3	09.9	87°34.1	27.5	198°41.0	52.9					
6	212°35.6	262°40.8	S19°37.8	270°17.7	S21°09.5	102°36.9	N22°27.6	213°43.2	S02°52.8					
7	227°38.1	277°40.0	37.1	285°18.1	09.1	117°39.7	27.6	228°45.5	52.7					
8	242°40.5	292°39.3	36.3	300°18.5	08.7	132°42.5	27.7	243°47.8	52.6					
9	257°43.0	307°38.5	35.6	315°18.9	08.3	147°45.3	27.7	258°50.0	52.5					
10	272°45.4	322°37.7	34.8	330°19.4	07.9	162°48.1	27.8	273°52.3	52.4					
11	287°47.9	337°37.0	34.1	345°19.8	07.5	177°51.0	27.8	288°54.6	52.3					
12	302°50.4	352°36.2	S19°33.3	0°20.2	S21°07.1	192°53.8	N22°27.9	303°56.8	S02°52.2					
13	317°52.8	7°35.4	32.6	15°20.6	06.7	207°56.6	27.9	318°59.1	52.1					
14	332°55.3	22°34.6	31.8	30°21.0	06.2	222°59.4	28.0	334°01.3	52.0					
15	347°57.8	37°33.9	31.1	45°21.5	05.8	238°02.2	28.0	349°03.6	51.9					
16	3°00.2	52°33.1	30.3	60°21.9	05.4	253°05.0	28.1	4°05.9	51.8					
17	18°02.7	67°32.3	29.5	75°22.3	05.0	268°07.8	28.1	19°08.1	51.7					
18	33°05.2	82°31.6	S19°28.8	90°22.7	S21°04.6	283°10.6	N22°28.2	34°10.4	S02°51.7					
19	48°07.6	97°30.8	28.0	105°23.2	04.2	298°13.4	28.2	49°12.7	51.6					
20	63°10.1	112°30.0	27.3	120°23.6	03.8	313°16.2	28.3	64°14.9	51.5					
21	78°12.6	127°29.3	26.5	135°24.0	03.4	328°19.0	28.3	79°17.2	51.4					
22	93°15.0	142°28.5	25.8	150°24.4	03.0	343°21.8	28.3	94°19.4	51.3					
23	108°17.5	157°27.7	25.0	165°24.8	02.6	358°24.6	28.4	109°21.7	51.2					
Mer.pass. 15:48 ν -0.8' d 0.7' m -3.90 ν 0.4' d 0.4' m 1.10 ν 2.8' d 0.0' m -2.66 ν 2.3' d 0.1' m 1.03														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	123°19.9	172°27.0	S19°24.2	180°25.3	S21°02.2	13°27.4	N22°28.4	124°24.0	S02°51.1					
1	138°22.4	187°26.2	23.5	195°25.7	01.7	28°30.2	28.5	139°26.2	51.0					
2	153°24.9	202°25.4	22.7	210°26.1	01.3	43°33.0	28.5	154°28.5	50.9					
3	168°27.3	217°24.7	21.9	225°26.5	00.9	58°35.8	28.6	169°30.7	50.8					
4	183°29.8	232°23.9	21.2	240°27.0	00.5	73°38.6	28.6	184°33.0	50.7					
5	198°32.3	247°23.1	20.4	255°27.4	21°00.1	88°41.4	28.7	199°35.3	50.6					
6	213°34.7	262°22.4	S19°19.6	270°27.8	S20°59.7	103°44.1	N22°28.7	214°37.5	S02°50.5					
7	228°37.2	277°21.6	18.9	285°28.2	59.3	118°46.9	28.8	229°39.8	50.4					
8	243°39.7	292°20.8	18.1	300°28.7	58.9	133°49.7	28.8	244°42.0	50.3					
9	258°42.1	307°20.1	17.3	315°29.1	58.4	148°52.5	28.9	259°44.3	50.2					
10	273°44.6	322°19.3	16.5	330°29.5	58.0	163°55.3	28.9	274°46.6	50.1					
11	288°47.1	337°18.6	15.8	345°29.9	57.6	178°58.1	29.0	289°48.8	50.0					
12	303°49.5	352°17.8	S19°15.0	0°30.4	S20°57.2	194°00.9	N22°29.0	304°51.1	S02°49.9					
13	318°52.0	7°17.0	14.2	15°30.8	56.8	209°03.7	29.1	319°53.3	49.8					
14	333°54.4	22°16.3	13.4	30°31.2	56.4	224°06.5	29.1	334°55.6	49.8					
15	348°56.9	37°15.5	12.7	45°31.6	55.9	239°09.3	29.1	349°57.9	49.7					
16	3°59.4	52°14.8	11.9	60°32.1	55.5	254°12.1	29.2	5°00.1	49.6					
17	19°01.8	67°14.0	11.1	75°32.5	55.1	269°14.9	29.2	20°02.4	49.5					
18	34°04.3	82°13.3	S19°10.3	90°32.9	S20°54.7	284°17.7	N22°29.3	35°04.6	S02°49.4					
19	49°06.8	97°12.5	09.5	105°33.3	54.3	299°20.5	29.3	50°06.9	49.3					
20	64°09.2	112°11.7	08.8	120°33.8	53.9	314°23.3	29.4	65°09.1	49.2					
21	79°11.7	127°11.0	07.0	135°34.2	53.1	329°26.1	29.4	80°11.4	49.1					
22	94°14.2	142°10.2	08.2	150°34.6	53.0	344°28.9	29.5	95°13.7	49.0					
23	109°16.6	157°09.5	06.4	165°35.0	52.6	359°31.7	29.5	110°15.9	48.9					
Mer.pass. 15:44 ν -0.8' d 0.8' m -3.90 ν 0.4' d 0.4' m 1.10 ν 2.8' d 0.0' m -2.65 ν 2.3' d 0.1' m 1.03														

	Stars	
	SHA	Dec
Alpheratz	357°34.1	29°14.2
Ankaa	353°06.5	-42°10.1
Schedar	349°30.3	56°41.1
Diphda	348°46.5	-17°50.7
Achernar	335°19.6	-57°06.5
Hamal	327°50.2	-23°35.2
Polaris	313°26.6	89°22.8
Acamar	315°11.0	-40°12.2
Menkar	314°05.1	4°11.5
Mirfak	308°26.8	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.4
Capella	280°20.2	46°01.5
Bellatrix	278°21.7	6°22.4
Elnath	278°00.5	28°37.8
Anilam	275°36.6	-1°11.2
Betelgeuse	270°50.8	7°24.7
Canopus	263°51.5	-52°42.7
Sirius	258°25.1	-16°45.5
Adhara	255°04.8	-29°00.5
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.7
Avior	234°13.7	-59°35.6
Suhail	222°45.2	-43°32.3
Miaplacidus	221°37.2	-69°49.4
Alphard	217°46.6	-8°46.4

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	124°19.1	172°08.7	S19°05.6	180°35.5	S20°52.2	14°34.5	N22°29.6	125°18.2	S02°48.8										
1	139°21.5	187°08.0	04.8	195°35.9	51.8	29°37.3	29.6	140°22.4	48.7										
2	154°24.0	202°07.2	04.0	210°36.3	51.3	44°40.1	29.7	155°20.7	48.6										
3	169°26.5	217°06.5	· · 03.2	225°36.7	· · 50.9	59°42.9	· · 29.7	170°25.0	· · 48.5										
4	184°28.9	232°05.7	02.5	240°37.2	50.5	74°45.7	29.7	185°27.2	48.4										
5	199°31.4	247°05.0	01.7	255°37.6	50.1	89°48.5	29.8	200°29.5	48.3										
6	214°33.9	262°04.2	S19°00.9	270°38.0	S20°49.6	104°51.3	N22°29.8	215°31.7	S02°48.2										
7	229°36.3	277°03.5	19°00.1	285°38.4	49.2	119°54.1	29.9	230°34.0	48.1										
8	244°38.8	292°02.7	18°59.3	300°38.9	48.8	134°56.9	29.9	245°36.2	48.0										
9	259°41.3	307°02.0	· · 58.5	315°39.3	· · 48.4	149°59.7	· · 30.0	260°38.5	· · 47.9										
10	274°43.7	322°01.2	57.7	330°39.7	47.9	165°02.4	30.0	275°40.8	47.8										
11	289°46.2	337°00.5	56.9	345°40.2	47.5	180°05.2	30.1	290°43.0	47.7										
12	304°48.7	351°59.7	S18°56.1	0°40.6	S20°47.1	195°08.0	N22°30.1	305°45.3	S02°47.6										
13	319°51.1	· 6°59.0	55.3	15°41.0	46.7	210°10.8	30.2	320°47.5	47.5										
14	334°53.6	21°58.2	54.5	30°41.4	46.2	225°13.6	30.2	335°49.8	47.4										
15	349°56.0	36°57.5	· · 53.7	45°41.9	· · 45.8	240°16.4	· · 30.3	350°52.0	· · 47.3										
16	4°58.5	51°56.7	52.9	60°42.3	45.4	255°19.2	30.3	5°54.3	47.2										
17	20°01.0	66°56.0	52.1	75°42.7	45.0	270°22.0	30.3	20°56.5	47.2										
18	35°03.4	81°55.3	S18°51.3	90°43.2	S20°44.5	285°24.8	N22°30.4	35°58.8	S02°47.1										
19	50°05.9	96°54.5	50.5	105°43.6	44.1	300°27.6	30.4	51°01.1	47.0										
20	65°08.4	111°53.8	49.7	120°44.0	43.7	315°30.4	30.5	66°03.3	46.9										
21	80°10.8	126°53.0	· · 48.9	135°44.4	· · 43.3	330°33.2	· · 30.5	81°05.6	· · 46.8										
22	95°13.3	141°52.3	48.1	150°44.9	42.8	345°36.0	30.6	96°07.8	46.7										
23	110°15.8	156°51.5	47.3	165°45.3	42.4	0°38.8	30.6	111°10.1	46.6										
Mer.pass. 15:40				ν -0.8° d 0.8' m -3.90				ν 0.4° d 0.4' m 1.10				ν 2.8° d 0.0' m -2.65				ν 2.3° d 0.1' m 1.03			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	125°18.2	171°50.8	S18°46.4	180°45.7	S20°42.0	15°41.5	N22°30.7	126°12.3	S02°46.5										
1	140°20.7	186°50.1	45.6	195°46.2	41.5	30°44.3	30.7	141°14.6	46.4										
2	155°23.1	201°49.3	44.8	210°46.6	41.1	45°47.1	30.8	156°16.8	46.3										
3	170°25.6	216°48.6	· · 44.0	225°47.0	· · 40.7	60°49.9	· · 30.8	171°19.1	· · 46.2										
4	185°28.1	231°47.9	43.2	240°47.5	40.2	75°52.7	30.8	186°21.4	46.1										
5	200°30.5	246°47.1	42.4	255°47.9	39.8	90°55.5	30.9	201°23.6	46.0										
6	215°33.0	261°46.4	S18°41.6	270°48.3	S20°39.4	105°58.3	N22°30.9	216°25.9	S02°45.9										
7	230°35.5	276°45.6	40.8	285°48.8	38.9	121°01.1	31.0	231°28.1	45.8										
8	245°37.9	291°44.9	39.9	300°49.2	38.5	136°03.9	31.0	246°30.4	45.7										
9	260°40.4	306°44.2	· · 39.1	315°49.6	· · 38.1	151°06.7	· · 31.1	261°32.6	· · 45.6										
10	275°42.9	321°43.4	38.3	330°50.0	37.6	166°09.5	31.1	276°34.9	45.5										
11	290°45.3	336°42.7	37.5	345°50.5	37.2	181°12.2	31.2	291°37.1	45.4										
12	305°47.8	351°42.0	S18°36.7	0°50.9	S20°36.8	196°15.0	N22°31.2	306°39.4	S02°45.3										
13	320°50.3	· 6°41.2	35.8	15°51.3	36.3	211°17.8	31.3	321°41.6	45.2										
14	335°52.7	21°40.5	35.0	30°51.8	35.9	226°20.6	31.3	336°43.9	45.1										
15	350°55.2	36°39.8	· · 34.2	45°52.2	· · 35.5	241°23.4	· · 31.3	351°46.2	· · 45.0										
16	5°57.6	51°39.0	33.4	60°52.6	35.0	256°26.2	31.4	6°48.4	44.9										
17	21°00.1	66°38.3	32.5	75°53.1	34.6	271°29.0	31.4	21°50.7	44.8										
18	36°02.6	81°37.6	S18°31.7	90°53.5	S20°34.2	286°31.8	N22°31.5	36°52.9	S02°44.7										
19	51°05.0	96°36.8	30.9	105°53.9	33.7	301°34.6	31.5	51°55.2	44.6										
20	66°07.5	111°36.1	30.1	120°54.4	33.3	316°37.3	31.6	66°57.4	44.5										
21	81°10.0	126°35.4	· · 29.2	135°54.8	· · 32.8	331°40.1	· · 31.6	81°59.7	· · 44.4										
22	96°12.4	141°34.7	28.4	150°55.2	32.4	346°42.9	31.7	97°01.9	44.3										
23	111°14.9	156°33.9	27.6	165°55.7	32.0	1°45.7	31.7	112°04.2	44.2										
Mer.pass. 15:36				ν -0.7° d 0.8' m -3.90				ν 0.4° d 0.4' m 1.10				ν 2.8° d 0.0' m -2.65				ν 2.3° d 0.1' m 1.03			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	126°17.4	171°33.2	S18°26.7	180°56.1	S20°31.5	16°48.5	N22°31.8	127°06.4	S02°44.1										
1	141°19.8	186°32.5	25.9	195°56.5	31.1	31°51.3	31.8	142°08.7	44.0										
2	156°22.3	201°31.8	25.1	210°57.0	30.6	46°54.1	31.8	157°10.9	43.9										
3	171°24.8	216°31.0	· · 24.2	225°57.4	· · 30.2	61°56.9	· · 31.9	172°13.2	· · 43.8										
4	186°27.2	231°30.3	23.4	240°57.8	29.8	76°59.6	31.9	187°15.4	43.7										
5	201°29.7	246°29.6	22.6	255°58.3	29.3	92°02.4	32.0	202°17.7	43.6										
6	216°32.1	261°28.9	S18°21.7	270°58.7	S20°28.9	107°05.2	N22°32.0	217°19.9	S02°43.5										
7	231°34.6	276°28.1	20.9	285°59.1	28.4	122°08.0	32.1	232°22.2	43.4										
8	246°37.1	291°27.4	20.1	300°59.6	28.0	137°10.8	32.1	247°24.4	43.3										
9	261°39.5	306°26.7	· · 19.2	316°00.0	· · 27.5	152°13.6	· · 32.2	262°26.7	· · 43.2										
10	276°42.0	321°26.0	18.4	331°00.4	27.1	167°16.4	32.2	277°29.0	43.1										
11	291°44.5	336°25.2	17.5	346°00.9	26.7	182°19.1	32.2	292°31.2	43.1										
12	306°46.9	351°24.5	S18°16.7	1°01.3	S20°26.2	197°21.9	N22°32.3	307°33.5	S02°43.0										
13	321°49.4	· 6°23.8	15.8	16°01.8	25.8	212°24.7	32.3	322°35.7	42.9										
14	336°51.9	21°23.1	15.0	31°02.2	25.3	227°27.5	32.4	337°38.0	42.8										
15	351°54.3	36°22.4	· · 14.2	46°02.6	· · 24.9	242°30.3	· · 32.4	352°40.2	· · 42.7										
16	6°56.8	51°21.7	13.3	61°03.1	24.4	257°33.1	32.5	7°42.5	42.6										
17	21°59.3	66°20.9	12.5	76°03.5	24.0	272°35.9	32.5	22°44.7	42.5										
18	37°01.7	81°20.2	S18°11.6	91°03.9	S20°23.5	287°38.6	N22°32.5	37°47.0	S02°42.4										
19	52°04.2	96°19.5	10.8	106°04.4	23.1	302°41.4	32.6	52°49.2	42.3										
20	67°06.6	111°18.8	09.9	121°04.8	22.6	317°44.2	32.6	67°51.5	42.2										
21	82°09.1	126°18.1	· · 09.1	136°05.2	· · 22.2	332°47.0	· · 32.7	82°53.7	· · 42.1										
22	97°11.6	141°17.4	08.2	151°05.7	21.8	347°49.8	32.7	97°56.0	42.0										
23	112°14.0	156°16.6	07.4	166°06.1	21.3	2°52.6	32.8	112°58.2	41.9										
Mer.pass. 15:32				ν -0.7° d 0.8' m -3.90				ν 0.4° d 0.4' m 1.10				ν 2.8° d 0.0' m -2.64				ν 2.3° d 0.1' m 1.03			

Stars			
SHA	Dec		
Alpheratz	357°34.1	29°14.2	
Ankaa	353°06.5	-42°10.1	
Schedar	349°30.3	56°41.1	
Diphda	348°46.5	-17°50.7	
Achernar	335°19.6	-57°06.5	
Hamal	327°50.2	23°35.2	
Polaris	313°28.0	89°22.8	
Acamar	315°11.0	-40°12.2	
Menkar	310°05.2	4°11.5	
Mirafak	308°26.8	49°57.4	
Aldebaran	290°38.4	16°33.7	
Rigel	281°02.8	-8°10.4	
Capella	280°20.2	46°01.6	
Bellatrix	278°21.7	6°22.4	
Elath	278°00.5	28°37.8	
Alnilam	275°36.6	-1°11.2	
Betelgeuse	270°50.9	7°24.7	
Canopus	263°51.5	-52°42.7	
Sirius	258°25.1	-16°45.2	
Adhara	255°04.8	-29°00.5	
Procyon	244°49.6	5°09.4	
Pollux	243°15.9	27°57.7	
Avior	234°13.7	-59°35.6	
Suhail	222°45.2	-43°32.3	
Miaplacidus	221°37.2	-69°49.4	
Alphard	217°46.6	-8°46.4	
Regulus	207°33.2	11°50.2	
Dubhe	193°39.4	61°36.3	
Denebola	182°23.8	14°25.4	
Geniah	175°42.5	-17°41.2	
Acrux	172°58.8	-63°14.4	
Gacrux	171°50.4	-57°15.4	
Alioth	166°12.0	58°48.7	
Spica	158°21.3	-11°17.9	
Alkaid	152°23.2	49°10.6	
Hadar	148°34.7	-60°29.7	
Menkent	147°56.6	-36°29.8	
Arcturus	145°47.1	19°52.6	

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	127°16.5	171°15.9	S18°06.5	181°06.6	S20°20.9	17°55.3	N22°32.8	128°00.5	S02°41.8			17°55.3	N22°32.8	128°00.5	S02°41.8				
1	142°19.0	186°15.2	05.7	196°07.0	20.4	32°58.1	32.9	143°02.7	41.7			32°58.1	32.9	143°02.7	41.7				
2	157°21.4	201°14.5	04.8	211°07.4	20.0	48°00.9	32.9	158°05.0	41.6			48°00.9	32.9	158°05.0	41.6				
3	172°23.9	216°13.8	03.9	226°07.9	19.5	63°03.7	32.9	173°07.2	41.5			63°03.7	32.9	173°07.2	41.5				
4	187°26.4	231°13.1	03.1	241°08.3	19.1	78°06.5	33.0	188°09.5	41.4			78°06.5	33.0	188°09.5	41.4				
5	202°28.8	246°12.4	02.2	256°08.7	18.6	93°09.2	33.0	203°11.7	41.3			93°09.2	33.0	203°11.7	41.3				
6	217°31.3	261°11.7	S18°01.4	271°09.2	S20°18.2	108°12.0	N22°33.3	218°14.0	S02°41.2			108°12.0	N22°33.3	218°14.0	S02°41.2				
7	232°33.8	276°10.9	18°00.5	286°09.6	17.7	123°14.8	33.1	233°16.2	41.1			123°14.8	33.1	233°16.2	41.1				
8	247°36.2	291°10.2	17°59.6	301°10.1	17.2	138°17.6	33.2	248°18.5	41.0			138°17.6	33.2	248°18.5	41.0				
9	262°38.7	306°09.5	17°58.8	316°10.5	16.8	153°20.4	33.2	263°20.7	40.9			153°20.4	33.2	263°20.7	40.9				
10	277°41.1	321°08.8	57.9	331°10.9	16.3	168°23.2	33.2	278°23.0	40.8			168°23.2	33.2	278°23.0	40.8				
11	292°43.6	336°08.1	57.1	346°11.4	15.9	183°25.9	33.3	293°25.2	40.7			183°25.9	33.3	293°25.2	40.7				
12	307°46.1	351°07.4	S17°56.2	1°11.8	S20°15.4	198°28.7	N22°33.3	308°27.5	S02°40.6			198°28.7	N22°33.3	308°27.5	S02°40.6				
13	322°48.5	6°06.7	55.3	16°12.3	15.0	213°31.5	33.4	323°29.7	40.5			213°31.5	33.4	323°29.7	40.5				
14	337°51.0	21°06.0	54.5	31°12.7	14.5	228°34.3	33.4	338°32.0	40.4			228°34.3	33.4	338°32.0	40.4				
15	352°53.5	36°05.3	53.6	46°13.1	14.1	243°37.1	33.5	353°34.2	40.3			243°37.1	33.5	353°34.2	40.3				
16	7°55.9	51°04.6	52.7	61°13.6	13.6	258°39.8	33.5	8°36.5	40.2			258°39.8	33.5	8°36.5	40.2				
17	22°58.4	66°03.9	51.9	76°14.0	13.2	273°42.6	33.6	23°38.7	40.1			273°42.6	33.6	23°38.7	40.1				
18	38°00.9	81°03.2	S17°51.0	91°14.4	S20°17.2	288°45.4	N22°33.6	38°40.9	S02°40.0			288°45.4	N22°33.6	38°40.9	S02°40.0				
19	53°03.3	96°02.5	50.1	106°14.9	12.2	303°48.2	33.6	53°43.2	39.9			303°48.2	33.6	53°43.2	39.9				
20	68°05.8	111°01.8	49.3	121°15.3	11.8	318°51.0	33.7	68°45.4	39.8			318°51.0	33.7	68°45.4	39.8				
21	83°08.2	126°01.1	48.4	136°15.8	11.3	333°53.7	33.7	83°47.7	39.7			333°53.7	33.7	83°47.7	39.7				
22	98°10.7	141°00.4	47.5	151°16.2	10.9	348°56.5	33.8	98°49.9	39.6			348°56.5	33.8	98°49.9	39.6				
23	113°13.2	155°59.7	46.6	166°16.7	10.4	3°59.3	33.8	113°52.2	39.5			3°59.3	33.8	113°52.2	39.5				
Mer.pass. 15:28				ν -0.7° d 0.9' m -3.90				ν 0.4° d 0.4' m 1.10				ν 2.8° d 0.0' m -2.64				ν 2.3° d 0.1' m 1.03			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	128°15.6	170°59.0	S17°45.8	181°17.1	S20°10.0	19°02.1	N22°33.9	128°54.4	S02°39.4										
1	143°18.1	185°58.3		196°17.5	09.5	34°04.8	33.9	143°56.7	39.3										
2	158°20.6	200°57.6		211°18.0	09.0	49°07.6	33.9	158°58.9	39.2										
3	173°23.0	215°56.9	44.40	226°18.4	08.6	64°10.4	34.0	174°01.2	39.1										
4	188°25.5	230°56.2	42.3	241°18.9	08.1	79°13.2	34.0	189°03.4	39.0										
5	203°28.0	245°55.5	41.4	256°19.3	07.7	94°16.0	34.1	204°05.7	38.9										
6	218°30.4	260°54.8	S17°40.5	271°19.7	S20°07.2	109°18.7	N22°34.1	219°07.9	S02°38.8										
7	233°32.9	275°54.1	39.6	286°20.2	06.7	124°21.5	34.2	234°10.2	38.7										
8	248°35.4	290°53.4	38.7	301°20.6	06.3	139°24.3	34.2	249°12.4	38.6										
9	263°37.8	305°52.7	37.9	316°21.1	05.8	154°27.1	34.2	264°14.7	38.5										
10	278°40.3	320°52.0	37.0	331°21.5	05.4	169°29.8	34.3	279°16.9	38.4										
11	293°42.7	335°51.3	36.1	346°22.0	04.9	184°32.6	34.3	294°19.2	38.3										
12	308°45.2	350°50.6	S17°35.2	1°22.4	S20°04.4	199°35.4	N22°34.4	309°21.4	S02°38.2										
13	323°47.7	5°49.9	34.3	16°22.8	04.0	214°38.2	34.4	324°23.6	38.1										
14	338°50.1	20°49.2	33.4	31°23.3	03.5	229°40.9	34.5	339°25.9	38.0										
15	353°52.6	35°48.5	32.5	46°23.7	03.0	244°43.7	34.5	354°28.1	37.9										
16	8°55.1	50°47.8	31.7	61°24.2	02.6	259°46.5	34.5	9°30.4	37.8										
17	23°57.5	65°47.1	30.8	76°24.6	02.1	274°49.3	34.6	24°32.6	37.7										
18	39°00.0	80°46.4	S17°29.9	91°25.1	S20°01.6	289°52.0	N22°34.6	39°34.9	S02°37.6										
19	54°02.5	95°45.8	29.0	106°25.5	01.2	304°54.8	34.7	54°37.1	37.5										
20	69°04.9	110°45.1	28.1	121°25.9	00.7	319°57.6	34.7	69°39.4	37.4										
21	84°07.4	125°44.4	27.2	136°26.4	20°00.2	335°00.4	34.7	84°41.6	37.3										
22	99°09.9	140°43.7	26.3	151°26.8	19°59.8	350°03.1	34.8	99°43.9	37.2										
23	114°12.3	155°43.0	25.4	166°27.3	59.3	5°05.9	34.8	114°46.1	37.1										
Mer.pass. 15:24				ν -0.7° d 0.9' m -3.90				ν 0.4° d 0.5' m 1.10				ν 2.8° d 0.0' m -2.64				ν 2.2° d 0.1' m 1.03			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	129°14.8	170°42.3	S17°24.5	181°27.7	S19°58.8	20°08.7	N22°34.9	129°48.4	S02°37.0
1	144°17.2	185°41.6	23.6	196°28.2	58.4	35°11.5	34.9	144°50.6	36.9
2	159°19.7	200°40.9	22.7	211°28.6	57.9	50°14.2	35.0	159°52.8	36.8
3	174°22.2	215°40.3	21.8	226°29.1	57.4	65°17.0	35.0	174°55.1	36.7
4	189°24.6	230°39.6	20.9	241°29.5	57.0	80°19.8	35.0	189°57.3	36.6
5	204°27.1	245°38.9	20.0	256°29.9	56.5	95°22.6	35.1	204°59.6	36.5
6	219°29.6	260°38.2	S17°19.1	271°30.4	S19°56.0	110°25.3	N22°35.1	220°01.8	S02°36.4
7	234°32.0	275°37.5	18.2	286°30.8	55.6	125°28.1	35.2	235°04.1	36.3
8	249°34.5	290°36.8	17.3	301°31.3	55.1	140°30.9	35.2	250°06.3	36.2
9	264°37.0	305°36.2	16.4	316°31.7	54.6	155°33.6	35.2	265°08.6	36.0
10	279°39.4	320°35.5	15.5	331°32.2	54.2	170°36.4	35.3	280°10.8	35.9
11	294°41.9	335°34.8	14.6	346°32.6	53.7	185°39.2	35.3	295°13.0	35.8
12	309°44.4	350°34.1	S17°13.7	1°33.1	S19°53.2	200°42.0	N22°35.4	310°15.3	S02°35.7
13	324°46.8	5°33.4	12.8	16°33.5	52.7	215°44.7	35.4	325°17.5	35.6
14	339°49.3	20°32.7	11.9	31°34.0	52.3	230°47.5	35.5	340°19.8	35.5
15	354°51.7	35°32.1	11.0	46°34.4	51.8	245°50.3	35.5	355°22.0	35.4
16	9°54.2	50°31.4	10.1	61°34.9	51.3	260°53.0	35.5	10°24.3	35.3
17	24°56.7	65°30.7	09.2	76°35.3	50.8	275°55.8	35.6	25°26.5	35.2
18	39°59.1	80°30.0	S17°08.3	91°35.8	S19°50.4	290°58.6	N22°35.6	40°28.7	S02°35.1
19	55°01.6	95°29.4	07.3	106°36.2	49.9	306°01.3	35.7	55°31.0	35.0
20	70°04.1	110°28.7	06.4	121°36.6	49.4	321°04.1	35.7	70°33.2	34.9
21	85°06.5	125°28.0	05.5	136°37.1	48.9	336°06.9	35.7	85°35.5	34.8
22	100°09.0	140°27.3	04.6	151°37.5	48.5	351°09.7	35.8	100°37.7	34.7
23	115°11.5	155°26.7	03.7	166°38.0	48.0	6°12.4	35.8	115°40.0	34.6
Mer.pass. 15:20 ν -0.7° d 0.9' m -3.90 ν 0.4° d 0.5' m 1.11 ν 2.8° d 0.0' m -2.63 ν 2.2° d 0.1' m 1.03									

Stars			
	SHA	Dec	
Alpheratz	357°34.1	29°14.2	
Ankaa	353°06.5	-42°10.1	
Schedar	349°30.3	56°41.1	
Diphda	348°46.5	-17°50.5	
Achernar	335°19.6	-57°06.5	
Hamal	327°50.2	23°35.2	
Polaris	313°29.2	89°22.8	
Acamar	315°11.0	-40°12.2	
Menkar	314°05.2	4°11.5	
Mirfak	308°26.8	49°57.4	
Aldebaran	290°38.4	16°33.7	
Rigel	281°02.8	-8°10.4	
Capella	280°20.2	46°01.6	
Bellatrix	278°21.7	6°22.4	
Elath	278°00.5	28°37.8	
Alnilam	275°36.6	-1°11.2	
Betelgeuse	270°50.9	7°24.7	
Canopus	263°51.5	-52°42.7	
Sirius	258°25.1	-16°45.2	
Adhara	255°04.8	-29°00.6	
Procyon	244°49.6	5°09.4	
Pollux	243°15.8	27°57.7	
Avior	234°13.7	-59°35.6	
Suhail	222°45.2	-43°32.3	
Miaplacidus	221°37.2	-69°49.4	
Alphard	217°46.6	-8°46.4	
Regulus	207°33.2	11°50.2	
Dubhe	193°39.4	61°36.3	
Denebola	182°23.8	14°25.4	
Gienah	175°42.5	-17°41.2	
Acrux	172°58.8	-63°14.4	
Gacrux	171°50.4	-57°15.4	
Alathoth	166°11.9	55°48.7	
Spica	158°21.3	-11°17.9	
Alkaid	152°51.2	49°10.6	
Hadar	148°34.7	-60°29.7	
Menkent	147°56.5	-36°29.8	
Arcturus	145°47.1	19°02.6	
Rigil Kent.	139°39.1	-60°56.4	
Kochab	137°19.9	74°02.5	
Zuben 'ul	136°55.1	-16°09.0	
Alphecca	126°03.1	26°37.3	
Antares	112°14.9	-26°29.4	
Atria	107°08.7	-69°04.2	
Sabik	102°02.0	-15°45.5	
Shaula	96°09.5	-37°07.3	
Rasalhague	95°58.0	12°32.3	
Eltanin	90°42.2	51°28.9	
Kaus Aust.	83°31.7	-34°22.3	
Vega	80°33.0	38°48.3	
Nunki	75°47.0	-26°15.9	
Altair	61°59.4	8°56.1	
Peacock	53°04.9	-56°39.1	
Deneb	49°25.7	45°22.4	
Enif	33°38.2	9°59.6	
Al Na'ir	27°32.2	-46°50.2	
Fomalhaut	15°13.8	-29°29.2	
Scheat	13°44.6	28°13.5	
Markab	13°29.3	15°07.7	
Jan 28 Wed	SHA	Mer-pass	
Venus	43°59.4	12:36	
Mars	53°50.1	11:55	
Jupiter	250°38.8	22:44	
Saturn	0°44.0	15:26	
Jan 29 Thu	SHA	Mer-pass	
Venus	42°43.3	12:37	
Mars	53°01.5	11:55	
Jupiter	250°46.4	22:40	
Saturn	0°38.8	15:22	
Jan 30 Fri	SHA	Mer-pass	
Venus	41°27.5	12:38	
Mars	52°12.9	11:54	
Jupiter	250°53.9	22:35	
Saturn	0°33.6	15:18	
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	130°13.9	170°26.0	S17°02.8	181°38.4	S19°47.5	21°15.2	N22°35.9	130°42.2	S02°34.5			21°15.2	N22°35.9	130°42.2	S02°34.5				
1	145°16.4	185°25.3	01.9	196°38.9	47.0	36°18.0	35.9	145°44.4	34.4			36°18.0	35.9	145°44.4	34.4				
2	160°18.9	200°24.6	00.9	211°39.3	46.6	51°20.7	36.0	160°18.9	34.3			51°20.7	36.0	160°18.9	34.3				
3	175°21.3	215°24.0	17°00.0	226°39.8	46.1	66°23.5	36.0	175°48.9	34.2			66°23.5	36.0	175°48.9	34.2				
4	190°23.8	230°23.3	16°59.1	241°40.2	45.6	81°26.3	36.0	190°51.2	34.1			81°26.3	36.0	190°51.2	34.1				
5	205°26.2	245°22.6	58.2	256°40.7	45.1	96°29.0	36.1	205°53.4	34.0			96°29.0	36.1	205°53.4	34.0				
6	220°28.7	260°21.9	S16°57.3	271°41.1	S19°44.6	111°31.8	N22°36.4	220°55.7	S02°33.9			111°31.8	N22°36.4	220°55.7	S02°33.9				
7	235°31.2	275°21.3	56.4	286°41.6	44.2	126°34.6	36.2	235°57.9	33.8			126°34.6	36.2	235°57.9	33.8				
8	250°33.6	290°20.6	55.4	301°42.0	43.7	141°37.3	36.3	251°00.2	33.1			141°37.3	36.3	251°00.2	33.1				
9	265°36.1	305°19.9	55.4	316°42.5	43.2	156°40.1	36.2	266°02.4	33.6			156°40.1	36.2	266°02.4	33.6				
10	280°38.6	320°19.3	53.6	331°42.9	42.7	171°42.9	36.3	281°04.6	33.1			171°42.9	36.3	281°04.6	33.1				
11	295°41.0	335°18.6	52.7	346°43.4	42.2	186°45.6	36.3	296°06.9	33.4			186°45.6	36.3	296°06.9	33.4				
12	310°43.5	350°17.9	S16°51.7	1°43.8	S19°41.8	201°48.4	N22°36.4	311°09.1	S02°33.3			201°48.4	N22°36.4	311°09.1	S02°33.3				
13	325°46.0	5°17.3	50.8	16°44.3	41.3	216°51.2	36.4	326°11.4	33.2			216°51.2	36.4	326°11.4	33.2				
14	340°48.4	20°16.6	49.9	31°44.7	40.8	231°53.9	36.4	341°13.6	33.1			231°53.9	36.4	341°13.6	33.1				
15	355°50.9	35°15.9	49.0	46°45.2	40.3	246°56.7	36.5	356°15.8	33.0			246°56.7	36.5	356°15.8	33.0				
16	10°53.4	50°15.3	48.0	61°45.6	39.8	261°59.5	36.5	11°18.1	32.9			261°59.5	36.5	11°18.1	32.9				
17	25°55.8	65°14.6	47.1	76°46.1	39.4	277°02.2	36.6	26°20.3	32.8			277°02.2	36.6	26°20.3	32.8				
18	40°58.3	80°13.9	S16°46.7	91°46.5	S19°39.9	292°05.0	N22°36.6	41°22.6	S02°32.7			292°05.0	N22°36.6	41°22.6	S02°32.7				
19	56°00.7	95°13.3	45.2	106°47.0	38.4	307°07.7	36.6	56°24.8	32.6			307°07.7	36.6	56°24.8	32.6				
20	71°03.2	110°12.6	44.3	121°47.4	37.9	322°10.5	36.7	71°27.0	32.5			322°10.5	36.7	71°27.0	32.5				
21	86°05.7	125°11.9	43.4	136°47.9	37.4	337°13.3	36.7	86°29.3	32.4			337°13.3	36.7	86°29.3	32.4				
22	101°08.1	140°11.3	42.4	151°48.4	36.9	352°16.0	36.8	101°31.5	32.3			352°16.0	36.8	101°31.5	32.3				
23	116°10.6	155°10.6	41.5	166°48.8	36.4	7°18.8	36.8	116°33.8	32.2			7°18.8	36.8	116°33.8	32.2				
Mer.pass. 15:17				ν -0.7° d 0.9' m -3.90				ν 0.4° d 0.5' m 1.11				ν 2.8° d 0.0' m -2.63				ν 2.2° d 0.1' m 1.03			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	131°13.1	170°10.0	S16°40.6	181°49.3	S19°36.0	22°21.6	N22°36.8	131°36.0	S02°32.1
1	146°15.5	185°09.3	39.6	196°49.7	35.5	37°24.3	36.9	146°38.2	32.0
2	161°18.0	200°08.6	38.7	211°50.2	35.0	52°27.1	36.9	161°40.5	31.9
3	176°20.5	215°08.0	37.8	226°50.6	34.5	67°29.9	37.0	176°42.7	31.8
4	191°22.9	230°07.3	36.8	241°51.1	34.0	82°32.6	37.0	191°45.0	31.7
5	206°25.4	245°06.7	35.9	256°51.5	33.5	97°35.4	37.0	206°47.2	31.6
6	221°27.9	260°06.0	S16°34.9	271°52.0	S19°33.0	112°38.1	N22°37.1	221°49.4	S02°31.4
7	236°30.3	275°05.4	34.0	286°52.4	32.6	127°40.9	37.1	236°51.7	31.3
8	251°32.8	290°04.7	33.1	301°52.9	32.1	142°43.7	37.2	251°53.9	31.2
9	266°35.2	305°04.0	32.1	316°53.3	31.6	157°46.4	37.2	266°56.2	31.1
10	281°37.7	320°03.4	31.2	331°53.8	31.1	172°49.2	37.2	281°58.4	31.0
11	296°40.2	335°02.7	30.2	346°54.2	30.6	187°51.9	37.3	297°00.6	30.9
12	311°42.6	350°02.1	S16°29.3	1°54.7	S19°30.1	202°54.7	N22°37.3	312°02.9	S02°30.8
13	326°45.1	5°01.4	28.3	16°55.2	29.6	217°57.5	37.4	327°05.1	30.7
14	341°47.6	20°00.8	27.4	31°55.6	29.1	233°00.2	37.4	342°07.4	30.6
15	356°50.0	35°00.1	26.4	46°56.1	28.6	248°03.0	37.4	357°09.6	30.5
16	11°52.5	49°59.5	25.5	61°56.5	28.1	263°05.7	37.5	12°11.8	30.4
17	26°55.0	64°58.8	24.6	76°57.0	27.7	278°08.5	37.5	27°14.1	30.3
18	41°57.4	79°58.2	S16°23.6	91°57.4	S19°27.2	293°11.3	N22°37.6	42°16.3	S02°30.2
19	56°59.9	94°57.5	22.7	106°57.9	26.7	308°14.0	37.6	57°18.6	30.1
20	72°02.3	109°56.9	21.7	121°58.3	26.2	323°16.8	37.6	72°20.8	30.0
21	87°04.8	124°56.2	20.8	136°58.8	25.7	338°19.5	37.7	87°23.0	29.9
22	102°07.3	139°55.6	19.8	151°59.2	25.2	353°22.3	37.7	102°25.3	29.8
23	117°09.7	154°54.9	18.8	166°59.7	24.7	8°25.0	37.8	117°27.5	29.7
Mer.pass. 15:13 ν -0.7° d 0.9' m -3.91 ν 0.5° d 0.5' m 1.11 ν 2.8° d 0.0' m -2.62 ν 2.2° d 0.1' m 1.03									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	132°12.2	169°54.3	S16°17.9	182°00.2	S19°24.2	23°27.8	N22°37.8	132°29.7	S02°29.6										
1	147°14.7	184°53.6	16.9	197°00.6	23.7	38°30.6	37.8	147°32.0	29.5										
2	162°17.1	199°53.0	16.0	212°01.1	23.2	53°33.3	37.9	162°34.2	29.4										
3	177°19.6	214°52.3	15.0	227°01.5	22.7	68°36.1	37.9	177°36.5	29.3										
4	192°22.1	229°51.7	14.1	242°02.0	22.2	83°38.8	38.0	192°38.7	29.2										
5	207°24.5	244°51.0	13.1	257°02.4	21.7	98°41.6	38.0	207°40.9	29.1										
6	222°27.0	259°50.4	S16°12.1	272°02.9	S19°21.2	113°44.3	N22°38.0	222°43.2	S02°29.0										
7	237°29.5	274°49.7	11.2	287°03.4	20.7	128°47.1	38.1	237°45.4	28.9										
8	252°31.9	289°49.1	10.2	302°03.8	20.2	143°49.9	38.1	252°47.6	28.8										
9	267°34.4	304°48.5	9.2	317°04.3	19.7	158°52.6	38.2	267°49.9	28.7										
10	282°36.8	319°47.8	08.3	332°04.7	19.2	173°55.4	38.2	282°52.1	28.5										
11	297°39.3	334°47.2	07.3	347°05.2	18.7	188°58.1	38.2	297°54.4	28.4										
12	312°41.8	349°46.5	S16°06.4	2°05.6	S19°18.2	204°00.9	N22°38.3	312°56.6	S02°28.3										
13	327°44.2	4°45.9	05.4	17°06.1	17.7	219°03.6	38.3	327°58.8	28.2										
14	342°46.7	19°45.2	04.5	32°06.6	17.2	234°06.4	38.3	343°01.1	28.1										
15	357°49.2	34°44.6	03.5	47°07.0	16.7	249°09.1	38.4	358°03.3	28.0										
16	12°51.6	49°44.0	02.5	62°07.5	16.2	264°11.9	38.4	13°05.5	27.9										
17	27°54.1	64°43.3	01.6	77°07.9	15.7	279°14.6	38.5	28°07.8	27.8										
18	42°56.6	79°42.7	S16°00.6	92°08.4	S19°15.2	294°17.4	N22°38.5	43°10.0	S02°27.7										
19	57°59.0	94°42.1	15°59.6	107°08.9	14.7	309°20.2	38.5	58°12.3	27.6										
20	73°01.5	109°41.4	14.2	122°09.3	14.2	324°22.9	38.6	73°14.5	27.5										
21	88°04.0	124°40.8	13.3	137°09.8	13.7	339°25.7	38.6	88°16.7	27.4										
22	103°06.4	139°40.1	12.3	152°10.2	13.2	354°28.4	38.7	103°19.0	27.3										
23	118°08.9	154°39.5	11.3	167°10.7	12.7	9°31.2	38.7	118°21.2	27.2										
Mer.pass. 15:09				ν -0.6° d 1.0' m -3.91				ν 0.5° d 0.5' m 1.11				ν 2.8° d 0.0' m -2.62				ν 2.2° d 0.1' m 1.03			

Stars			h			Sun			Moon		
SHA	Dec		Sat	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.1	29°14.2	0	176°40.0	S17°26.3	22°55.1	3.5'	N26°43.0	6.3'	59.7'	
Ankaa	353°06.5	-42°10.1	1	191°39.9	25.6	37°17.6	3.6'	26°36.7	6.5'	59.7'	
Schedar	349°30.3	56°41.1	2	206°39.8	24.9	51°40.2	3.7'	26°30.2	6.7'	59.7'	
Diphda	348°46.6	-17°50.7	3	221°39.7	24.3	66°02.9	3.8'	26°23.5	6.9'	59.7'	
Achernar	335°19.7	-57°06.5	4	236°39.6	23.6	80°25.6	3.9'	26°16.6	7.0'	59.7'	
Hamal	327°50.2	23°35.2	5	251°39.5	22.9	94°48.5	3.9'	26°09.6	7.2'	59.7'	
Polaris	313°30.4	89°22.8	6	266°39.4	S17°22.2	109°11.4	4.0'	N26°02.4	7.5'	59.7'	
Acamar	315°11.0	-40°12.2	7	281°39.4	21.5	123°34.5	4.1'	25°54.9	7.5'	59.7'	
Menkar	314°05.2	4°11.5	8	296°39.3	20.8	137°57.6	4.2'	25°47.4	7.8'	59.7'	
Mirfak	308°26.8	49°57.4	9	311°39.2	20.1	152°09.9	4.3'	25°39.6	7.9'	59.6'	
Aldebaran	290°38.4	16°33.7	10	326°39.1	19.4	166°44.2	4.4'	25°31.7	8.1'	59.6'	
Rigel	281°02.8	-8°10.4	11	341°39.0	18.7	181°07.6	4.5'	25°23.6	8.3'	59.6'	
Capella	280°20.2	46°01.6	12	356°39.9	S17°18.0	195°31.2	4.6'	N25°15.3	8.4'	59.6'	
Bellatrix	278°21.7	6°22.4	13	11°38.8	17.3	209°54.8	4.8'	25°06.9	8.6'	59.6'	
Elnath	275°00.5	28°37.8	14	26°38.7	16.6	224°18.6	4.9'	24°58.8	8.8'	59.6'	
Anilam	275°36.6	-11°12.1	15	41°38.6	15.8	238°42.4	5.0'	24°49.5	8.9'	59.6'	
Betelgeuse	307°50.9	7°24.7	16	56°38.5	15.1	253°06.4	5.1'	24°40.6	9.1'	59.6'	
Canopus	263°51.5	-52°42.7	17	71°38.5	14.4	267°30.5	5.2'	24°31.5	9.2'	59.5'	
Sirius	258°25.1	-16°45.2	18	86°38.4	S17°13.7	281°54.7	5.3'	N24°22.3	9.4'	59.5'	
Adhara	255°04.8	-29°00.6	19	101°38.3	13.0	296°19.0	5.4'	24°12.9	9.6'	59.5'	
Procyon	244°49.6	5°09.4	20	116°38.2	13.3	310°43.4	5.5'	24°03.3	9.7'	59.5'	
Pollux	243°15.8	27°57.7	21	131°38.1	11.6	325°07.9	5.6'	23°53.6	9.8'	59.5'	
Avior	234°13.7	-59°35.6	22	146°38.0	10.9	339°32.6	5.8'	23°43.8	10.0'	59.5'	
Suhail	222°45.2	-43°32.3	23	161°37.9	10.2	353°57.3	5.9'	23°33.8	10.2'	59.4'	
Miaplacidus	201°37.2	-69°49.4	SD = 16.2' d = 0.7' SD = 16.3'								
Alphard	217°46.5	-8°46.4									
Regulus	207°33.2	11°50.2									
Dubhe	193°39.3	61°36.4									
Denebola	182°23.8	14°25.4									
Geniah	175°42.5	-17°41.3									
Acrux	172°58.7	-63°14.5									
Gacrux	171°50.3	-57°15.4									
Alioth	166°11.9	55°48.7									
Spica	158°21.2	-11°17.9									
Alkaid	152°51.2	49°10.6									
Hadar	148°34.6	-60°29.7									
Menkent	147°56.5	-36°29.8									
Arcturus	145°47.0	19°02.5									
Rigel Kent.	139°39.0	-60°56.4									
Kochab	137°19.9	74°02.5									
Zuben'ubi	136°55.0	-16°09.0									
Alphecca	126°03.1	26°37.3									
Antares	112°14.9	-26°29.4									
Atria	107°08.6	-69°04.2									
Sabik	102°02.0	-15°45.5									
Shaula	96°09.4	-37°07.3									
Rasalhague	95°57.9	12°32.3									
Eltanin	90°42.2	51°28.8									
Kaus Aust.	83°31.6	-34°22.3									
Vega	80°33.0	38°48.3									
Nunki	75°47.0	-26°15.9									
Altair	61°59.4	8°56.1									
Peacock	53°04.9	-56°39.1									
Deneb	49°25.7	45°22.3									
Enif	33°38.2	9°59.6									
Al Na'ir	27°32.2	-46°50.2									
Fomalhaut	15°13.8	-29°29.2									
Scheat	13°44.6	28°13.5									
Markab	13°29.3	15°20.7									
Jan 31 Sat											
Venus	SHA	Mer. pass.									
Mars	40°12.1	12.39									
Mars	51°24.5	11.53									
Jupiter	251°01.3	22.31									
Saturn	0°28.3	15.15									
Feb 01 Sun											
Venus	SHA	Mer. pass.									
Mars	38°56.9	12.40									
Mars	50°36.2	11.52									
Jupiter	251°08.5	22.26									
Saturn	0°22.9	15.11									
Feb 02 Mon											
Venus	SHA	Mer. pass.									
Mars	37°42.1	12.41									
Mars	49°48.0	11.52									
Jupiter	251°15.6	22.22									
Saturn	0°17.5	15.08									
Horizontal parallax											
Venus:	0.1										
Mars:	0.1										

	Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	133°11.3	169°38.9	S15°54.8	182°11.2	S19°12.2	24°33.9	N22°38.7	133°23.4	S02°27.1						
1	148°13.8	184°38.2	53.8	197°11.6	11.7	39°36.7	38.8	148°25.7	27.0						
2	163°16.3	199°37.6	52.8	212°12.1	11.2	54°39.4	38.8	163°27.9	26.9						
3	178°18.7	214°37.0	.. 51.8	227°12.5	.. 10.7	69°42.2	.. 38.8	178°30.1	.. 26.8						
4	193°21.2	229°36.3	50.9	242°13.0	10.2	84°44.9	38.9	193°32.4	26.7						
5	208°23.7	244°35.7	49.9	257°13.5	09.7	99°47.7	38.9	208°34.6	26.6						
6	223°26.1	259°35.1	S15°48.9	272°13.9	S19°09.2	114°50.4	N22°39.0	223°36.8	S02°26.5						
7	238°28.6	274°34.4	47.9	287°14.4	08.7	129°53.2	39.0	238°39.1	26.4						
8	253°31.1	289°33.8	47.0	302°14.8	08.2	144°55.9	39.0	253°41.3	26.2						
9	268°33.5	304°33.2	.. 46.0	317°15.3	.. 07.7	159°58.7	.. 39.1	268°43.6	.. 26.1						
10	283°36.0	319°32.5	45.0	332°15.8	07.2	175°01.4	39.1	283°45.6	26.0						
11	298°38.4	334°31.9	44.0	347°16.2	06.7	190°04.2	39.2	298°48.0	25.9						
12	313°40.9	349°31.3	S15°43.0	2°16.7	S19°06.2	205°06.9	N22°39.2	313°50.3	S02°25.8						
13	328°43.4	.. 43°30.7	42.0	17°17.2	05.7	220°09.7	39.2	328°52.5	25.7						
14	343°45.8	19°30.0	41.1	32°17.6	05.1	235°12.4	39.3	343°54.7	25.6						
15	358°48.3	34°29.4	.. 40.1	47°18.1	.. 04.6	250°15.2	.. 39.3	358°57.0	.. 25.5						
16	13°50.8	49°28.8	39.1	62°18.5	04.1	265°17.9	39.3	13°59.2	25.4						
17	28°53.2	64°28.2	38.1	77°19.0	03.6	280°20.7	39.4	29°01.4	25.3						
18	43°55.7	79°27.5	S15°37.1	92°19.5	S19°03.1	295°23.4	N22°39.4	44°03.7	S02°25.2						
19	58°58.2	94°26.9	36.1	107°19.9	02.6	310°26.2	39.5	59°05.9	25.1						
20	74°00.6	109°26.3	35.2	122°20.4	02.1	325°28.9	39.5	74°08.1	25.0						
21	89°03.1	124°25.7	.. 34.2	137°20.9	.. 01.6	340°31.7	.. 39.5	89°10.4	.. 24.9						
22	104°05.6	139°25.0	33.2	152°21.3	01.1	355°34.4	39.6	104°12.6	24.8						
23	119°08.0	154°24.4	32.2	167°21.8	00.6	10°37.1	39.6	119°14.8	24.7						
Mer.pass. 15:05			ν -0.6° d 1.0' m -3.91			ν 0.5° d 0.5' m 1.11			ν 2.8° d 0.0' m -2.61			ν 2.2° d 0.1' m 1.03			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	134°10.5	169°38.8	S15°31.2	182°22.3	S19°00.0	25°39.9	N22°39.6	134°17.1	S02°24.6						
1	149°12.9	184°23.2	30.2	197°22.7	18°59.5	40°42.6	39.7	149°19.3	24.5						
2	164°15.4	199°22.5	29.2	212°23.2	59.0	55°45.4	39.7	164°21.5	24.4						
3	179°17.9	214°21.9	.. 28.2	227°23.7	.. 58.5	70°48.1	.. 39.8	179°23.8	.. 24.3						
4	194°20.3	229°21.3	27.2	242°24.1	58.0	85°50.9	39.8	194°26.0	24.1						
5	209°22.8	244°20.7	26.2	257°24.6	57.5	100°53.6	39.8	209°28.2	24.0						
6	224°25.3	259°20.1	S15°25.0	272°25.0	S18°57.0	115°56.4	N22°39.9	224°30.5	S02°23.9						
7	239°27.7	274°19.4	24.2	287°25.5	56.4	130°59.1	39.9	239°32.7	23.8						
8	254°30.2	289°18.8	23.2	302°26.0	55.9	146°01.1	39.9	254°34.9	23.7						
9	269°32.7	304°18.2	.. 22.2	317°26.4	.. 55.4	161°04.6	.. 40.0	269°37.2	.. 23.6						
10	284°35.1	319°17.6	21.2	332°26.9	54.9	176°07.3	40.0	284°39.4	23.5						
11	299°37.6	334°17.0	20.2	347°27.4	54.4	191°10.1	40.0	299°41.6	23.4						
12	314°40.1	349°16.4	S15°19.2	2°27.8	S18°53.9	260°12.8	N22°40.1	314°43.9	S02°23.3						
13	329°42.5	.. 41°15.7	18.2	17°28.3	53.4	221°15.6	40.1	329°46.1	23.2						
14	344°45.0	19°15.1	17.2	32°28.8	52.8	236°18.3	40.2	344°48.3	23.1						
15	359°47.4	34°14.5	.. 16.2	47°29.2	.. 52.3	251°21.1	.. 40.2	359°50.6	.. 23.0						
16	14°49.9	49°13.9	15.2	62°29.7	51.8	266°23.8	40.2	14°52.8	22.9						
17	29°52.4	64°13.3	14.2	77°30.2	51.3	281°26.5	40.3	29°55.0	22.8						
18	44°54.8	79°12.7	S15°13.2	92°30.6	S18°50.8	296°29.3	N22°40.3	44°57.3	S02°22.7						
19	59°57.3	94°12.3	12.2	107°31.1	50.2	311°32.0	40.3	59°59.5	22.6						
20	74°59.8	109°11.5	11.2	122°31.6	49.7	326°34.8	40.4	75°0°1.7	22.5						
21	90°02.2	124°10.8	.. 10.2	137°32.0	.. 49.2	341°37.5	.. 40.4	90°03.9	.. 22.3						
22	105°04.7	139°10.2	09.2	152°32.5	48.7	356°40.2	40.5	105°06.2	22.2						
23	120°07.2	154°09.6	08.2	167°33.0	48.2	11°43.0	40.5	120°08.4	22.1						
Mer.pass. 15:01			ν -0.6° d 1.0' m -3.91			ν 0.5° d 0.5' m 1.11			ν 2.7° d 0.0' m -2.61			ν 2.2° d 0.1' m 1.03			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	135°09.6	169°09.0	S15°07.2	182°33.4	S18°47.7	26°45.7	N22°40.5	135°10.6	S02°22.0						
1	150°12.1	184°08.4	06.2	197°33.9	47.1	41°48.5	40.6	150°12.9	21.9						
2	165°14.5	199°07.8	05.2	212°34.4	46.6	56°51.2	40.6	165°15.1	21.8						
3	180°17.0	214°07.2	.. 04.2	227°34.9	.. 46.1	71°53.9	.. 40.6	180°17.3	.. 21.7						
4	195°19.5	229°06.6	03.2	242°35.3	45.6	86°56.7	40.7	195°19.6	21.6						
5	210°21.9	244°06.0	02.1	257°35.8	45.0	101°59.4	40.7	210°21.8	21.5						
6	225°24.4	259°05.4	S15°01.1	272°36.3	S18°44.5	117°02.2	N22°40.7	225°24.0	S02°21.4						
7	240°26.9	274°04.8	15°00.1	287°36.7	44.0	132°04.9	40.8	240°26.3	21.3						
8	255°29.3	289°04.2	14°59.1	302°37.2	43.5	147°07.6	40.8	255°28.5	21.2						
9	270°31.8	304°03.5	.. 58.1	317°37.7	.. 43.0	162°10.4	.. 40.8	270°30.7	.. 21.1						
10	285°34.3	319°02.9	57.1	332°38.1	42.4	177°13.1	40.9	285°33.0	21.0						
11	300°36.7	334°02.3	56.1	347°38.6	41.9	192°15.8	40.9	300°35.2	20.9						
12	315°39.2	349°01.7	S14°55.0	2°39.1	S18°41.4	207°18.6	N22°41.0	315°37.4	S02°20.7						
13	330°41.7	.. 40°01.1	54.0	17°39.6	40.9	222°21.3	41.0	330°39.6	20.6						
14	345°44.1	19°00.5	53.0	32°40.0	40.3	237°24.1	41.0	345°41.9	20.5						
15	.. 0°46.6	33°59.9	.. 52.0	47°40.5	.. 39.8	252°26.8	.. 41.1	.. 0°44.1	.. 20.4						
16	15°49.0	48°59.3	51.0	62°41.0	39.3	267°29.5	41.1	15°46.3	20.3						
17	30°51.5	63°58.7	49.9	77°41.4	38.8	282°32.3	41.1	30°48.6	20.2						
18	45°54.0	78°58.1	S14°48.9	92°41.9	S18°38.2	297°35.0	N22°41.2	45°50.8	S02°20.1						
19	60°56.4	93°57.5	47.9	107°42.4	37.2	312°37.7	41.2	60°53.0	20.0						
20	75°58.9	108°56.9	46.9	122°42.8	37.2	327°40.5	41.2	75°55.3	19.9						
21	91°01.4	123°56.3	.. 45.9	137°43.3	.. 36.6	342°43.2	.. 41.3	90°57.5	.. 19.8						
22	106°03.8	138°55.7	.. 44.8	152°43.8	36.1	357°45.9	41.3	105°59.7	19.7						
23	121°06.3	153°55.1	43.8	167°44.3	35.6	12°48.7	41.3	121°01.9	19.6						
Mer.pass. 14:57			ν -0.6° d 1.0' m -3.91			ν 0.5° d 0.5' m 1.11			ν 2.7° d 0.0' m -2.60			ν 2.2° d 0.1' m 1.03			

Stars			Sun			Moon				
	SHA	Dec		GHA	Dec	GHA	ν	Dec	d	HP
Alpheratz	357°34.1	29°14.2	Tue							
0				176°34.2	S16°34.9	342°35.1	11.5'	N13°04.5	14.8'	58.3'
Ankaa	353°06.5	-42°10.0	1	191°34.1	34.2	357°05.6	11.6'	12°49.7	14.9'	58.2'
Schedar	349°30.3	58.4	2	206°34.0	33.4	11°36.1	11.7'	12°34.8	14.9'	58.2'
Diphda	348°46.6	-17°50.1	3	221°34.0	.. 32.7	26°06.8	11.8'	12°19.9	15.0'	58.2'
Achernar	335°19.7	-57°06.5	4	236°33.9	32.0	40°37.6	11.9'	12°04.9	15.1'	58.1'
Hamal	327°50.2	23°35.2	5	251°33.8	31.2	55°08.5	12.0'	11°49.8	15.0'	58.1'
Polaris	313°32	89°28.8	6	266°33.8	S16°30.5	69°39.4	12.1'	N11°34.8	15.1'	58.1'
Acamar	315°11.1	-40°12.2	7	281°33.7	29.8	84°10.5	12.1'	11°19.7	15.2'	58.1'
Menkar	314°05.2	4°11.5	8	296°33.6	29.0	98°41.6	12.2'	11°04.5	15.2'	58.0'
Mirfak	308°26.9	49°57.4	9	311°33.6	.. 28.3	113°12.8	12.3'	10°49.3	15.2'	58.0'
Aldebaran	290°38.4	16°33.7	10	326°33.5	27.6	127°44.2	12.4'	10°34.1	15.3'	58.0'
Rigel	281°02.8	-8°10.4	11	341°33.4	26.8	142°15.6	12.5'	10°18.8	15.3'	57.9'
Capella	280°20.3	46°10.6	12	356°33.4	S16°26.1	156°47.1	12.6'	N10°03.5	15.3'	57.9'
Bellatrix	278°21.7	6°22.4	13	11°33.3	25.3	171°18.6	12.7'	9°48.2	15.3'	57.9'
Elnath	287°00.5	28°37.8	14	26°33.3	24.6	185°50.3	12.7'	9°32.9	15.4'	57.8'
Anilam	275°36.6	-1°11.2	15	41°33.2	.. 23.9	200°22.0	12.8'	9°17.5	15.4'	57.8'
Betelgeuse	270°50.9	7°24.7	16	56°33.1	23.1	214°53.9	12.9'	8°02.1	15.4'	57.8'
Canopus	263°51.6	-52°42.7	17	71°33.1	22.4	229°25.8	13.0'	8°46.7	15.5'	57.7'
Sirius	258°25.1	-16°45.2	18	86°33.0	S16°21.6	243°57.7	13.1'	N08°31.2	15.5'	57.7'
Adhara	255°04.8	-29°06.0	19	101°32.9	20.9	258°29.8	13.1'	8°15.7	15.4'	57.7'
Procyon	244°49.6	5°09.4	20	116°32.9	20.1	273°01.9	13.2'	08°00.3	15.6'	57.6'
Pollux	243°15.8	27°57.7	21	131°32.8	.. 19.4	287°34.1	13.3'	07°44.7	15.5'	57.6'
Suhail	222°45.2	-43°32.3	22	146°32.8	18.7	302°06.4	13.3'	07°29.2	15.5'	57.6'
Miaplacidus	221°37.2	-69°49.4	23	161°32.7	17.9	316°38.7	13.4'	07°13.7	15.6'	57.6'
Alphard	217°46.5	-8°46.4								
Regulus	207°33.2	11°40.2		SD = 16.2'	$d = 0.7'$			SD = 15.9'		

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	136°08.8	168°54.5	S14°42.8	182°44.7	S18°35.1	27°51.4	N22°41.4	136°04.2	S02°19.5					
1	151°11.2	183°53.9	41.8	197°45.2	34.5	42°54.1	41.4	151°06.4	19.4					
2	166°13.7	198°53.3	40.0	212°45.7	34.0	57°56.9	41.5	166°08.6	19.3					
3	181°16.1	213°52.7	· · 39.7	227°46.2	· · 33.5	72°59.6	· · 41.5	181°10.9	· · 19.1					
4	196°18.6	228°52.1	38.7	242°46.6	32.9	88°02.3	41.5	196°13.1	19.0					
5	211°21.1	243°51.6	37.6	257°47.1	32.4	103°05.1	41.6	211°15.3	18.9					
6	226°23.5	258°51.0	S14°36.6	272°47.6	S18°31.9	118°07.8	N22°41.6	226°17.5	S02°18.8					
7	241°26.0	273°50.4	35.6	287°48.0	31.3	133°10.5	41.6	241°19.8	18.7					
8	256°28.5	288°49.8	34.0	297°45.5	30.8	148°13.3	41.7	256°22.0	18.6					
9	271°30.9	303°49.2	· · 33.5	317°49.0	· · 30.3	163°16.0	· · 41.7	271°24.2	· · 18.5					
10	286°33.4	318°48.6	32.5	332°48.6	29.9	178°18.7	41.7	286°26.5	18.4					
11	301°35.9	333°48.0	31.5	347°49.9	29.2	193°21.5	41.8	301°28.7	18.3					
12	316°38.3	348°47.4	S14°30.4	2°50.4	S18°28.7	208°24.2	N22°41.8	316°30.9	S02°18.2					
13	331°40.8	3°46.8	29.4	17°50.9	28.2	223°26.9	41.8	331°33.1	18.1					
14	346°43.3	18°46.2	28.4	32°51.4	27.6	238°29.6	41.9	346°35.4	18.0					
15	1°45.7	33°45.6	· · 27.3	47°51.8	· · 27.1	253°32.4	· · 41.9	1°37.6	· · 17.9					
16	16°48.2	48°45.0	26.3	62°52.3	26.5	268°35.1	41.9	16°39.8	17.7					
17	31°50.6	63°44.5	25.2	77°52.8	26.0	283°37.8	42.0	31°42.1	17.6					
18	46°53.1	78°43.9	S14°24.2	92°53.3	S18°25.5	298°40.6	N22°42.0	46°44.3	S02°17.5					
19	61°55.6	93°43.3	23.2	107°53.7	24.9	313°43.3	42.0	61°46.5	17.4					
20	76°58.0	108°42.7	22.1	122°54.2	24.4	328°46.0	42.1	76°48.7	17.3					
21	92°00.5	123°42.1	· · 21.1	137°54.7	· · 23.9	343°48.7	· · 42.1	91°51.0	· · 17.2					
22	107°03.0	138°41.5	20.1	152°55.2	23.3	358°51.5	42.2	106°53.2	17.1					
23	122°05.4	153°40.9	19.0	167°55.6	22.8	13°54.2	42.2	121°55.4	17.0					
Mer.pass. 14:53			ν -0.6' d 1.0' m -3.91	ν 0.5' d 0.5' m 1.11	ν 2.7' d 0.0' m -2.60	ν 2.2' d 0.1' m 1.02								

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	137°07.9	168°40.4	S14°18.0	182°56.1	S18°22.3	28°56.9	N22°42.2	136°57.6	S02°16.9					
1	152°10.4	183°39.8	16.9	197°56.6	21.7	43°59.7	42.3	151°59.9	16.8					
2	167°12.8	198°39.2	15.9	212°57.1	21.2	59°02.4	42.3	167°02.1	16.7					
3	182°15.3	213°38.6	· · 14.8	227°57.6	· · 20.6	74°05.1	· · 42.3	182°04.3	· · 16.6					
4	197°17.8	228°38.0	13.8	242°58.0	20.1	89°07.8	42.4	197°06.6	16.5					
5	212°20.2	243°37.4	12.7	257°58.5	19.6	104°10.6	42.4	212°08.8	16.3					
6	227°22.7	258°36.9	S14°11.7	272°59.0	S18°19.0	119°13.3	N22°42.4	227°11.0	S02°16.2					
7	242°25.1	273°36.3	10.7	287°59.5	18.5	134°16.0	42.5	242°13.2	16.1					
8	257°27.6	288°35.7	09.6	302°59.9	18.0	149°18.7	42.5	257°15.5	16.0					
9	272°30.1	303°35.1	· · 08.6	318°00.4	· · 17.4	164°21.5	· · 42.5	272°17.7	· · 15.9					
10	287°32.5	318°34.5	07.5	333°00.9	16.9	179°24.2	42.6	287°19.9	15.8					
11	302°35.0	333°33.9	06.5	348°01.4	16.3	194°26.9	42.6	302°22.1	15.7					
12	317°37.5	348°33.4	S14°05.4	3°01.9	S18°15.8	209°29.6	N22°42.6	317°24.4	S02°15.6					
13	332°39.9	3°32.8	04.4	18°02.3	14.6	224°32.4	42.7	332°26.6	15.5					
14	347°42.4	18°32.2	03.3	33°02.8	14.7	239°35.1	42.7	347°28.8	15.4					
15	2°44.9	33°31.6	· · 02.3	48°03.3	· · 14.2	254°37.8	· · 42.7	2°31.0	· · 15.3					
16	17°47.3	48°31.1	01.2	63°03.8	13.6	269°40.5	42.8	17°33.3	15.2					
17	32°49.8	63°30.5	14°00.2	78°04.2	13.1	284°43.3	42.8	32°35.5	15.0					
18	47°52.2	78°29.9	S13°59.1	93°04.7	S18°12.5	299°46.0	N22°42.8	47°37.7	S02°14.9					
19	62°54.7	93°29.3	58.0	108°05.2	12.0	314°48.7	42.9	62°39.9	14.8					
20	77°57.2	108°28.8	57.0	123°05.7	11.4	329°51.4	42.9	77°42.2	14.7					
21	92°59.6	123°28.2	· · 55.9	138°06.2	· · 10.9	344°54.1	· · 42.9	92°44.4	· · 14.6					
22	108°02.1	138°27.6	54.9	153°06.6	10.4	359°56.9	43.0	107°46.6	14.5					
23	123°04.6	153°27.0	53.8	168°07.1	09.8	14°59.6	43.0	122°48.8	14.4					
Mer.pass. 14:49			ν -0.6' d 1.0' m -3.91	ν 0.5' d 0.5' m 1.12	ν 2.7' d 0.0' m -2.59	ν 2.2' d 0.1' m 1.02								

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	138°07.0	168°26.5	S13°52.8	183°07.6	S18°09.3	30°02.3	N22°43.0	137°51.1	S02°14.3					
1	153°09.5	183°25.9	51.7	198°08.1	08.7	45°05.0	43.1	152°53.3	14.2					
2	168°12.0	198°25.3	50.6	213°08.6	08.2	60°07.7	43.1	167°55.5	14.1					
3	183°14.4	213°24.7	· · 49.6	228°09.0	· · 07.6	75°10.5	· · 43.1	182°57.7	· · 14.0					
4	198°16.9	228°24.2	48.5	243°09.5	07.8	90°13.2	43.2	198°00.0	13.9					
5	213°19.4	243°23.6	47.5	258°10.0	06.5	105°15.9	43.2	213°02.2	13.7					
6	228°21.8	258°23.0	S13°46.4	273°10.5	S18°06.0	120°18.6	N22°43.2	228°04.4	S02°13.6					
7	243°24.3	273°22.5	45.3	288°11.0	05.4	135°21.3	43.3	243°06.6	13.5					
8	258°26.7	288°21.9	44.3	303°11.5	04.3	150°24.1	43.3	258°08.9	13.4					
9	273°29.2	303°21.3	· · 43.2	318°11.9	· · 04.9	165°26.8	· · 43.3	273°11.1	· · 13.3					
10	288°31.7	318°20.8	42.2	333°12.4	03.8	180°29.5	43.4	288°13.3	13.2					
11	303°34.1	333°20.2	41.1	348°12.9	03.2	195°32.2	43.4	303°15.5	13.1					
12	318°36.6	348°19.6	S13°40.0	3°13.4	S18°02.7	210°34.9	N22°43.4	318°17.8	S02°13.0					
13	333°39.1	3°19.1	39.0	18°13.9	02.1	225°37.7	43.5	333°00.0	12.9					
14	348°41.5	18°18.5	37.9	33°14.3	01.6	240°40.4	43.5	348°22.2	12.8					
15	3°44.0	33°17.9	· · 36.8	48°14.8	· · 01.0	255°43.1	· · 43.5	3°24.4	· · 12.7					
16	18°46.5	48°17.4	35.8	63°15.3	18°00.5	270°45.8	43.6	18°26.7	12.5					
17	33°48.9	63°16.8	34.7	78°15.8	17°59.9	285°48.5	43.6	33°28.9	12.4					
18	48°51.4	78°16.2	S13°33.6	93°16.3	S17°59.4	300°51.2	N22°43.6	48°31.1	S02°12.3					
19	63°53.9	93°15.7	32.5	108°16.8	58.8	315°53.9	43.7	63°33.3	12.2					
20	78°56.3	108°15.1	31.5	123°17.3	58.3	330°56.7	43.7	78°35.6	12.1					
21	93°58.8	123°14.5	· · 30.4	138°17.7	· · 57.7	345°59.4	· · 43.7	93°37.8	· · 12.0					
22	109°01.2	138°14.0	29.3	153°18.2	57.2	1°02.1	43.8	108°40.0	11.9					
23	124°03.7	153°13.4	28.3	168°18.7	56.6	16°04.8	43.8	123°42.2	11.8					
Mer.pass. 14:45			ν -0.6' d 1.1' m -3.91	ν 0.5' d 0.5' m 1.12	ν 2.7' d 0.0' m -2.59	ν 2.2' d 0.1' m 1.02								

Stars	SHA	Dec
Alpheratz	357°34.1	29°14.1
Ankaa	353°06.5	-42°10.0
Schedar	349°30.4	56°41.0
Diphda	348°46.6	-17°50.7
Achernar	335°19.7	-57°06.5
Hamal	327°50.3	23°35.2
Polaris	313°33.7	89°22.8
Acamar	315°11.1	-40°12.2
Menkar	314°05.2	4°11.5
Mirfak	308°26.9	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.4
Capella	280°20.3	46°01.6
Bellatrix	278°21.7	6°22.4
Elmath	278°00.5	28°37.8
Anilam	275°36.6	-1°11.2
Betelgeuse	270°50.9	7°24.7
Canopus	263°51.6	-52°42.7
Sirius	258°25.2	-16°45.2
Adhara	255°04.8	-29°00.6
Procyon	244°49.6	5°09.4
Pollux	243°15.8	27°57.7
Avior	234°13.7	-59°35.7
Suhail	222°45.2	-43°32.3
Miaplacidus	221°37.2	-69°49.5
Alphard	217°46.5	-8°46.4

Aries		Venus		Mars		Jupiter		Saturn	
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	139°06.2	168°12.9	S13°27.2	183°19.2	S17°56.1	31°07.5	N22°43.8	138°44.4	S02°11.7
1	154°08.6	183°12.3	26.1	198°19.7	55.0	46°10.2	43.9	153°46.7	11.6
2	169°11.1	198°11.7	25.0	213°20.2	55.0	61°12.9	43.9	168°48.9	11.6
3	184°13.6	213°11.2	.. 24.0	228°20.6	.. 54.4	76°15.7	.. 43.9	183°51.1	.. 11.3
4	199°16.0	228°10.6	22.9	243°21.1	53.9	91°18.4	44.0	198°53.3	11.2
5	214°18.5	243°10.1	21.8	258°21.6	53.3	106°21.1	44.0	213°55.6	11.1
6	229°21.0	258°09.5	S13°20.7	273°22.1	S17°52.7	121°23.8	N22°44.6	228°57.0	S02°11.0
7	244°23.4	273°08.9	19.7	288°22.6	52.2	136°26.5	44.0	244°00.0	10.9
8	259°25.9	288°08.4	18.6	303°23.1	51.6	151°29.2	44.1	259°02.2	10.8
9	274°28.3	303°07.8	.. 17.5	318°23.6	.. 51.1	166°31.9	.. 44.1	274°04.4	.. 10.7
10	289°30.8	318°07.3	16.4	333°24.0	50.5	181°34.6	44.1	289°06.7	10.6
11	304°33.3	333°06.7	15.3	348°24.5	50.0	196°37.4	44.2	304°08.9	10.5
12	319°35.7	348°06.2	S13°14.3	3°25.0	S17°49.4	211°40.1	N22°44.2	319°11.1	S02°10.4
13	334°38.2	3°05.6	13.2	18°25.5	48.9	226°42.8	44.2	334°13.3	10.2
14	349°40.7	18°05.1	12.1	33°26.0	48.3	241°45.5	44.3	349°15.6	10.1
15	.. 4°43.1	33°04.5	.. 11.0	48°26.5	.. 47.2	256°48.2	.. 44.3	4°17.8	.. 10.0
16	19°45.6	48°03.9	09.9	63°27.0	47.7	271°50.9	44.3	19°20.0	09.9
17	34°48.1	63°03.4	08.8	78°27.5	46.6	286°53.6	44.4	34°22.2	09.8
18	49°50.5	78°02.8	S13°07.8	93°27.9	S17°46.1	301°56.3	N22°44.4	49°24.4	S02°09.7
19	64°53.0	93°02.3	06.7	108°28.4	45.5	316°59.0	44.4	64°26.7	09.6
20	79°55.5	108°01.7	05.6	123°28.9	44.9	332°01.7	44.5	79°28.9	09.5
21	94°57.9	123°01.2	.. 04.5	138°29.4	.. 44.4	347°04.4	.. 44.5	94°31.1	.. 09.4
22	110°00.4	138°00.6	03.4	153°29.9	43.8	2°07.2	44.5	109°33.3	09.3
23	125°02.8	153°00.1	02.3	168°30.4	43.3	17°09.9	44.6	124°35.6	09.1
Mer.pass. 14:41 ν -0.6' d 1.1' m -3.91 ν 0.5' d 0.6' m 1.12 ν 2.7' d 0.0' m -2.58 ν 2.2' d 0.1' m 1.02									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	140°05.3	167°59.5	S13°01.2	183°30.9	S17°42.7	32°12.6	N22°44.6	139°37.8	S02°09.0
1	155°07.8	182°59.0	13°00.1	198°31.4	42.1	47°15.3	44.6	154°40.0	08.9
2	170°10.2	197°58.4	12°59.1	213°31.8	41.6	62°18.0	44.6	169°42.2	08.8
3	185°12.7	212°57.9	.. 58.0	228°32.3	.. 41.0	77°20.7	.. 44.7	184°44.4	.. 08.7
4	200°15.2	227°57.3	56.9	243°32.8	40.4	92°23.4	44.7	199°46.7	08.6
5	215°17.6	242°56.8	55.8	258°33.3	39.9	107°26.1	44.7	214°48.9	08.5
6	230°20.1	257°56.2	S12°54.7	273°33.8	S17°39.9	122°28.8	N22°44.8	229°51.1	S02°08.4
7	245°22.6	272°55.7	53.6	288°34.3	38.8	137°31.5	44.8	244°53.3	08.3
8	260°25.0	287°55.2	52.5	303°34.8	38.2	152°34.2	44.8	259°55.5	08.2
9	275°27.5	302°54.6	.. 51.4	318°35.3	.. 37.6	167°36.9	.. 44.9	274°57.8	.. 08.0
10	290°30.0	317°54.1	50.3	333°35.8	37.1	182°39.6	44.9	290°00.0	07.9
11	305°32.4	332°53.5	49.2	348°36.3	36.5	197°42.3	44.9	305°02.2	07.8
12	320°34.9	347°53.0	S12°48.1	3°36.7	S17°35.9	212°45.0	N22°45.0	320°04.4	S02°07.7
13	335°37.9	2°52.4	47.0	18°37.2	35.4	227°47.7	45.0	335°06.6	07.6
14	350°39.8	17°51.9	45.9	33°37.7	34.8	242°50.4	45.0	350°08.9	07.5
15	.. 5°42.3	32°51.3	.. 44.8	48°38.2	.. 34.2	257°53.1	.. 45.1	5°11.1	.. 07.4
16	20°44.7	47°50.8	43.7	63°38.7	33.7	272°55.8	45.1	20°13.3	07.3
17	35°47.2	62°50.3	42.6	78°39.2	33.1	287°58.5	45.1	35°15.5	07.2
18	50°49.7	77°49.7	S12°41.5	93°39.7	S17°32.5	303°01.2	N22°45.1	50°17.7	S02°07.0
19	65°52.1	92°49.2	40.4	108°40.2	32.0	318°04.0	45.2	65°20.0	06.9
20	80°54.6	107°48.6	39.3	123°40.7	31.4	333°06.7	45.2	80°22.2	06.8
21	95°57.1	122°48.1	.. 38.2	138°41.2	.. 30.8	348°09.4	.. 45.2	95°24.4	.. 06.7
22	110°59.5	137°47.6	37.1	153°41.7	30.3	3°12.1	45.3	110°26.6	06.6
23	126°02.0	152°47.0	36.0	168°42.2	29.7	18°14.8	45.3	125°28.8	06.5
Mer.pass. 14:37 ν -0.5' d 1.1' m -3.91 ν 0.5' d 0.6' m 1.12 ν 2.7' d 0.0' m -2.57 ν 2.2' d 0.1' m 1.02									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	141°04.4	167°46.5	S12°34.9	183°42.7	S17°29.1	33°17.5	N22°45.3	140°31.1	S02°06.4
1	156°06.9	182°45.9	33.8	198°43.1	28.6	48°20.2	45.4	155°33.3	06.3
2	171°09.4	197°45.4	32.7	213°43.6	28.0	63°22.9	45.4	170°35.5	06.2
3	186°11.8	212°44.9	.. 31.6	228°44.1	.. 27.4	78°25.6	.. 45.4	185°37.7	.. 06.0
4	201°14.3	227°44.3	30.5	243°44.6	26.8	93°28.3	45.4	200°39.9	05.9
5	216°16.8	242°43.8	29.4	258°45.1	26.3	108°30.9	45.5	215°42.1	05.8
6	231°19.2	257°43.3	S12°28.3	273°45.6	S17°25.7	123°33.6	N22°45.5	230°44.4	S02°05.7
7	246°21.7	272°42.7	27.2	288°46.1	25.1	138°36.3	45.5	245°46.6	05.6
8	261°24.2	287°42.2	26.1	303°46.6	24.6	153°39.0	45.6	260°48.8	05.5
9	276°26.6	302°41.7	.. 25.0	318°47.1	.. 24.0	168°41.7	.. 45.6	275°51.0	.. 05.4
10	291°29.1	317°41.1	23.9	333°47.6	23.4	183°44.4	45.6	290°53.2	05.3
11	306°31.6	332°40.6	22.8	348°48.1	22.8	198°47.1	45.7	305°55.5	05.2
12	321°34.0	347°40.1	S12°21.7	3°48.6	S17°22.3	213°49.8	N22°45.7	320°57.7	S02°05.0
13	336°36.5	2°39.5	20.6	18°49.1	21.7	228°52.5	45.7	335°59.9	04.9
14	351°38.9	17°39.0	19.4	33°49.6	21.1	243°55.2	45.7	351°02.1	04.8
15	.. 6°41.4	32°38.5	.. 18.3	48°50.1	.. 20.5	258°57.9	.. 45.8	6°04.3	.. 04.7
16	21°43.9	47°37.9	17.2	63°50.6	20.0	274°00.6	45.8	21°06.5	04.6
17	36°46.3	62°37.4	16.1	78°51.1	19.4	289°03.3	45.8	36°08.8	04.5
18	51°48.8	77°36.9	S12°15.0	93°51.6	S17°18.8	304°06.0	N22°45.9	51°11.0	S02°04.4
19	66°51.3	92°36.3	13.9	108°52.0	18.2	319°08.7	45.9	66°13.2	04.3
20	81°53.7	107°35.8	12.8	123°52.5	17.7	334°11.4	45.9	81°15.4	04.2
21	96°56.2	122°35.3	.. 11.7	138°53.0	.. 17.1	349°14.1	.. 46.0	96°17.6	.. 04.0
22	111°58.7	137°34.8	10.5	153°53.5	16.5	4°16.8	46.0	111°19.8	03.9
23	127°01.1	152°34.2	09.4	168°54.0	15.9	19°19.5	46.0	126°22.1	03.8
Mer.pass. 14:33 ν -0.5' d 1.1' m -3.91 ν 0.5' d 0.6' m 1.12 ν 2.7' d 0.0' m -2.57 ν 2.2' d 0.1' m 1.02									

Stars		
	SHA	Dec
Alpheratz	357°34.1	29°14.1
Ankaa	353°06.5	-42°10.0
Schedar	349°30.4	56°41.0
Diphda	348°46.6	-17°50.7
Achernar	335°19.7	-57°06.5
Hamal	327°50.3	23°35.2
Polaris	313°35.0	89°22.8
Acamar	315°11.1	-40°12.2
Menkar	314°05.2	4°11.5
Mirfak	308°26.9	49°57.4
Aldebaran	290°38.4	16°33.7
Rigel	281°02.8	-8°10.4
Capella	280°20.3	46°01.6
Bellatrix	278°21.7	6°22.3
Enlath	278°00.5	28°37.8
Anilam	275°36.6	-1°11.2
Betelgeuse	270°50.9	7°24.7
Canopus	263°51.6	-52°42.8
Sirius	258°25.2	-16°45.3
Adhara	255°04.8	-29°09.4
Procyon	244°49.6	5°09.4
Pollux	234°15.8	27°57.7
Avior	234°13.8	-59°35.7
Suhail	222°45.2	-43°32.4
Miaplacidus	221°37.2	-69°49.5
Alphard	217°46.5	-8°46.4
Regulus	207°33.1	11°50.2
Dubhe	193°39.3	61°36.4
Denebola	182°23.7	14°25.4
Geniah	175°42.4	-17°41.3
Acrux	172°58.6	-63°14.5
Gacrux	171°50.3	-57°15.5
Alloth	166°11.8	55°48.7
Spica	158°21.2	-11°18.0
Alkaid	152°51.1	49°10.6
Hadar	148°34.5	-60°29.7
Menkent	147°56.4	-36°29.8
Arcturus	145°47.0	-19°02.8
Rigel Kent	139°38.9	-60°56.4
Kochab	137°19.7	74°02.4
Zuben'ubi	136°55.0	-16°09.1
Alphecca	126°03.0	26°37.3
Antares	122°14.8	-26°29.4
Atria	107°08.5	-69°04.2
Sabik	102°01.9	-15°45.5
Shaula	96°09.4	-37°07.3
Rasalhague	95°57.9	12°32.3
Eltanin	90°42.1	51°28.8
Kaus Aust.	83°31.6	-34°22.2
Vega	80°32.9	38°48.2
Nunki	75°46.9	-26°15.9
Altair	61°59.4	8°56.1
Peacock	53°04.9	-56°39.9
Deneb	49°25.6	45°22.3
Enif	33°38.2	9°59.6
Al Na'ir	27°32.2	-46°50.2
Fomalhaut	15°13.8	-29°29.2
Scheat	13°44.6	-28°13.5
Markab	13°29.3	15°20.7
Feb 09 Mon	SHA	Mer.pass
Venus	29°06.7	12.48
Mars	44°13.0	11.46
Jupiter	252°01.4	21.52
Saturn	359°38.3	14.43
Feb 10 Tue	SHA	Mer.pass
Venus	27°54.2	12.48
Mars	43°25.6	11.46
Jupiter	252°07.3	21.47
Saturn	359°32.5	14.39
Feb 11 Wed	SHA	Mer.pass
Venus	26°42.0	12.49
Mars	42°38.2	11.45
Jupiter	252°13.0	21.43
Saturn	359°26.6	14.36
Horizontal parallax		
Venus:		0.1
Mars:		0.1

	Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	142°03.6	167°33.7	S12°08.3	183°54.5	S17°15.4	34°22.2	N22°46.0	141°24.3	S02°03.7						
1	157°06.1	182°33.2	07.2	198°55.0	14.8	49°24.9	46.1	156°26.5	03.6						
2	172°08.5	197°32.7	06.1	213°55.5	14.2	64°27.5	46.1	171°28.7	03.5						
3	187°11.0	212°32.1	.. 05.0	228°56.0	.. 13.6	79°30.2	.. 46.1	186°30.9	.. 03.4						
4	202°13.4	227°31.6	03.8	243°56.5	13.1	94°32.9	46.2	201°33.2	03.3						
5	217°15.9	242°31.1	02.7	258°57.0	12.5	109°35.6	46.2	216°35.4	03.1						
6	232°18.4	257°30.6	S12°01.6	273°57.5	S17°11.9	124°38.3	N22°46.2	231°37.6	S02°03.0						
7	247°20.8	272°30.0	12°00.5	288°58.0	11.3	139°41.0	46.2	246°39.8	02.9						
8	262°23.3	287°29.5	11°59.4	303°58.5	10.7	154°43.7	46.3	261°42.0	02.8						
9	277°25.8	302°29.0	.. 58.2	318°59.0	.. 10.2	169°46.4	.. 46.3	276°44.2	.. 02.7						
10	292°28.2	317°28.5	57.1	333°59.5	09.6	184°49.1	46.3	291°46.5	02.6						
11	307°30.7	332°27.9	56.0	349°00.0	09.0	199°51.8	46.4	306°48.7	02.5						
12	322°33.2	347°27.4	S11°54.9	4°00.5	S17°08.4	214°54.5	N22°46.4	321°50.9	S02°02.4						
13	337°35.6	.. 26.9	53.7	19°01.0	07.8	229°57.1	46.4	336°53.1	02.3						
14	352°38.1	17°26.4	52.6	34°01.5	07.3	244°59.8	46.5	351°55.3	02.1						
15	7°40.6	32°25.9	.. 51.5	49°02.0	.. 06.7	260°02.5	.. 46.5	6°57.5	.. 02.0						
16	22°43.0	47°25.3	50.4	64°02.5	.. 06.1	275°05.2	46.5	21°59.7	01.9						
17	37°45.5	62°24.8	49.2	79°03.0	05.5	290°07.9	46.5	37°02.0	01.8						
18	52°47.9	77°24.3	S11°48.1	94°03.5	S17°04.9	305°10.6	N22°46.6	52°04.2	S02°01.7						
19	67°50.4	92°23.8	47.0	109°04.0	04.3	320°13.3	46.6	67°06.4	01.6						
20	82°52.9	107°23.3	45.9	124°04.5	03.8	335°16.0	46.6	82°08.6	01.5						
21	97°55.3	122°22.7	.. 44.7	139°05.0	.. 03.2	350°18.6	.. 46.7	97°10.8	.. 01.4						
22	112°57.8	137°22.2	43.6	154°05.5	02.6	5°21.3	46.7	112°13.0	01.2						
23	128°00.3	152°21.7	42.5	169°06.0	02.0	20°24.0	46.7	127°15.3	01.1						
Mer.pass. 14:29 ν -0.5' d 1.1' m -3.91 ν 0.5' d 0.6' m 1.12 ν 2.7' d 0.0' m -2.56 ν 2.2' d 0.1' m 1.02															

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	143°02.7	167°21.2	S11°41.4	184°06.5	S17°01.4	35°26.7	N22°46.7	142°17.5	S02°01.0						
1	158°05.2	182°20.7	40.2	199°07.0	00.8	50°29.4	46.8	157°19.7	00.9						
2	173°07.7	197°20.2	39.1	214°07.5	17°00.3	65°32.1	46.8	172°21.9	00.8						
3	188°10.1	212°19.6	.. 38.0	229°08.0	16°59.7	80°34.8	.. 46.8	187°24.1	.. 00.7						
4	203°12.6	227°19.1	36.8	244°08.5	59.1	95°37.4	46.9	202°26.3	00.6						
5	218°15.1	242°18.6	35.7	259°09.0	58.5	110°40.1	46.9	217°28.5	00.5						
6	233°17.5	257°18.1	S11°34.6	274°09.5	S16°57.9	125°42.8	N22°46.9	232°30.8	S02°00.3						
7	248°20.0	272°17.6	33.4	289°10.0	57.3	140°45.5	46.9	247°33.0	00.2						
8	263°22.4	287°17.1	32.3	304°10.5	56.7	155°48.2	47.0	262°35.2	00.1						
9	278°24.9	302°16.6	.. 31.2	319°11.0	.. 56.1	170°50.9	.. 47.0	277°37.4	02°00.0						
10	293°27.4	317°16.1	30.0	334°11.5	55.6	185°53.5	47.0	292°39.6	01°59.9						
11	308°29.8	332°15.5	28.9	349°12.0	55.0	200°56.2	47.0	307°41.8	59.8						
12	323°32.3	347°15.0	S11°27.8	4°12.5	S16°54.4	215°58.9	N22°47.1	322°40.0	S01°59.6						
13	338°34.8	.. 24.5	26.6	19°13.0	53.8	231°01.6	47.1	337°46.3	59.7						
14	353°37.2	17°14.0	25.3	34°13.6	53.2	246°04.3	47.1	352°48.5	59.4						
15	8°39.7	32°13.5	.. 24.5	49°14.1	.. 52.6	261°06.9	.. 47.2	7°50.7	.. 59.3						
16	23°42.2	47°13.0	23.2	64°14.6	52.0	276°09.6	47.2	22°52.9	59.2						
17	38°44.6	62°12.5	22.1	79°15.1	51.4	291°12.3	47.2	37°55.1	59.1						
18	53°47.1	77°12.0	S11°20.9	94°15.6	S16°50.8	306°15.0	N22°47.2	52°57.3	S01°59.0						
19	68°49.5	92°11.5	19.8	109°16.1	50.3	321°17.7	47.3	67°59.5	58.9						
20	83°52.0	107°11.0	18.6	124°16.6	49.7	336°20.3	47.3	83°01.8	58.8						
21	98°54.5	122°10.5	.. 17.5	139°17.1	.. 49.1	351°23.0	.. 47.3	98°04.0	.. 58.7						
22	113°56.9	137°09.9	16.4	154°17.6	48.5	6°25.7	47.4	113°06.2	58.5						
23	128°59.4	152°09.4	15.2	169°18.1	47.9	21°28.4	47.4	128°08.4	58.4						
Mer.pass. 14:25			ν -0.5' d 1.1' m -3.91			ν 0.5' d 0.6' m 1.12			ν 2.7' d 0.0' m -2.56			ν 2.2' d 0.1' m 1.02			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	144°01.9	167°08.9	S11°14.1	184°18.6	S16°47.3	36°31.1	N22°47.4	143°10.6	S01°58.3						
1	159°04.3	182°08.4	12.9	199°19.1	46.7	51°33.7	47.4	158°12.8	58.2						
2	174°06.8	197°07.9	11.8	214°19.6	46.1	66°36.4	47.5	173°15.0	58.1						
3	189°09.3	212°07.4	.. 10.7	229°20.1	.. 45.5	81°39.1	.. 47.5	188°17.3	.. 58.0						
4	204°11.7	227°06.9	09.5	244°20.0	44.9	96°41.8	47.5	203°19.5	57.9						
5	219°14.2	242°06.4	08.4	259°21.1	44.3	111°44.4	47.5	218°21.7	57.7						
6	234°16.7	257°05.9	S11°07.2	274°21.6	S16°43.7	126°47.1	N22°47.6	233°23.9	S01°57.6						
7	249°19.1	272°05.4	06.1	289°22.1	43.1	141°49.8	47.6	248°26.1	57.5						
8	264°21.6	287°04.9	04.9	304°22.7	42.6	156°52.5	47.6	263°28.3	57.4						
9	279°24.0	302°04.4	.. 03.8	319°23.2	.. 42.0	171°55.1	.. 47.7	278°30.5	.. 57.3						
10	294°26.5	317°03.9	02.6	334°23.7	41.4	186°57.8	47.7	293°32.7	57.2						
11	309°29.0	332°03.4	01.5	349°24.2	40.8	202°00.5	47.7	308°35.0	57.1						
12	324°31.4	347°02.9	S11°00.3	4°24.7	S16°40.2	217°03.2	N22°47.7	323°37.2	S01°57.0						
13	339°33.9	.. 20.2	10°59.2	19°25.2	39.6	232°05.8	47.8	338°39.4	56.8						
14	354°36.4	17°01.9	58.0	34°25.7	39.0	247°08.4	47.8	353°41.6	56.7						
15	9°38.8	32°01.4	.. 56.9	49°26.2	.. 38.4	262°11.2	.. 47.8	8°43.8	.. 56.6						
16	24°41.3	47°00.9	55.7	64°26.7	37.8	277°13.9	47.8	23°46.0	56.5						
17	39°43.8	62°00.4	54.6	79°27.2	37.2	292°16.5	47.9	38°48.2	56.4						
18	54°46.2	76°59.9	S10°53.4	94°27.7	S16°36.6	307°19.2	N22°47.9	53°50.4	S01°56.3						
19	69°48.7	91°59.4	52.3	109°28.2	36.0	322°21.9	47.9	68°52.7	56.2						
20	84°51.2	106°58.9	51.1	124°28.7	35.4	337°24.5	47.9	83°54.9	56.0						
21	99°53.6	121°58.4	.. 50.0	139°29.3	.. 34.8	352°27.2	.. 48.0	98°57.1	.. 55.9						
22	114°56.1	136°57.9	48.8	154°29.8	34.2	7°29.9	48.0	113°59.3	55.8						
23	129°58.5	151°57.4	47.7	169°30.3	33.6	22°32.6	48.0	129°01.5	55.7						
Mer.pass. 14:22			ν -0.5' d 1.1' m -3.91			ν 0.5' d 0.6' m 1.12			ν 2.7' d 0.0' m -2.55			ν 2.2' d 0.1' m 1.02			

Stars			h		Sun		Moon				
	SHA	Dec	Thu		GHA	Dec	GHA	ν	Dec	d	HP
Alpheratz	357°34.1	29°14.1	0		176°27.4	S13°45.7	243°13.8	9.7'	S28°13.0	1.7'	54.3'
Ankaa	353°06.5	42°10.0	1		191°27.4	44.9	257°42.6	9.7'	28°14.7	1.6'	54.3'
Schedar	349°30.4	56°41.0	2		206°27.4	44.0	272°11.3	9.7'	28°16.3	1.4'	54.3'
Diphda	348°46.6	17°50.7	3		221°27.4	.. 43.2	286°40.0	9.7'	28°17.7	1.3'	54.3'
Achernar	335°19.7	57°06.5	4		236°27.4	42.4	301°08.6	9.6'	28°19.0	1.2'	54.3'
Hamal	327°50.3	23°35.2	5		251°27.4	41.5	315°37.2	9.6'	28°20.2	1.0'	54.3'
Polaris	313°36.3	89°22.8	6		266°27.4	S13°40.7	330°05.8	9.6'	S28°21.2	0.9'	54.3'
Acamar	315°11.1	40°12.2	7		281°27.4	39.9	344°34.4	9.5'	28°22.1	0.7'	54.3'
Menkar	310°05.2	4°11.5	8		296°27.5	39.1	359°03.0	9.5'	28°22.8	0.6'	54.4'
Mirafak	308°26.9	49°57.4	9		311°27.5	.. 38.2	13°31.5	9.5'	28°23.4	0.5'	54.4'
Aldebaran	290°38.5	16°33.7	10		326°27.5	37.4	28°00.0	9.5'	28°23.9	0.3'	54.4'
Rigel	281°02.8	8°10.4	11		341°27.5	36.6	42°28.5	9.5'	28°24.2	0.2'	54.4'
Capella	280°20.3	46°01.6	12		356°27.5	S13°35.7	56°56.9	9.4'	S28°24.4	0.0'	54.4'
Bellatrix	278°21.7	6°22.3	13		11°27.5	34.9	71°25.4	9.4'	28°24.4	0.1'	54.4'
Elnath	278°00.5	28°37.8	14		26°27.5	34.0	85°53.8	9.4'	28°24.3	0.2'	54.4'
Anilam	275°36.6	1°12.1	15		41°27.5	.. 33.2	100°22.2	9.4'	28°24.1	0.4'	54.4'
Betelgeuse	270°50.9	7°24.7	16		56°27.5	32.4	114°50.6	9.4'	28°23.7	0.5'	54.5'
Canopus	263°51.6	-52°42.8	17		71°27.5	31.5	129°18.9	9.4'	28°23.2	0.7'	54.5'
Sirius	258°25.2	-16°45.3	18		86°27.5	S13°30.7	143°47.7	9.4'	S28°22.5	0.8'	54.5'
Adhara	255°04.8	-29°00.6	19		101°27.6	29.9	158°15.7	9.3'	28°21.7	0.9'	54.5'
Procyon	244°49.6	5°09.4	20		116°27.6	29.0	172°44.0	9.3'	28°20.8	1.1'	54.5'
Pollux	243°15.8	27°57.7	21		131°27.6	.. 28.2	187°12.3	9.3'	28°19.7	1.3'	54.5'
Avior	234°13.8	-59°35.5	22		146°27.6	27.3	201°40.7	9.3'	28°18.4	1.3'	54.5'
Suhail	222°45.2	-43°32.4	23		161°27.6	26.5	216°09.0	9.3'	28°17.1	1.6'	54.6'
Miaplacidus	221°37.2	-69°49.5									
Alphard	217°46.5	-8°46.4									
Regulus	207°33.1	11°50.2									
					SD = 16.2'	d = 0.85'	SD = 14.8'				

	Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	145°01.0	166°56.9	S10°46.5	184°30.8	S16°33.0	37°35.2	N22°48.1	144°03.7	S01°55.6						
1	160°03.5	181°56.4	45.4	199°31.3	32.4	52°37.9	48.1	159°05.9	55.5						
2	175°05.9	196°55.9	44.2	214°31.8	31.8	67°40.6	48.1	174°08.1	55.5						
3	190°08.4	211°55.4	.. 43.0	229°32.3	.. 31.2	82°43.2	.. 48.1	189°10.3	.. 55.3						
4	205°10.9	226°54.9	41.9	244°32.8	30.6	97°45.9	48.2	204°12.6	55.1						
5	220°13.3	241°54.4	40.7	259°33.3	30.0	112°48.6	48.2	219°14.8	55.0						
6	235°15.8	256°54.0	S10°39.6	274°33.9	S16°29.4	127°51.2	N22°48.2	234°17.0	S01°54.9						
7	250°18.3	271°53.5	38.4	289°34.4	28.8	142°53.9	48.2	249°19.2	54.8						
8	265°20.7	286°53.0	37.3	304°34.9	28.2	157°56.6	48.2	264°21.4	54.7						
9	280°23.2	301°52.5	.. 36.1	319°35.4	.. 27.6	172°59.2	.. 48.3	279°23.6	.. 54.6						
10	295°25.7	316°52.0	34.9	334°35.9	27.0	188°01.9	48.3	294°25.8	54.5						
11	310°28.1	331°51.5	33.8	349°36.4	26.4	203°04.6	48.3	309°28.0	54.3						
12	325°30.6	346°51.0	S10°32.6	4°36.9	S16°25.8	218°07.2	N22°48.4	324°30.2	S01°54.2						
13	340°33.0	1°50.5	31.5	19°37.4	25.2	233°09.9	48.4	339°32.5	54.1						
14	355°35.5	16°50.0	30.3	34°37.9	24.6	248°12.6	48.4	354°34.7	54.0						
15	10°38.0	31°49.5	.. 29.1	49°38.5	.. 24.0	263°15.2	.. 48.4	9°36.9	.. 53.9						
16	25°40.4	46°49.0	28.0	64°39.0	23.4	278°17.9	48.5	24°39.1	53.8						
17	40°42.9	61°48.6	26.8	79°39.5	22.8	293°20.6	48.5	39°41.3	53.7						
18	55°45.4	76°48.1	S10°25.6	94°40.0	S16°22.2	308°23.2	N22°48.5	54°43.5	S01°53.5						
19	70°47.8	91°47.6	24.5	109°40.5	21.6	323°25.9	48.5	69°45.7	53.4						
20	85°50.3	106°47.1	23.3	124°41.0	21.0	338°28.6	48.6	84°47.9	53.3						
21	100°52.8	121°46.6	.. 22.2	139°41.5	.. 20.4	353°31.2	.. 48.6	99°50.1	.. 53.2						
22	115°55.2	136°46.1	21.0	154°42.1	19.7	8°33.9	48.6	114°52.4	53.1						
23	130°57.7	151°45.6	19.8	169°42.6	19.1	23°36.6	48.6	129°54.6	53.0						
Mer.pass. 14:18 ν -0.5° d 1.2' m -3.91 ν 0.5° d 0.6' m 1.13 ν 2.7° d 0.0' m -2.54 ν 2.2° d 0.1' m 1.02															

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec			
0	146°00.1	166°45.2	S10°18.7	184°43.1	S16°18.5	38°39.2	N22°48.7	144°56.8	S01°52.9	144°56.8	S01°52.9			
1	161°02.6	181°44.7	17.5	199°43.6	17.9	53°41.9	48.7	159°59.0	52.7	159°59.0	52.7			
2	176°05.1	196°44.2	16.3	214°44.1	17.3	68°44.5	48.7	175°01.2	52.6	175°01.2	52.6			
3	191°07.5	211°43.7	.. 15.2	229°44.6	.. 16.7	83°47.2	.. 48.7	190°03.4	.. 52.5	190°03.4	.. 52.5			
4	206°10.0	226°43.2	14.0	244°45.1	16.1	98°49.9	48.8	205°05.6	52.4	205°05.6	52.4			
5	221°12.5	241°42.7	12.8	259°45.7	15.5	113°52.5	48.8	220°07.8	52.3	220°07.8	52.3			
6	236°14.9	256°42.2	S10°11.7	274°46.2	S16°14.9	128°55.2	N22°48.8	235°10.0	S01°52.2	235°10.0	S01°52.2			
7	251°17.4	271°41.8	10.5	289°46.7	14.3	143°57.8	48.8	250°12.2	52.1	250°12.2	52.1			
8	266°19.9	286°41.3	09.3	304°47.2	13.7	159°00.5	48.9	265°14.4	51.9	265°14.4	51.9			
9	281°22.3	301°40.8	.. 08.1	319°47.7	.. 13.1	174°03.2	.. 48.9	280°16.7	.. 51.8	280°16.7	.. 51.8			
10	296°24.8	316°40.3	07.0	334°48.2	12.5	189°05.8	48.9	295°18.9	51.7	295°18.9	51.7			
11	311°27.3	331°39.8	05.8	349°48.7	11.8	204°08.5	48.9	310°21.1	51.6	310°21.1	51.6			
12	326°29.7	346°39.4	S10°04.6	4°49.3	S16°11.2	219°11.1	N22°49.0	325°23.3	S01°51.5	325°23.3	S01°51.5			
13	341°32.2	1°38.9	03.5	19°49.8	10.6	234°13.8	49.0	340°25.5	51.4	340°25.5	51.4			
14	356°34.6	16°38.4	02.3	34°50.3	0.9	249°16.5	.. 49.0	355°27.7	.. 51.3	355°27.7	.. 51.3			
15	11°37.1	31°37.9	10°01.1	49°50.8	.. 09.4	264°19.1	.. 49.0	10°29.9	.. 51.1	10°29.9	.. 51.1			
16	26°39.6	46°37.4	09°59.9	64°51.3	08.8	279°21.8	49.1	25°32.1	51.0	25°32.1	51.0			
17	41°42.0	61°37.0	58.8	79°51.8	08.2	294°24.4	49.1	40°34.3	50.9	40°34.3	50.9			
18	56°44.5	76°36.5	S09°57.6	94°52.4	S16°07.6	309°27.1	N22°49.1	55°36.5	S01°50.8	55°36.5	S01°50.8			
19	71°47.0	91°36.0	56.4	109°52.9	07.0	324°29.7	49.1	70°38.7	50.7	70°38.7	50.7			
20	86°49.4	106°35.5	55.2	124°53.4	06.3	339°32.4	49.2	85°41.0	50.6	85°41.0	50.6			
21	101°51.9	121°35.0	.. 54.1	139°53.9	.. 05.7	354°35.1	.. 49.2	100°43.2	.. 50.5	100°43.2	.. 50.5			
22	116°54.4	136°34.6	52.9	154°54.4	05.1	9°37.7	49.2	115°45.4	50.3	115°45.4	50.3			
23	131°56.8	151°34.1	51.7	169°55.0	04.5	24°40.4	49.2	130°47.6	50.2	130°47.6	50.2			
Mer.pass. 14:14			ν -0.5° d 1.2' m -3.91			ν 0.5° d 0.6' m 1.13			ν 2.7° d 0.0' m -2.54			ν 2.2° d 0.1' m 1.01		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	146°59.3	166°33.6	S09°50.5	184°55.5	S16°03.9	39°43.0	N22°49.3	145°49.8	S01°50.1
1	162°01.8	181°33.1	49.4	199°56.0	03.3	54°45.7	49.3	160°52.0	50.0
2	177°04.2	196°32.7	48.2	214°56.5	02.7	69°48.3	49.3	175°54.2	49.9
3	192°06.7	211°32.2	.. 47.0	229°57.0	.. 02.1	84°51.0	.. 49.3	190°56.4	.. 49.8
4	207°09.1	226°31.7	45.8	244°57.5	01.4	99°53.6	49.4	205°58.6	49.6
5	222°11.6	241°31.2	44.6	259°58.1	00.8	114°56.3	49.4	221°00.8	49.5
6	237°14.1	256°30.8	S09°43.5	274°58.6	S16°00.2	129°58.9	N22°49.4	236°03.0	S01°49.4
7	252°16.5	271°30.3	42.3	289°59.1	15°59.6	145°01.6	49.4	251°05.2	49.3
8	267°19.0	286°29.8	41.1	304°59.6	59.0	160°04.2	49.5	266°07.5	49.2
9	282°21.5	301°29.3	.. 39.9	320°00.1	.. 58.4	175°06.9	.. 49.5	281°09.7	.. 49.1
10	297°23.9	316°28.9	38.7	335°00.7	57.7	190°09.5	49.5	296°11.9	49.0
11	312°26.4	331°28.4	37.6	350°01.2	57.1	205°12.2	49.5	311°14.1	48.8
12	327°28.9	346°27.9	S09°36.4	5°01.7	S15°56.5	220°14.8	N22°49.6	326°16.3	S01°48.7
13	342°31.3	1°27.5	35.2	20°02.2	55.9	235°17.5	49.6	341°18.5	48.6
14	357°33.8	16°27.0	34.0	35°02.8	55.3	250°20.1	49.6	356°20.7	48.5
15	12°36.2	31°26.5	.. 32.8	50°03.3	.. 54.7	265°22.8	.. 49.6	11°22.9	.. 48.4
16	27°38.7	46°26.1	31.6	65°03.3	54.0	280°25.4	49.7	26°25.1	48.3
17	42°41.2	61°25.6	30.5	80°04.3	53.4	295°28.1	49.7	41°27.3	48.2
18	57°43.6	76°25.1	S09°29.3	95°04.8	S15°52.8	310°30.7	N22°49.7	56°29.5	S01°48.0
19	72°46.1	91°24.6	28.1	110°05.4	52.2	325°33.4	49.7	71°31.7	47.9
20	87°48.6	106°24.2	26.9	125°05.9	51.6	340°36.0	49.7	86°33.9	47.8
21	102°51.0	121°23.7	.. 25.7	140°06.4	.. 50.9	355°38.7	.. 49.8	101°36.1	.. 47.7
22	117°53.5	136°23.2	24.5	155°06.9	50.3	10°41.3	49.8	116°38.4	47.6
23	132°16.0	151°22.8	23.3	170°05.4	49.7	25°44.0	49.8	131°40.6	47.5
Mer.pass.	14°10	.. 0°52' 0.12"	m -3.91	.. 0°57' 0.06"	m 1.13	.. 2°27' 0.00"	m -2.53	.. 2°22' 0.01"	m 1.01

	Aries			Venus			Mars			Jupiter			Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	147°58.4	166°22.3	S09°22.1	185°08.0	S15°49.1	40°46.6	N22°49.8	146°42.8	S01°47.3							
1	163°00.9	181°21.8		21.0	200°08.5	48.5	55°49.3	49.9	161°45.0	47.2						
2	178°03.4	196°21.4		19.8	215°09.0	47.8	70°51.9	49.9	176°47.2	47.1						
3	193°05.8	211°20.9	•• 18.6	230°09.5	•• 47.2	85°54.6	•• 49.9	191°49.4	•• 47.0							
4	208°08.3	226°20.4		17.4	245°10.1	46.6	100°57.2	49.9	206°51.6	46.9						
5	223°10.7	241°20.0		16.2	260°10.6	46.0	115°59.9	50.0	221°53.8	46.8						
6	238°13.2	256°19.5	S09°15.0	130°10.0	275°11.1	S15°45.4	31°02.5	N22°50.0	236°56.0	S01°46.7						
7	253°15.7	271°19.1		13.8	290°11.6	44.7	146°05.1	50.0	251°58.2	46.5						
8	268°18.1	286°18.6		12.6	305°12.2	44.1	161°07.8	50.0	267°00.4	46.4						
9	283°20.6	301°18.1	•• 11.4	320°12.7	•• 43.5	176°10.4	•• 50.0	282°02.6	•• 46.3							
10	298°23.1	316°17.7		10.2	335°13.2	42.9	191°13.1	50.1	297°04.8	46.2						
11	313°25.5	331°17.2		09.1	350°13.7	42.2	206°15.7	50.1	312°07.0	46.1						
12	328°28.0	346°16.7	S09°07.9	5°14.3	S15°41.6	221°18.4	N22°50.1	327°09.2	S01°46.0							
13	343°30.5	1°16.3		06.7	20°14.8	41.0	236°21.0	50.1	342°11.4	45.8						
14	358°32.9	16°15.8		05.5	35°15.3	40.4	251°23.6	50.2	357°13.6	45.7						
15	13°35.4	31°15.4	•• 04.3	50°15.8	•• 39.8	266°26.3	•• 50.2	12°15.9	•• 45.6							
16	28°37.9	46°14.9		03.1	65°16.4	39.1	281°28.9	50.2	27°18.1	45.5						
17	43°40.3	61°14.4		01.9	80°16.9	38.5	296°31.6	50.2	42°20.3	45.4						
18	58°42.8	76°14.0	S09°00.7	95°17.4	S15°37.9	311°34.2	N22°50.3	57°22.5	S01°45.3							
19	73°45.2	91°13.5		08°59.5	110°17.9	37.3	326°36.8	50.3	72°24.7	45.1						
20	88°47.7	106°13.1		58.3	125°18.5	36.6	341°39.5	50.3	87°26.9	45.0						
21	103°50.2	121°12.6	•• 57.1	140°19.0	•• 36.0	356°42.1	•• 50.3	102°29.1	•• 44.9							
22	118°52.6	136°12.1		55.9	155°19.5	35.4	11°44.8	50.3	117°31.3	44.8						
23	133°55.1	151°11.7		54.7	170°20.0	34.7	26°47.4	50.4	132°33.5	44.7						
Mer.pass. 14:06			ν -0.5° d 1.2' m -3.91			ν 0.5° d 0.6' m 1.13			ν 2.6° d 0.0' m -2.52			ν 2.2° d 0.1' m 1.01				

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	148°57.6	166°11.2	S08°53.5	185°20.6	S15°34.1	41°50.0	N22°50.4	147°35.7	S01°44.6						
1	164°00.0	181°10.8		52.3	200°21.1	33.5	56°52.7	50.4	162°37.9	44.5					
2	179°02.5	196°10.3		51.1	215°21.6	32.9	71°55.3	50.4	177°40.1	44.3					
3	194°05.0	211°09.8		••	49.9	230°22.2	••	32.2	86°58.0	••	50.5	192°42.3	••	44.2	
4	209°07.4	226°09.4		48.7	245°22.7	31.6	102°00.6	50.5	207°44.5	44.1					
5	224°09.9	241°08.9		47.3	260°23.2	31.0	117°03.2	50.5	222°46.7	44.0					
6	239°12.3	256°08.5	S08°46.3	275°23.7	S15°30.4	132°05.9	N22°50.5	237°48.9	S01°43.9						
7	254°14.8	271°08.0		45.1	290°24.3	29.7	147°08.5	50.5	252°51.1	43.8					
8	269°17.3	286°07.6		43.9	305°24.8	29.1	162°11.1	50.6	267°53.3	43.6					
9	284°19.7	301°07.1		••	42.7	320°25.3	••	28.5	177°13.8	••	50.6	282°55.5	••	43.5	
10	299°22.2	316°06.2		41.5	335°25.9	27.8	192°16.4	50.6	297°57.7	43.4					
11	314°24.7	331°06.2		40.3	350°26.4	27.2	207°19.0	50.6	313°00.0	43.3					
12	329°27.1	346°05.8	S08°39.1	5°26.9	S15°26.6	222°21.7	N22°50.6	328°02.2	S01°43.2						
13	344°29.6	1°05.3		37.9	20°27.4	25.9	237°24.3	50.7	343°04.4	43.1					
14	359°32.1	16°04.8		36.7	35°28.0	25.3	252°26.9	50.7	358°06.6	42.9					
15	14°34.5	31°04.4		••	35.5	50°28.5	••	24.7	267°29.6	••	50.7	13°08.8	••	42.8	
16	29°37.0	46°03.9		34.3	65°29.0	24.0	282°32.2	50.7	28°11.0	42.7					
17	44°39.5	61°03.5		33.1	80°29.6	23.4	297°34.8	50.8	43°13.2	42.6					
18	59°41.9	76°03.0	S08°31.9	95°30.1	S15°22.8	312°37.5	N22°50.8	58°15.4	S01°42.5						
19	74°44.4	91°02.6		30.7	110°30.6	22.2	327°40.1	50.8	73°17.6	42.4					
20	89°46.8	106°02.1		29.5	125°31.2	21.5	342°42.7	50.8	88°19.8	42.2					
21	104°49.3	121°01.7		••	28.3	140°31.7	••	20.9	357°45.4	••	50.8	103°22.0	••	42.1	
22	119°51.8	136°01.2		27.1	155°32.2	20.3	12°48.0	50.9	118°24.2	42.0					
23	134°54.2	151°00.8		25.9	170°32.7	19.6	27°50.6	50.9	133°26.4	41.9					
Mer.pass. 14:02			ν -0.5° d 1.2' m -3.91			ν 0.5° d 0.6' m 1.13			ν 2.6° d 0.0' m -2.51			ν 2.2° d 0.1' m 1.01			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	149°56.7	166°00.3	S08°24.6	185°33.3	S15°19.0	42°53.3	N22°50.9	148°28.6	S01°41.8						
1	164°59.2	180°59.9		23.4	200°33.8	18.4	57°55.9	50.9	163°30.6	41.7					
2	180°01.6	195°59.4		22.2	215°34.3	17.7	72°58.5	50.9	178°33.0	41.5					
3	195°04.1	210°59.0		••	21.0	230°34.9	••	17.1	88°01.2	••	51.0	193°35.2	••	41.4	
4	210°06.6	225°58.5		19.8	245°35.4	16.5	103°03.8	51.0	208°37.4	41.3					
5	225°09.0	240°58.1		18.6	260°35.9	15.8	118°06.4	51.0	223°39.6	41.2					
6	240°11.5	255°57.7	S08°17.4	275°36.5	S15°15.2	133°09.0	N22°51.0	238°41.8	S01°41.1						
7	255°13.9	270°57.2		16.2	290°37.0	14.5	148°11.7	51.1	253°44.0	41.0					
8	270°16.4	285°56.8		15.0	305°37.5	13.9	163°14.3	51.1	268°46.2	40.8					
9	285°18.9	300°56.3		••	13.8	320°38.1	••	13.3	178°16.9	••	51.1	283°48.4	••	40.7	
10	300°21.3	315°55.9		12.6	335°38.6	12.6	193°19.5	51.1	298°50.6	40.6					
11	315°23.8	330°55.4		11.3	350°39.1	12.0	208°22.2	51.1	313°52.8	40.5					
12	330°26.3	345°55.0	S08°10.1	5°39.7	S15°11.4	223°24.8	N22°51.2	328°55.0	S01°40.4						
13	345°27.8	1°05.4		08.9	20°40.2	10.7	238°27.4	51.2	343°57.2	40.3					
14	0°31.2	15°54.1		07.7	35°40.7	10.1	253°30.0	51.2	358°59.4	40.1					
15	15°33.7	30°53.6		••	06.5	50°41.3	••	09.5	268°32.7	••	51.2	14°01.6	••	40.0	
16	30°36.1	45°53.2		05.3	65°41.8	08.8	283°35.3	51.2	29°03.8	39.9					
17	45°38.6	60°52.8		04.1	80°42.3	08.2	298°37.9	51.3	44°06.0	39.8					
18	60°41.1	75°52.3	S08°02.9	95°42.9	S15°07.5	313°40.5	N22°51.3	59°08.3	S01°39.7						
19	75°43.5	90°51.9		01.6	110°43.4	06.9	328°43.2	51.3	74°10.5	39.6					
20	90°46.0	105°51.4		08°00.4	125°43.9	06.3	343°45.8	51.3	89°12.7	39.4					
21	105°48.4	120°51.0		07°59.2	140°44.5	••	05.6	358°48.4	••	51.3	104°14.9	••	39.3		
22	120°50.9	135°50.5		58.0	155°45.0	05.0	13°51.0	51.4	119°17.1	39.2					
23	135°53.4	150°50.1		56.8	170°45.6	04.3	28°53.7	51.4	134°19.3	39.1					
Mer.pass. 13:58			ν -0.4° d 1.2' m -3.91			ν 0.5° d 0.6' m 1.13			ν 2.6° d 0.0' m -2.51			ν 2.2° d 0.1' m 1.01			

Stars			h			Sun			Moon			
	SHA	Dec		GHA	Dec		GHA	ν		Dec	d	HP
Alpheratz	357°34.1	29°14.1	0	176°31.3	S11°42.3	170°36.4	13.2'	S09°49.1	15.0'	57.2'		
Ankaa	353°06.5	-42°10.0	1	191°31.4	41.4	185°08.6	13.3'	09°34.1	15.2'	57.3'		
Schedar	349°30.4	56°41.0	2	206°31.4	40.6	199°40.9	13.3'	09°18.9	15.2'	57.3'		
Diphda	348°46.6	-17°50.7	3	221°31.5	•• 39.7	214°13.1	13.3'	09°03.7	15.2'	57.3'		
Achernar	335°19.8	-57°06.5	4	236°31.5	38.8	228°45.4	13.3'	08°48.5	15.3'	57.3'		
Hamal	327°50.3	23°35.2	5	251°31.6	37.9	243°17.8	13.3'	08°33.2	15.3'	57.4'		
Polaris	313°39.5	89°25.8	6	266°31.6	S11°37.0	257°50.1	13.3'	S08°17.9	15.4'	57.4'		
Acamar	315°11.1	-40°12.2	7	281°31.7	36.1	272°25.5	13.4'	08°02.5	15.5'	57.4'		
Menkar	314°05.2	4°11.5	8	296°31.7	35.3	286°54.8	13.4'	07°47.0	15.5'	57.4'		
Mirfak	308°27.0	49°37.4	9	311°31.8	•• 34.3	301°27.2	13.4'	07°31.5	15.5'	57.4'		
Aldebaran	290°38.5	16°53.7	10	326°31.8	33.5	315°59.6	13.4'	07°16.0	15.6'	57.5'		
Rigel	281°02.8	-8°10.4	11	341°31.9	32.6	330°32.0	13.4'	07°00.4	15.6'	57.5'		
Capella	280°30.3	46°01.6	12	356°32.0	S11°30.7	345°04.4	13.4'	S06°44.8	15.7'	57.5'		
Bellatrix	278°21.7	6°22.3	13	11°32.0	30.8	359°36.9	13.4'	06°29.1	15.7'	57.5'		
Elnath	278°00.5	28°37.8	14	26°32.1	•• 29.9	14°09.3	13.4'	06°13.4	15.7'	57.6'		
Anilam	275°36.6	-1°12.1	15	41°32.1	•• 29.1	28°41.8	13.5'	05°57.7	15.8'	57.6'		
Betelgeuse	270°50.9	7°24.7	16	56°32.2	28.2	43°14.2	13.5'	05°41.9	15.8'	57.6'		
Canopus	263°51.7	-52°42.8	17	71°32.2	27.3	57°46.7	13.5'	05°26.1	15.9'	57.6'		
Sirius	258°25.2	-16°45.3	18	86°32.3	S11°26.4	72°19.1	13.5'	S05°10.2	15.8'	57.6'		
Adhara	255°04.9	-29°00.6	19	101°32.3	25.5	86°51.6	13.5'	04°54.4	16.0'	57.7'		
Procyon	244°49.6	5°09.4	20	116°32.4	24.6	101°24.1	13.5'	04°38.4	15.9'	57.7'		
Pollux	243°15.8	27°57.7	21	131°32.4	•• 23.7	115°56.6	13.5'	04°22.5	16.0'	57.7'		
Avior	234°13.8	-59°35.9	22	146°32.5	22.8	130°29.1	13.5'	04°06.5	16.0'	57.7'		
Suhail	222°45.2	-43°32.4	23	161°32.6	22.0	145°01.5	13.5'	03°50.5	16.1'	57.7'		
Miaplacidus	221°37.2	-69°49.5										
Alphard	217°46.5	-8°46.5										
Regulus	207°33.1	11°40.2										
				SD = 16.2'	$d = 0.9'$			SD = 15.6'				

Aries		Venus		Mars		Jupiter		Saturn	
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	150°55.8	165°49.7	S07°55.6	185°46.1	S15°03.7	43°56.3	N22°51.4	149°21.5	S01°39.0
1	165°58.3	180°49.2	54.3	200°46.6	03.1	58°58.9	51.4	164°23.7	38.9
2	181°00.8	195°48.2	53.1	215°47.2	02.4	74°01.5	51.4	179°25.9	38.7
3	196°03.2	210°48.3	.. 51.9	230°47.7	.. 01.8	89°04.1	.. 51.5	194°28.1	.. 38.6
4	211°05.7	225°47.9	50.7	245°48.2	01.1	104°06.8	51.5	209°30.3	38.5
5	226°08.2	240°47.5	49.5	260°48.8	51.5	119°09.4	51.5	224°32.5	38.4
6	241°10.6	255°47.0	S07°48.3	275°49.3	S14°59.5	134°12.0	N22°51.6	239°34.3	S01°38.3
7	256°13.1	270°46.6	47.0	290°49.8	59.2	149°14.6	51.5	254°36.9	38.2
8	271°15.5	285°46.1	45.8	305°50.4	58.6	164°17.2	51.6	269°39.1	38.0
9	286°18.0	300°45.7	.. 44.6	320°50.9	.. 57.9	179°19.9	.. 51.6	284°41.3	.. 37.9
10	301°20.5	315°45.3	43.4	335°51.5	57.3	194°22.5	51.6	299°43.5	37.8
11	316°22.9	330°44.8	42.2	350°52.0	56.6	209°25.1	51.6	314°45.7	37.7
12	331°25.4	345°44.4	S07°40.9	5°52.5	S14°56.0	224°27.7	N22°51.6	329°47.9	S01°37.6
13	346°27.9	0°44.0	39.7	20°53.1	55.4	239°30.3	51.7	344°50.1	37.5
14	1°30.3	15°43.5	38.5	35°53.6	54.7	254°33.0	51.7	359°52.3	37.3
15	16°32.8	30°43.1	.. 37.3	50°54.1	.. 54.1	269°35.6	.. 51.7	14°54.5	.. 37.2
16	31°35.3	45°42.7	36.1	65°54.7	53.4	284°38.2	51.7	29°56.7	37.1
17	46°37.7	60°42.2	34.8	80°55.2	52.8	299°40.8	51.7	44°58.9	37.0
18	61°40.2	75°41.8	S07°33.6	95°55.8	S14°52.1	314°43.4	N22°51.6	60°01.1	S01°36.9
19	76°42.7	90°41.4	32.4	110°56.3	51.5	329°46.0	51.8	75°03.3	36.7
20	91°45.1	105°40.9	31.2	125°56.8	50.8	344°48.6	51.8	90°05.5	36.6
21	106°47.0	120°40.5	.. 29.9	140°57.4	.. 50.2	359°51.3	.. 51.8	105°07.7	.. 36.5
22	121°50.0	135°40.0	28.7	155°57.9	49.6	14°53.9	51.8	120°09.9	36.4
23	136°52.5	150°39.6	27.5	170°58.5	48.9	29°56.5	51.9	135°12.1	36.3
Mer.pass. 13:54 ν -0.4' d 1.2' m -3.91 ν 0.5' d 0.6' m 1.13 ν 2.6' d 0.0' m -2.50 ν 2.2' d 0.1' m 1.01									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	151°55.0	165°39.2	S07°26.3	185°59.0	S14°48.3	44°59.1	N22°51.9	150°14.3	S01°36.2
1	166°57.4	180°38.7	25.0	200°59.5	47.6	60°01.7	51.9	165°16.5	36.0
2	181°59.9	195°38.3	23.8	216°00.1	47.0	75°04.3	51.9	180°18.7	35.9
3	197°02.4	210°37.9	.. 22.6	231°00.6	.. 46.3	90°06.9	.. 51.9	195°20.9	.. 35.8
4	212°04.8	225°37.5	21.4	246°01.2	45.7	105°09.6	51.9	210°23.1	35.7
5	227°07.3	240°37.0	20.1	261°01.7	45.0	120°12.2	52.0	225°25.3	35.6
6	242°09.8	255°36.6	S07°18.9	276°02.2	S14°44.4	135°14.8	N22°52.0	240°27.5	S01°35.5
7	257°12.2	270°36.2	17.7	291°02.8	43.7	150°17.4	52.0	255°29.7	35.3
8	272°14.7	285°35.7	16.5	306°03.3	43.1	165°20.0	52.0	270°31.9	35.2
9	287°17.2	300°35.3	.. 15.2	321°03.9	.. 42.4	180°22.6	.. 52.0	285°34.1	.. 35.1
10	302°19.6	315°34.9	14.0	336°04.4	41.8	195°25.2	52.1	300°36.3	35.0
11	317°22.1	330°34.4	12.8	351°05.0	41.1	210°27.8	52.1	315°38.5	34.9
12	332°24.5	345°34.0	S07°11.5	6°05.5	S14°40.5	225°30.4	N22°52.1	330°40.7	S01°34.8
13	347°27.0	0°33.6	10.3	21°06.0	39.8	240°33.0	52.1	345°42.9	34.6
14	2°29.5	15°33.2	09.1	36°06.6	39.2	255°35.7	52.1	0°45.1	34.5
15	17°31.9	30°32.7	.. 07.1	51°07.1	.. 38.5	270°38.3	.. 52.2	15°47.3	.. 34.4
16	32°34.4	45°32.3	06.6	66°07.7	37.9	285°40.9	52.2	30°49.5	34.3
17	47°36.9	60°31.9	05.4	81°08.2	37.2	300°43.5	52.2	45°51.7	34.2
18	62°39.3	75°31.4	S07°04.2	96°08.8	S14°36.6	315°46.1	N22°52.2	60°53.9	S01°34.0
19	77°41.8	90°31.0	02.9	111°09.3	35.9	330°48.7	52.2	75°56.1	33.9
20	92°44.3	105°30.6	01.7	126°09.8	35.3	345°51.3	52.2	90°58.3	33.8
21	107°46.7	120°30.2	07°00.5	141°10.4	.. 34.6	0°53.9	.. 52.3	106°00.5	.. 33.7
22	122°49.2	135°29.7	06°59.2	156°10.9	34.0	15°56.5	52.3	121°02.7	33.6
23	137°51.6	150°29.3	58.0	171°11.5	33.3	30°59.1	52.3	136°04.9	33.5
Mer.pass. 13:50 ν -0.4' d 1.2' m -3.91 ν 0.5' d 0.6' m 1.13 ν 2.6' d 0.0' m -2.49 ν 2.2' d 0.1' m 1.00									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	152°54.1	165°28.9	S06°56.8	186°12.0	S14°32.7	46°01.7	N22°52.3	151°07.1	S01°33.3
1	167°56.6	180°28.5	55.6	201°12.6	32.0	61°04.3	52.3	166°09.3	33.2
2	182°59.0	195°28.0	54.3	216°13.1	31.4	76°06.9	52.4	181°11.5	33.1
3	198°01.5	210°27.6	.. 53.1	231°13.7	.. 30.7	91°09.5	.. 52.4	196°13.7	.. 33.0
4	213°04.0	225°27.2	51.9	246°14.2	30.1	106°12.1	52.4	211°15.9	32.9
5	228°06.4	240°26.8	50.6	261°14.7	29.4	121°14.7	52.4	226°18.1	32.7
6	243°08.9	255°26.3	S06°49.4	276°15.3	S14°28.8	136°17.3	N22°52.4	241°20.3	S01°32.6
7	258°11.4	270°25.9	48.1	291°15.8	28.1	151°19.9	52.4	256°22.5	32.5
8	273°13.8	285°25.5	46.9	306°16.4	27.4	166°22.5	52.5	271°24.7	32.4
9	288°16.3	300°25.1	.. 45.7	321°16.9	.. 26.8	181°25.1	.. 52.5	286°26.9	.. 32.3
10	303°18.8	315°24.6	44.4	336°17.5	26.1	196°27.8	52.5	301°29.1	32.2
11	318°21.2	330°24.2	43.2	351°18.0	25.5	211°30.4	52.5	316°31.3	32.0
12	333°23.7	345°23.8	S06°42.0	6°18.6	S14°24.8	226°33.0	N22°52.5	331°33.5	S01°31.9
13	348°26.1	0°23.4	40.7	21°19.1	24.2	241°35.6	52.6	346°35.7	31.8
14	3°28.6	15°23.0	39.5	36°19.7	23.5	256°38.2	.. 52.6	1°37.9	.. 31.7
15	18°31.1	30°22.5	.. 38.3	51°20.2	.. 22.9	271°40.8	.. 52.6	16°40.1	.. 31.6
16	33°33.5	45°22.1	37.0	66°20.8	22.2	286°43.4	52.6	31°42.3	31.4
17	48°36.0	60°21.7	35.8	81°21.3	21.5	301°46.0	52.6	46°44.5	31.3
18	63°38.5	75°21.3	S06°34.5	96°21.9	S14°20.9	316°48.5	N22°52.6	61°46.7	S01°31.2
19	78°40.9	90°20.9	33.3	111°22.4	20.2	331°51.1	52.7	76°48.9	31.1
20	93°43.4	105°20.4	32.1	126°23.0	19.6	346°53.7	.. 52.7	91°51.1	31.0
21	108°45.9	120°20.0	.. 30.8	141°23.5	.. 18.9	1°56.3	.. 52.7	106°53.3	.. 30.9
22	123°48.3	135°19.6	29.6	156°24.1	18.3	16°58.9	.. 52.7	121°55.5	30.7
23	138°50.8	150°19.2	28.4	171°24.6	17.6	32°01.5	52.7	136°57.7	30.6
Mer.pass. 13:46 ν -0.4' d 1.2' m -3.91 ν 0.5' d 0.7' m 1.14 ν 2.6' d 0.0' m -2.49 ν 2.2' d 0.1' m 1.00									

Stars		h		Sun		Moon				
SHA	Dec	Sat	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.1	29°14.1	0	176°35.7	S10°38.0	137°09.2	12.0'	N09°22.5	15.7'	58.6'
Ancad	353°06.6	-42°10.1	1	191°35.7	37.1	151°40.1	11.9'	09°38.2	15.7'	58.6'
Shedar	349°30.4	56°41.0	2	206°35.8	36.2	166°11.1	11.9'	09°53.9	15.7'	58.6'
Diphda	348°46.6	-17°50.7	3	221°35.9	.. 35.3	180°42.0	11.8'	10°09.6	15.6'	58.6'
Achernar	335°19.8	-57°06.5	4	236°36.0	34.4	195°12.8	11.7'	10°25.2	15.6'	58.6'
Hamal	327°50.3	23°35.2	5	251°36.0	33.5	209°43.5	11.7'	10°40.8	15.5'	58.6'
Polaris	313°41.0	89°22.8	6	266°36.1	S10°32.6	224°14.2	11.6'	N10°56.3	15.5'	58.6'
Acamar	315°11.2	-40°12.2	7	281°36.2	31.7	238°44.8	11.5'	11°11.8	15.5'	58.7'
Menkar	314°05.2	4°11.5	8	296°36.2	30.8	253°15.4	11.5'	11°27.3	15.3'	58.7'
Mirafk	308°27.0	49°57.4	9	311°36.3	.. 29.9	267°45.8	11.4'	11°42.6	15.4'	58.7'
Aldebaran	290°38.5	16°33.7	10	326°36.4	29.0	282°16.2	11.3'	11°58.0	15.2'	58.7'
Rigel	281°02.9	-8°10.4	11	341°36.5	28.1	296°46.6	11.3'	12°13.2	15.2'	58.7'
Capella	280°20.4	46°01.6	12	356°36.5	S10°27.2	311°16.9	11.2'	N12°28.4	15.2'	58.7'
Bellatrix	278°21.8	6°22.3	13	1°36.6	26.3	325°47.0	11.1'	12°43.6	15.1'	58.7'
Elath	276°00.5	28°37.8	14	26°36.7	25.4	340°17.2	11.0'	12°58.7	15.0'	58.7'
Anilam	275°36.6	-1°12.2	15	41°36.8	.. 24.4	354°47.2	11.0'	13°13.7	15.0'	58.7'
Betelgeuse	270°50.9	7°24.7	16	56°36.8	23.5	9°17.2	10.9'	13°28.7	14.9'	58.8'
Canopus	263°51.7	-52°42.8	17	71°36.9	22.6	23°47.1	10.8'	13°43.6	14.8'	58.8'
Sirius	258°25.2	-16°45.3	18	86°37.0	S10°21.7	38°16.9	10.7'	N13°58.4	14.8'	58.8'
Adhara	255°04.9	-29°09.4	19	101°37.1	20.8	52°46.6	10.7'	14°13.2	14.7'	58.8'
Procyon	244°49.6	-5°09.4	20	116°37.1	19.9	67°16.3	10.6'	14°27.9	14.6'	58.8'
Pollux	243°15.9	27°57.7	21	131°37.2	.. 19.0	81°45.9	10.5'	14°42.5	14.5'	58.8'
Avior	234°13.8	-59°35.7	22	146°37.3	18.1	96°15.3	10.4'	14°57.0	14.5'	58.8'
Suhail	222°45.2	-37°22.4	23	161°37.4	17.2	110°44.8	10.3'	15°11.5	14.4'	58.8'
Miaplacidus	221°37.2	-69°49.5	SD = 16.2' d = 0.9' SD = 16.0'							
Alphard	217°46.5	-8°46.5								
Regulus	207°33.1	11°50.2								
Dubhe	193°39.2	61°36.4								
Denebola	182°23.7	14°25.4								
Geniah	175°42.3	-17°41.3								
Acrux	172°58.5	-63°14.6								
Gacrux	171°50.2	-57°15.5								
Alioth	166°11.7	55°48.8								
Spica	158°21.1	-11°18.0								
Alkaid	152°51.0	49°10.6								
Hadar	148°34.4	-60°29.8								
Menkent	147°56.3	-36°29.9								
Arcturus	145°46.9	19°52.5								
Rigel Kent.	139°38.8	-60°56.4								
Kochab	137°19.4	74°02.5								
Zuben 'ul	136°54.9	-16°09.1								
Alphecca	126°02.9	26°37.3								
Antares	112°14.7	-26°29.4								
Atria	107°08.2	-69°04.2								
Sabik	102°01.8	-15°45.5								
Shaula	96°09.2	-37°07.3								
Rasalhague	95°57.8	12°32.2								
Eltanin	90°42.0	51°28.8								
Kaus Aust.	83°31.5	-34°22.3								
Vega	80°32.8	38°48.2								
Nunki	75°46.8	-26°15.9								
Altair	61°59.3	8°56.1								
Peacock	53°04.8	-56°39.0								
Deneb	49°25.6	45°22.2								
Enif	33°38.2	9°59.6								
Al Na'ir	27°32.2	-46°50.1								
Fomalhaut	15°13.8	-29°29.1								
Scheat	13°44.7	28°13.4								
Markab	13°29.3	15°20.7								
Feb 21 Sat		SHA	Mer. pass.							
Venus		14°53.8	12.57							
Mars		34°50.3	11.37							
Jupiter		253°00.4	21.01							
Saturn		358°25.6	14.01							
Feb 22 Sun		SHA	Mer. pass.							
Venus		13°44.2	12.58							
Mars		34°04.0	11.36							
Jupiter		253°04.1	20.56							
Saturn		358°19.3	13.57							
Feb 23 Mon		SHA	Mer. pass.							
Venus		12°34.8	12.58							
Mars		33°17.9	11.35							
Jupiter		253°07.6	20.52							
Saturn		358°13.0	13.53							
Horizontal parallax										
Venus: 0.1										
Mars: 0.1										
Sun										
Sun	GHA	Dec	GHA	ν	Dec	d	HP			
0	176°37.4	15.3	125°14.1	10.2'	N15°25.9	14.3'	58.8'			
1	191°37.5	16.4	139°43.3	10.2'	15°40.2	14.3'	58.8'			
2	206°37.6	14.4	154°12.5	10.1'	15°54.5	14.1'	58.9'			
3	221°37.7	.. 13.5	168°41.6	10.0'	16°08.6	14.1'	58.9'			
4	236°37.8	12.6	183°10.5	9.9'	16°22.7	14.0'	58.9'			
5	251°37.8	11.7	197°39.4	9.8'	16°36.7	13.9'	58.9'			
6	266°37.9	S10°10.8	212°08.2	9.7'	N16°50.6	13.8'	58.9'			
7	281°38.0	09.9	226°36.9	9.6'	17°04.4	13.7'	58.9'			
8	296°38.1	09.0	241°05.6	9.5'	17°18.1	13.6'	58.9'			
9	311°38.1	.. 08.1	255°34.1	9.4'	17°31.7	13.6'	58.9'			
10	326°38.2	07.2	270°02.5	9.3'	17°45.3	13.4'	58.9'			
11	341°38.3	06.2	284°30.9	9.3'	17°58.7	13.3'	58.9'			
12	356°38.4	S10°05.3	298°59.1	9.2'	N18°12.0	13.3'	58.9'			
13	1°38.5	04.4	313°27.3	9.1'	18°25.3	13.1'	58.9'			
14	26°38.6	03.5	327°55.4	9.0'	18°38.4	13.1'	59.0'			
15	41°38.6	.. 02.6	342°23.3	8.9'	18°51.5	12.9'	59.0'			
16	56°38.7	01.7	356°51.2	8.8'	19°04.4	12.8'	59.0'			
17	71°38.8	S09°00.8	11°19.0	8.7'	19°17.2	12.8'	59.0'			
18	86°38.9	S09°59.8	25°46.7	8.6'	N19°30.0	12.6'	59.0'			
19	101°39.0	58.9	40°14.3	8.5'	19°42.6	12.5'	59.0'			
20	116°39.0	58.0	54°41.7	8.4'	19°55.1	12.4'	59.0'			
21	131°39.1	.. 57.1	69°09.1	8.3'	20°07.5	12.3'	59.0'			
22	146°39.2	56.2	83°36.4	8.2'	20°19.8	12.1'	59.0'			
23	161°39.3	55.3	98°03.6	8.1'	20°31.9	12.1'	59.0'			
SD = 16.2' d = 0.9'				SD = 16.1'						
Moon		GHA	Dec	GHA	ν	Dec	d	HP		
0	176°39.4	S09°54.3	112°30.7	7.9'	N20°44.0	11.9'	59.0'			
1	191°39.5	53.4	126°57.7	7.9'	20°55.9	11.8'	59.0'			
2	206°39.5	52.5	141°24.6	7.8'	21°07.7	11.7'	59.0'			
3	221°39.6	.. 51.6	155°51.4	7.7'	21°19.4	11.6'	59.0'			
4	236°39.7	50.7	170°18.1	7.6'	21°31.0	11.4'	59.0'			
5	251°39.8	49.8	184°44.7	7.5'	21°42.4	11.3'	59.0'			
6	266°39.9	S09°48.8	199°11.2	7.4'	N21°53.7	11.2'	59.1'			
7	281°40.0	47.9	213°37.6	7.3'	22°04.9	11.1'	59.1'			
8	296°40.1	47.0	228°03.9	7.2'	22°16.0	10.9'	59.1'			
9	311°40.1	.. 46.1	242°30.1	7.1'	22°26.9	10.8'	59.1'			
10	326°40.2	45.2	256°56.2	7.0'	22°37.7	10.6'	59.1'			
11	341°40.3	44.2	271°22.2	6.9'	22°48.3	10.5'	59.1'			
12	356°40.4	S09°43.3	285°48.1	6.8'	N22°58.8	10.4'	59.1'			
13	1°40.5	42.4	300°13.9	6.7'	23°09.2	10.2'	59.1'			
14	26°40.6	41.5	314°39.6	6.6'	23°19.4	10.1'	59.1'			
15	41°40.7	.. 40.6	329°05.2	6.5'	23°29.5	9.9'	59.1'			
16	56°40.8	39.6	343°30.7	6.4'	23°39.4	9.8'	59.1'			
17	71°40.8	38.7	357°56.1	6.3'	23°49.2	9.7'	59.1'			
18	86°40.9	S09°37.8	12°21.4	6.2'	N23°58.9	9.5'	59.1'			
19	101°41.0	36.9	26°46.7	6.1'	24°08.4	9.4'	59.1'			
20	116°41.1	36.0	41°11.8	6.0'	24°17.8	9.2'	59.1'			
21	131°41.2	.. 35.0	55°36.8	5.9'	24°27.0	9.0'	59.1'			
22	146°41.3	34.1	70°01.7	5.8'	24°36.0	8.9'	59.1'			
23	161°41.4	33.2	84°26.6	5.7'	24°44.9	8.7'	59.1'			
SD = 16.2' d = 0.9'				SD = 16.1'						

	Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	153°53.3	165°18.8	S06°27.1	186°25.1	S14°16.9	47°04.1	N22°52.7	151°59.8	S01°30.5						
1	168°55.7	180°18.3	25.9	201°25.7	16.3	62°06.7	52.8	167°02.0	30.4						
2	183°58.2	195°17.9	24.6	216°26.2	15.6	77°09.3	52.8	182°04.2	30.3						
3	199°00.6	210°17.5	.. 23.4	231°26.8	.. 15.0	92°11.9	.. 52.8	197°06.4	.. 30.1						
4	214°03.1	225°17.1	22.2	246°27.3	14.3	107°14.5	52.8	212°08.6	30.0						
5	229°05.6	240°16.7	20.9	261°27.9	13.6	122°17.1	52.8	227°10.8	29.9						
6	244°08.0	255°16.3	S06°19.7	276°28.4	S14°13.0	137°19.7	N22°52.8	242°13.0	S01°29.8						
7	259°10.5	270°15.8	18.4	291°29.0	12.3	152°22.3	52.9	257°15.2	29.6						
8	274°13.0	285°15.4	17.2	306°29.5	11.7	167°24.9	52.9	272°17.4	29.7						
9	289°15.4	300°15.0	.. 15.9	321°30.1	.. 11.0	182°27.5	.. 52.9	287°19.6	.. 29.4						
10	304°17.9	315°14.6	14.7	336°30.6	10.3	197°30.1	52.9	302°21.8	29.3						
11	319°20.4	330°14.2	13.5	351°31.2	09.7	212°32.7	52.9	317°24.0	29.2						
12	334°22.8	345°13.8	S06°12.2	6°31.7	S14°09.0	227°35.3	N22°52.9	332°26.2	S01°29.1						
13	349°25.3	0°13.4	11.0	21°32.3	08.4	242°37.9	53.0	347°28.4	29.0						
14	4°27.8	15°12.9	09.7	36°32.9	07.7	257°40.4	53.0	2°30.6	28.8						
15	19°30.2	30°12.5	.. 08.5	51°33.4	.. 07.0	272°43.0	.. 53.0	17°32.8	.. 28.7						
16	34°32.7	45°12.1	07.2	66°34.0	06.6	287°45.6	53.0	32°35.0	28.6						
17	49°35.1	60°11.7	06.0	81°34.5	05.7	302°48.2	53.0	47°37.2	28.5						
18	64°37.6	75°11.3	S06°04.8	96°35.1	S14°05.0	317°50.8	N22°53.0	62°39.4	S01°28.4						
19	79°40.1	90°10.9	03.5	111°35.6	04.4	332°53.4	53.1	77°41.6	28.2						
20	94°42.5	105°10.5	02.3	126°36.2	03.7	347°56.0	53.1	92°43.8	28.1						
21	109°45.0	120°10.0	06°01.0	141°36.7	.. 03.1	2°58.6	.. 53.1	107°46.0	.. 28.0						
22	124°47.5	135°09.6	05°59.8	156°37.3	02.4	18°01.2	53.1	122°48.2	27.9						
23	139°49.9	150°09.2	58.5	171°37.8	01.7	33°03.8	53.1	137°50.4	27.8						
Mer.pass. 13:42			ν -0.4° d 1.2' m -3.91			ν 0.5° d 0.7' m 1.14			ν 2.6° d 0.0' m -2.48			ν 2.2° d 0.1' m 1.00			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	154°52.4	165°08.8	S05°57.3	186°38.4	S14°01.1	48°06.3	N22°53.1	152°52.6	S01°27.7						
1	169°54.9	180°08.4	56.0	201°38.9	14°00.4	63°08.9	53.2	167°54.8	27.5						
2	184°57.3	195°08.0	54.8	216°39.5	13°59.7	78°11.5	53.2	182°57.0	27.4						
3	199°59.8	210°07.6	.. 53.5	231°40.0	.. 59.1	93°14.1	.. 53.2	197°59.2	.. 27.3						
4	215°02.2	225°07.2	52.3	246°40.6	58.8	108°16.7	53.2	213°01.4	27.2						
5	230°04.7	240°06.8	51.0	261°41.1	57.7	123°19.3	53.2	228°03.6	27.1						
6	245°07.2	255°06.3	S05°49.8	276°41.7	S13°57.1	138°21.9	N22°53.2	243°05.8	S01°26.9						
7	260°09.6	270°05.9	48.5	291°42.3	56.4	153°24.4	53.3	258°08.0	26.8						
8	275°12.1	285°05.5	47.3	306°42.8	55.7	168°27.0	53.3	273°10.1	26.7						
9	290°14.6	300°05.1	.. 46.0	321°43.4	.. 55.1	183°29.6	.. 53.3	288°12.3	.. 26.6						
10	305°17.0	315°04.7	44.8	336°43.9	54.4	198°32.2	53.3	303°14.5	26.5						
11	320°19.5	330°04.3	43.5	351°44.5	53.7	213°34.8	53.3	318°16.7	26.3						
12	335°22.0	345°03.9	S05°42.3	6°45.0	S13°53.1	228°37.4	N22°53.3	333°18.9	S01°26.2						
13	350°24.4	0°03.5	41.0	21°45.6	52.4	243°39.9	53.3	348°21.1	26.1						
14	5°26.9	15°03.1	39.8	36°46.1	51.7	258°42.5	53.4	3°23.3	26.0						
15	20°29.4	30°02.7	.. 38.5	51°46.7	.. 51.1	273°45.1	.. 53.4	18°25.5	.. 25.9						
16	35°31.8	45°02.3	37.3	66°47.3	50.4	288°47.7	53.4	33°27.7	25.7						
17	50°34.3	60°01.9	36.0	81°47.8	49.7	303°50.3	53.4	48°29.9	25.6						
18	65°36.7	75°01.4	S05°34.8	96°48.4	S13°49.1	318°52.9	N22°53.4	63°32.1	S01°25.5						
19	80°39.2	90°01.0	33.5	111°48.9	48.4	333°55.4	53.4	78°34.1	25.4						
20	95°41.7	105°00.6	32.3	126°49.5	47.7	348°58.0	53.5	93°36.5	25.3						
21	110°44.1	120°00.2	.. 31.0	141°50.0	.. 47.1	4°00.6	.. 53.5	108°38.7	.. 25.2						
22	125°46.6	134°59.8	29.8	156°50.6	46.4	19°03.2	53.5	123°40.9	25.0						
23	140°49.1	149°59.4	28.5	171°51.1	45.7	34°05.8	53.5	138°43.1	24.9						
Mer.pass. 13:38			ν -0.4° d 1.2' m -3.91			ν 0.6° d 0.7' m 1.14			ν 2.6° d 0.0' m -2.47			ν 2.2° d 0.1' m 1.00			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	155°51.5	164°59.0	S05°27.3	186°51.7	S13°45.0	49°08.3	N22°53.5	153°45.3	S01°24.8						
1	170°54.0	179°58.6	26.0	201°52.3	44.4	64°10.9	53.5	168°47.5	24.7						
2	185°56.5	194°58.2	24.8	216°52.8	43.7	79°13.5	53.5	183°49.7	24.6						
3	200°58.9	209°57.8	.. 23.5	231°53.4	.. 43.0	94°16.1	.. 53.6	198°51.9	.. 24.4						
4	216°01.4	224°57.4	22.3	246°53.9	42.4	109°18.7	53.6	213°54.1	24.3						
5	231°03.9	239°57.0	21.0	261°54.5	41.7	124°21.2	53.6	228°56.3	24.2						
6	246°06.3	254°56.6	S05°19.8	276°55.1	S13°41.0	139°23.8	N22°53.6	243°58.4	S01°24.1						
7	261°08.8	269°56.2	18.5	291°55.6	40.3	154°26.4	53.6	259°00.6	24.0						
8	276°11.2	284°55.8	17.3	306°56.2	39.7	169°29.0	53.6	274°02.8	23.8						
9	291°13.7	299°55.4	.. 16.0	321°56.7	.. 39.0	184°31.5	.. 53.6	289°05.0	.. 23.7						
10	306°16.2	314°55.0	14.7	336°57.3	38.3	199°34.1	53.7	304°07.2	23.6						
11	321°18.6	329°54.6	13.5	351°57.8	37.7	214°36.7	53.7	319°09.4	23.5						
12	336°21.1	344°54.2	S05°12.2	6°58.4	S13°37.0	229°39.3	N22°53.7	334°11.6	S01°23.4						
13	351°23.6	359°53.8	11.0	21°59.0	36.3	244°41.8	53.7	349°13.8	23.2						
14	6°26.0	14°53.4	09.7	36°59.5	35.6	259°44.4	53.7	4°16.0	23.1						
15	21°28.5	29°53.0	.. 08.5	52°00.1	.. 35.0	274°47.0	.. 53.7	9°18.2	.. 23.0						
16	36°31.0	44°52.6	07.2	67°00.6	34.3	289°49.6	53.7	34°20.4	22.9						
17	51°33.4	59°52.2	05.9	82°01.2	33.6	304°52.1	53.8	49°22.6	22.8						
18	66°35.9	74°51.8	S05°04.7	97°01.8	S13°32.9	319°54.7	N22°53.8	64°24.8	S01°22.6						
19	81°38.4	89°51.4	03.4	112°02.3	32.3	334°57.3	53.8	79°27.0	22.5						
20	96°40.8	104°51.0	02.2	127°02.9	31.6	349°59.8	53.8	94°29.2	22.4						
21	111°43.3	119°50.6	05°00.9	142°03.5	.. 30.9	5°02.4	.. 53.8	109°31.4	.. 22.3						
22	126°45.7	134°50.2	04°59.7	157°04.0	30.2	20°05.0	53.8	124°33.6	22.2						
23	141°48.2	149°49.8	58.4	172°04.6	29.6	35°07.6	53.8	139°35.8	22.0						
Mer.pass. 13:34			ν -0.4° d 1.3' m -3.91			ν 0.6° d 0.7' m 1.14			ν 2.6° d 0.0' m -2.46			ν 2.2° d 0.1' m 1.00			

Stars			Sun			Moon		
	SHA	Dec		GHA	ν	Dec	d	HP
Alpheratz	357°34.1	29°14.1	0	176°41.5	S09°32.3	98°51.3	5.7	N24°53.6 8.6' 59.1'
Shedar	353°06.6	46°10.0	1	191°41.6	31.4	113°16.0	5.6'	25°02.2 8.4' 59.1'
Ancas	349°30.4	52°40.0	2	206°41.7	30.4	127°40.6	5.5'	25°10.6 8.3' 59.1'
Diphda	348°46.6	57°50.7	3	221°41.7	.. 29.5	142°05.0	5.4'	25°18.9 8.1' 59.1'
Achernar	335°19.8	-57°06.5	4	236°41.8	28.6	156°29.4	5.3'	25°27.0 7.9' 59.1'
Hamal	327°50.3	23°35.2	5	251°41.9	27.7	170°53.7	5.2'	25°34.9 7.8' 59.1'
Polaris	313°42.2	89°22.8	6	266°42.0	S09°26.7	185°18.0	5.1'	N25°42.7 7.6' 59.1'
Acamar	315°11.2	-40°12.2	7	281°42.1	25.8	199°42.1	5.0'	25°50.3 7

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	156°50.7	164°49.4	S04°57.1	187°05.1	S13°28.9	50°10.1	N22°53.9	154°37.9	S01°21.9					
1	171°53.1	179°39.5	55.9	202°05.7	28.2	65°12.7	53.9	169°40.1	21.8					
2	186°55.6	194°48.6	54.6	217°06.3	27.5	80°15.3	53.9	184°42.3	21.7					
3	201°58.1	209°48.2	.. 53.4	232°06.8	.. 26.9	95°17.8	.. 53.9	199°44.5	.. 21.6					
4	217°00.5	224°47.8	52.1	247°07.4	26.2	110°20.4	53.9	214°46.7	21.4					
5	232°03.0	239°47.4	50.9	262°07.9	25.5	125°23.0	53.9	229°48.9	21.3					
6	247°05.5	254°47.0	S04°49.6	277°08.5	S13°24.8	140°25.5	N22°53.9	244°51.1	S01°21.2					
7	262°07.9	269°46.6	48.3	292°09.1	24.2	155°28.1	54.0	259°53.3	21.1					
8	277°10.4	284°46.2	47.1	307°09.6	23.5	170°30.7	54.0	274°55.5	21.0					
9	292°12.9	299°45.8	.. 45.8	322°10.2	.. 22.8	185°33.3	.. 54.0	289°57.7	.. 20.8					
10	307°15.3	314°45.4	44.5	337°10.8	20.7	200°35.8	54.0	304°59.9	20.7					
11	322°17.8	329°45.0	43.3	352°11.3	21.4	215°38.4	54.0	320°02.1	20.6					
12	337°20.2	344°44.6	S04°42.0	7°11.9	S13°20.8	230°41.0	N22°54.0	335°04.3	S01°20.5					
13	352°22.7	359°44.2	40.8	22°12.5	20.1	245°43.5	54.0	350°06.5	20.4					
14	7°25.2	14°43.8	39.5	37°13.0	19.4	260°46.1	54.1	5°08.7	20.2					
15	22°27.6	29°43.4	.. 38.2	52°13.6	.. 18.7	275°48.6	.. 54.1	20°10.9	.. 20.1					
16	37°30.1	44°43.0	37.0	67°14.1	18.1	290°51.2	54.1	35°13.0	20.0					
17	52°32.6	59°42.6	35.7	82°14.7	17.4	305°53.8	54.1	50°15.2	19.9					
18	67°35.0	74°42.2	S04°34.5	97°15.3	S13°16.7	320°56.3	N22°54.1	65°17.4	S01°19.8					
19	82°37.5	89°41.8	33.2	112°15.8	16.0	335°58.9	54.1	80°19.6	19.6					
20	97°40.0	104°41.4	31.9	127°16.4	15.3	351°01.5	54.1	95°21.8	19.5					
21	112°42.4	119°41.0	.. 30.7	142°17.0	.. 14.7	6°04.0	.. 54.2	110°24.0	.. 19.4					
22	127°44.9	134°40.6	29.4	157°17.5	14.0	21°06.6	54.2	125°26.2	19.3					
23	142°47.4	149°40.2	28.1	172°18.1	13.3	36°09.2	54.2	140°28.4	19.2					
Mer.pass. 13:30			ν -0.4' d 1.3' m -3.91			ν 0.6' d 0.7' m 1.14			ν 2.6' d 0.0' m -2.46			ν 2.2' d 0.1' m 0.99		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	157°49.8	164°39.8	S04°26.9	187°18.7	S13°12.6	51°11.7	N22°54.2	155°30.6	S01°19.0
1	172°52.3	179°39.5	25.6	202°19.2	11.9	66°14.3	54.2	170°32.8	18.9
2	187°54.7	194°39.1	24.4	217°19.8	11.2	81°16.8	54.2	185°35.0	18.8
3	202°57.2	209°38.7	.. 23.1	232°20.4	.. 10.6	96°19.4	.. 54.2	200°37.2	.. 18.7
4	217°59.7	224°38.3	21.8	247°20.9	09.9	111°22.0	54.2	215°39.4	18.6
5	233°02.1	239°37.9	20.6	262°21.5	09.2	126°24.5	54.3	230°41.6	18.4
6	248°04.6	254°37.5	S04°19.3	277°22.1	S13°08.5	141°27.1	N22°54.3	245°43.7	S01°18.3
7	263°07.1	269°37.1	18.0	292°22.6	07.8	156°29.6	54.3	260°45.9	18.2
8	278°09.5	284°36.7	16.8	307°23.2	07.2	171°32.2	54.3	275°48.1	18.1
9	293°12.0	299°36.3	.. 15.5	322°23.8	.. 06.5	186°34.8	.. 54.3	290°50.3	.. 18.0
10	308°14.5	314°35.9	14.2	337°24.3	05.8	201°37.3	54.3	305°52.5	17.8
11	323°16.9	329°35.5	13.0	352°24.9	05.1	216°39.9	54.3	320°54.7	17.7
12	338°19.4	344°35.1	S04°11.7	7°25.5	S13°04.4	231°42.4	N22°54.4	335°56.9	S01°17.6
13	353°21.8	359°34.7	10.4	22°26.0	03.7	246°45.0	54.4	350°59.1	17.5
14	8°24.3	14°34.4	09.2	37°26.6	03.1	261°47.5	54.4	6°01.3	17.4
15	23°26.8	29°34.0	.. 09.9	52°27.2	.. 02.4	276°50.1	.. 54.4	21°03.5	.. 17.2
16	38°29.2	44°33.6	06.6	67°27.7	01.7	291°52.7	54.4	36°05.7	17.1
17	53°31.7	59°33.2	05.4	82°28.3	01.0	306°55.2	54.4	51°07.9	17.0
18	68°34.2	74°32.8	S04°04.1	97°28.9	S13°00.3	321°57.8	N22°54.4	66°10.1	S01°16.9
19	83°36.6	89°32.4	02.8	112°29.5	12°59.6	337°00.3	54.4	81°12.2	16.8
20	98°39.1	104°32.0	01.6	127°30.0	.. 58.9	352°02.9	54.4	96°14.4	16.6
21	113°41.6	119°31.6	04°00.3	142°30.6	.. 58.3	7°05.4	.. 54.5	111°16.6	.. 16.5
22	128°44.0	134°31.2	03°59.0	157°31.2	57.6	22°08.0	54.5	126°18.8	16.4
23	143°46.5	149°30.9	57.8	172°31.7	56.9	37°10.5	54.5	141°21.0	16.3
Mer.pass. 13:26 ν -0.4' d 1.3' m -3.91 ν 0.6' d 0.7' m 1.14 ν 2.6' d 0.0' m -2.45 ν 2.2' d 0.1' m 0.99									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	158°49.0	164°30.5	S03°56.5	187°32.3	S12°56.2	52°13.1	N22°54.5	156°23.2	S01°16.2					
1	173°51.4	179°30.1	55.2	202°32.9	55.5	67°15.6	54.5	171°25.4	16.0					
2	188°53.9	194°29.7	54.0	217°33.4	54.8	82°18.2	54.5	186°27.6	15.9					
3	203°56.3	209°29.3	.. 52.7	232°34.0	.. 54.1	97°20.8	.. 54.5	201°29.8	.. 15.8					
4	218°58.8	224°28.9	51.4	247°34.6	53.4	112°23.3	54.5	216°32.0	15.7					
5	234°01.3	239°28.5	50.1	262°35.2	52.8	127°25.9	54.6	231°34.2	15.6					
6	249°03.7	254°28.1	S03°48.9	277°35.7	S12°52.1	142°28.4	N22°54.6	246°36.4	S01°15.4					
7	264°06.2	269°27.7	47.6	292°36.3	51.4	157°31.0	54.6	261°38.5	15.3					
8	279°08.7	284°27.4	46.3	307°36.9	50.7	172°33.5	54.6	276°40.7	15.2					
9	294°11.1	299°27.0	.. 45.1	322°37.4	.. 50.0	187°36.1	.. 54.6	291°42.9	.. 15.1					
10	309°13.6	314°26.6	43.8	337°38.0	49.3	202°38.6	54.6	306°45.1	15.0					
11	324°16.1	329°26.2	42.5	352°38.6	48.6	217°41.2	54.6	321°47.3	14.8					
12	339°18.5	344°25.8	S03°41.3	7°39.2	S12°47.9	232°43.7	N22°54.6	336°49.5	S01°14.7					
13	354°21.0	359°25.4	40.0	22°39.7	47.3	247°46.3	54.6	351°51.7	14.6					
14	9°23.5	14°25.0	38.7	37°40.3	46.6	262°48.8	54.7	6°53.9	14.5					
15	24°25.9	29°24.7	.. 37.4	52°40.9	.. 45.9	277°51.3	.. 54.7	21°56.1	.. 14.4					
16	39°28.4	44°24.3	36.2	67°41.4	45.2	292°53.9	54.7	36°58.3	14.2					
17	54°30.8	59°23.9	34.9	82°42.0	44.5	307°56.4	54.7	52°00.5	14.1					
18	69°33.3	74°23.5	S03°33.6	97°42.6	S12°43.8	322°59.0	N22°54.7	67°02.6	S01°14.0					
19	84°35.8	89°23.1	32.4	112°43.2	43.1	338°01.5	54.7	82°04.8	13.9					
20	99°38.2	104°22.7	31.1	127°43.7	42.4	353°04.1	54.7	97°07.0	13.8					
21	114°40.7	119°22.3	.. 29.8	142°44.3	.. 41.7	8°06.6	.. 54.7	112°09.2	.. 13.6					
22	129°43.2	134°22.0	28.5	157°44.9	41.0	23°09.2	54.8	127°11.4	13.5					
23	144°45.6	149°21.6	27.3	172°45.5	40.4	38°11.7	54.8	142°13.6	13.4					
Mer.pass. 13:23			ν -0.4' d 1.3' m -3.91			ν 0.6' d 0.7' m 1.14			ν 2.6' d 0.0' m -2.44			ν 2.2' d 0.1' m 0.99		

Stars	SHA	Dec
Alpheratz	357°34.1	29°14.1
Ankaa	353°06.6	-42°10.0
Schedar	349°30.4	56°40.1
Diphda	348°46.6	-17°50.7
Achernar	335°19.8	-57°06.4
Hamal	327°50.3	23°35.2
Polaris	313°43.4	89°22.8
Acamar	315°11.2	-40°12.2
Menkar	310°45.3	4°11.5
Mirfak	308°27.0	49°57.4
Aldebaran	290°38.5	16°33.7
Rigel	281°02.9	-8°10.4
Capella	280°20.4	46°01.6
Bellatrix	278°21.8	6°22.3
Elnath	278°00.6	28°37.8
Anilam	275°36.7	-11°12.1
Betelgeuse	270°50.9	7°24.6
Canopus	263°51.7	-52°42.8
Sirius	258°25.2	-16°45.3
Adhara	255°04.9	-29°00.7
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.7
Avior	234°13.8	-59°35.8
Suhail	222°45.2	-43°32.5
Miaplacidus	221°37.3	-69°49.6
Alphard	217°46.5	-8°46.5
Regulus	207°33.1	11°50.2
Dubhe	193°39.1	61°36.4
Denebola	182°23.7	14°25.4
Cenah	175°42.3	-17°41.4
Acrux	172°58.4	-63°14.6
Gacrux	171°50.1	-57°15.6
Alioth	166°11.6	55°48.8
Spica	156°21.1	-11°18.0
Alkaid	152°50.9	49°10.6
Hadar	148°34.3	-69°29.8
Menkent	147°56.3	-36°29.9
Arcturus	145°46.8	19°02.5
Rigel Kent	139°38.7	-60°56.5
Kochab	137°19.3	74°02.5
Zuben ubi	136°54.8	-16°09.1
Alphecca	126°02.8	26°37.3
Antares	112°14.7	-26°29.4
Atria	107°08.1	-69°04.2
Sabik	102°01.7	-15°45.5
Shaula	96°09.2	-37°07.3
Rasalhague	95°57.7	12°32.2
Eltanin	90°41.9	51°28.7
Kaus Aust.	83°31.4	-34°22.3
Vega	80°32.8	38°48.2
Nunki	75°46.8	-26°15.8
Altair	61°59.3	8°56.1
Peacock	53°04.7	-56°39.0
Deneb	49°25.6	45°22.2
Enif	33°38.2	9°59.6
Al Na'ir	27°32.2	-46°50.1
Fomalhaut	15°13.8	-29°29.1
Scheat	13°44.6	28°13.4
Markab	13°29.3	15°20.7

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	159°48.1	164°21.2	S03°26.0	187°46.0	S12°39.7	53°14.3	N22°54.8	157°15.8	S01°13.3										
1	174°50.6	179°20.8	24.7	202°46.6	39.0	68°16.8	54.8	172°18.0	13.2										
2	189°53.0	194°20.4	23.5	217°47.2	38.3	83°19.3	54.8	187°20.2	13.0										
3	204°55.5	209°20.0	•• 22.2	232°47.8	•• 37.6	98°21.9	•• 54.8	202°22.4	•• 12.9										
4	219°57.9	224°19.7	20.9	247°48.3	36.9	113°24.4	54.8	217°24.6	12.8										
5	235°00.4	239°19.3	19.6	262°48.9	36.2	128°27.0	54.8	232°26.7	12.5										
6	250°02.9	254°18.9	S03°18.4	277°49.5	S12°35.5	143°29.5	N22°54.8	247°28.9	S01°12.5										
7	265°05.3	269°18.5	17.1	292°50.1	34.8	158°32.1	54.8	262°31.1	12.4										
8	280°07.8	284°18.1	15.8	307°50.6	34.1	173°34.6	54.9	277°33.3	12.3										
9	295°10.3	299°17.7	•• 14.5	322°51.2	•• 33.4	188°37.1	•• 54.9	292°35.5	•• 12.2										
10	310°12.7	314°17.4	13.3	337°51.8	32.7	203°39.7	54.9	307°37.7	12.1										
11	325°15.2	329°17.0	12.0	352°52.4	32.0	218°42.2	54.9	322°39.9	11.9										
12	340°17.7	344°16.6	S03°10.7	7°52.9	S12°31.3	233°44.8	N22°54.9	337°42.1	S01°11.8										
13	355°20.1	359°16.2	09.4	22°53.5	30.6	248°47.3	54.9	352°44.3	11.7										
14	10°22.6	14°15.8	08.2	37°54.1	30.0	263°49.8	54.9	7°46.5	11.6										
15	25°25.1	29°15.5	•• 06.9	52°54.7	•• 29.3	278°52.4	•• 54.9	22°48.6	•• 11.5										
16	40°27.5	44°15.1	05.6	67°55.2	28.6	293°54.9	54.9	37°50.8	11.3										
17	55°30.0	59°14.7	04.3	82°55.8	27.9	308°57.5	55.0	52°53.0	11.2										
18	70°32.4	74°14.3	S03°03.1	97°56.4	S12°27.2	324°00.0	N22°55.0	67°55.2	S01°11.1										
19	85°34.9	89°13.9	01.8	112°57.0	26.5	339°02.5	55.0	82°57.4	11.0										
20	100°37.4	104°13.5	03°00.5	127°57.5	25.8	354°05.1	55.0	97°59.6	10.9										
21	115°39.8	119°13.2	02°59.2	142°58.1	•• 25.1	9°07.6	•• 55.0	113°01.8	•• 10.7										
22	130°42.3	134°12.8	58.0	157°58.7	24.4	24°10.1	55.0	128°04.0	10.6										
23	145°44.8	149°12.4	56.7	172°59.3	23.7	39°12.7	55.0	143°06.2	10.5										
Mer.pass. 13:19				ν -0.4° d 1.3' m -3.92				ν 0.6° d 0.7' m 1.14				ν 2.5° d 0.0' m -2.43				ν 2.2° d 0.1' m 0.99			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	160°47.2	164°12.0	S02°55.4	187°59.9	S12°23.0	54°15.2	N22°55.0	158°08.4	S01°10.4										
1	175°49.7	179°11.6	54.1	203°00.4	22.3	69°17.8	55.0	173°10.5	10.3										
2	190°52.2	194°11.3	52.9	218°01.0	21.6	84°20.3	55.0	188°12.7	10.1										
3	205°54.6	209°10.9	•• 51.6	233°01.6	•• 20.9	99°22.8	•• 55.1	203°14.9	•• 10.0										
4	220°57.1	224°10.5	50.3	248°02.2	20.2	114°25.4	55.1	218°17.1	09.9										
5	235°59.6	239°10.1	49.0	263°02.7	19.5	129°27.9	55.1	233°19.3	09.8										
6	251°02.0	254°09.7	S02°47.8	278°03.3	S12°18.8	144°30.4	N22°55.1	248°21.5	S01°09.6										
7	266°04.5	269°09.4	46.5	293°03.9	18.1	159°33.0	55.1	263°23.7	09.5										
8	281°06.9	284°09.0	45.2	308°04.5	17.4	174°35.5	55.1	278°25.9	09.4										
9	296°09.4	299°08.6	•• 43.9	323°05.1	•• 16.7	189°38.0	•• 55.1	293°28.1	•• 09.3										
10	311°11.9	314°08.2	42.6	338°05.6	16.0	204°40.6	55.1	308°30.2	09.2										
11	326°14.3	329°07.9	41.4	353°06.2	15.3	219°43.1	55.1	323°32.4	09.0										
12	341°16.8	344°07.5	S02°40.1	8°06.8	S12°14.6	234°45.6	N22°55.1	338°34.6	S01°08.9										
13	356°19.3	359°07.1	38.8	23°07.4	13.9	249°48.1	55.2	353°36.8	08.8										
14	11°21.7	14°06.7	37.3	38°08.0	13.2	264°50.7	55.2	8°39.0	08.7										
15	26°24.2	29°06.3	•• 36.3	53°08.5	•• 12.5	279°53.2	•• 55.2	23°41.2	•• 08.6										
16	41°26.7	44°06.0	35.0	68°09.1	11.8	294°55.7	55.2	38°43.4	08.4										
17	56°29.1	59°05.6	33.7	83°09.7	11.1	309°58.3	55.2	53°45.6	08.3										
18	71°31.6	74°05.2	S02°32.4	98°10.3	S12°10.4	325°00.8	N22°55.2	68°47.8	S01°08.2										
19	86°34.0	89°04.8	31.1	113°10.9	09.7	340°03.3	55.2	83°49.9	08.1										
20	101°36.5	104°04.5	29.9	128°11.5	09.0	355°05.9	55.2	98°52.1	08.0										
21	116°39.0	119°04.1	•• 28.6	143°12.0	•• 08.3	10°08.4	•• 55.2	113°54.3	•• 07.8										
22	131°41.4	134°03.7	27.3	158°12.6	07.6	25°10.9	55.2	128°56.5	07.7										
23	146°43.9	149°03.3	26.0	173°13.2	06.9	40°13.4	55.3	143°58.7	07.6										
Mer.pass. 13:15				ν -0.4° d 1.3' m -3.92				ν 0.6° d 0.7' m 1.14				ν 2.5° d 0.0' m -2.43				ν 2.2° d 0.1' m 0.99			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	161°46.4	164°03.0	S02°24.7	188°13.8	S12°06.2	55°16.0	N22°55.3	159°00.9	S01°07.5
1	176°48.8	179°02.6	23.5	203°14.4	05.5	70°18.5	55.3	174°03.1	07.3
2	191°51.3	194°02.2	22.2	218°14.9	04.8	85°21.0	55.3	189°05.3	07.2
3	206°53.8	209°01.8	•• 20.9	233°15.5	•• 04.1	100°23.5	•• 55.3	204°07.5	•• 07.1
4	221°56.2	224°01.5	19.6	248°16.1	03.4	115°26.1	55.3	219°09.6	07.0
5	236°58.7	239°01.1	18.3	263°16.7	02.7	130°28.6	55.3	234°11.8	06.9
6	252°01.2	254°00.7	S02°17.1	278°17.3	S12°02.0	145°31.1	N22°55.3	249°14.0	S01°06.7
7	267°03.6	269°00.3	15.8	293°17.9	01.3	160°33.6	55.3	264°16.2	06.6
8	282°06.1	283°59.9	14.5	308°18.4	12°00.6	175°36.2	55.3	279°18.4	06.5
9	297°08.5	298°59.6	•• 13.2	323°19.0	11°59.9	190°38.7	•• 55.3	294°20.6	•• 06.4
10	312°11.0	313°59.2	11.9	338°19.6	59.2	205°41.2	55.3	309°22.8	06.3
11	327°13.5	328°58.8	10.7	353°20.2	58.5	220°43.7	55.4	324°25.0	06.1
12	342°15.9	343°58.5	S02°09.4	8°20.8	S11°57.8	235°46.3	N22°55.4	339°27.2	S01°06.0
13	357°18.4	358°58.1	08.1	23°21.4	57.1	250°48.8	55.4	354°29.3	05.9
14	12°20.9	13°57.7	06.8	38°21.9	56.4	265°51.3	55.4	9°31.5	05.8
15	27°23.3	28°57.3	•• 05.5	53°22.5	•• 55.7	280°53.8	•• 55.4	24°33.7	•• 05.6
16	42°25.8	43°57.0	04.3	68°23.1	55.0	295°56.3	55.4	39°35.9	05.5
17	57°28.3	58°56.6	03.0	83°23.7	54.3	310°58.9	55.4	54°38.1	05.4
18	72°30.7	73°56.2	S02°01.7	98°24.3	S11°53.6	326°01.4	N22°55.4	69°40.3	S01°05.3
19	87°33.2	88°55.8	02°00.4	113°24.9	52.8	341°03.9	55.4	84°42.5	05.2
20	102°35.6	103°55.5	01°59.1	128°25.5	52.1	356°06.4	55.4	99°44.7	05.0
21	117°38.1	118°55.1	•• 57.9	143°26.0	•• 51.4	1°11°08.9	•• 55.4	114°46.8	•• 04.9
22	132°40.6	133°54.7	56.6	158°26.6	50.7	26°11.5	55.5	129°49.0	04.8
23	147°43.0	148°54.3	55.3	173°27.2	50.0	41°14.0	55.5	144°51.2	04.7
Mer.pass. 13:11 ν -0.4° d 1.3' m -3.92 ν 0.6° d 0.7' m 1.15 ν 2.5° d 0.0' m -2.42 ν 2.2° d 0.1' m 0.98									

Stars		
	SHA	Dec
Alpheratz	357°34.1	29°14.1
Ankaa	353°06.6	-42°10.0
Schedar	349°30.5	56°41.0
Diphda	348°46.6	-17°50.7
Achernar	335°19.9	-57°06.4
Hamal	327°50.3	23°35.2
Polaris	313°44.9	89°22.8
Acamar	315°11.2	-40°12.2
Menkar	314°05.3	4°11.5
Mirfak	308°27.0	49°57.4
Aldebaran	290°38.5	16°33.7
Rigel	281°02.9	-8°10.4
Capella	280°20.4	46°01.6
Bellatrix	278°21.8	6°22.3
Elath	278°00.6	28°37.8
Alnilam	275°36.7	-1°12.1
Betelgeuse	270°50.9	7°24.6
Canopus	263°51.7	-52°42.8
Sirius	258°25.2	-16°45.3
Adhara	255°04.9	-29°00.7
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.8
Avior	234°13.9	-59°35.8
Suhail	222°45.2	-43°32.5
Miaplacidus	221°37.3	-69°49.6
Alphard	217°46.5	-8°46.5
Regulus	207°33.1	11°50.2
Dubhe	193°39.1	61°36.5
Denebola	182°23.6	14°25.4
Gienah	175°42.3	-17°41.4
Acrux	172°58.4	-63°44.6
Gacrux	171°50.1	-57°15.6
Alioth	166°11.6	55°48.8
Spica	158°21.0	-11°18.0
Alkaid	152°50.9	49°10.6
Hadar	148°34.3	-60°29.8
Menkent	147°56.2	-36°29.9
Arcturus	145°46.8	-19°02.5
Rigil Kent.	139°38.6	-60°56.5
Kochab	137°19.2	74°02.5
Zuben ubi	136°54.8	-16°09.1
Alphecca	126°02.8	-26°37.3
Antares	112°14.6	-26°29.4
Atria	107°08.0	-69°04.2
Sabik	102°01.7	-15°45.5
Shaula	96°09.1	-37°07.3
Rasalhague	95°57.7	-12°30.2
Eltanin	90°41.9	51°28.7
Kaus Aust.	83°31.4	-34°22.3
Vega	80°32.8	38°48.1
Nunki	75°46.8	-26°15.8
Altair	61°59.3	8°56.1
Peacock	53°04.7	-56°38.9
Deneb	49°25.6	45°22.2
Enif	33°38.2	9°59.6
Al Na'ir	27°32.1	-46°50.1
Fomalhaut	15°13.8	-29°29.1
Scheat	13°44.6	28°13.4
Markab	13°29.3	15°20.7

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	162°45.5	163°54.0	S01°54.0	188°27.8	S11°49.3	56°16.5	N22°55.5	159°53.4	S01°04.6										
1	177°48.0	178°53.6	52.7	203°28.4	48.6	71°19.0	55.5	174°55.6	04.4										
2	192°50.4	193°53.2	51.2	218°29.0	47.9	86°21.5	55.5	189°57.8	04.3										
3	207°52.9	208°52.8	.. 50.4	233°29.6	.. 47.2	101°24.1	.. 55.5	205°00.0	.. 04.2										
4	222°55.4	223°52.5	48.9	248°30.1	46.5	116°26.6	55.5	220°02.2	04.1										
5	237°57.8	238°52.1	47.6	263°30.7	45.8	131°29.1	55.5	235°04.3	03.9										
6	253°00.3	253°51.7	S01°46.3	278°31.3	S11°45.1	146°31.6	N22°55.5	250°06.5	S01°03.8										
7	268°02.8	268°51.4	45.0	293°31.9	44.4	161°34.1	55.5	265°08.7	03.6										
8	283°05.2	283°51.0	43.8	308°32.5	43.7	176°36.6	55.5	280°10.9	03.7										
9	298°07.7	298°50.6	.. 42.5	323°33.1	.. 43.0	191°39.1	.. 55.5	295°13.1	.. 03.5										
10	313°10.1	313°50.2	41.2	338°33.7	42.2	206°41.7	55.5	310°15.3	03.5										
11	328°12.6	328°49.9	39.9	353°34.2	41.5	221°44.2	55.6	325°17.5	03.2										
12	343°15.1	343°49.5	S01°38.6	8°34.8	S11°40.8	236°46.7	N22°55.6	340°19.7	S01°03.1										
13	358°17.5	358°49.1	37.3	23°35.4	40.1	251°49.2	55.6	355°21.8	03.0										
14	13°20.0	13°48.8	36.1	38°36.0	39.4	266°51.7	55.6	10°24.0	02.9										
15	26°22.5	26°48.4	.. 34.8	53°36.6	.. 38.7	281°54.2	.. 55.6	25°26.2	.. 02.7										
16	43°24.9	43°48.0	33.5	68°37.2	38.0	296°56.7	55.6	40°28.4	02.6										
17	58°27.4	58°47.6	32.2	83°37.8	37.3	311°59.3	55.6	55°30.6	02.5										
18	73°29.9	73°47.3	S01°30.9	98°38.4	S11°36.6	327°01.8	N22°55.6	70°32.8	S01°02.4										
19	88°32.3	88°46.9	29.6	113°39.0	35.9	342°04.3	55.6	85°35.0	02.2										
20	103°34.8	103°46.5	28.4	128°39.5	35.1	357°06.8	55.6	100°37.1	02.1										
21	118°37.2	118°46.2	.. 27.1	143°40.1	.. 34.4	12°09.3	.. 55.6	115°39.3	.. 02.0										
22	133°39.7	133°45.8	25.8	158°40.7	33.7	27°11.8	55.6	130°41.5	01.9										
23	148°42.2	148°45.4	24.5	173°41.3	33.0	42°14.3	55.6	145°43.7	01.8										
Mer.pass. 13:07				ν -0.4' d 1.3' m -3.92				ν 0.6' d 0.7' m 1.15				ν 2.5' d 0.0' m -2.41				ν 2.2' d 0.1' m 0.98			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	163°44.6	163°45.1	S01°23.2	188°41.9	S11°32.3	57°16.8	N22°55.7	160°45.9	S01°01.6										
1	178°47.1	178°44.7	21.9	203°42.5	31.6	72°19.3	55.7	175°48.1	01.5										
2	193°49.6	193°44.3	20.6	218°43.1	30.9	87°21.8	55.7	190°50.3	01.4										
3	208°52.0	208°43.9	.. 19.4	233°43.7	.. 30.2	102°24.4	.. 55.7	205°52.5	.. 01.3										
4	223°54.5	223°43.6	18.1	248°44.3	29.5	117°26.9	55.7	220°54.6	01.1										
5	238°57.0	238°43.2	16.8	263°44.9	28.7	132°29.4	55.7	235°56.8	01.0										
6	253°59.4	253°42.8	S01°15.5	278°45.4	S11°28.0	147°31.9	N22°55.7	250°59.0	S01°00.9										
7	269°01.9	268°42.5	14.2	293°46.0	27.3	162°34.4	55.7	266°01.2	00.8										
8	284°04.4	283°42.1	12.9	308°46.6	26.6	177°36.9	55.7	281°03.4	00.7										
9	299°06.8	298°41.7	.. 11.7	323°47.2	.. 25.9	192°39.4	.. 55.7	296°05.6	.. 00.5										
10	314°09.3	313°41.4	10.4	338°47.8	25.2	207°41.9	55.7	311°07.8	00.4										
11	329°11.7	328°41.0	09.1	353°48.4	24.5	222°44.4	55.7	326°09.9	00.3										
12	344°14.2	343°40.6	S01°07.8	8°49.0	S11°23.8	237°46.9	N22°55.7	341°12.1	S01°00.2										
13	359°16.7	358°40.2	06.5	23°49.6	23.0	252°49.4	55.7	356°14.3	01°00.1										
14	14°19.1	13°39.9	05.2	38°50.2	22.3	267°51.9	55.7	11°16.5	00°59.8										
15	29°21.6	28°39.5	.. 03.9	53°50.8	.. 21.6	282°54.4	.. 55.8	26°18.7	.. 59.9										
16	44°24.1	43°39.1	02.7	68°51.4	20.9	297°56.9	55.8	41°20.9	59.7										
17	59°26.5	58°38.8	01.4	83°52.0	20.2	312°59.4	55.8	56°23.1	59.6										
18	74°29.0	73°38.4	S01°00.1	98°52.5	S11°19.5	328°01.9	N22°55.8	71°25.3	S00°59.4										
19	89°31.5	88°38.0	00°58.8	113°53.1	18.8	343°04.4	55.8	86°27.4	59.3										
20	104°33.9	103°37.7	57.5	128°53.7	18.0	358°06.9	55.8	101°29.6	59.2										
21	119°36.4	118°37.3	.. 56.2	143°54.3	.. 17.3	13°09.4	.. 55.8	116°31.8	.. 59.1										
22	134°38.8	133°36.9	54.9	158°54.9	16.6	28°11.9	55.8	131°34.0	59.0										
23	149°41.3	148°36.6	53.7	173°55.5	15.9	43°14.4	55.8	146°36.2	58.8										
Mer.pass. 13:03				ν -0.4' d 1.3' m -3.92				ν 0.6' d 0.7' m 1.15				ν 2.5' d 0.0' m -2.40				ν 2.2' d 0.1' m 0.98			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	164°43.8	163°36.2	S00°52.4	188°56.1	S11°15.2	58°16.9	N22°55.8	161°38.4	S00°58.7
1	179°46.2	178°35.8	51.1	203°56.7	14.5	73°19.4	55.8	176°40.6	58.6
2	194°48.7	193°35.5	49.8	218°57.3	13.8	88°21.9	55.8	191°42.7	58.5
3	209°51.2	208°35.1	.. 48.5	233°57.9	.. 13.0	103°24.4	.. 55.8	206°44.9	.. 58.3
4	224°53.6	223°34.7	47.2	248°58.5	12.3	118°26.9	55.8	221°47.1	58.2
5	239°56.1	238°34.4	45.9	263°59.1	11.6	133°29.4	55.8	236°49.3	58.1
6	254°58.6	253°34.0	S00°44.7	278°59.7	S11°10.9	148°31.9	N22°55.9	251°51.5	S00°58.0
7	270°01.0	268°33.6	43.4	294°00.3	10.2	163°34.4	55.9	266°53.7	57.9
8	285°03.5	283°33.3	42.1	309°00.9	09.5	178°36.9	55.9	281°55.9	57.7
9	300°06.0	298°32.9	.. 40.8	324°01.5	.. 08.7	193°39.4	.. 55.9	296°58.0	.. 57.6
10	315°08.4	313°32.5	39.5	339°02.0	08.0	208°41.9	55.9	312°00.2	57.5
11	330°10.9	328°32.2	38.2	354°02.6	07.3	223°44.4	55.9	327°00.4	57.4
12	345°13.3	343°31.8	S00°36.9	9°03.2	S11°06.6	238°46.9	N22°55.9	342°04.6	S00°57.2
13	0°15.8	358°31.4	35.7	24°03.8	05.9	253°49.4	55.9	357°06.8	57.1
14	15°18.3	13°31.1	34.4	39°04.4	05.1	268°51.9	55.9	12°09.0	57.0
15	30°20.7	28°30.7	.. 33.1	54°05.0	.. 04.4	283°54.4	.. 55.9	27°11.1	.. 56.9
16	45°23.2	43°30.3	31.8	69°05.6	03.7	298°56.9	55.9	42°13.3	56.8
17	60°25.7	58°30.0	30.5	84°06.2	03.0	313°59.4	55.9	57°15.5	56.6
18	75°28.1	73°29.6	S00°29.5	99°06.8	S11°02.3	329°01.9	N22°55.9	72°17.7	S00°56.5
19	90°30.6	88°29.2	27.9	114°07.4	01.6	344°04.4	55.9	87°19.9	56.4
20	105°33.1	103°28.9	26.6	129°08.0	0.8	359°06.9	55.9	102°22.1	56.3
21	120°35.5	118°28.5	.. 25.4	144°08.6	11°00.1	14°09.4	.. 55.9	117°24.3	.. 56.1
22	135°38.0	133°28.1	24.1	159°09.2	10°59.4	29°11.9	55.9	132°26.4	56.0
23	150°40.5	148°27.8	22.8	174°09.8	58.7	44°14.4	55.9	147°28.6	55.9
Mer.pass. 12:59 ν -0.4' d 1.3' m -3.92 ν 0.6' d 0.7' m 1.15 ν 2.5' d 0.0' m -2.39 ν 2.2' d 0.1' m 0.98									

	Stars	
	SHA	Dec
Alpheratz	357°34.1	29°14.1
Ankaa	353°06.6	-42°10.0
Schedar	349°30.5	56°40.9
Diphda	348°46.6	-17°50.7
Achernar	335°19.9	-57°06.4
Hamal	327°50.3	23°35.2
Polaris	313°46.3	89°22.8
Acamar	315°11.2	-40°12.2
Menkar	314°05.3	4°11.5
Mirfak	308°27.1	49°57.4
Aldebaran	290°38.5	16°33.9
Rigel	281°02.9	-8°10.4
Capella	280°20.4	46°01.6
Bellatrix	278°21.8	6°22.3
Elnath	278°00.6	28°37.8
Anilam	275°36.7	-1°11.2
Betelgeuse	270°51.0	7°24.6
Canopus	263°51.8	-52°48.2
Sirius	258°25.2	-16°45.3
Adhara	255°04.9	-29°00.7
Procyon	244°49.6	5°09.4
Pollux	243°15.9	27°57.8
Avior	234°13.9	-59°35.8
Suhail	222°45.2	-43°32.5
Miaplacidus	221°37.3	-69°49.6
Alphard	217°46.5	-8°46.5

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	165°42.9	163°27.4	S00°21.5	189°10.4	S10°58.0	59°16.8	N22°56.0	162°30.8	S00°55.8										
1	180°45.4	178°27.0	20.2	204°11.0	57.2	74°19.3	56.0	177°33.0	55.7										
2	195°47.8	193°26.7	18.9	219°11.6	56.5	89°21.8	56.0	192°35.2	55.5										
3	210°50.3	208°26.3	•• 17.6	234°12.2	•• 55.8	104°24.3	•• 56.0	202°37.4	•• 55.4										
4	225°52.8	223°25.9	16.4	249°12.8	55.1	119°26.8	56.0	227°39.6	55.3										
5	240°55.2	238°25.6	15.1	264°13.4	54.4	134°29.3	56.0	237°41.7	55.2										
6	255°57.7	253°25.2	S00°13.8	279°14.0	S10°53.6	149°31.8	N22°56.0	252°43.9	S00°55.0										
7	271°00.2	268°24.8	12.5	294°14.6	52.9	164°34.3	56.0	267°46.1	54.9										
8	286°02.6	283°24.5	11.2	309°15.2	52.2	179°36.8	56.0	282°48.3	54.8										
9	301°05.1	298°24.1	•• 09.9	324°15.8	•• 51.5	194°39.3	•• 56.0	297°50.5	•• 54.7										
10	316°07.6	313°23.7	08.6	339°16.4	50.7	209°41.7	56.0	312°52.7	54.6										
11	331°10.0	328°23.4	07.3	354°17.0	50.0	224°44.2	56.0	327°54.8	54.4										
12	346°12.5	343°23.0	S00°06.1	9°17.6	S10°49.3	239°46.7	N22°56.0	342°57.0	S00°54.3										
13	1°14.9	358°22.6	04.8	24°18.2	48.6	254°49.2	56.0	357°59.2	54.2										
14	16°17.4	13°22.3	03.5	39°18.8	47.9	269°51.7	56.0	13°01.4	54.1										
15	31°19.9	28°21.9	•• 02.2	54°19.4	•• 47.1	284°54.2	•• 56.0	28°03.6	•• 53.9										
16	46°22.3	43°21.5	S00°00.9	69°20.0	46.4	299°56.7	56.0	43°05.8	53.8										
17	61°24.8	58°21.2	N00°00.4	84°20.6	45.7	314°59.1	56.0	58°08.0	53.7										
18	76°27.3	73°20.8	N00°01.7	99°21.2	S10°45.0	330°01.6	N22°56.0	73°10.1	S00°53.6										
19	91°29.7	88°20.4	03.0	114°21.8	44.2	345°04.1	56.0	88°12.3	53.5										
20	106°32.2	103°20.1	04.0	129°22.4	43.5	0°06.6	56.0	103°14.5	53.3										
21	121°34.7	118°19.7	•• 05.5	144°23.0	•• 42.8	15°09.1	•• 56.1	118°16.7	•• 53.2										
22	136°37.1	133°19.4	06.8	159°23.6	42.1	30°11.6	56.1	133°18.9	53.1										
23	151°39.6	148°19.0	08.1	174°24.2	41.3	45°14.1	56.1	148°21.1	53.0										
Mer.pass. 12:55				ν -0.4° d 1.3' m -3.92				ν 0.6° d 0.7' m 1.15				ν 2.5° d 0.0' m -2.39				ν 2.2° d 0.1' m 0.97			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	166°42.1	163°18.6	N00°09.4	189°24.8	S10°40.6	60°16.5	N22°56.1	163°23.2	S00°52.8
1	181°44.5	178°18.3		204°25.4	39.9	75°19.0	56.1	178°25.4	52.7
2	196°47.0	193°17.9		219°26.0	39.2	90°21.5	56.1	193°27.6	52.6
3	211°49.4	208°17.5	•• 13.0	234°26.6	•• 38.4	105°24.0	•• 56.1	208°29.8	•• 52.5
4	226°51.9	223°17.2	14.5	249°27.2	37.7	120°26.5	56.1	223°32.0	52.4
5	241°54.4	238°16.8	15.8	264°27.8	37.0	135°28.9	56.1	238°34.2	52.2
6	256°56.8	253°16.4	N00°17.1	279°28.4	S10°36.3	150°31.4	N22°56.1	253°36.3	S00°52.1
7	271°59.3	268°16.1	18.4	294°29.0	35.5	165°33.9	56.1	268°38.5	52.0
8	287°01.8	283°15.7	19.7	309°29.6	34.8	180°36.4	56.1	283°40.7	51.9
9	302°04.2	298°15.3	•• 21.0	324°30.2	•• 34.1	195°38.9	•• 56.1	298°42.9	•• 51.7
10	317°06.7	313°15.0	22.3	339°30.8	33.4	210°41.3	56.1	313°45.1	51.6
11	332°09.2	328°14.6	23.6	354°31.4	32.6	225°43.8	56.1	328°47.3	51.5
12	347°11.6	343°14.3	N00°24.9	9°32.0	S10°31.9	240°46.3	N22°56.1	343°49.5	S00°51.4
13	2°14.1	358°13.9	26.1	24°32.6	31.2	255°48.8	56.1	358°51.6	51.3
14	17°16.6	13°13.5	27.4	39°33.2	30.5	270°51.3	56.1	13°53.8	51.1
15	32°19.0	28°13.2	•• 28.7	54°33.8	•• 29.7	285°53.7	•• 56.1	28°56.0	•• 51.0
16	47°21.5	43°12.8	30.0	69°34.4	29.0	300°56.2	56.1	43°58.2	50.9
17	62°23.9	58°12.4	31.3	84°35.0	28.3	315°58.7	56.1	59°00.4	50.8
18	77°26.4	73°12.1	N00°32.6	99°35.6	S10°27.6	331°01.2	N22°56.1	74°02.6	S00°50.6
19	92°28.9	88°11.7	33.9	114°36.2	26.8	346°03.6	56.1	89°04.7	50.5
20	107°31.3	103°11.3	35.2	129°36.8	26.1	1°06.1	56.1	104°06.9	50.4
21	122°33.8	118°11.0	•• 36.4	144°37.4	•• 25.4	16°08.6	•• 56.1	119°09.1	•• 50.3
22	137°36.3	133°10.6	37.7	159°38.0	24.6	31°11.1	56.2	134°11.3	50.1
23	152°38.7	148°10.3	39.0	174°38.6	23.9	46°13.5	56.2	149°13.5	50.0
Mer.pass. 12:51 ν -0.4° d 1.3' m -3.92 ν 0.6° d 0.7' m 1.15 ν 2.5° d 0.0' m -2.38 ν 2.2° d 0.1' m 0.97									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	167°41.2	163°09.9	N00°40.3	189°39.2	S10°23.2	61°16.0	N22°56.2	164°15.7	S00°49.9										
1	182°43.7	178°09.5	41.6	204°39.8	22.5	76°18.5	56.2	179°17.8	49.8										
2	197°46.1	193°09.2	42.9	219°40.4	21.7	91°21.0	56.2	194°20.0	49.7										
3	212°48.6	208°08.8	· · 44.2	234°41.0	· · 21.0	106°23.4	· · 56.2	209°22.2	· · 49.5										
4	227°51.0	223°08.4	45.5	249°41.7	20.3	121°25.9	56.2	224°24.4	49.4										
5	242°53.5	238°08.1	46.7	264°42.3	19.5	136°28.4	56.2	239°26.6	49.3										
6	257°56.0	253°07.7	N00°48.0	279°42.9	S10°18.8	151°30.9	N22°56.2	254°28.8	S00°49.2										
7	272°58.4	268°07.3	49.3	294°43.5	18.1	166°33.3	56.2	269°30.9	49.0										
8	288°00.9	283°07.0	50.6	309°44.1	17.4	181°35.8	56.2	284°33.1	48.9										
9	303°03.4	298°06.6	· · 51.9	324°44.7	· · 16.6	196°38.3	· · 56.2	299°35.3	· · 48.8										
10	318°05.8	313°06.3	53.2	339°45.3	15.9	211°40.7	56.2	314°37.5	48.7										
11	333°08.3	328°05.9	54.5	354°45.9	15.2	226°43.2	56.2	329°39.7	48.6										
12	348°10.8	343°05.5	N00°55.8	9°46.5	S10°14.4	241°45.7	N22°56.2	344°41.9	S00°48.4										
13	3°13.2	358°05.2	57.0	24°47.1	13.7	256°48.1	56.2	359°44.0	48.3										
14	18°15.7	13°04.8	58.3	39°47.7	13.0	271°50.6	56.2	14°46.2	48.2										
15	33°18.2	28°04.4	00°59.6	54°48.3	· · 12.2	286°53.1	· · 56.2	29°48.4	· · 48.1										
16	48°20.6	43°04.1	01°00.9	69°48.9	11.5	301°55.6	56.2	44°50.6	47.9										
17	63°23.1	58°03.7	02.2	84°49.5	10.8	316°58.0	56.2	59°52.8	47.8										
18	78°25.5	73°03.3	N01°03.5	99°50.1	S10°10.1	332°00.5	N22°56.2	74°55.0	S00°47.7										
19	93°28.0	88°03.0	04.8	114°50.7	09.3	347°03.0	56.2	89°57.1	47.6										
20	108°30.5	103°02.6	06.1	129°51.3	08.6	2°05.4	56.2	104°59.3	47.4										
21	123°32.9	118°02.3	· · 07.3	144°52.0	· · 07.9	17°07.9	· · 56.2	120°01.5	· · 47.3										
22	138°35.4	133°01.9	08.6	159°52.6	07.1	32°10.4	56.2	135°03.7	47.2										
23	153°37.9	148°01.5	09.9	174°53.2	06.4	47°12.8	56.2	150°05.9	47.1										
Mer.pass. 12:47				ν -0.4° d 1.3' m -3.92				ν 0.6° d 0.7' m 1.15				ν 2.5° d 0.0' m -2.37				ν 2.2° d 0.1' m 0.97			

Stars				h				Sun				Moon			
SHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec	
Alpheratz	357°34.1	29°14.1		0	177°17.2	S04°58.2		309°29.6	13.6°	S19°15.2	10.9°	54.7°			
Ankaa	353°06.6	-42°09.9		1	192°14.7	57.3		324°02.2	13.5°	19°26.1	10.9°	54.7°			
Schedar	349°30.5	56°40.9		2	207°17.5	56.3		338°34.7	13.5°	19°37.0	10.8°	54.7°			
Diphda	348°46.6	-17°50.7		3	222°17.7	•• 55.3		353°07.2	13.4°	19°47.8	10.7°	54.7°			
Achernar	335°19.9	-57°06.4		4	237°17.8	54.3		7°39.6	13.4°	19°58.5	10.6°	54.6°			
Hamal	327°50.3	23°35.2		5	252°18.0	53.4		22°12.0	13.3°	20°09.1	10.5°	54.6°			
Polaris	313°47.5	89°22.7		6	267°18.1	S04°58.2		36°44.3	13.3°	S20°19.6	10.4°	54.6°			
Acamar	315°11.2	-40°12.2		7	282°18.3	51.4		51°16.6	13.2°	20°30.0	10.3°	54.6°			
Menkar	314°05.3	4°11.5		8	297°18.4	50.4		65°48.8	13.2°	20°40.3	10.3°	54.6°			

	Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	168°40.3	163°01.2	N01°11.2	189°53.8	S10°05.7	62°15.3	N22°56.2	165°08.0	S00°47.0						
1	183°42.8	178°00.8	12.5	204°54.4	04.9	77°17.8	56.2	180°10.2	46.8						
2	198°45.3	193°00.4	13.8	219°55.0	04.2	92°20.2	56.2	195°12.4	46.7						
3	213°47.7	208°00.1	• 15.1	234°55.6	• 03.5	107°22.7	• 56.2	210°14.6	• 46.6						
4	228°50.2	222°59.7	16.4	249°56.2	02.7	122°25.1	56.2	225°16.8	46.5						
5	243°52.7	237°59.4	17.6	264°56.8	02.0	137°27.6	56.2	240°19.0	46.3						
6	258°55.1	252°59.0	N01°18.9	279°57.4	S10°01.3	152°30.1	N22°56.2	255°21.1	S00°46.2						
7	273°57.6	267°58.6	20.2	294°58.0	10°00.5	167°32.5	56.2	270°23.3	46.1						
8	289°00.0	282°58.3	21.5	309°58.6	09°59.8	182°35.0	56.2	285°25.5	46.0						
9	304°02.5	297°57.9	• 22.8	324°59.3	• 59.1	197°37.5	• 56.2	300°27.7	• 45.9						
10	319°05.0	312°57.5	24.1	339°59.9	58.3	212°39.9	56.2	315°29.9	45.7						
11	334°07.4	327°57.2	25.4	355°00.5	57.6	227°42.4	56.3	330°32.1	45.6						
12	349°09.9	342°56.8	N01°26.7	10°01.1	S09°56.9	242°44.8	N22°56.3	345°34.2	S00°45.5						
13	4°12.4	357°56.4	27.9	25°01.7	56.1	257°47.3	56.3	0°36.4	45.4						
14	19°14.8	12°56.1	29.2	40°02.3	55.4	272°49.8	56.3	15°38.6	45.2						
15	34°17.3	27°55.7	• 30.5	55°02.9	• 54.7	287°52.2	• 56.3	30°40.8	• 45.1						
16	49°19.8	42°55.4	31.8	70°03.5	53.9	302°54.7	56.3	45°43.0	45.0						
17	64°22.2	57°55.0	33.1	85°04.1	53.2	317°57.1	56.3	60°45.2	44.9						
18	79°24.7	72°54.6	N01°34.4	100°04.7	S09°52.5	332°59.6	N22°56.3	75°47.3	S00°44.7						
19	94°27.2	87°54.3	35.7	115°05.4	51.7	348°02.1	56.3	90°49.5	44.6						
20	109°29.6	102°53.9	37.0	130°06.0	51.0	3°04.5	56.3	105°51.7	44.5						
21	124°32.1	117°53.5	• 38.2	145°06.6	• 50.2	18°07.0	• 56.3	120°53.9	• 44.4						
22	139°34.5	132°53.2	39.5	160°07.2	49.5	33°09.4	56.3	135°56.1	44.3						
23	154°37.0	147°52.8	40.8	175°07.8	48.8	48°11.9	56.3	150°58.2	44.1						
Mer.pass. 12:43			ν -0.4' d 1.3' m -3.92			ν 0.6' d 0.7' m 1.15			ν 2.5' d 0.0' m -2.36			ν 2.2' d 0.1' m 0.96			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	169°39.5	162°52.5	N01°42.1	190°08.4	S09°48.0	63°14.3	N22°56.3	166°00.4	S00°44.0						
1	184°41.9	177°52.1	43.4	205°09.0	47.3	78°16.8	56.3	181°02.6	43.9						
2	199°44.4	192°51.7	44.7	220°09.6	46.6	93°19.3	56.3	196°04.8	43.8						
3	214°46.9	207°51.4	• 46.0	235°10.2	• 45.8	108°21.7	• 56.3	211°07.0	• 43.6						
4	229°49.3	222°51.0	47.2	250°10.9	45.1	123°24.2	56.3	226°09.2	43.5						
5	244°51.8	237°50.6	48.5	265°11.5	44.4	138°26.6	56.3	241°11.3	43.4						
6	259°54.3	252°50.3	N01°49.8	280°12.1	S09°33.6	153°29.1	N22°56.3	256°13.5	S00°43.3						
7	274°56.7	267°49.9	51.1	295°12.7	42.9	168°31.5	56.3	271°15.7	43.1						
8	289°59.2	282°49.5	52.4	310°13.3	42.1	183°34.0	56.3	286°17.9	43.0						
9	305°01.6	297°49.2	• 53.7	325°13.9	• 41.4	198°36.4	• 56.3	301°20.1	• 42.9						
10	320°04.1	312°48.8	55.0	340°14.5	40.7	213°38.9	56.3	316°22.2	42.8						
11	335°06.6	327°48.5	56.2	355°15.1	39.9	228°41.3	56.3	331°24.4	42.7						
12	350°09.0	342°48.1	N01°57.5	10°15.8	S09°39.2	243°43.8	N22°56.3	346°26.6	S00°42.5						
13	5°11.5	357°47.7	01°58.8	25°16.4	38.5	258°46.2	56.3	1°28.8	43.4						
14	20°14.0	12°47.4	02°00.1	40°17.0	37.7	273°48.7	56.3	16°31.0	42.3						
15	35°16.4	27°47.0	• 01.4	55°17.6	• 37.0	288°51.2	• 56.3	31°33.2	• 42.2						
16	50°18.9	42°46.6	02.7	70°18.2	36.2	303°53.6	56.3	46°35.3	42.0						
17	65°21.4	57°46.3	04.0	85°18.8	35.5	318°56.1	56.3	61°37.5	41.9						
18	80°23.8	72°45.9	N02°05.2	100°19.4	S09°34.8	333°58.5	N22°56.3	76°39.7	S00°41.8						
19	95°26.3	87°45.6	06.5	115°20.1	34.0	349°01.0	56.3	91°41.9	41.7						
20	110°28.8	102°45.2	07.8	130°20.7	33.3	4°03.4	56.3	106°44.1	41.5						
21	125°31.2	117°44.8	• 09.1	145°21.3	• 32.5	19°05.8	• 56.3	121°46.2	• 41.4						
22	140°33.7	132°44.5	10.4	160°21.9	31.8	34°08.3	56.3	136°48.4	41.3						
23	155°36.1	147°44.1	11.7	175°22.5	31.1	49°10.7	56.3	151°50.6	41.2						
Mer.pass. 12:39			ν -0.4' d 1.3' m -3.92			ν 0.6' d 0.7' m 1.16			ν 2.5' d 0.0' m -2.36			ν 2.2' d 0.1' m 0.96			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	170°38.6	162°43.7	N02°13.0	190°23.1	S09°30.3	64°13.2	N22°56.3	166°52.8	S00°41.1						
1	185°41.1	177°43.4	14.0	205°23.7	29.6	79°15.6	56.3	181°55.0	40.9						
2	200°43.5	192°43.0	15.5	220°24.4	28.8	94°18.1	56.3	196°57.1	40.8						
3	215°46.0	207°42.6	• 16.8	235°25.0	• 28.1	109°20.5	• 56.3	211°59.3	• 40.7						
4	230°48.5	222°42.3	18.1	250°25.6	27.4	124°23.0	56.3	227°01.5	40.6						
5	245°50.9	237°41.9	19.4	265°26.2	26.6	139°25.4	56.3	242°03.7	40.4						
6	260°53.4	252°41.6	N02°20.7	280°26.8	S09°25.9	154°27.9	N22°56.3	257°05.9	S00°40.3						
7	275°55.9	267°41.2	22.0	295°27.4	25.1	169°30.3	56.3	272°08.1	40.2						
8	290°58.3	282°40.0	23.2	310°28.1	24.4	184°32.8	56.3	287°10.2	40.1						
9	306°00.8	297°40.5	• 24.5	325°28.7	• 23.7	199°35.2	• 56.3	302°12.4	• 39.9						
10	321°03.3	312°40.1	25.8	340°29.3	22.9	214°37.7	56.3	317°14.6	39.8						
11	336°05.7	327°39.7	27.1	355°29.9	22.2	229°40.1	56.3	332°16.8	39.7						
12	351°08.2	342°39.4	N02°28.4	10°30.5	S09°21.4	244°42.5	N22°56.3	347°19.0	S00°39.6						
13	6°10.6	357°39.0	29.7	25°31.1	20.7	259°45.0	56.3	2°21.1	39.5						
14	21°13.1	12°38.6	30.9	40°31.7	20.0	274°47.4	56.3	17°23.3	39.3						
15	36°15.6	27°38.3	• 32.2	55°32.4	• 19.2	289°49.9	• 56.3	32°25.5	• 39.2						
16	51°18.0	42°37.9	33.5	70°33.0	18.5	304°52.3	56.3	47°27.7	39.1						
17	66°20.5	57°37.5	34.8	85°33.6	17.7	319°54.7	56.3	62°29.9	39.0						
18	81°23.0	72°37.2	N02°36.1	100°34.2	S09°17.0	334°57.2	N22°56.3	77°32.0	S00°38.8						
19	96°25.4	87°36.8	37.4	115°34.8	16.2	349°59.6	56.3	92°34.2	38.7						
20	111°27.9	102°36.5	38.7	130°35.5	15.5	5°02.1	56.3	107°36.4	38.6						
21	126°30.4	117°36.1	• 39.9	145°36.1	• 14.8	20°04.5	• 56.3	122°38.6	• 38.5						
22	141°32.8	132°35.7	41.2	160°36.7	14.0	35°07.0	56.3	137°40.8	38.3						
23	156°35.3	147°35.4	42.5	175°37.3	13.3	50°09.4	56.3	152°43.0	38.2						
Mer.pass. 12:35			ν -0.4' d 1.3' m -3.92			ν 0.6' d 0.7' m 1.16			ν 2.4' d 0.0' m -2.35			ν 2.2' d 0.1' m 0.96			

Stars			h			Sun			Moon		
	SHA	Dec	Wed	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.1	29°14.1	0	177°28.6	S03°47.8	274°26.6	10.1'	S27°54.5	2.8'	54.2'	
Ankaa	353°06.6	-42°09.9	1	192°28.8	46.8	288°55.7	10.1'	27°57.3	2.7'	54.2'	
Schedar	349°30.5	56°40.9	2	207°28.9	45.8	303°24.8	10.1'	28°00.0	2.5'	54.2'	
Diphda	348°46.6	-17°50.7	3	222°29.1	• 44.8	317°53.9	10.0'	28°02.5	2.4'	54.2'	
Achernar	335°19.9	-57°06.4	4	237°29.2	43.9	332°22.9	10.0'	28°04.9	2.3'	54.2'	
Hamal	327°50.4	23°35.2	5	252°29.4	42.9	346°51.9	10.0'	28°07.2	2.1'	54.2'	
Polaris	313°48.6	89°22.7	6	267°29.6	S03°41.9	1°20.9	10.0'	S28°09.3	2.0'	54.2'	
Acamar	315°11.3	-40°12.2	7	282°29.7	40.9	15°49.9	9.9'	S28°11.3	1.9'	54.2'	
Meknar	314°05.3	4°11.5	8	297°29.9	39.9	30°18.8	9.9'	28°13.2	1.7'	54.2'	
Mirfak	308°27.1	49°57.4	9	312°30.1	• 39.0	44°47.7	9.9'	28°14.9	1.6'	54.2'	
Aldebaran	290°38.6	16°33.7	10	327°30.2	38.0	59°16.6	9.9'	28°16.5	1.5'	54.2'	
Rigel	281°02.9	-8°10.4	11	342°30.4	37.0	73°45.4	9.8'	28°18.0	1.3'	54.2'	
Capella	280°20.5	46°01.6	12	357°30.6	S03°36.0	88°14.3	9.8'	S28°19.3	1.2'	54.2'	
Bellatrix	278°21.8	6°22.3	13	12°30.7	35.0	102°43.1	9.8'	28°20.5	1.0'	54.2'	
El Nath	278°00.6	28°37.8	14	27°30.9	34.0	117°11.9	9.8'	28°21.5	0.9'	54.3'	
Anilam	275°36.7	-1°11.2	15	42°31.0	• 33.1	131°40.6	9.8'	28°22.4	0.8'	54.3'	
Betelgeuse	270°51.0	7°24.6	16	57°31.2	32.1	146°09.4	9.7'	28°23.2	0.6'	54.3'	
Canopus	263°51.8	-52°42.8	17	72°31.4	31.1	160°38.1	9.7'	28°23.8	0.5'	54.3'	
Sirius	258°25.3	-16°45.3	18	87°31.5	S03°30.1	175°06.9	9.7'	S28°24.3	0.4'	54.3'	
Adhara	255°00.5	-29°00.7	19	102°31.7	29.1	189°35.6	9.7'	28°24.7	0.2'	54.3'	
Procyon	244°49.6	5°09.9	20	117°31.9	28.1	204°04.2	9.7'	28°24.9	0.1'	54.3'	
Pollux	234°15.9	27°57.8	21	132°32.0	• 27.2	218°32.9	9.7'	28°25.0	0.1'	54.3'	
Avior	234°13.9	-59°35.8	22	147°32.2	26.2	233°01.6	9.7'	28°25.9	0.2'	54.3'	
Suhail	222°45.2	-43°32.5	23	162°32.4	25.2	247°30.2	9.6'	28°24.7	0.3'	54.3'	
Miacapiclus	221°37.3	-69°49.7									
Alphard	217°46.5	-8°46.5									

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	171°37.8	162°35.0	N02°43.8	190°37.9	S09°12.5	65°11.8	N22°56.3	167°45.1	S00°38.1										
1	186°40.2	177°34.6	45.1	205°38.5	11.8	80°14.3	56.3	182°47.3	38.0										
2	201°42.7	192°34.3	46.4	220°39.2	11.0	95°16.7	56.3	197°49.5	37.9										
3	216°45.1	207°33.9	•• 47.6	235°39.8	•• 10.3	110°19.1	•• 56.3	212°51.7	•• 37.7										
4	231°47.6	222°33.5	48.9	250°40.4	09.6	125°21.6	56.3	227°53.9	37.6										
5	246°50.1	237°33.2	50.2	265°41.0	08.8	140°24.0	56.3	242°56.0	37.5										
6	261°52.5	252°32.8	N02°51.5	280°41.6	S09°08.1	155°26.5	N22°56.3	257°58.2	S00°37.4										
7	276°55.0	267°32.4	52.8	295°42.3	07.3	170°28.9	56.3	273°00.4	37.2										
8	291°57.5	282°32.1	54.1	310°42.9	06.6	185°31.3	56.3	288°02.6	37.1										
9	306°59.9	297°31.7	•• 55.3	325°43.5	•• 05.8	200°33.8	•• 56.3	303°04.8	•• 37.0										
10	322°02.4	312°31.4	56.6	340°44.1	05.1	215°36.2	56.3	318°06.9	36.9										
11	337°04.9	327°31.0	57.9	355°44.7	04.3	230°38.6	56.3	333°09.1	36.7										
12	352°07.3	342°30.6	N02°59.2	10°45.4	S09°03.6	245°41.1	N22°56.3	348°11.3	S00°36.6										
13	7°09.8	357°30.3	03°00.5	25°46.0	02.9	260°43.5	56.3	3°13.5	36.5										
14	22°12.2	12°29.9	01.7	40°46.6	02.1	275°45.9	56.3	18°15.7	36.4										
15	37°14.7	27°29.5	•• 03.0	55°47.2	•• 01.4	290°48.4	•• 56.3	33°17.8	•• 36.3										
16	52°17.2	42°29.2	04.3	70°47.8	09°00.6	305°50.8	56.3	48°20.0	36.1										
17	67°19.6	57°28.8	05.6	85°48.5	08°59.9	320°53.2	56.3	63°22.2	36.0										
18	82°22.1	72°28.4	N03°06.9	100°49.1	S08°59.1	335°55.7	N22°56.3	78°24.4	S00°35.9										
19	97°24.6	87°28.1	08.2	115°49.7	58.4	350°58.1	56.3	93°26.6	35.8										
20	112°27.0	102°27.7	09.4	130°50.3	57.6	6°00.5	56.3	108°28.7	35.6										
21	127°29.5	117°27.3	•• 10.7	145°50.9	•• 56.9	21°03.0	•• 56.3	123°30.9	•• 35.5										
22	142°32.0	132°27.0	12.0	160°51.6	56.1	36°05.4	56.3	138°33.1	35.4										
23	157°34.4	147°26.6	13.3	175°52.2	55.4	51°07.8	56.3	153°35.3	35.3										
Mer.pass. 12:31				ν -0.4' d 1.3' m -3.92				ν 0.6' d 0.7' m 1.16				ν 2.4' d 0.0' m -2.34				ν 2.2' d 0.1' m 0.95			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	172°36.9	162°26.2	N03°14.6	190°52.8	S08°54.6	66°10.3	N22°56.3	168°37.5	S00°35.1
1	187°39.4	177°25.9	15.8	205°53.4	53.9	81°12.7	56.3	183°39.6	35.0
2	202°41.8	192°25.5	17.1	220°54.0	53.2	96°15.1	56.3	198°41.8	34.9
3	217°44.3	207°25.1	•• 18.4	235°54.7	•• 52.4	111°17.5	•• 56.3	213°44.0	•• 34.8
4	232°46.7	222°24.8	19.7	250°55.3	51.7	126°20.0	56.3	228°46.2	34.7
5	247°49.2	237°24.4	21.0	265°55.9	50.9	141°22.4	56.3	243°48.4	34.5
6	262°51.7	252°24.0	N03°22.2	280°56.5	S08°50.2	156°24.8	N22°56.3	258°50.5	S00°34.4
7	277°54.1	267°23.7	23.5	295°57.2	49.4	171°27.3	56.3	273°52.7	34.3
8	292°56.6	282°23.3	24.8	310°57.8	48.7	186°29.7	56.3	288°54.9	34.2
9	307°59.1	297°22.9	•• 26.1	325°58.4	•• 47.9	201°32.1	•• 56.3	303°57.1	•• 34.0
10	323°01.5	312°22.6	27.4	340°59.0	47.2	216°34.5	56.3	318°59.3	33.9
11	338°04.0	327°22.2	28.6	355°59.6	46.4	231°37.0	56.3	334°01.4	33.8
12	353°06.5	342°21.8	N03°29.9	11°00.3	S08°45.7	246°39.4	N22°56.3	349°03.6	S00°33.7
13	8°08.9	357°21.5	31.2	26°00.9	44.9	261°41.8	56.3	4°05.8	33.5
14	23°11.4	12°21.1	32.5	41°01.5	44.2	276°44.2	56.3	19°08.0	33.4
15	38°13.9	27°20.7	•• 33.8	56°02.1	•• 43.4	291°46.7	•• 56.3	34°10.2	•• 33.3
16	53°16.3	42°20.4	35.0	71°02.8	42.7	306°49.1	56.3	49°12.3	33.2
17	68°18.8	57°20.0	36.3	86°03.4	41.9	321°51.5	56.3	64°14.5	33.1
18	83°21.2	72°19.6	N03°37.6	101°04.0	S08°41.2	336°53.9	N22°56.2	79°16.7	S00°32.9
19	98°23.7	87°19.3	38.9	116°04.6	40.4	351°56.4	56.2	94°18.9	32.8
20	113°26.2	102°18.9	40.2	131°05.3	39.7	6°58.8	56.2	109°21.1	32.7
21	128°28.6	117°18.5	•• 41.4	146°05.9	•• 38.9	22°01.2	•• 56.2	124°23.2	•• 32.6
22	143°31.1	132°18.2	42.7	161°06.5	38.2	37°03.6	56.2	139°25.4	32.4
23	158°33.6	147°17.8	44.0	176°07.1	37.4	52°06.1	56.2	154°27.6	32.3
Mer.pass. 12:27 ν -0.4' d 1.3' m -3.92 ν 0.6' d 0.7' m 1.16 ν 2.4' d 0.0' m -2.33 ν 2.2' d 0.1' m 0.95									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	173°36.0	162°17.4	N03°45.3	191°07.8	S08°36.7	67°08.5	N22°56.2	169°29.8	S00°32.2
1	188°38.5	177°17.1	46.5	206°08.4	35.9	82°10.9	56.2	184°32.0	32.1
2	203°41.0	192°16.7	47.8	221°09.0	35.2	97°13.3	56.2	199°34.1	31.9
3	218°43.4	207°16.3	•• 49.1	236°09.6	•• 34.4	112°15.7	•• 56.2	214°36.3	•• 31.8
4	233°45.9	222°16.0	50.4	251°10.3	33.7	127°18.2	56.2	229°38.5	31.7
5	248°48.3	237°15.6	51.7	266°10.9	32.9	142°20.6	56.2	244°40.7	31.6
6	263°50.8	252°15.2	N03°52.9	281°11.5	S08°32.2	157°23.0	N22°56.2	259°42.9	S00°31.4
7	278°53.3	267°14.9	54.2	296°12.1	31.4	172°25.4	56.2	274°45.0	31.3
8	293°55.7	282°14.5	55.5	311°12.8	30.7	187°27.8	56.2	289°47.2	31.2
9	308°58.2	297°14.1	•• 56.8	326°13.4	•• 29.9	202°30.3	•• 56.2	304°49.4	•• 31.1
10	324°00.7	312°13.8	58.0	341°14.0	29.2	217°32.7	56.2	319°51.6	31.0
11	339°03.1	327°13.4	03°59.3	356°14.6	28.4	232°35.1	56.2	334°53.8	30.8
12	354°05.6	342°13.0	N04°00.6	11°15.3	S08°27.7	247°37.5	N22°56.2	349°55.9	S00°30.7
13	9°08.1	357°12.7	01.9	26°15.9	26.9	262°39.9	56.2	4°58.1	30.6
14	24°10.5	12°12.3	03.1	41°16.5	26.2	277°42.3	56.2	20°00.3	30.5
15	39°13.0	27°11.9	•• 04.4	56°17.1	•• 25.4	292°44.8	•• 56.2	35°02.5	•• 30.3
16	54°15.5	42°11.6	05.7	71°17.8	24.7	307°47.2	56.2	50°04.7	30.2
17	69°17.9	57°11.2	07.0	86°18.4	23.9	322°49.6	56.2	65°06.8	30.1
18	84°20.4	72°10.8	N04°08.2	101°19.0	S08°23.2	337°52.0	N22°56.2	80°09.0	S00°30.0
19	99°22.8	87°10.5	09.5	116°19.6	22.4	352°54.4	56.2	95°11.2	29.8
20	114°25.3	102°10.1	10.8	131°20.3	21.7	7°56.8	56.2	110°13.4	29.7
21	129°27.8	117°09.7	•• 12.1	146°20.9	•• 20.9	22°59.2	•• 56.2	125°15.6	•• 29.6
22	144°30.2	132°09.3	13.3	161°21.5	20.2	38°01.7	56.2	140°17.7	29.5
23	159°32.7	147°09.0	14.6	176°22.2	19.4	53°04.1	56.2	155°19.9	29.4
Mer.pass. 12:24 ν -0.4' d 1.3' m -3.92 ν 0.6' d 0.8' m 1.16 ν 2.4' d 0.0' m -2.32 ν 2.2' d 0.1' m 0.95									

Stars			h			Sun			Moon			
SHA	Dec		Sat	GHA	Dec	GHA	ν	Dec	d	HP		
Alpheratz	357°34.1	29°14.1	0	177°40.6	S02°36.9	237°01.4	10.3'	S25°24.7	7.1'	55.2'		
Ankaa	353°06.6	-42°09.9	1	192°40.8	35.9	251°30.8	10.4'	25°17.6	7.2'	55.2'		
Schedar	349°30.5	56°40.9	2	207°41.0	35.0	266°00.1	10.4'	25°10.4	7.3'	55.2'		
Diphda	348°46.6	-17°50.7	3	222°41.1	•• 34.0	280°29.5	10.4'	25°03.1	7.4'	55.2'		
Achernar	335°19.9	-57°06.4	4	237°41.3	33.0	294°59.0	10.5'	24°55.7	7.6'	55.3'		
Hamal	327°50.4	23°35.2	5	252°41.5	32.0	309°28.5	10.5'	24°48.1	7.7'	55.3'		
Polaris	313°49.7	89°22.7	6	267°41.7	S02°31.0	323°58.0	10.5'	S24°40.4	7.9'	55.3'		
Acamar	315°11.3	-40°12.2	7	282°41.8	30.0	338°27.5	10.6'	24°32.5	7.9'	55.3'		
Menkar	314°05.3	4°11.5	8	297°42.0	29.0	352°57.1	10.6'	24°24.6	8.1'	55.4'		
Aldebaran	290°38.6	16°33.7	9	312°42.2	•• 28.1	7°26.7	10.7'	24°16.5	8.2'	55.4'		
Rigel	281°02.9	-8°10.4	10	327°42.4	27.1	21°56.4	10.7'	24°08.3	8.4'	55.4'		
Capella	280°20.5	46°01.6	11	342°42.5	26.1	36°26.1	10.7'	23°59.8	8.4'	55.4'		
Bellatrix	278°21.8	6°22.3	12	357°42.7	S02°25.1	50°55.8	10.8'	S23°51.5	8.6'	55.5'		
Elath	278°00.6	28°37.8	13	12°42.9	24.1	65°25.6	10.8'	S23°42.9	8.7'	55.5'		
Anilam	275°36.7	-1°12.1	14	27°43.0	23.1	79°55.4	10.9'	23°34.2	8.9'	55.5'		
Betelgeuse	270°51.0	7°24.6	15	42°43.2	•• 22.1	94°25.3	10.9'	23°25.8	8.9'	55.5'		
Sinopus	263°51.8	-52°42.8	16	57°43.4	21.1	108°55.2	10.9'	23°16.4	9.1'	55.6'		
Canius	258°25.3	-16°45.3	17	72°43.6	20.2	123°25.1	11.0'	23°07.3	9.2'	55.6'		
Adhara	255°05.0	-29°00.7	18	87°43.7	S02°19.2	137°55.1	11.0'	S22°58.1	9.3'	55.6'		
Procyon	244°49.6	5°09.4	19	102°43.9	18.2	152°25.1	11.1'	22°48.8	9.4'	55.6'		
Pollux	243°15.9	27°57.8	20	117°44.1	•• 17.2	166°55.1	11.1'	22°39.4	9.6'	55.7'		
Avior	234°13.9	-59°35.8	21	132°44.3	•• 16.2	181°25.2	11.1'	22°29.8	9.7'	55.7'		
Suhail	222°45.3	-43°32.5	22	147°44.4	15.2	195°55.4	11.2'	22°20.1	9.7'	55.7'		
Miaplacidus	221°37.4	-69°49.7	23	162°44.6	14.2	210°25.5	11.2'	22°10.4	9.9'	55.8'		
Alphard	217°46.5	-8°46.5		SD = 16.1'	$d = 1.0'$			SD = 15.0'				
Regulus	207°33.1	11°50.2										

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	174°35.2	162°08.6	N04°15.9	191°22.8	S08°18.7	68°06.5	N22°56.2	170°22.1	S00°29.2										
1	189°37.6	177°08.2	17.2	206°23.4	17.9	83°08.9	56.2	185°24.3	29.1										
2	204°40.1	192°07.9	18.4	221°24.0	17.1	98°11.3	56.2	200°26.5	29.0										
3	219°42.6	207°07.5	•• 19.7	236°24.7	•• 16.4	113°13.7	•• 56.2	215°28.6	•• 28.9										
4	234°45.0	222°07.1	21.0	251°25.3	15.6	128°16.1	56.2	230°30.8	28.7										
5	249°47.5	237°06.8	22.3	266°25.9	14.9	143°18.5	56.2	245°30.3	28.6										
6	264°50.0	252°06.4	N04°23.5	281°26.6	S08°14.1	158°20.9	N22°56.1	260°35.2	S00°28.5										
7	279°52.4	267°06.0	24.8	296°27.2	13.4	173°23.4	56.1	275°37.3	28.4										
8	294°54.9	282°05.6	26.1	311°27.8	12.6	188°25.8	56.1	290°39.5	28.4										
9	309°57.3	297°05.3	•• 27.4	326°28.4	•• 11.9	203°28.2	•• 56.1	305°41.7	•• 28.1										
10	324°59.8	312°04.9	28.6	341°29.1	11.1	218°30.6	56.1	320°43.9	28.0										
11	340°02.3	327°04.5	29.9	356°29.7	10.4	233°33.0	56.1	335°46.1	27.9										
12	355°04.7	342°04.2	N04°31.2	11°30.3	S08°09.6	248°35.4	N22°56.1	350°48.2	S00°27.7										
13	10°07.2	357°03.8	32.5	26°31.0	08.9	263°37.8	56.1	5°50.4	27.6										
14	25°09.7	12°03.4	33.7	41°31.6	08.1	278°40.2	56.1	20°52.6	27.5										
15	40°12.1	27°03.0	•• 35.0	56°32.2	•• 07.3	293°42.6	•• 56.1	35°54.8	•• 27.4										
16	55°14.6	42°02.7	36.3	71°32.9	06.6	380°45.0	56.1	50°57.0	27.3										
17	70°17.1	57°02.3	37.5	86°33.5	05.8	323°47.4	56.1	65°59.1	27.1										
18	85°19.5	72°01.9	N04°38.8	101°34.1	S08°05.1	338°49.8	N22°56.1	81°01.3	S00°27.0										
19	100°22.0	87°01.6	40.1	116°34.7	04.3	353°52.3	56.1	96°03.5	26.9										
20	115°24.4	102°01.2	41.4	131°35.4	03.6	8°54.7	56.1	111°05.7	26.8										
21	130°26.9	117°00.8	•• 42.6	146°36.0	•• 02.8	23°57.1	•• 56.1	126°07.9	•• 26.6										
22	145°29.4	132°00.4	43.9	161°36.6	02.1	38°59.5	56.1	141°10.0	26.5										
23	160°31.8	147°00.1	45.2	176°37.3	01.3	54°01.9	56.1	156°12.2	26.4										
Mer.pass. 12:20				ν -0.4° d 1.3' m -3.92				ν 0.6° d 0.8' m 1.16				ν 2.4° d 0.0' m -2.32				ν 2.2° d 0.1' m 0.94			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	175°34.3	161°59.7	N04°46.4	191°37.9	S08°00.5	69°04.3	N22°56.1	171°14.4	S00°26.3
1	190°36.8	176°59.3	47.7	206°38.5	07°59.8	84°06.7	56.1	186°16.6	26.1
2	205°39.2	191°59.0	49.0	221°39.2	59.0	99°09.1	56.1	201°18.8	26.0
3	220°41.7	206°58.6	· · 50.3	236°39.8	· · 58.3	114°11.5	· · 56.1	216°20.9	· · 25.9
4	235°44.2	221°58.2	51.5	251°40.4	57.5	129°13.9	56.1	231°23.1	25.8
5	250°46.6	236°57.8	52.8	266°41.1	56.8	144°16.3	56.1	246°25.3	25.7
6	265°49.1	251°57.5	N04°54.1	281°41.7	S07°56.6	159°18.7	N22°56.1	261°27.5	S00°25.5
7	280°51.6	266°57.1	55.3	296°42.3	55.2	174°21.1	56.1	276°29.6	25.4
8	295°54.0	281°56.7	56.6	311°42.9	54.5	189°23.5	56.0	291°31.8	25.3
9	310°56.5	296°56.4	· · 57.9	326°43.6	· · 53.7	204°25.9	· · 56.0	306°34.0	· · 25.2
10	325°58.9	311°56.0	04°59.1	341°44.2	53.0	219°28.3	56.0	321°36.2	25.0
11	341°01.4	326°55.6	05°00.4	356°44.8	52.2	234°30.7	56.0	336°38.4	24.9
12	356°03.9	341°55.2	N05°01.7	11°45.5	S07°51.5	249°33.1	N22°56.0	351°40.5	S00°24.8
13	11°06.3	356°54.9	02.9	26°46.1	50.7	264°35.5	56.0	6°42.7	24.7
14	26°08.8	11°54.5	04.2	41°46.7	49.9	279°37.9	56.0	21°44.9	24.5
15	41°11.3	26°54.1	· · 05.5	56°47.4	· · 49.2	294°40.3	· · 56.0	36°47.1	· · 24.4
16	56°13.7	41°53.7	06.7	71°48.0	48.4	309°42.7	56.0	51°49.3	24.3
17	71°16.2	56°53.4	08.0	86°48.6	47.7	324°45.1	56.0	66°51.4	24.2
18	86°18.7	71°53.0	N05°09.3	101°49.3	S07°46.9	339°47.5	N22°56.0	81°53.6	S00°24.1
19	101°21.1	86°52.6	10.5	116°49.9	46.2	354°49.9	56.0	96°55.8	23.9
20	116°23.6	101°52.2	11.8	131°50.5	45.4	9°52.3	56.0	111°58.0	23.8
21	131°26.0	116°51.9	· · 13.1	146°51.2	· · 44.6	24°54.7	· · 56.0	127°00.1	· · 23.7
22	146°28.5	131°51.5	14.3	161°51.8	43.9	39°57.1	56.0	142°02.3	23.6
23	161°31.0	146°51.1	15.6	176°52.4	43.1	54°59.5	56.0	157°04.5	23.4
Mer.pass. 12:16 ν -0.4° d 1.3' m -3.92 ν 0.6° d 0.8' m 1.16 ν 2.4° d 0.0' m -2.31 ν 2.2° d 0.1' m 0.94									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	176°33.4	161°50.7	N05°16.9	191°53.1	S07°42.4	70°01.9	N22°56.0	172°06.7	S00°23.3										
1	191°35.9	176°50.4	18.1	206°53.7	41.6	85°04.3	56.0	187°08.9	23.2										
2	206°38.4	191°50.0	19.4	221°54.3	40.8	100°06.7	56.0	202°11.0	23.1										
3	221°40.8	206°49.6	•• 20.7	236°55.0	•• 40.1	115°09.1	•• 56.0	217°13.2	•• 22.9										
4	236°43.3	221°49.2	21.9	251°55.6	39.3	130°11.4	55.9	232°15.4	22.8										
5	251°45.8	236°48.9	23.2	266°56.2	38.6	145°13.8	55.9	247°17.6	22.7										
6	266°48.2	251°48.5	N05°24.5	281°56.9	S07°37.8	160°16.2	N22°55.9	262°19.8	S00°22.6										
7	281°50.7	266°48.1	25.7	296°57.5	37.1	175°18.6	55.9	277°21.9	22.4										
8	296°53.2	281°47.7	27.0	311°58.2	36.3	190°21.0	55.9	292°24.1	22.3										
9	311°55.6	296°47.4	•• 28.3	326°58.8	•• 35.5	205°23.4	•• 55.9	307°26.3	•• 22.2										
10	326°58.1	311°47.0	29.5	341°59.4	34.8	220°25.8	55.9	322°28.5	22.1										
11	342°00.5	326°46.6	30.8	357°00.1	34.0	235°28.2	55.9	337°30.6	22.0										
12	357°03.0	341°46.2	N05°32.1	12°00.7	S07°33.3	250°30.6	N22°55.9	352°32.8	S00°21.8										
13	12°05.5	356°45.9	33.3	27°01.3	32.5	265°33.0	55.9	7°35.0	21.7										
14	27°07.9	11°45.5	34.6	42°02.0	31.7	280°35.4	55.9	22°37.2	21.6										
15	42°10.4	26°45.1	•• 35.9	57°02.6	•• 31.0	295°37.8	•• 55.9	37°39.4	•• 21.5										
16	57°12.9	41°44.7	37.1	72°03.2	30.2	310°40.1	55.9	52°41.5	21.3										
17	72°15.3	56°44.3	38.4	87°03.9	29.5	325°42.5	55.9	67°43.7	21.2										
18	87°17.8	71°44.0	N05°39.6	102°04.5	S07°28.7	340°44.9	N22°55.9	82°45.9	S00°21.1										
19	102°20.3	86°43.6	40.9	117°05.1	27.9	355°47.3	55.9	97°48.1	21.0										
20	117°22.7	101°43.2	42.2	132°05.8	27.2	10°49.7	55.9	112°50.2	20.8										
21	132°25.2	116°42.8	•• 43.4	147°06.4	•• 26.4	25°52.1	•• 55.9	127°52.4	•• 20.7										
22	147°27.6	131°42.5	44.7	162°07.1	25.6	40°54.5	55.9	142°54.6	20.6										
23	162°30.1	146°42.1	45.9	177°07.7	24.9	55°56.9	55.8	157°56.8	20.5										
Mer.pass. 12:12				ν -0.4° d 1.3' m -3.92				ν 0.6° d 0.8' m 1.17				ν 2.4° d 0.0' m -2.30				ν 2.2° d 0.1' m 0.93			

Stars			h			Sun			Moon		
	SHA	Dec	Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.1	29°14.0	0	177°53.2	S01°25.8	201°49.4	12.8'	S12°03.8	14.6'	57.2'	
Ankaa	353°06.6	-42°09.9	1	192°53.4	24.8	216°21.3	12.9'	11°49.2	14.7'	57.3'	
Schedar	349°30.5	56°40.9	2	207°53.6	23.8	230°53.1	12.9'	11°34.5	14.7'	57.3'	
Diphda	348°46.6	-17°50.7	3	222°53.8	•• 22.8	245°25.0	12.9'	11°19.8	14.8'	57.3'	
Achernar	335°19.9	-57°06.4	4	237°53.9	21.8	259°56.9	12.9'	11°05.0	14.9'	57.4'	
Hamal	327°50.4	23°35.2	5	252°54.1	20.9	274°28.8	12.9'	10°50.1	14.9'	57.4'	
Polaris	313°51.1	89°22.7	6	267°54.3	S01°19.9	289°00.8	12.9'	S10°35.2	15.0'	57.4'	
Acamar	315°11.3	-40°12.2	7	282°54.5	18.9	303°32.7	13.0'	10°20.2	15.1'	57.5'	
Menkar	314°05.3	4°11.5	8	297°54.7	17.9	318°04.7	13.0'	10°05.1	15.1'	57.5'	
Mirfak	308°27.1	49°57.4	9	312°54.8	•• 16.9	332°36.6	13.0'	09°50.0	15.2'	57.5'	
Aldebaran	290°36.6	16°33.7	10	327°55.0	15.9	347°08.6	13.0'	09°34.8	15.2'	57.6'	
Rigel	281°03.0	-8°40.1	11	342°55.2	14.9	1°40.46	13.0'	09°19.6	15.3'	57.6'	
Capella	280°20.5	46°01.6	12	357°55.4	S01°13.9	16°12.6	13.0'	S09°04.3	15.4'	57.6'	
Bellatrix	278°21.8	6°22.3	13	125°55.6	12.9	30°44.7	13.0'	08°48.9	15.4'	57.6'	
Elath	278°00.6	28°37.8	14	137°55.2	12.0	45°16.4	13.0'	08°33.5	15.5'	57.7'	
Anilam	275°36.7	-1°11.2	15	42°55.9	•• 11.0	59°48.7	13.0'	08°18.0	15.6'	57.7'	
Betelgeuse	270°51.0	7°24.6	16	57°56.1	10.0	74°20.8	13.0'	08°02.4	15.6'	57.7'	
Canopus	263°51.9	-52°42.8	17	72°56.3	09.0	88°52.8	13.1'	07°46.8	15.6'	57.8'	
Sirius	258°25.3	-16°45.3	18	87°56.4	S01°08.0	103°24.9	13.1'	S07°31.2	15.7'	57.8'	
Adhara	255°05.0	-29°00.7	19	102°56.6	07.0	117°56.9	13.1'	07°15.5	15.8'	57.8'	
Procyon	244°49.7	5°09.4	20	117°56.0	06.0	132°29.8	13.1'	06°59.8	15.8'	57.9'	
Pollux	243°15.9	27°57.8	21	132°57.0	•• 05.0	147°01.0	13.1'	06°43.9	15.8'	57.9'	
Avior	234°14.0	-59°35.8	22	147°57.2	04.0	161°33.1	13.1'	06°28.1	15.9'	57.9'	
Suhail	222°45.3	-43°32.5	23	162°57.3	03.1	176°05.2	13.1'	06°12.2	15.9'	57.9'	
Miaplacidus	221°37.4	-69°49.7									
Alphard	217°46.5	-8°46.5									

	Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	177°32.6	161°41.7	N05°47.2	192°08.3	S07°24.1	70°59.3	N22°55.8	172°59.0	S00°20.4						
1	192°35.0	176°41.3	48.5	207°09.0	23.4	86°01.6	55.8	188°01.1	20.2						
2	207°37.5	191°40.9	49.7	222°09.6	22.6	101°04.0	55.8	203°03.3	20.1						
3	222°40.0	206°40.6	.. 51.0	237°10.2	.. 21.8	116°06.4	.. 55.8	218°05.5	.. 20.0						
4	237°42.4	221°40.2	52.3	252°10.9	21.1	131°08.8	55.8	233°07.7	19.9						
5	252°44.9	236°39.8	53.5	267°11.5	20.3	146°11.2	55.8	248°09.9	19.7						
6	267°47.4	251°39.4	N05°54.8	282°12.2	S07°19.6	161°13.6	N22°55.8	263°12.0	S00°19.6						
7	282°49.8	266°39.0	56.0	297°12.8	18.8	176°16.0	55.8	278°14.2	19.5						
8	297°52.3	281°38.7	57.3	312°13.4	18.0	191°18.3	55.8	293°16.4	19.4						
9	312°54.8	296°38.3	.. 58.5	327°14.1	.. 17.3	206°20.7	.. 55.8	308°18.6	.. 19.2						
10	327°57.2	311°37.9	05°59.8	342°14.7	16.5	221°23.1	55.8	323°20.7	19.1						
11	342°59.7	326°37.5	06°01.1	357°15.3	15.7	236°25.5	55.8	338°22.9	19.0						
12	358°02.1	341°37.1	N06°02.3	12°16.0	S07°15.0	251°27.9	N22°55.8	353°25.1	S00°18.9						
13	13°04.6	356°36.8	03.6	27°16.6	14.2	266°30.3	55.8	8°27.3	18.7						
14	28°07.1	11°36.4	04.8	42°17.3	13.5	281°32.6	55.7	23°29.5	18.6						
15	43°09.5	26°36.0	.. 06.1	57°17.9	.. 12.7	296°35.0	.. 55.7	38°31.6	.. 18.5						
16	58°12.0	41°35.6	07.4	72°18.5	10.9	311°37.4	55.7	53°33.8	18.4						
17	73°14.5	56°35.2	08.6	87°19.2	11.2	326°39.8	55.7	68°36.0	18.3						
18	88°16.9	71°34.9	N06°09.9	102°19.8	S07°10.4	341°42.2	N22°55.7	83°38.2	S00°18.1						
19	103°19.4	86°34.5	11.1	117°20.5	09.6	356°44.5	55.7	98°40.3	18.0						
20	118°21.9	101°34.1	12.4	132°21.1	08.9	11°46.9	55.7	113°42.5	17.9						
21	133°24.3	116°33.7	.. 13.6	147°21.7	.. 08.1	26°49.3	.. 55.7	128°44.7	.. 17.8						
22	148°26.8	131°33.3	14.9	162°22.4	07.4	41°51.7	55.7	143°46.9	17.6						
23	163°29.2	146°33.0	16.2	177°23.0	06.6	56°54.1	55.7	158°49.1	17.5						
Mer.pass. 12:08			ν -0.4' d 1.3' m -3.92			ν 0.6' d 0.8' m 1.17			ν 2.4' d 0.0' m -2.29			ν 2.2' d 0.1' m 0.93			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	178°31.7	161°32.6	N06°17.4	192°23.7	S07°05.8	71°56.4	N22°55.7	173°51.2	S00°17.4					
1	193°34.2	176°32.2	18.7	207°24.3	05.1	86°58.8	55.7	188°53.4	17.3					
2	208°36.6	191°31.8	19.9	222°24.9	04.3	102°01.2	55.7	203°55.6	17.1					
3	223°39.1	206°31.4	.. 21.2	237°25.6	.. 03.5	117°03.6	.. 55.7	218°57.8	.. 17.0					
4	238°41.6	221°31.0	22.4	252°26.2	02.8	132°05.9	55.6	233°59.9	16.9					
5	253°44.0	236°30.7	23.7	267°26.9	02.0	147°08.3	55.6	249°02.1	16.8					
6	268°46.5	251°30.3	N06°24.9	282°27.5	S07°01.2	162°10.7	N22°55.6	264°04.3	S00°16.7					
7	283°49.0	266°29.9	26.2	297°28.1	07°00.5	177°13.1	55.6	279°06.5	16.5					
8	298°51.4	281°29.5	27.4	312°28.8	06°59.7	192°15.4	55.6	294°08.7	16.4					
9	313°53.9	296°29.1	.. 28.7	327°29.4	.. 58.9	207°17.8	.. 55.6	309°10.8	.. 16.3					
10	328°56.4	311°28.7	30.0	342°30.1	58.2	222°20.2	55.6	324°13.0	16.2					
11	343°58.8	326°28.4	31.2	357°30.7	57.4	237°22.6	55.6	339°15.2	16.0					
12	359°01.3	341°28.0	N06°32.5	12°31.4	S06°56.7	252°24.9	N22°55.6	354°17.4	S00°15.9					
13	14°03.7	356°27.6	33.7	27°32.0	55.9	267°27.3	55.6	9°19.5	15.8					
14	29°06.2	11°27.2	35.0	42°32.6	55.1	282°29.7	55.6	24°21.7	15.7					
15	44°08.7	26°26.8	.. 36.2	57°33.3	.. 54.4	297°32.1	.. 55.6	39°23.9	.. 15.5					
16	59°11.1	41°26.4	37.5	72°33.9	53.6	312°34.4	55.6	54°26.1	15.4					
17	74°13.6	56°26.1	38.7	87°34.6	52.8	327°36.8	55.5	69°28.3	15.3					
18	89°16.1	71°25.7	N06°40.0	102°35.2	S06°52.1	342°39.2	N22°55.5	84°30.4	S00°15.2					
19	104°18.5	86°25.3	41.2	117°35.8	51.3	357°41.6	55.5	99°32.6	15.1					
20	119°21.0	101°24.9	42.5	132°36.5	50.5	12°43.9	55.5	114°34.8	14.9					
21	134°23.5	116°24.5	.. 43.7	147°37.1	.. 49.8	27°46.3	.. 55.5	129°37.0	.. 14.8					
22	149°25.9	131°24.1	45.0	162°37.8	49.0	42°48.7	55.5	144°39.1	14.7					
23	164°28.4	146°23.7	46.2	177°38.4	48.2	57°51.0	55.5	159°41.3	14.6					
Mer.pass. 12:04			ν -0.4' d 1.3' m -3.92			ν 0.6' d 0.8' m 1.17			ν 2.2' d 0.0' m -2.28			ν 2.2' d 0.1' m 0.92		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	179°30.9	161°23.3	N06°47.5	192°39.1	S06°47.5	72°53.4	N22°55.5	174°43.5	S00°14.4		
1	194°33.3	176°23.0	48.7	207°39.7	46.7	87°55.8	55.5	189°45.7	14.3		
2	209°35.8	191°22.6	50.0	222°40.3	45.9	102°58.1	55.5	204°47.9	14.2		
3	224°38.2	206°22.2	.. 51.2	237°41.0	.. 45.2	118°00.5	.. 55.5	219°50.0	.. 14.1		
4	239°40.7	221°21.8	52.5	252°41.6	44.4	133°02.9	55.5	234°52.2	13.9		
5	254°43.2	236°21.4	53.7	267°42.3	43.6	148°05.2	55.5	249°54.4	13.8		
6	269°45.6	251°21.0	N06°55.0	282°42.9	S06°42.9	163°07.6	N22°55.4	264°56.6	S00°13.7		
7	284°48.1	266°20.6	56.2	297°43.6	42.1	178°10.0	55.4	279°58.7	13.6		
8	299°50.6	281°20.3	57.5	312°44.2	41.3	193°12.4	55.4	295°00.9	13.5		
9	314°53.0	296°19.9	06°58.7	327°44.9	.. 40.6	208°14.7	.. 55.4	310°03.1	.. 13.3		
10	329°55.5	311°19.5	07°00.0	342°45.5	39.8	223°17.1	55.4	325°05.3	13.2		
11	344°58.0	326°19.1	01.2	357°46.1	39.0	238°19.4	55.4	340°07.5	13.1		
12	0°00.4	341°18.7	N07°02.4	12°46.8	S06°38.3	253°21.8	N22°55.4	355°09.6	S00°13.0		
13	15°02.9	356°18.3	03.7	27°47.4	37.5	268°24.2	55.4	10°11.8	12.8		
14	30°05.9	11°17.9	04.9	42°48.1	36.7	283°26.5	55.4	25°14.0	12.7		
15	45°07.8	26°17.5	.. 06.2	57°48.7	.. 36.0	298°28.9	.. 55.4	40°16.2	.. 12.6		
16	60°10.3	41°17.1	07.4	72°49.4	35.2	313°31.3	55.4	55°18.3	12.5		
17	75°12.7	56°16.8	08.7	87°50.0	34.4	328°33.6	55.4	70°20.5	12.3		
18	90°15.2	71°16.4	N07°09.9	102°50.7	S06°33.7	343°36.0	N22°55.3	85°22.7	S00°12.2		
19	105°17.7	86°16.0	11.2	117°51.3	32.9	358°38.4	55.3	100°24.9	12.1		
20	120°20.1	101°15.6	12.4	132°51.9	32.1	13°40.7	55.3	115°27.1	12.0		
21	135°22.6	116°15.2	.. 13.7	147°52.6	.. 31.4	28°43.1	.. 55.3	130°29.2	.. 11.9		
22	150°25.1	131°14.8	14.9	162°53.2	30.6	43°45.5	55.3	145°31.4	11.7		
23	165°27.5	146°14.4	16.1	177°53.9	29.8	58°47.8	55.3	160°33.6	11.6		
Mer.pass. 12:00			ν -0.4' d 1.2' m -3.92			ν 2.4' d 0.0' m -2.28			ν 2.2' d 0.1' m 0.92		

Stars		
	SHA	Dec
Alpheratz	357°34.1	29°14.0
Ankaa	353°06.6	-42°09.9
Schedar	349°30.5	56°40.9
Diphda	348°46.6	-17°50.7
Achernar	335°19.9	-57°06.3
Hamal	327°50.4	23°35.2
Polaris	313°52.2	89°22.7
Acamar	315°11.3	-40°12.2
Menkar	314°05.3	4°11.5
Mirfak	308°27.1	49°57.4
Aldebaran	290°38.6	16°33.7
Rigel	281°03.0	-8°10.4
Capella	280°20.5	46°01.6
Bellatrix	278°21.9	6°22.3
Elnath	278°00.7	28°37.8
Alnilam	275°36.8	-1°11.2
Betelgeuse	270°51.0	7°24.6
Canopus	263°51.9	-52°42.8
Sirius	258°25.3	-16°45.3
Adhara	255°05.0	-29°00.7
Procyon	244°49.7	5°09.4
Pollux	243°15.9	27°57.8
Avior	234°14.0	-59°35.9
Suhail	222°45.3	-43°32.5
Miaplacidus	221°37.4	-69°49.7
Alphard	217°46.5	-8°46.5
Regulus	207°33.1	11°50.2
Dubhe	193°39.1	61°36.5
Denebola	182°23.6	14°25.4
Gienah	175°42.3	-17°41.4
Acrux	172°58.3	-63°14.7
Gacrux	171°50.0	-57°15.7
Alhoth	166°11.5	55°48.9
Spica	158°21.0	-11°18.0
Alkaid	152°50.8	49°10.7
Hadar	148°34.1	-60°29.9
Nenkent	147°56.1	-36°30.0
Arcturus	145°46.7	19°02.5
Rigel Kent	139°38.5	-60°56.5
Kochab	137°18.9	74°02.5
Zuben'ubi	136°54.7	-16°09.2
Alphecca	126°02.7	26°37.3
Antares	112°14.5	-26°29.9
Atria	107°07.7	-69°04.2
Sabik	102°01.6	-15°45.5
Shaula	96°09.0	-37°07.3
Rasalhague	95°57.6	12°22.2
Eltanin	90°41.7	51°28.7
Kaus Aust.	83°31.2	-34°22.3
Vega	80°32.6	38°48.1
Nunki	75°46.6	-26°15.8
Altair	61°59.1	8°56.1
Peacock	53°04.5	-56°38.9
Deneb	49°25.4	45°22.2
Enif	33°38.1	9°59.6
Al Na'ir	27°32.1	-46°50.0
Fomalhaut	15°13.8	-29°29.0
Scheat	13°44.6	28°13.4
Markab	13°29.2	15°20.7

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	180°30.0	161°14.0	N07°17.4	192°54.5	S06°29.0	73°50.2	N22°55.3	175°35.8	S00°11.5										
1	195°32.5	176°13.6	18.6	207°55.2	28.3	88°52.5	55.3	190°37.9	11.4										
2	210°34.9	191°13.2	19.9	222°58.8	27.5	103°54.9	55.3	205°40.9	11.2										
3	225°37.4	206°12.9	•• 21.1	237°56.5	•• 26.7	118°57.3	•• 55.3	220°42.3	•• 11.1										
4	240°39.8	221°12.5	22.4	252°57.1	26.0	133°59.6	55.3	235°44.5	11.0										
5	255°42.3	236°12.1	23.6	267°57.8	25.2	149°02.0	55.2	250°47.7	10.9										
6	270°44.8	251°11.7	N07°24.8	282°58.4	S06°24.4	164°04.3	N22°55.2	265°48.8	S00°10.0										
7	285°47.2	266°11.3	26.1	297°59.1	23.7	179°06.7	55.2	280°51.0	10.6										
8	300°49.7	281°10.9	27.3	312°59.7	22.9	194°09.1	55.2	295°53.2	10.5										
9	315°52.2	296°10.5	•• 28.6	328°00.3	•• 22.1	209°11.4	•• 55.2	310°55.4	•• 10.4										
10	330°54.6	311°10.1	29.8	343°01.0	21.4	224°13.8	55.2	325°57.5	10.3										
11	345°57.1	326°09.7	31.0	358°01.6	20.6	239°16.1	55.2	340°59.7	10.1										
12	0°59.6	341°09.3	N07°32.3	13°02.3	S06°19.8	254°18.5	N22°55.2	356°01.9	S00°10.0										
13	16°02.0	356°08.9	33.5	28°02.9	19.1	269°20.8	55.2	11°04.1	09.9										
14	31°04.5	11°08.5	34.8	43°03.6	18.3	284°23.2	55.2	26°06.3	09.8										
15	46°07.0	26°08.1	•• 36.0	58°04.2	•• 17.5	299°25.6	•• 55.2	41°08.4	•• 09.6										
16	61°09.4	41°07.7	37.2	73°04.9	16.7	314°27.9	55.1	56°10.6	09.5										
17	76°11.9	56°07.3	38.5	88°05.6	16.0	329°30.3	55.1	71°12.8	09.4										
18	91°14.3	71°07.0	N07°39.7	103°06.2	S06°15.2	344°32.6	N22°55.1	86°15.0	S00°09.3										
19	106°16.8	86°06.6	40.9	118°06.8	14.4	359°35.0	55.1	101°17.1	09.1										
20	121°19.3	101°06.2	42.2	133°07.5	13.7	14°37.3	55.1	116°19.3	09.0										
21	136°21.7	116°05.8	•• 43.4	148°08.1	•• 12.9	29°39.7	•• 55.1	131°21.5	•• 08.9										
22	151°24.2	131°05.4	44.7	163°08.8	12.1	44°42.0	55.1	146°23.7	08.8										
23	166°26.7	146°05.0	45.9	178°09.4	11.4	59°44.4	55.1	161°25.8	08.7										
Mer.pass. 11:56				ν -0.4° d 1.2' m -3.92				ν 0.6° d 0.8' m 1.17				ν 2.4° d 0.0' m -2.27				ν 2.2° d 0.1' m 0.91			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	181°29.1	161°04.6	N07°47.1	193°10.1	S06°10.6	74°46.7	N22°55.1	176°28.0	S00°08.5										
1	196°31.6	176°04.2	48.4	208°10.7	09.8	89°49.1	55.1	191°30.2	08.4										
2	211°34.1	191°03.8	49.6	223°11.4	09.0	104°51.4	55.0	206°32.4	08.3										
3	226°36.5	206°03.4	•• 50.8	238°12.0	•• 08.3	119°53.8	•• 55.0	221°34.6	•• 08.2										
4	241°39.0	221°03.0	52.1	253°12.7	07.5	134°56.1	55.0	236°36.7	08.0										
5	256°41.5	236°02.6	53.3	268°13.3	06.7	149°58.5	55.0	251°38.9	07.9										
6	271°43.9	251°02.2	N07°54.5	283°14.0	S06°06.0	165°00.9	N22°55.0	266°41.1	S00°07.8										
7	286°46.4	266°01.8	55.8	298°14.6	05.2	180°03.2	55.0	281°43.3	07.7										
8	301°48.8	281°01.4	57.0	313°15.3	04.4	195°05.6	55.0	296°45.4	07.5										
9	316°51.3	296°01.0	•• 58.2	328°15.9	•• 03.6	210°07.9	•• 55.0	311°47.6	•• 07.4										
10	331°53.8	311°00.6	07°59.5	343°16.6	02.9	225°10.3	55.0	326°49.8	07.3										
11	346°56.2	326°00.2	08°00.7	358°17.2	02.1	240°12.6	55.0	341°52.0	07.2										
12	1°58.7	340°59.8	N08°01.9	13°17.9	S06°01.3	255°14.9	N22°54.9	356°54.2	S00°07.1										
13	17°01.2	355°59.4	03.2	28°18.5	06°00.6	270°17.3	54.9	11°56.3	06.9										
14	32°03.6	10°59.0	04.4	43°19.2	05°59.8	285°19.6	54.9	26°58.5	06.8										
15	47°06.1	25°58.6	•• 05.6	58°19.8	•• 59.0	300°22.0	•• 54.9	42°00.7	•• 06.7										
16	62°08.6	40°58.2	06.9	73°20.5	58.2	315°24.3	54.9	57°02.9	06.6										
17	77°11.0	55°57.8	08.1	88°21.1	57.5	330°26.7	54.9	72°05.0	06.4										
18	92°13.5	70°57.4	N08°09.9	103°21.8	S05°56.7	345°29.0	N22°54.9	87°07.2	S00°06.3										
19	107°15.9	85°57.0	10.6	118°22.4	55.9	0°31.4	54.9	102°09.4	06.2										
20	122°18.4	100°56.6	11.8	133°23.1	55.2	15°33.7	54.9	117°11.6	06.1										
21	137°20.9	115°56.2	•• 13.0	148°23.7	•• 54.4	30°36.1	•• 54.8	132°13.8	•• 05.9										
22	152°23.3	130°55.8	14.2	163°24.4	53.6	45°38.4	54.8	147°15.9	05.8										
23	167°25.8	145°55.4	15.5	178°25.0	52.8	60°40.8	54.8	162°18.1	05.7										
Mer.pass. 11:52				ν -0.4° d 1.2' m -3.92				ν 0.6° d 0.8' m 1.17				ν 2.4° d 0.0' m -2.26				ν 2.2° d 0.1' m 0.91			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	182°28.3	160°55.0	N08°16.7	193°25.7	S05°52.1	75°43.1	N22°54.8	177°20.3	S00°05.6
1	197°30.7	175°54.6	17.9	208°26.3	51.3	90°45.5	54.8	192°22.5	05.5
2	212°33.2	190°54.2	19.2	223°27.0	50.5	105°47.8	54.8	207°24.6	05.3
3	227°35.7	205°53.8	•• 20.4	238°27.6	•• 49.8	120°50.1	•• 54.8	222°26.8	•• 05.2
4	242°38.1	220°53.4	21.6	253°28.3	49.0	135°52.5	54.8	237°29.0	05.1
5	257°40.6	235°53.0	22.8	268°28.9	48.2	150°54.8	54.8	252°31.2	05.0
6	272°43.1	250°52.6	N08°24.3	283°29.6	S05°47.4	165°57.2	N22°54.7	267°33.3	S00°04.8
7	287°45.5	265°52.2	25.3	298°30.2	46.7	180°59.5	54.7	282°35.5	04.7
8	302°48.0	280°51.8	26.5	313°30.9	45.9	196°01.9	54.7	297°37.7	04.6
9	317°50.4	295°51.4	•• 27.7	328°31.5	•• 45.1	211°04.2	•• 54.7	312°39.9	•• 04.5
10	332°52.9	310°51.0	29.0	343°32.2	44.3	226°06.5	54.7	327°42.1	04.3
11	347°55.4	325°50.6	30.2	358°32.8	43.6	241°08.9	54.7	342°44.2	04.2
12	2°57.8	340°50.2	N08°31.4	13°33.5	S05°42.8	256°11.2	N22°54.7	357°46.4	S00°04.1
13	18°00.3	355°49.8	32.6	28°34.1	42.0	271°13.6	54.7	12°48.6	04.0
14	33°02.8	10°49.4	33.9	43°34.8	41.3	286°15.9	54.7	27°50.8	03.9
15	48°05.2	25°49.0	•• 35.1	58°35.5	•• 40.5	301°18.2	•• 54.6	42°52.9	•• 03.7
16	63°07.7	40°48.6	36.3	73°36.1	39.7	316°20.6	54.6	57°55.1	03.6
17	78°10.2	55°48.2	37.5	88°36.8	38.9	331°22.9	54.6	72°57.3	03.5
18	93°12.6	70°47.8	N08°38.8	103°37.4	S05°38.2	346°25.3	N22°54.6	87°59.5	S00°03.4
19	108°15.1	85°47.4	40.0	118°38.1	37.4	1°27.6	54.6	103°01.7	03.2
20	123°17.6	100°47.0	41.2	133°38.7	36.6	16°29.9	54.6	118°03.8	03.1
21	138°20.0	115°46.5	•• 42.4	148°39.4	•• 35.8	31°32.3	•• 54.6	133°06.8	•• 03.0
22	153°22.5	130°46.1	43.6	163°40.0	35.1	46°34.6	54.6	148°08.2	02.9
23	168°24.9	145°45.7	44.9	178°40.7	34.3	61°36.9	54.6	163°10.4	02.8
Mer.pass. 11:48 ν -0.4° d 1.2' m -3.92 ν 0.7° d 0.8' m 1.17 ν 2.3° d 0.0' m -2.25 ν 2.2° d 0.1' m 0.91									

Stars			h			Sun			Moon				
	SHA	Dec		Mon	GHA	Dec		GHA	ν	Dec	d	HP	
Alpheratz	357°34.1	29°14.0		0	178°19.6	N00°56.5		129°12.1	5.4	N23°56.3	9.7	59.7	
Ankaa	353°06.6	-42°09.9		1	193°19.8	57.5		143°36.5	5.3	24°06.0	9.5	59.7	
Schedar	349°30.5	56°40.9		2	208°20.0	58.5		158°09.9	5.2	24°15.5	9.4	59.7	
Diphda	348°46.6	-17°50.7		3	223°20.1	00°59.5		172°25.1	5.2	24°24.9	9.2	59.7	
Achernar	335°20.0	-57°06.3		4	238°20.3	01°00.5		186°49.3	5.1	24°34.1	9.0	59.7	
Hamal	327°50.4	23°35.2		5	253°20.5	01.5		201°13.4	5.0	24°43.1	8.9	59.6	
Polaris	313°53.0	89°22.7		6	268°20.7	N01°02.4		215°37.4	4.9	N24°52.0	8.7	59.6	
Acamar	315°11.3	-40°12.1		7	283°20.9	03.4		230°01.3	4.8	25°00.7	8.5	59.6	
Menkar	314°05.3	4°11.5		8	298°21.1	04.4		240°25.1	4.8	25°09.2	8.4	59.6	
Mirfak	308°27.2	49°57.4		9	313°21.3	•• 05.4		258°48.9	4.7	25°17.6	8.2	59.6	
Aldebaran	290°38.6	16°33.7		10	328°21.5	06.4		273°12.6	4.6	25°25.8	8.0	59.6	
Rigel	281°03.0	-8°10.4		11	343°21.6	07.4		287°36.2	4.5	25°33.8	7.9	59.6	
Capella	280°20.5	46°01.6		12	358°21.8	N01°08.4		301°59.7	4.4	N25°41.7	7.7	59.6	
Bellatrix	278°21.9	6°22.3		13	373°22.0	09.3		316°23.1	4.4	25°49.4	7.5	59.6	
Elath	278°00.7	28°37.8		14	387°22.2	10.3		330°46.5	4.3	25°56.9	7.3	59.6	
Anilam	275°36.8	-1°11.2		15	43°22.4	•• 11.3		345°09.8	4.2	26°04.2	7.1	59.6	
Betelgeuse	270°51.0	7°24.6		16	58°22.6	12.3		359°33.1	4.2	26°11.3	7.0	59.6	
Canopus	263°51.9	-52°42.8		17	73°22.8	13.3		13°56.2	4.1	26°18.3	6.8	59.6	
Sirius	258°25.3	-16°45.3		18	88°23.0	N01°14.3		28°19.3	4.0	N26°25.1	6.6	59.6	
Adhara	255°05.0	-29°00.7		19	103°23.1	15.3		42°42.4	4.0	26°31.7	6.4	59.6	
Procyon	244°49.7	5°09.4		20	118°23.3	16.2		57°03.3	3.9	26°38.6	6.2	59.6	
Pollux	243°16.0	27°58.7		21	133°23.5	•• 17.2		71°28.3	3.9	26°44.3	6.1	59.5	
Avior	234°14.0	-59°35.9		22	148°23.7	18.2		85°51.1	3.8	26°50.4	5.9	59.5	
Suhail	222°45.3	-43°32.5		23	163°23.9	19.2		100°13.9	3.8	26°56.3	5.6	59.5	
Miaplacidus	221°37.5	-69°49.7											
Alphard	217°46.5	-8°46.5											

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	183°27.4	160°45.3	N08°46.1	193°41.3	S05°33.5	76°39.3	N22°54.5	178°12.5	S00°02.6										
1	198°29.9	175°44.9	47.3	208°42.0	32.7	91°41.6	54.5	193°14.7	02.4										
2	213°32.3	190°44.5	48.3	223°42.6	32.7	106°43.9	54.5	208°16.9	02.4										
3	228°34.8	205°44.1	.. 49.7	238°43.3	.. 31.2	121°46.3	.. 54.5	238°19.1	.. 02.3										
4	243°37.3	220°43.7	51.0	253°44.0	30.4	136°48.6	54.5	238°21.3	02.1										
5	258°39.7	235°43.3	52.2	268°44.6	29.6	151°51.0	54.5	253°23.4	02.0										
6	273°42.2	250°42.9	N08°53.4	283°45.3	S05°28.6	166°53.3	N22°54.5	268°25.6	S00°01.9										
7	288°44.7	265°42.5	54.6	298°45.9	28.1	181°55.6	54.5	283°27.8	01.8										
8	303°47.1	280°42.1	55.8	313°46.6	27.3	196°58.0	54.4	298°30.0	01.6										
9	318°49.6	295°41.7	.. 57.0	328°47.2	.. 26.5	212°00.3	.. 54.4	313°32.1	.. 01.5										
10	333°52.1	310°41.3	58.3	343°47.9	25.8	227°02.6	54.4	328°34.3	01.4										
11	348°54.5	325°40.8	08°59.5	358°48.5	25.0	242°05.0	54.4	343°36.5	01.3										
12	3°57.0	340°40.4	N09°00.7	13°49.2	S05°24.2	257°07.3	N22°54.4	358°38.7	S00°01.2										
13	18°59.4	355°40.0	01.9	28°49.8	23.4	272°09.6	54.4	13°40.8	01.0										
14	34°01.9	10°39.6	03.1	43°50.5	22.7	287°11.9	54.4	28°43.0	00.9										
15	49°04.4	25°39.2	.. 04.3	58°51.2	.. 21.9	302°14.3	.. 54.4	43°45.2	.. 00.8										
16	64°06.8	40°38.8	05.6	73°51.8	.. 21.1	317°16.6	54.3	58°47.4	00.7										
17	79°09.3	55°38.4	06.8	88°52.5	20.3	332°18.9	54.3	73°49.6	00.5										
18	94°11.8	70°38.0	N08°08.0	103°53.1	S05°19.6	347°21.3	N22°54.4	88°51.7	S00°04.4										
19	109°14.2	85°37.6	09.2	118°53.8	18.8	2°23.6	54.3	103°53.9	00.3										
20	124°16.7	100°37.1	10.4	133°54.4	18.0	17°25.9	54.3	118°56.1	00.2										
21	139°19.2	115°36.7	.. 11.6	148°55.1	.. 17.2	32°28.3	.. 54.3	133°58.3	S00°00.1										
22	154°21.6	130°36.3	12.8	163°55.8	16.5	47°30.6	54.3	149°00.4	N00°00.1										
23	169°24.1	145°35.9	14.1	178°56.4	15.7	62°32.9	54.3	164°02.6	00.2										
Mer.pass. 11:44				ν -0.4' d 1.2' m -3.92				ν 0.7' d 0.8' m 1.17				ν 2.3' d 0.0' m -2.25				ν 2.2' d 0.1' m 0.91			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	184°26.6	160°35.5	N09°15.3	193°57.1	S05°14.9	77°35.2	N22°54.2	179°04.8	N00°00.3										
1	199°29.0	175°35.1	16.5	208°57.7	14.1	92°37.6	54.2	194°07.0	00.4										
2	214°31.5	190°34.7	17.7	223°58.4	13.4	107°39.9	54.2	209°09.2	00.6										
3	229°33.9	205°34.3	.. 18.9	238°59.0	.. 12.6	122°42.2	.. 54.2	224°11.3	.. 00.7										
4	244°36.4	220°33.8	20.1	253°59.7	11.8	137°44.6	54.2	239°13.5	00.8										
5	259°38.9	235°33.4	21.3	269°00.4	11.0	152°46.9	54.2	254°15.7	00.9										
6	274°41.3	250°33.0	N09°22.5	284°01.0	S05°10.3	167°49.2	N22°54.2	269°17.9	N00°01.0										
7	289°43.8	265°32.6	23.7	299°01.7	09.5	182°51.5	54.2	284°20.0	01.2										
8	304°46.3	280°32.2	24.9	314°02.3	08.7	197°53.9	54.1	299°22.2	01.3										
9	319°48.7	295°31.8	.. 26.1	329°03.0	.. 07.9	212°56.2	.. 54.1	314°24.4	.. 01.4										
10	334°51.2	310°31.4	27.4	344°03.6	07.2	227°58.5	54.1	329°26.6	01.5										
11	349°53.7	325°30.9	28.6	359°04.3	06.4	243°00.8	54.1	344°28.7	01.7										
12	4°56.1	340°30.5	N09°29.8	14°05.0	S05°05.6	258°03.2	N22°54.1	359°30.9	N00°01.8										
13	19°58.6	355°30.1	31.0	29°05.6	04.8	273°05.5	54.1	14°33.1	01.9										
14	35°01.0	10°29.7	32.2	44°06.3	04.1	288°07.8	54.1	29°35.3	02.0										
15	50°03.5	25°29.3	.. 33.4	59°06.9	.. 03.3	303°10.1	.. 54.1	44°37.5	.. 02.2										
16	65°06.0	40°28.9	34.6	74°07.6	02.5	318°12.4	54.0	59°39.6	02.3										
17	80°08.4	55°28.4	35.8	89°08.2	01.7	333°14.8	54.0	74°41.8	02.4										
18	95°10.9	70°28.0	N09°37.0	104°08.9	S05°00.9	348°17.1	N22°54.0	89°44.0	N00°02.5										
19	110°13.4	85°27.6	38.2	119°09.6	05°00.2	3°19.4	54.0	104°46.2	02.6										
20	125°15.8	100°27.2	39.4	134°10.2	04°59.4	18°21.7	54.0	119°48.3	02.8										
21	140°18.3	115°26.8	.. 40.6	149°10.9	.. 58.6	33°24.1	.. 54.0	134°50.5	.. 02.9										
22	155°20.8	130°26.4	41.8	164°11.5	57.8	48°26.4	54.0	149°52.7	03.0										
23	170°23.2	145°25.9	43.0	179°12.2	57.1	63°28.7	53.9	164°54.9	03.1										
Mer.pass. 11:40				ν -0.4' d 1.2' m -3.92				ν 0.7' d 0.8' m 1.18				ν 2.3' d 0.0' m -2.24				ν 2.2' d 0.1' m 0.91			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	185°25.7	160°25.5	N09°44.2	194°12.9	S04°56.3	78°31.0	N22°53.9	179°57.1	N00°03.3										
1	200°28.2	175°25.1	45.4	209°13.5	55.5	93°33.3	53.9	194°59.2	03.4										
2	215°30.6	190°24.7	46.6	224°14.2	54.7	108°35.7	53.9	210°01.4	03.5										
3	230°33.1	205°24.3	.. 47.8	239°14.8	.. 54.0	123°38.0	.. 53.9	225°03.6	.. 03.6										
4	245°35.5	220°23.8	49.0	254°15.5	53.2	138°40.3	53.9	240°05.8	03.7										
5	260°38.0	235°23.4	50.2	269°16.2	52.4	153°42.6	53.9	255°07.9	03.9										
6	275°40.5	250°23.0	N09°51.4	284°16.8	S04°51.6	168°44.9	N22°53.8	270°10.1	N00°04.0										
7	290°42.9	265°22.6	52.6	299°17.5	50.8	183°47.2	53.8	285°12.3	04.1										
8	305°45.4	280°22.2	53.8	314°18.1	50.1	198°49.6	53.8	300°14.5	04.2										
9	320°47.9	295°21.7	.. 55.0	329°18.8	.. 49.3	213°51.9	.. 53.8	315°16.7	.. 04.4										
10	335°50.3	310°21.3	56.2	344°19.5	48.5	228°54.2	53.8	330°18.8	04.5										
11	350°52.8	325°20.9	57.4	359°20.1	47.7	243°56.5	53.8	345°21.0	04.6										
12	5°55.3	340°20.5	N09°58.6	14°20.8	S04°47.8	258°58.8	N22°53.8	0°23.2	N00°04.7										
13	20°57.7	355°20.0	09°59.8	29°21.4	46.2	274°01.1	53.8	15°25.4	04.8										
14	36°00.2	10°19.6	10°01.0	44°22.1	45.4	289°03.5	53.7	30°27.5	05.0										
15	51°02.7	25°19.2	.. 02.2	59°22.8	.. 44.6	304°05.8	.. 53.7	45°29.7	.. 05.1										
16	66°05.1	40°18.8	03.4	74°23.4	43.8	319°08.1	53.7	60°31.9	05.2										
17	81°07.6	55°18.3	04.6	89°24.1	43.1	334°10.4	53.7	75°34.1	05.3										
18	96°10.0	70°17.9	N10°05.8	104°24.7	S04°42.3	349°12.7	N22°53.7	90°36.2	N00°05.5										
19	111°12.5	85°17.5	07.0	119°25.4	41.5	4°15.0	53.7	105°38.4	05.6										
20	126°15.0	100°17.1	08.2	134°26.1	40.7	19°17.4	53.7	120°40.6	05.7										
21	141°17.4	115°16.7	.. 09.4	149°26.7	.. 40.0	34°19.7	.. 53.6	135°42.8	.. 05.8										
22	156°19.9	130°16.2	10.6	164°27.4	39.2	49°22.0	53.6	150°45.0	05.9										
23	171°22.4	145°15.8	11.8	179°28.0	38.4	64°24.3	53.6	165°47.1	06.1										
Mer.pass. 11:36				ν -0.4' d 1.2' m -3.92				ν 0.7' d 0.8' m 1.18				ν 2.3' d 0.0' m -2.23				ν 2.2' d 0.1' m 0.91			

Stars			h				Sun				Moon			
	SHA	Dec	Thu	GHA	Dec	GHA	ν	Dec	d	HP				
Alpheratz	357°34.1	29°14.0	0	178°33.1	N02°07.4	84°32.4	4.1'	N27°45.8	3.8'	58.9'				
Ankaa	353°06.6	-42°09.9	1	193°33.3	08.4	98°55.5	4.2'	27°42.0	4.0'	58.9'				
Schedar	349°30.5	56°40.0	2	208°33.5	09.3	113°18.7	4.2'	27°38.0	4.2'	58.9'				
Diphda	348°46.6	-17°50.6	3	223°33.7	.. 10.3	127°41.9	4.3'	27°33.8	4.4'	58.9'				
Achernar	335°20.0	-57°06.3	4	238°33.9	11.3	142°05.2	4.4'	27°29.4	4.5'	58.8'				
Hamal	327°50.4	23°35.2	5	253°34.1	12.3	156°28.6	4.5'	27°24.9	4.7'	58.8'				
Polaris	313°53.7	89°22.7	6	268°34.2	N02°13.3	170°52.0	4.5'	N27°20.2	4.9'	58.8'				
Acamar	315°11.3	-40°12.1	7	283°34.4	14.2	185°15.6	4.6'	27°15.3	5.1'	58.8'				
Menkar	314°05.3	4°11.5	8	298°34.6	15.2	199°39.2	4.7'	27°10.2	5.2'	58.8'				
Mirafaz	308°27.2	49°57.4	9	313°34.8	.. 16.2	214°02.9	4.8'	27°05.0	5.5'	58.8'				
Aldebaran	290°38.6	16°33.7	10	328°35.0	17.2	228°26.7	4.9'	26°59.5	5.6'	58.7'				
Rigel	281°03.0	-8°10.4	11	343°35.2	18.2	242°50.5	4.9'	26°53.9	5.7'	58.7'				
Capella	280°20.5	46°01.6	12	358°35.4	N02°19.2	257°14.5	5.0'	N26°48.2	6.0'	58.7'				
Bellatrix	278°21.9	6°22.3	13	373°35.6	20.1	271°38.5	5.1'	26°42.2	6.1'	58.7'				
Elnath	278°00.7	28°37.8	14	388°35.8	21.1	286°02.6	5.2'	26°36.1	6.2'	58.7'				
Anilam	275°36.8	-11°12.4	15	403°35.9	.. 22.1	300°26.8	5.3'	26°29.9	6.5'	58.7'				
Betelgeuse	270°51.0	7°24.6	16	58°36.1	23.1	314°51.1	5.4'	26°23.4	6.6'	58.6'				
Canopus	263°52.0	-52°42.8	17	73°36.3	24.1	329°15.5	5.5'	26°16.8	6.8'	58.6'				
Sirius	258°25.3	-16°45.3	18	88°36.5	N02°25.0	343°40.0	5.6'	N26°10.0	6.9'	58.6'				
Adhara	255°05.0	-29°00.7	19	103°36.7	26.0	358°04.6	5.7'	26°03.1	7.1'	58.6'				
Procyon	244°49.7	5°09.4	20	118°36.9	27.0	12°29.3	5.8'	25°56.0	7.2'	58.6'				
Pollux	243°16.0	27°57.8	21	133°37.1	.. 28.0	26°54.0	5.9'	25°48.8	7.4'	58.6'				
Avior	234°14.1	-59°35.9	22	148°37.3	29.0	41°18.9	6.0'	25°41.4	7.6'	58.5'				
Suhail	222°45.3	-43°32.6	23	163°37.5	29.9	55°43.9	6.1'	25°33.8	7.7'	58.5'				
Miaplacidus	221°37.5	-69°49.7												
Alphard	217°46.5	-8°46.5												
Regulus	207°33.1	11°50.2												
			SD = 16.0'				d = 1.0'		SD = 16.1'					

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec			
0	186°24.8	160°15.4	N10°13.0	194°28.7	S04°37.6	79°26.6	N22°53.6	180°49.3	N00°06.2					
1	201°27.3	175°14.9	14.2	209°29.4	36.8	94°28.9	53.6	195°51.5	06.3					
2	216°29.8	190°14.5	15.4	224°30.0	36.1	109°31.2	53.6	210°53.7	06.4					
3	231°32.2	205°14.1	•• 16.5	239°30.7	•• 35.3	124°33.5	•• 53.5	225°55.8	•• 06.6					
4	246°34.2	220°13.7	17.7	254°31.4	34.5	139°35.8	53.5	240°58.0	06.7					
5	261°37.2	235°13.2	18.9	269°32.0	33.7	154°38.2	53.5	256°00.2	06.8					
6	276°39.6	250°12.8	N10°20.1	284°32.7	S04°32.9	169°40.5	N22°53.6	271°02.4	N00°06.9					
7	291°42.1	265°12.4	21.3	299°33.3	32.2	184°42.8	53.5	286°04.6	07.0					
8	306°44.5	280°12.0	22.5	314°34.0	31.4	199°45.1	53.5	301°06.7	07.2					
9	321°47.0	295°11.5	•• 23.7	329°34.7	•• 30.6	214°47.4	•• 53.5	316°08.9	•• 07.3					
10	336°49.5	310°11.1	24.9	344°35.3	29.8	229°49.7	53.4	331°11.1	07.4					
11	351°51.9	325°10.7	26.1	359°36.0	29.1	244°52.0	53.4	346°13.3	07.5					
12	6°54.4	340°10.2	N10°27.2	14°36.6	S04°28.3	259°54.3	N22°53.4	1°15.4	N00°07.7					
13	21°56.9	355°09.8	28.4	29°37.3	27.5	274°56.6	53.4	16°17.6	07.8					
14	36°59.3	10°09.4	29.6	44°38.0	26.7	289°58.9	53.4	31°19.8	07.9					
15	52°01.8	25°09.0	•• 30.8	59°38.6	•• 25.9	305°01.2	•• 53.4	46°22.0	•• 08.0					
16	67°04.3	40°08.5	32.0	74°39.3	25.2	320°03.5	53.4	61°24.2	08.1					
17	82°06.7	55°08.1	33.2	89°40.0	24.4	335°05.9	53.3	76°26.3	08.3					
18	97°09.2	70°07.7	N10°34.4	104°40.6	S04°23.6	350°08.2	N22°53.4	91°28.5	N00°08.4					
19	112°11.6	85°07.2	35.6	119°41.3	22.8	5°10.5	53.3	106°30.7	08.5					
20	127°14.1	100°06.8	36.7	134°42.0	22.0	20°12.8	53.3	121°32.9	08.6					
21	142°16.6	115°06.4	•• 37.9	149°42.6	•• 21.3	35°15.1	•• 53.3	136°35.0	•• 08.8					
22	157°19.0	130°05.9	39.1	164°43.3	20.5	50°17.4	53.3	151°37.2	08.9					
23	172°21.5	145°05.5	40.3	179°43.9	19.7	65°19.7	53.2	166°39.4	09.0					
Mer.pass. 11:32			ν -0.4° d 1.2' m -3.92			ν 0.7° d 0.8' m 1.18			ν 2.3° d 0.0' m -2.22			ν 2.2° d 0.1' m 0.91		

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	187°24.0	160°05.1	N10°41.5	194°44.6	S04°18.9	80°22.0	N22°53.2	181°41.6	N00°09.1		
1	202°26.4	175°04.6	42.6	209°45.3	18.1	95°24.3	53.2	196°43.8	09.2		
2	217°28.9	190°04.2	43.8	224°45.9	17.4	110°26.6	53.2	211°45.9	09.4		
3	232°31.4	205°03.8	•• 45.0	239°46.6	•• 16.6	125°28.9	•• 53.2	226°48.1	•• 09.5		
4	247°33.8	220°03.3	46.2	254°47.3	15.8	140°31.2	53.2	241°50.3	09.6		
5	262°36.3	235°02.9	47.4	269°47.9	15.0	155°33.5	53.2	256°52.5	09.7		
6	277°38.8	250°02.5	N10°48.6	284°48.6	S04°14.2	170°35.8	N22°53.1	271°54.6	N00°09.8		
7	292°41.2	265°02.0	49.7	299°49.3	13.5	185°38.1	53.1	286°56.8	10.0		
8	307°43.7	280°01.6	50.9	314°49.9	12.7	200°40.4	53.1	301°59.0	10.1		
9	322°46.1	295°01.2	•• 52.1	329°50.6	•• 11.9	215°42.7	•• 53.1	317°01.2	•• 10.2		
10	337°48.6	310°00.7	53.3	344°51.3	11.1	230°45.0	53.1	332°03.4	10.3		
11	352°51.1	325°00.3	54.4	359°51.9	10.3	245°47.3	53.1	347°05.5	10.5		
12	7°53.5	339°59.9	N10°55.6	14°52.6	S04°09.6	260°49.6	N22°53.0	2°07.7	N00°10.6		
13	22°56.0	354°59.4	56.8	29°53.2	08.6	275°51.9	53.0	17°09.9	10.7		
14	37°58.5	9°59.0	58.0	44°53.9	08.0	290°54.2	53.0	32°12.1	10.8		
15	53°00.9	24°58.5	10°59.2	59°54.6	•• 07.2	305°56.5	•• 53.0	47°14.2	•• 10.9		
16	68°03.4	39°58.1	11°00.3	74°55.2	06.4	320°58.8	53.0	62°16.4	11.1		
17	83°05.9	54°57.7	01.5	89°55.9	05.7	336°01.1	53.0	77°18.6	11.2		
18	98°08.8	69°57.2	N11°02.7	104°56.6	S04°04.9	351°03.4	N22°52.9	92°20.8	N00°11.3		
19	113°10.3	84°56.8	03.9	119°57.2	04.1	6°05.7	52.9	107°22.9	11.4		
20	128°13.2	99°56.3	05.0	134°57.9	03.3	21°08.0	52.9	122°25.1	11.6		
21	143°15.7	114°55.9	•• 06.2	149°58.6	•• 02.5	36°10.3	•• 52.9	137°27.3	•• 11.7		
22	158°18.2	129°55.5	07.4	164°59.2	01.8	51°12.6	52.9	152°29.5	11.8		
23	173°20.6	144°55.0	08.5	179°59.9	01.0	66°14.9	52.9	167°31.7	11.9		
Mer.pass. 11:29			ν -0.4° d 1.2' m -3.92			ν 2.3° d 0.0' m -2.22			ν 2.2° d 0.1' m 0.92		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	188°23.1	159°54.6	N11°09.7	195°00.6	S04°00.2	81°17.2	N22°52.8	182°33.8	N00°12.0
1	203°25.6	174°54.1	10.9	210°01.2	03°59.4	96°19.5	52.8	197°36.0	12.2
2	218°28.0	189°53.7	12.1	225°01.9	58.6	111°21.8	52.8	212°38.2	12.3
3	233°30.5	204°53.3	•• 13.2	240°02.6	•• 57.9	126°24.1	•• 52.8	227°40.4	•• 12.4
4	248°33.0	219°52.8	14.4	255°03.2	57.1	141°26.4	52.8	242°42.5	12.5
5	263°35.4	234°52.4	15.6	270°03.9	56.3	156°28.7	52.8	257°44.7	12.6
6	278°37.9	249°51.9	N11°16.7	285°04.6	S03°55.5	171°31.0	N22°52.7	272°46.9	N00°12.8
7	293°40.4	264°51.5	17.9	300°05.2	54.7	186°33.3	52.7	287°49.1	12.9
8	308°42.8	279°51.1	19.1	315°05.9	53.9	201°35.5	52.7	302°51.3	13.0
9	323°45.3	294°50.6	•• 20.2	330°06.6	•• 53.2	216°37.8	•• 52.7	317°53.4	•• 13.1
10	338°47.7	309°50.2	21.4	345°07.2	52.4	231°40.1	52.7	332°55.6	13.3
11	353°50.2	324°49.7	22.6	0°07.9	51.6	246°42.4	52.7	347°57.8	13.4
12	8°52.7	339°49.3	N11°23.7	15°08.6	S03°50.8	261°44.7	N22°52.6	3°00.0	N00°13.5
13	23°55.1	354°48.8	24.9	30°09.2	50.0	276°47.0	52.6	18°02.1	13.6
14	38°57.6	9°48.4	26.1	45°09.9	49.3	291°49.3	52.6	33°04.3	13.7
15	54°00.1	24°47.9	•• 27.2	60°10.6	•• 48.5	306°51.6	•• 52.6	48°06.5	•• 13.9
16	69°02.5	39°47.5	28.4	75°11.2	47.7	321°53.9	52.6	63°08.7	14.0
17	84°05.0	54°47.1	29.6	90°11.9	46.9	336°56.2	52.6	78°10.9	14.1
18	99°07.5	69°46.6	N11°30.7	105°12.6	S03°46.1	351°58.5	N22°52.5	93°13.0	N00°14.2
19	114°09.9	84°46.2	31.9	120°13.2	45.4	7°00.8	52.5	108°15.2	14.4
20	129°12.4	99°45.7	33.1	135°13.9	44.6	22°03.0	52.5	123°17.4	14.5
21	144°14.8	114°45.3	•• 34.2	150°14.6	•• 43.8	37°05.3	•• 52.5	138°19.6	•• 14.6
22	159°17.3	129°44.8	35.4	165°15.2	43.0	52°07.6	52.5	153°21.8	14.7
23	174°19.8	144°44.4	36.5	180°15.9	42.2	67°09.9	52.5	168°23.9	14.8
Mer.pass. 11:25 ν -0.4° d 1.2' m -3.92 ν 0.7° d 0.8' m 1.18 ν 2.3° d 0.0' m -2.21 ν 2.2° d 0.1' m 0.92									

Stars			h			Sun			Moon		
	SHA	Dec	Sun	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.1	29°14.0	0	178°46.7	N03°17.8	44°17.2	11.2°	N16°45.5	13.4°	57.6°	
Ankaa	353°06.6	-42°09.8	1	193°46.9	18.8	58°47.4	11.3°	16°32.1	13.3°	57.6°	
Schedar	349°30.5	56°40.9	2	208°47.1	19.8	73°17.7	11.4°	16°18.8	13.5°	57.6°	
Diphda	348°46.6	-17°50.6	3	223°47.3	•• 20.7	87°48.1	11.5°	16°05.3	13.5°	57.6°	
Achernar	335°20.0	-57°06.3	4	238°47.5	21.7	102°18.6	11.6°	15°51.8	13.6°	57.5°	
Hamal	327°50.4	23°35.2	5	253°47.7	22.7	116°49.1	11.7°	15°38.2	13.7°	57.5°	
Polaris	313°54.7	89°22.7	6	268°47.8	N03°23.6	131°19.8	11.7°	N15°24.5	13.7°	57.5°	
Acamar	315°11.3	-40°12.1	7	283°48.0	24.6	145°50.5	11.8°	15°10.8	13.9°	57.5°	
Menkar	314°05.3	4°11.5	8	298°48.2	25.6	160°21.4	11.9°	14°56.9	13.8°	57.5°	
Mirafak	308°27.2	49°57.4	9	313°48.4	•• 26.6	174°52.3	12.0°	14°43.1	13.9°	57.4°	
Aldebaran	290°38.6	16°33.7	10	328°48.6	27.5	189°23.3	12.1°	14°29.2	14.0°	57.4°	
Rigel	281°03.0	-8°10.4	11	343°48.8	28.5	203°54.4	12.2°	14°15.2	14.1°	57.4°	
Capella	280°20.6	46°01.6	12	358°49.0	N03°29.5	218°25.6	12.3°	N14°01.1	14.1°	57.4°	
Bellatrix	278°21.9	6°22.3	13	13°49.2	30.5	232°56.8	12.3°	13°47.0	14.2°	57.4°	
Elinath	278°00.7	28°37.8	14	28°49.4	31.4	247°28.2	12.4°	13°32.8	14.2°	57.4°	
Alnilam	275°36.8	-1°11.2	15	43°49.5	•• 32.4	261°59.6	12.5°	13°18.6	14.2°	57.3°	
Betelgeuse	270°51.1	7°24.6	16	58°49.7	33.4	276°31.1	12.6°	13°04.4	14.4°	57.3°	
Canopus	263°52.0	-52°42.8	17	73°49.9	34.4	291°02.7	12.7°	12°50.0	14.3°	57.3°	
Sirius	258°25.3	-16°45.3	17	73°49.9	34.4	291°02.7	12.7°	12°50.0	14.3°	57.3°	
Adhara	255°05.0	-29°00.7	18	88°50.1	N03°35.3	305°34.3	12.8°	N12°35.7	14.5°	57.3°	
Procyon	244°49.9	5°09.4	19	103°50.3	36.3	320°06.1	12.8°	12°21.2	14.4°	57.3°	
Pollux	243°16.0	27°57.8	20	118°50.5	37.3	334°37.9	12.9°	12°06.8	14.6°	57.2°	
Antares	234°14.1	-59°35.9	21	133°50.9	•• 38.2	349°09.8	13.0°	11°52.2	14.5°	57.2°	
Shivir	222°45.3	-43°32.6	22	148°50.9	39.2	3°41.7	13.0°	11°37.7	14.6°	57.2°	
Miaplacidus	221°37.6	-69°49.7	23	163°51.1	40.2	18°13.8	13.1°	11°23.1	14.7°	57.2°	
Alphard	217°46.6	-8°46.5		SD = 16.0'	d = 1.0'			SD = 15.7'			

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	189°22.2	159°43.9	N11°37.7	195°16.6	S03°41.4	82°12.2	N22°52.4	183°26.1	N00°15.0										
1	204°24.7	174°43.5	38.9	210°17.2	40.7	97°14.5	52.4	198°28.3	15.1										
2	219°27.2	189°43.0	40.0	225°17.9	39.9	112°16.8	52.4	213°30.5	15.2										
3	234°29.6	204°42.6	•• 41.2	240°18.6	•• 39.1	127°19.1	•• 52.4	228°32.6	•• 15.3										
4	249°32.1	219°42.1	42.2	255°19.2	38.3	142°21.4	52.4	243°34.6	15.4										
5	264°34.6	234°41.7	43.5	270°19.9	37.5	157°23.6	52.4	258°37.0	15.6										
6	279°37.0	249°41.2	N11°44.7	285°20.6	S03°36.8	172°25.9	N22°52.4	273°39.2	N00°15.7										
7	294°39.5	264°40.8	45.8	300°21.3	36.0	187°28.2	52.3	288°41.4	15.8										
8	309°42.0	279°40.3	47.0	315°21.9	35.2	202°30.5	52.3	303°43.5	15.9										
9	324°44.4	294°39.9	•• 48.1	330°22.6	•• 34.4	217°32.8	•• 52.3	318°45.7	•• 16.1										
10	339°46.9	309°39.4	49.3	345°23.3	33.6	232°35.1	52.3	333°47.9	16.2										
11	354°49.3	324°39.0	50.4	0°23.9	32.8	247°37.4	52.2	348°50.1	16.3										
12	9°51.8	339°38.5	N11°51.6	15°24.6	S03°32.1	262°39.6	N22°52.2	3°52.2	N00°16.4										
13	24°54.3	354°38.1	52.7	30°25.3	31.3	277°41.9	52.2	18°54.4	16.5										
14	39°56.7	9°37.6	53.9	45°25.9	30.5	292°44.2	52.2	33°56.6	16.7										
15	54°59.2	24°37.2	•• 55.1	60°26.6	•• 29.7	307°46.5	•• 52.2	48°58.8	•• 16.8										
16	70°01.7	39°36.7	56.2	75°27.3	28.9	322°48.8	52.2	64°01.0	16.9										
17	85°04.1	54°36.3	57.4	90°27.9	28.1	337°51.1	52.1	79°03.1	17.0										
18	100°06.6	69°35.8	N11°57.8	105°28.6	S03°27.4	352°53.3	N22°51.2	94°05.3	N00°17.1										
19	115°09.1	84°35.3	11°59.7	120°29.3	26.6	7°55.6	52.1	109°07.5	17.3										
20	130°11.5	99°34.9	12°00.8	135°30.0	25.8	22°57.9	52.1	124°09.7	17.4										
21	145°14.0	114°34.4	•• 02.0	150°30.6	•• 25.0	38°00.2	•• 52.1	139°11.8	•• 17.5										
22	160°16.4	129°34.0	03.1	165°31.3	24.2	53°02.5	52.0	154°14.0	17.6										
23	175°18.9	144°33.5	04.3	180°32.0	23.5	68°04.8	52.0	169°16.2	17.7										
Mer.pass. 11:21				ν -0.4' d 1.2' m -3.92				ν 0.7' d 0.8' m 1.18				ν 2.3' d 0.0' m -2.20				ν 2.2' d 0.1' m 0.92			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	190°21.4	159°33.1	N12°05.4	195°32.6	S03°22.7	83°07.0	N22°52.0	184°18.4	N00°17.9										
1	205°23.8	174°32.6	06.6	210°33.3	21.9	98°09.3	52.0	199°20.6	18.0										
2	220°26.3	189°32.2	07.7	225°34.0	21.1	113°11.6	52.0	214°22.7	18.1										
3	235°28.8	204°31.7	•• 08.9	240°34.6	•• 20.3	128°13.9	•• 52.0	229°24.9	•• 18.2										
4	250°31.2	219°31.2	10.0	255°35.3	19.5	143°16.2	51.9	244°27.1	18.4										
5	265°33.7	234°30.8	11.2	270°36.0	18.8	158°18.4	51.9	259°29.3	18.5										
6	280°36.2	249°30.3	N12°12.3	285°36.7	S03°18.0	173°20.7	N22°51.9	274°31.4	N00°18.6										
7	295°38.6	264°29.9	13.4	300°37.3	17.2	188°23.0	51.9	289°33.6	18.7										
8	310°41.1	279°29.4	14.6	315°38.0	16.4	203°25.3	51.9	304°35.8	18.8										
9	325°43.6	294°28.9	•• 15.7	330°38.7	•• 15.6	218°27.5	•• 51.8	319°38.0	•• 19.0										
10	340°46.0	309°28.5	16.9	345°39.3	14.8	233°29.8	51.8	334°40.2	19.1										
11	355°48.5	324°28.0	18.0	0°40.0	14.1	248°32.1	51.8	349°42.3	19.2										
12	10°50.9	339°27.6	N12°19.2	15°40.7	S03°13.3	263°34.4	N22°51.8	4°44.5	N00°19.3										
13	25°53.4	354°27.1	20.3	30°41.3	12.5	278°36.7	51.8	19°46.7	19.4										
14	40°55.9	9°26.6	21.4	45°42.0	11.7	293°38.9	51.8	34°48.9	19.6										
15	55°58.3	24°26.2	•• 22.6	60°42.7	•• 10.9	308°41.2	•• 51.7	49°51.1	•• 19.7										
16	71°00.8	39°25.7	23.7	75°43.4	10.1	323°43.5	51.7	64°53.2	19.8										
17	86°03.3	54°25.3	24.9	90°44.0	09.4	338°45.8	51.7	79°55.4	19.9										
18	101°05.7	69°24.8	N12°26.0	105°44.7	S03°08.6	353°48.0	N22°51.7	94°57.6	N00°20.0										
19	116°08.2	84°24.3	27.1	120°45.4	07.8	8°50.3	51.7	109°59.8	20.2										
20	131°10.7	99°23.9	28.3	135°46.0	07.0	23°52.6	51.6	125°01.9	20.3										
21	146°13.1	114°23.4	•• 29.4	150°46.7	•• 06.0	38°54.9	•• 51.6	140°04.1	•• 20.4										
22	161°15.6	129°22.9	30.6	165°47.4	05.4	53°57.1	51.6	155°06.3	20.5										
23	176°18.1	144°22.5	31.7	180°48.1	04.7	68°59.4	51.6	170°08.5	20.7										
Mer.pass. 11:17				ν -0.5' d 1.1' m -3.92				ν 0.7' d 0.8' m 1.18				ν 2.3' d 0.0' m -2.20				ν 2.2' d 0.1' m 0.92			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	191°20.5	159°22.0	N12°32.8	195°48.7	S03°03.9	84°01.7	N22°51.6	185°10.7	N00°20.8										
1	206°23.0	174°21.6	34.0	210°49.4	03.1	99°03.9	51.5	200°12.8	20.9										
2	221°25.4	189°21.1	35.1	225°50.1	02.3	114°06.2	51.5	215°15.0	21.0										
3	236°27.9	204°20.6	•• 36.2	240°50.8	•• 01.5	129°08.5	•• 51.5	230°17.2	•• 21.1										
4	251°30.4	219°20.2	37.4	255°51.4	00.7	144°10.8	51.5	245°19.4	21.3										
5	266°32.8	234°19.7	38.5	270°52.1	03°00.0	159°13.0	51.5	260°21.6	21.4										
6	281°35.3	249°19.2	N12°39.6	285°52.8	S02°59.2	174°15.3	N22°51.4	275°23.7	N00°21.5										
7	296°37.8	264°18.8	40.8	300°53.4	58.4	189°17.6	51.4	290°25.9	21.6										
8	311°40.2	279°18.3	41.9	315°54.1	57.6	204°19.8	51.4	305°28.1	21.7										
9	326°42.7	294°17.8	•• 43.0	330°54.8	•• 56.8	219°22.1	•• 51.4	320°30.3	•• 21.9										
10	341°45.2	309°17.4	44.2	345°55.5	56.0	234°24.4	51.4	335°32.4	22.0										
11	356°47.6	324°16.9	45.3	0°56.1	55.3	249°26.7	51.3	350°34.6	22.1										
12	11°50.1	339°16.4	N12°46.4	15°56.8	S02°54.5	264°28.9	N22°51.3	5°36.8	N00°22.2										
13	26°52.5	354°15.9	47.6	30°57.5	53.7	279°31.2	51.3	20°39.0	22.3										
14	41°55.0	9°15.8	48.7	45°58.2	52.9	294°33.5	51.3	35°41.2	22.5										
15	56°57.5	24°15.0	•• 49.8	60°58.8	•• 52.1	309°35.7	•• 51.3	50°43.3	•• 22.6										
16	71°59.9	39°14.5	51.0	75°59.5	51.3	324°38.0	51.2	65°45.5	22.7										
17	87°02.4	54°14.1	52.1	91°00.2	50.6	339°40.3	51.2	80°47.7	22.8										
18	102°04.9	69°13.6	N12°53.2	106°00.8	S02°49.8	354°42.5	N22°51.2	95°49.9	N00°22.9										
19	117°07.3	84°13.1	54.3	121°01.5	49.0	9°44.8	51.2	110°52.1	23.1										
20	132°09.8	99°12.6	55.5	136°02.2	48.2	24°47.1	51.2	125°54.2	23.2										
21	147°12.3	114°12.2	•• 56.6	151°02.9	•• 47.4	39°49.3	•• 51.1	140°56.4	•• 23.3										
22	162°14.7	129°11.7	57.7	166°03.5	46.6	54°51.6	51.1	155°58.6	23.4										
23	177°17.2	144°11.2	58.8	181°04.2	45.9	69°53.9	51.1	171°00.8	23.6										
Mer.pass. 11:13				ν -0.5' d 1.1' m -3.92				ν 0.7' d 0.8' m 1.19				ν 2.3' d 0.0' m -2.19				ν 2.2' d 0.1' m 0.92			

Stars			
SHA	Dec		
Alpheratz	357°34.1	29°14.0	
Ankaa	353°06.6	-42°09.8	
Schedar	349°30.5	56°40.8	
Diphda	348°46.6	-17°50.6	
Achernar	335°20.0	-57°06.3	
Hamal	327°50.4	23°35.2	
Polaris	313°55.6	89°22.7	
Acamar	315°11.3	-40°12.1	
Menkar	314°05.4	4°11.5	
Mirafax	308°27.2	49°57.3	
Aldebaran	299°38.6	16°33.7	
Rigel	281°03.0	-8°10.4	
Capella	280°20.6	46°01.6	
Bellatrix	278°21.9	6°22.3	
Elnath	278°00.7	28°37.8	
Alnilam	275°36.8	-1°12.1	
Betelgeuse	270°51.1	7°24.6	
Canopus	263°52.0	-52°42.8	
Sirius	268°25.4	-16°45.3	
Adhara	255°05.1	-29°00.7	
Procyon	244°49.7	5°09.4	
Pollux	243°16.0	27°57.8	
Avior	234°14.1	-59°35.9	
Suhail	222°45.3	-43°42.6	
Miaplacidus	221°37.6	-69°49.7	
Regulus	217°46.6	-8°46.5	
Alphard	207°33.1	11°50.2	
Dubhe	197°39.2	61°36.6	
Denebola	182°23.6	14°25.4	
Gienah	175°42.2	-17°41.4	
Acrux	172°58.3	-63°14.8	
Gacrux	171°50.0	-57°15.7	
Althoth	166°11.5	-55°48.9	
Spica	158°20.9	-11°18.1	
Alkaid	152°50.7	49°10.7	

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	192°19.7	159°10.8	N13°00.0	196°04.9	S02°45.1	84°56.1	N22°51.1	186°02.9	N00°23.7					
1	207°22.1	174°10.3	01.1	211°05.6	44.3	99°58.4	51.1	201°05.1	23.8					
2	222°24.6	189°09.8	02.2	226°06.2	43.5	115°00.7	51.0	216°07.3	23.9					
3	237°27.0	204°09.3	03.3	241°06.9	42.7	130°02.9	51.0	231°09.5	24.0					
4	252°29.5	219°08.9	04.5	256°07.6	41.9	145°05.2	51.0	246°11.7	24.5					
5	267°32.0	234°08.4	05.6	271°08.3	41.1	160°07.5	51.0	261°13.8	24.3					
6	282°34.4	249°07.9	N13°06.7	286°08.9	S02°40.4	175°09.7	N22°51.0	276°16.0	N00°24.4					
7	297°36.9	264°07.4	07.8	301°09.6	39.6	190°12.0	50.9	291°18.2	24.5					
8	312°39.4	279°07.0	08.9	316°10.3	38.8	205°14.2	50.9	306°20.4	24.6					
9	327°41.8	294°06.5	10.1	331°11.0	38.0	220°16.5	50.9	321°22.6	24.8					
10	342°44.3	309°06.0	11.2	346°11.6	37.2	235°18.8	50.9	336°24.7	24.9					
11	357°46.8	324°05.5	12.3	1°12.3	36.4	250°21.0	50.9	351°26.9	25.0					
12	12°49.2	339°05.0	N13°13.4	16°13.0	S02°35.7	265°23.3	N22°50.8	6°29.1	N00°25.1					
13	27°51.7	354°04.6	14.5	31°13.6	34.9	280°25.6	50.8	21°31.3	25.2					
14	42°54.1	9°04.1	15.6	46°14.3	34.1	295°27.8	50.8	36°33.4	25.4					
15	57°56.6	24°03.6	16.8	61°15.0	33.3	310°30.1	50.8	51°35.6	25.5					
16	72°59.1	39°03.1	17.9	76°15.7	32.5	325°32.3	50.8	66°37.8	25.6					
17	88°01.5	54°02.6	19.0	91°16.3	31.7	340°34.6	50.7	81°40.0	25.7					
18	103°04.0	69°02.2	N13°20.1	106°17.0	S02°31.0	355°36.9	N22°50.7	96°42.2	N00°25.8					
19	118°06.5	84°01.7	21.2	121°17.7	30.2	10°39.1	50.7	111°44.3	26.0					
20	133°08.9	99°01.2	22.3	136°18.4	29.4	25°41.4	50.7	126°46.5	26.1					
21	148°11.4	114°00.7	23.4	151°19.0	28.6	40°43.6	50.7	141°48.7	26.2					
22	163°13.9	129°00.2	24.6	166°19.7	27.8	55°45.9	50.6	156°50.9	26.3					
23	178°16.3	143°59.8	25.7	181°20.4	27.0	70°48.2	50.6	171°53.1	26.4					
Mer.pass. 11:09 ν -0.5° d 1.1' m -3.92 ν 0.7° d 0.8' m 1.19 ν 2.3° d 0.0' m -2.18 ν 2.2° d 0.1' m 0.93														

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	193°18.8	158°59.3	N13°26.8	196°21.1	S02°26.2	85°50.4	N22°50.6	186°55.2	N00°26.6
1	208°21.3	173°58.8	27.9	211°21.8	25.5	100°52.7	50.6	201°57.4	26.7
2	223°23.7	188°58.3	29.0	226°22.4	24.7	115°54.9	50.5	216°59.6	26.8
3	238°26.2	203°57.8	30.1	241°23.1	23.9	130°57.2	50.5	232°01.8	26.9
4	253°28.6	218°57.3	31.2	256°23.8	23.1	145°59.4	50.5	247°04.0	27.0
5	268°31.1	233°56.9	32.3	271°24.5	22.3	161°01.7	50.5	262°06.1	27.2
6	283°33.6	248°56.4	N13°33.4	286°25.1	S02°21.5	176°04.0	N22°50.5	277°08.3	N00°27.3
7	298°36.0	263°55.9	34.5	301°28.8	20.8	191°06.2	50.4	292°10.5	27.4
8	313°38.5	278°55.4	35.6	316°26.5	20.0	206°08.5	50.4	307°12.7	27.5
9	328°41.0	293°54.9	36.7	331°27.2	19.2	221°10.7	50.4	322°14.9	27.6
10	343°43.4	308°54.4	37.8	346°27.6	18.4	236°13.0	50.4	337°17.0	27.8
11	358°45.9	323°53.9	39.0	1°28.5	17.6	251°15.2	50.4	352°19.2	27.9
12	13°48.4	338°53.5	N13°40.1	16°29.2	S02°16.8	266°17.5	N22°50.3	7°21.4	N00°28.0
13	28°50.8	353°53.0	41.2	31°29.9	16.0	281°19.7	50.3	22°23.6	28.1
14	43°53.3	8°52.5	42.3	46°30.5	15.3	296°22.0	50.3	37°25.7	28.2
15	58°55.8	23°52.0	43.4	61°31.2	14.5	311°24.2	50.3	52°27.9	28.4
16	73°58.2	38°51.5	44.5	76°31.9	13.7	326°26.5	50.2	67°30.1	28.5
17	89°00.7	53°51.0	45.6	91°32.6	12.9	341°28.8	50.2	82°32.3	28.6
18	104°03.1	68°50.5	N13°46.7	106°33.2	S02°12.1	356°31.0	N22°50.2	97°34.5	N00°28.7
19	119°05.6	83°50.0	47.8	121°33.9	11.3	11°33.3	50.2	112°36.6	28.8
20	134°08.1	98°49.5	48.9	136°34.6	10.6	26°35.5	50.2	127°38.8	29.0
21	149°10.5	113°49.1	50.0	151°35.3	9.8	41°37.8	50.1	142°41.0	29.1
22	164°13.0	128°48.6	51.1	166°36.0	09.0	56°40.0	50.1	157°43.2	29.2
23	179°15.5	143°48.1	52.2	181°36.6	08.2	71°42.3	50.1	172°45.4	29.3
Mer.pass. 11:05 ν -0.5° d 1.1' m -3.92 ν 0.7° d 0.8' m 1.19 ν 2.3° d 0.0' m -2.17 ν 2.2° d 0.1' m 0.93									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	194°17.9	158°47.6	N13°53.3	196°37.3	S02°07.4	86°44.5	N22°50.1	187°47.5	N00°29.4
1	209°20.4	173°47.1	54.4	211°38.0	06.6	101°46.8	50.0	202°49.7	29.6
2	224°22.9	188°46.6	55.5	226°38.7	05.8	116°49.0	50.0	217°51.9	29.7
3	239°25.3	203°46.1	56.5	241°39.3	05.1	131°51.3	50.0	232°54.1	29.8
4	254°27.8	218°45.6	57.6	256°40.0	04.3	146°53.5	50.0	247°56.3	29.9
5	269°30.2	233°45.1	58.7	271°40.7	03.5	161°55.8	50.0	262°58.4	30.0
6	284°32.7	248°44.6	N13°59.8	286°41.4	S02°02.7	176°58.0	N22°49.9	278°06.0	N00°30.2
7	299°35.2	263°44.1	14°00.9	301°42.0	01.9	192°00.3	49.9	293°02.8	30.3
8	314°37.6	278°43.6	02.0	316°42.7	01.1	207°02.5	49.9	308°05.0	30.4
9	329°40.1	293°43.1	03.1	331°43.4	02°00.4	222°04.8	49.9	323°07.2	30.5
10	344°42.6	308°42.6	04.2	346°44.1	01°59.6	237°07.0	49.8	338°09.3	30.6
11	359°45.0	323°42.1	05.3	1°44.8	58.8	252°09.2	49.8	353°11.5	30.8
12	14°47.5	338°41.6	N14°06.4	16°45.4	S01°58.0	267°11.5	N22°49.8	8°13.7	N00°30.9
13	29°50.0	353°41.2	07.5	31°46.1	57.2	282°13.7	49.8	23°15.9	31.0
14	44°52.4	8°40.7	08.6	46°46.8	56.4	297°16.0	49.8	38°18.1	31.1
15	59°54.9	23°40.2	09.6	61°47.5	55.6	312°18.2	49.7	53°20.2	31.2
16	74°57.4	38°39.7	10.7	76°48.1	54.9	327°20.5	49.7	68°22.4	31.4
17	89°59.8	53°39.2	11.8	91°48.8	54.1	342°22.7	49.7	83°24.6	31.5
18	105°02.3	68°38.7	N14°12.9	106°45.9	S01°53.5	357°25.0	N22°49.7	98°26.8	N00°31.6
19	120°04.7	83°38.2	14.0	121°50.2	52.5	12°27.2	49.6	113°29.0	31.7
20	135°07.2	98°37.7	15.1	136°50.9	51.7	27°29.5	49.6	128°31.1	31.8
21	150°09.7	113°37.2	16.2	151°51.5	50.9	42°31.7	49.6	143°33.3	32.0
22	165°12.1	128°36.7	17.2	166°52.2	50.1	57°33.9	49.6	158°35.5	32.1
23	180°14.6	143°36.2	18.3	181°52.9	49.4	72°36.2	49.5	173°37.7	32.2
Mer.pass. 11:01 ν -0.5° d 1.1' m -3.92 ν 0.7° d 0.8' m 1.19 ν 2.3° d 0.0' m -2.17 ν 2.2° d 0.1' m 0.93									

Stars		
SHA	Dec	
Alpheratz	357°34.1	29°14.0
Ankaa	353°06.5	-42°09.8
Schedar	349°30.5	56°40.8
Diphda	348°46.6	-17°50.6
Achernar	335°20.0	-57°06.3
Hamal	327°50.4	23°35.1
Polaris	313°56.3	89°22.6
Acamar	315°11.4	-40°12.1
Menkar	314°05.4	4°11.5
Mirafax	308°27.2	49°57.3
Aldebaran	297°38.7	16°33.3
Rigel	281°03.0	-8°10.4
Capella	280°20.6	46°01.6
Bellatrix	278°21.9	6°22.3
Elnath	278°00.7	28°37.8
Alnilam	275°36.8	-1°12.1
Betelgeuse	270°51.1	7°24.6
Canopus	263°52.0	-52°42.8
Sirius	258°25.4	-16°45.3
Adhara	255°05.1	-29°00.7
Procyon	244°49.7	5°09.4
Pollux	243°16.0	27°57.8
Avior	234°14.1	-59°35.9
Suhail	222°45.4	-43°32.6
Miaplacidus	221°37.6	-69°49.8
Regulus	217°46.6	-8°46.5
Alpha	207°33.1	11°50.2
Dubhe	193°39.2	61°36.6
Denebola	182°23.6	14°25.4
Gienah	175°42.2	-1°14.8
Acrux	172°58.3	-63°14.8
Gacrux	171°50.0	-57°15.8
Althioth	166°11.5	55°48.9
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°10.7
Hadar	148°34.0	-60°30.0
Menkent	147°56.1	-36°30.0
Arcturus	145°46.7	19°02.5
Rigel Kent.	139°38.3	-60°56.6
Kochab	137°18.8	74°02.6
Zuben el	136°54.6	-16°09.2
Alphecca	126°02.6	-26°37.3
Antares	112°14.4	-26°29.4
Atria	107°07.4	-69°04.3
Sabik	102°01.5	-15°45.5
Shaula	96°08.8	-37°07.3
Rasalhague	95°57.5	12°32.2
Eltanin	90°41.6	51°28.7
Kaus Aust.	83°31.1	-34°22.3
Vega	80°32.5	38°48.1
Nunki	75°46.5	-26°15.8
Altair	61°59.0	8°56.1
Peacock	53°04.3	-56°38.8
Deneb	49°25.3	45°22.1
Enif	33°38.0	9°59.6
Al Na'ir	27°32.0	-46°49.9
Fomalhaut	15°13.7	-29°29.0
Scheat	13°44.5	28°13.4
Markab	13°29.2	15°20.7

Apr 04 Sat	SHA	Mer.pass
Venus	326°51.1	13:24
Mars	3°45.2	10:55
Jupiter	252°36.5	18:17
Saturn	353°43.3	11:34

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	195°17.1	158°35.7	N14°19.4	196°53.6	S01°48.6	87°38.4	N22°49.5	188°39.9	N00°32.3										
1	210°19.5	173°35.2		20.5	211°54.3	47.8	102°40.7	49.5	203°42.0	32.4									
2	225°22.0	188°34.7		21.6	225°54.9	47.0	117°42.9	49.5	217°44.2	32.6									
3	240°24.5	203°34.2	•• 22.7	241°55.6	•• 46.2	132°45.2	•• 49.5	233°46.4	•• 32.7										
4	255°26.9	218°33.6		23.7	256°56.3	45.4	147°47.4	49.4	248°48.6	32.8									
5	270°29.4	233°33.1		24.9	271°57.0	44.7	162°49.6	49.4	263°50.8	32.9									
6	285°31.9	248°32.6	N14°25.8	286°57.6	S01°43.9	177°51.9	N22°49.4	278°52.9	N00°33.8										
7	300°34.3	263°32.1		27.0	301°58.3	43.1	192°54.1	49.4	293°55.1	33.2									
8	315°36.8	278°31.6		28.1	316°59.0	42.3	207°56.4	49.3	308°57.3	33.3									
9	330°39.2	293°31.1	•• 29.1	331°59.7	•• 41.5	222°58.6	•• 49.3	323°59.5	•• 33.4										
10	345°41.7	308°30.6		30.2	347°00.4	40.7	238°00.8	49.3	339°01.7	33.5									
11	0°44.2	323°30.1		31.3	2°01.0	39.9	253°03.1	49.3	354°03.8	33.6									
12	15°46.6	338°29.6	N14°32.4	17°01.7	S01°39.2	268°05.3	N22°49.2	9°06.0	N00°33.8										
13	30°49.1	353°29.1		33.4	32°02.4	38.4	283°07.6	49.2	24°08.2	33.9									
14	45°51.6	8°28.6		34.5	47°03.1	37.6	298°09.8	49.2	39°10.4	34.0									
15	60°54.0	23°28.1	•• 35.6	62°03.8	•• 36.8	313°12.0	•• 49.2	54°12.6	•• 34.1										
16	75°56.5	38°27.6		36.7	77°04.4	36.0	328°14.3	49.1	69°14.7	34.2									
17	90°59.0	53°27.1		37.7	92°05.1	35.2	343°16.5	49.1	84°16.9	34.4									
18	106°01.4	68°26.6	N14°38.8	107°05.8	S01°34.4	358°18.8	N22°49.1	99°19.1	N00°34.5										
19	121°03.9	83°26.1		39.9	122°06.5	33.7	13°21.0	49.1	114°21.3	34.6									
20	136°06.4	98°25.5		40.9	137°07.2	32.9	28°23.2	49.1	129°23.5	34.7									
21	151°08.8	113°25.0	•• 42.0	152°07.8	•• 32.1	43°25.5	•• 49.0	144°25.6	•• 34.8										
22	166°11.3	128°24.5		43.1	167°08.5	31.3	58°27.7	49.0	159°27.8	34.9									
23	181°13.7	143°24.0		44.1	182°09.2	30.5	73°29.9	49.0	174°30.0	35.1									
Mer.pass. 10:57				ν -0.5° d 1.1' m -3.92				ν 0.7° d 0.8' m 1.19				ν 2.2° d 0.0' m -2.16				ν 2.2° d 0.1' m 0.93			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	196°16.2	158°23.5	N14°45.2	197°09.9	S01°29.7	88°32.2	N22°49.0	189°32.2	N00°35.2										
1	211°18.7	173°23.0	46.3	212°10.6	29.0	103°34.4	48.9	204°34.4	35.3										
2	226°21.1	188°22.5	47.4	227°11.2	28.2	118°36.6	48.9	219°36.5	35.4										
3	241°23.6	203°22.0	· · 48.4	242°11.9	· · 27.4	133°38.9	· · 48.9	234°38.7	· · 35.5										
4	256°26.1	218°21.4	49.5	257°12.6	26.6	148°41.1	48.9	249°40.9	35.7										
5	271°28.5	233°20.9	50.5	272°13.3	25.8	163°43.4	48.8	264°43.1	35.8										
6	286°31.0	248°20.4	N14°51.6	287°14.0	S01°25.0	178°45.6	N22°48.8	279°45.3	N00°35.9										
7	301°33.5	263°19.9	52.7	302°14.6	24.2	193°47.8	48.8	294°47.4	36.0										
8	316°35.9	278°19.4	53.7	317°15.3	23.5	208°50.1	48.8	309°49.6	36.1										
9	331°38.4	293°18.9	· · 54.8	332°16.0	· · 22.7	223°52.3	· · 48.7	324°51.8	· · 36.3										
10	346°40.8	308°18.4	55.9	347°16.7	21.9	238°54.5	48.7	339°54.0	36.4										
11	1°43.3	323°17.8	56.9	2°17.4	21.1	253°56.8	48.7	354°56.2	36.5										
12	16°45.8	338°17.3	N14°58.0	17°18.0	S01°20.3	268°59.0	N22°48.7	9°58.3	N00°36.6										
13	31°48.2	353°16.8	14°59.0	32°18.7	19.5	284°01.2	48.6	25°00.5	36.7										
14	46°50.7	8°16.3	15°00.1	47°19.4	· · 18.7	299°03.4	48.6	40°02.7	36.9										
15	61°53.2	23°15.8	· · 01.2	62°20.1	· · 18.0	314°05.7	· · 48.6	55°04.9	· · 37.0										
16	76°55.6	38°15.3	02.2	77°20.8	17.2	329°07.9	48.6	70°07.1	37.1										
17	91°58.1	53°14.7	03.3	92°21.4	16.4	344°10.1	48.5	85°09.2	37.2										
18	107°00.6	68°14.2	N15°04.3	107°22.1	S01°15.6	359°12.4	N22°48.5	100°11.4	N00°37.3										
19	122°03.0	83°13.7	05.4	122°22.8	14.8	14°14.6	48.5	115°13.6	37.4										
20	137°05.9	98°13.2	06.4	137°23.5	14.0	29°16.8	48.5	130°15.8	37.6										
21	152°08.0	113°12.7	· · 07.5	152°24.2	· · 13.3	44°19.1	· · 48.4	145°18.0	· · 37.7										
22	167°10.4	128°12.1	08.6	167°24.9	12.5	59°21.3	48.4	160°20.2	37.8										
23	182°12.9	143°11.6	09.6	182°25.5	11.7	74°23.5	48.4	175°22.3	37.9										
Mer.pass. 10:53				ν -0.5° d 1.1' m -3.92				ν 0.7° d 0.8' m 1.19				ν 2.2° d 0.0' m -2.15				ν 2.2° d 0.1' m 0.93			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	197°15.3	158°11.1	N15°10.7	197°26.2	S01°10.9	89°25.7	N22°48.4	190°24.5	N00°38.0										
1	212°17.8	173°10.6		11.7	212°26.9	10.1	104°28.0	48.3	205°26.7										
2	227°20.3	188°10.1		12.8	227°27.6	09.3	119°30.2	48.3	220°28.9										
3	242°22.7	203°09.5	•• 13.8	242°28.3	•• 08.5	134°32.4	•• 48.3	235°31.1	•• 38.4										
4	257°25.2	218°09.0		14.9	257°28.9	07.8	149°34.7	48.3	250°33.2										
5	272°27.7	233°08.5		15.9	272°29.6	07.0	164°36.9	48.2	265°35.4										
6	287°30.1	248°08.0	N15°17.0	287°30.3	S01°06.2	179°39.1	N22°48.2	280°37.6	N00°38.8										
7	302°32.6	263°07.4		18.0	302°31.0	05.4	194°41.3	48.2	295°39.8										
8	317°35.1	278°06.9		19.1	317°31.7	04.6	209°43.6	48.2	310°42.0										
9	332°37.5	293°06.4	•• 20.1	332°32.4	•• 03.8	224°45.8	•• 48.1	325°44.1	•• 39.1										
10	347°40.0	308°05.9		21.2	347°33.0	03.0	239°48.0	48.1	340°46.3										
11	2°42.5	323°05.3		22.2	2°33.7	02.3	254°50.2	48.1	355°48.5										
12	17°44.9	338°04.8	N15°23.2	17°34.4	S01°01.5	269°52.5	N22°48.1	10°57.0	N00°39.5										
13	32°47.4	353°04.3		24.3	32°35.1	01°00.7	284°54.7	48.0	25°52.9										
14	47°49.8	8°03.8		25.3	47°35.8	00°59.9	299°56.9	48.0	40°55.1										
15	62°52.3	23°03.2	•• 26.4	62°36.4	•• 59.1	314°59.1	•• 48.0	55°57.2	•• 39.8										
16	77°54.8	38°02.7		27.4	77°37.1	58.3	330°01.4	48.0	70°59.4										
17	92°57.2	53°02.2		28.5	92°37.8	57.6	345°03.6	47.9	86°01.6										
18	107°59.7	68°01.6	N15°29.5	107°38.5	S00°56.8	0°05.8	N22°47.9	101°03.8	N00°40.2										
19	123°02.2	83°01.1		30.5	122°39.2	56.0	15°08.0	47.9	116°06.0										
20	138°04.6	98°00.6		31.6	137°39.9	55.2	30°10.3	47.9	131°08.1										
21	153°07.1	113°00.1	•• 32.6	152°40.5	•• 54.4	45°12.5	•• 47.8	146°10.3	•• 40.5										
22	168°09.6	127°59.5		33.7	167°41.2	53.6	60°14.7	47.8	161°12.5										
23	183°12.0	142°59.0		34.7	182°41.9	52.8	75°16.9	47.8	176°14.7										
Mer.pass. 10:49				ν -0.5° d 1.1' m -3.92				ν 0.7° d 0.8' m 1.19				ν 2.2° d 0.0' m -2.15				ν 2.2° d 0.1' m 0.93			

Stars			
	SHA	Dec	
Alpheratz	357°34.1	29°14.0	
Ankaa	353°06.5	-42°09.8	
Schedar	349°30.5	56°40.8	
Diphda	348°46.6	-17°50.6	
Achernar	335°20.0	-57°06.2	
Hamal	327°50.4	23°35.1	
Polaris	313°56.7	89°22.6	
Acamar	315°11.4	-40°12.1	
Menkar	314°05.4	4°11.5	
Mirfak	308°27.2	49°57.3	
Aldebaran	290°38.7	16°33.0	
Rigel	281°03.0	-8°10.4	
Capella	280°20.6	46°01.6	
Bellatrix	278°21.9	6°22.3	
Elmath	278°00.7	28°37.8	
Alnilam	275°36.8	-1°11.2	
Betelgeuse	270°51.1	7°24.6	
Canopus	263°52.1	-52°42.8	
Sirius	268°25.4	-16°45.3	
Adhara	255°05.1	-29°00.7	
Procyon	244°49.7	5°09.4	
Pollux	243°16.0	27°57.8	
Avior	234°14.2	-59°35.9	
Suhail	222°45.4	-43°32.6	
Miaplacidus	221°37.7	-69°49.8	
Alphard	217°46.6	-8°46.5	
Regulus	207°33.1	11°50.2	
Dubhe	193°39.2	61°36.6	
Denebola	182°23.6	14°25.4	
Gienah	175°42.2	-17°41.5	
Acrux	172°58.3	-63°14.8	
Gacrux	171°50.0	-57°15.8	
Althoth	166°11.5	55°48.9	
Spica	158°20.9	-11°18.1	
Alkaid	152°50.7	49°10.8	
Henkar	148°33.9	-60°30.9	
Mekdat	147°56.0	-36°30.4	
Arcturus	145°46.7	19°02.5	
Rigel Kent.	139°38.3	-60°56.6	
Kochab	137°18.7	74°02.6	
Zuben ubi	136°54.6	-16°09.2	
Alphecca	128°02.6	26°37.3	
Antares	112°14.4	-26°29.4	
Atria	107°07.4	-69°04.3	
Sabik	102°10.1	-15°45.5	
Shaula	96°08.8	-37°07.3	
Rasalhague	95°57.5	12°32.2	
Eltanin	90°41.5	51°28.7	
Kaus Aust.	83°31.1	-34°22.1	
Vega	80°32.5	38°48.1	
Nunki	75°46.5	-26°15.8	
Altair	61°59.0	8°56.1	
Peacock	53°04.3	-56°38.8	
Deneb	49°25.3	45°22.1	
Enif	33°38.0	9°59.6	
Al Na'ir	27°31.9	-46°49.9	
Fomalhaut	15°13.7	-29°29.0	
Scheat	13°44.5	28°13.4	
Markab	13°29.2	15°20.7	
Apr 07 Tue	SHA	Mer.pass	
Venus	323°18.6	13:26	
Mars	3°16.5	10:52	
Jupiter	252°21.4	18:07	
Saturn	353°22.8	11:24	
Apr 08 Wed	SHA	Mer.pass	
Venus	322°07.3	13:27	
Mars	0°53.7	10:51	
Jupiter	252°16.0	18:03	
Saturn	353°16.0	11:20	
Apr 09 Thu	SHA	Mer.pass	
Venus	320°51.8	13:28	
Mars	0°10.9	10:50	
Jupiter	252°10.4	18:07	
Saturn	353°09.2	11:17	
Horizontal parallax			
Venus:		0.1	
Mars:		0.1	

	Aries			Venus			Mars			Jupiter			Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec			
0	198°14.5	157°58.5	N15°35.7	197°42.6	S00°52.1	90°19.1	N22°47.8	191°16.9	N00°40.9	1	213°17.0	172°57.9	36.8	212°43.3	50.3	
1	213°17.0	172°57.9		36.8	212°43.3	50.3	105°21.4	47.7	206°19.0	41.0	2	228°19.4	187°57.4	37.8	227°44.0	51.3
2	228°19.4	187°57.4		37.8	227°44.0	51.3	120°23.6	47.7	221°21.2	41.1	3	243°21.9	202°56.9	.. 38.8	242°44.6	.. 49.7
3	243°21.9	202°56.9		.. 38.8	242°44.6	.. 49.7	135°25.8	.. 47.7	236°23.4	.. 41.2	4	258°23.9	217°56.3	39.9	257°45.3	48.9
4	258°23.9	217°56.3		39.9	257°45.3	48.9	150°28.0	47.7	251°25.6	41.4	5	273°26.8	232°55.8	40.9	272°46.0	48.1
5	273°26.8	232°55.8		40.9	272°46.0	48.1	165°30.3	47.6	266°27.8	41.5	6	288°29.3	247°55.3	N15°41.9	287°46.7	S00°47.3
6	288°29.3	247°55.3		N15°41.9	287°46.7	S00°47.3	180°32.5	N22°47.6	281°30.0	N00°41.6	7	303°31.7	262°54.7	43.0	302°47.4	46.6
7	303°31.7	262°54.7		43.0	302°47.4	46.6	195°34.7	47.6	296°32.1	41.7	8	318°34.2	277°54.2	44.0	317°48.0	45.8
8	318°34.2	277°54.2		44.0	317°48.0	45.8	210°36.9	47.5	311°34.3	41.8	9	333°36.7	292°53.7	.. 45.0	332°48.7	.. 45.0
9	333°36.7	292°53.7		.. 45.0	332°48.7	.. 45.0	225°39.1	.. 47.5	326°36.5	.. 42.0	10	348°39.1	307°53.1	46.1	347°49.4	44.2
10	348°39.1	307°53.1		46.1	347°49.4	44.2	240°41.3	47.5	341°38.7	42.1	11	3°41.6	322°52.6	47.1	2°50.1	43.4
11	3°41.6	322°52.6		47.1	2°50.1	43.4	255°43.6	47.5	356°40.9	42.2	12	18°44.1	337°52.0	N15°48.1	17°50.8	S00°42.6
12	18°44.1	337°52.0		N15°48.1	17°50.8	S00°42.6	270°45.8	N22°47.4	11°43.0	N00°42.3	13	33°46.5	352°51.5	49.1	32°51.5	41.9
13	33°46.5	352°51.5		49.1	32°51.5	41.9	285°48.0	47.4	26°45.2	42.4	14	48°49.0	7°51.0	50.2	47°52.1	41.1
14	48°49.0	7°51.0		50.2	47°52.1	41.1	300°50.2	47.4	41°47.4	42.5	15	63°51.4	22°50.4	.. 51.2	62°52.8	.. 40.3
15	63°51.4	22°50.4		.. 51.2	62°52.8	.. 40.3	315°52.4	.. 47.4	56°49.6	.. 42.7	16	78°53.9	37°49.9	52.2	77°53.5	39.5
16	78°53.9	37°49.9		52.2	77°53.5	39.5	330°54.7	47.3	71°51.8	42.8	17	93°56.4	52°49.4	53.3	92°54.2	38.7
17	93°56.4	52°49.4		53.3	92°54.2	38.7	345°56.9	47.3	86°54.0	42.9	18	108°58.8	67°48.8	N15°54.3	107°54.9	S00°37.9
18	108°58.8	67°48.8		N15°54.3	107°54.9	S00°37.9	0°59.1	N22°47.3	101°56.1	N00°43.0	19	124°01.3	82°48.3	55.3	122°55.6	37.1
19	124°01.3	82°48.3		55.3	122°55.6	37.1	16°01.3	47.3	116°58.3	43.1	20	139°03.8	97°47.7	56.3	137°56.3	36.4
20	139°03.8	97°47.7		56.3	137°56.3	36.4	31°03.5	47.2	132°00.5	43.3	21	154°06.2	112°46.6	.. 57.3	152°56.9	.. 35.6
21	154°06.2	112°46.6		.. 57.3	152°56.9	.. 35.6	46°05.7	.. 47.2	147°02.7	.. 43.4	22	169°08.7	127°46.6	58.4	167°57.6	34.8
22	169°08.7	127°46.6		58.4	167°57.6	34.8	61°07.9	47.2	162°04.9	43.5	23	184°11.2	142°46.1	59.4	182°58.3	34.0
23	184°11.2	142°46.1		59.4	182°58.3	34.0	76°10.2	47.2	177°07.0	43.6	Mer.pass. 10:45 ν -0.5' d 1.0' m -3.92 ν 0.7' d 0.8' m 1.20 ν 2.2' d 0.0' m -2.14 ν 2.2' d 0.1' m 0.93					

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	199°13.6	157°45.6	N16°00.4	197°59.0	S00°33.2	91°12.4	N22°47.1	192°09.2	N00°43.7
1	214°16.1	172°45.0	01.4	212°59.7	32.4	106°14.6	47.1	207°11.4	43.8
2	229°18.6	187°44.5	02.5	228°00.4	31.7	121°16.8	47.1	222°13.6	44.0
3	244°21.0	202°43.9	.. 03.5	243°01.0	.. 30.9	136°19.0	.. 47.0	237°15.8	.. 44.1
4	259°23.5	217°43.4	04.5	258°01.7	30.1	151°21.2	47.0	252°18.0	.. 44.3
5	274°25.9	232°42.8	05.5	273°02.4	29.3	166°23.4	47.0	267°20.1	44.4
6	289°28.4	247°42.3	N16°05.6	288°03.1	S00°28.5	181°25.7	N22°47.0	282°22.3	44.3
7	304°30.9	262°41.8	07.5	303°03.8	27.7	196°27.9	46.9	297°24.5	44.6
8	319°33.3	277°41.2	08.6	318°04.5	26.9	211°30.1	46.9	312°26.7	44.7
9	334°35.8	292°40.7	.. 09.6	333°05.1	.. 26.2	226°32.3	.. 46.9	327°28.9	.. 44.8
10	349°38.3	307°40.1	.. 10.6	348°05.8	25.4	241°34.5	46.9	342°31.0	44.9
11	4°40.7	322°39.6	11.6	3°06.5	24.6	256°36.7	46.8	357°33.2	45.0
12	19°43.2	337°39.0	N16°12.6	18°07.2	S00°23.8	271°38.9	N22°46.8	12°35.4	N00°45.1
13	34°45.7	352°38.5	13.6	33°07.9	23.0	286°41.1	46.8	27°37.6	46.3
14	49°48.1	7°37.9	14.6	48°08.6	22.2	301°43.3	46.7	42°39.8	45.4
15	64°50.6	22°37.4	.. 15.6	63°09.2	.. 21.5	316°45.6	.. 46.7	57°42.0	.. 45.5
16	79°53.1	37°36.8	16.6	78°09.9	20.7	331°47.8	46.7	72°44.1	45.6
17	94°55.5	52°36.3	17.7	93°10.6	19.9	346°50.0	46.7	87°46.3	45.7
18	109°58.0	67°35.7	N16°18.7	108°11.3	S00°19.1	1°52.2	N22°46.6	102°48.8	N00°45.9
19	125°00.4	82°35.2	19.7	123°12.0	18.3	16°54.4	46.6	117°50.7	46.0
20	140°02.9	97°34.6	20.7	138°12.7	17.5	31°56.6	46.6	132°52.9	46.1
21	155°05.4	112°34.1	.. 21.7	153°13.4	.. 16.8	46°58.8	.. 46.6	147°55.1	.. 46.2
22	170°07.8	127°33.5	22.7	168°14.0	16.0	62°01.0	46.5	162°57.2	46.3
23	185°10.3	142°33.0	23.7	183°14.7	15.2	77°03.2	46.6	177°59.4	46.4
Mer.pass. 10:41 ν -0.5' d 1.0' m -3.92 ν 0.7' d 0.8' m 1.20 ν 2.2' d 0.0' m -2.13 ν 2.2' d 0.1' m 0.93									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	200°12.8	157°32.4	N16°24.7	198°15.4	S00°14.4	92°05.4	N22°46.5	193°01.6	N00°46.6
1	215°15.2	172°31.9	25.7	213°16.1	13.6	107°07.6	46.4	208°03.8	46.7
2	230°17.2	187°31.3	26.7	228°16.8	12.8	122°09.9	46.4	223°06.0	46.8
3	245°20.7	202°30.8	.. 27.4	243°17.5	.. 12.0	137°12.1	.. 46.4	238°08.2	.. 46.9
4	260°22.6	217°30.2	28.7	258°18.2	11.3	152°14.3	46.4	253°10.3	47.0
5	275°25.1	232°29.6	29.7	273°18.8	10.5	167°16.5	46.3	268°12.5	47.1
6	290°27.6	247°29.1	N16°30.7	288°19.5	S00°09.7	182°18.7	N22°46.3	283°14.7	N00°47.3
7	305°30.0	262°28.5	31.7	303°20.2	08.9	197°20.9	46.3	298°16.9	47.4
8	320°32.5	277°28.0	32.7	318°20.9	08.1	212°23.1	46.2	313°19.1	47.5
9	335°34.9	292°27.4	.. 33.7	333°21.6	.. 07.3	227°25.3	.. 46.2	328°21.2	.. 47.6
10	350°37.4	307°26.9	34.7	348°22.3	06.6	242°27.5	46.2	343°23.4	47.7
11	5°39.9	322°26.3	35.7	3°23.0	05.8	257°29.7	46.2	358°25.6	47.9
12	20°42.3	337°25.7	N16°36.7	18°23.6	S00°05.0	272°31.9	N22°46.1	13°27.8	N00°48.0
13	35°44.8	352°25.2	37.7	33°24.3	04.2	287°34.1	46.1	28°30.0	48.1
14	50°47.3	7°24.6	38.7	48°25.0	03.4	302°36.3	46.1	43°32.2	48.2
15	65°49.7	22°24.1	.. 39.7	63°25.7	.. 02.6	317°38.5	.. 46.0	58°34.3	.. 48.3
16	80°52.2	37°23.5	40.7	78°26.4	01.9	332°40.7	46.0	73°36.5	48.4
17	95°54.7	52°23.0	41.7	93°27.1	01.1	347°42.9	46.0	88°38.7	48.6
18	110°57.1	67°22.4	N16°42.6	108°27.8	S00°00.3	2°45.1	N22°46.0	103°40.9	N00°48.7
19	125°59.6	82°21.8	43.6	123°28.4	N00°00.5	17°47.3	45.9	118°43.1	48.8
20	141°02.0	97°21.3	44.6	138°29.1	01.3	32°49.5	45.9	133°45.3	48.9
21	156°04.5	112°20.7	.. 45.6	153°29.8	.. 02.1	47°51.7	.. 45.9	148°47.4	.. 49.0
22	171°07.0	127°20.1	46.6	168°30.5	02.8	62°53.9	45.8	163°49.6	49.1
23	186°09.4	142°19.6	47.6	183°31.2	03.6	77°56.1	45.8	178°51.8	49.3
Mer.pass. 10:37 ν -0.6' d 1.0' m -3.92 ν 0.7' d 0.8' m 1.20 ν 2.2' d 0.0' m -2.13 ν 2.2' d 0.1' m 0.93									

Stars	SHA	Dec
Alpheratz	357°34.1	29°14.0
Ankaa	353°06.5	-42°09.8
Schedar	349°30.4	56°40.0
Diphda	348°46.6	-17°50.6
Achernar	335°20.0	-57°06.2
Hamal	327°50.4	23°35.1
Polaris	313°57.3	89°22.6
Acamar	315°11.4	-40°12.1
Menkar	314°05.4	4°11.5
Mirafak	308°27.2	49°57.3
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.4
Capella	280°20.6	69°01.6
Bellatrix	278°21.9	6°22.3
Elath	278°00.7	28°37.8
Anilam	275°36.8	-1°11.2
Betelgeuse	270°51.1	7°24.6
Canopus	259°25.4	-52°42.8
Sirius	255°05.1	-16°45.3
Procyon	244°49.8	-29°09.7
Adhara	243°16.6	5°09.4
Pollux	234°14.2	-59°35.8
Avior	222°45.4	-49°42.6
Suhail	221°37.7	-69°48.6
Miaplacidus	217°46.6	-8°45.9
Alphard	207°33.1	11°50.2
Regulus	193°39.2	61°36.6
Dubhe	182°23.6	14°25.5
Denebola	175°58.3	-17°41.5
Gienah	172°58.3	-63°14.9
Acrux	171°50.0	-57°15.8
Gacrux	166°11.5	55°48.9
Alloth	158°20.9	-11°18.1
Spica	152°50.7	49°10.8
Alkaid	148°33.9	-60°30.0
Hadar	147°56.0	-36°30.1
Menkent	145°46.6	19°02.5
Arcturus	139°38.3	-60°56.6
Rigil Kent.	137°18.7	74°02.6
Kochab	126°54.6	-16°09.2
Zuben'ubi	126°02.6	26°37.3

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	201°11.9	157°19.0	N16°48.6	198°31.9	N00°04.4	92°58.3	N22°45.8	193°54.0	N00°49.4					
1	216°14.4	172°18.4	49.6	213°32.6	05.2	108°00.5	45.8	208°56.2	49.5					
2	231°16.8	187°17.9	50.5	228°33.2	06.0	123°02.7	45.7	223°58.4	49.6					
3	246°19.8	202°17.3	51.5	243°33.9	06.8	138°04.9	45.7	239°00.5	49.7					
4	261°21.8	217°16.8	52.5	258°34.6	07.5	153°07.1	45.7	254°02.7	49.8					
5	276°24.2	232°16.2	53.5	273°35.3	08.3	168°09.3	45.6	269°04.9	50.0					
6	291°26.7	247°15.6	N16°54.5	288°36.0	N00°09.1	183°11.5	N22°45.6	284°07.1	N00°50.1					
7	306°29.2	262°15.1	55.5	303°36.7	09.9	198°13.7	45.6	299°09.3	50.2					
8	321°31.6	277°14.5	56.4	318°37.4	10.7	213°15.9	45.6	314°11.5	50.3					
9	336°34.1	292°13.9	57.4	333°38.0	11.5	228°18.1	45.5	329°13.6	50.4					
10	351°36.5	307°13.4	58.4	348°38.7	12.2	243°20.3	45.5	344°15.8	50.5					
11	6°39.0	322°12.8	16°59.4	3°39.4	13.0	258°22.5	45.5	359°18.0	50.7					
12	21°41.5	337°12.2	N17°00.4	18°40.1	N00°13.8	273°24.7	N22°45.4	14°20.2	N00°50.8					
13	36°43.9	352°11.6	01.3	33°40.8	14.6	288°26.9	45.4	29°22.4	50.9					
14	51°46.4	7°11.1	02.3	48°41.5	15.4	303°29.1	45.4	44°24.6	51.0					
15	66°48.9	22°10.5	03.3	63°42.2	16.2	318°31.3	45.3	59°26.7	51.1					
16	81°51.3	37°09.4	04.3	78°42.8	16.9	333°35.5	45.5	74°28.9	51.2					
17	96°53.8	52°09.4	05.2	93°43.5	17.7	348°35.7	45.3	89°31.1	51.4					
18	111°56.3	67°08.8	N17°06.2	108°44.2	N00°18.5	3°37.9	N22°45.3	104°33.3	N00°51.5					
19	126°58.7	82°08.2	07.2	123°44.9	19.3	18°40.1	45.2	119°35.5	51.6					
20	142°01.2	97°07.6	08.1	138°45.6	20.1	33°42.3	45.2	134°37.7	51.7					
21	157°03.6	112°07.1	09.1	153°46.3	20.9	48°44.5	45.2	149°39.9	51.8					
22	172°06.1	127°06.5	10.1	168°47.0	21.6	63°46.7	45.1	164°42.0	51.9					
23	187°08.6	142°05.9	11.1	183°47.7	22.4	78°48.9	45.1	179°44.2	52.1					
Mer.pass. 10:33			ν-0.6° d 1.0' m -3.92			ν 0.7° d 0.8' m 1.20			ν 2.2° d 0.0' m -2.12			ν 2.2° d 0.1' m 0.93		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	202°11.0	157°05.3	N17°12.0	198°48.3	N00°23.2	93°51.1	N22°45.1	194°46.4	N00°52.2					
1	217°13.5	172°04.8	13.0	213°49.0	24.0	108°53.2	45.1	209°48.6	52.3					
2	232°16.0	187°04.2	14.0	228°49.7	24.8	123°55.4	45.0	224°50.8	52.4					
3	247°18.4	202°03.6	14.9	243°50.4	25.5	138°57.6	45.0	239°53.0	52.5					
4	262°20.9	217°03.0	15.9	258°51.1	26.3	153°59.8	45.0	254°55.1	52.6					
5	277°23.4	232°02.5	16.9	273°51.8	27.1	169°02.0	44.9	269°57.3	52.8					
6	292°25.8	247°01.9	N17°17.8	288°52.5	N00°27.9	184°04.2	N22°44.9	284°59.5	N00°52.9					
7	307°28.3	262°01.3	18.8	303°53.2	28.7	199°06.4	44.9	300°01.7	53.0					
8	322°30.8	277°00.7	19.7	318°53.8	29.5	214°08.6	44.8	315°03.9	53.1					
9	337°33.2	292°00.2	20.7	333°54.5	30.2	229°10.8	44.8	330°06.1	53.2					
10	352°35.7	306°59.6	21.7	348°55.2	31.0	244°13.0	44.8	345°08.2	53.3					
11	7°38.1	321°59.0	22.6	3°55.9	31.8	259°15.2	44.8	0°10.4	53.5					
12	22°40.6	336°58.4	N17°23.6	18°56.6	N00°32.6	274°17.4	N22°44.7	15°12.6	N00°53.6					
13	37°43.1	351°57.8	24.5	33°57.3	33.4	289°19.5	44.7	30°14.8	53.7					
14	52°45.5	6°57.3	25.5	48°58.0	34.2	304°21.7	44.7	45°17.0	53.8					
15	67°48.0	21°56.7	26.5	63°58.7	34.9	319°23.9	44.6	60°19.2	53.9					
16	82°50.5	36°56.1	27.4	78°59.3	35.7	334°26.1	44.6	75°21.4	54.0					
17	97°52.9	51°55.5	28.4	94°00.0	36.5	349°28.3	44.6	90°23.5	54.2					
18	112°55.4	66°54.9	N17°29.3	109°00.7	N00°37.3	4°30.5	N22°44.5	105°25.7	N00°54.3					
19	127°57.9	81°54.3	30.3	124°01.4	38.1	19°32.7	44.5	120°27.9	54.4					
20	143°00.3	96°53.8	31.2	139°02.1	38.8	34°34.9	44.5	135°30.1	54.5					
21	158°02.8	111°53.2	32.2	154°02.8	39.6	49°37.1	44.4	150°32.3	54.6					
22	173°05.3	126°52.6	33.1	169°03.5	40.4	64°39.2	44.4	165°34.5	54.7					
23	188°07.7	141°52.0	34.1	184°04.2	41.2	79°41.4	44.4	180°36.6	54.9					
Mer.pass. 10:30			ν-0.6° d 1.0' m -3.92			ν 0.7° d 0.8' m 1.20			ν 2.2° d 0.0' m -2.11			ν 2.2° d 0.1' m 0.93		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	203°10.2	156°51.4	N17°35.0	199°04.8	N00°42.0	94°43.6	N22°44.4	195°38.8	N00°55.0					
1	218°12.6	171°50.8	36.0	214°05.5	42.8	109°45.8	44.3	210°41.0	55.1					
2	233°15.1	186°50.2	36.9	229°06.2	43.5	124°48.0	44.3	225°43.2	55.2					
3	248°17.6	201°49.7	37.9	244°06.9	44.3	139°50.2	44.3	240°45.4	55.3					
4	263°20.0	216°49.1	38.8	259°07.6	45.1	154°52.4	44.2	255°47.6	55.4					
5	278°22.5	231°48.5	39.8	274°08.3	45.9	169°54.6	44.2	270°49.8	55.6					
6	293°25.0	246°47.9	N17°40.7	289°09.0	N00°46.7	184°56.7	N22°44.2	285°51.9	N00°55.7					
7	308°27.4	261°47.3	41.7	304°09.7	47.4	199°58.9	44.1	300°54.1	55.8					
8	323°29.9	276°46.7	42.6	319°10.3	48.2	215°01.1	44.1	315°56.3	55.9					
9	338°32.4	291°46.1	43.6	334°11.0	49.0	230°03.3	44.1	330°58.5	56.0					
10	353°34.8	306°45.5	44.5	349°11.7	49.8	245°05.5	44.0	346°00.7	56.1					
11	8°37.3	321°44.9	45.4	4°12.4	50.6	260°07.7	44.0	1°02.9	56.2					
12	23°39.7	336°44.4	N17°46.4	19°13.1	N00°51.4	275°09.8	N22°44.0	16°05.1	N00°56.4					
13	38°42.2	351°43.8	47.3	34°13.8	52.1	290°12.0	44.0	31°07.2	56.5					
14	53°44.7	6°43.2	48.3	49°14.5	52.9	305°14.2	43.9	46°09.4	56.6					
15	68°47.1	21°42.6	49.2	64°15.2	53.7	320°16.4	43.9	61°11.6	56.7					
16	83°49.6	36°42.0	50.1	79°15.9	54.5	335°18.6	43.9	76°13.8	56.8					
17	98°52.1	51°41.4	51.1	94°16.5	55.3	350°20.8	43.8	91°16.0	56.9					
18	113°54.5	66°40.8	N17°52.0	109°17.2	N00°56.0	5°22.9	N22°43.8	106°18.2	N00°57.1					
19	128°57.0	81°40.2	52.9	124°17.9	56.8	20°25.1	43.8	121°20.3	57.2					
20	143°59.5	96°39.6	53.8	139°18.6	57.6	35°27.3	43.7	136°22.5	57.3					
21	159°01.9	111°39.0	54.9	154°19.3	58.4	50°29.5	43.7	151°24.7	57.4					
22	174°04.4	126°38.4	55.7	169°20.0	59.2	65°31.7	43.7	166°26.9	57.5					
23	189°06.9	141°37.8	56.7	184°20.7	59.9	80°33.8	43.6	181°29.1	57.6					
Mer.pass. 10:26			ν-0.6° d 0.9' m -3.92			ν 0.7° d 0.8' m 1.20			ν 2.2° d 0.0' m -2.11			ν 2.2° d 0.1' m 0.93		

Stars	SHA	Dec
Alpheratz	357°34.0	29°14.0
Ankaa	353°06.5	-42°09.8
Schedar	349°30.4	56°40.8
Diphda	348°46.6	-17°50.6
Achernar	335°20.0	-57°06.2
Hamal	327°50.4	23°35.1
Polaris	313°57.9	89°22.6
Acamar	315°11.4	-40°12.1
Menkar	314°05.4	4°11.5
Mirafak	308°27.2	49°57.3
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.4
Capella	280°20.6	46°01.6
Bellatrix	278°21.9	6°22.3
Elinath	278°00.8	28°37.8
Alnilam	275°36.8	-1°11.2
Betelgeuse	270°51.1	7°24.6
Canopus	263°52.1	-52°42.8
Sirius	258°25.4	-16°45.3
Adhara	255°05.1	-29°00.7
Procyon	244°49.8	5°09.4
Pollux	243°16.0	27°57.8
Avior	234°14.2	-59°35.9
Suhail	222°45.4	-43°32.6
Miaplacidus	221°37.8	-69°49.8
Alphard	217°46.6	-8°46.5
Regulus	207°33.1	11°50.2
Dubhe	193°39.2	61°36.6
Denebola	182°23.6	14°25.4
Gienah	175°42.2	-17°41.5
Acrux	172°58.3	-63°14.9
Gacrux	171°50.0	-57°15.8
Alloth	166°11.5	55°49.0
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°10.8
Hadar	148°33.9	-60°30.0
Nenkent	147°56.0	-36°30.1
Arcturus	145°46.6	19°02.5
Rigel Kent.	139°38.3	-60°56.7

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	204°09.3	156°37.2	N17°57.6	199°21.4	N01°00.7	95°36.0	N22°43.6	196°31.3	N00°57.8					
1	219°11.8	171°36.6	58.5	214°22.1	01.5	110°38.2	43.6	211°33.5	57.9					
2	234°14.2	186°36.0	17°59.0	229°22.7	02.3	125°40.4	43.5	226°35.6	58.0					
3	249°16.7	201°35.4	18°00.4	244°23.4	.. 03.1	140°42.6	.. 43.5	241°37.8	.. 58.1					
4	264°19.2	216°34.8	01.0	259°24.1	03.9	155°44.7	43.5	256°40.0	58.2					
5	279°21.6	231°34.2	02.3	274°24.8	04.6	170°46.9	43.4	271°42.2	58.3					
6	294°24.1	246°33.6	N18°03.2	289°25.5	N01°05.4	185°49.1	N22°43.4	286°44.4	N00°58.4					
7	309°26.6	261°33.0	04.1	304°26.2	06.2	200°51.3	43.4	301°46.6	58.6					
8	324°29.0	276°32.4	05.0	319°26.9	07.0	215°53.5	43.5	316°48.8	58.7					
9	339°31.5	291°31.8	.. 06.0	334°27.6	.. 07.8	230°55.6	.. 43.3	331°50.9	.. 58.8					
10	354°34.0	306°31.2	06.9	349°28.3	08.5	245°57.4	43.3	346°53.8	58.9					
11	9°36.4	321°30.6	07.8	4°28.9	09.3	261°00.0	43.3	1°55.3	59.0					
12	24°38.9	336°30.0	N18°08.7	19°29.6	N01°10.1	276°02.2	N22°43.2	16°57.5	N00°59.1					
13	39°41.3	351°29.4	09.6	34°30.3	10.9	291°04.3	43.2	31°59.7	59.3					
14	54°43.8	6°28.8	10.6	49°31.0	11.7	306°06.5	43.2	47°01.9	59.4					
15	69°46.3	21°28.2	.. 11.5	64°31.7	.. 12.4	321°08.7	.. 43.1	62°04.1	.. 59.5					
16	84°48.7	36°27.6	12.4	79°32.4	13.2	336°10.9	43.1	77°06.3	59.6					
17	99°51.2	51°27.0	13.3	94°33.1	14.0	351°13.0	43.1	92°08.4	59.7					
18	114°53.7	66°26.4	N18°14.2	109°33.8	N01°14.8	6°15.2	N22°43.0	107°10.6	N00°59.8					
19	129°56.1	81°25.8	15.2	124°34.5	15.6	21°17.4	43.0	122°12.8	00°59.9					
20	144°58.6	96°25.2	16.1	139°35.1	16.3	36°19.6	43.0	137°15.0	01°00.1					
21	160°01.1	111°24.6	.. 17.0	154°35.8	.. 17.1	51°21.7	.. 42.9	152°17.2	.. 00.2					
22	175°03.5	126°24.0	17.9	169°36.5	17.9	66°23.9	42.9	167°19.4	00.3					
23	190°06.0	141°23.4	18.8	184°37.2	18.7	81°26.1	42.9	182°21.6	00.4					
Mer.pass. 10:22			ν -0.6° d 0.9' m -3.92			ν 0.7° d 0.8' m 1.20			ν 2.2° d 0.0' m -2.10			ν 2.2° d 0.1' m 0.93		

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	205°08.5	156°22.8	N18°19.7	199°37.9	N01°19.5	96°28.3	N22°42.8	197°23.7	N01°00.5					
1	220°10.9	171°22.2	20.6	214°38.6	20.2	111°30.4	42.8	212°25.9	00.6					
2	235°13.4	186°21.5	21.5	229°39.3	21.0	126°32.6	42.8	227°28.1	00.7					
3	250°15.8	201°20.9	.. 22.4	244°40.0	.. 21.8	141°34.8	.. 42.7	242°30.3	.. 00.9					
4	265°18.3	216°20.3	23.4	259°40.7	22.6	156°37.0	42.7	257°32.5	01.0					
5	280°20.8	231°19.7	24.3	274°41.4	23.4	171°39.1	42.7	272°34.7	01.1					
6	295°23.2	246°19.1	N18°25.2	289°42.0	N01°24.1	186°41.3	N22°42.6	287°36.9	N01°01.2					
7	310°25.7	261°18.5	26.1	304°42.7	24.9	201°43.5	42.6	302°39.0	01.3					
8	325°28.2	276°17.9	27.0	319°43.4	25.7	216°45.6	42.6	317°41.2	01.4					
9	340°30.6	291°17.3	.. 27.9	334°44.1	.. 26.5	231°47.8	.. 42.5	332°43.4	.. 01.6					
10	355°33.1	306°16.7	28.8	349°44.8	27.2	246°50.0	42.5	347°45.6	01.7					
11	10°35.6	321°16.0	29.7	4°45.5	28.0	261°52.2	42.5	2°47.8	01.8					
12	25°38.0	336°15.4	N18°30.6	19°46.2	N01°28.8	276°54.3	N22°42.4	17°50.0	N01°01.9					
13	40°40.5	351°14.8	31.5	34°46.9	29.6	291°56.5	42.4	32°52.2	02.0					
14	55°42.9	6°14.2	32.4	49°47.6	30.4	306°58.7	42.4	47°54.4	02.1					
15	70°45.4	21°13.6	.. 33.3	64°48.3	.. 31.1	322°00.8	.. 42.3	62°56.5	.. 02.2					
16	85°47.9	36°13.0	34.2	79°48.9	31.9	337°03.0	42.3	77°58.7	02.4					
17	100°50.3	51°12.4	35.1	94°49.6	32.7	352°05.2	42.3	93°00.9	02.5					
18	115°52.8	66°11.7	N18°36.0	109°50.3	N01°33.5	7°07.3	N22°42.2	108°03.1	N01°02.6					
19	130°55.3	81°11.1	36.9	124°51.0	34.3	22°09.5	42.2	123°05.2	02.7					
20	145°57.7	96°10.5	37.8	139°51.7	35.0	37°11.7	42.2	138°07.5	02.8					
21	161°00.2	111°09.9	.. 38.7	154°52.4	.. 35.8	52°13.8	.. 42.1	153°09.7	.. 02.9					
22	176°02.7	126°09.3	39.6	169°53.1	36.6	67°16.0	42.1	168°11.9	03.0					
23	191°05.1	141°08.7	40.5	184°53.8	37.4	82°18.2	42.1	183°14.0	03.2					
Mer.pass. 10:18			ν -0.6° d 0.9' m -3.92			ν 0.7° d 0.8' m 1.21			ν 2.2° d 0.0' m -2.09			ν 2.2° d 0.1' m 0.93		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	206°07.6	156°08.0	N18°41.4	199°54.5	N01°38.2	97°20.3	N22°42.0	198°16.2	N01°03.3					
1	221°10.1	171°07.4	42.2	214°55.2	38.9	112°22.5	42.0	213°18.4	03.4					
2	236°12.5	186°06.8	43.1	229°55.8	39.7	127°24.7	42.0	228°20.6	03.5					
3	251°15.0	201°06.2	.. 44.0	244°56.5	.. 40.5	142°26.8	.. 41.9	243°22.8	.. 03.6					
4	266°17.4	216°05.6	44.9	259°57.2	41.3	157°29.0	41.9	258°25.0	03.7					
5	281°19.9	231°04.9	45.8	274°57.9	42.0	172°31.2	41.9	273°27.2	03.8					
6	296°22.4	246°04.3	N18°46.7	289°58.6	N01°42.8	187°33.3	N22°41.8	288°29.4	N01°04.0					
7	311°24.8	261°03.7	47.6	304°59.3	43.6	202°35.5	41.8	303°31.5	04.1					
8	326°27.3	276°03.1	48.3	320°00.0	44.4	217°37.7	41.8	318°33.7	04.2					
9	341°29.8	291°02.4	.. 49.5	335°00.7	.. 45.2	232°39.8	.. 41.7	333°35.9	.. 04.3					
10	356°32.2	306°01.8	50.2	350°01.4	45.9	247°42.0	41.7	348°38.1	04.4					
11	11°34.7	321°01.2	51.1	5°02.1	46.7	262°44.2	41.7	3°40.3	04.5					
12	26°37.2	336°00.6	N18°52.0	20°02.8	N01°47.5	277°46.3	N22°41.6	18°42.5	N01°04.6					
13	41°39.6	351°59.9	52.9	35°03.4	48.3	292°48.5	41.6	33°44.7	04.8					
14	56°42.1	5°59.3	53.8	50°04.1	49.0	307°50.7	41.5	48°46.9	04.9					
15	71°44.6	20°58.7	.. 54.6	65°04.8	.. 49.8	322°52.8	.. 41.5	63°49.0	.. 05.0					
16	86°47.9	35°58.1	55.5	80°05.5	50.6	337°55.0	41.5	78°51.2	05.1					
17	101°49.5	50°57.4	56.4	95°06.2	51.4	352°57.1	41.4	93°53.4	05.2					
18	116°51.9	65°56.8	N18°57.3	110°06.9	N01°52.2	7°59.3	N22°41.4	108°55.6	N01°05.3					
19	131°54.4	80°56.2	58.1	125°07.6	52.9	23°01.5	41.4	123°57.8	05.4					
20	146°56.9	95°55.6	59.0	140°08.3	53.7	38°03.6	41.3	139°00.0	05.6					
21	161°59.3	110°54.9	18°59.9	155°09.0	.. 54.5	53°05.8	.. 41.3	154°02.2	.. 05.7					
22	177°01.8	125°54.3	19°00.8	170°09.7	55.3	68°08.0	41.3	169°04.4	05.8					
23	192°04.3	140°53.7	01.6	185°10.4	56.0	83°10.1	41.2	184°06.5	05.9					
Mer.pass. 10:14			ν -0.6° d 0.9' m -3.92			ν 0.7° d 0.8' m 1.21			ν 2.2° d 0.0' m -2.09			ν 2.2° d 0.1' m 0.93		

Stars		
SHA	Dec	
Alpheratz	357°34.0	29°14.0
Ankaa	353°06.5	-42°09.8
Schedar	349°30.4	56°40.8
Diphda	348°46.6	-17°50.6
Achernar	335°20.0	-07°06.2
Hamal	327°50.4	23°35.1
Polaris	313°58.4	89°22.6
Acamar	315°11.4	-40°12.0
Menkar	314°05.4	4°11.5
Mirafak	308°27.2	49°57.3
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.4
Capella	280°20.7	-6°01.6
Bellatrix	278°22.0	6°22.3
Elath	278°08.8	28°37.8
Alnilam	275°36.9	-1°11.2
Betelgeuse	270°51.1	7°24.6
Canopus	263°52.1	-52°42.8
Sirius	258°25.4	-16°45.3
Adhara	255°05.1	-29°00.7
Procyon	244°49.8	5°09.4
Pollux	243°16.1	27°57.8
Avior	234°14.3	-59°35.9
Suhail	222°45.9	-43°32.6
Miaplacidus	221°37.8	-69°49.8
Alphard	217°46.6	-8°46.5
Regulus	207°33.2	11°50.2
Dubhe	193°39.2	61°36.6
Denebola	182°23.6	14°25.4
Genah	175°42.2	-17°41.5
Acrux	172°58.3	-63°14.9
Gacrux	171°50.0	-57°15.8
Alioth	166°11.5	58°49.0
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°03.8
Hamid	148°33.0	-60°30.1
Menkar	147°56.0	-36°30.1
Arcturus	145°46.6	19°02.6
Rigel Kent.	139°38.2	-60°03.7
Kochab	137°18.7	74°02.6
Zuben 'ubi	136°54.6	-16°09.2
Alphecca	126°02.5	-26°37.3
Antares	112°14.3	-26°29.5
Atria	107°07.2	-69°04.3
Sabik	102°01.4	-15°45.5
Shaula	96°08.7	-37°07.3
Rasalhague	95°57.4	12°32.2
Eltanin	90°41.4	51°28.8
Kaus Aust.	83°31.0	-34°22.2
Vega	80°32.4	38°48.2
Nunki	75°46.4	-26°15.5
Altair	61°58.9	8°56.1
Peacock	53°04.2	-56°38.8
Deneb	49°25.2	45°22.1
Enif	33°37.9	9°59.6
Al Na'ir	27°31.9	-46°49.9
Fomalhaut	15°13.6	-29°28.9
Scheat	13°44.5	28°13.3
Markab	13°29.1	15°

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	207°06.7	155°53.0	N19°02.5	200°11.0	N01°56.8	98°12.3	N22°41.2	199°08.7	N01°06.0										
1	222°09.2	170°52.4	03.4	215°11.7	57.6	113°14.4	41.2	214°10.9	06.1										
2	237°11.7	185°51.8	04.2	230°12.4	58.4	128°16.6	41.1	229°13.1	06.2										
3	252°14.1	200°51.1	•• 05.1	245°13.1	•• 59.1	143°18.8	•• 41.1	244°15.3	•• 06.4										
4	267°16.6	215°50.5	06.0	260°13.8	01°59.9	158°20.9	41.1	259°17.5	06.5										
5	282°19.0	230°49.9	06.9	275°14.5	02°00.7	173°23.1	41.0	274°19.7	06.6										
6	297°21.5	245°49.2	N19°07.2	290°15.2	N02°01.5	188°25.2	N22°41.0	289°21.9	N01°06.6										
7	312°24.0	260°48.6	08.6	305°15.9	02.3	203°27.4	41.0	304°24.1	06.8										
8	327°26.4	275°48.0	09.5	320°16.6	03.0	218°29.6	40.9	319°26.2	06.9										
9	342°28.9	290°47.3	•• 10.3	335°17.3	•• 03.8	233°31.7	•• 40.9	334°28.4	•• 07.0										
10	357°31.4	305°46.7	11.2	350°18.0	04.6	248°33.9	40.9	349°30.6	07.2										
11	12°33.8	320°46.1	12.0	5°18.6	05.4	263°36.0	40.8	4°32.8	07.3										
12	27°36.3	335°45.4	N19°12.9	20°19.3	N02°06.1	278°38.2	N22°40.8	19°35.0	N01°07.4										
13	42°38.8	350°44.8	13.8	35°20.0	06.9	293°40.3	40.7	34°37.2	07.5										
14	57°41.2	5°44.2	14.6	50°20.7	07.7	308°42.5	40.7	49°39.4	07.6										
15	72°43.7	20°43.5	•• 15.5	65°21.4	•• 08.5	323°44.7	•• 40.7	64°41.6	•• 07.7										
16	87°46.2	35°42.9	16.3	80°22.1	09.2	338°46.8	40.6	79°43.8	07.8										
17	102°48.6	50°42.3	17.2	95°22.8	10.0	353°49.0	40.6	94°45.9	07.9										
18	117°51.1	65°41.6	N19°18.0	110°23.5	N02°10.8	8°51.1	N22°40.6	109°48.1	N01°08.1										
19	132°53.5	80°41.0	18.9	125°24.2	11.6	23°53.3	40.5	124°50.3	08.2										
20	147°56.0	95°40.3	19.8	140°24.9	12.3	38°55.4	40.5	139°52.5	08.3										
21	162°58.5	110°39.7	•• 20.6	155°25.6	•• 13.1	53°57.6	•• 40.5	154°54.7	•• 08.4										
22	178°00.9	125°39.1	21.5	170°26.3	13.9	68°59.7	40.4	169°56.9	08.5										
23	193°03.4	140°38.4	22.3	185°26.9	14.7	84°01.9	40.4	184°59.1	08.6										
Mer.pass. 10:10			ν -0.6° d 0.9' m -3.92			ν 0.7° d 0.8' m 1.21			ν 2.2° d 0.0' m -2.08			ν 2.2° d 0.1' m 0.93							

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	208°05.9	155°37.8	N19°23.2	200°27.6	N02°15.4	99°04.1	N22°40.4	200°01.3	N01°08.7					
1	223°08.3	170°37.1	24.0	215°28.3	16.2	114°06.2	40.3	215°03.5	08.9					
2	238°10.8	185°36.5	24.9	230°29.0	17.0	129°08.4	40.3	230°05.6	09.0					
3	253°13.3	200°35.9	•• 25.7	245°29.7	•• 17.8	144°10.5	•• 40.2	245°07.8	•• 09.1					
4	268°15.7	215°35.2	26.6	260°30.4	18.5	159°12.7	40.2	260°10.0	09.2					
5	283°18.2	230°34.6	27.4	275°31.1	19.3	174°14.8	40.2	275°12.2	09.3					
6	298°20.7	245°33.9	N19°28.3	290°31.8	N02°20.1	189°17.0	N22°40.4	290°14.4	N01°09.4					
7	313°23.1	260°33.3	29.1	305°32.5	20.9	204°19.1	40.1	305°16.6	09.5					
8	328°25.6	275°32.6	29.9	320°33.2	21.6	219°21.3	40.1	320°18.8	09.6					
9	343°28.0	290°32.0	•• 30.8	335°33.9	•• 22.4	234°23.4	•• 40.0	335°21.0	•• 09.8					
10	358°30.5	305°31.3	31.6	350°34.6	23.2	249°25.6	40.0	350°23.2	09.9					
11	13°33.0	320°30.7	32.5	5°35.2	24.0	264°27.7	40.0	5°25.4	10.0					
12	28°35.4	335°30.0	N19°33.3	20°35.9	N02°24.7	279°29.9	N22°39.9	20°27.5	N01°10.1					
13	43°37.9	350°29.4	34.1	35°36.6	25.5	294°32.0	39.9	35°29.7	10.2					
14	58°40.4	5°28.8	35.0	50°37.3	26.3	309°34.2	39.8	50°31.9	10.3					
15	73°42.8	20°28.1	•• 35.8	65°38.0	•• 27.1	324°36.3	•• 39.8	65°34.1	•• 10.4					
16	88°45.3	35°27.5	36.7	80°38.7	27.8	339°38.5	39.8	80°36.3	10.6					
17	103°47.8	50°26.8	37.5	95°39.4	28.6	354°40.6	39.7	95°38.5	10.7					
18	118°50.2	65°26.2	N19°38.3	110°40.1	N02°29.4	9°42.8	N22°39.7	110°40.7	N01°10.8					
19	133°52.7	80°25.5	39.2	125°40.8	30.2	24°44.9	39.7	125°42.9	10.9					
20	148°55.2	95°24.9	40.0	140°41.5	30.9	39°47.1	39.6	140°45.1	11.0					
21	163°57.6	110°24.2	•• 40.8	155°42.2	•• 31.7	54°49.2	•• 39.6	155°47.3	•• 11.1					
22	179°00.1	125°23.6	41.7	170°42.9	32.5	69°51.4	39.6	170°49.4	11.2					
23	194°02.5	140°22.9	42.5	185°43.5	33.3	84°53.5	39.5	185°51.6	11.3					
Mer.pass. 10:06			ν -0.6° d 0.8' m -3.92			ν 0.7° d 0.8' m 1.21			ν 2.2° d 0.0' m -2.08			ν 2.2° d 0.1' m 0.93		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	209°05.0	155°22.3	N19°43.3	200°44.2	N02°34.0	99°55.7	N22°39.5	200°53.8	N01°11.5
1	224°07.5	170°21.6	44.1	215°44.9	34.8	114°57.8	39.4	215°56.0	11.6
2	239°09.9	185°20.9	45.0	230°45.6	35.6	130°00.0	39.4	230°58.2	11.7
3	254°12.4	200°20.3	•• 45.8	245°46.3	•• 36.4	145°02.1	•• 39.4	246°00.4	•• 11.8
4	269°14.9	215°19.6	46.6	260°47.0	37.1	160°04.3	39.3	261°02.6	11.9
5	284°17.3	230°19.0	47.4	275°47.7	37.9	175°06.4	39.3	276°04.8	12.0
6	299°19.8	245°18.3	N19°48.3	290°48.4	N02°38.7	190°08.6	N22°39.3	291°07.0	N01°12.1
7	314°22.3	260°17.7	49.1	305°49.1	39.5	205°10.7	39.2	306°09.2	12.2
8	329°24.7	275°17.0	49.9	320°49.8	40.2	220°12.9	39.2	321°11.4	12.4
9	344°27.2	290°16.4	•• 50.7	335°50.5	•• 41.0	235°15.0	•• 39.1	336°13.5	•• 12.5
10	359°29.7	305°15.7	51.6	350°51.2	41.8	250°17.1	39.1	351°15.7	12.6
11	14°32.1	320°15.0	52.4	5°51.9	42.5	265°19.3	39.1	6°17.9	12.7
12	29°34.6	335°14.4	N19°53.2	20°52.5	N02°43.3	280°21.4	N22°39.0	21°20.1	N01°12.8
13	44°37.0	350°13.7	54.0	35°53.2	44.1	295°23.6	39.0	36°22.3	12.9
14	59°39.5	5°13.1	54.8	50°53.9	44.9	310°25.7	39.0	51°24.5	13.0
15	74°42.0	20°12.4	•• 55.6	65°54.6	•• 45.6	325°27.9	•• 38.9	66°26.7	•• 13.1
16	89°44.4	35°11.8	56.5	80°55.3	46.4	340°30.0	38.9	81°28.9	13.3
17	104°46.9	50°11.1	57.3	95°56.0	47.2	355°32.2	38.8	96°31.1	13.4
18	119°49.4	65°10.4	N19°58.1	110°56.7	N02°48.0	10°34.3	N22°38.8	111°33.3	N01°13.5
19	134°51.8	80°09.8	58.9	125°57.4	48.7	25°36.4	38.8	126°35.5	13.6
20	149°54.3	95°09.1	19°59.7	140°58.1	49.5	40°38.6	38.7	141°37.6	13.7
21	164°56.8	110°08.5	20°00.5	155°58.8	•• 50.3	55°40.7	•• 38.7	156°39.8	•• 13.8
22	179°59.2	125°07.8	01.3	170°59.5	51.0	70°42.9	38.7	171°42.0	13.9
23	195°01.7	140°07.1	02.1	186°00.2	51.8	85°45.0	38.6	186°44.2	14.0
Mer.pass. 10:02 ν -0.7° d 0.8' m -3.92 ν 0.7° d 0.8' m 1.21 ν 2.1° d 0.0' m -2.07 ν 2.2° d 0.1' m 0.93									

Stars		
	SHA	Dec
Alpheratz	357° 34.0	29° 14.0
Ankaa	353° 06.5	-42° 09.7
Schedar	349° 30.4	56° 40.8
Diphda	348° 46.6	-17° 50.6
Achernar	335° 20.0	-57° 06.2
Hamal	327° 50.4	23° 35.1
Polaris	313° 58.5	89° 22.6
Acamar	315° 11.4	-40° 12.0
Menkar	314° 05.4	4° 11.5
Mirafak	308° 27.2	49° 57.3
Aldebaran	290° 38.7	16° 33.7
Rigel	281° 03.1	-8° 10.4
Capella	280° 20.7	46° 01.5
Bellatrix	278° 22.0	6° 22.3
Elnath	278° 00.8	28° 37.8
Alnilam	275° 36.9	-1° 11.2
Betelgeuse	270° 51.1	7° 24.6
Canopus	263° 52.2	-52° 42.8
Sirius	258° 25.4	-16° 45.3
Adhara	255° 05.2	-29° 00.7
Procyon	244° 49.8	5° 09.4
Pollux	243° 16.1	27° 57.8
Avior	234° 14.3	-59° 35.9
Suhail	222° 45.4	43° 32.6
Miaplacidus	221° 37.8	-69° 49.8
Alphard	217° 46.6	-8° 46.5
Regulus	207° 33.2	11° 50.2
Dubhe	193° 39.3	61° 36.7
Denebola	182° 23.6	14° 25.4
Geniah	175° 42.2	-17° 41.5
Acrux	172° 58.3	-63° 14.9
Gacrux	171° 50.0	-57° 15.8
Alioth	166° 11.5	55° 49.0
Spica	158° 20.9	-11° 18.1
Alkaid	152° 50.7	49° 10.8
Hadar	148° 33.9	-60° 30.1
Menkent	147° 56.0	-36° 30.1
Arcturus	145° 46.6	19° 02.6
Rigel Kent.	139° 38.2	-60° 56.7
Kochab	137° 18.7	74° 02.7
Zuben 'ubi	136° 54.5	-16° 09.2
Alphecca	126° 02.5	26° 37.4
Antares	112° 14.3	-26° 29.5
Atria	107° 07.2	-69° 04.3
Sabik	102° 01.4	-15° 45.5
Shaula	96° 08.7	-37° 07.3
Rasalhague	95° 57.4	12° 32.3
Eltanin	90° 41.4	51° 28.8
Kaus Aust.	83° 31.0	-34° 22.2
Vega	80° 32.4	38° 48.2
Nunki	75° 46.4	-26° 15.8
Altair	61° 58.9	8° 56.1
Peacock	53° 04.1	-56° 38.8
Deneb	49° 25.2	45° 52.1
Enif	33° 37.9	9° 59.6
Al Na'ir	27° 31.8	-46° 49.9
Fomalhaut	15° 13.6	-29° 28.9
Scheat	13° 44.5	-28° 13.3
Markab	13° 29.1	15° 20.7

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	210°04.2	155°06.5	N20°02.9	201°00.9	N02°52.6	100°47.2	N22°38.6	201°46.4	N01°14.2										
1	225°06.6	170°05.8	03.8			115°49.3	38.5	216°48.6	14.3										
2	240°09.1	185°05.1	04.6			231°02.2	54.1	231°50.8	14.4										
3	255°11.5	200°04.5	•• 05.4			246°02.9	•• 54.9	145°53.6	•• 38.5										
4	270°14.0	215°03.8	06.2			261°03.6	55.7	160°55.7	24.6										
5	285°16.5	230°03.1	07.0			276°04.3	56.4	175°57.9	38.4										
6	300°18.9	245°02.5	N20°07.8	201°05.0	N02°57.2	191°00.0	N22°38.4	291°59.6	N01°14.7										
7	315°21.4	260°01.8	08.6			306°05.7	58.0	206°02.1	38.3										
8	330°23.9	275°01.1	09.4			321°06.4	58.8	221°04.3	38.3										
9	345°26.3	290°00.5	•• 10.2			336°07.1	02°59.5	236°06.4	•• 38.2										
10	0°28.8	304°59.8	11.0			351°07.8	03°00.3	251°08.6	38.2										
11	15°31.3	319°59.1	11.8			6°08.5	01.1	266°10.7	38.2										
12	30°33.7	334°58.5	N20°12.6	21°09.2	N03°01.8	281°12.8	N22°38.1	22°12.7	N01°15.5										
13	45°36.2	349°57.8	13.4			36°09.9	02.6	296°15.0	38.1										
14	60°38.7	4°57.1	14.2			51°10.6	03.4	311°17.1	38.0										
15	75°41.1	19°56.5	•• 14.9			66°11.3	•• 04.2	326°19.2	•• 38.0										
16	90°43.6	34°55.8	15.7			81°11.9	04.9	341°21.4	38.0										
17	105°46.0	49°55.1	16.5			96°12.6	05.7	356°23.5	37.9										
18	120°48.5	64°54.5	N20°17.3	11°13.3	N03°06.5	11°25.7	N22°39.7	112°25.9	N01°16.2										
19	135°51.0	79°53.8	18.1			126°14.0	07.2	267°27.8	37.9										
20	150°53.4	94°53.1	18.9			141°14.7	08.0	41°29.9	37.8										
21	165°55.9	109°52.4	•• 19.7			156°15.4	•• 08.8	56°32.1	•• 37.8										
22	180°58.4	124°51.8	20.5			171°16.1	09.5	71°34.2	37.2										
23	196°00.8	139°51.1	21.3			186°16.8	10.3	86°36.3	37.7										
Mer.pass. 09:58				ν -0.7' d 0.8' m -3.92				ν 0.7' d 0.8' m 1.21				ν 2.1' d 0.0' m -2.06				ν 2.2' d 0.1' m 0.93			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	211°03.3	154°50.4	N20°22.0	201°17.5	N03°11.1	101°38.5	N22°37.7	202°39.0	N01°16.8										
1	226°05.8	169°49.7	22.8	216°18.2	11.9	116°40.6	37.6	217°41.2	16.9										
2	241°08.2	184°49.1	23.6	231°18.9	12.6	131°42.8	37.6	232°43.4	17.1										
3	256°10.7	199°48.4	•• 24.4	246°19.6	•• 13.4	146°44.9	•• 37.5	247°45.6	•• 17.2										
4	271°13.1	214°47.7	25.2	261°20.3	14.2	161°47.0	37.5	262°47.8	17.3										
5	286°15.6	229°47.0	26.0	276°21.0	14.9	176°49.2	37.5	277°50.0	17.4										
6	301°18.1	244°46.4	N20°26.7	291°21.6	N03°15.7	191°51.3	N22°37.4	292°52.2	N01°17.5										
7	316°20.5	259°45.7	27.5	306°22.3	16.5	206°53.4	37.4	307°54.4	17.6										
8	331°23.0	274°45.0	28.3	321°23.0	17.2	221°55.6	37.3	322°56.6	17.7										
9	346°25.5	289°44.3	•• 29.1	336°23.7	•• 18.0	236°57.7	•• 37.3	337°58.8	•• 17.8										
10	1°27.9	304°43.7	29.8	351°24.4	18.8	251°59.8	37.3	353°00.9	18.0										
11	16°30.4	319°43.0	30.6	6°25.1	19.6	267°02.0	37.2	8°03.1	18.1										
12	31°32.9	334°42.3	N20°31.4	21°25.8	N03°20.3	282°04.1	N22°37.2	23°05.3	N01°18.2										
13	46°35.3	349°41.6	32.2	36°26.5	21.1	297°06.2	37.2	38°07.5	18.3										
14	61°37.8	4°40.9	32.9	51°27.2	21.9	312°08.4	37.1	53°09.7	18.4										
15	76°40.3	19°40.3	•• 33.7	66°27.9	•• 22.6	327°10.5	•• 37.1	68°11.9	•• 18.5										
16	91°42.7	34°39.6	34.5	81°28.6	23.4	342°12.6	37.0	83°14.1	18.6										
17	106°45.2	49°38.9	35.3	96°29.3	24.2	357°14.8	37.0	98°16.3	18.7										
18	121°47.6	64°38.2	N20°36.0	111°30.0	N03°24.9	12°16.9	N22°37.0	113°18.5	N01°18.8										
19	136°50.1	79°37.5	36.8	126°30.7	25.7	27°19.0	36.9	128°20.7	19.0										
20	151°52.6	94°36.9	37.6	141°31.4	26.5	42°21.1	36.9	143°22.9	19.1										
21	166°55.0	109°36.2	•• 38.3	156°32.0	•• 27.2	57°23.3	•• 36.8	158°25.1	•• 19.2										
22	181°57.5	124°35.5	39.1	171°32.7	28.0	72°25.4	36.8	173°27.3	19.3										
23	197°00.0	139°34.8	39.8	186°33.4	28.8	87°27.5	36.8	188°29.5	19.4										
Mer.pass. 09:54				ν -0.7' d 0.8' m -3.92				ν 0.7' d 0.8' m 1.21				ν 2.1' d 0.0' m -2.06				ν 2.2' d 0.1' m 0.93			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	212°02.4	154°34.1	N20°40.6	201°34.1	N03°29.5	102°29.7	N22°36.7	203°31.7	N01°19.5										
1	227°04.9	169°33.4	41.4	216°34.8	30.3	117°31.8	36.7	218°33.8	19.6										
2	242°07.4	184°32.8	42.1	231°35.5	31.1	132°33.9	36.6	233°36.0	19.7										
3	257°09.8	199°32.1	•• 42.9	246°36.2	•• 31.8	147°36.1	•• 36.6	248°38.2	•• 19.8										
4	272°12.3	214°31.4	43.6	261°36.9	32.6	162°38.2	36.6	263°40.4	19.9										
5	287°14.8	229°30.7	44.4	276°37.6	33.4	177°40.3	36.5	278°42.6	20.1										
6	302°17.2	244°30.0	N20°45.2	291°38.3	N03°34.2	192°42.4	N22°36.5	293°44.8	N01°20.2										
7	317°19.7	259°29.3	45.9	306°39.0	34.9	207°44.6	36.4	308°47.0	20.3										
8	332°22.1	274°28.6	46.7	321°39.7	35.7	222°46.7	36.4	323°49.2	20.4										
9	347°24.6	289°27.9	•• 47.3	336°40.4	•• 36.5	237°48.8	•• 36.4	338°51.4	•• 20.5										
10	2°27.1	304°27.3	48.2	351°41.1	37.2	252°50.9	36.3	353°53.6	20.6										
11	17°29.5	319°26.6	48.9	6°41.8	38.0	267°53.1	36.3	8°55.8	20.7										
12	32°32.0	334°25.9	N20°49.7	21°42.4	N03°38.8	282°55.2	N22°36.2	23°58.0	N01°20.8										
13	47°34.5	349°25.2	50.4	36°43.1	39.5	297°57.3	36.2	39°00.2	20.9										
14	62°36.9	4°24.5	51.2	51°43.8	40.3	312°59.5	36.2	54°02.4	21.1										
15	77°39.4	19°23.8	•• 51.9	66°44.5	•• 41.1	328°01.6	•• 36.1	69°04.6	•• 21.2										
16	92°41.9	34°23.1	52.7	81°45.2	41.8	343°03.7	36.1	84°06.8	21.3										
17	107°44.3	49°22.4	53.4	96°45.9	42.6	358°05.8	36.0	99°09.0	21.4										
18	122°46.8	64°21.7	N20°54.2	111°46.6	N03°43.4	13°08.0	N22°36.0	114°11.1	N01°21.5										
19	137°49.3	79°21.0	54.9	126°47.3	44.1	28°10.1	36.0	129°13.3	21.6										
20	152°51.7	94°20.3	55.7	141°48.0	44.9	43°12.2	35.9	144°15.5	21.7										
21	167°54.2	109°19.7	•• 56.4	156°48.7	•• 45.7	58°14.3	•• 35.9	159°17.7	•• 21.8										
22	182°56.6	124°19.0	57.1	171°49.4	46.4	73°16.5	35.8	174°19.9	21.9										
23	197°59.1	139°18.3	57.9	186°50.1	47.2	88°18.6	35.8	189°22.1	22.0										
Mer.pass. 09:50				ν -0.7' d 0.8' m -3.92				ν 0.7' d 0.8' m 1.22				ν 2.1' d 0.0' m -2.05				ν 2.2' d 0.1' m 0.93			

Stars			h			Sun			Moon		
	SHA	Dec	Wed	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.0	29°14.0	0	180°21.2	N12°07.7	115°17.8	2.8'	N27°55.5	2.8'	59.7'	
Ankaa	353°06.5	-42°09.7	1	195°21.3	08.6	129°39.6	2.9'	27°52.7	2.9'	59.7'	
Schedar	349°30.4	56°40.8	2	210°21.4	09.4	144°01.5	2.9'	27°49.8	3.1'	59.7'	
Diphda	348°46.5	-17°50.6	3	225°21.5	•• 10.3	158°23.4	3.0'	27°46.7	3.4'	59.7'	
Achernar	335°20.0	-57°06.2	4	240°21.7	11.1	172°45.4	3.1'	27°43.3	3.5'	59.6'	
Hamal	327°50.4	23°35.1	5	255°21.8	11.9	187°07.5	3.2'	27°39.8	3.7'	59.6'	
Polaris	313°58.5	89°22.6	6	270°21.9	N12°12.8	201°29.6	3.2'	N27°36.1	3.9'	59.6'	
Acamar	315°11.4	-4°12.0	7	285°22.0	13.6	215°51.9	3.3'	27°32.2	4.1'	59.6'	
Menkar	314°05.4	4°11.5	8	300°22.1	14.5	230°14.2	3.4'	27°28.1	4.3'	59.5'	
Mirfak	308°27.2	49°57.3	9	315°22.3	•• 15.3	244°36.6	3.5'	27°23.8	4.4'	59.5'	
Aldebaran	290°38.7	16°33.7	10	330°22.4	16.1	258°59.1	3.6'	27°19.4	4.7'	59.5'	
Rigel	281°03.1	-8°10.4	11	345°22.5	17.0	273°21.7	3.7'	27°14.7	4.8'	59.5'	
Capella	280°20.7	46°01.5	12	0°22.6	N12°17.8	287°44.4	3.8'	N27°09.9	5.1'	59.4'	
Bellatrix	278°22.0	6°22.3	13	15°22.7	18.7	302°07.1	3.9'	27°04.8	5.1'	59.4'	
Elnath	278°00.8	28°37.8	14	30°22.9	19.5	316°30.0	4.0'	26°59.7	5.4'	59.4'	
Alnilam	275°36.9	-1°11.2	15	45°23.0	•• 20.3	330°52.9	4.1'	26°54.3	5.6'	59.4'	
Betelgeuse	270°51.1	7°24.6	16	60°23.1	21.2	345°16.0	4.2'	26°48.7	5.7'	59.3'	
Canopus	263°52.2	-52°42.8	17	75°23.2	22.0	359°39.2	4.3'	26°43.0	5.9'	59.3'	
Sirius	258°25.5	-16°45.3	18	90°23.3	N23°22.8	14°02.4	4.4'	N26°37.1	6.1'	59.3'	
Adhara	255°05.2	-29°00.7	19	105°23.5	23.7	28°25.8	4.5'	26°31.0	6.3'	59.3'	
Procyon	244°49.8	5°09.4	20	120°23.6	24.5	42°49.3	4.6'	26°24.7	6.4'	59.2'	
Pollux	243°16.1	27°57.8	21	135°23.7	•• 25.3	57°12.9	4.7'	26°18.3	6.6'	59.2'	
Avior	234°14.3	-59°35.9	22	150°23.8	26.2	71°36.6	4.8'	26°11.7	6.7'	59.2'	
Suhail	222°45.5	-43°32.6	23	165°23.9	27.0	86°00.4	4.9'	26°05.0	7.0'	59.2'	
Miaplacidus	221°37.9	-69°49.8									
Alphard	217°46.6	-8°46.5									
			SD = 15.0' d = 0.0'			SD = 16.2' d = 0.0'					

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	213°01.6	154°17.6	N20°58.6	201°50.8	N03°48.0	103°20.7	N22°35.7	204°24.3	N01°22.2					
1	228°04.0	169°16.9	20°59.4	216°51.5	48.7	118°22.8	35.7	219°26.5	22.3					
2	243°06.5	184°16.2	21°00.1	231°52.2	49.5	133°25.0	35.7	234°28.7	22.4					
3	258°09.0	199°15.5	•• 00.8	246°52.9	•• 50.2	148°27.1	•• 35.6	249°30.9	•• 22.5					
4	273°11.4	214°14.8	01.6	261°53.5	51.0	163°29.2	35.6	264°33.1	22.6					
5	288°13.9	229°14.1	02.3	276°54.2	51.8	178°31.3	35.5	279°35.3	22.7					
6	303°16.4	244°13.4	N21°03.0	291°54.9	N03°52.5	193°33.4	N22°35.5	294°37.5	N01°22.8					
7	318°18.8	259°12.7	03.8	306°56.6	53.3	208°35.6	35.5	309°39.7	22.9					
8	333°21.3	274°12.0	04.5	321°56.3	54.1	223°37.7	35.4	324°41.9	23.0					
9	348°23.7	289°11.3	•• 05.2	336°57.0	•• 54.8	238°39.8	•• 35.4	339°44.1	•• 23.1					
10	3°26.2	304°10.6	06.0	351°57.7	55.6	253°41.9	35.5	354°46.3	23.3					
11	18°28.7	319°09.9	06.7	6°58.4	56.4	268°44.1	35.3	9°48.5	23.4					
12	33°31.1	334°09.2	N21°07.4	21°59.1	N03°57.1	283°46.2	N22°35.3	24°50.7	N01°23.5					
13	48°33.6	349°08.5	08.1	36°59.8	57.9	298°48.3	35.2	39°52.9	23.6					
14	63°36.1	•4°07.8	08.9	52°00.5	58.7	313°50.4	35.2	54°55.0	23.7					
15	78°38.5	19°07.1	•• 09.6	67°01.2	•• 03.9	328°52.5	•• 35.1	69°57.2	•• 23.8					
16	93°41.0	34°06.4	10.3	82°01.9	04°00.2	343°54.7	35.1	84°59.4	23.9					
17	108°43.5	49°05.7	11.0	97°02.6	01.0	358°56.8	35.0	100°01.6	24.0					
18	123°45.9	64°05.0	N21°11.8	112°03.3	N04°01.7	13°58.9	N22°35.0	115°03.8	N01°24.1					
19	138°48.4	79°04.3	12.5	127°04.0	02.5	29°01.0	35.0	130°06.0	24.2					
20	153°50.9	94°03.6	13.2	142°04.6	03.2	44°03.1	34.9	145°08.2	24.4					
21	168°53.3	109°02.9	•• 13.9	157°05.3	•• 04.0	59°05.3	•• 34.9	160°10.4	•• 24.5					
22	183°55.8	124°02.2	14.6	172°06.0	04.8	74°07.4	34.8	175°12.6	24.6					
23	198°58.2	139°01.5	15.3	187°06.7	05.5	89°09.5	34.8	190°14.8	24.7					
Mer.pass. 09:46 ν -0.7' d 0.7' m -3.92 ν 0.7' d 0.8' m 1.22 ν 2.1' d 0.0' m -2.05 ν 2.2' d 0.1' m 0.93														

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	214°00.7	154°00.8	N21°16.1	202°07.4	N04°06.3	104°11.6	N22°34.8	205°17.0	N01°24.8
1	229°03.2	169°00.1	16.8	217°08.1	07.1	119°13.7	34.7	220°19.2	24.9
2	244°05.6	183°59.4	17.5	232°08.8	07.8	134°15.8	34.7	235°21.4	25.0
3	259°08.1	198°58.7	•• 18.2	247°09.5	•• 08.6	149°18.0	•• 34.6	250°23.6	•• 25.1
4	274°10.6	213°57.9	18.9	262°10.2	09.4	164°20.1	34.6	265°25.8	25.2
5	289°13.0	228°57.2	19.6	277°10.9	10.1	179°22.2	34.5	280°28.0	25.3
6	304°15.5	243°56.5	N21°20.3	292°11.6	N04°10.9	194°24.3	N22°34.5	295°30.2	N01°25.4
7	319°18.0	258°55.8	21.0	307°12.3	11.6	209°26.4	34.5	310°32.4	25.6
8	334°20.4	273°55.1	21.7	322°13.0	12.4	224°28.5	34.5	325°34.6	25.7
9	349°22.9	288°54.4	•• 22.5	337°13.7	•• 13.2	239°30.7	•• 34.4	340°36.8	•• 25.8
10	•4°25.4	303°53.7	23.2	352°14.4	13.9	254°32.8	34.3	355°39.0	25.9
11	19°27.8	318°53.0	23.9	7°15.1	14.7	269°34.9	34.3	10°41.2	26.0
12	34°30.3	333°52.3	N21°24.6	22°15.8	N04°15.5	284°37.0	N22°34.2	25°43.4	N01°26.1
13	49°32.7	348°51.6	25.3	37°16.4	16.2	299°39.1	34.2	40°45.6	26.2
14	64°35.2	3°50.9	26.0	52°17.1	17.0	314°41.2	34.2	55°47.8	26.3
15	79°37.7	18°50.2	•• 26.7	67°17.8	•• 17.7	329°43.4	•• 34.1	70°50.0	•• 26.4
16	94°40.1	33°49.4	27.4	82°18.5	18.5	344°45.5	34.1	85°52.2	26.5
17	109°42.6	48°48.7	28.1	97°19.2	19.3	359°47.6	34.0	100°54.3	26.6
18	124°45.1	63°48.0	N21°28.8	112°19.9	N04°20.0	14°49.7	N22°34.0	115°56.5	N01°26.8
19	139°47.5	78°47.3	29.5	127°20.6	20.8	29°51.8	34.0	130°58.7	26.9
20	154°50.0	93°46.6	30.2	142°21.3	21.6	44°53.9	33.9	146°00.9	27.0
21	169°52.5	108°45.9	•• 30.9	157°22.0	•• 22.3	59°56.0	•• 33.9	161°03.1	•• 27.1
22	184°54.9	123°45.2	31.5	172°22.7	23.1	74°58.1	33.8	176°05.3	27.2
23	199°57.4	138°44.4	32.2	187°23.4	23.8	90°00.3	33.8	191°07.5	27.3
Mer.pass. 09:42 ν -0.7' d 0.7' m -3.92 ν 0.7' d 0.8' m 1.22 ν 2.1' d 0.0' m -2.04 ν 2.2' d 0.1' m 0.93									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	214°59.8	153°43.7	N21°32.9	202°24.1	N04°24.6	105°02.4	N22°33.7	206°09.7	N01°27.4
1	230°02.3	168°43.0	33.6	217°24.8	25.4	120°04.5	33.7	221°11.9	27.5
2	245°04.8	183°42.3	34.3	232°25.5	26.1	135°06.6	33.7	236°14.1	27.6
3	260°07.2	198°41.6	•• 35.0	247°26.2	•• 26.9	150°08.7	•• 33.6	251°16.3	•• 27.7
4	275°09.7	213°40.9	35.7	262°26.9	27.6	165°10.8	33.6	266°18.5	27.8
5	290°12.2	228°40.2	36.4	277°27.5	28.4	180°12.9	33.5	281°20.7	27.9
6	305°14.6	243°39.4	N21°37.1	292°28.2	N04°29.2	195°15.0	N22°33.5	296°22.9	N01°28.1
7	320°17.1	258°38.7	37.7	307°28.9	29.9	210°17.2	33.4	311°25.1	28.2
8	335°19.6	273°38.0	38.4	322°29.6	30.7	225°19.3	33.4	326°27.3	28.3
9	350°22.0	288°37.3	•• 39.1	337°30.3	•• 31.4	240°21.4	•• 33.3	341°29.5	•• 28.4
10	5°24.5	303°36.6	39.8	352°31.0	32.2	255°23.5	33.3	356°31.7	28.5
11	20°27.0	318°35.8	40.5	7°31.7	33.0	270°25.6	33.3	11°33.9	28.6
12	35°29.4	333°35.1	N21°41.1	22°32.4	N04°33.7	285°27.7	N22°33.2	26°36.1	N01°28.7
13	50°31.9	348°34.4	41.8	37°33.1	34.5	300°29.8	33.2	41°38.3	28.8
14	65°34.3	3°33.7	42.5	52°33.8	35.2	315°31.9	33.1	56°40.5	28.9
15	80°36.8	18°33.0	•• 43.2	67°34.5	•• 36.0	330°34.0	•• 33.1	71°42.7	•• 29.0
16	95°39.3	33°32.2	43.9	82°35.2	36.8	345°36.1	33.0	86°44.9	29.1
17	110°41.7	48°31.5	44.5	97°35.9	37.5	0°38.3	33.0	101°47.1	29.2
18	125°44.2	63°30.8	N21°45.2	113°36.6	N04°38.3	15°40.4	N22°33.0	116°49.3	N01°29.4
19	140°46.7	78°30.1	45.9	127°37.3	39.0	30°42.5	32.9	131°51.5	29.5
20	155°49.1	93°29.4	46.5	142°38.0	39.8	45°44.6	32.9	146°53.7	29.6
21	170°51.6	108°28.6	•• 47.2	157°38.6	•• 40.6	60°46.7	•• 32.8	161°55.9	•• 29.7
22	185°54.1	123°27.9	47.9	172°39.3	41.3	75°48.8	32.8	176°58.1	29.8
23	200°56.5	138°27.2	48.5	187°40.0	42.1	90°50.9	32.7	192°00.3	29.9
Mer.pass. 09:38 ν -0.7' d 0.7' m -3.92 ν 0.7' d 0.8' m 1.22 ν 2.1' d 0.0' m -2.03 ν 2.2' d 0.1' m 0.93									

Stars			h			Sun			Moon		
	SHA	Dec	Sat	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.0	29°14.0	0	180°29.5	N13°07.5	73°52.8	10.7°	N17°46.6	12.8°	57.8'	
Ankaa	353°06.5	-42°09.7	1	195°29.6	08.3	88°22.6	10.8°	17°33.8	12.9°	57.8'	
Schedar	349°30.4	56°40.8	2	210°29.7	09.1	102°52.4	10.9°	17°20.9	13.0°	57.7'	
Diphda	348°46.5	-17°50.6	3	225°29.8	•• 09.9	117°22.4	11.1°	17°07.9	13.0°	57.7'	
Achernar	335°20.0	-57°06.1	4	240°29.9	10.7	131°52.4	11.2°	16°54.9	13.2°	57.7'	
Hamal	327°50.4	23°35.1	5	255°30.0	11.5	146°22.6	11.3°	16°41.7	13.2°	57.7'	
Polaris	313°58.7	89°22.5	6	270°30.1	N13°12.4	160°52.8	11.4°	N16°28.5	13.2°	57.6'	
Amar	315°11.4	-40°12.0	7	285°30.2	13.2	175°23.2	11.5°	16°15.3	13.4°	57.6'	
Menkar	314°05.4	4°11.5	8	300°30.4	14.0	189°53.6	11.6°	16°01.9	13.4°	57.6'	
Mirfak	308°27.2	49°57.3	9	315°30.5	•• 14.8	204°24.2	11.7°	15°48.5	13.5°	57.6'	
Aldebaran	290°38.7	16°33.7	10	330°30.6	15.6	218°54.9	11.8°	15°35.0	13.5°	57.5'	
Rigel	281°03.1	-8°10.4	11	345°30.7	16.4	233°25.6	11.9°	15°21.5	13.6°	57.5'	
Capella	280°20.7	46°01.5	12	0°30.8	N13°17.2	247°56.5	12.0°	N15°07.9	13.6°	57.5'	
Bellatrix	278°22.0	6°22.3	13	15°30.9	18.1	262°27.4	12.0°	14°54.3	13.8°	57.4'	
Elnath	278°00.8	28°37.8	14	30°31.0	18.9	276°58.5	12.1°	14°40.5	13.7°	57.4'	
Alnilam	275°36.9	-1°11.2	15	45°31.1	•• 19.7	291°29.6	12.2°	14°26.8	13.9°	57.4'	
Betelgeuse	267°51.1	7°24.7	16	60°31.2	20.5	306°00.9	12.3°	14°12.9	13.9°	57.4'	
Canopus	263°52.2	-52°42.8	17	75°31.3	21.3	320°32.2	12.4°	13°59.0	13.9°	57.3'	
Sirius	258°25.5	-16°45.3	18	90°31.4	N23°22.1	335°03.6	12.5°	N13°45.1	14.0°	57.3'	
Adhara	255°05.2	-29°00.7	19	105°31.5	22.9	349°35.1	12.6°	13°31.1	14.0°	57.3'	
Procyon	244°49.8	5°09.4	20	120°31.6	23.7	4°06.7	12.7°	13°17.1	14.1°	57.3'	
Pollux	233°16.1	27°57.8	21	135°31.7	•• 24.5	18°38.4	12.8°	13°03.0	14.2°	57.2'	
Avior	234°14.3	-59°35.9	22	150°31.8	25.3	33°10.1	12.8°	12°48.8	14.1°	57.2'	
Suhail	222°45.5	-43°32.6	23	165°31.9	26.1	47°42.0	12.9°	12°34.7	14.3°	57.2'	
Miaplacidus	221°37.9	-69°49.8									
Alphard	217°46.6	-8°46.5									

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	215°59.0	153°26.5	N21°49.2	202°40.7	N04°42.8	105°53.0	N22°32.7	207°02.5	N01°30.0										
1	231°01.4	168°25.7	49.9	217°41.4	43.6	120°55.1	32.6	222°04.7	30.1										
2	246°03.0	183°25.0	50.5	232°42.1	44.3	135°57.2	32.6	237°06.9	30.2										
3	261°06.4	198°24.3	•• 51.2	247°42.8	•• 45.1	150°59.3	•• 32.6	252°09.1	•• 30.3										
4	276°08.8	213°23.6	51.9	262°43.5	45.9	166°01.4	32.5	267°11.3	30.4										
5	291°11.3	228°22.8	52.5	277°44.2	46.6	181°03.5	32.5	282°13.5	30.5										
6	306°13.8	243°22.1	N21°53.2	292°44.9	N04°47.4	196°05.6	N22°32.4	297°15.7	N01°30.6										
7	321°16.2	258°21.4	53.9	307°45.6	48.1	211°07.7	32.4	312°17.9	30.8										
8	336°18.7	273°20.6	54.5	322°46.3	48.9	226°09.9	32.3	327°20.1	30.9										
9	351°21.2	288°19.9	•• 55.2	337°47.0	•• 49.7	241°12.0	•• 32.3	342°22.3	•• 31.0										
10	6°23.6	303°19.2	55.8	352°47.7	50.4	256°14.1	32.3	357°24.5	31.1										
11	21°26.1	318°18.5	56.5	7°48.4	51.2	271°16.2	32.2	12°26.7	31.2										
12	36°28.6	333°17.7	N21°57.1	22°49.1	N04°51.9	286°18.3	N22°32.2	27°28.9	N01°31.3										
13	51°31.0	348°17.0	57.8	37°49.8	52.7	301°20.4	32.1	42°31.1	31.4										
14	66°33.5	3°16.3	58.4	52°50.4	53.4	316°22.5	32.1	57°33.3	31.5										
15	81°35.9	18°15.5	•• 59.1	67°51.1	•• 54.2	331°24.6	•• 32.0	72°35.5	•• 31.6										
16	96°38.4	33°14.8	21°59.7	82°51.8	55.0	346°26.7	32.0	87°37.7	31.7										
17	111°40.9	48°14.1	N22°00.4	97°52.5	56.5	1°28.8	31.9	102°39.9	31.8										
18	126°43.3	63°13.3	N22°01.0	112°53.2	N04°55.7	16°30.9	N22°31.7	117°42.1	N01°31.9										
19	141°45.8	78°12.6	01.7	127°53.9	57.2	31°33.0	31.9	132°44.3	32.0										
20	156°48.3	93°11.9	02.3	142°54.6	58.0	46°30.1	31.8	147°46.5	32.2										
21	171°50.7	108°11.1	•• 03.0	157°55.3	•• 58.7	61°37.2	•• 31.8	162°48.7	•• 32.3										
22	186°53.2	123°10.4	03.6	172°56.0	04°59.5	76°39.3	31.7	177°50.9	32.4										
23	201°55.7	138°09.7	04.3	187°56.7	05°00.2	91°41.4	31.7	192°53.1	32.5										
Mer.pass. 09:34				ν -0.7° d 0.7' m -3.92				ν 0.7° d 0.8' m 1.22				ν 2.1° d 0.0' m -2.03				ν 2.2° d 0.1' m 0.93			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	216°58.1	153°08.9	N22°04.9	202°57.4	N05°01.0	106°43.5	N22°31.6	207°55.3	N01°32.6										
1	232°00.6	168°08.2	05.6	217°58.1	01.8	121°45.6	31.6	222°57.5	32.7										
2	247°03.0	183°07.5	06.2	232°58.8	02.5	136°47.7	31.5	237°59.7	32.8										
3	262°05.9	198°06.7	•• 06.8	247°59.5	•• 03.3	151°49.8	•• 31.5	253°01.9	•• 32.9										
4	277°08.0	213°06.0	07.5	263°00.2	04.0	166°51.9	31.4	268°04.1	33.0										
5	292°10.4	228°05.3	08.1	278°00.9	04.8	181°54.0	31.4	283°06.3	33.1										
6	307°12.9	243°04.5	N22°08.7	293°01.5	N05°05.5	196°56.1	N22°31.4	298°08.5	N01°33.2										
7	322°15.4	258°03.8	09.4	308°02.2	06.3	211°58.2	31.3	313°10.7	33.3										
8	337°17.8	273°03.1	10.0	323°02.9	07.0	227°00.3	31.3	328°12.9	33.4										
9	352°20.3	288°02.3	•• 10.6	338°03.6	•• 07.8	242°02.4	•• 31.2	343°15.1	•• 33.5										
10	7°22.8	303°01.6	11.3	353°04.3	08.6	257°04.5	31.2	358°17.3	33.7										
11	22°25.2	318°00.8	11.9	8°05.0	09.3	272°06.6	31.1	13°19.5	33.8										
12	37°27.7	333°00.1	N22°12.5	23°05.7	N05°10.1	287°08.7	N22°31.1	28°21.7	N01°33.9										
13	52°30.2	347°59.4	13.2	38°06.4	10.8	302°10.8	31.0	43°23.9	34.0										
14	67°32.6	2°58.6	13.8	53°07.1	11.6	317°12.9	31.0	58°26.1	34.1										
15	82°35.1	17°57.9	•• 14.4	68°07.8	•• 12.3	332°15.0	•• 30.9	73°28.3	•• 34.2										
16	97°37.5	32°57.2	15.0	83°08.5	13.1	347°17.1	30.9	88°30.5	34.3										
17	112°40.0	47°56.4	15.7	98°09.2	13.8	2°19.2	30.9	103°32.7	34.4										
18	127°42.5	62°55.7	N22°16.3	113°09.9	N05°14.6	17°21.3	N22°30.8	118°34.9	N01°34.5										
19	142°44.9	77°54.9	16.9	128°10.6	15.3	32°23.4	30.8	133°37.1	34.6										
20	157°47.4	92°54.2	17.5	143°11.3	16.1	47°25.5	30.7	148°39.3	34.7										
21	172°49.9	107°53.4	•• 18.1	158°12.0	•• 16.9	62°27.6	•• 30.7	163°41.5	•• 34.8										
22	187°52.3	122°52.7	18.8	173°12.6	17.6	77°29.7	30.6	178°43.7	34.9										
23	202°54.8	137°52.0	19.4	188°13.3	18.4	92°31.8	30.6	193°45.9	35.0										
Mer.pass. 09:31				ν -0.7° d 0.6' m -3.92				ν 0.7° d 0.8' m 1.22				ν 2.1° d 0.0' m -2.02				ν 2.2° d 0.1' m 0.93			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	217°57.3	152°51.2	N22°20.0	203°14.0	N05°19.1	107°33.9	N22°30.5	208°48.1	N01°35.1										
1	232°59.7	167°50.5	20.6	218°14.7	19.9	122°36.0	30.5	223°50.3	35.3										
2	248°02.2	182°49.7	21.2	233°15.4	20.6	137°38.1	30.4	238°52.5	35.4										
3	263°04.7	197°49.0	•• 21.8	248°16.1	•• 21.4	152°40.2	•• 30.4	253°54.7	•• 35.5										
4	278°07.1	212°48.2	22.5	263°16.8	22.1	167°42.3	30.3	268°56.9	35.6										
5	293°09.6	227°47.5	23.1	278°17.5	22.9	182°44.3	30.3	283°59.1	35.7										
6	308°12.0	242°46.7	N22°23.7	293°18.2	N05°23.6	197°46.4	N22°30.3	299°01.3	N01°35.8										
7	323°14.5	257°46.0	24.3	308°18.9	24.4	212°48.5	30.2	314°03.5	35.9										
8	338°17.0	272°45.3	24.9	323°19.6	25.1	227°50.6	30.2	329°05.7	36.0										
9	353°19.4	287°44.5	•• 25.5	338°20.3	•• 25.9	242°52.7	•• 30.1	344°07.9	•• 36.1										
10	8°21.9	302°43.8	26.1	353°21.0	26.6	257°54.8	30.1	359°10.1	36.2										
11	23°24.4	317°43.0	26.7	8°21.7	27.4	272°56.9	30.0	14°12.3	36.3										
12	38°26.8	332°42.3	N22°27.3	23°22.4	N05°28.1	287°59.0	N22°30.0	29°14.5	N01°36.4										
13	53°29.3	347°41.5	27.9	38°23.0	28.9	303°01.1	29.9	44°16.7	36.5										
14	68°31.8	2°40.8	28.5	53°23.7	29.6	318°03.2	29.9	59°18.9	36.6										
15	83°34.2	17°40.0	•• 29.1	68°24.4	•• 30.4	333°05.3	•• 29.8	74°21.1	•• 36.7										
16	98°36.7	32°39.3	29.7	83°25.1	31.2	348°07.4	29.8	89°23.3	36.8										
17	113°39.1	47°38.5	30.3	98°25.8	31.9	3°09.5	29.7	104°25.5	37.0										
18	128°41.6	62°37.8	N22°30.9	113°26.5	N05°32.7	18°11.6	N22°29.7	119°27.7	N01°37.1										
19	143°44.1	77°37.0	31.5	128°27.2	33.4	33°13.7	29.7	134°29.9	37.2										
20	158°46.5	92°36.3	32.1	143°27.9	34.2	48°15.7	29.6	149°32.1	37.3										
21	173°49.0	107°35.5	•• 32.7	158°28.6	•• 34.9	63°17.8	•• 29.6	164°34.3	•• 37.4										
22	188°51.5	122°34.8	33.3	173°29.3	35.7	78°19.9	29.5	179°36.5	37.5										
23	203°53.9	137°34.0	33.9	188°30.0	36.4	93°22.0	29.5	194°38.7	37.6										
Mer.pass. 09:27				ν -0.7° d 0.6' m -3.92				ν 0.7° d 0.8' m 1.22				ν 2.1° d 0.0' m -2.02				ν 2.2° d 0.1' m 0.93			

Stars			h			Sun			Moon		
	SHA	Dec	Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°34.0	29°14.0	0	180°36.8	N14°05.3	40°58.8	15.4°	N00°27.5	15.1°	56.0°	
Ankaa	353°06.4	-42°09.7	1	195°36.9	06.0	55°33.2	15.4°	N00°12.4	15.0°	56.0°	
Schedar	349°30.3	56°40.7	2	210°37.0	06.8	70°07.7	15.5°	S00°02.6	15.0°	56.0°	
Diphda	348°46.5	-17°50.5	3	225°37.0	•• 07.6	84°42.2	15.5°	00°17.6	15.0°	55.9°	
Achernar	335°20.0	-57°06.1	4	240°37.1	08.4	99°16.6	15.5°	00°32.6	15.0°	55.9°	
Hamal	327°50.3	23°35.1	5	255°37.2	09.2	113°51.1	15.5°	00°47.6	14.9°	55.9°	
Polaris	313°59.0	89°22.5	6	270°37.3	N14°10.0	128°25.7	15.5°	S01°02.5	15.0°	55.9°	
Acamar	315°11.4	-4°12.0	7	285°37.4	10.8	143°00.2	15.5°	01°17.5	14.9°	55.9°	
Menkar	314°05.4	4°11.5	8	300°37.5	11.5	157°34.7	15.6°	01°32.4	14.9°	55.8°	
Mirafaz	308°27.2	49°57.3	9	315°37.6	•• 12.3	172°09.3	15.6°	01°47.3	14.9°	55.8°	
Aldebaran	290°28.7	16°33.7	10	330°37.7	13.1	186°43.9	15.6°	01°02.2	14.9°	55.8°	
Rigel	281°01.1	-8°10.4	11	345°37.8	13.9	201°18.4	15.6°	02°17.1	14.9°	55.8°	
Capella	280°20.7	46°01.5	12	0°37.9	N14°14.7	215°53.0	15.6°	S02°32.0	14.8°	55.8°	
Bellatrix	278°22.0	6°22.3	13	15°38.0	15.5	230°27.6	15.6°	02°46.8	14.9°	55.7°	
El Nath	278°00.8	28°37.8	14	30°38.1	16.2	245°02.2	15.6°	03°01.7	14.8°	55.7°	
Alnilam	275°36.9	-1°11.2	15	45°38.1	•• 17.0	259°36.8	15.6°	03°16.5	14.8°	55.7°	
Betelgeuse	270°51.2	7°24.7	16	60°38.2	17.8	274°11.4	15.6°	03°31.3	14.7°	55.7°	
Canopus	263°52.2	-52°42.8	17	75°38.3	18.6	288°46.0	15.6°	03°46.0	14.7°	55.7°	
Sirius	258°25.5	-16°45.3	18	90°38.4	N14°19.4	303°20.6	15.6°	S04°00.7	14.8°	55.6°	
Adhara	255°05.2	-29°00.7	19	105°38.5	20.2	317°55.3	15.6°	04°15.5	14.6°	55.6°	
Procyon	244°49.8	5°09.4	20	120°38.6	20.9	332°29.9	15.6°	04°30.1	14.7°	55.6°	
Pollux	243°16.1	27°57.8	21	135°38.7	•• 21.7	347°04.5	15.6°	04°44.8	14.6°	55.6°	
Avior	234°14.4	-59°35.9	22	150°38.8	22.5	1°39.1	15.5°	04°59.4	14.6°	55.6°	
Suhail	222°45.5	-43°32.6	23	165°38.9	23.3	16°13.7	15.6°	05°14.0	14.6°	55.5°	
Miaplacidus	221°38.0	-69°49.8									
Alphard	217°46.7	-8°46.5									

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	218°56.4	152°33.3	N22°34.5	203°30.7	N05°37.2	108°24.1	N22°29.4	209°40.9	N01°37.7					
1	233°58.9	167°32.5	35.1	218°31.4	37.9	123°26.2	29.4	224°43.1	37.8					
2	249°01.3	182°31.8	35.7	233°32.1	38.7	138°28.3	29.3	239°45.3	37.9					
3	264°03.8	197°31.0	36.2	248°32.8	39.4	153°30.4	29.2	254°47.5	38.0					
4	279°06.3	212°30.3	36.8	263°33.5	40.2	168°32.5	29.2	269°49.8	38.1					
5	294°08.7	227°29.5	37.4	278°34.1	40.9	183°34.6	29.2	284°52.0	38.2					
6	309°11.2	242°28.7	N22°38.0	293°34.8	N05°41.7	198°36.6	N22°29.4	299°54.2	N01°38.0					
7	324°13.6	257°28.0	38.6	308°35.5	42.4	213°38.7	29.1	314°56.4	38.4					
8	339°16.1	272°27.2	39.2	323°36.2	43.2	228°40.8	29.0	329°58.6	38.5					
9	354°18.6	287°26.5	40.3	338°36.9	44.3	243°42.9	29.0	345°00.8	38.6					
10	9°21.0	302°25.0	40.7	353°37.6	44.7	258°45.0	28.9	0°03.0	38.7					
11	24°23.5	317°25.0	40.9	8°38.3	45.4	273°47.1	28.9	15°05.2	38.9					
12	39°26.0	332°24.2	N22°41.5	23°39.0	N05°46.2	288°49.2	N22°28.8	30°07.4	N01°39.0					
13	54°28.4	347°23.5	42.1	38°39.7	46.9	303°51.3	28.8	45°09.6	39.1					
14	69°30.9	2°22.7	42.6	53°40.4	47.7	318°53.4	28.8	60°11.8	39.2					
15	84°33.4	17°21.9	43.2	68°41.1	48.3	333°55.4	28.7	75°14.0	39.3					
16	99°35.8	32°21.2	43.8	83°41.8	49.1	348°57.5	28.8	90°16.2	39.4					
17	114°38.3	47°20.4	44.4	98°42.5	49.9	3°59.6	28.6	105°18.4	39.5					
18	129°40.8	62°19.7	N22°44.9	113°43.2	N05°50.6	19°01.7	N22°28.6	120°20.6	N01°39.6					
19	144°43.2	77°18.9	45.5	128°43.8	51.4	34°03.8	28.5	135°22.8	39.7					
20	159°45.7	92°18.1	46.1	143°44.5	52.1	49°05.9	28.5	150°25.0	39.8					
21	174°48.1	107°17.4	46.6	158°45.2	52.9	64°08.0	28.4	165°27.2	39.9					
22	189°50.6	122°16.6	47.2	173°45.9	53.6	79°10.0	28.4	180°29.4	40.0					
23	204°53.1	137°15.9	47.8	188°46.6	54.4	94°12.1	28.3	195°31.6	40.1					
Mer.pass. 09:23 ν -0.8' d 0.6' m -3.92 ν 0.7' d 0.8' m 1.23 ν 2.1' d 0.0' m -2.01 ν 2.2' d 0.1' m 0.93														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	219°55.5	152°15.1	N22°48.3	203°47.3	N05°55.1	109°14.2	N22°28.3	210°33.8	N01°40.2
1	234°58.0	167°14.3	48.9	218°48.0	55.9	124°16.3	28.2	225°36.0	40.3
2	250°05.7	182°13.6	49.5	233°48.7	56.6	139°18.4	28.2	240°38.2	40.4
3	265°02.9	197°12.8	50.0	248°49.4	57.4	154°20.5	28.1	255°40.4	40.5
4	280°05.4	212°12.1	50.6	263°50.1	58.1	169°22.6	28.0	270°42.6	40.6
5	295°07.9	227°11.3	51.1	278°50.8	58.9	184°24.6	28.0	285°44.8	40.7
6	310°10.3	242°10.5	N22°51.7	293°51.5	N05°59.6	199°26.7	N22°28.0	300°47.1	N01°40.8
7	325°12.8	257°09.8	52.3	308°52.2	06°00.4	214°28.8	27.9	315°49.3	40.9
8	340°15.2	272°09.0	52.8	323°52.9	01.1	229°30.9	27.9	330°51.5	41.1
9	355°17.7	287°08.2	53.4	338°53.5	01.9	244°33.0	27.8	345°53.7	41.2
10	10°20.2	302°07.5	53.9	353°54.2	02.6	259°35.1	27.8	0°55.9	41.3
11	25°22.6	317°06.7	54.5	8°54.9	03.3	274°37.1	27.7	15°58.1	41.4
12	40°25.1	332°05.9	N22°55.0	23°55.6	N06°04.1	289°39.2	N22°27.7	31°00.3	N01°41.5
13	55°27.6	347°05.2	55.6	38°56.3	04.8	304°41.3	27.6	46°02.5	41.6
14	70°30.0	2°04.4	56.1	53°57.0	05.6	319°43.4	27.6	61°04.7	41.7
15	85°32.5	17°03.7	56.7	68°57.7	06.3	334°45.5	27.5	76°06.9	41.8
16	100°35.0	32°02.9	57.2	83°58.4	07.1	349°47.6	27.5	91°09.1	41.9
17	115°37.4	47°02.1	57.8	98°59.1	07.8	4°49.6	27.4	106°11.3	42.0
18	130°39.9	62°01.4	N22°58.3	113°59.8	N06°08.6	19°51.7	N22°27.4	121°13.5	N01°42.1
19	145°42.4	77°00.6	58.9	129°00.5	09.3	34°53.8	27.4	136°15.7	42.2
20	160°44.8	91°59.8	59.4	144°01.2	10.1	49°55.9	27.3	151°17.9	42.3
21	175°47.3	106°59.1	59.9	159°01.9	10.8	64°58.0	27.3	166°20.1	42.4
22	190°49.7	121°58.3	60.5	174°02.6	11.5	80°00.0	27.2	181°22.3	42.5
23	205°52.2	136°57.5	01.0	189°03.2	12.3	95°02.1	27.2	196°24.5	42.6
Mer.pass. 09:19 ν -0.8' d 0.6' m -3.92 ν 0.7' d 0.7' m 1.23 ν 2.1' d 0.0' m -2.01 ν 2.2' d 0.1' m 0.93									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	220°54.7	151°56.7	N23°01.6	204°03.9	N06°13.0	110°04.2	N22°27.1	211°26.7	N01°42.7
1	235°57.1	166°56.0	02.1	219°04.6	13.8	125°06.3	27.1	226°29.0	42.8
2	250°59.6	181°55.2	02.6	234°05.3	14.5	140°08.4	27.0	241°31.2	42.9
3	266°02.1	196°54.4	03.2	249°06.0	15.3	155°10.4	27.0	256°33.4	43.0
4	281°04.5	211°53.7	03.7	264°06.7	16.0	170°12.5	26.9	271°35.6	43.1
5	296°07.0	226°52.9	04.2	279°07.4	16.8	185°14.6	26.9	286°37.8	43.2
6	311°09.5	241°52.1	N23°04.8	294°08.1	N06°17.5	200°16.7	N22°26.8	301°40.0	N01°43.3
7	326°11.9	256°51.4	05.3	309°08.8	18.2	215°18.8	26.8	316°42.2	43.5
8	341°14.4	271°50.6	05.8	324°09.5	18.5	230°20.8	26.7	331°44.4	43.6
9	356°16.9	286°49.8	06.4	339°10.2	19.0	245°22.9	26.7	346°46.6	43.7
10	1°19.3	301°49.0	06.9	354°10.9	20.5	260°25.0	26.6	1°48.8	43.8
11	26°21.8	316°48.3	07.4	9°11.6	21.2	275°27.1	26.6	16°51.0	43.9
12	41°24.2	331°47.5	N23°07.9	24°12.2	N06°22.0	290°29.1	N22°26.5	31°53.2	N01°44.0
13	56°26.7	346°46.7	08.5	39°12.9	22.7	305°31.2	26.5	46°55.4	44.1
14	71°29.2	1°45.9	09.0	54°13.6	23.4	320°33.3	26.4	61°57.6	44.2
15	86°31.6	16°45.2	09.5	69°14.3	24.2	335°35.4	26.4	76°59.8	44.3
16	101°34.1	31°44.4	10.0	84°15.0	24.9	350°37.5	26.3	92°02.0	44.4
17	116°36.6	46°43.6	10.6	99°15.7	25.7	5°39.5	26.3	107°04.3	44.5
18	131°39.0	61°42.8	N23°11.1	114°16.4	N06°26.4	20°41.6	N22°26.2	122°06.5	N01°44.6
19	146°41.5	76°42.1	11.6	129°17.1	27.2	35°43.7	26.2	137°08.7	44.7
20	161°44.0	91°41.3	12.1	144°17.8	27.9	50°45.8	26.1	152°10.9	44.8
21	176°46.4	106°40.5	12.6	159°18.5	28.6	65°47.8	26.1	167°13.1	44.9
22	191°48.9	121°39.7	13.1	174°19.2	29.4	80°49.9	26.0	182°15.3	45.0
23	206°51.3	136°39.0	13.6	189°19.9	30.1	95°52.0	26.0	197°17.5	45.1
Mer.pass. 09:15 ν -0.8' d 0.5' m -3.92 ν 0.7' d 0.7' m 1.23 ν 2.1' d 0.0' m -2.00 ν 2.2' d 0.1' m 0.93									

Stars		
	SHA	Dec
Alpheratz	357°34.0	29°14.0
Ankaa	353°06.4	-42°09.7
Schedar	349°30.3	56°40.7
Diphda	348°46.5	-17°50.5
Achernar	335°19.9	-57°06.1
Hamal	327°50.3	23°35.1
Polaris	313°58.9	89°22.5
Acamar	315°11.4	-40°12.0
Menkar	314°05.4	4°11.5
Mirfak	308°27.2	49°57.3
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.4
Capella	280°20.7	46°01.5
Bellatrix	278°22.0	6°22.3
Elath	278°08.0	28°37.8
Alnilam	275°36.9	-1°11.2
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.3	-52°42.8
Sirius	258°25.5	-16°45.3
Adhara	255°05.2	-29°00.7
Procyon	244°49.8	5°09.4
Pollux	243°16.1	27°57.8
Avior	234°14.4	-59°35.9
Suhail	222°45.5	-43°32.6
Miaplacidus	221°38.0	-69°49.8
Alphard	217°46.7	-8°46.5
Regulus	207°33.2	11°50.2
Dubhe	193°39.3	61°36.7
Denebola	182°23.6	14°25.4
Geniah	175°42.2	-17°41.5
Acrux	172°58.6	-63°15.1
Gacrux	171°50.0	-57°15.9
Alioth	166°11.5	55°49.0
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°10.9
Hadar	148°33.9	-60°30.1
Menkent	147°56.0	-36°30.1
Arcturus	145°46.6	19°02.6
Rigel Kent.	139°38.2	-60°56.7
Kochab	137°18.6	74°02.7
Zuben'ubi	136°54.5	-16°09.2
Alphecca	126°02.5	26°37.4
Antares	112°14.2	-26°29.5
Atria	107°07.0	-69°04.4
Sabik	102°01.3	-15°45.5
Shaula	96°08.6	-37°07.3
Rasalhague	95°57.3	12°32.3
Eltanin	90°41.3	51°28.8
Kaus Aust.	83°30.9	-34°22.2
Vega	80°32.3	38°48.2
Nunki	75°46.3	-26°15.8
Altair	61°58.8	8°56.1
Peacock	53°04.0	-56°38.8
Deneb	49°25.1	45°22.1
Enif	33°37.8	9°59.6
Al Na'ir	27°31.7	-46°49.8
Fomalhaut	15°13.5	-29°28.9
Scheat	13°44.4	28°13.3
Markab	13°29.0	15°20.7
May 01 Fri	SHA	Mer.pas.
Venus	293°36.9	13.50
Mars	344°34.3	10.25
Jupiter	249°27.7	16.44
Saturn	350°44.5	10.00
May 02 Sat	SHA	Mer.pas.
Venus	292°19.6	13.52
Mars	343°51.8	10.24
Jupiter	249°18.7	16.41
Saturn	350°38.3	09.56
May 03 Sun	SHA	Mer.pas.
Venus	291°02.1	13.53
Mars	343°09.3	10.23
Jupiter	249°09.5	16.37
Saturn	350°32.1	09.53
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	221°53.8	151°38.2	N23°14.2	204°20.6	N06°30.9	110°54.1	N22°25.9	212°19.7	N01°45.2					
1	236°56.3	166°37.4	14.7	219°21.2	31.6	125°56.1	25.9	227°21.9	45.3					
2	251°58.7	181°36.6	15.2	234°21.9	32.3	140°58.2	25.8	242°24.1	45.4					
3	267°01.2	196°35.9	.. 15.7	249°22.6	.. 33.1	156°00.3	.. 25.8	257°26.3	.. 45.5					
4	282°03.7	211°35.1	16.2	264°23.3	33.8	171°02.4	25.7	272°28.5	45.6					
5	297°06.1	226°34.3	16.7	279°24.0	34.6	186°04.4	25.7	287°30.7	45.7					
6	312°08.6	241°33.5	N23°17.2	294°24.7	N06°35.3	201°06.5	N22°25.6	302°32.9	N01°45.8					
7	327°11.1	256°32.7	17.7	309°25.4	36.0	216°08.6	25.6	317°35.2	45.9					
8	342°13.5	271°32.0	18.2	324°26.1	36.8	231°10.7	25.5	332°37.4	46.0					
9	357°16.0	286°31.2	.. 18.7	339°26.8	.. 37.5	246°12.7	.. 25.5	347°39.6	.. 46.1					
10	12°18.5	301°30.4	19.2	354°27.5	42.3	261°14.8	25.8	2°41.8	46.2					
11	27°20.9	316°29.6	19.7	9°28.2	39.0	276°16.9	25.4	17°44.0	46.3					
12	42°23.4	331°28.8	N23°20.2	24°28.9	N06°39.7	291°18.9	N22°25.3	32°46.2	N01°46.4					
13	57°25.8	346°28.1	20.7	39°29.6	40.5	306°21.0	25.3	47°48.4	46.6					
14	72°28.3	1°27.3	21.2	54°30.2	41.2	321°23.1	25.2	62°50.6	46.7					
15	87°30.8	16°26.5	.. 21.7	69°30.9	.. 42.0	336°25.2	.. 25.2	77°52.8	.. 46.8					
16	102°33.2	31°25.7	22.2	84°31.6	42.7	351°27.2	25.1	92°55.0	46.9					
17	117°35.7	46°24.9	22.7	99°32.3	43.4	6°29.3	25.1	107°57.2	47.0					
18	132°38.2	61°24.2	N23°23.2	114°33.0	N06°44.2	21°31.4	N22°25.0	122°59.4	N01°47.1					
19	147°40.6	76°23.4	23.7	129°33.7	44.9	36°33.4	25.0	138°01.7	47.2					
20	162°43.1	91°22.6	24.2	144°34.4	45.7	51°35.5	24.9	153°03.9	47.3					
21	177°45.6	106°21.8	.. 24.6	159°35.1	.. 46.4	66°37.6	.. 24.8	168°06.1	.. 47.4					
22	192°48.0	121°21.0	25.1	174°35.8	47.1	81°39.7	24.8	183°08.3	47.5					
23	207°50.5	136°20.2	25.6	189°36.5	47.9	96°41.7	24.7	198°10.5	47.6					
Mer.pass. 09:11			ν -0.8° d 0.5' m -3.92	ν 0.7° d 0.7' m 1.23	ν 2.1° d 0.1' m -2.00	ν 2.2° d 0.1' m 0.93								

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	222°53.0	151°19.5	N23°26.1	204°37.2	N06°48.6	111°43.8	N22°24.7	213°12.7	N01°47.7
1	237°55.4	166°18.7	26.6	219°37.9	49.3	126°45.9	24.6	228°14.9	47.8
2	252°57.9	181°17.9	27.1	234°38.5	50.1	141°47.9	24.6	243°17.1	47.9
3	268°00.3	196°17.1	.. 27.6	249°39.2	.. 50.8	156°50.0	.. 24.5	258°19.3	.. 48.0
4	283°02.8	211°16.3	28.0	264°39.9	51.6	171°52.1	24.5	273°21.5	48.1
5	298°05.3	226°15.5	28.5	279°40.6	52.3	186°54.1	24.4	288°23.7	48.2
6	313°07.7	241°14.7	N23°29.0	294°41.3	N06°53.0	201°56.2	N22°24.4	303°26.0	N01°48.3
7	328°10.2	256°14.0	29.5	309°42.0	53.8	216°58.3	24.3	318°28.2	48.4
8	343°12.7	271°13.2	29.9	324°42.7	54.5	232°00.4	24.3	333°30.4	48.5
9	358°15.1	286°12.4	.. 30.4	339°43.4	.. 55.2	247°02.4	.. 24.2	348°32.6	.. 48.6
10	13°17.6	301°11.6	30.9	354°44.1	56.0	262°04.5	24.2	3°34.8	48.7
11	28°20.1	316°10.8	31.4	9°44.8	56.7	277°06.6	24.1	18°37.0	48.8
12	43°22.5	331°10.0	N23°31.8	24°45.5	N06°57.5	292°08.6	N22°24.1	33°39.2	N01°48.9
13	58°25.0	346°09.2	32.3	39°46.1	58.2	307°10.7	24.0	48°41.4	49.0
14	73°27.5	1°08.4	32.8	54°46.8	58.9	322°12.8	24.0	63°43.6	49.1
15	88°29.9	16°07.7	.. 33.2	69°47.5	66°59.7	337°14.8	.. 23.9	78°45.8	.. 49.2
16	103°32.4	31°06.9	33.7	84°48.2	67°00.4	352°16.9	23.9	93°48.0	49.3
17	118°34.8	46°06.1	34.2	99°48.9	67.1	7°19.0	23.8	108°50.3	49.4
18	133°37.3	61°05.3	N23°34.6	114°49.6	N07°01.9	22°21.0	N22°23.8	123°52.5	N01°49.5
19	148°39.8	76°04.5	35.1	129°50.3	62.6	37°23.1	23.7	138°54.7	49.6
20	163°42.2	91°03.7	35.6	144°51.0	63.3	52°25.2	23.7	153°56.9	49.7
21	178°44.7	106°02.9	.. 36.0	159°51.7	.. 64.1	67°27.2	.. 23.6	168°59.1	.. 49.8
22	193°47.2	121°02.1	36.5	174°52.4	64.8	82°29.3	23.6	184°01.3	49.9
23	208°49.6	136°01.3	36.9	189°53.1	65.5	97°31.4	23.5	199°03.5	50.0
Mer.pass. 09:07			ν -0.8° d 0.5' m -3.92	ν 0.7° d 0.7' m 1.23	ν 2.1° d 0.1' m -1.99	ν 2.2° d 0.1' m 0.92			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	223°52.1	151°00.5	N23°37.4	204°53.7	N07°06.3	112°33.4	N22°23.5	214°05.7	N01°50.1
1	238°54.6	166°59.7	37.9	219°54.4	67.0	127°35.5	23.4	229°07.9	50.2
2	253°57.0	180°59.0	38.3	234°55.1	67.7	142°37.6	23.3	244°10.1	50.3
3	268°59.5	195°58.2	.. 38.8	249°55.8	.. 68.5	157°39.6	.. 23.3	259°12.4	.. 50.4
4	284°02.0	210°57.4	39.2	264°56.5	69.2	172°41.7	23.2	274°14.6	50.5
5	299°04.4	225°56.6	39.7	279°57.2	69.9	187°43.7	23.2	289°16.8	50.6
6	314°06.9	240°55.8	N23°40.1	294°57.9	N07°10.7	202°45.8	N22°23.1	304°19.0	N01°50.7
7	329°09.3	255°55.0	40.6	309°58.6	11.4	217°47.9	23.1	319°21.2	50.8
8	344°11.8	270°54.2	41.0	324°59.3	12.1	232°49.9	23.0	334°23.4	50.9
9	359°14.3	285°53.4	.. 41.5	340°00.7	.. 12.9	247°52.0	.. 23.0	349°25.6	.. 51.0
10	14°16.7	300°52.6	41.9	355°00.7	13.6	262°54.1	22.9	4°27.8	51.1
11	29°19.2	315°51.8	42.4	10°01.3	14.3	277°56.1	22.9	19°30.0	51.2
12	44°21.7	330°51.0	N23°42.8	25°02.0	N07°15.1	292°58.2	N22°22.8	34°32.3	N01°51.3
13	59°24.1	345°50.2	43.2	40°02.7	15.8	308°00.3	22.8	49°34.5	51.4
14	74°26.6	0°49.4	43.7	55°03.4	16.5	323°02.3	22.7	64°36.7	51.5
15	89°29.1	15°48.6	.. 44.1	70°04.1	.. 17.3	338°04.4	.. 22.7	79°38.9	.. 51.6
16	104°31.5	30°47.8	44.6	85°04.8	18.0	353°06.4	22.6	94°41.1	51.8
17	119°34.0	45°47.0	45.0	100°05.5	18.7	8°08.5	22.6	109°43.3	51.9
18	134°36.4	60°46.2	N23°45.4	115°06.2	N07°19.5	23°10.6	N22°22.5	124°45.5	N01°52.0
19	149°38.9	75°45.5	45.9	130°06.9	20.2	38°12.6	22.5	139°47.7	52.1
20	164°41.4	90°44.7	46.3	145°07.6	20.9	53°14.7	22.4	154°50.0	52.2
21	179°43.8	105°43.9	.. 46.7	160°08.2	.. 21.7	68°16.7	.. 22.3	169°52.2	.. 52.3
22	194°46.3	120°43.1	47.2	175°08.9	22.4	83°18.8	22.3	184°54.4	52.4
23	209°48.8	135°42.3	47.6	190°09.6	23.1	98°20.9	22.2	199°56.6	52.5
Mer.pass. 09:03			ν -0.8° d 0.5' m -3.92	ν 0.7° d 0.7' m 1.23	ν 2.1° d 0.1' m -1.99	ν 2.2° d 0.1' m 0.92			

Stars			h			Sun			Moon		
	SHA	Dec	Mon	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.9	29°14.0	0	180°47.9	N15°54.4	335°49.2	10.7°	S26°42.7	4.6'	54.0'	
Ankaa	353°06.4	-42°09.7	1	195°48.0	55.1	350°18.8	10.6°	26°47.3	4.5'	54.0'	
Schedar	349°30.3	56°40.7	2	210°48.0	55.8	4°48.4	10.6°	26°51.8	4.4'	54.0'	
Diphda	348°46.5	-17°50.5	3	225°48.1	.. 56.6	19°18.0	10.5°	26°56.2	4.2'	54.0'	
Achernar	335°19.9	-57°06.1	4	240°48.1	57.3	33°47.6	10.5°	27°00.4	4.2'	54.0'	
Hamal	327°50.3	23°35.1	5	255°48.2	58.0	48°17.1	10.5°	27°04.6	4.0'	54.0'	
Polaris	313°58.6	89°22.5	6	270°48.2	N15°58.7	62°46.5	10.4°	S27°08.6	3.8'	54.0'	
Acamar	315°11.4	-40°12.0	7	285°48.3	15°59.5	77°16.0	10.4°	27°12.4	3.8'	54.0'	
Menkar	314°05.4	4°11.5	8	300°48.4	16°00.2	91°45.4	10.4°	27°16.2	3.6'	54.0'	
Mirfak	308°27.2	49°57.2	9	315°48.4	.. 00.9	106°14.8	10.4°	27°19.8	3.5'	54.0'	
Aldebaran	290°38.7	16°33.7	10	330°48.5	01.6	120°44.1	10.3°	27°23.3	3.3'	54.0'	
Rigel	281°03.1	-8°10.4	11	345°48.5	02.4	135°13.5	10.3°	27°26.6	3.2'	54.0'	
Capella	280°20.7	46°01.5	12	0°48.6	N16°03.1	149°42.8	10.3°	S27°29.8	3.1'	54.0'	
Bellatrix	278°22.0	6°22.3	13	15°48.7	03.8	164°12.0	10.2°	27°32.9	2.9'	54.0'	
Elnath	278°00.8	28°37.8	14	30°48.7	04.5	178°41.3	10.2°	27°35.8	2.9'	54.0'	
Anilam	275°36.9	-11°11.2	15	45°48.8	.. 05.2	193°10.5	10.2°	27°38.7	2.6'	54.0'	
Betelgeuse	270°51.2	7°24.7	16	60°48.8	06.0	207°39.7	10.2°	27°41.3	2.6'	54.0'	
Canopus	263°52.3	-52°48.2	17	75°48.9	06.7	222°08.9	10.2°	27°43.9	2.4'	54.0'	
Sirius	258°25.5	-16°45.3	18	90°48.9	N16°07.4	236°38.0	10.1°	S27°46.3	2.3'	54.0'	
Adhara	255°05.2	-29°00.7	19	105°49.0	08.1	251°07.2	10.1°	27°48.6	2.1'	54.0'	
Procyon	244°49.8	5°09.4	20	120°49.0	08.8	265°36.3	10.1°	27°50.7	2.0'	54.0'	
Pollux	234°16.1	27°57.8	21	135°49.1	.. 09.5	280°05.4	10.1°	27°52.7	1.9'	54.0'	
Ahvor	234°14.4	-59°35.9	22	150°49.2	10.3	294°34.4	10.1°	27°56.4	1.8'	54.0'	
Suiul	222°45.5	-43°32.6	23	165°49.2	11.0	309°03.5	10.0°	27°56.4	1.6'	54.0'	
Miaplacidus	221°38.1	-69°49.8									
Albhard	217°46.7	-8°46.5									

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	224°51.2	150°41.5	N23°48.0	205°10.3	N07°23.9	113°22.9	N22°22.2	214°58.8	N01°52.6										
1	239°53.7	165°40.7	48.5	220°11.0	24.6	128°25.0	22.1	230°01.0	52.7										
2	254°56.2	180°39.9	48.9	235°11.7	25.3	143°27.0	22.1	245°03.2	52.8										
3	269°58.6	195°39.1	· · 49.3	250°12.4	· · 26.1	158°29.1	· · 22.0	260°05.4	· · 52.9										
4	285°01.1	210°38.3	49.7	265°13.1	26.8	173°31.2	22.0	275°07.6	53.0										
5	300°03.6	225°37.5	50.2	280°13.8	27.2	188°33.2	21.9	290°09.9	53.1										
6	315°06.0	240°36.7	N23°50.6	295°14.5	N07°28.5	203°35.3	N22°21.9	305°12.1	N01°53.2										
7	330°08.5	255°35.9	51.0	310°15.1	29.0	218°37.3	21.8	320°14.3	53.3										
8	345°10.9	270°35.1	51.4	325°15.8	29.7	233°39.4	21.8	335°16.5	53.4										
9	0°13.4	285°34.3	· · 51.9	340°16.5	· · 30.4	248°41.5	· · 21.7	350°18.7	· · 53.5										
10	15°15.9	300°33.5	52.3	355°17.2	31.2	263°43.5	21.7	5°20.9	53.6										
11	30°18.3	315°32.7	52.7	10°17.9	31.9	278°45.6	21.6	20°23.1	53.7										
12	45°20.8	330°31.9	N23°53.1	25°18.6	N07°32.6	293°47.6	N22°21.5	35°25.3	N01°53.8										
13	60°23.3	345°31.1	53.5	40°19.3	33.4	308°49.7	21.5	50°27.6	53.9										
14	75°25.7	· 0°30.3	53.9	55°20.0	34.1	323°51.7	21.4	65°29.8	54.0										
15	90°28.2	15°29.5	· · 54.3	70°20.7	· · 34.8	338°53.8	· · 21.4	80°32.0	· · 54.1										
16	105°30.7	30°28.7	54.8	85°21.4	35.5	353°55.9	21.3	95°34.2	54.2										
17	120°33.1	45°27.9	55.2	100°22.0	36.3	8°57.9	21.3	110°36.4	54.3										
18	135°35.6	60°27.1	N23°55.6	115°22.7	N07°37.3	24°00.0	N22°21.2	125°38.6	N01°54.4										
19	150°38.1	75°26.3	56.0	130°23.4	37.7	39°02.0	21.2	140°40.8	54.5										
20	165°40.5	90°25.5	56.4	145°24.1	38.5	54°04.1	21.1	155°43.1	54.6										
21	180°43.0	105°24.7	· · 56.8	160°24.5	· · 39.2	69°06.1	· · 21.1	170°45.3	· · 54.7										
22	195°45.4	120°23.8	57.2	175°25.5	39.9	84°08.2	21.0	185°47.5	54.8										
23	210°47.9	135°23.0	57.6	190°26.2	40.6	99°10.3	20.9	200°49.7	54.9										
Mer.pass. 08:59				ν -0.8' d 0.4' m -3.92				ν 0.7' d 0.7' m 1.23				ν 2.1' d 0.1' m -1.98				ν 2.2' d 0.1' m 0.92			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	225°50.4	150°22.2	N23°58.0	205°26.9	N07°41.4	114°12.3	N22°20.9	215°51.9	N01°55.0										
1	240°52.8	165°21.4	58.4	220°27.6	42.1	129°14.4	20.8	230°54.1	55.1										
2	255°55.3	180°20.6	58.8	235°28.3	42.8	144°16.4	20.8	245°56.3	55.2										
3	270°57.8	195°19.8	· · 59.2	250°28.9	· · 43.5	159°18.5	· · 20.7	260°58.6	· · 55.3										
4	286°00.2	210°19.0	23°59.6	265°29.6	44.3	174°20.5	20.7	276°00.8	55.4										
5	301°02.7	225°18.2	24°00.0	280°30.3	45.0	189°22.6	20.6	291°03.0	55.5										
6	316°05.2	240°17.4	N24°00.4	295°31.0	N07°45.7	204°24.6	N22°20.6	306°05.2	N01°55.6										
7	331°07.6	255°16.6	00.8	310°31.7	46.5	219°26.7	20.5	321°07.4	55.7										
8	346°10.1	270°15.8	01.2	325°32.4	47.2	234°28.7	20.5	336°09.6	55.8										
9	1°12.6	285°15.0	· · 01.6	340°33.1	· · 47.9	249°30.8	· · 20.4	351°11.8	· · 55.9										
10	16°15.0	300°14.2	02.0	355°33.8	48.6	264°32.9	20.3	6°14.1	56.0										
11	31°17.5	315°13.4	02.3	10°34.5	49.4	279°34.9	20.3	21°16.3	56.1										
12	46°19.9	330°12.6	N24°02.7	25°35.1	N07°50.1	294°37.0	N22°20.2	36°18.5	N01°56.2										
13	61°22.4	345°11.8	03.1	40°35.8	50.8	309°39.0	20.2	51°20.7	56.3										
14	76°24.9	· 0°11.0	03.5	55°36.5	51.5	324°41.1	20.1	66°22.9	56.4										
15	91°27.3	15°10.2	· · 03.9	70°37.2	· · 52.3	339°43.1	· · 20.1	81°25.1	· · 56.5										
16	106°29.8	30°09.3	04.3	85°37.9	53.0	354°45.2	20.0	96°27.3	56.6										
17	121°32.3	45°08.5	04.7	100°38.6	53.7	9°47.2	20.0	111°29.6	56.7										
18	136°34.7	60°07.7	N24°05.0	115°39.3	N07°54.4	24°49.3	N22°19.9	126°31.8	N01°56.8										
19	151°37.2	75°06.9	05.4	130°40.0	55.2	39°51.3	19.9	141°34.0	56.9										
20	166°39.7	90°06.1	05.8	145°40.7	55.9	54°53.4	19.8	156°36.2	57.0										
21	181°42.1	105°05.3	· · 06.2	160°41.3	· · 56.6	69°55.4	· · 19.7	171°38.4	· · 57.1										
22	196°44.6	120°04.5	06.5	175°42.0	57.3	84°57.5	19.7	186°40.6	57.2										
23	211°47.1	135°03.7	06.9	190°42.7	58.1	99°59.5	19.6	201°42.8	57.3										
Mer.pass. 08:55				ν -0.8' d 0.4' m -3.92				ν 0.7' d 0.7' m 1.24				ν 2.1' d 0.1' m -1.98				ν 2.2' d 0.1' m 0.92			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	226°49.5	150°02.9	N24°07.3	205°43.4	N07°58.8	115°01.6	N22°19.6	216°45.1	N01°57.4
1	241°52.0	165°02.1	07.7	220°44.1	07°59.5	130°03.6	19.5	231°47.3	57.4
2	256°54.4	180°01.3	08.0	235°44.8	08°00.2	145°05.7	19.5	246°49.5	57.5
3	271°56.9	195°00.4	· · 08.4	250°45.5	· · 00.9	160°07.7	· · 19.4	261°51.7	· · 57.6
4	286°59.4	209°59.6	08.8	265°46.2	01.7	175°09.8	19.4	276°53.9	57.7
5	302°01.8	224°58.8	09.1	280°46.8	02.4	190°11.8	19.3	291°56.1	57.8
6	317°04.3	239°58.0	N24°09.5	295°47.5	N08°03.1	205°13.9	N22°19.2	306°58.4	N01°57.9
7	332°06.8	254°57.2	09.9	310°48.2	03.8	220°15.9	19.2	322°00.6	58.0
8	347°09.2	269°56.4	10.2	325°48.9	04.6	235°18.0	19.1	337°02.8	58.1
9	2°11.7	284°55.6	· · 10.6	340°49.6	· · 05.3	250°20.0	· · 19.1	352°05.0	· · 58.2
10	17°14.2	299°54.8	11.0	355°50.3	06.0	265°22.1	19.0	7°07.2	58.3
11	32°16.6	314°54.0	11.3	10°51.0	06.7	280°24.1	19.0	22°09.4	58.4
12	47°19.1	329°53.1	N24°11.7	25°51.7	N08°07.5	295°26.2	N22°18.9	37°11.7	N01°58.5
13	62°21.5	344°52.3	12.0	40°52.4	08.2	310°28.2	18.9	52°13.9	58.6
14	77°24.0	359°51.5	12.4	55°53.0	08.9	325°30.3	18.8	67°16.1	58.7
15	92°26.5	14°50.7	· · 12.8	70°53.7	· · 09.6	340°32.3	· · 18.7	82°18.3	· · 58.8
16	107°28.9	29°49.9	13.1	85°54.4	10.3	355°34.4	18.7	97°20.5	58.9
17	122°31.4	44°49.1	13.5	100°55.1	11.1	10°36.4	18.6	112°22.7	59.0
18	137°33.9	59°48.3	N24°13.8	115°55.8	N08°11.8	25°38.5	N22°18.6	127°25.0	N01°59.1
19	152°36.3	74°47.5	14.2	130°56.5	12.5	40°40.5	18.5	142°27.2	59.2
20	167°38.8	89°46.6	14.5	145°57.2	13.2	55°42.6	18.5	157°29.4	59.3
21	182°41.3	104°45.8	· · 14.9	160°57.9	· · 13.9	70°44.6	· · 18.4	172°31.6	· · 59.4
22	197°43.7	119°45.0	15.2	175°58.5	14.7	85°46.7	18.3	187°33.8	59.5
23	212°46.2	134°44.2	15.6	190°59.2	15.4	100°48.7	18.3	202°36.0	59.6
Mer.pass. 08:51 ν -0.8' d 0.4' m -3.92 ν 0.7' d 0.7' m 1.24 ν 2.1' d 0.1' m -1.97 ν 2.2' d 0.1' m 0.92									

Stars	SHA	Dec
Alpheratz	357°33.9	29°14.0
Ankaa	353°06.4	-42°09.6
Schedar	349°30.3	56°40.7
Diphda	348°46.5	-17°50.5
Achernar	335°19.9	-57°06.1
Hamal	327°50.3	23°35.1
Polaris	313°58.4	89°22.5
Acamar	315°11.4	-40°11.9
Menkar	314°05.3	4°11.5
Mirafak	308°27.2	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.4
Capella	280°20.7	46°01.5
Bellatrix	278°22.0	6°22.4
Elath	278°00.8	28°37.8
Alnilam	275°36.9	-1°11.2
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.3	-52°42.8
Sirius	258°25.5	-16°45.3
Adhara	255°05.2	-29°00.7
Procyon	244°49.8	5°09.4
Pollux	243°16.1	27°57.8
Avior	234°14.5	-59°35.9
Suhail	222°45.5	-43°32.6
Miaplacidus	221°38.1	-69°49.8
Alphard	217°46.7	-8°46.5
Regulus	207°33.2	11°50.2
Dubhe	193°39.4	61°36.7
Denebola	182°23.6	14°25.4
Gienah	175°42.2	-17°41.5
Acrux	172°58.4	-63°15.0
Gacrux	171°50.0	-57°15.9
Alloth	166°11.5	-55°49.1
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°10.9
Headar	148°33.8	-16°30.2
Menkar	147°56.0	-36°30.1
Arcturus	145°46.6	19°02.6
Rigil Kent.	139°38.1	-60°56.8
Kochab	137°18.6	74°02.8
Zuben'ubi	136°54.5	-16°09.2
Alphecca	126°02.5	26°37.4
Antares	112°14.2	-26°29.5
Atria	107°06.9	-69°04.4

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	227°48.7	149°43.4	N24°15.9	205°59.9	N08°16.1	115°50.7	N22°18.2	217°38.3	N01°59.7					
1	242°51.1	164°42.6	16.3	221°00.6	16.8	130°52.8	18.2	232°40.5	59.8					
2	257°53.6	179°41.8	16.6	236°01.3	17.5	145°54.8	18.1	247°42.7	01°59.9					
3	272°56.0	194°40.9	•• 16.9	251°02.0	•• 18.3	160°56.9	•• 18.1	262°44.9	02°00.0					
4	287°58.5	209°40.1	17.3	266°02.7	19.0	175°58.9	•• 18.0	277°47.1	00.1					
5	303°01.0	224°39.3	17.6	281°03.4	19.7	191°01.0	17.9	292°49.3	00.2					
6	318°03.4	239°38.5	N24°18.0	296°04.0	N08°20.4	206°03.0	N22°17.6	307°51.6	N02°00.3					
7	333°05.9	254°37.7	18.3	311°04.7	21.1	221°05.1	17.8	322°53.8	00.4					
8	348°08.4	269°36.9	18.6	326°05.4	21.9	236°07.1	17.8	337°56.0	00.5					
9	3°10.8	284°36.0	•• 19.0	341°06.1	•• 22.6	251°09.2	•• 17.7	352°58.2	•• 00.6					
10	18°13.3	299°35.2	19.3	356°06.8	23.3	266°11.2	17.7	8°00.4	00.7					
11	33°15.8	314°34.4	19.6	11°07.5	24.0	281°13.2	17.6	23°02.6	00.8					
12	48°18.2	329°33.6	N24°20.0	26°08.2	N08°24.7	296°15.3	N22°17.6	38°04.9	N02°00.9					
13	63°20.7	344°32.8	20.3	41°08.9	25.4	311°17.3	17.5	53°07.1	01.0					
14	78°23.2	359°32.0	20.6	56°09.5	26.2	326°19.4	17.4	68°09.3	01.1					
15	93°25.6	14°31.1	•• 21.0	71°10.2	•• 26.9	341°21.4	•• 17.4	83°11.5	•• 01.2					
16	108°28.1	29°30.3	21.3	86°10.9	27.6	356°23.5	17.3	98°13.7	01.3					
17	123°30.5	44°29.5	21.6	101°11.6	28.3	11°25.5	17.3	113°16.0	01.4					
18	138°33.0	59°28.7	N24°21.9	116°12.3	N08°29.0	26°27.5	N22°17.2	128°18.2	N02°01.5					
19	153°35.5	74°27.9	22.2	131°13.0	29.7	41°29.6	17.2	143°20.4	01.6					
20	168°37.9	89°27.0	22.6	146°13.7	30.5	56°31.6	17.1	158°22.6	01.7					
21	183°40.9	104°26.2	•• 22.9	161°14.3	•• 31.2	71°33.7	•• 17.0	173°24.8	•• 01.8					
22	198°42.9	119°25.4	23.2	176°15.0	31.9	86°35.7	17.0	188°27.1	01.9					
23	213°45.3	134°24.6	23.5	191°15.7	32.6	101°37.8	16.9	203°29.3	02.0					
Mer.pass. 08:47			ν -0.8° d 0.3' m -3.92			ν 0.7° d 0.7' m 1.24			ν 2.0° d 0.1' m -1.97			ν 2.2° d 0.1' m 0.92		

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	228°47.8	149°23.8	N24°23.8	206°16.4	N08°33.3	116°39.8	N22°16.9	218°31.5	N02°02.1
1	243°50.3	164°23.0	24.2	221°17.1	34.0	131°41.8	16.8	233°33.7	02.2
2	258°52.7	179°22.1	24.5	236°17.8	34.8	146°43.9	16.7	248°35.9	02.2
3	273°55.2	194°21.3	•• 24.8	251°18.5	•• 35.5	161°45.9	•• 16.7	263°38.1	•• 02.3
4	288°57.6	209°20.5	25.1	266°19.2	36.2	176°48.0	16.6	278°40.4	02.4
5	304°00.1	224°19.7	25.4	281°19.8	36.9	191°50.0	16.6	293°42.6	02.5
6	319°02.6	239°18.9	N24°25.7	296°20.5	N08°37.6	206°52.0	N22°16.5	308°44.8	N02°02.6
7	334°05.0	254°18.0	26.0	311°21.2	38.3	221°54.1	16.5	323°47.0	02.7
8	349°07.5	269°17.2	26.3	326°21.9	39.0	236°56.1	16.4	338°49.2	02.8
9	4°10.0	284°16.4	•• 26.6	341°22.6	•• 39.8	251°58.2	•• 16.3	353°51.5	•• 02.9
10	19°12.4	299°15.6	26.9	356°23.3	40.5	267°00.2	16.3	8°53.7	03.0
11	34°14.9	314°14.8	27.3	11°24.0	41.2	282°02.2	16.2	23°55.9	03.1
12	49°17.4	329°13.9	N24°27.6	26°24.6	N08°41.9	297°04.3	N22°16.2	38°58.1	N02°03.2
13	64°19.8	344°13.1	27.9	41°25.3	42.6	312°06.3	16.1	54°00.3	03.3
14	79°22.3	359°12.3	28.2	56°26.0	43.3	327°08.4	16.1	69°02.6	03.4
15	94°24.8	14°11.5	•• 28.5	71°26.7	•• 44.0	342°10.4	•• 16.0	84°04.8	•• 03.5
16	109°27.2	29°10.6	28.7	86°27.4	44.8	357°12.4	15.9	99°07.0	03.6
17	124°29.7	44°09.8	29.0	101°28.1	45.5	12°14.5	15.9	114°09.2	03.7
18	139°32.1	59°09.0	N24°29.3	116°28.8	N08°46.2	27°16.5	N22°15.8	129°11.4	N02°03.8
19	154°34.6	74°08.2	29.6	131°29.4	46.9	42°18.6	15.8	144°13.7	03.9
20	169°37.1	89°07.4	29.9	146°30.1	47.6	57°20.6	15.7	159°15.9	04.0
21	184°39.5	104°06.5	•• 30.2	161°30.8	•• 48.3	72°22.6	•• 15.6	174°18.1	•• 04.1
22	199°42.0	119°05.7	30.5	176°31.5	49.0	87°24.7	15.6	189°20.3	04.2
23	214°44.5	134°04.9	30.8	191°32.2	49.7	102°26.7	15.5	204°22.5	04.3
Mer.pass. 08:43 ν -0.8° d 0.3' m -3.92 ν 0.7° d 0.7' m 1.24 ν 2.0° d 0.1' m -1.96 ν 2.2° d 0.1' m 0.92									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	229°46.9	149°04.1	N24°31.1	206°32.9	N08°50.5	117°28.7	N22°15.5	219°24.8	N02°04.4
1	244°49.4	164°03.2	31.4	221°33.6	51.2	132°30.8	15.4	234°27.0	04.5
2	259°51.9	179°02.4	31.7	236°34.2	51.9	147°32.8	15.4	249°29.2	04.6
3	274°54.3	194°01.6	•• 31.9	251°34.9	•• 52.6	162°34.8	•• 15.3	264°31.4	•• 04.7
4	289°56.8	209°00.8	32.2	266°35.6	53.3	177°36.9	15.2	279°33.7	04.8
5	304°59.2	223°59.9	32.5	281°36.3	54.0	192°38.9	15.2	294°35.9	04.9
6	320°01.7	238°59.1	N24°32.8	296°37.0	N08°54.7	207°41.0	N22°15.1	309°38.1	N02°04.9
7	335°04.2	253°58.3	33.1	311°37.7	55.4	222°43.0	15.1	324°40.3	05.0
8	350°06.6	268°57.5	33.3	326°38.4	56.1	237°45.0	15.0	339°42.5	05.1
9	5°09.1	283°56.6	•• 33.6	341°39.0	•• 56.9	252°47.1	•• 14.9	354°44.8	•• 05.2
10	20°11.6	298°55.8	33.9	356°39.7	57.6	267°49.1	14.9	9°47.0	05.3
11	35°14.0	313°55.0	34.2	11°40.4	58.3	282°51.1	14.8	24°49.2	05.4
12	50°16.5	328°54.2	N24°34.4	26°41.1	N08°59.7	297°53.2	N22°14.8	39°51.4	N02°05.5
13	65°19.0	343°53.4	34.7	41°41.8	60°58.9	312°55.2	14.7	54°53.6	05.6
14	80°21.4	358°52.5	35.0	56°42.5	09°00.4	327°57.2	14.6	69°55.9	05.7
15	95°23.9	13°51.7	•• 35.3	71°43.2	•• 01.1	342°59.3	•• 14.6	84°58.1	•• 05.8
16	110°26.4	28°50.9	35.5	86°43.8	01.8	358°01.3	14.5	100°00.3	05.9
17	125°28.8	43°50.0	35.8	101°44.5	02.5	13°03.3	14.5	115°02.5	06.0
18	140°31.3	58°49.2	N24°36.1	116°45.2	N09°03.2	28°05.4	N22°14.4	130°04.8	N02°06.1
19	155°33.7	73°48.4	36.3	131°45.9	03.9	43°07.4	14.3	145°07.0	06.2
20	170°36.2	88°47.6	36.6	146°46.6	04.7	58°09.4	14.3	160°09.2	06.3
21	185°38.7	103°46.7	•• 36.9	161°47.3	•• 05.4	73°11.5	•• 14.2	175°11.4	•• 06.4
22	200°41.1	118°45.9	37.1	176°47.9	06.1	88°13.5	14.2	190°13.6	06.5
23	215°43.6	133°45.1	37.4	191°48.6	06.8	103°15.5	14.1	205°15.9	06.6
Mer.pass. 08:39 ν -0.8° d 0.3' m -3.92 ν 0.7° d 0.7' m 1.24 ν 2.0° d 0.1' m -1.96 ν 2.2° d 0.1' m 0.92									

Stars			h			Sun			Moon		
	SHA	Dec	Sun	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.9	29°14.0	0	180°54.0	N17°34.1	264°15.7	13.6°	S15°50.4	12.5°	55.8°	
Ankaa	353°06.4	-42°09.6	1	195°54.0	34.7	278°48.3	13.6°	15°37.9	12.7°	55.8°	
Schedar	349°30.2	56°40.7	2	210°54.0	35.4	293°21.0	13.7°	15°25.2	12.7°	55.8°	
Diphda	348°46.5	-17°50.5	3	225°54.1	•• 36.0	307°53.6	13.7°	15°12.5	12.8°	55.9°	
Achernar	335°19.9	-57°06.0	4	240°54.1	36.7	322°26.3	13.7°	14°59.7	12.9°	55.9°	
Hamal	327°50.3	23°35.1	5	255°54.1	37.4	336°59.0	13.7°	14°46.8	12.9°	55.9°	
Polaris	313°58.2	89°22.5	6	270°54.1	N17°38.0	351°31.8	13.8°	S14°33.9	13.1°	55.9°	
Acamar	315°11.4	-40°11.9	7	285°54.2	38.7	6°04.6	13.8°	14°20.8	13.1°	56.0°	
Menkar	314°05.3	4°11.5	8	300°54.2	39.3	20°37.4	13.8°	14°07.7	13.2°	56.0°	
Mirafaz	308°27.2	49°57.2	9	315°54.2	•• 40.0	35°10.2	13.8°	13°54.5	13.2°	56.0°	
Aldebaran	290°38.7	16°33.7	10	330°54.2	40.6	49°43.0	13.9°	13°41.3	13.4°	56.1°	
Rigel	281°03.1	-8°10.4	11	345°54.2	41.3	64°15.9	13.9°	13°27.9	13.4°	56.1°	
Capella	280°20.7	46°01.5	12	0°54.3	N17°41.9	78°48.8	13.9°	S13°14.5	13.5°	56.1°	
Bellatrix	278°22.0	6°22.4	13	15°54.3	42.6	93°21.7	13.9°	13°10.1	13.5°	56.2°	
Antares	278°00.8	28°37.8	14	30°54.3	43.2	107°54.6	13.9°	12°47.5	13.6°	56.2°	
Betelgeuse	270°51.2	7°24.7	15	45°54.3	•• 43.9	122°27.5	14.0°	12°33.9	13.7°	56.2°	
Canopus	263°52.3	-52°42.8	16	60°54.3	44.5	137°00.5	14.0°	12°20.2	13.8°	56.3°	
Sirius	258°25.5	-16°45.3	17	75°54.4	45.2	151°33.4	14.0°	12°06.4	13.8°	56.3°	
Adhara	255°05.2	-29°00.7	18	90°54.4	N17°45.8	166°06.4	14.0°	S11°52.6	13.9°	56.3°	
Procyon	244°49.9	5°09.4	19	105°54.4	46.5	180°39.4	14.0°	11°38.7	14.0°	56.4°	
Pollux	243°16.1	27°57.8	20	120°54.4	47.1	195°12.4	14.0°	11°24.7	14.1°	56.4°	
Avior	234°14.5	-59°35.9	21	135°54.4	•• 47.8	209°45.4	14.0°	11°10.6	14.1°	56.5°	
Suhail	222°45.6	-43°32.6	22	150°54.5	48.4	224°18.4	14.0°	10°56.5	14.1°	56.5°	
Miaplacidus	221°38.1	-69°49.8	23	165°54.5	49.0	238°51.5	14.0°	10°42.4	14.3°	56.5°	
Alphard	217°46.7	-8°46.5									

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	230°46.1	148°44.3	N24°37.6	206°49.3	N09°07.5	118°17.6	N22°14.0	220°18.1	N02°06.7					
1	245°48.5	163°43.4	37.9	221°50.0	08.2	133°19.6	14.0	235°20.3	06.8					
2	260°51.0	178°42.6	38.1	236°50.7	08.9	148°21.6	13.9	250°22.5	06.9					
3	275°53.5	193°41.8	•• 38.4	251°51.4	•• 09.6	163°23.7	•• 13.9	265°24.8	•• 07.0					
4	290°55.9	208°41.0	38.7	266°52.1	10.3	178°25.7	13.8	280°27.0	07.0					
5	305°58.4	223°40.1	38.9	281°52.7	11.0	193°27.7	13.7	295°29.2	07.1					
6	321°00.9	238°39.3	N24°39.2	296°53.4	N09°11.7	208°29.8	N22°13.3	310°31.4	N02°07.2					
7	336°03.8	253°38.5	39.4	311°54.1	12.4	223°31.8	13.6	325°33.7	07.3					
8	351°05.8	268°37.7	39.7	326°54.8	13.1	238°33.8	13.6	340°35.9	07.4					
9	6°08.2	283°36.8	•• 39.9	341°55.5	•• 13.8	253°35.9	•• 13.5	355°38.1	•• 07.5					
10	21°10.7	298°36.0	40.2	356°56.2	14.6	268°37.9	13.4	10°40.3	07.6					
11	36°13.2	313°35.2	40.4	11°56.8	15.3	283°39.9	13.4	25°42.5	07.7					
12	51°15.6	328°34.3	N24°40.6	26°57.5	N09°16.0	298°41.9	N22°13.3	40°44.8	N02°07.8					
13	66°18.1	343°33.5	40.9	41°58.2	16.7	313°44.0	13.3	55°47.0	07.9					
14	81°20.6	358°32.7	41.1	56°58.9	17.4	328°46.0	13.2	70°49.2	08.0					
15	96°23.0	13°31.9	•• 41.4	71°59.6	•• 18.1	343°48.0	•• 13.1	85°51.4	•• 08.1					
16	111°25.5	28°31.0	41.6	87°00.3	18.8	358°50.1	13.1	100°53.7	08.2					
17	126°28.0	43°30.2	41.8	102°01.0	19.5	13°52.1	13.0	115°55.9	08.3					
18	141°30.4	58°29.4	N24°42.1	117°01.6	N09°20.2	28°54.1	N22°13.0	130°58.1	N02°08.5					
19	156°32.9	73°28.5	42.3	132°02.3	20.9	43°56.2	12.9	146°00.3	08.5					
20	171°35.3	88°27.7	42.6	147°03.0	21.6	58°58.2	12.8	161°02.6	08.6					
21	186°37.8	103°26.9	•• 42.8	162°03.7	•• 22.3	74°00.2	•• 12.8	176°04.8	•• 08.7					
22	201°40.3	118°26.1	43.0	177°04.4	23.0	89°02.2	12.7	191°07.0	08.8					
23	216°42.7	133°25.2	43.3	192°05.1	23.7	104°04.3	12.7	206°09.2	08.8					
Mer pass. 08:36			ν -0.8° d 0.3' m -3.92			ν 0.7' d 0.7' m 1.24			ν 2.0' d 0.1' m -1.95			ν 2.2' d 0.1' m 0.91		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	231°45.2	148°24.4	N24°43.5	207°05.7	N09°24.4	119°06.3	N22°12.6	221°11.5	N02°08.9
1	246°47.7	163°23.6	43.7	222°06.4	25.1	134°08.3	12.5	236°13.7	09.0
2	261°50.1	178°22.7	43.9	237°07.1	25.8	149°10.4	12.5	251°15.9	09.1
3	276°52.6	193°21.9	•• 44.2	252°07.8	•• 26.5	164°12.4	•• 12.4	266°18.1	•• 09.2
4	291°55.1	208°21.1	44.4	267°08.5	27.2	179°14.4	12.4	281°20.4	09.3
5	306°57.5	223°20.2	44.6	282°09.2	27.9	194°16.4	12.3	296°22.6	09.4
6	322°00.0	238°19.4	N24°44.8	297°09.8	28.6	209°18.5	N22°12.2	311°24.8	N02°09.5
7	337°02.5	253°18.6	45.1	312°10.5	29.3	224°20.5	12.2	326°27.0	09.6
8	352°04.9	268°17.8	45.3	327°11.2	30.0	239°22.5	12.1	341°29.3	09.7
9	7°07.4	283°16.9	•• 45.3	342°11.9	•• 30.7	254°24.5	•• 12.1	356°31.5	•• 09.8
10	22°09.8	298°16.1	45.7	357°12.6	31.4	269°26.6	12.0	11°33.7	09.9
11	37°12.3	313°15.3	45.9	12°13.3	32.1	284°28.6	11.9	26°35.9	10.0
12	52°14.8	328°14.4	N24°46.1	27°13.9	N09°32.8	299°30.6	N22°11.9	41°38.2	N02°10.1
13	67°17.2	343°13.6	46.4	42°14.6	33.5	314°32.7	11.8	56°40.4	10.2
14	82°19.7	358°12.8	46.6	57°15.3	34.2	329°34.7	11.7	71°42.6	10.3
15	97°22.2	13°11.9	•• 46.8	72°16.0	•• 34.9	344°36.7	•• 11.7	86°44.8	•• 10.3
16	112°24.6	28°11.1	47.0	87°16.7	35.6	359°38.7	11.6	101°47.1	10.4
17	127°27.1	43°10.3	47.2	102°17.3	36.3	14°40.8	11.6	116°49.3	10.5
18	142°29.6	58°09.5	N24°47.4	117°18.0	N09°37.7	29°42.8	N22°11.5	131°51.5	N02°10.6
19	157°32.0	73°08.6	47.6	132°18.7	37.7	44°44.8	11.4	146°53.7	10.7
20	172°34.5	88°07.8	47.8	147°19.4	38.4	59°46.8	11.4	161°56.0	10.8
21	187°36.9	103°07.0	•• 48.0	162°20.1	•• 39.1	74°48.9	•• 11.3	176°58.2	•• 10.9
22	202°39.4	118°06.1	48.2	177°20.8	39.8	89°50.9	11.3	192°00.4	11.0
23	217°41.9	133°05.3	48.4	192°21.4	40.5	104°52.9	11.2	207°02.7	11.1
Mer.pass. 08:32 ν -0.8° d 0.2' m -3.93 ν 0.7' d 0.7' m 1.25 ν 2.0' d 0.1' m -1.95 ν 2.2' d 0.1' m 0.91									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	232°44.3	148°04.5	N24°48.6	207°22.1	N09°41.2	119°54.9	N22°11.1	222°04.9	N02°11.2					
1	247°46.8	163°03.6	48.8	222°22.8	41.9	134°57.0	11.1	237°07.1	11.3					
2	262°49.3	178°02.8	49.0	237°23.5	42.6	149°59.0	11.0	252°09.3	11.4					
3	277°51.7	193°02.0	•• 49.2	252°24.2	•• 43.3	165°01.0	•• 10.9	267°11.6	•• 11.5					
4	292°54.2	208°01.1	49.4	267°24.9	44.0	180°03.0	10.9	282°13.8	11.6					
5	307°56.7	223°00.3	49.6	282°25.5	44.7	195°05.0	10.8	297°16.0	11.7					
6	322°59.1	237°59.5	N24°49.8	297°26.2	N09°45.4	210°07.1	N22°10.8	312°18.2	N02°11.7					
7	338°01.6	252°58.6	50.0	312°26.9	46.1	225°09.1	10.7	327°20.5	11.8					
8	353°04.1	267°57.8	50.2	327°27.6	46.8	240°11.1	10.6	342°22.7	11.9					
9	8°06.5	282°57.0	•• 50.4	342°28.3	•• 47.5	255°13.1	•• 10.6	357°24.9	•• 12.0					
10	23°09.0	297°56.2	50.6	357°28.9	48.2	270°15.2	10.5	12°27.2	12.1					
11	38°11.4	312°55.3	50.7	12°29.6	48.9	285°17.2	10.4	27°29.4	12.2					
12	53°13.9	327°54.5	N24°50.9	27°30.3	N09°49.6	300°19.2	N22°10.4	42°31.6	N02°12.3					
13	68°16.4	342°53.7	51.1	42°31.0	50.3	315°21.2	10.3	57°33.8	12.4					
14	83°18.8	357°52.8	51.3	57°31.7	51.0	330°23.2	10.3	72°36.1	12.5					
15	98°21.3	12°52.0	•• 51.5	72°32.4	•• 51.7	345°25.3	•• 10.2	87°38.3	•• 12.6					
16	113°23.8	27°51.2	51.7	87°33.0	52.4	0°27.3	10.1	102°40.5	12.7					
17	128°26.2	42°50.3	51.8	102°33.7	53.1	15°29.3	10.1	117°42.7	12.8					
18	143°28.7	57°49.5	N24°52.0	117°34.4	N09°53.8	30°31.3	N22°10.0	132°45.0	N02°12.9					
19	158°31.2	72°48.7	52.2	132°35.1	54.5	45°33.3	09.9	147°47.2	13.0					
20	173°33.6	87°47.8	52.4	147°35.8	55.2	60°35.4	09.9	162°49.4	13.0					
21	188°36.1	102°47.0	•• 52.5	162°36.4	•• 55.9	75°37.4	•• 09.8	177°51.7	•• 13.1					
22	203°38.6	117°46.2	52.7	177°37.1	56.6	90°39.4	09.8	192°53.9	13.2					
23	218°41.0	132°45.3	52.9	192°37.8	57.3	105°41.4	09.7	207°56.1	13.3					
Mer.pass. 08:28			ν -0.8° d 0.2' m -3.93			ν 0.7° d 0.7' m 1.25			ν 2.0° d 0.1' m -1.95			ν 2.2° d 0.1' m 0.91		

Stars			h			Sun			Moon		
	SHA	Dec		GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.9	29°14.0	0	180°55.1	N18°20.0	231°37.3	13.0°	N01°52.9	16.2°	58.4°	
Ankaa	353°06.4	-42°09.6	1	195°55.1	20.6	246°09.3	12.9°	02°09.1	16.3°	58.4°	
Schedar	349°30.2	56°40.7	2	210°55.1	21.3	260°41.2	12.9°	02°25.4	16.2°	58.5°	
Diphda	348°46.4	-17°50.5	3	225°55.1	•• 21.9	275°13.1	12.8°	02°41.6	16.3°	58.5°	
Achernar	335°19.9	-57°06.0	4	240°55.1	22.5	289°44.9	12.7°	02°57.9	16.2°	58.6°	
Hamal	327°50.3	23°35.1	5	255°55.1	23.1	304°16.6	12.7°	03°14.1	16.3°	58.6°	
Polaris	313°58.0	89°22.4	6	270°55.1	N18°23.7	318°48.3	12.6°	N03°30.4	16.3°	58.6°	
Acamar	315°11.4	-40°11.9	7	285°55.1	24.4	333°20.0	12.6°	03°46.7	16.3°	58.7°	
Menkar	314°05.3	4°11.5	8	300°55.1	25.0	347°51.5	12.5°	04°03.0	16.3°	58.7°	
Mirafak	308°27.2	49°57.2	9	315°55.1	•• 25.6	2°23.0	12.4°	04°19.3	16.3°	58.8°	
Aldebaran	290°38.7	16°33.7	10	330°55.1	26.2	16°54.5	12.4°	04°35.6	16.3°	58.8°	
Rigel	281°03.1	-8°10.3	11	345°55.1	26.8	31°25.8	12.3°	04°51.9	16.3°	58.8°	
Capella	280°20.7	46°01.5	12	0°55.1	N18°27.4	45°57.1	12.2°	N05°08.2	16.2°	58.9°	
Bellatrix	278°22.0	6°22.4	13	15°55.1	28.0	60°28.4	12.2°	05°24.4	16.3°	58.9°	
Elnath	278°00.8	28°37.8	14	30°55.1	28.6	74°59.5	12.1°	05°40.7	16.3°	59.0°	
Betelgeuse	270°51.2	7°11.7	15	45°55.1	•• 29.3	89°30.6	12.0°	05°57.0	16.3°	59.0°	

Aries				Venus		Mars		Jupiter		Saturn	
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	233°43.5	147°44.5	N24°53.1	207°38.5	N09°57.9	120°43.5	N22°09.6	222°58.3	N02°13.4		
1	248°45.9	162°43.7	53.2	222°39.2	58.6	135°45.5	09.6	238°00.6	13.5		
2	263°48.4	177°42.8	53.4	237°39.9	09°59.9	150°47.5	09.5	253°02.8	13.6		
3	278°50.9	192°42.0	.. 53.6	252°40.5	10°00.0	165°49.5	.. 09.4	268°05.0	.. 13.7		
4	293°53.3	207°41.2	53.7	267°41.2	00.7	180°51.5	09.4	283°07.3	13.8		
5	308°55.8	222°40.3	53.9	282°41.9	01.4	195°53.5	09.3	298°09.5	13.9		
6	323°58.3	237°39.5	N24°54.1	297°42.6	N10°02.1	210°55.6	N22°09.2	313°11.7	N02°14.0		
7	339°00.7	252°38.7	54.2	312°43.3	02.8	225°57.6	09.2	328°13.9	14.1		
8	354°03.2	267°37.8	54.4	327°43.9	03.5	240°59.6	09.1	343°16.2	14.1		
9	9°05.7	282°37.0	.. 54.5	342°44.6	.. 04.2	256°01.6	.. 09.1	358°18.4	.. 14.2		
10	24°08.1	297°36.2	54.7	357°45.3	04.9	271°03.6	09.0	13°20.6	14.3		
11	39°10.6	312°35.3	54.9	12°46.0	05.6	286°05.7	08.9	28°22.9	14.4		
12	54°13.1	327°34.5	N24°55.0	27°46.7	N10°06.3	301°07.7	N22°08.9	43°25.1	N02°14.5		
13	69°15.5	342°33.7	55.2	42°47.3	07.0	316°09.7	08.8	58°27.3	14.6		
14	84°18.0	357°32.8	55.3	57°48.0	07.6	331°11.7	08.7	73°29.6	14.7		
15	99°20.4	12°32.0	.. 55.5	72°48.7	.. 08.3	346°13.7	.. 08.7	88°31.8	.. 14.8		
16	114°22.9	27°31.2	55.6	87°49.4	09.0	1°15.7	08.6	103°34.0	14.9		
17	129°25.4	42°30.3	55.8	102°50.1	09.7	16°17.8	08.5	118°36.2	15.0		
18	144°27.8	57°29.5	N24°55.9	117°50.7	N10°10.4	31°19.8	N22°08.5	133°38.5	N02°15.1		
19	159°30.3	72°28.7	56.1	132°51.4	11.1	46°21.8	08.4	148°40.7	15.2		
20	174°32.8	87°27.8	56.2	147°52.1	11.8	61°23.8	08.4	163°42.9	15.2		
21	189°35.2	102°27.0	.. 56.4	162°52.8	.. 12.5	76°25.8	.. 08.3	178°45.2	.. 15.3		
22	204°37.7	117°26.2	56.5	177°53.5	13.2	91°27.8	08.2	193°47.4	15.4		
23	219°40.2	132°25.3	56.7	192°54.1	13.9	106°29.9	08.2	208°49.6	15.5		
Mer.pass. 08:24			ν -0.8' d 0.2' m -3.93	ν 0.7' d 0.7' m 1.25	ν 2.0' d 0.1' m -1.94	ν 2.2' d 0.1' m 0.91					

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	234°42.6	147°24.5	N24°56.8	207°54.8	N10°14.6	121°31.9	N22°08.1	223°51.9	N02°15.6
1	249°45.1	162°23.7	56.9	222°55.5	15.2	136°33.9	08.0	238°54.1	15.7
2	264°47.5	177°22.8	57.1	237°56.2	15.9	151°35.9	08.0	253°56.3	15.8
3	279°50.0	192°22.0	.. 57.2	252°56.9	.. 16.6	166°37.9	.. 07.9	268°58.6	.. 15.9
4	294°52.5	207°21.2	57.3	267°57.5	17.3	181°39.9	07.8	284°00.8	16.0
5	309°54.9	222°20.3	57.5	282°58.2	18.0	196°42.0	07.8	299°03.0	16.1
6	324°57.4	237°19.5	N24°57.6	297°58.9	N10°18.7	211°44.0	N22°07.7	314°05.2	N02°16.2
7	339°59.9	252°18.7	57.7	312°59.6	19.4	226°46.0	07.6	329°07.5	16.3
8	355°02.3	267°17.8	57.9	328°00.3	20.1	241°48.0	07.6	344°09.7	16.3
9	10°04.8	282°17.0	.. 58.0	343°00.9	.. 20.8	256°50.0	.. 07.5	359°11.9	.. 16.4
10	25°07.7	297°16.2	58.1	358°01.6	21.4	271°52.0	07.5	14°14.2	16.5
11	40°09.7	312°15.3	58.3	13°02.3	22.1	286°54.0	07.4	29°16.4	16.6
12	55°12.2	327°14.5	N24°58.4	28°03.0	N10°22.8	301°56.0	N22°07.3	44°18.6	N02°16.7
13	70°14.7	342°13.7	58.4	43°03.7	23.5	316°58.1	07.3	59°20.9	16.8
14	85°17.1	357°12.8	58.6	58°04.3	24.2	332°00.1	07.2	74°23.1	16.9
15	100°19.6	12°12.0	.. 58.8	73°05.0	.. 24.9	347°02.1	.. 07.1	89°25.3	.. 17.0
16	115°22.0	27°11.2	58.9	88°05.7	25.6	2°04.1	07.1	104°27.6	17.1
17	130°24.5	42°10.3	59.0	103°06.4	26.2	17°06.1	07.0	119°29.8	17.2
18	145°27.0	57°09.5	N24°59.1	118°07.1	N10°26.9	32°08.1	N22°06.9	134°32.0	N02°17.2
19	160°29.4	72°08.7	59.2	133°07.7	27.6	47°10.1	06.9	149°34.3	17.3
20	175°31.9	87°07.8	59.4	148°08.4	28.3	62°12.2	06.8	164°36.5	17.4
21	190°34.4	102°07.0	.. 59.5	163°09.1	.. 29.0	77°14.2	.. 06.7	179°38.7	.. 17.5
22	205°36.8	117°06.2	59.6	178°09.8	29.7	92°16.2	06.7	194°41.0	17.6
23	220°39.3	132°05.3	59.7	193°10.5	30.4	107°18.2	06.6	209°43.2	17.7
Mer.pass. 08:20			ν -0.8' d 0.1' m -3.93	ν 0.7' d 0.7' m 1.25	ν 2.0' d 0.1' m -1.94	ν 2.2' d 0.1' m 0.91			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	235°41.8	147°04.5	N24°59.8	208°11.1	N10°31.0	122°20.2	N22°06.5	224°45.4	N02°17.8
1	250°44.2	162°03.7	24°59.9	223°11.8	31.7	137°22.2	06.5	239°47.7	17.9
2	265°46.7	177°02.8	25°00.0	238°12.5	32.4	152°24.2	06.4	254°49.9	18.0
3	280°49.2	192°02.0	.. 00.1	253°13.2	.. 33.1	167°26.2	.. 06.3	269°52.1	.. 18.1
4	295°51.6	207°01.2	00.2	268°13.9	33.8	182°28.2	06.3	284°54.4	18.1
5	310°54.1	222°00.3	00.4	283°14.5	34.5	197°30.3	06.2	299°56.6	18.2
6	325°56.5	236°59.5	N25°00.5	298°15.2	N10°35.1	212°32.3	N22°06.2	314°58.8	N02°18.3
7	340°59.0	251°58.7	00.6	313°15.9	35.8	227°34.3	06.1	330°01.1	18.4
8	356°01.5	266°57.8	00.7	328°16.6	36.2	242°36.3	06.0	345°03.3	18.5
9	11°03.9	281°57.0	.. 00.8	343°17.2	.. 37.5	257°38.3	.. 06.0	0°05.5	.. 18.6
10	26°06.4	296°56.2	00.9	358°17.9	37.9	272°40.3	05.9	15°07.8	18.7
11	41°08.9	311°55.3	01.0	13°18.6	38.6	287°42.3	05.8	30°10.0	18.8
12	56°11.3	326°54.5	N25°01.1	28°19.1	N10°39.2	302°44.3	N22°05.8	45°12.2	N02°18.9
13	71°13.8	341°53.7	01.2	43°20.0	39.9	317°46.3	05.7	60°14.5	19.0
14	86°16.3	356°52.8	01.2	58°20.6	40.6	332°48.3	05.6	75°16.7	19.0
15	101°18.7	11°52.0	.. 01.3	73°21.3	.. 41.3	347°50.4	.. 05.6	90°18.9	.. 19.1
16	116°21.2	26°51.2	01.4	88°22.0	42.0	2°52.4	05.5	105°21.2	19.2
17	131°23.7	41°50.3	01.5	103°22.7	42.7	17°54.4	05.4	120°23.4	19.3
18	146°26.1	56°49.5	N25°01.6	118°23.4	N10°43.3	32°56.4	N22°05.4	135°25.6	N02°19.4
19	161°28.6	71°48.7	01.7	133°24.0	44.0	47°58.4	05.3	150°27.9	19.5
20	176°31.0	86°47.8	01.8	148°24.7	44.7	63°00.4	05.2	165°30.1	19.6
21	191°33.5	101°47.0	.. 01.9	163°25.4	.. 45.4	78°02.4	.. 05.2	180°32.3	.. 19.7
22	206°36.0	116°46.2	02.0	178°26.1	46.1	93°04.4	05.1	195°34.6	19.8
23	221°38.4	131°45.3	02.0	193°26.7	46.7	108°06.4	05.0	210°36.8	19.9
Mer.pass. 08:16			ν -0.8' d 0.1' m -3.93	ν 0.7' d 0.7' m 1.25	ν 2.0' d 0.1' m -1.93	ν 2.2' d 0.1' m 0.91			

Stars		
SHA	Dec	
Alpheratz	357°33.8	29°14.0
Ankaa	353°06.3	-42°09.6
Schedar	349°30.2	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.9	-57°06.0
Hamal	327°50.3	23°35.1
Polaris	313°57.4	89°22.4
Acamar	315°11.4	-40°11.9
Menkar	314°05.3	4°11.5
Mirfak	308°27.2	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.7	46°01.5
Bellatrix	278°22.0	6°22.4
Elnath	278°00.8	28°37.8
Alnilam	275°36.9	-1°12.2
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.3	-52°42.7
Sirius	258°25.5	-16°45.3
Adhara	255°05.3	-29°00.6
Procyon	244°49.9	5°09.4
Pollux	234°16.2	27°57.8
Avior	243°14.5	-59°35.9
Suhail	222°45.6	-43°32.6
Miaplacidus	221°38.2	-69°49.8
Alphard	217°46.7	-8°46.5
Regulus	207°33.3	11°50.3
Dubhe	193°39.5	61°36.7
Denebola	182°23.7	14°25.4
Gienah	175°42.3	-41°13.5
Acrux	172°58.4	-63°15.0
Gacrux	171°50.0	-57°15.9
Alloth	166°11.6	55°49.1
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°10.9
Hadar	148°33.8	-60°30.2
Menkent	147°56.0	-36°30.2
Arcturus	145°46.6	19°02.6
Rigel Kent.	139°38.1	-60°56.8
Kochab	137°18.7	74°02.8
Zuben ubi	126°54.5	-16°09.2
Alphecca	126°02.4	26°37.5
Antares	112°14.1	-26°29.5
Atria	107°06.8	-69°04.4
Sabik	102°01.2	-15°45.5
Shaula	96°08.5	-37°07.3
Rasalhague	95°57.2	12°32.3
Eltanin	90°41.2	51°28.9
Kaus Aus.	83°30.7	-34°22.2
Vega	80°32.2	38°48.3
Nunki	75°46.1	-26°15.8
Altair	61°58.7	8°56.2
Peacock	53°03.8	-56°38.8
Deneb	49°24.9	45°22.2
Enif	33°37.7	9°59.6
Al Na'ir	27°31.6	-46°49.8
Fomalhaut	15°13.4	-29°28.8
Scheat	13°44.3	28°13.4
Markab	13°28.9	15°20.7

May 16 Sat	SHA	Mer.pass
Venus	274°01.0	14:10
Mars	333°55.0	10:09
Jupiter	247°00.0	15:55
Saturn	349°14.9	09:07

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Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	236°40.9		146°44.5	N25°02.1		208°27.4	N10°47.4		123°08.4	N22°05.0		225°39.0	N02°19.9	
1	251°43.4		161°43.7	02.2		223°28.1	48.1		138°10.4	04.9		240°41.3	20.0	
2	266°45.8		176°42.8	02.3		238°28.8	48.8		153°12.4	04.8		255°43.5	20.1	
3	281°48.3		191°42.0	.. 02.4		253°29.5	.. 49.5		168°14.5	.. 04.8		270°45.7	.. 20.2	
4	296°50.8		206°41.2	02.4		268°30.1	50.1		183°16.5	04.7		285°48.0	20.3	
5	311°53.2		221°40.3	02.5		283°30.8	50.8		198°18.5	04.6		300°52.2	20.4	
6	326°55.7		236°39.5	N25°02.6		298°31.5	N10°51.5		213°20.5	N22°04.2		315°52.4	N02°20.5	
7	341°58.2		251°38.7	02.7		313°32.2	52.2		228°22.5	04.5		330°54.7	20.6	
8	357°00.6		266°37.8	02.7		328°32.8	52.9		243°24.5	04.4		345°56.9	20.7	
9	12°03.1		281°37.0	.. 02.8		343°33.5	.. 53.5		258°26.5	.. 04.4		0°59.2	.. 20.7	
10	27°05.5		296°36.2	02.9		358°34.2	54.2		273°28.5	04.3		16°01.4	20.8	
11	42°08.0		311°35.3	02.9		13°34.9	54.9		288°30.5	04.2		31°03.6	20.9	
12	57°10.5		326°34.5	N25°03.0		28°35.5	N10°55.6		303°32.5	N22°04.2		46°05.9	N02°21.0	
13	72°12.9		341°33.7	03.1		43°36.2	56.2		318°34.5	04.1		61°08.1	21.1	
14	87°15.4		356°32.8	03.1		58°36.9	56.9		333°36.5	04.0		76°10.3	21.2	
15	102°17.9		11°32.0	.. 03.2		73°37.6	.. 57.6		348°38.5	.. 04.0		91°12.6	.. 21.3	
16	117°20.3		26°31.2	03.3		88°38.3	58.3		3°40.5	03.9		106°14.8	21.4	
17	132°22.8		41°30.3	03.3		103°38.9	58.9		18°42.5	03.8		121°17.0	21.4	
18	147°25.3		56°29.5	N25°03.4		118°39.6	N10°59.6		33°44.5	N22°03.8		136°19.3	N02°21.5	
19	162°27.7		71°28.7	03.4		133°40.3	.. 01.0		48°46.5	03.7		151°21.5	21.6	
20	177°30.2		86°27.8	03.5		148°41.0	.. 01.0		63°48.6	03.6		166°23.8	21.7	
21	192°32.7		101°27.0	.. 03.6		163°41.6	.. 01.6		78°50.6	.. 03.6		181°26.0	.. 21.8	
22	207°35.1		116°26.2	03.6		178°42.3	.. 02.3		93°52.6	03.5		196°28.2	21.9	
23	222°37.6		131°25.3	03.7		193°43.0	03.0		108°54.6	03.4		211°30.5	22.0	
Mer.pass. 08:12			ν -0.8' d 0.1' m -3.93			ν 0.7' d 0.7' m 1.25			ν 2.0' d 0.1' m -1.93			ν 2.2' d 0.1' m 0.90		

Wed	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	237°40.0		146°24.5	N25°03.7		208°43.7	N11°03.7		123°56.6	N22°03.4		226°32.7	N02°22.1	
1	252°42.5		161°23.7	03.8		223°44.3	04.3		138°58.6	03.3		241°34.9	22.2	
2	267°45.0		176°22.9	03.8		238°45.0	05.0		154°00.6	03.2		256°37.2	22.2	
3	282°47.4		191°22.0	.. 03.9		253°45.7	.. 05.7		169°02.6	.. 03.2		271°39.4	.. 22.3	
4	297°49.9		206°21.2	03.9		268°46.4	06.4		184°04.6	03.1		286°41.7	22.4	
5	312°52.4		221°20.4	04.0		283°47.1	07.0		199°06.6	03.0		301°43.9	22.5	
6	327°54.8		236°19.5	N25°04.0		298°47.7	N11°07.7		214°08.6	N22°03.0		316°46.2	N02°22.6	
7	342°57.3		251°18.7	04.0		313°48.4	08.4		229°10.6	02.9		331°48.4	22.7	
8	357°59.8		266°17.9	04.1		328°49.1	09.1		244°12.6	02.8		346°50.6	22.8	
9	13°02.2		281°17.0	.. 04.1		343°49.8	.. 09.7		259°14.6	.. 02.8		1°52.8	.. 22.9	
10	28°04.7		296°16.2	04.2		358°50.4	10.4		274°16.6	02.7		16°55.1	22.9	
11	43°07.2		311°15.4	04.2		13°51.1	11.1		289°18.6	02.6		31°57.3	23.0	
12	58°09.6		326°14.5	N25°04.4		28°51.8	N11°11.8		304°20.6	N22°02.5		46°59.6	N02°23.1	
13	73°12.1		341°13.7	04.3		43°52.5	12.2		319°22.6	02.5		62°01.8	23.2	
14	88°14.5		356°12.9	04.3		58°53.1	13.1		334°24.6	02.4		77°04.0	23.3	
15	103°17.0		11°12.1	.. 04.4		73°53.8	.. 13.8		349°26.6	.. 02.3		92°06.3	.. 23.4	
16	118°19.5		26°11.2	04.4		88°54.5	14.4		4°28.6	02.3		107°08.5	23.5	
17	133°21.9		41°10.4	04.4		103°55.2	15.1		19°30.6	02.2		122°10.7	23.6	
18	148°24.4		56°09.6	N25°04.6		118°55.8	N11°15.8		34°32.6	N22°02.1		137°13.0	N02°23.6	
19	163°26.9		71°08.7	04.5		133°56.5	16.5		49°34.6	02.1		152°15.2	23.7	
20	178°29.3		86°07.9	04.5		148°57.2	17.1		64°36.6	02.0		167°17.5	23.8	
21	193°31.8		101°07.1	.. 04.5		163°57.9	.. 17.8		79°38.6	.. 01.9		182°19.7	.. 23.9	
22	208°34.3		116°06.2	04.6		178°58.5	18.5		94°40.6	01.9		197°21.9	24.0	
23	223°36.7		131°05.4	04.6		193°59.2	19.1		109°42.6	01.8		212°24.2	24.1	
Mer.pass. 08:08			ν -0.8' d 0.1' m -3.93			ν 0.7' d 0.7' m 1.25			ν 2.0' d 0.1' m -1.92			ν 2.2' d 0.1' m 0.90		

Thu	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	238°39.2		146°04.6	N25°04.6		208°59.9	N11°19.8		124°44.6	N22°01.7		227°26.4	N02°24.2	
1	253°41.7		161°03.8	04.6		224°00.6	20.5		139°46.6	01.7		242°28.7	24.2	
2	268°44.1		176°02.9	04.6		239°01.2	21.1		154°48.6	01.6		257°30.9	24.3	
3	283°46.6		191°02.1	.. 04.7		254°01.9	.. 21.8		169°50.6	.. 01.5		272°33.1	.. 24.4	
4	298°49.0		206°01.3	04.7		269°02.6	22.5		184°52.6	01.5		287°35.4	24.5	
5	313°51.5		221°00.4	04.7		284°03.3	23.2		199°54.6	01.4		302°37.6	24.6	
6	328°54.0		235°59.6	N25°04.7		299°03.9	N11°23.8		214°56.6	N22°01.3		317°39.9	N02°24.7	
7	343°56.4		250°58.8	04.7		314°04.6	24.5		229°58.6	01.3		332°42.1	24.8	
8	358°58.9		265°58.0	04.7		329°05.3	25.2		245°00.6	01.2		347°44.3	24.9	
9	14°01.4		280°57.1	.. 04.7		344°06.0	.. 25.8		260°02.6	.. 01.1		2°46.6	.. 24.9	
10	29°03.8		295°56.3	04.8		359°06.6	26.5		275°04.6	01.0		17°48.8	25.0	
11	44°06.3		310°55.5	04.8		14°07.3	27.2		290°06.6	01.0		32°51.1	25.1	
12	59°08.8		325°54.6	N25°04.8		29°08.0	N11°27.8		305°08.6	N22°00.9		47°53.3	N02°25.2	
13	74°11.2		340°53.8	04.8		44°08.7	28.5		320°10.6	00.8		62°55.5	25.3	
14	89°13.7		355°53.0	04.8		59°09.3	29.2		335°12.6	00.8		77°57.8	25.4	
15	104°16.2		10°52.2	.. 04.8		74°10.0	.. 29.8		350°14.6	.. 00.7		93°00.0	.. 25.5	
16	119°18.6		25°51.3	04.8		89°10.7	30.5		5°16.6	00.6		108°02.3	25.5	
17	134°21.1		40°50.5	04.8		104°11.4	31.2		20°18.6	00.6		123°04.5	25.6	
18	149°23.5		55°49.7	N25°04.8		119°12.0	N11°31.8		35°20.6	N22°00.5		138°06.7	N02°25.7	
19	164°26.0		70°48.8	04.8		134°12.7	32.5		50°22.6	00.4		153°09.0	25.8	
20	179°28.5		85°48.0	04.8		149°13.4	33.2		65°24.6	00.4		168°11.2	25.9	
21	194°30.9		100°47.2	.. 04.8		164°14.1	.. 33.8		80°26.6	.. 00.3		183°13.5	.. 26.0	
22	209°33.4		115°46.4	04.8		179°14.7	34.5		95°28.6	00.2		198°15.7	26.1	
23	224°35.9		130°45.5	04.8		194°15.4	35.2		110°30.6	00.1		213°18.0	26.1	
Mer.pass. 08:04			ν -0.8' d 0.0' m -3.93			ν 0.7' d 0.7' m 1.26			ν 2.0' d 0.1' m -1.92			ν 2.2' d 0.1' m 0.90		

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.0
Ankaa	353°06.3	-42°09.6
Schedar	349°30.1	56°40.7
Diphda	348°46.4	-17°50.5
Achernar	335°19.8	-57°06.0
Hamal	327°50.3	23°35.1
Polaris	313°56.6	89°22.4
Acamar	315°11.3	-40°11.9
Menkar	314°05.3	4°11.5
Miraf	308°27.2	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.7	46°01.5
Bellatrix	278°22.0	6°22.4
Alnilath	278°00.8	28°37.8
Anilam	275°36.9	-1°12.1
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.4	-52°42.7
Sirius	258°25.5	-16°45.3
Adhara	255°05.3	-29°00.6
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.6	-59°35.9
Suhail	222°45.6	-43°32.6
Miaplacidus	221°38.3	-69°49.8

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	239°38.3	145°44.7	N25°04.8	209°16.1	N11°35.8	125°32.6	N22°00.1	228°20.2	N02°26.2										
1	254°40.8	160°43.9	04.8	224°16.8	36.5	140°34.6	22°00.9	243°22.4	26.3										
2	269°43.3	175°43.1	04.8	239°17.4	37.1	155°36.6	21°59.0	258°24.7	26.4										
3	284°45.7	190°42.2	04.7	254°18.1	37.8	170°38.6	21°59.9	273°26.9	26.5										
4	299°48.2	205°41.4	04.7	269°18.8	38.5	185°40.6	21°59.8	288°29.2	26.6										
5	314°50.6	220°40.6	04.7	284°19.5	39.1	200°42.5	21°59.7	303°31.4	26.7										
6	329°53.1	235°39.8	N25°04.7	299°20.1	N11°39.8	215°44.5	N21°59.2	318°33.6	N02°26.7										
7	344°55.6	250°38.9	04.7	314°20.8	40.5	230°46.5	21°59.6	333°35.9	26.8										
8	359°58.0	265°38.1	04.7	329°21.5	41.1	245°48.5	21°59.5	348°38.1	26.9										
9	15°00.5	280°37.3	04.7	344°22.2	41.8	260°50.5	21°59.4	3°40.4	27.0										
10	30°03.0	295°36.5	04.6	359°22.8	42.5	275°52.5	21°59.4	18°42.6	27.1										
11	45°05.4	310°35.6	04.6	14°23.5	43.1	290°54.5	21°59.3	33°44.9	27.2										
12	60°07.9	325°34.8	N25°04.6	29°24.2	N11°43.8	305°56.5	N21°59.2	48°47.1	N02°27.3										
13	75°10.4	340°34.0	04.6	44°24.8	44.4	320°58.5	21°59.2	63°49.3	27.3										
14	90°12.8	355°33.2	04.5	59°25.5	45.1	336°00.5	21°59.1	78°51.6	27.4										
15	105°15.3	10°32.3	04.5	74°26.2	45.8	351°02.5	21°59.0	93°53.8	27.5										
16	120°17.8	25°31.5	04.5	89°26.9	46.4	6°04.5	21°59.0	108°56.1	27.6										
17	135°20.2	40°30.7	04.5	104°27.5	47.1	21°06.5	21°58.9	123°58.3	27.7										
18	150°22.7	55°29.9	N25°04.4	119°28.2	N11°47.7	36°08.5	N21°58.8	139°00.6	N02°27.8										
19	165°25.1	70°29.0	04.4	134°28.9	48.4	51°10.5	21°58.7	154°02.8	27.9										
20	180°27.6	85°28.2	04.4	149°29.6	49.1	66°12.5	21°58.7	169°05.0	27.9										
21	195°30.1	100°27.4	04.4	164°30.2	49.7	81°14.5	21°58.6	184°07.3	28.0										
22	210°32.5	115°26.6	04.3	179°30.9	50.4	96°16.5	21°58.5	199°09.5	28.1										
23	225°35.0	130°25.7	04.3	194°31.6	51.0	111°18.4	21°58.5	214°11.8	28.2										
Mer.pass. 08:00				ν -0.8' d 0.0' m -3.93				ν 0.7' d 0.7' m 1.26				ν 2.0' d 0.1' m -1.92				ν 2.2' d 0.1' m 0.90			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	240°37.5	145°24.9	N25°04.2	209°32.2	N11°51.7	126°20.4	N21°58.4	229°14.0	N02°28.3										
1	255°39.9	160°24.1	04.2	224°32.9	52.4	141°22.4	58.3	244°16.3	28.4										
2	270°42.4	175°23.3	04.2	239°33.6	53.0	156°24.4	58.3	259°18.5	28.4										
3	285°44.9	190°22.4	04.1	254°34.3	53.7	171°26.4	58.2	274°20.8	28.5										
4	300°47.3	205°21.6	04.1	269°34.9	54.3	186°28.4	58.1	289°23.0	28.6										
5	315°49.8	220°20.8	04.0	284°35.6	55.0	201°30.4	58.0	304°25.2	28.7										
6	330°52.3	235°20.0	N25°04.0	299°36.3	N11°55.7	216°32.4	N21°58.0	319°27.5	N02°28.8										
7	345°54.7	250°19.2	03.9	314°37.0	56.3	231°34.4	57.9	334°29.7	28.9										
8	0°57.2	265°18.3	03.9	329°37.6	57.0	246°36.4	57.8	349°32.0	29.0										
9	15°59.6	280°17.5	03.8	344°38.3	57.6	261°38.4	57.8	4°34.2	29.0										
10	31°02.1	295°16.7	03.8	359°39.0	58.3	276°40.4	57.7	19°36.5	29.1										
11	46°04.6	310°15.9	03.7	14°39.6	58.9	291°42.4	57.6	34°38.7	29.2										
12	61°07.0	325°15.0	N25°03.7	29°40.3	N11°59.6	306°44.3	N21°57.5	49°41.0	N02°29.3										
13	76°09.5	340°14.2	03.6	44°41.0	12°00.3	321°46.3	57.5	64°43.2	29.4										
14	91°12.0	355°13.4	03.6	59°41.7	00.9	336°48.3	57.4	79°45.5	29.5										
15	106°14.4	10°12.6	03.5	74°42.3	01.6	351°50.3	57.3	94°47.7	29.5										
16	121°16.9	25°11.8	03.5	89°43.0	02.2	6°52.3	57.3	109°49.9	29.6										
17	136°19.4	40°10.9	03.4	104°43.7	02.9	21°54.3	57.2	124°52.2	29.7										
18	151°21.8	55°10.1	N25°03.4	119°44.3	N12°03.5	36°56.3	N21°57.1	139°54.4	N02°29.8										
19	166°24.3	70°09.3	03.3	134°45.0	04.2	51°58.3	57.0	154°56.7	29.9										
20	181°26.7	85°08.5	03.2	149°45.7	04.8	67°00.3	57.0	169°58.9	30.0										
21	196°29.2	100°07.7	03.2	164°46.4	05.5	82°02.3	56.9	185°01.2	30.0										
22	211°31.7	115°06.8	03.1	179°47.0	06.2	97°04.2	56.8	200°03.4	30.1										
23	226°34.1	130°06.0	03.0	194°47.7	06.8	112°06.2	56.8	215°05.7	30.2										
Mer.pass. 07:56				ν -0.8' d 0.0' m -3.93				ν 0.7' d 0.7' m 1.26				ν 2.0' d 0.1' m -1.91				ν 2.2' d 0.1' m 0.90			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	241°36.6	145°05.2	N25°03.0	209°48.4	N12°07.5	127°08.2	N21°56.7	230°07.9	N02°30.3										
1	256°39.1	160°04.4	02.9	224°49.0	08.1	142°10.2	56.6	245°10.2	30.4										
2	271°41.5	175°03.6	02.8	239°49.7	08.8	157°12.2	56.5	260°12.4	30.5										
3	286°44.0	190°02.8	02.8	254°50.4	09.4	172°14.2	56.5	275°14.6	30.5										
4	301°46.5	205°01.9	02.7	269°51.1	10.1	187°16.2	56.4	290°16.9	30.6										
5	316°48.9	220°01.1	02.6	284°51.7	10.7	202°18.2	56.3	305°19.1	30.7										
6	331°51.4	235°00.3	N25°02.6	299°52.4	N12°11.4	217°20.2	N21°56.3	320°21.4	N02°30.8										
7	346°53.9	249°59.5	02.5	314°53.1	12.0	232°22.1	56.2	335°23.6	30.9										
8	1°56.3	264°58.7	02.4	329°53.7	12.7	247°24.1	56.1	350°25.9	31.0										
9	16°58.8	279°57.8	02.3	344°54.4	13.3	262°26.1	56.0	5°28.1	31.0										
10	32°01.2	294°57.0	02.2	359°55.1	14.0	277°28.1	56.0	20°30.4	31.1										
11	47°03.7	309°56.2	02.2	14°55.8	14.6	292°30.1	55.9	35°32.6	31.2										
12	62°06.2	324°55.4	N25°02.1	29°56.4	N12°15.3	307°32.1	N21°55.8	50°34.9	N02°31.3										
13	77°08.6	339°54.6	02.0	44°57.1	15.9	322°34.1	55.7	65°37.1	31.4										
14	92°11.1	354°53.8	01.9	59°57.8	16.6	337°36.1	55.7	80°39.4	31.5										
15	107°13.6	9°52.9	01.8	74°58.4	17.2	352°38.0	55.6	95°41.6	31.5										
16	122°16.0	24°52.1	01.7	89°59.1	17.9	7°40.0	55.5	110°43.9	31.6										
17	137°18.5	39°51.3	01.7	104°59.8	18.5	22°42.0	55.5	125°46.1	31.7										
18	152°21.0	54°50.5	N25°01.6	120°00.5	N12°19.2	37°44.0	N21°55.4	140°48.4	N02°31.8										
19	167°23.4	69°49.7	01.5	135°01.1	19.8	52°46.0	55.3	155°50.6	31.9										
20	182°25.9	84°48.9	01.4	150°01.8	20.5	67°48.0	55.2	170°52.9	32.0										
21	197°28.4	99°48.1	01.3	165°02.5	21.1	82°50.0	55.2	185°55.1	32.0										
22	212°30.8	114°47.2	01.2	180°03.1	21.8	97°52.0	55.1	200°57.4	32.1										
23	227°33.3	129°46.4	01.1	195°03.8	22.4	112°53.9	55.0	215°59.6	32.2										
Mer.pass. 07:52				ν -0.8' d 0.1' m -3.94				ν 0.7' d 0.7' m 1.26				ν 2.0' d 0.1' m -1.91				ν 2.2' d 0.1' m 0.90			

Stars		
	SHA	Dec
Alpheratz	357°33.8	29°14.0
Ankaa	353°06.3	-42°09.6
Schedar	349°30.1	56°40.7
Diphda	348°46.4	-17°50.4
Achernar	335°19.8	-57°06.0
Hamal	327°50.2	23°35.1
Polaris	313°56.1	89°22.4
Acamar	315°11.3	-40°11.9
Menkar	314°05.3	4°11.6
Mirfak	308°27.1	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.7	46°01.5
Bellatrix	278°22.0	6°22.4
Elath	278°00.8	28°37.8
Anilam	275°36.9	-1°11.2
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.4	-52°42.7
Sirius	258°25.5	-16°45.2
Adhara	255°05.3	-29°00.6
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.6	-59°35.9
Suhail	222°45.6	-43°32.6
Miaplacidus	221°38.3	-69°49.8
Alphard	217°46.7	-8°46.5
Regulus	207°33.3	11°50.3
Dubhe	193°39.5	61°36.7
Denebola	182°23.7	14°25.4
Genah	175°42.3	-17°41.5
Acrux	172°58.4	-63°15.0
Gacrux	171°50.0	-57°16.0
Alioth	166°11.6	55°49.1
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°10.9
Hadar	148°33.8	-60°30.2
Menkent	147°55.9	-36°30.2
Arcturus	145°46.6	19°02.6
Rigil Kent.	139°38.1	-60°56.8
Kochab	137°18.7	74°02.8
Zuben'ubi	136°54.4	-16°09.2
Alphecca	126°02.4	26°37.5
Antares	112°14.1	-26°29.5
Atria	107°06.7	-69°04.4
Sabik	102°01.2	-15°45.5
Shaula	96°08.4	-37°07.3
Rasalhague	95°57.2	12°32.3
Eltanin	90°41.2	51°28.9
Kaus Aust.	83°30.7	-34°22.2
Vega	80°32.1	38°48.3
Nunki	75°46.1	-26°15.8
Altair	61°58.7	8°56.2
Peacock	53°03.7	-56°38.7
Deneb	49°24.9	45°22.2
Enif	33°37.7	9°59.7
Al Na'ir	27°31.5	-46°49.7
Fomalhaut	15°13.4	-29°28.8
Scheat	13°44.2	28°13.4
Markab	13°28.9	15°20.7
May 22 Fri	SHA	Mer.pass
Venus	266°06.4	14.18
Mars	329°37.8	10.02
Jupiter	245°54.2	15.36
Saturn	348°41.9	08.45
May 23 Sat	SHA	Mer.pass
Venus	264°47.4	14.19
Mars	328°54.8	10.01
Jupiter	245°43.0	15.33
Saturn	348°36.6	08.42
May 24 Sun	SHA	Mer.pass
Venus	263°28.6	14.20
Mars	328°11.8	10.00
Jupiter	245°31.6	15.29
Saturn	348°31.3	08.38
Horizontal parallax		
Venus:	0.1	
Mars:	0.1	

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	242°35.7	144°45.6	N25°01.0	210°04.5	N12°23.1	127°55.9	N21°54.9	231°01.8	N02°32.3					
1	257°38.2	159°44.8	00.9	225°05.1	23.7	142°57.9	54.9	246°04.1	32.4					
2	272°40.7	174°44.0	00.8	240°05.8	24.4	157°59.9	54.8	261°06.3	32.4					
3	287°43.1	189°43.2	.. 00.7	255°06.5	.. 25.0	173°01.9	.. 54.7	276°08.6	.. 32.5					
4	302°45.6	204°42.4	00.6	270°07.2	25.7	188°03.9	54.7	291°10.8	32.6					
5	317°48.1	219°41.5	00.5	285°07.8	26.3	203°05.9	54.6	306°13.1	32.7					
6	332°50.5	234°40.7	N25°00.4	300°08.5	N12°27.0	218°07.8	N21°54.5	321°15.3	N02°32.8					
7	347°53.0	249°39.9	00.3	315°09.2	27.6	233°09.8	54.4	336°17.6	32.9					
8	2°55.5	264°39.1	00.2	330°09.8	28.3	248°11.8	54.4	351°19.8	32.9					
9	17°57.9	279°38.3	.. 00.1	345°10.5	.. 28.9	263°13.8	.. 54.3	6°22.1	.. 33.0					
10	33°00.4	294°37.5	25°00.0	0°11.2	29.6	278°15.8	54.2	21°24.3	33.1					
11	48°02.8	309°36.7	24°59.9	15°11.8	30.2	293°17.8	54.1	36°26.6	33.2					
12	63°05.3	324°35.9	N24°59.8	30°12.5	N12°30.8	308°19.7	N21°54.1	51°28.8	N02°33.3					
13	78°07.2	339°35.1	59.7	45°13.2	31.5	323°21.7	54.0	66°31.1	33.3					
14	93°10.2	354°34.2	59.5	60°13.8	32.1	338°23.7	53.9	81°33.3	33.4					
15	108°12.7	369°34.4	.. 59.4	75°14.5	.. 32.8	353°25.7	.. 53.8	96°35.6	.. 33.5					
16	123°15.2	24°32.6	59.3	90°15.2	33.4	8°27.7	53.8	111°37.8	33.6					
17	138°17.6	39°31.8	59.2	105°15.9	34.1	23°29.7	53.7	126°40.1	33.7					
18	153°20.1	54°31.0	N24°59.1	120°16.5	N12°34.7	38°31.6	N21°53.6	141°42.3	N02°33.8					
19	168°22.6	69°30.2	59.0	135°17.2	35.4	53°33.6	53.6	156°44.6	33.8					
20	183°25.0	84°29.4	58.8	150°17.9	36.0	68°35.6	53.5	171°46.8	33.9					
21	198°27.5	99°28.6	.. 58.7	165°18.5	.. 36.6	83°37.6	.. 53.4	186°49.1	.. 34.0					
22	213°30.0	114°27.8	58.6	180°19.2	37.3	98°39.6	53.3	201°51.3	34.1					
23	228°32.4	129°27.0	58.5	195°19.9	37.9	113°41.6	53.3	216°53.6	34.2					
Mer.pass. 07:48			ν -0.8° d 0.1' m -3.94			ν 0.7° d 0.6' m 1.26			ν 2.0° d 0.1' m -1.91			ν 2.2° d 0.1' m 0.89		

Tue	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	243°34.9	144°26.1	N24°58.3	210°20.5	N12°38.6	128°43.5	N21°53.2	231°55.8	N02°34.2					
1	258°37.3	159°25.3	58.2	225°21.2	39.2	143°45.5	53.1	246°58.1	34.3					
2	273°39.8	174°24.5	58.1	240°21.9	39.9	158°47.5	53.0	262°00.3	34.4					
3	288°42.3	189°23.7	.. 58.0	255°22.5	.. 40.5	173°49.5	.. 53.0	277°02.6	.. 34.5					
4	303°44.7	204°22.9	57.8	270°23.2	41.1	188°51.5	52.9	292°04.9	34.6					
5	318°47.2	219°22.1	57.7	285°23.9	41.8	203°53.5	52.8	307°07.1	34.6					
6	333°49.7	234°21.3	N24°57.6	300°24.5	N12°42.4	218°55.4	N21°52.7	322°09.4	N02°34.7					
7	348°52.1	249°20.5	57.4	315°25.2	43.1	233°57.4	52.7	337°11.6	34.8					
8	3°54.6	264°19.7	57.2	330°25.9	43.7	248°59.4	52.6	352°13.9	34.9					
9	18°57.1	279°18.9	.. 57.3	345°26.5	.. 44.3	264°01.4	.. 52.5	7°16.1	.. 35.0					
10	33°59.5	294°18.1	57.0	0°27.2	45.0	279°03.4	52.4	22°18.4	35.1					
11	49°02.0	309°17.3	56.9	15°27.9	45.6	294°05.3	52.4	37°20.6	35.1					
12	64°04.4	324°16.5	N24°56.8	30°28.6	N12°46.3	309°07.3	N21°52.3	52°22.9	N02°35.2					
13	79°06.9	339°15.7	56.6	45°29.2	46.9	324°09.3	52.2	67°25.1	35.3					
14	94°09.4	354°14.9	56.5	60°29.9	47.5	339°11.3	52.1	82°27.4	35.4					
15	109°11.8	9°14.1	.. 56.3	75°30.6	.. 48.2	354°13.3	.. 52.1	97°29.6	.. 35.5					
16	124°14.4	24°13.3	56.2	90°31.2	48.8	9°15.2	52.0	112°31.9	35.5					
17	139°16.8	39°12.4	56.0	105°31.9	49.5	24°17.2	51.9	127°34.1	35.6					
18	154°19.2	54°11.6	N24°55.9	120°32.6	N12°50.1	39°19.2	N21°51.8	142°36.4	N02°35.7					
19	169°21.7	69°10.8	55.7	135°33.2	50.7	54°21.2	51.8	157°38.6	35.8					
20	184°24.2	84°10.0	55.6	150°33.9	51.4	69°23.2	51.7	172°40.9	35.9					
21	199°26.6	99°09.2	.. 55.4	165°34.6	.. 52.0	84°25.1	.. 51.6	187°43.1	.. 35.9					
22	214°29.1	114°08.4	55.3	180°35.2	52.7	99°27.1	51.5	202°45.4	36.0					
23	229°31.6	129°07.6	55.1	195°35.9	53.3	114°29.1	51.5	217°47.6	36.1					
Mer.pass. 07:44			ν -0.8° d 0.1' m -3.94			ν 0.7° d 0.6' m 1.26			ν 2.0° d 0.1' m -1.90			ν 2.3° d 0.1' m 0.89		

Wed	GHA		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec	
0	244°34.0	144°06.8	N24°55.0	210°36.6	N12°53.9	129°31.1	N21°51.4	232°49.9	N02°36.2					
1	259°36.5	159°06.0	54.8	225°37.2	54.6	144°33.1	51.3	247°52.2	36.3					
2	274°38.9	174°05.2	54.7	240°37.9	55.2	159°35.0	51.2	262°54.4	36.4					
3	289°41.4	189°04.4	.. 54.5	255°38.6	.. 55.8	174°37.0	.. 51.2	277°56.7	.. 36.3					
4	304°43.9	204°03.6	54.3	270°39.2	56.5	189°39.0	51.1	292°58.9	36.5					
5	319°46.3	219°02.8	54.2	285°39.9	57.1	204°41.0	51.0	308°01.2	36.6					
6	334°48.8	234°02.0	N24°54.0	300°40.6	N12°57.7	219°43.0	N21°50.9	323°03.4	N02°36.7					
7	349°51.3	249°01.2	53.9	315°41.2	58.4	234°44.9	50.9	338°05.7	36.7					
8	4°53.7	264°00.0	53.7	330°41.9	59.0	249°46.9	50.8	353°07.9	36.8					
9	19°56.2	279°59.6	.. 53.5	345°42.6	12°59.7	264°48.9	.. 50.7	8°10.2	.. 36.9					
10	34°58.7	293°58.8	53.4	0°43.2	13°00.3	279°50.9	50.6	23°12.4	37.0					
11	50°01.1	308°58.0	53.2	15°43.9	00.9	294°52.8	50.6	38°14.7	37.1					
12	65°03.6	323°57.2	N24°53.0	30°44.6	N13°01.6	309°54.8	N21°50.5	53°17.0	N02°37.1					
13	80°06.1	338°56.4	52.9	45°45.2	02.2	324°56.8	50.4	68°19.2	37.2					
14	95°08.5	353°55.6	52.7	60°45.9	02.8	339°58.8	50.3	83°21.5	37.3					
15	110°11.0	8°54.8	.. 52.5	75°46.6	.. 03.5	355°00.8	.. 50.3	98°23.7	.. 37.4					
16	125°13.4	23°54.0	52.3	90°47.2	04.1	10°02.7	50.2	113°26.0	37.4					
17	140°15.9	38°53.2	52.2	105°47.9	04.7	25°04.7	50.1	128°28.2	37.5					
18	155°18.4	53°52.4	N24°52.0	120°48.6	N13°05.4	40°06.7	N21°50.0	143°30.5	N02°37.6					
19	170°20.8	68°51.6	51.8	135°49.2	06.0	55°08.7	50.0	158°32.7	37.7					
20	185°23.3	83°50.0	51.6	150°49.9	06.6	70°10.6	49.9	173°35.0	37.8					
21	200°25.8	98°50.0	.. 51.5	165°50.6	.. 07.3	85°12.6	.. 49.8	188°37.2	.. 37.8					
22	215°28.2	113°49.3	51.3	180°51.2	07.9	100°14.6	49.7	203°39.5	37.9					
23	230°30.7	128°48.5	51.1	195°51.9	08.5	115°16.6	49.7	218°41.8	38.0					
Mer.pass. 07:40			ν -0.8° d 0.2' m -3.94			ν 0.7° d 0.6' m 1.26			ν 2.0° d 0.1' m -1.90			ν 2.3° d 0.1' m 0.89		

Stars	SHA	Dec
Alpheratz	357°33.8	29°14.0
Ankaa	353°06.3	-42°09.6
Schedar	349°30.1	56°40.7
Diphda	348°46.4	-17°50.4
Achernar	335°19.8	-57°06.0
Hamal	327°50.2	23°35.1
Polaris	313°55.6	89°22.0
Acamar	315°11.3	-40°11.8
Menkar	314°05.3	4°11.6
Mirafak	308°27.1	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.7	46°01.5
Bellatrix	278°22.0	6°22.4
Alnilam	275°36.9	-1°11.2
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.4	-52°42.7
Sirius	258°25.5	-16°45.2
Adhara	255°05.3	-29°00.6
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.6	-59°35.9
Suhail	222°45.6	-43°32.6
Miaplacidus	221°38.4	-69°49.8
Alphard	217°46.7	-8°46.5
Regulus	207°33.3	11°50.3
Dubhe	193°39.5	61°36.7
Denebola	182°23.7	14°25.5
Gienah	175°42.3	-17°41.5
Acrux	172°58.5	-63°15.0
Gacrux	171°50.1	-57°16.0
Alloth	166°11.6	55°49.1
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°11.0
Hadar	148°33.8	-60°30.2
Menkent	147°55.9	-36°30.2
Arcturus	145°46.6	19°02.7</

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	245°33.2	143°47.7	N24°50.9	210°52.5	N13°09.2	130°18.5	N21°49.6	233°44.0	N02°38.1										
1	260°35.6	158°46.9		50.7	225°53.2	09.8	145°20.5	49.5	248°46.3	38.2									
2	275°38.1	173°46.1		50.5	240°53.9	10.4	160°22.5	49.4	263°48.5	38.2									
3	290°40.0	188°45.3	••	50.3	255°54.5	••	11.0	175°24.5	••	49.4	278°50.8	••	38.2						
4	305°43.0	203°44.5		50.2	270°55.2	11.7	190°26.4	49.3	293°53.0	38.4									
5	320°45.5	218°43.7		50.0	285°55.9	12.3	205°28.4	49.2	308°55.3	38.5									
6	335°47.9	233°42.9	N24°48.6	300°56.5	N13°12.9	220°30.4	N21°49.1	323°57.6	N02°38.6										
7	350°50.4	248°42.1		49.6	315°57.2	13.6	235°32.4	49.1	338°59.8	38.6									
8	5°52.9	263°41.3		49.4	330°57.9	14.2	250°34.4	49.0	354°02.1	38.7									
9	20°55.3	278°40.5	••	49.2	345°58.5	••	14.8	265°36.3	••	48.9	9°04.3	••	38.8						
10	35°57.8	293°39.7		49.0	0°59.2	15.5	280°38.3	48.8	24°06.6	38.9									
11	51°00.3	308°38.9		48.8	15°59.9	16.1	295°40.3	48.7	39°08.8	38.9									
12	66°02.7	323°38.1	N24°48.6	31°00.5	N13°16.7	310°42.2	N21°48.7	54°11.1	N02°39.0										
13	81°05.2	338°37.4		48.4	46°01.2	17.3	325°44.2	48.6	69°13.4	39.1									
14	96°07.7	353°36.6		48.2	61°01.9	18.0	340°46.2	48.5	84°15.6	39.2									
15	111°10.1	8°35.8	••	48.0	76°02.5	••	18.6	355°48.2	••	48.4	99°17.9	••	39.3						
16	126°12.6	23°35.0		47.8	91°03.2	19.2	10°50.1	48.4	114°20.1	39.3									
17	141°15.0	38°34.2		47.6	106°03.9	19.8	25°52.1	48.3	129°22.4	39.4									
18	156°17.5	53°33.4	N24°47.4	121°04.5	N13°20.5	40°54.1	N21°48.2	144°24.6	N02°39.5										
19	171°20.0	68°32.6		47.2	136°05.2	21.1	55°56.1	48.1	159°26.9	39.6									
20	186°22.4	83°31.8		47.0	151°05.8	21.7	70°58.0	48.1	174°29.2	39.6									
21	201°24.9	98°31.0	••	46.8	166°06.5	••	22.4	86°00.0	••	48.0	189°31.4	••	39.7						
22	216°27.4	113°30.2		46.6	181°07.2	23.0	101°02.0	47.9	204°33.7	39.8									
23	231°29.8	128°29.5		46.3	196°07.8	23.6	116°04.0	47.8	219°35.9	39.9									
Mer.pass. 07:37				ν -0.8' d 0.2' m -3.94				ν 0.7' d 0.6' m 1.26				ν 2.0' d 0.1' m -1.89				ν 2.3' d 0.1' m 0.89			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	246°32.3	143°28.7	N24°46.1	211°08.5	N13°24.2	131°05.9	N21°47.7	234°38.2	N02°40.0										
1	261°34.8	158°27.9		45.9	226°09.2	24.9	146°07.9	47.7	249°40.4										
2	276°37.2	173°27.1		45.7	241°09.8	25.5	161°09.9	47.6	264°42.7										
3	291°39.7	188°26.3	· ·	45.5	256°10.5	· ·	26.1	176°11.9	· ·	47.5									
4	306°42.2	203°25.5		45.3	271°11.2	26.7	191°13.8	47.4	294°47.2										
5	321°44.6	218°24.7		45.1	286°11.8	27.4	206°15.8	47.4	309°49.5										
6	336°47.1	233°23.9	N24°44.8	301°12.5	N13°28.0	221°17.8	N21°47.3	324°51.7	N02°40.4										
7	351°49.5	248°23.2		44.6	316°13.1	28.6	236°19.7	47.2	339°54.0										
8	6°52.0	263°22.4		44.4	331°13.8	29.2	251°21.7	47.1	354°56.3										
9	21°54.5	278°21.6	· ·	44.2	346°14.5	· ·	29.8	266°23.7	· ·	47.0									
10	36°56.9	293°20.8		43.9	1°15.1	30.5	281°25.7	47.0	25°00.8										
11	51°59.4	308°20.0		43.7	16°15.8	31.1	296°27.6	46.9	40°03.0										
12	67°01.9	323°19.2	N24°43.5	31°16.5	N13°31.7	311°29.6	N21°46.8	55°05.3	N02°40.9										
13	82°04.3	338°18.5		43.3	46°17.1	32.3	326°31.6	46.7	70°07.6										
14	97°06.8	353°17.7		43.0	61°17.8	33.0	341°33.5	46.7	85°09.8										
15	112°09.3	8°16.9	· ·	42.8	76°18.5	· ·	33.6	356°35.5	· ·	46.6									
16	127°11.7	23°16.1		42.6	91°19.1	34.2	11°37.5	46.5	115°14.3										
17	142°14.2	38°15.3		42.3	106°19.8	34.8	26°39.5	46.4	130°16.6										
18	157°16.6	53°14.5	N24°42.1	121°20.4	N13°35.4	41°41.4	N21°46.3	145°18.9	N02°41.3										
19	172°19.1	68°13.8		41.9	136°21.1	36.1	56°43.4	46.3	160°21.1										
20	187°21.6	83°13.0		41.6	151°21.8	36.7	71°45.4	46.2	175°23.4										
21	202°24.0	98°12.2	· ·	41.4	166°22.4	· ·	37.3	86°47.3	· ·	41.6									
22	217°26.5	113°11.4		41.2	181°23.1	37.9	101°49.3	46.0	205°27.9										
23	232°29.0	128°10.6		40.9	196°23.8	38.6	116°51.3	46.0	220°30.2										
Mer.pass. 07:33				ν -0.8' d 0.2' m -3.94				ν 0.7' d 0.6' m 1.27				ν 2.0' d 0.1' m -1.89				ν 2.3' d 0.1' m 0.88			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	247°31.4	143°09.9	N24°40.7	211°24.4	N13°39.2	131°53.2	N21°45.9	235°32.4	N02°41.8										
1	262°33.9	158°09.1	40.4	226°25.1	39.8	146°55.2	45.8	250°34.7	41.9										
2	277°36.4	173°08.3	40.2	241°25.7	40.4	161°57.2	45.7	265°36.9	42.0										
3	292°38.8	188°07.5	•• 39.9	256°26.4	•• 41.0	176°59.2	•• 45.6	280°39.2	•• 42.4										
4	307°41.3	203°06.8	39.7	271°27.1	41.6	192°01.1	45.6	295°41.5	42.1										
5	322°43.8	218°06.0	39.5	286°27.7	42.3	207°03.1	45.5	310°43.7	42.2										
6	337°46.2	233°05.2	N24°39.2	301°28.4	N13°42.9	222°05.1	N21°45.4	325°46.0	N02°42.3										
7	352°48.7	248°04.4	39.0	316°29.1	43.5	237°07.0	45.3	340°48.3	42.3										
8	7°51.1	263°03.6	38.7	331°29.7	44.1	252°09.0	45.2	355°50.5	42.4										
9	22°53.6	278°02.9	•• 38.5	346°30.4	•• 44.7	267°11.0	•• 45.2	10°52.8	•• 42.5										
10	37°56.1	293°02.1	38.2	1°31.0	45.4	282°12.9	45.1	25°55.0	42.6										
11	52°58.5	308°01.3	37.9	16°31.7	46.0	297°14.9	45.0	40°57.3	42.6										
12	68°01.0	323°00.5	N24°37.7	31°32.4	N13°46.6	312°16.9	N21°44.9	55°59.6	N02°42.7										
13	83°03.5	337°59.8	37.4	46°33.0	47.2	327°18.8	44.9	71°01.8	42.8										
14	98°05.9	352°59.0	37.2	61°33.7	47.8	342°20.8	44.8	86°04.1	42.9										
15	113°08.4	7°58.2	•• 36.9	76°34.3	•• 48.4	357°22.8	•• 44.7	101°06.4	•• 42.9										
16	128°10.9	22°57.4	36.7	91°35.0	49.1	12°24.7	44.6	116°08.6	43.0										
17	143°13.3	37°56.7	36.4	106°35.7	49.7	27°26.7	44.5	131°10.9	43.1										
18	158°15.8	52°55.9	N24°36.1	121°36.3	N13°50.3	42°28.7	N21°44.5	146°13.1	N02°43.2										
19	173°18.3	67°55.1	35.9	136°37.0	50.9	57°30.6	44.4	161°15.4	43.2										
20	188°20.7	82°54.3	35.6	151°37.6	51.5	72°32.6	44.3	176°17.7	43.3										
21	203°23.2	97°53.6	•• 35.3	166°38.3	•• 52.1	87°34.6	•• 44.2	191°19.9	•• 43.4										
22	218°25.6	112°52.8	35.1	181°39.0	52.7	102°36.5	44.1	206°22.2	43.5										
23	233°28.1	127°52.0	34.8	196°39.6	53.4	117°38.5	44.1	221°24.5	43.5										
Mer.pass. 07:29				ν -0.8' d 0.2' m -3.94				ν 0.7' d 0.6' m 1.27				ν 2.0' d 0.1' m -1.89				ν 2.3' d 0.1' m 0.88			

	Stars	
	SHA	Dec
Alpheratz	357°33.8	29°14.0
Ankaa	353°06.2	-42°09.5
Schedar	349°30.1	56°40.7
Diphda	348°46.3	-17°50.4
Achernar	335°19.8	-57°05.9
Hamal	327°50.2	23°35.1
Polaris	313°54.9	89°22.6
Acamar	315°11.3	-40°11.8
Menkar	314°05.3	4°11.6
Mirafak	308°27.1	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.7	46°01.5
Bellatrix	278°22.0	6°22.4
Elnath	278°08.0	28°37.8
Alnilam	275°36.9	-1°11.1
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.4	-52°42.7
Sirius	258°25.5	-16°45.2
Adhara	255°05.3	-29°00.6
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.6	-59°35.9
Suhail	222°45.7	-43°32.6
Miaplacidus	221°38.4	-69°49.8
Alphard	217°46.7	-8°46.5

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	248°30.6	142°51.3	N24°34.5	211°40.3	N13°54.0	132°40.5	N21°44.0	236°26.7	N02°43.6										
1	263°33.0	157°50.5	34.3	226°41.0	54.6	147°42.4	43.9	251°29.0	43.7										
2	278°35.5	172°49.7	34.0	241°41.6	55.2	162°44.4	43.8	266°31.2	43.8										
3	293°38.0	187°49.0	•• 33.7	256°42.3	•• 55.8	177°46.4	•• 43.7	281°33.5	•• 43.8										
4	308°40.4	202°48.2	33.2	271°42.9	56.4	192°48.3	43.7	296°35.8	43.9										
5	323°42.9	217°47.4	33.2	286°43.6	57.0	207°50.3	43.6	311°38.0	44.0										
6	338°45.4	232°46.6	N24°33.9	301°44.3	N13°57.6	222°52.3	N21°43.5	326°40.3	N02°44.1										
7	353°47.8	247°45.9	32.6	316°44.9	58.3	237°54.2	43.4	341°42.6	44.1										
8	8°50.3	262°45.1	32.3	331°45.6	58.9	252°56.2	43.3	356°44.8	44.2										
9	23°52.8	277°44.3	•• 32.0	346°46.2	53°59.5	267°58.2	•• 43.3	1°47.1	•• 44.3										
10	38°55.2	292°43.6	31.8	1°46.9	14°00.1	283°00.1	43.2	26°49.4	44.4										
11	53°57.7	307°42.8	31.5	16°47.6	00.7	298°02.1	43.1	41°51.6	44.4										
12	69°00.1	322°42.0	N24°31.2	31°48.2	N14°01.3	313°04.1	N21°43.0	56°53.9	N02°44.5										
13	84°02.6	337°41.3	30.9	46°48.9	01.9	328°06.0	42.9	71°56.2	44.6										
14	99°05.1	352°40.5	30.6	61°49.5	02.5	343°08.0	42.9	86°58.4	44.7										
15	114°07.5	7°39.7	•• 30.3	76°50.2	•• 03.1	358°10.0	•• 42.8	102°00.7	•• 44.7										
16	129°10.0	22°39.0	30.3	91°50.9	03.7	13°11.9	42.7	117°03.0	44.8										
17	144°12.5	37°38.2	29.8	106°51.5	04.8	28°13.9	42.6	132°05.2	44.9										
18	159°14.9	52°37.5	N24°29.5	121°52.2	N14°05.0	43°15.9	N21°42.5	147°07.5	N02°45.0										
19	174°17.4	67°36.7	29.2	136°52.8	05.6	58°17.8	42.5	162°09.7	45.0										
20	189°19.9	82°35.9	28.9	151°53.5	06.2	73°19.8	42.4	177°12.0	45.1										
21	204°22.3	97°35.2	•• 28.6	166°54.1	•• 06.8	88°21.8	•• 42.3	192°14.3	•• 45.2										
22	219°24.8	112°34.4	•• 28.3	181°54.8	07.4	103°23.7	42.2	207°16.5	45.3										
23	234°27.3	127°33.6	28.0	196°55.5	08.0	118°25.7	42.1	222°18.8	45.3										
Mer.pass. 07:25				ν -0.8' d 0.3' m -3.95				ν 0.7' d 0.6' m 1.27				ν 2.0' d 0.1' m -1.88				ν 2.3' d 0.1' m 0.88			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	249°29.7	142°32.9	N24°27.7	211°56.1	N14°08.6	133°27.6	N21°42.1	237°21.1	N02°45.4										
1	264°32.2	157°32.1	27.4	226°56.8	09.2	148°29.6	42.0	252°23.3	45.5										
2	279°34.6	172°31.4	27.1	241°57.4	09.8	163°31.6	41.9	267°25.6	45.6										
3	294°37.1	187°30.6	•• 26.8	256°58.1	•• 10.4	178°33.5	•• 41.8	282°27.9	•• 45.6										
4	309°39.6	202°29.8	26.5	271°58.8	11.0	193°35.5	41.7	297°30.1	45.7										
5	324°42.0	217°29.1	26.2	286°59.4	11.7	208°37.5	41.7	312°32.4	45.8										
6	339°44.5	232°28.3	N24°25.9	302°00.1	N14°12.3	223°39.4	N21°41.6	327°34.7	N02°45.9										
7	354°47.0	247°27.6	25.6	317°00.7	12.9	238°41.4	41.5	342°36.9	45.9										
8	9°49.4	262°26.8	25.3	332°01.4	13.5	253°43.4	41.4	357°39.2	46.0										
9	24°51.9	277°26.0	•• 25.0	347°02.1	•• 14.1	268°45.3	•• 41.3	12°41.5	•• 46.1										
10	39°54.4	292°25.3	24.7	2°02.7	14.7	283°47.3	41.3	27°43.7	46.1										
11	54°56.8	307°24.5	24.3	17°03.4	15.3	298°49.2	41.2	42°46.0	46.2										
12	69°59.3	322°23.8	N24°24.0	32°04.0	N14°15.9	313°51.2	N21°41.1	57°48.3	N02°46.3										
13	85°01.7	337°23.0	23.7	47°04.7	16.5	328°53.2	41.0	72°50.5	46.4										
14	100°04.2	352°22.3	23.4	62°05.3	17.1	343°55.1	40.9	87°52.8	46.4										
15	115°06.7	7°21.5	•• 23.1	77°06.0	•• 17.7	358°57.1	•• 40.9	102°55.1	•• 46.5										
16	130°09.1	22°20.8	22.8	92°06.7	18.3	13°59.1	40.8	117°57.3	46.6										
17	145°11.6	37°20.0	22.5	107°07.3	18.9	29°01.0	40.7	132°59.6	46.7										
18	160°14.1	52°19.2	N24°22.1	122°08.0	N14°19.5	44°03.0	N21°40.6	148°01.9	N02°46.7										
19	175°16.5	67°18.5	21.8	137°08.6	20.1	59°04.9	40.5	163°04.2	46.8										
20	190°19.0	82°17.7	21.5	152°09.3	20.7	74°06.9	40.4	178°06.4	46.9										
21	205°21.5	97°17.0	•• 21.2	167°09.9	•• 21.3	89°08.9	•• 40.4	193°08.7	•• 47.0										
22	220°23.9	112°16.2	20.8	182°10.6	21.9	104°10.8	40.3	208°11.0	47.0										
23	235°26.4	127°15.5	20.5	197°11.3	22.5	119°12.8	40.2	223°13.2	47.1										
Mer.pass. 07:21				ν -0.8' d 0.3' m -3.95				ν 0.7' d 0.6' m 1.27				ν 2.0' d 0.1' m -1.88				ν 2.3' d 0.1' m 0.88			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	250°28.9	142°14.7	N24°20.2	212°11.9	N14°23.1	134°14.7	N21°40.1	238°15.5	N02°47.2
1	265°31.3	157°14.0	19.9	227°12.6	23.7	149°16.7	40.0	253°17.8	47.2
2	280°33.8	172°13.2	19.5	242°13.2	24.3	164°18.7	40.0	268°20.0	47.3
3	295°36.2	187°12.5	•• 19.2	257°13.9	•• 24.9	179°20.6	•• 39.9	283°22.3	•• 47.4
4	310°38.7	202°11.7	18.9	272°14.6	25.5	194°22.6	39.8	298°24.6	47.5
5	325°41.2	217°11.0	18.5	287°15.2	26.1	209°24.5	39.7	313°26.8	47.5
6	340°43.6	232°10.2	N24°18.2	302°15.9	N14°26.7	224°26.5	N21°39.6	328°29.1	N02°47.6
7	355°46.1	247°09.5	17.9	317°16.5	27.3	239°28.5	39.5	343°31.4	47.7
8	10°48.6	262°08.7	17.5	332°17.2	27.9	254°30.4	39.5	358°33.7	47.8
9	25°51.0	277°08.0	•• 17.2	347°17.8	•• 28.5	269°32.4	•• 39.4	13°35.9	•• 47.8
10	40°53.5	292°07.2	16.9	2°18.5	29.1	284°34.4	39.3	28°38.2	47.9
11	55°56.0	307°06.5	16.5	17°19.1	29.7	299°36.3	39.2	43°40.5	48.0
12	70°58.4	322°05.7	N24°16.2	32°19.8	N14°30.3	314°38.3	N21°39.1	58°42.7	N02°48.0
13	86°00.9	337°05.0	15.8	47°20.5	30.9	329°40.2	39.1	73°45.0	48.1
14	101°03.4	352°04.3	15.5	62°21.1	31.5	344°42.2	39.0	88°47.3	48.2
15	116°05.8	7°03.5	•• 15.2	77°21.8	•• 32.1	359°44.1	•• 38.9	103°49.5	•• 48.3
16	131°08.3	22°02.8	14.8	92°22.4	32.7	14°46.1	38.8	118°51.8	48.3
17	146°10.7	37°02.0	14.5	107°23.1	33.3	29°48.1	38.7	133°54.1	48.4
18	161°13.2	52°01.3	N24°14.1	122°23.7	N14°33.9	44°50.0	N21°38.6	148°56.6	N02°48.5
19	176°15.7	67°00.5	13.8	137°24.4	34.5	59°52.0	38.6	163°58.6	48.5
20	191°18.1	81°59.8	13.4	152°25.1	35.1	74°53.9	38.5	179°00.9	48.6
21	206°20.6	96°59.0	•• 13.1	167°25.7	•• 35.7	89°55.9	•• 38.4	194°03.2	•• 48.7
22	221°23.1	111°58.3	12.7	182°26.4	36.3	104°57.9	38.3	209°05.4	48.8
23	236°25.5	126°57.6	12.4	197°27.0	36.9	119°59.8	38.2	224°07.7	48.8
Mer.pass. 07:17									
ν -0.8' d 0.3' m -3.95									
ν 0.7' d 0.6' m 1.27									
ν 2.0' d 0.1' m -1.88									
ν 2.3' d 0.1' m 0.87									

Stars		
	SHA	Dec
Alpheratz	357°33.7	29°14.0
Ankaa	353°06.2	-42°09.5
Schedar	349°30.0	-56°40.7
Diphda	348°46.3	-17°50.4
Achernar	335°19.8	-57°05.9
Hamal	327°50.2	23°35.1
Polaris	313°53.9	89°52.4
Acamar	315°11.3	-40°11.8
Menkai	314°05.3	4°11.6
Mirak	308°27.1	49°57.2
Aldebaran	290°38.7	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.7	46°01.4
Bellatrix	278°22.0	6°22.4
El Nath	278°00.8	28°37.8
Anilam	275°36.9	-1°11.1
Betelgeuse	270°51.2	7°24.7
Canopus	263°62.4	-52°42.7
Sirius	258°25.5	-16°45.2
Adhara	255°05.3	-29°00.6
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.7	-59°35.9
Suhail	222°45.7	-43°32.6
Miaplacidus	221°38.4	-69°49.8
Alphard	217°46.8	-8°46.5
Regulus	207°33.3	11°50.3
Dubhe	193°39.6	61°36.7
Denebola	182°23.7	14°25.5
Gienah	175°42.3	-17°41.5
Acrux	172°58.5	-63°15.1
Gacrux	171°50.1	-57°16.0
Alioth	166°11.7	55°49.1
Spica	158°20.9	-11°18.1
Alkaid	152°50.7	49°11.0
Hadar	148°33.9	-60°30.3
Menkent	147°55.9	-36°30.2
Arcturus	145°46.6	19°02.7
Rigel Kent	139°38.1	-60°56.9
Kochab	137°18.8	74°02.9
Zuben ul	136°54.4	-16°09.2
Alphecca	126°02.4	-26°37.5
Antares	112°14.1	-26°29.5
Atria	107°06.7	-69°04.5
Sabik	102°01.1	-15°45.5
Shaula	96°08.4	-37°07.3
Rasalhague	95°57.2	12°32.4
Eltanin	90°41.1	51°29.0
Kaus Aus	83°30.6	-34°22.3
Vega	80°32.1	38°48.3
Nunki	75°46.0	-26°15.8
Altair	61°58.6	8°56.2
Peacock	53°03.6	-56°38.7
Deneb	49°24.8	45°22.2
Enif	33°37.6	9°59.7
Al Na'ir	27°31.4	-46°49.7
Fomalhaut	15°13.3	-29°28.8
Scheat	13°44.1	28°13.4
Markab	13°28.8	15°20.8
May 31 Sun	SHA	Mer.pass
Venus	254°20.7	14:29
Mars	323°09.7	09:53
Jupiter	244°09.9	15:07
Saturn	347°56.1	08:13
Jun 01 Mon	SHA	Mer.pass
Venus	253°03.2	14:31
Mars	322°26.4	09:52
Jupiter	243°57.9	15:04
Saturn	347°51.4	08:09
Jun 02 Tue	SHA	Mer.pass
Venus	251°45.9	14:32
Mars	321°43.1	09:51
Jupiter	243°45.9	15:01
Saturn	347°46.6	08:06
Horizontal parallax		
Venus:		0.1
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	251°28.0	141°56.8	N24°12.0	212°27.7	N14°37.5	135°01.8	N21°38.2	239°10.0	N02°48.9										
1	266°30.5	156°56.1	11.7	227°28.3	38.1	150°03.7	38.1	254°12.3	49.0										
2	281°32.9	171°55.3	11.3	242°29.0	38.7	165°05.7	38.0	269°14.5	49.0										
3	296°35.4	186°54.6	•• 11.0	257°29.6	•• 39.3	180°07.6	•• 37.9	284°16.8	•• 49.0										
4	311°37.9	201°53.9	10.6	272°30.3	39.9	195°09.6	37.8	299°19.1	49.2										
5	326°40.4	216°53.1	10.2	287°31.0	40.4	210°11.6	37.7	314°21.3	49.3										
6	341°42.8	231°52.4	N24°09.9	302°31.6	N14°41.0	225°13.5	N21°37.2	329°23.6	N02°49.8										
7	356°45.2	246°51.6	09.5	317°32.3	41.6	240°15.5	37.6	344°25.9	49.4										
8	11°47.7	261°50.9	09.1	332°32.9	42.2	255°17.4	37.5	359°28.2	49.5										
9	26°50.2	276°50.2	•• 08.8	347°33.6	•• 42.8	270°19.4	•• 37.4	14°30.4	•• 49.5										
10	41°52.6	291°49.4	08.4	2°34.2	43.4	285°21.4	37.3	29°32.7	49.6										
11	56°55.1	306°48.7	08.1	17°34.9	44.0	300°23.3	37.2	44°35.0	49.7										
12	71°57.6	321°48.0	N24°07.7	32°35.5	N14°44.6	315°25.3	N21°37.2	59°37.2	N02°49.8										
13	87°00.0	336°47.2	07.3	47°36.2	45.2	330°27.2	37.1	74°39.5	49.8										
14	102°02.5	351°46.5	06.9	62°36.8	45.8	345°29.2	37.0	89°41.8	49.9										
15	117°05.0	•6°45.8	•• 06.6	77°37.5	•• 46.4	0°31.1	•• 36.9	104°44.1	•• 50.0										
16	132°07.4	21°45.0	06.2	92°38.2	47.0	15°33.1	36.8	119°46.3	50.0										
17	147°09.9	36°44.3	05.8	107°38.8	47.6	30°35.0	36.7	134°48.6	50.1										
18	162°12.4	51°43.6	N24°05.5	122°39.5	N14°48.1	45°37.0	N21°37.2	149°50.9	N02°50.2										
19	177°14.8	66°42.8	05.1	137°40.1	48.7	60°39.0	36.6	164°53.2	50.2										
20	192°17.3	81°42.1	04.7	152°40.8	49.3	75°40.9	36.5	179°55.4	50.3										
21	207°19.7	96°41.4	•• 04.3	167°41.4	•• 49.9	90°42.9	•• 36.4	194°57.7	•• 50.4										
22	222°22.2	111°40.6	03.9	182°42.1	50.5	105°44.8	36.3	210°00.0	50.5										
23	237°24.7	126°39.9	03.6	197°42.7	51.1	120°46.8	36.2	225°02.3	50.5										
Mer.pass. 07:13				ν -0.7° d 0.4' m -3.95				ν 0.7° d 0.6' m 1.27				ν 2.0° d 0.1' m -1.88				ν 2.3° d 0.1' m 0.87			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	252°27.1	141°39.2	N24°03.2	212°43.4	N14°51.7	135°48.7	N21°36.2	240°04.5	N02°50.6										
1	267°29.6	156°38.4	02.8	227°44.0	52.3	150°50.7	36.1	255°06.8	50.7										
2	282°32.1	171°37.7	02.4	242°44.7	52.9	165°52.6	36.0	270°09.1	50.7										
3	297°34.5	186°37.0	•• 02.0	257°45.4	•• 53.4	180°54.6	•• 35.9	285°11.4	•• 50.8										
4	312°37.0	201°36.3	01.6	272°46.0	54.0	195°56.6	35.8	300°13.6	50.9										
5	327°39.5	216°35.5	01.3	287°46.7	54.6	210°58.5	35.7	315°15.9	51.0										
6	342°41.9	231°34.8	N24°00.9	302°47.3	N14°55.2	226°00.5	N21°35.7	330°18.2	N02°51.0										
7	357°44.4	246°34.1	00.5	317°48.0	55.8	241°02.4	35.6	345°20.5	51.1										
8	12°46.9	261°33.3	24°00.1	332°48.6	56.4	256°04.4	35.5	0°22.7	51.2										
9	27°49.3	276°32.6	23°59.7	347°49.3	•• 57.0	271°06.3	•• 35.4	15°25.0	•• 51.2										
10	42°51.8	291°31.9	59.3	2°49.9	57.6	286°08.3	35.3	30°27.3	51.3										
11	57°54.2	306°31.2	58.9	17°50.6	58.1	301°10.2	35.2	45°29.6	51.4										
12	72°56.7	321°30.4	N23°58.5	32°51.2	N14°58.7	316°12.2	N21°35.1	60°31.8	N02°51.4										
13	87°59.2	336°29.7	58.1	47°51.9	59.3	331°14.1	35.1	75°34.1	51.5										
14	103°01.6	351°29.0	57.7	62°52.5	14°59.9	346°16.1	35.0	90°36.4	51.6										
15	118°04.1	•6°28.3	•• 57.3	77°53.2	15°00.5	1°18.1	•• 34.9	105°38.7	•• 51.6										
16	133°06.6	21°27.5	56.9	92°53.8	01.1	16°20.0	34.8	120°40.9	51.7										
17	148°09.0	36°26.8	56.5	107°54.5	01.6	31°22.0	34.7	135°43.2	51.8										
18	163°11.5	51°26.1	N23°56.1	122°55.1	N15°02.2	46°23.9	N21°34.6	150°45.5	N02°51.9										
19	178°14.0	66°25.4	55.7	137°55.8	02.8	61°25.9	34.6	165°47.8	51.9										
20	193°16.4	81°24.7	55.3	152°56.5	03.4	76°27.8	34.5	180°50.0	52.0										
21	208°18.9	96°23.9	•• 54.9	167°57.1	•• 04.0	91°29.8	•• 34.4	195°52.3	•• 52.1										
22	223°21.3	111°23.2	54.5	182°57.8	04.6	106°31.7	34.3	210°54.6	52.1										
23	238°23.8	126°22.5	54.1	197°58.4	05.1	121°33.7	34.2	225°56.9	52.2										
Mer.pass. 07:09				ν -0.7° d 0.4' m -3.95				ν 0.7° d 0.6' m 1.27				ν 2.0° d 0.1' m -1.87				ν 2.3° d 0.1' m 0.87			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	253°26.3	141°21.8	N23°53.7	212°59.1	N15°05.7	136°35.6	N21°34.1	240°59.1	N02°52.3
1	268°28.7	156°21.1	53.3	227°59.7	06.3	151°37.6	34.0	256°01.4	52.3
2	283°31.2	171°20.4	52.9	243°00.4	06.9	166°39.5	34.0	271°03.7	52.4
3	298°33.7	186°19.6	•• 52.5	258°01.0	•• 07.5	181°41.5	•• 33.9	286°06.0	•• 52.5
4	313°36.1	201°18.9	52.0	273°01.7	08.1	196°43.4	33.8	301°08.3	52.5
5	328°38.6	216°18.2	51.6	288°02.3	08.6	211°45.4	33.7	316°10.5	52.6
6	343°41.1	231°17.5	N23°51.2	303°03.0	N15°09.2	226°47.3	N21°33.6	331°12.8	N02°52.7
7	358°43.5	246°16.8	50.8	318°03.6	09.8	241°49.3	33.5	346°15.1	52.7
8	13°46.0	261°16.1	50.4	333°04.3	10.4	256°51.3	33.5	1°17.4	52.8
9	28°48.5	276°15.3	•• 50.0	348°04.9	•• 11.0	271°53.2	•• 33.4	16°19.6	•• 52.9
10	43°50.9	291°14.6	49.5	3°05.6	11.5	286°55.2	33.3	31°21.9	53.0
11	58°53.4	306°13.9	49.1	18°06.2	12.1	301°57.1	33.2	46°24.2	53.0
12	73°55.8	321°13.2	N23°48.7	33°06.9	N15°12.7	316°59.1	N21°33.1	61°26.5	N02°53.1
13	88°58.3	336°12.5	48.3	48°07.5	13.3	332°01.0	33.0	76°28.8	53.2
14	104°00.8	351°11.8	47.8	63°08.2	13.8	347°03.0	32.9	91°31.0	53.2
15	119°03.2	•6°11.1	•• 47.4	78°08.8	•• 14.4	2°04.9	•• 32.9	106°33.3	•• 53.3
16	134°05.7	21°10.4	47.0	93°09.5	15.0	17°06.9	32.8	121°35.6	53.4
17	149°08.2	36°09.6	46.6	108°10.1	15.6	32°08.8	32.7	136°37.9	53.4
18	164°10.6	51°08.9	N23°46.1	123°10.8	N15°16.2	47°10.8	N21°32.6	151°40.1	N02°53.5
19	179°13.1	66°08.2	45.7	138°11.4	16.7	62°12.7	32.5	166°42.4	53.6
20	194°15.6	81°07.5	45.3	153°12.1	17.3	77°14.7	32.4	181°44.7	53.6
21	209°18.0	96°06.8	•• 44.8	168°12.7	•• 17.9	92°16.6	•• 32.3	196°47.0	•• 53.7
22	224°20.5	111°06.1	44.4	183°13.4	18.5	107°18.6	32.3	211°49.3	53.8
23	239°23.0	126°05.4	44.0	198°14.0	19.0	122°20.5	32.2	226°51.5	53.8
Mer.pass. 07:05 ν -0.7° d 0.4' m -3.96 ν 0.7° d 0.6' m 1.28 ν 2.0° d 0.1' m -1.87 ν 2.3° d 0.1' m 0.87									

Stars			h			Sun			Moon		
	SHA	Dec	Wed	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.7	29°14.0	0	180°28.9	N22°17.2	328°53.7	10.5°	S26°54.0	4.2°	54.1°	
Ankaa	353°06.2	-42°09.5	1	195°28.8	17.5	343°23.2	10.6°	26°49.8	4.3°	54.1°	
Schedar	349°30.0	56°40.7	2	210°28.6	17.9	357°52.7	10.6°	26°45.5	4.5°	54.1°	
Diphda	348°46.3	-17°50.4	3	225°28.5	•• 18.2	12°22.3	10.6°	26°41.0	4.6°	54.1°	
Achernar	335°19.7	-57°05.9	4	240°28.4	18.5	26°51.9	10.7°	26°36.4	4.8°	54.1°	
Hamal	327°50.2	23°35.1	5	255°28.3	18.8	41°21.6	10.7°	26°31.6	4.8°	54.1°	
Polaris	313°52.9	89°22.4	6	270°28.2	N22°19.1	55°51.3	10.7°	S26°26.8	5.0°	54.1°	
Acamar	315°11.3	-40°11.8	7	285°28.1	19.4	70°21.0	10.8°	26°21.8	5.1°	54.1°	
Menkar	314°05.2	4°11.6	8	300°28.0	19.7	84°50.8	10.8°	26°16.7	5.3°	54.1°	
Mirafaz	308°27.1	19°57.2	9	315°27.9	•• 20.0	99°20.6	10.9°	26°11.4	5.4°	54.1°	
Aldebaran	290°38.6	16°37.7	10	330°27.8	20.3	113°50.5	10.9°	26°06.0	5.4°	54.1°	
Rigel	281°03.1	-8°10.3	11	345°27.7	20.6	128°20.4	10.9°	26°00.6	5.7°	54.1°	
Capella	280°20.7	46°01.4	12	0°27.6	20.9	142°50.3	11.0°	S25°54.9	5.7°	54.2°	
Bellatrix	278°22.0	6°22.4	13	15°27.5	21.2	157°20.3	11.0°	25°49.2	5.8°	54.2°	
Elnath	278°00.8	28°37.8	14	30°27.4	21.5	171°50.4	11.1°	25°43.4	6.0°	54.2°	
Anilam	275°36.9	-1°11.1	15	45°27.3	•• 21.8	186°20.4	11.1°	25°37.4	6.1°	54.2°	
Betelgeuse	270°51.2	7°24.7	16	60°27.2	22.1	200°50.6	11.2°	25°31.3	6.2°	54.2°	
Canopus	263°62.4	-52°42.7	17	75°27.1	22.4	215°20.7	11.2°	25°25.1	6.4°	54.2°	
Sirius	258°25.5	-16°45.2	18	90°27.0	N22°22.7	229°50.9	11.3°	S25°18.7	6.4°	54.2°	
Adhara	255°05.3	-29°00.6	19	105°26.9	23.0	244°21.2	11.3°	25°12.3	6.6°	54.2°	
Procyon	244°49.9	5°09.4	20	120°26.8	23.3	258°51.5	11.4°	25°05.7	6.7°	54.2°	
Pollux	233°16.2	27°57.8	21	135°26.7	•• 23.6	273°21.9	11.4°	24°59.0	6.8°	54.3°	
Avior	234°14.7	-59°35.9	22	150°26.6	23.9	287°52.3	11.4°	24°52.2	7.0°	54.3°	
Suhail	222°45.7	-43°32.6	23	165°26.5	24.2	302°22.7	11.5°	24°45.2	7.0°	54.3°	
Miaplacidus	221°38.5	-69°49.8									
Alphard	217°46.8	-8°46.5									

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	254°25.4	141°04.7	N23°43.5	213°14.7	N15°19.6	137°22.5	N21°32.1	241°53.8	N02°53.9										
1	269°27.9	156°04.0	43.1	228°15.3	20.2	152°24.4	32.0	256°56.1	54.0										
2	284°30.3	171°03.3	42.7	243°16.0	20.8	167°26.4	31.9	271°58.4	54.0										
3	299°32.8	186°02.6	42.2	258°16.6	21.3	182°28.3	31.8	287°00.7	54.1										
4	314°35.3	201°01.9	41.8	273°17.3	21.9	197°30.3	31.7	302°02.9	54.2										
5	329°37.7	216°01.2	41.3	288°17.9	22.5	212°32.2	31.7	317°05.2	54.2										
6	344°40.2	231°00.5	N23°40.9	303°18.6	N15°23.3	227°34.2	N21°31.6	332°07.5	N02°54.3										
7	359°42.7	245°59.8	40.5	318°19.2	23.6	242°36.1	31.5	347°09.8	54.4										
8	14°45.1	260°59.0	40.0	333°19.9	24.2	257°38.1	31.4	2°12.1	54.4										
9	29°47.6	275°58.3	39.6	348°20.5	24.8	272°40.0	31.3	17°14.3	54.5										
10	44°50.1	290°57.6	39.1	3°21.2	25.6	287°42.0	31.2	32°16.6	54.6										
11	59°52.5	305°56.9	38.7	18°21.8	25.9	302°43.9	31.1	47°18.9	54.6										
12	74°55.0	320°56.2	N23°38.2	33°22.5	N15°26.5	317°45.9	N21°31.1	62°21.2	N02°54.7										
13	89°57.5	335°55.5	37.8	48°23.1	27.1	332°47.8	31.0	77°23.5	54.8										
14	104°59.9	350°54.8	37.3	63°23.8	27.7	347°49.8	30.9	92°25.8	54.8										
15	120°02.4	5°54.1	36.9	78°24.4	28.2	2°51.7	30.8	107°28.0	54.9										
16	135°04.8	20°53.4	36.4	93°25.1	28.8	17°53.7	30.7	122°30.3	55.0										
17	150°07.3	35°52.7	36.0	108°25.7	29.4	32°55.6	30.6	137°32.6	55.0										
18	165°09.8	50°52.0	N23°35.5	123°26.4	N15°29.9	47°57.6	N21°30.5	152°34.9	N02°55.1										
19	180°12.2	65°51.4	35.1	138°27.0	30.5	62°59.5	30.4	167°37.2	55.2										
20	195°14.7	80°50.7	34.6	153°27.7	31.1	78°01.4	30.4	182°39.4	55.2										
21	210°17.2	95°50.0	34.1	168°28.3	31.6	93°03.4	30.3	197°41.7	55.3										
22	225°19.6	110°49.3	33.7	183°29.0	32.2	108°05.3	30.2	212°44.0	55.4										
23	240°22.1	125°48.6	33.2	198°29.6	32.8	123°07.3	30.1	227°46.3	55.4										
Mer.pass. 07:01				ν -0.7° d 0.4' m -3.96				ν 0.7° d 0.6' m 1.28				ν 1.9° d 0.1' m -1.87				ν 2.3° d 0.1' m 0.86			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	255°24.6	140°47.9	N23°32.8	213°30.3	N15°33.4	138°09.2	N21°30.0	242°48.6	N02°55.5
1	270°27.0	155°47.2	32.3	228°30.9	33.9	153°11.2	29.9	257°50.9	55.6
2	285°29.5	170°46.5	31.8	243°31.6	34.5	168°13.1	29.8	272°53.1	55.6
3	300°31.9	185°45.8	31.4	258°32.2	35.1	183°15.1	29.8	287°55.4	55.7
4	315°34.4	200°45.1	30.9	273°32.9	35.6	198°17.0	29.7	302°57.7	55.8
5	330°36.9	215°44.4	30.4	288°33.5	36.2	213°19.0	29.6	318°00.0	55.8
6	345°39.3	230°43.7	N23°30.0	303°34.2	N15°36.8	228°20.9	N21°29.5	333°02.3	N02°55.9
7	0°41.8	245°43.0	29.5	318°34.8	37.3	243°22.9	29.4	348°04.6	56.0
8	15°44.3	260°42.3	29.0	333°35.5	37.9	258°24.8	29.3	3°06.8	56.0
9	30°46.7	275°41.6	28.5	348°36.1	38.5	273°26.8	29.2	18°09.1	56.1
10	45°49.2	290°41.0	28.1	3°36.8	39.0	288°28.7	29.1	33°11.4	56.2
11	60°51.7	305°40.3	27.6	18°37.4	39.6	303°30.7	29.1	48°13.7	56.2
12	75°54.1	320°39.6	N23°27.1	33°38.1	N15°40.2	318°32.6	N21°29.0	63°16.0	N02°56.3
13	90°56.6	335°38.9	26.6	48°38.7	40.7	333°34.5	28.9	78°18.3	56.4
14	105°59.1	350°38.2	26.2	63°39.3	41.3	348°36.5	28.8	93°20.5	56.4
15	121°01.5	5°37.5	25.7	78°40.0	41.9	3°38.4	28.7	108°22.8	56.5
16	136°04.0	20°36.8	25.2	93°40.6	42.4	18°40.4	28.6	123°25.1	56.6
17	151°06.4	35°36.2	24.7	108°41.3	43.0	33°42.3	28.5	138°27.4	56.6
18	166°08.9	50°35.5	N23°24.3	123°41.9	N15°43.6	48°44.3	N21°28.4	153°29.7	N02°56.7
19	181°11.4	65°34.8	23.8	138°42.6	44.1	63°46.2	28.8	168°32.0	56.8
20	196°13.8	80°34.1	23.3	153°43.2	44.7	78°48.2	28.2	183°34.2	56.8
21	211°16.3	95°33.4	22.8	168°43.9	45.2	93°50.1	28.2	198°36.5	56.9
22	226°18.8	110°32.7	22.3	183°44.5	45.8	108°52.1	28.1	213°38.8	57.0
23	241°21.2	125°32.0	21.8	198°45.2	46.4	123°54.0	28.0	228°41.1	57.0
Mer.pass. 06:57 ν -0.7° d 0.5' m -3.96 ν 0.6° d 0.6' m 1.28 ν 1.9° d 0.1' m -1.86 ν 2.3° d 0.1' m 0.86									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	256°23.7	140°31.4	N23°21.3	213°45.8	N15°46.9	138°55.9	N21°27.9	243°43.4	N02°57.1										
1	271°26.2	155°30.7	20.8	228°46.5	47.5	153°57.9	27.8	258°45.7	57.1										
2	286°28.6	170°30.0	20.4	243°47.1	48.1	168°59.8	27.7	273°48.0	57.2										
3	301°31.1	185°29.3	19.9	258°47.8	48.6	184°01.8	27.7	288°50.2	57.3										
4	316°33.6	200°28.6	19.4	273°48.4	49.2	199°03.7	27.6	303°52.5	57.3										
5	331°36.0	215°28.0	18.9	288°49.1	49.7	214°05.7	27.5	318°54.8	57.4										
6	346°38.5	230°27.3	N23°18.4	303°49.7	N15°50.3	229°07.6	N21°27.4	333°57.1	N02°57.5										
7	1°40.9	245°26.6	17.9	318°50.3	50.9	244°09.6	27.3	348°59.4	57.5										
8	16°43.4	260°25.9	17.4	333°51.0	51.4	259°11.5	27.2	4°01.7	57.6										
9	31°45.9	275°25.3	16.9	348°51.6	52.0	274°13.4	27.1	19°04.0	57.7										
10	46°48.3	290°24.6	16.4	3°52.3	52.5	289°15.4	27.0	34°06.2	57.7										
11	61°50.8	305°23.9	15.9	18°52.9	53.1	304°17.3	26.9	49°08.5	57.8										
12	76°53.3	320°23.2	N23°15.4	33°53.6	N15°53.7	319°19.3	N21°26.9	64°10.8	N02°57.9										
13	91°55.7	335°22.6	14.9	48°54.2	54.2	334°21.2	26.8	79°13.1	57.9										
14	106°58.2	350°21.9	14.4	63°54.9	54.8	349°23.2	26.7	94°15.4	58.0										
15	122°00.7	5°21.2	13.9	78°55.5	55.3	4°25.1	26.6	109°17.7	58.1										
16	137°03.1	20°20.5	13.4	93°56.2	55.9	19°27.1	26.5	124°20.0	58.1										
17	152°05.6	35°19.9	12.9	108°56.8	56.4	34°29.0	26.4	139°22.3	58.2										
18	167°08.0	50°19.2	N23°12.4	123°57.5	N15°57.0	49°30.9	N21°26.3	154°24.5	N02°58.2										
19	182°10.5	65°18.5	11.9	138°58.1	57.6	64°32.9	26.2	169°26.8	58.3										
20	197°13.0	80°17.9	11.3	153°58.7	58.1	79°34.8	26.1	184°29.1	58.4										
21	212°15.4	95°17.2	10.8	168°59.4	58.7	94°36.8	26.1	199°31.4	58.4										
22	227°17.9	110°16.5	10.3	184°00.0	59.2	109°38.7	26.0	214°33.7	58.5										
23	242°20.4	125°15.8	09.8	199°00.7	59.8	124°40.7	25.9	229°36.0	58.6										
Mer.pass. 06:53				ν -0.7° d 0.5' m -3.96				ν 0.6° d 0.6' m 1.28				ν 1.9° d 0.1' m -1.86				ν 2.3° d 0.1' m 0.86			

Stars	SHA	Dec
Alpheratz	357°33.7	29°14.0
Ankaa	353°06.2	-42°09.5
Schedar	349°29.9	-56°40.7
Diphda	348°46.3	-17°50.4
Achernar	335°19.7	-07°05.9
Hamal	327°50.1	23°35.2
Polaris	313°52.1	89°22.3
Acamar	315°11.3	-40°11.8
Meknar	314°05.2	4°11.6
Mirfak	308°27.1	49°57.2
Aldebaran	290°38.6	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.7	46°01.4
Bellatrix	278°22.0	6°22.4
Elnath	278°00.8	28°37.8
Alnilam	275°36.9	-1°11.1
Betelgeuse	270°51.2	7°24.7
Canopus	263°52.4	-52°42.6
Sirius	258°25.5	-16°45.2
Adhara	255°05.3	-29°00.6
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.7	-59°35.9
Suhail	222°45.7	-43°32.6
Miaplacidus	221°38.5	-69°49.8
Alphard	217°46.8	-8°46.5
Regulus	207°33.3	11°50.3
Dubhe	193°39.6	61°36.7
Denebola	182°23.7	14°25.5
Gienah	175°42.3	-17°41.5
Acrux	172°58.5	-63°15.1
Gacrux	171°50.1	-57°16.0
Alloth	166°11.7	55°49.2
Spica	158°20.9	-11°18.1
Alkaid	152°50.8	49°11.0
Hadar	148°33.9	-60°30.3
Nenkent	147°55.9	-36°30.2
Arcturus	145°46.6	19°02.7
Rigel Kent.	139°38.1	-60°56.9
Kochab	137°18.8	74°02.9
Zuben'ubi	136°54.4	-16°09.4
Alphecca	126°02.4	26°37.5
Antares	112°14.0	-26°29.5
Atria	107°06.6	-69°04.5
Sabik	102°01.1	-15°45.5
Shaula	96°08.4	-37°07.4
Rasalhague	95°57.1	12°32.4
Eltanin	90°41.1	51°29.0
Kaus Aust.	83°30.6	34°22.3
Vega	80°32.0	38°48.4
Nunki	75°46.0	-26°15.8
Altair	61°58.6	8°56.2
Peacock	53°03.5	-56°38.8
Deneb	49°24.7	45°22.3
Enif	33°37.5	9°59.7
Al Na'ir	27°31.3	-46°49.7
Fomalhaut	15°13.2	-29°28.7
Scheat	13°44.1	28°13.4
Markab	13°28.7	15°20.8

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	257°22.8	140°15.2	N23°09.3	214°01.3	N16°00.3	139°42.6	N21°25.8	244°38.3	N02°58.6										
1	272°25.3	155°14.5	08.8	229°02.0	00.9	154°44.5	25.7	259°40.6	58.7										
2	287°27.8	170°13.8	08.3	244°02.6	01.5	169°46.5	25.6	274°42.8	58.8										
3	302°30.2	185°13.2	· · 07.2	259°03.3	· · 02.0	184°48.4	· · 25.5	289°45.1	· · 58.8										
4	317°32.7	200°12.5	07.7	274°03.9	02.6	199°50.4	25.4	304°47.4	58.9										
5	332°35.2	215°11.8	06.7	289°04.5	03.1	214°52.3	25.3	319°49.7	58.9										
6	347°37.6	230°11.2	N23°06.2	304°05.2	N16°03.7	229°54.3	N21°25.3	334°52.0	N02°59.6										
7	2°40.1	245°10.5	05.7	319°05.8	04.2	244°56.2	25.2	349°54.3	59.1										
8	17°42.5	260°09.8	05.1	334°06.5	04.8	259°58.1	25.1	4°56.6	59.1										
9	32°45.0	275°09.2	· · 04.6	349°07.1	· · 05.3	275°00.1	· · 25.0	19°58.9	· · 59.2										
10	47°47.5	290°08.5	04.1	4°07.8	05.9	290°02.0	24.9	35°01.2	59.3										
11	62°49.9	305°07.9	03.6	19°08.4	06.4	305°04.0	24.8	50°03.5	59.3										
12	77°52.4	320°07.2	N23°03.0	34°09.1	N16°07.0	320°05.9	N21°24.7	65°05.7	N02°59.4										
13	92°54.9	335°06.5	02.5	49°09.7	07.5	335°07.8	24.6	80°08.0	59.4										
14	107°57.3	350°05.9	02.0	64°10.3	08.1	350°09.8	24.5	95°10.3	59.5										
15	122°59.8	5°05.2	· · 01.4	79°11.0	· · 08.6	5°11.7	· · 24.4	110°12.6	· · 59.6										
16	138°02.3	20°04.6	00.9	94°11.6	09.2	20°13.7	24.4	125°14.9	59.6										
17	153°04.7	35°03.9	23°00.4	109°12.3	09.7	35°15.6	24.3	140°17.2	59.7										
18	168°07.2	50°03.2	N22°59.6	124°12.9	N16°10.3	50°17.5	N21°24.2	155°19.5	N02°59.8										
19	183°09.6	65°02.6	59.3	139°13.6	10.8	65°19.5	24.1	170°21.8	59.8										
20	198°12.1	80°01.9	58.8	154°14.2	11.4	80°21.4	24.0	185°24.1	59.9										
21	213°14.6	95°01.3	· · 58.2	169°14.9	· · 11.9	95°23.4	· · 23.9	200°26.4	02°59.6										
22	228°17.0	110°00.6	57.7	184°15.5	12.5	110°25.3	23.8	215°28.6	03°00.0										
23	243°19.5	125°00.0	57.2	199°16.1	13.0	125°27.2	23.7	230°30.9	00.1										
Mer.pass. 06:49				ν -0.7' d 0.5' m -3.97				ν 0.6' d 0.6' m 1.28				ν 1.9' d 0.1' m -1.86				ν 2.3' d 0.1' m 0.85			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	258°22.0	139°59.3	N22°56.6	214°16.8	N16°13.6	140°29.2	N21°23.6	245°33.2	N03°00.1										
1	273°24.4	154°58.6	56.1	229°17.4	14.1	155°31.1	23.5	260°35.5	00.2										
2	288°26.9	169°58.0	55.5	244°18.1	14.7	170°33.1	23.5	275°37.8	00.3										
3	303°29.4	184°57.3	· · 55.0	259°18.7	· · 15.2	185°35.0	· · 23.4	290°40.1	· · 00.3										
4	318°31.8	199°56.7	54.5	274°19.4	15.8	200°36.9	23.3	305°42.4	00.4										
5	333°34.3	214°56.0	53.9	289°20.0	16.3	215°38.9	23.2	320°44.7	00.4										
6	348°36.8	229°55.4	N22°53.4	304°20.6	N16°16.9	230°40.8	N21°23.1	335°47.0	N03°00.5										
7	3°39.2	244°54.7	52.8	319°21.3	17.4	245°42.8	23.0	350°49.3	00.6										
8	18°41.7	259°54.1	52.3	334°21.9	18.0	260°44.7	22.9	5°51.6	00.6										
9	33°44.1	274°53.4	· · 51.7	349°22.6	· · 18.5	275°46.6	· · 22.8	20°53.9	· · 00.7										
10	48°46.6	289°52.8	51.2	4°23.2	19.1	290°48.6	22.7	35°56.1	00.8										
11	63°49.1	304°52.1	50.6	19°23.9	19.6	305°50.5	22.6	50°58.4	00.8										
12	78°51.5	319°51.5	N22°50.1	34°24.5	N16°20.2	320°52.5	N21°22.6	66°00.7	N03°00.9										
13	93°54.0	334°50.8	49.5	49°25.1	20.7	335°54.4	22.5	81°03.0	00.9										
14	108°56.5	349°50.2	49.0	64°25.8	21.2	350°56.3	22.4	96°05.3	01.0										
15	123°58.9	4°49.5	· · 48.4	79°26.4	· · 21.8	5°58.3	· · 22.3	111°07.6	· · 01.1										
16	139°01.4	19°48.9	47.8	94°27.1	22.3	21°00.2	22.2	126°09.9	01.1										
17	154°03.9	34°48.3	47.3	109°27.7	22.9	36°02.2	22.1	141°12.2	01.2										
18	169°06.3	49°47.6	N22°46.7	124°28.4	N16°23.4	51°04.1	N21°22.0	156°14.5	N03°01.2										
19	184°08.8	64°47.0	46.2	139°29.0	24.0	66°06.0	21.9	171°16.8	01.3										
20	199°11.3	79°46.3	45.6	154°29.6	24.5	81°08.0	21.8	186°19.1	01.4										
21	214°13.7	94°45.7	· · 45.0	169°30.3	· · 25.0	96°09.9	· · 21.7	201°21.4	· · 01.4										
22	229°16.2	109°45.0	44.5	184°30.9	25.6	111°11.8	21.6	216°23.7	01.5										
23	244°18.6	124°44.4	43.9	199°31.6	26.1	126°13.8	21.5	231°26.0	01.5										
Mer.pass. 06:45				ν -0.7' d 0.5' m -3.97				ν 0.6' d 0.5' m 1.28				ν 1.9' d 0.1' m -1.85				ν 2.3' d 0.1' m 0.85			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	259°21.1	139°43.8	N22°43.4	214°32.2	N16°26.7	141°15.7	N21°21.5	246°28.3	N03°01.6										
1	274°23.6	154°43.1	42.8	229°32.8	27.2	156°17.7	21.4	261°30.5	01.7										
2	289°26.0	169°42.5	42.2	244°33.5	27.8	171°19.6	21.3	276°32.8	01.7										
3	304°28.5	184°41.8	· · 41.7	259°34.1	· · 28.3	186°21.5	· · 21.2	291°35.1	· · 01.8										
4	319°31.0	199°41.2	41.1	274°34.8	28.8	201°23.5	21.1	306°37.4	01.9										
5	334°33.4	214°40.6	40.5	289°35.4	29.4	216°25.4	21.0	321°39.7	01.9										
6	349°35.9	229°39.9	N22°39.9	304°36.1	N16°29.9	231°27.3	N21°20.9	336°42.0	N03°02.0										
7	4°38.4	244°39.3	39.4	319°36.7	30.5	246°29.3	20.8	351°44.3	02.0										
8	19°40.8	259°38.7	38.8	334°37.3	31.0	261°31.2	20.7	6°46.6	02.1										
9	34°43.3	274°38.0	· · 38.2	349°38.0	· · 31.5	276°33.2	· · 20.6	21°48.9	· · 02.2										
10	49°45.7	289°37.4	37.6	4°38.6	32.1	291°35.1	20.5	36°51.2	02.2										
11	64°48.2	304°36.8	37.1	19°39.3	32.6	306°37.0	20.5	51°53.5	02.3										
12	79°50.7	319°36.1	N22°36.5	34°39.9	N16°33.1	321°39.0	N21°20.4	66°55.8	N03°02.3										
13	94°53.1	334°35.5	35.9	49°40.5	33.7	336°40.9	20.3	81°58.1	02.4										
14	109°55.6	349°34.9	35.3	64°41.2	34.2	351°42.8	20.2	97°00.4	02.5										
15	124°58.1	4°34.2	· · 34.8	79°41.8	· · 34.8	6°44.8	· · 20.1	112°02.7	· · 02.5										
16	140°00.0	19°33.6	34.2	94°42.5	35.3	21°46.7	20.0	127°05.0	02.6										
17	155°03.0	34°33.0	33.6	109°43.1	35.8	36°48.7	19.9	142°07.3	02.6										
18	170°05.5	49°32.3	N22°33.0	124°43.7	N16°36.4	51°50.6	N21°19.8	157°09.6	N03°02.7										
19	185°07.9	64°31.7	32.4	139°44.4	36.9	66°52.5	19.7	172°11.9	02.8										
20	200°10.0	79°31.1	31.8	154°45.0	37.4	81°54.5	19.6	187°14.2	02.8										
21	215°12.9	94°30.4	· · 31.2	169°45.7	· · 38.0	96°56.4	· · 19.5	202°16.5	· · 02.9										
22	230°15.3	109°29.8	30.7	184°46.3	38.5	111°58.3	19.4	217°18.8	02.9										
23	245°17.8	124°29.2	30.1	199°46.9	39.0	127°00.3	19.3	232°21.1	03.0										
Mer.pass. 06:41				ν -0.6' d 0.6' m -3.97				ν 0.6' d 0.5' m 1.28				ν 1.9' d 0.1' m -1.85				ν 2.3' d 0.1' m 0.85			

Stars			h			Sun			Moon		
	SHA	Dec	Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.6	29°14.0	0	180°12.7	N22°54.8	262°29.4	14.2'	S00°06.8	15.5'	57.3'	
Ankaa	353°06.1	-42°09.5	1	195°12.5	55.0	277°02.6	14.2'	N00°08.7	15.6'	57.3'	
Schedar	349°29.9	56°40.7	2	210°12.4	55.3	291°35.8	14.1'	00°24.3	15.6'	57.4'	
Diphda	348°46.3	-17°50.4	3	225°12.3	· · 55.5	306°08.9	14.1'	00°39.9	15.6'	57.4'	
Achernar	335°19.7	-57°05.9	4	240°12.2	55.7	320°42.0	14.1'	00°55.5	15.6'	57.4'	
Hamal	327°50.1	23°35.2	5	255°12.0	55.9	335°15.1	14.0'	01°11.1	15.7'	57.5'	
Polaris	313°51.3	89°22.3	6	270°11.9	N22°56.1	349°48.1	14.0'	N01°26.8	15.7'	57.5'	
Acamar	315°11.3	-40°11.8	7	285°11.8	56.3	4°21.1	13.9'	01°42.5	15.6'	57.6'	
Kenar	314°05.2	4°11.6	8	300°11.7	56.5	18°54.0	13.9'	01°58.1	15.7'	57.6'	
Mirafaz	308°27.0	49°57.2	9	315°11.5	· · 56.7	33°26.9	13.8'	02°13.8	15.7'	57.6'	
Aldebaran	290°36.6	16°33.7	10	330°11.4	56.9	47°59.7	13.8'	02°29.5	15.7'	57.7'	
Rigel	281°03.1	-8°10.3	11	345°11.3	57.1	62°32.5	13.7'	02°45.2	15.8'	57.7'	
Capella	280°20.7	46°01.4	12	0°11.2	N22°57.3	77°05.2	13.7'	N03°01.0	15.7'	57.7'	
Bellatrix	278°22.0	6°22.4	13	15°11.1	57.5	91°37.9	13.6'	03°16.7	15.7'	57.8'	
Elnath	278°00.8	28°37.8	14	30°10.9	57.7	106°10.5	13.6'	03°32.4	15.8'	57.8'	
Alnilam	275°36.9	-1°11.1	15	45°10.8	· · 57.9	120°43.1	13.5'	03°48.2	15.7'	57.9'	
Betelgeuse	270°51.2	7°24.7	16	60°10.7	58.1	135°15.6	13.4'	04°03.9	15.7'	57.9'	
Canopus	263°52.4	-52°42.2	17	75°10.6	58.3	149°48.0	13.4'	04°19.6	15.8'	57.9'	
Sirius	258°25.5	-16°45.2	18	90°10.4	N22°58.5	164°20.4	13.3'	N04°35.4	15.7'	58.0'	
Adhara	255°05.3	-29°00.0	19	105°10.3	58.7	178°52.7	13.2'	04°51.1	15.8'	58.0'	
Procyon	244°49.9	5°09.4	20	120°10.2	58.9	193°24.9	13.2'	05°06.9	15.7'	58.0'	
Pollux	232°57.8	27°57.2	21	135°10.1	· · 59.1	207°57.1	13.1'	05°22.6	15.8'	58.1'	
Avior	234°14.7	-59°35.9	22	150°09.9	59.3	222°29.2	13.0'	05°38.4	15.7'	58.1'	
Suhail	222°45.7	-43°32.6	23	165°09.8	59.5	237°01.3	13.0'	05°54.1	15.7'	58.2'	
Miaplacidus	221°38.6	-69°49.8									
Alphard	217°46.8	-8°46.5									

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	260°20.2	139°28.6	N22°29.5	214°47.6	N16°39.6	142°02.2	N21°19.3	247°23.3	N03°03.1					
1	275°22.7	154°27.9	28.9	229°48.2	40.1	157°04.1	19.2	262°25.6	03.1					
2	290°25.2	169°27.8	28.3	244°48.9	40.7	172°06.1	19.1	277°27.9	03.2					
3	305°27.6	184°26.7	.. 27.1	259°49.5	.. 41.2	187°08.0	.. 19.0	292°30.2	.. 03.2					
4	320°30.1	199°26.1	27.7	274°50.1	41.7	202°09.9	18.9	307°32.5	03.3					
5	335°32.6	214°25.4	26.5	289°50.8	42.3	217°19.9	18.8	322°34.8	03.3					
6	350°35.0	229°24.8	N22°25.3	304°51.4	N16°42.8	232°13.8	N21°18.7	337°37.1	N03°03.4					
7	5°37.5	244°24.2	25.3	319°52.1	43.3	247°15.7	18.6	352°39.4	03.5					
8	20°40.0	259°23.6	24.7	334°52.7	43.9	262°17.7	18.5	7°41.7	03.6					
9	35°42.4	274°22.9	.. 24.1	349°53.3	.. 44.4	277°19.6	.. 18.4	22°44.0	.. 03.6					
10	50°44.9	289°22.3	23.5	4°54.0	44.9	292°21.6	18.3	37°46.3	03.6					
11	65°47.4	304°21.7	22.9	19°54.6	45.4	307°23.5	18.2	52°48.6	03.7					
12	80°49.8	319°21.1	N22°22.3	34°55.3	N16°46.0	322°25.4	N21°18.1	67°50.9	N03°03.8					
13	95°52.3	334°20.5	21.7	49°55.9	46.5	337°27.4	18.0	82°53.2	03.8					
14	110°54.7	349°19.9	21.1	64°56.5	47.0	352°29.3	18.0	97°55.5	03.9					
15	125°57.2	4°19.2	.. 20.5	79°57.2	.. 47.6	7°31.2	.. 17.9	112°57.8	.. 03.9					
16	140°59.7	19°18.6	19.9	94°57.8	48.1	22°33.2	17.8	128°00.1	04.0					
17	156°02.1	34°18.0	19.3	109°58.5	48.6	37°35.1	17.7	143°02.4	04.1					
18	171°04.6	49°17.4	N22°18.7	124°59.1	N16°49.2	52°37.0	N21°17.6	158°04.7	N03°04.1					
19	186°07.1	64°16.8	18.1	139°59.7	49.7	67°39.0	17.5	173°07.0	04.2					
20	201°09.5	79°16.2	17.5	155°00.4	50.2	82°40.9	17.4	188°09.3	04.2					
21	216°12.0	94°15.5	.. 16.9	170°01.0	.. 50.7	97°42.8	.. 17.3	203°11.6	.. 04.3					
22	231°14.5	109°14.9	.. 16.2	185°01.6	51.3	112°44.8	17.2	218°13.9	04.3					
23	246°16.9	124°14.3	15.6	200°02.3	51.8	127°46.7	17.1	233°16.2	04.4					
Mer.pass. 06:38			ν -0.6' d 0.6' m -3.98			ν 0.6' d 0.5' m 1.28			ν 1.9' d 0.1' m -1.85			ν 2.3' d 0.1' m 0.84		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	261°19.4	139°13.7	N22°15.0	215°02.9	N16°52.3	142°48.6	N21°17.0	248°18.5	N03°04.5
1	276°21.9	154°13.1	14.4	230°03.6	52.9	157°50.6	16.9	263°20.8	04.5
2	291°24.3	169°12.5	13.8	245°04.2	53.4	172°52.5	16.8	278°21.1	04.6
3	306°26.8	184°11.9	.. 13.2	260°04.8	.. 53.9	187°54.4	.. 16.7	293°25.4	.. 04.6
4	321°29.2	199°11.3	12.6	275°05.5	54.4	202°56.4	16.6	308°27.7	04.7
5	336°31.7	214°10.7	11.9	290°06.1	55.0	217°58.3	16.6	323°30.0	04.8
6	351°34.2	229°10.0	N22°11.3	305°06.8	N16°55.5	233°00.2	N21°16.5	338°32.3	N03°04.8
7	6°36.6	244°09.4	10.7	320°07.4	56.0	248°02.2	16.4	353°34.6	04.9
8	21°39.1	259°08.8	10.1	335°08.0	56.5	263°04.1	16.3	8°36.9	04.9
9	36°41.6	274°08.2	.. 09.4	350°08.7	.. 57.1	278°06.0	.. 16.2	23°39.2	.. 05.0
10	51°44.0	289°07.6	08.8	5°09.3	57.6	293°08.0	16.1	38°41.5	05.0
11	66°46.5	304°07.0	08.2	20°09.9	58.1	308°09.9	16.0	53°43.8	05.1
12	81°49.0	319°06.4	N22°07.6	35°10.6	N16°58.6	323°11.8	N21°15.9	68°46.1	N03°05.2
13	96°51.4	334°05.8	06.9	50°11.2	59.2	338°13.8	15.8	83°48.4	05.2
14	111°53.9	349°05.2	06.3	65°11.9	16°59.7	353°15.7	15.7	98°50.7	05.3
15	126°56.4	4°04.6	.. 05.7	80°12.5	17°00.2	8°17.6	.. 15.6	113°53.0	.. 05.3
16	141°58.8	19°04.0	05.1	95°13.1	00.7	23°19.6	15.5	128°55.3	05.4
17	157°01.3	34°03.4	04.4	110°13.8	01.2	38°17.5	15.4	143°57.6	05.4
18	172°03.7	49°02.8	N22°03.8	125°14.4	N17°01.8	53°23.4	N21°15.3	158°59.9	N03°05.5
19	187°06.2	64°02.2	03.2	140°15.0	02.3	68°25.3	15.2	174°02.2	05.6
20	202°08.7	79°01.6	02.5	155°15.7	02.8	83°27.3	15.1	189°04.6	05.6
21	217°11.1	94°01.0	.. 01.9	170°16.3	.. 03.3	98°29.2	.. 15.0	204°06.9	.. 05.7
22	232°13.6	109°00.4	01.3	185°16.9	03.9	113°31.1	15.0	219°09.2	05.7
23	247°16.1	123°59.8	00.6	200°17.6	04.4	128°33.1	14.9	234°11.5	05.8
Mer pass. 06:34 ν -0.6' d 0.6' m -3.98 ν 0.6' d 0.5' m 1.28 ν 1.9' d 0.1' m -1.85 ν 2.3' d 0.1' m 0.84									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	262°18.5	138°59.2	N22°00.0	215°18.2	N17°04.9	143°35.0	N21°14.8	249°13.8	N03°05.8
1	277°21.0	153°58.6	21°59.3	230°18.9	05.4	158°36.9	14.7	264°16.1	05.9
2	292°23.5	168°58.0	58.7	245°19.5	05.9	173°38.9	14.6	279°18.4	06.0
3	307°25.9	183°57.4	.. 58.1	260°20.1	.. 06.5	188°40.8	.. 14.5	294°20.7	.. 06.0
4	322°28.8	198°56.8	57.4	275°20.8	07.0	203°42.7	14.4	309°23.0	06.1
5	337°30.4	213°56.2	56.8	290°21.4	07.5	218°44.7	14.3	324°25.3	06.1
6	352°33.3	228°55.6	N21°56.1	305°22.0	N17°08.0	233°46.6	N21°14.2	339°27.6	N03°06.2
7	7°35.8	243°55.0	55.5	320°22.7	08.5	248°48.5	14.1	354°29.9	06.2
8	22°38.2	258°54.5	54.8	335°23.3	09.0	263°50.4	14.0	9°32.2	06.3
9	37°40.7	273°53.9	.. 54.2	350°23.9	.. 09.6	278°52.4	.. 13.9	24°34.5	.. 06.3
10	52°43.2	288°53.3	53.5	5°24.6	10.1	293°54.3	13.8	39°36.8	06.4
11	67°45.6	303°52.7	52.9	20°25.2	10.6	308°56.2	13.7	54°39.1	06.5
12	82°48.1	318°52.1	N21°52.2	35°25.9	N17°11.1	323°58.2	N21°13.6	69°41.4	N03°06.5
13	97°50.6	333°51.5	51.6	50°26.5	11.6	339°00.1	13.5	84°43.7	06.6
14	112°53.0	348°50.9	50.9	65°27.1	12.2	354°02.0	13.4	99°46.0	06.6
15	127°55.5	3°50.3	.. 50.3	80°27.8	.. 12.7	9°04.0	.. 13.3	114°48.3	.. 06.7
16	142°58.0	18°49.7	49.6	95°28.4	13.2	24°05.9	13.2	129°50.6	06.7
17	158°00.4	33°49.2	49.0	110°29.0	13.7	39°07.8	13.2	144°52.9	06.8
18	173°02.9	48°48.6	N21°48.3	125°29.7	N17°14.2	54°09.7	N21°13.1	159°55.2	N03°06.9
19	188°05.3	63°48.0	47.7	140°30.3	14.7	69°11.7	13.0	174°57.6	06.9
20	203°07.8	78°47.4	47.0	155°30.9	15.2	84°13.6	12.9	189°59.9	07.0
21	218°10.3	93°46.8	.. 46.4	170°31.6	.. 15.8	99°15.5	.. 12.8	205°02.2	.. 07.0
22	233°12.7	108°46.2	.. 45.7	185°32.2	16.3	114°17.5	12.7	220°04.5	07.1
23	248°15.2	123°45.7	45.0	200°32.8	16.8	129°19.4	12.6	235°06.8	07.1
Mer.pass. 06:30 ν -0.6' d 0.6' m -3.98 ν 0.6' d 0.5' m 1.29 ν 1.9' d 0.1' m -1.84 ν 2.3' d 0.1' m 0.84									

Stars	SHA	Dec
Alpheratz	357°33.6	29°14.1
Ankaa	353°06.1	-42°09.5
Schedar	349°29.9	0°03.1
Diphda	348°46.2	-17°50.4
Achernar	335°19.7	-57°05.9
Hamal	327°50.1	23°35.2
Polaris	313°51.2	89°22.3
Acamar	314°05.2	-40°11.8
Menkar	308°27.0	4°11.6
Mirfak	290°38.6	49°57.2
Aldebaran	281°03.1	16°33.1
Rigel	280°20.6	-8°10.4
Capella	278°22.0	46°01.4
Bellatrix	278°00.8	28°37.7
Elnath	275°36.9	-1°11.1
Anlnal	270°51.2	7°24.7
Betelgeuse	258°25.5	-52°42.2
Canopus	259°25.5	-16°45.2
Sirius	255°05.3	-29°09.8
Adhara	244°49.9	5°09.4
Pecoyon	243°16.2	27°57.8
Pollux	234°14.8	-59°35.8
Avior	222°45.7	-43°32.6
Suhail	221°38.6	-69°49.8
Miaplacidus	217°46.8	-8°46.3
Alphard	207°33.3	11°50.3
Regulus	193°39.7	61°36.7
Dubhe	189°23.7	14°25.5
Denebola	175°42.3	-17°41.5
Genah	172°58.6	-63°15.1
Acrux	171°50.2	-57°16.0
Gacrux	166°11.7	55°49.2
Alloth	158°20.9	-11°18.1
Spica	152°50.8	49°10.0
Alkaid	148°33.9	-60°30.3
Hadar	147°56.0	-36°30.2
Nenkent	145°46.6	19°02.7
Arcturus	139°38.2	-60°56.9
Rigil Kent.	137°18.9	74°02.9
Kochab	136°54.4	-16°09.9
Zuben'ubi	126°02.4	26°37.6
Alphecca	112°14.0	-26°29.5
Antares	107°06.6	-69°04.5
Atria	102°01.1	-15°45.5
Shaula	96°08.4	-37°07.4
Rasalhague	95°57.1	12°32.4
Eltanin	90°41.1	51°29.0
Kaus Aust.	83°30.6	-34°22.3
Vega	80°32.0	38°48.4
Nunki	75°46.0	-26°15.8
Altair	61°58.5	8°56.3
Peacock	53°03.5	-56°38.8
Deneb	49°24.7	45°22.3
Enif	33°37.5	9°59.7
Al Na'ir	27°31.3	-46°49.7
Fomalhaut	15°13.2	-29°28.7
Scheat	13°44.0	28°13.4
Markab	13°28.7	15°20.8
Jun 12 Fri SHA Mer.pass		
Venus	239°08.3	14

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	263°17.7	138°45.1	N21°44.4	215°33.5	N17°17.3	144°21.3	N21°12.5	250°09.1	N03°07.2					
1	278°20.1	153°44.5	43.7	230°34.1	17.8	159°23.3	12.4	265°11.4	07.2					
2	293°22.6	168°43.9	43.0	245°34.8	18.3	174°25.2	12.3	280°13.7	07.3					
3	308°25.1	183°43.3	•• 42.4	260°35.4	•• 18.8	189°27.1	•• 12.2	295°16.0	•• 07.3					
4	323°27.5	198°42.8	41.7	275°36.0	19.3	204°29.0	12.1	310°18.3	07.4					
5	338°30.0	213°42.2	41.0	290°36.7	19.9	219°31.0	12.0	325°20.6	07.5					
6	353°32.5	228°41.6	N21°40.4	305°37.3	N17°20.4	234°32.9	N21°11.9	340°22.9	N03°07.5					
7	8°34.9	243°41.0	39.7	320°37.9	20.9	249°34.8	11.8	355°25.2	07.6					
8	23°37.4	258°40.4	39.0	335°38.6	21.4	264°36.8	11.7	10°27.5	07.6					
9	38°39.8	273°39.9	•• 38.4	350°39.2	•• 21.9	279°38.7	•• 11.6	25°29.8	•• 07.7					
10	53°42.3	288°39.3	37.7	5°39.8	22.4	294°40.6	11.5	40°32.2	07.7					
11	68°44.8	303°38.7	37.0	20°40.5	22.9	309°42.5	11.4	55°34.5	07.8					
12	83°47.2	318°38.1	N21°36.4	35°41.1	N17°23.4	324°44.5	N21°11.3	70°36.8	N03°07.8					
13	98°49.7	333°37.6	35.7	50°41.7	23.9	339°46.4	11.2	85°39.1	07.9					
14	113°52.2	348°37.0	35.0	65°42.4	24.4	354°48.3	11.1	100°41.4	08.0					
15	128°54.6	3°36.4	•• 34.3	80°43.0	•• 25.0	9°50.3	•• 11.0	115°43.7	•• 08.0					
16	143°57.1	18°35.9	33.6	95°43.6	25.5	24°52.2	10.9	130°46.0	08.1					
17	158°59.6	33°35.3	33.0	110°44.3	26.0	39°54.1	10.9	145°48.3	08.1					
18	174°02.0	48°34.7	N21°32.3	125°44.9	N17°26.5	54°56.0	N21°10.8	160°50.6	N03°08.2					
19	189°04.5	63°34.2	31.6	140°45.5	27.0	69°58.0	10.7	175°52.9	08.2					
20	204°07.0	78°33.6	30.9	155°46.2	27.5	84°59.9	10.6	190°55.2	08.3					
21	219°09.4	93°33.0	•• 30.2	170°46.8	•• 28.0	100°01.8	•• 10.5	205°57.5	•• 08.3					
22	234°11.9	108°32.4	29.6	185°47.4	28.5	115°03.7	10.4	220°59.8	08.4					
23	249°14.3	123°31.9	28.9	200°48.1	29.0	130°05.7	10.3	236°02.2	08.4					
Mer.pass. 06:26			ν -0.6° d 0.7' m -3.98			ν 0.6° d 0.5' m 1.29			ν 1.9° d 0.1' m -1.84			ν 2.3° d 0.1' m 0.83		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	264°16.8	138°31.3	N21°28.2	215°48.7	N17°29.5	145°07.6	N21°10.2	251°04.5	N03°08.5						
1	279°19.3	153°30.7	27.5	230°49.3	30.0	160°09.5	10.1	266°06.8	08.5						
2	294°21.7	168°30.2	26.8	245°50.0	30.5	175°11.5	10.0	281°09.1	08.6						
3	309°24.2	183°29.6	•• 26.1	260°50.6	•• 31.0	190°13.4	•• 09.9	296°11.4	•• 08.7						
4	324°26.7	198°29.1	25.4	275°51.2	31.5	205°15.3	09.8	311°13.7	08.7						
5	339°29.1	213°28.5	24.8	290°51.9	32.0	220°17.2	09.7	326°16.0	08.8						
6	354°31.6	228°27.9	N21°24.1	305°52.5	235°19.2	N21°09.6	341°18.3	N03°08.8							
7	9°34.1	243°27.4	23.4	320°53.1	33.0	250°21.1	09.5	356°20.6	08.9						
8	24°36.5	258°26.8	22.7	335°53.8	33.6	265°23.0	09.4	11°23.3	•• 09.0						
9	39°39.0	273°26.3	•• 22.0	350°54.4	•• 34.1	280°24.9	•• 09.3	26°25.3	•• 09.0						
10	54°41.5	288°25.7	21.3	5°55.0	34.6	295°26.9	09.2	41°27.6	09.0						
11	69°43.9	303°25.1	20.6	20°55.7	35.1	310°28.8	09.1	56°29.9	09.1						
12	84°46.4	318°24.6	N21°19.9	35°56.3	N17°35.6	325°30.7	N21°09.0	71°34.2	N03°09.1						
13	99°48.8	333°24.0	19.2	50°56.9	36.1	340°32.6	08.9	86°32.5	09.2						
14	114°51.3	348°23.5	18.5	65°57.6	36.6	355°34.6	08.8	101°36.8	09.2						
15	129°53.8	3°22.9	•• 17.8	80°58.2	•• 37.1	10°36.5	•• 08.7	116°39.1	•• 09.3						
16	144°56.2	18°22.4	17.1	95°58.8	37.6	25°38.4	08.6	131°41.5	09.3						
17	159°58.7	33°21.8	16.4	110°59.5	38.1	40°40.3	08.5	146°43.8	09.4						
18	175°01.2	48°21.2	N21°15.7	126°00.1	N17°38.6	55°42.3	N21°08.4	161°46.1	N03°09.5						
19	190°03.6	63°20.7	15.0	141°00.7	39.1	70°44.2	08.3	176°48.4	09.5						
20	205°06.1	78°20.1	14.3	156°01.4	39.6	85°46.1	08.2	191°50.7	09.6						
21	220°08.6	93°19.6	•• 13.6	171°02.0	•• 40.1	100°48.1	•• 08.1	206°53.0	•• 09.6						
22	235°11.0	108°19.0	12.9	186°02.6	40.6	115°50.0	08.0	221°55.3	09.7						
23	250°13.5	123°18.5	12.2	201°03.3	41.1	130°51.9	07.9	236°57.6	09.7						
Mer.pass. 06:22			ν -0.6° d 0.7' m -3.99			ν 0.6° d 0.5' m 1.29			ν 1.9° d 0.1' m -1.84			ν 2.3° d 0.1' m 0.83			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	265°16.0	138°17.9	N21°11.5	216°03.9	N17°41.6	145°53.8	N21°07.8	251°59.9	N03°09.8						
1	280°18.4	153°17.4	10.8	231°04.5	42.1	160°55.8	07.7	267°02.3	09.8						
2	295°20.9	168°16.8	10.1	246°05.2	42.6	175°57.7	07.6	282°04.6	09.9						
3	310°23.3	183°16.3	•• 09.4	261°05.8	•• 43.1	190°59.6	•• 07.6	297°06.9	•• 09.9						
4	325°25.8	198°15.7	08.6	276°06.4	43.6	206°01.5	07.5	312°09.2	10.0						
5	340°28.3	213°15.2	07.9	291°07.1	44.0	221°03.5	07.4	327°11.5	10.0						
6	355°30.7	228°14.6	N21°07.2	306°07.7	N17°44.5	236°05.4	N21°07.3	342°13.8	N03°10.1						
7	10°33.2	243°14.1	06.5	321°08.3	45.0	251°07.3	07.2	357°16.1	10.1						
8	25°35.7	258°13.6	05.8	336°09.0	45.5	266°09.2	07.1	12°18.5	10.2						
9	40°38.1	273°13.0	•• 05.1	351°09.6	•• 46.0	281°11.2	•• 07.0	27°20.8	•• 10.2						
10	55°40.6	288°12.5	04.4	6°10.2	46.5	296°13.1	06.9	42°23.1	10.3						
11	70°43.1	303°11.9	03.6	21°10.9	47.0	311°15.0	06.8	57°25.4	10.3						
12	85°45.5	318°11.4	N21°02.9	36°11.5	N17°47.5	326°16.9	N21°06.7	72°27.7	N03°10.4						
13	100°48.0	333°10.8	02.2	51°12.1	48.0	341°18.8	06.6	87°30.0	10.4						
14	115°50.5	348°10.3	01.5	66°12.7	48.5	356°20.8	06.5	102°32.3	10.5						
15	130°52.9	3°09.8	•• 00.8	81°13.4	•• 49.0	11°22.7	•• 06.4	117°34.7	•• 10.5						
16	145°55.4	18°09.2	21°00.0	96°14.0	49.5	26°24.6	06.3	132°37.0	10.6						
17	160°57.8	33°08.7	20°59.3	111°14.6	50.0	41°26.5	06.2	147°39.3	10.6						
18	176°00.3	48°08.1	N20°58.6	126°15.3	N17°50.5	56°28.5	N21°06.1	162°41.6	N03°10.7						
19	191°02.8	63°07.6	57.9	141°15.9	51.0	71°30.4	06.0	177°43.9	10.7						
20	206°05.2	78°07.1	57.1	156°16.5	51.5	86°32.3	05.9	192°46.2	10.8						
21	221°07.7	93°06.5	•• 56.4	171°17.2	•• 52.0	101°34.2	•• 05.8	207°48.5	•• 10.9						
22	236°10.2	108°06.0	55.7	186°17.8	52.4	116°36.2	05.7	222°50.9	10.9						
23	251°12.6	123°05.5	55.0	201°18.4	52.9	131°38.1	05.6	237°53.2	11.0						
Mer.pass. 06:18			ν -0.5° d 0.7' m -3.99			ν 0.6° d 0.5' m 1.29			ν 1.9° d 0.1' m -1.84			ν 2.3° d 0.1' m 0.83			

Stars		
SHA	Dec	
Alpheratz	357°33.6	29°14.1
Ankaa	353°06.1	-42°09.5
Schedar	349°29.8	56°40.7
Diphda	348°46.2	-17°50.4
Achernar	335°19.6	-57°05.9
Hamal	327°50.1	23°35.2
Polaris	313°48.7	89°32.3
Acamar	315°11.2	-40°11.7
Menkar	315°05.2	4°11.6
Mirafak	308°27.0	49°57.2
Aldebaran	290°38.6	16°33.7
Rigel	281°03.1	-8°10.3
Capella	280°20.6	46°01.4
Bellatrix	278°21.9	6°22.4
Elath	278°00.8	28°37.7
Alnilam	275°36.9	-1°11.1
Betelgeuse	270°51.1	7°24.7
Canopus	263°52.4	-52°42.6
Sirius	268°25.5	-16°45.2
Adhara	255°05.3	-29°00.5
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.8	-59°35.8
Suhail	222°45.7	-43°32.6
Miaplacidus	221°38.6	-69°49.8

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	266°15.1	138°04.9	N20°54.2	216°19.1	N17°53.4	146°40.0	N21°05.5	252°55.5	N03°11.0					
1	281°17.6	153°04.4	53.5	231°19.7	53.9	161°41.9	05.4	267°57.8	11.1					
2	296°20.0	168°03.9	52.8	246°20.3	54.4	176°43.9	05.3	283°00.8	11.1					
3	311°22.5	183°03.3	52.0	261°21.0	54.9	191°45.8	05.2	298°02.4	11.2					
4	326°25.0	198°02.8	51.5	276°21.6	55.4	206°47.7	05.1	313°04.8	11.2					
5	341°27.4	213°02.3	50.6	291°22.2	55.9	221°49.6	05.0	328°07.1	11.3					
6	356°29.9	228°01.7	N20°49.8	306°22.8	N17°56.4	236°51.5	N21°04.9	343°09.4	N03°11.3					
7	11°32.3	234°01.2	49.1	321°23.5	56.3	251°53.5	04.8	358°11.7	11.4					
8	26°34.8	248°00.7	48.4	336°24.1	57.9	266°55.4	04.7	13°14.0	11.4					
9	41°37.3	273°00.2	47.6	351°24.7	57.8	281°57.3	04.6	28°16.3	11.5					
10	56°39.7	287°59.6	46.9	6°25.4	58.5	296°59.2	04.5	43°18.7	11.5					
11	71°42.2	302°59.1	46.1	21°26.0	58.8	312°01.2	04.4	58°21.0	11.6					
12	86°44.7	317°58.6	N20°45.4	36°26.6	N17°59.3	327°03.1	N21°04.3	73°23.3	N03°11.6					
13	101°47.1	332°58.1	44.7	51°27.3	17°59.8	342°05.0	04.2	88°25.6	11.7					
14	116°49.6	347°57.5	43.9	66°27.9	18°00.3	357°06.9	04.1	103°27.9	11.7					
15	131°52.1	2°57.0	43.2	81°28.5	00.08	12°08.9	04.0	118°30.3	11.8					
16	146°54.5	17°56.5	42.4	96°29.1	01.2	27°10.8	03.9	133°32.6	11.8					
17	161°57.0	32°56.0	41.7	111°29.8	01.7	42°12.7	03.8	148°34.9	11.9					
18	176°59.5	47°55.4	N20°40.9	126°30.4	N18°02.2	57°14.6	N21°03.7	163°37.2	N03°11.9					
19	192°01.9	62°54.9	40.2	141°31.0	02.7	72°16.5	03.6	178°39.5	12.0					
20	207°04.4	77°54.4	39.4	156°31.7	03.2	87°18.5	03.5	193°41.8	12.0					
21	222°06.8	92°53.9	38.7	171°32.3	03.7	102°20.4	03.4	208°44.2	12.1					
22	237°09.3	107°53.4	37.9	186°32.9	04.1	117°22.3	03.3	223°46.5	12.1					
23	252°11.8	122°52.8	37.2	201°33.6	04.6	132°24.2	03.2	238°48.8	12.2					
Mer.pass. 06:14 ν -0.5' d 0.7' m -3.99 ν 0.6' d 0.5' m 1.29 ν 1.9' d 0.1' m -1.83 ν 2.3' d 0.1' m 0.82														

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	267°14.2	137°52.3	N20°36.4	216°34.2	N18°05.1	147°26.1	N21°03.1	253°51.1	N03°12.2					
1	282°16.7	152°51.8	35.7	231°34.8	05.6	162°28.1	03.0	268°53.4	12.3					
2	297°19.2	167°51.3	34.9	246°35.4	06.1	177°30.0	02.9	283°55.8	12.3					
3	312°21.6	182°50.8	34.2	261°36.1	06.6	192°31.9	02.8	298°58.1	12.4					
4	327°24.1	197°50.3	33.4	276°36.7	07.0	207°33.8	02.7	314°00.8	12.4					
5	342°26.6	212°49.8	32.7	291°37.3	07.5	222°35.8	02.6	329°02.7	12.5					
6	357°29.0	227°49.2	N20°31.9	306°38.0	N18°08.0	237°37.7	N21°02.5	344°05.0	N03°12.5					
7	12°31.5	242°48.7	31.2	321°38.6	08.5	252°39.6	02.4	359°07.4	12.6					
8	27°33.9	257°48.2	30.4	336°39.2	09.0	267°41.5	02.3	14°09.7	12.6					
9	42°36.4	272°47.7	29.6	351°39.8	09.4	282°43.4	02.2	29°12.0	12.6					
10	57°38.9	287°47.2	28.9	6°40.5	09.9	297°45.4	02.1	44°14.3	12.7					
11	72°41.3	302°46.7	28.1	21°41.1	10.4	312°47.3	02.0	59°16.6	12.7					
12	87°43.8	317°46.2	N20°27.4	36°41.7	N18°10.9	327°49.2	N21°01.9	74°19.0	N03°12.8					
13	102°46.3	332°45.7	26.6	51°42.4	11.4	342°51.1	01.8	89°21.3	12.8					
14	117°48.7	347°45.2	25.8	66°43.0	11.8	357°53.0	01.7	104°23.6	12.9					
15	132°51.2	2°44.7	25.1	81°43.6	12.3	12°55.0	01.6	119°25.9	12.9					
16	147°53.7	17°44.1	24.3	96°44.2	12.8	27°56.9	01.5	134°28.3	13.0					
17	162°56.1	32°43.6	23.5	111°44.9	13.3	42°58.8	01.4	149°30.6	13.0					
18	177°58.6	47°43.1	N20°22.8	126°45.5	N18°13.8	58°00.7	N21°01.3	164°32.9	N03°13.1					
19	193°01.1	62°42.6	22.0	141°46.1	14.2	73°02.6	01.2	179°35.2	13.1					
20	208°03.5	77°42.1	21.2	156°46.8	14.7	88°04.6	01.1	194°37.5	13.2					
21	223°06.0	92°41.6	20.5	171°47.4	15.2	103°06.5	01.0	209°39.9	13.2					
22	238°08.4	107°41.1	19.7	186°48.0	15.7	118°08.4	00.9	224°42.2	13.3					
23	253°10.9	122°40.6	18.9	201°48.6	16.1	133°10.3	00.8	239°44.5	13.3					
Mer.pass. 06:10 ν -0.5' d 0.8' m -4.00 ν 0.6' d 0.5' m 1.29 ν 1.9' d 0.1' m -1.83 ν 2.3' d 0.0' m 0.82														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	268°13.4	137°40.1	N20°18.2	216°49.3	N18°16.6	148°12.2	N21°00.7	254°46.8	N03°13.4					
1	283°15.8	152°39.6	17.4	231°49.9	17.1	163°14.2	00.6	269°49.8	13.4					
2	298°18.3	167°39.1	16.6	246°50.5	17.6	178°16.1	00.5	284°51.5	13.5					
3	313°20.8	182°38.6	15.8	261°51.2	18.0	193°18.0	00.4	299°53.8	13.5					
4	328°23.2	197°38.1	15.1	276°51.8	18.5	208°19.9	00.3	314°56.1	13.6					
5	343°25.7	212°37.6	14.3	291°52.4	19.0	223°21.8	00.2	329°58.4	13.6					
6	358°28.2	227°37.1	N20°13.5	306°53.0	N18°19.5	238°23.8	N21°00.1	345°00.8	N03°13.7					
7	13°30.6	242°36.6	12.7	321°53.7	19.9	253°25.7	01.0	0°03.1	13.7					
8	28°33.1	257°36.1	11.9	336°54.3	20.4	268°27.6	00.9	15°05.4	13.8					
9	43°35.6	272°35.6	11.2	351°54.9	20.9	283°29.5	00.5	30°07.7	13.8					
10	58°38.0	287°35.2	10.4	6°55.6	21.3	298°31.4	00.4	45°10.1	13.9					
11	73°40.5	302°34.7	09.6	21°56.2	21.8	313°33.4	00.3	60°12.4	13.9					
12	88°42.9	317°34.2	N20°08.8	36°56.8	N18°22.3	328°35.3	N20°59.5	75°14.7	N03°13.9					
13	103°45.4	332°33.7	08.0	51°57.4	22.8	343°37.2	00.4	90°17.0	14.0					
14	118°47.9	347°33.2	07.2	66°58.1	23.2	358°39.1	00.3	105°19.4	14.0					
15	133°50.3	2°32.7	06.5	81°58.7	23.7	13°41.0	00.2	120°21.7	14.1					
16	148°52.8	17°32.2	05.7	96°59.3	24.2	28°43.0	00.1	135°24.0	14.1					
17	163°55.3	32°31.7	04.9	111°59.9	24.6	43°44.9	00.0	150°26.3	14.2					
18	178°57.7	47°31.2	N20°04.1	127°00.6	N18°25.1	58°46.8	N20°58.9	165°28.7	N03°14.2					
19	194°00.2	62°30.7	03.3	142°01.2	25.6	73°48.7	00.8	180°31.0	14.3					
20	209°02.7	77°30.3	02.5	157°01.8	26.1	88°50.6	00.7	195°33.3	14.3					
21	224°05.1	92°29.8	01.7	172°02.5	26.5	103°52.5	00.6	210°35.6	14.4					
22	239°07.6	107°29.3	00.9	187°03.1	27.0	118°54.5	00.5	225°38.0	14.4					
23	254°10.0	122°28.8	00.2	202°03.7	27.5	133°56.4	00.4	240°40.3	14.5					
Mer.pass. 06:06 ν -0.5' d 0.8' m -4.00 ν 0.6' d 0.5' m 1.29 ν 1.9' d 0.1' m -1.83 ν 2.3' d 0.0' m 0.82														

Stars			h			Sun			Moon		
	SHA	Dec	Thu	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.6	29°14.1	0	179°44.2	N23°24.0	136°01.1	6.9'	N20°30.4	12.2'	59.9'	
Ankaa	353°06.0	-42°09.5	1	194°44.1	24.0	150°27.1	7.1'	20°18.2	12.3'	59.9'	
Schedar	349°29.8	56°40.8	2	209°44.0	24.1	164°53.1	7.2'	20°05.9	12.4'	59.8'	
Diphda	348°46.2	-17°50.3	3	224°43.8	24.1	179°19.4	7.4'	19°53.5	12.5'	59.8'	
Achernar	335°19.6	-57°05.8	4	239°43.7	24.2	193°45.7	7.5'	19°41.0	12.7'	59.8'	
Hamal	327°50.0	23°35.2	5	254°43.6	24.2	208°12.2	7.6'	19°28.3	12.7'	59.7'	
Polaris	313°47.5	89°22.3	6	269°43.4	N23°24.3	222°38.9	7.8'	N19°15.6	12.8'	59.7'	
Acamar	315°11.2	-40°11.7	7	284°43.3	24.3	237°05.6	7.9'	19°02.8	12.9'	59.7'	
Menkar	314°05.1	4°11.6	8	299°43.2	24.4	251°32.5	8.0'	18°49.9	13.0'	59.6'	
Mirafak	308°26.9	49°57.2	9	314°43.0	24.4	265°59.6	8.2'	18°36.9	13.2'	59.6'	
Aldebaran	290°38.6	16°33.7	10	329°42.9	24.5	280°26.8	8.3'	18°23.7	13.2'	59.6'	
Rigel	281°03.1	-8°10.2	11	344°42.7	24.6	294°54.1	8.5'	18°10.5	13.3'	59.5'	
Capella	280°20.6	46°01.4	12	359°42.6	N23°24.6	309°21.6	8.6'	N17°57.2	13.3'	59.5'	
Bellatrix	278°21.9	6°22.4	13	14°42.5	24.6	323°49.1	8.7'	17°43.9	13.5'	59.5'	
Elnath	270°08.7	28°37.7	14	29°42.3	24.7	338°16.9	8.9'	17°30.4	13.6'	59.4'	
Anilam	275°36.9	-1°11.1	15	44°42.2	24.7	352°44.7	9.0'	17°16.8	13.6'	59.4'	
Betelgeuse	270°51.1	7°24.7	16	59°42.1	24.8	7°12.7	9.1'	17°03.2	13.7'	59.3'	
Canopus	263°52.4	-52°42.6	17	74°41.9	24.8	21°40.8	9.2'	16°49.5	13.8'	59.3'	
Sirius	258°25.5	-16°45.2	18	89°41.8	N23°24.9	36°09.1	9.4'	N16°35.7	13.8'	59.3'	
Adhara	255°05.3	-29°00.5	19	104°41.6	24.9	50°37.4	9.5'	16°21.9	14.0'	59.2'	
Precyan	244°49.9	5°09.4	20	119°41.5	25.0	65°05.9	9.6'	16°07.9	14.0'	59.2'	
Pollux	243°16.2	27°57.8	21	134°41.4	25.1	79°34.6	9.8'	15°53.9	14.0'	59.1'	
Avior	234°14.8	-59°35.8	22	149°41.2	25.1	94°03.3	9.9'	15°39.9	14.2'	59.1'	
Suhail	222°45.7	-43°32.6	23	164°41.1	25.1	108°32.2	10.0'	15°25.7	14.2'	59.1'	
Miaplacidus	221°38.7	-69°49.8									
Alphard	217°46.8	-8°46.5									
Regulus	207°43.3	4°10.3									
			SD = 15.7' d = 0.1'			SD = 16.3'					

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec			
0	269°12.5	137°28.3	N19°59.4	217°04.3	N18°27.9	148°58.3	N20°58.3	255°42.6	N03°14.5					
1	284°15.0	152°27.8	58.6	232°05.0	28.4	164°00.2	58.2	270°44.9	14.6					
2	299°17.4	167°27.3	57.8	247°05.6	28.9	179°02.1	58.1	285°47.3	14.6					
3	314°19.9	182°26.9	•• 57.0	262°06.2	•• 29.3	194°04.1	•• 58.0	300°49.6	•• 14.6					
4	329°22.4	197°26.4	56.2	277°06.8	29.8	209°06.0	57.9	315°51.9	14.7					
5	344°24.8	212°25.9	55.4	292°07.5	30.3	224°07.9	57.8	330°54.2	14.7					
6	359°27.3	227°25.4	N19°54.6	307°08.1	N18°30.7	239°09.8	N20°57.7	345°56.6	N03°14.8					
7	14°29.8	242°24.9	53.8	322°08.7	31.2	254°11.7	57.6	0°58.9	14.8					
8	29°32.2	257°24.5	53.0	337°09.3	31.7	269°13.6	57.5	16°01.2	14.9					
9	44°34.7	272°24.0	•• 52.2	352°10.0	•• 32.1	284°15.6	•• 57.4	31°03.6	•• 14.9					
10	59°37.2	287°23.5	51.4	7°10.6	32.6	299°17.5	57.2	46°05.9	15.0					
11	74°39.6	302°23.0	50.6	22°11.2	33.1	314°19.4	57.1	61°08.2	15.0					
12	89°42.1	317°22.6	N19°49.8	37°11.9	N18°33.5	329°21.3	N20°57.0	76°10.5	N03°15.1					
13	104°44.5	332°22.1	49.0	52°12.5	34.0	344°23.2	56.9	91°12.9	15.1					
14	119°47.0	347°21.6	48.2	67°13.1	34.4	359°25.1	56.8	106°15.2	15.1					
15	134°49.5	•• 2°21.1	•• 47.4	82°13.7	•• 34.9	14°27.1	•• 56.7	121°17.5	•• 15.2					
16	149°51.9	17°20.7	46.6	97°14.4	35.4	29°29.0	56.6	136°19.8	15.2					
17	164°54.9	32°20.2	45.7	112°15.0	35.8	44°30.9	56.5	151°22.2	15.3					
18	179°56.9	47°19.7	N19°44.7	127°15.6	N18°36.3	59°32.8	N20°56.4	166°24.5	N03°15.3					
19	194°59.3	62°19.3	44.1	142°16.2	36.8	74°34.7	56.3	181°26.8	15.4					
20	210°01.8	77°18.8	43.3	157°16.9	37.2	89°36.7	56.2	196°29.2	15.4					
21	225°04.3	92°18.3	•• 42.5	172°17.5	•• 37.7	104°38.6	•• 56.1	211°31.5	•• 15.5					
22	240°06.7	107°17.8	41.7	187°18.1	38.1	119°40.5	56.0	226°33.8	15.5					
23	255°09.2	122°17.4	40.9	202°18.7	38.6	134°42.4	55.9	241°36.1	15.6					
Mer.pass. 06:02			ν -0.5' d 0.8' m -4.01			ν 0.6' d 0.5' m 1.29			ν 1.9' d 0.1' m -1.83			ν 2.3' d 0.0' m 0.81		

Mon	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	270°11.7	137°16.9	N19°40.1	217°19.4	N18°39.1	149°44.3	N20°55.8	256°38.5
1	285°14.1	152°16.4	39.3	232°20.0	39.5	164°46.2	55.7	271°40.8
2	300°16.6	167°16.0	38.4	247°20.6	40.0	179°48.2	55.6	286°43.1
3	315°19.0	182°15.5	•• 37.6	262°21.2	•• 40.4	194°50.1	•• 55.5	301°45.5
4	330°21.5	197°15.1	36.8	277°21.9	40.9	209°52.0	55.4	316°47.8
5	345°24.0	212°14.6	36.0	292°22.5	41.4	224°53.9	55.3	331°50.1
6	0°26.4	227°14.1	N19°35.2	307°23.1	N18°41.8	239°55.8	N20°55.2	346°52.5
7	15°28.9	242°13.7	34.4	322°23.7	42.3	254°57.7	55.1	1°54.8
8	30°31.4	257°13.2	33.5	337°24.4	42.7	269°59.6	55.0	16°57.1
9	45°33.8	272°12.7	•• 32.7	352°25.0	•• 43.2	285°01.6	•• 54.9	31°59.4
10	60°36.3	287°12.3	31.9	7°25.6	43.6	300°03.5	54.8	47°01.8
11	75°38.8	302°11.8	31.1	22°26.2	44.1	315°05.4	54.7	62°04.1
12	90°41.2	317°11.4	N19°30.2	37°26.9	N18°44.6	330°07.3	N20°54.6	77°06.4
13	105°43.7	332°10.9	29.4	52°27.5	45.0	345°09.2	54.5	92°08.8
14	120°46.1	347°10.4	28.6	67°28.1	45.5	0°11.1	•• 54.4	107°11.1
15	135°48.6	•• 2°10.0	•• 27.8	82°28.7	•• 45.9	15°13.1	•• 54.3	122°13.1
16	150°51.1	17°09.5	26.9	97°29.4	46.4	30°15.0	54.2	137°15.8
17	165°53.5	32°09.1	26.1	112°30.0	46.8	45°16.9	54.1	152°18.1
18	180°56.0	47°08.6	N19°25.3	127°30.6	N18°47.3	60°18.8	N20°54.0	167°20.4
19	195°58.5	62°08.2	24.5	142°31.2	47.7	75°20.7	53.9	182°22.8
20	211°00.9	77°07.7	23.6	157°31.9	48.2	90°22.6	53.7	197°25.1
21	226°03.4	92°07.3	•• 22.8	172°32.5	•• 48.6	105°24.6	•• 53.6	212°27.4
22	241°05.9	107°06.8	22.0	187°33.1	49.1	120°26.5	53.5	227°29.8
23	256°08.3	122°06.4	21.1	202°33.7	49.5	135°28.4	53.4	242°32.1
Mer.pass. 05:58			ν -0.5' d 0.8' m -4.01			ν 0.6' d 0.5' m 1.29		

Tue	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	271°10.8	137°05.9	N19°20.3	217°34.4	N18°50.0	150°30.3	N20°53.3	257°34.8
1	286°13.3	152°05.8	19.5	232°35.0	50.5	165°32.2	53.2	272°36.8
2	301°15.7	167°05.0	18.6	247°35.6	50.9	180°34.1	53.1	287°39.1
3	316°18.2	182°04.6	•• 17.8	262°36.2	•• 51.4	195°36.0	•• 53.0	302°41.4
4	331°20.6	197°04.1	17.0	277°36.9	51.8	210°38.0	52.9	317°43.8
5	346°23.1	212°03.7	16.1	292°37.5	52.3	225°39.9	52.8	332°46.1
6	1°25.6	227°03.2	N19°15.3	307°38.1	N18°52.7	240°41.8	N20°52.7	347°48.4
7	16°28.0	242°02.8	14.4	322°38.7	53.5	255°43.7	52.6	2°50.8
8	31°30.5	257°02.3	13.6	337°39.4	53.6	270°45.6	52.5	17°53.1
9	46°33.0	272°01.9	•• 12.8	352°40.0	•• 54.1	285°47.5	•• 52.4	32°55.4
10	61°35.4	287°01.5	11.9	7°40.6	54.5	300°49.4	52.3	47°57.8
11	76°37.9	302°01.0	11.1	22°41.2	55.0	315°51.4	52.2	63°00.1
12	91°40.4	317°00.6	N19°10.2	37°41.8	N18°55.4	330°53.3	N20°52.1	78°02.4
13	106°42.8	332°00.1	10.4	52°42.5	55.8	345°55.2	52.0	93°04.8
14	121°45.3	346°59.7	08.6	67°43.1	56.3	0°57.1	•• 51.9	108°07.1
15	136°47.7	•• 1°59.3	•• 07.7	82°43.7	•• 56.7	15°59.0	•• 51.8	123°09.4
16	151°50.2	16°58.8	06.9	97°44.3	57.2	31°00.9	51.7	138°11.8
17	166°52.7	31°58.4	06.0	112°45.0	57.6	46°02.8	51.6	153°14.1
18	181°55.1	46°57.9	N19°05.2	127°45.6	N18°58.1	61°04.8	N20°51.5	168°16.4
19	196°57.6	61°57.5	04.3	142°46.2	58.5	76°06.7	51.4	183°18.8
20	212°00.1	76°57.1	03.5	157°46.8	59.1	91°08.6	51.2	198°21.1
21	227°02.5	91°56.6	•• 02.6	172°47.5	•• 59.4	106°10.5	•• 51.1	213°23.4
22	242°05.0	106°56.2	01.8	187°48.1	18°59.9	121°12.4	51.0	228°25.8
23	257°07.5	121°55.8	00.9	202°48.7	20°03.9	136°14.3	50.9	243°28.1
Mer.pass. 05:54			ν -0.4' d 0.8' m -4.01			ν 0.6' d 0.5' m 1.29		

Stars			h			Sun			Moon		
SHA	Dec		GHA	Dec		GHA	ν	Dec	d	HP	
Alpheratz	357°33.5	29°14.1	0	179°34.4	N23°26.3	100°10.6	14.3'	N03°07.0	15.4'	57.2'	
Ankaa	353°06.0	-42°09.4	1	194°34.2	26.3	114°43.9	14.4'	02°51.6	15.4'	57.1'	
Schedar	349°29.8	56°40.7	2	209°34.1	26.3	129°17.3	14.4'	02°36.2	15.4'	57.1'	
Diphda	348°46.2	-17°50.3	3	224°34.0	•• 26.3	143°50.7	14.5'	02°20.8	15.4'	57.0'	
Achernar	335°19.5	-57°05.8	4	239°33.8	26.3	158°24.2	14.5'	02°05.4	15.3'	57.0'	
Hamal	327°50.0	23°35.2	5	254°33.7	26.3	172°57.7	14.6'	01°50.1	15.4'	57.0'	
Polaris	313°46.5	89°22.3	6	269°33.6	N23°26.3	187°31.2	14.6'	N01°34.7	15.3'	56.9'	
Acamar	315°11.2	-40°11.7	7	284°33.4	26.3	202°04.8	14.6'	01°19.4	15.3'	56.9'	
Menkar	314°05.1	4°11.6	8	299°33.3	26.3	216°38.5	14.7'	01°04.1	15.3'	56.9'	
Mirfak	308°26.9	49°57.2	9	314°33.2	•• 26.3	231°12.2	14.7'	00°48.8	15.3'	56.8'	
Aldebaran	290°38.6	16°33.7	10	329°33.0	26.3	245°45.9	14.8'	00°33.5	15.3'	56.8'	
Rigel	281°03.0	-8°10.2	11	344°32.9	26.3	260°19.7	14.8'	00°18.2	15.3'	56.8'	
Capella	280°20.6	46°01.4	12	359°32.7	N23°26.3	274°53.5	14.8'	N00°02.9	15.2'	56.7'	
Bellatrix	278°21.9	6°22.4	13	14°32.6	26.3	289°27.3	14.9'	S00°12.3	15.2'	56.7'	
Elnath	278°00.7	28°37.7	14	29°32.5	26.3	304°01.2	14.9'	00°27.5	15.2'	56.6'	
Anilam	275°36.8	-1°11.1	15	44°32.3	•• 26.3	318°35.1	14.9'	00°42.7	15.2'	56.6'	
Betelgeuse	270°51.1	7°24.1	16	59°32.2	26.3	333°09.0	15.0'	00°57.9	15.1'	56.6'	
Canopus	263°52.4	-52°46.2	17	74°32.1	26.2	347°43.0	15.0'	01°13.0	15.1'	56.5'	
Sirius	285°25.5	-16°45.2	18	89°31.9	N23°26.2	2°17.0	15.0'	S01°28.1	15.1'	56.5'	
Adhara	255°05.3	-29°00.5	19	104°31.8	26.2	16°51.0	15.1'	01°43.2	15.1'	56.5'	
Procyon	244°49.9	5°09.4	20	119°31.7	26.2	31°25.1	15.1'	01°58.3	15.1'	56.4'	
Pollux	243°16.2	27°57.8	21	134°31.5	•• 26.2	45°59.2	15.1'	02°13.4	15.0'	56.4'	
Avior	234°14.8	-59°35.8	22	149°31.4	26.2	60°33.3	15.1'	02°28.4	15.0'	56.4'	
Suhail	222°45.8	-43°32.5	23	164°31.2	26.2	75°07.4	15.2'	02°43.4	15.0'	56.3'	
Miaplacidus	221°38.7	-69°49.8									
Alphard	217°46.8	-8°46.5									
			SD = 15.7' d = 0.0'			SD = 15.6' d = 0.0'					

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	272°09.9	136°55.3	N19°00.1	217°49.3	N19°00.8	151°16.2	N20°50.8	258°30.4	N03°17.7										
1	287°12.4	151°54.9	18°59.2	232°50.0	01.2	166°18.2	50.7	273°32.8	17.7										
2	302°14.9	166°54.5	58.4	247°50.6	01.6	181°20.1	50.6	288°35.1	17.8										
3	317°17.3	181°54.0	•• 57.5	262°51.2	•• 02.1	196°22.0	•• 50.5	303°37.5	•• 17.8										
4	332°19.8	196°53.6	56.7	277°51.8	02.5	211°23.9	50.4	318°39.8	17.9										
5	347°22.2	211°53.2	55.8	292°52.4	03.0	226°25.8	50.3	333°42.1	17.9										
6	2°24.7	226°52.8	N18°54.8	307°53.1	N19°03.4	241°27.7	N20°50.2	348°44.5	N03°17.9										
7	17°27.2	241°52.3	54.1	322°53.7	03.9	256°29.6	50.1	3°46.8	18.0										
8	32°29.6	256°51.9	53.2	337°54.3	04.3	271°31.6	50.0	18°49.1	18.0										
9	47°32.1	271°51.5	•• 52.4	352°54.9	•• 04.7	286°33.5	•• 49.9	33°51.5	•• 18.1										
10	62°34.6	286°51.0	51.5	7°55.6	05.2	301°35.4	49.8	48°53.8	18.1										
11	77°37.0	301°50.6	50.6	22°56.2	05.6	316°37.3	49.7	63°56.2	18.1										
12	92°39.5	316°50.2	N18°49.8	37°56.8	N19°06.1	331°39.2	N20°49.6	78°58.5	N03°18.2										
13	107°42.0	331°49.8	48.9	52°57.4	06.5	346°41.1	49.5	94°00.8	18.2										
14	122°44.4	346°49.4	48.1	67°58.0	06.9	1°43.0	49.4	109°03.2	18.3										
15	137°46.9	1°48.9	•• 47.2	82°58.7	•• 07.4	16°44.9	•• 49.2	124°05.5	•• 18.3										
16	152°49.4	16°48.5	46.3	97°59.3	07.8	31°46.9	49.1	139°07.8	18.3										
17	167°51.8	31°48.1	45.5	112°59.9	08.3	46°48.8	49.0	154°10.2	18.4										
18	182°54.3	46°47.7	N18°44.6	128°00.5	N19°08.7	61°50.7	N20°48.9	169°12.5	N03°18.4										
19	197°56.7	61°47.3	43.7	143°01.2	09.1	76°52.6	48.8	184°14.9	18.5										
20	212°59.2	76°46.8	42.9	158°01.8	09.6	91°54.5	48.7	199°17.2	18.5										
21	228°01.7	91°46.4	•• 42.0	173°02.4	•• 10.0	106°56.4	•• 48.6	214°19.5	•• 18.6										
22	243°04.1	106°46.0	41.1	188°03.0	10.4	118°03.8	48.5	229°21.9	18.6										
23	258°06.6	121°45.6	40.3	203°03.6	10.9	137°00.2	48.4	244°24.2	18.6										
Mer.pass. 05:50				ν -0.4° d 0.9' m -4.02				ν 0.6° d 0.4' m 1.30				ν 1.9° d 0.1' m -1.82				ν 2.3° d 0.0' m 0.80			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	273°09.1	136°45.2	N18°39.4	218°04.3	N19°11.3	152°02.2	N20°48.3	259°26.6	N03°18.7						
1	288°11.5	151°44.8	38.5	233°04.9	11.8	167°04.1	48.2	274°28.9	18.7						
2	303°14.0	166°44.3	37.6	248°05.5	12.2	182°06.0	48.1	289°31.2	18.8						
3	318°16.5	181°43.9	•• 36.8	263°06.1	•• 12.6	197°07.9	•• 48.0	304°33.6	•• 18.8						
4	333°18.9	196°43.5	35.9	278°06.8	13.1	212°08.8	47.9	319°35.9	18.8						
5	348°21.4	211°43.1	35.0	293°07.4	13.5	227°11.7	47.8	334°38.3	18.9						
6	3°23.9	226°42.7	N18°34.1	308°08.0	N19°13.9	242°13.6	N20°47.7	349°40.6	N03°18.9						
7	18°26.3	241°42.3	33.3	323°08.6	14.4	257°15.5	47.6	4°42.9	19.0						
8	33°28.8	256°41.9	32.4	338°09.2	14.8	272°17.5	47.4	19°45.3	19.0						
9	48°31.2	271°41.5	•• 31.5	353°09.9	•• 15.2	287°19.4	•• 47.3	34°47.6	•• 19.0						
10	63°33.7	286°41.1	30.6	8°10.5	15.7	302°21.3	47.2	49°50.0	19.1						
11	78°36.2	301°40.6	29.7	23°11.1	16.1	317°23.2	47.1	64°52.3	19.1						
12	93°38.6	316°40.2	N18°28.9	38°11.7	N19°16.5	332°25.1	N20°47.0	79°54.6	N03°19.2						
13	108°41.1	331°39.8	28.0	53°12.3	17.0	347°27.0	46.9	94°57.0	19.2						
14	123°43.6	346°39.4	27.1	68°13.0	17.4	2°28.9	46.8	109°59.3	19.2						
15	138°46.0	1°39.0	•• 26.2	83°13.6	•• 17.8	17°30.8	•• 46.7	125°01.7	•• 19.3						
16	153°48.5	16°38.6	25.3	98°14.2	18.3	32°32.7	46.6	140°04.0	19.3						
17	168°51.0	31°38.2	24.5	113°14.8	18.7	47°34.7	46.5	155°06.3	19.4						
18	183°53.4	46°37.8	N18°23.6	128°15.5	N19°19.1	62°36.6	N20°46.4	170°08.7	N03°19.4						
19	198°55.9	61°37.4	22.7	143°16.1	19.5	77°38.5	46.3	185°11.0	19.4						
20	213°58.3	76°37.0	21.8	158°16.7	20.0	92°40.4	46.2	200°13.4	19.5						
21	229°00.8	91°36.6	•• 20.9	173°17.3	•• 20.4	107°42.3	•• 46.1	215°15.7	•• 19.5						
22	244°03.3	106°36.2	20.0	188°17.9	20.8	122°44.2	46.0	230°18.1	19.5						
23	259°05.7	121°35.8	19.1	203°18.6	21.3	137°46.1	45.9	245°20.4	19.6						
Mer.pass. 05:46				ν 0.6° d 0.4' m 1.30				ν 1.9° d 0.1' m -1.82				ν 2.3° d 0.0' m 0.80			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	274°08.2	136°35.4	N18°18.2	218°19.2	N19°21.7	152°48.0	N20°45.7	260°22.7	N03°19.6										
1	289°10.7	151°35.0	17.4	233°19.8	22.1	167°49.9	45.6	275°25.1	19.7										
2	304°13.1	166°34.6	16.5	248°20.4	22.6	182°51.9	45.5	290°27.4	19.7										
3	319°15.6	181°34.2	•• 15.6	263°21.0	•• 23.0	197°53.8	•• 45.4	305°29.8	•• 19.7										
4	334°18.1	196°33.8	14.7	278°21.7	23.4	212°55.7	45.3	320°32.1	19.8										
5	349°20.5	211°33.4	13.8	293°22.3	23.8	227°57.6	45.2	335°34.5	19.8										
6	4°23.0	226°33.0	N18°12.9	308°22.9	N19°24.3	242°59.5	N20°45.1	350°36.8	N03°19.9										
7	19°25.5	241°32.6	12.0	323°23.5	24.7	258°01.4	45.0	5°39.2	19.9										
8	34°27.9	256°32.3	11.1	338°24.1	25.1	273°03.3	44.9	20°41.5	19.9										
9	49°30.4	271°31.9	•• 10.2	353°24.8	•• 25.5	288°05.2	•• 44.8	35°43.8	•• 20.0										
10	64°32.8	286°31.5	09.3	8°25.4	26.0	303°07.1	44.7	50°46.2	20.0										
11	79°35.3	301°31.1	08.4	23°26.0	26.4	318°09.0	44.6	65°48.5	20.0										
12	94°37.8	316°30.7	N18°07.5	38°26.6	N19°26.8	333°11.0	N20°44.5	80°50.9	N03°20.1										
13	109°40.2	331°30.3	06.6	53°27.2	27.2	348°12.9	44.4	95°53.2	20.1										
14	124°42.7	346°29.9	05.7	68°27.9	27.7	3°14.8	44.2	110°55.6	20.2										
15	139°45.2	1°29.5	•• 04.8	83°28.5	•• 28.1	18°16.7	•• 44.1	125°57.9	•• 20.2										
16	154°47.6	16°29.1	03.9	98°29.1	28.5	33°18.6	44.0	141°00.3	20.2										
17	169°50.1	31°28.8	03.0	113°29.7	28.9	48°20.5	43.9	156°02.6	20.3										
18	184°52.6	46°28.4	N18°02.1	128°30.3	N19°29.4	63°22.4	N20°43.8	171°04.9	N03°20.3										
19	199°55.0	61°28.0	01.2	143°31.0	29.8	78°24.3	43.7	186°07.3	20.4										
20	214°57.5	76°27.6	18°00.3	158°31.6	30.2	93°26.2	43.6	201°09.6	20.4										
21	230°00.0	91°27.2	17°59.4	173°32.2	•• 30.6	108°28.1	•• 43.5	216°12.0	•• 20.4										
22	245°02.4	106°26.8	58.5	188°32.8	31.0	123°30.1	43.4	231°14.3	20.5										
23	260°04.9	121°26.5	57.6	203°33.4	31.5	138°32.0	43.3	246°16.7	20.5										
Mer.pass. 05:43				ν -0.4° d 0.9' m -4.03				ν 0.6° d 0.4' m 1.30				ν 1.9° d 0.1' m -1.82				ν 2.3° d 0.0' m 0.80			

Stars			h			Sun			Moon		
	SHA	Dec	Wed	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.5	29°14.1	0	179°24.6	N23°24.8	69°03.1	14.8°	S14°07.3	12.6'	55.0'	
Ankaa	353°06.0	-42°09.4	1	194°24.5	24.8	83°36.9	14.8°	14°19.9	12.5'	54.9'	
Schedar	349°29.7	56°40.7	2	209°24.3	24.7	98°10.7	14.7°	14°32.4	12.5'	54.9'	
Diphda	348°46.1	-17°50.3	3	224°24.2	•• 24.7	112°44.4	14.7°	14°44.9	12.4'	54.9'	
Achernar	335°19.5	-57°05.8	4	239°24.1	24.6	127°18.1	14.7°	14°57.3	12.3'	54.9'	
Hamal	327°50.0	23°35.2	5	254°23.9	24.6	141°51.8	14.6°	15°09.6	12.3'	54.9'	
Polaris	313°45.2	89°22.3									
Acamar	315°11.2	-40°11.7	6	269°23.8	N23°24.5	156°25.4	14.6°	S15°21.9	12.2'	54.8'	
Menkar	314°05.1	4°11.6	7	284°23.7	24.5	170°59.0	14.6°	15°34.1	12.1'	54.8'	
Mirafaz	308°26.9	49°57.2	8	299°23.5	24.4	185°32.5	14.5°	15°46.2	12.0'	54.8'	
Aldebaran	290°38.6	16°33.7	9	314°23.4	•• 24.4	200°06.0	14.5°	15°58.2	12.0'	54.8'	
Rigel	281°03.0	-8°10.2	10	329°23.3	24.3	214°39.5	14.4°	16°10.2	11.9'	54.8'	
Capella	280°20.6	46°01.4	11	344°23.1	24.3	229°12.9	14.4°	16°22.1	11.8'	54.7'	
Bellatrix	278°21.9	6°22.4	12	359°23.0	N23°24.2	243°46.3	14.4°	S16°33.9	11.8'	54.7'	
Elmath	278°00.7	28°37.7	13	14°22.9	24.2	258°19.7	14.3°	16°45.7	11.7'	54.7'	
Anilam	275°36.8	-1°11.1	14	29°22.7	24.1	272°53.0	14.3°	16°57.4	11.6'	54.7'	
Betelgeuse	270°51.1	7°24.7	15	44°22.6	•• 24.1	287°26.3	14.2°	17°09.0	11.5'	54.7'	
Canopus	263°52.4	-52°42.6	16	59°22.5	24.0	301°59.5	14.2°	17°20.5	11.4'	54.6'	
Sirius	258°25.5	-16°45.1	17	74°22.3	23.9	316°32.7	14.1°	17°31.9	11.4'	54.6'	
Adhara	255°05.3	-29°00.5	18	89°22.2	N23°23.9	331°05.8	14.1°	S17°43.3	11.3'	54.6'	
Procyon	244°49.9	5°09.4	19	104°22.1	23.8	345°38.9	14.0°	17°54.6	11.2'	54.6'	
Pollux	243°16.2	27°57.8	20	119°21.9	23.8	•• 0°12.0	14.0°	18°05.8	11.1'	54.6'	
Avior	234°14.8	-59°35.8	21	134°21.8	•• 23.7	14°45.0	14.0°	18°16.9	11.0'	54.6'	
Suhail	222°45.8	-43°32.5	22	149°21.7	23.6	29°17.9	13.9°	18°27.9	11.0'	54.6'	
Miaplacidus	221°38.7	-69°49.8	23	164°21.5	23.6	43°50.8	13.9°	18°38.9	10.9'	54.5'	
Alphard	217°46.8	-8°46.5									
Regulus	207°33.3	11°50.3		SD = 15.7°	d = 0.0'			SD = 15.0°			

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	275°07.3	136°26.1	N17°56.7	218°34.1	N19°31.9	153°33.9	N20°43.2	261°19.0	N03°20.5					
1	290°09.8	151°25.7	55.8	233°34.7	32.3	168°35.8	43.1	276°21.4	20.6					
2	305°12.3	166°25.3	54.9	248°35.3	32.7	183°37.7	43.0	291°23.7	20.6					
3	320°14.7	181°24.9	•• 54.0	263°35.9	•• 33.1	198°39.6	•• 42.8	306°26.1	•• 20.7					
4	335°17.2	196°24.6	53.0	278°36.5	33.6	213°41.5	42.7	321°28.4	20.7					
5	350°19.7	211°24.2	52.1	293°37.2	34.0	228°43.4	42.6	336°30.8	20.7					
6	5°22.1	226°23.8	N17°51.2	308°37.8	N19°34.4	243°45.3	N20°42.5	351°33.1	N03°20.8					
7	20°24.6	241°23.4	50.3	323°38.4	34.8	258°47.2	42.4	6°35.4	20.8					
8	35°27.1	256°23.1	49.4	338°39.0	35.2	273°49.2	42.3	21°37.8	20.8					
9	50°29.5	271°22.7	•• 48.5	353°39.6	•• 35.6	288°51.1	•• 42.2	36°40.1	•• 20.9					
10	65°32.0	286°22.3	47.6	8°40.3	36.1	303°53.0	42.1	51°42.5	20.9					
11	80°34.5	301°21.9	46.7	23°40.9	36.5	318°54.9	42.0	66°44.8	20.9					
12	95°36.9	316°21.6	N17°45.7	38°41.5	N19°36.9	333°56.8	N20°41.9	81°47.2	N03°21.0					
13	110°39.4	331°21.2	44.8	53°42.1	37.3	348°58.7	41.8	96°49.5	21.0					
14	125°41.8	346°20.8	43.9	68°42.7	37.7	4°00.6	41.7	111°51.9	21.1					
15	140°44.3	1°20.5	•• 43.0	83°43.3	•• 38.1	19°02.5	•• 41.5	126°54.2	•• 21.1					
16	155°46.8	16°20.1	42.1	98°44.0	38.6	34°04.4	41.4	141°56.6	21.1					
17	170°49.2	31°19.7	41.2	113°44.6	39.0	49°06.3	41.3	156°58.9	21.2					
18	185°51.7	46°19.3	N17°40.2	128°45.2	N19°39.4	64°08.2	N20°41.2	172°01.3	N03°21.2					
19	200°54.2	61°19.0	39.3	143°45.8	39.8	79°10.2	41.1	187°03.6	21.2					
20	215°56.6	76°18.6	38.4	158°46.4	40.2	94°12.1	41.0	202°06.0	21.3					
21	230°59.1	91°18.2	•• 37.5	173°47.1	•• 40.6	109°14.0	•• 40.9	217°08.3	•• 21.3					
22	246°01.6	106°17.9	36.5	188°47.7	41.0	124°15.9	40.8	232°10.7	21.3					
23	261°04.0	121°17.5	35.6	203°48.3	41.5	139°17.8	40.7	247°13.0	21.4					
Mer.pass. 05:39			ν -0.4' d 0.9' m -4.03			ν 0.6' d 0.4' m 1.30			ν 1.9' d 0.1' m -1.82			ν 2.3' d 0.0' m 0.79		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	276°06.5	136°17.2	N17°34.7	218°48.9	N19°41.9	154°19.7	N20°40.6	262°15.4	N03°21.4						
1	291°08.9	151°16.8	33.8	233°49.5	42.3	169°21.6	40.5	277°17.7	21.5						
2	306°11.4	166°16.4	32.8	248°50.2	42.7	184°23.5	40.3	292°20.1	21.5						
3	321°13.9	181°16.1	•• 31.9	263°50.8	•• 43.1	199°25.4	•• 40.2	307°22.4	•• 21.5						
4	336°16.3	196°15.7	31.0	278°51.4	43.5	214°27.3	40.1	322°24.8	21.6						
5	351°18.8	211°15.3	30.1	293°52.0	43.9	229°29.2	40.0	337°27.1	21.6						
6	6°21.3	226°15.0	N17°29.1	308°52.6	N19°44.3	244°31.4	N20°39.9	352°29.5	N03°21.6						
7	21°23.7	241°14.6	28.2	323°53.2	44.7	259°33.1	39.8	7°31.8	21.7						
8	36°26.2	256°14.3	27.3	338°53.9	45.2	274°35.0	40.7	22°34.2	21.7						
9	51°28.7	271°13.9	•• 26.3	353°54.5	•• 45.6	289°36.9	•• 39.6	37°36.5	•• 21.7						
10	66°31.1	286°13.6	25.4	8°55.1	46.0	304°38.8	39.5	52°38.9	21.8						
11	81°33.6	301°13.2	24.5	23°55.7	46.4	319°40.7	39.4	67°41.2	21.8						
12	96°36.1	316°12.9	N17°23.6	38°56.3	N19°46.8	334°42.6	N20°39.3	82°43.6	N03°21.8						
13	111°38.5	331°12.5	22.6	53°57.0	47.2	349°44.5	39.1	97°45.9	21.9						
14	126°41.0	346°12.1	21.7	68°57.6	47.6	4°46.4	39.0	112°48.3	21.9						
15	141°43.4	1°11.8	•• 20.7	83°58.2	•• 48.0	19°48.3	•• 38.9	127°50.6	•• 21.9						
16	156°45.9	16°11.4	19.8	98°58.8	48.4	34°50.2	38.8	142°53.0	22.0						
17	171°48.4	31°11.1	18.9	113°59.4	48.8	49°52.1	38.7	157°55.3	22.0						
18	186°50.8	46°10.7	N17°17.9	129°00.0	N19°49.2	64°54.0	N20°38.6	172°57.7	N03°22.1						
19	201°53.3	61°10.3	17.0	144°00.7	49.6	79°55.9	38.5	188°00.1	22.1						
20	216°55.8	76°10.0	16.1	159°01.3	50.0	94°57.9	38.4	203°02.4	22.1						
21	231°58.2	91°09.7	•• 15.1	174°01.9	•• 50.5	109°59.8	•• 38.3	218°04.8	•• 22.2						
22	247°00.7	106°09.3	14.2	189°02.5	50.9	125°01.7	38.2	233°07.1	22.2						
23	262°03.2	121°09.0	13.2	204°03.1	51.3	140°03.6	38.1	248°09.5	22.2						
Mer.pass. 05:35			ν -0.4' d 0.9' m -4.04			ν 0.6' d 0.4' m 1.30			ν 1.9' d 0.1' m -1.81			ν 2.4' d 0.0' m 0.79			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	277°05.6	136°08.6	N17°12.3	219°03.7	N19°51.7	155°05.5	N20°37.9	263°11.8	N03°22.3						
1	292°08.1	151°08.3	11.4	234°04.4	52.1	170°07.4	37.8	278°14.2	22.3						
2	307°10.6	166°08.0	10.4	249°05.0	52.5	185°09.3	37.6	293°16.5	22.3						
3	322°13.0	181°07.6	•• 09.5	264°05.6	•• 52.9	200°11.2	•• 37.6	308°18.9	•• 22.4						
4	337°15.5	196°07.3	08.5	279°06.2	53.3	215°13.1	37.5	323°21.2	22.4						
5	352°17.9	211°06.9	07.6	294°06.8	53.7	230°15.0	37.4	338°23.6	22.4						
6	7°20.4	226°06.6	N17°06.6	309°07.5	N19°54.1	245°16.9	N20°37.3	353°25.9	N03°22.5						
7	22°22.9	241°06.2	05.7	324°08.1	54.5	260°18.8	37.2	8°28.3	22.5						
8	37°25.3	256°05.9	04.8	339°08.7	54.9	275°20.7	37.1	23°30.6	22.6						
9	52°27.8	271°05.6	•• 03.8	354°09.3	•• 55.3	290°22.6	•• 37.0	38°33.0	•• 22.6						
10	67°30.3	286°05.2	02.9	9°09.9	55.7	305°24.5	36.8	53°35.4	22.6						
11	82°32.7	301°04.9	01.9	24°10.5	56.1	320°26.5	36.7	68°37.7	22.6						
12	97°35.2	316°04.6	N17°01.0	39°11.2	N19°56.5	335°28.4	N20°36.6	83°40.1	N03°22.7						
13	112°37.7	331°04.2	17°00.0	54°11.8	56.9	350°30.3	36.5	98°42.4	22.7						
14	127°40.1	346°03.9	16°59.1	69°12.4	57.3	5°32.2	36.4	113°44.8	22.7						
15	142°42.6	1°03.5	•• 58.1	84°13.0	•• 57.7	20°34.1	•• 36.3	128°47.1	•• 22.8						
16	157°45.1	16°03.2	57.2	99°13.6	58.1	35°36.0	36.2	143°49.5	22.8						
17	172°47.5	31°02.9	56.2	114°14.2	58.5	50°37.9	36.1	158°51.8	22.8						
18	187°50.0	46°02.5	N16°55.2	129°14.9	N19°58.9	65°39.8	N20°36.0	173°54.2	N03°22.9						
19	202°52.4	61°02.2	54.3	144°15.5	59.3	80°41.7	35.8	188°56.6	22.9						
20	217°54.9	76°01.9	53.3	159°16.1	19°59.7	95°43.6	35.7	203°58.9	22.9						
21	232°57.4	91°01.5	•• 52.4	174°16.7	20°00.1	110°45.5	•• 35.6	219°01.3	•• 23.0						
22	247°59.8	106°01.2	51.4	189°17.3	00.5	125°47.4	35.5	234°03.6	23.0						
23	263°02.3	121°00.9	50.5	204°17.9	00.9	140°49.3	35.4	249°06.0	23.0						
Mer.pass. 05:31			ν -0.3' d 0.9' m -4.04			ν 0.6' d 0.4' m 1.30			ν 1.9' d 0.1' m -1.81			ν 2.4' d 0.0' m 0.78			

Stars		
SHA	Dec	
Alpheratz	357°33.5	29°14.1
Ankaa	353°06.0	-42°09.4
Schedar	349°29.7	56°40.7
Diphda	348°46.1	-17°50.3
Achernar	335°19.5	-57°05.8
Hamal	327°50.0	23°35.2
Polaris	313°43.7	89°22.3
Acamar	315°11.1	-40°11.7
Menkar	314°05.1	4°11.6
Mirafak	308°26.9	49°57.1
Aldebaran	290°38.5	16°33.7
Rigel	281°03.0	-8°10.2
Capella	280°20.6	46°01.4
Bellatrix	278°21.9	6°22.4
Elinath	278°00.7	28°37.7
Alnilam	275°36.8	-1°11.1
Betelgeuse	270°51.1	7°24.7
Canopus	263°52.4	-52°42.5
Sirius	268°25.5	-16°45.1
Adhara	255°05.3	-29°00.5
Procyon	244°49.9	5°09.4
Pollux	243°16.2	27°57.8
Avior	234°14.8	-59°35.8
Suhail	222°45.8	-43°32.5
Miaplacidus	221°38.7	-69°49.8

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	278°04.8	136°00.6	N16°49.5	219°18.6	N20°01.3	155°51.2	N20°35.3	264°08.3	N03°23.1					
1	293°07.2	151°00.2	48.6	234°19.2	01.1	170°53.1	35.2	279°10.7	23.1					
2	308°09.8	165°59.9	47.6	249°19.8	02.7	185°55.0	35.1	294°13.1	23.1					
3	323°12.2	180°59.6	46.6	264°20.4	02.5	200°57.0	35.0	309°15.4	23.2					
4	338°14.6	195°59.2	45.7	279°21.0	02.9	215°58.9	34.9	324°17.8	23.2					
5	353°17.1	210°58.9	44.7	294°21.6	03.2	231°00.8	34.7	339°20.1	23.2					
6	8°19.6	225°58.6	N16°43.8	309°22.3	N20°03.6	246°02.7	N20°34.6	354°22.5	N03°23.3					
7	23°22.0	240°58.3	42.8	324°22.9	04.0	261°04.6	34.5	9°24.2	23.3					
8	38°24.5	255°58.0	41.8	339°23.5	04.4	276°06.5	34.4	24°27.8	23.3					
9	53°26.9	270°57.6	40.9	354°24.1	04.8	291°08.4	34.3	39°29.6	23.4					
10	68°29.4	285°57.3	39.9	9°24.7	05.2	306°10.3	34.2	54°31.9	23.4					
11	83°31.9	300°57.0	38.9	24°25.3	05.6	321°12.2	34.1	69°34.3	23.4					
12	98°34.3	315°56.7	N16°38.0	39°25.9	N20°06.0	336°14.1	N20°34.0	84°36.6	N03°23.5					
13	113°36.8	330°56.3	37.0	54°26.6	06.4	351°16.0	33.9	99°39.0	23.5					
14	128°39.3	345°56.0	36.0	69°27.2	06.8	6°17.9	33.7	114°41.4	23.5					
15	143°41.7	0°55.7	35.1	84°27.8	07.1	21°19.8	33.6	129°43.7	23.5					
16	158°44.2	15°55.4	34.1	99°28.4	07.6	36°21.7	33.5	144°46.1	23.6					
17	173°46.7	30°55.1	33.1	114°29.0	08.0	51°23.6	33.4	159°48.4	23.6					
18	188°49.1	45°54.8	N16°32.2	129°29.6	N20°08.3	66°25.5	N20°33.3	174°50.8	N03°23.6					
19	203°51.6	60°54.4	31.2	144°30.3	08.7	81°27.4	33.2	189°53.2	23.7					
20	218°54.1	75°54.1	30.2	159°30.9	09.1	96°29.3	33.1	204°55.5	23.7					
21	233°56.5	90°53.8	29.3	174°31.5	09.5	111°31.3	33.0	219°57.9	23.7					
22	248°59.0	105°53.5	28.3	189°32.1	09.9	126°33.2	32.8	235°00.2	23.8					
23	264°01.4	120°53.2	27.3	204°32.7	10.3	141°35.1	32.7	250°02.6	23.8					
Mer.pass. 05:27 ν -0.3° d 1.0' m -4.05 ν 0.6° d 0.4' m 1.30 ν 1.9° d 0.1' m -1.81 ν 2.4° d 0.0' m 0.78														

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	279°03.9	135°52.9	N16°26.3	219°33.3	N20°10.7	156°37.0	N20°32.6	265°05.0	N03°23.8
1	294°06.4	150°52.6	25.4	234°34.0	11.1	171°38.9	32.5	280°07.3	23.9
2	309°08.8	165°52.3	24.4	249°34.6	11.5	186°40.8	32.4	295°09.7	23.9
3	324°11.3	180°52.0	23.4	264°35.2	11.8	201°42.7	32.3	310°12.0	23.9
4	339°13.8	195°51.6	22.4	279°35.8	12.2	216°44.6	32.2	325°14.4	24.0
5	354°16.2	210°51.3	21.5	294°36.4	12.6	231°46.5	32.1	340°16.8	24.0
6	9°18.7	225°51.0	N16°20.5	309°37.0	N20°13.0	246°48.4	N20°32.0	355°19.1	N03°24.0
7	24°21.2	240°50.7	19.5	324°37.6	13.4	261°50.3	31.8	10°21.5	24.0
8	39°23.6	255°50.4	18.5	339°38.3	13.8	276°52.2	31.7	25°23.8	24.1
9	54°26.1	270°50.1	17.6	354°39.8	14.2	291°54.1	31.6	40°26.2	24.1
10	69°28.5	285°49.8	16.6	9°39.5	14.5	306°56.0	31.5	55°28.6	24.1
11	84°31.0	300°49.5	15.6	24°40.1	14.9	321°57.9	31.4	70°30.9	24.2
12	99°33.5	315°49.2	N16°14.6	39°40.7	N20°15.3	336°59.8	N20°31.3	85°33.3	N03°24.2
13	114°35.9	330°48.9	13.6	54°41.3	15.7	352°01.7	31.2	100°35.7	24.2
14	129°38.4	345°48.6	12.7	69°41.9	16.1	7°03.6	31.1	115°38.0	24.3
15	144°40.9	0°48.3	11.7	84°42.6	16.5	22°05.5	30.9	130°40.4	24.3
16	159°43.3	15°48.0	10.7	99°43.2	16.8	37°07.4	30.8	145°42.7	24.3
17	174°45.8	30°47.7	09.7	114°43.8	17.2	52°09.3	30.7	160°45.1	24.4
18	189°48.3	45°47.4	N16°08.7	129°44.4	N20°17.6	67°11.3	N20°30.6	175°47.5	N03°24.4
19	204°50.7	60°47.1	07.7	144°45.0	18.0	82°13.2	30.5	190°49.8	24.4
20	219°53.2	75°46.8	06.7	159°45.6	18.4	97°15.1	30.4	205°52.2	24.4
21	234°55.7	90°46.5	05.8	174°46.3	18.7	112°17.0	30.3	220°54.6	24.5
22	249°58.1	105°46.2	04.8	189°46.9	19.1	127°18.9	30.2	235°56.9	24.5
23	265°00.6	120°45.9	03.8	204°47.5	19.5	142°20.8	30.0	250°59.3	24.5
Mer.pass. 05:23 ν -0.3° d 1.0' m -4.05 ν 0.6° d 0.4' m 1.30 ν 1.9° d 0.1' m -1.81 ν 2.4° d 0.0' m 0.78									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	280°03.0	135°45.6	N16°02.8	219°48.1	N20°19.9	157°22.7	N20°29.9	266°01.6	N03°24.6
1	295°05.5	150°45.3	01.8	234°48.7	20.3	172°24.6	29.8	281°04.0	24.6
2	310°08.0	165°45.0	06°00.8	249°49.3	20.6	187°26.5	29.7	296°06.4	24.6
3	325°10.4	180°44.7	15°59.8	264°49.9	21.0	202°28.4	29.6	311°08.7	24.7
4	340°12.9	195°44.4	58.8	279°50.6	21.4	217°30.3	29.5	326°11.1	24.7
5	355°15.4	210°44.2	57.8	294°51.2	21.8	232°32.2	29.4	341°13.5	24.7
6	10°17.8	225°43.9	N15°56.9	309°51.8	N20°22.2	247°34.1	N20°29.3	356°15.8	N03°24.7
7	25°20.3	240°43.6	55.9	324°52.4	22.5	262°36.0	29.1	11°18.2	24.8
8	40°22.8	255°43.3	54.9	339°53.0	22.9	277°37.9	29.0	26°20.6	24.8
9	55°25.2	270°43.0	53.9	354°53.6	23.3	292°39.8	28.9	41°22.9	24.8
10	70°27.7	285°42.7	52.9	9°54.2	23.7	307°41.7	28.8	56°25.3	24.9
11	85°30.2	300°42.4	51.9	24°54.9	24.0	322°43.6	28.7	71°27.7	24.9
12	100°32.6	315°42.1	N15°50.9	39°55.5	N20°24.4	337°45.5	N20°28.6	86°30.0	N03°24.9
13	115°35.1	330°41.9	49.9	54°56.1	24.8	352°47.4	28.5	101°32.4	24.9
14	130°37.5	345°41.6	48.9	69°56.7	24.8	7°49.3	28.4	116°34.8	25.0
15	145°40.0	0°41.3	47.9	84°57.3	25.2	22°51.2	28.2	131°37.1	25.0
16	160°42.5	15°41.0	46.9	99°57.9	25.9	37°53.1	28.1	146°39.5	25.0
17	175°44.9	30°40.7	45.9	114°58.5	26.3	52°55.0	28.0	161°41.9	25.1
18	190°47.4	45°40.4	N15°44.9	129°59.2	N20°26.7	67°56.9	N20°27.9	176°44.2	N03°25.1
19	205°49.9	60°40.2	43.9	144°59.8	27.0	82°58.8	27.8	191°46.6	25.1
20	220°52.3	75°39.9	42.9	160°00.4	27.4	98°00.7	27.7	206°49.0	25.1
21	235°54.8	90°39.6	41.9	175°01.0	27.8	113°02.6	27.6	221°51.3	25.2
22	250°57.3	105°39.3	40.9	190°01.6	28.2	128°04.6	27.4	236°53.7	25.2
23	265°59.7	120°39.0	39.9	205°02.2	28.5	143°06.5	27.3	251°56.1	25.2
Mer.pass. 05:19 ν -0.3° d 1.0' m -4.06 ν 0.6° d 0.4' m 1.30 ν 1.9° d 0.1' m -1.81 ν 2.4° d 0.0' m 0.77									

Stars			h			Sun			Moon		
	SHA	Dec	Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.5	29°14.1	0	179°06.0	N23°10.9	358°47.3	10.3°	S27°13.6	3.6'	54.0'	
Ankaa	353°05.9	-42°09.4	1	194°05.9	10.7	13°16.6	10.3°	27°10.0	3.7'	54.0'	
Schedar	349°29.6	56°40.7	2	209°05.7	10.6	27°45.8	10.3°	27°06.3	3.8'	54.1'	
Diphda	348°46.1	-17°50.3	3	224°05.6	10.4	42°15.2	10.3°	27°02.5	4.0'	54.1'	
Achernar	335°19.5	-57°05.8	4	239°05.5	10.3	56°44.5	10.4°	26°58.5	4.1'	54.1'	
Hamal	327°50.0	23°35.2	5	254°05.4	10.1	71°13.9	10.4°	26°54.4	4.2'	54.1'	
Polaris	313°42.2	89°22.3	6	269°05.2	N23°10.0	85°43.3	10.4°	S26°50.2	4.4'	54.1'	
Acamar	315°11.1	-40°11.7	7	284°05.1	09.8	100°12.7	10.5°	26°45.8	4.5'	54.1'	
Menkar	314°05.1	4°11.7	8	299°05.1	09.8	114°42.2	10.5°	26°41.3	4.6'	54.1'	
Mirfak	308°26.8	49°57.1	9	314°04.9	09.7	129°11.7	10.5°	26°36.7	4.7'	54.1'	
Aldebaran	299°38.5	16°33.7	10	329°04.7	09.3	143°41.2	10.6°	26°32.0	4.9'	54.1'	
Rigel	281°03.0	-8°10.2	11	344°04.6	09.2	158°10.8	10.6°	26°27.1	5.0'	54.1'	
Capella	280°20.5	46°01.4	12	359°04.5	N23°09.0	172°40.4	10.7°	S26°22.1	5.1'	54.1'	
Bellatrix	278°21.9	6°22.4	13	14°04.4	08.9	187°10.1	10.7°	26°17.0	5.3'	54.1'	
Elath	278°00.7	28°37.7	14	29°04.3	08.7	201°39.7	10.7°	26°11.7	5.3'	54.1'	
Alnilam	275°36.8	-1°11.1	15	44°04.1	08.6	216°09.5	10.8°	26°06.4	5.5'	54.2'	
Betelgeuse	270°51.1	7°24.7	16	59°04.0	08.4	230°39.3	10.8°	26°00.9	5.7'	54.2'	
Canopus	263°52.4	-52°42.5	17	74°03.9	08.2	245°09.1	10.9°	25°55.2	5.7'	54.2'	
Sirius	258°25.5	-16°45.1	18	89°03.8	N23°08.1	259°38.9	10.9°	S25°49.5	5.9'	54.2'	
Adhara	255°05.3	-29°00.5	19	104°03.7	07.9	274°08.8	10.9°	25°43.6	6.0'	54.2'	
Procyon	244°49.9	5°09.4	20	119°03.5	07.8	288°38.8	11.0°	25°37.6	6.1'	54.2'	
Pollux	243°16.2	27°57.8	21	134°03.4	07.6	303°08.8	11.0°	25°31.5	6.2'	54.2'	
Avior	234°14.8	-59°35.8	22	149°03.3	07.4	317°08.8	11.1°	25°25.3	6.4'	54.2'	
Suhail	222°45.2	-43°32.5	23	164°03.2	07.3	332°08.9	11.1°	25°18.9	6.5'	54.2'	
Miaplacidus	221°36.8	-69°49.7									
Alphard	217°48.8	-8°46.5									

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	281°02.2	135°38.8	N15°38.9	220°02.8	N20°28.9	158°08.4	N20°27.2	266°58.4	N03°25.3					
1	296°04.7	150°38.5	37.9	235°03.4	29.3	173°10.3	27.0	282°00.8	25.3					
2	311°07.1	165°38.2	36.9	250°04.1	29.6	188°12.2	27.1	297°03.2	25.3					
3	326°09.6	180°37.9	.. 35.9	265°04.7	.. 30.0	203°14.1	.. 26.9	312°05.5	.. 25.3					
4	341°12.0	195°37.7	34.9	280°05.3	30.4	218°16.0	26.8	327°07.9	25.4					
5	356°14.5	210°37.4	33.9	295°05.9	30.8	233°17.9	26.7	342°10.3	25.4					
6	11°17.0	225°37.1	N15°32.9	330°06.5	N20°31.1	248°19.8	N20°25.7	357°12.6	N03°25.6					
7	26°19.4	240°36.8	31.9	325°07.1	31.5	263°21.7	26.4	12°15.0	25.4					
8	41°21.9	255°36.6	30.8	340°07.7	31.9	278°23.6	26.3	27°17.4	25.5					
9	56°24.4	270°36.3	.. 29.8	355°08.4	.. 32.2	293°25.5	.. 26.2	42°19.7	.. 25.5					
10	71°26.8	285°36.0	28.8	10°09.0	32.6	308°27.4	26.1	57°22.1	25.7					
11	86°29.3	300°35.8	27.8	25°09.6	33.0	323°29.3	26.0	72°24.5	25.6					
12	101°31.8	315°35.5	N15°26.8	40°10.2	N20°33.3	338°31.2	N20°25.9	87°26.9	N03°25.6					
13	116°34.2	330°35.2	25.8	55°10.8	33.7	353°33.1	25.7	102°29.2	25.6					
14	131°36.7	345°35.0	24.8	70°11.4	34.1	8°35.0	25.6	117°31.6	25.6					
15	146°39.1	0°34.7	.. 23.8	85°12.0	.. 34.4	23°36.9	.. 25.5	132°34.0	.. 25.7					
16	161°41.6	15°34.4	22.8	100°12.6	34.8	38°38.8	25.4	147°36.3	25.7					
17	176°44.1	30°34.2	21.7	115°13.3	35.2	53°40.7	25.3	162°38.7	25.7					
18	191°46.5	45°33.9	N15°20.7	130°13.9	N20°35.2	68°42.6	N20°25.2	177°41.1	N03°25.7					
19	206°49.0	60°33.6	19.7	145°14.5	35.9	83°44.5	25.1	192°43.4	25.8					
20	221°51.5	75°33.4	18.7	160°15.1	36.3	98°46.4	24.9	207°45.8	25.8					
21	236°53.9	90°33.1	.. 17.7	175°15.7	.. 36.6	113°48.3	.. 24.8	222°48.2	.. 25.8					
22	251°56.4	105°32.8	16.7	190°16.3	37.0	128°50.2	24.7	237°50.6	25.9					
23	266°58.9	120°32.6	15.7	205°16.9	37.3	143°52.1	24.6	252°52.9	25.9					
Mer.pass. 05:15			ν -0.3° d 1.0' m -4.06			ν 0.6° d 0.4' m 1.30			ν 1.9° d 0.1' m -1.81			ν 2.4° d 0.0' m 0.77		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	282°01.3	135°32.3	N15°14.6	220°17.6	N20°37.7	158°54.0	N20°24.5	267°55.3	N03°25.9
1	297°03.8	150°32.1	13.6	235°18.2	38.1	173°55.9	24.4	282°57.7	25.9
2	312°06.3	165°31.8	12.6	250°18.8	38.4	188°57.8	24.3	298°00.0	26.0
3	327°08.7	180°31.5	11.6	265°19.4	38.8	203°59.7	24.1	313°02.4	26.0
4	342°11.2	195°31.3	10.6	280°20.0	39.2	219°01.6	24.0	328°04.8	26.0
5	357°13.6	210°31.0	09.5	295°20.6	39.5	234°03.5	23.9	343°07.2	26.0
6	12°16.1	225°30.8	N15°08.5	310°21.2	N20°39.9	249°05.4	N20°23.8	358°09.5	N03°26.1
7	27°18.6	240°30.5	07.5	325°21.8	40.2	264°07.3	23.7	13°11.9	26.1
8	42°21.0	255°30.3	06.5	340°22.5	40.6	279°09.2	23.6	28°14.3	26.1
9	57°23.5	270°30.0	05.5	355°23.1	41.0	294°11.1	23.4	43°16.7	26.1
10	72°26.0	285°29.7	04.4	10°23.7	41.3	309°13.0	23.3	58°19.0	26.2
11	87°28.4	300°29.5	03.4	25°24.3	41.7	324°14.9	23.2	73°21.4	26.2
12	102°30.9	315°29.2	N15°02.4	40°24.9	N20°42.0	339°16.8	N20°23.1	88°23.8	N03°26.2
13	117°33.4	330°29.0	01.4	55°25.5	42.4	354°18.7	23.0	103°26.1	26.2
14	132°35.8	345°28.7	15°00.3	70°26.1	42.8	9°20.6	22.9	118°28.5	26.3
15	147°38.3	0°28.5	14°59.3	85°26.7	43.1	24°22.5	22.8	133°30.9	26.3
16	162°40.8	15°28.2	58.3	100°27.4	43.5	39°24.4	22.6	148°33.3	26.3
17	177°43.2	30°28.0	57.3	115°28.0	43.8	54°26.3	22.5	163°35.6	26.3
18	192°45.7	45°27.7	N14°56.2	130°28.6	N20°44.2	69°28.2	N20°22.4	178°38.0	N03°26.4
19	207°48.1	60°27.5	55.2	145°29.2	44.5	84°30.1	22.3	193°40.4	26.4
20	222°50.6	75°27.3	54.2	160°29.8	44.9	99°32.0	22.2	208°42.8	26.4
21	237°53.1	90°27.0	53.1	175°30.4	45.3	114°33.9	22.1	223°45.1	26.4
22	252°55.5	105°26.8	52.1	190°31.0	45.6	129°35.8	22.0	238°47.5	26.5
23	267°58.0	120°26.5	51.1	205°31.6	46.0	144°37.7	21.8	253°49.9	26.5
Mer.pass. 05:11 ν -0.3° d 1.0' m -4.07 ν 0.6° d 0.4' m 1.30 ν 1.9° d 0.1' m -1.81 ν 2.4° d 0.0' m 0.76									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	283°00.5	135°26.3	N14°50.0	220°32.3	N20°46.3	159°39.7	N20°21.7	268°52.3	N03°26.5
1	298°02.9	150°26.0	49.0	235°32.9	46.7	174°41.6	21.6	283°54.6	26.5
2	313°05.4	165°25.8	48.0	250°33.5	47.0	189°43.5	21.5	298°57.0	26.6
3	328°07.9	180°25.5	.. 47.0	265°34.1	.. 47.4	204°45.4	.. 21.4	313°59.4	.. 26.6
4	343°10.3	195°25.3	45.9	280°34.7	47.7	219°47.3	21.3	329°01.8	26.6
5	358°12.8	210°25.1	44.9	295°35.3	48.1	234°49.2	21.1	344°04.1	26.6
6	13°15.2	225°24.8	N14°43.8	310°35.9	N20°48.4	249°51.1	N20°21.0	359°06.5	N03°26.7
7	28°17.2	240°24.6	42.8	325°36.5	48.8	264°53.0	20.9	14°08.9	26.7
8	43°20.2	255°24.3	41.8	340°37.1	49.1	279°54.9	20.8	29°11.3	26.7
9	58°22.6	270°24.1	.. 40.7	355°37.8	.. 49.5	294°56.8	.. 20.7	44°13.6	.. 26.7
10	73°25.1	285°23.9	39.7	10°38.4	49.9	309°58.7	20.6	59°16.0	26.8
11	88°27.6	300°23.6	38.7	25°39.0	50.2	325°00.6	20.4	74°18.4	26.8
12	103°30.0	315°23.4	N14°37.6	40°39.6	N20°50.6	340°02.5	N20°20.3	89°20.8	N03°26.8
13	118°32.5	330°23.2	36.6	55°40.2	50.9	355°04.4	20.2	104°23.2	26.8
14	133°35.0	345°22.9	35.6	70°40.8	51.3	10°06.3	20.1	119°25.5	26.9
15	148°37.4	0°22.7	.. 34.5	85°41.4	.. 51.6	25°08.2	.. 20.0	134°27.9	.. 26.9
16	163°39.9	15°22.5	33.5	100°42.0	52.0	40°10.1	19.9	149°30.3	26.9
17	178°42.4	30°22.2	32.4	115°42.7	52.3	55°12.0	19.8	164°32.7	26.9
18	193°44.8	45°22.0	N14°31.4	130°43.3	N20°52.6	70°13.9	N20°19.6	179°35.0	N03°27.0
19	208°47.3	60°21.8	30.3	145°43.9	53.0	85°15.8	19.5	194°37.4	27.0
20	223°49.7	75°21.5	29.3	160°44.5	53.3	100°17.7	19.4	209°39.8	27.0
21	238°52.2	90°21.3	.. 28.3	175°45.1	.. 53.7	115°19.6	.. 19.3	224°42.2	.. 27.0
22	253°54.7	105°21.1	27.2	190°45.7	54.0	130°21.5	19.2	239°46.6	27.1
23	268°57.1	120°20.9	26.2	205°46.3	54.4	145°23.4	19.1	254°46.9	27.1
Mer.pass. 05:07 ν -0.2° d 1.0' m -4.07 ν 0.6° d 0.4' m 1.30 ν 1.9° d 0.1' m -1.80 ν 2.4° d 0.0' m 0.76									

Stars	SHA	Dec
Alpheratz	357°33.4	29°14.1
Ankaa	353°05.9	-42°09.4
Schedar	349°29.6	56°40.7
Diphda	348°46.1	-17°50.3
Achernar	335°19.4	-57°05.8
Hamal	327°49.9	-23°35.2
Polaris	313°40.9	89°22.3
Acamar	315°11.1	-40°11.6
Menkar	314°05.0	4°11.7
Mirfak	308°26.8	49°57.1
Aldebaran	291°03.5	16°33.2
Rigel	280°20.5	-8°01.4
Capella	280°21.9	6°22.4
Bellatrix	278°00.7	28°37.7
Elath	275°36.8	-1°11.7
Anilam	270°51.1	7°24.7
Betelgeuse	263°52.4	-52°42.5
Canopus	258°25.5	-16°45.1
Sirius	255°05.3	-29°50.8
Adhara	244°49.9	5°09.4
Procyon	243°16.2	27°57.8
Pollux	234°14.8	-59°35.8
Avior	224°45.8	-43°32.5
Suhail	221°38.8	-69°49.7
Miaplacidus	217°46.8	-8°56.5
Alphard	207°33.3	11°50.3
Regulus	193°39.8	61°36.7
Dubhe	182°23.8	14°25.5
Denebola	175°52.4	-17°41.5
Gienah	172°58.8	-63°15.1
Acrux	171°50.3	-57°16.0
Gacrux	166°11.9	55°49.2
Alloth	158°20.9	-11°18.1
Spica	152°50.9	49°11.1
Alkaid	148°34.0	-60°33.3
Hadar	147°56.0	-36°30.2
Menkent	145°46.6	-19°02.7
Arcturus	139°38.3	-60°57.7
Rigel Kent.	137°19.2	74°03.0
Kochab	136°54.5	-16°09.2
Zuben'ubi	126°02.4	26°37.6
Alphecca	112°14.0	-26°29.5
Antares	107°06.6	-69°04.4
Atria	102°01.0	-15°45.5
Sabik	96°08.3	-37°07.4
Shaula	95°57.1	12°32.5
Rasalhague	90°41.1	51°29.1
Eltanin	83°30.5	-34°22.3
Kaus Aust.	80°32.0	38°48.5
Vega	75°45.9	-26°15.5
Nunki	61°58.4	8°56.3
Altair	53°03.2	-56°38.8
Peacock	49°24.5	45°22.4
Deneb	33°37.3	9°59.8
Enif	27°31.1	-46°49.7
Al Na'ir	15°13.0	-29°28.7
Fomalhaut	13°43.8	28°13.5
Scheat	13°28.5	15°20.9
Markab		
Jul 03 Fri		

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	283°59.6	135°20.6	N14°25.1	220°46.9	N20°54.7	160°25.3	N20°18.9	269°49.3	N03°27.1	0		283°59.6	135°20.6	N14°25.1	220°46.9	N20°54.7	160°25.3	N20°18.9	269°49.3
1	299°02.1	150°20.4	24.1	235°47.5	55.1	175°27.2	18.8	284°51.7	27.1	1		299°02.1	150°20.4	24.1	235°47.5	55.1	175°27.2	18.8	284°51.7
2	314°04.5	165°20.2	23.0	250°48.2	55.4	190°29.1	18.7	299°54.1	27.1	2		314°04.5	165°20.2	23.0	250°48.2	55.4	190°29.1	18.7	299°54.1
3	329°07.0	180°20.0	22.0	265°48.8	55.8	205°31.0	18.6	314°56.4	27.2	3		329°07.0	180°20.0	22.0	265°48.8	55.8	205°31.0	18.6	314°56.4
4	344°09.5	195°19.7	20.9	280°49.4	56.1	220°32.9	18.5	329°58.8	27.2	4		344°09.5	195°19.7	20.9	280°49.4	56.1	220°32.9	18.5	329°58.8
5	359°11.9	210°19.5	19.9	295°50.0	56.5	235°34.8	18.4	345°01.2	27.2	5		359°11.9	210°19.5	19.9	295°50.0	56.5	235°34.8	18.4	345°01.2
6	14°14.4	225°19.3	N14°18.9	310°50.6	N20°56.8	250°36.7	N20°18.2	0°03.6	N03°27.4	6		14°14.4	225°19.3	N14°18.9	310°50.6	N20°56.8	250°36.7	N20°18.2	0°03.6
7	29°16.9	240°19.1	17.8	325°51.2	57.1	265°38.6	18.1	15°06.0	27.3	7		29°16.9	240°19.1	17.8	325°51.2	57.1	265°38.6	18.1	15°06.0
8	44°19.3	255°18.8	16.8	340°51.8	57.5	280°40.8	18.0	30°03.0	27.3	8		44°19.3	255°18.8	16.8	340°51.8	57.5	280°40.8	18.0	30°03.0
9	59°21.8	270°18.6	15.7	355°52.4	57.8	295°42.4	17.9	45°10.7	27.3	9		59°21.8	270°18.6	15.7	355°52.4	57.8	295°42.4	17.9	45°10.7
10	74°24.2	285°18.4	14.7	10°53.0	58.2	310°44.3	17.8	60°13.1	27.3	10		74°24.2	285°18.4	14.7	10°53.0	58.2	310°44.3	17.8	60°13.1
11	89°26.7	300°18.2	13.6	25°53.7	58.5	325°46.2	17.7	75°15.5	27.4	11		89°26.7	300°18.2	13.6	25°53.7	58.5	325°46.2	17.7	75°15.5
12	104°29.2	315°18.0	N14°12.6	40°54.3	N20°58.9	340°48.1	N20°17.5	90°17.9	N03°27.4	12		104°29.2	315°18.0	N14°12.6	40°54.3	N20°58.9	340°48.1	N20°17.5	90°17.9
13	119°31.6	330°17.7	11.5	55°54.9	59.2	355°50.0	17.4	105°20.2	27.4	13		119°31.6	330°17.7	11.5	55°54.9	59.2	355°50.0	17.4	105°20.2
14	134°34.1	345°17.5	10.5	70°55.5	59.5	10°51.9	17.3	120°22.6	27.4	14		134°34.1	345°17.5	10.5	70°55.5	59.5	10°51.9	17.3	120°22.6
15	149°36.6	0°17.3	09.4	85°56.1	20°59.9	25°53.8	17.2	135°25.0	27.4	15		149°36.6	0°17.3	09.4	85°56.1	20°59.9	25°53.8	17.2	135°25.0
16	164°39.0	15°17.1	08.3	100°56.7	21°00.2	40°55.7	17.1	150°27.4	27.5	16		164°39.0	15°17.1	08.3	100°56.7	21°00.2	40°55.7	17.1	150°27.4
17	179°41.5	30°16.9	07.3	115°57.3	00.6	55°57.6	17.0	165°29.8	27.5	17		179°41.5	30°16.9	07.3	115°57.3	00.6	55°57.6	17.0	165°29.8
18	194°44.0	45°16.7	N14°06.2	130°57.9	N21°00.9	70°59.5	N20°16.8	180°32.2	N03°27.5	18		194°44.0	45°16.7	N14°06.2	130°57.9	N21°00.9	70°59.5	N20°16.8	180°32.2
19	209°46.4	60°16.5	05.2	145°58.5	01.2	86°01.4	16.7	195°34.5	27.5	19		209°46.4	60°16.5	05.2	145°58.5	01.2	86°01.4	16.7	195°34.5
20	224°48.9	75°16.2	04.1	160°59.2	01.6	101°03.3	16.6	210°36.9	27.6	20		224°48.9	75°16.2	04.1	160°59.2	01.6	101°03.3	16.6	210°36.9
21	239°51.3	90°16.0	03.1	175°59.8	01.9	116°05.2	16.5	225°39.3	27.6	21		239°51.3	90°16.0	03.1	175°59.8	01.9	116°05.2	16.5	225°39.3
22	254°53.8	105°15.8	02.0	191°00.4	02.3	131°07.1	16.4	240°41.7	27.6	22		254°53.8	105°15.8	02.0	191°00.4	02.3	131°07.1	16.4	240°41.7
23	269°56.3	120°15.6	01.0	206°01.0	02.6	146°09.0	16.3	255°44.1	27.6	23		269°56.3	120°15.6	01.0	206°01.0	02.6	146°09.0	16.3	255°44.1
Mer.pass. 05:03				ν -0.2° d 1.0' m -4.08				ν 0.6° d 0.3' m 1.30				ν 1.9° d 0.1' m -1.80				ν 2.4° d 0.0' m 0.75			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	284°58.7	135°15.4	N13°59.9	221°01.6	N21°02.9	161°10.9	N20°16.1	270°46.4	N03°27.6
1	300°01.2	150°15.2	58.8	236°02.2	03.3	176°12.8	16.0	285°48.8	27.7
2	315°03.7	165°15.0	57.8	251°02.8	03.6	191°14.7	15.9	300°51.2	27.7
3	330°06.1	180°14.8	56.7	266°03.4	04.0	206°16.6	15.8	315°53.6	27.7
4	345°08.6	195°14.6	55.7	281°04.0	04.3	221°18.5	15.7	330°56.0	27.7
5	0°11.1	210°14.4	54.6	296°04.7	04.6	236°20.4	15.5	345°58.4	27.7
6	15°13.5	225°14.1	N13°53.5	311°05.3	N21°05.0	251°22.3	N20°15.4	1°00.7	N03°27.8
7	30°16.0	240°13.9	52.5	326°05.9	05.3	266°24.2	15.3	16°03.1	27.8
8	45°18.5	255°13.7	51.4	341°06.5	05.6	281°26.1	15.2	31°05.5	27.8
9	60°20.9	270°13.5	50.4	356°07.1	06.0	296°28.0	15.1	46°07.9	27.8
10	75°23.4	285°13.3	49.3	11°07.7	06.3	311°29.9	15.0	61°10.3	27.9
11	90°25.8	300°13.1	48.2	26°08.3	06.6	326°31.8	14.8	76°12.7	27.9
12	105°28.3	315°12.9	N13°47.2	41°08.9	N21°07.0	341°33.7	N20°14.7	91°15.0	N03°27.9
13	120°30.8	330°12.7	46.1	56°09.5	07.3	356°35.6	14.6	106°17.4	27.9
14	135°33.2	345°12.5	45.0	71°10.2	07.6	11°37.5	14.5	121°19.8	27.9
15	150°35.7	0°12.3	44.4	86°10.8	08.0	26°39.4	14.4	136°22.2	28.0
16	165°38.2	15°12.1	42.9	101°11.4	08.3	41°41.2	14.3	151°24.6	28.0
17	180°40.6	30°11.9	41.8	116°12.0	08.6	56°43.1	14.1	166°27.0	28.0
18	195°43.1	45°11.7	N13°40.8	131°12.6	N21°09.0	71°45.0	N20°14.0	181°29.4	N03°28.0
19	210°45.6	60°11.5	39.7	146°13.2	09.3	86°46.9	13.9	196°31.7	28.0
20	225°48.0	75°11.3	38.6	161°13.8	09.6	101°48.8	13.8	211°34.1	28.1
21	240°50.5	90°11.1	37.6	176°14.4	10.0	116°50.7	13.7	226°36.5	28.1
22	255°53.0	105°10.9	36.5	191°15.0	10.3	131°52.6	13.5	241°38.9	28.1
23	270°55.4	120°10.7	35.4	206°15.6	10.6	146°54.5	13.4	256°41.3	28.1
Mer.pass. 04:59 ν -0.2° d 1.1' m -4.08 ν -0.6° d 0.2' m -1.30 ν -1.9° d 0.1' m -1.80 ν -2.4° d 0.0' m 0.75									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	285°57.9	135°10.5	N13°34.4	221°16.3	N21°10.9	161°56.4	N20°13.3	271°43.7	N03°28.1
1	301°00.3	150°10.4	33.3	236°16.9	11.3	176°58.3	13.2	286°46.1	28.2
2	316°02.8	165°10.2	32.2	251°17.5	11.6	192°00.2	13.1	301°48.4	28.2
3	331°05.3	180°10.0	31.2	266°18.1	11.9	207°02.1	13.0	316°50.8	28.2
4	346°07.7	195°09.8	30.1	281°18.7	12.3	222°04.0	12.8	331°53.2	28.2
5	1°10.2	210°09.6	29.0	296°19.3	12.6	237°05.9	12.7	346°55.6	28.2
6	16°12.7	225°09.4	N13°27.9	311°19.9	N21°12.9	252°07.8	N20°12.6	1°58.0	N03°28.3
7	31°15.1	240°09.2	26.9	326°20.5	13.2	267°09.7	12.5	17°04.4	28.3
8	46°17.6	255°09.0	25.8	341°21.1	13.6	282°11.6	12.4	32°02.8	28.3
9	61°20.1	270°08.8	24.7	356°21.7	13.9	297°13.5	12.2	47°05.2	28.3
10	76°22.5	285°08.6	23.6	11°22.4	14.2	312°15.4	12.1	62°07.5	28.3
11	91°25.0	300°08.5	22.6	26°23.0	14.5	327°17.3	12.0	77°09.9	28.4
12	106°27.4	315°08.3	N13°21.5	41°23.6	N21°14.9	342°19.2	N20°11.9	92°12.3	N03°28.4
13	121°29.9	330°08.1	20.4	56°24.2	15.2	357°21.1	11.8	107°14.7	28.4
14	136°32.4	345°07.9	19.3	71°24.8	15.5	12°23.0	11.6	122°17.1	28.4
15	151°34.8	0°07.7	18.3	86°25.4	15.8	27°24.9	11.5	137°19.5	28.4
16	166°37.3	15°07.5	17.2	101°26.0	16.2	42°26.8	11.4	152°21.9	28.5
17	181°39.8	30°07.4	16.1	116°26.6	16.5	57°28.7	11.3	167°24.3	28.5
18	196°42.2	45°07.2	N13°15.0	131°27.2	N21°16.8	72°30.6	N20°11.2	182°26.6	N03°28.5
19	211°44.7	60°07.0	13.9	146°27.9	17.1	87°32.5	11.1	197°29.0	28.5
20	226°47.2	75°06.8	12.9	161°28.5	17.5	102°34.4	10.9	212°31.4	28.5
21	241°49.6	90°06.6	11.8	176°29.1	17.8	117°36.3	10.8	227°33.8	28.5
22	256°52.1	105°06.5	10.7	191°29.7	18.1	132°38.2	10.7	242°36.2	28.6
23	271°54.6	120°06.3	09.6	206°30.3	18.4	147°40.1	10.6	257°38.6	28.6

Stars			h			Sun			Moon		
	SHA	Dec	Mon	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.4	29°14.1	0	178°49.4	N22°42.3	292°13.7	15.0°	S01°31.7	15.2'	56.5'	
Ankaa	353°05.9	42°09.4	1	193°49.3	42.1	306°47.6	14.9°	01°16.5	15.1'	56.5'	
Schedar	349°29.6	56°40.8	2	208°49.2	41.8	321°21.6	14.8°	01°01.4	15.2'	56.6'	
Diphda	348°46.0	17°50.3	3	223°49.1	41.6	335°55.5	14.9°	00°46.2	15.2'	56.6'	
Achernar	335°19.4	57°05.8	4	238°49.0	41.3	350°29.4	14.9°	00°31.0	15.3'	56.6'	
Hamal	327°49.9	23°35.2	5	253°48.9	41.1	5°03.3	14.8°	00°15.7	15.2'	56.7'	
Polaris	313°39.7	89°22.3	6	268°48.8	N22°40.8	19°37.1	14.8°	S00°00.5	15.3'	56.7'	
Acamar	315°11.1	40°11.6	7	283°48.7	40.6	34°10.9	14.8°	N00°14.8	15.2'	56.7'	
Menkar	314°05.0	4°11.7	8	298°48.6	40.3	48°44.7	14.8°	00°30.0	15.3'	56.7'	
Mirfak	308°26.8	49°57.1	9	313°48.5	40.1	63°18.5	14.7°	00°45.3	15.3'	56.8'	
Aldebaran	290°38.5	16°33.7	10	328°48.4	39.8	77°52.2	14.7°	01°00.6	15.3'	56.8'	
Rigel	281°03.0	8°10.2	11	343°48.3	39.6	92°25.9	14.7°	01°15.9	15.3'	56.8'	
Capella	280°20.5	46°01.4	12	358°48.2	N22°39.3	106°59.6	14.6°	N01°31.2	15.4'	56.9'	
Bellatrix	278°21.9	6°22.4	13	13°48.1	39.0	121°33.2	14.6°	01°46.6	15.3'	56.9'	
Elath	278°00.7	28°37.7	14	28°48.0	38.8	136°06.8	14.5°	02°01.9	15.4'	56.9'	
Anilim	275°36.8	1°11.1	15	43°47.9	38.5	150°40.3	14.5°	02°17.3	15.3'	56.9'	
Betelgeuse	270°21.1	7°54.7	16	58°47.7	38.3	165°13.8	14.5°	02°32.6	15.4'	57.0'	
Carnop	263°54.1	52°42.5	17	73°47.6	38.0	179°47.3	14.4°	02°48.0	15.3'	57.0'	
Sirius	258°25.5	16°45.1	18	88°47.5	N22°37.8	194°20.7	14.4°	N03°03.3	15.4'	57.0'	
Adhara	255°05.3	29°00.4	19	103°47.4	37.5	208°54.1	14.3°	03°18.7	15.3'	57.1'	
Procyon	244°49.9	5°09.4	20	118°47.3	37.2	223°27.4	14.3°	03°34.0	15.4'	57.1'	
Pollux	233°16.2	27°57.8	21	133°47.2	37.0	238°00.7	14.2°	03°49.4	15.4'	57.1'	
Avior	234°14.9	59°35.7	22	148°47.1	36.7	252°33.9	14.2°	04°04.8	15.3'	57.2'	
Suhail	222°45.8	43°32.5	23	163°47.0	36.4	267°07.1	14.1°	04°20.1	15.4'	57.2'	
Miaplacidus	221°38.8	69°49.7									
Alphard	217°46.8	8°46.4									

	Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	286°57.0	135°06.1	N13°08.5	221°30.9	N21°18.7	162°42.0	N20°10.5	272°41.0	N03°28.6						
1	301°59.5	150°05.9	07.5	236°31.5	19.1	177°43.9	10.3	287°43.4	28.6						
2	317°01.9	165°05.7	06.4	251°32.1	19.4	192°45.8	10.2	302°48.0	28.6						
3	332°04.4	180°05.6	•• 05.3	266°32.7	•• 19.7	207°47.7	•• 10.1	317°48.2	•• 28.7						
4	347°06.9	195°05.4	04.2	281°33.3	20.0	222°49.6	10.0	332°50.5	28.7						
5	2°09.3	210°05.2	03.1	296°33.9	20.3	237°51.5	09.9	347°52.9	28.7						
6	17°18.1	225°05.0	N13°02.0	311°34.6	N21°20.7	252°53.4	N20°09.7	2°55.3	N03°28.7						
7	32°14.3	240°04.9	13°00.9	326°35.2	21.0	267°55.3	09.6	17°57.7	28.7						
8	47°16.7	255°04.7	12°59.9	341°35.8	21.3	282°57.2	09.5	33°00.1	28.7						
9	62°19.2	270°04.5	•• 58.8	356°36.4	•• 21.6	297°59.1	•• 09.4	48°02.5	•• 28.8						
10	77°21.7	285°04.4	57.7	11°37.0	21.9	313°01.0	09.3	63°04.9	28.8						
11	92°24.1	300°04.2	56.6	26°37.6	22.3	328°02.9	09.1	78°07.3	28.8						
12	107°26.6	315°04.0	N12°55.5	41°38.2	N21°22.6	343°04.8	N20°09.0	93°09.7	N03°28.8						
13	122°29.1	330°03.8	54.4	56°38.8	22.9	358°06.7	08.9	108°12.1	28.8						
14	137°31.5	345°03.7	53.3	71°39.4	23.2	13°08.6	08.8	123°14.5	28.9						
15	152°34.0	•• 03.5	•• 52.3	86°40.0	•• 23.5	28°10.5	•• 08.7	138°16.9	•• 28.9						
16	167°36.4	15°03.3	51.2	101°40.7	23.8	43°12.4	08.5	153°19.2	28.9						
17	182°38.9	30°03.2	50.1	116°41.3	24.1	58°14.3	08.4	168°21.6	28.9						
18	197°14.4	45°03.0	N12°49.0	131°41.9	N21°24.5	73°16.2	N20°08.3	183°24.0	N03°28.9						
19	212°43.8	60°02.8	47.9	146°42.5	24.8	88°18.1	08.2	198°26.4	28.9						
20	227°46.3	75°02.7	46.8	161°43.1	25.1	103°20.0	08.1	213°28.8	28.9						
21	242°48.8	90°02.5	•• 45.7	176°43.7	•• 25.4	118°21.9	•• 07.9	228°31.2	•• 29.0						
22	257°51.2	105°02.4	44.6	191°44.3	25.7	133°23.7	07.8	243°33.6	29.0						
23	272°53.7	120°02.2	43.5	206°44.9	26.0	148°25.6	07.7	258°36.0	29.0						
Mer.pass. 04:51 ν -0.2° d 1.1' m -4.10 ν 0.6° d 0.3' m 1.30 ν 1.9° d 0.1' m -1.80 ν 2.4° d 0.0' m 0.74															

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	287°56.2	135°02.0	N12°42.4	221°45.5	N21°26.3	163°27.5	N20°07.6	273°38.4	N03°29.0
1	302°58.6	150°01.9	41.3	236°46.1	26.7	178°29.4	07.5	288°40.8	29.0
2	318°01.1	165°01.7	40.2	251°46.8	27.0	193°31.3	07.3	303°43.2	29.1
3	333°03.5	180°01.6	•• 39.1	266°47.4	•• 27.3	208°33.2	•• 07.2	318°45.6	•• 29.1
4	348°06.0	195°01.4	38.0	281°48.0	27.6	223°35.1	07.1	333°48.0	29.1
5	3°08.5	210°01.2	37.0	296°48.6	27.9	238°37.0	07.0	348°50.4	29.1
6	18°10.9	225°01.1	N12°35.9	311°49.2	N21°28.2	253°38.9	N20°06.9	3°52.8	N03°29.1
7	33°13.4	240°00.9	34.8	326°49.8	28.8	268°40.8	06.7	18°55.2	29.1
8	48°15.9	255°00.8	33.7	341°50.4	28.8	283°42.7	06.6	33°57.5	29.2
9	63°18.3	270°00.6	•• 32.6	356°51.0	•• 29.1	298°44.6	•• 06.5	48°59.9	•• 29.2
10	78°20.8	285°00.5	31.5	11°51.6	29.4	313°46.5	06.4	64°02.3	29.2
11	93°23.3	300°00.3	30.4	26°52.2	29.8	328°48.4	06.3	79°04.7	29.2
12	108°25.7	315°00.1	N12°29.3	41°52.8	N21°30.1	343°50.3	N20°06.1	94°07.1	N03°29.2
13	123°28.2	330°00.0	28.2	56°53.5	30.4	358°52.2	06.0	109°09.5	29.2
14	138°30.7	344°59.8	27.1	71°54.1	30.7	13°54.1	05.9	124°11.9	29.3
15	153°33.1	359°59.7	•• 26.0	86°54.7	•• 31.0	28°56.0	•• 05.8	139°14.3	•• 29.3
16	168°35.6	14°59.5	24.9	101°55.3	31.3	43°57.9	05.7	154°16.7	29.3
17	183°38.0	29°59.4	23.8	116°55.9	31.6	58°59.8	05.5	169°19.1	29.3
18	198°40.5	44°59.2	N12°22.7	131°56.5	N21°31.9	74°01.7	N20°05.4	184°21.5	N03°29.3
19	213°43.0	59°59.1	21.6	146°57.1	32.2	89°03.6	05.3	199°23.9	29.3
20	228°45.4	74°58.9	20.5	161°57.7	32.5	104°05.5	05.2	214°26.3	29.3
21	243°47.9	89°58.8	•• 19.4	176°58.3	•• 32.8	119°07.4	•• 05.1	229°28.7	•• 29.4
22	258°50.4	104°58.6	18.3	191°58.9	33.1	134°09.3	04.9	244°31.1	29.4
23	273°52.8	119°58.5	17.2	206°59.6	33.4	149°11.2	04.8	259°33.5	29.4
Mer.pass. 04:47									
ν -0.2° d 1.1' m -4.10 ν 0.6° d 0.3' m 1.30 ν 1.9° d 0.1' m -1.80 ν 2.4° d 0.0' m 0.74									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	288°55.3	134°58.4	N12°16.0	222°00.2	N21°33.7	164°13.1	N20°04.7	274°35.9	N03°29.4					
1	303°57.8	149°58.2	14.9	237°00.8	34.0	179°15.0	04.6	289°38.3	29.4					
2	319°00.2	164°58.1	13.8	252°01.4	34.3	194°16.9	04.5	304°40.7	29.4					
3	334°02.7	179°57.9	•• 12.7	267°02.0	•• 34.6	209°18.8	•• 04.3	319°43.1	•• 29.5					
4	349°05.2	194°57.8	11.6	282°02.6	34.9	224°20.7	04.2	334°45.5	29.5					
5	4°07.6	209°57.6	10.5	297°03.2	35.2	239°22.6	04.1	349°47.9	29.5					
6	19°10.1	224°57.5	N12°09.4	312°03.8	N21°35.5	254°24.5	N20°04.0	4°50.3	N03°29.5					
7	34°12.5	239°57.4	08.3	327°04.4	35.9	269°26.3	03.8	19°52.7	29.5					
8	49°15.0	254°57.2	07.2	342°05.0	36.2	284°28.2	03.7	34°55.1	29.5					
9	64°17.5	269°57.1	•• 06.1	357°05.6	•• 36.5	299°30.1	•• 03.6	49°57.5	•• 29.5					
10	79°19.9	284°56.9	05.0	12°06.3	36.8	314°32.0	03.5	64°59.9	29.6					
11	94°22.4	299°56.8	03.9	27°06.9	37.1	329°33.9	03.4	80°02.3	29.6					
12	109°24.9	314°56.7	N12°02.8	42°07.5	N21°37.4	344°35.8	N20°03.2	95°04.7	N03°29.6					
13	124°27.3	329°56.5	01.7	57°08.1	37.7	359°37.7	03.1	110°07.1	29.6					
14	139°29.8	344°56.4	12°00.5	72°08.7	38.0	14°39.6	03.0	125°09.5	29.6					
15	154°32.3	359°56.2	11°59.4	87°09.3	•• 38.2	29°41.5	•• 02.9	140°11.9	•• 29.6					
16	169°34.7	14°56.1	58.3	102°09.9	38.5	44°43.4	02.8	155°14.3	29.6					
17	184°37.2	29°56.0	57.2	117°10.5	38.8	59°45.3	02.6	170°16.7	29.7					
18	199°39.7	44°55.8	N11°56.1	132°11.1	N21°39.1	74°47.2	N20°02.5	185°19.1	N03°29.7					
19	214°42.1	59°55.7	55.0	147°11.7	39.4	89°49.1	02.4	200°21.5	29.7					
20	229°44.6	74°55.6	53.9	162°12.3	39.7	104°51.0	02.3	215°23.9	29.7					
21	244°47.0	89°55.4	•• 52.8	177°13.0	•• 40.0	119°52.9	•• 02.1	230°26.3	•• 29.7					
22	259°49.5	104°55.3	51.6	192°13.6	40.3	134°54.8	02.0	245°28.7	29.7					
23	274°52.0	119°55.2	50.5	207°14.2	40.6	149°56.7	01.9	260°31.1	29.7					
Mer.pass. 04:44			ν -0.1° d 1.1' m -4.11			ν 0.6° d 0.3' m 1.30			ν 1.9° d 0.1' m -1.80			ν 2.4° d 0.0' m 0.73		

Stars		
	SHA	Dec
Alpheratz	357°33.4	29°14.1
Ankaa	353°05.8	-42°09.4
Schedar	349°29.5	56°40.8
Diphda	348°46.0	-17°50.3
Achernar	335°19.4	-57°05.8
Hamal	327°49.9	23°35.2
Polaris	313°38.1	89°22.2
Acamar	315°11.0	-40°11.6
Menkar	314°05.0	4°11.7
Mirafak	308°26.8	49°57.1
Aldebaran	299°38.5	16°33.7
Rigel	281°03.0	-8°10.2
Capella	280°20.5	46°01.4
Bellatrix	278°21.8	6°22.4
Elath	278°00.6	28°37.7
Anilnam	275°36.8	-1°11.0
Betelgeuse	270°51.1	7°24.7
Canopus	263°52.4	-52°42.5
Sirius	258°25.5	-16°45.1
Adhara	255°05.3	-29°00.4
Procyon	244°49.9	5°09.4
Pollux	243°16.2	-27°57.7
Avior	234°14.9	-59°35.5
Suhail	222°45.8	-43°32.5
Miaplacidus	221°38.9	-69°49.7
Alphard	217°46.8	-8°46.4
Regulus	207°33.4	11°50.3
Dubhe	193°39.9	61°36.7
Denebola	182°23.8	14°25.5
Geniah	175°42.4	-17°41.5
Acrux	172°58.8	-63°15.1
Gacrux	171°50.3	-57°16.0
Alioth	166°11.9	55°49.2
Spica	158°21.0	-11°18.1
Alkaid	152°50.9	49°11.1
Hadar	148°34.0	-60°33.3
Menkent	147°56.0	-36°30.2
Arcturus	145°46.7	19°02.7
Rigil Kent.	139°38.3	-60°57.0
Kochab	137°19.3	74°03.0
Zuben'ubi	136°54.5	-16°09.2
Alphecca	126°02.5	26°37.2
Antares	112°14.0	-26°29.5
Atria	107°06.6	69°04.6
Sabik	102°01.0	-15°45.5
Shaula	96°08.3	-37°07.4
Rasalhague	95°57.1	12°32.5
Eltanin	90°41.1	51°29.2
Kaus Aust.	83°30.5	-34°22.3
Vega	80°32.0	38°48.5
Nunki	75°45.8	-26°15.8
Altair	61°58.4	8°56.4
Peacock	53°03.2	-56°38.8
Deneb	49°24.5	45°22.4
Enif	33°37.3	9°59.8
Al Na'ir	27°31.0	-46°49.7
Fomalhaut	15°12.9	-29°28.7
Scheat	13°43.8	28°13.5
Markab	13°28.5	15°20.9
Jul 09 Thu	SHA	Mer.pass
Venus	208°09.1	15.00
Mars	294°33.9	09.14
Jupiter	235°45.0	13.08
Saturn	345°44.0	05.48
Jul 10 Fri	SHA	Mer.pass
Venus	207°05.9	15.00
Mars	293°49.4	09.13
Jupiter	235°31.4	13.05
Saturn	345°42.2	05.45
Jul 11 Sat	SHA	Mer.pass
Venus	206°03.1	15.00
Mars	293°04.9	09.12
Jupiter	235°17.8	13.01
Saturn	345°40.6	05.41
Horizontal parallax		
Venus:	0.2	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	289°54.4	134°55.1	N11°49.4	222°14.8	N21°40.9	164°58.6	N20°01.8	275°33.5	N03°29.8										
1	304°56.9	149°54.9	48.3	237°15.4	41.2	180°00.5	01.7	290°35.9	29.8										
2	319°59.4	164°54.8	47.2	252°16.0	41.5	195°02.4	01.5	305°40.8	29.8										
3	335°01.8	179°54.7	46.1	267°16.6	41.8	210°04.3	01.4	320°40.7	29.8										
4	350°04.3	194°54.5	44.9	282°17.2	42.1	225°06.2	01.3	335°43.1	29.8										
5	5°06.8	209°54.4	43.8	297°17.8	42.4	240°08.1	01.2	350°45.5	29.8										
6	20°09.2	224°54.3	N11°42.7	312°18.4	N21°42.7	255°10.0	N20°01.0	5°47.9	N03°29.8										
7	35°11.7	239°54.2	41.6	327°19.1	43.0	270°11.9	00.9	20°50.3	29.8										
8	50°14.2	254°54.0	40.5	342°19.7	43.3	285°13.8	00.8	35°52.7	29.9										
9	65°16.6	269°53.9	39.4	357°20.3	43.6	300°15.6	00.7	50°55.1	29.9										
10	80°19.1	284°53.8	38.2	372°20.9	43.9	315°17.5	00.6	65°57.5	29.9										
11	95°21.5	299°53.7	37.1	387°21.5	44.1	330°19.4	00.4	80°59.9	29.9										
12	110°24.0	314°53.5	N11°36.0	402°22.1	N21°44.4	345°21.3	N20°00.3	96°02.3	N03°29.9										
13	125°26.5	329°53.4	34.9	57°22.7	44.7	0°23.2	00.2	111°04.7	29.9										
14	140°28.9	344°53.3	33.8	72°23.3	45.0	15°25.1	20°00.1	126°07.1	29.9										
15	155°31.4	359°53.2	32.6	87°23.9	45.3	30°27.0	19°59.9	141°09.5	30.0										
16	170°33.9	374°53.1	31.5	102°24.5	45.6	45°28.9	59.8	156°11.9	30.0										
17	185°36.3	389°52.9	30.4	117°25.1	45.9	60°30.8	59.7	171°14.3	30.0										
18	200°38.8	404°52.8	N11°29.3	132°25.8	N21°46.2	75°32.7	N19°59.6	186°16.7	N03°30.0										
19	215°41.3	419°52.7	28.1	147°26.4	46.5	90°34.6	59.5	201°19.1	30.0										
20	230°43.7	434°52.6	27.0	162°27.0	46.7	105°36.5	59.3	216°21.5	30.0										
21	245°46.2	449°52.5	25.9	177°27.6	47.0	120°38.4	59.2	231°23.9	30.0										
22	260°48.7	464°52.4	24.8	192°28.2	47.3	135°40.3	59.1	246°26.4	30.0										
23	275°51.1	479°52.2	23.7	207°28.8	47.6	150°42.2	59.0	261°28.8	30.0										
Mer.pass. 04:40				ν -0.1° d 1.1' m -4.11				ν 0.6° d 0.3' m 1.31				ν 1.9° d 0.1' m -1.80				ν 2.4° d 0.0' m 0.73			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	290°53.6	134°52.1	N11°22.5	222°29.4	N21°47.9	165°44.1	N19°58.8	276°31.2	N03°30.1
1	305°56.0	149°52.0	21.4	237°30.0	48.2	180°46.0	58.7	291°33.6	30.1
2	320°58.5	164°51.9	20.3	252°30.6	48.5	195°47.9	58.6	306°36.0	30.1
3	336°01.0	179°51.8	19.2	267°31.2	48.8	210°49.8	58.5	321°38.4	30.1
4	351°03.4	194°51.7	18.0	282°31.8	49.0	225°51.7	58.4	336°40.8	30.1
5	6°05.9	209°51.6	16.9	297°32.5	49.3	240°53.6	58.2	351°43.2	30.1
6	21°08.4	224°51.5	N11°15.8	312°33.1	N21°49.6	255°55.5	N19°58.2	6°45.6	N03°30.1
7	36°10.8	239°51.3	14.6	327°33.7	49.9	270°57.4	58.0	21°48.0	30.1
8	51°13.3	254°51.2	13.5	342°34.3	50.2	285°59.3	57.9	36°50.4	30.2
9	66°15.8	269°51.1	12.4	357°34.9	50.5	301°01.1	57.7	51°52.8	30.2
10	81°18.2	284°51.0	11.3	372°35.5	50.7	316°03.0	57.6	66°55.2	30.2
11	96°20.7	299°50.9	10.1	387°36.1	51.0	331°04.9	57.5	81°57.6	30.2
12	111°23.2	314°50.8	N11°09.0	402°36.7	N21°51.3	346°06.8	N19°57.4	97°00.0	N03°30.2
13	126°25.6	329°50.7	07.9	527°37.3	51.6	361°08.7	57.2	112°02.4	30.2
14	141°28.1	344°50.6	06.7	542°37.9	51.9	376°10.6	57.1	127°04.9	30.2
15	156°30.5	359°50.5	05.6	557°38.5	52.2	391°12.5	57.0	142°07.3	30.2
16	171°33.0	374°50.4	04.5	572°39.2	52.4	406°14.4	56.9	157°09.7	30.2
17	186°35.5	389°50.3	03.3	587°39.8	52.7	421°16.3	56.8	172°12.1	30.3
18	201°37.9	404°50.2	N11°02.2	592°40.4	N21°53.0	76°18.2	N19°56.6	187°14.5	N03°30.3
19	216°40.4	419°50.1	01°01.1	607°41.0	53.3	91°20.1	56.5	202°16.9	30.3
20	231°42.9	434°50.0	10°59.9	622°41.6	53.6	106°22.0	56.4	217°19.3	30.3
21	246°45.3	449°49.9	09°58.8	637°42.2	53.8	121°23.9	56.3	232°21.7	30.3
22	261°47.8	464°49.8	08°57.7	652°42.8	54.1	136°25.8	56.1	247°24.1	30.3
23	276°50.3	479°49.7	07°56.5	667°43.4	54.4	151°27.7	56.0	262°26.5	30.3
Mer.pass. 04:36 ν -0.1° d 1.1' m -4.12 ν 0.6° d 0.3' m 1.31 ν 1.9° d 0.1' m -1.79 ν 2.4° d 0.0' m 0.72									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	291°52.7	134°49.6	N10°55.4	222°44.0	N21°54.7	166°29.6	N19°55.9	277°28.9	N03°30.3					
1	306°55.2	149°49.5	54.3	237°44.6	54.9	181°31.5	55.8	292°31.3	30.3					
2	321°57.7	164°49.4	53.1	252°45.3	55.2	196°33.4	55.6	307°33.8	30.3					
3	337°00.1	179°49.3	52.0	267°45.9	55.5	211°35.3	55.5	322°36.2	30.4					
4	352°02.6	194°49.2	50.9	282°46.5	55.8	226°37.2	55.4	337°38.6	30.4					
5	7°05.0	209°49.1	49.7	297°47.1	56.1	241°39.1	55.3	352°41.0	30.4					
6	22°07.5	224°49.0	N10°48.6	312°47.7	N21°56.3	256°40.9	N19°55.1	7°43.4	N03°30.4					
7	37°10.0	239°48.9	47.5	327°48.3	56.6	271°42.8	55.0	22°45.8	30.4					
8	52°12.4	254°48.8	46.3	342°48.9	56.9	286°44.7	54.9	37°48.2	30.4					
9	67°14.9	269°48.7	45.2	357°49.5	57.2	301°46.6	54.8	52°46.6	30.4					
10	82°17.4	284°48.6	44.0	372°50.1	57.4	316°48.5	54.7	67°53.0	30.4					
11	97°19.8	299°48.5	42.9	387°50.7	57.7	331°50.4	54.5	82°55.4	30.4					
12	112°22.3	314°48.4	N10°41.8	402°51.3	N21°58.0	346°52.3	N19°54.4	97°57.9	N03°30.4					
13	127°24.8	329°48.4	40.6	527°52.0	58.3	361°54.2	54.3	113°00.3	30.5					
14	142°27.2	344°48.3	39.5	542°52.6	58.5	376°56.1	54.2	128°02.7	30.5					
15	157°29.7	359°48.2	38.4	557°53.2	58.8	391°58.0	54.0	143°05.1	30.5					
16	172°32.2	374°48.1	37.2	572°53.8	59.1	406°59.9	53.9	158°07.5	30.5					
17	187°34.6	389°48.0	36.1	587°54.4	59.3	421°61.8	53.8	173°09.9	30.5					
18	202°37.1	404°47.9	N10°34.9	592°55.0	N21°59.6	77°03.7	N19°53.7	188°12.3	N03°30.5					
19	217°39.5	419°47.8	33.8	607°55.6	21°59.9	92°05.6	53.5	203°14.7	30.5					
20	232°42.0	434°47.7	32.6	622°56.2	22°00.2	107°07.5	53.4	218°17.2	30.5					
21	247°44.5	449°47.6	31.5	637°56.8	22°00.4	122°09.4	53.3	233°19.6	30.5					
22	262°46.9	464°47.6	30.4	652°57.4	22°00.7	137°11.3	53.2	248°22.0	30.5					
23	277°49.4	479°47.5	29.2	667°58.1	22°01.0	152°13.2	53.0	263°24.4	30.5					
Mer.pass. 04:32			ν -0.1° d 1.1' m -4.13			ν 0.6° d 0.3' m 1.31			ν 1.9° d 0.1' m -1.79			ν 2.4° d 0.0' m 0.72		

Stars		
SHA	Dec	
Alpheratz	357°33.4	29°14.2
Ankaa	353°05.8	-42°09.4
Schedar	349°29.5	56°40.8
Diphda	348°46.0	-17°50.3
Achernar	335°19.3	-57°05.8
Hamal	327°49.8	23°35.2
Polaris	313°36.3	89°22.2
Acamar	315°11.0	-40°11.6
Menkar	314°05.0	4°11.7
Mirafak	308°26.7	49°57.1
Aldebaran	290°38.4	16°33.1
Rigel	281°02.9	-8°10.2
Capella	280°20.4	46°01.4
Bellatrix	278°21.8	6°22.5
Elnath	278°00.6	28°37.7
Alnilam	275°36.8	-1°11.0
Betelgeuse	270°51.0	7°24.7
Canopus	268°52.4	-52°42.2
Sirius	258°25.5	-16°45.1
Adhara	255°05.3	-29°00.4
Procyon	244°49.9	5°09.4
Pollux	243°16.1	27°57.7
Avior	234°14.9	-59°35.7
Suhail	222°45.8	-43°32.5
Miaplacidus	213°38.9	-69°49.7
Alphard	217°46.8	-8°46.4
Regulus	207°33.4	11°50.3
Dubhe	197°39.9	61°36.7
Denebola	182°23.8	14°25.5
Geniah	175°42.4	-17°41.5
Acrux	172°58.8	-63°15.1
Gacrux	171°50.4	-57°16.0
Alioth	166°11.9	55°49.9
Spica	158°21.0	-11°18.1
Alkaid	152°50.9	49°11.1
Headar	148°34.1	-60°30.3
Mekent	147°56.0	-36°30.2
Arcurus	145°46.7	19°02.8
Rigel Kent.	139°38.3	-60°57.2
Kochab	137°19.4	74°03.0
Zuben ubi	136°54.5	-16°39.6
Alphecca	126°02.5	26°37.2
Antares	112°14.0	-26°29.5
Atria	107°06.6	-69°04.6
Sabik	102°01.0	-15°45.5
Shaula	96°08.3	-37°07.4
Rasalhague	95°57.1	12°32.5
Eltanin	90°41.1	51°29.2
Kaus Aust.	83°30.4	-34°22.3
Vega	80°31.9	38°48.5
Nunki	75°45.8	-26°15.5
Altair	61°58.4	8°56.4
Peacock	53°03.2	-56°38.8
Deneb	49°24.5	45°22.5
Enif	33°37.3	9°59.9
Al Na'ir	27°31.0	-46°49.7
Fomalhaut	15°12.9	-29°28.7
Scheat	13°43.8	28°13.6
Markab	13°28.5	15°20.9

Horizontal parallax		
Star	Parallax	
Venus:		

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	292°51.9	134°47.4	N10°28.1	222°58.7	N22°01.2	167°15.1	N19°52.9	278°26.8	N03°30.6										
1	307°54.3	149°47.3	26.9	237°59.3	01.5	182°17.0	52.8	293°29.2	30.6										
2	322°56.8	164°47.2	25.8	252°59.9	01.8	197°18.8	52.7	308°31.6	30.6										
3	337°59.3	179°47.2	24.6	268°00.5	02.0	212°20.7	52.5	323°34.0	30.6										
4	353°01.7	194°47.1	23.5	283°01.1	02.3	227°22.6	52.4	338°36.5	30.6										
5	8°04.2	209°47.0	22.4	298°01.7	02.6	242°24.5	52.3	353°38.9	30.6										
6	23°06.6	224°46.9	N10°21.2	313°02.3	N22°02.8	257°26.4	N19°52.2	8°41.3	N03°30.6										
7	38°09.1	239°46.8	20.1	328°02.9	03.1	272°28.3	52.0	23°43.7	30.6										
8	53°11.6	254°46.8	18.9	343°03.5	03.4	287°30.2	51.9	38°46.1	30.6										
9	68°14.0	269°46.7	17.8	358°04.2	03.6	302°32.1	51.8	53°48.5	30.6										
10	83°16.5	284°46.6	16.6	13°04.8	03.9	317°34.0	51.7	68°50.9	30.6										
11	98°19.0	299°46.5	15.5	28°05.4	04.2	332°35.9	51.5	83°53.4	30.6										
12	113°21.4	314°46.5	N10°14.3	43°06.0	N22°04.4	347°37.8	N19°51.4	98°55.8	N03°30.7										
13	128°23.9	329°46.4	13.2	58°06.6	04.7	2°39.7	51.3	113°58.2	30.7										
14	143°26.4	344°46.3	12.0	73°07.2	05.0	17°41.6	51.2	129°00.6	30.7										
15	158°28.8	359°46.2	10.9	88°07.8	05.2	32°43.5	51.0	144°03.0	30.7										
16	173°31.3	1°46.2	9.7	103°08.4	05.5	47°45.4	50.9	159°05.4	30.7										
17	188°33.8	29°46.1	08.6	118°09.0	05.8	62°47.3	50.8	174°07.9	30.7										
18	203°36.2	44°46.0	N10°07.4	133°09.6	N22°06.0	77°49.2	N19°50.7	189°10.3	N03°30.7										
19	218°38.7	59°45.9	06.3	148°10.3	06.3	92°51.1	50.5	204°12.7	30.7										
20	233°41.1	74°45.9	05.1	163°10.9	06.5	107°53.0	50.4	219°15.1	30.7										
21	248°43.6	89°45.8	04.0	178°11.5	06.8	122°54.8	50.3	234°17.5	30.7										
22	263°46.1	104°45.7	02.8	193°12.1	07.1	137°56.7	50.2	249°19.5	30.7										
23	278°48.5	119°45.7	01.7	208°12.7	07.3	152°58.6	50.0	264°22.4	30.7										
Mer.pass. 04:28				ν -0.1° d 1.1' m -4.13				ν 0.6° d 0.3' m 1.31				ν 1.9° d 0.1' m -1.79				ν 2.4° d 0.0' m 0.71			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	293°51.0	134°45.6	N10°00.5	223°13.3	N22°07.6	168°00.5	N19°49.9	279°24.8	N03°30.7
1	308°53.5	149°45.5	09°59.4	238°13.9	07.9	183°02.4	49.8	294°27.2	30.7
2	323°55.9	164°45.5	58.2	253°14.5	08.1	198°04.3	49.7	309°29.6	30.8
3	338°58.4	179°45.4	57.1	268°15.1	08.4	213°06.2	49.5	324°32.0	30.8
4	354°00.9	194°45.3	55.9	283°15.7	08.6	228°08.1	49.4	339°34.4	30.8
5	9°03.3	209°45.3	54.8	298°16.4	08.9	243°10.0	49.3	354°36.9	30.8
6	24°05.8	224°45.2	N09°53.6	313°17.0	N22°09.2	258°11.9	N19°49.2	9°39.3	N03°30.8
7	39°08.3	239°45.1	52.5	328°17.6	09.4	273°13.8	49.0	24°41.7	30.8
8	54°10.7	254°45.1	51.3	343°18.2	09.7	288°15.7	48.9	39°44.1	30.8
9	69°13.2	269°45.0	50.1	358°18.8	09.9	303°17.6	48.8	54°46.5	30.8
10	84°15.6	284°45.0	49.0	13°19.4	10.2	318°19.5	48.7	69°48.9	30.8
11	99°18.1	299°44.9	47.8	28°20.0	10.4	333°21.4	48.5	84°51.4	30.8
12	114°20.6	314°44.8	N09°46.7	43°20.6	N22°10.7	348°23.3	N19°48.4	99°53.8	N03°30.8
13	129°23.0	329°44.8	45.5	58°21.2	11.0	3°25.2	48.3	114°56.2	30.8
14	144°25.5	344°44.7	44.4	73°21.8	11.2	18°27.1	48.2	129°58.6	30.8
15	159°28.0	359°44.7	43.2	88°22.5	11.5	33°29.0	48.0	145°01.0	30.8
16	174°30.4	1°44.6	42.0	103°23.1	11.7	48°30.8	47.9	160°03.5	30.8
17	189°32.9	29°44.5	40.9	118°23.7	12.0	63°32.7	47.8	175°05.9	30.9
18	204°35.4	44°44.5	N09°39.7	133°24.3	N22°12.2	78°34.6	N19°47.7	190°08.3	N03°30.9
19	219°37.8	59°44.4	38.6	148°24.9	12.5	93°36.5	47.5	205°10.7	30.9
20	234°40.8	74°44.4	37.4	163°25.5	12.7	108°38.4	47.4	220°13.1	30.9
21	249°42.8	89°44.3	36.3	178°26.1	13.0	123°40.3	47.3	235°15.6	30.9
22	264°45.2	104°44.3	35.1	193°26.7	13.2	138°42.2	47.2	250°18.0	30.9
23	279°47.7	119°44.2	33.9	208°27.3	13.5	153°44.1	47.0	265°20.4	30.9
Mer.pass. 04:24 ν -0.1° d 1.2' m -4.14 ν 0.6° d 0.3' m 1.31 ν 1.9° d 0.1' m -1.79 ν 2.4° d 0.0' m 0.71									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	294°50.1	134°44.2	N09°32.8	223°28.0	N22°13.7	168°46.0	N19°46.9	280°22.8	N03°30.9										
1	309°52.6	149°44.1	31.6	238°28.6	14.0	183°47.9	46.8	295°25.2	30.9										
2	324°55.1	164°44.1	30.5	253°29.2	14.2	198°49.8	46.7	310°27.7	30.9										
3	339°57.5	179°44.0	29.3	268°29.8	14.5	213°51.7	46.5	325°30.1	30.9										
4	355°00.0	194°44.0	28.1	283°30.4	14.7	228°53.6	46.4	340°32.5	30.9										
5	10°02.5	209°43.9	27.0	298°31.0	15.0	243°55.5	46.3	355°34.9	30.9										
6	25°04.9	224°43.9	N09°25.8	313°31.6	N22°15.2	258°57.4	N19°46.2	10°37.4	N03°30.9										
7	40°07.4	239°43.8	24.6	328°32.2	15.5	273°59.3	46.0	25°39.8	30.9										
8	55°09.9	254°43.8	23.5	343°32.8	15.7	289°01.2	45.9	40°42.2	30.9										
9	70°12.3	269°43.7	22.3	358°33.4	16.0	304°03.1	45.8	55°44.6	30.9										
10	85°14.8	284°43.7	21.2	13°34.1	16.2	319°04.9	45.6	70°47.0	30.9										
11	100°17.2	299°43.6	20.0	28°34.7	16.5	334°06.8	45.5	85°49.5	30.9										
12	115°19.7	314°43.6	N09°18.8	43°35.3	N22°16.7	349°08.7	N19°45.4	100°51.9	N03°30.9										
13	130°22.2	329°43.5	17.7	58°35.9	17.0	4°10.6	45.3	115°63.3	31.0										
14	145°24.6	344°43.5	16.5	73°36.5	17.2	19°12.5	45.1	130°56.7	31.0										
15	160°27.1	359°43.4	15.3	88°37.1	17.5	34°14.4	45.0	145°59.2	31.0										
16	175°29.6	1°43.4	14.2	103°37.7	17.7	49°16.3	44.9	161°01.6	31.0										
17	190°32.0	29°43.4	13.0	118°38.3	18.0	64°18.2	44.8	176°04.0	31.0										
18	205°34.5	44°43.3	N09°11.8	133°38.9	N22°18.2	79°20.1	N19°44.6	191°06.4	N03°31.0										
19	220°37.0	59°43.3	10.7	148°39.6	18.5	94°22.0	44.5	206°08.9	31.0										
20	235°39.4	74°43.2	9.5	163°40.2	18.7	109°23.9	44.4	221°11.3	31.0										
21	250°41.9	89°43.2	8.3	178°40.8	19.0	124°25.8	44.3	236°13.7	31.0										
22	265°44.4	104°43.2	07.2	193°41.4	19.2	139°27.7	44.1	251°16.1	31.0										
23	280°46.8	119°43.1	06.0	208°42.0	19.4	154°29.6	44.0	266°18.6	31.0										
Mer.pass. 04:20				ν -0.1° d 1.2' m -4.15				ν 0.6° d 0.3' m 1.31				ν 1.9° d 0.1' m -1.79				ν 2.4° d 0.0' m 0.70			

Stars			Sun			Moon				
SHA	Dec		h	GHA	Dec	GHA	ν	Dec	d	HP
Alpheratz	357°33.3	29°14.2	0	178°30.6	N21°33.1	169°10.5	5.0'	N22°26.6	11.1'	60.6'
Ankaa	353°05.8	-42°09.4	1	193°30.5	32.7	183°34.5	5.2'	22°15.5	11.3'	60.5'
Schedar	349°29.5	56°40.8	2	208°30.4	32.3	197°58.7	5.3'	22°04.2	11.4'	60.5'
Diphda	348°46.0	-17°50.2	3	223°30.4	31.9	212°23.0	5.4'	21°52.8	11.6'	60.5'
Achernar	335°19.3	-57°05.7	4	238°30.3	31.5	226°47.4	5.6'	21°41.2	11.7'	60.5'
Hamal	327°49.8	23°35.2	5	253°30.3	31.1	241°11.9	5.7'	21°29.5	11.8'	60.5'
Polaris	313°34.8	89°22.2	6	268°30.2	N21°30.7	255°36.6	5.8'	N21°17.7	11.9'	60.4'
Acamar	315°11.0	-40°11.6	7	283°30.1	30.3	270°01.4	5.9'	21°05.8	12.1'	60.4'
Menkar	314°04.9	4°11.7	8	298°30.1	29.9	284°26.4	6.1'	20°53.7	12.2'	60.4'
Mirfak	308°26.7	49°57.2	9	313°30.0	29.5	298°51.5	6.2'	20°41.5	12.3'	60.4'
Aldebaran	299°38.4	16°33.8	10	328°29.9	29.1	313°16.7	6.3'	20°29.2	12.5'	60.3'
Rigel	281°02.9	-8°10.2	11	343°29.9	28.7	327°42.0	6.5'	20°16.7	12.6'	60.3'
Capella	278°21.8	6°22.5	12	358°28.8	N21°28.3	342°07.5	6.6'	N20°04.1	12.7'	60.3'
Bellatrix	278°00.6	28°37.7	13	13°29.7	27.9	356°33.1	6.7'	19°51.4	12.8'	60.3'
Elmath	278°51.0	-11°11.0	14	28°29.7	27.5	10°58.8	6.9'	19°38.6	12.9'	60.2'
Alnilam	275°36.7	7°24.8	15	43°29.6	27.1	25°24.7	7.0'	19°25.7	13.0'	60.2'
Betelgeuse	363°52.4	-52°42.4	16	58°29.5	26.7	39°50.7	7.1'	19°12.7	13.1'	60.2'
Canopus	258°25.5	-16°45.1	17	73°29.5	26.3	54°16.8	7.3'	18°59.6	13.3'	60.1'
Sirius	255°05.2	-29°00.4	18	88°29.4	N21°25.9	68°43.1	7.4'	N18°46.3	13.3'	60.1'
Adhara	244°49.8	5°09.4	19	103°29.4	25.5	83°09.5	7.5'	18°33.0	13.5'	60.1'
Procyon	343°16.1	27°57.7	20	118°29.3	25.1	97°36.0	7.7'	18°19.5	13.5'	60.1'
Pollux	234°14.9	-59°35.7	21	133°29.2	24.7	112°02.7	7.8'	18°06.0	13.6'	60.1'
Avior	222°45.8	-43°32.5	22	148°29.2	24.3	126°29.4	7.9'	17°52.4	13.8'	60.0'
Suhail	221°38.9	-69°49.7	23	163°29.1	23.9	140°56.3	8.0'	17°38.6	13.8'	60.0'
Miaplacidus	217°46.8	-8°46.4	SD = 15.7'			d = 0.4'			SD = 16.5'	
Alphard	207°33.4	11°50.3								
Regulus	193°39.9	61°36.7								
Dubhe	182°23.8	14°25.5								
Denebola	175°42.4	-17°41.5								
Gienah	172°58.9	-63°15.1								
Acruz	171°50.4	-57°16.0								
Gacrux	166°11.9	55°49.2								
Alioth	158°21.0	-11°18.1								
Spica	152°51.0	49°11.1								
Alkaid	148°34.1	-60°30.4								
Hadar	147°56.0	-36°30.2								
Menkent	145°46.7	-19°02.8								
Arcturus	139°36.3	-60°57.0								
Rigil Kent.	137°19.4	74°03.0								
Kochab	136°54.5	-16°09.2								
Zuben'ubi	126°02.5	-26°37.6								
Alphecca	112°14.0	-26°29.5								
Antares	107°06.6	-69°04.7								
Atria	102°01.0	-15°45.5								
Shaula	96°08.3	-37°07.4								
Sabik	95°57.1	-12°32.5								
Rasalhague	90°41.1	51°29.2								
Eltanin	83°30.4	-34°22.3								
Kaus Aust.	83°31.9	-38°48.6								
Vega	75°45.8	-26°15.8								
Nunki	61°58.4	-8°56.4								
Altair	53°03.1	-56°38.8								
Peacock	49°24.5	-45°22.5								
Deneb	33°37.3	9°59.9								
Enif	27°31.0	-46°49.7								
Al Na'ir	15°12.9	-29°28.7								
Fomalhaut	13°43.7	28°13.6								
Scheat	13°28.4	15°20.9								
Markab										
Jul 15 Wed			SHA	Mer-pass.						
Venus	201°55.5	15.01								
Mars	290°06.8	09.08								
Jupiter	234°23.2	12.49								
Saturn	345°34.9	05.25								
Jul 16 Thu			SHA	Mer-pass.						
Venus	200°54.6	15.01								
Mars	289°22.3	09.07								
Jupiter	234°09.5	12.46								
Saturn	345°33.8	05.21								
Jul 17 Fri			SHA	Mer-pass.						
Venus	199°54.0	15.01								
Mars	288°37.8	09.06								
Jupiter	233°55.9	12.43								
Saturn	345°32.7	05.18								
Horizontal parallax										
Venus:	0.2									
Mars:	0.1									

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	295°49.3	134°43.1	N09°04.8	223°42.6	N22°19.7	169°31.5	N19°43.9	281°21.0	N03°31.0										
1	310°51.7	149°43.0	03.7	238°43.2	19.9	184°33.4	43.7	296°23.4	31.0										
2	325°54.2	164°43.0	02.5	253°43.8	20.2	199°35.3	43.6	311°25.8	31.0										
3	340°56.7	179°43.0	.. 01.3	268°44.4	.. 20.4	214°37.1	.. 43.5	326°28.3	.. 31.0										
4	355°59.1	194°42.9	09°00.2	283°45.1	20.7	229°39.0	43.4	341°30.7	31.0										
5	11°01.6	209°42.9	08°59.0	298°45.7	20.9	244°40.9	43.2	356°33.1	31.0										
6	26°04.1	224°42.9	N08°57.8	313°46.3	N22°21.1	259°42.8	N19°43.1	11°35.5	N03°31.0										
7	41°06.5	239°42.8	56.7	328°46.9	21.4	274°44.7	43.0	26°38.0	31.0										
8	56°09.0	254°42.8	55.5	343°47.5	21.6	289°46.6	42.9	41°40.4	31.0										
9	71°11.5	269°42.8	.. 54.3	358°48.1	.. 21.9	304°48.5	.. 42.7	56°42.8	.. 31.0										
10	86°13.9	284°42.7	53.2	13°48.7	22.1	319°50.4	42.6	71°45.2	31.0										
11	101°16.4	299°42.7	52.0	28°49.3	22.3	334°52.3	42.5	86°47.7	31.0										
12	116°18.9	314°42.7	N08°50.8	43°49.9	N22°22.6	349°54.2	N19°42.4	101°50.1	N03°31.0										
13	131°21.3	329°42.7	49.6	58°50.6	22.8	4°56.1	42.2	116°52.5	31.0										
14	146°23.8	344°42.6	48.5	73°51.2	23.1	19°58.0	42.1	131°54.9	31.0										
15	161°26.2	359°42.6	.. 47.3	88°51.8	.. 23.3	34°59.9	.. 42.0	146°57.4	.. 31.0										
16	176°28.7	14°42.6	46.1	103°52.4	23.5	50°01.8	41.8	161°59.8	31.0										
17	191°31.2	29°42.5	44.9	118°53.0	23.8	65°03.7	41.7	177°02.2	31.0										
18	206°33.6	44°42.5	N08°43.8	133°53.6	N22°24.0	80°05.6	N19°41.6	192°04.6	N03°31.1										
19	221°36.1	59°42.5	42.6	148°54.2	24.2	95°07.5	41.5	207°07.1	31.1										
20	236°38.6	74°42.5	41.4	163°54.8	24.5	110°09.3	41.3	222°09.5	31.1										
21	251°41.0	89°42.4	.. 40.3	178°55.5	.. 24.7	125°11.2	.. 41.2	237°11.9	.. 31.1										
22	266°43.5	104°42.4	39.1	193°56.1	24.9	140°13.1	41.1	252°14.4	31.1										
23	281°46.0	119°42.4	37.9	208°56.7	25.2	155°15.0	40.9	267°16.8	31.1										
Mer.pass. 04:16				ν -0.0° d 1.2' m -4.16				ν 0.6° d 0.2' m 1.31				ν 1.9° d 0.1' m -1.79				ν 2.4° d 0.0' m 0.70			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	296°48.4	134°42.4	N08°36.7	223°57.3	N22°25.4	170°16.9	N19°40.8	282°19.2	N03°31.1
1	311°50.9	149°42.3	35.6	238°57.9	25.6	185°18.8	40.7	297°21.6	31.1
2	326°53.3	164°42.3	34.4	253°58.5	25.9	200°20.7	40.6	312°24.1	31.1
3	341°55.8	179°42.3	.. 33.2	268°59.1	.. 26.1	215°22.6	.. 40.4	327°26.5	.. 31.1
4	356°58.3	194°42.3	32.0	283°59.7	26.3	230°24.5	40.3	342°28.9	31.1
5	12°00.7	209°42.3	30.9	299°03.3	26.6	245°26.4	40.2	357°31.4	31.1
6	27°03.2	224°42.2	N08°29.7	314°01.0	N22°26.8	260°28.3	N19°40.1	12°33.8	N03°31.1
7	42°05.7	239°42.2	28.5	329°01.6	27.0	275°30.2	39.9	27°36.2	31.1
8	57°08.1	254°42.2	27.3	344°02.2	27.3	290°32.1	39.8	42°38.7	31.1
9	72°10.6	269°42.2	.. 26.1	359°02.8	.. 27.5	305°34.0	.. 39.7	57°41.1	.. 31.1
10	87°13.1	284°42.2	25.0	14°03.4	27.7	320°35.9	39.5	72°43.5	31.1
11	102°15.5	299°42.2	23.8	29°04.0	28.0	335°37.8	39.4	87°45.9	31.1
12	117°18.0	314°42.1	N08°22.6	44°04.6	N22°28.2	350°39.7	N19°39.3	102°48.4	N03°31.1
13	132°20.5	329°42.1	21.4	59°05.2	28.4	5°41.5	39.2	117°50.8	31.1
14	147°22.9	344°42.1	20.3	74°05.9	28.7	20°43.4	39.0	132°53.2	31.1
15	162°25.4	359°42.1	.. 19.1	89°06.5	.. 28.9	35°45.3	.. 38.9	147°55.7	.. 31.1
16	177°27.8	14°42.1	17.9	104°07.1	29.1	50°47.2	38.8	162°58.1	31.1
17	192°30.3	29°42.1	16.7	119°07.7	29.3	65°49.1	38.6	178°00.5	31.1
18	207°32.8	44°42.1	N08°15.5	134°08.3	N22°29.6	80°51.0	N19°38.5	193°03.0	N03°31.1
19	222°35.2	59°42.1	14.4	149°08.9	29.8	95°52.9	38.4	208°05.4	31.1
20	237°37.7	74°42.0	13.2	164°09.5	30.0	110°54.8	38.3	223°07.8	31.1
21	252°40.2	89°42.0	.. 12.0	179°10.1	.. 30.3	125°56.7	.. 38.1	238°10.3	.. 31.1
22	267°42.6	104°42.0	10.8	194°10.8	30.5	140°58.6	38.0	253°12.7	31.1
23	282°45.1	119°42.0	09.6	209°11.4	30.7	156°00.5	37.9	268°15.1	31.1
Mer.pass. 04:12 ν -0.0° d 1.2' m -4.16 ν 0.6° d 0.2' m 1.31 ν 1.9° d 0.1' m -1.79 ν 2.4° d 0.0' m 0.70									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	297°47.6	134°42.0	N08°08.5	224°12.0	N22°30.9	171°02.4	N19°37.8	283°17.6	N03°31.1
1	312°50.0	149°42.0	07.3	239°12.6	31.2	186°04.3	37.6	298°20.0	31.1
2	327°52.5	164°42.0	06.1	254°13.2	31.4	201°06.2	37.5	313°22.4	31.1
3	342°54.9	179°42.0	.. 04.9	269°13.8	.. 31.6	216°08.1	.. 37.4	328°24.9	.. 31.1
4	357°57.4	194°42.0	03.7	284°14.4	31.8	231°10.0	37.2	343°27.3	31.1
5	12°59.9	209°42.0	02.6	299°15.0	32.1	246°11.9	37.1	358°29.7	31.1
6	28°02.3	224°42.0	N08°01.4	314°15.7	N22°32.3	261°13.7	N19°37.0	13°32.2	N03°31.1
7	43°04.8	239°42.0	08°00.2	329°16.3	32.5	276°15.6	36.9	28°34.6	31.1
8	58°07.3	254°42.0	07°59.0	344°16.9	32.7	291°17.5	36.7	43°37.0	31.1
9	73°09.7	269°42.0	.. 57.8	359°17.5	.. 33.0	306°19.4	.. 36.6	58°39.5	.. 31.1
10	88°12.2	284°42.0	56.6	14°18.1	33.2	321°21.3	36.5	73°41.9	31.1
11	103°14.7	299°42.0	55.5	29°18.7	33.4	336°23.2	36.3	88°44.3	31.1
12	118°17.1	314°42.0	N07°54.3	44°19.3	N22°33.6	351°25.1	N19°36.2	103°46.8	N03°31.1
13	133°19.6	329°42.0	53.1	59°19.9	33.8	6°27.0	36.1	118°49.2	31.1
14	148°22.1	344°42.0	51.9	74°20.6	34.1	21°28.9	36.0	133°51.6	31.1
15	163°24.5	359°42.0	.. 50.7	89°21.2	.. 34.3	36°30.8	.. 35.8	148°54.1	.. 31.1
16	178°27.0	14°42.0	49.5	104°21.8	34.5	51°32.7	35.7	163°56.5	31.1
17	193°29.4	29°42.0	48.3	119°22.4	34.7	66°34.6	35.6	178°58.9	31.1
18	208°31.9	44°42.0	N07°47.2	134°23.0	N22°34.9	81°36.5	N19°35.4	194°01.4	N03°31.1
19	223°34.4	59°42.0	46.0	149°23.6	35.2	96°38.4	35.3	209°03.8	31.1
20	238°36.8	74°42.0	44.8	164°24.2	35.4	111°40.3	35.2	224°06.2	31.1
21	253°39.3	89°42.0	.. 43.6	179°24.9	.. 35.6	126°42.2	.. 35.0	239°08.7	.. 31.1
22	268°41.8	104°42.0	42.4	194°25.5	35.8	141°44.0	34.9	254°11.1	31.1
23	283°44.2	119°42.0	41.2	209°26.1	36.0	156°45.9	34.8	269°13.6	31.1
Mer.pass. 04:08 ν -0.0° d 1.2' m -4.17 ν 0.6° d 0.2' m 1.31 ν 1.9° d 0.1' m -1.79 ν 2.4° d 0.0' m 0.69									

SHA			Dec	Sun				Moon			
Sat	GHA	Dec	GHA	ν	Dec	d	HP				
Alpheratz	357°33.3	29°14.2	1	178°26.4	N21°03.3	131°11.5	13.0'	N05°13.6	15.9'	58.2'	
Ankaa	353°05.7	-42°09.4	0	193°26.4	02.8	145°43.5	13.0'	04°57.7	15.9'	58.2'	
Schedar	349°29.4	56°40.8	2	208°26.3	02.4	160°15.5	13.1'	04°51.8	15.9'	58.1'	
Diphda	348°45.9	-17°50.2	3	223°26.3	.. 02.0	174°47.6	13.2'	04°25.9	15.9'	58.1'	
Achernar	335°19.2	-50°05.7	4	238°26.2	01.5	189°19.8	13.2'	04°10.0	15.9'	58.1'	
Hamal	327°49.8	23°35.2	5	253°26.2	01.1	203°52.0	13.3'	03°54.1	15.9'	58.0'	
Polaris	313°33.4	89°22.2	6	268°26.1	N21°00.6	218°24.3	13.4'	N03°38.2	15.9'	58.0'	
Acamar	315°11.0	-40°11.6	7	283°26.1	21°00.2	232°56.7	13.4'	03°22.3	15.9'	58.0'	
Menkar	314°04.9	4°11.7	8	298°26.0	20°59.8	247°29.1	13.5'	03°06.4	15.9'	57.9'	
Mirfak	308°26.6	49°57.2	9	313°26.0	.. 59.3	262°01.5	13.5'	02°50.5	15.8'	57.8'	
Aldebaran	290°38.4	16°33.8	10	328°25.9	58.9	276°34.1	13.6'	02°34.7	15.9'	57.8'	
Rigel	281°02.9	-8°10.1	11	343°25.9	58.4	291°06.6	13.6'	02°18.8	15.8'	57.8'	
Capella	280°20.4	46°01.4	12	358°25.8	N20°58.0	305°39.3	13.7'	N02°03.0	15.9'	57.8'	
Bellatrix	278°21.8	6°22.5	13	313°25.8	57.5	320°11.9	13.7'	01°47.1	15.8'	57.7'	
Elmath	278°00.6	28°37.7	14	28°25.7	57.1	334°44.7	13.8'	01°31.3	15.8'	57.7'	
Anilam	275°36.7	-1°11.0	15	43°25.7	.. 56.7	349°17.5	13.8'	01°15.5	15.8'	57.6'	
Betelgeuse	270°51.0	7°24.8	16	58°25.6	56.2	3°50.3	13.9'	00°59.7	15.7'	57.6'	
Canopus	263°52.4	-52°42.4	17	73°25.6	55.8	18°23.2	13.9'	00°44.0	15.8'	57.6'	
Sirius	258°25.5	-16°45.1	18	88°25.5	N20°55.3	32°56.1	14.0'	N00°28.2	15.7'	57.5'	
Adhara	255°05.2	-29°00.4	19	103°25.5	54.9	47°29.1	14.0'	N00°12.5	15.7'	57.5'	
Procyon	244°49.8	5°09.4	20	118°25.5	54.4	62°02.1	14.1'	S00°03.2	15.7'	57.4'	
Pollux	234°16.1	27°57.7	21	133°25.4	.. 54.0	76°35.1	14.1'	00°18.9	15.7'	57.4'	
Avior	224°14.9	-59°35.7	22	148°25.4	53.5	91°08.2	14.1'	00°34.6	15.6'	57.4'	
Suhail	222°45.8	-43°32.4	23	163°25.3	53.1	105°41.4	14.2'	00°50.2	15.6'	57.3'	
Miaplacidus	221°38.9	-69°49.7									
Alphard	217°36.8	-8°46.4									

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	298°46.7	134°42.0	N07°40.0	224°26.7	N22°36.2	171°47.8	N19°34.7	284°16.0	N03°31.1					
1	313°49.2	149°42.0	38.8	239°27.3	36.5	186°49.7	34.5	299°18.4	31.1					
2	328°51.6	164°42.0	37.7	254°27.9	36.7	201°51.6	34.4	314°20.9	31.1					
3	343°54.1	179°42.0	•• 36.5	269°28.5	•• 36.9	216°53.5	•• 34.3	329°23.3	•• 31.1					
4	358°56.6	194°42.1	35.3	284°29.1	37.1	231°55.4	34.1	344°25.7	31.1					
5	13°59.0	209°42.1	34.1	299°29.8	37.3	246°57.3	34.0	359°28.2	31.1					
6	29°01.5	224°42.1	N07°32.9	314°30.4	N22°37.5	261°59.2	N19°33.9	14°30.6	N03°31.1					
7	44°03.9	239°42.1	31.7	329°31.0	37.8	277°01.1	33.8	29°33.1	31.1					
8	59°06.4	254°42.1	30.5	344°31.6	38.0	292°03.0	33.6	44°35.5	31.1					
9	74°08.9	269°42.1	•• 29.3	359°32.2	•• 38.2	307°04.9	•• 33.5	59°37.9	•• 31.1					
10	89°11.3	284°42.1	28.2	14°32.8	38.4	322°06.8	33.4	74°40.4	31.1					
11	104°13.8	299°42.1	27.0	29°33.4	38.6	337°08.7	33.2	89°42.8	31.1					
12	119°16.3	314°42.1	N07°25.8	44°34.1	N22°38.8	352°10.6	N19°33.1	104°45.2	N03°31.1					
13	134°18.7	329°42.2	24.6	59°34.7	39.0	7°12.5	33.0	119°47.7	31.1					
14	149°21.2	344°42.2	23.4	74°35.3	39.3	22°14.4	32.9	134°50.1	31.1					
15	164°23.7	359°42.2	•• 22.2	89°35.9	•• 39.5	37°16.2	•• 32.7	149°52.6	•• 31.1					
16	179°26.1	14°42.2	21.0	104°36.5	39.7	52°18.1	32.6	164°55.0	31.1					
17	194°28.6	29°42.2	19.8	119°37.1	39.9	67°20.0	32.5	179°57.4	31.1					
18	209°31.0	44°42.2	N07°18.6	134°37.7	N22°40.1	82°21.9	N19°32.3	194°59.9	N03°31.0					
19	224°33.5	59°42.3	17.4	149°38.4	40.3	97°23.8	32.2	210°02.3	31.0					
20	239°36.0	74°42.3	16.2	164°39.0	40.5	112°25.7	32.1	225°04.8	31.0					
21	254°38.4	89°42.3	•• 15.0	179°39.6	•• 40.7	127°27.6	•• 31.9	240°07.2	•• 31.0					
22	269°40.9	104°42.3	13.9	194°40.2	40.9	142°29.5	31.8	255°09.6	31.0					
23	284°43.4	119°42.4	12.7	209°40.8	41.1	157°31.4	31.7	270°12.1	31.0					
Mer.pass. 04:04 ν 0.0' d 1.2' m -4.18 ν 0.6' d 0.2' m 1.31 ν 1.9' d 0.1' m -1.79 ν 2.4' d 0.0' m 0.69														

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	299°45.8	134°42.4	N07°11.5	224°41.4	N22°41.4	172°33.3	N19°31.6	285°14.5	N03°31.0						
1	314°48.3	149°42.4	10.3	239°42.0	41.6	187°35.2	31.4	300°17.0	31.0						
2	329°50.8	164°42.4	09.1	254°42.7	41.8	202°37.1	31.3	315°19.4	31.0						
3	344°53.2	179°42.4	•• 07.9	269°43.3	•• 42.0	217°39.0	•• 31.2	330°21.8	•• 31.0						
4	359°55.7	194°42.5	06.7	284°43.9	42.2	232°40.9	31.0	345°24.3	31.0						
5	14°58.2	209°42.5	05.5	299°44.5	42.4	247°42.8	30.9	•• 26.7	31.0						
6	30°00.6	224°42.5	N07°04.3	314°45.1	N22°42.6	262°44.7	N19°30.8	15°29.2	N03°31.0						
7	45°03.1	239°42.5	03.1	329°45.7	42.8	277°46.6	30.6	30°31.6	31.0						
8	60°05.5	254°42.6	01.9	344°46.3	43.0	292°48.4	30.5	45°34.1	31.0						
9	75°08.0	269°42.6	07°00.7	359°47.0	•• 43.2	307°50.3	•• 30.4	60°36.5	•• 31.0						
10	90°10.5	284°42.6	06°59.5	14°47.6	43.4	322°52.2	30.3	75°38.9	31.0						
11	105°12.9	299°42.7	58.3	29°48.2	43.6	337°54.1	30.1	90°41.4	31.0						
12	120°15.4	314°42.7	N06°57.1	44°48.8	N22°43.8	352°56.0	N19°30.0	105°43.8	N03°31.0						
13	135°17.9	329°42.7	55.9	59°49.4	44.0	7°57.9	29.9	120°46.3	31.0						
14	150°20.3	344°42.7	54.7	74°50.0	44.2	22°59.8	29.7	135°48.9	31.0						
15	165°22.8	359°42.8	•• 53.6	89°50.7	•• 44.4	38°01.7	•• 29.6	150°51.2	•• 31.0						
16	180°25.3	14°42.8	52.4	104°51.3	44.6	53°03.6	29.5	165°53.6	31.0						
17	195°27.7	29°42.8	51.2	119°51.9	44.8	68°05.5	29.3	180°56.0	31.0						
18	210°30.2	44°42.9	N06°50.0	134°52.5	N22°45.0	83°07.4	N19°29.2	195°58.8	N03°31.0						
19	225°32.7	59°42.9	48.8	149°53.1	45.2	98°09.3	29.1	211°00.9	31.0						
20	240°35.1	74°42.9	47.6	164°53.7	45.4	113°11.2	29.0	226°03.0	31.0						
21	255°37.6	89°43.0	•• 46.4	179°54.3	•• 45.6	128°13.1	•• 28.8	241°05.8	•• 31.0						
22	270°40.0	104°43.0	45.2	194°55.0	45.8	143°15.0	28.7	256°08.3	31.0						
23	285°42.5	119°43.0	44.0	209°55.6	46.0	158°16.9	28.6	271°10.7	30.9						
Mer.pass. 04:00			ν 0.0' d 1.2' m -4.19	ν 0.6' d 0.2' m 1.30	ν 1.9' d 0.1' m -1.79	ν 2.4' d 0.0' m 0.68									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	300°45.0	134°43.1	N06°42.8	224°56.2	N22°46.2	173°18.8	N19°28.4	286°13.1	N03°30.9						
1	315°47.4	149°43.1	41.6	239°56.8	46.4	188°20.6	28.3	301°15.6	30.9						
2	330°49.9	164°43.2	40.4	254°57.4	46.6	203°22.5	28.2	316°18.0	30.9						
3	345°52.4	179°43.2	•• 39.2	269°58.0	•• 46.8	218°24.4	•• 28.0	331°20.5	•• 30.9						
4	•• 054.8	194°43.2	38.0	284°58.7	47.0	233°26.2	27.9	346°22.9	30.9						
5	15°57.3	209°43.3	36.8	299°59.3	47.2	248°28.3	27.8	1°25.4	30.9						
6	30°59.8	224°43.3	N06°35.6	314°59.9	N22°47.4	263°30.1	N19°27.6	16°27.8	N03°30.9						
7	46°02.2	239°43.4	34.4	330°00.5	47.6	278°32.0	27.5	31°30.3	30.9						
8	61°04.7	254°43.4	33.2	345°01.1	47.8	293°33.9	27.4	46°32.7	30.9						
9	76°07.1	269°43.4	•• 32.0	•• 071.7	•• 48.0	308°35.8	•• 27.3	61°35.2	•• 30.9						
10	91°09.6	284°43.5	30.8	15°02.3	48.2	323°37.7	27.1	76°37.0	30.9						
11	106°12.1	299°43.5	29.6	30°03.0	48.4	338°39.6	27.0	91°40.6	30.9						
12	121°14.5	314°43.6	N06°28.4	45°03.6	N22°48.6	353°41.5	N19°26.9	106°42.5	N03°30.9						
13	136°17.0	329°43.6	27.2	60°04.2	48.8	8°43.4	26.7	121°44.9	30.9						
14	151°19.5	344°43.7	26.0	75°04.8	49.0	23°45.3	26.6	136°47.4	30.9						
15	166°21.9	359°43.7	•• 24.8	90°05.4	•• 49.2	38°47.2	•• 26.5	151°49.8	•• 30.9						
16	181°24.4	14°43.7	23.6	105°06.0	49.4	53°49.1	26.3	166°52.3	30.9						
17	196°26.9	29°43.8	22.4	120°06.7	49.6	68°51.0	26.2	181°54.7	30.9						
18	211°29.3	44°43.8	N06°21.2	135°07.3	N22°49.8	83°52.8	N19°26.1	196°57.2	N03°30.9						
19	226°31.8	59°43.9	20.0	150°07.9	50.0	98°54.7	25.9	211°59.6	30.8						
20	241°34.3	74°43.9	18.8	165°08.5	50.2	113°56.6	25.8	227°02.1	30.8						
21	256°36.7	89°44.0	•• 17.6	180°09.1	•• 50.4	128°58.5	•• 25.7	242°04.5	•• 30.8						
22	271°39.2	104°44.0	16.4	195°09.7	50.6	144°00.4	25.5	257°07.0	30.8						
23	286°41.6	119°44.1	15.2	210°10.4	50.7	159°02.3	25.4	272°09.4	30.8						
Mer.pass. 03:56			ν 0.0' d 1.2' m -4.20	ν 0.6' d 0.2' m 1.30	ν 1.9' d 0.1' m -1.79	ν 2.4' d 0.0' m 0.68									

Stars			h			Sun			Moon		
SHA	Dec		Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.3	29°14.2	0	178°23.5	N20°30.3	99°05.9	14.5'	S12°46.9	13.2'	55.6'	
Ankaa	353°05.7	-42°09.4	1	193°23.4	29.8	113°39.4	14.5'	13°00.1	13.2'	55.6'	
Schedar	349°29.4	56°40.8	2	208°23.4	29.3	128°12.9	14.5'	13°13.3	13.2'	55.6'	
Diphda	348°45.9	-17°50.2	3	223°23.4	•• 28.8	142°46.3	14.4'	13°26.5	13.0'	55.5'	
Achernar	335°19.2	-57°05.7	4	238°23.3	28.3	157°19.8	14.4'	13°39.5	13.0'	55.5'	
Hamal	327°49.8	23°35.3	5	253°23.3	27.8	171°53.2	14.4'	13°52.5	12.9'	55.5'	
Polaris	313°31.8	89°22.2	6	268°23.3	N20°27.4	186°26.5	14.4'	S14°05.4	12.9'	55.5'	
Acamar	315°10.9	-40°11.6	7	283°23.2	26.9	200°59.9	14.3'	14°18.3	12.7'	55.4'	
Menkar	314°04.9	-41°11.7	8	298°23.2	26.4	215°33.2	14.3'	14°31.0	12.7'	55.4'	
Mirfak	308°26.6	49°57.2	9	313°23.2	•• 25.9	230°06.6	14.3'	14°43.7	12.7'	55.4'	
Aldebaran	290°38.6	16°33.8	10	328°23.2	25.4	244°39.8	14.3'	14°56.4	12.5'	55.4'	
Rigel	281°02.9	-8°10.1	11	343°23.1	24.9	259°13.1	14.2'	15°08.9	12.5'	55.3'	
Capella	280°20.4	46°01.4	12	358°23.1	N20°24.4	273°46.3	14.2'	S15°21.4	12.4'	55.3'	
Bellatrix	278°21.8	6°22.5	13	13°23.1	24.0	288°19.5	14.2'	15°33.8	12.3'	55.3'	
Elmath	278°00.6	28°37.7	14	28°23.0	23.5	302°52.7	14.1'	15°46.1	12.3'	55.2'	
Anilam	275°36.7	-1°11.0	15	43°23.0	•• 23.0	317°25.8	14.1'	15°58.4	12.1'	55.2'	
Betelgeuse	270°51.0	7°24.8	16	58°23.0	22.5	331°58.9	14.1'	16°10.5	12.1'	55.2'	
Canopus	263°52.3	-52°42.4	17	73°23.0	22.0	346°32.0	14.0'	16°22.6	12.0'	55.2'	
Sirius	258°25.4	-16°45.1	18	88°22.9	N20°21.5	1°05.0	14.0'	S16°34.6	12.0'	55.1'	
Adhara	255°05.2	-29°00.4	19	103°22.9	21.0	15°38.0	14.0'	16°46.6	11.8'	55.1'	
Procyon	244°49.8	5°09.5	20	118°22.9	20.5	30°10.9	13.9'	16°58.4	11.8'	55.1'	
Pollux	243°16.1	27°57.7	21	133°22.9	•• 20.0	44°43.9	13.9'	17°10.2	11.7'	55.1'	
Avior	234°14.9	-59°35.7	22	148°22.8	19.5	59°16.8	13.9'	17°21.9	11.6'	55.0'	
Suhail	222°45.8	-43°32.4	23	163°22.8	19.1	73°49.6	13.8'	17°33.5	11.5'	55.0'	
Miaplacidus	221°38.9	-69°49.7									
Alphard	217°46.8	-8°46.4									
Regulus	207°33.4	11°50.3									
			SD = 15.7' d = 0.5'			SD = 15.2'					

Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	301°44.1	134°44.1	N06°14.0	225°11.0	N22°50.9	174°04.2	N19°25.3	287°11.9	N03°30.8					
1	316°46.6	149°44.2	12.8	240°11.6	51.1	189°06.1	25.2	302°14.3	30.8					
2	331°49.0	164°44.2	11.6	255°12.2	51.3	204°08.0	25.0	317°16.8	30.8					
3	346°51.5	179°44.3	.. 10.4	270°12.8	.. 51.7	219°09.9	.. 24.9	332°19.2	.. 30.8					
4	1°54.0	194°44.3	09.2	285°13.4	51.5	234°11.8	24.8	347°21.7	30.8					
5	16°56.4	209°44.4	07.9	300°14.1	51.9	249°13.7	24.6	2°24.1	30.8					
6	31°58.9	224°44.5	N06°06.7	315°14.7	N22°52.1	264°15.6	N19°24.5	17°26.6	N03°30.8					
7	47°01.4	239°44.5	05.5	330°15.3	52.3	279°17.5	24.4	32°29.0	30.8					
8	62°03.8	254°44.6	04.3	345°15.9	52.5	294°19.4	24.2	47°31.5	30.8					
9	77°06.3	269°44.6	.. 03.1	0°16.5	.. 52.6	309°21.3	.. 24.1	62°33.9	.. 30.8					
10	92°08.8	284°44.7	01.9	15°17.1	52.8	324°23.2	24.0	77°36.4	30.8					
11	107°11.2	299°44.7	06°00.7	30°17.8	53.0	339°25.0	23.8	92°38.8	30.7					
12	122°13.7	314°44.8	N05°59.5	45°18.4	N22°53.2	354°26.9	N19°23.7	107°41.3	N03°30.7					
13	137°16.1	329°44.9	58.3	60°19.0	53.4	9°28.8	23.6	122°43.7	30.7					
14	152°18.6	344°44.9	57.1	75°19.6	53.6	24°30.7	23.4	137°46.2	30.7					
15	167°21.1	359°45.0	.. 55.9	90°20.2	.. 53.8	39°32.6	.. 23.3	152°48.6	.. 30.7					
16	182°23.5	14°45.0	54.7	105°20.8	53.9	54°34.5	23.2	167°51.1	30.7					
17	197°26.0	29°45.1	53.5	120°21.5	54.1	69°36.4	23.1	182°53.5	30.7					
18	212°28.5	44°45.2	N05°52.3	135°22.1	N22°54.3	84°38.3	N19°22.9	197°56.0	N03°30.7					
19	227°30.9	59°45.2	51.1	150°22.7	54.5	99°40.2	22.8	212°58.4	30.7					
20	242°33.4	74°45.3	49.9	165°23.3	54.7	114°42.1	22.7	228°00.9	30.7					
21	257°35.9	89°45.3	.. 48.7	180°23.9	.. 54.9	129°44.0	.. 22.5	243°03.3	.. 30.7					
22	272°38.3	104°45.4	47.5	195°24.5	55.0	144°45.9	22.4	258°05.8	30.7					
23	287°40.8	119°45.5	46.3	210°25.2	55.2	159°47.8	22.3	273°08.2	30.7					
Mer.pass. 03:52 ν 0.1' d 1.2' m -4.20 ν 0.6' d 0.2' m 1.30 ν 1.9' d 0.1' m -1.79 ν 2.4' d 0.0' m 0.67														

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	302°43.3	134°45.5	N05°45.0	225°25.8	N22°55.4	174°49.7	N19°22.1	288°10.7	N03°30.6
1	317°45.7	149°45.6	43.8	240°26.4	55.6	189°51.6	22.0	303°13.1	30.6
2	332°48.2	164°45.7	42.6	255°27.0	55.8	204°53.5	21.9	318°15.6	30.6
3	347°50.6	179°45.7	.. 41.4	270°27.6	.. 56.0	219°55.4	.. 21.7	333°18.0	.. 30.6
4	2°53.1	194°45.8	40.2	285°28.3	56.1	234°57.3	21.6	348°20.5	30.6
5	17°55.6	209°45.9	39.0	300°28.9	56.3	249°59.1	21.5	3°22.9	30.6
6	32°58.0	224°45.9	N05°37.8	315°29.5	N22°56.5	265°01.0	N19°21.3	18°25.4	N03°30.6
7	48°00.5	239°46.0	36.6	330°30.1	56.7	280°02.9	21.2	33°27.8	30.6
8	63°03.0	254°46.1	35.4	345°30.7	56.9	295°04.8	21.1	48°30.3	30.6
9	78°05.4	269°46.2	.. 34.2	0°31.3	.. 57.0	310°06.7	.. 20.9	63°32.8	.. 30.6
10	93°07.9	284°46.2	33.0	15°32.0	57.2	325°08.6	20.8	78°35.2	30.6
11	108°10.4	299°46.3	31.8	30°32.6	57.4	340°10.5	20.7	93°37.7	30.6
12	123°12.8	314°46.4	N05°30.6	45°33.2	N22°57.6	355°12.4	N19°20.5	108°40.1	N03°30.6
13	138°15.3	329°46.4	29.3	60°33.8	57.8	10°14.3	20.4	123°42.6	30.5
14	153°17.8	344°46.5	28.1	75°34.4	57.9	25°16.2	20.3	138°45.0	30.5
15	168°20.2	359°46.6	.. 26.9	90°35.1	.. 58.1	40°18.1	.. 20.1	153°47.5	.. 30.5
16	183°22.7	14°46.7	25.7	105°35.7	58.3	55°20.0	20.0	168°49.9	30.5
17	198°25.1	29°46.7	24.5	120°36.3	58.5	70°21.9	19.9	183°52.4	30.5
18	213°27.6	44°46.8	N05°23.3	135°36.9	N22°58.6	85°23.8	N19°19.7	198°54.8	N03°30.5
19	228°30.1	59°46.9	22.1	150°37.5	58.8	100°25.7	19.6	213°57.3	30.5
20	243°32.5	74°47.0	20.9	165°38.2	59.0	115°27.6	19.5	228°59.8	30.5
21	258°35.0	89°47.1	.. 19.7	180°38.8	.. 59.2	130°29.5	.. 19.3	244°02.2	.. 30.5
22	273°37.5	104°47.1	18.5	195°39.4	59.3	145°31.4	19.2	259°04.7	30.5
23	288°39.9	119°47.2	17.2	210°40.0	59.5	160°33.3	19.1	274°07.1	30.5
Mer.pass. 03:48 ν 0.1' d 1.2' m -4.21 ν 0.6' d 0.2' m 1.30 ν 1.9' d 0.1' m -1.79 ν 2.5' d 0.0' m 0.67									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	303°42.4	134°47.3	N05°16.0	225°40.6	N22°59.7	175°35.1	N19°19.0	289°09.6	N03°30.4
1	318°44.9	149°47.4	14.8	240°41.2	22°59.9	190°37.0	18.8	304°12.0	30.4
2	333°47.3	164°47.5	13.6	255°41.9	23°00.0	205°38.9	18.7	319°14.5	30.4
3	348°49.8	179°47.5	.. 12.4	270°42.5	.. 00.2	220°40.8	.. 18.6	334°17.0	.. 30.4
4	3°52.2	194°47.6	11.2	285°43.1	00.4	235°42.7	18.4	349°19.4	30.4
5	18°54.7	209°47.7	10.0	300°43.7	00.6	250°44.6	18.3	4°21.9	30.4
6	33°57.2	224°47.8	N05°08.8	315°44.3	N23°00.7	265°46.5	N19°18.2	19°24.3	N03°30.4
7	48°59.6	239°47.9	07.6	330°45.0	00.9	280°48.4	18.0	34°26.8	30.4
8	64°02.1	254°47.9	06.3	345°45.6	01.1	295°50.3	17.9	49°29.2	30.4
9	79°04.6	269°48.0	.. 05.1	0°46.2	.. 01.2	310°52.2	.. 17.8	64°31.7	.. 30.4
10	94°07.0	284°48.1	03.9	15°46.8	01.4	325°54.1	17.6	79°34.2	30.3
11	109°09.5	299°48.2	02.7	30°47.4	01.6	340°56.0	17.5	94°36.6	30.3
12	124°12.0	314°48.3	N05°01.5	45°48.1	N23°01.7	355°57.9	N19°17.4	109°39.1	N03°30.3
13	139°14.4	329°48.4	05°00.3	60°48.7	01.9	10°59.8	17.2	124°41.5	30.3
14	154°16.9	344°48.5	04°59.1	75°49.3	02.1	26°01.7	17.1	139°44.0	30.3
15	169°19.4	359°48.6	.. 57.9	90°49.9	.. 02.3	41°03.6	.. 17.0	154°46.4	.. 30.3
16	184°21.8	14°48.6	56.6	105°50.5	02.4	56°05.5	16.8	169°48.9	30.3
17	199°24.3	29°48.7	55.4	120°51.2	02.6	71°07.4	16.7	184°51.4	30.3
18	214°26.7	44°48.8	N04°54.2	135°51.8	N23°02.8	86°09.2	N19°16.6	199°53.8	N03°30.3
19	229°29.2	59°48.9	53.0	150°52.4	02.9	101°11.1	16.4	214°56.3	30.3
20	244°31.7	74°49.0	51.8	165°53.0	03.1	116°13.0	16.3	229°58.7	30.2
21	259°34.1	89°49.1	.. 50.6	180°53.6	.. 03.3	131°14.9	.. 16.2	245°01.2	.. 30.2
22	274°36.6	104°49.2	49.4	195°54.3	03.4	146°16.8	16.0	260°03.7	30.2
23	289°39.1	119°49.3	48.1	210°54.9	03.6	161°18.7	15.9	275°06.1	30.2
Mer.pass. 03:45 ν 0.1' d 1.2' m -4.22 ν 0.6' d 0.2' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.66									

Stars	SHA	Dec
Alpheratz	357°33.3	29°14.2
Ankaa	345°05.7	-42°09.4
Schedar	349°29.4	56°40.8
Diphda	348°45.9	-17°50.2
Achernar	335°19.2	-57°05.7
Hamal	327°49.7	23°35.3
Polaris	313°30.7	89°22.2
Acamar	313°10.9	-40°11.6
Menkar	314°04.9	4°11.7
Mirfak	308°26.6	49°57.2
Aldebaran	290°38.4	16°33.8
Rigel	281°02.9	-8°10.1
Capella	280°20.3	46°01.4
Bellatrix	278°00.5	6°22.5
Elnath	275°36.5	28°37.7
Anilam	275°00.7	-1°11.0
Betelgeuse	270°51.0	7°24.8
Canopus	263°52.3	-52°42.1
Sirius	258°25.4	-16°45.1
Procyon	255°05.2	-29°04.0
Achernar	244°49.9	5°09.5
Pollux	243°16.4	27°57.7
Avior	234°14.9	-59°35.5
Suhail	222°45.8	-83°39.4
Miaplacidus	221°38.9	-69°46.6
Alphard	217°46.8	-8°46.4
Regulus	207°33.4	11°50.3
Dubhe	193°39.9	61°36.6
Denebola	182°23.8	14°25.5
Geniah	175°42.4	-17°41.4
Acrux	172°58.9	-63°15.1
Gacrux	171°50.4	-57°16.0
Alloth	166°12.0	55°49.0
Spica	158°21.0	-11°18.0
Alkaid	152°51.0	49°11.1
Merak	148°34.1	-60°30.4
Headnt	147°56.1	-36°30.2
Mendat	145°46.7	19°02.8
Arcturus	139°38.4	-60°57.7
Rigel Kent.	137°19.6	74°03.0
Kochab	136°54.5	-16°09.2
Zuben'ubi	126°54.5	-16°09.2
Alphecca	122°02.5	26°37.7
Antares	110°14.0	-26°29.5
Atria	107°06.7	-69°04.7
Sabik	102°01.0	-15°45.5
Shaula	96°08.3	-37°07.4
Rasalhague	95°57.1	12°32.5
Eltanin	90°41.1	51°29.3
Kaus Aust.	83°30.4	-34°22.2
Vega	80°32.0	38°48.6
Nunki	75°45.8	-26°15.8
Altair	61°58.4	8°56.4
Peacock	53°03.1	-56°38.8
Deneb	49°24.5	45°22.5
Enif	33°37.2	9°59.9
Al Na'ir	27°30.9	-46°49.7
Fomalhaut	15°12.8	-29°28.7
Scheat	13°43.7	28°13.6
Markab	13°28.4	15°21.0

Jul 24 Fri

Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	304°41.5	134°49.4	N04°46.9	225°55.5	N23°03.8	176°20.6	N19°15.8	290°08.6	N03°30.2										
1	319°44.0	149°49.5	45.7	240°56.1	03.9	191°22.5	15.6	305°11.0	30.2										
2	334°46.6	164°49.6	44.5	255°56.7	04.1	206°24.4	15.5	320°28.3	30.2										
3	349°48.9	179°49.7	43.3	270°57.4	04.2	221°26.3	15.4	335°16.0	30.2										
4	4°51.4	194°49.8	42.1	285°58.0	04.4	236°28.2	15.2	350°18.4	30.2										
5	19°53.9	209°49.9	40.9	300°58.6	04.6	251°30.1	15.1	5°20.9	30.1										
6	34°56.3	224°50.0	N04°39.6	315°59.2	N23°04.7	266°32.0	N19°15.0	20°23.3	N03°30.1										
7	49°58.8	239°50.1	38.4	330°59.8	04.9	281°33.9	14.8	35°25.8	30.1										
8	65°01.2	254°50.2	37.2	346°00.5	05.1	296°35.8	14.7	50°28.3	30.1										
9	80°03.7	269°50.3	36.0	1°01.1	05.2	311°37.7	14.6	65°30.7	30.1										
10	95°06.2	284°50.4	34.8	16°01.7	05.4	326°39.6	14.4	80°33.2	30.1										
11	110°08.6	299°50.5	33.6	31°02.3	05.5	341°41.5	14.3	95°35.7	30.1										
12	125°11.1	314°50.6	N04°32.4	46°02.9	N23°05.7	356°43.4	N19°14.2	110°38.1	N03°30.1										
13	140°13.6	329°50.7	31.1	61°03.6	05.9	11°45.3	14.0	125°40.6	30.0										
14	155°16.0	344°50.8	29.9	76°04.2	06.0	26°47.1	13.9	140°43.0	30.0										
15	170°18.5	359°50.9	28.7	91°04.8	06.2	41°49.0	13.8	155°45.5	30.0										
16	185°21.0	1°51.0	27.5	106°05.4	06.3	56°50.9	13.6	170°48.0	30.0										
17	200°23.4	29°51.1	26.3	121°06.1	06.5	71°52.8	13.5	185°50.4	30.0										
18	215°25.9	44°51.2	N04°25.1	136°06.7	N23°07.6	86°54.7	N19°13.4	200°52.9	N03°30.0										
19	230°28.4	59°51.3	23.8	151°07.3	06.8	101°56.6	13.2	215°55.4	30.0										
20	245°30.8	74°51.4	22.6	166°07.9	07.0	116°58.5	13.1	230°57.8	30.0										
21	260°33.3	89°51.5	21.4	181°08.5	07.1	132°00.4	13.0	246°00.3	30.0										
22	275°35.7	104°51.6	20.2	196°09.2	07.3	147°02.3	12.8	261°02.8	29.9										
23	290°38.2	119°51.7	19.0	211°09.8	07.5	162°04.2	12.7	276°05.2	29.9										
Mer.pass. 03:41				ν 0.1' d 1.2' m -4.23				ν 0.6' d 0.2' m 1.30				ν 1.9' d 0.1' m -1.78				ν 2.5' d 0.0' m 0.66			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	305°40.7	134°51.8	N04°17.8	226°10.4	N23°07.6	177°06.1	N19°12.6	291°07.7	N03°29.9										
1	320°43.1	149°51.9	16.5	241°11.0	07.8	192°08.0	12.4	306°10.1	29.9										
2	335°45.6	164°52.0	15.3	256°11.7	07.9	207°09.9	12.3	321°12.6	29.9										
3	350°48.1	179°52.1	14.1	271°12.3	08.1	222°11.8	12.2	336°15.1	29.9										
4	5°50.5	194°52.2	12.9	286°12.9	08.2	237°13.7	12.0	351°17.5	29.9										
5	20°53.0	209°52.4	11.7	301°13.5	08.4	252°15.6	11.9	6°20.0	29.9										
6	35°55.5	224°52.5	N04°10.5	316°14.1	N23°08.5	267°17.5	N19°11.7	21°22.5	N03°29.8										
7	50°57.9	239°52.6	09.2	331°14.8	08.7	282°19.4	11.6	36°24.9	29.8										
8	66°00.4	254°52.7	08.0	346°15.4	08.8	297°21.3	11.5	51°27.4	29.8										
9	81°02.9	269°52.8	06.8	1°16.0	09.0	312°23.2	11.3	66°29.9	29.8										
10	96°05.3	284°52.9	05.6	16°16.6	09.2	327°25.1	11.2	81°32.3	29.8										
11	111°07.8	299°53.0	04.4	31°17.3	09.3	342°26.9	11.1	96°34.8	29.8										
12	126°10.7	314°53.2	N04°03.2	46°17.9	N23°09.5	357°28.8	N19°10.9	111°37.3	N03°29.8										
13	141°12.7	329°53.3	01.9	61°18.5	09.6	12°30.7	10.8	126°39.7	29.7										
14	156°15.2	344°53.4	04°00.7	76°19.1	09.8	27°32.6	10.7	141°42.2	29.7										
15	171°17.6	359°53.5	03°59.5	91°19.7	09.9	42°34.5	10.5	156°44.7	29.7										
16	186°20.1	1°53.6	58.3	106°20.4	10.1	57°36.4	10.4	171°47.1	29.7										
17	201°22.6	29°53.7	57.1	121°21.0	10.2	72°38.3	10.3	186°49.6	29.7										
18	216°25.0	44°53.9	N03°55.8	136°21.6	N23°10.4	87°40.2	N19°10.1	201°52.1	N03°29.7										
19	231°27.5	59°54.0	54.6	151°22.2	10.5	102°42.1	10.0	216°54.5	29.7										
20	246°30.0	74°54.1	53.4	166°22.9	10.7	117°44.0	09.9	231°57.0	29.6										
21	261°32.4	89°54.2	52.2	181°23.5	10.8	132°45.9	09.7	246°59.5	29.6										
22	276°34.9	104°54.3	51.0	196°24.1	11.0	147°47.8	09.6	262°01.9	29.6										
23	291°37.3	119°54.5	49.7	211°24.7	11.1	162°49.7	09.5	277°04.4	29.6										
Mer.pass. 03:37				ν 0.1' d 1.2' m -4.24				ν 0.6' d 0.2' m 1.30				ν 1.9' d 0.1' m -1.78				ν 2.5' d 0.0' m 0.65			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	306°39.8	134°54.6	N03°48.5	226°25.4	N23°11.3	177°51.6	N19°09.3	292°06.9	N03°29.6
1	321°42.3	149°54.7	47.3	241°26.0	11.4	192°53.5	09.2	307°09.3	29.6
2	336°44.7	164°54.8	46.1	256°26.6	11.6	207°55.4	09.1	322°11.8	29.6
3	351°47.2	179°54.9	44.9	271°27.2	11.7	222°57.3	08.9	337°14.3	29.6
4	6°49.7	194°55.1	43.6	286°27.8	11.8	237°59.2	08.8	352°16.7	29.5
5	21°52.1	209°55.2	42.4	301°28.5	12.0	253°01.1	08.7	7°19.2	29.5
6	36°54.6	224°55.3	N03°41.2	316°29.1	N23°12.1	268°03.0	N19°08.5	22°21.7	N03°29.5
7	51°57.1	239°55.4	40.0	331°29.7	12.3	283°04.9	08.4	37°24.2	29.5
8	66°59.5	254°55.6	38.8	346°30.3	12.4	298°06.8	08.3	52°26.6	29.5
9	82°02.0	269°55.7	37.5	1°31.0	12.6	313°08.6	08.1	67°29.1	29.5
10	97°04.5	284°55.8	36.3	16°31.6	12.7	328°10.5	08.0	82°31.6	29.4
11	112°06.9	299°56.0	35.1	31°32.2	12.9	343°12.4	07.9	97°34.0	29.4
12	127°09.4	314°56.1	N03°33.9	46°32.8	N23°13.0	358°14.3	N19°07.7	112°36.5	N03°29.4
13	142°11.8	329°56.2	32.7	61°33.5	13.1	13°16.2	07.6	127°40.9	29.4
14	157°14.3	344°56.3	31.4	76°34.1	13.3	28°18.1	07.5	142°41.4	29.4
15	172°16.8	359°56.5	30.2	91°34.7	13.4	43°20.0	07.3	157°43.9	29.4
16	187°19.2	1°56.6	29.0	106°35.3	13.6	58°21.9	07.2	172°46.4	29.4
17	202°21.7	29°56.7	27.8	121°36.0	13.7	73°23.8	07.1	187°48.9	29.3
18	217°24.2	44°56.9	N03°26.6	136°36.6	N23°13.9	88°25.7	N19°06.9	202°51.3	N03°29.3
19	232°26.6	59°57.0	25.3	151°37.2	14.0	103°27.6	06.8	217°53.8	29.3
20	247°29.1	74°57.1	24.1	166°37.8	14.1	118°29.5	06.6	232°56.3	29.3
21	262°31.6	89°57.3	22.9	181°38.5	14.3	133°31.4	06.5	247°58.7	29.3
22	277°34.0	104°57.4	21.7	196°39.1	14.4	148°33.3	06.4	263°01.2	29.3
23	292°36.5	119°57.5	20.5	211°39.7	14.6	163°35.2	06.2	278°03.7	29.2
Mer.pass. 03:33 ν 0.1' d 1.2' m -4.25 ν 0.6' d 0.1' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.65									

Stars	SHA	Dec
Alpheratz	357°33.2	29°14.2
Ankaa	353°05.7	-42°09.4
Schedar	349°29.3	56°40.8
Diphda	348°45.9	-17°50.7
Achernar	335°19.1	-57°05.7
Hamal	327°49.7	23°35.1
Polaris	313°28.4	89°22.2
Acamar	315°10.9	-40°11.6
Menkar	314°04.9	4°11.7
Mirafax	308°26.5	49°57.2
Aldebaran	290°38.3	16°33.8
Rigel	281°02.9	-8°10.1
Capella	280°20.3	46°01.3
Bellatrix	278°21.7	6°22.5
Elnath	278°00.5	28°27.5
Alnilam	275°36.7	-1°11.0
Betelgeuse	270°51.0	7°24.8
Canopus	268°52.3	-52°42.4
Sirius	253°25.4	-16°45.0
Adhara	255°05.2	-29°00.4
Procyon	244°49.8	5°09.5
Pollux	243°16.1	27°57.7
Avior	234°14.9	-59°35.6
Suhail	222°45.8	-43°42.6
Miaplacidus	221°38.9	-69°49.4
Alphard	217°46.8	-8°46.4
Regulus	207°33.4	11°50.3
Dubhe	193°39.9	61°36.6
Denebola	182°23.8	14°25.5
Gienah	175°42.4	-17°41.4
Acrux	172°59.0	-63°15.1
Gacrux	171°50.4	-57°16.0
Alioth	168°12.0	55°49.9
Spica	152°21.0	-11°18.0
Alkaid	152°51.0	49°11.1
Hamal	148°34.2	-60°30.4
Menkent	147°56.1	-36°30.2
Arcturus	145°46.7	19°02.8
Rigel Kent.	139°38.4	60°57.0
Kochab	137°19.6	74°03.0
Zuben el	136°54.5	-16°09.2
Alphecca	126°05.2	26°37.7
Antares	112°14.0	-26°29.5
Atria	107°06.7	-69°04.7

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	307°39.0	134°57.7	N03°19.2	226°40.3	N23°14.7	178°37.1	N19°06.1	293°06.2	N03°29.2					
1	322°41.4	149°57.8		18.0	241°41.0	14.8	193°39.0	06.0	308°08.6					
2	337°43.9	164°58.0		16.0	256°41.6	15.0	208°40.9	05.8	323°11.1					
3	352°46.3	179°58.1	.. 15.6	271°42.2	.. 15.1	223°42.8	.. 05.7	338°13.6	.. 29.2					
4	7°48.8	194°58.2		14.4	286°42.8	15.3	238°44.7	05.6	353°16.0					
5	22°51.3	209°58.4		13.1	301°43.5	15.4	253°46.6	05.4	8°18.5					
6	37°53.7	224°58.5	N03°11.9	316°44.1	N23°15.5	268°48.5	N19°05.3	23°21.0	N03°29.2					
7	52°56.2	239°58.6		10.7	331°44.7	15.7	283°50.4	05.2	38°25.5					
8	67°58.7	254°58.8		09.5	346°45.3	15.8	298°52.3	05.0	53°29.9					
9	83°01.1	269°58.9	.. 08.2	1°46.0	.. 15.9	313°54.2	.. 04.9	68°28.4	.. 29.1					
10	98°03.6	284°59.1	07.0	16°46.6	16.1	328°56.1	04.7	83°30.9						
11	113°06.1	299°59.2		05.8	31°47.2	16.2	343°58.0	04.6	98°33.4					
12	128°08.5	314°59.4	N03°04.6	46°47.8	N23°16.3	358°59.9	N19°04.5	113°35.8	N03°29.0					
13	143°11.0	329°59.5		03.4	61°48.5	16.5	14°01.7	04.3	128°38.3					
14	158°13.5	344°59.6		02.1	76°49.1	16.6	29°03.6	04.2	143°40.8					
15	173°15.9	359°59.8	03°00.9	91°49.7	.. 16.7	44°05.5	.. 04.1	158°43.3	.. 29.0					
16	188°18.4	14°59.9	02°59.7	106°50.3	16.9	59°07.4	03.9	173°45.7	29.0					
17	203°20.8	30°00.1		58.5	121°51.0	17.0	74°09.3	03.8	188°48.2	29.0				
18	218°23.3	45°00.2	N02°57.2	136°51.6	N23°17.1	89°11.2	N19°03.7	203°28.9	N03°28.9					
19	233°25.8	60°00.4		56.0	151°52.2	17.3	104°13.1	03.5	218°63.2	28.9				
20	248°28.2	75°00.5		54.8	166°52.9	17.4	119°15.0	03.4	233°55.6	28.9				
21	263°30.7	90°00.7	.. 53.6	181°53.5	.. 17.5	134°16.9	.. 03.2	248°58.1	.. 28.9					
22	278°33.2	105°00.8		52.4	196°54.1	17.7	149°18.8	03.1	264°00.6	28.9				
23	293°35.6	120°01.0		51.1	211°54.7	17.8	164°20.7	03.0	279°03.1	28.9				
Mer.pass. 03:29			ν 0.1' d 1.2' m -4.26			ν 0.6' d 0.1' m 1.30			ν 1.9' d 0.1' m -1.78			ν 2.5' d 0.0' m 0.64		

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	308°38.1	135°01.1	N02°49.9	226°55.4	N23°17.9	179°22.6	N19°02.8	294°05.5	N03°28.8				
1	323°40.6	150°01.3		48.7	241°56.0	18.1	194°24.5	02.7	309°08.0				
2	338°43.0	165°01.4		47.5	256°56.6	18.2	209°26.4	02.6	324°10.5				
3	353°45.5	180°01.6	· ·	46.2	271°57.2	· ·	18.3	224°28.3	· ·	02.4	339°13.0	· ·	28.8
4	8°47.9	195°01.7		45.0	286°57.9		18.5	29°30.2	02.3	354°15.4	28.8		
5	23°50.4	210°01.9		43.8	301°58.5		18.6	254°32.1	02.2	9°17.9	28.7		
6	38°52.9	225°02.0	N02°42.6	316°59.1	N23°18.7	269°34.0	N19°02.0	24°20.4	N03°28.7				
7	53°55.3	240°02.2		41.3	331°59.7	18.8	284°35.9	01.9	39°22.9	28.7			
8	68°57.8	255°02.3		40.1	347°00.4	19.0	299°37.8	01.8	54°25.4	28.7			
9	84°00.7	270°02.5	· ·	38.9	2°01.0	· ·	19.1	314°39.7	· ·	01.6	69°27.8	· ·	28.7
10	99°02.7	285°02.6		37.7	17°01.6	19.2	329°41.6	01.5	84°30.3	28.7			
11	114°05.2	300°02.8		36.5	32°02.3	19.4	344°43.5	01.3	99°32.8	28.6			
12	129°07.7	315°03.0	N02°35.2	47°02.9	N23°19.5	359°45.4	N19°01.2	114°35.3	N03°28.6				
13	144°10.1	330°03.1		34.0	62°03.5	19.6	14°47.3	01.1	129°37.7	28.6			
14	159°12.6	345°03.3		32.8	77°04.1	19.7	29°49.2	00.9	144°40.2	28.6			
15	174°15.1	0°03.4	· ·	31.6	92°04.8	· ·	19.9	44°51.1	· ·	00.8	159°42.7	· ·	28.6
16	189°17.5	15°03.6		30.3	107°05.4	20.0	59°53.0	00.7	174°45.2	28.5			
17	204°20.0	30°03.8		29.1	122°06.0	20.1	74°54.8	00.5	189°47.7	28.5			
18	219°22.4	45°03.9	N02°27.9	137°06.7	N23°20.2	89°56.7	N19°00.4	204°50.1	N03°28.5				
19	234°24.9	60°04.1		26.7	152°07.3	20.4	104°58.6	00.3	219°52.6	28.5			
20	249°27.4	75°04.2		25.4	167°07.9	20.5	120°00.5	00.1	234°55.1	28.5			
21	264°29.8	90°04.4	· ·	24.2	182°08.5	· ·	20.6	135°02.4	19°00.0	249°57.6	· ·	28.5	
22	279°32.3	105°04.6		23.0	197°09.2	20.7	150°04.3	18°59.8	265°00.1	28.4			
23	294°34.8	120°04.7		21.8	212°09.8	20.8	165°06.2	59.7	280°02.5	28.4			
Mer.pass. 03:25 ν 0.2' d 1.2' m -4.26 ν 0.6' d 0.1' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.64													

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	309°37.2	135°04.9	N02°20.5	227°10.4	N23°21.0	180°08.1	N18°59.6	295°05.0	N03°28.4					
1	324°39.7	150°05.0	19.3	242°11.1	21.1	195°10.0	59.4	310°07.5	28.4					
2	339°42.2	165°05.2	18.1	257°11.7	21.2	210°11.9	59.3	325°10.0	28.4					
3	354°44.6	180°05.4	.. 16.9	272°12.3	.. 21.3	225°13.8	.. 59.2	340°12.5	.. 28.3					
4	9°47.1	195°05.5	15.6	287°12.9	21.5	240°15.7	59.0	355°14.9	28.3					
5	24°49.6	210°05.7	14.4	302°13.6	21.6	255°17.6	58.9	10°17.4	28.3					
6	39°52.0	225°05.9	N02°13.2	317°14.2	N23°21.7	270°19.5	N18°58.8	25°19.9	N03°28.3					
7	54°54.5	240°06.0	12.0	332°14.8	21.8	285°21.4	58.6	40°22.4	28.3					
8	69°56.9	255°06.2	10.8	347°15.5	21.9	300°23.3	58.5	55°24.9	28.2					
9	84°59.4	270°06.4	.. 09.5	2°16.1	.. 22.1	315°25.2	.. 58.3	70°27.3	.. 28.2					
10	100°01.9	285°06.6	08.3	17°16.7	22.2	330°27.1	58.2	85°29.8	28.2					
11	115°04.3	300°06.7	07.1	32°17.3	22.3	345°29.0	58.1	100°32.3	28.2					
12	130°06.8	315°06.9	N02°05.9	47°18.0	N23°22.4	8°30.9	N18°57.9	115°34.8	N03°28.2					
13	145°09.3	330°07.1	04.6	62°18.6	22.5	15°32.8	57.8	130°37.3	28.1					
14	160°11.7	345°07.2	03.4	77°19.2	22.6	30°34.7	57.7	145°39.7	28.1					
15	175°14.2	0°07.4	.. 02.2	92°19.9	.. 22.8	45°36.6	.. 57.5	160°42.2	.. 28.1					
16	190°16.7	15°07.6	02°01.0	107°20.5	22.9	60°38.5	57.4	175°44.7	28.1					
17	205°19.1	30°07.8	01°59.7	122°21.1	23.0	75°40.4	57.2	190°47.2	28.1					
18	220°21.6	45°07.9	N01°58.5	137°21.8	N23°23.1	90°42.3	N18°57.1	205°49.7	N03°28.0					
19	235°24.0	60°08.1	57.3	152°22.4	23.2	105°44.2	57.0	220°52.2	28.0					
20	250°26.5	75°08.3	56.1	167°23.0	23.3	120°46.1	56.8	235°54.6	28.0					
21	265°29.0	90°08.5	.. 54.8	182°23.6	.. 23.5	135°48.0	.. 56.7	250°57.1	.. 28.0					
22	280°31.4	105°08.6	53.6	197°24.3	23.6	150°49.9	56.6	265°59.6	28.0					
23	295°33.9	120°08.8	52.4	212°24.9	23.7	165°51.8	56.4	281°02.1	27.9					
Mer.pass. 03:31			ν 0.2' d 1.2' m -4.27			ν 0.6' d 0.1' m 1.30			ν 1.9' d 0.1' m -1.78			ν 2.5' d 0.0' m 0.69		

Stars			Sun			Moon				
	SHA	Dec	h	GHA	Dec	GHA	ν	Dec	d	HP
Alpheratz	357°33.2	29°14.2	0	178°22.7	N18°33.2	353°24.6	13.1'	S18°59.5	11.1'	54.9'
Ankaa	353°05.6	-42°09.4	1	193°22.7	32.6	7°56.8	13.2'	18°48.4	11.2'	55.0'
Schedar	349°29.3	56°40.8	2	208°22.7	32.0	22°28.9	13.2'	18°37.2	11.3'	55.0'
Diphda	348°45.8	-17°50.2	3	223°22.7	.. 31.4	37°01.2	13.3'	18°25.9	11.3'	55.0'
Achernar	335°19.1	-57°05.7	4	238°22.8	30.7	51°33.5	13.3'	18°14.6	11.5'	55.0'
Hamal	327°49.7	23°35.3	5	253°22.8	30.1	66°05.8	13.4'	18°03.1	11.5'	55.0'
Polaris	313°26.8	89°22.2	6	268°22.8	N18°29.5	80°38.2	13.4'	S17°51.6	11.7'	55.0'
Acamar	315°10.8	-40°11.5	7	283°22.9	28.9	95°10.6	13.5'	17°39.9	11.7'	55.1'
Menkar	314°04.8	4°11.7	8	298°22.9	28.3	109°43.1	13.5'	17°28.2	11.8'	55.1'
Mirfak	308°26.5	49°57.2	9	313°22.9	.. 27.7	124°15.6	13.6'	17°16.4	11.8'	55.1'
Aldebaran	290°38.3	16°33.8	10	328°22.9	27.1	138°48.2	13.6'	17°04.6	12.0'	55.1'
Rigel	281°02.8	-8°10.1	11	343°23.0	26.5	153°20.8	13.7'	16°52.6	12.0'	55.1'
Capella	280°20.3	46°01.3	12	358°23.0	N18°25.9	167°53.4	13.7'	S16°40.6	12.1'	55.1'
Bellatrix	278°21.7	6°22.5	13	13°23.0	25.3	182°26.1	13.7'	16°28.5	12.2'	55.2'
Elath	278°00.5	28°37.7	14	28°23.0	24.7	196°58.9	13.8'	16°16.3	12.3'	55.2'
Alnilam	275°36.6	-1°11.0	15	43°23.1	.. 24.1	211°31.7	13.8'	16°04.0	12.3'	55.2'
Betelgeuse	270°50.9	7°24.8	16	58°23.1	23.5	226°04.5	13.9'	15°51.7	12.4'	55.2'
Canopus	263°52.3	-52°42.4	17	73°23.1	22.9	240°37.4	13.9'	15°39.3	12.5'	55.2'
Sirius	258°25.4	-16°45.0	18	88°23.2	N18°22.2	255°10.3	14.0'	S15°26.8	12.5'	55.3'
Adhara	255°05.2	-29°00.3	19	103°23.2	21.6	269°43.3	14.0'	15°14.3	12.7'	55.3'
Procyon	244°49.8	5°09.5	20	118°23.2	21.0	284°16.3	14.0'	15°01.6	12.7'	55.3'
Pollux	234°16.1	27°57.7	21	133°23.2	.. 20.4	298°49.3	14.1'	14°48.9	12.7'	55.3'
Avior	234°14.9	-59°35.6	22	148°23.3	19.8	313°22.4	14.1'	14°36.2	12.9'	55.3'
Suhail	222°45.8	-43°32.4	23	163°23.3	19.2	327°55.5	14.2'	14°23.3	12.9'	55.3'
Miaplacidus	221°39.0	-69°49.9								
Alphard	221°36.8	-8°46.4								

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	310°36.4	135°09.0	N01°51.2	227°25.5	N23°23.8	180°53.7	N18°56.3	296°04.6	N03°27.9					
1	325°38.8	150°09.2	49.9	242°26.2	23.9	195°55.6	56.2	311°07.1	27.9					
2	340°41.3	165°09.3	48.7	257°26.8	24.0	210°57.5	56.0	326°09.5	27.9					
3	355°43.8	180°09.5	· · 47.5	272°27.4	· · 24.1	225°59.3	· · 55.9	341°12.0	· · 27.9					
4	10°46.2	195°09.7	46.3	287°28.1	24.2	241°01.2	55.7	356°14.5	27.8					
5	25°48.7	210°09.9	45.0	302°28.7	24.4	256°03.1	55.6	11°17.0	27.8					
6	40°51.2	225°10.1	N01°43.8	317°29.3	N23°24.5	271°05.0	N18°55.5	26°19.5	N03°27.8					
7	55°53.6	240°10.2	42.6	332°30.0	24.6	286°06.9	55.3	41°22.0	27.8					
8	70°56.1	255°10.4	41.4	347°30.6	24.7	301°08.8	55.2	56°24.5	27.8					
9	85°58.5	270°10.6	· · 40.1	· · 2°31.2	· · 24.8	316°10.7	· · 55.1	71°26.9	· · 27.7					
10	101°01.0	285°10.8	38.9	17°31.8	24.9	331°12.6	54.6	86°29.4	27.7					
11	116°03.5	300°11.0	37.7	32°32.5	25.0	346°14.5	54.8	101°31.9	27.7					
12	131°05.9	315°11.2	N01°36.5	47°33.1	N23°25.1	1°16.4	N18°54.6	116°34.4	N03°27.7					
13	146°08.4	330°11.3	35.2	62°33.7	25.2	16°18.3	54.5	131°36.9	27.6					
14	161°10.9	345°11.5	34.0	77°34.4	25.3	31°20.2	54.4	146°39.4	27.6					
15	176°13.3	· · 01°17	· · 32.8	92°35.0	· · 25.5	46°22.1	· · 54.2	161°41.9	· · 27.6					
16	191°15.8	15°11.9	31.6	107°35.6	25.6	61°24.0	54.1	176°44.3	27.6					
17	206°18.3	30°12.1	30.3	122°36.3	25.7	76°25.9	54.0	191°46.8	27.6					
18	221°20.7	45°12.3	N01°29.1	137°36.9	N23°25.8	91°27.8	N18°53.8	206°49.3	N03°27.5					
19	236°23.2	60°12.5	27.9	152°37.5	25.9	106°29.7	53.7	221°51.8	27.5					
20	251°25.6	75°12.7	26.7	167°38.2	26.0	121°31.6	53.5	236°54.3	27.5					
21	266°28.1	90°12.8	· · 25.4	182°38.8	· · 26.1	136°33.5	· · 53.4	251°56.8	· · 27.5					
22	281°30.6	105°13.0	24.2	197°39.4	26.2	151°35.4	53.3	266°59.3	27.4					
23	296°33.0	120°13.2	23.0	212°40.1	26.3	166°37.3	53.1	282°01.8	27.4					
Mer.pass. 03:17 ν 0.2' d 1.2' m -4.28 ν 0.6' d 0.1' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.63														

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	311°35.5	135°13.4	N01°21.8	227°40.7	N23°26.4	181°39.2	N18°53.0	297°04.2	N03°27.4
1	326°38.0	150°13.6	20.5	242°41.3	26.5	196°41.1	52.9	312°06.7	27.4
2	341°40.4	165°13.8	19.3	257°42.0	26.6	211°43.0	52.7	327°09.2	27.4
3	356°42.9	180°14.0	· · 18.1	272°42.6	· · 26.7	226°44.9	· · 52.6	342°11.7	· · 27.3
4	11°45.4	195°14.2	16.9	287°43.2	26.8	241°46.8	52.4	357°14.2	27.3
5	26°47.8	210°14.4	15.6	302°43.9	26.9	256°47.7	52.3	12°16.7	27.3
6	41°50.3	225°14.6	N01°14.4	317°44.5	N23°27.0	271°50.6	N18°52.2	27°19.2	N03°27.3
7	56°52.8	240°14.8	13.2	332°45.1	27.1	286°52.5	52.0	42°21.7	27.2
8	71°55.2	255°15.0	12.0	347°45.8	27.2	301°54.4	51.9	57°24.2	27.2
9	86°57.7	270°15.2	· · 10.7	· · 2°46.4	· · 27.3	316°56.3	· · 51.8	72°26.6	· · 27.2
10	102°00.1	285°15.4	09.5	17°47.0	27.4	331°58.2	51.6	87°29.1	27.2
11	117°02.6	300°15.6	08.3	32°47.7	27.5	347°00.1	51.5	102°31.6	27.2
12	132°05.1	315°15.7	N01°07.1	47°48.3	N23°27.6	2°02.0	N18°51.3	117°34.1	N03°27.1
13	147°07.5	330°15.9	05.8	62°48.9	27.8	17°03.9	51.2	132°36.6	27.1
14	162°10.0	345°16.1	04.6	77°49.6	27.9	32°05.8	51.1	147°39.1	27.1
15	177°12.5	· · 01°13	· · 03.4	92°50.2	· · 28.0	47°07.7	· · 50.9	162°41.6	· · 27.1
16	192°14.9	15°16.5	02.2	107°50.8	28.0	62°09.6	50.8	177°44.1	27.0
17	207°17.4	30°16.7	01°00.9	122°51.5	28.1	77°11.5	50.6	192°46.6	27.0
18	222°19.9	45°16.9	N00°59.7	137°52.1	N23°28.2	92°13.4	N18°50.5	207°49.1	N03°27.0
19	237°22.3	60°17.1	58.5	152°52.7	28.3	107°15.3	50.4	222°51.5	27.0
20	252°24.8	75°17.4	57.3	167°53.4	28.4	122°17.2	50.2	237°54.0	26.9
21	267°27.3	90°17.6	· · 56.0	182°54.0	· · 28.5	137°19.1	· · 50.1	252°56.5	· · 26.9
22	282°29.7	105°17.8	54.8	197°54.6	28.6	152°21.0	50.0	267°59.0	26.9
23	297°32.2	120°18.0	53.6	212°55.3	28.7	167°22.9	49.8	283°01.5	26.9
Mer.pass. 03:13 ν 0.2' d 1.2' m -4.29 ν 0.6' d 0.1' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.62									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	312°34.1	135°18.2	N00°52.4	227°55.9	N23°28.8	182°24.8	N18°49.7	298°04.0	N03°26.9
1	327°37.6	150°18.4	51.1	242°56.5	28.9	197°26.7	49.5	313°06.5	26.8
2	342°39.6	165°18.6	49.9	257°57.2	29.0	212°28.6	49.4	328°09.0	26.8
3	357°42.0	180°18.8	· · 48.7	272°57.8	· · 29.1	227°30.5	· · 49.3	343°11.5	· · 26.8
4	12°44.5	195°19.0	47.5	287°58.4	29.2	242°32.4	49.1	358°14.0	26.8
5	27°47.0	210°19.2	46.2	302°59.1	29.3	257°34.3	49.0	13°16.5	26.7
6	42°49.4	225°19.4	N00°45.0	317°59.7	N23°29.4	272°36.2	N18°48.9	28°19.0	N03°26.7
7	57°51.9	240°19.6	43.8	333°00.4	29.5	287°38.0	48.7	43°21.4	26.7
8	72°54.4	255°19.8	42.6	348°01.0	29.6	302°39.9	48.6	58°23.9	26.7
9	87°56.8	270°20.0	· · 41.3	· · 3°01.6	· · 29.7	317°41.8	· · 48.4	73°26.4	· · 26.6
10	102°59.3	285°20.2	40.1	18°02.3	29.8	332°43.7	48.3	88°28.9	26.6
11	118°01.7	300°20.5	38.9	33°02.9	29.9	347°45.6	48.2	103°31.4	26.6
12	133°04.2	315°20.7	N00°37.7	48°03.5	N23°30.0	2°47.5	N18°48.0	118°33.9	N03°26.6
13	148°06.7	330°20.9	36.4	63°04.2	30.1	17°49.4	47.9	133°36.4	26.5
14	163°09.1	345°21.1	35.2	78°04.8	30.1	32°51.3	47.7	148°38.9	26.5
15	178°11.6	· · 02°13	· · 34.0	93°05.4	· · 30.2	47°53.2	· · 47.6	163°41.4	· · 26.5
16	193°14.1	15°21.5	32.8	108°06.1	30.3	62°55.1	47.5	178°43.9	26.5
17	208°16.5	30°21.7	31.5	123°06.7	30.4	77°57.0	47.3	193°46.4	26.4
18	223°19.0	45°21.9	N00°30.3	138°07.3	N23°30.5	92°58.9	N18°47.2	208°48.9	N03°26.4
19	238°21.5	60°22.2	29.1	153°08.0	30.6	108°00.8	47.0	223°51.4	26.4
20	253°23.9	75°22.4	27.9	168°08.6	30.7	123°02.7	46.9	238°53.9	26.4
21	268°26.4	90°22.6	· · 26.6	183°09.3	· · 30.8	138°04.6	· · 46.8	253°56.4	· · 26.3
22	283°28.9	105°22.8	25.4	198°09.9	30.9	153°06.5	46.6	268°58.9	26.3
23	298°31.3	120°23.0	24.2	213°10.5	31.0	168°08.4	46.5	284°01.4	26.3
Mer.pass. 03:09 ν 0.2' d 1.2' m -4.30 ν 0.6' d 0.1' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.62									

Stars			h			Sun			Moon		
	SHA	Dec	Sun	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.2	29°14.2	0	178°25.1	N17°48.5	321°29.6	15.0°	S02°48.8	15.1°	56.3°	
Ankaa	353°05.6	-42°09.4	1	193°25.2	47.9	336°03.6	15.0°	02°33.7	15.2°	56.3°	
Schedar	349°29.3	56°40.9	2	208°25.2	47.2	350°37.6	15.0°	02°18.5	15.1°	56.4°	
Diphda	348°45.8	-17°50.2	3	223°25.3	· · 46.6	5°11.6	15.0°	02°03.4	15.2°	56.4°	
Achernar	335°19.1	-57°05.7	4	238°25.3	45.9	19°45.5	15.0°	01°48.2	15.2°	56.4°	
Hamal	327°49.7	23°35.3	5	253°25.4	45.3	34°19.5	14.9°	01°33.0	15.2°	56.4°	
Polaris	313°25.4	89°22.2	6	268°25.4	N17°44.7	48°53.4	14.9°	S01°17.8	15.2°	56.5°	
Acamar	315°10.8	-40°11.5	7	283°25.4	44.0	63°27.3	14.9°	01°02.6	15.2°	56.5°	
Menkar	314°04.8	4°11.7	8	298°25.5	43.4	78°01.3	14.9°	00°47.4	15.3°	56.5°	
Mirafax	308°26.5	49°57.2	9	313°25.5	· · 42.7	92°35.1	14.9°	00°32.1	15.3°	56.5°	
Aldebaran	290°38.3	16°33.3	10	328°25.6	42.1	107°09.0	14.9°	00°16.8	15.2°	56.5°	
Rigel	281°02.8	-8°10.1	11	343°25.6	41.4	121°42.9	14.8°	S00°01.6	15.3°	56.6°	
Capella	280°20.3	46°01.3	12	358°25.7	N17°40.8	136°16.7	14.8°	N00°13.7	15.3°	56.6°	
Bellatrix	278°21.7	6°22.5	13	13°25.7	40.2	150°50.5	14.8°	00°29.0	15.3°	56.6°	
Alnilam	275°36.6	-1°11.0	14	28°25.8	39.5	165°24.3	14.8°	00°44.3	15.3°	56.6°	
Betelgeuse	270°50.9	7°24.8	15	43°25.8	· · 38.9	179°58.1	14.7°	00°59.6	15.3°	56.7°	
Canopus	265°52.3	-52°42.3	16	58°25.9	38.2	194°31.8	14.7°	01°14.9	15.4°	56.7°	
Sirius	258°25.4	-16°45.0	17	73°25.9	37.6	209°05.6	14.7°	01°30.3	15.3°	56.7°	
Adhara	255°05.2	-29°00.3	18	88°26.0	N17°36.9	223°39.3	14.7°	N01°45.6	15.3°	56.7°	
Procyon	244°49.8	5°09.5	19	103°26.0	36.3	238°12.9	14.6°	02°00.9	15.4°	56.7°	
Pollux	243°16.1	27°57.7	20	118°26.1	35.6	252°46.5	14.6°	02°16.3	15.3°	56.8°	
Avior	234°14.9	-59°35.6	21	133°26.1	· · 35.0	267°20.1	14.6°	02°31.6	15.3°	56.8°	
Suhail	222°45.8	-43°32.4	22	148°26.2	34.3	281°53.7	14.5°	02°49.9	15.4°	56.8°	
Miaplaciadus	221°39.0	-69°49.6	23	163°26.2	33.7	296°27.3	14.5°	03°02.3	15.3°	56.8°	
Alphard	217°46.8	-8°46.4									

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	313°33.8	135°23.2	N00°23.0	228°11.2	N23°31.0	183°10.3	N18°46.4	299°03.9	N03°26.3					
1	328°36.2	150°23.5	21.8	243°11.8	31.1	198°12.2	46.2	341°06.3	26.2					
2	343°38.7	165°23.7	20.5	258°12.4	31.2	213°14.1	46.1	329°08.8	26.2					
3	358°41.2	180°23.9	•• 19.3	273°13.1	•• 31.3	228°16.0	•• 45.9	344°11.3	•• 26.2					
4	13°43.6	195°24.1	18.1	288°13.7	31.4	243°17.9	45.8	359°13.8	26.2					
5	28°46.1	210°24.3	16.9	303°14.4	31.5	258°19.8	45.7	14°16.3	26.1					
6	43°48.6	225°24.6	N00°15.6	318°15.0	N23°31.6	273°21.7	N18°45.5	29°18.8	N03°26.1					
7	58°51.0	240°24.8	14.4	333°15.6	31.7	288°23.6	45.4	44°21.3	26.1					
8	73°53.5	255°25.0	13.2	348°16.3	31.7	303°25.5	45.2	59°23.8	26.1					
9	88°56.0	270°25.2	•• 12.0	3°16.9	•• 31.8	318°27.4	•• 45.1	74°26.3	•• 26.0					
10	103°58.4	285°25.5	10.7	18°17.5	31.9	333°29.3	45.0	89°28.8	26.0					
11	119°00.9	300°25.7	09.5	33°18.2	32.0	348°31.2	44.8	104°31.3	26.0					
12	134°03.3	315°25.9	N00°08.3	48°18.8	N23°32.1	3°33.1	N18°44.7	119°33.8	N03°26.0					
13	149°05.8	330°26.1	07.1	63°19.5	32.2	18°35.0	44.5	134°36.3	25.9					
14	164°08.3	345°26.4	05.8	78°20.1	32.2	33°36.9	44.4	149°38.8	25.9					
15	179°10.7	•• 02°26.6	•• 04.6	93°20.7	•• 32.3	48°38.8	•• 44.3	164°41.3	•• 25.9					
16	194°13.2	15°26.8	03.4	108°21.4	32.4	63°40.7	44.1	179°43.8	25.8					
17	209°15.7	30°27.0	02.2	123°22.0	32.5	78°42.6	44.0	194°46.3	25.8					
18	224°18.1	45°27.3	N00°09.9	138°22.7	N23°32.6	93°44.5	N18°43.9	209°48.8	N03°25.8					
19	239°20.6	60°27.5	S00°00.3	153°23.3	32.7	108°46.4	43.7	224°51.3	25.8					
20	254°23.1	75°27.7	01.5	168°23.9	32.7	123°48.3	43.6	239°53.8	25.7					
21	269°25.5	90°28.0	•• 02.7	183°24.6	•• 32.8	138°50.2	•• 43.4	254°56.3	•• 25.7					
22	284°28.0	105°28.2	03.9	198°25.2	32.9	153°52.1	43.3	269°58.8	25.7					
23	299°30.5	120°28.4	05.2	213°25.8	33.0	168°54.0	43.2	285°01.3	25.7					
Mer.pass. 03:05 ν 0.2' d 1.2' m -4.31 ν 0.6' d 0.1' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.61														

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	314°32.9	135°28.7	S00°06.4	228°26.5	N23°33.1	183°55.9	N18°43.0	300°03.8	N03°25.6					
1	329°35.4	150°28.9	07.6	243°27.1	33.1	198°57.8	42.9	315°06.3	25.6					
2	344°37.8	165°29.1	08.8	258°27.8	33.2	213°59.7	42.7	330°08.8	25.6					
3	359°40.3	180°29.4	•• 10.1	273°28.4	•• 33.3	229°01.6	•• 42.6	345°11.3	•• 25.6					
4	14°42.8	195°29.6	11.3	288°29.0	33.4	244°03.5	42.5	0°13.8	25.5					
5	29°45.2	210°29.8	12.5	303°29.7	33.4	259°05.4	42.3	15°16.3	25.5					
6	44°47.7	225°30.1	S00°13.7	318°30.3	N23°33.5	274°07.3	N18°42.2	30°18.8	N03°25.5					
7	59°50.2	240°30.3	15.0	333°31.0	33.6	289°09.2	42.0	45°21.3	25.4					
8	74°52.6	255°30.5	15.2	348°31.6	33.7	304°11.1	41.9	60°23.8	25.4					
9	89°55.1	270°30.8	•• 17.4	3°32.2	•• 33.8	319°13.0	•• 41.8	75°26.3	•• 25.4					
10	104°57.6	285°31.0	18.6	18°32.9	33.9	334°14.9	41.6	90°28.8	25.4					
11	120°00.0	300°31.2	19.9	33°33.5	33.8	349°16.8	41.5	105°31.3	25.3					
12	135°02.5	315°31.5	S00°21.1	48°34.2	N23°34.0	4°18.7	N18°41.3	120°33.8	N03°25.3					
13	150°05.0	330°31.7	22.3	63°34.8	34.1	19°20.6	41.2	135°36.3	25.3					
14	165°07.4	345°32.0	23.5	78°35.4	34.1	34°22.5	41.1	150°38.8	25.3					
15	180°09.9	•• 32°32.2	•• 24.7	93°36.1	•• 34.2	49°24.4	•• 40.9	165°41.3	•• 25.2					
16	195°12.3	15°32.4	26.0	108°36.7	34.4	64°26.3	40.8	180°43.8	25.2					
17	210°14.8	30°32.7	27.2	123°37.4	34.3	79°28.2	40.6	195°46.3	25.2					
18	225°17.7	45°32.9	N00°28.4	138°38.0	N23°34.4	94°30.1	N18°40.5	210°48.8	N03°25.1					
19	240°19.7	60°33.2	29.6	153°38.7	34.5	109°32.0	40.4	225°51.3	25.1					
20	255°22.2	75°33.4	30.9	168°39.3	34.6	124°33.9	40.2	240°53.8	25.1					
21	270°24.7	90°33.7	•• 32.1	183°39.9	•• 34.6	139°35.8	•• 40.1	255°56.3	•• 25.1					
22	285°27.1	105°33.9	33.3	198°40.6	34.7	154°37.7	39.9	270°58.8	25.0					
23	300°29.6	120°34.1	34.5	213°41.2	34.8	169°39.6	39.8	286°01.3	25.0					
Mer.pass. 03:01 ν 0.2' d 1.2' m -4.32 ν 0.6' d 0.1' m 1.30 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.61														

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	315°32.1	135°34.4	S00°35.7	228°41.9	N23°34.9	184°41.5	N18°39.7	301°03.8	N03°25.0					
1	330°34.5	150°34.6	37.0	243°42.5	34.9	199°43.4	39.5	316°06.3	24.9					
2	345°37.0	165°34.9	38.2	258°43.1	35.0	214°45.3	39.4	331°08.8	24.9					
3	•• 039.5	180°35.1	•• 39.4	273°43.8	•• 35.1	229°47.2	•• 39.2	346°11.3	•• 24.9					
4	15°41.9	195°35.4	40.6	288°44.4	35.1	244°49.1	39.1	1°13.8	24.8					
5	30°44.4	210°35.6	41.9	303°45.1	35.2	259°51.0	39.0	16°16.4	24.8					
6	45°46.8	225°35.9	N00°43.1	318°45.7	N23°35.3	274°52.9	N18°38.8	31°18.9	N03°24.8					
7	60°49.3	240°36.1	44.3	333°46.4	35.4	289°54.8	38.7	46°21.4	24.8					
8	75°51.8	255°36.4	45.5	348°47.0	35.4	304°56.7	38.5	61°23.9	24.7					
9	90°54.2	270°36.6	•• 46.7	3°47.6	•• 35.5	319°58.6	•• 38.4	76°26.4	•• 24.7					
10	105°56.7	285°36.9	48.0	18°48.3	35.6	335°00.5	38.3	91°28.9	24.7					
11	120°59.2	300°37.1	49.2	33°48.9	35.6	350°02.4	38.1	106°31.4	24.7					
12	136°01.6	315°37.4	S00°50.4	48°49.6	N23°35.7	5°04.3	N18°38.0	121°33.9	N03°24.6					
13	151°04.1	330°37.6	51.6	63°50.2	35.8	20°06.2	37.8	136°36.4	24.6					
14	166°06.6	345°37.9	52.8	78°50.9	35.8	35°08.1	37.7	151°38.9	24.6					
15	181°09.0	•• 038.1	•• 54.1	93°51.5	•• 35.9	50°10.0	•• 37.6	166°41.4	•• 24.5					
16	196°11.5	15°38.4	55.3	108°52.1	35.9	65°11.9	37.4	181°43.9	24.5					
17	211°13.9	30°38.7	56.5	123°52.8	36.0	80°13.8	37.3	196°46.4	24.5					
18	226°16.4	45°38.9	S00°57.7	138°53.4	N23°36.1	95°15.7	N18°37.1	211°48.9	N03°24.4					
19	241°18.9	60°39.2	00°58.5	153°54.1	36.1	110°17.6	37.0	226°51.4	24.4					
20	256°21.3	75°39.4	01°00.2	168°54.7	36.2	125°19.6	36.9	241°53.9	24.4					
21	271°23.8	90°39.7	•• 01.4	183°55.4	•• 36.3	140°21.5	•• 36.7	256°56.4	•• 24.4					
22	286°26.3	105°39.9	02.6	198°56.0	36.3	155°23.4	36.6	271°58.9	24.3					
23	301°28.7	120°40.2	03.8	213°56.7	36.4	170°25.3	36.4	287°01.5	24.3					
Mer.pass. 02:57 ν 0.2' d 1.2' m -4.33 ν 0.6' d 0.1' m 1.29 ν 1.9' d 0.1' m -1.78 ν 2.5' d 0.0' m 0.60														

Stars			h			Sun			Moon		
	SHA	Dec	Wed	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.2	29°14.3	0	178°28.9	N17°01.2	288°42.8	11.2'	N15°08.9	13.8'	58.0'	
Ankaa	353°05.6	-42°09.4	1	193°29.0	17°00.6	303°13.0	11.1'	15°22.7	13.7'	58.0'	
Schedar	349°29.2	56°40.9	2	208°29.1	16°59.9	317°43.2	11.0'	15°36.4	13.6'	58.1'	
Diphda	348°45.8	-17°50.2	3	223°29.1	•• 59.2	332°13.2	10.9'	15°50.0	13.6'	58.1'	
Achernar	335°19.0	-57°05.7	4	238°29.2	58.5	346°43.1	10.8'	16°03.6	13.5'	58.1'	
Hamal	327°49.7	23°35.3	5	253°29.2	57.9	1°13.0	10.7'	16°17.1	13.4'	58.1'	
Polaris	313°23.7	89°22.2	6	268°29.3	N16°57.2	15°42.7	10.6'	N16°30.5	13.4'	58.2'	
Acamar	315°10.8	-40°11.5	7	283°29.4	56.5	30°12.3	10.5'	16°43.9	13.3'	58.2'	
Menkar	314°04.8	4°11.8	8	298°29.4	55.8	44°41.9	10.4'	16°57.2	13.2'	58.2'	
Mirfak	308°26.4	49°57.2	9	313°29.5	•• 55.1	59°11.3	10.3'	17°10.4	13.1'	58.2'	
Aldebaran	290°38.3	16°33.8	10	328°29.6	54.5	73°40.6	10.2'	17°23.5	13.0'	58.3'	
Rigel	280°20.2	-8°10.1	11	343°29.6	53.8	88°09.8	10.1'	17°36.5	13.0'	58.3'	
Capella	280°20.2	46°01.3	12	358°29.7	N16°53.1	102°38.9	10.0'	N17°49.5	12.8'	58.3'	
Bellatrix	278°21.7	6°22.5	13	373°30.8	52.4	117°07.9	9.9'	18°02.3	12.8'	58.3'	
Elmath	278°00.4	28°37.7	14	28°39.8	51.7	131°36.8	9.8'	18°15.1	12.7'	58.4'	
Anilam	275°36.6	-1°11.0	15	43°29.9	•• 51.1	146°05.6	9.7'	18°27.8	12.7'	58.4'	
Betelgeuse	270°50.9	7°24.8	16	58°30.0	50.4	160°34.2	9.6'	18°40.5	12.5'	58.4'	
Canopus	263°52.3	-52°42.3	17	73°30.0	49.7	175°02.8	9.4'	18°53.0	12.4'	58.4'	
Sirius	258°25.4	-16°45.0	18	88°30.1	N16°49.0	189°31.2	9.3'	N19°05.4	12.3'	58.5'	
Adhara	255°05.2	-29°00.3	19	103°30.2	48.3	203°59.6	9.2'	19°17.7	12.3'	58.5'	
Procyon	244°49.8	5°09.5	20	118°30.2	47.6	218°27.8	9.1'	19°30.0	12.1'	58.5'	
Pollux	243°16.1	27°57.7	21	133°30.3	•• 47.0	232°55.8	9.0'	19°42.1	12.1'	58.5'	
Avior	234°14.9	-59°35.6	22	148°30.4	46.3	247°23.9	8.9'	19°54.2	11.9'	58.5'	
Suhail	222°45.8	-43°32.4	23	163°30.4	45.6	261°51.7	8.7'	20°06.1	11.8'	58.6'	
Miapladicus	221°39.0	-69°49.6									
Alphard	217°46.8	-8°46.4									

Aries				Venus		Mars		Jupiter		Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	316°31.2	135°40.5	S01°05.1	228°57.3	N23°36.5	185°27.2	N18°36.3	302°04.0	N03°24.3				
1	331°33.7	150°40.7	06.3	243°57.9	36.5	200°29.1	36.2	317°06.5	24.2				
2	346°36.1	165°41.0	07.5	258°58.6	36.6	215°31.0	36.0	332°09.0	24.2				
3	1°38.6	180°41.2	· · 08.7	273°59.2	· · 36.6	230°32.9	· · 35.9	347°11.5	· · 24.2				
4	16°41.1	195°41.5	09.9	288°59.9	36.7	245°34.8	35.7	2°14.0	24.1				
5	31°43.5	210°41.8	11.2	304°00.5	36.8	260°36.7	35.6	17°16.5	24.1				
6	46°46.0	225°42.0	S01°12.4	319°01.2	N23°36.5	275°38.6	N18°35.6	32°19.0	N03°24.1				
7	61°48.4	240°42.3	13.6	334°01.8	36.9	290°40.5	35.3	47°21.5	24.1				
8	76°50.9	255°42.5	14.8	349°02.5	37.0	305°42.4	35.2	62°24.0	24.0				
9	91°53.4	270°42.8	· · 16.0	4°03.1	· · 37.0	320°44.3	· · 35.0	77°26.5	· · 24.0				
10	106°55.8	285°43.1	17.3	19°03.8	37.1	335°46.2	34.9	92°29.0	24.0				
11	121°58.3	300°43.3	18.5	34°04.4	37.1	350°48.1	34.8	107°31.6	23.9				
12	137°00.8	315°43.6	S01°19.7	49°05.0	N23°37.2	5°50.0	N18°34.6	122°34.1	N03°23.9				
13	152°03.2	330°43.9	20.9	64°05.7	37.2	20°51.9	34.5	137°36.6	23.9				
14	167°05.7	345°44.1	22.1	79°06.3	37.3	35°53.8	34.3	152°39.1	23.8				
15	182°08.2	0°44.4	· · 23.3	94°07.0	· · 37.4	50°55.7	· · 34.2	167°41.6	· · 23.8				
16	197°10.6	15°44.7	24.6	109°07.6	37.4	65°57.6	34.1	182°44.1	23.8				
17	212°13.1	30°44.9	25.8	124°08.3	37.5	80°59.5	33.9	197°46.6	23.7				
18	227°15.6	45°45.2	S01°27.0	139°08.9	N23°37.5	96°01.4	N18°33.8	212°49.1	N03°23.7				
19	242°18.0	60°45.5	28.2	154°09.6	37.6	111°03.3	33.6	227°51.6	23.7				
20	257°20.5	75°45.8	29.4	169°10.2	37.6	126°05.2	33.5	242°54.1	23.7				
21	272°22.9	90°46.0	· · 30.7	184°10.9	· · 37.7	141°07.1	· · 33.3	257°56.7	· · 23.6				
22	287°25.4	105°46.3	31.9	199°11.5	37.8	156°09.0	33.2	272°59.2	23.6				
23	302°27.9	120°46.6	33.1	214°12.2	37.8	171°10.9	33.1	288°01.7	23.6				
Mer.pass. 02:53			ν 0.3' d 1.2' m -4.34			ν 0.6' d 0.1' m 1.29			ν 1.9' d 0.1' m -1.78			ν 2.5' d 0.0' m 0.60	

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	317°30.3	135°46.8	S01°34.3	229°12.8	N23°37.9	186°12.8	N18°32.9	303°04.2	N03°23.5						
1	332°32.8	150°47.1	35.5	244°13.5	37.0	201°14.7	32.8	318°06.7	23.5						
2	347°35.3	165°47.4	36.7	259°14.1	38.0	216°16.6	32.6	333°09.2	23.5						
3	2°37.7	180°47.7	· · 38.0	274°14.7	· · 38.0	231°18.5	· · 32.5	348°11.7	· · 23.4						
4	17°40.2	195°47.9	39.2	289°15.4	38.1	246°20.4	32.4	3°14.2	23.4						
5	32°42.7	210°48.2	40.4	304°16.0	38.1	261°22.3	32.2	18°16.7	23.4						
6	47°45.1	225°48.5	S01°41.6	319°16.7	N23°38.2	276°24.2	N18°32.1	33°19.3	N03°23.3						
7	62°47.6	240°48.8	42.8	334°17.3	38.2	291°26.1	31.9	48°21.8	23.3						
8	77°50.1	255°49.0	44.1	349°18.6	38.3	306°28.0	31.8	63°24.3	23.3						
9	92°52.7	270°49.3	· · 45.3	4°18.6	· · 38.3	321°29.9	· · 31.7	78°26.8	· · 23.2						
10	107°55.0	285°49.6	46.5	19°19.3	38.4	336°31.8	31.5	93°29.3	23.2						
11	122°57.4	300°49.9	47.7	34°19.9	38.4	351°33.7	31.4	108°31.8	23.2						
12	137°59.9	315°50.2	S01°48.9	49°20.6	N23°38.5	6°35.6	N18°31.2	123°34.3	N03°23.1						
13	153°02.4	330°50.4	50.1	64°21.2	38.5	21°37.5	31.1	138°36.8	23.1						
14	168°04.8	345°50.7	51.4	79°21.9	38.6	36°39.4	31.0	153°39.4	23.1						
15	183°07.3	· 0°51.0	· · 52.6	94°22.5	· · 38.6	51°41.3	· · 30.8	168°41.9	· · 23.0						
16	198°09.8	15°51.3	53.8	109°23.2	38.7	66°43.2	30.7	183°44.4	23.0						
17	213°12.2	30°51.6	55.0	124°23.8	38.7	81°45.1	30.5	188°46.9	23.0						
18	228°14.7	45°51.9	S01°56.2	139°24.5	N23°38.8	96°47.0	N18°30.4	213°49.4	N03°23.0						
19	243°17.2	60°52.1	57.4	154°25.1	38.8	111°49.0	30.2	228°51.9	22.9						
20	258°19.6	75°52.4	58.7	169°25.8	38.9	126°50.9	30.1	243°54.4	22.9						
21	273°22.1	90°52.7	· 01°59.9	184°26.4	· · 38.9	141°52.8	· · 30.0	258°57.0	· · 22.9						
22	288°24.6	105°53.0	02°01.1	199°27.1	39.0	156°54.7	29.8	273°59.5	22.8						
23	303°27.0	120°53.3	02.3	214°27.7	39.0	171°56.6	29.7	289°02.0	22.8						
Mer.pass. 02:50			ν 0.3' d 1.2' m -4.35			ν 0.6' d 0.1' m 1.29			ν 1.9' d 0.1' m -1.78			ν 2.5' d 0.0' m 0.59			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	318°29.5	135°53.6	S02°03.5	229°28.4	N23°39.1	186°58.5	N18°29.5	304°04.5	N03°22.8						
1	333°31.9	150°53.8	04.7	244°29.0	39.1	202°00.4	29.4	319°07.0	22.7						
2	348°34.4	165°54.1	05.9	259°29.7	39.2	217°02.3	29.3	334°09.5	22.7						
3	3°36.9	180°54.4	· · 07.2	274°30.3	· · 39.2	232°04.2	· · 29.1	349°12.1	· · 22.7						
4	18°39.3	195°54.7	08.4	289°31.0	39.3	247°06.1	29.0	4°14.6	22.6						
5	33°41.8	210°55.0	09.6	304°31.6	39.4	262°08.0	28.8	19°17.1	22.6						
6	48°44.3	225°55.3	S02°10.8	319°32.3	N23°39.3	277°09.9	N18°28.7	34°19.6	N03°22.6						
7	63°46.7	240°55.6	12.0	334°32.9	39.4	292°11.8	28.5	49°22.1	22.5						
8	78°49.2	255°55.9	13.2	349°33.6	39.5	307°13.7	28.4	64°24.6	22.5						
9	93°51.7	270°56.2	· · 14.5	4°34.2	· · 39.4	322°15.6	· · 28.3	79°27.1	· · 22.5						
10	108°54.1	285°56.5	15.7	19°34.9	39.5	337°17.5	28.1	94°29.7	22.4						
11	123°56.6	300°56.8	16.9	34°35.5	39.6	352°19.4	28.0	109°32.2	22.4						
12	138°59.1	315°57.0	S02°18.1	49°36.2	N23°39.6	7°21.3	N18°27.8	124°34.7	N03°22.4						
13	154°01.5	330°57.3	19.3	64°36.8	39.6	22°23.2	27.7	139°37.2	22.3						
14	169°04.0	345°57.6	20.5	79°37.5	39.7	37°25.1	27.6	154°39.7	22.3						
15	184°06.4	· 0°57.9	· · 21.7	94°38.1	· · 39.7	52°27.0	· · 27.4	169°42.3	· · 22.3						
16	199°08.8	15°58.2	23.0	109°38.8	39.8	67°28.9	27.3	184°44.8	22.2						
17	214°11.4	30°58.5	24.2	124°39.5	39.8	82°30.8	27.1	199°47.3	22.2						
18	229°13.8	45°58.8	S02°25.4	139°40.1	N23°39.8	97°32.7	N18°27.0	214°49.8	N03°22.1						
19	244°16.3	60°59.1	26.6	154°40.8	39.9	112°34.6	26.8	229°52.3	22.1						
20	259°18.8	75°59.4	27.8	169°41.4	39.9	127°36.5	26.7	244°54.8	22.1						
21	274°21.2	90°59.7	· · 29.0	184°42.1	· · 40.0	142°38.4	· · 26.6	259°57.4	· · 22.0						
22	289°23.7	106°00.0	30.2	199°42.7	40.0	157°40.3	26.3	274°59.9	22.0						
23	304°26.2	121°00.3	31.4	214°43.4	40.0	172°42.3	26.4	290°02.4	22.0						
Mer.pass. 02:46			ν 0.3' d 1.2' m -4.36			ν 0.7' d 0.0' m 1.29			ν 1.9' d 0.1' m -1.78			ν 2.5' d 0.0' m 0.59			

Stars			h			Sun			Moon		
SHA	Dec		Sat	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.1	29°14.3	0	178°34.0	N16°11.5	248°14.2	3.3'	N27°09.9	4.6'	59.7'	
Ankaa	353°05.6	-42°09.4	1	193°34.1	10.8	262°36.5	3.2'	27°14.5	4.4'	59.7'	
Schedar	349°29.2	56°40.9	2	208°34.2	10.0	276°58.7	3.1'	27°18.9	4.3'	59.7'	
Diphda	348°45.8	-17°50.2	3	223°34.3	· · 09.3	291°20.8	3.1'	27°23.2	4.0'	59.7'	
Achernar	335°19.0	-57°05.7	4	238°34.4	08.6	305°42.9	3.0'	27°27.2	3.9'	59.7'	
Hamal	327°49.6	23°35.3	5	253°34.4	07.9	320°04.9	2.9'	27°31.1	3.6'	59.8'	
Polaris	313°21.8	89°22.2	6	268°34.5	N16°07.2	334°26.8	2.8'	N27°34.7	3.5'	59.8'	
Acamar	315°10.8	-40°11.5	7	283°34.6	06.5	348°48.7	2.8'	27°38.2	3.3'	59.8'	
Mirfar	314°04.8	4°11.1	8	298°34.7	05.8	3°10.5	2.7'	27°41.5	3.0'	59.8'	
Mirfan	308°26.4	49°57.2	9	313°34.8	· · 05.1	17°32.2	2.7'	27°44.5	2.9'	59.8'	
Aldebaran	290°38.2	16°33.8	10	328°34.9	04.4	31°53.8	2.6'	27°47.4	2.7'	59.8'	
Rigel	281°02.8	-8°10.1	11	343°34.9	03.6	46°15.4	2.5'	27°50.1	2.5'	59.9'	
Capella	280°20.2	46°01.3	12	358°35.0	N16°02.9	60°37.0	2.5'	N27°52.6	2.2'	59.9'	
Bellatrix	278°21.7	6°22.5	13	373°35.1	02.2	74°58.4	2.4'	27°54.8	2.1'	59.9'	
Elnath	278°00.4	28°37.7	14	28°35.2	01.5	89°19.9	2.4'	27°56.9	1.9'	59.9'	
Alnilam	275°36.6	-1°11.0	15	43°35.3	· · 00.8	103°41.3	2.3'	27°58.8	1.7'	59.9'	
Betelgeuse	270°50.9	7°24.8	16	58°35.4	16°00.1	118°02.6	2.3'	28°05.5	1.4'	59.9'	
Canopus	263°52.2	-52°42.3	17	73°35.4	15°59.4	132°23.9	2.3'	28°01.9	1.3'	60.0'	
Sirius	255°25.4	-16°45.0	18	88°35.5	N15°58.6	146°45.1	2.2'	N28°03.2	1.1'	60.0'	
Adhara	258°05.1	-29°00.3	19	103°35.6	57.9	161°06.4	2.2'	28°04.3	0.8'	60.0'	
Procyon	244°49.8	5°09.5	20	118°35.7	57.2	175°27.5	2.2'	28°05.1	0.7'	60.0'	
Pollux	234°16.0	27°59.7	21	133°35.8	· · 56.5	189°48.7	2.1'	28°05.8	0.4'	60.0'	
Avior	232°45.8	-43°32.4	22	148°35.9	55.8	204°09.8	2.1'	28°06.2	0.2'	60.0'	
Suhail	221°39.0	-69°49.6	23	163°35.9	55.1	218°30.9	2.1'	28°06.4	0.1'	60.0'	
Miapladicus	221°39.0	-69°49.6									
Alphard	217°46.8	-8°46.4									

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	319°28.6	136°00.6	S02°32.7	229°44.0	N23°40.1	187°44.2	N18°26.1	305°04.9	N03°21.9					
1	334°31.1	151°00.9	33.9	244°44.7	40.1	202°46.1	26.0	320°07.4	21.9					
2	349°33.6	166°01.2	35.1	259°45.3	40.2	217°48.0	25.9	335°10.0	21.9					
3	4°36.0	181°01.5	•• 36.3	274°46.0	•• 40.2	232°49.9	•• 25.7	350°12.5	•• 21.8					
4	19°38.5	196°01.8	37.5	289°46.6	40.2	247°51.8	25.6	5°15.0	21.8					
5	34°40.9	211°02.1	38.7	304°47.3	40.3	262°53.7	25.4	20°17.5	21.8					
6	49°43.4	226°02.4	S02°39.9	319°47.9	N23°40.3	277°55.6	N18°25.3	35°20.0	N03°21.7					
7	64°45.9	241°02.7	41.1	334°48.6	40.3	292°57.5	25.1	50°22.6	21.7					
8	79°48.3	256°03.0	42.3	349°49.3	40.4	307°59.4	25.0	65°25.1	21.7					
9	94°50.8	271°03.3	•• 43.6	4°49.9	•• 40.4	323°01.3	•• 24.9	80°27.6	•• 21.6					
10	109°53.3	286°03.7	44.8	19°50.6	40.4	338°03.2	24.7	95°30.1	21.6					
11	124°55.7	301°04.0	46.0	34°51.2	40.5	353°05.1	24.6	110°32.6	21.6					
12	139°58.2	316°04.3	S02°47.2	49°51.9	N23°40.5	8°07.0	N18°24.4	125°35.2	N03°21.5					
13	155°00.7	331°04.6	48.4	64°52.5	40.5	23°08.9	24.3	140°37.7	21.5					
14	170°03.1	346°04.9	49.6	79°53.2	40.6	38°10.8	24.2	155°40.2	21.5					
15	185°05.6	1°05.2	•• 50.8	94°53.8	•• 40.6	53°12.7	•• 24.0	170°42.7	•• 21.4					
16	200°08.0	16°05.5	52.0	109°54.5	40.6	68°14.6	23.9	185°45.2	21.4					
17	215°10.5	31°05.8	53.2	124°55.2	40.7	83°16.5	23.7	200°47.8	21.3					
18	230°13.0	46°06.1	S02°54.3	139°55.8	N23°40.7	98°18.4	N18°23.6	215°50.3	N03°21.3					
19	245°15.4	61°06.4	55.7	154°56.5	40.7	113°20.3	23.4	230°52.8	21.3					
20	260°17.9	76°06.7	56.9	169°57.1	40.8	128°22.2	23.3	245°55.3	21.2					
21	275°20.4	91°07.1	•• 58.1	184°57.8	•• 40.8	143°24.2	•• 23.2	260°57.8	•• 21.2					
22	290°22.8	106°07.4	02°59.3	199°58.4	40.8	158°26.1	23.0	276°00.4	21.2					
23	305°25.3	121°07.7	03°00.5	214°59.1	40.9	173°28.0	22.9	291°02.9	21.1					
Mer.pass. 02:42			ν 0.3' d 1.2' m -4.37			ν 0.7' d 0.0' m 1.29			ν 1.9' d 0.1' m -1.79			ν 2.5' d 0.0' m 0.58		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	320°27.8	136°08.0	S03°01.7	229°59.7	N23°40.9	188°29.9	N18°22.7	306°05.4	N03°21.1					
1	335°30.2	151°08.3	02.9	245°00.4	40.9	203°31.8	22.6	321°07.9	21.1					
2	350°32.7	166°08.6	04.1	260°01.1	40.9	218°33.7	22.4	336°10.5	21.0					
3	5°35.2	181°09.0	•• 05.3	275°01.7	•• 41.0	233°35.6	•• 22.3	351°13.0	•• 21.0					
4	20°37.6	196°09.3	06.5	290°02.4	41.0	248°37.5	22.2	6°15.5	21.0					
5	35°40.1	211°09.6	07.8	305°03.0	41.0	263°39.4	22.0	21°18.0	20.9					
6	50°42.5	226°09.9	S03°09.0	320°03.7	N23°41.1	278°41.3	N18°21.9	36°20.6	N03°20.8					
7	65°45.0	241°10.2	10.2	335°04.3	41.1	293°43.2	21.7	51°23.1	20.8					
8	80°47.5	256°10.5	11.4	350°05.0	41.1	308°45.1	21.6	66°25.6	20.8					
9	95°49.9	271°10.9	•• 12.6	5°05.7	•• 41.1	323°47.0	•• 21.5	81°28.1	•• 20.8					
10	110°52.4	286°11.2	13.8	20°06.3	41.2	338°48.9	21.3	96°30.7	20.7					
11	125°54.9	301°11.5	15.0	35°07.0	41.2	353°50.8	21.2	111°33.2	20.7					
12	140°57.3	316°11.8	S03°16.2	50°07.6	N23°41.2	8°52.7	N18°21.0	126°35.7	N03°20.7					
13	155°59.8	331°12.2	17.4	65°08.3	41.2	23°54.6	20.9	141°38.2	20.6					
14	171°02.3	346°12.5	18.6	80°09.0	41.3	38°56.5	20.7	156°40.7	20.6					
15	186°04.7	1°12.8	•• 19.8	95°09.6	•• 41.3	53°58.5	•• 20.6	171°43.3	•• 20.5					
16	201°07.2	16°13.1	21.0	110°10.3	41.3	69°00.4	20.5	186°45.8	20.5					
17	216°09.7	31°13.4	22.2	125°10.9	41.3	84°02.3	20.3	201°48.3	20.5					
18	231°12.1	46°13.8	S03°23.4	140°11.6	N23°41.4	99°04.2	N18°20.2	216°50.9	N03°20.4					
19	246°14.6	61°14.1	24.7	155°12.2	41.4	114°06.1	20.0	231°53.4	20.4					
20	261°17.0	76°14.4	25.9	170°12.9	41.4	129°08.0	19.9	246°55.9	20.4					
21	276°19.5	91°14.8	•• 27.1	185°13.6	•• 41.4	144°09.9	•• 19.7	261°58.4	•• 20.3					
22	291°22.0	106°15.1	28.3	200°14.2	41.5	159°11.8	19.6	277°01.0	20.3					
23	306°24.4	121°15.4	29.5	215°14.9	41.5	174°13.7	19.5	292°03.5	20.2					
Mer.pass. 02:38			ν 0.3' d 1.2' m -4.38			ν 0.7' d 0.0' m 1.29			ν 1.9' d 0.1' m -1.79			ν 2.5' d 0.0' m 0.58		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	321°26.9	136°15.7	S03°30.7	230°15.5	N23°41.5	189°15.6	N18°19.3	307°06.0	N03°20.2
1	336°29.4	151°16.1	31.9	245°16.2	41.5	204°17.5	19.2	322°08.5	20.2
2	351°31.8	166°16.4	33.1	260°16.9	41.5	219°19.4	19.0	337°11.1	20.1
3	6°34.3	181°16.7	•• 34.3	275°17.5	•• 41.6	234°21.3	•• 18.9	352°13.6	•• 20.1
4	21°36.8	196°17.1	35.5	290°18.2	41.6	249°23.2	18.7	7°16.1	20.1
5	36°39.2	211°17.4	36.7	305°18.8	41.6	264°25.1	18.6	22°18.6	20.0
6	51°41.7	226°17.7	S03°37.9	320°19.5	N23°41.6	279°27.0	N18°18.5	37°21.2	N03°20.0
7	66°44.2	241°18.1	39.1	335°20.2	41.6	294°29.0	18.3	52°23.7	19.9
8	81°46.6	256°18.4	40.3	350°20.8	41.7	309°30.9	18.2	67°26.2	19.9
9	96°49.1	271°18.7	•• 41.5	5°21.5	•• 41.7	324°32.8	•• 18.0	82°28.8	•• 19.9
10	111°51.5	286°19.1	42.7	20°22.2	41.7	339°34.7	17.9	97°31.3	19.8
11	126°54.0	301°19.4	43.9	35°22.8	41.7	354°36.6	17.7	112°33.8	19.8
12	141°56.5	316°19.7	S03°45.1	50°23.5	N23°41.7	9°38.5	N18°17.6	127°36.3	N03°19.8
13	156°58.9	331°20.1	46.3	65°24.1	41.8	24°40.4	17.5	142°38.9	19.7
14	172°01.4	346°20.4	47.5	80°24.8	41.8	39°42.3	17.3	157°41.4	19.7
15	187°03.9	1°20.7	•• 48.7	95°25.5	•• 41.8	54°44.2	•• 17.2	172°43.9	•• 19.6
16	202°06.3	16°21.1	49.9	110°26.1	41.8	69°46.1	17.0	187°46.5	19.6
17	217°08.8	31°21.4	51.1	125°26.8	41.8	84°48.0	16.9	202°49.0	19.6
18	232°11.3	46°21.8	S03°52.3	140°27.5	N23°41.8	99°49.9	N18°16.7	217°51.5	N03°19.5
19	247°13.7	61°22.1	53.5	155°28.1	41.8	114°51.8	16.6	232°54.0	19.5
20	262°16.2	76°22.4	54.7	170°28.8	41.9	129°53.7	16.5	247°56.6	19.4
21	277°18.6	91°22.8	•• 55.9	185°29.4	•• 41.9	144°55.6	•• 16.3	262°59.1	•• 19.4
22	292°21.1	106°23.1	57.1	200°30.1	41.9	159°57.6	16.2	278°01.6	19.4
23	307°23.6	121°23.5	58.3	215°30.8	41.9	174°59.5	16.0	293°04.2	19.3
Mer.pass. 02:34 ν 0.3' d 1.2' m -4.40 ν 0.7' d 0.0' m 1.29 ν 1.9' d 0.1' m -1.79 ν 2.5' d 0.0' m 0.57									

Stars		
SHA	Dec	
Alpheratz	357°33.1	29°14.3
Ankaa	353°05.5	42°09.4
Schedar	349°29.2	56°40.9
Diphda	348°45.8	-17°50.2
Achernar	335°19.0	-57°05.7
Hamal	327°49.6	23°35.3
Polaris	313°20.1	89°22.2
Acamar	315°10.7	-40°11.5
Menkar	314°04.7	4°11.8
Mirafak	308°26.4	49°57.2
Aldebaran	290°38.2	16°33.8
Rigel	281°02.8	-8°10.1
Capella	280°20.2	46°01.3
Bellatrix	278°21.6	6°22.5
Elmath	278°00.4	28°37.7
Alnilam	275°36.6	-1°11.0
Betelgeuse	270°50.9	7°24.8
Canopus	263°52.2	-52°42.3
Sirius	258°25.3	-16°45.0
Adhara	255°05.1	-29°00.3
Procyon	244°49.7	5°09.5
Pollux	243°16.0	27°57.7
Avior	234°14.8	-59°35.6
Suhail	222°45.8	-43°32.3
Miaplacidus	221°39.0	-69°49.6
Alphard	217°46.8	-8°46.4
Regulus	207°33.3	11°50.3
Dubhe	193°40.0	61°36.6
Denebola	182°23.8	14°25.5
Gienah	175°42.1	-17°41.4
Acrux	172°59.1	-63°15.0
Gacrux	171°50.5	-57°15.9
Alloth	166°12.1	55°49.1
Spica	158°21.0	-11°18.0
Alkaid	152°51.1	49°11.0
Hadar	148°34.3	-60°30.3
Menkent	147°56.1	-36°30.2
Arcturus	145°46.8	19°02.8
Rigel Kent.	139°38.5	-60°57.0
Kochab	137°19.9	74°03.0
Ubeni	136°54.6	-16°09.2
Alphecca	126°02.6	26°37.7
Antares	112°14.1	-26°29.5
Atria	107°06.8	-69°04.1
Sabik	102°01.1	-15°45.5
Shaula	96°08.3	-37°07.4
Rasalhague	95°57.1	12°32.6
Eltanin	90°41.2	51°29.3
Kaus Aus.	83°30.4	-34°22.3
Vega	80°32.0	38°48.7
Nunki	75°45.8	-26°15.8
Altair	61°58.3	8°56.5
Peacock	53°03.0	-56°38.9
Deneb	49°24.4	45°22.6
Enif	33°37.2	10°00.0
Al Na'ir	27°30.8	-46°49.7
Fomalhaut	15°12.7	-29°28.6
Scheat	13°43.6	-28°13.7
Markab	13°28.3	15°21.0

	Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	322°26.0	136°23.8	S03°59.5	230°31.4	N23°41.9	190°01.4	N18°15.9	308°06.7	N03°19.3						
1	337°28.5	151°24.2	04°00.7	245°32.1	41.9	205°03.3	15.7	323°09.2	19.3						
2	352°31.0	166°24.5	01.9	260°32.8	41.9	220°05.2	15.6	338°11.8	19.2						
3	37°33.4	181°24.9	.. 03.1	275°33.4	.. 42.0	235°07.1	.. 15.5	353°14.3	.. 19.2						
4	22°35.9	196°25.2	04.3	290°34.1	42.0	250°09.0	15.3	8°16.8	19.1						
5	37°38.4	211°25.5	05.5	305°34.7	42.0	265°10.9	15.2	23°19.3	19.1						
6	52°40.8	226°25.9	S04°06.7	320°35.4	N23°42.0	280°12.8	N18°15.0	38°21.9	N03°19.1						
7	67°43.3	241°26.2	07.9	335°36.1	42.0	295°14.7	14.9	53°24.4	19.0						
8	82°45.8	256°26.6	09.1	350°36.7	42.0	310°16.6	14.7	68°26.9	19.0						
9	97°48.2	271°26.9	.. 10.5	5°37.4	.. 42.0	325°18.5	.. 14.6	83°29.5	.. 18.9						
10	112°50.2	286°27.3	11.5	20°38.1	42.0	340°20.4	14.5	98°32.0	18.9						
11	127°53.1	301°27.6	12.7	35°38.7	42.0	355°22.4	14.3	113°34.5	18.9						
12	142°55.6	316°28.0	S04°13.9	50°39.4	N23°42.1	10°24.3	N18°14.2	128°37.1	N03°18.8						
13	157°58.1	331°28.3	15.1	65°40.1	42.1	25°26.2	14.0	143°39.6	18.8						
14	173°05.3	346°28.7	16.3	80°40.7	42.1	40°28.1	13.9	158°42.1	18.7						
15	188°03.0	1°29.0	.. 17.5	95°41.4	.. 42.1	55°30.0	.. 13.7	173°44.7	.. 18.7						
16	203°05.5	16°29.4	18.7	110°42.1	42.1	70°31.9	13.6	188°47.2	18.7						
17	218°07.9	31°29.8	19.9	125°42.7	42.1	85°33.8	13.5	203°49.7	18.6						
18	233°10.4	46°30.1	S04°21.1	140°43.4	N23°42.1	100°35.7	N18°13.3	218°52.3	N03°18.6						
19	248°12.9	61°30.5	22.3	155°44.1	42.1	115°37.6	13.2	233°54.8	18.5						
20	263°15.3	76°30.8	23.5	170°44.7	42.1	130°39.5	13.0	248°57.3	18.5						
21	278°17.8	91°31.2	.. 24.7	185°45.4	.. 42.1	145°41.4	.. 12.9	263°59.9	.. 18.5						
22	293°20.2	106°31.5	25.9	200°46.1	42.1	160°43.3	12.7	279°02.4	18.4						
23	308°22.7	121°31.9	27.1	215°46.7	42.1	175°45.3	12.6	294°04.9	18.4						
Mer.pass. 02:30			ν 0.3' d 1.2' m -4.41			ν 0.7' d 0.0' m 1.28			ν 1.9' d 0.1' m -1.79			ν 2.5' d 0.0' m 0.57			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	323°25.2	136°32.3	S04°28.3	230°47.4	N23°42.1	190°47.2	N18°12.5	309°07.5	N03°18.3					
1	338°27.6	151°32.6	29.5	245°48.1	42.1	205°49.1	12.3	324°10.0	18.3					
2	353°30.1	166°33.0	30.7	260°48.7	42.2	220°51.0	12.2	339°12.5	18.3					
3	8°32.6	181°33.3	.. 31.9	275°49.4	.. 42.2	235°52.9	.. 12.0	354°15.1	.. 18.2					
4	23°35.0	196°33.7	33.1	290°50.1	42.2	250°54.8	11.9	9°17.6	18.2					
5	38°37.5	211°34.1	34.3	305°50.7	42.2	265°56.7	11.7	24°20.1	18.1					
6	53°40.0	226°34.4	S04°35.5	320°51.4	N23°42.2	280°58.6	N18°11.6	39°22.7	N03°18.1					
7	68°42.4	241°34.8	36.7	335°52.1	42.2	296°00.5	11.5	54°25.2	18.0					
8	83°44.9	256°35.1	37.9	350°52.7	42.2	311°02.4	11.3	69°27.7	18.0					
9	98°47.4	271°35.5	.. 39.0	5°53.4	.. 42.2	326°04.3	.. 11.2	84°30.3	.. 18.0					
10	113°49.8	286°35.9	40.2	20°54.1	42.2	341°06.3	11.0	99°32.8	17.9					
11	128°52.3	301°36.2	41.4	35°54.7	42.2	356°08.2	10.9	114°35.3	17.9					
12	143°54.7	316°36.6	S04°42.6	50°55.4	N23°42.2	11°10.1	N18°10.7	129°37.9	N03°17.8					
13	158°57.2	331°37.0	43.8	65°56.1	42.2	26°12.0	10.6	144°40.4	17.8					
14	173°59.7	346°37.3	45.0	80°56.8	42.2	41°13.9	10.4	159°43.0	17.8					
15	189°02.1	1°37.7	.. 46.2	95°57.4	.. 42.2	56°15.8	.. 10.3	174°45.5	.. 17.7					
16	204°04.6	16°38.1	47.4	110°58.1	42.2	71°17.7	10.2	189°48.0	17.7					
17	219°07.1	31°38.5	48.6	125°58.8	42.2	86°19.6	10.0	204°50.6	17.6					
18	234°09.5	46°38.8	S04°49.8	140°59.4	N23°42.2	101°21.5	N18°09.9	219°53.1	N03°17.6					
19	249°12.0	61°39.2	51.0	156°00.1	42.2	116°23.4	09.9	234°55.6	17.6					
20	264°14.5	76°39.6	52.2	171°00.8	42.2	131°25.3	09.6	249°58.2	17.5					
21	279°16.9	91°39.9	.. 53.4	186°01.4	.. 42.2	146°27.3	.. 09.4	265°00.7	.. 17.5					
22	294°19.4	106°40.3	54.5	201°02.1	42.2	161°29.2	09.3	280°03.2	17.4					
23	309°21.8	121°40.7	55.7	216°02.8	42.2	176°31.1	09.2	295°05.8	17.4					
Mer.pass. 02:26			ν 0.4' d 1.2' m -4.42			ν 0.7' d 0.0' m 1.28			ν 1.9' d 0.1' m -1.79			ν 2.5' d 0.0' m 0.56		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	324°24.3	136°41.1	S04°56.9	231°03.5	N23°42.2	191°33.0	N18°09.0	310°08.3	N03°17.3
1	339°26.8	151°41.4	58.1	246°04.1	42.2	206°34.9	08.9	325°10.9	17.3
2	354°29.2	166°41.8	04°59.3	261°04.8	42.2	221°36.8	08.7	340°13.4	17.3
3	9°31.7	181°42.2	05°05.5	276°05.5	.. 42.2	236°38.7	.. 08.6	355°15.9	.. 17.2
4	24°34.2	196°42.6	01.7	291°06.1	42.2	251°40.6	08.4	10°18.5	17.2
5	39°36.6	211°42.9	02.9	306°06.8	42.2	266°42.5	08.3	25°21.0	17.1
6	54°39.1	226°43.3	S05°04.1	321°07.5	N23°42.2	281°44.4	N18°08.1	40°23.6	N03°17.1
7	69°41.6	241°43.7	05.3	336°08.2	42.1	296°46.4	08.0	55°26.1	17.0
8	84°44.0	256°44.1	06.4	351°08.8	42.1	311°48.3	07.9	70°28.6	17.0
9	99°46.5	271°44.5	.. 07.6	6°09.5	.. 42.1	326°50.2	.. 07.7	85°31.2	.. 17.0
10	114°49.0	286°44.8	08.8	21°10.2	42.1	341°52.1	07.6	100°33.7	16.9
11	129°51.4	301°45.2	10.0	36°10.8	42.1	356°54.0	07.4	115°36.2	16.9
12	144°53.9	316°45.6	S05°11.2	51°11.5	N23°42.1	11°55.9	N18°07.3	130°38.8	N03°16.8
13	159°56.3	331°46.0	12.4	66°12.2	42.1	26°57.8	07.1	145°41.3	16.8
14	174°58.8	346°46.4	13.6	81°12.9	42.1	41°59.7	07.0	160°43.9	16.8
15	190°01.3	1°46.7	.. 14.8	96°13.5	.. 42.1	57°01.6	.. 06.9	175°46.4	.. 16.7
16	205°03.7	16°47.1	15.9	111°14.2	42.1	72°03.5	06.7	190°48.9	16.7
17	220°06.2	31°47.5	17.1	126°14.9	42.1	87°05.5	06.6	205°51.5	16.6
18	235°08.7	46°47.9	S05°18.3	141°15.6	N23°42.1	102°07.4	N18°06.4	220°54.0	N03°16.6
19	250°11.1	61°48.3	19.5	156°16.2	42.1	117°09.3	06.3	235°56.6	16.5
20	265°13.6	76°48.7	20.7	171°16.9	42.1	132°11.2	06.1	250°59.1	16.5
21	280°16.1	91°49.1	.. 21.9	186°17.6	.. 42.0	147°13.1	.. 06.0	266°01.6	.. 16.5
22	295°18.5	106°49.5	23.1	201°18.3	42.0	162°15.0	05.8	281°04.2	16.4
23	310°21.0	121°49.8	24.2	216°18.9	42.0	177°16.9	05.7	296°06.7	16.4
Mer.pass. 02:22 ν 0.4' d 1.2' m -4.43 ν 0.7' d 0.0' m 1.28 ν 1.9' d 0.1' m -1.79 ν 2.5' d 0.0' m 0.56									

SHA	Dec
Alpheratz	357°33.1 29°14.3
Ankaa	353°05.5 -05°49.4
Schedar	349°29.1 56°40.9
Diphda	348°45.7 -17°50.2
Achernar	335°18.9 -57°05.7
Hamal	327°49.6 23°35.7
Polaris	313°18.7 89°22.3
Acamar	315°10.7 -40°11.5
Menkar	314°04.7 4°11.8
Mirfak	308°26.3 49°57.2
Aldebaran	290°38.2 16°33.8
Rigel	281°02.7 -8°10.1
Capella	280°20.1 46°01.3
Bellatrix	278°21.6 6°22.5
Elath	278°00.4 28°37.7
Anilam	275°36.5 -1°11.0
Betelgeuse	270°50.8 7°24.8
Canopus	263°52.2 -52°42.3
Sirius	259°25.3 -16°45.0
Procyon	258°05.7 -29°09.3
Adhara	244°49.7 5°09.5
Pollux	233°16.0 27°55.7
Avior	234°14.8 -59°35.5
Suhail	222°45.8 -43°32.7
Miaplacidus	221°39.0 -69°49.5
Alphard	217°46.8 -8°46.4
Regulus	207°33.3 11°50.3
Dubhe	193°40.0 61°36.6
Denebola	182°23.8 14°25.5
Gienah	175°42.5 -17°41.4
Acrux	172°59.1 -63°15.0
Gacrux	171°50.6 -57°15.9
Alloth	166°12.1 55°49.1
Spica	158°21.0 -11°18.0
Alkaid	152°51.1 49°11.0
Hadar	148°34.3 -60°30.3
Menkent	147°56.2 -36°30.2
Arcturus	145°46.8 19°02.8
Rigil Kent.	139°28.0 -60°57.7
Kochab	137°20.6 74°03.0
Zuben	136°54.6 -16°09.2
Alphecca	126°02.6 26°37.7
Antares	112°14.1 -26°29.5
Atria	107°06.8 -69°04.7
Sabik	102°06.1 -15°45.5
Shaula	96°08.1 -37°07.4
Rasalhague	95°57.1 12°32.6
Eltanin	90°41.2 51°29.3
Kaus Aust.	83°30.5 -34°22.3
Vega	80°32.0 38°48.7
Nunki	75°45.8 -26°15.8
Altair	61°58.4 8°56.5
Peacock	53°03.0 -56°38.9
Deneb	49°24.4 45°22.6
Enif	33°37.2 10°00.0
Al Na'ir	27°30.8 -46°49.7
Fomalhaut	15°12.7 -29°28.7
Scheat	13°43.6 28°13.7
Markab	13°28.3 15°21.0

Aug 14 Fri	SHA	Mer.pass
Venus	173°57.8	14:54
Mars	268°05.4	08:38
Jupiter	227°35.3	11:18
Saturn	345°40.7	03:27
Aug 15 Sat	SHA	Mer.pass
Venus	173°07.1	14:53
Mars	267°22.2	08:36
Jupiter	227°22.0	11:15
Saturn	345°42.3	03:23

Ar Na II	25°30.8	29°29.7
Fomalhaut	15°12.7	-29°28.7
Scheat	13°43.6	28°13.7
Markab	13°28.3	15°21.0
Aug 14 Fri	SHA	Mer.pass
Venus	173°57.8	14:54
Mars	268°05.4	08:38
Jupiter	227°35.3	11:18
Saturn	345°40.7	03:27
Aug 15 Sat	SHA	Mer.pass
Venus	173°07.1	14:53
Mars	267°22.2	08:36
Jupiter	227°22.0	11:15
Saturn	345°42.3	03:23
Aug 16 Sun	SHA	Mer.pass
Venus	172°16.7	14:53
Mars	266°39.1	08:35
Jupiter	227°08.7	11:12
Saturn	345°44.0	03:19
Horizontal parallax		
Venus:		0.2
Mars:		0.1

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	325°23.5	136°50.2	S05°25.4	231°19.6	N23°42.0	192°18.8	N18°05.6	311°09.3	N03°16.3					
1	340°25.9	151°50.6	26.6	246°20.3	42.0	207°20.7	05.4	326°11.8	16.3					
2	355°28.4	166°51.0	27.8	261°20.9	42.0	222°22.7	05.3	341°14.4	16.2					
3	10°30.8	181°51.4	•• 29.0	276°21.6	•• 42.0	237°24.6	•• 05.1	356°16.9	•• 16.2					
4	25°33.3	196°51.8	30.2	291°22.3	42.0	252°26.5	05.0	11°19.4	16.1					
5	40°35.8	211°52.2	31.3	306°23.0	42.0	267°28.4	04.8	26°22.0	16.1					
6	55°38.2	226°52.6	S05°32.5	321°23.7	N23°41.7	282°30.3	N18°04.7	41°24.5	N03°16.1					
7	70°40.7	241°53.0	33.7	336°24.3	41.9	297°32.2	04.5	56°27.1	16.0					
8	85°43.2	256°53.4	34.9	351°25.0	41.9	312°34.1	04.4	71°29.6	16.0					
9	100°45.6	271°53.8	•• 36.1	6°25.7	•• 41.9	327°36.0	•• 04.3	86°32.1	•• 15.9					
10	115°48.1	286°54.2	37.3	21°26.4	41.9	342°38.0	04.1	101°34.7	15.9					
11	130°50.6	301°54.6	38.4	36°27.0	41.9	357°39.9	04.0	116°37.2	15.8					
12	145°53.0	316°55.0	S05°39.6	51°27.7	N23°41.9	12°41.8	N18°03.8	131°39.8	N03°15.8					
13	160°55.5	331°55.4	40.8	66°28.4	41.9	27°43.7	03.7	146°42.3	15.8					
14	175°57.9	346°55.8	42.0	81°29.1	41.8	42°45.6	03.5	161°44.9	15.7					
15	191°00.4	1°56.2	•• 43.2	96°29.7	•• 41.8	57°47.5	•• 03.4	176°47.4	•• 15.7					
16	206°02.9	16°56.6	44.3	111°30.4	41.8	72°49.4	03.3	191°50.0	15.6					
17	221°05.3	31°57.0	45.5	126°31.1	41.8	87°51.3	03.1	206°52.5	15.6					
18	236°07.8	46°57.4	S05°46.7	141°31.8	N23°41.8	102°53.2	N18°03.0	221°55.0	N03°15.5					
19	251°10.3	61°57.8	47.9	156°32.4	41.8	117°55.2	02.8	236°57.6	15.5					
20	266°12.7	76°58.2	49.1	171°33.1	41.7	132°57.1	02.7	252°00.1	15.4					
21	281°15.2	91°58.6	•• 50.2	186°33.8	•• 41.7	147°59.0	•• 02.5	267°02.7	•• 15.4					
22	296°17.7	106°59.0	51.4	201°34.5	41.7	163°00.9	02.4	282°05.2	15.4					
23	311°20.1	121°59.4	52.6	216°35.2	41.7	178°02.8	02.2	297°07.8	15.3					
Mer.pass. 02:18			ν 0.4' d 1.2' m -4.44			ν 0.7' d 0.0' m 1.28			ν 1.9' d 0.1' m -1.79			ν 2.5' d 0.0' m 0.55		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	326°22.6	136°59.8	S05°53.8	231°35.8	N23°41.7	193°04.7	N18°02.1	312°10.3	N03°15.3						
1	341°25.1	152°00.2	55.0	246°36.5	41.6	208°06.6	02.0	327°12.9	15.2						
2	356°27.5	167°00.6	56.1	261°37.2	41.6	223°08.5	01.8	342°15.4	15.2						
3	11°30.0	182°01.0	•• 57.3	276°37.9	•• 41.6	238°10.5	•• 01.7	357°17.9	•• 15.1						
4	26°32.4	197°01.4	58.5	291°38.6	41.6	253°12.4	01.5	12°20.5	15.1						
5	41°34.9	212°01.8	05°59.7	306°39.2	41.6	268°14.3	01.4	27°23.0	15.0						
6	56°37.4	227°02.2	S06°00.8	321°39.9	N23°41.5	283°16.2	N18°01.2	42°25.6	N03°15.0						
7	71°39.8	242°02.6	02.0	336°40.6	41.5	298°18.1	01.1	57°28.1	14.9						
8	86°42.3	257°03.1	03.2	351°41.3	41.5	313°20.0	00.9	72°30.7	14.9						
9	101°44.8	272°03.5	•• 04.6	6°42.0	•• 41.5	328°21.9	•• 00.8	87°33.2	•• 14.9						
10	116°47.2	287°03.9	05.5	21°42.6	41.5	343°23.8	00.7	102°35.8	14.8						
11	131°49.7	302°04.3	06.7	36°43.3	41.4	358°25.8	00.5	117°38.3	14.8						
12	146°52.2	317°04.7	S06°07.9	51°44.0	N23°41.4	13°27.7	N18°00.4	132°40.9	N03°14.7						
13	161°54.6	332°05.1	09.1	66°44.7	41.4	28°29.6	00.2	147°43.4	14.7						
14	176°57.1	347°05.5	10.2	81°45.4	41.4	43°31.5	18°00.1	162°45.9	•• 14.6						
15	191°59.6	2°06.0	•• 11.4	96°46.0	•• 41.4	58°33.4	17°59.9	177°48.5	•• 14.6						
16	207°02.0	17°06.4	12.6	111°46.7	41.3	73°35.3	15.9	192°51.0	14.5						
17	222°04.5	32°06.8	13.8	126°47.4	41.3	88°37.2	15.6	207°53.6	14.5						
18	237°06.9	47°07.2	S06°14.9	141°48.1	N23°41.3	103°39.2	N17°59.5	222°56.1	N03°14.4						
19	252°09.4	62°07.6	16.1	156°48.8	41.3	118°41.1	15.4	237°58.7	14.4						
20	267°11.9	77°08.0	17.3	171°49.4	41.2	133°43.0	14.9	253°01.2	14.4						
21	282°14.3	92°08.5	•• 18.4	186°50.1	•• 41.2	148°44.9	•• 59.1	268°03.8	•• 14.3						
22	297°16.8	107°08.9	19.6	201°50.8	41.2	163°46.8	58.9	283°06.3	14.3						
23	312°19.3	122°09.3	20.8	216°51.5	41.2	178°48.7	58.8	298°08.9	14.2						
Mer.pass. 02:14			ν 0.4' d 1.2' m -4.45			ν 0.7' d 0.0' m 1.28			ν 1.9' d 0.1' m -1.79			ν 2.5' d 0.0' m 0.55			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	327°21.7	137°09.7	S06°22.0	231°52.2	N23°41.1	193°50.6	N17°58.6	313°11.4	N03°14.2						
1	342°24.2	152°10.2	23.1	246°52.9	41.1	208°52.5	58.5	328°14.0	14.1						
2	357°26.7	167°10.6	24.3	261°53.5	41.1	223°54.5	58.3	343°16.5	14.1						
3	12°29.1	182°11.0	•• 25.5	276°54.2	•• 41.1	238°56.4	•• 58.2	358°19.1	•• 14.0						
4	27°31.6	197°11.4	26.6	291°54.9	41.0	253°58.3	58.1	13°21.6	14.0						
5	42°34.0	212°11.9	27.8	306°55.6	41.0	269°00.2	57.9	28°24.2	13.9						
6	57°36.5	227°12.3	S06°29.0	321°56.3	N23°41.0	284°02.1	N17°57.8	43°26.7	N03°13.9						
7	72°39.0	242°12.7	30.2	336°57.0	40.9	299°04.0	57.6	58°29.3	13.8						
8	87°41.4	257°13.1	31.3	351°57.6	40.9	314°05.9	57.5	73°31.8	13.8						
9	102°43.9	272°13.6	•• 32.5	6°58.3	•• 40.9	329°07.9	•• 57.3	88°34.4	•• 13.8						
10	117°46.4	287°14.0	33.7	21°59.0	40.8	344°09.8	57.2	103°36.9	13.7						
11	132°48.8	302°14.4	34.8	36°59.7	40.8	359°11.7	57.0	118°39.5	13.7						
12	147°51.3	317°14.9	S06°36.0	52°00.4	N23°40.8	14°13.6	N17°56.9	133°42.0	N03°13.6						
13	162°53.8	332°15.3	37.2	67°01.1	40.8	29°15.5	56.7	148°44.6	13.6						
14	177°56.2	347°15.7	38.3	82°01.7	40.7	44°17.4	56.6	163°47.1	13.5						
15	192°58.7	2°16.2	•• 39.5	97°02.4	•• 40.7	59°19.4	•• 56.5	178°49.7	•• 13.5						
16	208°01.2	17°16.6	40.7	112°03.1	40.7	74°21.3	56.3	193°52.2	13.4						
17	223°03.6	32°17.0	41.8	127°03.8	40.6	89°23.2	56.2	208°54.8	13.4						
18	238°06.1	47°17.5	S06°43.0	142°04.5	N23°40.6	104°25.1	N17°56.0	223°57.3	N03°13.3						
19	253°08.5	62°17.9	44.2	157°05.2	40.6	119°27.0	55.9	238°59.9	13.3						
20	268°11.0	77°18.3	45.3	172°05.9	40.5	134°28.9	55.5	254°02.4	13.2						
21	283°13.5	92°18.8	•• 46.5	187°06.5	•• 40.5	149°30.8	•• 55.6	269°05.0	•• 13.2						
22	298°15.9	107°19.2	47.7	202°07.2	40.5	164°32.8	55.4	284°07.5	13.1						
23	313°18.4	122°19.6	48.8	217°07.9	40.4	179°34.7	55.3	299°10.1	13.1						
Mer.pass. 02:10			ν 0.4' d 1.2' m -4.46			ν 0.7' d 0.0' m 1.28			ν 1.9' d 0.1' m -1.79			ν 2.5' d 0.0' m 0.54			

Stars			h			Sun			Moon		
	SHA	Dec	Mon	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.1	29°14.3	0	178°57.0	N13°28.6	129°54.3	14.0'	S10°54.0	14.2'	56.4'	
Ankaa	353°05.5	-42°09.4	1	193°57.1	27.8	144°27.3	14.0'	11°08.2	14.0'	56.4'	
Schedar	349°29.1	56°40.9	2	208°57.2	27.0	159°00.3	14.0'	11°22.2	14.0'	56.4'	
Diphda	348°45.7	-17°50.2	3	223°57.4	•• 26.2	173°33.3	14.0'	11°36.2	13.9'	56.3'	
Achernar	335°18.9	-57°05.7	4	238°57.5	25.4	188°06.2	14.0'	11°50.1	13.9'	56.3'	
Hamal	327°49.6	23°35.3	5	253°57.6	24.6	202°39.2	13.9'	12°04.0	13.8'	56.3'	
Polaris	313°17.1	89°22.3	6	268°57.8	N13°23.8	217°12.1	13.9'	S12°17.8	13.7'	56.2'	
Acamar	315°01.7	-40°11.5	7	283°57.9	23.0	231°45.1	13.9'	12°31.5	13.7'	56.2'	
Menkar	314°04.7	4°11.8	8	298°58.0	22.2	246°18.0	13.9'	12°45.8	13.6'	56.2'	
Mirfak	308°26.3	49°57.2	9	313°58.2	•• 21.4	260°50.9	13.9'	12°58.2	13.5'	56.1'	
Aldebaran	290°38.2	16°37.8	10	328°58.3	20.0	275°23.7	13.9'	13°12.3	13.4'	56.1'	
Rigel	281°02.7	-8°10.1	11	343°58.4	19.8	289°56.6	13.8'	13°25.7	13.4'	56.1'	
Capella	280°20.1	46°01.3	12	358°58.6	N13°19.0	304°29.4	13.8'	S13°39.1	13.3'	56.0'	
Bellatrix	278°21.6	6°22.5	13	13°58.7	18.2	319°02.2	13.8'	13°52.4	13.2'	56.0'	
Elath	278°03.3	28°37.7	14	26°58.9	17.4	333°35.0	13.8'	14°05.6	13.1'	56.0'	
Anilam	275°36.5	-1°11.0	15	43°59.0	•• 16.6	348°07.8	13.7'	14°18.7	13.1'	55.9'	
Betelgeuse	270°50.8	7°24.8	16	58°59.1	15.8	2°40.5	13.7'	14°31.8	12.9'	55.9'	
Canopus	263°52.2	-52°42.3	17	73°59.3	15.0	17°13.2	13.7'	14°44.7	13.0'	55.9'	
Sirius	258°25.3	-16°45.0	18	88°59.4	N13°14.2	31°45.9	13.7'	S14°57.7	12.8'	55.9'	
Adhara	255°05.1	-29°00.3	19	103°59.5	13.4	46°18.6	13.6'	15°10.5	12.7'	55.8'	
Procyon	244°49.7	5°09.5	20	118°59.7	12.6	60°51.3	13.6'	15°23.2	12.7'	55.8'	
Pollux	243°16.0	27°57.0	21	133°59.8	•• 11.8	75°23.9	13.6'	15°35.9	12.6'	55.8'	
Avior	234°14.8	-59°35.5	22	146°59.9	11.0	89°56.5	13.6'	15°48.5	12.5'	55.7'	
Suhail	222°45.8	-43°32.3	23	164°00.1	10.2	104°29.0	13.5'	16°01.0	12.4'	55.7'	
Miaplacidus	221°38.9	-69°49.5									

Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	328°20.9	137°20.1	S06°50.0	232°08.6	N23°40.4	194°36.6	N17°55.2	314°12.6	N03°13.0					
1	343°23.3	152°20.5	51.2	247°09.3	40.4	209°38.5	55.0	329°15.2	13.0					
2	358°25.8	167°21.0	52.3	262°10.0	40.3	224°40.4	54.9	344°17.7	13.0					
3	13°28.3	182°21.4	.. 53.5	277°10.7	.. 40.3	239°42.3	.. 54.7	359°20.3	.. 12.9					
4	26°30.7	197°21.8	54.6	292°11.4	40.3	254°44.2	54.6	14°22.8	12.9					
5	43°33.2	212°22.3	55.8	307°12.0	40.2	269°46.2	54.4	29°25.4	12.8					
6	58°35.7	227°22.7	S06°57.0	322°12.7	N23°40.2	284°48.1	N17°53.4	44°27.9	N03°12.8					
7	73°38.1	242°23.2	58.1	337°13.4	40.1	299°50.0	54.1	59°30.5	12.7					
8	88°40.6	257°23.6	06°59.3	352°14.1	40.1	314°51.9	54.0	74°33.1	12.7					
9	103°43.0	272°24.1	07°00.5	7°14.8	.. 40.1	329°53.8	.. 53.9	89°35.6	.. 12.6					
10	118°45.5	287°24.5	01.6	22°15.5	40.0	344°55.7	53.7	104°38.8	12.6					
11	133°48.0	302°25.0	02.8	37°16.2	40.0	359°57.7	53.6	119°40.7	12.5					
12	148°50.4	317°25.4	S07°03.9	52°16.9	N23°40.0	14°59.6	N17°53.4	134°43.3	N03°12.5					
13	163°52.9	332°25.9	05.1	67°17.5	39.9	30°01.5	53.3	149°45.8	12.4					
14	178°55.4	347°26.3	06.3	82°18.2	39.9	45°03.4	53.1	164°48.4	12.4					
15	193°57.8	2°26.8	.. 07.4	97°18.9	.. 39.9	60°05.3	.. 53.0	179°50.9	.. 12.3					
16	209°00.3	17°27.2	08.6	112°19.6	39.8	75°07.2	52.8	194°53.5	12.3					
17	224°02.8	32°27.7	09.7	127°20.3	39.8	90°09.2	52.7	209°56.0	12.2					
18	239°05.2	47°28.1	S07°10.9	142°21.0	N23°39.7	105°11.1	N17°52.5	224°58.6	N03°12.2					
19	254°07.7	62°28.6	12.0	157°21.7	39.7	120°13.0	52.4	240°01.1	12.1					
20	269°10.1	77°29.0	13.2	172°22.4	39.7	135°14.9	52.3	255°03.7	12.1					
21	284°12.6	92°29.5	.. 14.4	187°23.1	.. 39.6	150°16.8	.. 52.1	270°06.3	.. 12.0					
22	299°15.1	107°29.9	15.5	202°23.8	39.8	165°18.7	52.0	285°08.8	12.0					
23	314°17.5	122°30.4	16.7	217°24.4	39.5	180°20.7	51.8	300°11.4	11.9					
Mer.pass. 02:06			ν 0.4' d 1.2' m -4.47			ν 0.7' d 0.0' m 1.27			ν 1.9' d 0.1' m -1.79			ν 2.6' d 0.0' m 0.54		

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	329°20.0	137°30.8	S07°17.8	232°25.1	N23°39.5	195°22.6	N17°51.7	315°13.9	N03°11.9					
1	344°22.5	152°31.3	19.0	247°25.8	39.5	210°24.5	51.5	330°16.5	11.8					
2	359°24.9	167°31.8	20.1	262°26.5	39.4	225°26.4	51.4	345°19.0	11.8					
3	14°27.4	182°32.2	.. 21.3	277°27.2	.. 39.4	240°28.3	.. 51.2	0°21.6	.. 11.7					
4	29°29.9	197°32.7	22.5	292°27.9	39.3	255°30.2	51.1	15°24.1	11.7					
5	44°32.3	212°33.1	23.6	307°28.6	39.3	270°32.2	51.0	30°26.7	11.7					
6	59°34.8	227°33.6	S07°24.8	322°29.3	N23°39.2	285°34.1	N17°50.8	45°29.3	N03°11.6					
7	74°37.3	242°34.1	25.9	337°30.0	39.2	300°36.0	50.7	60°31.8	11.6					
8	89°39.7	257°34.5	27.1	352°30.7	39.2	315°37.9	50.5	75°34.4	11.5					
9	104°42.2	272°35.0	.. 28.2	7°31.4	.. 39.1	330°39.8	.. 50.4	90°36.9	.. 11.5					
10	119°44.6	287°35.5	29.4	22°32.1	39.1	345°41.7	50.2	105°39.9	.. 11.4					
11	134°47.1	302°35.9	30.5	37°32.7	39.0	0°43.7	50.1	120°42.0	11.4					
12	149°49.6	317°36.4	S07°31.7	52°33.4	N23°39.0	15°45.6	N17°49.9	135°46.4	N03°11.3					
13	164°52.0	332°36.9	32.8	67°34.1	38.9	30°47.5	49.8	150°47.2	11.3					
14	179°54.5	347°37.3	34.0	82°34.8	38.9	45°49.4	49.6	165°49.7	11.2					
15	194°57.0	2°37.8	.. 35.1	97°35.5	.. 38.8	60°51.3	.. 49.5	180°52.3	.. 11.2					
16	209°59.4	17°38.3	36.3	112°36.2	38.8	75°53.2	49.4	195°54.8	11.1					
17	225°01.9	32°38.7	37.4	127°36.9	38.7	90°55.2	49.2	210°57.4	11.1					
18	240°04.4	47°39.2	S07°38.6	142°37.6	N23°38.7	105°57.1	N17°49.1	225°59.9	N03°11.0					
19	255°06.8	62°39.7	39.7	157°38.3	38.6	120°59.0	48.9	241°02.5	11.0					
20	270°09.3	77°40.1	40.9	172°39.0	38.6	136°09.0	48.8	256°05.1	10.9					
21	285°11.8	92°40.6	.. 42.0	187°39.7	.. 38.6	151°02.8	.. 48.6	271°07.6	.. 10.9					
22	300°14.2	107°41.1	43.2	202°40.4	38.5	166°04.8	48.5	286°10.2	10.8					
23	315°16.7	122°41.6	44.3	217°41.1	38.5	181°06.7	48.3	301°12.7	10.8					
Mer.pass. 02:02			ν 0.5' d 1.2' m -4.49			ν 0.7' d 0.0' m 1.27			ν 1.9' d 0.1' m -1.79			ν 2.6' d 0.0' m 0.53		

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	330°19.1	137°42.0	S07°45.5	232°41.8	N23°38.4	196°08.6	N17°48.2	316°15.3	N03°10.7					
1	345°21.6	152°42.5	46.6	247°42.5	38.4	211°10.5	48.0	331°17.9	10.7					
2	0°24.1	167°43.0	47.8	262°43.2	38.3	226°12.4	47.9	346°20.4	10.6					
3	15°26.5	182°43.5	.. 48.9	277°43.9	.. 38.3	241°14.3	.. 47.8	1°23.0	.. 10.6					
4	30°29.0	197°44.0	50.1	292°44.6	38.2	256°16.3	47.6	16°25.5	10.5					
5	45°31.5	212°44.4	51.2	307°45.2	38.2	271°18.2	47.5	31°28.1	10.5					
6	60°33.9	227°44.9	S07°52.4	322°45.9	N23°38.1	286°20.1	N17°47.3	46°30.7	N03°10.4					
7	75°36.4	242°45.4	53.5	337°46.6	38.1	301°22.0	47.2	61°33.2	10.4					
8	90°38.9	257°45.9	54.7	352°47.3	38.0	316°23.9	47.0	76°35.8	10.3					
9	105°41.3	272°46.4	.. 55.8	7°48.0	.. 37.9	331°25.9	.. 46.9	91°38.3	.. 10.3					
10	120°43.8	287°46.8	57.0	22°48.7	37.9	346°27.8	46.7	106°40.9	10.2					
11	135°46.3	302°47.3	58.1	37°49.4	37.8	1°29.7	46.6	121°43.5	10.2					
12	150°48.7	317°47.8	S07°59.2	52°50.1	N23°37.8	16°31.6	N17°46.4	136°46.0	N03°10.1					
13	165°51.2	332°48.3	08°00.4	67°50.8	37.7	31°33.5	46.3	151°48.6	10.1					
14	180°53.6	347°48.8	10.5	82°51.5	37.7	46°35.5	46.2	166°51.1	10.0					
15	195°56.1	2°49.3	.. 02.7	97°52.2	.. 37.6	61°37.4	.. 46.0	181°53.7	.. 10.0					
16	210°58.6	17°49.8	03.8	112°52.9	37.6	76°39.3	45.9	196°56.3	09.9					
17	226°01.0	32°50.2	05.0	127°53.6	37.5	91°41.2	45.7	211°58.8	09.9					
18	241°03.5	47°50.7	S08°06.1	142°54.3	N23°37.5	106°43.1	N17°45.6	227°01.4	N03°09.8					
19	256°06.0	62°51.2	07.2	157°55.0	37.4	121°45.1	45.4	242°03.9	09.7					
20	271°08.4	77°51.7	08.4	172°55.7	37.4	136°47.0	45.3	257°06.5	09.7					
21	286°10.9	92°52.2	.. 09.5	187°56.4	.. 37.3	151°48.9	.. 45.1	272°09.1	.. 09.6					
22	301°13.4	107°52.7	10.7	202°57.1	37.2	166°50.8	45.0	287°11.6	09.6					
23	316°15.8	122°53.2	11.8	217°57.8	37.2	181°52.7	44.8	302°14.2	09.5					
Mer.pass. 01:58			ν 0.5' d 1.1' m -4.50			ν 0.7' d 0.0' m 1.27			ν 1.9' d 0.1' m -1.79			ν 2.6' d 0.1' m 0.53		

Stars			h	Sun			Moon				
	SHA	Dec	Thu	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.1	29°14.3	0	179°07.1	N12°30.3	96°18.6	11.6'	S24°18.3	7.5'	54.6'	
Ankaa	353°05.5	-42°09.4	1	194°07.2	29.5	110°49.1	11.5'	24°25.8	7.4'	54.6'	
Schedar	349°29.1	56°40.9	2	209°07.4	28.7	125°19.6	11.5'	24°33.2	7.3'	54.5'	
Diphda	348°45.7	-17°50.2	3	224°07.5	.. 27.8	139°50.1	11.4'	24°40.5	7.2'	54.5'	
Achernar	335°18.9	-57°05.7	4	239°07.7	27.0	154°20.5	11.4'	24°47.7	7.0'	54.5'	
Hamal	327°49.5	23°35.3	5	254°07.8	26.2	168°50.9	11.3'	24°54.7	6.9'	54.5'	
Polaris	313°15.3	89°22.3	6	269°08.0	N12°25.4	183°21.2	11.3'	S25°01.6	6.8'	54.5'	
Acamar	315°10.7	-40°11.5	7	284°08.1	24.5	197°51.5	11.3'	25°08.4	6.7'	54.5'	
Menkar	314°04.7	4°11.8	8	299°08.3	23.7	212°21.8	11.2'	25°15.1	6.6'	54.5'	
Mirfak	308°26.3	49°57.2	9	314°08.4	.. 22.9	226°52.0	11.2'	25°21.7	6.4'	54.4'	
Aldebaran	290°38.1	16°33.8	10	329°08.6	22.1	241°22.2	11.1'	25°28.1	6.4'	54.4'	
Rigel	281°02.7	-8°10.1	11	344°08.7	21.2	255°52.3	11.1'	25°34.5	6.2'	54.4'	
Capella	280°20.1	46°01.3	12	359°08.9	N12°20.4	270°22.4	11.0'	S25°40.7	6.1'	54.4'	
Bellatrix	278°21.6	6°22.5	13	14°09.0	19.6	284°52.4	11.0'	25°46.8	5.9'	54.4'	
Elath	278°00.3	28°37.7	14	29°09.2	18.8	299°22.4	11.0'	25°52.7	5.9'	54.4'	
Anilam	275°36.5	-1°11.0	15	44°09.3	.. 17.9	313°52.4	10.9'	25°58.6	5.7'	54.4'	
Betelgeuse	270°50.8	7°24.8	16	59°09.5	17.1	328°22.3	10.9'	26°04.3	5.6'	54.4'	
Canopus	263°52.1	-52°42.3	17	74°09.6	16.3	342°52.2	10.8'	26°09.9	5.4'	54.3'	
Sirius	258°25.3	-16°45.0	18	89°09.8	N12°15.4	357°22.0	10.8'	S26°15.3	5.4'	54.3'	
Adhara	255°05.1	-29°00.3	19	104°09.9	14.6	11°51.8	10.8'	26°20.7	5.2'	54.3'	
Procyon	244°49.7	5°09.5	20	119°10.1	13.8	26°21.6	10.7'	26°25.9	5.1'	54.3'	
Pollux	243°16.0	27°57.7	21	134°10.2	.. 13.0	40°51.3	10.7'	26°31.0	4.9'	54.3'	
Avior	234°14.8	-59°35.5	22	149°10.2	12.1	55°21.0	10.7'	26°35.9	4.9'	54.3'	
Suhail	222°45.8	-43°32.3	23	164°10.5	11.3	69°50.7	10.6'	26°40.8	4.7'	54.3'	
Miaplacidus	221°38.9	-69°49.5									
Alphard	217°46.8	-8°46.4									

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	331°18.3	137°53.7	S08°12.9	232°58.5	N23°37.1	196°54.7	N17°44.7	317°16.8	N03°09.5					
1	346°20.7	152°54.2	14.1	247°59.2	37.1	211°56.6	44.6	332°19.3	09.4					
2	1°23.2	167°54.7	15.2	262°59.9	37.0	226°58.5	44.4	347°21.9	09.4					
3	16°25.7	182°55.2	16.4	278°00.6	37.0	242°00.4	44.3	2°24.4	09.3					
4	31°28.1	197°55.7	17.5	293°01.3	36.9	257°02.3	44.1	17°27.0	09.3					
5	46°30.6	212°56.2	18.6	308°02.0	36.8	272°04.3	44.0	32°29.6	09.2					
6	61°33.1	227°56.7	S08°19.8	323°02.7	N23°36.8	287°06.2	N17°43.0	47°32.1	N03°09.2					
7	76°35.5	242°57.2	20.9	338°03.4	36.7	302°08.1	43.7	62°34.7	09.1					
8	91°38.0	257°57.7	22.0	353°04.1	36.7	317°10.0	43.5	77°37.3	09.1					
9	106°40.5	272°58.2	23.2	8°04.8	36.6	332°11.9	43.4	92°39.8	09.0					
10	121°42.9	287°58.7	24.3	23°05.5	36.5	347°13.9	43.2	107°42.4	09.0					
11	136°45.4	302°59.2	25.4	38°06.2	36.5	2°15.8	43.1	122°44.9	08.9					
12	151°47.9	317°59.7	S08°26.6	53°06.9	N23°36.4	17°17.7	N17°43.0	137°47.5	N03°08.9					
13	166°50.3	333°00.2	27.7	68°07.6	36.4	32°19.6	42.8	152°50.1	08.8					
14	181°52.8	348°00.7	28.9	83°08.3	36.3	47°21.5	42.7	167°52.6	08.8					
15	196°55.2	3°01.2	30.0	98°09.0	36.2	62°23.5	42.5	182°55.2	08.7					
16	211°57.7	18°01.7	31.1	113°09.7	36.2	77°25.4	42.4	197°57.8	08.7					
17	227°00.2	33°02.2	32.3	128°10.4	36.1	92°27.3	42.2	213°00.3	08.6					
18	242°02.6	48°02.7	S08°33.4	143°11.1	N23°36.1	107°29.2	N17°42.1	228°02.9	N03°08.6					
19	257°05.1	63°03.2	34.5	158°11.8	36.0	122°31.1	41.9	243°05.5	08.5					
20	272°07.6	78°03.7	35.7	173°12.5	35.9	137°33.1	41.8	258°08.0	08.5					
21	287°10.0	93°04.2	36.8	188°13.2	35.9	152°35.0	41.6	273°10.6	08.4					
22	302°12.5	108°04.7	37.9	203°13.9	35.8	167°36.9	41.5	288°13.2	08.4					
23	317°15.0	123°05.3	39.0	218°14.6	35.7	182°38.8	41.4	303°15.7	08.3					
Mer.pass. 01:54 ν 0.5' d 1.1' m -4.51 ν 0.7' d 0.1' m 1.27 ν 1.9' d 0.1' m -1.79 ν 2.6' d 0.1' m 0.52														

Mon	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	332°17.4	138°05.8	S08°40.2	233°15.3	N23°35.7	197°40.8	N17°41.2	318°18.3
1	347°19.9	153°06.3	41.3	248°16.0	35.6	212°42.7	41.1	333°20.9
2	2°22.4	168°06.8	42.4	263°16.8	35.5	227°44.6	40.9	348°23.4
3	17°24.8	183°07.3	43.6	278°17.5	35.5	242°46.5	40.8	3°26.0
4	32°27.3	198°07.8	44.7	293°18.2	35.4	257°48.4	40.6	18°28.6
5	47°29.7	213°08.4	45.8	308°18.9	35.4	272°50.4	40.5	33°31.1
6	62°32.2	228°08.9	S08°47.0	323°19.6	N23°35.3	287°52.3	N17°40.3	48°33.7
7	77°34.7	243°09.4	48.1	338°20.3	35.2	302°54.2	40.2	63°36.3
8	92°37.1	258°09.9	49.2	353°21.0	35.2	317°56.1	40.0	78°38.8
9	107°39.6	273°10.4	50.3	8°21.7	35.1	332°58.0	39.9	93°41.4
10	122°42.1	288°11.0	51.5	23°22.4	35.0	348°00.0	39.8	108°44.0
11	137°44.5	303°11.5	52.6	38°23.1	35.0	3°01.9	39.6	123°46.5
12	152°47.0	318°12.0	S08°53.7	53°23.8	N23°34.8	18°03.8	N17°39.5	138°49.1
13	167°49.5	333°12.5	54.8	68°24.5	34.9	33°05.7	39.3	153°51.7
14	182°51.9	348°13.0	56.0	83°25.2	34.7	48°07.7	39.2	168°54.2
15	197°54.4	3°13.6	57.1	98°25.9	34.7	63°09.6	39.1	183°56.8
16	212°56.9	18°14.1	58.2	113°26.6	34.6	78°11.5	38.9	198°59.4
17	227°59.3	33°14.6	S08°59.3	128°27.3	34.5	93°13.4	38.7	214°01.9
18	243°01.8	48°15.2	S09°00.5	143°28.0	N23°34.5	108°15.3	N17°38.6	229°04.5
19	258°04.2	63°15.7	01.6	158°28.8	34.4	123°17.3	38.4	244°07.1
20	273°06.7	78°16.2	02.7	173°29.5	34.3	138°19.2	38.3	259°09.6
21	288°09.2	93°16.7	03.8	188°30.2	34.3	153°21.1	38.1	274°12.2
22	303°11.6	108°17.3	04.9	203°30.9	34.2	168°23.0	38.0	289°14.8
23	318°14.1	123°17.8	06.1	218°31.6	34.1	183°25.0	37.9	304°17.3
Mer.pass. 01:51 ν 0.5' d 1.1' m -4.52 ν 0.7' d 0.1' m 1.26 ν 1.9' d 0.1' m -1.79 ν 2.6' d 0.1' m 0.52								

Tue	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	333°16.6	138°18.3	S09°07.2	233°32.3	N23°34.0	198°26.9	N17°37.7	319°19.9
1	348°19.0	153°18.9	08.3	248°33.0	34.0	213°28.8	37.6	334°22.5
2	3°21.5	168°19.4	09.4	263°33.7	33.9	228°30.7	37.4	349°25.0
3	18°24.0	183°19.9	10.5	278°34.4	33.8	243°32.7	37.3	4°27.6
4	33°26.4	198°20.5	11.7	293°35.1	33.8	258°34.6	37.1	19°30.2
5	48°28.9	213°21.0	12.8	308°35.8	33.7	273°36.5	37.0	34°32.7
6	63°31.3	228°21.6	S09°13.9	323°36.5	N23°33.6	288°38.4	N17°36.8	49°35.3
7	78°33.8	243°22.1	15.0	338°37.3	33.5	303°40.4	36.7	64°37.9
8	93°36.3	258°22.6	16.1	353°38.0	33.5	318°42.3	36.5	79°40.5
9	108°38.7	273°23.2	17.3	8°38.7	33.4	333°44.2	36.4	94°43.0
10	123°41.2	288°23.7	18.4	23°39.4	33.3	348°46.1	36.3	109°45.6
11	138°43.7	303°24.3	19.5	38°40.1	33.2	3°48.0	36.1	124°48.2
12	153°46.1	318°24.8	S09°20.6	53°40.6	N23°33.2	18°50.0	N17°36.0	139°50.7
13	168°48.6	333°25.4	21.7	68°41.5	33.1	33°51.9	35.8	154°53.3
14	183°51.1	348°25.9	22.8	83°42.2	33.0	48°53.8	35.7	169°55.9
15	198°53.5	3°26.4	24.0	98°42.9	32.9	63°55.7	35.5	184°58.5
16	213°56.0	18°27.0	25.1	113°43.7	32.9	78°57.7	35.4	200°01.0
17	228°58.5	33°27.5	26.2	128°44.4	32.8	93°59.6	35.2	215°03.6
18	244°00.9	48°28.1	S09°27.3	143°45.1	N23°32.7	109°05.1	N17°35.1	230°06.2
19	259°03.4	63°28.6	28.4	158°45.8	32.6	124°03.4	34.9	245°08.7
20	274°05.8	78°29.2	29.6	173°46.5	32.5	139°05.4	34.8	260°11.3
21	289°08.3	93°29.7	30.5	188°47.2	32.5	154°07.3	34.6	275°13.9
22	304°10.8	108°30.3	31.7	203°47.9	32.4	169°09.2	34.5	290°16.5
23	319°13.2	123°30.8	32.9	218°48.6	32.3	184°11.1	34.4	305°19.0
Mer.pass. 01:47 ν 0.5' d 1.1' m -4.53 ν 0.7' d 0.1' m 1.26 ν 1.9' d 0.1' m -1.80 ν 2.6' d 0.1' m 0.51								

Stars	SHA	Dec
Alpheratz	357°33.1	29°14.3
Ankaa	353°05.5	-42°09.4
Schedar	349°29.1	56°40.1
Diphda	348°45.7	-17°50.2
Achernar	335°18.8	-57°05.7
Hamal	327°49.5	23°35.4
Polaris	313°13.6	89°22.3
Acamar	315°10.6	-40°11.5
Menkar	314°04.7	4°11.8
Mirafax	308°26.2	49°57.2
Aldebaran	290°38.1	16°33.8
Rigel	281°02.7	-8°10.1
Capella	280°20.0	46°01.3
Bellatrix	278°21.5	6°22.5
Elnath	278°00.3	28°37.7
Alnilam	275°36.5	-1°11.0
Betelgeuse	270°50.8	7°24.8
Canopus	263°52.1	-52°42.3
Sirius	268°25.3	-16°45.0
Adhara	255°05.1	-29°00.3
Procyon	244°49.7	5°09.5
Pollux	243°16.0	27°57.7
Avior	234°14.8	-59°35.5
Suhail	222°45.8	-43°32.3
Miaplacidus	221°38.9	-69°49.5
Alphard	217°46.7	-8°46.4
Regulus	207°33.3	11°50.3
Dubhe	193°40.0	61°36.5
Denebola	182°23.9	14°25.5
Gienah	175°42.5	-17°41.4
Acrux	172°59.1	-63°15.0
Gacrux	171°50.6	-57°15.9
Alloth	166°12.2	-55°49.1
Spica	158°21.1	-11°18.0
Alkaid	152°51.2	49°11.0
Hadar	148°34.4	-60°30.3
Menkent	147°56.2	-36°30.2
Arcturus	145°46.8	19°02.8
Rigel Kent.	139°38.7	-60°57.0
Kochab	137°20.2	74°03.0
Zuben 'ubi	136°54.6	-16°09.2
Alphecca	126°02.6	26°37.7
Antares	112°14.1	-26°29.5
Atria	107°06.9	-69°04.7
Sabik	102°01.1	-15°45.4
Shaula	96°08.4	-37°07.5
Rasalhague	95°57.2	12°32.6
Eltanin	90°41.3	51°29.6
Kaus Aus.	83°30.5	-34°22.3
Vega	80°32.0	38°48.7
Nunki	75°45.8	-26°15.8
Altair	61°58.4	8°56.5
Peacock	53°03.1	-56°38.9
Deneb	49°24.5	-45°22.7
Enif	33°37.1	10°00.0
Al Na'ir	27°30.7	-46°49.8
Fomalhaut	15°12.7	-29°28.7
Scheat	13°43.5	28°13.8
Markab	13°28.2	15°21.1

Aug 23 Sun	SHA	Mer.pass
Venus	166°35.4	14.48
Mars	261°40.2	08.28
Jupiter	225°36.4	10.51
Saturn	345°58.5	02.50

Aug 24 Mon	SHA	Mer.pass
Venus	165°48.4	14.47
Mars	260°57.9	08.27
Jupiter	225°23.3	10.48
Saturn	346°00.9	02.46

Aug 25 Tue	SHA	Mer.pass
Venus	165°01.8	14.46
Mars	260°15.7	08.25
Jupiter	225°10.3	10.45
Saturn	346°03.3	02.42

Horizontal parallax	
Venus:	0.2

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	334°15.7	138°31.4	S09°34.0	233°49.4	N23°32.2	199°13.1	N17°34.2	320°21.6	N03°05.7					
1	349°18.2	153°32.0	35.1	248°50.1	32.2	214°15.0	34.1	335°24.2	05.6					
2	4°20.6	168°32.5	36.2	263°50.8	32.1	229°16.9	33.9	350°26.7	05.6					
3	19°23.1	183°33.1	•• 37.3	278°51.5	•• 32.0	244°18.8	•• 33.8	5°29.3	•• 05.5					
4	34°25.6	198°33.6	38.4	293°52.2	31.9	259°20.8	33.6	20°31.9	05.4					
5	49°28.0	213°34.2	39.5	308°52.9	31.8	274°22.7	33.5	35°34.5	05.4					
6	64°30.5	228°34.7	S09°40.6	323°53.6	N23°31.8	289°24.6	N17°33.0	50°37.0	N03°05.3					
7	79°33.0	243°35.3	41.7	338°54.3	31.7	304°26.5	33.2	65°39.6	05.3					
8	94°35.4	258°35.9	42.8	353°55.1	31.6	319°28.5	33.0	80°42.2	05.2					
9	109°37.9	273°36.4	•• 43.9	8°55.8	•• 31.5	334°30.4	•• 32.9	95°44.8	•• 05.2					
10	124°40.3	288°37.0	45.0	23°56.5	31.4	349°32.3	32.7	110°47.3	05.1					
11	139°42.8	303°37.6	46.2	38°57.2	31.3	4°34.2	32.6	125°49.9	05.1					
12	154°45.3	318°38.1	S09°47.3	53°57.9	N23°31.3	19°36.2	N17°32.5	140°52.5	N03°05.0					
13	169°47.7	333°38.7	48.4	68°58.6	31.2	34°38.1	32.3	155°55.0	04.9					
14	184°50.2	348°39.2	49.5	83°59.4	31.1	49°40.0	32.2	170°57.6	04.9					
15	199°52.7	3°39.8	•• 50.6	99°00.1	•• 31.0	64°41.9	•• 32.0	186°00.2	•• 04.8					
16	214°55.1	18°40.4	51.7	114°00.8	30.9	79°43.9	31.9	201°02.8	04.8					
17	229°57.6	33°41.0	52.8	129°01.5	30.8	94°45.8	31.7	216°05.3	04.7					
18	245°00.1	48°41.5	S09°53.9	144°02.2	N23°30.8	109°47.7	N17°31.6	231°07.9	N03°04.7					
19	260°02.5	63°42.1	55.0	159°02.9	30.7	124°49.7	31.4	246°10.5	04.6					
20	275°05.0	78°42.7	56.1	174°03.7	30.6	139°51.6	31.3	261°13.1	04.5					
21	290°07.5	93°43.2	•• 57.2	189°04.4	•• 30.5	154°53.5	•• 31.1	276°15.6	•• 04.5					
22	305°09.9	108°43.8	58.3	204°05.1	30.4	169°55.4	31.0	291°18.2	04.4					
23	320°12.4	123°44.4	59.4	219°05.8	30.3	184°57.4	30.8	306°20.8	04.4					
Mer.pass. 01:43			ν 0.6' d 1.1' m -4.55	ν 0.7' d 0.1' m 1.26	ν 1.9' d 0.1' m -1.80	ν 2.6' d 0.1' m 0.51								

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	335°14.8	138°45.0	S10°00.5	234°06.5	N23°30.3	199°59.3	N17°30.7	321°23.4	N03°04.3						
1	350°17.3	153°45.5	01.6	249°07.2	30.2	215°01.2	30.6	336°25.9	04.3						
2	5°19.8	168°46.1	02.7	264°08.0	30.1	230°03.1	30.4	351°28.5	04.2						
3	20°22.2	183°46.7	•• 03.8	279°08.7	•• 30.0	245°05.1	•• 30.3	6°31.1	•• 04.2						
4	35°24.7	198°47.3	04.9	294°09.4	29.9	260°07.0	30.1	21°33.7	04.1						
5	50°27.2	213°47.9	06.0	309°10.1	29.8	275°08.9	30.0	36°36.2	04.0						
6	65°29.6	228°48.4	S10°07.1	324°10.8	N23°29.7	290°10.8	N17°29.8	51°38.8	N03°04.0						
7	80°32.1	243°49.0	08.2	339°11.6	29.6	305°12.8	29.7	66°41.4	03.9						
8	95°34.6	258°49.6	09.3	354°12.3	29.6	320°14.7	29.5	81°44.0	03.8						
9	110°37.0	273°50.2	•• 10.4	9°13.0	•• 29.5	335°16.6	•• 29.4	96°46.6	•• 03.8						
10	125°39.5	288°50.8	11.5	24°13.7	29.4	350°18.6	29.2	111°49.1	03.8						
11	140°41.9	303°51.4	12.6	39°14.4	29.3	5°20.5	29.1	126°51.7	03.7						
12	155°44.4	318°51.9	S10°13.7	54°15.1	N23°29.2	20°22.4	N17°29.0	141°54.3	N03°03.6						
13	170°46.9	333°52.5	14.7	69°15.9	29.1	35°24.3	28.8	156°56.9	03.6						
14	185°49.3	348°53.1	15.8	84°16.6	28.9	50°26.3	28.7	171°59.4	03.5						
15	200°51.8	3°53.7	•• 16.9	99°17.3	•• 28.9	65°28.2	•• 28.5	187°02.0	•• 03.5						
16	215°54.3	18°54.3	18.0	114°18.0	28.8	80°30.1	28.4	202°04.6	03.4						
17	230°56.7	33°54.9	19.1	129°18.8	28.7	95°32.0	28.2	217°07.2	03.4						
18	245°59.2	48°55.5	S10°20.2	144°19.5	N23°28.6	110°34.0	N17°28.1	232°09.7	N03°03.3						
19	261°01.7	63°56.1	21.3	159°20.2	28.6	125°35.9	27.9	247°12.3	03.2						
20	276°04.1	78°56.7	22.4	174°20.9	28.5	140°37.8	27.8	262°14.9	03.2						
21	291°06.6	93°57.3	•• 23.5	189°21.6	•• 28.4	155°39.8	•• 27.6	277°17.5	•• 03.1						
22	306°09.1	108°57.9	24.6	204°22.4	28.3	170°41.7	27.5	292°20.1	03.1						
23	321°11.5	123°58.5	25.7	219°23.1	28.2	185°43.6	27.3	307°22.6	03.0						
Mer.pass. 01:39			ν 0.6' d 1.1' m -4.56	ν 0.7' d 0.1' m 1.26	ν 1.9' d 0.1' m -1.80	ν 2.6' d 0.1' m 0.50									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	336°14.0	138°59.1	S10°26.8	234°23.8	N23°28.1	200°45.5	N17°27.2	322°25.2	N03°03.0						
1	351°16.4	153°59.7	27.8	249°24.5	28.0	215°47.5	27.1	337°27.8	02.9						
2	6°18.9	169°00.3	28.9	264°25.2	27.9	230°49.4	26.9	352°30.4	02.8						
3	21°21.4	184°00.9	•• 30.0	279°26.0	•• 27.8	245°51.3	•• 26.8	7°33.0	•• 02.8						
4	36°23.8	199°01.5	31.1	294°26.7	27.7	260°53.3	26.6	22°35.5	02.7						
5	51°26.3	214°02.1	32.2	309°27.4	27.6	275°55.2	26.5	37°38.1	02.7						
6	66°28.8	229°02.7	S10°33.3	324°28.1	N23°27.7	290°57.1	N17°26.3	52°40.7	N03°02.6						
7	81°31.2	244°03.3	34.4	339°28.9	27.4	305°59.0	26.2	67°43.3	02.6						
8	96°33.7	259°03.9	35.5	354°29.9	26.5	321°01.0	26.0	82°45.8	02.5						
9	111°36.2	274°04.5	•• 36.5	9°30.3	•• 27.2	336°02.9	•• 25.9	97°48.4	•• 02.4						
10	126°38.6	289°05.1	37.6	24°31.0	27.1	351°04.8	25.6	112°51.0	02.4						
11	141°41.1	304°05.7	38.7	39°31.8	27.0	6°06.8	25.7	127°53.6	02.3						
12	156°43.5	319°06.3	S10°39.8	54°32.5	N23°26.9	21°08.7	N17°25.4	142°56.2	N03°02.3						
13	171°46.0	334°06.9	40.9	69°33.2	26.9	36°10.6	25.3	157°58.7	02.2						
14	186°48.5	349°07.5	42.0	84°33.9	26.8	51°12.6	25.2	173°01.3	02.1						
15	201°50.9	4°08.1	•• 43.0	99°34.7	•• 26.7	66°14.5	•• 25.0	188°03.9	•• 02.2						
16	216°53.4	19°08.7	44.1	114°35.4	26.6	81°16.4	24.9	203°06.5	02.0						
17	231°55.9	34°09.4	45.2	129°36.1	26.5	96°18.3	24.7	218°09.1	02.0						
18	246°58.3	49°10.0	S10°46.3	144°36.8	N23°26.4	111°20.3	N17°24.6	233°11.7	N03°01.9						
19	262°00.8	64°10.6	47.4	159°37.6	26.3	126°22.2	24.4	248°14.2	01.9						
20	277°03.3	79°11.2	48.4	174°38.3	26.2	141°24.1	24.3	263°16.8	01.8						
21	292°05.7	94°11.8	•• 49.5	189°39.0	•• 26.1	156°26.1	•• 24.1	278°19.4	•• 01.7						
22	307°08.2	109°12.4	50.6	204°39.7	26.0	171°28.0	24.0	293°22.0	01.7						
23	322°10.7	124°13.1	51.7	219°40.5	25.9	186°29.9	23.8	308°24.6	01.6						
Mer.pass. 01:35			ν 0.6' d 1.1' m -4.57	ν 0.7' d 0.1' m 1.25	ν 1.9' d 0.1' m -1.80	ν 2.6' d 0.1' m 0.50									

Stars			h			Sun			Moon		
	SHA	Dec	Week	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.0	29°14.3	0	179°30.5	N10°28.5	23°41.1	12.6'	S20°17.9	10.6'	55.0'	
Ankaa	353°05.4	-42°09.4	1	194°30.6	27.7	38°12.7	12.7'	20°07.3	10.6'	55.0'	
Schedar	349°29.0	56°41.0	2	209°30.8	26.8	52°44.3	12.7'	19°56.7	10.7'	55.1'	
Diphda	348°45.7	-17°50.2	3	224°31.0	•• 25.9	67°16.1	12.8'	19°46.0	10.8'	55.1'	
Achernar	335°18.8	-57°05.7	4	239°31.2	25.1	81°47.8	12.8'	19°35.2	10.9'	55.1'	
Hamal	327°49.5	23°35.4	5	254°31.4	24.2	96°19.6	12.9'	19°24.3	11.0'	55.1'	
Polaris	313°12.0	89°22.3	6	269°31.5	N10°23.3	110°51.5	12.9'	S19°13.3	11.1'	55.1'	
Acamar	315°10.6	-40°11.5	7	284°31.7	22.5	125°23.4	12.9'	19°02.2	11.2'	55.2'	
Menkara	314°04.6	-4°11.8	8	299°31.9	21.6	130°55.3	13.0'	18°51.0	11.3'	55.2'	
Mirafaz	308°26.2	49°57.2	9	314°32.1	•• 20.7	154°27.3	13.0'	18°39.7	11.3'	55.2'	
Aldebaran	299°38.1	16°33.8	10	329°32.2	19.9	168°59.3	13.1'	18°28.4	11.5'	55.2'	
Rigel	281°02.6	-8°10.1	11	344°32.4	19.0	183°31.4	13.1'	18°16.9	11.6'	55.2'	
Capella	280°20.0	46°01.3	12	359°32.6	N10°18.1	198°03.5	13.2'	S18°05.3	11.6'	55.2'	
Bellatrix	278°21.5	6°22.5	13	14°32.8	17.2	212°35.7	13.2'	17°53.7	11.7'	55.3'	
Elnath	278°00.3	28°37.8	14	26°33.0	16.4	227°07.9	13.3'	17°42.0	11.8'	55.3'	
Anilam	275°36.5	-1°10.9	15	44°33.1	•• 15.5	241°40.2	13.3'	17°30.2	11.9'	55.3'	
Betelgeuse	260°50.8	7°24.8	16	55°33.3	14.6	256°12.4	13.3'	17°18.3	12.0'	55.3'	
Canopus	263°52.1	-52°42.3	17	74°33.5	13.8	270°44.8	13.4'	17°06.3	12.0'	55.3'	
Sirius	258°25.2	-16°45.0	18	89°33.7	N10°12.9	285°17.2	13.4'	S16°54.3	12.2'	55.4'	
Adhara	255°00.5	-29°00.3	19	104°33.8	12.0	299°49.6	13.5'	16°42.1	12.2'	55.4'	
Procyon	244°49.7	5°09.5	20	119°34.0	11.1	314°22.0	13.5'	16°29.9	12.3'	55.4'	
Pollux	234°15.9	27°57.7	21	134°34.2	•• 10.3	328°54.5	13.5'	16°17.6	12.4'	55.4'	
Avior	224°14.8	-59°35.5	22	149°34.4	09.4	343°27.1	13.6'	16°05.2	12.5'	55.5'	
Suhail	232°45.7	-43°32.3	23	164°34.6	08.5	357°59.6	13.6'	15°52.7	12.5'	55.5'	
Miaplacidus	221°38.9	-69°49.5									
Alphard	217°46.7	-8°46.4									

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	337°13.1	139°13.7	S10°52.7	234°41.2	N23°25.8	201°31.9	N17°23.7	323°27.1	N03°01.6					
1	352°15.6	154°14.3	53.8	249°41.9	25.7	216°33.8	23.5	338°29.7	01.5					
2	7°18.0	169°14.9	54.9	264°42.7	25.6	231°35.7	23.4	353°32.3	01.5					
3	22°20.5	184°15.6	•• 56.0	279°43.4	•• 25.4	246°37.6	•• 23.2	8°34.9	•• 01.4					
4	37°23.0	199°16.2	57.1	294°44.1	25.5	261°39.6	23.1	23°37.5	01.3					
5	52°25.4	214°16.8	58.1	309°44.8	25.3	276°41.5	23.8	38°40.0	01.3					
6	67°27.9	229°17.4	S10°59.2	324°45.6	N23°25.2	291°43.4	N17°22.8	53°42.6	N03°01.2					
7	82°30.4	244°18.1	11°00.3	339°46.3	25.1	360°45.4	22.7	68°45.2	01.2					
8	97°32.8	259°18.7	01.4	354°47.0	24.9	321°47.3	22.5	83°47.8	01.1					
9	112°35.3	274°19.3	•• 02.4	9°47.8	•• 24.8	336°49.2	•• 22.4	98°50.4	•• 01.0					
10	127°37.8	289°20.0	03.5	24°48.5	24.7	351°51.2	22.2	113°53.0	01.0					
11	142°40.2	304°20.6	04.6	39°49.2	24.6	6°53.1	22.1	128°55.5	00.9					
12	157°42.7	319°21.2	S11°05.6	54°49.9	N23°24.5	21°55.0	N17°21.9	143°58.1	N03°00.9					
13	172°45.1	334°21.9	06.7	69°50.7	24.4	36°57.0	21.8	159°00.7	00.8					
14	187°47.6	349°22.5	07.8	84°51.4	24.3	51°58.9	21.6	174°03.3	00.7					
15	202°50.1	4°23.1	•• 08.9	99°52.1	•• 24.2	67°00.8	•• 21.5	189°05.9	•• 00.7					
16	217°52.5	19°23.8	09.9	114°52.9	24.1	82°02.7	21.3	204°08.5	00.6					
17	232°55.0	34°24.4	11.0	129°53.6	24.0	97°04.7	21.2	219°11.0	00.6					
18	247°57.5	49°25.0	S11°12.1	144°54.3	N23°23.9	112°06.6	N17°21.1	234°13.6	N03°00.5					
19	262°59.9	64°25.7	13.1	159°55.1	23.8	127°08.5	20.9	249°16.2	00.4					
20	278°02.4	79°26.3	14.2	174°55.8	23.7	142°10.5	20.8	264°18.8	00.4					
21	293°04.9	94°27.0	•• 15.3	189°56.5	•• 23.6	157°12.4	•• 20.6	279°21.4	•• 00.3					
22	308°07.3	109°27.6	16.3	204°57.3	23.5	172°14.3	20.5	294°24.0	00.3					
23	323°09.8	124°28.2	17.4	219°58.0	23.4	187°16.3	20.3	309°26.6	00.2					
Mer.pass. 01:31			ν 0.6' d 1.1' m -4.58			ν 0.7' d 0.1' m 1.25			ν 1.9' d 0.1' m -1.80			ν 2.6' d 0.1' m 0.49		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	338°12.3	139°28.9	S11°18.5	234°58.7	N23°23.3	202°18.2	N17°20.2	324°29.1	N03°00.1
1	353°14.7	154°29.5	19.5	249°59.4	23.2	217°20.1	20.0	339°31.7	00.1
2	8°17.2	169°30.2	20.6	265°00.2	23.0	232°22.1	19.9	354°34.3	00.0
3	23°19.6	184°30.8	•• 21.7	280°00.9	•• 22.9	247°24.0	•• 19.7	9°36.9	03°00.0
4	38°22.1	199°31.5	22.7	295°01.6	22.8	262°25.9	19.6	24°39.5	02°59.9
5	53°24.6	214°32.1	23.8	310°02.4	22.7	277°27.9	19.4	39°42.1	59.8
6	68°27.0	229°32.8	S11°24.8	325°03.1	N23°22.6	292°29.8	N17°19.3	54°44.6	N02°59.8
7	83°29.5	244°33.4	25.9	340°03.8	22.5	307°31.7	19.2	69°47.2	59.7
8	98°32.0	259°34.1	27.0	355°04.6	22.4	322°33.7	19.0	84°49.8	59.7
9	113°34.4	274°34.7	•• 28.0	10°05.3	•• 22.3	337°35.6	•• 18.9	99°52.4	•• 59.6
10	128°36.9	289°35.4	29.1	25°06.0	22.2	352°37.5	18.7	114°55.0	59.5
11	143°39.4	304°36.1	30.1	40°06.8	22.1	7°39.5	18.6	129°57.6	59.5
12	158°41.8	319°36.7	S11°31.2	55°07.2	N23°21.9	22°41.4	N17°18.4	145°00.2	N02°59.4
13	173°44.3	334°37.4	32.2	70°08.3	21.8	37°43.3	18.3	160°02.7	59.4
14	188°46.8	349°38.0	33.3	85°09.0	21.7	52°45.3	18.1	175°05.3	59.3
15	203°49.2	4°38.7	•• 34.4	100°07.9	•• 21.6	67°47.2	•• 18.0	190°07.9	•• 59.2
16	218°51.7	19°39.4	35.4	115°10.5	21.5	82°49.1	17.8	205°10.5	59.2
17	233°54.1	34°40.0	36.5	130°11.2	21.4	97°51.1	17.7	220°13.1	59.1
18	248°56.6	49°40.7	S11°37.6	145°11.9	N23°21.3	112°53.0	N17°17.5	235°15.7	N02°59.1
19	263°59.1	64°41.3	38.6	160°12.7	21.2	127°54.9	17.4	250°18.3	59.0
20	279°01.5	79°42.0	39.7	175°13.4	20.7	142°56.9	17.3	265°20.9	58.9
21	294°04.0	94°42.7	•• 40.7	190°14.1	•• 20.9	157°58.8	•• 17.1	280°23.4	•• 58.9
22	309°06.5	109°43.3	41.8	205°14.9	20.8	173°00.7	17.0	295°26.0	58.8
23	324°08.9	124°44.0	42.8	220°15.6	20.7	188°02.7	16.8	310°28.6	58.8
Mer.pass. 01:27 ν 0.6' d 1.1' m -4.59 ν 0.7' d 0.1' m 1.25 ν 1.9' d 0.1' m -1.80 ν 2.6' d 0.1' m 0.49									

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	339°11.4	139°44.7	S11°43.9	235°16.3	N23°20.6	203°04.6	N17°16.7	325°31.2	N02°58.7
1	354°13.9	154°45.4	44.9	250°17.1	20.5	218°06.5	16.5	340°33.8	58.6
2	9°16.3	169°46.0	46.0	265°17.8	20.4	233°08.5	16.4	355°36.4	58.6
3	24°18.8	184°46.7	•• 47.0	280°18.6	•• 20.2	248°10.4	•• 16.2	10°39.0	•• 58.5
4	39°21.2	199°47.4	48.1	295°19.3	20.1	263°12.3	16.1	25°41.6	58.5
5	54°23.7	214°48.0	49.1	310°20.0	20.0	278°14.3	15.9	40°44.1	58.4
6	69°26.2	229°48.7	S11°50.2	325°20.8	N23°19.8	293°16.2	N17°15.8	55°46.7	N02°58.3
7	84°28.6	244°49.4	51.2	340°21.5	19.8	308°18.1	15.6	70°49.3	58.3
8	99°31.1	259°50.1	52.3	355°22.3	19.7	323°20.1	15.5	85°51.9	58.2
9	114°33.6	274°50.8	•• 53.0	10°23.0	•• 19.5	138°22.0	•• 15.3	100°54.5	•• 58.2
10	129°36.0	289°51.4	54.4	25°23.7	19.4	353°23.9	15.2	115°57.1	58.1
11	144°38.5	304°52.1	55.4	40°24.5	19.3	8°25.9	15.1	130°59.7	58.0
12	159°41.0	319°52.8	S11°56.5	55°25.2	N23°19.2	23°27.8	N17°14.9	146°02.3	N02°58.0
13	174°43.4	334°53.5	57.5	70°26.0	19.1	38°29.7	14.8	161°04.9	57.9
14	189°45.9	349°54.2	58.6	85°26.7	19.0	53°31.7	14.6	176°07.4	57.8
15	204°48.9	4°54.9	11°59.6	100°27.4	•• 18.8	68°33.6	•• 14.5	191°10.0	•• 57.8
16	219°50.8	19°55.5	12°00.7	115°28.2	18.7	83°35.6	14.3	206°12.6	57.7
17	234°53.3	34°56.2	01.7	130°28.9	18.6	98°37.5	14.2	221°15.2	57.7
18	249°55.7	49°56.9	S12°02.7	145°29.7	N23°18.5	113°39.4	N17°14.0	236°17.8	N02°57.6
19	264°58.2	64°57.6	03.8	160°30.4	18.4	128°41.4	13.9	251°20.4	57.5
20	280°00.7	79°58.3	04.8	175°31.1	18.2	143°43.3	13.7	266°23.0	57.5
21	295°03.1	94°59.0	•• 05.9	190°31.9	•• 18.1	158°45.2	•• 13.6	281°25.6	•• 57.4
22	310°05.6	109°59.7	06.9	205°32.6	18.0	173°47.2	13.4	296°28.2	57.4
23	325°08.1	125°00.4	07.9	220°33.4	17.9	188°49.1	13.3	311°30.8	57.3
Mer.pass. 01:23 ν 0.7' d 1.1' m -4.61 ν 0.7' d 0.1' m 1.25 ν 1.9' d 0.1' m -1.80 ν 2.6' d 0.1' m 0.48									

Stars		
	SHA	Dec
Alpheratz	357°33.0	29°14.4
Ankaa	353°05.4	-42°09.4
Schedar	349°29.0	56°41.0
Diphda	348°45.7	-17°50.2
Achernar	335°18.8	-57°05.7
Hamal	327°49.5	23°35.4
Polaris	313°10.7	89°22.3
Acamar	315°10.6	-40°11.1
Menkar	314°04.6	4°11.8
Mirfak	308°26.2	49°57.2
Aldebaran	290°38.1	16°33.8
Rigel	281°02.6	-8°10.1
Capella	280°20.0	46°01.3
Bellatrix	278°21.5	6°22.5
Elnath	278°00.2	28°37.8
Alnilam	275°36.4	-1°10.9
Betelgeuse	270°50.7	7°24.8
Canopus	263°52.1	-52°42.2
Sirius	258°25.2	-16°45.0
Adhara	255°05.0	-29°00.3
Procyon	244°49.6	5°09.5
Pollux	243°15.9	27°57.7
Avior	234°14.7	-59°35.5
Suhail	222°45.7	-43°32.3
Miaplacidus	221°38.9	-69°49.5
Alphard	217°46.7	-8°46.4
Regulus	207°33.3	11°50.3
Dubhe	193°40.0	61°36.5
Denebola	182°23.9	14°25.5
Gienah	175°42.2	-17°41.4
Acrux	172°59.2	-63°15.0
Gacrux	171°50.6	-57°15.9
Alloth	166°12.2	-55°49.1
Spica	158°21.1	-11°18.0
Alkaid	152°51.2	49°11.0
Hadar	148°34.4	-60°30.3
Nenkent	147°56.2	-36°30.2
Arcturus	145°46.8	19°02.8
Rigel Kent.	139°38.7	-60°57.0
Kochab	137°20.3	74°03.0
Zuben ubi	136°54.6	-16°09.2
Alphecca	126°02.7	26°37.7
Antares	112°14.1	-26°29.5
Atria	107°07.0	-69°04.8
Sabik	102°01.1	-15°45.4
Shaula	96°08.4	-37°07.5
Rasalhague	95°57.2	12°32.6
Eltanin	90°41.3	51°29.6
Kaus Aus.	83°30.5	-34°22.3
Vega	80°32.1	38°48.7
Nunki	75°45.8	-26°15.8
Altair	61°58.4	8°56.5
Peacock	53°03.1	-56°39.0
Deneb	49°24.5	45°22.7
Enif	33°37.1	10°00.0
Al Na'ir	27°30.7	-46°49.8
Fomalhaut	15°12.6	-29°28.7
Scheat	13°43.5	28°13.8
Markab	13°28.2	15°21.1

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	340°10.5	140°01.1	S12°09.0	235°34.1	N23°17.8	203°51.0	N17°13.2	326°33.3	N02°57.2										
1	355°13.0	155°01.8	10.0	250°34.8	17.6	218°53.0	13.0	341°35.9	57.2										
2	10°15.5	170°02.5	11.1	265°35.6	17.5	233°54.9	12.9	356°38.5	57.1										
3	25°17.1	185°03.2	•• 12.1	280°36.3	•• 17.4	248°56.8	•• 12.7	11°41.1	•• 57.0										
4	40°20.9	200°03.9	13.1	295°37.1	17.3	263°58.8	12.6	26°43.7	57.0										
5	55°22.8	215°04.6	14.2	310°37.8	17.1	279°00.7	12.4	41°46.3	56.9										
6	70°25.3	230°05.5	S12°15.2	325°38.6	N23°17.0	294°02.7	N17°12.3	56°48.9	N02°56.9										
7	85°27.8	245°06.0	16.3	340°39.3	16.9	309°04.6	12.1	71°51.5	56.8										
8	100°30.2	260°06.7	17.3	355°40.0	16.8	324°06.5	12.0	86°54.1	56.7										
9	115°32.7	275°07.4	•• 18.3	10°40.8	•• 16.7	339°08.5	•• 11.8	101°56.7	•• 56.7										
10	130°35.2	290°08.1	19.4	25°41.5	16.5	354°10.4	11.7	116°59.3	56.6										
11	145°37.6	305°08.8	20.4	40°42.3	16.4	9°12.3	11.5	132°01.9	56.5										
12	160°40.1	320°09.5	S12°21.4	55°43.0	N23°16.3	24°14.3	N17°11.4	147°04.4	N02°56.5										
13	175°42.6	335°10.2	22.5	70°43.8	16.2	39°16.2	11.2	162°07.0	56.4										
14	190°45.0	350°10.9	23.5	85°44.5	16.0	54°18.2	11.1	177°09.6	56.4										
15	205°47.5	5°11.7	•• 24.5	100°45.3	•• 15.9	69°20.1	•• 11.0	192°12.2	•• 56.3										
16	220°50.0	20°12.4	25.6	115°46.0	15.8	84°22.0	10.8	207°14.8	56.2										
17	235°52.4	35°13.1	26.6	130°46.8	15.6	99°24.0	10.7	222°17.4	56.2										
18	250°54.9	50°13.8	S12°27.6	145°47.5	N23°15.5	114°25.9	N17°10.5	237°20.0	N02°56.1										
19	265°57.3	65°14.5	28.6	160°48.2	15.4	129°27.8	10.4	252°22.6	56.0										
20	280°59.8	80°15.2	29.7	175°49.0	15.3	144°29.8	10.2	267°25.2	56.0										
21	296°02.3	95°16.0	•• 30.7	190°49.7	•• 15.1	159°31.7	•• 10.1	282°27.8	•• 55.9										
22	311°04.7	110°16.7	31.7	205°50.5	15.0	174°33.7	09.9	297°30.4	55.9										
23	326°07.2	125°17.4	32.8	220°51.2	14.9	189°35.6	09.8	312°33.0	55.8										
Mer.pass. 01:19				ν 0.7° d 1.0' m -4.62				ν 0.7° d 0.1' m 1.24				ν 1.9° d 0.1' m -1.80				ν 2.6° d 0.1' m 0.48			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	341°09.7	140°18.1	S12°33.8	235°52.0	N23°14.8	204°37.5	N17°09.6	327°35.6	N02°55.7						
1	356°12.1	155°18.8	34.8	250°52.7	14.6	219°39.5	09.5	342°38.1	55.7						
2	11°14.6	170°19.6	35.8	265°53.5	14.5	234°41.4	09.3	357°40.7	55.6						
3	26°17.1	185°20.3	•• 36.9	280°54.2	•• 14.4	249°43.3	•• 09.2	12°43.3	•• 55.5						
4	41°19.5	200°21.0	37.9	295°55.0	14.2	264°45.3	09.1	27°45.9	55.5						
5	56°22.0	215°21.8	38.9	310°55.7	14.1	279°47.2	08.9	42°48.5	55.4						
6	71°24.5	230°22.5	S12°39.9	325°56.5	N23°14.0	294°49.2	N17°08.8	57°51.1	N02°55.4						
7	86°26.9	245°23.2	41.0	340°57.2	13.8	309°51.1	08.6	72°53.7	55.3						
8	101°29.4	260°23.9	42.0	355°58.0	13.7	324°53.0	08.5	87°56.3	55.2						
9	116°31.8	275°24.7	•• 43.0	10°58.7	•• 13.6	339°55.0	•• 08.3	102°59.0	•• 55.2						
10	131°34.3	290°25.4	44.0	25°59.5	13.5	354°56.9	08.2	118°01.5	55.1						
11	146°36.8	305°26.1	45.0	41°00.2	13.3	9°58.9	08.0	133°04.1	55.0						
12	161°39.2	320°26.9	S12°46.1	56°01.0	N23°13.2	25°00.8	N17°07.9	148°06.7	N02°55.0						
13	176°41.7	335°27.6	47.1	71°01.7	13.1	40°02.7	07.7	163°09.3	54.9						
14	191°44.2	350°28.6	48.1	86°02.5	12.9	55°04.7	07.6	178°11.9	54.8						
15	206°46.6	5°29.1	•• 49.1	101°03.2	•• 12.8	70°06.6	•• 07.4	193°14.5	•• 54.8						
16	221°49.1	20°29.8	50.1	116°04.0	12.7	85°08.6	07.3	208°17.1	54.7						
17	236°51.6	35°30.6	51.1	131°04.7	12.5	100°10.5	07.1	223°19.7	54.7						
18	251°54.0	50°31.3	S12°52.2	146°05.5	N23°12.4	115°12.4	N17°07.0	238°22.3	N02°54.6						
19	266°56.5	65°32.1	53.2	161°06.2	12.3	130°14.4	06.9	253°24.9	54.5						
20	281°58.9	80°32.8	54.2	176°07.0	12.1	145°16.3	06.7	268°27.5	54.5						
21	297°01.4	95°33.6	•• 55.2	191°07.7	•• 12.0	160°18.2	•• 06.6	283°30.0	•• 54.4						
22	312°03.9	110°34.3	56.2	206°08.5	11.9	175°20.2	06.4	298°32.6	54.3						
23	327°06.3	125°35.1	57.2	221°09.2	11.7	190°22.1	06.3	313°35.2	54.3						
Mer.pass. 01:15				ν 0.7° d 1.0' m -4.63				ν 1.9° d 0.1' m -1.81				ν 2.6° d 0.1' m 0.47			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	342°08.8	140°35.8	S12°58.2	236°10.0	N23°11.6	205°24.1	N17°06.1	328°37.8	N02°54.2
1	357°11.3	155°36.6	12°59.3	251°10.7	11.5	220°26.0	06.0	343°40.4	54.1
2	12°13.7	170°37.3	13°00.3	266°11.5	11.3	235°28.0	05.8	358°43.0	54.1
3	27°16.2	185°38.1	· · 01.3	281°12.2	· · 11.2	250°29.9	· · 05.7	13°45.6	· · 54.0
4	42°18.7	200°38.8	02.3	296°13.0	11.0	265°31.8	05.5	28°48.2	54.0
5	57°21.1	215°39.6	03.3	311°13.7	10.9	280°33.8	05.4	43°50.8	53.9
6	72°23.6	230°40.4	S13°04.3	326°14.5	N23°10.8	295°35.7	N17°05.2	58°53.4	N02°53.8
7	87°26.1	245°41.1	05.3	341°15.3	10.6	310°37.7	05.1	73°56.0	53.8
8	102°28.5	260°41.9	06.3	356°16.0	10.5	325°39.6	05.0	88°58.6	53.7
9	117°31.0	275°42.6	· · 07.3	11°16.8	· · 10.4	340°41.5	· · 04.8	104°01.2	· · 53.6
10	132°33.4	290°43.4	08.3	26°17.5	10.2	355°43.5	04.7	119°03.8	53.6
11	147°35.9	305°44.2	09.3	41°18.3	10.1	10°45.4	04.5	134°06.4	53.5
12	162°38.4	320°44.9	S13°10.3	56°19.0	N23°09.9	25°47.4	N17°04.4	149°09.0	N02°53.4
13	177°40.8	335°45.7	11.4	71°19.8	09.8	40°49.3	04.2	164°11.6	53.4
14	192°43.3	350°46.5	12.4	86°20.5	09.7	55°51.2	04.1	179°14.2	53.3
15	207°45.8	5°47.2	· · 13.4	101°21.3	· · 09.5	70°53.2	· · 03.9	194°16.8	· · 53.2
16	222°48.2	20°48.0	14.4	116°22.1	09.4	85°55.1	03.8	209°19.4	53.2
17	237°50.7	35°48.8	15.4	131°22.8	09.3	100°57.1	03.6	224°22.0	53.1
18	252°53.2	50°49.5	S13°16.4	146°23.6	N23°09.1	115°59.0	N17°03.5	239°24.6	N02°53.1
19	267°55.6	65°50.3	17.4	161°24.3	09.0	131°00.9	03.3	254°27.2	53.0
20	282°58.1	80°51.1	18.4	176°25.1	08.8	146°02.9	03.2	269°29.8	52.9
21	298°00.6	95°51.9	· · 19.4	191°25.8	· · 08.7	161°04.8	· · 03.1	284°32.4	· · 52.9
22	313°03.0	110°52.6	20.4	206°26.6	08.5	176°06.8	02.9	299°35.0	52.8
23	328°05.5	125°53.4	21.4	221°27.4	08.4	191°08.7	02.8	314°37.6	52.7
Mer.pass. 01:11				ν 0.8° d 1.0' m -4.64		ν 1.9° d 0.1' m -1.81		ν 2.6° d 0.1' m 0.47	

Stars			h			Sun			Moon		
	SHA	Dec	Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.0	29°14.4	0	179°57.5	N08°20.9	318°14.7	11.5°	N13°53.0	14.2°	58.0°	
Ankaa	353°05.4	-42°09.4	1	194°57.7	20.0	332°45.2	11.4°	14°07.2	14.2°	58.0°	
Schedar	349°29.0	56°41.0	2	209°57.9	19.0	347°15.7	11.4°	14°21.4	14.1°	58.0°	
Diphda	348°45.6	-17°50.2	3	224°58.1	.. 18.1	1°46.0	11.3°	14°35.5	14.0°	58.0°	
Achernar	335°18.8	-57°05.8	4	239°58.3	17.2	16°16.3	11.2°	14°49.5	13.9°	58.0°	
Hamal	327°49.4	23°35.4	5	254°58.5	16.3	30°46.5	11.1°	15°03.4	13.9°	58.1°	
Polaris	313°09.1	89°22.3	6	269°58.7	N08°15.4	45°16.6	11.0°	N15°17.3	13.8°	58.1°	
Acamar	315°10.6	-40°11.5	7	284°58.9	14.5	59°46.6	10.9°	15°31.1	13.7°	58.1°	
Menkar	314°04.6	4°11.8	8	299°59.1	13.6	74°16.5	10.8°	15°44.8	13.7°	58.1°	
Mirfak	308°26.1	49°57.2	9	314°59.3	.. 12.7	88°46.4	10.7°	15°58.5	13.6°	58.1°	
Aldebaran	290°38.1	16°13.3	10	329°59.5	11.8	103°16.1	10.7°	16°12.1	13.5°	58.1°	
Rigel	281°02.6	-8°10.1	11	344°59.7	10.9	117°45.7	10.6°	16°25.6	13.4°	58.2°	
Capella	280°20.0	46°01.3	12	359°59.9	N08°10.0	132°15.3	10.5°	N16°39.0	13.3°	58.2°	
Bellatrix	278°21.5	6°22.5	13	15°00.1	09.1	146°44.8	10.4°	16°52.3	13.3°	58.2°	
Elath	278°00.2	28°37.8	14	30°00.3	08.2	161°14.1	10.3°	17°05.6	13.2°	58.2°	
Anilam	275°36.4	-1°10.9	15	45°00.5	.. 07.3	175°43.4	10.2°	17°18.8	13.1°	58.2°	
Betelgeuse	270°50.7	7°24.8	16	60°00.7	06.4	190°12.6	10.1°	17°31.9	13.0°	58.2°	
Canopus	263°52.0	-52°42.2	17	75°00.9	05.4	204°41.7	10.0°	17°44.9	12.9°	58.3°	
Sirius	258°25.2	-16°45.0	18	90°01.1	N08°04.0	219°10.7	9.9°	N17°57.8	12.9°	58.3°	
Adhara	255°05.0	-29°00.2	19	105°01.3	03.6	233°39.6	9.8°	18°10.7	12.7°	58.3°	
Procyon	244°49.6	5°09.9	20	120°01.5	02.7	248°08.3	9.7°	18°23.4	12.7°	58.3°	
Pollux	234°15.9	27°57.7	21	135°01.7	.. 01.8	262°37.0	9.6°	18°36.1	12.5°	58.3°	
Avior	224°14.7	-59°35.5	22	150°01.9	00.9	277°05.6	9.5°	18°48.6	12.5°	58.3°	
Suhail	232°45.7	-43°32.3	23	165°02.1	00.0	291°34.1	9.4°	19°01.1	12.3°	58.4°	
Miacplacidus	221°38.9	-69°49.4									
Alphard	217°46.7	-8°46.3									

	Aries			Venus			Mars			Jupiter			Saturn		
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	343°07.9	140°54.2	S13°22.4	236°28.1	N23°08.3	206°10.7	N17°02.6	329°40.2	N02°52.7						
1	358°10.4	155°55.0	23.4	251°28.9	08.1	221°12.6	02.5	344°42.8	52.6						
2	13°12.9	170°55.8	24.4	266°29.6	08.0	236°14.5	02.3	359°45.4	52.5						
3	28°15.3	185°56.6	.. 25.4	281°30.4	.. 07.8	251°16.5	.. 02.2	14°48.0	.. 52.5						
4	43°17.8	200°57.3	26.4	296°31.1	07.7	266°18.4	02.0	29°50.6	52.4						
5	58°20.3	215°58.1	27.3	311°31.9	07.6	281°20.4	01.9	44°53.2	52.3						
6	73°22.7	230°58.9	S13°28.3	326°32.7	N23°07.4	296°22.3	N17°01.7	59°55.8	N02°52.3						
7	88°25.2	245°59.7	29.3	341°33.4	07.3	311°24.3	01.6	74°58.4	52.2						
8	103°27.7	261°00.5	30.3	356°34.2	07.1	326°26.2	01.4	90°01.0	52.1						
9	118°30.1	276°01.3	.. 31.3	11°34.9	.. 07.0	341°28.1	.. 01.3	105°03.6	.. 52.1						
10	133°32.6	291°02.1	32.3	26°35.7	06.8	356°30.1	01.1	120°06.2	52.0						
11	148°35.1	306°02.9	33.3	41°36.5	06.7	11°32.0	01.0	135°08.8	51.9						
12	163°37.5	321°03.7	S13°34.3	56°37.2	N23°06.5	26°34.0	N17°00.9	150°11.4	N02°51.9						
13	178°40.0	336°04.5	35.3	71°38.0	06.4	41°35.9	00.7	165°14.0	51.8						
14	193°42.4	351°05.3	36.3	86°38.7	06.3	56°37.9	00.6	180°16.6	51.8						
15	208°44.9	6°06.1	.. 37.3	101°39.5	.. 06.1	71°39.8	.. 00.4	195°19.2	.. 51.7						
16	223°47.4	21°06.9	38.2	116°40.3	06.0	86°41.7	00.3	210°21.8	51.6						
17	238°49.8	36°07.7	39.2	131°41.0	05.8	101°43.7	00.1	225°24.4	51.6						
18	253°52.3	51°08.5	S13°40.2	146°41.8	N23°05.7	116°45.6	N17°00.0	240°27.0	N02°51.5						
19	268°54.8	66°09.3	41.2	161°42.6	05.5	131°47.6	16°59.8	255°29.6	51.4						
20	283°57.2	81°10.1	42.2	176°43.3	05.4	146°49.5	59.7	270°32.2	51.4						
21	298°59.7	96°10.9	.. 43.2	191°44.1	.. 05.2	161°51.5	.. 59.5	285°34.8	.. 51.3						
22	314°02.2	111°11.7	44.2	206°44.8	05.1	176°53.4	59.4	300°37.4	51.2						
23	329°04.6	126°12.5	45.1	221°45.6	04.9	191°55.4	59.2	315°40.0	51.2						
Mer.pass. 01:07 ν 0.8' d 1.0' m -4.65 ν 0.8' d 0.1' m 1.23 ν 1.9' d 0.1' m -1.81 ν 2.6' d 0.1' m 0.46															

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	344°07.1	141°13.3	S13°46.1	236°46.4	N23°04.8	206°57.3	N16°59.1	330°42.6	N02°51.1
1	359°09.5	156°14.1	47.1	251°47.1	04.6	221°59.2	59.0	345°45.2	51.0
2	14°10.2	171°14.9	48.1	266°47.9	04.5	237°01.2	58.8	0°47.8	51.0
3	29°14.5	186°15.8	.. 49.1	281°48.7	.. 04.3	252°03.1	.. 58.7	15°50.4	.. 50.9
4	44°16.9	201°16.6	50.1	296°49.4	04.2	267°05.1	58.5	30°53.0	50.8
5	59°19.4	216°17.4	51.0	311°50.2	04.0	282°07.0	58.4	45°56.6	50.8
6	74°21.9	231°18.2	S13°52.0	326°51.0	N23°03.9	297°09.0	N16°58.2	60°58.2	N02°50.7
7	89°24.3	246°19.0	53.0	341°51.7	03.7	312°10.9	58.1	76°00.8	50.6
8	104°26.8	261°19.9	54.0	356°52.5	03.6	327°12.9	57.9	91°03.4	50.6
9	119°29.3	276°20.7	.. 54.9	11°53.3	.. 03.4	342°14.8	.. 57.8	106°06.0	.. 50.5
10	134°31.7	291°21.5	55.9	26°54.0	03.3	357°16.7	57.6	121°08.6	50.4
11	149°34.2	306°22.3	56.9	41°54.8	03.1	12°18.7	57.5	136°11.2	50.4
12	164°36.7	321°23.1	S13°57.9	56°55.5	N23°03.0	27°20.6	N16°57.3	151°13.8	N02°50.3
13	179°39.1	336°24.0	58.8	71°59.3	02.8	42°22.6	57.2	166°16.4	50.2
14	194°41.6	351°24.8	13°59.8	86°57.1	02.7	57°24.5	57.1	181°19.0	50.2
15	209°44.0	6°25.6	14°00.8	101°57.8	.. 02.5	72°26.5	.. 56.9	196°21.6	.. 50.1
16	224°46.5	21°26.5	01.8	116°58.6	02.4	87°28.4	56.8	211°24.2	50.0
17	239°49.0	36°27.3	02.7	131°59.4	02.2	102°30.4	56.6	226°26.8	50.0
18	254°51.4	51°28.1	S14°03.7	147°00.2	N23°02.1	117°32.3	N16°56.5	241°29.4	N02°49.8
19	269°53.9	66°29.0	04.7	162°00.9	01.9	132°34.3	56.3	256°32.0	49.9
20	284°56.4	81°29.8	05.7	177°01.7	01.8	147°36.2	56.2	271°34.7	49.8
21	299°58.8	96°30.6	.. 06.6	192°02.5	.. 01.6	162°38.2	.. 56.0	286°37.3	.. 49.7
22	315°01.3	111°31.5	07.6	207°03.2	01.5	177°40.1	55.9	301°39.9	49.6
23	330°03.8	126°32.3	08.6	222°04.0	01.3	192°42.0	55.7	316°42.5	49.6
Mer.pass. 01:03 ν 0.8' d 1.0' m -4.66 ν 0.8' d 0.1' m 1.23 ν 1.9' d 0.1' m -1.81 ν 2.6' d 0.1' m 0.46									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	345°06.2	141°33.2	S14°09.5	237°04.8	N23°01.1	207°44.0	N16°55.6	331°45.1	N02°49.5
1	0°08.7	156°34.0	10.5	252°05.5	01.0	222°45.9	55.4	346°47.7	49.4
2	15°11.2	171°34.9	11.5	267°06.3	00.8	237°47.9	55.3	1°50.3	49.4
3	30°13.6	186°35.7	.. 12.4	282°07.1	.. 00.7	252°49.8	.. 55.2	16°52.9	.. 49.3
4	45°16.1	201°36.6	13.4	297°07.8	00.5	267°51.8	55.0	31°55.5	49.2
5	60°18.5	216°37.4	14.4	312°08.6	00.4	282°53.7	54.9	46°58.1	49.2
6	75°21.0	231°38.3	S14°15.3	327°09.4	N23°00.2	297°55.7	N16°54.7	62°00.7	N02°49.1
7	90°23.5	246°39.1	16.3	342°10.2	23°00.1	312°57.6	54.6	77°03.3	49.0
8	105°25.9	261°40.0	17.2	357°10.9	22°59.9	327°59.6	54.4	92°05.9	49.0
9	120°28.4	276°40.8	.. 18.2	12°11.7	.. 59.7	343°01.5	.. 54.3	107°08.5	.. 48.9
10	135°30.9	291°41.7	19.2	27°12.5	59.6	358°03.5	54.1	122°11.1	48.8
11	150°33.3	306°42.5	20.1	42°13.2	59.4	13°05.4	54.0	137°13.7	48.8
12	165°35.8	321°43.4	S14°21.1	57°14.0	N22°59.3	28°07.4	N16°53.8	152°16.3	N02°48.7
13	180°38.3	336°44.3	22.0	72°14.8	59.1	43°09.3	53.7	167°18.9	48.6
14	195°40.7	351°45.1	23.0	87°15.6	58.9	58°11.3	53.5	182°21.5	48.6
15	210°43.2	6°46.0	.. 24.0	102°16.3	.. 58.8	73°13.2	.. 53.4	197°24.2	.. 48.5
16	225°45.7	21°46.8	24.9	117°17.1	58.6	88°15.2	53.3	212°26.8	48.4
17	240°48.1	36°47.7	25.9	132°17.9	58.5	103°17.1	53.1	227°29.4	48.4
18	255°50.6	51°48.6	S14°26.8	147°18.6	N22°58.3	118°19.0	N16°53.0	242°32.0	N02°48.3
19	270°53.0	66°49.4	27.8	162°19.4	58.2	133°21.0	52.8	257°34.6	48.2
20	285°55.5	81°50.3	28.7	177°20.2	58.0	148°22.9	52.7	272°37.2	48.2
21	300°58.0	96°51.2	.. 29.7	192°21.0	.. 57.8	163°24.9	.. 52.5	287°39.8	.. 48.1
22	316°00.4	111°52.1	30.6	207°21.7	57.7	178°26.8	52.4	302°42.4	48.0
23	331°02.9	126°52.9	31.6	222°22.5	57.5	193°28.8	52.2	317°45.0	48.0
Mer.pass. 00:59 ν 0.8' d 1.0' m -4.68 ν 0.8' d 0.2' m 1.23 ν 1.9' d 0.1' m -1.81 ν 2.6' d 0.1' m 0.45									

Stars		SHA	Dec
Alpheratz	357°33.0	29°14.4	
Ankaa	353°05.4	-42°09.4	
Schedar	349°29.0	56°40.1	
Diphda	348°45.6	-17°50.2	
Achernar	335°18.7	-57°05.8	
Hamal	327°49.4	23°35.4	
Polaris	313°07.3	89°22.3	
Acamar	315°10.5	-40°11.5	
Menkar	314°04.6	-4°11.8	
Mirfak	308°26.1	49°57.2	
Aldebaran	290°38.0	16°33.8	
Rigel	281°02.6	-8°10.0	
Capella	280°19.9	46°01.3	
Bellatrix	278°21.5	6°22.5	
Elnath	278°00.2	28°37.8	
Alnilam	275°36.4	-1°10.9	
Betelgeuse	267°50.7	7°24.8	
Canopus	203°52.0	-52°42.2	
Sirius	258°25.2	-16°45.0	
Adhara	255°05.0	-29°00.2	
Procyon	244°49.6	5°09.5	
Pollux	243°15.9	27°57.7	
Avior	234°14.7	-59°35.5	
Suhail	222°45.7	-43°32.2	
Miaplacidus	221°38.9	-69°49.4	
Alphard	217°46.7	-8°46.3	
Regulus	207°33.3	11°50.3	
Dubhe	193°40.0	61°36.5	
Denebola	182°23.9	14°25.5	
Gienah	175°42.5	-17°41.4	
Acrux	172°59.2	-63°14.9	
Gacrux	171°50.6	-57°15.9	
Alioth	166°12.2	55°49.0	
Spica	158°21.1	-11°18.0	
Alkaid	152°51.3	49°11.0	
Hadar	148°34.5	-60°30.3	
Menkent	147°56.2	-36°30.2	
Arcturus	145°46.9	19°02.8	
Rigel Kent	139°38.8	-60°56.9	
Kochab	137°20.4	74°02.9	
Zuben'ubi	126°54.6	-16°09.2	
Alphecca	126°02.7	26°37.7	
Antares	112°14.2	-26°29.5	
Atria	107°07.1	-69°04.7	
Sabik	102°01.2	-15°45.4	
Shaula	96°08.4	-37°07.5	
Rasalhague	95°57.2	12°32.6	
Eltanin	90°41.4	51°29.4	
Kaus Aust.	83°30.5	-34°22.3	
Vega	80°32.1	38°48.7	
Nunki	75°45.9	-26°15.8	
Altair	61°58.4	8°56.5	
Peacock	53°03.1	-56°39.0	
Deneb	49°24.5	45°22.7	
Enif	33°37.1	10°00.0	
Al Na'ir	27°30.7	-46°49.8	
Fomalhaut	15°12.6	-29°28.7	
Scheat	13°43.5	28°13.8	
Markab	13°28.2	15°21.1	

Sep 04 Fri	SHA
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Aries				Venus				Mars				Jupiter				Saturn			
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	346°05.4	141°53.8	S14°32.5	237°23.3	N22°57.3	208°30.7	N16°52.1	332°47.6	N02°47.9			208°30.7	N16°52.1	332°47.6	N02°47.9				
1	1°07.8	156°54.7	33.5	252°24.1	57.2	232°32.7	51.9	347°50.2	47.8			232°32.7	51.9	347°50.2	47.8				
2	16°10.3	171°55.6	34.4	267°24.8	57.0	238°34.6	51.8	2°52.8	47.8			238°34.6	51.8	2°52.8	47.8				
3	31°12.8	186°56.4	•• 35.4	282°25.6	•• 56.9	253°36.6	•• 51.6	17°55.4	•• 47.7			253°36.6	•• 51.6	17°55.4	•• 47.7				
4	46°15.2	201°57.3	36.3	297°26.4	56.7	268°38.5	51.5	32°58.0	47.6			268°38.5	51.5	32°58.0	47.6				
5	61°17.7	216°58.2	37.3	312°27.2	56.5	283°40.5	51.4	48°00.6	47.6			283°40.5	51.4	48°00.6	47.6				
6	76°20.2	231°59.1	S14°38.2	327°27.9	N22°56.4	298°42.4	N16°51.2	63°03.3	N02°47.5			298°42.4	N16°51.2	63°03.3	N02°47.5				
7	91°22.6	247°00.0	39.2	342°28.7	56.2	313°44.4	51.1	78°05.9	47.4			313°44.4	51.1	78°05.9	47.4				
8	106°25.1	262°00.9	40.1	357°29.5	56.1	328°46.3	50.9	93°08.5	47.4			328°46.3	50.9	93°08.5	47.4				
9	121°27.5	277°01.8	•• 41.1	12°30.3	•• 55.9	343°48.3	•• 50.8	108°11.1	•• 47.3			343°48.3	•• 50.8	108°11.1	•• 47.3				
10	136°30.0	292°02.7	42.0	27°31.1	55.7	358°50.2	50.6	123°13.7	47.2			358°50.2	50.6	123°13.7	47.2				
11	151°32.5	307°03.5	43.0	42°31.8	55.6	13°52.2	50.5	138°16.3	47.1			13°52.2	50.5	138°16.3	47.1				
12	166°34.9	322°04.4	S14°43.9	57°32.6	N22°55.4	28°54.1	N16°50.3	153°18.9	N02°47.1			28°54.1	N16°50.3	153°18.9	N02°47.1				
13	181°37.4	337°05.3	44.8	72°33.4	55.2	43°56.1	50.2	168°21.5	47.0			43°56.1	50.2	168°21.5	47.0				
14	196°39.9	352°06.2	45.8	87°34.2	55.1	58°58.0	50.0	183°24.1	46.9			58°58.0	50.0	183°24.1	46.9				
15	211°42.3	7°07.1	•• 46.7	102°34.9	•• 54.9	74°00.0	•• 49.9	198°26.7	•• 46.9			74°00.0	•• 49.9	198°26.7	•• 46.9				
16	226°44.8	22°08.0	47.7	117°35.7	54.7	89°01.9	49.7	213°29.3	46.8			89°01.9	49.7	213°29.3	46.8				
17	241°47.3	37°08.9	48.6	132°36.5	54.6	104°03.9	49.6	228°31.9	46.7			104°03.9	49.6	228°31.9	46.7				
18	256°49.7	52°09.8	S14°49.5	147°37.3	N22°54.4	119°05.8	N16°49.5	243°34.6	N02°46.7			119°05.8	N16°49.5	243°34.6	N02°46.7				
19	271°52.2	67°10.7	50.5	162°38.1	54.2	134°07.8	49.3	258°37.2	46.6			134°07.8	49.3	258°37.2	46.6				
20	286°54.6	82°11.6	51.4	177°38.8	54.1	149°09.7	49.2	273°39.8	46.5			149°09.7	49.2	273°39.8	46.5				
21	301°57.1	97°12.5	•• 52.3	192°39.6	•• 53.9	164°11.7	•• 49.0	288°42.4	•• 46.5			164°11.7	•• 49.0	288°42.4	•• 46.5				
22	316°59.6	112°13.5	53.3	207°40.4	53.7	179°13.6	48.9	303°50.0	46.4			179°13.6	48.9	303°50.0	46.4				
23	332°02.0	127°14.4	54.2	222°41.2	53.6	194°15.6	48.7	318°47.6	46.3			194°15.6	48.7	318°47.6	46.3				
Mer.pass. 00:55				ν 0.9' d 1.0' m -4.69				ν 0.8' d 0.2' m 1.22				ν 1.9' d 0.1' m -1.81				ν 2.6' d 0.1' m 0.45			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	347°04.5	142°15.3	S14°55.2	237°42.0	N22°53.4	209°17.5	N16°48.6	333°50.2	N02°46.3
1	2°07.0	157°16.2	56.1	252°42.7	53.2	224°19.5	48.4	348°52.8	46.2
2	17°09.4	172°17.1	57.0	267°43.5	53.1	239°21.4	48.3	3°55.4	46.1
3	32°11.9	187°18.0	•• 58.0	282°44.3	•• 52.9	254°23.4	•• 48.1	18°58.0	•• 46.1
4	47°14.4	202°18.9	58.9	297°45.1	52.7	269°25.4	48.0	34°00.6	46.0
5	62°16.8	217°19.8	14°59.8	312°45.9	52.6	284°27.3	47.9	49°03.3	45.9
6	77°19.3	232°20.8	S15°00.7	327°46.6	N22°52.4	299°29.3	N16°47.7	64°05.9	N02°45.8
7	92°21.8	247°21.7	01.7	342°47.4	52.2	314°31.2	47.6	79°08.5	45.8
8	107°24.2	262°22.6	02.6	357°48.2	52.1	329°33.2	47.4	94°11.1	45.7
9	122°26.7	277°23.5	•• 03.5	12°49.0	•• 51.9	344°35.1	•• 47.3	109°13.7	•• 45.6
10	137°29.1	292°24.5	04.5	27°49.8	51.7	359°37.1	47.1	124°16.3	45.6
11	152°31.6	307°25.4	05.4	42°50.6	51.5	14°39.0	47.0	139°18.9	45.5
12	167°34.1	322°26.3	S15°06.3	57°51.3	N22°51.4	29°41.0	N16°46.8	154°21.5	N02°45.4
13	182°36.5	337°27.2	07.2	72°52.1	51.2	44°42.9	46.7	169°24.1	45.4
14	197°39.0	352°28.2	08.2	87°52.9	51.0	59°44.9	46.5	184°26.8	45.3
15	212°41.5	7°29.1	•• 09.1	102°53.7	•• 50.9	74°46.8	•• 46.4	199°29.4	•• 45.2
16	227°43.9	22°30.0	10.0	117°54.5	50.7	89°48.8	46.2	214°32.0	45.2
17	242°46.4	37°31.0	10.9	132°55.3	50.5	104°50.7	46.1	229°34.6	45.1
18	257°48.9	52°31.9	S15°11.8	147°56.0	N22°50.3	119°52.7	N16°46.0	244°37.2	N02°45.0
19	272°51.3	67°32.9	12.8	162°56.8	50.2	134°54.6	45.8	259°39.8	45.0
20	287°53.8	82°33.8	13.7	177°57.6	50.0	149°56.6	45.7	274°42.4	44.9
21	302°56.3	97°34.7	•• 14.6	192°58.4	•• 49.8	164°58.5	•• 45.5	289°45.0	•• 44.8
22	317°58.7	112°35.7	15.5	207°59.2	49.7	180°00.5	45.4	304°47.6	44.7
23	333°01.2	127°36.6	16.4	223°00.0	49.5	195°02.5	45.2	319°50.3	44.7
Mer.pass. 00:52 ν 0.9' d 0.9' m -4.70 ν 0.8' d 0.2' m 1.22 ν 2.0' d 0.1' m -1.82 ν 2.6' d 0.1' m 0.45									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	348°03.6	142°37.6	S15°17.4	238°00.8	N22°49.3	210°04.4	N16°45.1	334°52.9	N02°44.6
1	3°06.1	157°38.5	18.3	253°01.6	49.1	225°06.4	44.9	349°55.5	44.5
2	18°08.6	172°39.5	19.2	268°02.3	49.0	240°08.3	44.8	4°58.1	44.5
3	33°11.0	187°40.4	•• 20.1	283°03.1	•• 48.8	255°10.3	•• 44.6	20°00.7	•• 44.4
4	48°13.5	202°41.4	21.0	298°03.9	48.6	270°12.2	44.5	35°03.3	44.3
5	63°16.0	217°42.3	21.9	313°04.7	48.4	285°14.2	44.4	50°05.9	44.3
6	78°18.4	232°43.3	S15°22.8	328°05.5	N22°48.3	300°16.1	N16°44.2	65°08.5	N02°44.2
7	93°20.9	247°44.3	23.8	343°06.3	48.1	315°18.1	44.1	80°11.2	44.1
8	108°23.4	262°45.2	24.7	358°07.1	47.9	330°20.0	43.9	95°13.8	44.0
9	123°25.8	277°46.2	•• 25.6	13°07.9	•• 47.7	345°22.0	•• 43.8	110°16.4	•• 44.0
10	138°28.3	292°47.1	26.5	28°08.0	47.6	0°23.9	43.6	125°19.0	43.9
11	153°30.7	307°48.1	27.4	43°09.4	47.4	15°25.9	43.5	140°21.6	43.8
12	168°33.2	322°49.1	S15°28.3	58°10.2	N22°47.2	30°27.9	N16°43.3	155°24.2	N02°43.8
13	183°35.7	337°50.0	29.2	73°11.0	47.0	45°29.8	43.2	170°26.8	43.7
14	198°38.1	352°51.0	30.1	88°11.8	46.9	60°31.8	43.0	185°29.4	43.6
15	213°40.6	7°52.0	•• 31.0	103°12.6	•• 46.7	75°33.7	•• 42.9	200°32.1	•• 43.6
16	228°43.1	22°53.0	31.9	118°13.4	46.5	90°35.7	42.8	215°34.7	43.5
17	243°45.5	37°53.9	32.8	133°14.2	46.3	105°37.6	42.6	230°37.3	43.4
18	258°48.0	52°54.9	S15°33.7	148°15.0	N22°46.1	120°39.6	N16°42.5	245°39.9	N02°43.4
19	273°50.5	67°55.9	34.6	163°15.8	46.0	135°41.5	42.3	260°42.5	43.3
20	288°52.9	82°56.9	35.5	178°16.5	45.8	150°43.5	42.2	275°45.1	43.2
21	303°55.4	97°57.8	•• 36.4	193°17.3	•• 45.6	165°45.5	•• 42.0	290°47.7	•• 43.1
22	318°57.9	112°58.8	37.3	208°18.1	45.4	180°47.4	41.9	305°50.4	43.1
23	334°00.3	127°59.8	38.2	223°18.9	45.3	195°49.4	41.7	320°53.0	43.0
Mer.pass. 00:48 ν 0.9' d 0.9' m -4.71 ν 0.8' d 0.2' m 1.22 ν 2.0' d 0.1' m -1.82 ν 2.6' d 0.1' m 0.44									

Stars			h			Sun			Moon		
	SHA	Dec	Mon	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.0	29°14.4	0	180°27.1	N06°08.3	233°56.1	4.9'	N25°17.7	8.0'	59.5'	
Ankaa	353°05.4	-42°09.4	1	195°27.3	07.4	248°20.0	4.9'	25°09.7	8.1'	59.5'	
Schedar	349°28.9	56°41.0	2	210°27.6	06.4	262°43.9	5.0'	25°01.6	8.3'	59.5'	
Diphda	348°45.6	-17°50.2	3	225°27.8	•• 05.5	277°08.0	5.1'	24°53.3	8.4'	59.5'	
Achernar	335°18.7	-57°05.8	4	240°28.0	04.6	291°32.1	5.2'	24°44.9	8.6'	59.5'	
Hamal	327°49.4	23°35.4	5	255°28.2	03.6	305°56.3	5.3'	24°36.8	8.8'	59.5'	
Polaris	313°07.5	89°22.3	6	270°28.4	N06°02.7	320°20.5	5.4'	N24°27.5	8.9'	59.5'	
Acamar	315°10.5	-40°11.8	7	285°28.6	01.7	334°44.9	5.5'	24°18.6	9.1'	59.5'	
Menkar	314°04.5	-4°11.8	8	300°28.8	06°00.8	349°09.4	5.6'	24°09.5	9.2'	59.5'	
Mirafak	308°26.1	49°57.2	9	315°29.0	05°59.9	3°33.9	5.6'	24°00.3	9.4'	59.5'	
Aldebaran	290°28.0	-16°33.8	10	330°29.3	58.9	17°58.6	5.7'	23°50.9	9.6'	59.5'	
Rigel	281°06.6	-8°10.0	11	345°29.5	58.0	32°23.3	5.8'	23°41.3	9.7'	59.4'	
Capella	280°19.9	46°01.3	12	0°29.7	N05°57.1	46°48.1	5.9'	N23°31.6	9.9'	59.4'	
Bellatrix	278°21.4	6°22.5	13	15°29.9	56.1	61°13.1	6.0'	23°21.7	10.0'	59.4'	
Elmath	278°00.2	28°37.8	14	30°30.1	55.2	75°38.1	6.1'	23°11.7	10.1'	59.4'	
Anilam	275°36.4	-1°10.9	15	45°30.3	•• 54.2	90°03.2	6.2'	23°01.6	10.3'	59.4'	
Betelgeuse	270°50.7	7°24.8	16	60°30.5	53.3	104°28.2	6.3'	22°51.3	10.4'	59.4'	
Canopus	263°52.0	-52°42.2	17	75°30.8	52.4	118°53.7	6.4'	22°40.9	10.6'	59.4'	
Sirius	258°25.2	-16°44.9	18	90°31.0	N05°51.4	133°19.2	6.5'	N22°30.3	10.7'	59.4'	
Adhara	255°05.0	-29°00.2	19	105°31.2	50.5	147°44.7	6.6'	22°19.6	10.9'	59.4'	
Procyon	244°49.6	5°09.5	20	120°31.4	49.6	162°10.3	6.7'	22°08.7	11.0'	59.4'	
Pollux	243°15.9	27°57.7	21	135°31.6	•• 48.6	176°36.0	6.8'	21°57.7	11.1'	59.4'	
Avior	234°14.7	-59°35.4	22	150°31.8	47.7	191°01.8	6.9'	21°46.6	11.2'	59.4'	
Suhail	222°45.7	-43°32.2	23	165°32.0	46.7	205°27.7	7.0'	21°35.4	11.4'	59.4'	
Miaplacidus	221°38.8	-69°49.4									
Alphard	217°46.7	-8°46.3									

	Aries			Venus			Mars			Jupiter			Saturn		
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	349°02.8	143°00.8	S15°39.1	238°19.7	N22°45.1	210°51.3	N16°41.6	335°55.6	N02°42.9						
1	4°05.2	158°01.8	40.0	253°20.5	44.9	225°53.3	41.4	350°58.2	42.9						
2	19°07.7	173°02.8	40.0	268°21.3	44.7	240°55.2	41.3	6°00.8	42.8						
3	34°10.2	188°03.8	41.8	283°22.1	44.5	255°57.2	41.2	21°03.4	42.7						
4	49°12.6	203°04.8	42.7	298°22.9	44.4	270°59.2	41.0	36°06.0	42.6						
5	64°15.1	218°05.7	43.6	313°23.7	44.2	286°01.1	40.9	51°08.7	42.6						
6	79°17.6	233°06.7	S15°44.5	328°24.5	N22°44.0	301°03.1	N16°40.7	66°11.3	N02°42.5						
7	94°20.0	248°07.7	45.4	343°25.3	43.8	316°05.0	40.6	81°13.9	42.4						
8	109°22.5	263°08.7	46.3	358°26.1	43.6	331°07.0	40.4	96°16.5	42.4						
9	124°25.0	278°09.7	47.2	31°26.9	43.4	346°08.9	40.3	111°19.1	42.3						
10	139°27.4	293°10.7	48.1	28°27.7	43.3	1°10.9	40.1	126°21.7	42.2						
11	154°29.9	308°11.7	49.0	43°28.5	43.1	16°12.9	40.0	141°24.4	42.2						
12	169°32.4	323°12.8	S15°49.8	58°29.2	N22°42.9	31°14.8	N16°39.8	156°27.0	N02°42.1						
13	184°34.8	338°13.8	50.7	73°30.0	42.7	46°16.8	39.7	171°29.6	42.0						
14	199°37.3	353°14.8	51.6	88°30.8	42.5	61°18.7	39.6	186°32.2	41.9						
15	214°39.7	8°15.8	52.5	103°31.6	42.3	76°20.7	39.4	201°34.8	41.9						
16	229°42.2	23°16.8	53.4	118°32.4	42.2	91°22.6	39.3	216°37.4	41.8						
17	244°44.7	38°17.8	54.3	133°33.2	42.0	106°24.6	39.1	231°40.0	41.7						
18	259°47.1	53°18.8	S15°55.2	148°34.0	N22°41.8	121°26.6	N16°39.0	246°42.7	N02°41.7						
19	274°49.6	68°19.8	56.0	163°34.8	41.6	136°28.5	38.8	261°45.3	41.6						
20	289°52.1	83°20.9	56.9	178°35.6	41.4	151°30.5	38.7	276°47.9	41.5						
21	304°54.5	98°21.9	57.8	193°36.4	41.2	166°32.4	38.5	291°50.5	41.5						
22	319°57.0	113°22.9	58.7	208°37.2	41.1	181°34.4	38.4	306°53.1	41.4						
23	334°59.5	128°23.9	59.6	223°38.0	40.9	196°36.3	38.2	321°55.7	41.3						
Mer.pass. 00:44			ν 1.0' d 0.9' m -4.72			ν 0.8' d 0.2' m 1.21			ν 2.0' d 0.1' m -1.82			ν 2.6' d 0.1' m 0.44			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	350°01.9	143°24.9	S16°00.5	238°38.8	N22°40.7	211°38.3	N16°38.1	336°58.4	N02°41.2
1	5°04.4	158°26.0	01.3	253°39.6	40.5	226°40.3	38.0	352°01.0	41.2
2	20°06.8	173°27.0	02.2	268°40.4	40.3	241°42.2	37.8	7°03.6	41.1
3	35°09.3	188°28.0	03.1	283°41.2	40.1	256°44.2	37.7	22°06.2	41.1
4	50°11.8	203°29.1	04.0	298°42.0	39.9	271°46.1	37.5	37°08.8	41.0
5	65°14.2	218°30.1	04.8	313°42.8	39.8	286°48.1	37.4	52°11.4	40.9
6	80°16.7	233°31.1	S16°05.7	328°43.6	N22°39.6	301°50.1	N16°37.2	67°14.1	N02°40.8
7	95°19.2	248°32.2	06.6	343°44.4	39.4	316°52.0	37.1	82°16.7	40.7
8	110°21.6	263°33.2	07.5	358°45.2	39.2	331°54.0	36.9	97°19.3	40.7
9	125°24.1	278°34.3	08.3	31°46.0	39.0	346°55.9	36.8	112°21.9	40.6
10	140°26.6	293°35.3	09.2	28°46.8	38.8	1°57.9	36.7	127°24.5	40.5
11	155°29.0	308°36.3	10.1	43°47.6	38.6	16°59.9	36.5	142°27.2	40.5
12	170°31.5	323°37.4	S16°10.9	58°48.4	N22°38.4	32°01.8	N16°36.4	157°29.8	N02°40.4
13	185°34.0	338°38.4	11.8	73°49.2	38.3	47°03.8	36.2	172°32.4	40.3
14	200°36.4	353°39.5	12.7	88°50.0	38.1	62°05.7	36.1	187°35.0	40.2
15	215°38.9	8°40.5	13.5	103°50.8	37.7	77°07.7	35.9	202°37.6	40.2
16	230°41.3	23°41.6	14.4	118°51.6	37.7	92°09.7	35.8	217°40.2	40.1
17	245°43.8	38°42.7	15.3	133°52.4	37.5	107°11.6	35.6	232°42.9	40.0
18	260°46.3	53°43.7	S16°16.1	148°53.2	N22°37.3	122°13.6	N16°35.5	247°45.5	N02°40.0
19	275°48.7	68°44.8	17.0	163°54.0	37.1	137°15.5	35.3	262°48.1	39.9
20	290°51.2	83°45.8	17.9	178°54.8	36.9	152°17.5	35.2	277°50.7	39.8
21	305°53.7	98°46.9	18.7	193°55.7	36.7	167°19.5	35.1	292°53.3	39.7
22	320°56.1	113°48.0	19.6	208°56.5	36.5	182°21.4	34.9	307°56.0	39.7
23	335°58.6	128°49.0	20.5	223°57.3	36.3	197°23.4	34.8	322°58.6	39.6
Mer.pass. 00:40 ν 1.0' d 0.9' m -4.73 ν 0.8' d 0.2' m 1.21 ν 2.0' d 0.1' m -1.82 ν 2.6' d 0.1' m 0.43									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	351°01.1	143°50.1	S16°21.3	238°58.1	N22°36.2	212°25.3	N16°34.6	338°01.2	N02°39.5
1	6°03.5	158°51.2	22.2	253°58.9	36.0	227°27.3	34.5	353°03.8	39.5
2	21°06.0	173°52.2	23.0	268°59.7	35.8	242°29.3	34.3	8°06.4	39.4
3	36°08.4	188°53.3	23.9	284°00.5	35.6	257°31.2	34.2	23°09.0	39.3
4	51°10.9	203°54.4	24.7	299°01.3	35.4	272°33.2	34.0	38°11.7	39.2
5	66°13.4	218°55.5	25.6	314°02.1	35.2	287°35.2	33.9	53°14.3	39.2
6	81°15.8	233°56.5	S16°26.3	329°02.9	N22°35.0	302°37.1	N16°33.8	68°16.9	N02°39.1
7	96°18.3	248°57.6	27.3	344°03.7	34.8	317°39.1	33.6	83°19.5	39.0
8	111°20.8	263°58.7	28.2	359°04.5	34.6	332°41.0	33.3	98°22.1	39.0
9	126°23.2	278°59.8	29.0	14°05.3	34.4	347°43.0	33.5	113°24.8	38.9
10	141°25.7	294°00.9	29.9	29°06.1	34.2	2°45.0	33.2	128°27.4	38.8
11	156°28.2	309°02.0	30.7	44°06.9	34.0	17°46.9	33.0	143°30.0	38.7
12	171°30.6	324°03.0	S16°31.6	59°07.7	N22°33.8	32°48.9	N16°32.9	158°32.6	N02°38.7
13	186°33.1	339°04.1	32.4	74°08.6	33.6	47°50.9	32.7	173°35.2	38.6
14	201°35.6	354°05.2	33.3	89°09.4	33.5	62°52.8	32.6	188°37.9	38.5
15	216°38.0	9°06.3	34.1	104°10.2	33.3	77°54.8	32.5	203°40.5	38.4
16	231°40.5	24°07.4	35.0	119°11.0	33.1	92°56.7	32.3	218°43.1	38.4
17	246°42.9	39°08.5	35.8	134°11.8	32.9	107°58.7	32.2	233°45.7	38.3
18	261°45.4	54°09.6	S16°36.6	149°12.6	N22°32.7	123°00.7	N16°32.0	248°48.3	N02°38.2
19	276°47.9	69°10.7	37.5	164°13.4	32.5	138°02.6	31.9	263°51.0	38.2
20	291°50.3	84°11.8	38.3	179°14.2	32.3	153°04.6	31.7	278°53.6	38.1
21	306°52.8	99°12.9	39.2	194°15.0	32.1	168°06.6	31.6	293°56.2	38.0
22	321°55.3	114°14.0	40.0	209°15.8	31.9	183°08.5	31.4	308°58.8	37.9
23	336°57.7	129°15.1	40.8	224°16.7	31.7	198°10.5	31.3	324°01.4	37.9
Mer.pass.	00:36:36	11°11' 0.9" m -4.74		10°08' 0.2" m 1.21		10°20' 0.1" m -1.82		10°26' 0.1" m 0.43	

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	352°00.2	144°16.3	S16°41.7	239°17.5	N22°31.5	213°12.5	N16°31.1	339°04.1	N02°37.8			213°12.5	N16°31.1	339°04.1	N02°37.8				
1	7°02.7	159°17.4	42.5	254°18.3	31.1	228°14.4	31.0	354°06.7	37.7			228°14.4	31.0	354°06.7	37.7				
2	22°05.1	174°18.5	43.4	269°19.1	31.3	243°16.4	30.9	9°09.3	37.7			243°16.4	30.9	9°09.3	37.7				
3	37°07.6	189°19.6	•• 44.2	284°19.9	•• 30.9	258°18.3	•• 30.7	24°11.9	•• 37.6			258°18.3	•• 30.7	24°11.9	•• 37.6				
4	52°10.0	204°20.7	45.0	299°20.7	30.7	273°20.3	30.6	39°14.6	37.5			273°20.3	30.6	39°14.6	37.5				
5	67°12.5	219°21.8	45.9	314°21.5	30.5	288°22.3	30.4	54°17.2	37.4			288°22.3	30.4	54°17.2	37.4				
6	82°15.0	234°23.0	S16°46.7	329°22.3	N22°30.3	303°24.2	N16°30.3	69°19.8	N02°37.4			303°24.2	N16°30.3	69°19.8	N02°37.4				
7	97°17.4	249°24.1	47.5	344°23.2	30.1	318°26.2	30.1	84°22.4	37.3			318°26.2	30.1	84°22.4	37.3				
8	112°19.9	264°25.2	48.4	359°24.0	29.9	333°28.2	30.0	99°25.0	37.2			333°28.2	30.0	99°25.0	37.2				
9	127°22.4	279°26.4	•• 49.2	14°24.8	•• 29.7	348°30.1	•• 29.8	114°27.7	•• 37.1			348°30.1	•• 29.8	114°27.7	•• 37.1				
10	142°24.8	294°27.5	50.0	29°25.6	29.5	3°32.1	29.7	129°30.7	37.1			29°25.6	29.5	3°32.1	29.7				
11	157°27.3	309°28.6	50.9	44°26.4	29.3	18°34.1	29.6	144°32.9	37.0			18°34.1	29.6	144°32.9	37.0				
12	172°29.8	324°29.7	S16°51.7	59°27.2	N22°29.1	33°36.0	N16°29.4	159°35.5	N02°36.9			33°36.0	N16°29.4	159°35.5	N02°36.9				
13	187°32.2	339°30.9	52.5	74°28.0	28.9	48°38.0	29.3	174°38.1	36.9			48°38.0	29.3	174°38.1	36.9				
14	202°34.7	354°32.0	53.3	89°28.9	28.7	63°40.0	29.1	189°40.8	36.8			63°40.0	29.1	189°40.8	36.8				
15	217°37.2	9°33.2	•• 54.2	104°29.7	•• 28.5	78°41.9	•• 29.0	204°43.4	•• 36.7			78°41.9	•• 29.0	204°43.4	•• 36.7				
16	232°39.6	24°34.3	55.0	119°30.5	28.3	93°43.9	28.8	219°46.0	36.6			93°43.9	28.8	219°46.0	36.6				
17	247°42.1	39°35.5	55.8	134°31.3	28.1	108°45.9	28.7	234°48.6	36.6			108°45.9	28.7	234°48.6	36.6				
18	262°44.5	54°36.6	S16°56.8	149°32.1	N22°27.9	123°47.8	N16°28.5	249°51.3	N02°36.5			123°47.8	N16°28.5	249°51.3	N02°36.5				
19	277°47.0	69°37.7	57.5	164°32.9	27.7	138°49.8	28.4	264°53.9	36.4			138°49.8	28.4	264°53.9	36.4				
20	292°49.5	84°38.9	58.3	179°33.7	27.5	153°51.8	28.3	279°56.9	36.3			153°51.8	28.3	279°56.9	36.3				
21	307°51.9	99°40.0	•• 59.1	194°34.6	•• 27.1	168°53.7	•• 28.1	294°59.1	•• 36.3			168°53.7	•• 28.1	294°59.1	•• 36.3				
22	322°54.4	114°41.2	16°59.9	209°35.4	27.3	183°55.7	28.0	310°07.7	36.2			183°55.7	28.0	310°07.7	36.2				
23	337°56.9	129°42.4	17°00.7	224°36.2	26.9	198°57.7	27.8	325°04.4	36.1			198°57.7	27.8	325°04.4	36.1				
Mer.pass. 00:32				ν 1.1' d 0.8' m -4.75				ν 0.8' d 0.2' m 1.20				ν 2.0' d 0.1' m -1.83				ν 2.6' d 0.1' m 0.42			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	352°59.3	144°43.5	S17°01.6	239°37.0	N22°26.7	213°59.6	N16°27.7	340°07.0	N02°36.1										
1	8°01.8	159°44.7	02.4	254°37.8	26.5	229°01.6	27.5	355°09.6	36.0										
2	23°04.3	174°45.8	03.2	269°38.7	26.3	244°03.6	27.4	10°12.2	35.9										
3	38°06.7	189°47.0	•• 04.0	284°39.5	•• 26.1	259°05.5	•• 27.2	25°14.9	•• 35.8										
4	53°09.2	204°48.2	04.8	299°40.3	25.9	274°07.5	27.1	40°17.5	35.8										
5	68°11.7	219°49.3	05.6	314°41.1	25.7	289°09.5	27.0	55°20.1	35.7										
6	83°14.1	234°50.5	S17°06.4	329°41.9	N22°25.3	304°11.4	N16°26.8	70°22.7	N02°35.6										
7	98°16.6	249°51.7	07.3	344°42.7	25.3	319°13.4	26.7	85°25.4	35.5										
8	113°19.0	264°52.9	08.1	359°43.6	25.1	334°15.4	26.5	100°28.0	35.5										
9	128°21.5	279°54.0	•• 08.9	14°44.4	•• 24.8	349°17.3	•• 26.4	115°30.6	•• 35.4										
10	143°24.0	294°55.2	09.7	29°45.2	24.6	4°19.3	26.2	130°33.2	35.3										
11	158°26.4	309°56.4	10.5	44°46.0	24.4	19°21.3	26.1	145°35.9	35.3										
12	173°28.9	324°57.6	S17°11.3	59°46.9	N22°24.2	34°23.2	N16°26.0	160°38.5	N02°35.2										
13	188°31.4	339°58.8	12.1	74°47.7	24.0	49°25.2	25.8	175°41.1	35.1										
14	203°33.8	354°59.9	12.9	89°48.5	23.8	64°27.2	25.7	190°43.7	35.0										
15	218°36.3	10°01.1	•• 13.7	104°49.3	•• 23.6	79°29.1	•• 25.5	205°46.3	•• 35.0										
16	233°38.8	25°02.3	14.5	119°50.1	23.4	94°31.1	25.4	220°49.0	34.9										
17	248°41.2	40°03.5	15.3	134°51.0	23.2	109°33.1	25.2	235°51.6	34.8										
18	263°43.7	55°04.7	S17°16.1	149°51.8	N22°23.0	124°35.0	N16°25.1	250°54.2	N02°34.7										
19	278°46.1	70°05.9	16.9	164°52.6	22.8	139°37.0	24.9	265°56.8	34.7										
20	293°48.6	85°07.1	17.7	179°53.4	22.6	154°39.0	24.8	280°59.5	34.6										
21	308°51.1	100°08.3	•• 18.5	194°54.3	•• 22.4	169°40.9	•• 24.7	296°02.1	•• 34.5										
22	323°53.5	115°09.5	19.3	209°55.1	22.2	184°42.9	24.5	311°04.7	34.4										
23	338°56.0	130°10.7	20.1	224°55.9	22.0	199°44.9	24.4	326°07.3	34.4										
Mer.pass. 00:28				ν 1.2' d 0.8' m -4.76				ν 0.8' d 0.2' m 1.20				ν 2.0' d 0.1' m -1.83				ν 2.6' d 0.1' m 0.42			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	353°58.5	145°11.9	S17°20.9	239°56.7	N22°21.7	214°46.9	N16°24.2	341°10.0	N02°34.3										
1	9°00.9	160°13.1	21.7	254°57.5	21.5	229°48.8	24.1	356°12.6	34.2										
2	24°03.4	175°14.3	22.5	269°58.4	21.3	244°50.8	23.9	11°15.2	34.1										
3	39°05.4	190°15.5	•• 23.3	284°59.2	•• 21.1	259°52.8	•• 23.8	26°17.8	•• 34.1										
4	54°08.3	205°16.8	24.1	300°00.0	20.9	274°54.7	23.6	41°20.5	34.0										
5	69°10.8	220°18.0	24.9	315°00.8	20.7	289°56.7	23.5	56°23.1	33.9										
6	84°13.3	235°19.2	S17°25.7	330°01.7	N22°20.5	304°58.7	N16°23.4	71°25.7	N02°33.9										
7	99°15.7	250°20.4	26.5	345°02.5	20.3	320°00.6	23.2	86°28.3	33.8										
8	114°18.2	265°21.6	27.2	•• 0°03.3	20.1	335°02.6	23.1	101°31.0	33.7										
9	129°20.6	280°22.9	•• 28.0	15°04.2	•• 19.9	350°04.6	•• 22.9	116°33.6	•• 33.6										
10	144°23.1	295°24.1	28.8	30°05.0	19.6	5°06.6	22.8	131°36.2	33.6										
11	159°25.6	310°25.3	29.6	45°05.8	19.4	20°08.5	22.6	146°38.8	33.5										
12	174°28.0	325°26.6	S17°30.4	60°06.6	N22°19.2	35°10.5	N16°22.5	161°41.5	N02°33.4										
13	189°30.5	340°27.8	31.2	75°07.5	19.0	50°12.5	22.4	176°44.1	33.3										
14	204°33.0	355°29.0	31.9	90°08.3	18.8	65°14.4	22.2	191°46.7	33.3										
15	219°35.4	10°30.3	•• 32.7	105°09.1	•• 18.6	80°16.4	•• 22.1	206°49.4	•• 33.2										
16	234°37.9	25°31.5	33.5	120°09.9	18.4	95°18.4	21.8	221°52.0	33.1										
17	249°40.9	40°32.7	34.3	135°10.8	18.2	110°20.4	21.9	236°54.6	33.0										
18	264°42.8	55°34.0	S17°35.1	150°11.6	N22°18.0	125°22.3	N16°21.6	251°57.2	N02°33.0										
19	279°45.3	70°35.2	35.8	165°12.4	17.7	140°24.3	21.5	266°59.9	32.9										
20	294°47.7	85°36.5	36.6	180°13.3	17.5	155°26.3	21.3	282°02.5	32.8										
21	309°50.2	100°37.7	•• 37.4	195°14.1	•• 17.3	170°28.2	•• 21.2	297°05.1	•• 32.7										
22	324°52.7	115°39.0	38.2	210°14.9	17.1	185°30.2	21.1	312°07.7	32.7										
23	339°55.1	130°40.2	38.9	225°15.8	16.9	200°32.2	20.9	327°10.4	32.6										
Mer.pass. 00:24				ν 1.2' d 0.8' m -4.77				ν 0.8' d 0.2' m 1.19				ν 2.0' d 0.1' m -1.83				ν 2.6' d 0.1' m 0.42			

Stars			h			Sun			Moon		
	SHA	Dec	Sun	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.0	29°14.4	0	180°58.4	N03°52.0	161°05.7	13.7°	S08°37.5	14.9'	56.9'	
Ankaa	353°05.4	-42°09.4	1	195°58.6	51.1	175°38.5	13.7°	08°52.4	14.7'	56.9'	
Schedar	349°28.9	56°41.1	2	210°58.8	50.1	190°11.2	13.7°	09°07.1	14.8'	56.8'	
Diphda	348°45.6	-17°50.2	3	225°59.1	•• 49.2	204°43.9	13.7°	09°21.9	14.6'	56.8'	
Achernar	335°18.7	-57°05.8	4	240°59.3	48.2	219°16.7	13.7°	09°21.5	14.6'	56.8'	
Hamal	327°49.4	23°35.4	5	255°59.5	47.2	233°49.4	13.7°	09°51.1	14.6'	56.8'	
Polaris	313°03.0	89°22.3	6	270°59.7	N03°46.3	248°22.1	13.7°	S10°05.7	14.5'	56.7'	
Acamar	315°10.5	-40°11.5	7	286°00.0	45.3	262°54.8	13.7°	10°20.2	14.4'	56.7'	
Menkar	314°05.6	-43°11.8	8	301°00.2	44.4	277°27.4	13.7°	10°34.6	14.3'	56.7'	
Mirak	308°26.4	-49°13.8	9	316°00.4	•• 43.4	292°00.1	13.6°	10°48.9	14.3'	56.6'	
Aldebaran	290°38.0	16°33.8	10	331°00.6	42.5	306°32.7	13.6°	11°03.2	14.3'	56.6'	
Rigel	281°02.5	-8°10.0	11	346°00.8	41.5	321°05.4	13.6°	11°17.5	14.1'	56.6'	
Capella	280°19.8	46°01.3	12	1°01.1	N03°40.5	335°38.0	13.6°	S11°31.6	14.1'	56.6'	
Bellatrix	278°21.4	6°22.5	13	16°01.3	39.6	350°10.6	13.6°	11°45.7	14.1'	56.5'	
Elnath	278°00.1	28°37.8	14	31°01.5	38.6	•• 43.1	13.6°	11°59.8	13.9'	56.5'	
Alnilam	275°36.3	-1°10.9	15	46°01.7	•• 37.7	19°15.7	13.5°	12°13.7	13.9'	56.5'	
Betelgeuse	270°50.6	7°24.8	16	61°01.9	36.7	33°48.2	13.5°	12°27.6	13.8'	56.4'	
Canopus	263°51.9	-52°42.2	17	76°02.2	35.7	48°20.7	13.5°	12°41.4	13.8'	56.4'	
Sirius	258°25.1	-16°44.9	18	91°02.4	N03°34.8	62°53.2	13.5°	S12°55.2	13.7'	56.4'	
Adhara	255°04.9	-29°00.2	19	106°02.8	32.8	77°25.7	13.5°	13°08.9	13.6'	56.4'	
Procyon	244°49.6	5°09.5	20	121°02.8	33.9	91°58.2	13.4°	13°22.5	13.5'	56.3'	
Pollux	243°15.8	27°57.7	21	136°03.1	•• 31.9	106°30.6	13.4°	13°36.0	13.5'	56.3'	
Avior	234°14.6	-59°35.4	22	151°03.3	31.0	121°03.0	13.4°	13°46.5	13.4'	56.3'	
Shul	222°45.7	-43°32.2	23	166°03.5	30.0	135°35.4	13.4°	14°02.9	13.3'	56.2'	
Miaplacidus	221°38.8	-69°49.4									
Alphard	217°46.7	-8°46.3									

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	354°57.6	145°41.5	S17°39.7	240°16.6	N22°16.7	215°34.2	N16°20.8	342°13.0	N02°32.5										
1	10°00.1	160°42.8	40.5	255°17.4	16.5	230°36.1	20.6	357°15.6	32.5										
2	25°02.5	175°44.0	41.3	270°18.3	16.2	245°38.1	20.5	12°18.2	32.4										
3	40°05.0	190°45.3	42.0	285°19.1	16.0	260°40.1	20.3	27°20.9	32.3										
4	55°07.5	205°46.6	42.8	300°19.9	15.8	275°42.0	20.2	42°23.5	32.2										
5	70°09.9	220°47.8	43.6	315°20.7	15.6	290°44.0	20.1	57°26.1	32.2										
6	85°12.4	235°49.1	S17°44.3	330°21.6	N22°15.4	305°46.0	N16°19.9	72°28.8	N02°32.1										
7	100°14.9	250°50.4	45.1	345°22.4	15.2	320°48.0	19.8	87°34.4	32.0										
8	115°17.3	265°51.6	45.9	0°23.2	15.0	335°49.9	19.6	102°31.0	31.9										
9	130°19.8	280°52.9	46.6	15°24.1	14.7	350°51.9	19.5	117°36.6	31.9										
10	145°22.2	295°54.2	47.4	30°24.9	14.5	5°53.9	19.3	132°39.3	31.8										
11	160°24.7	310°55.5	48.1	45°25.7	14.3	20°55.9	19.2	147°41.9	31.7										
12	175°27.2	325°56.8	S17°48.9	60°26.6	N22°14.1	35°57.8	N16°19.1	162°44.5	N02°31.6										
13	190°29.6	340°58.0	49.7	75°27.4	13.9	50°59.8	18.9	177°47.1	31.6										
14	205°32.1	355°59.3	50.4	90°28.2	13.7	66°01.8	18.8	192°49.8	31.5										
15	220°34.6	1°00.6	51.2	105°29.1	13.4	81°03.8	18.6	207°52.4	31.4										
16	235°37.0	26°01.9	51.9	120°29.9	13.2	96°05.7	18.5	222°55.0	31.3										
17	250°39.5	41°03.2	52.7	135°30.8	13.0	111°07.7	18.3	237°57.7	31.3										
18	265°42.0	56°04.5	S17°53.4	150°31.6	N22°12.8	126°09.7	N16°18.2	253°00.3	N02°31.2										
19	280°44.4	71°05.8	54.2	165°32.4	12.6	141°11.7	18.0	268°02.9	31.1										
20	295°46.9	86°07.1	55.0	180°33.3	12.3	156°13.6	17.9	283°05.5	31.0										
21	310°49.4	101°08.4	55.7	195°34.1	12.1	171°15.6	17.8	298°08.2	31.0										
22	325°51.8	116°09.7	56.5	210°34.9	11.9	186°17.6	17.6	313°10.8	30.9										
23	340°54.3	131°11.0	57.2	225°35.8	11.7	201°19.6	17.5	328°13.4	30.8										
Mer.pass. 00:20				ν 1.3' d 0.8' m -4.78				ν 0.8' d 0.2' m 1.19				ν 2.0' d 0.1' m -1.83				ν 2.6' d 0.1' m 0.41			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	355°56.7	146°12.3	S17°58.0	240°36.6	N22°11.5	216°21.5	N16°17.3	343°16.1	N02°30.7										
1	10°59.2	161°13.7	58.7	255°37.4	11.2	231°23.5	17.2	358°18.7	30.7										
2	26°01.7	176°15.0	17°59.4	270°38.3	11.0	246°25.5	17.0	13°21.3	30.6										
3	41°04.1	191°16.3	18°00.2	285°39.1	10.8	261°27.5	16.9	28°23.9	30.5										
4	56°06.6	206°17.6	01.7	300°40.0	10.6	276°29.4	16.8	43°26.6	30.4										
5	71°09.1	221°18.9	01.9	315°40.8	10.4	291°31.4	16.6	58°29.2	30.4										
6	86°11.5	236°20.2	S18°02.4	330°41.6	N22°10.1	306°33.4	N16°16.5	73°31.8	N02°30.3										
7	101°14.0	251°21.6	03.2	345°42.5	9.9	321°35.4	16.3	88°34.5	30.2										
8	116°16.5	266°22.9	03.9	0°43.3	9.7	336°37.3	16.2	103°37.1	30.1										
9	131°18.9	281°24.2	04.6	15°44.2	9.5	351°39.3	16.0	118°39.7	30.1										
10	146°21.4	296°25.6	05.4	30°45.0	9.3	6°41.3	15.9	133°42.3	30.0										
11	161°23.9	311°26.9	06.1	45°45.8	9.0	21°43.3	15.8	148°45.0	29.9										
12	176°26.3	326°28.2	S18°06.9	60°46.7	N22°08.8	36°45.2	N16°15.6	163°47.6	N02°29.8										
13	191°28.8	341°29.6	07.6	75°47.5	8.8	51°47.2	15.5	178°50.2	29.8										
14	206°31.2	356°30.9	08.3	90°48.4	8.4	66°49.2	15.3	193°52.9	29.7										
15	221°33.7	1°13.2	09.1	105°49.2	8.2	81°51.2	15.2	208°55.5	29.6										
16	236°36.2	26°33.6	09.8	120°50.0	7.9	96°53.1	15.0	223°58.1	29.5										
17	251°38.6	41°35.0	10.5	135°50.9	7.7	111°55.1	14.9	239°00.7	29.5										
18	266°41.1	56°36.3	S18°11.2	150°51.7	N22°07.5	126°57.1	N16°14.8	254°03.4	N02°29.4										
19	281°43.6	71°37.7	12.0	165°52.6	7.3	141°59.1	14.6	269°06.0	29.3										
20	296°46.0	86°39.0	12.7	180°53.4	7.0	157°01.1	14.5	284°08.6	29.2										
21	311°48.5	101°40.4	13.4	195°54.3	6.8	172°03.0	14.3	299°11.3	29.2										
22	326°51.0	116°14.8	14.2	210°55.1	6.6	187°05.0	14.2	314°13.9	29.1										
23	341°53.4	131°43.1	14.9	225°55.9	6.4	202°07.0	14.0	329°16.5	29.0										
Mer.pass. 00:16				ν 1.3' d 0.7' m -4.78				ν 0.8' d 0.2' m 1.18				ν 2.0' d 0.1' m -1.83				ν 2.6' d 0.1' m 0.41			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	356°55.9	146°44.5	S18°15.6	240°56.8	N22°06.1	217°09.0	N16°13.9	344°19.2	N02°28.9										
1	11°58.3	161°45.9	16.3	255°57.6	05.9	232°10.9	13.8	359°21.8	28.9										
2	27°00.8	176°47.2	17.0	270°58.5	05.7	247°12.9	13.6	14°24.4	28.8										
3	42°03.3	191°48.6	17.8	285°59.3	05.5	262°14.9	13.5	29°27.0	28.7										
4	57°05.7	206°50.0	18.5	301°00.2	05.2	277°16.9	13.3	44°29.7	28.6										
5	72°08.2	221°51.3	19.2	316°01.0	05.0	292°18.9	13.2	59°32.3	28.6										
6	87°10.7	236°52.7	S18°19.9	331°01.9	N22°04.8	307°20.8	N16°13.0	74°34.9	N02°28.5										
7	102°13.1	251°54.1	20.6	346°02.7	04.6	322°22.8	12.9	89°37.6	28.4										
8	117°15.6	266°55.5	21.3	1°03.6	04.3	337°24.8	12.8	104°40.2	28.3										
9	132°18.1	281°56.9	22.1	16°04.4	4.1	352°26.8	12.6	119°42.8	28.3										
10	147°20.5	296°58.3	22.8	31°05.2	03.9	7°28.8	12.5	134°45.5	28.2										
11	162°23.0	311°59.7	23.5	46°06.1	03.7	22°30.7	12.3	149°48.1	28.1										
12	177°25.5	327°01.1	S18°24.2	61°06.9	N22°03.4	37°32.7	N16°12.2	164°50.7	N02°28.0										
13	192°27.9	342°02.5	24.9	76°07.8	03.2	52°34.7	12.0	179°53.4	28.0										
14	207°30.4	357°03.9	25.6	91°08.6	03.0	67°36.7	11.9	194°56.0	27.9										
15	222°32.8	1°05.3	26.3	106°09.5	02.7	82°38.7	11.8	209°58.6	27.8										
16	237°35.3	27°06.7	27.0	121°10.3	02.5	97°40.6	11.6	225°01.3	27.7										
17	252°37.8	42°08.1	27.7	136°11.2	02.3	112°42.6	11.5	240°03.9	27.7										
18	267°40.2	57°09.5	S18°28.4	151°12.0	N22°02.1	127°44.6	N16°11.3	255°06.5	N02°27.6										
19	282°42.7	72°10.9	29.1	166°12.9	01.8	142°46.6	11.2	270°09.1	27.5										
20	297°45.2	87°12.3	29.8	181°13.7	01.6	157°48.6	11.0	285°11.8	27.4										
21	312°47.6	102°13.7	30.5	196°14.6	1.4	172°50.5	10.9	300°14.4	27.4										
22	327°50.1	117°15.1	31.2	211°15.4	01.1	187°52.5	10.8	315°17.0	27.3										
23	342°52.6	132°16.6	31.9	226°16.3	00.9	202°54.5	10.6	330°19.7	27.2										
Mer.pass. 00:12				ν 1.4' d 0.7' m -4.79				ν 0.8' d 0.2' m 1.18				ν 2.0' d 0.1' m -1.84				ν 2.6' d 0.1' m 0.40			

Stars			h			Sun			Moon			
	SHA	Dec	Wed	GHA	Dec	GHA	ν	Dec	d	HP		
Alpheratz	357°33.0	29°14.4	0	181°14.4	N02°42.9	127°20.1	11.5'	S23°08.2	8.6'	55.0'		
Ankaa	353°05.4	-42°09.4	1	196°14.6	41.9	141°50.6	11.5'	23°16.8	8.4'	55.0'		
Schedar	349°28.9	56°41.1	2	211°14.8	41.0	156°21.1	11.4'	23°25.2	8.3'	55.0'		
Diphda	348°45.6	-17°50.2	3	226°15.1	40.0	170°51.6	11.4'	23°33.5	8.2'	54.9'		
Achernar	335°18.6	-57°05.8	4	241°15.3	39.0	185°22.0	11.4'	23°41.7	8.1'	54.9'		
Hamal	327°49.3	23°35.4	5	256°15.5	38.1	199°52.3	11.3'	23°49.8	8.0'	54.9'		
Polaris	313°01.5	89°22.3	6	271°15.7	N02°37.1	214°22.7	11.3'	S23°57.8	7.9'	54.9'		
Acamar	315°10.4	-40°11.5	7	286°16.0	36.1	228°52.9	11.2'	24°05.7	7.7'	54.9'		
Menkar	314°04.5	4°11.8	8	301°16.2	35.2	243°23.2	11.2'	24°13.4	7.6'	54.8'		
Miraf	308°26.0	49°57.3	9	316°16.4	34.2	257°53.4	11.2'	24°21.0	7.5'	54.8'		
Aldebaran	290°37.9	16°33.3	10	331°16.6	33.3	272°23.6	11.1'	24°28.5	7.4'	54.8'		
Rigel	281°02.5	-8°10.0	11	346°16.8	32.3	286°53.7	11.1'	24°35.9	7.2'	54.8'		
Capella	280°19.8	46°01.3	12	1°17.1	N02°31.3	301°23.8	11.0'	S24°43.1	7.2'	54.8'		
Bellatrix	278°21.4	6°22.5	13	16°17.3	30.4	315°53.8	11.0'	24°50.3	7.0'	54.7'		
Elmath	278°00.1	28°37.8	14	31°17.5	29.4	330°23.8	11.0'	24°57.3	6.9'	54.7'		
Anilam	275°36.3	-1°10.9	15	46°17.7	28.4	344°53.8	10.9'	25°04.2	6.7'	54.7'		
Betelgeuse	270°50.6	7°24.8	16	61°18.0	27.5	359°23.7	10.9'	25°10.9	6.7'	54.7'		
Canopus	263°51.9	-52°42.2	17	76°18.2	26.5	13°53.6	10.9'	25°17.6	6.5'	54.7'		
Sirius	258°25.1	-16°44.9	18	91°18.4	N02°25.5	28°23.5	10.8'	S25°24.1	6.4'	54.7'		
Adhara	255°04.9	-29°00.2	19	106°18.6	24.6	42°53.3	10.8'	25°30.5	6.2'	54.6'		
Procyon	244°49.5	5°09.5	20	121°18.9	23.6	57°23.1	10.7'	25°36.7	6.2'	54.6'		
Pollux	243°15.8	27°57.7	21	136°19.1	22.6	71°52.8	10.7'	25°42.9	6.0'	54.6'		
Avior	234°14.6	-59°35.4	22	151°19.3	21.7	86°22.5	10.7'	25°48.9	5.9'	54.6'		
Suhail	222°45.6	-43°32.2	23	166°19.5	20.7	100°52.2	10.6'	25°54.8	5.8'	54.6'		
Miaplacidus	219°38.8	-69°49.4		SD = 15.9'	d = 1.0'			SD = 15.0'				
Alphard	217°46.7	-8°46.3										
Regulus	207°33.3	11°40.3										

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	357°55.0	147°18.0	S18°32.6	241°17.1	N22°00.7	217°56.5	N16°10.5	345°22.3	N02°27.1					
1	12°57.5	162°19.4	33.3	256°18.0	00.5	232°58.5	10.3	0°24.9	27.1					
2	28°00.0	177°20.9	34.0	271°18.8	00.2	248°00.4	10.2	15°27.6	27.0					
3	43°02.4	192°22.3	· · 34.7	286°19.7	22°00.0	263°02.4	· · 10.1	30°30.2	· · 26.9					
4	58°04.9	207°23.7	35.4	301°20.5	21°59.8	278°04.4	09.9	45°32.8	26.8					
5	73°07.3	222°25.2	36.1	316°21.4	59.5	293°06.4	09.8	60°35.5	26.8					
6	88°09.8	237°26.6	S18°36.8	331°22.2	N21°59.3	308°08.4	N16°09.6	75°38.1	N02°26.7					
7	103°12.3	252°28.0	37.5	346°23.1	59.1	323°10.3	09.5	90°40.7	26.6					
8	118°14.7	267°29.5	38.2	1°23.9	58.8	338°12.3	09.3	105°43.4	26.5					
9	133°17.2	282°30.9	· · 38.9	16°24.8	· · 58.6	353°14.3	· · 09.2	120°46.0	· · 26.5					
10	148°19.7	297°32.4	39.5	31°25.7	58.4	8°16.3	09.1	135°48.6	26.4					
11	163°22.1	312°33.8	40.2	46°26.5	58.1	23°18.3	08.9	150°51.3	26.3					
12	178°24.6	327°35.3	S18°40.9	61°27.4	N21°57.9	38°20.3	N16°08.8	165°53.9	N02°26.2					
13	193°27.1	342°36.7	41.6	76°28.2	57.7	53°22.2	08.6	180°56.5	26.2					
14	208°29.5	357°38.2	42.3	91°29.1	57.4	68°24.2	08.5	195°59.2	26.1					
15	223°32.0	372°39.7	· · 43.0	106°29.9	· · 57.2	83°26.2	· · 08.3	211°01.8	· · 26.0					
16	238°34.5	387°41.1	43.6	121°30.8	57.0	98°28.2	08.2	226°04.4	25.9					
17	253°36.9	402°42.6	44.3	136°31.6	56.7	113°30.2	08.1	241°07.1	25.9					
18	268°39.4	417°44.1	S18°45.0	151°32.5	N21°56.5	128°32.2	N16°07.9	256°09.7	N02°25.8					
19	283°41.8	432°45.5	45.7	166°33.3	56.3	143°34.1	07.8	271°12.3	25.7					
20	298°44.3	447°47.0	46.3	181°34.2	56.0	158°36.1	07.6	286°15.0	25.6					
21	313°46.8	462°48.5	· · 47.0	196°35.1	· · 55.8	173°38.1	· · 07.5	301°17.6	· · 25.5					
22	328°49.2	477°50.0	47.7	211°35.9	55.6	188°40.1	07.4	316°20.2	25.5					
23	343°51.7	492°51.5	48.4	226°36.8	55.3	203°42.1	07.2	331°22.9	25.4					
Mer.pass. 00:08			ν 1.4' d 0.7' m -4.80			ν 0.9' d 0.2' m 1.17			ν 2.0' d 0.1' m -1.84			ν 2.6' d 0.1' m 0.40		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	358°54.2	147°52.9	S18°49.0	241°37.6	N21°55.1	218°44.1	N16°07.1	346°25.5	N02°25.3						
1	13°56.6	162°54.4	49.7	256°38.5	54.9	233°46.0	06.9	1°28.1	25.2						
2	28°59.1	177°55.9	50.4	271°39.3	54.6	248°48.0	06.8	16°30.8	25.2						
3	44°01.6	192°57.4	· · 51.0	286°40.2	· · 54.4	263°50.0	· · 06.6	31°33.4	· · 25.1						
4	59°04.0	207°58.9	51.7	301°41.1	54.2	278°52.0	06.5	46°36.0	25.0						
5	74°06.5	223°00.4	52.4	316°41.9	53.9	293°54.0	06.4	61°38.7	24.9						
6	89°08.9	238°01.9	S18°53.0	331°42.8	N21°53.7	308°56.0	N16°06.2	76°41.3	N02°24.8						
7	104°11.4	253°03.4	53.7	346°43.6	53.5	323°58.0	06.1	91°43.9	24.8						
8	119°13.9	268°04.9	54.3	1°44.5	53.2	338°59.9	05.9	106°46.6	24.7						
9	134°16.3	283°06.4	· · 55.0	16°45.4	· · 53.0	354°01.9	· · 05.8	121°49.2	· · 24.6						
10	149°18.8	298°07.9	55.7	31°46.2	52.7	7°03.9	05.7	136°51.8	24.6						
11	164°21.3	313°09.4	56.3	46°47.1	52.5	24°05.9	05.5	151°54.5	24.5						
12	179°23.7	328°11.0	S18°57.0	61°47.9	N21°52.3	39°07.9	N16°05.4	166°57.1	N02°24.4						
13	194°26.2	343°12.5	57.6	76°48.8	52.0	54°09.9	05.2	181°59.7	24.3						
14	209°28.7	358°14.0	58.3	91°49.7	51.8	69°11.9	05.1	197°02.4	24.3						
15	224°31.1	373°15.5	· · 58.9	106°50.5	· · 51.6	84°13.8	· · 04.9	212°05.0	· · 24.2						
16	239°33.6	388°17.1	59°56.2	121°51.4	51.3	99°15.8	04.8	227°07.6	24.1						
17	254°36.1	403°18.6	19°00.2	136°52.3	51.1	114°17.8	04.7	242°10.3	24.0						
18	269°38.5	418°20.1	S19°00.9	151°53.1	N21°50.8	129°19.8	N16°04.5	257°12.9	N02°24.0						
19	284°41.0	433°21.7	01.5	166°54.0	50.6	144°21.8	04.4	272°15.5	23.9						
20	299°43.4	448°23.2	02.2	181°54.8	50.4	159°23.8	04.2	287°18.2	23.8						
21	314°45.9	463°24.7	· · 02.8	196°55.7	· · 50.1	174°25.8	· · 04.1	302°20.8	· · 23.7						
22	329°48.4	478°26.3	03.5	211°56.6	49.9	189°27.7	04.0	317°23.4	23.6						
23	344°50.8	493°27.8	04.1	226°57.4	49.7	204°29.7	03.8	332°26.1	23.6						
Mer.pass. 00:04			ν 1.5' d 0.7' m -4.80			ν 0.9' d 0.2' m 1.17			ν 2.0' d 0.1' m -1.84			ν 2.6' d 0.1' m 0.40			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	359°53.3	148°29.4	S19°04.8	241°58.3	N21°49.4	219°31.7	N16°03.7	347°28.7	N02°23.5						
1	14°55.8	163°30.9	05.4	256°59.2	49.2	234°33.7	03.5	2°31.3	23.4						
2	29°58.2	178°32.5	06.0	272°00.0	48.9	249°35.7	03.4	17°34.0	23.3						
3	45°00.7	193°34.0	· · 06.7	287°00.9	· · 48.7	264°37.7	· · 03.3	32°36.6	· · 23.3						
4	60°03.2	208°35.6	07.3	302°01.8	48.4	279°39.7	03.1	47°39.2	23.2						
5	75°05.6	223°37.2	07.9	317°02.6	48.2	294°41.7	03.0	62°41.9	23.1						
6	90°08.1	238°38.7	S19°08.6	332°03.5	N21°48.0	309°43.6	N16°02.8	77°44.5	N02°23.0						
7	105°10.6	253°40.3	09.2	347°04.4	47.7	324°45.6	02.7	92°47.1	23.0						
8	120°13.0	268°41.9	09.8	2°05.2	47.5	339°47.6	02.5	107°49.8	22.9						
9	135°15.5	283°43.4	· · 10.5	17°06.1	· · 47.2	354°49.6	· · 02.4	122°52.4	· · 22.8						
10	150°17.9	298°45.0	11.1	32°07.0	47.0	9°51.6	02.3	137°55.0	22.7						
11	165°20.4	313°46.6	11.7	47°07.8	46.8	24°53.6	02.1	152°57.7	22.7						
12	180°22.9	328°48.2	S19°12.4	62°08.7	N21°46.5	39°55.6	N16°02.0	168°00.3	N02°22.6						
13	195°25.3	343°49.8	13.0	77°09.6	46.3	54°57.6	01.8	183°03.0	22.5						
14	210°27.8	358°51.3	13.6	92°10.4	46.0	69°59.6	01.7	198°05.6	22.4						
15	225°30.3	373°52.9	· · 14.2	107°11.3	· · 45.5	85°01.5	· · 01.6	213°08.2	· · 22.3						
16	240°32.7	388°54.5	14.8	122°12.2	45.5	100°03.5	01.4	228°10.9	22.3						
17	255°35.2	403°56.1	15.5	137°13.0	45.3	115°05.5	01.3	243°13.5	22.2						
18	270°37.7	418°57.7	S19°16.1	152°13.9	N21°45.1	130°07.5	N16°01.1	258°16.1	N02°22.1						
19	285°40.1	433°59.3	16.7	167°14.8	44.8	145°09.5	01.0	273°18.8	22.0						
20	300°42.6	449°00.9	17.3	182°15.6	44.6	160°11.5	00.9	288°21.4	21.9						
21	315°45.0	464°02.5	· · 17.9	197°16.5	· · 44.3	175°13.5	· · 00.7	303°24.0	· · 21.9						
22	330°47.5	479°04.1	18.6	212°17.4	44.1	190°15.5	00.6	318°26.7	21.8						
23	345°50.0	494°05.7	19.2	227°18.3	43.8	205°17.5	00.4	333°29.3	21.7						
Mer.pass. 23:57			ν 1.6' d 0.6' m -4.81			ν 0.9' d 0.2' m 1.16			ν 2.0' d 0.1' m -1.84			ν 2.6' d 0.1' m 0.39			

Stars		
	SHA	Dec
Alpheratz	357°33.0	29°14.4
Ankaa	353°05.3	-42°09.4
Schedar	349°28.9	56°41.1
Diphda	348°45.6	-17°50.2
Achernar	335°18.6	-57°05.8
Hamal	327°49.3	23°35.4
Polaris	313°00.0	89°22.4
Acamar	315°10.4	-40°11.5
Menkar	314°04.5	4°11.8
Mirfak	308°25.9	49°57.3
Aldebaran	290°37.9	16°33.8
Rigel	281°02.5	-8°10.0
Capella	280°19.7	46°01.3
Bellatrix	278°21.3	6°22.5
Elath	278°00.1	28°37.8
Alnilam	275°36.3	-1°10.9
Betelgeuse	270°50.6	7°24.8
Canopus	263°51.9	-52°42.2
Sirius	258°25.1	-16°44.9
Adhara	255°04.9	-29°00.2
Procyon	244°49.5	5°09.5
Pollux	243°15.8	27°57.7
Avior	234°14.6	-59°35.4
Suhail	222°45.6	-43°32.2
Miaplacidus	221°38.7	-69°49.4
Alphard	217°46.6	-8°46.3
Regulus	207°33.2	11°50.3
Dubhe	193°39.9	61°36.4
Deneb	182°23.8	14°25.4
Gienah	175°42.5	-17°41.4
Acrux	172°59.2	-63°14.9
Gacrux	171°50.7	-57°15.8
Alioth	166°12.3	55°49.0
Spica	158°21.1	-11°18.0
Alkaid	152°51.3	49°10.9
Hadar	148°34.5	-60°30.2
Menkent	147°56.3	-36°30.1
Arcturus	145°46.9	19°02.7
Rigil Kent.	139°38.8	-60°56.9
Kochab	137°20.6	74°02.9
Zuben 'ubi	136°54.7	-16°09.1
Alphecca	126°02.7	26°37.7
Antares	112°14.2	-26°29.5
Atria	107°07.3	-69°04.7
Sabik	102°01.2	-15°45.4
Shaula	96°08.5	-37°07.5
Rasalhague	95°57.3	12°32.6
Eltanin	90°41.5	51°29.4
Kaus Aust.	83°30.6	-34°22.4
Vega	80°32.2	38°48.8
Nunki	75°45.9	-26°15.8
Altair	61°58.4	8°56.5
Peacock	53°03.2	-56°39.0
Deneb	49°24.5	45°22.8
Enif	33°37.1	10°00.1
Al Na'ir	27°30.7	-46°49.8
Fomalhaut	15°12.6	-29°28.7
Scheat	13°43.5	28°13.9
Markab	13°28.2	15°21.1

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	0°52.4	149°07.4	S19°19.8	242°19.1	N21°43.6	220°19.4	N16°00.3	348°31.9	N02°21.7										
1	15°54.9	164°09.0	20.4	257°20.0	43.4	235°21.4	00.2	3°34.6	21.6										
2	30°57.4	179°10.6	21.0	272°19.0	43.1	250°23.4	16°00.0	16°00.0	21.5										
3	45°59.8	194°12.2	21.6	287°21.7	42.9	265°25.4	15°59.9	33°39.9	21.4										
4	61°02.3	209°13.8	22.2	302°22.6	42.6	280°27.4	59.7	48°42.4	21.4										
5	76°04.8	224°15.5	22.8	317°23.5	42.4	295°29.4	59.6	63°45.1	21.3										
6	91°07.2	239°17.1	S19°23.4	332°24.4	N21°42.1	310°31.4	N15°59.6	78°47.8	N02°21.2										
7	106°09.7	254°18.7	24.0	347°25.2	41.9	325°33.4	59.3	93°50.4	21.1										
8	121°12.2	269°20.4	24.6	2°26.1	41.6	340°35.4	59.2	108°53.0	21.0										
9	136°14.6	284°22.0	25.2	17°27.0	41.4	355°37.4	59.0	123°55.7	21.0										
10	151°17.1	299°23.7	25.8	32°27.9	41.1	10°39.4	58.9	138°58.3	20.9										
11	166°19.5	314°25.3	26.4	47°28.7	40.9	25°41.4	58.7	154°00.9	20.8										
12	181°22.0	329°27.0	S19°27.0	62°29.6	N21°40.6	40°43.3	N15°58.6	169°03.6	N02°20.7										
13	196°24.5	344°28.6	27.6	77°30.5	40.4	55°45.3	58.5	184°06.2	20.7										
14	211°26.9	359°30.3	28.2	92°31.4	40.2	70°47.3	58.3	199°08.9	20.6										
15	226°29.4	1°41.39	28.8	107°32.2	39.9	85°49.3	58.2	214°11.5	20.5										
16	241°31.9	29°33.6	29.4	122°33.1	39.7	100°57.3	58.0	229°14.1	20.4										
17	256°34.3	44°35.2	30.0	137°34.0	39.0	115°53.3	57.9	244°16.8	20.4										
18	271°36.8	59°36.9	S19°30.6	152°34.9	N21°39.2	130°55.3	N15°57.8	259°19.4	N02°20.3										
19	286°39.3	74°38.6	31.2	167°35.7	38.9	145°57.3	57.6	274°22.0	20.2										
20	301°41.7	89°40.2	31.7	182°36.6	38.7	160°59.3	57.5	289°27.0	20.1										
21	316°44.2	104°41.9	32.3	197°37.5	38.4	176°01.3	57.3	304°27.3	20.0										
22	331°46.7	119°43.6	32.9	212°38.4	38.2	191°03.3	57.2	319°30.0	20.0										
23	346°49.1	134°45.3	33.5	227°39.2	37.9	206°05.3	57.1	334°32.6	19.9										
Mer.pass. 23:53				ν 1.6' d 0.6' m -4.81				ν 0.9' d 0.2' m 1.16				ν 2.0' d 0.1' m -1.85				ν 2.6' d 0.1' m 0.39			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	1°51.6	149°47.0	S19°34.1	242°40.1	N21°37.7	221°07.3	N15°56.9	349°35.2	N02°19.8
1	16°54.0	164°48.7	34.7	257°41.0	37.4	236°09.3	56.8	4°37.9	19.7
2	31°56.5	179°50.3	35.2	272°41.9	37.2	251°11.2	56.6	19°40.5	19.7
3	46°59.0	194°52.0	35.8	287°42.8	36.9	266°13.2	56.5	34°43.1	19.6
4	62°01.4	209°53.7	36.4	302°43.6	36.7	281°15.2	56.4	49°45.8	19.5
5	77°03.9	224°55.4	37.0	317°44.5	36.4	296°17.2	56.2	64°48.4	19.4
6	92°06.4	239°57.1	S19°37.5	332°45.4	N21°36.2	311°19.2	N15°56.1	79°51.1	N02°19.4
7	107°08.8	254°58.8	38.1	347°46.3	35.9	326°21.2	55.9	94°53.7	19.3
8	122°11.3	270°00.5	38.7	2°47.2	35.7	341°23.2	55.8	109°56.3	19.2
9	137°13.8	285°02.2	39.2	17°48.0	35.4	356°25.2	55.7	124°00.0	19.1
10	152°16.2	300°04.0	39.8	32°48.9	35.2	11°27.2	55.5	140°01.6	19.0
11	167°18.7	315°05.7	40.4	47°49.8	34.9	26°29.2	55.4	155°04.2	19.0
12	182°21.1	330°07.4	S19°40.9	62°50.7	N21°34.7	41°31.2	N15°55.2	170°06.9	N02°18.9
13	197°23.6	345°09.1	41.5	77°51.6	34.4	56°33.2	55.1	185°09.5	18.8
14	212°26.1	1°010.8	42.1	92°52.4	34.2	71°35.2	55.0	200°12.2	18.7
15	227°28.5	15°12.6	42.6	107°53.3	33.9	86°37.2	54.8	215°14.8	18.7
16	242°31.0	30°14.3	43.2	122°54.2	33.7	101°39.2	54.7	230°17.4	18.6
17	257°33.5	45°16.0	43.8	137°55.1	33.4	116°41.2	54.5	245°20.1	18.5
18	272°35.9	60°17.8	S19°44.3	152°56.0	N21°33.1	131°43.2	N15°54.4	260°22.7	N02°18.4
19	287°38.4	75°19.5	44.9	167°56.9	32.9	146°45.2	54.3	275°25.3	18.4
20	302°40.9	90°21.3	45.4	182°57.7	32.6	161°47.2	54.1	290°28.0	18.3
21	317°43.3	105°23.0	46.0	197°58.6	32.4	176°49.2	54.0	305°30.6	18.2
22	332°45.8	120°24.7	46.5	212°59.5	32.1	191°51.1	53.9	320°33.3	18.1
23	347°48.3	135°26.5	47.1	228°00.4	31.9	206°53.1	53.7	335°35.9	18.0
Mer.pass. 23:49 ν 1.7' d 0.6' m -4.81 ν 0.9' d 0.2' m 1.15 ν 2.0' d 0.1' m -1.85 ν 2.6' d 0.1' m 0.38									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	2°50.7	150°28.3	S19°47.6	243°01.3	N21°31.6	221°55.1	N15°53.6	350°38.5	N02°18.0										
1	17°53.2	165°30.0	48.2	258°02.2	31.4	236°57.1	53.4	5°41.2	17.9										
2	32°55.6	180°31.8	48.7	273°03.1	31.1	251°59.1	53.3	20°43.8	17.8										
3	47°58.1	195°33.5	49.3	288°03.9	30.9	267°01.1	53.2	35°46.4	17.7										
4	63°00.6	210°35.3	49.8	303°04.8	30.6	282°03.1	53.0	50°49.1	17.7										
5	78°03.0	225°37.1	50.3	318°05.7	30.4	297°05.1	52.9	65°51.7	17.6										
6	93°05.5	240°38.8	S19°50.9	333°06.6	N21°30.1	312°07.1	N15°52.7	80°54.4	N02°17.5										
7	108°08.0	255°40.6	51.4	348°07.5	29.8	327°09.1	52.6	95°57.0	17.4										
8	123°10.4	270°42.4	52.0	3°08.4	29.6	342°11.1	52.5	110°59.6	17.4										
9	138°12.9	285°44.2	52.5	18°09.3	29.3	357°13.1	52.3	126°02.3	17.3										
10	153°15.4	300°46.0	53.0	33°10.1	29.1	12°15.1	52.2	141°04.9	17.2										
11	168°17.8	315°47.8	53.6	48°11.0	28.8	27°17.1	52.0	156°07.6	17.1										
12	183°20.3	330°49.5	S19°54.1	63°11.9	N21°28.6	42°19.1	N15°51.9	171°10.2	N02°17.0										
13	198°22.8	345°51.3	54.6	78°12.8	28.3	57°21.1	51.8	186°12.8	17.0										
14	213°25.2	1°053.1	55.2	93°13.7	28.0	72°23.1	51.6	201°15.5	16.9										
15	228°27.7	15°54.9	55.7	108°14.6	27.8	87°25.1	51.5	216°18.1	16.8										
16	243°30.1	30°56.7	56.2	123°15.5	27.5	102°27.1	51.3	231°20.8	16.7										
17	258°32.6	45°58.6	56.7	138°16.4	27.3	117°29.1	51.2	246°23.4	16.7										
18	273°35.1	61°00.4	S19°57.3	153°17.3	N21°27.0	132°31.1	N15°51.1	261°26.0	N02°16.6										
19	288°37.5	76°02.2	57.8	168°18.2	26.8	147°33.1	50.9	276°28.7	16.5										
20	303°40.0	91°04.0	58.3	183°19.0	26.5	162°35.1	50.8	291°31.3	16.4										
21	318°42.5	106°05.8	58.8	198°19.9	26.2	177°37.1	50.6	306°33.9	16.3										
22	333°44.9	121°07.6	59.3	213°20.8	26.0	192°39.1	50.5	321°36.6	16.3										
23	348°47.4	136°09.5	59.9	228°21.7	25.7	207°41.1	50.4	336°39.2	16.2										
Mer.pass. 23:45				ν 1.8' d 0.5' m -4.81				ν 0.9' d 0.3' m 1.15				ν 2.0' d 0.1' m -1.85				ν 2.6' d 0.1' m 0.38			

Stars			h			Sun			Moon		
	SHA	Dec	Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.0	29°14.5	0	181°46.5	N00°23.4	54°34.7	12.4'	S21°38.2	9.7'	54.9'	
Ankaa	353°05.3	-42°09.5	1	196°46.7	22.4	69°06.1	12.4'	21°28.5	9.7'	54.9'	
Schedar	349°28.9	56°41.1	2	211°46.9	21.5	83°37.6	12.5'	21°18.8	9.8'	54.9'	
Diphda	348°45.6	-17°50.2	3	226°47.1	20.5	98°09.1	12.5'	21°09.0	9.9'	54.9'	
Achernar	335°18.6	-57°05.8	4	241°47.4	19.5	112°40.6	12.6'	20°59.1	10.1'	54.9'	
Hamal	327°49.3	23°35.4	5	256°47.6	18.6	127°12.1	12.6'	20°49.0	10.1'	55.0'	
Polaris	312°58.7	89°22.2	6	271°47.8	N00°17.6	141°43.8	12.7'	S20°38.9	10.2'	55.0'	
Acamar	315°10.4	-40°11.5	7	286°40.8	16.6	156°15.4	12.7'	20°28.7	10.4'	55.0'	
Menkar	314°04.4	4°11.8	8	301°48.2	15.6	170°47.1	12.7'	20°18.3	10.4'	55.0'	
Mirfak	308°25.9	49°57.3	9	316°48.5	14.7	185°18.9	12.8'	20°07.9	10.5'	55.0'	
Aldebaran	290°37.9	16°33.8	10	331°48.7	13.7	199°50.6	12.8'	19°57.4	10.6'	55.1'	
Rigel	281°02.4	-8°10.0	11	346°48.9	12.7	214°22.5	12.9'	19°46.8	10.7'	55.1'	
Capella	280°19.7	46°01.3	12	1°49.1	N00°11.8	228°54.3	12.9'	S19°36.1	10.8'	55.1'	
Bellatrix	278°21.3	6°22.5	13	16°49.3	10.8	243°26.2	13.0'	19°25.3	10.9'	55.1'	
Elnath	278°00.0	28°37.8	14	31°49.6	09.8	257°58.2	13.0'	19°14.4	11.0'	55.1'	
Anilam	275°36.3	-1°10.9	15	46°49.8	08.8	272°30.2	13.0'	19°03.4	11.1'	55.2'	
Betelgeuse	270°50.6	7°24.8	16	61°50.0	07.9	287°02.2	13.1'	18°52.3	11.2'	55.2'	
Canopus	263°51.8	-52°42.2	17	76°50.2	06.9	301°34.3	13.1'	18°41.1	11.3'	55.2'	
Sirius	258°25.1	-16°44.9	18	91°50.5	N00°05.9	316°06.4	13.2'	S18°29.8	11.4'	55.2'	
Adhara	255°04.8	-29°00.2	19	106°50.7	04.9	330°38.6	13.2'	18°18.4	11.4'	55.3'	
Procyon	244°49.5	5°09.9	20	121°50.9	04.0	345°10.8	13.2'	18°07.0	11.6'	55.3'	
Pollux	243°15.7	27°57.6	21	136°51.1	03.0	359°43.0	13.3'	17°55.4	11.6'	55.3'	
Avior	234°14.5	-59°35.3	22	151°51.3	02.0	14°15.3	13.3'	17°43.8	11.7'	55.3'	
Suhail	222°45.6	-43°32.2	23	166°51.6	01.1	28°47.6	13.3'	17°32.1	11.8'	55.3'	
Miaplacidus	221°38.7	-69°49.4									
Alphard	217°46.6	-8°46.3									

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	3°49.9	151°11.3	S20°00.4	243°22.6	N21°25.5	222°43.1	N15°50.2	351°41.9	N02°16.1										
1	18°52.3	166°13.1	00.9	258°23.5	25.2	237°45.1	50.1	6°44.5	16.0										
2	33°54.8	181°15.0	01.4	273°24.4	25.0	252°47.1	50.0	21°47.1	16.0										
3	48°57.2	196°16.8	01.9	288°25.3	24.7	267°49.1	49.8	36°49.8	15.9										
4	63°59.7	211°18.6	02.4	303°26.2	24.4	282°51.1	49.7	51°52.4	15.8										
5	79°02.2	226°20.5	02.9	318°27.1	24.2	297°53.1	49.5	66°55.1	15.7										
6	94°04.6	241°22.3	S20°03.4	333°28.0	N21°23.9	312°55.1	N15°49.4	81°57.7	N02°15.6										
7	109°07.1	256°24.2	03.9	348°28.9	23.7	327°57.1	49.3	97°00.3	15.6										
8	124°09.6	271°26.0	04.4	3°29.8	23.4	342°59.1	49.1	112°03.0	15.5										
9	139°12.0	286°27.9	04.9	18°30.6	23.1	358°01.1	49.0	127°05.6	15.4										
10	154°14.5	301°29.7	05.4	33°31.5	22.9	13°03.1	48.8	142°08.3	15.3										
11	169°17.0	316°31.6	05.9	48°32.4	22.6	28°05.1	48.7	157°10.9	15.3										
12	184°19.4	331°33.5	S20°06.4	63°33.3	N21°22.4	43°07.1	N15°48.6	172°13.5	N02°15.2										
13	199°21.9	346°35.3	06.9	78°34.2	22.1	58°09.1	48.4	187°16.2	15.1										
14	214°24.4	1°37.2	07.4	93°35.1	21.8	73°11.1	48.3	202°18.8	15.0										
15	229°26.8	16°39.1	07.9	108°36.0	21.6	88°13.1	48.2	217°21.5	15.0										
16	244°29.3	31°41.0	08.4	123°36.9	21.3	103°15.1	48.0	232°24.1	14.9										
17	259°31.7	46°42.9	08.9	138°37.8	21.0	118°17.1	47.9	247°26.7	14.8										
18	274°34.2	61°44.7	S20°09.4	153°38.7	N21°20.8	133°19.1	N15°47.7	262°29.4	N02°14.7										
19	289°36.7	76°46.6	09.9	168°39.6	20.5	148°21.1	47.6	277°32.0	14.6										
20	304°39.1	91°48.5	10.4	183°40.5	20.3	163°23.1	47.5	292°34.7	14.6										
21	319°41.6	106°50.4	10.9	198°41.4	20.0	178°25.1	47.3	307°37.3	14.5										
22	334°44.1	121°52.3	11.3	213°42.3	19.7	193°27.1	47.2	322°39.9	14.4										
23	349°46.5	136°54.2	11.8	228°43.2	19.5	208°29.1	47.0	337°42.6	14.3										
Mer.pass. 23:41				ν 1.8' d 0.5' m -4.82				ν 0.9' d 0.3' m 1.14				ν 2.0' d 0.1' m -1.86				ν 2.6' d 0.1' m 0.38			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	4°49.0	151°56.1	S20°12.3	243°44.1	N21°19.2	223°31.1	N15°46.9	352°45.2	N02°14.3
1	19°51.5	166°58.0	12.8	258°45.0	18.9	238°33.2	46.8	7°47.9	14.2
2	34°53.9	182°00.0	13.3	273°45.9	18.7	253°35.2	46.6	22°50.5	14.1
3	49°56.4	197°01.9	13.7	288°46.8	18.4	268°37.2	46.5	37°53.1	14.0
4	64°58.8	212°03.8	14.2	303°47.7	18.2	283°39.2	46.4	52°55.8	13.9
5	80°01.3	227°05.7	14.7	318°48.6	17.9	298°41.2	46.2	67°58.4	13.9
6	95°03.8	242°07.6	S20°15.2	333°49.5	N21°17.6	313°43.2	N15°46.1	83°01.1	N02°13.8
7	110°06.2	257°09.6	15.6	348°50.4	17.4	328°45.2	45.9	98°03.7	13.7
8	125°08.2	272°11.5	16.1	3°51.3	17.1	343°47.2	45.8	113°06.3	13.6
9	140°11.2	287°13.4	16.6	18°52.2	16.8	358°49.2	45.7	128°09.0	13.6
10	155°13.6	302°15.4	17.0	33°53.1	16.6	13°51.2	45.5	143°11.6	13.5
11	170°16.1	317°17.3	17.5	48°54.0	16.3	28°53.2	45.4	158°14.3	13.4
12	185°18.6	332°19.2	S20°17.9	63°54.9	N21°16.0	43°55.2	N15°45.3	173°16.9	N02°13.3
13	200°21.0	347°21.2	18.4	78°55.8	15.8	58°57.2	45.1	188°19.6	13.2
14	215°23.5	2°23.1	18.9	93°56.7	15.5	73°59.2	45.0	203°22.2	13.2
15	230°26.0	17°25.1	19.3	108°57.6	15.2	89°01.2	44.8	218°24.8	13.1
16	245°28.4	32°27.1	19.8	123°58.5	15.0	104°03.2	44.7	233°27.5	13.0
17	260°30.9	47°29.0	20.2	138°59.4	14.7	119°05.2	44.6	248°30.1	12.9
18	275°33.3	62°31.0	S20°20.7	154°00.3	N21°14.4	134°07.2	N15°44.4	263°32.8	N02°12.9
19	290°35.8	77°33.0	21.1	169°01.2	14.2	149°09.2	44.3	278°35.4	12.8
20	305°38.3	92°34.9	21.6	184°02.1	13.9	164°11.2	44.2	293°38.0	12.7
21	320°40.7	107°36.9	22.0	199°03.1	13.6	179°13.3	44.0	308°40.7	12.6
22	335°43.2	122°38.9	22.5	214°04.0	13.4	194°15.3	43.9	323°43.3	12.5
23	350°45.7	137°40.9	22.9	229°04.9	13.1	209°17.3	43.7	338°46.0	12.5
Mer.pass. 23:37									
ν 1.9' d 0.5' m -4.81									
ν 0.9' d 0.3' m 1.14									
ν 2.0' d 0.1' m -1.86									
ν 2.6' d 0.1' m 0.37									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	5°48.1	152°42.8	S20°23.4	244°05.8	N21°12.8	224°19.3	N15°43.6	353°48.6	N02°12.4										
1	20°50.6	167°44.8	23.8	259°06.7	12.6	239°21.3	43.5	8°51.2	12.3										
2	35°53.1	182°46.8	24.3	274°07.6	12.3	254°23.3	43.3	23°53.9	12.2										
3	50°55.5	197°48.8	24.7	289°08.5	12.0	269°25.3	43.2	38°56.5	12.2										
4	65°58.0	212°50.8	25.1	304°09.4	11.8	284°27.3	43.1	53°59.2	12.1										
5	81°00.4	227°52.8	25.6	319°10.3	11.5	299°29.3	42.9	69°01.8	12.0										
6	96°02.9	242°54.8	S20°26.0	334°11.2	N21°11.2	314°31.3	N15°42.8	84°04.5	N02°11.9										
7	111°05.4	257°56.8	26.4	349°12.1	11.0	329°33.3	42.6	99°07.1	11.8										
8	126°07.8	272°58.8	26.9	4°13.0	10.7	344°35.3	42.5	114°09.7	11.8										
9	141°10.3	288°00.8	27.3	19°13.9	10.4	359°37.3	42.4	129°12.4	11.7										
10	156°12.8	303°02.9	27.7	34°14.8	10.2	14°39.3	42.2	144°15.0	11.6										
11	171°15.2	318°04.9	28.2	49°15.8	09.9	29°41.4	42.1	159°17.7	11.5										
12	186°17.7	333°06.9	S20°28.6	64°16.7	N21°09.6	44°43.4	N15°42.0	174°20.3	N02°11.5										
13	201°20.2	348°08.9	29.0	79°17.6	09.4	59°45.4	41.8	189°20.9	11.4										
14	216°22.6	3°11.0	29.4	94°18.5	09.1	74°47.4	41.7	204°25.6	11.3										
15	231°25.1	18°13.0	30.0	109°19.4	08.8	89°49.4	41.5	219°28.2	11.2										
16	246°27.6	33°15.0	30.3	124°20.3	08.5	104°51.4	41.4	234°30.9	11.1										
17	261°30.0	48°17.1	30.7	139°21.2	08.3	119°53.4	41.3	249°33.5	11.1										
18	276°32.5	63°19.1	S20°31.1	154°22.1	N21°08.0	134°55.4	N15°41.1	264°36.2	N02°11.0										
19	291°34.9	78°21.2	31.5	169°23.0	07.7	149°57.4	41.0	279°38.8	10.9										
20	306°37.4	93°23.2	31.9	184°24.0	07.5	164°59.4	40.9	294°41.4	10.8										
21	321°39.9	108°25.3	32.3	199°24.9	07.2	180°01.4	40.7	309°44.1	10.8										
22	336°42.3	123°27.3	32.7	214°25.8	06.9	195°03.5	40.6	324°46.7	10.7										
23	351°44.8	138°29.4	33.1	229°26.7	06.6	210°05.5	40.4	339°49.4	10.6										
Mer.pass. 23:33				ν 2.0' d 0.4' m -4.81				ν 0.9' d 0.3' m 1.13				ν 2.0' d 0.1' m -1.86				ν 2.6' d 0.1' m 0.37			

Stars	SHA	Dec
Alpheratz	357°33.0	29°14.5
Ankaa	353°05.3	-42°09.5
Schedar	349°28.9	56°41.1
Diphda	348°45.6	-17°50.2
Achernar	335°18.6	-57°05.8
Hamal	327°49.3	23°35.4
Polaris	312°57.6	89°22.4
Acamar	315°10.4	-40°11.5
Menkar	314°04.4	4°11.8
Mirfak	308°25.9	49°57.3
Aldebaran	290°37.9	16°33.8
Rigel	281°02.4	-8°10.0
Capella	280°19.7	46°01.4
Bellatrix	278°21.3	6°22.5
Elnath	278°00.0	28°37.8
Anilam	275°36.2	-1°10.9
Betelgeuse	270°50.5	7°24.8
Canopus	263°51.8	-52°42.2
Sirius	258°25.0	-16°44.9
Adhara	255°04.8	-29°00.2
Procyon	244°49.5	5°09.5
Pollux	243°15.7	27°57.6
Avior	234°14.5	-59°35.5
Suhail	222°45.6	-43°32.2
Miaplacidus	221°38.7	-69°49.3
Alphard	217°46.6	-8°46.3

Lat.	Twilight		Sunrise	Sunset	Twilight	
	Naut.	Civil			Civil	Naut.
N 72°	03:38	05:02	06:10	17:29	18:36	19:58
N 70°	03:52	05:07	06:07	17:31	18:32	19:45
68°	04:03	05:10	06:06	17:33	18:28	19:35
66°	04:12	05:13	06:04	17:35	18:26	19:26
64°	04:19	05:15	06:03	17:36	18:23	19:20
62°	04:25	05:17	06:02	17:38	18:22	19:14
60°	04:30	05:19	06:01	17:39	18:20	19:09
N 58°	04:34	05:21	06:00	17:40	18:19	19:05
56°	04:38	05:22	05:59	17:41	18:18	19:01
54°	04:42	05:23	05:58	17:41	18:17	18:58
52°	04:44	05:24	05:57	17:42	18:16	18:55
50°	04:47	05:25	05:57	17:43	18:15	18:53
45°	04:52	05:26	05:55	17:44	18:14	18:48
N 40°	04:56	05:27	05:54	17:46	18:13	18:44
35°	04:59	05:28	05:53	17:47	18:12	18:41
30°	05:01	05:28	05:52	17:48	18:12	18:40
20°	05:03	05:28	05:50	17:50	18:12	18:37
N 10°	05:03	05:28	05:49	17:52	18:13	18:37
0°	05:02	05:26	05:47	17:54	18:14	18:38
S 10°	05:00	05:24	05:45	17:55	18:16	18:41
20°	04:56	05:21	05:43	17:58	18:20	18:45
30°	04:49	05:17	05:41	18:00	18:24	18:52
35°	04:45	05:14	05:40	18:02	18:27	18:57
40°	04:39	05:11	05:38	18:03	18:31	19:03
45°	04:32	05:07	05:36	18:05	18:35	19:10
S 50°	04:23	05:01	05:34	18:08	18:40	19:19
52°	04:18	04:59	05:33	18:09	18:43	19:24
54°	04:13	04:56	05:31	18:10	18:46	19:29
56°	04:07	04:53	05:30	18:12	18:49	19:35
58°	04:01	04:49	05:29	18:13	18:53	19:42
S 60°	03:53	04:45	05:27	18:15	18:57	19:49

Lat.	Moonrise			Moonset		
	Mon	Tue	Wed	Mon	Tue	Wed
N 72°	15:18			10:41		
N 70°	15:53			10:07		
68°	16:19	15:27		09:43	12:25	
66°	16:39	16:12		09:24	11:41	
64°	16:56	16:43	16:18	09:10	11:12	13:37
62°	17:09	17:06	17:03	08:57	10:50	12:52
60°	17:21	17:24	17:33	08:47	10:33	12:23
N 58°	17:31	17:40	17:56	08:38	10:18	12:01
56°	17:40	17:53	18:14	08:30	10:05	11:43
54°	17:47	18:05	18:30	08:23	09:55	11:27
52°	17:55	18:15	18:44	08:17	09:45	11:14
50°	18:01	18:24	18:56	08:11	09:36	11:02
45°	18:15	18:44	19:21	07:59	09:18	10:39
N 40°	18:26	19:00	19:41	07:49	09:04	10:19
35°	18:36	19:13	19:57	07:41	08:51	10:03
30°	18:45	19:25	20:12	07:33	08:40	09:50
20°	19:00	19:45	20:37	07:21	08:22	09:26
N 10°	19:13	20:03	20:58	07:10	08:06	09:06
0°	19:26	20:20	21:19	06:59	07:51	08:47
S 10°	19:39	20:37	21:39	06:49	07:36	08:29
20°	19:52	20:55	22:01	06:38	07:21	08:09
30°	20:08	21:17	22:26	06:26	07:03	07:46
35°	20:17	21:29	22:41	06:18	06:52	07:32
40°	20:28	21:43	22:59	06:10	06:40	07:17
45°	20:40	22:01	23:20	06:01	06:26	06:59
S 50°	20:56	22:22	23:47	05:50	06:09	06:36
52°	21:03	22:32	--	05:44	06:02	06:25
54°	21:11	22:44	--	05:39	05:53	06:13
56°	21:20	22:57	--	05:32	05:43	05:59
58°	21:30	23:13	--	05:25	05:32	05:43
S 60°	21:42	23:31	--	05:17	05:19	05:23

Day	Sun			Moon		
	Eqn. of Time		Mer.	Mer. Pass.		Age 17-19 98-87%
	00 ^h mm:ss	12 ^h mm:ss	Pass hh:mm	Upper hh:mm	Lower hh:mm	
28	09:11	09:21	11:51	00:48	13:13	
29	09:31	09:41	11:50	01:38	14:06	
30	09:51	10:01	11:50	02:34	15:03	

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	9°44.7	156°09.5	S20°58.3	245°34.1	N20°46.4	227°32.6	N15°30.5	358°02.3	N02°04.9										
1	24°47.1	171°11.8	58.6	260°35.1	46.1	242°34.6	30.4	13°04.9	04.8										
2	39°49.6	186°14.1	58.9	275°36.0	45.8	257°36.6	30.3	28°07.6	04.8										
3	54°52.1	201°16.4	59.2	290°37.0	45.5	272°38.7	30.1	43°10.2	04.7										
4	69°54.5	216°18.8	59.4	305°37.9	45.2	287°40.7	30.0	58°12.9	04.6										
5	84°57.0	231°21.1	20°59.7	320°38.8	45.0	302°42.7	29.9	73°15.5	04.5										
6	99°59.5	246°23.5	S21°00.0	335°39.8	N20°44.7	317°44.7	N15°29.7	88°18.2	N02°04.5										
7	115°01.9	261°25.8	00.2	350°40.7	44.4	332°46.7	29.6	103°20.8	04.4										
8	130°04.4	276°28.2	00.5	5°41.6	44.1	347°48.8	29.5	118°23.4	04.3										
9	145°06.9	291°30.5	01.0	20°42.6	43.8	2°50.8	29.3	133°26.1	04.2										
10	160°09.3	306°32.9	01.0	35°43.5	43.5	17°52.8	29.2	148°28.7	04.1										
11	175°11.8	321°35.2	01.3	50°44.4	43.2	32°54.8	29.1	163°31.4	04.1										
12	190°14.3	336°37.6	S21°01.6	65°45.4	N20°43.0	47°56.9	N15°28.9	178°34.0	N02°04.0										
13	205°16.7	351°40.0	01.8	80°46.3	42.7	62°58.9	28.8	193°36.7	03.9										
14	220°19.2	6°42.4	02.1	95°47.3	42.4	78°00.9	28.7	208°39.3	03.8										
15	235°21.6	21°44.7	02.3	110°48.2	42.1	93°02.9	28.5	223°42.0	03.8										
16	250°24.1	36°47.1	02.6	125°49.1	41.8	108°05.0	28.4	238°44.6	03.7										
17	265°26.6	51°49.5	02.8	140°50.1	41.5	123°07.0	28.3	253°47.2	03.6										
18	280°29.0	66°51.9	S21°03.1	155°51.0	N20°41.2	138°09.0	N15°28.1	268°49.9	N02°03.5										
19	295°31.5	81°54.3	03.3	170°52.0	41.0	153°11.0	28.0	283°52.5	03.5										
20	310°34.0	96°56.7	03.6	185°52.9	40.7	168°13.0	27.9	298°55.5	03.4										
21	325°36.4	111°59.1	03.8	200°53.8	40.4	183°15.1	27.7	313°57.8	03.3										
22	340°38.9	127°01.5	04.0	215°54.8	40.1	198°17.1	27.6	329°05.5	03.2										
23	355°41.4	142°03.9	04.3	230°55.7	39.8	213°19.1	27.5	344°03.1	03.1										
Mer.pass. 23:17				ν 2.3' d 0.3' m -4.78				ν 0.9' d 0.3' m 1.11				ν 2.0' d 0.1' m -1.87				ν 2.6' d 0.1' m 0.35			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	10°43.8	157°06.3	S21°04.5	245°56.7	N20°39.5	228°21.1	N15°27.3	359°05.8	N02°03.1										
1	25°46.3	172°08.7	04.8	260°57.6	39.2	243°23.2	27.2	14°08.4	03.0										
2	40°48.7	187°11.1	05.0	275°58.6	38.9	258°25.2	27.0	29°10.0	02.9										
3	55°51.2	202°13.6	05.2	290°59.5	38.7	273°27.2	26.9	44°13.7	02.8										
4	70°53.7	217°16.0	05.5	306°00.4	38.4	288°29.2	26.8	59°16.3	02.8										
5	85°56.1	232°18.4	05.7	321°01.4	38.1	303°31.3	26.6	74°19.0	02.7										
6	100°58.6	247°20.8	S21°05.9	336°02.3	N20°37.8	318°33.3	N15°26.6	89°21.6	N02°02.6										
7	116°01.1	262°23.3	06.1	351°03.3	37.5	333°35.3	26.4	104°24.3	02.5										
8	131°03.5	277°25.7	06.4	6°04.2	37.2	348°37.3	26.2	119°26.9	02.4										
9	146°06.0	292°28.2	06.6	21°05.2	36.9	3°39.4	26.1	134°29.5	02.4										
10	161°08.5	307°30.6	06.8	36°06.1	36.6	18°41.4	26.0	149°32.2	02.3										
11	176°10.9	322°33.1	07.0	51°07.1	36.3	33°43.4	25.8	164°34.8	02.2										
12	191°13.4	337°35.5	S21°07.2	66°08.0	N20°36.1	48°45.5	N15°25.7	179°37.5	N02°02.1										
13	206°15.9	352°38.0	07.4	81°09.0	35.8	63°47.5	25.6	194°40.1	02.1										
14	221°18.3	7°40.4	07.6	96°09.9	35.5	78°49.5	25.4	209°42.8	02.0										
15	236°20.8	22°42.9	07.9	111°10.8	35.2	93°51.5	25.3	224°45.4	01.9										
16	251°23.2	37°45.4	08.1	126°11.8	34.9	108°53.6	25.2	239°48.1	01.8										
17	266°25.7	52°47.9	08.3	141°12.7	34.6	123°55.6	25.0	254°50.7	01.7										
18	281°28.2	67°50.3	S21°08.5	156°13.7	N20°34.3	138°57.6	N15°24.9	269°53.3	N02°01.7										
19	296°30.6	82°52.8	08.7	171°14.6	34.0	153°59.6	24.8	284°56.0	01.6										
20	311°33.1	97°55.3	08.9	186°15.6	33.7	169°01.7	24.6	299°58.6	01.5										
21	326°35.6	112°57.8	09.1	201°16.5	33.4	184°03.7	24.5	315°01.3	01.4										
22	341°38.0	128°00.3	09.3	216°17.5	33.2	199°05.7	24.4	330°03.9	01.4										
23	356°40.5	143°02.8	09.4	231°18.4	32.9	214°07.8	24.3	345°06.6	01.3										
Mer.pass. 23:13				ν 2.4' d 0.2' m -4.77				ν 0.9' d 0.3' m 1.10				ν 2.0' d 0.1' m -1.88				ν 2.6' d 0.1' m 0.34			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	11°43.0	158°05.3	S21°09.6	246°19.4	N20°32.6	229°09.8	N15°24.1	0°09.2	N02°01.2										
1	26°45.4	173°07.8	09.8	261°20.3	32.3	244°11.8	24.0	15°11.9	01.1										
2	41°47.9	188°10.3	10.0	276°21.3	32.0	259°13.8	23.9	30°14.5	01.0										
3	56°50.4	203°12.8	10.2	291°22.2	31.7	274°15.9	23.7	45°17.1	01.0										
4	71°52.8	218°15.3	10.4	306°23.2	31.4	289°17.9	23.6	60°19.8	00.9										
5	86°55.3	233°17.9	10.6	321°24.1	31.1	304°19.9	23.5	75°22.4	00.8										
6	101°57.7	248°20.4	S21°10.7	336°25.1	N20°30.8	319°22.0	N15°23.3	90°25.1	N02°00.7										
7	117°00.2	263°22.9	10.9	351°26.0	30.5	334°24.0	23.2	105°27.7	00.7										
8	132°02.7	278°25.4	11.1	6°27.0	30.2	349°26.0	23.1	120°30.4	00.6										
9	147°05.1	293°28.0	11.3	21°27.9	29.9	4°28.0	22.9	135°33.0	00.5										
10	162°07.6	308°30.5	11.4	36°28.9	29.7	19°30.1	22.8	150°35.7	00.4										
11	177°10.1	323°33.1	11.6	51°29.8	29.4	34°32.1	22.7	165°38.3	00.3										
12	192°12.5	338°35.6	S21°11.8	66°30.8	N20°29.1	49°34.1	N15°22.5	180°40.9	N02°00.3										
13	207°15.0	353°38.1	11.9	81°31.8	28.8	64°36.2	22.4	195°43.6	00.2										
14	222°17.5	8°40.7	12.1	96°32.7	28.5	79°38.2	22.3	210°46.2	00.1										
15	237°19.9	23°43.3	12.3	111°33.7	28.2	94°40.2	22.1	225°48.9	00.0										
16	252°22.4	38°45.8	12.4	126°34.6	27.9	109°42.3	22.0	240°51.5	02°00.0										
17	267°24.9	53°48.4	12.6	141°35.6	27.6	124°44.3	21.9	255°54.2	01°59.9										
18	282°27.3	68°51.0	S21°12.7	156°36.5	N20°27.3	139°46.3	N15°21.7	270°56.8	N01°59.8										
19	297°29.8	83°53.5	12.9	171°37.5	27.0	154°48.3	21.6	285°59.5	59.7										
20	312°32.2	98°56.1	13.0	186°38.4	26.7	169°50.4	21.5	301°02.1	59.6										
21	327°34.7	113°58.7	13.2	201°39.4	26.4	184°52.4	21.3	316°04.8	59.6										
22	342°37.2	129°01.3	13.3	216°40.4	26.1	199°54.4	21.2	331°07.4	59.5										
23	357°39.6	144°03.9	13.5	231°41.3	25.8	214°56.5	21.1	346°10.0	59.4										
Mer.pass. 23:06				ν 1.0' d 0.2' m -4.76				ν 1.0' d 0.3' m 1.10				ν 2.0' d 0.1' m -1.88				ν 2.6' d 0.1' m 0.33			

Stars			h		Sun		Moon			
	SHA	Dec	Th	GHA	Dec	GHA	ν	Dec	d	HP
Alpheratz	357°32.9	29°14.5	0	182°32.7	S03°06.6	308°54.6	4.6'	N25°59.1	6.5'	59.3'
Ankaa	353°05.3	-42°09.5	1	197°32.9	07.5	323°18.1	4.5'	26°05.6	6.4'	59.3'
Schedar	349°28.8	56°41.2	2	212°33.1	08.5	337°41.6	4.4'	26°12.0	6.3'	59.3'
Diphda	348°45.5	-17°50.2	3	227°33.3	09.5	352°05.0	4.3'	26°18.3	6.0'	59.3'
Achernar	335°18.6	-57°05.9	4	242°33.5	10.5	6°28.4	4.3'	26°24.3	5.9'	59.3'
Hamal	327°49.3	23°35.5	5	257°33.7	11.4	20°51.7	4.2'	26°30.2	5.7'	59.3'
Polaris	312°54.9	89°22.4	6	272°34.0	S03°12.4	35°14.9	4.1'	N26°35.9	5.5'	59.3'
Acamar	315°10.4	-40°11.6	7	287°34.2	13.4	49°38.0	4.1'	26°41.4	5.3'	59.3'
Menkar	314°04.4	-41°11.8	8	302°34.4	14.3	64°01.1	4.0'	26°46.7	5.2'	59.3'
Mirafak	308°25.8	49°57.7	9	317°34.6	15.3	78°24.1	4.0'	26°51.9	4.9'	59.3'
Aldebaran	290°37.8	16°33.8	10	332°34.8	16.3	92°47.1	3.9'	26°56.8	4.8'	59.3'
Rigel	281°02.4	-8°10.0	11	347°35.0	17.2	107°10.0	3.9'	27°01.6	4.6'	59.3'
Capella	280°19.6	46°01.4	12	2°35.2	S03°18.2	121°32.9	3.8'	N27°06.2	4.4'	59.3'
Bellatrix	278°21.3	6°22.5	13	17°35.4	19.2	135°55.7	3.7'	27°10.6	4.3'	59.3'
Elmath	280°00.0	28°37.8	14	32°35.6	20.1	150°18.4	3.7'	27°14.9	4.0'	59.3'
Alnilam	275°36.2	-1°10.9	15	47°35.8	21.1	164°41.1	3.7'	27°18.9	3.8'	59.3'
Betelgeuse	270°50.5	7°24.8	16	62°36.0	22.1	179°03.8	3.6'	27°22.7	3.7'	59.3'
Canopus	263°51.7	-52°42.2	17	77°36.2	23.0	193°26.4	3.6'	27°26.4	3.5'	59.3'
Sirius	258°25.0	-16°44.9	18	92°36.4	S03°24.0	207°48.9	3.5'	N27°29.9	3.3'	59.3'
Adhara	255°40.8	-29°00.2	19	107°36.6	25.0	222°11.5	3.5'	27°33.2	3.1'	59.3'
Procyon	244°49.4	5°09.5	20	122°36.8	26.0	236°33.9	3.5'	27°36.3	2.9'	59.3'
Pollux	243°15.7	27°57.6	21	137°37.0	26.9	250°56.4	3.4'	27°39.2	2.7'	59.3'
Avior	234°14.4	-59°35.4	22	152°37.2	27.9	265°18.8	3.4'	27°41.9	2.5'	59.3'
Suhail	222°45.5	-43°32.2	23	167°37.4	28.9	279°41.2	3.4'	27°44.4	2.3'	59.3'
Miaplacidus	221°38.6	-69°39.4								
Alphard	217°46.6	-8°46.3								
Regulus	207°33.2	11°50.2								
				SD = 16.0'	$d = 1.0'$			SD = 16.2'		

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	12°42.1	159°06.5	S21°13.6	246°42.3	N20°25.5	229°58.5	N15°20.9	1°12.7	N01°59.3										
1	27°44.6	174°09.1	13.8	261°43.2	25.2	245°00.5	20.8	16°15.3	59.3										
2	42°47.0	189°11.7	13.9	276°44.2	25.0	260°02.6	20.7	31°18.0	59.2										
3	57°49.5	204°14.3	14.0	291°45.1	24.7	275°04.6	20.5	46°20.6	59.1										
4	72°52.0	219°16.9	14.2	306°46.1	24.4	290°06.6	20.4	61°23.3	59.0										
5	87°54.4	234°19.5	14.3	321°47.1	24.1	305°08.7	20.3	76°25.9	59.0										
6	102°56.9	249°22.1	S21°14.4	336°48.0	N20°23.8	320°10.7	N15°20.1	91°28.6	N01°58.9										
7	117°59.4	264°24.7	14.6	351°49.0	23.5	335°12.7	20.0	106°31.2	58.8										
8	133°01.8	279°27.3	14.7	6°49.9	23.2	350°14.8	19.9	121°33.8	58.7										
9	148°04.3	294°30.0	14.8	21°50.9	22.9	5°16.8	19.8	136°36.5	58.6										
10	163°06.3	309°32.6	14.9	36°51.9	22.6	20°18.8	19.6	151°39.1	58.6										
11	178°09.2	324°35.2	15.0	51°52.8	22.3	35°20.9	19.5	166°41.8	58.5										
12	193°11.7	339°37.9	S21°15.2	66°53.8	N20°22.0	50°22.9	N15°19.4	181°44.4	N01°58.4										
13	208°14.1	354°40.5	15.3	81°54.7	21.7	65°24.9	19.2	196°47.1	58.3										
14	223°16.6	9°43.2	15.4	96°55.7	21.4	80°27.0	19.1	211°49.7	58.3										
15	238°19.1	24°45.8	15.5	111°56.7	21.1	95°29.0	19.0	226°52.4	58.2										
16	253°21.5	39°48.5	15.6	126°57.6	20.8	110°31.0	18.8	241°55.0	58.1										
17	268°24.0	54°51.1	15.7	141°58.6	20.5	125°33.1	18.7	256°57.6	58.0										
18	283°26.5	69°53.8	S21°15.8	156°59.6	N20°20.2	140°35.1	N15°18.6	272°00.3	N01°57.9										
19	298°28.9	84°56.4	15.9	172°00.5	19.9	155°37.1	18.4	287°02.9	57.9										
20	313°31.4	99°59.1	16.0	187°01.5	19.6	170°39.2	18.3	302°05.6	57.8										
21	328°33.8	115°01.8	16.1	202°02.4	19.3	185°41.2	18.2	317°08.2	57.7										
22	343°36.3	130°04.5	16.2	217°03.4	19.0	200°43.3	18.0	332°10.9	57.6										
23	358°38.8	145°07.1	16.3	232°04.4	18.7	215°45.3	17.9	347°13.5	57.6										
Mer.pass. 23:05				ν 2.6' d 0.1' m -4.74				ν 1.0' d 0.3' m 1.09				ν 2.0' d 0.1' m -1.88				ν 2.6' d 0.1' m 0.33			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	13°41.2	160°09.8	S21°16.4	247°05.3	N20°18.4	230°47.3	N15°17.8	2°16.2	N01°57.5										
1	28°43.7	175°12.5	16.5	262°06.3	18.1	245°49.4	17.7	17°18.8	57.4										
2	43°46.2	190°15.2	16.6	277°07.3	17.8	260°51.4	17.5	32°21.5	57.3										
3	58°48.6	205°17.9	16.7	292°08.2	17.5	275°53.4	17.4	47°24.1	57.3										
4	73°51.1	220°20.6	16.8	307°09.2	17.2	290°55.5	17.3	62°26.7	57.2										
5	88°53.6	235°23.3	16.8	322°10.2	16.9	305°57.5	17.1	77°29.4	57.1										
6	103°56.0	250°26.0	S21°16.9	337°11.1	N20°16.6	320°59.5	N15°17.0	92°32.0	N01°57.0										
7	118°58.5	265°28.7	17.0	352°12.1	16.3	336°01.6	16.9	107°34.7	56.9										
8	134°01.0	280°31.4	17.1	7°13.1	16.0	351°03.6	16.7	122°37.3	56.9										
9	149°03.4	295°34.2	17.1	22°14.0	15.7	6°05.7	16.6	137°40.0	56.8										
10	164°05.9	310°36.9	17.2	37°15.0	15.4	21°07.7	16.5	152°42.6	56.7										
11	179°08.3	325°39.6	17.3	52°16.0	15.1	36°09.7	16.3	167°45.3	56.6										
12	194°10.8	340°42.3	S21°17.3	67°16.9	N20°14.8	51°11.8	N15°16.2	182°47.9	N01°56.6										
13	209°13.3	355°45.1	17.4	82°17.9	14.5	66°13.8	16.1	197°50.5	56.5										
14	224°15.7	10°47.8	17.5	97°18.9	14.2	81°15.8	16.0	212°53.2	56.4										
15	239°18.2	25°50.6	17.5	112°19.9	13.9	96°17.9	15.8	227°55.8	56.3										
16	254°20.7	40°53.3	17.6	127°20.8	13.6	111°19.9	15.7	242°58.5	56.3										
17	269°23.1	55°56.1	17.6	142°21.8	13.3	126°22.0	15.6	258°01.1	56.2										
18	284°25.6	70°58.8	S21°17.7	157°22.8	N20°13.0	141°24.0	N15°15.4	273°03.8	N01°56.1										
19	299°28.1	86°01.6	17.8	172°23.7	12.7	156°26.0	15.3	288°06.4	56.0										
20	314°30.5	101°04.3	17.8	187°24.7	12.4	171°28.1	15.2	303°09.1	55.9										
21	329°33.0	116°07.1	17.9	202°25.7	12.1	186°30.1	15.0	318°11.7	55.9										
22	344°35.5	131°09.9	17.9	217°26.7	11.8	201°32.2	14.9	333°14.3	55.8										
23	359°37.9	146°12.6	17.9	232°27.6	11.5	216°34.2	14.8	348°17.0	55.7										
Mer.pass. 23:01				ν 2.7' d 0.1' m -4.72				ν 1.0' d 0.3' m 1.08				ν 2.0' d 0.1' m -1.89				ν 2.6' d 0.1' m 0.33			

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	14°40.4	161°15.4	S21°18.0	247°28.6	N20°11.2	231°36.2	N15°14.7	3°19.6	N01°55.6						
1	29°42.8	176°18.2	18.0	262°29.6	10.9	246°38.3	14.5	18°22.3	55.6						
2	44°45.3	191°21.0	18.1	277°30.5	10.6	261°40.3	14.4	33°24.9	55.5						
3	59°47.8	206°23.8	18.1	292°31.5	10.3	276°42.4	14.3	48°27.6	55.4						
4	74°50.2	221°26.6	18.1	307°32.5	10.0	291°44.4	14.1	63°30.2	55.3						
5	89°52.7	236°29.3	18.1	322°33.5	09.7	306°46.4	14.0	78°32.9	55.2						
6	104°55.2	251°32.1	S21°18.2	337°34.4	N20°09.4	321°48.5	N15°13.9	93°35.5	N01°55.2						
7	119°57.6	266°35.0	18.2	352°35.4	09.1	336°50.5	13.7	108°38.2	55.1						
8	135°00.1	281°37.8	18.2	7°36.4	08.8	351°52.6	13.6	123°40.8	55.0						
9	150°02.6	296°40.6	18.2	22°37.4	08.5	6°54.6	13.5	138°43.4	54.9						
10	165°05.0	311°43.4	18.3	37°38.3	08.2	21°56.6	13.4	153°46.1	54.9						
11	180°07.5	326°46.2	18.3	52°39.3	07.9	36°58.7	13.2	168°48.7	54.8						
12	195°10.0	341°49.0	S21°18.3	67°40.3	N20°07.6	52°00.7	N15°13.1	183°51.4	N01°54.7						
13	210°12.4	356°51.9	18.3	82°41.3	07.3	67°02.8	13.0	198°54.0	54.6						
14	225°14.9	11°54.7	18.3	97°42.2	07.0	82°04.8	12.8	213°56.7	54.6						
15	240°17.3	26°57.5	18.3	112°43.2	06.7	97°06.9	12.7	228°59.3	54.5						
16	255°19.8	42°00.4	18.3	127°44.2	06.4	112°08.9	12.6	244°02.0	54.4						
17	270°22.3	57°03.2	18.3	142°45.2	06.1	127°10.9	12.4	259°04.6	54.3						
18	285°24.7	72°06.0	S21°18.3	157°46.2	N20°05.8	142°13.0	N15°12.3	274°07.2	N01°54.2						
19	300°27.2	87°08.9	18.3	172°47.1	05.5	157°15.0	12.2	289°09.9	54.2						
20	315°29.7	102°11.7	18.3	187°48.1	05.2	172°17.1	12.1	304°12.5	54.1						
21	330°32.1	117°14.6	18.3	202°49.1	04.9	187°19.1	11.9	319°15.2	54.0						
22	345°34.6	132°17.5	18.3	217°50.1	04.6	202°21.2	11.8	334°17.8	53.9						
23	0°37.1	147°20.3	18.3	232°51.1	04.3	217°23.2	11.7	349°20.5	53.9						
Mer.pass. 22:58				ν 2.8' d 0.0' m -4.69				ν 2.0' d 0.1' m -1.89				ν 2.6' d 0.1' m 0.33			

Stars	SHA	Dec
Alpheratz	357°32.9	29°14.5
Ankaa	353°05.3	-42°09.5
Schedar	349°28.8	56°41.2
Diphda	348°45.5	-17°50.2
Achernar	335°18.5	-57°05.9
Hamal	327°49.3	23°35.5
Polaris	312°53.6	89°22.4
Acamar	315°10.3	-40°11.6
Menkar	314°04.4	4°11.8
Mirafak	308°25.8	49°57.3
Aldebaran	290°37.8	16°33.9
Rigel	281°02.4	-8°10.0
Capella	280°19.6	-46°01.4
Bellatrix	278°21.2	6°22.5
Elnath	277°59.9	28°37.8
Alnilam	275°36.2	-1°10.9
Betelgeuse	270°50.5	7°24.8
Canopus	263°51.7	-52°42.2
Sirius	258°25.0	-16°44.9
Adhara	255°04.8	-29°00.2
Procyon	244°49.4	5°09.5
Pollux	243°15.6	27°57.6
Avior	234°14.4	-59°35.4
Suhail	222°45.5	-43°32.2
Miaplacidus	221°38.5	-69°49.9
Alphard	217°46.6	-8°46.3
Regulus	207°33.2	11°50.2
Dubhe	193°39.9	61°36.3
Denebola	182°23.8	14°25.4
Gienah	175°42.4	-17°41.8
Acrux	172°59.2	-63°14.3
Gacrux	171°50.6	-57°15.7
Alloth	166°12.3	55°48.9
Spica	158°21.1	-11°18.0
Alkaid	152°51.3	49°10.9
Hamal	148°34.6	-60°30.2
Mekar	147°56.3	-36°30.1
Nenkent	145°46.9	19°02.7
Arcturus	139°38.9	-60°56.6
Rigil Kent.	137°20.8	74°02.8
Kochab	136°54.7	-16°09.1
Zuben'ubi	126°02.8	26°37.6
Alphecca	112°14.3	-26°29.5
Antares	107°07.4	-69°04.7

Aries				Venus				Mars				Jupiter				Saturn			
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	15°39.5	162°23.2	S21°18.3	247°52.0	N20°04.0	232°25.2	N15°11.5	4°23.1	N01°53.8										
1	30°42.0	177°26.1	18.3	262°53.0	03.7	247°27.3	11.4	19°25.8	53.7										
2	45°44.4	192°28.9	18.3	277°54.0	03.4	262°29.3	11.3	34°28.4	53.6										
3	60°46.9	207°31.8	•• 18.2	292°55.0	•• 03.0	277°31.4	•• 11.2	49°31.0	•• 53.6										
4	75°49.4	222°34.7	•• 18.2	307°56.0	02.7	292°33.4	11.0	64°33.7	53.5										
5	90°51.8	237°37.6	18.2	322°56.9	02.4	307°35.5	10.9	79°36.3	53.4										
6	105°54.3	252°40.5	S21°18.2	337°57.9	N20°02.1	322°37.5	N15°10.8	94°39.0	N01°53.8										
7	120°56.8	267°43.4	18.1	352°58.9	01.8	337°39.6	10.6	109°41.6	53.3										
8	135°59.2	282°46.3	18.1	7°59.9	01.5	352°41.6	10.5	124°44.3	53.2										
9	151°01.7	297°49.2	•• 18.1	23°00.9	•• 01.2	7°43.6	•• 10.4	139°46.9	•• 53.1										
10	166°04.2	312°52.1	18.0	38°01.9	00.9	22°45.7	10.3	154°49.6	53.0										
11	181°06.6	327°55.0	18.0	53°02.8	00.6	37°47.7	10.1	169°52.2	52.9										
12	196°09.1	342°57.9	S21°18.0	68°03.8	N20°00.3	52°49.8	N15°10.0	184°54.8	N01°52.9										
13	211°11.6	358°00.8	17.9	83°04.8	20°00.0	67°51.8	09.9	199°57.5	52.8										
14	226°14.0	373°03.8	17.9	98°05.8	19°59.7	82°53.9	09.7	215°00.1	52.7										
15	241°16.5	28°06.7	•• 17.8	113°06.8	•• 59.4	97°55.9	•• 09.6	230°02.8	•• 52.6										
16	256°18.9	43°09.6	17.8	128°07.8	59.1	112°58.0	09.9	245°05.4	52.6										
17	271°21.4	58°12.6	17.7	143°08.8	58.8	128°00.0	09.2	260°08.1	52.5										
18	286°23.9	73°15.5	S21°17.7	158°09.7	N19°58.5	143°02.1	N15°09.4	275°10.7	N01°52.4										
19	301°26.3	88°18.4	17.6	173°10.7	58.2	158°04.1	09.1	290°13.4	52.3										
20	316°28.8	103°21.4	17.6	188°11.7	57.8	173°06.2	09.0	305°16.0	52.3										
21	331°31.3	118°24.3	•• 17.5	203°12.7	•• 57.5	188°08.2	•• 08.8	320°18.7	•• 52.2										
22	346°33.7	133°27.3	17.4	218°13.7	57.2	203°10.3	08.7	335°21.3	52.1										
23	1°36.2	148°30.2	17.4	233°14.7	56.9	218°12.3	08.6	350°23.9	52.0										
Mer.pass. 22:54				ν 2.9' d 0.0' m -4.67				ν 1.0' d 0.3' m 1.07				ν 2.0' d 0.1' m -1.89				ν 2.6' d 0.1' m 0.34			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	16°38.7	163°33.2	S21°17.3	248°15.7	N19°56.6	233°14.3	N15°08.5	5°26.6	N01°52.0										
1	31°41.1	178°36.2	17.2	263°16.7	56.3	248°16.4	08.3	20°29.2	51.9										
2	46°43.6	193°39.1	17.1	278°17.6	56.0	263°18.4	08.2	35°31.9	51.8										
3	61°46.0	208°42.1	•• 17.1	293°18.6	•• 55.7	278°20.5	•• 08.1	50°34.5	•• 51.7										
4	76°48.5	223°45.1	17.0	308°19.6	55.4	293°22.5	07.9	65°37.2	51.6										
5	91°51.0	238°48.1	16.9	323°20.6	55.1	308°24.6	07.8	80°39.8	51.6										
6	106°53.4	253°51.0	S21°16.8	338°21.6	N19°54.8	323°26.6	N15°07.7	95°42.5	N01°51.5										
7	121°55.9	268°54.0	16.8	353°22.6	54.5	338°28.7	07.6	110°45.1	51.4										
8	136°58.4	283°57.0	16.7	8°23.6	54.2	353°30.7	07.4	125°47.7	51.3										
9	152°00.8	299°00.0	•• 16.6	23°24.6	•• 53.8	8°32.8	•• 07.3	140°50.4	•• 51.3										
10	167°03.3	314°03.0	16.5	38°25.6	53.5	23°34.8	07.2	155°53.0	51.2										
11	182°05.8	329°06.0	16.4	53°26.6	53.2	38°36.9	07.1	170°55.7	51.1										
12	197°08.2	344°09.0	S21°16.3	68°27.6	N19°52.9	53°38.9	N15°06.9	185°58.3	N01°51.0										
13	212°10.7	359°12.0	16.2	83°28.6	52.6	68°41.0	06.8	201°01.0	51.0										
14	227°13.2	14°15.0	16.1	98°29.5	52.3	83°43.0	06.7	216°03.6	50.9										
15	242°15.6	29°18.0	•• 16.0	113°30.5	•• 52.0	98°45.1	•• 06.5	231°06.3	•• 50.8										
16	257°18.1	44°21.1	15.9	128°31.5	51.7	113°47.1	06.4	246°08.9	50.7										
17	272°20.5	59°24.1	15.8	143°32.5	51.4	128°49.2	06.3	261°11.5	50.7										
18	287°23.0	74°27.1	S21°15.7	158°33.5	N19°51.1	143°51.2	N15°06.2	276°14.2	N01°50.6										
19	302°25.5	89°30.2	15.6	173°34.5	50.8	158°53.3	06.0	291°16.8	50.5										
20	317°27.9	104°33.2	15.4	188°35.5	50.4	173°55.3	05.9	306°19.5	50.4										
21	332°30.4	119°36.2	•• 15.3	203°36.5	•• 50.1	188°57.4	•• 05.8	321°22.1	•• 50.4										
22	347°32.9	134°39.3	15.2	218°37.5	49.8	203°59.5	05.7	336°24.8	50.3										
23	2°35.3	149°42.3	15.1	233°38.5	49.5	219°01.5	05.5	351°27.4	50.2										
Mer.pass. 22:50				ν 3.0' d 0.1' m -4.64				ν 1.0' d 0.3' m 1.06				ν 2.0' d 0.1' m -1.90				ν 2.6' d 0.1' m 0.34			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	17°37.8	164°45.4	S21°15.0	248°39.5	N19°49.2	234°03.6	N15°05.4	6°30.1	N01°50.1										
1	32°40.3	179°48.4	14.8	263°40.5	48.9	249°05.6	05.3	21°32.7	50.0										
2	47°42.7	194°51.5	14.7	278°41.5	48.6	264°07.7	05.1	36°35.3	50.0										
3	62°45.2	209°54.5	•• 14.6	293°42.5	•• 48.3	279°09.7	•• 05.0	51°38.0	•• 49.9										
4	77°47.6	224°57.6	14.4	308°43.5	48.0	294°11.8	04.9	66°40.6	49.8										
5	92°50.1	240°00.7	14.3	323°44.5	47.6	309°13.8	04.8	81°43.3	49.7										
6	107°52.6	255°03.7	S21°14.2	338°45.5	N19°47.3	324°15.9	N15°04.6	96°45.9	N01°49.7										
7	122°55.0	270°06.8	14.0	353°46.5	47.0	339°17.9	04.5	111°48.6	49.6										
8	137°57.5	285°09.9	13.9	8°47.5	46.7	354°20.0	04.4	126°51.2	49.5										
9	153°00.0	300°13.0	•• 13.7	23°48.5	•• 46.4	9°22.0	•• 04.3	141°53.8	•• 49.4										
10	168°02.4	315°16.1	13.6	38°49.5	46.1	24°24.1	04.1	156°56.5	49.4										
11	183°04.9	330°19.2	13.4	53°50.5	45.8	39°26.1	04.0	171°59.1	49.3										
12	198°07.4	345°22.3	S21°13.3	68°51.5	N19°45.5	54°28.2	N15°03.9	187°01.8	N01°49.2										
13	213°09.8	0°25.4	13.1	83°52.5	45.2	69°30.2	03.8	202°04.4	49.1										
14	228°12.8	15°28.5	13.0	98°53.5	44.8	84°32.3	03.6	217°07.1	49.1										
15	243°14.8	30°31.6	•• 12.8	113°54.5	•• 44.5	99°34.4	•• 03.5	232°09.7	•• 49.0										
16	258°17.2	45°34.7	12.6	128°55.5	44.2	114°36.4	03.4	247°12.4	48.9										
17	273°19.7	60°37.8	12.5	143°56.5	43.9	129°38.5	03.2	262°15.0	48.8										
18	288°22.1	75°40.9	S21°12.3	158°57.5	N19°43.6	144°40.5	N15°03.1	277°17.6	N01°48.8										
19	303°24.6	90°44.0	12.1	173°58.5	43.3	159°42.6	03.0	292°20.3	48.7										
20	318°27.1	105°47.1	12.0	188°59.5	43.0	174°44.6	02.9	307°22.9	48.6										
21	333°29.5	120°50.3	•• 11.8	204°00.5	•• 42.7	189°46.7	•• 02.7	322°25.6	•• 48.5										
22	348°32.0	135°53.4	11.6	219°01.5	42.3	204°48.7	02.6	337°28.2	48.5										
23	3°34.5	150°56.5	11.4	234°02.5	42.0	219°50.8	02.5	352°30.9	48.4										
Mer.pass. 22:46				ν 3.1' d 0.1' m -4.60				ν 1.0' d 0.3' m 1.06				ν 2.1' d 0.1' m -1.90				ν 2.6' d 0.1' m 0.35			

	Stars	
	SHA	Dec
Alpheratz	357°32.9	29°14.5
Ankaa	353°05.3	-42°09.5
Schedar	349°28.8	56°41.2
Diphda	348°45.5	-17°50.2
Achernar	335°18.5	-57°05.9
Hamal	327°49.2	23°35.5
Polaris	312°52.7	89°22.4
Acamar	315°10.3	-40°11.6
Menkar	314°04.4	4°11.8
Mirfak	308°25.8	49°57.3
Aldebaran	290°37.8	16°33.9
Rigel	281°02.3	-8°10.0
Capella	280°19.6	46°01.4
Bellatrix	278°21.2	6°22.5
Elath	277°59.9	28°37.8
Alnilam	275°36.2	-1°10.9
Betelgeuse	270°50.4	7°24.8
Canopus	263°51.7	-52°42.2
Sirius	258°24.9	-16°44.9
Adhara	255°04.7	-29°00.2
Procyon	244°49.4	5°09.5
Pollux	243°15.6	27°57.6
Avior	234°14.4	-59°35.4
Suhail	222°45.5	-43°32.2
Miaplacidus	221°38.5	-69°49.3
Alphard	217°46.5	-8°46.3
Regulus	207°33.2	11°50.2
Dubhe	193°39.8	61°36.3
Denebola	182°23.8	14°25.4
Gienah	175°42.4	-17°41.3
Acrux	172°59.2	-63°14.8
Gacrux	171°50.6	-57°15.7
Alloth	166°12.3	55°48.9
Spica	158°21.1	-11°18.0
Alkaid	152°51.3	49°10.8
Hadar	148°34.6	-60°30.2
Menkent	147°56.3	-36°30.1
Arcturus	145°46.9	19°02.7
Rigel Kent.	139°38.9	-60°56.8
Kochab	137°20.9	74°02.8
Zuben ubi	136°54.7	-16°09.1
Alphecca	126°02.8	26°37.6
Antares	112°14.3	-26°29.5
Atria	107°07.5	-69°04.7
Sabik	102°01.3	-15°45.4
Shaula	96°08.6	-37°07.4
Rasalhague	95°57.3	12°32.6
Eltanin	90°41.7	51°29.4
Kaus Aus.	83°30.7	-34°22.4
Vega	80°32.3	38°48.8
Nunki	75°46.0	-26°15.8
Altair	61°58.5	8°56.5
Peacock	53°03.3	-56°39.1
Deneb	49°24.6	45°22.9
Enif	33°37.2	10°00.1
Al Na'ir	27°30.8	-46°49.9
Fomalhaut	15°12.6	-29°28.7
Scheat	13°43.5	28°13.9
Markab	13°28.2	15°21.2

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	18°36.9	165°59.7	S21°11.2	249°03.5	N19°41.7	234°52.9	N15°02.4	7°33.5	N01°48.3										
1	33°39.4	181°02.8	11.1	264°04.5	41.4	249°54.9	02.2	22°36.2	48.2										
2	48°41.9	196°06.0	10.9	279°05.5	41.1	264°57.0	02.1	37°38.8	48.2										
3	63°44.3	211°09.1	•• 10.7	294°06.5	•• 40.8	279°59.0	•• 02.0	52°41.4	•• 48.1										
4	78°46.8	226°12.3	10.5	309°07.5	40.5	295°01.1	01.9	67°44.1	48.0										
5	93°49.2	241°15.4	10.3	324°08.5	40.2	310°03.1	01.7	82°46.7	47.9										
6	108°51.7	256°18.6	S21°10.1	339°09.5	N19°39.8	325°05.2	N15°01.6	97°49.4	N01°47.4										
7	123°54.2	271°21.8	09.9	354°10.6	39.5	340°07.3	01.5	112°52.0	47.8										
8	138°56.6	286°24.9	09.7	9°11.6	39.2	355°09.3	01.4	127°54.7	47.7										
9	153°59.1	301°28.1	•• 09.5	24°12.6	•• 38.9	10°11.4	•• 01.2	142°57.3	•• 47.6										
10	169°01.6	316°31.3	09.3	39°13.6	38.6	25°13.4	01.1	157°59.9	47.5										
11	184°04.0	331°34.4	09.1	54°14.6	38.3	40°15.5	01.0	173°02.6	47.5										
12	199°06.5	346°37.6	S21°08.9	69°15.6	N19°38.0	55°17.6	N15°00.9	188°05.2	N01°47.4										
13	214°09.0	1°40.8	08.6	84°16.6	37.6	70°19.6	00.7	203°07.9	47.3										
14	229°11.4	16°44.0	08.4	99°17.6	37.3	85°21.7	00.6	218°10.5	47.2										
15	244°13.9	31°47.2	•• 08.2	114°18.6	•• 37.0	100°23.7	•• 00.5	233°13.2	•• 47.2										
16	259°16.4	46°50.4	08.0	129°19.6	36.7	115°25.8	00.4	248°15.8	47.1										
17	274°18.8	61°53.6	07.8	144°20.6	36.4	130°27.8	00.2	263°18.5	47.0										
18	289°21.3	76°56.8	S21°07.5	159°21.7	N19°36.1	145°29.9	N15°00.1	278°21.1	N01°46.9										
19	304°23.7	92°00.0	07.3	174°22.7	35.7	160°32.0	15°00.0	293°23.7	46.9										
20	319°26.2	107°03.2	07.1	189°23.7	35.4	175°34.0	14°59.0	308°26.4	46.8										
21	334°28.7	122°06.4	•• 06.8	204°24.7	•• 35.1	190°36.1	•• 59.7	323°29.0	•• 46.7										
22	349°31.1	137°09.6	06.6	219°25.7	34.8	205°38.1	59.6	338°31.7	46.6										
23	4°33.6	152°12.9	06.4	234°26.7	34.5	220°40.2	59.5	353°34.3	46.6										
Mer.pass. 22:42				ν 3.1' d 0.2' m -4.57				ν 1.0' d 0.3' m 1.05				ν 2.1' d 0.1' m -1.90				ν 2.6' d 0.1' m 0.36			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	19°36.1	167°16.1	S21°06.1	249°27.7	N19°34.2	235°42.3	N14°59.4	8°37.0	N01°46.5										
1	34°38.5	182°19.3	05.9	264°28.7	33.9	250°44.3	59.2	23°39.6	46.4										
2	49°41.0	197°22.5	05.6	279°29.8	33.5	265°46.4	59.1	38°42.2	46.3										
3	64°43.5	212°25.8	•• 05.4	294°30.8	•• 33.2	280°48.5	•• 59.0	53°44.9	•• 46.3										
4	79°45.9	227°29.0	05.1	309°31.8	32.9	295°50.5	58.9	68°47.5	46.2										
5	94°48.4	242°32.3	04.9	324°32.8	32.6	310°52.6	58.7	83°50.2	46.1										
6	109°50.9	257°35.5	S21°04.6	339°33.8	N19°32.3	325°54.6	N14°58.6	98°52.8	N01°46.0										
7	124°53.3	272°38.8	04.4	354°34.8	32.0	340°56.7	58.5	113°55.5	45.9										
8	139°55.8	287°42.0	04.1	9°35.8	31.6	355°58.8	58.4	128°58.1	45.9										
9	154°58.2	302°45.3	•• 03.8	24°36.9	•• 31.3	11°00.8	•• 58.2	144°00.7	•• 45.8										
10	170°00.7	317°48.5	03.6	39°37.9	31.0	26°02.9	58.1	159°03.4	45.7										
11	185°03.2	332°51.8	03.3	54°38.9	30.7	41°04.9	58.0	174°06.0	45.7										
12	200°05.6	347°55.1	S21°03.0	69°39.9	N19°30.4	56°07.0	N14°57.9	189°08.7	N01°45.6										
13	215°08.1	2°58.3	02.8	84°40.9	30.1	71°09.1	57.7	204°11.3	45.5										
14	230°10.6	18°01.6	02.5	99°41.9	29.7	86°11.1	57.6	219°14.0	45.4										
15	245°13.0	33°04.9	•• 02.2	114°43.0	•• 29.4	101°13.2	•• 57.5	234°16.6	•• 45.4										
16	260°15.5	48°08.2	01.9	129°44.0	29.1	116°15.3	57.4	249°19.2	45.3										
17	275°18.0	63°11.4	01.6	144°45.0	28.8	131°17.3	57.2	264°21.9	45.2										
18	290°20.4	78°14.7	S21°01.3	159°46.0	N19°28.5	146°19.4	N14°57.1	279°24.5	N01°45.1										
19	305°22.9	93°18.0	01.1	174°47.0	28.1	161°21.5	57.0	294°27.2	45.1										
20	320°25.3	108°21.3	00.8	189°48.1	27.8	176°23.5	56.9	309°29.8	45.0										
21	335°27.8	123°24.6	•• 00.5	204°49.1	•• 27.5	191°25.6	•• 56.8	324°32.5	•• 44.9										
22	350°30.3	138°27.9	21°00.2	219°50.1	27.2	206°27.7	56.6	339°35.1	44.8										
23	5°32.7	153°31.2	20°59.9	234°51.1	26.9	221°29.7	56.5	354°37.7	44.8										
Mer.pass. 22:38				ν 3.2' d 0.2' m -4.52				ν 1.0' d 0.3' m 1.04				ν 2.1' d 0.1' m -1.91				ν 2.6' d 0.1' m 0.36			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	20°35.2	168°34.5	S20°59.6	249°52.1	N19°26.6	236°31.8	N14°56.4	9°40.4	N01°44.7										
1	35°37.7	183°37.8	59.3	264°53.2	26.2	251°33.8	56.3	24°43.0	44.6										
2	50°40.1	198°41.1	59.0	279°54.2	25.9	266°35.9	56.1	39°45.7	44.5										
3	65°42.6	213°44.5	•• 58.7	294°55.2	•• 25.6	281°38.0	•• 56.0	54°48.3	•• 44.5										
4	80°45.1	228°47.8	58.3	309°56.2	25.3	296°40.0	55.9	69°51.0	44.4										
5	95°47.5	243°51.1	58.0	324°57.2	25.0	311°42.1	55.8	84°53.6	44.3										
6	110°50.0	258°54.4	S20°57.7	339°58.3	N19°24.6	326°44.2	N14°55.6	99°56.2	N01°44.2										
7	125°52.5	273°57.8	57.4	354°59.3	24.3	341°46.2	55.5	114°58.9	44.2										
8	140°54.9	289°01.1	57.1	10°00.3	24.0	356°48.3	55.4	130°01.5	44.1										
9	155°57.4	304°04.4	•• 56.7	25°01.3	•• 23.7	11°50.4	•• 55.3	145°04.2	•• 44.0										
10	170°59.8	319°07.8	56.4	40°02.4	23.4	26°52.4	55.1	160°06.8	43.9										
11	186°02.3	334°11.1	56.1	55°03.4	23.0	41°54.5	55.0	175°09.5	43.9										
12	201°04.8	349°14.5	S20°55.8	70°04.4	N19°22.7	56°56.6	N14°54.9	190°12.1	N01°43.8										
13	216°07.2	4°17.8	55.4	85°05.4	22.4	71°58.6	54.8	205°14.7	43.7										
14	231°09.7	19°21.2	55.1	100°06.5	22.1	87°00.7	54.7	220°17.4	43.7										
15	246°12.2	34°24.5	•• 54.7	115°07.5	•• 21.8	102°02.8	•• 54.5	235°20.0	•• 43.6										
16	261°14.6	49°27.9	54.4	130°08.5	21.5	117°04.8	54.4	250°22.7	43.5										
17	276°17.1	64°31.2	54.1	145°09.5	21.1	132°06.9	54.3	265°25.3	43.4										
18	291°19.6	79°34.6	S20°53.7	160°10.6	N19°20.8	147°09.0	N14°54.2	280°28.0	N01°43.4										
19	306°22.0	94°38.0	53.4	175°11.6	20.5	162°11.1	54.0	295°30.6	43.3										
20	321°24.5	109°41.4	53.0	190°12.6	20.2	177°13.1	53.9	310°33.2	43.2										
21	336°27.0	124°44.7	•• 52.7	205°13.7	•• 19.8	192°15.2	•• 53.8	325°35.9	•• 43.1										
22	351°29.4	139°48.1	52.3	220°14.7	19.5	207°17.3	53.7	340°38.5	43.1										
23	6°31.9	154°51.5	51.9	235°15.7	19.2	222°19.3	53.6	355°41.2	43.0										
Mer.pass. 22:34				ν 3.3' d 0.3' m -4.48				ν 1.0' d 0.3' m 1.03				ν 2.1' d 0.1' m -1.91				ν 2.6' d 0.1' m 0.37			

Stars		
	SHA	Dec
Alpheratz	357°32.9	29°14.5
Ankaa	353°05.3	-42°09.5
Schedar	349°28.8	56°41.2
Diphda	348°45.5	-17°50.2
Achernar	335°18.5	-57°05.9
Hamal	327°49.2	23°35.5
Polaris	312°51.8	89°22.5
Acamar	315°10.3	-40°11.6
Menkar	314°04.4	4°11.8
Mirfak	308°25.8	49°57.3
Aldebaran	290°37.8	16°33.9
Rigel	281°02.3	-8°10.0
Capella	280°19.5	46°01.4
Bellatrix	278°21.2	6°22.5
Elath	277°59.9	28°37.8
Alnilam	275°36.1	-1°10.9
Betelgeuse	270°50.4	7°24.8
Canopus	263°51.6	-52°42.2
Sirius	258°24.9	-16°44.9
Adhara	255°04.7	-29°00.2
Procyon	244°49.4	5°09.5
Pollux	243°15.6	27°57.6
Avior	234°14.3	-59°35.4
Suhail	222°45.5	-43°32.2
Miaplacidus	221°38.4	-69°49.3
Alphard	217°46.5	-8°46.3
Regulus	207°33.1	11°50.2
Dubhe	193°39.8	61°36.3
Denebola	182°23.8	14°25.4
Gienah	175°42.4	-17°41.3
Acrux	172°59.2	-63°14.8
Gacrux	171°50.6	-57°15.7
Alloth	168°12.3	55°48.9
Spica	158°21.1	-11°18.0
Alkaid	152°51.3	49°10.8
Hadar	148°34.6	-60°30.2
Menkent	147°56.3	-36°30.1
Arcturus	145°46.9	19°02.7
Rigil Kent	139°38.9	-60°56.8
Kochab	137°20.9	74°02.8
Zuben el	136°54.7	-16°09.1
Alphecca	126°28.8	26°37.6
Antares	112°14.3	-26°05.9
Atria	107°07.5	-69°04.7
Sabik	102°01.3	-15°45.4
Shaula	96°08.6	-37°07.4
Rasalhague	95°57.4	12°32.6
Eltanin	90°41.7	51°29.4
Kaus Aus	83°30.7	34°22.4
Vega	80°32.3	38°48.8
Nunki	75°46.0	-26°15.8
Altair	61°58.5	8°56.5
Peacock	53°03.3	-56°39.1
Deneb	49°24.7	45°22.9
Enif	33°37.2	10°00.1
Al Na'ir	27°30.8	-46°49.9
Fomalhaut	15°12.6	-29°28.7
Scheat	13°43.5	28°13.9
Makrab	13°28.2	15°21.2
Oct 10 Sat	SHA	Mer.pass
Venus	147°22.8	12:53
Mars	230°27.6	07:23
Jupiter	216°15.9	08:19
Saturn	348°56.6	23:26
Oct 11 Sun	SHA	Mer.pass
Venus	147°40.0	12:48
Mars	229°51.7	07:22
Jupiter	216°06.2	08:16
Saturn	349°00.9	23:21
Oct 12 Mon	SHA	Mer.pass
Venus	147°59.3	12:43
Mars	229°16.9	07:20
Jupiter	215°56.6	08:13
Saturn	349°05.2	23:17
Horizontal parallax	Venus:	0.5
	Mars:	0.1

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	21°34.3	169°54.9	S20°51.6	250°16.7	N19°18.9	237°21.4	N14°53.4	10°43.8	N01°42.9
1	36°36.8	184°58.3	51.2	265°17.8	18.6	252°23.5	53.3	25°46.5	42.8
2	51°39.3	200°01.7	50.8	280°18.8	18.2	267°25.5	53.2	40°49.1	42.8
3	66°41.7	215°05.1	•• 50.5	295°19.8	•• 17.9	282°27.6	•• 53.1	55°51.7	•• 42.7
4	81°44.2	230°08.5	50.1	310°20.9	17.6	297°29.7	52.9	70°54.4	42.6
5	96°46.7	245°11.9	49.7	325°21.9	17.3	312°31.7	52.8	85°57.0	42.5
6	111°49.1	260°15.3	S20°49.4	340°22.9	N19°17.0	327°33.8	N14°52.7	100°59.7	N01°42.5
7	126°51.6	275°18.7	49.0	355°24.0	16.6	342°35.9	52.6	116°02.3	42.4
8	141°54.1	290°22.1	48.6	10°25.0	16.3	357°38.0	52.5	131°04.9	42.3
9	156°56.5	305°25.5	•• 48.2	25°26.0	•• 16.0	12°40.0	•• 52.3	146°07.6	•• 42.2
10	171°59.0	320°28.9	47.8	40°27.1	15.7	27°42.1	52.2	161°10.2	42.2
11	187°01.4	335°32.3	47.4	55°28.1	15.4	42°44.2	52.1	176°12.9	42.1
12	202°03.9	350°35.8	S20°47.0	70°29.1	N19°15.0	57°46.2	N14°52.0	191°15.5	N01°42.0
13	217°06.4	5°39.2	46.6	85°30.2	14.7	72°48.3	51.8	206°18.2	41.9
14	232°08.8	20°42.6	46.2	100°31.2	14.4	87°50.4	51.7	221°20.8	41.9
15	247°11.3	35°46.1	•• 45.8	115°32.2	•• 14.1	102°52.5	•• 51.6	236°23.4	•• 41.8
16	262°13.8	50°49.5	45.4	130°33.3	13.7	117°54.5	51.5	251°26.1	41.7
17	277°16.2	65°52.9	45.0	145°34.3	13.4	132°56.6	51.4	266°27.7	41.7
18	292°18.7	80°56.4	S20°44.6	160°35.3	N19°13.1	147°58.7	N14°51.2	281°31.4	N01°41.6
19	307°21.2	95°59.8	44.2	175°36.4	12.8	163°00.8	51.1	296°34.0	41.5
20	322°23.6	111°03.3	43.8	190°37.4	12.5	178°02.8	51.0	311°36.6	41.4
21	337°26.1	126°06.7	•• 43.4	205°38.4	•• 12.1	193°04.9	•• 50.9	326°39.3	•• 41.4
22	352°28.6	141°10.2	43.0	220°39.5	11.8	208°07.0	50.8	341°41.9	41.3
23	7°31.0	156°13.6	42.5	235°40.5	11.5	223°09.0	50.6	356°44.6	41.2
Mer.pass. 22:30 ν 3.4' d 0.4' m -4.43 ν 1.0' d 0.3' m 1.03 ν 2.1' d 0.1' m -1.92 ν 2.6' d 0.1' m 0.37									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	22°33.5	171°17.1	S20°42.1	250°41.6	N19°11.2	238°11.1	N14°50.5	11°47.2	N01°41.1					
1	37°35.9	186°20.6	41.7	265°42.6	10.8	253°13.2	50.4	26°49.9	41.1					
2	52°38.4	201°24.0	41.3	280°43.6	10.5	268°15.3	50.3	41°52.5	41.0					
3	67°40.9	216°27.5	•• 40.8	295°44.7	•• 10.2	283°17.3	•• 50.1	56°55.1	•• 40.9					
4	82°43.3	231°31.0	40.4	310°45.7	09.9	298°19.4	50.0	71°57.8	40.8					
5	97°45.8	246°34.4	40.0	325°46.7	09.5	313°21.5	49.9	87°00.4	40.8					
6	112°48.3	261°37.9	S20°39.5	340°47.8	N19°09.2	328°23.6	N14°49.8	102°03.1	N01°40.7					
7	127°50.7	276°41.4	39.1	355°48.8	08.9	343°25.6	49.7	117°05.7	40.6					
8	142°53.2	291°44.9	38.7	10°49.9	08.6	358°27.7	49.5	132°08.3	40.6					
9	157°55.7	306°48.4	•• 38.2	25°50.9	•• 08.3	13°29.8	•• 49.4	147°11.0	•• 40.5					
10	172°58.1	321°51.9	37.8	40°52.0	07.9	28°31.9	49.3	162°13.6	40.4					
11	188°00.6	336°55.3	37.3	55°53.0	07.6	43°34.0	49.2	177°16.3	40.3					
12	203°03.1	351°58.8	S20°36.9	70°54.0	N19°07.3	58°36.0	N14°49.1	192°18.9	N01°40.3					
13	218°05.7	7°02.3	36.4	85°55.1	07.0	73°38.1	48.9	207°21.5	40.2					
14	233°08.0	22°05.8	35.9	100°56.1	06.6	88°40.2	48.8	222°24.2	40.1					
15	248°10.4	37°09.3	•• 35.5	115°57.2	•• 06.3	103°42.3	•• 48.7	237°26.8	•• 40.0					
16	263°12.9	52°12.9	35.0	130°58.2	06.0	118°44.3	48.6	252°29.5	40.0					
17	278°15.4	67°16.4	34.5	145°59.2	05.7	133°46.4	48.5	267°32.1	39.9					
18	293°17.8	82°19.9	S20°34.1	161°00.3	N19°05.3	148°48.5	N14°48.3	282°34.7	N01°39.8					
19	308°20.3	97°23.4	33.6	176°01.3	05.0	163°50.6	48.2	297°37.4	39.7					
20	323°22.8	112°26.9	33.1	191°02.4	04.7	178°52.6	48.1	312°40.0	39.7					
21	338°25.2	127°30.4	•• 32.7	206°03.4	•• 04.4	193°54.7	•• 48.0	327°42.7	•• 39.6					
22	353°27.7	142°34.0	32.2	221°04.5	04.0	208°56.8	47.9	342°45.3	39.5					
23	8°30.2	157°37.5	31.7	236°05.5	03.7	223°58.9	47.7	357°48.0	39.5					
Mer.pass. 22:26			ν 3.5' d 0.4' m -4.37			ν 1.0' d 0.3' m 1.02			ν 2.1' d 0.1' m -1.92			ν 2.6' d 0.1' m 0.38		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	23°32.6	172°41.0	S20°31.2	251°06.6	N19°03.4	239°01.0	N14°47.6	12°50.6	N01°39.4					
1	38°35.1	187°44.5	30.7	266°07.6	03.1	254°03.0	47.5	27°53.2	39.3					
2	53°37.5	202°48.1	30.2	281°08.7	02.7	269°05.1	47.4	42°55.9	39.2					
3	68°40.0	217°51.6	•• 29.7	296°09.7	•• 02.4	284°07.2	•• 47.3	57°58.5	•• 39.2					
4	83°42.5	232°55.1	29.3	311°10.8	02.1	299°09.3	47.1	73°01.2	39.1					
5	98°44.9	247°58.7	28.8	326°11.8	01.8	314°11.4	47.0	88°03.8	39.0					
6	113°47.4	263°02.2	S20°28.3	341°12.8	N19°01.4	329°13.4	N14°46.9	103°06.4	N01°38.9					
7	128°49.9	278°05.8	27.8	356°13.9	01.1	344°15.5	46.8	118°09.1	38.9					
8	143°52.3	293°09.3	27.3	11°14.9	00.8	359°17.6	46.7	133°11.7	38.8					
9	158°54.8	308°12.9	•• 26.7	26°16.0	•• 00.5	14°19.7	•• 46.5	148°14.4	•• 38.7					
10	173°57.3	323°16.4	26.2	41°17.0	19°00.1	29°21.8	46.4	163°17.0	38.7					
11	188°59.7	338°20.0	25.7	56°18.1	18°59.8	44°23.8	46.3	178°19.6	38.6					
12	204°02.2	353°23.6	S20°25.2	71°19.1	N18°59.5	59°25.9	N14°46.2	193°22.3	N01°38.5					
13	219°04.7	8°27.1	24.8	86°20.2	59.1	74°28.0	46.1	208°24.9	38.4					
14	234°07.1	23°30.7	24.2	101°21.2	58.8	89°30.1	45.9	223°27.6	38.4					
15	249°09.6	38°34.3	•• 23.7	116°22.3	•• 58.5	104°32.2	•• 45.8	238°30.2	•• 38.3					
16	264°12.0	53°37.8	23.1	131°23.4	58.2	119°34.2	45.7	253°32.8	38.2					
17	279°14.5	68°41.4	22.6	146°24.4	57.8	134°36.3	45.6	268°35.5	38.1					
18	294°17.0	83°45.0	S20°22.1	161°25.5	N18°57.5	149°38.4	N14°45.5	283°38.1	N01°38.1					
19	309°19.4	98°48.6	21.5	176°26.5	57.2	164°40.5	45.4	298°40.8	38.0					
20	324°21.9	113°52.1	21.0	191°27.6	56.9	179°42.6	45.2	313°43.4	37.9					
21	339°24.4	128°55.7	•• 20.5	206°28.6	•• 56.5	194°44.7	•• 45.1	328°46.0	•• 37.9					
22	354°26.8	143°59.3	19.9	221°29.7	56.2	209°46.7	45.0	343°48.7	37.8					
23	9°29.3	159°02.9	19.4	236°30.7	55.9	224°48.8	44.9	358°51.3	37.7					
Mer.pass. 22:22			ν 3.5' d 0.5' m -4.31			ν 1.0' d 0.3' m 1.01			ν 2.1' d 0.1' m -1.92			ν 2.6' d 0.1' m 0.38		

Stars	SHA	Dec
Alpheratz	357°32.9	29°14.5
Ankaa	353°05.3	-42°09.5
Schedar	349°28.8	56°41.2
Diphda	348°45.5	-17°50.2
Achernar	335°18.5	-07°05.9
Hamal	327°49.2	23°35.5
Polaris	312°50.6	89°22.5
Acamar	315°10.3	-40°11.6
Menkar	314°04.3	4°11.8
Mirafak	308°25.7	49°57.4
Aldebaran	290°37.7	16°33.9
Rigel	281°02.3	-8°10.1
Capella	280°19.5	46°01.4
Bellatrix	278°21.2	6°22.5
Elath	277°59.9	28°37.8
Alnilam	275°36.1	-1°10.9
Betelgeuse	270°50.4	7°24.8
Canopus	263°51.6	-52°42.2
Sirius	258°24.9	-16°45.0
Adhara	255°04.7	-29°00.2
Procyon	244°49.3	5°09.5
Pollux	243°15.6	27°57.6
Avior	234°34.3	-59°35.6
Suhail	222°45.4	-43°32.2
Miaplacidus	221°38.4	-69°49.3
Alphard	217°46.5	-8°46.3
Regulus	207°33.1	11°50.2
Dubhe	193°39.8	61°36.2
Denebola	182°23.8	14°25.4
Gienah	175°42.2	-17°43.1
Acrux	172°59.4	-63°14.8
Gacrux	171°50.6	-57°15.7
Alloth	166°12.3	55°48.8
Spica	159°21.1	-11°18.0
Alkaid	152°51.4	49°10.8
Henkar	148°34.6	-60°30.1
Madrat	147°56.3	-36°30.1
Arcturus	145°46.9	19°02.7
Rigil Kent.	139°38.9	-60°56.8
Kochab	137°20.9	74°02.8
Zuben'ubi	136°54.7	-16°09.1
Alphecca	125°02.8	26°37.6
Antares	112°14.3	-26°29.5
Atria	107°07.6	-69°04.8
Sabik	102°01.3	-15°45.4
Shaula	96°08.6	-37°07.4
Rasalhague	95°57.4	12°32.6
Etanin	90°41.7	51°29.4
Kaus Aus.	83°30.7	-34°22.4
Vega	80°32.3	38°48.8
Nunki	75°46.0	-26°15.5
Altair	61°58.5	8°56.5
Peacock	53°03.3	-56°39.1
Deneb	49°24.7	45°22.9
Enif	33°37.2	10°00.1
Al Na'ir	27°30.8	-46°49.9
Fomalhaut	15°12.6	-29°28.8
Scheat	13°43.5	28°13.9
Markab	13°28.2	15°21.2

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	24°31.8	174°06.5	S20°18.9	251°31.8	N18°55.6	239°50.9	N14°44.8	13°53.9				13°53.9				N01°37.6			
1	39°34.2	189°10.1	18.3	266°32.8	55.2	254°53.0	44.6	28°56.6				37.6							
2	54°36.7	204°13.7	17.8	281°33.9	54.9	269°55.1	44.5	43°59.2				37.5							
3	69°39.2	219°17.3	•• 17.2	296°34.9	•• 54.6	284°57.2	•• 44.4	59°01.9				37.4							
4	84°41.6	234°20.9	16.7	311°36.0	54.2	299°59.2	44.3	74°04.5				37.4							
5	99°44.1	249°24.5	16.1	326°37.1	53.9	315°01.3	44.2	89°07.1				37.3							
6	114°46.5	264°28.1	S20°15.5	341°38.1	N18°53.6	330°03.4	N14°44.1	104°09.8				N01°37.2							
7	129°49.0	279°31.7	15.0	356°39.2	53.3	345°05.5	43.9	119°12.4				37.1							
8	144°51.5	294°35.3	14.4	11°40.2	52.9	•• 07°6	43.8	134°15.1				37.1							
9	159°53.9	309°38.9	•• 13.9	26°41.3	•• 52.6	15°09.7	•• 43.7	149°17.7				37.0							
10	174°56.4	324°42.6	13.3	41°42.3	52.3	30°11.7	43.6	164°20.3				36.9							
11	189°58.9	339°46.2	12.7	56°43.4	52.0	45°13.8	43.5	179°23.0				36.9							
12	205°01.3	354°49.8	S20°12.1	71°44.5	N18°51.6	60°15.9	N14°43.3	194°25.6				N01°36.8							
13	220°03.8	•• 9°53.4	11.6	86°45.5	51.3	75°18.0	43.2	209°28.3				36.7							
14	235°06.3	24°57.0	11.0	101°46.6	51.0	90°20.1	43.1	224°30.9				36.6							
15	250°08.7	40°00.7	•• 10.4	116°47.6	•• 50.6	105°22.2	•• 43.0	239°33.5				36.6							
16	265°11.2	55°04.3	09.8	131°48.7	50.3	120°24.3	42.9	254°36.2				36.5							
17	280°13.7	70°07.9	09.2	146°49.8	50.2	135°26.3	42.8	269°38.8				36.4							
18	295°16.1	85°11.6	S20°08.6	161°50.8	N18°49.7	150°28.4	N14°42.6	284°41.4				N01°36.4							
19	310°18.6	100°15.2	08.1	176°51.9	49.3	165°30.5	42.5	299°44.1				36.3							
20	325°21.0	115°18.8	07.5	191°52.9	49.0	180°32.6	42.4	314°46.7				36.2							
21	340°23.5	130°22.5	•• 06.9	206°54.0	•• 48.7	195°34.7	•• 42.3	329°49.4				36.1							
22	355°26.0	145°26.1	06.3	221°55.1	48.3	210°36.8	42.2	344°52.0				36.1							
23	10°28.4	160°29.8	05.7	236°56.1	48.0	225°38.9	42.0	359°54.6				36.0							
Mer.pass. 22:18				ν 3.6' d 0.5' m -4.25				ν 1.1' d 0.3' m 1.00				ν 2.1' d 0.1' m -1.93				ν 2.6' d 0.1' m 0.39			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	25°30.9	175°33.4	S20°05.1	251°57.2	N18°47.7	240°41.0	N14°41.9	14°57.3	N01°35.9						
1	40°33.4	190°37.1	04.5	266°58.3	47.4	255°43.0	41.8	29°59.9	35.8						
2	55°35.8	205°40.7	03.9	281°59.3	47.0	270°45.1	41.7	45°02.6	35.8						
3	70°38.3	220°44.4	•• 03.2	297°00.4	•• 46.7	285°47.2	•• 41.6	60°05.2	•• 35.7						
4	85°40.8	235°48.0	02.6	312°01.5	46.4	300°49.3	41.5	75°07.8	35.6						
5	100°43.2	250°51.7	02.0	327°02.5	46.0	315°51.4	41.3	90°10.5	35.6						
6	115°45.7	265°55.3	S20°01.4	342°03.6	N18°45.7	330°53.5	N14°41.2	105°13.1	N01°35.5						
7	130°48.1	280°59.0	00.8	357°04.6	45.4	345°55.6	41.1	120°15.7	35.4						
8	145°50.6	296°02.7	20°00.2	12°05.7	45.0	•• 07°7	41.0	135°18.4	35.4						
9	160°53.1	311°06.3	19°59.5	27°06.8	•• 44.7	15°59.8	•• 40.9	150°21.0	•• 35.3						
10	175°55.5	326°10.0	18.9	42°07.8	44.4	31°01.8	40.8	165°23.7	35.2						
11	190°58.0	341°13.7	18.3	57°08.9	44.1	46°03.9	40.6	180°26.3	35.1						
12	206°00.5	356°17.3	S19°57.7	72°10.0	N18°43.7	61°06.0	N14°40.5	195°28.9	N01°35.1						
13	221°02.9	11°21.0	57.0	87°11.0	43.4	76°08.1	40.4	210°31.6	35.0						
14	236°05.4	26°24.7	56.4	102°12.1	43.1	91°12.3	40.3	225°34.2	34.9						
15	251°07.9	41°28.4	•• 55.7	117°13.2	•• 42.7	106°12.3	•• 40.2	240°36.8	•• 34.9						
16	266°10.3	56°32.1	55.1	132°14.3	42.4	121°14.4	40.1	255°39.5	34.8						
17	281°12.8	71°35.7	54.5	147°15.3	42.1	136°16.5	39.9	270°42.1	34.7						
18	296°15.3	86°39.4	S19°53.8	162°16.4	N18°41.7	151°18.6	N14°39.8	285°44.8	N01°34.6						
19	311°17.7	101°43.1	53.2	177°17.5	41.4	166°20.7	39.7	300°47.4	34.6						
20	326°20.2	116°46.8	52.5	192°18.5	41.1	181°22.8	39.6	315°50.0	34.5						
21	341°22.6	131°50.5	•• 51.9	207°19.6	•• 40.8	196°24.9	•• 39.5	330°52.7	•• 34.4						
22	356°25.1	146°54.2	51.2	222°20.7	40.4	211°26.9	39.4	345°55.3	34.4						
23	11°27.6	161°57.9	50.6	237°21.7	40.1	226°29.0	39.3	•• 07°9	34.3						
Mer.pass. 22:14				ν 3.6' d 0.6' m -4.18				ν 2.1' d 0.1' m -1.93				ν 2.6' d 0.1' m 0.39			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec						
0	26°30.0	177°01.6	S19°49.9	252°22.8	N18°39.8	241°31.1	N14°39.1	16°00.6	N01°34.2						
1	41°32.5	192°05.3	49.2	267°23.9	39.4	256°33.2	39.0	31°03.2	34.1						
2	56°35.0	207°09.0	48.6	282°25.0	39.1	271°35.3	38.9	46°05.9	34.1						
3	71°37.4	222°12.7	•• 47.9	297°26.0	•• 38.8	286°37.4	•• 38.8	61°08.5	•• 34.0						
4	86°39.9	237°16.4	47.2	312°27.1	38.4	301°39.5	38.7	76°11.1	33.9						
5	101°42.4	252°20.1	46.6	327°28.2	38.1	316°41.6	38.6	91°13.8	33.9						
6	116°44.8	267°23.8	S19°45.9	342°29.3	N18°37.8	331°43.7	N14°38.4	106°16.4	N01°33.8						
7	131°47.3	282°27.5	45.2	357°30.3	37.4	346°45.8	38.3	121°19.0	33.7						
8	146°49.8	297°31.2	44.5	12°31.4	37.1	1°47.9	38.2	136°21.7	33.7						
9	161°52.2	312°34.9	•• 43.8	27°32.5	•• 36.8	16°50.0	•• 38.1	151°24.3	•• 33.6						
10	176°54.7	327°38.6	43.2	42°33.6	36.4	31°52.1	38.0	166°26.9	33.5						
11	191°57.1	342°42.3	42.5	57°34.6	36.1	46°54.2	37.9	181°29.6	33.4						
12	206°59.6	357°46.1	S19°41.8	72°35.7	N18°35.8	61°56.3	N14°37.8	196°32.2	N01°33.4						
13	222°02.1	12°49.8	41.1	87°36.8	35.5	76°58.4	37.6	211°34.9	33.3						
14	237°04.5	27°53.5	40.4	102°37.9	35.1	92°00.4	37.5	226°37.5	33.2						
15	252°07.9	42°57.2	•• 39.7	117°38.9	•• 34.8	107°02.5	•• 37.4	241°40.1	•• 33.2						
16	267°09.5	58°00.9	39.0	132°40.0	34.5	122°04.6	37.3	256°42.8	33.1						
17	282°11.9	73°04.7	38.3	147°41.1	34.1	137°06.7	37.2	271°45.4	33.0						
18	297°14.4	88°08.4	S19°37.6	162°42.2	N18°33.8	152°08.8	N14°37.1	286°48.0	N01°32.9						
19	312°16.9	103°12.1	36.9	177°43.2	33.5	167°10.9	36.9	301°50.7	32.8						
20	327°19.3	118°15.9	36.2	192°44.3	33.1	182°13.0	36.8	316°53.3	32.9						
21	342°21.8	133°19.6	•• 35.5	207°45.4	•• 32.8	197°15.1	•• 36.7	331°55.9	•• 32.7						
22	357°24.3	148°23.3	34.8	222°46.5	32.5	212°17.2	36.6	346°58.6	32.7						
23	12°26.7	163°27.0	34.1	237°47.6	32.1	227°19.3	36.5	2°01.2	32.6						
Mer.pass. 22:10				ν 3.7' d 0.7' m -4.11				ν 2.1' d 0.1' m -1.94				ν 2.6' d 0.1' m 0.40			

Stars	SHA	Dec
Alpheratz	357°32.9	29°14.5
Ankaa	353°05.3	-42°09.5
Schedar	349°28.8	56°41.2
Diphda	348°45.5	-17°50.2
Achernar	335°18.5	-57°05.9
Hamal	327°49.2	23°35.5
Polaris	312°49.6	89°22.5
Acamar	315°10.3	-40°11.6
Menkar	314°04.3	4°11.8
Mirfak	308°25.7	49°57.4
Aldebaran	290°37.7	16°33.9
Rigel	281°02.3	-8°10.1
Capella	280°19.5	46°01.4
Bellatrix	278°21.1	6°22.5
Elnath	277°59.8	28°37.8
Alnilam	275°36.1	-1°10.9
Betelgeuse	270°50.4	7°24.8
Canopus	263°51.6	-52°42.2
Sirius	258°24.9	-16°45.0
Adhara	255°04.7	-29°00.2
Procyon	244°49.3	5°09.4
Pollux	243°15.5	27°57.6
Avior	234°14.3	-59°35.5
Suhail	222°45.4	-43°32.2
Miaplacidus	221°38.3	-69°49.3
Alphard	217°46.5	-8°46.4

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	27°29.2	178°30.8	S19°33.4	252°48.6	N18°31.8	242°21.4	N14°36.4	17°03.9	N01°32.5					
1	42°31.6	193°34.5	32.6	267°49.7	31.5	257°23.5	36.3	32°06.5	32.5					
2	57°34.1	208°38.3	31.9	282°50.8	31.1	272°25.6	36.1	47°09.1	32.4					
3	72°36.6	223°42.0	• 31.2	297°51.9	• 30.8	287°27.7	• 36.0	62°11.8	• 32.3					
4	87°39.0	238°45.7	30.5	312°53.0	30.5	302°29.8	35.9	77°14.4	32.2					
5	102°41.5	253°49.5	29.8	327°54.1	30.1	317°31.9	35.8	92°17.0	32.2					
6	117°44.0	268°53.2	S19°29.8	342°55.1	N18°29.8	332°34.0	N14°35.7	107°19.7	N01°32.1					
7	132°46.4	283°57.0	28.3	357°56.2	29.5	347°36.1	35.6	122°22.3	32.0					
8	147°48.9	299°00.7	27.6	12°57.3	29.1	2°38.2	35.5	137°24.9	32.0					
9	162°51.4	314°04.5	• 26.8	27°58.4	• 28.8	17°40.3	• 35.3	152°27.6	• 31.9					
10	177°53.8	329°08.2	26.1	42°59.5	28.5	32°42.4	35.2	167°30.2	31.8					
11	192°56.3	344°12.0	25.4	58°00.6	28.1	47°44.5	35.1	182°32.8	31.8					
12	207°58.7	359°15.7	S19°24.6	73°01.6	N18°27.8	62°46.6	N14°35.0	197°35.5	N01°31.7					
13	223°01.2	14°19.5	23.9	88°02.7	27.5	77°48.7	34.9	212°38.1	31.6					
14	238°03.7	29°23.2	23.1	103°03.8	27.1	92°50.8	34.8	227°40.8	31.6					
15	253°06.1	44°27.0	• 22.4	118°04.9	• 26.8	107°52.9	• 34.7	242°43.4	• 31.5					
16	268°08.6	59°30.7	21.6	133°06.0	26.5	122°55.0	34.6	257°46.0	31.5					
17	283°11.1	74°34.5	20.9	148°07.1	26.1	137°57.1	34.4	272°48.7	31.3					
18	298°13.5	89°38.3	S19°20.1	163°08.2	N18°25.8	152°59.2	N14°34.3	287°51.3	N01°31.3					
19	313°16.0	104°42.0	19.4	178°09.2	25.5	168°01.3	34.2	302°53.9	31.2					
20	328°18.5	119°45.8	18.6	193°10.3	25.1	183°03.4	34.1	317°56.6	31.1					
21	343°20.9	134°49.6	• 17.9	208°11.4	• 24.8	198°05.5	• 34.0	332°59.2	• 31.1					
22	358°23.4	149°53.3	• 17.1	223°12.5	24.5	213°07.6	33.9	348°01.8	31.0					
23	13°25.9	164°57.1	16.3	238°13.6	24.1	228°09.7	33.8	3°04.5	30.9					
Mer.pass. 22:06 ν 3.7' d 0.7' m -4.14 ν 1.1' d 0.3' m 0.98 ν 2.1' d 0.1' m -1.94 ν 2.6' d 0.1' m 0.40														

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	28°28.3	180°00.9	S19°15.6	253°14.7	N18°23.8	243°11.8	N14°33.6	18°07.1	N01°30.9
1	43°30.8	195°04.6	14.8	268°15.8	23.5	258°13.9	33.5	33°09.7	30.8
2	58°33.2	210°08.4	14.0	283°16.9	23.1	273°16.0	33.4	48°12.4	30.7
3	73°35.7	225°12.2	• 13.2	298°18.0	• 22.8	288°18.1	• 33.3	63°15.0	• 30.7
4	88°38.2	240°15.9	12.5	313°19.0	22.5	303°20.2	33.2	78°17.6	30.6
5	103°40.6	255°19.7	11.7	328°20.1	22.1	318°22.3	33.1	93°20.3	30.5
6	118°43.1	270°23.5	S19°10.9	343°21.2	N18°21.8	333°24.4	N14°33.0	108°22.9	N01°30.4
7	133°45.6	285°27.3	10.1	358°22.3	21.5	348°26.5	32.9	123°25.5	30.4
8	148°48.0	300°31.0	09.3	13°24.4	21.1	3°28.6	32.7	138°28.2	30.3
9	163°50.5	315°34.8	• 08.6	28°24.5	• 20.8	18°30.7	• 32.6	153°30.8	• 30.2
10	178°53.3	330°38.6	07.8	43°25.6	20.5	33°32.8	32.5	168°33.4	30.2
11	193°55.4	345°42.4	07.0	58°26.7	20.1	48°35.0	32.4	183°36.1	30.1
12	208°57.9	• 0°46.1	S19°06.2	73°27.8	N18°19.8	63°37.1	N14°32.3	198°38.7	N01°30.0
13	224°00.4	15°49.9	05.4	88°28.9	19.5	78°39.2	32.2	213°41.3	30.0
14	239°02.8	30°53.7	04.6	103°30.0	19.1	93°41.3	32.1	228°44.0	29.9
15	254°05.3	45°57.5	• 03.8	118°31.1	• 18.8	108°43.4	• 32.0	243°46.6	• 29.8
16	269°07.7	61°01.3	03.0	133°32.2	18.5	123°45.5	31.9	258°49.2	29.8
17	284°10.2	76°05.0	02.2	148°33.3	18.1	138°47.6	31.7	273°51.9	29.7
18	299°12.7	91°08.8	S19°01.4	163°34.3	N18°17.8	153°49.7	N14°31.6	288°54.5	N01°29.6
19	314°15.1	106°12.6	19°00.6	178°35.4	17.4	168°51.8	31.5	303°57.1	29.6
20	329°17.6	121°16.4	18°59.8	193°36.5	17.1	183°53.9	31.4	318°59.8	29.5
21	344°20.1	136°20.2	• 59.0	208°37.6	• 16.8	198°56.0	• 31.3	334°02.4	• 29.4
22	359°22.5	151°24.0	58.2	223°38.7	16.4	213°58.1	31.2	349°05.0	29.4
23	14°25.0	166°27.8	57.4	238°39.8	16.1	229°00.2	31.1	4°07.7	29.3
Mer.pass. 22:02 ν 3.8' d 0.8' m -4.23 ν 1.1' d 0.3' m 0.97 ν 2.1' d 0.1' m -1.95 ν 2.6' d 0.1' m 0.41									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	29°27.5	181°31.6	S18°56.5	253°40.9	N18°15.8	244°02.3	N14°31.0	19°10.3	N01°29.2
1	44°29.9	196°35.3	55.7	268°42.0	15.4	259°04.4	30.8	34°12.9	29.1
2	59°32.4	211°39.1	54.9	283°43.1	15.1	274°06.5	30.7	49°15.6	29.1
3	74°34.8	226°42.9	• 54.1	298°44.2	• 14.8	289°08.7	• 30.6	64°18.2	• 29.0
4	89°37.3	241°46.7	53.3	313°45.3	14.4	304°10.8	30.5	79°20.8	28.9
5	104°39.8	256°50.5	52.4	328°46.4	14.1	319°12.9	30.4	94°23.5	28.9
6	119°42.2	271°54.3	S18°51.6	343°47.5	N18°13.8	334°15.0	N14°30.3	109°26.1	N01°28.8
7	134°44.7	286°58.1	50.8	358°48.6	13.4	349°17.1	30.2	124°28.7	28.7
8	149°47.2	302°01.9	49.9	13°49.7	13.1	4°19.2	30.1	139°31.4	28.7
9	164°49.6	317°05.7	• 49.1	28°50.8	• 12.8	19°21.3	• 30.0	154°34.0	• 28.6
10	179°52.1	332°09.5	48.3	43°51.9	12.4	34°23.4	29.8	169°36.6	28.5
11	194°54.6	347°13.3	47.4	58°53.0	12.1	49°25.5	29.7	184°39.3	28.5
12	209°57.0	• 2°17.1	S18°46.8	73°54.1	N18°11.7	64°27.6	N14°29.6	199°41.9	N01°28.4
13	224°59.5	17°20.9	45.6	88°55.2	11.4	79°29.7	29.5	214°44.5	28.3
14	240°02.0	32°24.7	44.9	103°56.3	11.1	94°31.9	29.4	229°47.2	28.3
15	255°04.4	47°28.5	• 44.1	118°57.4	• 10.7	109°34.0	• 29.3	244°49.8	• 28.2
16	270°06.9	62°32.3	43.2	133°58.5	10.4	124°36.1	29.2	259°52.4	28.1
17	285°09.3	77°36.1	42.4	148°59.6	10.1	139°38.2	29.1	274°55.1	28.1
18	300°11.8	92°39.9	S18°41.5	164°00.8	N18°09.7	154°40.3	N14°29.0	289°57.7	N01°28.0
19	315°14.3	107°43.7	40.7	179°01.9	09.4	169°42.4	28.9	305°00.3	27.9
20	330°16.7	122°47.5	39.8	194°03.0	09.1	184°44.5	28.7	320°02.9	27.9
21	345°19.2	137°51.3	• 39.0	209°04.1	• 08.7	199°46.6	• 28.6	335°05.6	• 27.8
22	• 0°21.7	152°55.1	38.1	224°05.2	08.4	214°48.7	28.5	350°08.2	27.7
23	15°24.1	167°58.9	37.3	239°06.3	08.0	229°50.9	28.4	5°10.8	27.7
Mer.pass. 21:59 ν 3.8' d 0.8' m -4.26 ν 1.1' d 0.3' m 0.96 ν 2.1' d 0.1' m -1.95 ν 2.6' d 0.1' m 0.41									

SHA	Dec
Alpheratz	357°32.9 29°14.5
Ankaa	353°05.3 -42°09.6
Schedar	349°28.8 56°41.3
Diphda	348°45.5 -17°50.2
Achernar	335°18.5 -57°05.9
Hamal	327°49.2 39°25.5
Polaris	312°48.7 89°32.5
Acamar	315°10.3 -40°11.6
Menkar	314°04.3 4°11.8
Mirafak	308°25.7 49°57.4
Aldebaran	290°37.7 16°33.9
Rigel	281°02.3 -8°10.1
Capella	280°19.4 46°01.4
Bellatrix	278°21.1 6°22.5
Elath	277°59.8 28°37.8
Alnilam	275°36.1 -1°11.0
Betelgeuse	270°50.3 7°24.8
Canopus	263°51.5 -52°42.2
Sirius	258°24.8 -16°45.0
Adhara	255°04.6 -29°00.2
Procyon	244°49.3 5°09.4
Pollux	243°15.5 27°57.6
Avior	234°14.2 -59°35.4
Suhail	222°45.4 -43°32.2
Miaplacidus	221°38.3 -69°49.3
Alphard	217°46.5 -8°46.4
Regulus	207°33.1 11°50.2
Dubhe	193°39.7 61°36.2
Denebola	182°23.7 14°25.4
Gienah	175°42.4 17°41.3
Acrux	172°59.1 -63°14.7
Gacrux	171°50.6 -57°15.7
Alloth	166°12.2 55°48.8
Spica	158°21.1 -11°18.0
Alkaid	152°51.3 49°10.8
Henkar	148°34.6 -60°30.1
Mekard	147°56.3 -36°30.1
Antares	145°46.9 19°02.6
Rigil Kent.	139°38.9 -60°56.8
Kochab	137°21.0 74°02.7
Zuben'ubi	136°54.7 -16°09.1
Alphecca	126°02.8 26°37.6
Antares	112°14.3 -26°29.5
Atria	107°07.6 -69°04.7
Sabik	102°01.3 -15°45.4
Shaula	96°08.6 -37°07.4
Rasalhague	95°57.4 12°32.6
Eltanin	90°41.8 51°29.4
Kaus Ausa	83°30.7 -34°22.3
Vega	80°32.4 38°48.8
Nunki	75°46.0 -26°15.8
Altair	61°58.5 8°56.5
Peacock	53°03.4 -56°39.1
Deneb	49°24.7 45°22.9
Enif	33°37.2 10°00.1
Al Na'ir	27°30.8 -46°49.9
Fomalhaut	15°12.7 -29°28.8
Scheat	13°43.5 28°14.0
Markab	13°28.2 15°21.2

Dubhe	193°39.7	61°36.2
Denebola	182°23.7	14°25.4
Cenah	175°42.4	-17°41.3
Gioux	172°59.1	-63°14.7
Galroth	171°50.6	-57°15.7
Alkaid	166°12.2	55°48.8
Spica	158°21.1	-11°18.0
Alkaid	152°51.3	49°10.8
Hadar	148°34.6	-60°30.1
Menkent	147°56.3	-36°30.1
Arcturus	145°46.9	-19°02.6
Rigil Kent.	139°38.9	-60°58.6
Kochab	137°21.0	-74°02.7
Zuben ubi	136°54.7	-16°09.1
Alphecca	126°02.8	-26°37.6
Antares	112°14.3	-26°29.5
Atria	107°07.6	-69°04.7
Sabik	102°01.3	-15°45.4
Shaula	96°08.6	-37°07.4
Rasalhague	95°57.4	-12°32.6
Eltanin	90°41.8	51°29.4
Kaus Aus.	83°30.7	-34°32.3
Vega	80°32.4	-38°48.8
Nunki	75°46.0	-26°15.8
Altair	61°58.5	8°56.5
Peacock	53°03.4	-56°39.1
Deneb	49°24.7	45°22.9
Enif	33°37.2	10°00.1

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	30°26.6	183°02.7	S18°36.4	254°07.4	N18°07.7	244°53.0	N14°28.3	20°13.5				20°13.5				20°13.5			
1	45°29.1	198°06.5	35.5	269°08.5	07.4	259°55.1	28.2	35°16.1	27.5			28.2				35°16.1	27.5		
2	60°31.5	213°10.3	34.7	284°09.6	07.0	274°57.2	28.1	50°18.7	27.5			28.1				50°18.7	27.5		
3	75°34.0	228°14.1	•• 33.8	299°10.7	•• 06.7	289°59.3	•• 28.0	65°21.4	•• 27.4			28.0				65°21.4	•• 27.4		
4	90°36.5	243°17.9	32.9	314°11.8	06.4	305°01.4	27.9	80°24.0	27.3			27.9				80°24.0	27.3		
5	105°38.9	258°21.7	32.1	329°12.9	06.0	320°03.5	27.8	95°26.6	27.3			27.8				95°26.6	27.3		
6	120°41.4	273°25.5	S18°31.2	344°14.0	N18°05.7	335°05.6	N14°27.6	110°29.3	N01°27.2			110°29.3				110°29.3	N01°27.2		
7	135°43.8	288°29.3	30.3	359°15.1	05.3	350°07.8	27.5	125°31.9	27.1			125°31.9				125°31.9	27.1		
8	150°46.3	303°33.1	29.4	14°16.3	05.0	5°09.9	27.4	130°34.5	27.1			27.4				130°34.5	27.1		
9	165°48.8	318°36.9	•• 28.6	29°17.4	•• 04.7	20°12.0	•• 27.3	155°37.2	•• 27.0			27.3				155°37.2	•• 27.0		
10	180°51.2	333°40.7	•• 27.7	44°18.5	04.3	35°14.1	27.2	170°39.8	26.9			27.2				170°39.8	26.9		
11	195°53.7	348°44.5	26.8	59°19.6	04.0	50°16.2	27.1	185°42.4	26.8			27.1				185°42.4	26.8		
12	210°56.2	3°48.3	S18°25.9	74°20.7	N18°03.7	65°18.3	N14°27.0	200°45.0	N01°26.8			200°45.0				200°45.0	N01°26.8		
13	225°58.6	18°52.1	25.0	89°21.8	03.3	80°20.4	26.9	215°47.7	26.7			26.9				215°47.7	26.7		
14	241°01.1	33°55.9	24.2	104°22.9	03.0	95°22.6	26.8	230°50.3	26.6			26.8				230°50.3	26.6		
15	256°03.6	48°59.7	•• 23.3	119°24.0	•• 02.7	110°24.7	•• 26.7	245°52.9	•• 26.6			26.7				245°52.9	•• 26.6		
16	271°06.0	64°03.5	22.4	134°25.1	02.3	125°26.8	26.6	260°55.6	26.5			26.6				260°55.6	26.5		
17	286°08.5	79°07.3	21.5	149°26.3	02.0	140°28.9	26.4	275°58.2	26.4			26.4				275°58.2	26.4		
18	301°10.9	94°11.2	S18°20.6	164°27.4	N18°01.6	155°31.0	N14°26.8	291°00.8	N01°26.4			291°00.8				291°00.8	N01°26.4		
19	316°13.4	109°15.0	19.7	179°28.5	01.3	170°33.1	26.2	306°03.5	26.3			26.2				306°03.5	26.3		
20	331°15.9	124°18.8	18.8	194°29.6	01.0	185°35.3	26.1	321°06.1	26.2			26.1				321°06.1	26.2		
21	346°18.3	139°22.6	•• 17.9	209°30.7	•• 00.6	200°37.4	•• 26.0	336°08.7	•• 26.2			26.0				336°08.7	•• 26.2		
22	1°20.8	154°26.4	•• 17.0	224°31.8	18°00.3	215°39.5	25.9	351°11.3	26.1			25.9				351°11.3	26.1		
23	16°23.3	169°30.2	16.1	239°32.9	17°59.9	230°41.6	25.8	6°14.0	26.0			25.8				6°14.0	26.0		
Mer.pass. 21:55				ν 3.8' d 0.9' m -4.25				ν 1.1' d 0.3' m 0.95				ν 2.1' d 0.1' m -1.95				ν 2.6' d 0.1' m 0.41			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	31°25.7	184°34.0	S18°15.2	254°34.1	N17°59.6	245°43.7	N14°25.7	21°16.6	N01°26.0
1	46°28.2	199°37.8	14.3	269°35.2	59.3	260°45.8	25.6	36°19.2	25.9
2	61°30.7	214°41.6	13.4	284°36.3	58.9	275°48.0	25.5	51°21.9	25.9
3	76°33.1	229°45.4	•• 12.5	299°37.4	•• 58.6	290°50.1	•• 25.4	66°24.5	•• 25.8
4	91°35.6	244°49.2	11.6	314°38.5	58.3	305°52.2	25.2	81°27.1	25.7
5	106°38.1	259°53.0	10.7	329°39.6	57.9	320°54.3	25.1	96°28.8	25.7
6	121°40.5	274°56.8	S18°09.8	344°40.8	N17°57.6	335°56.4	N14°25.0	111°32.4	N01°25.6
7	136°43.0	290°00.6	08.9	359°41.9	57.2	350°58.6	24.9	126°35.0	25.5
8	151°45.4	305°04.4	08.0	14°43.0	56.9	6°00.7	24.8	141°37.6	25.5
9	166°47.9	320°08.2	•• 07.0	29°44.1	•• 56.6	21°02.8	•• 24.7	156°40.3	•• 25.4
10	181°50.4	335°12.0	06.1	44°45.2	56.2	36°04.9	24.6	171°42.9	25.3
11	196°52.8	350°15.8	05.2	59°46.3	55.9	51°07.0	24.5	186°45.5	25.3
12	211°55.3	5°19.6	S18°04.3	74°47.5	N17°55.6	66°09.2	N14°24.4	201°48.2	N01°25.2
13	226°57.8	20°23.4	03.4	89°48.6	55.2	81°11.3	24.3	216°50.8	25.1
14	242°00.2	35°27.2	02.4	104°49.7	54.9	96°13.4	24.2	231°53.4	25.1
15	257°02.7	50°31.0	•• 01.5	119°50.8	•• 54.5	111°15.5	•• 24.1	246°56.0	•• 25.0
16	272°05.2	65°34.8	18°00.6	134°51.9	54.2	126°17.6	24.0	261°58.7	24.9
17	287°07.6	80°38.6	17°59.7	149°53.1	53.9	141°19.8	23.8	277°01.3	24.9
18	302°10.1	95°42.4	S17°58.7	164°54.2	N17°53.5	156°21.9	N14°23.7	292°03.9	N01°24.8
19	317°12.5	110°46.2	57.8	179°55.3	53.2	171°24.0	23.6	307°06.6	24.7
20	332°15.0	125°50.0	56.9	194°56.4	52.8	186°26.1	23.5	322°09.2	24.7
21	347°17.5	140°53.8	•• 55.9	209°57.0	•• 52.5	201°28.2	•• 23.4	337°11.8	•• 24.6
22	2°19.9	155°57.6	55.0	224°58.7	52.2	216°30.4	23.3	352°14.4	24.5
23	17°22.4	171°01.4	54.1	239°59.8	51.8	231°32.5	23.2	7°17.1	24.5
Mer.pass. 21:51 ν 3.8' d 0.9' m -4.23 ν 1.1' d 0.3' m 0.94 ν 2.1' d 0.1' m -1.96 ν 2.6' d 0.1' m 0.42									

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	32°24.9	186°05.2	S17°53.1	255°00.9	N17°51.5	246°34.6	N14°23.1	22°19.7	N01°24.4										
1	47°27.3	201°09.0	52.2	270°02.1	51.2	261°36.7	23.0	37°22.3	24.3										
2	62°29.8	216°12.8	51.3	285°03.2	50.8	276°38.9	22.9	52°24.9	24.3										
3	77°32.3	231°16.6	•• 50.3	300°04.3	•• 50.5	291°41.0	•• 22.8	67°27.6	•• 24.2										
4	92°34.2	246°20.4	49.4	315°05.4	50.1	306°43.1	22.7	82°30.2	24.1										
5	107°37.2	261°24.2	48.4	330°06.6	49.8	321°45.2	22.6	97°32.8	24.1										
6	122°39.7	276°28.0	S17°47.5	345°07.7	N17°49.5	336°47.3	N14°22.5	112°35.5	N01°24.0										
7	137°42.1	291°31.8	46.5	0°08.8	49.1	351°49.5	22.4	127°38.1	23.9										
8	152°44.6	306°35.6	45.6	15°09.9	48.8	6°51.6	22.2	142°40.7	23.9										
9	167°47.0	321°39.4	•• 44.6	30°11.1	•• 48.4	21°53.7	•• 22.1	157°43.3	•• 23.8										
10	182°49.5	336°43.2	43.7	45°12.2	48.1	36°55.8	22.0	172°46.0	23.7										
11	197°52.0	351°47.0	42.7	60°13.3	47.8	51°58.0	21.9	187°48.6	23.7										
12	212°54.4	6°50.8	S17°41.8	75°14.5	N17°47.4	67°00.1	N14°21.8	202°51.2	N01°23.6										
13	227°56.9	21°54.6	40.8	90°15.6	47.1	82°02.2	21.7	217°53.8	23.6										
14	242°59.4	36°58.4	39.9	105°16.7	46.7	97°04.3	21.6	232°56.5	23.5										
15	258°01.8	52°02.1	•• 38.9	120°17.8	•• 46.4	112°06.5	•• 21.5	247°59.1	•• 23.4										
16	273°04.3	67°05.9	38.0	135°19.0	46.1	127°08.6	21.4	263°01.7	23.4										
17	288°06.8	82°09.7	37.0	150°20.1	45.7	142°10.7	21.3	278°04.4	23.3										
18	303°09.2	97°13.5	S17°36.0	165°21.2	N17°45.4	157°12.9	N14°21.2	293°07.0	N01°23.2										
19	318°11.7	112°17.3	35.1	180°22.4	45.0	172°15.0	21.1	308°09.6	23.2										
20	333°14.1	127°21.1	34.1	195°23.5	44.7	187°17.1	21.0	323°12.2	23.1										
21	348°16.6	142°24.9	•• 33.2	210°24.6	•• 44.4	202°19.2	•• 20.9	338°14.9	•• 23.0										
22	3°19.1	157°28.6	32.2	225°25.8	44.0	217°21.4	20.8	353°17.5	23.0										
23	18°21.5	172°32.4	31.2	240°26.9	43.7	232°23.5	20.7	8°20.1	22.9										
Mer.pass. 21:47				ν 3.8' d 0.9' m -4.20				ν 1.1' d 0.3' m 0.93				ν 2.1' d 0.1' m -1.96				ν 2.6' d 0.1' m 0.42			

Stars	SHA		Dec
Alpheratz	357°32.9	29°14.5	
Ankaa	353°05.3	-42°09.6	
Schedar	349°28.8	56°41.3	
Diphda	348°45.5	-17°50.2	
Achernar	335°18.5	-57°05.9	
Hamal	327°49.2	23°35.5	
Polaris	312°48.1	89°22.5	
Acamar	315°10.3	-40°11.6	
Menkar	314°04.3	-4°11.8	
Mirfak	308°25.7	49°57.4	
Aldebaran	290°37.7	16°33.9	
Rigel	281°02.2	-8°10.1	
Capella	280°19.4	46°01.4	
Bellatrix	278°21.1	6°22.5	
Elnath	277°59.8	28°37.8	
Anilam	275°36.1	-1°11.0	
Betelgeuse	270°50.3	7°24.8	
Canopus	263°51.5	-52°42.2	
Sirius	258°24.8	-16°45.0	
Adhara	255°04.6	-29°00.2	
Procyon	244°49.3	5°09.4	
Pollux	243°15.5	27°56.6	
Avior	234°14.2	-59°35.5	
Suhail	222°45.4	-43°32.2	
Miaplacidus	221°38.3	-69°49.3	
Alphard	217°46.4	-8°46.4	

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	33°24.0	187°36.2	S17°30.3	255°28.0	N17°43.3	247°25.6	N14°20.6	23°22.7	N01°22.8				
1	48°26.5	202°40.0	29.3	270°29.2	43.0	262°27.7	20.4	38°25.4	22.8				
2	63°28.9	217°43.8	28.3	285°30.3	42.7	277°29.9	20.3	53°28.0	22.7				
3	78°31.4	232°47.6	•• 27.4	300°31.4	•• 42.3	292°32.0	•• 20.2	68°30.6	•• 22.7				
4	93°33.9	247°51.3	26.4	315°32.6	42.0	307°34.1	20.1	83°33.2	22.6				
5	108°36.3	262°55.1	25.4	330°33.7	41.6	322°36.3	20.0	98°35.9	22.5				
6	123°38.8	277°58.9	S17°24.4	345°34.8	N17°41.3	337°38.4	N14°19.3	113°38.5	N01°22.5				
7	138°41.3	293°02.7	23.5	•• 0°36.0	41.0	352°40.5	19.8	128°41.1	22.4				
8	153°43.7	308°06.4	22.5	15°37.1	40.6	7°42.6	19.7	143°43.7	22.3				
9	168°46.2	323°10.2	•• 21.5	30°38.2	•• 40.3	22°44.8	•• 19.6	158°46.4	•• 22.3				
10	183°48.6	338°14.0	20.5	45°39.4	39.9	37°46.9	19.5	173°49.0	22.2				
11	198°51.1	353°17.7	19.6	60°40.5	39.6	52°49.0	19.4	188°51.6	22.1				
12	213°53.6	8°21.5	S17°18.6	75°41.7	N17°39.3	67°51.2	N14°19.3	203°54.2	N01°22.1				
13	228°56.0	23°25.3	17.6	90°42.8	38.9	82°53.3	19.2	218°56.9	22.0				
14	243°58.5	38°29.1	16.6	105°43.9	38.6	97°55.4	19.1	233°59.5	21.9				
15	259°01.0	53°32.8	•• 15.6	120°45.1	•• 38.2	112°57.6	•• 19.0	249°02.1	•• 21.9				
16	274°03.4	68°36.6	14.6	135°46.2	37.9	127°59.7	18.9	264°04.7	21.8				
17	289°05.9	83°40.4	13.7	150°47.3	37.6	143°01.8	18.8	279°07.4	21.8				
18	304°08.4	98°44.1	S17°12.7	165°48.5	N17°37.2	158°03.9	N14°18.7	294°10.0	N01°21.7				
19	319°10.8	113°47.9	11.7	180°49.6	36.9	173°06.1	18.6	309°12.6	21.6				
20	334°13.3	128°51.6	10.7	195°50.8	36.5	188°08.2	18.5	324°15.2	21.6				
21	349°15.8	143°55.4	•• 09.7	210°51.9	•• 36.2	203°10.3	•• 18.4	339°17.9	•• 21.5				
22	4°18.2	158°59.2	08.7	225°53.1	35.9	218°12.5	18.3	354°20.5	21.4				
23	19°20.7	174°02.9	07.7	240°54.2	35.5	233°14.6	18.2	9°23.1	21.4				
Mer.pass. 21:43			ν 3.8' d 1.0' m -4.20			ν 1.1' d 0.3' m 0.93			ν 2.1' d 0.1' m -1.97			ν 2.6' d 0.1' m 0.43	

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	34°23.1	189°06.7	S17°06.7	255°55.3	N17°35.2	248°16.7	N14°18.0	24°25.7	N01°21.3		
1	49°25.6	204°10.4	05.7	270°56.5	34.8	263°18.9	17.9	39°28.4	21.2		
2	64°28.1	219°14.2	04.7	285°57.6	34.5	278°21.0	17.8	54°31.0	21.2		
3	79°30.5	234°17.9	•• 03.8	300°58.8	•• 34.2	293°23.1	•• 17.7	69°33.6	•• 21.1		
4	94°33.0	249°21.7	02.8	315°59.9	33.8	308°25.3	17.6	84°36.2	21.1		
5	109°35.9	264°25.4	01.8	331°01.1	33.5	323°27.4	17.5	99°38.9	21.0		
6	124°37.5	279°29.2	S17°00.8	346°02.2	N17°33.1	338°29.5	N14°17.4	114°41.5	N01°20.9		
7	139°40.4	294°32.9	16°59.8	1°03.3	32.8	353°31.7	17.3	129°44.1	20.9		
8	154°42.9	309°36.7	56.8	16°04.5	32.5	8°33.8	17.2	144°46.7	20.8		
9	169°45.3	324°40.4	•• 57.8	31°05.6	•• 32.1	23°35.9	•• 17.1	159°49.4	•• 20.7		
10	184°47.8	339°44.2	56.8	46°06.8	31.8	38°38.1	17.0	174°52.0	20.7		
11	199°50.2	354°47.9	55.8	61°07.9	31.4	53°40.2	16.9	189°54.6	20.6		
12	214°52.7	9°51.6	S16°54.8	76°09.1	N17°31.1	68°42.4	N14°16.8	204°57.2	N01°20.6		
13	229°55.2	24°55.4	53.8	91°10.2	30.7	83°44.5	16.7	219°59.9	20.5		
14	244°57.6	39°59.1	52.8	106°11.4	30.4	98°46.6	16.6	235°02.5	20.4		
15	260°00.1	55°02.8	•• 51.8	121°12.5	•• 30.1	113°48.8	•• 16.5	250°05.1	•• 20.4		
16	275°02.6	70°06.6	50.7	136°13.7	29.7	128°50.9	16.4	265°07.7	20.3		
17	290°05.0	85°10.3	49.7	151°14.8	29.4	143°53.0	16.3	280°10.3	20.2		
18	305°07.5	100°14.0	S16°48.7	166°16.0	N17°29.0	158°55.2	N14°16.2	295°13.0	N01°20.2		
19	320°10.0	115°17.8	47.7	181°17.1	28.7	173°57.3	16.1	310°15.6	20.1		
20	335°12.4	130°21.5	46.7	196°18.3	28.4	188°59.4	16.0	325°18.2	20.1		
21	350°14.9	145°25.2	•• 45.7	211°19.4	•• 28.0	204°01.6	•• 15.9	340°20.8	•• 20.0		
22	5°17.4	160°28.9	44.7	226°20.6	27.7	219°03.7	15.8	355°23.5	19.9		
23	20°19.8	175°32.7	43.7	241°21.7	27.3	234°05.9	15.7	10°26.1	19.9		
Mer.pass. 21:39			ν 3.8' d 1.0' m -4.22			ν 2.1' d 0.1' m -1.97			ν 2.6' d 0.1' m 0.43		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	35°22.3	190°36.4	S16°42.7	256°22.9	N17°27.0	249°08.0	N14°15.6	25°28.7	N01°19.8					
1	50°24.7	205°40.1	41.7	271°24.0	26.7	264°10.1	15.5	40°31.3	19.7					
2	65°27.2	220°43.8	40.7	286°25.2	26.3	279°12.3	15.4	55°33.9	19.7					
3	80°29.7	235°47.5	•• 39.6	301°26.3	•• 26.0	294°14.4	•• 15.3	70°36.6	•• 19.6					
4	95°32.1	250°51.3	38.6	316°27.5	25.6	309°16.6	15.2	85°39.2	19.6					
5	110°34.6	265°55.0	37.6	331°28.6	25.5	324°18.7	15.1	100°41.8	19.5					
6	125°37.1	280°58.7	S16°36.6	346°29.8	N17°24.9	339°20.8	N14°15.0	115°44.4	N01°19.4					
7	140°39.5	296°02.4	35.6	1°30.9	24.6	354°23.0	14.9	130°47.1	19.4					
8	155°42.0	311°06.1	34.6	16°32.1	24.3	9°25.1	14.8	145°49.7	19.3					
9	170°44.5	326°09.8	•• 33.6	31°33.2	•• 23.9	24°27.3	•• 14.7	160°52.3	•• 19.2					
10	185°46.9	341°13.5	32.5	46°34.4	23.6	39°29.4	14.6	175°54.9	19.2					
11	200°49.4	356°17.2	31.5	61°35.5	23.2	54°31.5	14.5	190°57.5	19.1					
12	215°51.9	11°20.9	S16°30.5	76°36.7	N17°22.9	69°33.7	N14°14.4	206°00.2	N01°19.1					
13	230°54.3	26°24.6	29.5	91°37.9	22.6	84°35.8	14.3	221°02.8	19.0					
14	245°56.8	41°28.3	28.5	106°39.0	22.2	99°38.0	14.2	236°05.4	18.9					
15	260°59.2	56°32.0	•• 27.5	121°40.2	•• 21.9	114°40.1	•• 14.1	251°08.0	•• 18.9					
16	276°01.7	71°35.7	26.4	136°41.3	21.5	129°42.2	14.0	266°10.6	18.8					
17	291°04.2	86°39.4	25.4	151°42.5	21.2	144°44.4	13.9	281°13.3	18.8					
18	306°06.6	101°43.1	S16°24.4	166°43.6	N17°20.8	159°46.5	N14°13.8	296°15.9	N01°18.7					
19	321°09.1	116°46.7	23.4	181°44.8	20.5	174°48.7	13.7	311°18.5	18.6					
20	336°11.6	131°50.4	22.3	196°46.0	20.2	189°50.8	13.6	326°21.1	18.6					
21	351°14.0	146°54.1	•• 21.3	211°47.1	•• 19.8	204°53.0	•• 13.5	341°23.7	•• 18.5					
22	6°16.5	161°57.8	20.3	226°48.3	19.5	219°55.1	13.4	356°26.4	18.4					
23	21°19.0	177°01.5	19.3	241°49.4	19.1	234°57.2	13.2	11°29.0	18.4					
Mer.pass. 21:35			ν 3.7' d 1.0' m -4.25			ν 1.2' d 0.3' m 0.91			ν 2.1' d 0.1' m -1.98			ν 2.6' d 0.1' m 0.44		

Stars	SHA	Dec
Alpheratz	357°32.9	29°14.5
Ankaa	353°05.3	-42°09.6
Schedar	349°28.8	56°41.3
Diphda	348°45.5	-17°50.2
Achernar	335°18.5	-57°06.0
Hamal	327°49.2	23°35.5
Polaris	312°47.5	89°22.5
Acamar	315°10.2	-40°11.7
Menkar	314°04.3	4°11.8
Mirafak	308°25.7	49°57.4
Aldebaran	290°37.7	16°33.9
Rigel	281°02.2	-8°10.1
Capella	280°19.4	46°01.4
Bellatrix	278°21.1	6°22.5
Elnath	277°59.8	28°37.8
Alnilam	275°36.0	-1°11.0
Betelgeuse	270°50.3	7°24.8
Canopus	263°51.5	-52°42.3
Sirius	258°24.8	-16°45.0
Adhara	255°04.6	-29°00.2
Procyon	244°49.2	5°09.4
Pollux	243°15.5	27°57.6
Avior	234°14.2	-59°35.4
Suhail	222°45.3	-43°32.2
Miaplacidus	221°38.2	-69°49.3
Alphard	217°46.4	-8°46.4
Regulus	207°33.0	11°50.2
Dubhe	193°39.7	61°36.2
Denebola	182°23.7	14°25.3
Gienah	175°42.4	-17°41.3
Acrux	172°59.1	-63°14.7
Gacrux	171°50.5	-57°15.7
Alloth	166°12.2	-55°48.8
Spica	159°21.1	-11°18.0
Alkaid	152°51.3	49°10.7
Hadar	148°34.6	-60°30.1
Menkent	147°56.3	-36°30.0
Arcturus	145°46.9	19°42.6
Rigil Kent.	139°38.9	-60°56.8
Kochab	137°21.0	74°02.7
Zuben el	136°54.7	-16°09.1
Alphecca	126°02.8	26°37.6
Antares	112°14.3	-26°29.5
Atria	107°07.7	-69°04.7
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	12°32.6
Eltanin	90°41.8	51°29.6
Kaus Aus.	83°30.8	-34°22.3
Vega	80°32.4	38°48.8
Nunki	75°46.1	-26°15.8
Altair	61°58.6	8°56.5
Peacock	53°03.4	-56°39.1
Deneb	49°24.8	45°22.9
Enif	33°37.2	10°00.1
Al Na'ir	27°30.9	-46°49.9
Fomalhaut	15°12.7	-29°28.8
Scheat	13°43.5	28°14.0
Markab	13°28.2	15°21.2

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	36°21.4	192°05.1	S16°18.3	256°50.6	N17°18.8	249°59.4	N14°13.1	26°31.6	N01°18.3					
1	51°23.9	207°08.8	17.2	271°51.8	18.5	265°01.5	13.0	41°34.2	18.3					
2	66°26.3	222°12.5	16.2	286°52.9	18.1	280°03.7	12.9	56°36.8	18.2					
3	81°28.8	237°16.2	•• 15.2	301°54.1	•• 17.8	295°05.8	•• 12.8	71°39.5	•• 18.1					
4	96°31.3	252°19.8	14.2	316°55.2	17.1	301°08.0	12.7	86°42.1	18.1					
5	111°33.7	267°23.5	13.1	331°56.4	17.1	325°10.1	12.6	101°44.7	18.0					
6	126°36.2	282°27.2	S16°12.1	346°57.6	N17°16.7	340°12.2	N14°12.5	116°47.3	N01°18.0					
7	141°38.7	297°30.8	11.1	1°58.7	16.4	355°14.4	12.4	131°49.9	17.9					
8	156°41.1	312°34.5	10.1	16°59.9	16.1	10°16.5	12.3	146°52.6	17.8					
9	171°43.6	327°38.1	•• 09.0	32°01.1	•• 15.7	25°18.7	•• 12.2	161°55.2	•• 17.8					
10	186°46.1	342°41.8	08.0	47°02.2	15.4	40°20.8	12.1	176°57.8	17.7					
11	201°48.5	357°45.4	07.0	62°03.4	15.0	55°23.0	12.0	192°00.4	17.7					
12	216°51.0	12°49.1	S16°06.0	77°04.6	N17°14.7	70°25.1	N14°12.0	207°03.0	N01°17.6					
13	231°53.5	27°52.7	04.9	92°05.7	14.3	85°27.3	11.9	222°05.7	17.5					
14	246°55.9	42°56.4	03.9	107°06.9	14.0	100°29.4	11.8	237°08.3	17.5					
15	261°58.4	58°00.0	•• 02.9	122°08.1	•• 13.7	115°31.6	•• 11.7	252°10.9	•• 17.4					
16	277°00.8	73°03.7	01.8	137°09.2	13.3	130°33.7	11.6	267°13.5	17.3					
17	292°03.3	88°07.3	16°00.0	152°10.4	13.0	145°35.9	11.5	282°16.1	17.3					
18	307°05.8	103°11.0	S15°59.8	167°11.6	N17°12.6	160°38.0	N14°11.4	297°18.8	N01°17.2					
19	322°08.2	118°14.6	58.8	182°12.7	12.3	175°40.2	11.3	312°21.4	17.2					
20	337°10.7	133°18.2	57.7	197°13.9	11.9	190°42.3	11.2	327°24.0	17.1					
21	352°13.2	148°21.9	•• 56.7	212°15.1	•• 11.6	205°44.5	•• 11.1	342°26.6	•• 17.0					
22	7°15.6	163°25.5	55.7	227°16.2	11.3	220°46.6	11.0	357°29.2	17.0					
23	22°18.1	178°29.1	54.6	242°17.4	10.9	235°48.7	10.9	12°31.8	16.9					
Mer.pass. 21:31			ν 3.7' d 1.0' m -4.27			ν 1.2' d 0.3' m 0.90			ν 2.1' d 0.1' m -1.98			ν 2.6' d 0.1' m 0.44		

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	37°20.6	193°32.7	S15°53.6	257°18.6	N17°10.6	250°50.9	N14°10.8	27°34.5	N01°16.9					
1	52°23.0	208°36.4	52.6	272°19.7	10.2	265°53.0	10.7	42°37.1	16.8					
2	67°25.5	223°40.0	51.5	287°20.9	09.9	280°55.2	10.6	57°39.7	16.7					
3	82°28.0	238°43.6	•• 50.5	302°22.1	•• 09.6	295°57.3	•• 10.5	72°42.3	•• 16.7					
4	97°30.4	253°47.2	49.5	317°23.2	09.2	301°59.5	10.4	87°44.9	16.6					
5	112°32.9	268°50.8	48.5	332°24.4	08.9	326°01.6	10.3	102°47.5	16.6					
6	127°35.3	283°54.4	S15°47.4	347°25.6	N17°08.5	341°03.8	N14°10.2	117°50.2	N01°16.5					
7	142°37.8	298°58.0	46.4	2°26.8	08.2	356°05.9	10.1	132°52.8	16.4					
8	157°40.3	314°01.6	45.4	17°27.9	07.8	11°08.1	10.0	147°55.4	16.4					
9	172°42.7	329°05.2	•• 44.3	32°29.1	•• 07.5	26°10.2	•• 09.9	162°58.0	•• 16.3					
10	187°45.2	344°08.8	43.3	47°30.3	07.2	41°12.4	09.8	178°00.6	16.3					
11	202°47.7	359°12.4	42.3	62°31.5	06.8	56°14.6	09.7	193°03.3	16.2					
12	217°50.1	14°16.0	S15°41.2	77°32.6	N17°06.5	71°16.7	N14°09.6	208°05.9	N01°16.2					
13	232°52.6	29°19.6	40.2	92°33.8	06.1	86°18.9	09.5	232°08.5	16.1					
14	247°55.1	44°23.2	39.2	107°35.0	05.8	101°21.0	09.4	238°11.1	16.0					
15	262°57.5	59°26.8	•• 38.1	122°36.2	•• 05.4	116°23.2	•• 09.3	253°13.7	•• 16.0					
16	278°00.0	74°30.4	37.1	137°37.3	05.1	131°25.3	09.2	268°16.3	15.9					
17	293°02.5	89°34.0	36.1	152°38.5	04.8	146°27.5	09.1	283°19.0	15.9					
18	308°04.9	104°37.6	S15°35.0	167°39.7	N17°04.4	161°29.6	N14°09.0	298°21.6	N01°15.8					
19	323°07.4	119°41.1	34.0	182°40.9	04.1	176°31.8	08.9	313°24.2	15.7					
20	338°09.8	134°44.7	33.0	197°42.0	03.7	191°33.9	08.8	328°26.8	15.7					
21	353°12.3	149°48.3	•• 32.0	212°43.2	•• 03.4	206°36.1	•• 08.7	343°29.4	•• 15.6					
22	8°14.8	164°51.9	30.9	227°44.4	03.0	221°38.2	08.6	358°32.0	15.6					
23	23°17.2	179°55.4	29.9	242°45.6	02.7	236°40.4	08.5	13°34.6	15.5					
Mer.pass. 21:27			ν 3.6' d 1.0' m -4.26			ν 1.2' d 0.3' m 0.89			ν 2.1' d 0.1' m -1.99			ν 2.6' d 0.1' m 0.45		

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	38°19.7	194°59.0	S15°28.9	257°46.7	N17°02.4	251°42.5	N14°08.4	28°37.3	N01°15.4					
1	53°22.2	210°02.5	27.8	272°47.9	02.0	266°44.7	08.3	43°39.9	15.4					
2	68°24.6	225°06.1	26.8	287°49.1	01.7	281°46.9	08.2	58°42.5	15.3					
3	83°27.1	240°09.7	• 25.8	302°50.3	• 01.3	296°49.0	• 08.1	73°45.1	• 15.3					
4	98°29.6	255°13.2	24.7	317°51.5	01.0	311°51.2	08.0	88°47.7	15.2					
5	113°32.0	270°16.8	23.7	332°52.6	00.6	326°53.3	07.9	103°50.3	15.1					
6	128°34.5	285°20.3	S15°22.7	347°53.8	N17°00.3	341°55.5	N14°07.8	118°53.0	N01°15.1					
7	143°37.0	300°23.9	21.7	2°55.0	17°00.0	356°57.6	07.7	133°55.6	15.0					
8	158°39.4	315°27.4	20.6	17°56.2	16°59.6	11°59.8	07.6	148°58.2	15.0					
9	173°41.9	330°30.9	• 19.6	32°57.4	• 59.3	27°01.9	• 07.5	164°00.8	• 14.9					
10	188°44.3	345°34.5	18.6	47°58.6	58.9	42°04.1	07.5	179°03.4	14.9					
11	203°46.8	• 38.0	17.5	62°59.7	58.6	57°06.3	07.4	194°06.0	14.8					
12	218°49.3	15°41.5	S15°16.5	78°00.9	N16°58.2	72°08.4	N14°07.3	209°08.6	N01°14.7					
13	233°51.7	30°45.1	15.5	93°02.1	57.9	87°10.6	07.2	224°11.3	14.7					
14	248°54.2	45°48.6	14.4	108°03.3	57.6	102°12.7	07.1	239°13.9	14.6					
15	263°56.7	60°52.1	• 13.4	123°04.5	• 57.2	117°14.9	• 07.0	254°16.5	• 14.6					
16	278°59.1	75°55.6	12.4	138°05.7	56.9	132°17.0	06.9	269°19.1	14.5					
17	294°01.6	90°59.2	11.4	153°06.9	56.5	147°19.2	06.8	284°21.7	14.4					
18	309°04.1	106°02.7	S15°10.3	168°08.0	N16°56.2	162°21.4	N14°06.7	299°24.3	N01°14.4					
19	324°06.5	121°06.2	09.3	183°09.2	55.8	177°23.5	06.6	314°26.9	14.3					
20	339°09.0	136°09.7	08.3	198°10.4	55.5	192°25.7	06.5	329°29.6	14.3					
21	354°11.5	151°13.2	• 07.3	213°11.6	• 55.2	207°27.8	• 06.4	344°32.2	• 14.2					
22	9°13.9	166°16.7	06.2	228°12.8	54.8	222°30.0	06.3	359°34.8	14.2					
23	24°16.4	181°20.2	05.2	243°14.0	54.5	237°32.2	06.2	14°37.4	14.1					
Mer.pass. 21:23			ν 3.6' d 1.0' m -4.20			ν 1.2' d 0.3' m 0.88			ν 2.2' d 0.1' m -1.99			ν 2.6' d 0.1' m 0.45		

Stars		
SHA	Dec	
Alpheratz	357°32.9	29°14.6
Ankaa	353°05.3	-42°09.6
Schedar	349°28.8	56°41.3
Diphda	348°45.5	-17°50.3
Achernar	335°18.5	-57°06.0
Hamal	327°49.2	33°25.5
Polaris	312°46.5	89°25.6
Acamar	315°10.2	-40°11.7
Menkar	314°04.3	4°11.8
Mirafak	308°25.6	49°57.4
Aldebaran	290°37.6	16°33.9
Rigel	281°02.2	-8°10.1
Capella	280°19.4	46°01.4
Bellatrix	278°21.1	6°22.5
Elath	277°59.7	28°37.8
Alnilam	275°36.0	-1°11.0
Betelgeuse	270°50.3	7°24.8
Canopus	263°51.5	-52°42.3
Sirius	258°24.8	-16°45.0
Adhara	255°04.6	-29°00.3
Procyon	244°49.2	5°09.4
Pollux	243°15.4	27°57.6
Avior	234°14.1	-59°35.4
Suhail	222°45.3	-43°32.2
Miaplacidus	221°38.1	-69°49.3
Alphard	217°46.4	-8°46.4
Regulus	207°33.0	11°50.2
Dubhe	193°39.7	61°36.2
Denebola	182°23.7	14°25.3
Gienah	175°42.4	-17°41.3
Acrux	172°59.1	-63°14.7
Gacrux	171°50.5	-57°15.7
Alloth	166°12.2	55°48.7
Spica	159°21.1	-11°18.0
Alkaid	152°51.3	49°10.7
Hadar	148°34.6	-60°30.1
Menkent	147°56.3	-36°30.0
Arcturus	145°46.9	19°02.6
Rigel Kent.	139°38.9	-60°56.7
Kochab	137°21.0	74°02.7
Zuben'ubi	136°54.7	-16°09.1
Alphecca	128°02.8	26°37.6
Antares	112°14.3	-26°29.5
Atria	107°07.7	-69°04.6
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	12°32.6
Eltanin	90°41.8	51°29.3
Kaus Aus.	83°30.8	-34°22.3
Vega	80°32.4	38°48.8
Nunki	75°46.1	-26°15.8
Altair	61°58.6	8°56.5
Peacock	53°03.4	-56°39.1
Deneb	49°24.8	45°22.9
Enif	33°37.3	10°00.1
Al Na'ir	27°30.9	-46°49.9
Fomalhaut	15°12.7	-29°28.8
Scheat	13°43.5	28°14.0
Markab	13°28.2	

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	39°18.8	196°23.7	S15°04.2	258°15.2	N16°54.1	252°34.3	N14°06.1	29°40.0	N01°14.0					
1	54°21.3	211°27.2	03.2	273°16.3	53.8	267°36.5	06.0	44°42.6	14.0					
2	69°23.8	226°30.7	02.1	288°17.5	53.4	282°38.6	05.9	59°45.2	13.9					
3	84°26.2	241°34.2	.. 01.1	303°18.7	.. 53.1	297°40.8	.. 05.8	74°47.9	.. 13.9					
4	99°28.7	256°37.7	.. 00.1	318°19.9	52.8	312°43.0	05.7	89°50.5	13.8					
5	114°31.2	271°41.1	14°59.1	333°21.1	52.4	327°45.1	05.6	104°53.1	13.8					
6	129°33.6	286°44.6	S14°58.0	348°22.3	N16°52.1	342°47.3	N14°05.5	119°55.7	N01°13.4					
7	144°36.1	301°48.1	57.0	3°23.5	51.7	357°49.4	05.4	134°58.3	13.6					
8	159°38.6	316°51.6	56.0	18°24.7	51.4	12°51.6	05.4	150°00.9	13.6					
9	174°41.0	331°55.0	.. 55.0	33°25.9	.. 51.1	27°53.8	.. 05.3	165°03.5	.. 13.5					
10	189°43.5	346°58.5	53.9	48°27.1	50.7	42°55.9	05.2	180°06.1	13.5					
11	204°46.0	2°02.0	52.9	63°28.3	50.4	57°58.1	05.1	195°08.8	13.4					
12	219°48.4	17°05.4	S14°51.9	78°29.5	N16°50.0	73°00.3	N14°05.0	210°11.4	N01°13.4					
13	234°50.9	32°08.9	50.9	93°30.6	49.7	88°02.4	04.9	225°14.0	13.3					
14	249°53.3	47°12.4	49.9	108°31.8	49.3	103°04.6	04.8	240°16.6	13.2					
15	264°55.8	62°15.8	.. 48.8	123°33.0	.. 49.0	118°06.7	.. 04.7	255°19.2	.. 13.2					
16	279°58.3	77°19.3	47.8	138°34.2	48.7	133°08.9	04.6	270°21.8	13.1					
17	295°00.7	92°22.7	46.8	153°35.4	48.3	148°11.1	04.5	285°24.4	13.1					
18	310°03.2	107°26.1	S14°45.8	168°36.6	N16°48.0	163°13.2	N14°04.4	300°27.0	N01°13.0					
19	325°05.7	122°29.6	44.8	183°37.8	47.6	178°15.4	04.3	315°29.6	13.0					
20	340°08.1	137°33.0	43.8	198°39.0	47.3	193°17.6	04.2	330°32.3	12.9					
21	355°10.6	152°36.5	.. 42.7	213°40.2	.. 46.9	208°19.7	.. 04.1	345°34.9	.. 12.8					
22	10°13.1	167°39.9	41.7	228°41.4	46.6	223°21.9	04.0	0°37.5	12.8					
23	25°15.5	182°43.3	40.7	243°42.6	46.3	238°24.1	03.9	15°40.1	12.7					
Mer.pass. 21:19			ν 3.5' d 1.0' m -4.09	ν 1.2' d 0.3' m 0.87	ν 2.2' d 0.1' m -2.00	ν 2.6' d 0.1' m 0.46								

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	40°18.0	197°46.7	S14°39.7	258°43.8	N16°45.9	253°26.2	N14°03.9	30°42.7	N01°12.7
1	55°20.4	212°50.2	38.7	273°45.0	45.6	268°28.4	03.8	45°45.3	12.6
2	70°22.9	227°53.6	37.7	288°46.2	45.2	283°30.6	03.7	60°47.9	12.6
3	85°25.4	242°57.0	36.7	303°47.4	44.9	298°32.7	03.6	75°50.5	12.5
4	100°27.8	258°00.4	35.6	318°48.6	44.5	313°34.9	03.5	90°53.1	12.4
5	115°30.3	273°03.8	34.6	333°49.8	44.2	328°37.1	03.4	105°55.8	12.4
6	130°32.8	288°07.2	S14°33.6	348°51.0	N16°43.9	343°39.2	N14°03.3	120°58.4	N01°12.3
7	145°35.2	303°10.6	32.6	3°52.2	43.5	358°41.4	03.2	136°01.0	12.3
8	160°37.7	318°14.0	31.6	18°53.4	43.2	13°43.6	03.1	151°03.6	12.2
9	175°40.2	333°17.4	30.6	33°54.6	42.8	28°45.7	03.0	166°06.2	12.2
10	190°42.6	348°20.8	29.6	48°55.8	42.5	43°47.9	02.9	181°08.8	12.1
11	205°45.1	3°24.2	28.6	63°57.0	42.1	58°50.1	02.8	196°11.4	12.1
12	220°47.6	18°27.6	S14°27.6	78°58.2	N16°41.8	73°52.2	N14°02.7	211°14.0	N01°12.0
13	235°50.0	33°31.0	26.6	93°59.4	41.5	88°54.4	02.6	226°16.6	11.9
14	250°52.5	48°34.3	25.5	109°00.6	41.1	103°56.6	02.6	241°19.2	11.9
15	265°54.9	63°37.7	24.5	124°01.8	40.8	118°58.7	02.5	256°21.9	11.8
16	280°57.4	78°41.1	23.5	139°03.0	40.4	134°00.9	02.4	271°24.5	11.8
17	295°59.9	93°44.5	22.5	154°04.2	40.1	149°03.1	02.3	286°27.1	11.7
18	311°02.3	108°47.8	S14°21.5	169°05.4	N16°39.7	164°05.3	N14°02.2	301°29.7	N01°11.7
19	326°04.8	123°51.2	20.5	184°06.6	39.4	179°07.4	02.1	316°32.3	11.6
20	341°07.3	138°54.6	19.5	199°07.8	39.1	194°09.6	02.0	331°34.9	11.6
21	356°09.7	153°57.9	18.5	214°09.0	38.7	209°11.8	01.9	346°37.5	11.5
22	11°12.2	169°01.3	17.5	229°10.3	38.4	224°13.9	01.8	1°40.1	11.4
23	26°14.7	184°04.6	16.5	244°11.5	38.0	239°16.1	01.7	16°42.7	11.4
Mer.pass. 21:15			ν 3.4' d 1.0' m -4.17	ν 1.2' d 0.3' m 0.86	ν 2.2' d 0.1' m -2.00	ν 2.6' d 0.1' m 0.46			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	41°17.1	199°08.0	S14°15.5	259°12.7	N16°37.7	254°18.3	N14°01.6	31°45.3	N01°11.3
1	56°19.6	214°11.3	14.5	274°13.9	37.3	269°20.5	01.5	46°47.9	11.3
2	71°22.1	229°14.6	13.5	289°15.1	37.0	284°22.6	01.5	61°50.6	11.2
3	86°24.5	244°18.0	.. 12.5	304°16.3	.. 36.7	299°24.8	.. 01.4	76°53.2	.. 11.2
4	101°27.0	259°21.3	11.5	319°17.5	36.3	314°27.0	01.3	91°55.8	11.1
5	116°29.4	274°24.6	10.5	334°18.7	36.0	329°29.1	01.2	106°58.4	11.1
6	131°31.9	289°28.0	S14°09.6	349°19.9	N16°35.6	344°31.3	N14°01.1	122°01.0	N01°11.0
7	146°34.4	304°31.3	08.6	4°21.1	35.3	359°33.5	01.0	137°03.6	10.9
8	161°36.8	319°34.6	07.6	19°22.3	34.9	14°35.7	00.9	152°06.2	10.9
9	176°39.3	334°37.9	.. 06.6	34°23.6	.. 34.6	29°37.8	.. 00.8	167°08.8	.. 10.8
10	191°41.8	349°41.2	05.6	49°24.8	34.3	44°40.0	00.7	182°11.4	10.8
11	206°44.2	4°44.5	04.6	64°26.0	33.9	59°42.2	00.6	197°14.0	10.7
12	221°46.7	19°47.8	S14°03.6	79°27.2	N16°33.6	74°44.4	N14°00.5	212°16.6	N01°10.7
13	236°49.2	34°51.2	02.6	94°28.4	33.2	89°46.5	00.5	227°19.2	10.6
14	251°51.6	49°54.4	01.6	109°29.6	32.9	104°48.7	00.4	242°21.8	10.6
15	266°54.1	64°57.7	14°00.6	124°30.8	.. 32.6	119°50.9	.. 00.3	257°24.5	.. 10.5
16	281°56.6	80°01.0	13°59.7	139°32.0	32.2	134°53.1	00.2	272°27.1	10.5
17	296°59.0	95°04.3	58.7	154°33.3	31.9	149°55.2	00.1	287°29.7	10.4
18	312°01.5	110°07.6	S13°57.7	169°34.5	N16°31.5	164°57.4	N14°00.0	302°32.3	N01°10.3
19	327°03.9	125°10.9	56.7	184°35.7	31.2	179°59.6	00.9	317°34.9	10.3
20	342°06.4	140°14.2	55.7	199°36.9	30.8	195°01.8	00.8	332°37.5	10.2
21	357°08.9	155°17.4	.. 55.8	214°38.1	.. 30.5	210°03.9	.. 59.7	347°40.1	.. 10.2
22	12°11.3	170°20.7	53.8	229°39.3	30.2	225°06.1	59.6	2°42.7	10.1
23	27°13.8	185°24.0	52.8	244°40.6	29.8	240°08.3	59.6	17°45.3	10.1
Mer.pass. 21:11		ν 3.3' d 1.0' m -4.25		ν 1.2' d 0.3' m 0.85		ν 2.2' d 0.1' m -2.01		ν 2.6' d 0.1' m 0.47	

Stars		
SHA	Dec	
Alpheratz	357°32.9	29°14.6
Ankaa	353°05.3	-42°09.6
Schedar	349°28.8	56°41.3
Diphda	348°45.5	-17°50.3
Achernar	335°18.5	-57°06.0
Hamal	327°49.2	23°35.5
Polaris	312°45.8	89°22.6
Acamar	315°10.2	-40°11.7
Menkar	314°04.3	4°11.8
Mirafak	308°25.6	49°57.4
Aldebaran	290°37.6	16°33.9
Rigel	281°02.2	-8°10.1
Capella	280°19.3	46°01.4
Bellatrix	278°21.0	6°22.5
Elath	277°59.7	28°37.8
Alnilam	275°36.0	-1°11.0
Betelgeuse	270°50.3	7°24.8
Canopus	263°51.4	-52°42.3
Sirius	258°24.8	-16°45.0
Adhara	255°04.5	-29°00.3
Procyon	244°49.2	5°09.4
Pollux	243°15.4	27°57.6
Avior	234°14.1	-59°35.4
Suhail	222°45.3	-43°32.2
Miaplacidus	221°38.1	-69°49.3
Alphard	217°46.4	-8°46.4
Regulus	207°30.7	11°50.2
Dubhe	193°39.6	61°36.1
Denebola	182°23.7	14°25.3
Geniah	175°42.3	-17°41.3
Acrux	172°59.0	-63°14.7
Gacrux	171°50.5	-57°15.6
Alloth	166°12.2	55°48.7
Spica	158°21.1	-11°18.0
Alkaid	152°51.3	49°10.7
Hadar	148°34.5	-60°30.1
Menkent	147°56.9	-36°30.0
Antares	145°46.9	19°02.6
Rigel Kent.	139°38.9	-60°56.7
Kochab	137°21.0	74°02.7
Zuben'ubi	136°54.7	-16°09.1
Alphecca	125°02.8	26°37.5
Antares	112°14.3	26°29.5
Atria	107°07.7	-69°04.6
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	37°07.4
Rasalhague	95°57.4	12°32.6
Eltanin	90°41.8	51°29.3
Kaus Aust.	83°30.8	-34°22.3
Vega	80°32.4	38°48.7
Nunki	75°46.1	-26°15.8
Altair	61°58.6	8°56.5
Peacock	53°03.5	-56°39.1
Deneb	49°24.8	45°22.9
Enif	33°37.3	10°00.1
Al Na'ir	27°30.9	-46°50.0
Fomalhaut	15°12.7	-29°28.8
Scheat	13°43.6	28°14.0
Markab	13°28.2	15°21.2

Dubhe	193°39.6	61°136.1
Denebola	182°23.7	14°25.3
Gienah	175°42.3	-17°41.3
Acrux	172°59.0	-63°14.7
Gacrux	171°50.5	-57°15.6
Alioth	166°12.2	-55°48.7
Spica	158°21.1	-11°18.0
Alkaid	152°51.3	-49°10.7
Hadar	148°34.5	-60°30.1
Menkent	147°56.3	-36°30.0
Arcturus	145°46.9	-19°02.6
Rigel Kent.	139°38.9	-60°56.7
Kochab	137°21.0	-74°02.7
Zuben ul	136°54.7	-16°09.1
Alphecca	126°02.8	-26°37.5
Antares	112°14.3	-26°29.5
Atria	107°07.7	-69°04.6
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	-12°32.6
Eltanin	90°41.8	51°29.3
Kaus Aust.	83°30.8	-34°22.3
Vega	80°32.4	38°48.7
Nunki	75°46.1	-26°15.8
Altair	61°58.6	8°56.5
Peacock	53°03.5	-56°39.1
Deneb	49°24.8	-45°22.9
Enif	33°37.3	10°00.1

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	42°16.3	200°27.2	S13°51.8	259°41.8	N16°29.5	255°10.5	N13°59.5	32°47.9	N01°10.0					
1	57°18.7	215°30.5	50.8	274°43.0	29.1	270°12.6	59.4	47°50.5	10.0					
2	72°21.2	230°33.8	49.9	289°44.2	28.8	285°14.8	59.3	62°53.1	09.9					
3	87°23.7	245°37.0	•• 48.9	304°45.4	•• 28.4	300°17.0	•• 59.2	77°55.7	•• 09.9					
4	102°26.1	260°40.3	47.9	319°46.6	28.1	315°19.2	59.1	92°58.3	09.8					
5	117°28.6	275°43.5	46.9	334°47.9	27.8	330°21.4	59.0	108°00.9	09.8					
6	132°31.0	290°46.8	S13°46.3	349°49.1	N16°27.4	345°23.5	N13°58.9	123°03.5	N01°09.7					
7	147°33.5	305°50.0	45.0	4°50.3	27.1	0°25.7	58.8	138°06.2	09.6					
8	162°36.0	320°53.2	44.0	19°51.5	26.7	15°27.9	58.8	153°08.8	09.6					
9	177°38.4	335°56.5	•• 43.1	34°52.8	•• 26.4	30°30.1	•• 58.7	168°11.4	•• 09.5					
10	192°40.9	350°59.7	42.1	49°54.0	26.0	45°32.3	58.6	183°14.0	09.5					
11	207°43.4	6°02.9	41.1	64°55.2	25.7	60°34.4	58.5	198°16.6	09.4					
12	222°45.8	21°06.1	S13°40.2	79°56.4	N16°25.4	75°36.6	N13°58.4	213°19.2	N01°09.4					
13	237°48.3	36°09.3	39.2	94°57.6	25.0	90°38.8	58.3	228°21.8	09.3					
14	252°50.8	51°12.6	38.2	109°58.9	24.7	105°41.0	58.2	243°24.4	09.3					
15	267°53.2	66°15.8	•• 37.3	125°00.1	•• 24.3	120°43.2	•• 58.1	258°27.0	•• 09.2					
16	282°55.7	81°19.0	36.3	140°01.3	24.0	135°45.3	58.0	273°29.6	09.2					
17	297°58.2	96°22.2	35.4	155°02.5	23.7	150°47.5	58.0	288°32.2	09.1					
18	313°00.6	111°25.4	S13°34.4	170°03.8	N16°23.3	165°49.7	N13°57.9	303°34.8	N01°09.1					
19	328°03.1	126°28.6	33.4	185°05.0	23.0	180°51.9	57.8	318°37.4	09.0					
20	343°05.5	141°31.8	32.5	200°06.2	22.6	195°54.1	57.7	333°40.0	09.0					
21	358°08.0	156°35.0	•• 31.5	215°07.4	•• 22.3	210°56.2	•• 57.6	348°42.6	•• 08.9					
22	13°10.5	171°38.1	30.6	230°08.7	21.9	225°58.4	57.5	3°45.2	08.9					
23	28°12.9	186°41.3	29.6	245°09.9	21.6	241°00.6	57.4	18°47.8	08.8					
Mer.pass. 21:07			ν 3.3' d 1.0' m -4.31	ν 1.2' d 0.3' m 0.83	ν 2.2' d 0.1' m -2.02	ν 2.6' d 0.1' m 0.47								

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	43°15.4	201°44.5	S13°28.7	260°11.1	N16°21.3	256°02.8	N13°57.3	33°50.4	N01°08.7
1	58°17.9	216°47.7	27.7	275°12.3	20.9	271°05.0	57.3	48°53.0	08.7
2	73°20.3	231°50.8	26.8	290°13.6	20.6	286°07.2	57.2	63°55.6	08.6
3	88°22.8	246°54.0	•• 25.8	305°14.8	•• 20.2	301°09.3	•• 57.1	78°58.2	•• 08.6
4	103°25.3	261°57.2	24.9	320°16.0	19.9	316°11.5	57.0	94°00.8	08.5
5	118°27.7	277°00.3	23.9	335°17.3	19.6	331°13.7	56.9	109°03.4	08.5
6	133°30.2	292°03.5	S13°23.0	350°18.5	N16°19.2	346°15.9	N13°56.8	124°06.0	N01°08.4
7	148°32.6	307°06.6	22.0	5°19.7	18.9	1°18.1	56.7	139°08.6	08.3
8	163°35.1	322°09.8	21.1	20°21.0	18.5	16°20.3	56.6	154°11.2	08.3
9	178°37.3	337°12.9	•• 20.2	35°22.2	•• 18.2	31°22.5	•• 56.6	169°13.9	•• 08.3
10	193°40.0	352°16.1	19.2	50°23.4	17.8	46°24.6	56.5	184°16.5	08.2
11	208°42.5	7°19.2	18.3	65°24.6	17.5	61°26.8	56.4	199°19.1	08.2
12	223°45.0	22°22.3	S13°17.3	80°25.9	N16°17.2	76°29.0	N13°56.3	214°21.7	N01°08.1
13	238°47.4	37°25.5	16.4	95°27.1	16.8	91°31.2	56.2	229°24.3	08.1
14	253°49.9	52°28.6	15.5	110°28.3	16.5	106°33.4	56.1	244°26.9	08.0
15	268°52.4	67°31.7	•• 14.5	125°29.6	•• 16.1	121°35.6	•• 56.0	259°29.5	•• 08.0
16	283°54.8	82°34.8	13.6	140°30.8	15.8	136°37.8	56.0	274°32.1	07.9
17	298°57.3	97°37.9	12.7	155°32.0	15.5	151°40.0	55.9	289°34.7	07.9
18	313°59.8	112°41.1	S13°11.7	170°33.3	N16°15.1	166°42.1	N13°55.8	304°37.3	N01°07.8
19	329°02.2	127°44.2	10.8	185°34.5	14.8	181°44.3	55.7	319°39.9	07.8
20	344°04.7	142°47.3	09.9	200°35.8	14.4	196°46.5	55.6	334°42.5	07.7
21	359°07.1	157°50.4	•• 09.0	215°37.0	•• 14.1	211°48.7	•• 55.5	349°45.1	•• 07.7
22	14°09.6	172°53.5	08.0	230°38.2	13.8	226°50.9	55.4	4°47.7	07.6
23	29°12.1	187°56.6	07.1	245°39.5	13.4	241°53.1	55.4	19°50.3	07.6
Mer.pass. 21:04			ν 3.2' d 1.0' m -4.38	ν 1.2' d 0.3' m 0.82	ν 2.2' d 0.1' m -2.02	ν 2.6' d 0.1' m 0.48			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	44°14.5	202°59.6	S13°06.2	260°40.7	N16°13.1	256°55.3	N13°55.3	34°52.9	N01°07.5
1	59°17.0	218°02.7	05.3	275°41.9	12.7	271°57.5	55.2	49°55.5	07.4
2	74°19.5	233°05.8	04.3	290°43.2	12.4	286°59.6	55.1	64°58.1	07.4
3	89°21.9	248°08.9	•• 03.4	305°44.4	•• 12.0	302°01.8	•• 55.0	80°00.7	•• 07.3
4	104°24.4	263°12.0	02.5	320°45.7	11.7	317°04.0	54.9	95°03.3	07.3
5	119°26.9	278°15.0	01.6	335°46.9	11.4	332°06.2	54.8	110°05.9	07.2
6	134°29.3	293°18.1	S13°00.7	350°48.7	N16°11.0	347°08.4	N13°54.8	125°08.5	N01°07.2
7	149°31.8	308°21.1	12°59.8	5°49.4	10.7	2°10.6	54.7	140°11.1	07.1
8	164°34.3	323°24.2	58.9	20°50.6	10.0	17°12.8	54.6	155°13.7	07.1
9	179°36.7	338°27.3	•• 58.0	35°51.9	•• 10.3	32°15.0	•• 54.5	170°16.3	•• 07.0
10	194°39.2	353°30.3	57.0	50°53.1	09.7	47°17.2	54.4	185°18.9	07.0
11	209°41.6	8°33.4	56.1	65°54.3	09.3	62°19.4	54.3	200°21.5	06.9
12	224°44.1	23°36.4	S12°55.2	80°55.6	N16°09.0	77°21.6	N13°54.3	215°24.1	N01°06.9
13	239°46.6	38°39.4	54.3	95°56.8	08.6	92°23.8	54.2	230°26.7	06.8
14	254°49.0	53°42.5	53.4	110°58.1	08.3	107°25.9	54.1	245°29.3	06.8
15	269°51.5	68°45.5	•• 52.5	125°59.3	•• 08.0	122°28.1	•• 54.0	260°31.9	•• 06.7
16	284°54.8	83°48.5	51.6	141°00.6	07.6	137°30.3	53.9	275°34.5	06.6
17	299°56.4	98°51.6	50.7	156°01.8	07.3	152°32.5	53.8	290°37.1	06.7
18	314°58.9	113°54.6	S12°49.8	171°03.1	N16°06.9	167°34.7	N13°53.7	305°39.7	N01°06.6
19	330°01.4	128°57.6	48.9	186°04.3	06.6	182°36.9	53.7	320°42.3	06.5
20	345°03.8	144°00.6	48.0	201°05.6	06.3	197°39.1	53.6	335°44.9	06.5
21	0°06.3	159°03.6	•• 47.1	216°06.8	•• 05.9	212°41.3	•• 53.5	350°47.5	•• 06.4
22	15°08.7	174°06.6	46.2	231°08.0	05.6	227°43.5	53.4	5°50.1	06.4
23	30°11.2	189°09.6	45.4	246°09.3	05.2	242°45.7	53.3	20°52.7	06.3
Mer.pass. 21:00			ν 3.1' d 0.9' m -4.44	ν 1.2' d 0.3' m 0.81	ν 2.2' d 0.1' m -2.03	ν 2.6' d 0.1' m 0.48			

Stars		
SHA	Dec	
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.3	-42°09.6
Schedar	349°28.8	56°41.3
Diphda	348°45.5	-17°50.3
Achernar	335°18.5	-57°06.0
Hamal	327°49.2	23°35.5
Polaris	312°45.4	89°22.6
Acamar	315°10.2	-40°11.7
Menkar	314°04.3	4°11.8
Mirafak	308°25.6	49°57.4
Aldebaran	290°37.6	16°33.9
Rigel	281°02.2	-8°10.1
Capella	280°19.3	46°01.4
Bellatrix	278°21.0	6°22.5
Elath	277°59.7	28°37.8
Alnilam	275°36.0	-1°11.0
Betelgeuse	270°50.2	7°24.8
Canopus	263°51.4	-52°42.3
Sirius	258°24.7	-16°45.0
Adhara	255°04.5	-29°00.3
Procyon	244°49.2	5°09.4
Pollux	243°15.4	27°57.6
Avior	234°14.0	-59°35.4
Suhail	222°45.2	-43°32.2
Miaplacidus	221°38.0	-69°49.3
Alphard	217°46.3	-8°46.4
Regulus	207°33.0	11°50.1
Dubhe	193°39.6	61°36.1
Denebola	182°23.7	14°25.3
Gienah	175°42.3	-17°41.4
Acrux	172°59.0	-63°14.7
Gacrux	171°50.5	-57°15.6
Alloth	166°12.2	55°48.7
Spica	158°21.0	-11°18.0
Alkaid	152°51.3	49°10.7
Hadar	148°34.5	-60°30.1
Menkent	147°56.3	-36°30.0
Arcturus	145°46.9	19°02.6
Rigel Kent.	139°38.9	-60°56.7
Kochab	137°21.0	74°02.6
Zuben'ubi	136°54.7	-16°39.1
Alphecca	125°02.8	26°37.1
Antares	112°14.3	-26°29.5
Atria	107°07.7	-69°04.6
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	12°32.6
Eltanin	90°41.9	51°29.6
Kaus Aust.	83°30.8	-34°22.3
Vega	80°32.5	38°48.7
Nunki	75°46.1	-26°15.8
Altair	61°58.6	8°56.5
Peacock	53°03.5	-56°39.1
Deneb	49°24.8	45°22.9
Enif	33°37.3	10°00.1
Al Na'ir	27°30.9	-46°50.0
Fomalhaut	15°12.7	-29°28.8
Scheat	13°43.6	28°14.0
Markab	13°28.2	15°21.2

Nov 03 Tue	SHA	Mer.pass
Venus	158°11.0	10:36
Mars	217°25.5	06:41
Jupiter	212°54.2	06:58
Saturn	350°31.7	21:45

Nov 04 Wed	SHA	Mer.pass
Venus	158°29.1	10:31
Mars	216°55.7	06:39
Jupiter	212°47.4	06:55
Saturn	350°35.0	21:41

Nov 05 Thu	SHA</
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Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	45°13.7	204°12.6	S12°44.5	261°10.5	N16°04.9	257°47.9	N13°53.2	35°55.3	N01°06.3										
1	60°16.1	219°15.6	43.6	276°11.8	04.6	272°50.1	53.2	50°57.9	06.2										
2	75°18.6	234°18.6	42.7	291°13.0	04.2	287°52.3	53.1	66°00.4	06.2										
3	90°21.1	249°21.6	41.8	306°14.3	03.9	302°54.5	53.0	81°03.0	06.1										
4	105°23.5	264°24.6	40.9	321°15.5	03.5	317°56.7	52.9	96°05.6	06.1										
5	120°26.0	279°27.5	40.1	336°16.8	03.2	332°58.9	52.8	111°08.2	06.0										
6	135°28.5	294°30.5	S12°39.2	351°18.0	N16°02.9	348°01.1	N13°52.7	126°10.8	N01°06.0										
7	150°30.9	309°33.5	38.3	6°19.3	02.5	3°03.3	52.7	141°13.4	05.9										
8	165°33.4	324°36.4	37.4	21°20.5	02.2	18°05.5	52.6	156°16.0	05.9										
9	180°35.9	339°39.4	36.5	36°21.8	01.8	33°07.7	52.5	171°18.6	05.8										
10	195°38.3	354°42.4	35.7	51°23.0	01.5	48°09.9	52.4	186°21.2	05.8										
11	210°40.8	9°45.3	34.8	66°24.3	01.2	63°12.0	52.3	201°23.8	05.7										
12	225°43.2	24°48.3	S12°33.9	81°25.5	N16°00.8	78°14.2	N13°52.2	216°26.4	N01°05.7										
13	240°45.7	39°51.2	33.1	96°26.8	00.5	93°16.4	52.2	231°29.0	05.6										
14	255°48.2	54°54.1	32.2	111°28.0	16°00.1	108°18.6	52.1	246°31.6	05.6										
15	270°50.6	69°57.1	31.3	126°29.3	15°59.8	123°20.8	52.0	261°34.2	05.5										
16	285°53.1	85°00.0	30.5	141°30.6	59.5	138°23.0	51.9	276°36.8	05.8										
17	300°55.6	100°03.0	29.6	156°31.8	59.1	153°25.2	51.8	291°39.4	05.4										
18	315°58.0	115°05.9	S12°28.7	171°33.1	N15°58.8	168°27.4	N13°51.8	306°42.0	N01°05.4										
19	331°00.5	130°08.8	27.9	186°34.3	58.4	183°29.6	51.7	321°44.6	05.4										
20	346°03.0	145°11.7	27.0	201°35.6	58.1	198°31.8	51.6	336°47.2	05.3										
21	1°05.4	160°14.6	26.2	216°36.8	57.8	213°34.0	51.5	351°49.8	05.3										
22	16°07.9	175°17.5	25.3	231°38.1	57.4	228°36.2	51.4	6°52.4	05.2										
23	31°10.3	190°20.5	24.5	246°39.4	57.1	243°38.4	51.3	21°55.0	05.2										
Mer.pass. 20:56				ν 3.0' d 0.9' m -4.50				ν 1.2' d 0.3' m 0.80				ν 2.2' d 0.1' m -2.03				ν 2.6' d 0.0' m 0.48			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	46°12.8	205°23.4	S12°23.6	261°40.6	N15°56.7	258°40.6	N13°51.3	36°57.6	N01°05.1										
1	61°15.3	220°26.3	22.7	276°41.9	56.4	273°42.8	51.2	52°00.2	05.1										
2	76°17.7	235°29.2	21.9	291°43.1	56.1	288°45.1	51.1	67°02.8	05.0										
3	91°20.2	250°32.0	21.1	306°44.4	55.7	303°47.3	51.0	82°05.4	05.0										
4	106°22.7	265°34.9	20.2	321°45.6	55.4	318°49.5	50.9	97°07.9	04.9										
5	121°25.1	280°37.8	19.4	336°46.9	55.0	333°51.7	50.9	112°10.5	04.9										
6	136°27.6	295°40.7	S12°18.5	351°48.2	N15°54.7	348°53.9	N13°50.8	127°13.1	N01°04.8										
7	151°30.1	310°43.6	17.7	6°49.4	54.4	3°56.1	50.7	142°15.7	04.8										
8	166°32.5	325°46.4	16.8	21°50.7	54.0	18°58.3	50.6	157°18.3	04.7										
9	181°35.0	340°49.3	16.0	36°52.0	53.7	34°00.5	50.5	172°20.9	04.7										
10	196°37.5	355°52.2	15.2	51°53.2	53.4	49°02.7	50.5	187°23.5	04.6										
11	211°39.9	10°55.0	14.3	66°54.5	53.0	64°04.9	50.4	202°26.1	04.6										
12	226°42.4	25°57.9	S12°13.5	81°55.7	N15°52.7	79°07.1	N13°50.3	217°28.7	N01°04.5										
13	241°44.8	41°00.7	12.7	96°57.0	52.3	94°09.3	50.2	232°31.3	04.5										
14	256°47.3	56°03.6	11.8	111°58.3	52.0	109°11.5	50.1	247°33.9	04.4										
15	271°49.8	71°06.4	11.0	126°59.5	51.7	124°13.7	50.1	262°36.5	04.4										
16	286°52.2	86°09.3	10.2	142°00.8	51.3	139°15.9	50.0	277°39.1	04.3										
17	301°54.7	101°12.1	09.4	157°02.1	51.0	154°18.1	49.9	292°41.7	04.3										
18	316°57.2	116°14.9	S12°08.5	172°03.3	N15°50.6	169°20.3	N13°49.8	307°44.3	N01°04.2										
19	331°59.6	131°17.8	07.7	187°04.6	50.3	184°22.5	49.9	322°46.8	04.2										
20	347°02.1	146°20.6	06.9	202°05.9	50.0	199°24.7	49.7	337°49.4	04.2										
21	2°04.6	161°23.4	06.1	217°07.1	50.1	214°26.9	49.6	352°52.0	04.1										
22	17°07.0	176°26.2	05.3	232°08.4	49.3	229°29.1	49.5	7°54.6	04.1										
23	32°09.5	191°29.0	04.5	247°09.7	49.0	244°31.3	49.4	22°57.2	04.0										
Mer.pass. 20:52				ν 2.9' d 0.9' m -4.55				ν 1.3' d 0.3' m 0.79				ν 2.2' d 0.1' m -2.04				ν 2.6' d 0.0' m 0.49			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				
0	47°12.0	206°31.9	S12°03.6	262°10.9	N15°48.6	259°33.6	N13°49.3	37°59.8	N01°04.0				
1	62°14.4	221°34.7	02.8	277°12.2	48.3	274°35.8	49.3	53°02.4	03.9				
2	77°16.9	236°37.5	02.0	292°13.5	47.0	289°38.0	49.2	68°05.0	03.9				
3	92°19.3	251°40.3	01.2	307°14.7	47.9	304°40.2	49.1	83°07.6	03.8				
4	107°21.8	266°43.0	12°00.4	322°16.0	47.3	319°42.4	49.0	98°10.2	03.8				
5	122°24.3	281°45.8	11°59.6	337°17.3	46.9	334°44.6	48.9	113°12.8	03.7				
6	137°26.7	296°48.6	S11°58.8	352°18.6	N15°46.6	349°46.8	N13°48.9	128°15.4	N01°03.7				
7	152°29.2	311°51.4	58.0	7°19.8	46.2	4°49.0	48.8	143°18.0	03.6				
8	167°31.7	326°54.2	57.2	22°21.1	45.9	19°51.2	48.7	158°20.5	03.6				
9	182°34.1	341°57.0	56.4	37°22.4	45.6	34°53.4	48.6	173°23.1	03.5				
10	197°36.6	356°59.7	55.6	52°23.7	45.2	49°55.6	48.5	188°25.7	03.5				
11	212°39.1	12°02.5	54.8	67°24.9	44.9	64°57.9	48.5	203°28.3	03.4				
12	227°41.5	27°05.3	S11°54.0	82°26.2	N15°44.6	80°00.1	N13°48.4	218°30.9	N01°03.4				
13	242°44.0	42°08.0	53.2	97°27.5	44.2	95°02.3	48.3	233°33.5	03.4				
14	257°46.4	57°10.8	52.5	112°28.7	43.9	110°04.5	48.2	248°36.1	03.3				
15	272°48.9	72°13.5	51.7	127°30.0	43.5	125°06.7	48.2	263°38.7	03.3				
16	287°51.4	87°16.3	50.9	142°31.3	43.2	140°08.9	48.1	278°41.3	03.2				
17	302°53.8	102°19.0	50.1	157°32.6	42.9	155°11.1	48.0	293°43.9	03.2				
18	317°56.3	117°21.7	S11°49.3	172°33.9	N15°42.5	170°13.3	N13°47.9	308°46.4	N01°03.1				
19	332°58.8	132°24.5	48.5	187°35.1	42.2	185°15.6	47.8	323°49.0	03.1				
20	348°01.2	147°27.2	47.8	202°36.4	41.9	200°17.8	47.8	338°51.6	03.0				
21	3°03.7	162°29.9	47.0	217°37.7	41.1	215°20.0	47.7	353°54.2	03.0				
22	18°06.2	177°32.7	46.2	232°39.0	41.2	230°22.2	47.6	8°56.8	02.9				
23	33°08.6	192°35.4	45.4	247°40.2	40.8	245°24.4	47.5	23°59.4	02.9				
Mer.pass. 20:48		ν 2.8' d 0.8' m -4.60			ν 1.3' d 0.3' m 0.78			ν 2.2' d 0.1' m -2.04			ν 2.6' d 0.0' m 0.49		

Stars	SHA		Dec	
Alpheratz	357°33.0	29°14.6		
Ankaa	353°05.3	-42°09.6		
Schedar	349°28.8	56°41.3		
Diphda	348°45.5	-17°50.3		
Achernar	335°18.5	-57°06.0		
Hamal	327°49.2	23°35.5		
Polaris	312°45.1	89°22.6		
Acamar	315°10.2	-40°11.7		
Menkar	314°04.3	-4°11.8		
Mirfak	308°25.6	49°57.4		
Aldebaran	290°37.6	16°33.9		
Rigel	281°02.2	-8°10.1		
Capella	280°19.3	46°01.4		
Bellatrix	278°21.0	6°22.5		
Elnath	277°59.7	28°37.8		
Alnilam	275°36.0	-1°11.0		
Betelgeuse	270°50.2	7°24.8		
Canopus	263°51.4	-52°42.3		
Sirius	258°24.7	-16°45.0		
Adhara	255°04.5	-29°00.3		
Procyon	244°49.2	5°09.4		
Pollux	243°15.4	27°57.6		
Avior	234°14.0	-59°35.5		
Suhail	222°45.2	-43°32.2		
Miaplacidus	221°38.0	-69°49.3		

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	48°11.1	207°38.1	S11°44.7	262°41.5	N15°40.5	260°26.6	N13°47.5	39°02.0	N01°02.9					
1	63°13.6	222°40.8	43.9	277°42.8	40.0	275°28.8	47.4	54°04.6	02.8					
2	78°16.0	237°43.5	43.1	292°44.1	39.8	290°31.0	47.3	69°07.2	02.8					
3	93°18.5	252°46.2	· · 42.4	307°45.4	· · 39.5	305°33.3	· · 47.2	84°09.7	· · 02.7					
4	108°20.9	267°48.9	41.6	322°46.6	39.2	320°35.5	47.1	99°12.3	02.7					
5	123°23.4	282°51.6	40.9	337°47.9	38.8	335°37.7	47.1	114°14.9	02.6					
6	138°25.9	297°54.3	S11°40.1	352°49.2	N15°38.5	350°39.9	N13°47.0	129°17.5	N01°02.6					
7	153°28.3	312°57.0	39.3	7°50.5	38.2	5°42.1	46.9	144°20.1	02.5					
8	168°30.8	327°59.7	38.6	22°51.8	37.8	20°44.3	46.8	159°22.7	02.5					
9	183°33.3	343°02.3	· · 37.8	37°53.1	· · 37.5	35°46.6	· · 46.8	174°25.3	· · 02.4					
10	198°35.7	358°05.0	37.1	52°54.3	37.1	50°48.8	46.7	189°27.9	02.4					
11	213°38.2	13°07.7	36.3	67°55.6	36.8	65°51.0	46.6	204°30.5	02.4					
12	228°40.7	28°10.3	S11°35.6	82°56.9	N15°36.5	80°53.2	N13°46.5	219°33.0	N01°02.3					
13	243°43.1	43°13.0	34.8	97°58.2	36.1	95°55.4	46.5	234°35.6	02.3					
14	258°45.6	58°15.7	34.1	112°59.5	35.8	110°57.6	46.4	249°38.2	02.2					
15	273°48.1	73°18.3	· · 33.3	128°00.8	· · 35.5	125°59.9	· · 46.3	264°40.8	· · 02.2					
16	288°50.5	88°21.0	32.6	143°02.1	35.1	141°02.1	46.2	279°43.4	02.1					
17	303°53.0	103°23.6	31.9	158°03.3	34.8	156°04.3	46.2	294°46.0	02.1					
18	318°55.4	118°26.3	S11°31.1	173°04.6	N15°34.5	171°06.5	N13°46.1	309°48.6	N01°02.0					
19	333°57.9	133°28.9	30.4	188°05.9	34.0	186°08.7	46.0	324°51.2	02.0					
20	349°00.4	148°31.5	29.7	203°07.2	33.8	201°10.9	45.9	339°53.7	02.0					
21	4°02.8	163°34.2	· · 28.9	218°08.5	· · 33.4	216°13.2	· · 45.9	354°56.3	· · 01.9					
22	19°05.3	178°36.8	28.2	233°09.8	33.1	231°15.4	45.8	9°58.9	01.9					
23	34°07.8	193°39.4	27.5	248°11.1	32.8	246°17.6	45.7	25°01.5	01.8					
Mer.pass. 20:44 ν 2.7' d 0.8' m -4.64 ν 1.3' d 0.3' m 0.77 ν 2.2' d 0.1' m -2.05 ν 2.6' d 0.0' m 0.50														

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	49°10.2	208°42.0	S11°26.7	263°12.4	N15°32.4	261°19.8	N13°45.6	40°04.1	N01°01.8					
1	64°12.7	223°44.7	26.0	278°13.7	32.1	276°22.0	45.6	55°06.7	01.7					
2	79°15.2	238°47.3	25.3	293°14.9	31.8	291°24.3	45.5	70°09.3	01.7					
3	94°17.6	253°49.9	· · 24.6	308°16.2	· · 31.4	306°26.5	· · 45.4	85°11.8	· · 01.6					
4	109°20.1	268°52.5	23.9	323°17.5	31.1	321°28.7	45.3	100°14.4	01.6					
5	124°22.5	283°55.1	23.1	338°18.8	30.8	336°30.9	45.3	115°17.0	01.6					
6	139°25.0	298°57.7	S11°24.2	353°20.1	N15°30.4	351°33.2	N13°45.2	130°19.6	N01°01.5					
7	154°27.5	314°00.3	21.7	8°21.4	30.1	6°35.4	45.1	145°22.2	01.5					
8	169°29.9	329°02.9	21.0	23°22.7	29.8	21°37.6	45.0	160°24.8	01.4					
9	184°32.4	344°05.4	· · 20.3	38°24.0	· · 29.4	36°39.8	· · 45.0	175°27.3	· · 01.4					
10	199°34.9	359°08.0	19.6	53°25.3	29.1	51°42.0	44.9	190°29.9	01.3					
11	214°37.3	14°10.6	18.9	68°26.6	28.8	66°44.3	44.8	205°32.5	01.3					
12	229°39.8	29°13.2	S11°18.2	83°27.9	N15°28.4	81°46.5	N13°44.7	220°35.1	N01°01.3					
13	244°42.3	44°15.7	17.5	98°29.2	28.1	96°48.7	44.7	235°37.7	01.2					
14	259°44.7	59°18.3	16.8	113°30.5	27.7	111°50.9	44.6	250°40.3	01.2					
15	274°47.2	74°20.9	· · 16.1	128°31.8	· · 27.4	126°53.2	· · 44.5	265°42.9	· · 01.1					
16	289°49.7	89°23.4	15.4	143°33.1	27.1	141°55.4	44.4	280°45.4	01.1					
17	304°52.1	104°26.0	14.7	158°34.4	26.7	156°57.6	44.4	295°48.0	01.0					
18	319°54.6	119°28.5	S11°14.0	173°35.7	N15°26.4	171°59.8	N13°44.3	310°50.6	N01°01.0					
19	334°57.0	134°31.1	13.3	188°37.0	26.1	187°02.1	44.2	325°53.2	01.0					
20	349°59.5	149°33.6	12.6	203°38.3	25.7	202°04.3	44.1	340°55.8	00.9					
21	5°02.0	164°36.1	· · 11.9	218°39.6	· · 25.4	217°06.5	· · 44.1	355°58.4	· · 00.9					
22	20°04.9	179°38.7	11.2	233°40.9	25.1	232°08.7	44.0	11°00.9	00.8					
23	35°06.9	194°41.2	10.6	248°42.2	24.7	247°11.0	43.9	26°03.5	00.8					
Mer.pass. 20:40 ν 2.6' d 0.7' m -4.68 ν 1.3' d 0.3' m 0.75 ν 2.2' d 0.1' m -2.06 ν 2.6' d 0.0' m 0.50														

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	50°09.4	209°43.7	S11°09.9	263°43.5	N15°24.4	262°13.2	N13°43.8	41°06.1	N01°00.7					
1	65°11.8	224°46.3	09.2	278°44.8	24.1	277°15.4	43.8	56°08.7	00.7					
2	80°14.3	239°48.8	08.5	293°46.1	23.7	292°17.7	43.7	71°11.3	00.7					
3	95°16.8	254°51.3	· · 07.8	308°47.4	· · 23.4	307°19.9	· · 43.6	86°13.9	· · 00.6					
4	110°19.2	269°53.8	07.2	323°48.7	22.1	322°22.1	43.6	101°16.4	00.6					
5	125°21.7	284°56.3	06.5	338°50.0	22.7	337°24.3	43.5	116°19.0	00.5					
6	140°24.2	299°58.8	S11°05.8	353°51.3	N15°22.4	352°26.6	N13°43.4	131°21.6	N01°00.5					
7	155°26.6	315°01.3	05.8	8°52.6	22.1	7°28.8	43.3	146°24.2	00.4					
8	170°29.1	330°03.8	04.5	23°53.9	21.7	22°31.0	43.2	161°26.8	00.4					
9	185°31.5	345°06.3	· · 03.8	38°55.2	· · 21.4	37°33.2	· · 43.2	176°29.3	· · 00.4					
10	200°34.0	0°08.8	03.2	53°56.5	21.1	52°35.5	43.1	191°31.9	00.3					
11	215°36.5	15°11.3	02.5	68°57.8	20.7	67°37.7	43.1	206°34.5	00.3					
12	230°38.9	30°13.7	S11°01.9	83°59.1	N15°20.4	82°39.9	N13°43.0	221°37.1	N01°00.2					
13	245°41.4	45°16.2	01.2	99°00.4	20.1	97°42.2	42.9	236°39.7	00.2					
14	260°43.9	60°18.7	11°00.5	114°01.7	19.7	112°44.4	42.8	251°42.3	00.2					
15	275°46.6	75°21.1	10°59.9	129°03.0	· · 19.4	127°46.6	· · 42.8	266°44.8	· · 00.1					
16	290°48.8	90°23.6	59.2	144°04.3	19.1	142°48.9	42.7	281°47.4	00.1					
17	305°51.3	105°26.1	58.6	159°05.7	18.7	157°51.1	42.6	296°50.0	00.0					
18	320°53.7	120°28.5	S10°58.0	174°07.0	N15°18.4	172°53.3	N13°42.6	311°52.6	N01°00.0					
19	335°56.4	135°31.0	57.3	189°08.3	18.1	187°55.5	42.5	326°55.2	00°59.9					
20	350°58.7	150°33.4	56.7	204°09.6	17.7	202°57.8	42.4	341°57.7	59.9					
21	6°01.1	165°35.9	· · 56.0	219°10.9	· · 17.4	218°00.0	· · 42.3	357°00.3	59.9					
22	21°03.6	180°38.3	55.4	234°12.2	17.1	233°02.2	42.3	12°02.9	59.8					
23	36°06.0	195°40.7	54.8	249°13.5	16.7	248°04.5	42.2	27°05.5	59.8					
Mer.pass. 20:36 ν 2.5' d 0.7' m -4.71 ν 1.3' d 0.3' m 0.74 ν 2.2' d 0.1' m -2.06 ν 2.6' d 0.0' m 0.51														

Stars		
	SHA	Dec
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.4	-42°09.6
Schedar	349°28.9	56°41.4
Diphda	348°45.5	-17°50.3
Achernar	335°18.5	-57°06.0
Hamal	327°49.2	23°35.5
Polaris	312°44.6	89°22.6
Acamar	315°10.2	-40°11.7
Menkar	314°04.3	4°11.8
Mirfak	308°25.6	49°57.5
Aldebaran	290°37.6	16°33.9
Rigel	281°02.1	-8°10.1
Capella	280°19.3	46°01.4
Bellatrix	278°21.0	6°22.5
Elmath	277°59.7	28°37.8
Anilam	275°35.9	-1°11.0
Betelgeuse	270°50.2	7°24.8
Canopus	263°51.4	-52°42.3
Sirius	258°24.7	-16°45.0
Adhara	255°04.5	-29°00.3
Procyon	244°49.1	5°09.4
Pollux	243°15.3	27°57.6
Avir	234°14.0	-59°35.4
Suhail	222°45.2	-43°32.2
Miaplacidus	221°37.9	-69°43.9
Alphard	217°46.3	-8°46.4
Regulus	207°32.9	11°50.1
Dubhe	193°39.5	61°36.1
Denebola	182°23.6	14°25.3
Gienah	175°42.3	-17°41.4
Acrux	172°58.9	-63°14.7
Gacrux	171°50.4	-57°15.6
Alioth	166°12.1	55°48.7
Spica	158°21.0	-11°18.0
Alkaid	152°51.3	49°10.7
Hadar	148°34.5	-60°30.0
Menkent	147°56.2	-36°30.0
Arcturus	145°46.9	19°02.6
Rigil Kent.	139°38.9	-60°56.7
Kochab	137°21.1	74°02.6
Zuben ubi	136°54.7	-16°09.1
Alphecca	126°02.8	26°37.5
Antares	112°14.4	-26°29.5
Atria	107°07.7	-69°04.6
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	12°32.5
Eltanin	90°41.9	51°29.3
Kaus Aus.	83°30.8	-34°22.3
Vega	80°32.5	38°48.7
Nunki	75°46.1	-26°15.8
Altair	61°58.6	8°56.5
Peacock	53°03.5	-56°39.1
Deneb	49°24.9	45°22.9
Enif	33°37.3	10°00.1
Al Na'ir	27°31.0	-46°50.0
Fomalhaut	15°12.7	-29°28.8
Scheat	13°43.6	28°14.0
Markab	13°28.3	15°21.2

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	51°08.5	210°43.2	S10°54.1	264°14.8	N15°16.4	263°06.7	N13°42.1	42°08'01"	N00°59.7										
1	66°11.0	225°45.6	53.5	279°16.1	16.1	278°08.9	42.1	57°10.6	59.7										
2	81°13.4	240°48.0	52.9	294°17.5	15.1	293°11.2	42.0	72°13.2	59.7										
3	96°15.9	255°50.4	.. 52.2	309°18.8	.. 15.1	308°13.4	.. 41.8	87°15.8	.. 59.6										
4	111°18.4	270°52.9	51.6	324°20.1	15.1	323°15.6	41.8	102°18.4	59.6										
5	126°20.8	285°55.3	51.0	339°21.4	14.8	338°17.9	41.8	117°20.9	59.5										
6	141°23.3	300°57.7	S10°54.0	354°22.7	N15°14.4	353°20.1	N13°41.7	132°23.5	N00°59.5										
7	156°25.8	316°00.1	49.7	9°24.0	14.1	8°22.3	41.6	147°26.1	59.5										
8	171°28.2	331°02.5	49.1	24°25.3	13.8	23°24.6	41.6	162°28.7	59.4										
9	186°30.7	346°04.9	.. 48.5	39°26.7	.. 13.4	38°26.8	.. 41.5	177°31.3	.. 59.4										
10	201°33.2	1°07.3	47.9	54°28.0	20.1	53°29.1	41.4	192°33.8	59.3										
11	216°35.6	16°09.7	47.3	69°29.3	12.8	68°31.3	41.4	207°36.4	59.3										
12	231°38.1	31°12.1	S10°54.0	84°30.6	N15°12.4	83°33.5	N13°41.3	222°39.0	N00°59.3										
13	246°40.5	46°14.4	46.1	99°31.9	12.1	98°35.8	41.2	237°41.6	59.2										
14	261°43.0	61°16.8	45.5	114°33.3	11.8	113°38.0	41.1	252°44.2	59.2										
15	276°45.5	76°19.2	.. 44.8	129°34.6	.. 11.4	128°40.2	.. 41.1	267°46.7	.. 59.1										
16	291°47.9	91°21.6	44.2	144°35.9	.. 11.1	143°42.5	41.0	282°49.3	59.1										
17	306°50.4	106°23.9	43.6	159°37.2	10.8	158°44.7	40.9	297°51.9	59.0										
18	321°52.9	121°26.3	S10°43.0	174°38.5	N15°10.4	173°46.9	N13°40.9	312°54.5	N00°59.1										
19	336°55.3	136°28.6	42.5	189°39.9	10.1	188°49.2	40.8	327°57.0	59.0										
20	351°57.8	151°31.0	41.9	204°41.2	09.8	203°51.4	40.7	342°59.6	58.9										
21	7°00.3	166°33.3	.. 41.3	219°42.5	.. 09.5	218°53.7	.. 40.7	358°02.2	.. 58.9										
22	22°02.7	181°35.7	40.7	234°43.8	09.1	233°55.9	40.6	13°04.8	58.9										
23	37°05.2	196°38.0	40.1	249°45.1	08.8	248°58.1	40.5	28°07.3	58.8										
Mer.pass. 20:32				ν 2.4' d 0.6' m -4.74				ν 1.3' d 0.3' m 0.73				ν 2.2' d 0.1' m -2.07				ν 2.6' d 0.0' m 0.51			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	52°07.6	211°40.4	S10°39.5	264°46.5	N15°08.5	264°00.4	N13°40.5	43°09.9	N00°58.8										
1	67°10.1	226°42.7	38.9	279°47.8	08.1	279°02.6	40.4	58°12.5	58.7										
2	82°12.6	241°45.0	38.3	294°49.1	07.8	294°04.9	40.3	73°15.1	58.7										
3	97°15.0	256°47.4	.. 37.8	309°50.4	.. 07.5	309°07.1	.. 40.2	88°17.7	.. 58.7										
4	112°17.5	271°49.7	37.2	324°51.8	07.1	324°09.3	40.2	103°20.2	58.6										
5	127°20.0	286°52.0	36.6	339°53.1	06.8	339°11.6	40.1	118°28.8	58.6										
6	142°22.4	301°54.3	S10°36.0	354°54.4	N15°06.5	354°13.8	N13°40.0	133°25.4	N00°58.5										
7	157°24.9	316°56.7	35.5	9°55.7	06.1	9°16.1	40.0	148°28.0	58.5										
8	172°27.4	331°59.0	34.9	24°57.1	05.8	24°18.3	39.9	163°30.5	58.5										
9	187°29.8	347°01.3	.. 34.3	39°58.4	.. 05.5	39°20.6	.. 39.8	178°33.1	.. 58.4										
10	202°32.3	2°03.6	33.7	54°59.7	05.2	54°22.8	39.8	193°35.7	58.4										
11	217°34.8	17°05.9	33.2	70°01.1	04.8	69°25.0	39.7	208°38.3	58.3										
12	232°37.2	32°08.2	S10°32.6	85°02.4	N15°04.5	84°27.3	N13°39.6	223°40.8	N00°58.3										
13	247°39.7	47°10.4	32.1	100°03.7	04.2	99°29.5	39.6	238°43.4	58.3										
14	262°42.1	62°12.7	31.5	115°05.0	03.8	114°31.8	39.5	253°46.0	58.2										
15	277°44.6	77°15.0	.. 30.9	130°06.4	.. 03.5	129°34.0	.. 39.4	268°48.6	.. 58.2										
16	292°47.1	92°17.3	30.4	145°07.7	03.2	144°36.3	39.4	283°51.1	58.2										
17	307°49.5	107°19.6	29.8	160°09.0	02.9	159°38.5	39.3	298°53.7	58.1										
18	322°52.0	122°21.8	S10°29.3	175°10.4	N15°02.5	174°40.7	N13°39.2	313°56.3	N00°58.1										
19	337°54.5	137°24.1	28.7	190°11.7	02.2	189°43.0	39.2	328°58.8	58.0										
20	352°56.9	152°26.4	28.2	205°13.0	01.9	204°45.2	39.1	344°01.4	58.0										
21	7°59.4	167°28.6	.. 27.2	220°14.4	.. 01.5	219°47.5	.. 39.0	359°04.0	.. 58.0										
22	23°01.9	182°30.9	27.1	235°15.7	01.2	234°49.7	39.0	14°06.6	57.9										
23	38°04.3	197°33.1	26.6	250°17.0	00.9	249°52.0	38.9	29°09.1	57.9										
Mer.pass. 20:28				ν 2.3' d 0.6' m -4.77				ν 1.3' d 0.3' m 0.72				ν 2.2' d 0.1' m -2.07				ν 2.6' d 0.0' m 0.52			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	53°06.8	212°35.4	S10°26.0	265°18.4	N15°00.6	264°54.2	N13°38.8	44°11.7	N00°57.9
1	68°09.3	227°37.6	25.5	280°19.7	15°00.2	279°56.5	38.8	59°14.3	57.8
2	83°11.7	242°39.9	25.0	295°21.0	14°59.9	294°58.7	38.7	74°16.9	57.8
3	98°14.2	257°42.1	.. 24.0	310°22.4	.. 59.6	310°01.0	.. 38.6	89°19.4	.. 57.7
4	113°16.6	272°44.4	23.9	325°23.7	59.2	325°03.2	38.6	104°22.0	57.7
5	128°19.1	287°46.6	23.4	340°25.1	58.9	340°05.4	38.5	119°24.6	57.7
6	143°21.6	302°48.8	S10°22.8	355°26.4	N14°58.6	355°07.7	N13°38.4	134°27.1	N00°57.6
7	158°24.0	317°51.0	22.3	10°27.7	58.3	10°09.9	38.4	149°29.7	57.6
8	173°26.5	332°53.2	21.8	25°29.1	57.9	25°12.2	38.3	164°32.3	57.6
9	188°29.0	347°55.5	.. 21.3	40°30.4	.. 57.6	40°14.4	.. 38.2	179°34.9	.. 57.5
10	203°31.4	2°57.7	20.8	55°31.7	57.3	55°16.7	38.2	194°37.4	57.5
11	218°33.9	17°59.9	20.2	70°33.1	56.9	70°18.9	38.1	209°40.0	57.4
12	233°36.4	33°02.1	S10°19.7	85°34.4	N14°56.6	85°21.2	N13°38.1	224°42.6	N00°57.4
13	248°38.8	48°04.3	19.2	100°35.8	56.3	100°23.4	38.0	239°45.1	57.4
14	263°41.3	63°06.5	.. 18.7	115°37.1	56.0	115°25.7	37.9	254°47.7	57.3
15	278°43.8	78°08.7	.. 18.2	130°38.4	.. 55.6	130°27.9	.. 37.9	269°50.3	.. 57.3
16	293°46.2	93°10.9	17.7	145°39.8	55.3	145°30.2	37.8	284°52.9	57.3
17	308°48.7	108°13.1	17.2	160°41.1	55.0	160°32.4	37.7	299°55.4	57.2
18	323°51.1	123°15.2	S10°16.7	175°42.5	N14°54.7	175°34.7	N13°37.7	314°58.0	N00°57.2
19	338°53.6	138°17.4	16.2	190°43.8	54.3	190°36.9	37.6	330°00.6	57.1
20	353°56.1	153°19.6	15.7	205°45.2	54.0	205°39.2	37.5	345°03.1	57.1
21	8°58.5	168°21.8	.. 15.2	220°46.5	.. 53.7	220°41.4	.. 37.5	0°05.7	.. 57.1
22	24°01.0	183°23.9	14.7	235°47.9	53.4	235°43.7	37.4	15°08.3	57.0
23	39°03.5	198°26.1	14.2	250°49.2	53.0	250°46.0	37.3	30°10.9	57.0
Mer.pass. 20:24 ν 2.2' d 0.5' m -4.80 ν 1.3' d 0.3' m 0.71 ν 2.2' d 0.1' m -2.08 ν 2.6' d 0.0' m 0.52									

Stars			h		Sun		Moon			
	SHA	Dec	Thru	GHA	Dec	GHA	ν	Dec	d	HP
Alpheratz	357°33.0	29°14.6	0	183°58.8	S17°38.1	152°34.8	9.8°	S27°35.9	1.2°	54.2°
Ankaa	353°05.4	-42°09.6	1	198°58.7	38.8	167°03.7	9.8°	27°37.1	1.1°	54.2°
Schedar	348°48.9	56°41.4	2	213°58.6	39.5	181°32.5	9.8°	27°38.2	0.9°	54.2°
Diphda	348°45.5	-17°50.3	3	228°58.6	.. 40.2	196°01.3	9.8°	27°39.1	0.9°	54.2°
Achernar	335°18.5	-57°06.1	4	243°58.5	40.8	210°30.1	9.8°	27°40.0	0.6°	54.1°
Hamal	327°49.2	23°35.5	5	258°58.4	41.5	224°59.0	9.8°	27°40.6	0.6°	54.1°
Polaris	312°44.1	89°22.7	6	273°58.3	S17°42.2	239°27.8	9.9°	S27°41.2	0.4°	54.1°
Acamar	315°10.2	-40°11.7	7	288°58.2	42.9	253°56.7	9.9°	27°41.6	0.3°	54.1°
Menkar	314°04.2	4°11.8	8	303°58.2	43.5	265°25.5	9.9°	27°41.9	0.1°	54.1°
Mirfak	308°25.6	49°57.5	9	318°58.1	.. 44.2	282°54.4	9.9°	27°42.0	0.0°	54.1°
Aldebaran	290°37.6	16°33.9	10	333°58.0	44.9	297°23.3	9.9°	27°42.0	0.1°	54.1°
Rigel	281°02.1	-8°10.1	11	348°57.9	45.6	311°52.2	9.9°	27°41.9	0.3°	54.1°
Capella	280°19.2	46°01.4	12	3°57.8	S17°46.2	326°21.1	9.9°	S27°41.6	0.4°	54.1°
Bellatrix	278°21.0	6°22.5	13	18°57.8	46.9	340°50.0	9.9°	27°41.2	0.5°	54.1°
El Nath	277°59.6	28°37.8	14	33°57.7	47.6	355°18.9	10.0°	27°40.7	0.7°	54.1°
Alnilam	275°35.9	-1°11.0	15	48°57.6	.. 48.3	9°47.9	10.0°	27°40.0	0.8°	54.1°
Betelgeuse	270°50.2	7°24.8	16	63°57.5	48.9	24°16.9	10.0°	27°39.2	0.9°	54.1°
Canopus	263°51.3	-52°42.3	17	78°57.4	49.6	38°45.9	10.0°	27°38.3	1.1°	54.1°
Sirius	258°24.7	-16°45.0	18	93°57.4	S17°50.3	53°14.9	10.0°	S27°37.2	1.2°	54.1°
Adhara	255°04.4	-29°00.3	19	108°57.3	50.9	67°43.9	10.1°	27°36.0	1.4°	54.0°
Procyon	244°49.1	5°09.4	20	123°57.2	51.6	82°13.0	10.1°	27°34.6	1.4°	54.0°
Pollux	243°15.3	27°57.6	21	138°57.1	.. 52.3	96°42.0	10.1°	27°33.2	1.6°	54.0°
Avior	234°13.9	-59°35.4	22	153°57.0	52.9	111°11.1	10.1°	27°31.6	1.8°	54.0°
Suhail	222°45.2	-43°32.2	23	168°56.9	53.6	125°40.3	10.2°	27°29.8	1.9°	54.0°
Miaplacidus	221°37.9	-69°49.3								
Alphard	217°46.3	-8°46.4								

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	54°05.9	213°28.2	S10°13.7	265°50.5	N14°52.7	265°48.2	N13°37.3	45°13.4	N00°57.0										
1	69°08.4	228°30.4	13.2	280°51.9	52.4	280°50.5	37.2	60°16.0	56.9										
2	84°10.9	243°32.6	12.7	295°53.2	52.0	295°52.7	37.2	75°18.6	56.9										
3	99°13.3	258°34.7	•• 12.3	310°54.6	•• 51.7	310°55.0	•• 37.1	90°21.1	•• 56.9										
4	114°15.8	273°36.8	11.8	325°55.9	51.4	325°57.2	37.0	105°23.7	56.8										
5	129°18.3	288°39.0	11.3	340°57.3	51.1	340°59.5	37.0	120°26.3	56.8										
6	144°20.7	303°41.1	S10°10.8	355°58.6	N14°50.7	356°01.7	N13°36.9	135°28.8	N00°56.5										
7	159°23.2	318°43.3	10.3	11°00.0	50.4	11°04.0	36.8	150°31.4	56.7										
8	174°25.6	333°45.4	09.9	26°01.3	50.1	26°06.2	36.8	165°34.0	56.7										
9	189°28.1	348°47.5	•• 09.4	41°02.7	•• 49.8	41°08.5	•• 36.7	180°36.5	•• 56.6										
10	204°30.6	3°49.6	08.9	56°04.0	49.4	56°10.7	36.6	195°39.1	56.6										
11	219°33.0	18°51.8	08.5	71°05.4	49.1	71°13.0	36.6	210°41.7	56.6										
12	234°35.5	33°53.9	S10°08.0	86°06.7	N14°48.8	86°15.3	N13°36.5	225°44.2	N00°56.5										
13	249°38.0	48°56.0	07.5	101°08.1	48.5	101°17.5	36.5	240°46.8	56.5										
14	264°40.4	63°58.1	07.1	116°09.4	48.1	116°19.8	36.4	255°49.4	56.5										
15	279°42.9	79°00.2	•• 06.6	131°10.8	•• 47.8	131°22.0	•• 36.3	270°51.9	•• 56.4										
16	294°45.4	94°02.3	06.2	146°12.2	47.5	146°24.3	36.3	285°54.5	56.4										
17	309°47.8	109°04.4	05.7	161°13.5	47.5	161°26.5	36.2	300°57.1	56.4										
18	324°50.3	124°06.5	S10°05.3	176°14.9	N14°46.2	176°28.8	N13°36.1	315°59.7	N00°56.3										
19	339°52.7	139°08.6	04.8	191°16.2	46.5	191°31.1	36.1	331°02.2	56.3										
20	354°55.2	154°10.7	04.3	206°17.6	46.2	206°33.3	36.0	346°04.8	56.3										
21	9°57.7	169°12.8	•• 03.9	221°18.9	•• 45.9	221°35.6	•• 36.0	1°07.4	•• 56.2										
22	25°00.1	184°14.8	03.5	236°20.3	45.5	236°37.8	35.5	16°09.9	56.2										
23	40°02.6	199°16.9	03.0	251°21.6	45.2	251°40.1	35.8	31°12.5	56.2										
Mer.pass. 20:20				ν 2.2' d 0.5' m -4.82				ν 1.3' d 0.3' m 0.69				ν 2.3' d 0.1' m -2.09				ν 2.6' d 0.0' m 0.53			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	55°05.1	214°19.0	S10°02.6	266°23.0	N14°44.9	266°42.4	N13°35.8	46°15.0	N00°56.1
1	70°07.5	229°21.0	02.1	281°24.4	44.6	281°44.6	35.7	61°17.6	56.1
2	85°10.0	244°23.1	01.7	296°25.7	44.2	296°46.9	35.7	76°20.2	56.1
3	100°12.5	259°25.2	• 01.3	311°27.1	• 43.9	311°49.1	• 35.6	91°22.7	• 56.0
4	115°14.9	274°27.2	00.8	326°28.4	43.6	326°51.4	35.5	106°25.3	56.0
5	130°17.4	289°29.3	00.4	341°29.8	43.3	341°53.7	35.5	121°27.9	55.9
6	145°19.9	304°31.3	S10°00.0	356°31.2	N14°43.0	356°55.9	N13°35.4	136°30.4	N00°55.9
7	160°22.3	319°33.4	09°59.5	11°32.5	42.6	11°58.2	35.3	151°33.0	55.9
8	175°24.8	334°35.4	59.1	26°33.9	42.3	27°00.4	35.3	166°35.6	55.8
9	190°27.2	349°37.5	• 58.7	41°35.2	• 42.0	42°02.7	• 35.2	181°38.1	• 55.8
10	205°29.7	4°39.5	58.3	56°36.6	41.7	57°05.0	35.2	196°40.7	55.8
11	220°32.2	19°41.5	57.9	71°38.0	41.3	72°07.2	35.1	211°43.3	55.7
12	235°34.6	34°43.6	S09°57.4	86°39.3	N14°41.0	87°09.5	N13°35.0	226°45.8	N00°55.7
13	250°37.1	49°45.6	57.0	101°40.7	40.7	102°11.8	35.0	241°48.4	55.7
14	265°39.6	64°47.7	56.6	116°42.1	40.4	117°14.0	34.9	256°51.0	55.6
15	280°42.0	79°49.6	• 56.2	131°43.4	• 40.0	132°16.3	• 34.9	271°53.5	• 55.6
16	295°44.5	94°51.6	55.8	146°44.8	39.7	147°18.5	34.8	286°56.1	55.6
17	310°47.0	109°53.7	55.4	161°46.2	39.4	162°20.8	34.7	301°58.7	55.5
18	325°49.4	124°55.7	S09°55.0	176°47.5	N14°39.1	177°23.1	N13°34.7	317°01.2	N00°55.5
19	340°51.9	139°57.7	54.6	191°48.9	38.8	192°25.3	34.6	332°03.8	55.5
20	355°54.4	154°59.7	54.2	206°50.3	38.4	207°27.6	34.6	347°06.3	55.4
21	10°56.8	170°01.7	• 53.8	221°51.6	• 38.1	222°29.9	• 34.5	2°08.9	• 55.4
22	25°59.3	185°03.7	53.4	236°53.0	37.8	237°32.1	34.4	17°11.5	55.4
23	41°01.7	200°05.7	53.0	251°54.4	37.5	252°34.4	34.4	32°14.0	55.3
Mer.pass. 20:16		ν 2.1' d 0.4' m -4.84			ν 2.3' d 0.1' m -2.09			ν 2.6' d 0.0' m 0.53	

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	56°04.2	215°07.6	S09°52.6	266°55.7	N14°37.2	267°36.7	N13°34.3	47°16.6	N00°55.3										
1	71°06.7	230°09.6	52.2	281°57.1	36.8	282°38.9	34.3	62°19.2	55.3										
2	86°09.1	245°11.6	51.8	296°58.5	36.5	297°41.2	34.2	77°21.7	55.2										
3	101°11.6	260°13.6	•• 51.4	311°59.8	•• 36.2	312°43.5	•• 34.1	92°24.3	•• 55.2										
4	116°14.1	275°15.6	51.0	327°01.2	35.9	327°45.7	34.1	107°26.8	55.2										
5	131°16.5	290°17.5	50.6	342°02.6	35.5	342°48.0	34.0	122°29.4	55.1										
6	146°19.0	305°19.5	S09°50.3	357°04.3	N14°35.2	357°50.3	N13°34.0	137°32.0	N00°55.1										
7	161°21.5	320°21.4	49.9	12°05.3	34.9	12°52.5	33.9	152°34.5	55.1										
8	176°23.9	335°23.4	49.5	27°06.7	34.6	27°54.8	33.9	167°37.1	55.0										
9	191°26.4	350°25.4	•• 49.1	42°08.1	•• 34.3	42°57.1	•• 33.8	182°39.7	•• 55.0										
10	206°28.8	5°27.3	48.8	57°09.5	33.9	57°59.3	33.7	197°42.2	55.0										
11	221°31.3	20°29.3	48.4	72°10.8	33.6	73°01.6	33.7	212°44.8	55.0										
12	236°33.8	35°31.2	S09°48.0	87°12.2	N14°33.3	88°03.9	N13°33.6	227°47.3	N00°54.9										
13	251°36.2	50°33.2	47.7	102°13.6	33.0	103°06.2	33.6	242°49.9	54.9										
14	266°38.7	65°35.1	47.3	117°15.0	32.7	118°08.4	33.5	257°52.5	54.9										
15	281°41.2	80°37.0	•• 46.9	132°16.3	•• 32.3	133°10.7	•• 33.4	272°55.0	•• 54.8										
16	296°43.5	95°39.0	46.6	147°17.7	32.0	148°13.0	33.4	287°57.6	54.8										
17	311°46.1	110°40.9	46.2	162°19.1	31.7	163°15.2	33.3	303°00.1	54.8										
18	326°48.6	125°42.8	S09°45.9	177°20.5	N14°31.4	178°17.5	N13°33.2	318°02.7	N00°54.7										
19	341°51.0	140°44.7	45.5	192°21.8	31.1	193°19.8	33.2	333°05.3	54.7										
20	356°53.5	155°46.6	45.1	207°23.2	30.7	208°22.1	33.2	348°07.8	54.7										
21	11°56.0	170°48.6	•• 44.8	222°24.6	•• 30.4	223°24.3	•• 33.1	3°10.4	•• 54.6										
22	26°58.4	185°50.5	44.4	237°26.0	30.1	238°26.6	33.0	18°12.9	54.6										
23	42°00.9	200°52.4	44.1	252°27.4	29.8	253°28.9	33.0	33°15.5	54.6										
Mer.pass. 20:12				ν 2.0' d 0.4' m -4.85				ν 1.4' d 0.3' m 0.67				ν 2.3' d 0.1' m -2.10				ν 2.6' d 0.0' m 0.54			

Stars			h			Sun			Moon		
SHA	Dec		Sun	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.0	29°14.6	0	183°52.4	S18°25.7	116°16.1	12.4'	S23°31.6	7.7'	54.1'	
Ankaa	353°05.4	-42°09.6	1	198°52.3	26.3	130°47.4	12.4'	23°23.9	7.9'	54.1'	
Schedar	349°28.9	56°41.4	2	213°52.1	27.0	145°18.8	12.5'	23°16.0	7.9'	54.1'	
Diphda	348°45.5	-17°50.3	3	228°52.0	•• 27.6	159°50.3	12.5'	23°08.1	8.1'	54.1'	
Achernar	335°18.5	-57°06.1	4	243°51.9	28.2	174°21.8	12.6'	23°00.0	8.1'	54.1'	
Hamal	327°49.1	23°35.5	5	258°51.8	28.9	188°53.4	12.6'	22°51.9	8.3'	54.1'	
Polaris	312°43.9	89°22.7	6	273°51.7	S18°29.5	203°25.0	12.7'	S22°43.6	8.3'	54.2'	
Acamar	315°10.2	-40°11.7	7	288°51.6	30.1	217°56.7	12.7'	22°35.3	8.5'	54.2'	
Menkar	314°04.2	4°11.8	8	303°51.5	30.8	232°28.4	12.8'	22°26.8	8.6'	54.2'	
Mirafak	308°25.5	49°57.5	9	318°51.4	•• 31.4	247°00.2	12.8'	22°18.2	8.6'	54.2'	
Aldebaran	290°37.5	16°33.9	10	333°51.3	32.0	261°32.0	12.9'	22°09.6	8.8'	54.2'	
Rigel	281°02.1	-8°10.1	11	348°51.2	32.7	276°03.9	12.9'	22°00.8	8.8'	54.2'	
Capella	280°19.2	46°01.4	12	3°51.1	S18°33.7	290°35.8	13.0'	S21°52.0	9.0'	54.2'	
Bellatrix	278°21.0	6°22.5	13	18°51.0	34.0	305°07.8	13.0'	21°43.0	9.0'	54.2'	
Elmath	277°59.6	28°37.8	14	33°50.9	34.6	319°39.9	13.1'	21°34.0	9.2'	54.2'	
Alnilam	275°35.9	-1°11.0	15	48°50.8	•• 35.2	334°12.0	13.1'	21°24.8	9.2'	54.3'	
Betelgeuse	270°50.2	7°24.8	16	63°50.7	35.8	348°44.1	13.2'	21°15.6	9.3'	54.3'	
Canopus	263°51.3	-52°42.3	17	78°50.6	36.5	3°16.3	13.3'	21°06.3	9.5'	54.3'	
Sirius	258°24.7	-16°45.0	18	93°50.5	S18°37.1	17°48.6	13.3'	S20°56.8	9.5'	54.3'	
Adhara	255°04.4	-29°00.3	19	108°50.3	37.7	32°20.9	13.4'	20°47.3	9.6'	54.3'	
Procyon	244°49.1	5°09.4	20	123°50.2	38.4	46°53.2	13.4'	20°37.7	9.7'	54.3'	
Pollux	243°15.3	27°57.2	21	138°50.1	•• 39.0	61°25.6	13.5'	20°28.0	9.8'	54.3'	
Avior	234°13.9	-59°35.4	22	153°50.0	39.6	75°58.1	13.5'	20°18.2	9.9'	54.3'	
Suhail	222°45.1	-43°32.2	23	168°49.9	40.3	90°30.6	13.6'	20°08.3	9.9'	54.4'	
Miaplacidus	221°37.8	-69°49.3									
Alphard	217°46.8	-8°46.4									

	Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec		
0	57°03.3	215°54.3	S09°43.8	267°28.7	N14°29.5	268°31.1	N13°32.9	48°18.1	N00°54.5						
1	72°05.8	230°56.2	43.4	282°30.1	29.1	283°33.4	32.9	63°20.6	54.5						
2	87°08.3	245°58.1	43.1	297°31.5	28.8	298°35.7	32.8	78°23.2	54.5						
3	102°10.7	261°00.0	· · 42.7	312°32.9	· · 28.5	313°38.0	· · 32.8	93°25.7	· · 54.4						
4	117°13.2	276°01.9	42.4	327°34.3	28.2	328°40.2	32.7	108°28.3	54.4						
5	132°15.7	291°03.7	42.1	342°35.7	27.9	343°42.5	32.7	123°30.8	54.4						
6	147°18.1	306°05.6	S09°41.7	357°37.0	N14°27.6	358°44.8	N13°32.6	138°33.4	N00°54.4						
7	162°20.6	321°07.5	41.4	12°38.4	27.2	13°47.1	32.5	153°36.0	54.3						
8	177°23.1	336°09.4	41.1	27°39.8	26.9	28°49.3	32.5	168°38.5	54.3						
9	192°25.5	351°11.3	· · 40.7	42°41.2	· · 26.6	43°51.6	· · 32.4	183°41.1	· · 54.3						
10	207°28.0	6°13.1	40.4	57°42.6	26.3	58°53.9	32.4	198°43.6	54.2						
11	222°30.5	21°15.0	40.1	72°44.0	26.0	73°56.2	32.3	213°46.2	54.2						
12	237°32.9	36°16.9	S09°39.8	87°45.4	N14°25.6	88°58.4	N13°32.3	228°48.8	N00°54.2						
13	252°35.4	51°18.7	39.4	102°46.7	25.3	104°00.7	32.2	243°51.3	54.1						
14	267°37.8	66°20.6	39.1	117°48.1	25.0	119°03.0	32.1	258°53.9	54.1						
15	282°40.3	81°22.4	· · 38.8	132°49.5	· · 24.7	134°05.3	· · 32.1	273°56.4	· · 54.1						
16	297°42.8	96°24.3	38.5	147°50.9	24.4	149°07.6	32.0	288°59.0	54.1						
17	312°45.2	111°26.1	38.2	162°52.3	24.1	164°09.8	32.0	304°01.5	54.0						
18	327°47.7	126°28.0	S09°37.9	37°53.7	N14°23.7	179°12.1	N13°31.9	319°04.1	N00°54.0						
19	342°50.2	141°29.8	37.6	192°55.1	23.4	194°14.4	31.9	334°06.6	54.0						
20	357°52.6	156°31.6	37.3	207°56.5	23.1	209°16.7	31.8	349°09.2	53.9						
21	12°55.1	171°33.5	· · 37.0	222°57.9	· · 22.8	224°18.9	· · 31.8	4°11.8	· · 53.9						
22	27°57.6	186°35.3	36.7	237°59.3	22.5	239°21.2	31.7	19°14.3	53.9						
23	43°00.0	201°37.1	36.4	253°00.7	22.2	254°23.5	31.7	34°16.9	53.8						
Mer.pass. 20:08 ν 1.9' d 0.3' m -4.87 ν 1.4' d 0.3' m 0.65 ν 2.3' d 0.1' m -2.10 ν 2.6' d 0.0' m 0.54															

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	58°02.5	216°38.9	S09°36.1	268°02.0	N14°21.8	269°25.8	N13°31.6	49°19.4	N00°53.8
1	73°04.9	231°40.8	35.8	283°03.4	21.5	284°28.1	31.5	64°22.0	53.8
2	88°07.4	246°42.6	35.5	298°04.8	21.2	299°30.3	31.5	79°24.5	53.8
3	103°09.9	261°44.4	· · 35.2	313°06.2	· · 20.9	314°32.6	· · 31.4	94°27.1	· · 53.7
4	118°12.3	276°46.2	34.9	328°07.6	20.6	329°34.9	31.4	109°29.6	53.7
5	133°14.8	291°48.0	34.6	343°09.0	20.3	344°37.2	31.3	124°32.2	53.7
6	148°17.3	306°49.8	S09°34.3	358°10.4	N14°20.0	359°39.5	N13°31.3	139°34.8	N00°53.6
7	163°19.7	321°51.6	34.0	13°11.8	19.6	14°41.8	31.2	154°37.3	53.6
8	178°22.2	336°53.4	33.7	28°13.2	19.3	29°44.0	31.2	169°39.9	53.6
9	193°24.7	351°55.2	· · 33.5	43°14.6	· · 19.0	44°46.3	· · 31.1	184°42.4	· · 53.5
10	208°27.1	· · 57.0	33.2	58°16.0	18.7	59°48.6	31.1	199°45.0	53.5
11	223°29.6	21°58.8	32.9	73°17.4	18.4	74°50.9	31.0	214°47.5	53.5
12	238°32.1	37°00.5	S09°32.6	88°18.8	N14°18.1	89°53.2	N13°31.0	229°50.1	N00°53.5
13	253°34.5	52°02.3	32.4	103°20.2	17.7	104°55.4	30.9	244°52.6	53.4
14	268°37.0	67°04.1	32.1	118°21.6	17.1	119°57.7	30.8	259°55.2	53.4
15	283°39.4	82°05.9	· · 31.8	133°23.0	· · 17.1	135°00.0	· · 30.8	274°57.7	· · 53.4
16	298°41.9	97°07.6	31.6	148°24.4	16.8	150°02.3	30.7	290°03.0	53.3
17	313°44.4	112°09.4	31.3	163°25.8	16.5	165°04.6	30.7	305°02.8	53.3
18	328°46.8	127°11.2	S09°31.0	178°27.2	N14°16.2	180°06.9	N13°30.6	320°05.4	N00°53.3
19	343°49.3	142°12.9	30.8	193°28.6	15.9	195°09.2	30.6	335°08.0	53.3
20	358°51.8	157°14.7	30.5	208°30.0	15.5	210°11.4	30.5	350°10.5	53.2
21	13°54.2	172°16.4	· · 30.2	223°31.4	· · 15.2	225°13.7	· · 30.5	5°13.1	· · 53.2
22	28°56.7	187°18.2	30.0	238°32.8	14.9	240°16.0	30.4	20°15.6	53.2
23	43°59.2	202°19.9	29.7	253°34.2	14.6	255°18.3	30.4	35°18.2	53.2
Mer.pass. 20:05			ν 1.8' d 0.3' m -4.88	ν 1.4' d 0.3' m 0.64	ν 2.3' d 0.1' m -2.11	ν 2.6' d 0.0' m 0.55			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	59°01.6	217°21.7	S09°29.5	268°35.6	N14°14.3	270°20.6	N13°30.3	50°20.7	N00°53.1
1	74°04.1	232°23.4	29.2	283°37.0	14.0	285°22.9	30.3	65°23.3	53.1
2	89°06.6	247°25.2	29.0	298°38.4	13.7	300°25.2	30.2	80°25.8	53.1
3	104°09.0	262°26.9	· · 28.7	313°39.9	· · 13.4	315°27.5	· · 30.2	95°28.4	· · 53.0
4	119°11.5	277°28.6	28.5	328°41.3	12.0	330°29.7	30.1	110°30.9	53.0
5	134°13.9	292°30.4	28.3	343°42.7	12.7	345°32.0	30.1	125°33.5	53.0
6	149°16.4	307°32.1	S09°28.0	358°44.1	N14°12.4	· · 03.4	N13°30.0	140°36.0	N00°53.0
7	164°18.9	322°33.8	27.8	13°45.5	12.1	15°36.6	30.0	155°38.6	52.9
8	179°21.3	337°35.7	27.5	28°46.9	11.8	30°38.9	29.9	170°41.1	52.9
9	194°23.8	352°37.2	· · 27.3	43°48.3	· · 11.5	45°41.2	· · 29.9	185°43.7	· · 52.9
10	209°26.3	· · 73.89	27.1	58°49.7	11.2	60°43.5	29.8	200°46.2	52.8
11	224°28.7	22°40.6	26.8	73°51.1	10.9	75°45.8	29.8	215°48.8	52.8
12	239°31.2	37°42.4	S09°26.6	88°52.5	N14°10.5	90°48.1	N13°29.7	230°51.3	N00°52.8
13	254°33.7	52°44.1	26.4	103°54.0	10.2	105°50.3	29.0	245°53.9	52.8
14	269°36.1	67°45.8	26.2	118°55.4	09.9	120°52.6	29.6	260°56.4	52.7
15	284°38.6	82°47.4	· · 25.9	133°56.8	· · 09.6	135°54.9	· · 29.6	275°59.0	· · 52.7
16	299°41.0	97°49.1	25.7	148°58.2	09.3	150°57.2	29.5	291°01.5	52.7
17	314°43.5	112°50.8	25.5	163°59.6	09.0	165°59.5	29.5	306°04.1	52.7
18	329°46.0	127°52.5	S09°25.3	179°01.0	N14°08.7	181°01.8	N13°29.4	321°06.6	N00°52.6
19	344°48.4	142°54.2	25.1	194°02.4	08.4	196°04.1	29.4	336°09.2	52.6
20	359°50.9	157°55.9	24.9	209°03.9	08.1	211°06.4	29.3	351°11.7	52.6
21	14°53.4	172°57.5	· · 24.6	224°05.3	· · 07.7	226°08.7	· · 29.3	6°14.3	· · 52.6
22	29°55.8	187°59.2	24.4	239°06.7	07.4	241°11.0	29.2	21°16.8	52.5
23	44°58.3	203°00.9	24.2	254°08.1	07.1	256°13.3	29.2	36°19.4	52.5
Mer.pass. 20:01			ν 1.7' d 0.2' m -4.89	ν 1.4' d 0.3' m 0.63	ν 2.3' d 0.1' m -2.12	ν 2.6' d 0.0' m 0.55			

Stars	SHA	Dec
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.4	-42°09.7
Schedar	349°28.9	56°41.4
Diphda	348°45.5	-17°50.3
Achernar	335°18.6	-57°06.1
Hamal	327°49.1	33°25.5
Polaris	312°44.0	89°22.7
Acamar	315°10.2	-40°11.8
Menkar	314°04.2	4°11.8
Mirafak	308°25.5	49°57.5
Aldebaran	290°37.5	16°33.9
Rigel	281°02.1	-8°10.1
Capella	280°19.2	46°01.4
Bellatrix	278°20.9	6°22.5
Enlath	277°59.6	28°37.8
Alnilam	275°35.9	-1°11.0
Betelgeuse	270°50.1	7°24.8
Canopus	263°51.3	-52°42.4
Sirius	258°24.6	-16°45.1
Adhara	255°04.4	-29°00.3
Procyon	244°49.1	5°09.4
Pollux	243°15.3	27°57.6
Avior	234°13.9	-59°35.4
Suhail	222°45.1	-43°32.2
Miaplacidus	221°37.8	-69°49.3
Alphard	217°46.2	-8°46.4
Regulus	207°32.9	11°50.1
Dubhe	193°39.4	61°36.1
Denebola	182°23.6	14°25.3
Geniah	175°42.2	-17°41.4
Acrux	172°58.8	-63°14.7
Gacrux	171°50.3	-57°15.6
Alloth	168°12.1	55°48.6
Spica	158°21.0	-11°18.0
Alkaid	152°51.3	49°10.6
Hamid	148°34.4	-60°30.0
Menkar	147°56.2	-36°30.0
Antares	145°46.8	19°02.5
Rigel Kent.	139°38.8	-60°56.7
Kochab	137°21.0	74°02.5
Zuben'ubi	136°54.7	-16°09.1
Alphecca	126°02.8	26°37.8
Antares	112°14.3	-26°29.4
Atria	107°07.7	-69°04.6
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.5	12°32.5
Eltanin	90°41.9	51°29.3
Kaus Aust.	83°30.8	-34°22.3
Vega	80°32.5	38°48.7
Nunki	75°46.1	-26°15.8
Altair	61°58.7	8°56.5
Peacock	53°03.6	-56°39.1
Deneb	49°24.6	-45°22.9
Enif	33°37.3	10°00.1
Al Na'ir	27°31.0	-46°50.0
Fomalhaut	15°12.7	-29°28.8
Scheat	13°43.6	28°14.0
Markab	13°28.3	15°21.2

Nov 18 Wed	SHA	Mer.pass
Venus	158°50.9	09:35
Mars	210°25.4	06:10
Jupiter	211°27.8	06:05
Saturn	351°14.7	20:43
Nov 19 Thu	SHA	Mer.pass
Venus	158°36.5	09:32
Mars	209°59.6	06:07
Jupiter	211°23.3	06:01
Saturn	351°16.9	20:39
Nov 20 Fri	SHA	Mer.pass
Venus	158°20.1	09:29
Mars	209°34.0	06:05
Jupiter	211°19.0	05:58
Saturn	351°19.1	20:35
Horizontal parallax		
Venus:		0.4
Mars:		0.1

Aries				Venus				Mars				Jupiter				Saturn			
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	60°00.8	218°02.6	S09°24.0	269°09.5	N14°06.8	271°15.6	N13°29.1	51°21.9	N00°52.5										
1	75°03.2	233°04.2	23.8	284°10.9	06.5	286°17.9	29.1	66°24.5	52.4										
2	90°05.7	248°05.9	23.6	299°12.4	06.2	301°20.2	29.0	81°27.0	52.4										
3	105°08.2	263°07.5	•• 23.4	314°13.8	•• 05.9	316°22.4	•• 29.0	96°29.6	•• 52.4										
4	120°10.6	278°09.2	23.2	329°15.2	05.6	331°24.7	28.9	111°32.1	52.4										
5	135°13.1	293°10.8	23.0	344°16.6	05.3	346°27.0	28.9	126°34.7	52.3										
6	150°15.5	308°12.5	S09°22.8	359°18.0	N14°04.9	1°29.3	N13°28.8	141°37.2	N00°52.3										
7	165°18.0	323°14.1	22.6	14°19.5	04.6	16°31.6	28.8	156°39.7	52.3										
8	180°20.5	338°15.8	22.4	29°20.9	04.3	31°33.9	28.7	171°42.3	52.3										
9	195°22.9	353°17.4	•• 22.3	44°22.3	•• 04.0	46°36.2	•• 28.7	186°44.8	•• 52.2										
10	210°25.4	8°19.1	22.1	59°23.7	03.7	61°38.5	28.6	201°47.4	52.2										
11	225°27.9	23°20.7	21.9	74°25.1	03.4	76°40.8	28.6	216°49.9	52.2										
12	240°30.3	38°22.3	S09°21.7	89°26.6	N14°03.1	91°43.1	N13°28.5	231°52.5	N00°52.2										
13	255°32.8	53°23.9	21.5	104°28.0	02.8	106°45.4	28.5	246°55.0	52.1										
14	270°35.3	68°25.6	21.3	119°29.4	02.5	121°47.7	28.4	261°57.6	52.1										
15	285°37.7	83°27.2	•• 21.2	134°30.8	•• 02.2	136°50.0	•• 28.4	277°00.1	•• 52.1										
16	300°40.2	98°28.8	20.0	149°32.3	01.9	151°52.3	28.3	292°02.7	52.1										
17	315°42.6	113°30.4	20.8	164°33.7	01.6	166°54.6	28.3	307°05.2	52.0										
18	330°45.1	128°32.0	S09°20.6	179°35.1	N14°01.2	181°56.9	N13°28.2	322°07.8	N00°52.0										
19	345°47.7	143°33.6	20.5	194°36.6	00.9	196°59.2	28.2	337°10.3	52.0										
20	•• 50.0	158°35.2	20.3	209°38.0	00.6	212°01.5	28.1	352°12.8	52.0										
21	15°52.5	173°36.8	•• 20.1	224°39.4	•• 00.3	227°03.8	•• 28.1	7°15.4	•• 51.9										
22	30°55.0	188°38.4	20.0	239°40.8	14°00.0	242°06.1	28.0	22°17.9	51.9										
23	45°57.4	203°40.0	19.8	254°42.3	13°59.7	257°08.4	28.0	37°20.5	51.9										
Mer.pass. 19:57				ν 1.7' d 0.2' m -4.89				ν 1.4' d 0.3' m 0.61				ν 2.3' d 0.0' m -2.12				ν 2.5' d 0.0' m 0.56			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	60°59.9	218°41.6	S09°19.6	269°43.7	N13°59.4	272°10.7	N13°27.9	52°23.0	N00°51.9										
1	76°02.4	233°43.2	19.5	284°45.1	59.1	287°13.0	27.9	67°25.6	51.8										
2	91°04.8	248°44.8	19.3	299°46.6	58.8	302°15.3	27.9	82°28.1	51.8										
3	106°07.3	263°46.4	•• 19.2	314°48.0	•• 58.5	317°17.6	•• 27.8	97°30.7	•• 51.8										
4	121°09.8	278°48.0	19.0	329°49.4	58.2	332°19.9	27.8	112°33.2	51.8										
5	136°12.2	293°49.5	18.9	344°50.9	57.9	347°22.2	27.7	127°35.7	51.7										
6	151°14.7	308°51.1	S09°18.7	359°52.3	N13°57.6	2°24.5	N13°27.7	142°38.3	N00°51.7										
7	166°17.1	323°52.7	18.6	14°53.7	57.3	17°26.8	27.6	172°40.8	51.7										
8	181°19.6	338°54.2	18.4	29°55.2	56.9	32°29.1	27.6	172°43.4	51.7										
9	196°22.1	353°55.8	•• 18.3	44°56.6	•• 56.6	47°31.4	•• 27.5	187°45.9	•• 51.6										
10	211°24.5	8°57.4	18.1	59°58.0	56.3	62°33.7	27.5	202°48.5	51.6										
11	226°27.0	23°58.9	18.0	74°59.5	56.0	77°36.0	27.4	217°51.0	51.6										
12	241°29.5	39°00.5	S09°17.9	90°00.9	N13°55.7	92°38.3	N13°27.4	232°53.5	N00°51.6										
13	256°31.9	54°02.0	17.7	105°02.3	55.4	107°40.6	27.3	247°56.1	51.6										
14	271°34.4	69°03.6	17.6	120°03.8	55.1	122°42.9	27.3	262°58.6	51.5										
15	286°36.9	84°05.1	•• 17.5	135°05.2	•• 54.8	137°45.3	•• 27.3	278°01.2	•• 51.5										
16	301°39.3	99°06.7	17.3	150°06.6	54.5	152°47.6	27.2	293°03.7	51.5										
17	316°41.8	114°08.2	17.2	165°08.1	54.2	167°49.9	27.2	308°06.3	51.5										
18	331°44.3	129°09.8	S09°17.1	180°09.5	N13°53.9	182°52.2	N13°27.1	323°08.8	N00°51.4										
19	346°46.7	144°11.3	16.9	195°11.0	53.6	197°54.5	27.1	338°11.3	51.4										
20	1°49.2	159°12.8	16.8	210°12.4	53.3	212°56.8	27.0	353°13.9	51.4										
21	16°51.6	174°14.4	•• 16.7	225°13.9	•• 53.0	227°59.1	•• 27.0	8°16.4	•• 51.4										
22	31°54.1	189°15.9	16.6	240°15.3	52.7	243°01.4	26.9	23°19.0	51.3										
23	46°56.6	204°17.4	16.4	255°16.7	52.4	258°03.7	26.9	38°21.5	51.3										
Mer.pass. 19:53				ν 1.6' d 0.2' m -4.90				ν 1.4' d 0.3' m 0.60				ν 2.3' d 0.0' m -2.13				ν 2.5' d 0.0' m 0.56			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	61°59.0	219°18.9	S09°16.3	270°18.2	N13°52.1	273°06.0	N13°26.8	53°24.0	N00°51.3										
1	77°01.5	234°20.4	16.2	285°19.6	51.8	288°08.3	26.8	68°26.6	51.3										
2	92°04.0	249°22.0	16.1	300°21.1	51.5	303°10.6	26.8	83°29.1	51.3										
3	107°06.4	264°23.5	•• 16.0	315°22.5	•• 51.2	318°12.9	•• 26.7	98°31.7	•• 51.2										
4	122°08.9	279°25.0	15.9	330°24.0	50.9	333°15.2	26.7	113°34.2	51.2										
5	137°11.4	294°26.5	15.8	345°25.4	50.5	348°17.6	26.6	128°36.7	51.2										
6	152°13.8	309°28.0	S09°15.7	•• 02.68	N13°50.2	3°19.9	N13°26.6	143°39.3	N00°51.2										
7	167°16.3	324°29.5	15.6	15°28.3	49.9	18°22.2	26.5	158°41.8	51.1										
8	182°18.8	339°31.0	15.5	30°29.7	49.6	33°24.5	26.5	173°44.4	51.1										
9	197°21.2	354°32.5	•• 15.4	45°31.2	•• 49.3	48°26.8	•• 26.5	188°46.9	•• 51.1										
10	212°23.7	9°34.0	15.3	60°32.6	49.0	63°29.1	26.4	203°49.4	51.1										
11	227°26.1	24°35.4	15.2	75°34.1	48.7	78°31.4	26.4	218°52.0	51.1										
12	242°28.6	39°36.9	S09°15.1	90°35.5	N13°48.4	93°33.7	N13°26.3	233°54.5	N00°51.0										
13	257°31.1	54°38.4	15.0	105°37.0	48.1	108°36.0	26.3	248°57.1	51.0										
14	272°33.5	69°39.9	14.9	120°38.4	47.8	123°38.4	26.2	263°59.6	51.0										
15	287°36.0	84°41.4	•• 14.8	135°39.9	•• 47.5	138°40.7	•• 26.2	279°02.1	•• 51.0										
16	302°38.5	99°42.8	14.7	150°41.3	47.2	153°43.0	26.1	294°04.7	50.9										
17	317°40.9	114°44.3	14.6	165°42.8	46.9	168°45.3	26.1	309°07.2	50.9										
18	332°43.4	129°45.8	S09°14.5	180°44.2	N13°46.6	183°47.6	N13°26.1	324°09.8	N00°50.9										
19	347°45.9	144°47.2	14.4	195°45.7	46.3	198°49.9	26.0	339°12.3	50.9										
20	2°48.3	159°48.7	14.4	210°47.1	46.0	213°52.2	26.0	354°14.8	50.9										
21	17°50.8	174°50.2	•• 14.3	225°48.6	•• 45.7	228°54.5	•• 25.9	9°17.4	•• 50.8										
22	32°53.2	189°51.6	14.2	240°50.0	45.4	243°56.9	25.9	24°19.9	50.8										
23	47°55.7	204°53.1	14.1	255°51.5	45.1	258°59.2	25.8	39°22.4	50.8										
Mer.pass. 19:49				ν 1.5' d 0.1' m -4.90				ν 1.4' d 0.3' m 0.58				ν 2.3' d 0.0' m -2.14				ν 2.5' d 0.0' m 0.57			

SHA	Dec
Alpheratz	357°33.0 29°14.6
Ankaa	353°05.4 -42°09.7
Schedar	349°28.9 56°41.4
Diphda	348°45.6 -17°50.3
Achernar	335°18.6 -57°06.1
Hamal	327°49.2 23°35.5
Polaris	312°44.0 89°22.7
Acamar	315°10.2 -40°11.8
Menkar	314°04.2 4°11.8
Mirafak	308°25.5 49°57.5
Aldebaran	290°37.5 16°33.9
Rigel	281°02.1 -8°10.1
Capella	280°19.2 46°01.4
Bellatrix	278°20.9 6°22.5
Elath	277°59.6 28°37.8
Alnilam	275°35.9 -1°11.0
Betelgeuse	270°50.1 7°24.8
Canopus	263°51.3 -52°42.4
Sirius	258°24.6 -16°45.1
Adhara	255°04.4 -29°00.3
Procyon	244°49.0 5°09.4
Pollux	243°15.2 27°57.6
Avior	234°13.8 -59°35.6
Suhail	222°45.1 -43°32.2
Miaplacidus	221°37.7 -69°49.3
Alphard	217°46.2 -8°46.4
Regulus	207°32.8 11°50.1
Dubhe	193°39.4 61°36.0
Denebola	182°23.6 14°25.2
Geniah	175°42.2 -17°41.4
Acruz	172°58.8 -63°14.7
Gacrux	171°50.3 -57°15.6
Alloth	166°12.1 55°48.6
Spica	158°21.0 -11°18.0
Alkaid	152°51.2 49°10.6
Hadar	148°34.4 -60°30.0
Menkent	147°56.8 -36°30.0
Arcturus	145°46.8 19°02.5
Rigel Kent.	139°38.8 -60°56.7
Kochab	137°21.0 74°02.5
Zuben'ubi	136°54.7 -16°09.1
Alphecca	125°02.8 26°37.4
Antares	112°14.3 26°29.4
Atria	107°07.7 -69°04.4
Sabik	102°01.4 -15°45.4
Shaula	96°08.7 37°

Aries			Venus			Mars			Jupiter			Saturn		
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	62°58.2	219°54.5	S09°14.0	270°53.0	N13°44.8	274°01.5	N13°25.8	54°25.0	N00°50.8					
1	78°00.6	234°56.0	14.0	285°54.4	44.5	289°03.8	25.8	69°27.5	50.8					
2	93°03.1	249°57.4	13.9	300°55.9	44.2	304°06.1	25.7	84°30.0	50.7					
3	108°05.6	264°58.9	• 13.8	315°57.3	• 43.9	319°08.4	• 25.7	99°32.6	• 50.7					
4	123°08.0	280°00.3	13.8	330°58.8	43.6	334°10.8	25.6	114°35.1	50.7					
5	138°10.5	295°01.7	13.7	346°00.2	43.3	349°13.1	25.6	129°37.7	50.7					
6	153°13.0	310°03.2	S09°13.6	1°01.7	N13°43.0	4°15.4	N13°25.6	144°40.2	N00°50.7					
7	168°15.4	325°04.6	13.6	16°03.2	42.7	19°17.7	25.5	159°42.7	50.6					
8	183°17.9	340°06.0	13.5	31°04.6	42.4	34°20.0	25.5	174°45.3	50.6					
9	198°20.4	355°07.4	• 13.4	46°06.1	• 42.1	49°22.3	• 25.4	189°47.8	• 50.6					
10	213°22.8	1°08.9	13.4	61°07.5	41.8	64°24.7	25.4	204°50.3	50.6					
11	228°25.3	25°10.3	13.3	76°09.0	41.5	79°27.0	25.4	219°52.9	50.5					
12	243°27.7	40°11.7	S09°13.3	91°10.5	N13°41.2	94°29.3	N13°25.3	234°55.4	N00°50.5					
13	258°30.7	55°13.1	13.2	106°11.9	40.9	109°31.6	25.3	249°57.9	50.5					
14	273°32.7	70°14.5	13.2	121°13.4	40.6	124°33.9	25.2	265°00.5	50.5					
15	288°35.1	85°15.9	• 13.1	136°14.9	• 40.3	139°36.3	• 25.2	280°03.0	• 50.5					
16	303°37.6	100°17.3	13.1	151°16.3	40.0	154°38.6	25.1	295°05.5	50.4					
17	318°40.1	115°18.7	13.0	166°17.8	39.7	169°40.9	25.1	301°08.1	50.4					
18	333°42.5	130°20.1	S09°13.0	181°19.2	N13°39.4	184°43.2	N13°25.1	325°10.6	N00°50.4					
19	348°45.0	145°21.5	12.9	196°20.7	39.1	199°45.5	25.0	340°13.1	50.4					
20	3°47.5	160°22.9	12.9	211°22.2	38.8	214°47.9	25.0	355°15.7	50.4					
21	18°49.9	175°24.3	• 12.9	226°23.6	• 38.5	229°50.2	• 24.9	10°18.2	• 50.4					
22	33°52.4	190°25.7	12.8	241°25.1	38.2	244°52.5	24.9	25°20.7	50.3					
23	48°54.9	205°27.1	12.8	256°26.6	37.9	259°54.8	24.9	40°23.3	50.3					
Mer.pass. 19:45			ν 1.4' d 0.1' m -4.90			ν 1.5' d 0.3' m 0.57			ν 2.3' d 0.0' m -2.14			ν 2.5' d 0.0' m 0.57		

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	63°57.3	220°28.5	S09°12.8	271°28.1	N13°37.6	274°57.1	N13°24.8	55°25.8	N00°50.3
1	78°59.8	235°29.8	12.7	286°29.5	37.4	289°59.5	24.8	70°28.3	50.3
2	94°02.2	250°31.2	12.7	301°31.0	37.1	305°01.8	24.7	85°30.9	50.3
3	109°04.7	265°32.6	•• 12.7	316°32.5	•• 36.8	320°04.1	•• 24.7	100°33.4	•• 50.2
4	124°07.2	280°34.0	12.6	331°33.9	36.5	335°06.4	24.7	115°35.9	50.2
5	139°09.6	295°35.3	12.6	346°35.4	36.2	350°08.8	24.6	130°38.5	50.2
6	154°12.1	310°36.7	S09°12.6	1°36.9	N13°35.9	5°11.1	N13°24.6	145°41.0	N00°50.2
7	169°14.6	325°38.1	12.6	16°38.3	35.6	20°13.4	24.6	160°43.5	50.2
8	184°17.0	340°39.4	12.6	31°39.8	35.3	35°15.7	24.5	175°46.1	50.1
9	199°19.5	355°40.8	•• 12.5	46°41.3	•• 35.0	50°18.1	•• 24.5	190°48.6	•• 50.1
10	214°22.0	10°42.1	12.5	61°42.8	34.7	65°20.4	24.4	205°51.1	50.1
11	229°24.4	25°43.5	12.5	76°44.2	34.4	80°22.7	24.4	220°53.7	50.1
12	244°26.9	40°44.8	S09°12.5	91°45.7	N13°34.1	95°25.0	N13°24.4	235°56.2	N00°50.1
13	259°29.4	55°46.2	12.5	106°47.2	33.8	110°27.4	24.3	250°58.7	50.0
14	274°31.8	70°47.5	12.5	121°48.7	33.5	125°29.7	24.3	266°01.3	50.0
15	289°34.3	85°48.9	•• 12.5	136°50.1	•• 33.2	140°32.0	•• 24.2	281°03.8	•• 50.0
16	304°36.7	100°50.2	12.5	151°51.6	32.9	155°34.3	24.2	296°06.3	50.0
17	319°39.2	115°51.5	12.4	166°53.1	32.6	170°36.7	24.2	311°08.9	50.0
18	334°41.7	130°52.9	S09°12.4	181°54.6	N13°32.3	185°39.0	N13°24.1	326°11.4	N00°50.0
19	349°44.1	145°54.2	12.4	196°56.1	32.0	200°41.3	24.1	341°13.9	49.9
20	4°46.6	160°55.5	12.4	211°57.5	31.7	215°43.7	24.1	356°16.4	49.9
21	19°49.1	175°56.9	•• 12.4	226°59.0	•• 31.5	230°46.0	•• 24.0	11°19.0	•• 49.9
22	34°51.5	190°58.2	12.4	242°00.5	31.2	245°48.3	24.0	26°21.5	49.9
23	49°54.0	205°59.5	12.5	257°02.0	30.9	260°50.6	23.9	41°24.0	49.9
Mer.pass. 19:41 ν 1.4' d 0.0' m -4.91 ν 1.5' d 0.3' m 0.55 ν 2.3' d 0.0' m -2.15 ν 2.5' d 0.0' m 0.58									

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	64°56.5	221°00.8	S09°12.5	272°03.5	N13°30.6	275°53.0	N13°23.9	56°26.6	N00°49.9
1	79°58.9	236°02.1	12.5	287°04.9	30.3	290°55.3	23.9	71°29.1	49.8
2	95°01.4	251°03.4	12.5	302°06.4	30.0	305°57.6	23.8	86°31.6	49.8
3	110°03.9	266°04.7	•• 12.5	317°07.9	•• 29.7	321°00.0	•• 23.8	101°34.1	•• 49.8
4	125°06.3	281°06.1	12.5	332°09.4	29.4	336°02.3	23.8	116°36.7	49.8
5	140°08.8	296°07.4	12.5	347°10.9	29.1	351°04.6	23.7	131°39.2	49.8
6	155°11.2	311°08.7	S09°12.5	2°12.4	N13°28.8	6°07.0	N13°23.7	146°41.7	N00°49.7
7	170°13.7	326°10.0	12.5	17°13.8	28.5	21°09.3	23.7	161°44.3	49.7
8	185°16.2	341°11.2	12.6	32°15.3	28.2	36°11.6	23.6	176°46.8	49.7
9	200°18.6	356°12.5	•• 12.6	47°16.8	•• 27.9	51°14.0	•• 23.6	191°49.3	•• 49.7
10	215°21.1	11°13.8	12.6	62°18.3	27.6	66°16.3	23.5	206°51.8	49.7
11	230°23.6	26°15.1	12.6	77°19.8	27.4	81°18.6	23.5	221°54.4	49.7
12	245°26.0	41°16.4	S09°12.7	92°21.3	N13°27.1	96°20.9	N13°23.5	236°56.9	N00°49.6
13	260°28.5	56°17.7	12.7	107°22.8	26.8	111°23.3	23.4	251°59.4	49.6
14	275°31.0	71°19.0	12.7	122°24.3	26.5	126°25.6	23.4	267°02.0	49.6
15	290°33.4	86°20.2	•• 12.7	137°25.7	•• 26.2	141°28.0	•• 23.4	282°04.5	•• 49.6
16	305°35.9	101°21.5	12.8	152°27.2	25.9	156°30.3	23.3	297°07.0	49.6
17	320°38.4	116°22.8	12.8	167°28.7	25.6	171°32.6	23.3	312°09.5	49.6
18	335°40.8	131°24.1	S09°12.8	182°30.2	N13°25.3	186°35.0	N13°23.3	327°12.1	N00°49.6
19	350°43.3	146°25.3	12.9	197°31.7	25.0	201°37.3	23.2	342°14.6	49.5
20	5°45.7	161°26.6	12.9	212°33.2	24.7	216°39.6	23.2	357°17.1	49.5
21	20°48.2	176°27.8	•• 13.0	227°34.7	•• 24.5	231°42.0	•• 23.2	12°19.6	•• 49.5
22	35°50.7	191°29.1	13.0	242°36.2	24.2	246°44.3	23.1	27°22.2	49.5
23	50°53.1	206°30.4	13.1	257°37.7	23.9	261°46.6	23.1	42°24.7	49.5
Mer.pass. 19:37 ν 1.3' d 0.0' m -4.91 ν 1.5' d 0.3' m 0.54 ν 2.3' d 0.0' m -2.16 ν 2.5' d 0.0' m 0.58									

Stars		
SHA	Dec	
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.4	-42°09.7
Schedar	349°28.9	56°41.4
Diphda	348°45.6	-17°50.3
Achernar	335°18.6	-57°06.1
Hamal	327°49.1	23°35.5
Polaris	312°43.8	89°22.7
Acamar	315°10.2	-40°11.8
Menkar	314°04.2	4°11.8
Mirafak	308°25.5	49°57.5
Aldebaran	290°37.5	16°33.8
Rigel	281°02.1	-8°10.2
Capella	280°19.1	46°01.4
Bellatrix	278°20.9	6°22.5
Elath	277°59.6	28°37.8
Alnilam	275°35.9	-1°11.0
Betelgeuse	270°50.1	7°24.8
Canopus	263°51.2	-52°42.4
Sirius	268°24.6	-16°45.1
Adhara	255°04.4	-29°00.4
Procyon	244°49.0	5°09.4
Pollux	243°15.2	27°57.5
Avior	234°13.8	-59°35.5
Suhail	222°45.0	-43°32.2
Miaplacidus	221°37.7	-69°49.3
Alphard	217°46.2	-8°46.4
Regulus	207°32.8	11°50.1
Dubhe	193°39.3	61°36.0
Denebola	182°23.5	14°25.2
Gienah	175°42.2	-17°41.4
Acrux	172°58.8	-63°14.7
Gacrux	171°50.3	-57°15.6
Alloth	166°12.0	55°48.6
Spica	158°20.9	-11°18.0
Alkaid	152°51.2	49°10.6
Hadar	148°34.4	-60°30.0
Menkent	147°56.2	-36°30.0
Antares	145°46.8	19°02.5
Rigel Kent.	139°38.8	-60°56.6
Kochab	137°21.0	74°02.5
Zuben'ubi	136°54.6	-16°37.4
Alphecca	126°02.8	-26°37.4
Antares	112°14.3	-26°29.4
Atria	107°07.7	-69°04.5
Sabik	102°01.4	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.5	12°32.5
Eltanin	90°42.0	51°29.2
Kaus Aust.	83°30.8	-34°22.3
Vega	80°32.5	38°48.7
Nunki	75°46.2	-26°15.8
Altair	61°58.7	8°56.5
Peacock	53°03.6	-56°39.1
Deneb	49°24.9	-45°22.9
Enif	33°37.3	10°00.1
Al Na'ir	27°31.0	-46°50.0
Fomalhaut	15°12.8	-29°28.8
Scheat	13°43.6	28°14.0
Markab	13°28.3	15°21.2

Nov 24 Tue		SHA	Mer.pass
Venus	156°	56.3	09:19
Mars	207°	54.8	05:56
Jupiter	211°	03.3	05:43
Saturn	351°	26.8	20:19
Nov 25 Wed		SHA	Mer.pass
Venus	156°	31.1	09:17
Mars	207°	30.7	05:54
Jupiter	210°	59.8	05:39
Saturn	351°	28.5	20:15
Nov 26 Thu		SHA	Mer.pass
Venus	156°	04.4	09:15
Mars	207°	07.0	05:51
Jupiter	210°	56.5	05:36
Saturn	351°	30.1	20:11
Horizontal parallax			
Venus:		0.4	
Mars:		0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	65°55.6	221°31.6	S09°13.1	272°39.2	N13°23.6	276°49.0	N13°23.1	57°27.2	N00°49.5										
1	80°58.1	236°32.9	13.1	287°40.7	23.3	291°51.3	23.0	72°29.7	49.4										
2	96°00.5	251°34.1	13.2	302°42.2	23.0	306°53.6	23.0	87°32.3	49.4										
3	111°03.0	266°35.4	13.2	317°43.7	22.7	321°56.0	22.7	102°34.8	49.4										
4	126°05.5	281°36.6	13.3	332°45.2	22.4	336°58.3	22.9	117°37.3	49.4										
5	141°07.9	296°37.8	13.3	347°46.7	22.1	352°00.7	22.9	132°39.8	49.4										
6	156°10.4	311°39.1	S09°13.4	2°48.2	N13°21.9	7°03.0	N13°22.8	147°42.4	N00°49.4										
7	171°12.9	326°40.3	13.5	17°49.7	21.6	22°05.3	22.8	162°44.9	49.3										
8	186°15.3	341°41.5	13.5	32°51.2	21.3	37°07.7	22.8	177°47.4	49.3										
9	201°17.8	356°42.8	13.6	47°52.7	20.7	52°10.0	22.7	192°49.9	49.3										
10	216°20.2	1°14.0	13.6	62°54.2	21.0	67°12.4	22.7	207°52.5	49.3										
11	231°22.7	26°45.2	13.7	77°55.7	20.4	82°14.7	22.7	222°55.0	49.3										
12	246°25.2	41°46.4	S09°13.8	92°57.2	N13°20.1	97°17.0	N13°22.6	237°57.5	N00°49.3										
13	261°27.6	56°47.7	13.8	107°58.7	19.8	112°19.4	22.6	253°00.0	49.3										
14	276°30.1	71°48.9	13.9	123°00.2	19.6	127°21.7	22.6	268°02.6	49.2										
15	291°32.6	86°50.1	14.0	138°01.7	19.3	142°24.1	22.5	283°05.1	49.2										
16	306°35.0	101°51.3	14.0	153°03.2	19.0	157°26.4	22.5	298°07.6	49.2										
17	321°37.5	116°52.5	14.1	168°04.7	18.7	172°28.7	22.5	313°10.1	49.2										
18	336°40.0	131°53.7	S09°14.2	183°06.2	N13°18.4	187°31.1	N13°22.5	328°12.6	N00°49.2										
19	351°42.4	146°54.9	14.2	198°07.7	18.1	202°33.4	22.4	343°15.2	49.2										
20	6°44.9	161°56.1	14.3	213°09.2	17.8	217°35.8	22.4	358°17.7	49.2										
21	21°47.4	176°57.3	14.4	228°10.7	17.6	232°38.1	22.4	13°20.2	49.1										
22	36°49.8	191°58.5	14.5	243°12.2	17.3	247°40.5	22.3	28°22.7	49.1										
23	51°52.3	206°59.7	14.6	258°13.7	17.0	262°42.8	22.3	43°25.3	49.1										
Mer.pass. 19:33				ν 1.3' d 0.0' m -4.90				ν 1.5' d 0.3' m 0.52				ν 2.3' d 0.0' m -2.16				ν 2.5' d 0.0' m 0.59			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	66°54.7	222°00.9	S09°14.6	273°15.2	N13°16.7	277°45.1	N13°22.3	58°27.8	N00°49.1										
1	81°57.2	237°02.1	14.7	288°16.7	16.4	292°47.5	22.2	73°30.3	49.1										
2	96°59.7	252°03.3	14.8	303°18.2	16.1	307°49.8	22.2	88°32.8	49.1										
3	112°02.1	267°04.5	14.9	318°19.8	15.8	322°52.2	22.2	103°35.3	49.1										
4	127°04.6	282°05.7	15.0	333°21.3	15.6	337°54.5	22.1	118°37.9	49.0										
5	142°07.1	297°06.8	15.1	348°22.8	15.3	352°56.9	22.1	133°40.4	49.0										
6	157°09.5	312°08.0	S09°15.2	3°24.3	N13°15.0	7°59.2	N13°22.1	148°42.9	N00°49.0										
7	172°12.0	327°09.2	15.3	18°25.8	14.7	23°01.6	22.0	163°45.4	49.0										
8	187°14.5	342°10.4	15.4	33°27.3	14.4	38°03.9	22.0	178°47.9	49.0										
9	202°16.9	357°11.5	15.5	48°28.8	14.1	53°06.3	22.0	193°50.5	49.0										
10	217°19.4	1°12.7	15.6	63°30.3	13.9	68°08.6	21.9	208°53.0	49.0										
11	232°21.9	27°13.9	15.6	78°31.9	13.6	83°11.0	21.9	223°55.5	49.0										
12	247°24.3	42°15.0	S09°15.7	93°33.4	N13°13.3	98°13.3	N13°21.9	238°58.0	N00°48.9										
13	262°26.8	57°16.2	15.9	108°34.9	13.0	113°15.6	21.9	254°00.5	48.9										
14	277°29.2	72°17.3	16.0	123°36.4	12.7	128°18.0	21.8	269°03.1	48.9										
15	292°31.7	87°18.5	16.1	138°37.9	12.4	143°20.3	21.8	284°05.6	48.9										
16	307°34.2	102°19.6	16.2	153°39.4	12.2	158°22.7	21.8	299°08.1	48.9										
17	322°36.6	117°20.8	16.3	168°41.0	11.9	173°25.0	21.7	314°10.6	48.9										
18	337°39.1	132°21.9	S09°16.4	183°42.5	N13°11.6	188°27.4	N13°21.7	329°13.1	N00°48.9										
19	352°41.6	147°23.1	16.5	198°44.0	11.3	203°29.7	21.7	344°15.7	48.8										
20	7°44.0	162°24.2	16.6	213°45.5	11.0	218°32.1	21.6	359°18.2	48.8										
21	22°46.5	177°25.4	16.7	228°47.0	10.8	233°34.4	21.6	14°20.7	48.8										
22	37°49.0	192°26.5	16.8	243°48.6	10.5	248°36.8	21.6	29°23.2	48.8										
23	52°51.4	207°27.6	17.0	258°50.1	10.2	263°39.1	21.6	44°25.7	48.8										
Mer.pass. 19:29				ν 1.2' d 0.1' m -4.90				ν 1.5' d 0.3' m 0.51				ν 2.3' d 0.0' m -2.17				ν 2.5' d 0.0' m 0.59			

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	67°53.9	222°28.8	S09°17.1	273°51.6	N13°09.9	278°41.5	N13°21.5	59°28.2	N00°48.8										
1	82°56.3	237°29.9	17.2	288°53.1	09.6	293°43.9	21.5	74°30.8	48.8										
2	97°58.8	252°31.0	17.3	303°54.6	09.4	308°46.2	21.5	89°33.3	48.8										
3	113°01.3	267°32.2	17.4	318°56.2	09.1	323°48.6	21.4	104°35.8	48.8										
4	128°03.7	282°33.3	17.6	333°57.7	08.8	338°50.9	21.4	119°38.3	48.7										
5	143°06.2	297°34.4	17.7	348°59.2	08.5	353°53.3	21.4	134°40.8	48.7										
6	158°08.7	312°35.5	S09°17.8	4°00.7	N13°08.2	8°55.6	N13°21.4	149°43.3	N00°48.7										
7	173°11.1	327°36.6	17.9	19°02.3	08.0	23°58.0	21.3	164°45.9	48.7										
8	188°13.6	342°37.8	18.1	34°03.8	07.7	39°00.3	21.3	179°48.4	48.7										
9	203°16.1	357°38.9	18.2	49°05.3	07.4	54°02.7	21.3	194°50.9	48.7										
10	218°18.5	1°40.0	18.3	64°06.9	07.1	69°05.0	21.2	209°53.4	48.7										
11	233°21.0	27°41.1	18.5	79°08.4	06.8	84°07.4	21.2	224°55.9	48.7										
12	248°23.5	42°42.2	S09°18.6	94°09.9	N13°06.6	99°09.7	N13°21.2	239°58.4	N00°48.6										
13	263°25.9	57°43.3	18.7	109°11.4	06.3	114°12.1	21.2	255°01.0	48.6										
14	278°28.4	72°44.4	18.9	124°13.0	06.0	129°14.5	21.1	270°03.5	48.6										
15	293°30.8	87°45.5	19.0	139°14.5	05.7	144°16.8	21.1	285°06.0	48.6										
16	308°33.3	102°46.6	19.2	154°16.0	05.5	159°19.2	21.1	300°08.5	48.6										
17	323°35.8	117°47.7	19.3	169°17.6	05.2	174°21.5	21.1	315°11.0	48.6										
18	338°38.2	132°48.8	S09°19.4	184°19.1	N13°04.9	189°23.9	N13°21.0	330°13.5	N00°48.6										
19	353°40.7	147°49.8	19.6	199°20.6	04.6	204°26.2	21.0	345°16.0	48.6										
20	8°43.2	162°50.9	19.7	214°22.2	04.3	219°28.6	21.0	0°18.6	48.6										
21	23°45.6	177°52.0	19.9	229°23.7	04.1	234°31.0	20.9	15°21.1	48.5										
22	38°48.1	192°53.1	20.0	244°25.2	03.8	249°33.3	20.9	30°23.6	48.5										
23	53°50.6	207°54.2	20.2	259°26.8	03.5	264°35.7	20.9	45°26.1	48.5										
Mer.pass. 19:25				ν 1.1' d 0.1' m -4.90				ν 1.5' d 0.3' m 0.49				ν 2.4' d 0.0' m -2.18				ν 2.5' d 0.0' m 0.60			

Stars	SHA	Dec
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.4	-42°09.7
Schedar	349°28.9	56°41.4
Diphda	348°45.6	-17°50.3
Achernar	335°18.6	-57°06.1
Hamal	327°49.1	23°35.5
Polaris	312°43.7	89°22.7
Acamar	315°10.2	-40°11.8
Menkar	314°04.2	-4°11.8
Mirfak	308°25.5	49°57.5
Aldebaran	290°37.5	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.1	46°01.5
Bellatrix	278°20.9	6°22.5
Elnath	277°59.5	28°37.8
Anilam	275°35.8	-1°11.0
Betelgeuse	270°50.1	7°24.7
Canopus	263°51.2	-52°42.4
Sirius	258°24.6	-16°45.1
Adhara	255°04.3	-29°00.4
Procyon	244°49.0	5°09.3
Pollux	243°15.2	27°57.5
Avior	234°13.7	-59°35.5
Suhail	222°45.0	-43°32.2
Miaplacidus	221°37.6	-69°49.3
Alphard	217°46.1	-8°46.5
Regulus	207°32.8	11°50.1
Dubhe	193°39.3	61°36.0
Denebola	182°23.5	14°25.2
Gienah	175°42.2	-17°41.4
Acrux	172°58.7	-63°14.7
Gacrux	171°50.2	-57°15.6
Alioth	166°12.0	55°48.6
Spica	158°20.9	-11°18.1
Alkaid	152°51.2	49°10.5
Hadar	148°34.3	-60°30.0
Menkent	147°56.1	-36°30.0
Antares	145°46.8	19°02.5
Rigel Kent	139°38.7	-60°56.6
Kochab	137°21.0	74°02.5
Zuben'ubi	136°54.6	-16°09.1
Alphecca	125°02.8	26°37.7
Antares	112°14.3	-26°29.4
Atria	107°07.7	-69°04.4
Sabik	102°01.4	-15°

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	68°53.0	222°55.2	S09°20.3	274°28.3	N13°03.2	279°38.0	N13°20.9	60°28.6	N00°48.5					
1	83°55.5	237°56.3	20.5	289°29.8	03.0	294°40.4	20.8	75°31.1	48.5					
2	98°58.0	252°57.4	20.6	304°31.4	02.7	309°42.8	20.8	90°33.6	48.5					
3	114°00.4	267°58.5	.. 20.8	319°32.9	.. 02.4	324°45.1	.. 20.8	105°36.2	.. 48.5					
4	129°02.9	282°59.5	21.0	334°34.5	02.1	339°47.5	20.8	120°38.7	48.5					
5	144°05.3	298°00.6	21.1	349°36.0	01.9	354°49.8	20.7	135°41.2	48.5					
6	159°07.8	313°01.7	S09°21.3	4°37.5	N13°01.6	9°52.2	N13°20.7	150°43.7	N00°48.5					
7	174°10.3	328°02.7	21.4	19°39.1	01.3	24°54.6	20.7	165°46.2	48.4					
8	189°12.7	343°03.8	21.6	34°40.6	01.0	39°56.9	20.7	180°48.7	48.4					
9	204°15.2	358°04.8	.. 21.8	49°42.2	.. 00.8	54°59.3	.. 20.6	195°51.2	.. 48.4					
10	219°17.7	13°05.9	21.9	64°43.7	00.5	70°01.6	20.6	210°53.7	48.4					
11	234°20.1	28°06.9	22.1	79°45.3	13°00.2	85°04.0	20.6	225°56.3	48.4					
12	249°22.6	43°08.0	S09°22.3	94°46.8	N12°59.9	100°06.4	N13°20.6	240°58.8	N00°48.4					
13	264°25.1	58°09.0	22.4	109°48.3	59.7	115°08.7	20.5	256°01.3	48.4					
14	279°27.5	73°10.1	22.6	124°49.9	59.4	130°11.1	20.5	271°03.8	48.4					
15	294°30.0	88°11.1	.. 22.8	139°51.4	.. 59.1	145°13.5	.. 20.5	286°06.3	.. 48.4					
16	309°32.5	103°12.1	23.0	154°53.0	58.6	160°15.8	20.5	301°08.8	48.4					
17	324°34.9	118°13.2	23.1	169°54.5	58.6	175°18.2	20.4	316°11.3	48.4					
18	339°37.4	133°14.2	S09°23.3	184°56.1	N12°58.3	190°20.5	N13°20.4	331°13.8	N00°48.3					
19	354°39.8	148°15.3	23.5	199°57.6	58.0	205°22.9	20.4	346°16.3	48.3					
20	3°42.3	163°16.3	23.7	214°59.2	57.8	220°25.3	20.4	1°18.9	48.3					
21	24°44.8	178°17.3	.. 23.9	230°00.7	.. 57.5	235°27.6	.. 20.3	16°21.4	.. 48.3					
22	39°47.2	193°18.3	24.0	245°02.3	57.2	250°30.0	20.3	31°23.9	48.3					
23	54°49.7	208°19.4	24.2	260°03.8	57.0	265°32.4	20.3	46°26.4	48.3					
Mer.pass. 19:21			ν 1.1' d 0.2' m -4.89			ν 1.5' d 0.3' m 0.48			ν 2.4' d 0.0' m -2.19			ν 2.5' d 0.0' m 0.60		

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	69°52.2	223°20.4	S09°24.4	275°05.4	N12°56.7	280°34.7	N13°20.3	61°28.9	N00°48.3
1	84°54.6	238°21.4	24.6	290°06.9	56.4	295°37.1	20.2	76°31.4	48.3
2	99°57.1	253°22.4	24.8	305°08.5	56.1	310°39.5	20.2	91°33.9	48.3
3	114°59.6	268°23.4	.. 25.0	320°10.0	.. 55.9	325°41.8	.. 20.2	106°36.4	.. 48.3
4	130°02.0	283°24.4	25.2	335°11.6	55.6	340°44.2	20.2	121°38.9	48.3
5	145°04.5	298°25.4	25.4	350°13.1	55.3	355°46.6	20.1	136°41.4	48.2
6	160°06.9	313°26.5	S09°25.6	5°14.7	N12°55.1	10°48.9	N13°20.1	151°44.0	N00°48.2
7	175°09.4	328°27.5	25.7	20°16.2	54.8	25°51.3	20.1	166°46.5	48.2
8	190°11.9	343°28.5	25.9	35°17.8	54.5	40°53.7	20.1	181°49.0	48.2
9	205°14.3	358°29.5	.. 26.1	50°19.4	.. 54.2	55°56.1	.. 20.1	196°51.5	.. 48.2
10	220°16.8	13°30.5	26.3	65°20.9	54.0	70°58.4	20.0	211°54.0	48.2
11	235°19.8	28°31.5	26.5	80°22.5	53.7	86°00.8	20.0	226°56.5	48.2
12	250°21.7	43°32.5	S09°26.7	95°24.0	N12°53.4	101°03.2	N13°20.0	241°59.0	N00°48.2
13	265°24.2	58°33.4	26.9	110°25.6	53.2	116°05.5	20.0	257°01.5	48.2
14	280°26.7	73°34.4	27.1	125°27.1	52.9	131°07.9	19.9	272°04.0	48.2
15	295°29.1	88°35.4	.. 27.4	140°28.7	.. 52.6	146°10.3	.. 19.9	287°06.5	.. 48.2
16	310°31.6	103°36.4	27.6	155°30.3	52.4	161°12.7	19.9	302°09.0	48.2
17	325°34.1	118°37.4	27.8	170°31.8	52.1	176°15.0	19.9	317°11.5	48.2
18	340°36.5	133°38.4	S09°28.0	185°33.4	N12°51.8	191°17.4	N13°19.9	332°14.0	N00°48.1
19	355°39.0	148°39.4	28.2	200°35.0	51.6	206°19.8	19.8	347°16.5	48.1
20	10°41.4	163°40.3	28.4	215°36.5	51.3	221°22.1	19.8	2°19.1	48.1
21	25°43.9	178°41.3	.. 28.6	230°38.1	.. 51.0	236°24.5	.. 19.8	17°21.6	.. 48.1
22	40°46.4	193°42.3	28.8	245°39.6	50.8	251°26.9	19.8	32°24.1	48.1
23	55°48.8	208°43.2	29.0	260°41.2	50.5	266°29.3	19.7	47°26.6	48.1
Mer.pass. 19:17 ν 1.0' d 0.2' m -4.89 ν 1.6' d 0.3' m 0.46 ν 2.4' d 0.0' m -2.19 ν 2.5' d 0.0' m 0.61									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	70°51.3	223°44.2	S09°29.3	275°42.8	N12°50.2	281°31.6	N13°19.7	62°29.1	N00°48.1					
1	85°53.8	238°45.2	29.5	290°44.3	50.0	296°34.0	19.7	77°31.6	48.1					
2	100°56.2	253°46.1	29.7	305°45.9	49.7	311°36.4	19.7	92°34.1	48.1					
3	115°58.7	268°47.1	.. 29.9	320°47.5	.. 49.4	326°38.8	.. 19.7	107°36.6	.. 48.1					
4	131°01.2	283°48.1	30.1	335°49.0	49.2	341°41.1	19.6	122°39.1	48.1					
5	146°03.6	298°49.0	30.4	350°50.6	48.9	356°43.5	19.6	137°41.6	48.1					
6	161°06.1	313°50.0	S09°30.6	5°52.2	N12°48.6	11°45.9	N13°19.6	152°44.1	N00°48.1					
7	176°08.5	328°50.9	30.8	20°53.8	48.4	26°48.3	19.6	167°46.6	48.1					
8	191°11.0	343°51.9	31.0	35°55.3	48.1	41°50.6	19.6	182°49.1	48.1					
9	206°13.5	358°52.8	.. 31.3	50°56.9	.. 47.8	56°53.0	.. 19.5	197°51.6	.. 48.0					
10	221°15.9	13°53.8	31.5	65°58.5	47.6	71°55.4	19.5	212°54.1	48.0					
11	236°18.4	28°54.7	31.7	81°00.0	47.3	86°57.8	19.5	227°56.6	48.0					
12	251°20.9	43°55.7	S09°32.0	96°01.6	N12°47.1	102°00.2	N13°19.5	242°59.1	N00°48.0					
13	266°23.3	58°56.6	32.2	111°03.2	46.8	117°02.5	19.5	258°01.6	48.0					
14	281°25.8	73°57.5	32.4	126°04.8	46.5	132°04.9	19.4	273°04.1	48.0					
15	296°28.3	88°58.5	.. 32.7	141°06.3	.. 46.3	147°07.3	.. 19.4	288°06.6	.. 48.0					
16	311°30.7	103°59.4	32.9	156°07.9	46.0	162°09.7	19.4	303°09.1	48.0					
17	326°33.2	119°00.3	33.1	171°09.5	45.7	177°12.0	19.4	318°11.6	48.0					
18	341°35.7	134°01.3	S09°33.4	186°11.1	N12°45.5	192°14.4	N13°19.4	333°14.1	N00°48.0					
19	356°38.1	149°02.2	33.6	201°12.6	45.2	207°16.8	19.3	348°16.7	48.0					
20	11°40.6	164°03.1	33.9	216°14.2	45.0	222°19.2	19.3	3°19.2	48.0					
21	26°43.0	179°04.0	.. 34.1	231°15.8	.. 44.7	237°21.6	.. 19.3	18°21.7	.. 48.0					
22	41°45.5	194°05.0	34.4	246°17.4	44.4	252°23.9	19.3	33°24.2	48.0					
23	56°48.0	209°05.9	34.6	261°19.0	44.2	267°26.3	19.3	48°26.7	48.0					
Mer.pass. 19:13			ν 1.0' d 0.2' m -4.88			ν 1.6' d 0.3' m 0.44			ν 2.4' d 0.0' m -2.20			ν 2.5' d 0.0' m 0.61		

	SHA	Dec
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.4	-42°09.7
Schedar	349°28.9	56°41.4
Diphda	348°45.6	-17°50.3
Achernar	335°18.6	-57°06.1
Hamal	327°49.1	23°35.5
Polaris	312°44.0	89°22.8
Acamar	315°10.2	-40°11.8
Menkar	314°04.2	4°11.8
Mirfak	308°25.5	49°57.5
Aldebaran	290°37.5	16°33.9
Rigel	281°02.0	-8°10.2
Capella	280°19.1	46°01.5
Bellatrix	278°20.9	6°22.5
Elath	277°59.5	28°37.8
Alnilam	275°35.8	-1°11.0
Betelgeuse	270°50.1	7°24.7
Canopus	263°51.2	-52°42.4
Sirius	258°24.6	-16°45.1
Adhara	255°04.3	-29°00.4
Procyon	244°49.0	5°09.3
Pollux	243°15.1	27°57.5
Avior	234°13.7	-59°35.5
Suhail	222°45.0	-43°32.2
Miaplacidus	221°37.6	-69°49.4

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	71°50.4	224°06.8	S09°34.8	276°20.5	N12°43.9	282°28.7	N13°19.3	63°29.2	N00°48.0										
1	86°52.9	239°07.7	35.1	291°22.1	43.6	297°31.1	19.2	78°31.7	48.0										
2	101°55.4	254°08.6	35.3	306°23.7	43.4	312°33.5		93°34.2	48.0										
3	116°57.8	269°09.5	.. 35.6	321°25.3	.. 43.1	327°35.9	.. 19.2	108°36.7	.. 47.9										
4	132°00.4	284°10.5	35.8	336°26.9	42.9	342°38.2	19.2	123°39.2	47.9										
5	147°02.8	299°11.4	36.1	351°28.5	42.6	357°40.6	19.2	138°41.7	47.9										
6	162°05.2	314°12.3	S09°36.4	6°30.0	N12°42.3	12°43.0	N13°19.1	153°44.2	N00°47.9										
7	177°07.7	329°13.2	36.6	21°31.6	42.1	27°45.4	19.1	168°46.7	47.9										
8	192°10.2	344°14.1	36.9	36°33.2	41.8	42°47.8	19.1	183°49.2	47.9										
9	207°12.6	359°15.0	.. 37.1	51°34.8	.. 41.6	57°50.2	.. 19.1	198°51.7	.. 47.9										
10	222°15.1	14°15.9	37.4	66°36.4	41.3	72°52.5	19.1	213°54.2	47.9										
11	237°17.5	29°16.8	37.6	81°38.0	41.1	87°54.9	19.1	228°56.7	47.9										
12	252°20.0	44°17.7	S09°37.9	96°39.6	N12°40.8	102°57.3	N13°19.0	243°59.2	N00°47.9										
13	267°22.5	59°18.5	38.2	111°41.1	40.5	117°59.7	19.0	259°01.7	47.9										
14	282°24.9	74°19.4	38.4	126°42.7	40.3	133°02.1	19.0	274°04.2	47.9										
15	297°27.4	89°20.3	.. 38.7	141°44.3	.. 40.0	148°04.5	.. 19.0	289°06.7	.. 47.9										
16	312°29.9	104°21.2	39.0	156°45.9	39.8	163°06.9	19.0	304°09.2	47.9										
17	327°32.3	119°22.1	39.2	171°47.5	39.5	178°09.3	19.0	319°11.7	47.9										
18	342°34.8	134°23.0	S09°39.5	186°49.1	N12°39.2	193°11.6	N13°18.9	334°14.2	N00°47.9										
19	357°37.3	149°23.8	39.8	201°50.7	39.0	208°14.0	18.9	349°16.7	47.9										
20	12°39.7	164°24.7	40.0	216°52.3	38.7	223°16.4	18.9	4°19.2	47.9										
21	27°42.2	179°25.6	.. 40.3	231°53.9	.. 38.5	238°18.8	.. 18.9	19°21.7	.. 47.9										
22	42°44.6	194°26.5	40.6	246°55.5	38.2	253°21.2	18.9	34°24.2	47.9										
23	57°47.1	209°27.3	40.9	261°57.1	38.0	268°23.6	18.9	49°26.7	47.9										
Mer.pass. 19:09				ν 0.9' d 0.2' m -4.88				ν 1.6' d 0.3' m 0.43				ν 2.4' d 0.0' m -2.21				ν 2.5' d 0.0' m 0.62			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	72°49.6	224°28.2	S09°41.1	276°58.7	N12°37.7	283°26.0	N13°18.8	64°29.1	N00°47.9										
1	87°52.0	239°29.1	41.4	292°00.3	37.5	298°28.4	18.8	79°31.6	47.9										
2	102°54.5	254°29.9	41.7	307°01.9	37.2	313°30.8	18.8	94°34.1	47.9										
3	117°57.0	269°30.8	.. 42.0	322°03.5	.. 36.9	328°33.1	.. 18.8	109°36.6	.. 47.9										
4	132°59.4	284°31.7	42.2	337°05.1	36.7	343°35.5	18.8	124°39.1	47.9										
5	148°01.9	299°32.5	42.5	352°06.7	36.4	358°37.9	18.8	139°41.6	47.8										
6	163°04.4	314°33.4	S09°42.8	7°08.3	N12°36.2	13°40.3	N13°18.8	154°44.1	N00°47.8										
7	178°06.8	329°34.2	43.1	22°09.9	35.9	28°42.7	18.7	169°46.6	47.8										
8	193°09.3	344°35.1	43.4	37°11.5	35.7	43°45.1	18.7	184°49.1	47.8										
9	208°11.8	359°35.9	.. 43.7	52°13.1	.. 35.4	58°47.5	.. 18.7	199°51.6	.. 47.8										
10	223°14.2	14°36.8	44.0	67°14.7	35.2	73°49.9	18.7	214°54.1	47.8										
11	238°16.7	29°37.6	44.2	82°16.3	34.9	88°52.3	18.7	229°56.6	47.8										
12	253°19.1	44°38.5	S09°44.5	97°17.9	N12°34.7	103°54.7	N13°18.7	244°59.1	N00°47.8										
13	268°21.6	59°39.3	44.8	112°19.5	34.4	118°57.1	18.7	260°01.6	47.8										
14	283°24.1	74°40.1	.. 45.1	127°21.1	.. 34.2	133°59.5	18.6	275°04.1	47.8										
15	298°26.5	89°41.0	.. 45.4	142°22.7	.. 33.9	149°01.9	.. 18.6	290°06.6	.. 47.8										
16	313°29.0	104°41.8	45.7	157°24.3	33.7	164°04.2	18.6	305°09.1	47.8										
17	328°31.5	119°42.6	46.0	172°25.9	33.4	179°06.6	18.6	320°11.6	47.8										
18	343°33.9	134°43.5	S09°46.3	187°27.5	N12°33.1	194°09.0	N13°18.6	335°14.1	N00°47.8										
19	358°36.4	149°44.3	46.6	202°29.1	32.9	209°11.4	18.6	350°16.6	47.8										
20	13°38.9	164°45.1	.. 46.9	217°30.7	32.6	224°13.8	18.6	5°19.1	47.8										
21	28°41.3	179°46.0	.. 47.2	232°32.3	.. 32.4	239°16.2	.. 18.5	20°21.6	.. 47.8										
22	43°43.8	194°46.8	47.5	247°33.9	32.1	254°18.6	18.5	35°24.0	47.8										
23	58°46.3	209°47.6	47.8	262°35.6	31.9	269°21.8	18.5	50°26.5	47.8										
Mer.pass. 19:06				ν 0.9' d 0.3' m -4.87				ν 1.6' d 0.3' m 0.41				ν 2.4' d 0.0' m -2.21				ν 2.5' d 0.0' m 0.62			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	73°48.7	224°48.4	S09°48.1	277°37.2	N12°31.6	284°23.4	N13°18.5	65°29.0	N00°47.8										
1	88°51.2	239°49.3	48.4	292°38.8	31.4	299°25.8	18.5	80°31.5	47.8										
2	103°53.6	254°50.1	48.7	307°40.4	31.1	314°28.2	18.5	95°34.0	47.8										
3	118°56.1	269°50.9	.. 49.0	322°42.0	.. 30.9	329°30.6	.. 18.5	110°36.5	.. 47.8										
4	133°58.6	284°51.7	49.3	337°43.6	30.6	344°33.0	18.5	125°39.0	47.8										
5	149°01.0	299°52.5	49.6	352°45.2	30.4	359°35.4	18.4	140°41.5	47.8										
6	164°03.5	314°53.3	S09°49.9	7°46.9	N12°30.1	14°37.8	N13°18.4	155°44.0	N00°47.8										
7	179°06.0	329°54.1	50.2	22°48.5	29.9	29°40.2	18.4	170°46.5	47.8										
8	194°08.4	344°54.9	50.6	37°50.1	29.7	44°42.6	18.4	185°49.0	47.8										
9	209°10.9	359°55.7	.. 50.9	52°51.7	.. 29.4	59°45.0	.. 18.4	200°51.5	.. 47.8										
10	224°13.4	14°56.5	51.2	67°53.3	29.2	74°47.4	18.4	215°54.0	47.8										
11	239°15.8	29°57.3	51.5	82°54.9	28.9	89°49.8	18.4	230°56.5	47.8										
12	254°18.3	44°58.1	S09°51.8	97°56.6	N12°28.7	104°52.2	N13°18.4	245°59.9	N00°47.8										
13	269°20.7	59°58.9	52.1	112°58.2	28.8	119°54.6	18.4	261°01.4	47.8										
14	284°23.2	74°59.7	52.4	127°59.8	28.2	134°57.0	18.3	276°03.9	47.8										
15	299°25.7	90°00.5	.. 52.8	143°01.4	.. 27.9	149°59.4	.. 18.3	291°06.4	.. 47.8										
16	314°28.1	105°01.3	53.1	158°03.0	27.7	165°01.8	18.3	306°08.9	47.8										
17	329°30.6	120°02.1	53.4	173°04.7	27.4	180°04.2	18.3	321°11.4	47.8										
18	344°33.1	135°02.9	S09°53.7	188°06.3	N12°27.2	195°06.6	N13°18.3	336°13.9	N00°47.8										
19	359°35.5	150°03.7	54.1	203°07.9	26.9	210°09.0	18.3	351°16.4	47.8										
20	14°38.0	165°04.4	54.4	218°09.5	26.7	225°11.4	18.3	6°18.9	47.8										
21	29°40.5	180°05.2	.. 54.7	233°11.2	.. 26.4	240°13.8	.. 18.3	21°21.4	.. 47.8										
22	44°42.9	195°06.0	55.0	248°12.8	26.2	255°16.2	18.3	36°23.8	47.8										
23	59°45.4	210°06.8	55.4	263°14.4	26.0	270°18.6	18.2	51°26.3	47.8										
Mer.pass. 19:02				ν 0.8' d 0.3' m -4.86				ν 1.6' d 0.2' m 0.40				ν 2.4' d 0.0' m -2.22				ν 2.5' d 0.0' m 0.63			

Stars	SHA	Dec
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.4	-42°09.7
Schedar	349°28.9	56°41.4
Diphda	348°45.6	-17°06.1
Achernar	335°18.6	-57°06.1
Hamal	327°49.1	23°35.5
Polaris	312°44.4	89°22.8
Acemur	313°10.2	-40°11.8
Menkar	314°04.2	4°11.8
Mirafaz	308°25.5	49°37.5
Aldebaran	290°37.5	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.1	46°01.5
Bellatrix	278°20.9	6°22.5
Elmath	277°59.5	28°37.8
Anilam	275°35.8	-1°11.0
Betelgeuse	270°50.1	7°24.7
Canopus	263°51.2	-52°42.4
Sirius	258°04.5	-16°45.1
Adhara	255°04.3	-29°00.4
Pecnyon	244°48.9	5°09.3
Pollux	243°15.1	27°57.5
Avior	234°13.7	-59°35.5
Suhail	222°45.0	-43°32.3
Miaplacidus	221°37.5	-69°49.4
Alphard	217°46.1	-8°46.5
Regulus	207°32.7	11°50.0
Dubhe	193°39.2	61°36.0
Denebola	182°23.5	14°25.2
Genah	175°42.1	-17°41.7
Acrux	172°58.6	-63°14.4
Gacrux	171°50.1	-57°15.6
Alloth	166°11.9	5°08.5
Spica	158°20.9	-1°18.1
Alkaid	152°51.2	49°10.5
Henkar	148°33.3	-60°30.0
Meridant	147°56.3	-36°30.0
Arcturus	145°46.8	19°02.5
Rigil Kent.	139°38.7	-60°56.6
Kochab	137°20.9	74°02.4
Zuben'ubi	136°54.6	-16°09.2
Alphecca	126°02.8	

Aries			Venus			Mars			Jupiter			Saturn		
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	74°47.9	225°07.6	S09°55.7	278°16.1	N12°25.7	285°21.0	N13°18.2	66°28.8	N00°47.8					
1	89°50.3	240°08.3	56.0	293°17.7	25.5	300°23.5	18.2	81°31.3	47.8					
2	104°52.8	255°09.1	56.3	308°19.3	25.2	315°25.9	18.2	96°33.8	47.8					
3	119°55.2	270°09.9	•• 56.7	323°20.9	•• 25.0	330°28.3	•• 18.2	111°36.3	•• 47.8					
4	134°57.7	285°10.6	57.0	338°22.6	24.7	345°30.7	18.2	126°38.8	47.8					
5	150°00.2	300°11.4	57.3	353°24.2	24.5	0°33.1	18.2	141°41.3	47.8					
6	165°02.6	315°12.2	S09°57.7	8°25.8	N12°24.3	15°35.5	N13°18.2	156°43.8	N00°47.8					
7	180°05.1	330°12.9	58.0	23°27.5	24.0	30°37.9	18.2	171°46.2	47.8					
8	195°07.6	345°13.7	58.4	38°29.1	23.8	45°40.3	18.2	186°48.7	47.8					
9	210°10.0	0°14.4	•• 58.7	53°30.7	•• 23.5	60°42.7	•• 18.1	201°51.2	•• 47.8					
10	225°12.5	15°15.2	59.0	68°32.4	23.3	75°45.1	18.1	216°53.7	47.8					
11	240°15.0	30°16.0	59.4	83°34.0	23.0	90°47.5	18.1	231°56.2	47.8					
12	255°17.4	45°16.7	S09°59.7	98°35.6	N12°22.8	105°49.9	N13°18.1	246°58.7	N00°47.8					
13	270°19.9	60°17.5	10°00.1	113°37.3	22.6	120°52.3	18.1	262°01.2	47.8					
14	285°22.4	75°18.2	00.4	128°38.9	22.3	135°54.8	18.1	277°03.7	47.8					
15	300°24.8	90°19.0	•• 00.7	143°40.5	•• 22.1	150°57.2	•• 18.1	292°06.1	•• 47.8					
16	315°27.3	105°19.7	01.1	158°42.2	21.8	165°59.6	18.1	307°08.6	47.8					
17	330°29.7	120°20.4	01.4	173°43.8	21.6	181°02.0	18.1	322°11.1	47.8					
18	345°32.2	135°21.2	S10°01.8	188°45.5	N12°21.4	196°04.4	N13°18.1	337°13.6	N00°47.8					
19	0°34.7	150°21.9	02.1	203°47.1	21.1	211°06.8	18.1	352°16.1	47.8					
20	15°37.1	165°22.7	02.5	218°48.7	20.9	226°09.2	18.1	7°18.6	47.8					
21	30°39.6	180°23.4	•• 02.8	233°50.4	•• 20.6	241°11.6	•• 18.1	22°21.1	•• 47.8					
22	45°42.1	195°24.1	03.2	248°52.0	20.4	256°14.0	18.0	37°23.5	47.8					
23	60°44.5	210°24.9	03.5	263°53.7	20.2	271°16.5	18.0	52°26.0	47.8					
Mer.pass. 18:58			ν 0.8' d 0.3' m -4.86			ν 1.6' d 0.2' m 0.38			ν 2.4' d 0.0' m -2.23			ν 2.5' d 0.0' m 0.63		

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	75°47.0	225°25.6	S10°03.9	278°55.3	N12°19.9	286°18.9	N13°18.0	67°28.5	N00°47.8
1	90°49.5	240°26.3	04.2	293°57.0	19.7	301°21.3	18.0	82°31.0	47.8
2	105°51.9	255°27.1	04.6	308°58.6	19.4	316°23.7	18.0	97°33.5	47.8
3	120°54.4	270°27.8	•• 05.0	324°00.3	•• 19.2	331°26.1	•• 18.0	112°36.0	•• 47.8
4	135°56.9	285°28.5	05.3	339°01.9	19.0	346°28.5	18.0	127°38.5	47.8
5	150°59.3	300°29.2	05.7	354°03.5	18.7	1°30.9	18.0	142°40.9	47.8
6	166°01.8	315°29.9	S10°06.0	9°05.2	N12°18.5	16°33.3	N13°18.0	157°43.4	N00°47.8
7	181°04.2	330°30.7	06.4	24°06.8	18.3	31°35.8	18.0	172°45.9	47.9
8	196°06.7	345°31.4	06.7	39°08.5	18.0	46°38.2	18.0	187°48.4	47.9
9	211°09.2	0°32.1	•• 07.1	54°10.1	•• 17.8	61°40.6	•• 18.0	202°50.9	•• 47.9
10	226°11.6	15°32.8	07.5	69°11.8	17.5	76°43.0	18.0	217°53.4	47.9
11	241°14.1	30°33.5	07.8	84°13.4	17.3	91°45.4	18.0	232°55.8	47.9
12	256°16.6	45°34.2	S10°08.2	99°15.1	N12°17.1	106°47.8	N13°17.9	247°58.3	N00°47.9
13	271°19.0	60°34.9	08.6	114°16.8	16.8	121°50.3	17.9	263°00.8	47.9
14	286°21.5	75°35.6	08.9	129°18.4	16.6	136°52.7	17.9	278°03.3	47.9
15	301°24.0	90°36.3	•• 09.3	144°20.1	•• 16.4	151°55.1	•• 17.9	293°05.8	•• 47.9
16	316°26.4	105°37.0	09.7	159°21.7	16.1	166°57.5	17.9	308°08.3	47.9
17	331°28.9	120°37.7	10.0	174°23.4	15.9	181°59.9	17.9	323°10.7	47.9
18	346°31.3	135°38.4	S10°10.4	189°25.0	N12°15.7	197°02.3	N13°17.9	338°13.2	N00°47.9
19	1°33.8	150°39.1	10.8	204°26.7	15.4	212°04.8	17.9	353°15.7	47.9
20	16°36.3	165°39.8	11.2	219°28.3	15.2	227°07.2	17.9	8°18.2	47.9
21	31°38.7	180°40.5	•• 11.5	234°30.0	•• 15.0	242°09.6	•• 17.9	23°20.7	•• 47.9
22	46°41.2	195°41.2	11.9	249°31.7	14.7	257°12.0	17.9	38°23.1	47.9
23	61°43.7	210°41.9	12.3	264°33.3	14.5	272°14.4	17.9	53°25.6	47.9
Mer.pass. 18:54 ν 0.7' d 0.4' m -4.85 ν 1.6' d 0.2' m 0.36 ν 2.4' d 0.0' m -2.23 ν 2.5' d 0.0' m 0.63									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	76°46.1	225°42.6	S10°12.7	279°35.0	N12°14.3	287°16.9	N13°17.9	68°28.1	N00°47.9					
1	91°48.6	240°43.3	13.0	294°36.6	14.0	302°19.3	17.9	83°30.6	47.9					
2	106°51.1	255°44.0	13.4	309°38.3	13.8	317°21.7	17.9	98°33.1	47.9					
3	121°53.5	270°44.7	•• 13.8	324°40.0	•• 13.6	332°24.1	•• 17.9	113°35.5	•• 47.9					
4	136°56.0	285°45.3	14.2	339°41.6	13.3	347°26.6	17.9	128°38.0	47.9					
5	151°58.5	300°46.0	14.6	354°43.3	13.1	2°29.0	17.9	143°40.5	47.9					
6	167°00.9	315°46.7	S10°14.9	9°45.0	N12°12.9	17°31.4	N13°17.9	158°43.0	N00°47.9					
7	182°03.4	330°47.4	15.3	24°46.6	12.7	32°33.8	17.9	173°45.5	47.9					
8	197°05.8	345°48.0	15.7	39°48.3	12.4	47°36.2	17.9	188°47.9	47.9					
9	212°08.3	0°48.7	•• 16.1	54°50.0	•• 12.2	62°38.7	•• 17.9	203°50.4	•• 48.0					
10	227°10.8	15°49.4	16.5	69°51.6	12.0	77°41.1	17.8	218°52.9	48.0					
11	242°13.2	30°50.1	16.9	84°53.3	11.7	92°43.5	17.8	233°55.4	48.0					
12	257°15.7	45°50.7	S10°17.2	99°55.0	N12°11.5	107°45.9	N13°17.8	248°57.9	N00°48.0					
13	272°18.2	60°51.4	17.6	114°56.6	11.3	122°48.4	17.8	264°00.3	48.0					
14	287°20.6	75°52.1	18.0	129°58.3	11.0	137°50.8	17.8	279°02.8	48.0					
15	302°23.1	90°52.7	•• 18.4	145°00.0	•• 10.8	152°53.2	•• 17.8	294°05.3	•• 48.0					
16	317°25.6	105°53.4	18.8	160°01.6	10.6	167°55.6	17.8	309°07.8	48.0					
17	332°28.0	120°54.0	19.2	175°03.3	10.4	182°58.1	17.8	324°10.3	48.0					
18	347°30.5	135°54.7	S10°19.6	190°05.0	N12°10.1	198°00.5	N13°17.8	339°12.7	N00°48.0					
19	2°33.0	150°55.4	20.0	205°06.7	09.9	213°02.9	17.8	354°15.2	48.0					
20	17°35.4	165°56.0	20.4	220°08.3	09.7	228°05.3	17.8	9°17.7	48.0					
21	32°37.9	180°56.7	•• 20.8	235°10.0	•• 09.5	243°07.8	•• 17.8	24°20.2	•• 48.0					
22	47°40.3	195°57.3	21.2	250°11.7	09.2	258°10.2	17.8	39°22.6	48.0					
23	62°42.8	210°58.0	21.6	265°13.4	09.0	273°12.6	17.8	54°25.1	48.0					
Mer.pass. 18:50			ν 0.7' d 0.4' m -4.84			ν 1.7' d 0.2' m 0.34			ν 2.4' d 0.0' m -2.24			ν 2.5' d 0.0' m 0.64		

Stars	SHA	Dec
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.5	-42°09.7
Schedar	349°29.0	56°41.4
Diphda	348°45.6	-17°50.3
Achernar	335°18.7	-57°06.1
Hamal	327°49.2	23°35.5
Polaris	312°44.6	89°22.8
Acamar	315°10.2	-40°11.8
Menkar	314°04.2	4°11.8
Mirafak	308°25.5	49°57.5
Aldebaran	290°37.5	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.1	46°01.5
Bellatrix	278°20.9	6°22.5
Elmath	277°59.5	28°37.2
Alnilam	275°35.8	-1°11.1
Betelgeuse	270°50.1	7°24.7
Canopus	263°51.2	-52°42.5
Sirius	258°24.5	-16°45.1
Adhara	255°04.3	-29°00.4
Procyon	244°48.9	5°09.3
Pollux	243°15.1	27°57.5
Avior	234°13.7	-59°35.5
Suhail	222°44.9	-43°32.3
Miaplacidus	221°37.5	-69°49.4
Alphard	217°46.1	-8°46.5
Regulus	207°32.7	11°50.0
Dubhe	192°39.1	61°36.0
Denebola	182°23.4	14°25.2
Gienah	175°42.1	-17°41.4
Acrux	172°58.6	-63°14.7
Gacrux	171°50.1	-57°15.6
Alathoth	166°11.9	55°48.5
Spica	158°20.8	-11°18.1
Alkaid	152°51.1	49°10.5
Hamid	148°34.2	-60°30.0
Menkar	147°56.1	-36°30.0
Arcturus	145°46.8	19°02.4
Rigel Kent.	139°38.7	-60°56.6
Kochab	137°20.9	74°02.4
Zuben el	136°54.6	-16°09.2
Alphecca	126°02.8	26°37.4
Antares	112°14.3	-26°29.4
Atria	107°07.7	-69°04.5
Sabik	102°01.3	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	12°32.5
Eltanin	90°42.0	51°29.5
Kaus Aus.	83°30.8	-34°22.3
Vega	80°32.6	38°48.6
Nunki	75°46.2	-26°15.8
Altair	61°58.7	8°56.5
Peacock	53°03.7	-56°39.0
Deneb	49°25.0	45°22.8
Enif	33°37.4	10°00.1
Al Na'ir	27°31.1	-46°50.0
Fomalhaut	15°12.8	-29°28.8
Scheat	13°43.7	28°14.0
Markab	13°28.3	15°21.2

Dubhe	193°39.1	61°36.0
Denebola	182°23.4	14°25.2
Gienah	175°42.1	-17°41.4
Acrux	172°58.6	-63°14.7
Gacrux	171°50.1	-57°15.6
Alioth	166°11.9	55°48.5
Spica	158°20.8	-11°18.1
Alkaid	152°51.1	49°10.5
Hadar	148°34.2	-60°30.0
Menkent	147°56.1	-36°30.0
Arcturus	145°46.8	19°02.4
Rigel Kent.	139°38.7	-60°56.6
Kochab	137°20.9	74°02.4
Zuben 'ul	136°54.6	-16°09.2
Alphecca	126°02.8	26°37.4
Antares	112°14.3	-26°29.4
Atria	107°07.7	-69°04.5
Sabik	102°01.3	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	12°32.5
Eltanin	90°42.0	51°29.2
Kaus Aust.	83°30.8	34°22.3
Vega	80°32.6	38°48.6
Nunki	75°46.2	-26°15.8
Altair	61°58.7	8°56.5
Peacock	53°03.7	-56°39.0
Deneb	49°25.0	45°22.8
Enif	33°37.4	10°00.1
Al Na'ir	27°31.1	-46°50.0
Fomalhaut	15°12.8	-29°28.8
Scheat	13°43.7	28°10.4
Markab	13°28.3	15°21.2

Aries			Venus			Mars			Jupiter			Saturn		
Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	77°45.3	225°58.6	S10°22.0	280°15.0	N12°08.8	288°15.1	N13°17.8	69°27.6	N00°48.0					
1	92°47.7	240°59.3	22.4	295°16.7	08.5	303°17.5	17.8	84°30.1	48.0					
2	107°50.2	255°59.9	22.8	310°18.4	08.3	318°19.9	17.8	99°32.5	48.0					
3	122°52.7	271°00.5	•• 23.2	325°20.1	•• 08.1	333°22.3	•• 17.8	114°35.0	•• 48.1					
4	137°55.1	286°01.2	23.6	340°21.8	07.9	348°24.8	17.8	129°37.5	48.1					
5	152°57.6	301°01.8	24.0	355°23.4	07.6	3°27.2	17.8	144°40.0	48.1					
6	168°00.1	316°02.5	S10°24.0	10°25.1	N12°07.4	18°29.6	N13°17.8	159°42.5	N00°48.1					
7	183°02.5	331°03.1	24.8	25°26.8	07.2	33°32.1	17.8	174°44.9	48.1					
8	198°05.0	346°03.7	25.2	40°28.5	07.0	48°34.5	17.8	189°47.4	48.1					
9	213°07.5	1°04.4	•• 25.6	55°30.2	•• 06.8	63°36.9	•• 17.8	204°49.9	•• 48.1					
10	228°09.9	16°05.0	26.0	70°31.9	06.5	78°39.4	17.8	219°52.4	48.1					
11	243°12.4	31°05.6	26.4	85°33.5	06.3	93°41.8	17.8	234°54.8	48.1					
12	258°14.8	46°06.2	S10°26.8	100°35.2	N12°06.1	108°44.2	N13°17.8	249°57.3	N00°48.1					
13	273°17.3	61°06.9	27.2	115°36.9	05.9	123°46.7	17.8	264°59.8	48.1					
14	288°19.8	76°07.5	27.6	130°38.6	05.6	138°49.1	17.8	280°02.3	48.1					
15	303°22.2	91°08.1	•• 28.0	145°40.3	•• 05.4	153°51.5	•• 17.8	295°04.7	•• 48.1					
16	318°24.7	106°08.7	28.5	160°42.0	05.2	168°54.0	17.8	310°07.2	48.1					
17	333°27.2	121°09.4	28.9	175°43.7	05.0	183°56.4	17.8	325°09.7	48.1					
18	348°29.6	136°10.0	S10°29.3	190°45.4	N12°04.8	198°58.8	N13°17.8	340°12.1	N00°48.2					
19	3°32.1	151°10.6	29.7	205°47.0	04.5	214°01.3	17.8	355°14.6	48.2					
20	18°34.6	166°11.2	30.1	220°48.7	04.3	229°03.7	17.8	10°17.1	48.2					
21	33°37.0	181°11.8	•• 30.5	235°50.4	•• 04.1	244°06.1	•• 17.8	25°19.6	•• 48.2					
22	48°39.5	196°12.4	30.9	250°52.1	03.9	259°08.6	17.8	40°22.0	48.2					
23	63°42.0	211°13.0	31.4	265°53.8	03.7	274°11.0	17.8	55°24.5	48.2					
Mer.pass. 18:46 ν 0.6' d 0.4' m -4.83 ν 1.7' d 0.2' m 0.33 ν 2.4' d 0.0' m -2.25 ν 2.5' d 0.0' m 0.64														

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	78°44.4	226°13.6	S10°31.8	280°55.5	N12°03.4	289°13.4	N13°17.8	70°27.0	N00°48.2
1	93°46.9	241°14.3	32.2	295°57.2	03.2	304°15.9	17.8	85°29.5	48.2
2	108°49.3	256°14.9	32.6	310°58.9	03.0	319°18.3	17.8	100°31.9	48.2
3	123°51.8	271°15.5	•• 33.0	326°00.6	•• 02.8	334°20.8	•• 17.8	115°34.4	•• 48.2
4	138°54.3	286°16.1	33.5	341°02.3	02.6	349°23.2	17.8	130°36.9	48.2
5	153°56.7	301°16.7	33.9	356°04.0	02.3	4°25.6	17.8	145°39.3	48.2
6	168°59.2	316°17.3	S10°34.3	1°10.5	N12°02.1	19°28.1	N13°17.8	160°41.8	N00°48.3
7	184°01.7	331°17.9	34.7	26°07.4	01.9	34°30.5	17.8	175°44.3	48.3
8	199°04.1	346°18.4	35.2	41°09.1	01.7	49°32.9	17.8	190°46.8	48.3
9	214°06.6	1°19.0	•• 35.6	56°10.8	•• 01.5	64°35.4	•• 17.8	205°49.2	•• 48.3
10	229°09.1	16°19.6	36.0	71°12.5	01.3	79°37.8	17.8	220°51.7	48.3
11	244°11.5	31°20.2	36.4	86°14.2	01.0	94°40.3	17.8	235°54.2	48.3
12	259°14.0	46°20.8	S10°36.9	101°15.9	N12°00.8	109°42.7	N13°17.8	250°56.6	N00°48.3
13	274°16.5	61°21.4	37.3	116°17.6	00.6	124°45.1	17.8	265°59.1	48.3
14	289°18.9	76°22.0	37.7	131°19.3	00.4	139°47.6	17.8	281°01.6	48.3
15	304°21.4	91°22.6	•• 38.2	146°21.0	•• 00.2	154°50.0	•• 17.8	296°04.1	•• 48.3
16	319°23.8	106°23.1	38.6	161°22.7	12°00.0	169°52.5	17.8	311°06.5	48.3
17	334°26.3	121°23.7	39.0	176°24.4	11°59.7	184°54.9	17.8	326°09.0	48.3
18	349°28.8	136°24.3	S10°39.5	191°26.1	N11°59.5	199°57.4	N13°17.9	341°11.5	N00°48.4
19	4°31.2	151°24.9	39.9	206°27.8	59.3	214°59.8	17.9	356°13.9	48.4
20	19°33.7	166°25.5	40.3	221°29.6	59.3	230°02.2	17.9	1°11.6	48.4
21	34°36.2	181°26.0	•• 40.8	236°31.3	•• 58.9	245°04.7	•• 17.9	26°18.9	•• 48.4
22	49°38.6	196°26.6	41.2	251°33.0	58.7	260°07.1	17.9	41°21.3	48.4
23	64°41.1	211°27.2	41.6	266°34.7	58.5	275°09.6	17.9	56°23.8	48.4
Mer.pass. 18:42 ν 0.6' d 0.4' m -4.82 ν 1.7' d 0.2' m 0.31 ν 2.4' d 0.0' m -2.26 ν 2.5' d 0.0' m 0.65									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	79°43.6	226°27.7	S10°42.1	281°36.4	N11°58.2	290°12.0	N13°17.9	71°26.3	N00°48.4
1	94°46.0	241°28.3	42.5	296°38.1	58.0	305°14.5	17.9	86°28.7	48.4
2	109°48.5	256°28.9	43.0	311°39.8	57.8	320°16.9	17.9	101°31.2	48.4
3	124°50.9	271°29.4	•• 43.4	326°41.5	•• 57.6	335°19.3	•• 17.9	116°33.7	•• 48.4
4	139°53.4	286°30.0	43.8	341°43.2	57.4	350°21.8	17.9	131°36.1	48.5
5	154°55.9	301°30.6	44.3	356°45.0	57.2	5°24.2	17.9	146°38.6	48.5
6	169°58.3	316°31.1	S10°44.7	1°14.6	N11°57.0	20°26.7	N13°17.9	161°41.1	N00°48.5
7	185°00.8	331°31.7	45.2	26°48.4	56.8	35°29.1	17.9	176°43.5	48.5
8	200°03.3	346°32.2	45.6	41°50.1	56.6	50°31.6	17.9	191°46.0	48.5
9	215°05.7	1°32.8	•• 46.1	56°51.8	•• 56.3	65°34.0	•• 17.9	206°48.5	•• 48.5
10	230°08.2	16°33.3	46.5	71°53.6	56.1	80°36.5	17.9	221°50.9	48.5
11	245°10.7	31°33.9	47.0	86°55.3	55.9	95°38.9	17.9	236°53.4	48.5
12	260°13.1	46°34.5	S10°47.4	101°57.0	N11°55.7	110°41.4	N13°17.9	251°55.9	N00°48.5
13	275°15.6	61°35.0	47.9	116°58.7	55.5	125°43.8	17.9	266°58.3	48.5
14	290°18.1	76°35.4	48.3	132°00.4	55.3	140°46.3	17.9	282°00.8	48.6
15	305°20.5	91°36.1	•• 48.8	147°02.2	•• 55.1	155°48.7	•• 17.9	297°03.3	•• 48.6
16	320°23.0	106°36.6	49.2	162°03.9	54.9	170°51.2	18.0	312°05.7	48.6
17	335°25.4	121°37.2	49.7	177°05.6	54.7	185°53.6	18.0	327°08.2	48.6
18	350°27.9	136°37.7	S10°50.1	192°07.1	N11°54.5	200°56.1	N13°18.0	342°10.7	N00°48.6
19	5°30.4	151°38.3	50.6	207°09.1	54.3	215°58.5	18.0	357°13.1	48.6
20	20°32.8	166°38.8	51.0	222°10.8	54.1	231°01.0	18.0	12°15.6	48.6
21	35°35.3	181°39.3	•• 51.5	237°12.5	•• 53.8	246°03.4	•• 18.0	27°18.1	•• 48.6
22	50°37.8	196°39.9	51.9	252°14.2	53.6	261°05.9	18.0	42°20.5	48.6
23	65°40.2	211°40.4	52.4	267°16.0	53.4	276°08.3	18.0	57°23.0	48.7
Mer.pass. 18:38 ν 0.6' d 0.4' m -4.81 ν 1.7' d 0.2' m 0.29 ν 2.4' d 0.0' m -2.26 ν 2.5' d 0.0' m 0.65									

Stars		
SHA	Dec	
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.5	-42°09.7
Schedar	349°29.0	56°41.4
Diphda	348°45.6	-17°50.3
Achernar	335°18.7	-57°06.2
Hamal	327°49.1	23°35.6
Polaris	312°44.9	89°22.8
Acamar	315°10.2	-40°11.9
Menkar	314°04.2	4°11.8
Mirfak	308°25.5	49°57.5
Aldebaran	290°37.5	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.1	46°01.5
Bellatrix	278°20.8	6°22.5
Elath	277°59.5	28°37.8
Alnilam	275°35.8	-1°11.1
Betelgeuse	270°50.0	7°22.4
Canopus	263°51.2	-52°42.5
Sirius	258°24.5	-16°45.1
Adhara	255°04.3	-29°00.4
Procyon	244°48.9	5°09.3
Pollux	243°15.1	27°57.5
Avior	234°13.6	-59°35.5
Suhail	222°44.9	-49°42.3
Miaplacidus	221°37.4	-69°49.4
Alphard	217°46.1	-8°46.5
Regulus	207°32.7	11°55.0
Dubhe	193°39.1	61°36.0
Denebola	182°23.4	14°25.2
Gienah	175°42.1	-17°41.4
Acrux	172°58.5	-63°14.7
Gacrux	171°50.1	-57°15.6
Alloth	166°11.9	-55°48.5
Spica	158°20.8	-11°18.1
Alkaid	152°51.1	49°10.5
Henkar	148°34.2	-60°30.0
Meadar	147°56.0	-36°30.0
Arcturus	145°46.7	19°02.8
Rigel Kent.	139°38.6	-60°56.6
Kochab	137°20.9	74°02.4
Zuben el	136°54.6	-16°09.2
Alphecca	126°02.8	26°37.4
Antares	112°14.3	-26°29.4
Atria	107°07.6	-69°04.5
Sabik	102°01.3	-15°45.4
Shaula	96°08.7	-37°07.4
Rasalhague	95°57.4	12°32.5
Eltanin	90°42.0	51°29.2
Kaus Aus.	83°30.8	-34°22.3
Vega	80°32.6	38°48.6
Nunki	75°46.2	-26°15.8
Altair	61°58.7	8°56.5
Peacock	53°03.7	-56°39.0
Deneb	49°25.0	45°22.8
Enif	33°37.4	10°00.1
Al Na'ir	27°31.1	-46°50.0
Fomalhaut	15°12.8	-29°28.8
Scheat	13°43.7	28°14.0
Markab	13°28.3	15°21.2

Dec 09 Wed	SHA	Mer.pass.
Venus	148°13.3	08:56
Mars	202°29.8	05:18
Jupiter	210°29.8	04:46
Saturn	351°42.3	19:1

Aries			Venus			Mars			Jupiter			Saturn		
Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	
0	80°42.7	226°40.9	S10°52.8	282°17.7	N11°53.2	291°10.8	N13°18.0	72°25.5	N00°48.7					
1	95°45.2	241°41.5	53.3	297°19.4	53.0	306°13.2	18.0	87°27.9	48.7					
2	110°47.6	256°42.0	53.7	312°21.2	52.8	321°15.7	18.0	102°30.4	48.7					
3	125°50.1	271°42.5	•• 54.2	327°22.9	•• 52.6	336°18.1	•• 18.0	117°32.9	•• 48.7					
4	140°52.6	286°43.0	54.7	342°24.6	52.4	351°20.6	18.0	132°35.3	48.7					
5	155°55.0	301°43.6	55.1	357°26.4	52.2	6°23.0	18.0	147°37.8	48.7					
6	170°57.5	316°44.1	S10°55.6	12°28.1	N11°52.0	21°25.5	N13°18.0	162°40.2	N00°48.7					
7	185°59.9	331°44.6	56.0	27°29.8	51.8	36°27.9	18.1	177°42.7	48.8					
8	201°02.4	346°45.1	56.5	42°31.6	51.6	51°30.4	18.1	192°45.2	48.8					
9	216°04.9	1°45.7	•• 57.0	57°33.3	•• 51.4	66°32.9	•• 18.1	207°47.6	•• 48.8					
10	231°07.3	16°46.2	57.4	72°35.0	51.2	81°35.3	18.1	222°50.1	48.8					
11	246°09.8	31°46.7	57.9	87°36.8	51.0	96°37.8	18.1	237°52.6	48.8					
12	261°12.3	46°47.2	S10°58.4	102°38.5	N11°50.8	111°40.2	N13°18.1	252°55.0	N00°48.8					
13	276°14.7	61°47.7	58.8	117°40.3	50.6	126°42.7	18.1	267°57.5	48.8					
14	291°17.2	76°48.2	59.3	132°42.0	50.4	141°45.1	18.1	282°59.9	48.8					
15	306°19.7	91°48.7	10°59.8	147°43.7	•• 50.2	156°47.6	•• 18.1	298°02.4	•• 48.9					
16	321°22.1	106°49.2	11°00.2	162°45.5	50.0	171°50.1	18.1	313°04.9	48.9					
17	336°24.6	121°49.7	00.7	177°47.2	49.6	186°52.5	18.1	328°07.3	48.9					
18	351°27.1	136°50.2	S11°01.2	192°49.0	N11°49.6	201°55.0	N13°18.1	343°09.8	N00°48.9					
19	6°29.5	151°50.8	01.6	207°50.7	49.4	216°57.4	18.2	358°12.2	48.9					
20	21°32.0	166°51.3	02.1	222°52.5	49.2	231°59.9	18.2	13°14.7	48.9					
21	36°34.4	181°51.8	•• 02.6	237°54.2	•• 49.0	247°02.3	•• 18.2	28°17.2	•• 48.9					
22	51°36.9	196°52.3	03.1	252°55.9	48.8	262°04.8	18.2	43°19.6	48.9					
23	66°39.4	211°52.7	03.5	267°57.7	48.6	277°07.3	18.2	58°22.1	49.0					
Mer.pass. 18:34			ν 0.5' d 0.5' m -4.80			ν 1.7' d 0.2' m 0.27			ν 2.5' d 0.0' m -2.27			ν 2.5' d 0.0' m 0.66		

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec					
0	81°41.8	226°53.2	S11°04.0	282°59.4	N11°48.4	292°09.7	N13°18.2	73°24.5	N00°49.0					
1	96°44.3	241°53.7	04.5	298°01.2	48.2	307°12.2	18.2	88°27.0	49.0					
2	111°46.8	256°54.2	05.0	313°02.9	48.0	322°14.6	18.2	103°29.5	49.0					
3	126°49.2	271°54.7	•• 05.4	328°04.7	•• 47.8	337°17.1	•• 18.2	118°31.9	•• 49.0					
4	141°51.7	286°55.2	05.9	343°06.4	47.6	352°19.6	18.2	133°34.4	49.0					
5	156°54.2	301°55.7	06.4	358°08.2	47.4	7°22.0	18.3	148°36.8	49.0					
6	171°56.6	316°56.2	S11°06.9	13°09.9	N11°47.2	22°24.5	N13°18.3	163°39.3	N00°49.1					
7	186°59.1	331°56.7	07.3	28°11.7	47.0	37°27.0	18.3	178°41.8	49.1					
8	202°01.6	346°57.2	07.8	43°13.5	46.8	52°29.4	18.3	193°44.2	49.1					
9	217°04.0	1°57.6	•• 08.3	58°15.2	•• 46.6	67°31.9	•• 18.3	208°46.7	•• 49.1					
10	232°06.5	16°58.1	08.8	73°17.0	46.4	82°34.3	18.3	223°49.1	49.1					
11	247°08.9	31°58.6	09.3	88°18.7	46.2	97°36.8	18.3	238°51.6	49.1					
12	262°11.4	46°59.1	S11°09.7	103°20.5	N11°46.0	112°39.3	N13°18.3	253°54.1	N00°49.1					
13	277°13.9	61°59.6	10.2	118°22.2	45.8	127°41.7	18.3	268°56.5	49.2					
14	292°16.3	77°00.0	10.7	133°24.0	45.6	142°44.2	18.3	283°59.0	49.2					
15	307°18.8	92°00.5	•• 11.2	148°25.7	•• 45.4	157°46.7	•• 18.4	299°01.4	•• 49.2					
16	322°21.3	107°01.0	11.7	163°27.5	45.2	172°49.1	18.4	314°03.9	49.2					
17	337°23.7	122°01.4	12.2	178°29.3	45.0	187°51.6	18.4	329°06.3	49.2					
18	352°26.2	137°01.9	S11°12.6	193°31.0	N11°44.8	202°54.1	N13°18.4	344°08.8	N00°49.2					
19	7°28.7	152°02.4	13.1	208°32.8	44.7	217°56.5	18.4	359°11.3	49.2					
20	22°31.1	167°02.9	13.6	223°34.6	44.5	232°59.0	18.4	14°13.7	49.3					
21	37°33.6	182°03.3	•• 14.1	238°36.3	•• 44.3	248°01.5	•• 18.4	29°16.2	•• 49.3					
22	52°36.0	197°03.8	14.6	253°38.1	44.1	263°03.9	18.4	44°18.6	49.3					
23	67°38.5	212°04.2	15.1	268°39.9	43.9	278°06.4	18.5	59°21.1	49.3					
Mer.pass. 18:30			ν 0.5' d 0.5' m -4.79			ν 1.7' d 0.2' m 0.25			ν 2.5' d 0.0' m -2.28			ν 2.5' d 0.0' m 0.66		

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	82°41.0	227°04.7	S11°15.6	283°41.6	N11°43.7	293°08.9	N13°18.5	74°23.5	N00°49.3
1	97°43.4	242°05.2	16.1	298°43.4	43.5	308°11.3	18.5	89°26.0	49.3
2	112°45.9	257°05.6	16.5	313°45.2	43.3	323°13.8	18.5	104°28.4	49.3
3	127°48.4	272°06.1	•• 17.0	328°46.9	•• 43.1	338°16.3	•• 18.5	119°30.9	•• 49.4
4	142°50.8	287°06.5	17.5	343°48.7	42.9	353°18.7	18.5	134°33.4	49.4
5	157°53.3	302°07.0	18.0	358°50.5	42.7	8°21.2	18.5	149°35.8	49.4
6	172°55.8	317°07.4	S11°18.5	13°52.2	N11°42.5	23°23.7	N13°18.5	164°38.3	N00°49.4
7	187°58.2	332°07.9	19.0	28°54.0	42.4	38°26.1	18.6	179°40.7	49.4
8	203°00.7	347°08.3	19.5	43°55.8	42.2	53°28.6	18.6	194°43.2	49.4
9	218°03.2	2°08.8	•• 20.0	58°57.5	•• 42.0	68°31.1	•• 18.6	209°45.6	•• 49.5
10	233°05.6	17°09.2	20.5	73°59.3	41.8	83°33.6	18.6	224°48.1	49.5
11	248°08.1	32°09.7	21.0	89°01.1	41.6	98°36.0	18.6	239°50.5	49.5
12	263°10.5	47°10.1	S11°21.5	104°02.9	N11°41.4	113°38.5	N13°18.6	254°53.0	N00°49.5
13	278°13.0	62°10.6	22.0	119°04.6	41.2	128°41.0	18.6	269°55.4	49.5
14	293°15.5	77°11.0	22.5	134°06.4	41.0	143°43.4	18.7	284°57.9	49.5
15	308°17.9	92°11.4	•• 23.0	149°08.2	•• 40.9	158°45.9	•• 18.7	300°00.4	•• 49.5
16	323°20.4	107°11.9	23.5	164°10.0	40.7	173°48.4	18.7	315°02.8	49.6
17	338°22.9	122°12.3	24.0	179°11.8	40.5	188°50.9	18.7	330°05.3	49.6
18	353°25.3	137°12.8	S11°24.5	194°13.5	N11°40.3	203°53.3	N13°18.7	345°07.7	N00°49.6
19	8°27.8	152°13.2	25.0	209°15.3	40.1	218°55.8	18.7	0°10.2	49.6
20	23°30.3	167°13.6	25.5	224°17.1	39.9	233°58.3	18.7	15°12.6	49.6
21	38°32.7	182°14.1	•• 26.0	239°18.9	•• 39.7	249°00.8	•• 18.8	30°15.1	•• 49.6
22	53°35.2	197°14.5	26.5	254°20.7	39.6	264°03.2	18.8	45°17.5	49.7
23	68°37.7	212°14.9	27.0	269°22.5	39.4	279°05.7	18.8	60°20.0	49.7
Mer.pass. 18:26 ν 0.5' d 0.5' m -4.78 ν 1.8' d 0.2' m 0.23 ν 2.5' d 0.0' m -2.29 ν 2.5' d 0.0' m 0.67									

Stars		
	SHA	Dec
Alpheratz	357°33.0	29°14.6
Ankaa	353°05.5	-42°09.7
Schedar	349°29.0	56°41.4
Diphda	348°45.6	-17°50.3
Achernar	335°18.7	-57°06.2
Hamal	327°49.1	23°35.6
Polaris	312°45.4	89°22.8
Acamar	315°10.2	-40°11.9
Menkar	314°04.2	4°11.8
Mirafak	308°25.5	49°57.6
Aldebaran	290°37.4	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.0	46°01.5
Bellatrix	278°20.8	6°22.5
Elnath	277°59.5	28°37.9
Alnilam	275°35.8	-1°11.1
Betelgeuse	270°50.0	7°24.7
Canopus	263°51.1	-52°42.5
Sirius	258°24.5	-16°45.2
Adhara	255°04.3	-29°00.4
Procyon	244°48.9	5°09.3
Pollux	243°15.1	27°57.5
Avior	234°13.6	-59°35.5
Suhail	222°44.9	-43°32.3
Miaplacidus	221°37.4	-69°49.4
Alphard	217°46.0	-8°46.5
Regulus	207°32.6	11°50.0
Dubhe	193°39.0	61°36.0
Denebola	182°23.4	14°25.2
Gienah	175°42.0	-17°41.4
Acrux	172°58.5	-63°14.7
Gacrux	171°50.0	-57°15.6
Alloth	166°11.8	55°48.5
Spica	158°20.8	-11°18.1
Alkaid	152°51.1	49°10.5
Hadar	148°34.2	-60°30.0
Menkent	147°56.0	-36°30.0
Arcturus	145°46.7	19°02.4
Rigel Kent.	139°38.6	-60°56.6
Kochab	137°20.9	74°02.4
Zuben'ubi	136°54.5	-16°09.2
Alphecca	126°02.7	26°37.3
Antares	112°14.3	-26°29.4
Atria	107°07.6	-69°04.4
Sabik	102°01.3	-15°45.5
Shaula	96°08.6	-37°07.4
Rasalhague	95°57.4	12°32.4
Eltanin	90°42.0	51°29.1
Kaus Aust.	83°30.8	-34°22.3
Vega	80°32.6	38°48.6
Nunki	75°46.1	-26°15.5
Altair	61°58.7	8°56.5
Peacock	53°03.7	-56°39.0
Deneb	49°25.0	45°22.8
Enif	33°37.4	10°00.0
Al Na'ir	27°37.1	-46°50.0
Fomalhaut	15°12.8	-29°28.9
Scheat	13°43.7	28°14.0
Markab	13°28.3	15°21.2
Dec 12 Sat	SHA	Mer.pass
Venus	145°58.2	08:53
Mars	201°35.0	05:10
Jupiter	210°28.1	04:35
Saturn	351°42.8	19:07
Dec 13 Sun	SHA	Mer.pass
Venus	145°11.4	08:52
Mars	201°17.6	05:07
Jupiter	210°27.9	04:31
Saturn	351°42.7	19:03
Dec 14 Mon	SHA	Mer.pass
Venus	144°23.7	08:51
Mars	201°00.6	05:05
Jupiter	210°27.9	04:27
Saturn	351°42.6	18:59
Horizontal parallax		
Venus:	0.3	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	83°40.1	227°15.3	S11°27.5	284°24.2	N11°39.2	294°08.2	N13°18.8	75°22.4	N00°49.7										
1	98°42.6	242°15.8	28.0	299°26.0	39.0	309°10.7	18.8	90°24.9	49.7										
2	113°45.0	257°16.2	28.5	314°27.8	38.8	324°13.1	18.8	105°27.3	49.7										
3	128°47.5	272°16.6	•• 29.0	329°29.6	•• 38.6	339°15.6	•• 18.8	120°29.8	•• 49.8										
4	143°50.0	287°17.0	29.5	344°31.4	29.5	354°18.1	18.9	135°32.2	49.8										
5	158°52.4	302°17.4	30.0	359°33.2	38.3	9°20.6	18.9	150°34.7	49.8										
6	173°54.9	317°17.9	S11°30.5	14°35.0	N11°38.1	24°23.1	N13°18.9	165°37.1	N00°49.8										
7	188°57.4	332°18.3	31.0	29°36.8	37.9	39°25.5	18.9	180°39.6	49.8										
8	203°59.8	347°18.7	31.5	44°38.5	37.7	54°28.0	18.9	195°42.0	49.8										
9	219°02.3	2°19.1	•• 32.1	59°40.3	•• 37.5	69°30.5	•• 18.9	210°44.5	•• 49.9										
10	234°04.8	17°19.5	32.6	74°42.1	37.4	84°33.0	19.0	225°46.9	49.9										
11	249°07.2	32°19.9	33.1	89°43.9	37.2	99°35.4	19.0	240°49.4	49.9										
12	264°09.7	47°20.3	S11°33.6	104°45.7	N11°37.0	114°37.9	N13°19.0	255°51.8	N00°49.9										
13	279°12.1	62°20.8	34.1	119°47.5	36.8	129°40.4	19.0	270°54.3	49.9										
14	294°14.6	77°21.2	34.6	134°49.3	36.6	144°42.9	19.0	285°56.7	49.9										
15	309°17.1	92°21.6	•• 35.1	149°51.1	•• 36.5	159°45.4	•• 19.0	300°59.2	•• 50.0										
16	324°19.5	107°22.0	35.6	164°52.9	36.3	174°47.8	19.1	316°01.6	50.0										
17	339°22.0	122°22.4	36.1	179°54.7	36.1	189°50.3	19.1	331°04.1	50.0										
18	354°24.5	137°22.8	S11°36.7	194°56.5	N11°35.9	204°52.8	N13°19.1	346°06.5	N00°50.0										
19	9°26.9	152°23.2	37.2	209°58.3	35.7	219°55.3	19.1	1°09.0	50.0										
20	24°29.4	167°23.6	37.7	225°00.1	35.6	234°57.8	19.1	16°11.4	50.1										
21	39°31.9	182°24.0	•• 38.2	240°01.9	•• 35.4	250°00.3	•• 19.1	31°13.9	•• 50.1										
22	54°34.3	197°24.4	38.7	255°03.7	35.2	265°02.7	19.2	46°16.3	50.1										
23	69°36.8	212°24.8	39.2	270°05.5	35.0	280°05.2	19.2	61°18.8	50.1										
Mer.pass. 18:22				ν 0.4' d 0.5' m -4.77				ν 1.8' d 0.2' m 0.21				ν 2.5' d 0.0' m -2.29				ν 2.5' d 0.0' m 0.67			

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	84°39.3	227°25.2	S11°39.8	285°07.3	N11°34.9	295°07.7	N13°19.2	76°21.2	N00°50.1										
1	99°41.7	242°25.6	40.3	300°09.1	34.7	310°10.2	19.2	91°23.7	50.1										
2	114°44.2	257°25.9	40.8	315°10.9	34.5	325°12.7	19.2	106°26.1	50.2										
3	129°46.6	272°26.3	.. 41.3	330°12.7	.. 34.3	340°15.2	.. 19.3	121°28.5	.. 50.2										
4	144°49.1	287°26.7	41.8	345°14.5	34.2	355°17.6	19.3	136°31.0	50.2										
5	159°51.6	302°27.1	42.4	0°16.3	34.0	10°20.1	19.3	151°33.4	50.2										
6	174°54.0	317°27.5	S11°42.9	15°18.2	N11°33.8	25°22.6	N13°19.3	166°35.9	N00°50.2										
7	189°56.5	332°27.9	43.4	30°20.0	33.6	40°25.1	19.3	181°38.3	50.3										
8	204°59.0	347°28.3	43.9	45°21.8	33.5	55°27.6	19.3	196°40.8	50.3										
9	220°01.4	2°28.6	.. 44.4	60°23.6	.. 33.3	70°30.1	.. 19.4	211°43.2	.. 50.3										
10	235°03.9	17°29.0	45.0	75°25.4	33.1	85°32.6	19.4	226°45.7	50.3										
11	250°06.4	32°29.4	45.5	90°27.2	32.9	100°35.1	19.4	241°48.1	50.3										
12	265°08.8	47°29.8	S11°46.0	105°29.0	N11°32.8	115°37.5	N13°19.4	256°50.6	N00°50.4										
13	280°11.3	62°30.2	46.5	120°30.8	32.6	130°40.4	19.4	271°53.0	50.4										
14	295°13.8	77°30.5	47.1	135°32.7	32.4	145°42.5	19.5	286°55.4	50.4										
15	310°16.2	92°30.9	.. 47.6	150°34.5	.. 32.3	160°45.0	.. 19.5	301°57.9	.. 50.4										
16	325°18.7	107°31.3	48.1	165°36.3	32.1	175°47.5	19.5	317°00.3	50.4										
17	340°21.1	122°31.6	48.6	180°38.1	31.9	190°50.9	19.5	332°02.8	50.5										
18	355°23.6	137°32.0	S11°49.2	195°39.9	N11°31.7	205°52.5	N13°19.5	347°05.2	N00°50.5										
19	10°26.1	152°32.4	49.7	210°41.7	31.6	220°55.0	19.6	2°07.7	50.5										
20	25°28.5	167°32.7	50.2	225°43.6	31.4	235°57.5	19.6	17°10.1	50.5										
21	40°31.0	182°33.1	.. 50.7	240°45.4	.. 31.2	250°59.9	.. 19.6	32°12.6	.. 50.5										
22	55°33.5	197°33.5	51.3	255°47.2	31.1	266°02.4	19.6	47°15.0	50.6										
23	70°35.9	212°33.8	51.8	270°49.0	30.9	281°04.9	19.7	62°17.4	50.6										
Mer.pass. 18:18				ν 0.4' d 0.5' m -4.76				ν 1.8' d 0.2' m 0.20				ν 2.5' d 0.0' m -2.30				ν 2.4' d 0.0' m 0.67			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	85°38.4	227°34.2	S11°52.3	285°50.9	N11°30.7	296°07.4	N13°19.7	77°19.9	N00°50.6
1	100°40.9	242°34.6	52.9	300°52.7	30.6	311°09.9	19.7	92°22.3	50.6
2	115°43.3	257°34.9	53.4	315°54.5	30.4	326°12.4	19.7	107°24.8	50.6
3	130°45.8	272°35.3	· · 53.9	330°56.3	· · 30.2	341°14.9	· · 19.7	122°27.2	· · 50.7
4	145°48.2	287°35.6	54.5	345°58.2	30.0	356°17.4	19.8	137°29.7	50.7
5	160°50.7	302°36.0	55.0	1°00.0	29.9	11°19.9	19.8	152°32.1	50.7
6	175°53.2	317°36.3	S11°55.5	16°01.8	N11°29.7	26°22.4	N13°19.8	167°34.5	N00°50.7
7	190°55.6	332°36.7	56.1	31°03.6	29.5	41°24.9	19.8	182°37.0	50.8
8	205°58.1	347°37.0	56.6	46°05.5	29.4	56°27.4	19.8	197°39.4	50.8
9	221°00.6	2°37.4	· · 57.1	61°07.3	· · 29.2	71°29.9	· · 19.9	212°41.9	· · 50.8
10	236°03.0	17°37.7	57.7	76°09.1	29.1	86°32.4	19.9	227°44.3	50.8
11	251°05.5	32°38.1	58.2	91°11.0	28.9	101°34.8	19.9	242°46.8	50.8
12	266°08.0	47°38.4	S11°58.7	106°12.8	N11°28.7	116°37.3	N13°19.9	257°49.2	N00°50.9
13	281°10.4	62°38.8	59.3	121°14.6	28.6	131°39.8	20.0	272°51.6	50.9
14	296°12.9	77°39.1	11°59.8	136°16.5	28.4	146°42.3	20.0	287°54.1	50.9
15	311°15.4	92°39.5	12°00.3	151°18.3	· · 28.2	161°44.8	· · 20.0	302°56.5	· · 50.9
16	326°17.8	107°39.8	59.9	166°20.1	28.1	176°47.3	20.0	317°59.0	50.9
17	341°20.3	122°40.1	01.4	181°22.0	27.9	191°49.8	20.0	333°01.4	51.0
18	356°22.7	137°40.5	S12°02.0	196°23.8	N11°27.7	206°52.3	N13°20.1	348°03.8	N00°51.0
19	11°25.2	152°40.8	02.5	211°25.7	27.6	221°54.8	20.1	3°06.3	51.0
20	26°27.7	167°41.1	03.0	226°27.5	27.4	236°57.3	20.1	18°08.7	51.0
21	41°30.1	182°41.5	· · 03.6	241°29.3	· · 27.3	251°59.8	· · 20.1	33°11.2	· · 51.1
22	56°32.6	197°41.8	04.1	256°31.2	27.1	267°02.3	20.2	48°13.6	51.1
23	71°35.1	212°42.1	04.7	271°33.0	26.9	282°04.8	20.2	63°16.0	51.1
Mer.pass. 18:14 ν 0.4' d 0.5' m -4.75 ν 1.8' d 0.2' m 0.18 ν 2.5' d 0.0' m -2.31 ν 2.4' d 0.0' m 0.68									

Stars		
	SHA	Dec
Alpheratz	357°33.1	29°14.6
Ankaa	353°05.5	-42°09.7
Schedar	349°29.0	56°41.5
Diphda	348°45.6	-17°50.3
Achernar	335°18.7	-57°06.2
Hamal	327°49.2	23°35.6
Polaris	312°46.2	89°22.8
Acamar	315°10.2	-40°11.9
Menkar	314°04.2	4°11.8
Mirafak	308°25.5	49°57.6
Aldebaran	290°37.4	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.0	46°01.5
Bellatrix	278°20.8	6°22.5
Elnath	277°59.5	28°37.8
Alnilam	275°35.8	-1°11.1
Betelgeuse	270°50.0	7°22.4
Canopus	263°51.1	-52°42.5
Sirius	258°24.5	-16°45.2
Adhara	255°04.2	-29°00.5
Procyon	244°48.9	5°09.3
Pollux	243°15.0	27°57.5
Avior	234°13.6	-59°35.6
Suhail	222°44.8	-43°32.3
Miaplacidus	221°37.3	-69°49.9
Alphard	217°46.0	-8°46.5
Regulus	207°32.6	11°50.0
Dubhe	193°39.0	61°36.0
Denebola	182°23.3	14°25.1
Gienah	175°42.0	-17°41.4
Acrux	172°58.4	-63°14.7
Gacrux	171°50.0	-57°15.6
Alitho	166°11.8	55°48.5
Spica	158°20.8	-11°18.1
Alkaid	152°51.0	49°10.4
Hadar	148°34.1	-60°30.0
Menkent	147°56.0	-36°30.0
Arcturus	145°46.7	19°02.4
Rigel Kent	139°38.6	-60°56.6
Kochab	137°20.8	74°02.4
Zuben'ubi	136°54.5	-16°09.2
Alphecca	126°02.7	26°37.3
Antares	112°14.2	-26°29.4
Atria	107°07.6	-69°04.4
Sabik	102°01.3	-15°45.5
Suhaila	96°08.6	-37°07.3
Rasalhague	95°57.4	12°32.4
Eltanin	90°42.0	51°29.1
Kaus Aust.	83°30.8	-34°22.3
Vega	80°32.6	38°48.6
Nunki	75°46.1	-26°15.8
Altair	61°58.7	8°56.5
Peacock	53°03.7	-56°39.0
Deneb	49°25.0	45°28.8
Enif	33°27.4	10°06.0
Al Na'ir	27°31.1	-46°50.0
Fomalhaut	15°12.8	29°29.4
Scheat	13°43.7	-28°19.8
Markab	13°26.4	-15°21.2
Dec 15 Tue		
Venus	143°35.2	08:51
Mars	200°44.1	05:02:03
Jupiter	210°28.1	04:23:04
Saturn	351°42.3	18:55
Dec 16 Wed		
Venus	142°45.9	08:50
Mars	200°28.1	04:59
Jupiter	210°28.5	04:19
Saturn	351°41.9	18:52
Dec 17 Thu		
Venus	141°55.8	08:50
Mars	200°12.5	04:56
Jupiter	210°29.0	04:15
Saturn	351°41.5	18:48
Horizontal parallax		
Venus:	0.3	
Mars:	0.1	

Aries				Venus				Mars				Jupiter				Saturn			
Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	86°37.5	227°42.5	S12°05.2	286°34.9	N11°26.8	297°07.3	N13°20.2	78°18.5	N00°51.1										
1	101°40.0	242°42.8	05.7	301°36.7	26.6	312°09.8	20.2	93°20.9	51.1										
2	116°42.5	257°43.1	06.3	316°38.6	26.4	327°12.3	20.3	108°23.3	51.2										
3	131°44.9	272°43.5	•• 06.8	331°40.4	•• 26.3	342°14.8	•• 20.3	123°25.8	•• 51.2										
4	146°47.4	287°43.8	07.4	346°42.2	26.1	357°17.3	20.3	138°28.2	51.2										
5	161°49.9	302°44.1	07.9	1°44.1	26.0	12°19.8	20.3	153°30.7	51.2										
6	176°52.3	317°44.4	S12°08.5	16°45.9	N11°25.8	27°22.3	N13°20.4	168°33.1	N00°51.3										
7	191°54.8	332°44.7	09.0	31°47.8	25.7	42°24.8	20.4	183°35.5	51.3										
8	206°57.2	347°45.1	09.5	46°49.6	25.5	57°27.3	20.4	198°38.0	51.3										
9	221°59.7	2°45.4	•• 10.1	61°51.5	•• 25.3	72°29.8	•• 20.4	213°40.4	•• 51.3										
10	237°02.2	17°45.7	10.6	76°53.2	25.2	87°32.3	20.5	228°42.9	51.3										
11	252°04.6	32°46.0	11.2	91°55.2	25.0	102°34.8	20.5	243°45.3	51.4										
12	267°07.1	47°46.3	S12°11.7	106°57.0	N11°24.9	117°37.3	N13°20.5	258°47.7	N00°51.4										
13	282°09.6	62°46.6	12.3	121°58.9	24.6	132°39.8	20.5	273°50.2	51.4										
14	297°12.0	77°47.0	12.8	137°00.8	24.7	147°42.3	20.6	288°52.6	51.4										
15	312°14.5	92°47.3	•• 13.4	152°02.6	•• 24.4	162°44.8	•• 20.6	303°55.0	•• 51.5										
16	327°17.0	107°47.6	13.9	167°04.5	24.2	177°47.4	20.6	318°57.5	51.5										
17	342°19.4	122°47.9	14.5	182°06.3	24.1	192°49.9	20.6	333°59.9	51.5										
18	357°21.9	137°48.2	S12°15.0	197°08.2	N11°23.9	207°52.4	N13°20.7	349°02.3	N00°51.5										
19	12°24.3	152°48.5	15.6	212°10.0	23.8	222°54.9	20.7	4°04.8	51.6										
20	27°26.8	167°48.8	16.1	227°11.9	23.6	237°57.4	20.7	19°07.2	51.6										
21	42°29.3	182°49.1	•• 16.7	242°13.8	•• 23.5	252°59.9	•• 20.7	34°09.6	•• 51.6										
22	57°31.7	197°49.4	17.2	257°15.6	23.3	268°02.4	20.8	49°12.1	51.6										
23	72°34.2	212°49.7	17.8	272°17.5	23.2	283°04.9	20.8	64°14.5	51.7										
Mer.pass. 18:11				ν 0.3' d 0.5' m -4.74				ν 1.8' d 0.2' m 0.16				ν 2.5' d 0.0' m -2.31				ν 2.4' d 0.0' m 0.68			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	87°36.7	227°50.0	S12°18.3	287°19.3	N11°23.0	298°07.4	N13°20.8	79°17.0	N00°51.7
1	102°39.1	242°50.3	18.9	302°21.2	22.9	313°09.9	20.8	94°19.4	51.7
2	117°41.6	257°50.6	19.4	317°23.1	22.7	328°12.4	20.9	109°18.2	51.7
3	132°44.1	272°50.9	•• 20.0	332°24.9	•• 22.6	343°14.9	•• 20.9	124°24.3	•• 51.8
4	147°46.5	287°51.2	20.5	347°26.8	22.4	358°17.4	20.9	139°26.7	51.8
5	162°49.0	302°51.5	21.1	2°28.7	22.3	13°19.9	20.9	154°29.1	51.8
6	177°51.5	317°51.8	S12°21.6	17°30.5	N11°22.1	28°22.5	N13°21.0	169°31.6	N00°51.8
7	192°53.9	332°52.1	22.2	32°32.4	22.0	43°25.0	21.0	184°34.0	51.9
8	207°56.4	347°52.4	22.8	47°34.3	21.8	58°27.5	21.0	199°36.4	51.9
9	222°58.8	2°52.6	•• 23.3	62°36.2	•• 21.7	73°30.0	•• 21.1	214°38.9	•• 51.9
10	238°01.3	17°52.9	23.9	77°38.0	21.5	88°32.5	21.1	229°41.3	51.9
11	253°03.8	32°53.2	24.4	92°39.9	21.4	103°35.0	21.1	244°43.7	52.0
12	268°06.2	47°53.5	S12°25.0	107°41.8	N11°21.2	118°37.5	N13°21.1	259°46.2	N00°52.0
13	283°08.7	62°53.8	25.0	122°43.6	21.1	133°40.0	21.2	274°48.6	52.0
14	298°11.2	77°54.1	26.1	137°45.5	20.9	148°42.5	21.2	289°51.0	52.0
15	313°13.6	92°54.3	•• 26.7	152°47.4	•• 20.8	163°45.1	•• 21.2	304°53.5	•• 52.1
16	328°16.1	107°54.6	27.2	167°49.3	20.6	178°47.6	21.2	319°55.9	52.1
17	343°18.6	122°54.9	27.8	182°51.2	20.5	193°50.1	21.3	334°58.3	52.1
18	358°21.0	137°55.2	S12°28.3	197°53.0	N11°20.3	208°52.6	N13°21.3	350°00.7	N00°52.1
19	13°23.5	152°55.5	28.9	212°54.9	20.2	223°55.1	21.3	5°03.2	52.2
20	28°26.0	167°55.7	29.4	227°56.8	20.0	238°57.6	21.4	20°05.6	52.2
21	43°28.4	182°56.0	•• 30.0	242°58.7	•• 19.9	254°00.1	•• 21.4	35°08.0	•• 52.2
22	58°30.9	197°56.3	30.6	258°00.6	19.7	269°02.6	21.4	50°10.5	52.2
23	73°33.3	212°56.5	31.1	273°02.4	19.6	284°05.2	21.5	65°12.9	52.3
Mer.pass. 18:07 ν 0.3' d 0.6' m -4.73 ν 1.9' d 0.2' m 0.14 ν 2.5' d 0.0' m -2.32 ν 2.4' d 0.0' m 0.69									

Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	88°35.8	227°56.8	S12°31.7	288°04.3	N11°19.5	299°07.7	N13°21.5	80°15.3	N00°52.3										
1	103°38.3	242°57.1	32.2	303°06.2	19.3	314°10.2	21.5	95°17.8	52.3										
2	118°40.7	257°57.3	32.8	318°08.1	19.2	329°12.7	21.5	110°20.2	52.3										
3	133°43.2	272°57.6	•• 33.4	333°10.0	•• 19.0	344°15.2	•• 21.6	125°22.6	•• 52.4										
4	148°45.7	287°57.9	33.9	348°11.9	18.9	359°17.7	21.6	140°25.1	52.4										
5	163°48.1	302°58.1	34.5	3°13.7	18.7	14°20.3	21.6	155°27.5	52.4										
6	178°50.6	317°58.4	S12°35.1	18°15.6	N11°18.6	29°22.8	N13°21.7	170°29.9	N00°52.4										
7	193°53.1	332°58.7	35.6	33°17.5	18.5	44°25.3	21.7	185°32.3	52.5										
8	208°55.5	347°58.9	36.2	48°19.4	18.3	59°27.8	21.7	200°34.8	52.5										
9	223°58.0	2°59.2	•• 36.8	63°21.3	•• 18.2	74°30.3	•• 21.7	215°37.2	•• 52.5										
10	239°00.4	17°59.4	37.3	78°23.2	18.0	89°32.9	21.8	230°39.6	52.5										
11	254°02.9	32°59.7	37.9	93°25.1	17.9	104°35.4	21.8	245°42.1	52.6										
12	269°05.4	47°59.9	S12°38.4	108°27.0	N11°17.7	119°37.9	N13°21.8	260°44.5	N00°52.6										
13	284°07.8	63°00.2	39.0	123°28.9	17.6	134°40.4	21.9	275°46.9	52.6										
14	299°10.3	78°00.5	39.6	138°30.8	17.5	149°42.9	21.9	290°49.3	52.7										
15	314°12.8	93°00.7	•• 40.1	153°32.7	•• 17.3	164°45.4	•• 21.9	305°51.8	•• 52.7										
16	329°15.2	108°01.0	40.7	168°34.6	17.2	179°48.0	22.0	320°54.2	52.7										
17	344°17.7	123°01.2	41.3	183°36.5	17.1	194°50.5	22.0	335°56.6	52.7										
18	359°20.2	138°01.4	S12°41.8	198°38.4	N11°16.9	209°53.0	N13°22.0	350°59.1	N00°52.8										
19	14°22.6	153°01.7	42.4	213°40.3	16.8	224°55.5	22.1	6°01.5	52.8										
20	29°25.1	168°01.9	43.0	228°42.2	16.6	239°58.1	22.1	21°03.9	52.8										
21	44°27.6	183°02.2	•• 43.6	243°44.1	•• 16.5	255°00.6	•• 22.1	36°06.3	•• 52.8										
22	59°30.0	198°02.4	44.1	258°46.0	16.4	270°03.1	22.1	51°08.8	52.9										
23	74°32.5	213°02.7	44.7	273°47.9	16.2	285°05.6	22.2	66°11.2	52.9										
Mer.pass. 18:03				ν 0.3' d 0.6' m -4.71				ν 1.9' d 0.1' m 0.12				ν 2.5' d 0.0' m -2.33				ν 2.4' d 0.0' m 0.69			

SHA	Dec
Alpheratz	357°33.1 29°14.6
Ankaa	353°05.5 -42°09.7
Schedar	349°29.0 56°41.1
Diphda	348°45.6 -17°50.4
Achernar	335°18.7 -57°06.2
Hamal	327°49.2 23°35.6
Polaris	312°46.9 89°22.9
Acamar	315°10.2 -40°11.9
Menkar	314°04.2 4°11.8
Mirafak	308°25.5 49°57.6
Aldebaran	290°37.4 16°33.8
Rigel	281°02.0 -8°10.0
Capella	280°19.0 46°01.1
Bellatrix	278°20.8 6°22.4
Elnath	277°59.5 28°37.8
Alnilam	275°35.8 -1°11.1
Betelgeuse	270°50.0 7°24.7
Canopus	263°51.1 -52°42.5
Sirius	258°24.5 -16°45.2
Adhara	255°04.2 -29°00.5
Procyon	244°48.9 5°09.3
Pollux	243°15.0 27°57.5
Avior	234°13.5 -59°35.6
Suhail	222°44.8 -43°32.3
Miaplacidus	221°37.3 -69°49.4
Alphard	217°46.0 -8°46.5
Regulus	207°32.6 11°50.0
Dubhe	193°39.0 61°36.0
Denebola	182°23.3 14°25.1
Gienah	175°42.0 -17°41.4
Acrux	172°58.4 -63°14.7
Gacrux	171°50.0 -57°15.6
Alioth	166°11.8 55°48.5
Spica	158°20.8 -11°18.1
Alkaid	152°51.0 49°10.4
Hadar	148°34.1 -60°30.0
Menkent	147°56.0 -36°30.0
Antares	145°46.7 19°02.4
Rigel Kent	139°38.5 -60°56.6
Kochab	137°20.8 74°02.4
Zuben'ubi	136°54.5 -16°09.2
Alphecca	126°02.7 26°37.3
Antares	112°14.2 -26°29.4
Atria	107°07.6 -69°04.4
Sabik	102°01.3 -15°45.5
Shaula	96°08.6 -37°37.3
Rasalhague	95°57.4 12°32.4
Eltanin	90°42.0 51°29.1
Kaus Aust.	83°30.8 -34°22.2
Vega	80°32.6 38°48.6
Nunki	7

Aries			Venus			Mars			Jupiter			Saturn		
Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA
0	89°34.9	228°02.9	S12°45.3	288°49.8	N11°16.1	300°08.1	N13°22.2	81°13.6	N00°52.9					
1	104°37.4	243°03.1	45.8	303°51.7	16.0	315°10.7	22.2	96°16.0	53.0					
2	119°39.9	258°03.4	46.4	318°53.6	15.8	330°13.2	22.2	111°18.5	53.0					
3	134°42.3	273°03.6	•• 47.0	333°55.5	•• 15.7	345°15.7	•• 22.3	126°20.9	•• 53.0					
4	149°44.8	288°03.8	47.5	348°57.4	15.6	360°18.2	22.3	141°23.3	53.0					
5	164°47.3	303°04.1	48.1	3°59.3	15.4	15°20.8	22.4	156°25.7	53.1					
6	179°49.7	318°04.3	S12°48.7	19°01.2	N11°15.3	30°23.3	N13°22.2	171°28.2	N00°53.1					
7	194°52.2	333°04.5	49.3	34°03.1	15.2	45°25.8	22.4	186°30.6	53.1					
8	209°54.7	348°04.8	49.8	49°05.0	15.0	60°28.3	22.5	201°33.0	53.2					
9	224°57.1	3°05.0	•• 50.4	64°07.0	•• 14.9	75°30.9	•• 22.5	216°35.4	•• 53.2					
10	239°59.6	18°05.2	51.0	79°08.9	14.8	90°33.4	22.5	231°37.9	53.2					
11	255°02.1	33°05.5	51.5	94°10.8	14.6	105°35.9	22.6	246°40.3	53.2					
12	270°04.5	48°05.7	S12°52.1	109°12.7	N11°14.5	120°38.4	N13°22.6	261°42.7	N00°53.3					
13	285°07.0	63°05.9	52.7	124°14.6	14.4	135°41.0	22.6	276°45.1	53.3					
14	300°09.4	78°06.1	53.3	139°16.5	14.2	150°43.5	22.7	291°47.6	53.3					
15	315°11.9	93°06.4	•• 53.8	154°18.5	•• 14.1	165°46.0	•• 22.7	306°50.0	•• 53.4					
16	330°14.4	108°06.6	54.4	169°20.4	14.0	180°48.6	22.7	321°52.4	53.4					
17	345°16.8	123°06.8	55.0	184°22.3	13.8	195°51.1	22.8	336°54.8	53.4					
18	••0°19.3	138°07.0	S12°55.6	199°24.2	N11°13.7	210°53.6	N13°22.8	351°57.3	N00°53.4					
19	15°21.8	153°07.2	56.1	214°26.1	13.6	225°56.1	22.8	6°59.7	53.5					
20	30°24.2	168°07.4	56.7	229°28.1	13.5	240°58.7	22.9	22°02.1	53.5					
21	45°26.7	183°07.7	•• 57.3	244°30.0	•• 13.3	256°01.2	•• 22.9	37°04.5	•• 53.5					
22	60°29.2	198°07.9	57.9	259°31.9	13.2	271°03.7	22.9	52°07.0	53.6					
23	75°31.6	213°08.1	58.4	274°33.8	13.1	286°06.3	23.0	67°09.4	53.6					
Mer.pass. 17:59 ν 0.2' d 0.6' m -4.70 ν 1.9' d 0.1' m 0.10 ν 2.5' d 0.0' m -2.34 ν 2.4' d 0.0' m 0.69														

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	90°34.1	228°08.3	S12°59.0	289°35.8	N11°12.9	301°08.8	N13°23.0	82°11.8	N00°53.6
1	105°36.6	243°08.5	12°59.6	304°37.7	12.8	316°11.3	23.0	97°14.2	53.6
2	120°39.0	258°08.7	13°00.2	319°39.6	12.7	331°13.9	23.1	112°16.6	53.7
3	135°41.5	273°08.9	•• 00.8	334°41.5	•• 12.6	346°16.4	•• 23.1	127°19.1	•• 53.7
4	150°43.9	288°09.1	01.3	349°43.5	12.4	1°18.9	23.2	142°21.5	53.7
5	165°46.4	303°09.3	01.9	4°45.4	12.3	16°21.5	23.2	157°23.9	53.8
6	180°48.9	318°09.5	S13°02.5	19°47.3	N11°12.2	31°24.0	N13°23.2	172°26.3	N00°53.8
7	195°51.3	333°09.7	03.1	34°49.3	12.1	46°26.5	23.3	187°28.8	53.8
8	210°53.8	348°09.9	03.7	49°51.2	11.9	61°29.1	23.3	202°31.2	53.9
9	225°56.3	3°10.1	•• 04.2	64°53.1	•• 11.8	76°31.6	•• 23.3	217°33.6	•• 53.9
10	240°58.7	18°10.3	04.8	79°55.1	11.7	91°34.1	23.4	232°36.0	53.9
11	256°01.2	33°10.5	05.4	94°57.0	11.6	106°36.7	23.4	247°38.4	54.0
12	271°03.7	48°10.7	S13°06.0	109°58.9	N11°11.4	121°39.2	N13°23.4	262°40.9	N00°54.0
13	286°06.1	63°10.9	06.0	125°00.9	11.3	136°41.7	23.5	277°43.3	54.0
14	301°08.6	78°11.1	07.1	140°02.8	11.2	151°44.3	23.5	292°45.7	54.0
15	316°11.1	93°11.3	•• 07.7	155°04.7	•• 11.1	166°46.8	•• 23.5	307°48.1	•• 54.1
16	331°13.5	108°11.5	08.3	170°06.7	11.0	181°49.3	23.6	322°50.5	54.1
17	346°16.0	123°11.7	08.9	185°08.6	10.8	196°51.9	23.7	337°53.0	54.1
18	1°18.4	138°11.9	S13°09.5	200°10.6	N11°10.7	211°54.4	N13°23.7	352°55.4	N00°54.2
19	16°20.9	153°12.1	10.0	215°12.5	10.6	226°56.9	23.7	7°57.8	54.2
20	31°23.4	168°12.3	10.6	230°14.4	10.5	241°59.5	23.7	23°00.2	54.2
21	46°25.8	183°12.5	•• 11.2	245°16.4	•• 10.4	257°02.0	•• 23.8	38°02.6	•• 54.3
22	61°28.3	198°12.6	11.8	260°18.3	10.2	272°04.6	23.8	53°05.0	54.3
23	76°30.8	213°12.8	12.4	275°20.3	10.1	287°07.1	23.8	68°07.5	54.3
Mer.pass. 17:55 ν 0.2' d 0.6' m -4.69 ν 1.9' d 0.1' m 0.08 ν 2.5' d 0.0' m -2.34 ν 2.4' d 0.0' m 0.70									

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	91°33.2	228°13.0	S13°13.0	290°22.2	N11°10.0	302°09.6	N13°23.9	83°09.9	N00°54.4
1	106°35.7	243°13.2	13.5	305°24.2	09.9	317°12.2	23.9	98°12.3	54.4
2	121°38.2	258°13.4	14.1	320°26.1	09.8	332°14.7	24.0	113°14.7	54.4
3	136°40.6	273°13.5	•• 14.7	335°28.1	•• 09.6	347°17.3	•• 24.0	128°17.1	•• 54.4
4	151°43.1	288°13.7	15.3	350°30.0	09.5	2°19.8	24.0	143°19.6	54.5
5	166°45.6	303°13.9	15.9	5°32.0	09.4	17°22.3	24.1	158°22.0	54.5
6	181°48.0	318°14.1	S13°16.5	20°33.9	N11°09.3	32°24.9	N13°24.1	173°24.4	N00°54.5
7	196°50.5	333°14.3	17.0	35°35.9	09.2	47°27.4	24.1	188°26.8	54.6
8	211°52.9	348°14.4	17.6	50°37.8	09.1	62°30.0	24.2	203°29.2	54.6
9	226°55.4	3°14.6	•• 18.2	65°39.8	•• 08.9	77°32.5	•• 24.2	218°31.6	•• 54.6
10	241°57.9	18°14.8	18.8	80°41.7	08.8	92°35.0	24.3	233°34.1	54.7
11	257°00.3	33°14.9	19.4	95°43.7	08.7	107°37.6	24.3	248°36.5	54.7
12	272°02.8	48°15.1	S13°20.0	110°45.7	N11°08.6	122°40.1	N13°24.3	263°38.9	N00°54.7
13	287°05.3	63°15.3	20.6	125°47.6	08.5	137°42.7	24.4	278°41.3	54.8
14	302°07.7	78°15.4	21.1	140°49.6	08.4	152°45.2	24.4	293°43.7	54.8
15	317°10.2	93°15.6	•• 21.7	155°51.5	•• 08.3	167°47.8	•• 24.5	308°46.1	•• 54.8
16	332°12.7	108°15.8	22.3	170°53.5	08.2	182°50.3	24.5	323°48.5	54.9
17	347°15.1	123°15.9	22.9	185°55.5	08.0	197°52.8	24.5	338°51.0	54.9
18	2°17.6	138°16.1	S13°23.5	200°57.4	N11°07.9	221°55.4	N13°24.6	353°53.4	N00°54.9
19	17°20.1	153°16.3	24.1	215°59.4	07.8	227°57.9	24.6	8°55.8	54.9
20	32°22.5	168°16.4	24.7	231°01.4	07.7	243°00.5	24.6	23°58.2	55.0
21	47°25.0	183°16.6	•• 25.3	246°03.3	•• 07.6	258°03.0	•• 24.7	39°00.6	•• 55.0
22	62°27.4	198°16.7	25.9	261°05.3	07.5	273°05.6	24.7	54°03.0	55.1
23	77°29.9	213°16.9	26.4	276°07.3	07.4	288°08.1	24.8	69°05.5	55.1
Mer.pass. 17:51 ν 0.2' d 0.6' m -4.68 ν 1.9' d 0.1' m 0.05 ν 2.5' d 0.0' m -2.35 ν 2.4' d 0.0' m 0.70									

Stars		
	SHA	Dec
Alpheratz	357°33.1	29°14.6
Ankaa	353°05.5	-42°09.7
Schedar	349°29.1	56°41.5
Diphda	348°45.6	-17°50.4
Achernar	335°18.8	-57°06.2
Hamal	327°49.2	23°35.6
Polaris	312°47.5	89°22.9
Acamar	315°10.2	-40°11.9
Menkar	314°04.2	4°11.8
Mirafak	308°25.5	49°57.6
Aldebaran	290°37.4	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.0	46°01.5
Bellatrix	278°20.8	6°22.4
Elmath	277°59.4	28°37.8
Alnilam	275°35.8	-1°11.1
Betelgeuse	270°50.0	7°24.7
Canopus	263°51.1	-52°42.5
Sirius	258°24.5	-16°45.2
Adhara	255°04.2	-29°00.5
Procyon	244°48.8	5°09.3
Pollux	243°15.0	27°57.5
Avior	234°13.5	-59°35.6
Suhail	222°44.8	-43°32.3
Miaplacidus	221°37.3	-69°49.8
Alphard	217°46.0	-8°46.5
Regulus	207°32.6	11°50.0
Dubhe	193°38.9	61°36.0
Denebola	182°23.3	14°25.1
Gienah	175°42.0	-17°41.5
Acrux	172°58.3	-63°14.7
Gacrux	171°49.9	-57°15.6
Alloth	166°11.7	55°48.5
Spica	158°20.7	-11°18.1
Alkaid	152°51.0	49°04.0
Hadar	148°34.0	-60°30.0
Menkent	147°55.9	-36°30.0
Arcturus	145°46.7	19°02.4
Rigel Kent.	139°38.5	-60°56.6
Kochab	137°20.7	74°02.3
Zuben'ubi	136°54.5	-16°09.2
Alphecca	126°02.7	26°37.3
Antares	112°14.2	-26°29.4
Atria	107°07.5	-69°04.4
Sabik	102°01.3	-15°45.5
Shaula	95°08.6	-37°07.3
Rasalhague	95°57.4	12°32.4
Eltanin	90°42.0	51°29.1
Kaus Aus.	83°30.8	-34°22.3
Vega	80°32.6	38°48.5
Nunki	75°46.1	-26°15.8
Altair	61°58.7	8°56.4
Peacock	53°03.7	-56°39.0
Deneb	49°25.1	45°22.8
Enif	33°37.4	10°00.0
Al Na'ir	27°31.2	-46°50.0
Fomalhaut	15°12.9	-29°28.9
Scheat	13°43.7	28°14.0
Markab	13°28.4	15°21.2
Dec 21 Mon	SHA	Mer-pass
Venus	138°28.0	08:48
Mars	199°14.8	04:44
Jupiter	210°33.2	03:59
Saturn	351°38.7	18:32
Dec 22 Tue	SHA	Mer-pass
Venus	137°34.2	08:47
Mars	199°01.7	04:41
Jupiter	210°34.7	03:55
Saturn	351°37.7	18:28
Dec 23 Wed	SHA	Mer-pass
Venus	136°39.8	08:47
Mars	198°49.0	04:38
Jupiter	210°36.4	03:51
Saturn	351°36.7	18:24
Horizontal parallax		
	Venus:	0.3
	Mars:	0.1

Aries				Venus				Mars				Jupiter				Saturn			
Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	92°32.4	228°17.0	S13°27.0	291°09.2	N11°07.3	303°10.7	N13°24.8	84°07.9	N00°55.1										
1	107°34.8	243°17.2	27.6	306°11.2	07.2	318°13.2	24.8	99°10.3	55.2										
2	122°37.3	258°17.4	28.2	321°13.2	07.1	333°15.8	24.8	114°12.7	55.2										
3	137°39.8	273°17.5	28.8	336°15.1	06.9	348°18.3	24.9	129°15.1	55.2										
4	152°42.2	288°17.7	29.4	351°17.1	06.8	3°20.8	25.0	144°17.5	55.3										
5	167°44.7	303°17.8	30.0	6°19.1	06.7	18°23.4	25.0	159°19.9	55.3										
6	182°47.2	318°18.0	S13°30.6	21°21.1	N11°06.0	33°25.9	N13°25.1	174°22.3	N00°55.3										
7	197°49.6	333°18.1	31.2	36°23.0	06.5	48°28.5	25.1	189°24.8	55.4										
8	212°52.1	348°18.2	31.7	51°25.0	06.4	63°31.0	25.1	240°27.2	55.4										
9	227°54.6	3°18.4	32.3	66°27.0	06.3	78°33.6	25.2	219°29.6	55.4										
10	242°57.0	18°18.5	32.9	81°29.0	06.2	93°36.1	25.2	234°32.0	55.5										
11	257°59.5	33°18.7	33.5	96°31.0	06.1	108°38.7	25.3	249°34.4	55.5										
12	273°01.9	48°18.8	S13°34.1	111°32.9	N11°06.0	123°41.2	N13°25.3	264°36.8	N00°55.5										
13	288°04.4	63°19.0	34.7	126°34.9	05.9	138°43.8	25.3	279°39.2	55.6										
14	303°06.9	78°19.1	35.3	141°36.9	05.8	153°46.3	25.4	294°41.6	55.6										
15	318°09.3	93°19.2	35.9	156°38.9	05.7	168°48.9	25.4	309°44.1	55.6										
16	333°11.8	108°19.4	36.5	171°40.9	05.6	183°51.4	25.5	324°46.5	55.7										
17	348°14.3	123°19.5	37.1	186°42.8	05.5	198°54.0	25.5	339°48.9	55.7										
18	3°16.7	138°19.6	S13°37.1	201°44.8	N11°05.4	213°56.6	N13°25.5	354°51.3	N00°55.7										
19	18°19.2	153°19.8	38.3	216°46.8	05.3	228°59.1	25.6	9°53.7	55.8										
20	33°21.7	168°19.9	38.9	231°48.8	05.2	244°01.7	25.6	24°56.1	55.8										
21	48°24.1	183°20.0	39.4	246°50.8	05.1	259°04.2	25.7	39°58.5	55.8										
22	63°26.6	198°20.2	40.0	261°52.8	05.0	274°06.8	25.7	55°00.9	55.9										
23	78°29.1	213°20.3	40.6	276°54.8	04.9	289°09.3	25.8	70°03.3	55.9										
Mer.pass. 17:47				ν 0.2' d 0.6' m -4.67				ν 2.0' d 0.1' m 0.03				ν 2.5' d 0.0' m -2.36				ν 2.4' d 0.0' m 0.70			

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec										
0	93°31.5	228°20.4	S13°41.2	291°56.8	N11°04.8	304°11.9	N13°25.8	85°05.8	N00°55.9										
1	108°34.0	243°20.6	41.8	306°58.8	04.7	319°14.4	25.8	100°08.2	56.0										
2	123°36.4	258°20.7	42.4	322°00.7	04.6	334°17.0	25.9	115°10.6	56.0										
3	138°38.9	273°20.8	43.0	337°02.7	04.5	349°19.5	25.9	130°13.0	56.0										
4	153°41.4	288°20.9	43.6	352°04.7	04.4	4°22.1	26.0	145°15.4	56.1										
5	168°43.8	303°21.1	44.2	7°06.7	04.3	19°24.6	26.0	160°17.8	56.1										
6	183°46.3	318°21.2	S13°44.8	22°08.7	N11°04.2	34°27.2	N13°26.1	175°20.2	N00°56.2										
7	198°48.8	333°21.3	45.4	37°10.7	04.1	49°29.8	26.1	190°22.6	56.2										
8	213°51.2	348°21.4	46.0	52°12.7	04.0	64°32.3	26.1	205°25.0	56.2										
9	228°53.7	3°21.5	46.6	67°14.7	03.9	79°34.9	26.1	220°27.4	56.3										
10	243°56.2	18°21.6	47.2	82°16.7	03.8	94°37.4	26.2	235°29.8	56.3										
11	258°58.6	33°21.8	47.8	97°18.7	03.7	109°40.0	26.3	250°32.2	56.3										
12	274°01.1	48°21.9	S13°48.4	112°20.7	N11°03.6	124°42.5	N13°26.3	265°34.7	N00°56.4										
13	289°03.6	63°22.0	49.0	127°22.7	03.5	139°45.1	26.4	280°37.1	56.4										
14	304°06.0	78°22.1	49.5	142°24.7	03.4	154°47.7	26.4	295°39.5	56.4										
15	319°08.5	93°22.2	50.1	157°26.7	03.3	169°50.2	26.5	310°41.9	56.5										
16	334°10.9	108°22.3	50.7	172°28.8	03.2	184°52.8	26.5	325°44.3	56.5										
17	349°13.4	123°22.4	51.3	187°30.8	03.1	199°55.3	26.6	340°46.7	56.6										
18	4°15.9	138°22.5	S13°51.9	202°32.8	N11°03.0	214°57.9	N13°26.6	355°49.1	N00°56.6										
19	19°18.3	153°22.6	52.5	217°34.8	02.9	230°00.5	26.6	10°51.5	56.6										
20	34°20.8	168°22.8	53.1	232°36.8	02.8	245°03.0	26.7	25°53.9	56.7										
21	49°23.3	183°22.9	53.7	247°38.8	02.8	260°05.6	26.7	40°56.3	56.7										
22	64°25.7	198°23.0	54.3	262°40.8	02.7	275°08.1	26.8	55°58.7	56.7										
23	79°28.2	213°23.1	54.9	277°42.8	02.6	290°10.7	26.8	71°01.1	56.8										
Mer.pass. 17:43				ν 0.1' d 0.6' m -4.66				ν 2.0' d 0.1' m 0.01				ν 2.6' d 0.0' m -2.36				ν 2.4' d 0.0' m 0.71			

Sat	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	94°30.7	228°23.2	S13°55.5	292°44.8	N11°02.5	305°13.3	N13°26.9	86°05.5	N00°56.8
1	109°33.1	243°23.3	56.1	307°46.9	02.4	320°15.8	26.9	101°05.9	56.8
2	124°35.6	258°24.3	56.7	322°48.9	02.3	335°18.4	27.0	116°08.3	56.9
3	139°38.0	273°23.5	57.3	337°50.9	02.2	350°21.0	27.0	131°10.8	56.9
4	154°40.5	288°23.6	57.9	352°52.9	02.1	5°23.5	27.0	146°13.2	56.9
5	169°43.0	303°23.7	58.5	7°54.9	02.0	20°26.1	27.1	161°15.6	57.0
6	184°45.4	318°23.8	S13°59.1	22°56.9	N11°01.9	35°28.6	N13°27.1	176°18.0	N00°57.0
7	199°47.9	333°23.8	13°59.7	37°59.0	01.9	50°31.2	27.2	191°20.4	57.1
8	214°50.4	348°23.9	14°00.3	53°01.0	01.8	65°33.8	27.2	206°22.8	57.1
9	229°52.8	3°24.0	00.9	68°03.0	01.7	80°36.3	27.3	221°25.2	57.1
10	244°55.3	18°24.1	01.5	83°05.0	01.6	95°38.9	27.3	236°27.6	57.2
11	259°57.8	33°24.2	02.1	98°07.1	01.5	110°41.5	27.4	251°30.0	57.2
12	275°00.2	48°24.3	S14°02.7	113°09.1	N11°01.4	125°44.0	N13°27.4	266°32.4	N00°57.2
13	290°02.7	63°24.4	03.3	128°11.1	01.3	140°46.6	27.5	281°34.8	57.3
14	305°05.2	78°24.5	03.9	143°13.1	01.3	155°49.2	27.5	296°37.2	57.3
15	320°07.6	93°24.6	04.5	158°15.2	01.2	170°51.7	27.6	311°39.6	57.4
16	335°10.1	108°24.6	05.1	173°17.2	01.1	185°54.3	27.6	326°42.0	57.4
17	350°12.5	123°24.7	05.7	188°19.2	01.0	200°56.9	27.7	341°44.4	57.4
18	5°15.0	138°24.8	S14°06.3	203°21.3	N11°00.9	215°59.4	N13°27.7	356°46.8	N00°57.5
19	20°17.5	153°24.9	06.9	218°23.3	00.8	231°02.0	27.7	11°49.2	57.5
20	35°19.5	168°25.0	07.5	233°25.3	00.8	246°04.6	27.8	26°51.6	57.5
21	50°22.4	183°25.0	08.1	248°27.4	00.7	261°07.1	27.8	41°54.0	57.6
22	65°24.9	198°25.1	08.7	263°29.4	00.6	276°09.7	27.9	56°56.4	57.6
23	80°27.3	213°25.2	09.3	278°31.4	00.5	291°12.3	27.9	71°58.8	57.7
Mer.pass. 17:39 ν 0.1' d 0.6' m -4.65 ν 2.0' d 0.1' m -0.01 ν 2.6' d 0.0' m -2.37 ν 2.4' d 0.0' m 0.71									

Stars		
	SHA	Dec
Alpheratz	357°33.1	29°14.6
Ankaa	353°05.5	-42°09.7
Schedar	349°29.1	56°41.5
Diphda	348°45.6	-17°50.4
Achernar	335°18.8	-57°06.2
Hamal	327°49.2	23°35.6
Polaris	312°48.0	89°22.9
Acamar	315°10.3	-40°11.9
Menkar	314°04.2	4°11.8
Mirfak	308°25.5	49°57.6
Aldebaran	290°37.4	16°33.8
Rigel	281°02.0	-8°10.2
Capella	280°19.0	46°01.5
Bellatrix	278°20.8	6°22.4
Elmath	277°59.4	28°37.8
Anilam	275°35.7	-1°11.1
Betelgeuse	270°50.0	7°24.7
Canopus	263°51.1	-52°42.2
Sirius	258°24.5	-16°45.2
Adhara	255°04.2	-29°05.5
Procyon	244°48.8	5°09.3
Pollux	243°15.0	27°57.5
Avior	234°13.5	-59°35.6
Suhail	222°44.8	-43°32.4
Miaplacidus	221°37.2	-69°49.6
Alphard	217°45.9	-8°46.6

Aries				Venus				Mars				Jupiter				Saturn			
Sun	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	95°29.8	228°25.3	S14 °09.9	293°33.5	N11 °00.4	306°14.8	N13 °28.0	87°01.2	N00 °57.7										
1	110°32.3	243°25.3		10.5	308°35.5	00.4	321°17.4	28.0	102°03.6	57.7									
2	125°34.7	258°25.4		11.1	323°37.5	00.3	336°20.0	28.1	117°06.0	57.8									
3	140°37.2	273°25.5	••	11.7	338°39.6	••	00.2	351°22.6	••	28.1	132°08.4	••	57.8						
4	155°39.7	288°25.6		12.3	353°41.6	00.1	6°25.1	28.2	147°10.8	57.9									
5	170°42.1	303°25.6		12.9	8°43.7	00.0	21°27.7	28.2	162°13.2	57.9									
6	185°44.6	318°25.7	S14 °13.5	13.5	23°45.7	N11 °00.0	36°30.3	N13 °28.2	177°15.6	N00 °57.9									
7	200°47.0	333°25.8		14.1	38°47.8	10°59.9	51°32.8	28.3	192°18.0	58.0									
8	215°49.5	348°25.8		14.7	53°49.8		66°35.4	28.4	207°20.4	58.0									
9	230°52.0	3°25.9	••	15.3	68°51.8	••	59.7	81°38.0	••	28.4	222°22.8	••	58.0						
10	245°54.4	18°26.0		15.9	83°53.9		59.6	96°40.6	28.5	237°25.2	58.1								
11	260°56.9	33°26.0		16.5	98°55.9		59.6	111°43.1	28.5	252°27.6	58.1								
12	275°59.4	48°26.1	S14 °17.1	17.1	113°58.0	N10 °59.5	126°45.7	N13 °28.6	267°30.0	N00 °58.2									
13	291°01.8	63°26.2		17.7	129°00.0		59.4	141°48.3	28.6	282°32.4	58.2								
14	306°04.3	78°26.2		18.3	144°02.1		59.3	156°50.9	28.7	297°34.8	58.2								
15	321°06.8	93°26.3	••	18.9	159°04.1	••	59.3	171°53.4	••	28.7	312°37.2	••	58.3						
16	336°09.2	108°26.3		19.5	174°06.2		59.2	186°56.0	28.8	327°39.6	58.3								
17	351°11.7	123°26.4		20.1	189°08.3		59.1	201°58.6	28.8	342°42.0	58.4								
18	6°14.2	138°26.4	S14 °20.7	20.7	204°10.3	N10 °59.1	217°01.2	N13 °28.9	357°44.4	N00 °58.4									
19	21°16.6	153°26.5		21.3	219°12.4		59.0	232°03.7	28.9	12°46.8	58.4								
20	36°19.1	168°26.6		21.9	234°14.4		58.9	247°06.3	29.0	27°49.2	58.5								
21	51°21.5	183°26.6	••	22.5	249°16.5	••	58.8	262°08.9	••	29.0	42°51.6	••	58.5						
22	66°24.0	198°26.7		23.1	264°18.5		58.8	277°11.5	29.1	57°54.0	58.6								
23	81°26.5	213°26.7		23.7	279°20.6		58.7	292°14.0	29.1	72°56.4	58.6								
Mer.pass. 17:35				ν 0.1' d 0.6' m -4.64				ν 2.0' d 0.1' m -0.03				ν 2.6' d 0.0' m -2.38				ν 2.4' d 0.0' m 0.71			

Mon	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	96°28.9	228°26.8	S14°24.3	294°22.7	N10°58.6	307°16.6	N13°29.2	87°58.8	N00°58.6
1	111°31.4	243°26.8	24.9	309°24.7	58.6	322°19.2	29.2	103°01.2	58.7
2	126°33.9	258°26.9	25.5	324°26.8	58.5	337°21.8	29.3	118°03.6	58.8
3	141°36.3	273°26.9	•• 26.1	339°28.9	•• 58.4	352°24.3	•• 29.3	133°06.0	•• 58.7
4	156°38.8	288°26.9	26.7	354°30.9	58.3	7°26.9	29.4	148°08.4	58.8
5	171°41.3	303°27.0	27.3	9°33.0	58.3	22°29.5	29.4	163°10.8	58.8
6	186°43.7	318°27.0	S14°27.9	24°35.0	N10°58.2	37°32.1	N13°29.5	178°13.2	N00°58.9
7	201°46.2	333°27.1	28.5	39°37.1	58.1	52°34.7	29.5	193°15.6	58.9
8	216°48.6	348°27.1	29.1	54°39.2	58.1	67°37.2	29.6	208°18.0	59.0
9	231°51.1	3°27.2	•• 29.7	69°41.3	•• 58.0	82°39.8	•• 29.6	223°20.4	•• 59.0
10	246°53.6	18°27.2	30.3	84°43.3	57.9	97°42.4	29.7	238°22.8	59.0
11	261°56.0	33°27.2	30.9	99°45.4	57.9	112°45.0	29.7	253°25.2	59.1
12	276°58.5	48°27.3	S14°31.5	114°47.5	N10°57.8	127°47.6	N13°29.8	268°27.6	N00°59.1
13	292°01.0	63°27.3	32.1	129°49.5	57.7	142°50.1	29.8	283°30.0	59.2
14	307°03.4	78°27.3	32.7	144°51.6	57.7	157°52.7	29.9	298°32.4	59.2
15	322°05.9	93°27.4	•• 33.3	159°53.7	•• 57.6	172°55.3	•• 29.9	313°34.8	•• 59.2
16	337°08.4	108°27.4	33.9	174°55.8	57.5	187°57.9	30.0	328°37.2	59.3
17	352°10.8	123°27.4	34.5	189°57.9	57.5	203°00.5	30.1	343°39.6	59.3
18	7°13.3	138°27.5	S14°35.1	204°59.9	N10°57.4	218°03.1	N13°30.1	358°41.9	N00°59.4
19	22°15.8	153°27.5	35.7	220°02.0	57.4	233°05.6	30.2	373°44.3	59.4
20	37°18.2	168°27.5	36.3	235°04.1	57.3	248°08.2	30.2	28°46.7	59.4
21	52°20.7	183°27.6	•• 36.9	250°06.2	•• 57.2	263°10.8	•• 30.3	43°49.1	•• 59.5
22	67°23.1	198°27.6	37.5	265°08.3	57.2	278°13.4	30.3	58°51.5	59.5
23	82°25.6	213°27.6	38.1	280°10.3	57.1	293°16.0	30.4	73°53.9	59.6
Mer.pass. 17:31 ν 0.0' d 0.6' m -4.63 ν 2.1' d 0.1' m -0.05 ν 2.6' d 0.1' m -2.38 ν 2.4' d 0.0' m 0.72									

Tue	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	97°28.1	228°27.6	S14°38.7	295°12.4	N10°57.0	308°18.6	N13°30.4	88°56.3	N00°59.6
1	112°30.5	243°27.7		39.3	310°14.5	57.0	323°21.1	30.5	103°58.7
2	127°33.0	258°27.7		39.9	325°16.6	56.9	338°23.7	30.5	119°01.1
3	142°35.5	273°27.7	••	40.5	340°18.7	••	56.9	353°26.3	••
4	157°37.9	288°27.7		41.1	355°20.8	56.8	8°28.9	30.6	149°05.9
5	172°40.4	303°27.7		41.7	10°22.9	56.8	23°31.5	30.7	164°08.3
6	187°42.9	318°27.8	S14°42.3	25°25.0	N10°56.7	38°34.1	N13°30.7	179°10.7	N00°59.9
7	202°45.3	333°27.8		43.0	40°27.1	56.6	53°36.7	30.8	194°13.1
8	217°47.8	348°27.8		43.6	55°29.2	56.6	68°39.2	30.9	209°15.5
9	232°50.3	3°27.8	••	44.2	70°31.2	••	56.5	83°41.8	••
10	247°52.7	18°27.8		44.8	85°33.3	56.5	98°44.4	31.0	239°20.2
11	262°55.2	33°27.8		45.4	100°35.4	56.4	113°47.0	31.0	254°22.6
12	277°57.6	48°27.8	S14°46.0	115°37.5	N10°56.4	128°49.6	N13°31.1	269°25.0	N01°00.1
13	293°00.1	63°27.9		46.6	130°39.6	56.3	143°52.2	31.1	284°27.4
14	308°02.6	78°27.9		47.2	145°41.7	56.2	158°54.8	31.2	299°29.8
15	323°05.0	93°27.9	••	47.8	160°43.8	••	56.2	173°57.4	••
16	338°07.5	108°27.9		48.4	175°45.9	56.1	189°00.0	31.3	329°34.6
17	353°10.0	123°27.9		49.0	190°48.0	56.1	204°02.5	31.3	344°37.0
18	8°12.4	138°27.9	S14°49.6	205°50.1	N10°56.0	219°05.1	N13°31.4	359°39.4	N01°00.4
19	23°14.9	153°27.9		50.2	220°52.3	56.0	234°07.7	31.5	14°41.8
20	38°17.4	168°27.9		50.8	235°54.4	55.9	249°10.3	31.5	29°44.2
21	53°19.8	183°27.9	••	51.4	250°56.5	••	55.9	264°12.9	••
22	68°22.3	198°27.9		52.0	265°58.6	55.8	279°15.5	31.6	59°48.9
23	83°24.7	213°27.9		52.6	281°00.7	55.8	294°18.1	31.7	74°51.3
Mer.pass. 17:27 ν 0.0' d 0.6' m -4.61 ν 2.1' d 0.1' m -0.07 ν 2.6' d 0.1' m -2.39 ν 2.4' d 0.0' m 0.72									

Stars			h			Sun			Moon		
SHA	Dec		Sun	GHA	Dec	GHA	ν	Dec	d	HP	
Alpheratz	357°33.1	29°14.6	0	179°48.2	S23°20.1	316°18.1	8.1'	N16°16.3	14.2'	60.3'	
Ankaa	353°05.5	-42°09.7	1	194°47.9	20.0	330°45.2	8.3'	16°02.1	14.3'	60.3'	
Schedar	349°29.1	56°41.5	2	209°47.6	19.9	345°12.5	8.4'	15°47.8	14.4'	60.3'	
Diphda	348°45.6	-17°50.4	3	224°47.3	•• 19.8	359°39.8	8.5'	15°33.4	14.4'	60.2'	
Achernar	335°18.8	-57°06.2	4	239°47.0	19.7	14°07.4	8.6'	15°19.0	14.6'	60.2'	
Hamal	327°49.2	23°35.6	5	254°46.7	19.6	28°35.0	8.8'	15°04.4	14.6'	60.1'	
Polaris	312°49.0	89°22.9	6	269°46.4	S23°19.3	43°02.7	8.9'	N14°49.8	14.6'	60.1'	
Acamar	315°10.3	-40°11.9	7	284°46.1	19.3	57°30.6	9.0'	14°35.2	14.8'	60.1'	
Menkar	314°04.2	4°11.8	8	299°45.8	19.2	71°58.6	9.1'	14°20.4	14.8'	60.0'	
Mirfak	308°25.5	49°57.6	9	314°45.5	•• 19.1	86°26.7	9.2'	14°05.6	14.8'	60.0'	
Aldebaran	290°37.4	16°33.8	10	329°45.2	19.0	100°54.9	9.3'	13°50.8	14.9'	60.0'	
Rigel	281°02.0	-8°10.3	11	344°44.9	18.9	115°23.3	9.5'	13°35.9	15.0'	59.9'	
Capella	280°19.0	46°01.5	12	359°44.6	S23°18.8	129°51.7	9.6'	N13°20.9	15.1'	59.9'	
Bellatrix	278°20.8	6°22.4	13	14°44.3	18.7	144°20.3	9.7'	13°05.8	15.1'	59.9'	
Elmath	277°59.4	28°37.8	14	29°43.3	18.6	158°49.0	9.8'	12°50.7	15.1'	59.8'	
Anilam	275°35.7	-1°10.1	15	44°43.6	•• 18.5	173°17.7	9.9'	12°35.6	15.2'	59.8'	
Betelgeuse	270°50.0	7°24.7	16	59°43.3	18.4	187°46.6	10.0'	12°20.4	15.2'	59.8'	
Canopus	263°51.1	-52°42.6	17	74°43.0	18.2	202°15.7	10.1'	12°05.2	15.3'	59.7'	
Sirius	258°24.4	-16°45.2	18	89°42.7	S23°18.1	216°44.8	10.2'	N11°49.9	15.4'	59.7'	
Adhara	255°04.2	-29°00.5	19	104°42.4	18.0	231°14.0	10.3'	11°34.5	15.4'	59.6'	
Procyon	244°48.8	5°09.3	20	119°42.1	17.9	245°43.3	10.4'	11°19.1	15.4'	59.6'	
Pollux	243°15.0	27°57.5	21	134°41.8	•• 17.8	260°12.7	10.5'	11°03.7	15.4'	59.6'	
Avior	234°13.5	-59°35.6	22	149°41.5	17.7	274°42.3	10.6'	10°48.3	15.5'	59.5'	
Suhail	222°44.7	-43°32.4	23	164°41.2	17.5	289°11.9	10.7'	10°32.8	15.6'	59.5'	
Miaplacidus	221°37.2	-69°49.5	SD = 16.3' d = 0.1'			SD = 16.4'					
Alphard	217°45.9	-8°46.6	Mon	GHA	Dec	GHA	ν	Dec	d	HP	
Regulus	207°32.5	11°50.0	0	179°49.0	S23°17.4	303°41.6	10.8'	N10°17.2	15.5'	59.5'	
Dubhe	193°38.8	61°36.0	1	194°40.6	17.3	318°11.4	10.9'	10°01.7	15.6'	59.4'	
Denebola	182°23.2	14°25.1	2	209°40.3	17.2	332°41.3	11.0'	09°46.1	15.7'	59.4'	
Gienah	175°41.9	-17°41.5	3	224°40.0	•• 17.1	347°11.4	11.1'	09°30.4	15.6'	59.3'	
Acrux	172°58.2	-63°14.7	4	239°39.7	16.9	1°41.5	11.2'	09°14.8	15.7'	59.3'	
Gacrux	171°49.8	-57°15.8	5	254°39.4	16.8	16°11.7	11.3'	08°59.1	15.7'	59.3'	
Aioth	166°11.6	55°48.4	6	269°39.1	S23°16.7	30°42.0	11.4'	N08°43.4	15.8'	59.2'	
Spica	158°20.7	-11°18.1	7	284°38.8	16.6	45°12.3	11.5'	08°27.6	15.7'	59.2'	
Alkaid	152°50.9	49°10.4	8	299°38.4	16.6	59°42.8	11.6'	08°11.9	15.8'	59.2'	
Hadar	148°33.9	-60°30.3	9	314°38.1	•• 16.3	74°13.4	11.6'	07°56.1	15.8'	59.1'	
Menkent	147°55.9	-36°30.0	10	329°37.8	16.2	88°44.0	11.7'	07°40.3	15.8'	59.1'	
Arcturus	145°46.6	19°02.3	11	344°37.5	16.1	103°14.7	11.8'	07°24.5	15.9'	59.0'	
Rigel Kent.	139°38.4	-60°56.6	12	359°37.2	S23°15.9	117°45.5	11.9'	N07°08.6	15.8'	59.0'	
Kochab	137°20.6	74°02.3	13	13°46.9	15.8	132°16.4	12.0'	06°52.8	15.9'	59.0'	
Zuben el	136°54.4	-16°09.2	14	29°36.6	15.7	146°47.4	12.0'	06°36.9	15.8'	58.9'	
Alphecca	126°02.6	26°37.3	15	44°36.3	•• 15.5	161°18.4	12.1'	06°21.1	15.9'	58.9'	
Antares	112°14.2	-26°29.4	16	59°46.0	15.4	175°49.5	12.2'	06°05.2	15.9'	58.8'	
Atria	107°07.4	-69°04.4	17	74°35.7	15.3	190°20.7	12.3'	05°49.3	15.9'	58.8'	
Sabik	102°01.2	-15°45.5	18	89°35.4	S23°15.1	204°52.0	12.3'	N05°33.4	15.9'	58.8'	
Shaula	96°08.6	-37°07.3	19	104°35.1	15.0	219°23.3	12.4'	05°17.5	15.9'	58.7'	
Rasalhague	95°57.4	12°32.4	20	119°34.8	14.9	233°54.7	12.5'	05°01.6	15.9'	58.7'	
Eltanin	90°42.0	51°29.0	21	134°34.5	•• 14.7	248°26.2	12.5'	04°45.7	15.9'	58.6'	
Kaus Aust.	83°30.8	-34°22.3	22	149°34.2	14.6	262°57.7	12.6'	04°29.8	15.9'	58.6'	
Vega	80°32.6	38°48.5	23	164°33.9	14.4	277°29.3	12.7'	04°13.9	15.9'	58.6'	
Nunki	75°46.1	-26°15.8	SD = 16.3' d = 0.1'			SD = 16.2'					
Altair	61°58.7	8°56.4	Tue	GHA	Dec	GHA	ν	Dec	d	HP	
Peacock	53°03.7	-56°39.0	0	179°33.6	S23°14.3	292°01.0	12.7'	N03°58.0	15.9'	58.5'	
Deneb	49°25.1	45°22.8	1	194°33.3	14.2	306°32.7	12.8'	03°42.1	15.9'	58.5'	
Enif	33°37.4	10°00.0	2	209°33.0	14.0	321°04.5	12.9'	03°26.2	15.9'	58.4'	
Al Na'ir	27°31.2	-46°50.0	3	224°32.7	•• 13.9	335°36.4	12.9'	03°10.3	15.9'	58.4'	
Fomalhaut	15°12.9	-29°28.9	4	239°32.4	13.7	350°08.3	13.0'	02°54.4	15.9'	58.4'	
Scheat	13°43.7	28°14.0	5	254°32.1	13.6	4°40.3	13.0'	02°38.5	15.8'	58.3'	
Makab	13°28.4	15°21.2	6	269°31.8	S23°13.5	19°12.3	13.1'	N02°22.7	15.9'	58.3'	
Dec 27 Sun	SHA	Mer.pass	7	284°31.4	13.3	33°44.4	13.1'	02°06.8	15.8'	58.3'	
Venus	132°55.5	08.46	8	299°31.1	13.0	48°16.5	13.2'	01°51.0	15.8'	58.2'	
Mars	198°03.7	04.25	9	314°30.8	•• 13.2	62°48.7	13.2'	01°35.2	15.9'	58.2'	
Jupiter	210°45.0	03.34	10	329°30.5	12.9	77°20.9	13.3'	01°19.3	15.7'	58.1'	
Saturn	351°31.4	18.09	11	344°30.2	12.7	91°53.2	13.3'	01°03.6	15.8'	58.1'	
Dec 28 Sun	SHA	Mer.pass	12	359°29.9	S23°12.6	106°25.6	13.4'	N00°47.8	15.8'	58.1'	
Venus	130°59.6	08.46	13	14°29.6	12.4	120°57.9	13.4'	00°32.0	15.7'	58.0'	
Mars	197°44.4	04.19	14	29°29.3	12.3	135°30.4	13.5'	00°16.3	15.8'	58.0'	
Jupiter	210°50.5	03.26	15	44°29.0	•• 12.1	150°02.8	13.5'	N00°00.5	15.7'	57.9'	
Saturn	351°28.2	18.01	16	59°28.7	12.0	164°35.3	13.5'	S00°15.2	15.6'	57.9'	
Horizontal parallax			17	74°28.4	11.8	179°07.9	13.6'	00°30.8	15.7'	57.9'	
Venus:	0.2		18	89°28.1	S23°11.7	193°40.5	13.6'	S00°46.5	15.6'	57.8'	
Mars:	0.2		19	104°27.8	11.5	208°13.1	13.7'	01°02.1	15.6'	57.8'	
			20	119°27.5	11.4	222°45.7	13.7'	01°17.7	15.6'	57.7'	
			21	134°27.2	•• 11.2	237°18.4	13.7'	01°33.3	15.5'	57.7'	
			22	149°26.9	11.1	251°51.2	13.8'	01°48.8	15.6'	57.7'	
			23	164°26.6	10.9	266°23.9	13.8'	02°04.4	15.5'	57.6'	
			SD = 16.3' d = 0.1'			SD = 16.0'					

Wed	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	98°27.2	228°27.9	S14°53.2	296°02.8	N10°55.7	309°20.7	N13°31.7	89°53.7	N01°00.6
1	113°29.7	243°27.9	53.8	311°04.9	55.7	324°23.3	31.8	104°56.1	00.7
2	128°32.1	258°27.9	54.4	326°07.0	55.6	339°25.9	31.9	119°58.5	00.7
3	143°34.6	273°27.9	•• 55.0	341°09.1	•• 55.6	354°28.5	•• 31.9	135°00.9	•• 00.8
4	158°37.1	288°27.9	55.6	356°11.2	55.5	9°31.1	32.0	150°03.3	00.8
5	173°39.5	303°27.9	56.2	11°13.4	55.5	24°33.7	32.0	165°05.7	00.9
6	188°42.0	318°27.9	S14°56.8	26°15.5	N10°55.4	39°36.2	N13°32.1	180°08.0	N01°00.9
7	203°44.5	333°27.9	57.4	41°17.6	55.4	54°38.8	32.1	195°10.4	00.9
8	218°46.9	348°27.9	58.0	56°19.7	55.3	69°41.4	32.2	210°12.8	01.0
9	233°49.4	3°27.9	•• 58.6	71°21.8	•• 55.3	84°44.0	•• 32.2	225°15.2	•• 01.0
10	248°51.9	18°27.9	59.2	86°24.0	55.2	99°46.6	32.3	240°17.6	01.1
11	263°54.3	33°27.8	14°59.8	101°26.1	55.2	114°49.2	32.4	255°20.0	01.1
12	278°56.8	48°27.8	S15°00.4	116°28.2	N10°55.2	129°51.8	N13°32.4	270°22.4	N01°01.2
13	293°59.2	63°27.8	01.0	131°30.3	55.1	144°54.4	32.5	285°24.8	01.2
14	309°01.7	78°27.8	01.6	146°32.4	55.1	159°57.0	32.5	300°27.1	01.2
15	324°04.2	93°27.8	•• 02.2	161°34.6	•• 55.0	174°59.6	•• 32.6	315°29.5	•• 01.3
16	339°06.6	108°27.8	02.8	176°36.7	55.0	190°02.2	32.6	330°31.9	01.3
17	354°09.1	123°27.8	03.4	191°38.8	54.9	205°04.8	32.7	345°34.3	01.4
18	9°11.6	138°27.7	S15°04.0	206°41.0	N10°54.9	220°07.4	N13°32.8	0°36.7	N01°01.4
19	24°14.0	153°27.7	04.6	221°43.1	54.9	235°10.0	32.8	15°39.1	01.5
20	39°16.5	168°27.7	05.2	236°45.2	54.8	250°12.6	32.9	30°41.5	01.5
21	54°19.0	183°27.7	•• 05.8	251°47.4	•• 54.8	265°15.2	•• 32.9	45°43.9	•• 01.6
22	69°21.4	198°27.7	06.4	266°49.5	54.7	280°17.8	33.0	60°46.2	01.6
23	84°23.9	213°27.6	07.0	281°51.6	54.7	295°20.4	33.1	75°48.6	01.7
Mer.pass. 17:23			ν -0.0° d 0.6' m -4.60	ν 2.1° d 0.0' m -0.10	ν 2.6° d 0.1' m -2.40	ν 2.4° d 0.0' m 0.72			

Thu	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	99°26.4	228°27.6	S15°07.6	296°53.8	N10°54.6	310°23.0	N13°33.1	90°51.0	N01°01.7						
1	114°28.8	243°27.6	08.2	311°55.9	54.6	325°25.6	33.2	105°53.4	01.7						
2	129°31.3	258°27.6	08.8	326°58.0	54.6	340°28.2	33.2	120°55.8	01.8						
3	144°33.7	273°27.5	•• 09.4	342°00.2	•• 54.5	355°30.8	•• 33.3	135°58.2	•• 01.8						
4	159°36.2	288°27.5	10.0	357°02.3	54.5	10°33.4	33.3	151°00.6	01.9						
5	174°38.7	303°27.5	10.6	12°04.4	54.5	25°36.0	33.4	166°02.9	01.9						
6	189°41.1	318°27.4	S15°11.2	27°06.6	N10°54.4	40°38.6	N13°33.5	181°05.3	N01°02.0						
7	204°43.6	333°27.4	11.8	42°08.7	54.4	55°41.2	33.5	196°07.7	02.0						
8	219°46.1	348°27.4	12.4	57°10.9	54.3	70°43.8	•• 33.6	211°10.1	02.1						
9	234°48.5	3°27.3	•• 13.0	72°13.0	•• 54.3	85°46.4	•• 33.6	226°12.5	•• 02.1						
10	249°51.0	18°27.3	13.6	87°15.2	54.3	100°49.0	33.7	241°14.9	02.1						
11	264°53.5	33°27.3	14.2	102°17.3	54.2	115°51.6	33.8	256°17.2	02.2						
12	279°55.9	48°27.2	S15°14.8	117°19.5	N10°54.2	130°54.2	N13°33.8	271°19.6	N01°02.2						
13	294°58.4	63°27.2	15.4	132°21.6	54.2	145°56.8	33.9	286°22.0	02.3						
14	310°00.8	78°27.2	16.0	147°23.8	54.1	160°59.4	33.9	301°24.4	02.4						
15	325°03.3	93°27.1	•• 16.6	162°25.9	•• 54.1	176°02.0	•• 34.0	316°26.8	•• 02.3						
16	340°05.8	108°27.1	17.2	177°28.1	54.1	191°04.6	34.1	331°29.2	02.4						
17	355°08.2	123°27.0	17.8	192°30.2	54.0	206°07.2	34.1	346°31.5	02.5						
18	10°10.7	138°27.0	S15°18.4	207°32.4	N10°54.0	221°09.8	N13°34.2	1°33.9	N01°02.5						
19	25°13.2	153°27.0	19.0	222°34.5	54.0	236°12.5	34.2	16°36.3	02.6						
20	40°15.6	168°26.9	19.6	237°36.7	53.9	251°15.1	34.3	31°38.7	02.6						
21	55°18.1	183°26.9	•• 20.2	252°38.8	•• 53.9	266°17.7	•• 34.4	46°41.1	•• 02.7						
22	70°20.6	198°26.8	20.8	267°41.0	53.9	281°20.3	34.4	61°43.4	02.7						
23	85°23.0	213°26.8	21.4	282°43.2	53.9	296°22.9	34.5	76°45.8	02.8						
Mer.pass. 17:19			ν -0.0° d 0.6' m -4.59	ν 2.1° d 0.0' m -0.12	ν 2.6° d 0.1' m -2.40	ν 2.4° d 0.0' m 0.73									

Fri	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec
0	100°25.5	228°26.7	S15°22.0	297°45.3	N10°53.8	311°25.5	N13°34.5	91°48.2	N01°02.8						
1	115°28.0	243°26.7	22.6	312°47.5	53.8	326°28.1	34.6	106°50.6	02.8						
2	130°30.4	258°26.6	23.2	327°49.7	53.8	341°30.7	34.7	121°53.0	02.9						
3	145°32.9	273°26.6	•• 23.8	342°51.8	•• 53.7	356°33.3	•• 34.7	136°55.4	•• 02.9						
4	160°35.3	288°26.5	24.4	357°54.0	53.7	11°35.9	34.8	151°57.7	03.0						
5	175°37.8	303°26.5	25.0	12°56.2	53.7	26°38.5	34.9	167°00.1	03.0						
6	190°40.3	318°26.4	S15°25.6	27°58.3	N10°53.7	41°41.1	N13°34.9	182°02.5	N01°03.1						
7	205°42.7	333°26.4	26.2	43°00.5	53.6	56°43.7	35.0	197°04.9	03.1						
8	220°45.2	348°26.3	26.8	58°02.7	53.6	71°46.4	35.0	212°07.3	03.2						
9	235°47.7	3°26.3	•• 27.4	73°04.8	•• 53.6	86°49.0	•• 35.1	227°09.6	•• 03.2						
10	250°50.1	18°26.2	28.0	88°07.0	53.6	101°51.6	35.2	242°12.0	03.3						
11	265°52.6	33°26.1	28.6	103°09.2	53.5	116°54.2	35.2	257°14.4	03.3						
12	280°55.1	48°26.1	S15°29.2	118°11.3	N10°53.5	131°56.8	N13°35.3	272°16.8	N01°03.4						
13	295°57.2	63°26.0	29.8	133°13.5	53.5	146°59.4	35.4	287°19.2	03.4						
14	311°00.0	78°26.0	30.4	148°15.7	53.5	162°02.0	35.5	302°21.5	03.5						
15	326°02.5	93°25.9	•• 31.0	163°17.9	•• 53.5	177°04.6	•• 35.4	317°23.9	•• 03.5						
16	341°04.9	108°25.8	31.6	178°20.1	53.4	192°07.2	35.5	332°26.3	03.6						
17	356°07.4	123°25.8	32.2	193°22.2	53.4	207°09.9	35.6	347°28.7	03.6						
18	11°09.8	138°25.7	S15°32.8	208°24.4	N10°53.4	222°12.5	N13°35.7	2°31.1	N01°03.6						
19	26°12.3	153°25.6	33.4	223°26.6	53.4	237°15.1	35.7	17°33.4	03.7						
20	41°14.8	168°25.6	34.0	238°28.8	53.3	252°17.7	35.8	32°35.8	03.7						
21	56°17.2	183°25.5	•• 34.6	253°31.0	•• 53.3	267°20.3	•• 35.9	47°38.2	•• 03.8						
22	71°19.7	198°25.4	35.2	268°33.2	53.3	282°22.9	35.9	62°40.6	03.8						
23	86°22.2	213°25.4	35.8	283°35.3	53.3	297°25.5	36.0	77°42.9	03.9						
Mer.pass. 17:15			ν -0.0° d 0.6' m -4.58	ν 2.2° d 0.0' m -0.14	ν 2.6° d 0.1' m -2.40	ν 2.4° d 0.0' m 0.73									

SHA		Dec	Sun			Moon				
			Wed	GHA	Dec	GHA	ν	Dec	d	HP
Alpheratz	357°33.1	29°14.6	0	179°26.3	S23°10.7	280°56.7	13.8°	S02°19.9	15.4'	57.6'
Ankaa	353°05.6	-42°09.7	1	194°26.0	10.6	295°29.5	13.8°	02°35.3	15.4'	57.6'
Schedar	349°29.1	56°41.5	2	209°25.7	10.4	310°02.4	13.9°	02°50.7	15.4'	57.5'
Diphda	348°45.6	-17°50.4	3	224°25.4	•• 10.3	324°35.2	13.9°	03°06.1	15.4'	57.5'
Achernar	335°18.8	-57°06.2	4	239°25.1	10.1	339°08.1	13.9°	03°21.5	15.3'	57.4'
Hamal	327°49.2	23°25.6	5	254°24.8	09.9	353°41.1	13.9°	03°36.8	15.3'	57.4'
Polaris	312°50.1	89°22.9	6	269°24.5	S23°09.8	8°14.0	14.0°	S03°52.1	15.2'	57.4'
Acamar	315°10.3	-40°11.9	7	284°24.2	09.6	22°47.0	14.0°	04°07.3	15.3'	57.3'
Menkar	314°04.2	4°11.8	8	299°23.9	09.4	37°19.9	14.0°	04°22.6	15.1'	57.3'
Mirfak	308°25.5	49°57.6	9	314°23.6	•• 9.3	51°53.0	14.0°	04°37.7	15.2'	57.3'
Aldebaran	290°37.4	16°33.8	10	329°23.3	09.1	66°26.0	14.0°	04°52.9	15.0'	57.2'
Rigel	281°02.0	-8°10.3	11	344°23.0	08.9	80°59.0	14.1°	05°07.9	15.1'	57.2'
Capella	280°19.0	46°01.5	12	359°22.7	S23°08.8	95°32.1	14.1°	S05°23.0	15.0'	57.1'
Bellatrix	278°20.8	6°22.4	13	14°22.4	08.6	110°05.1	14.1°	05°38.0	15.0'	57.1'
Elmath	277°59.4	28°37.8	14	29°22.1	08.4	124°38.2	14.1°	05°53.0	14.9'	57.1'
Alnilam	275°35.7	-1°11.1	15	44°21.8	•• 08.3	139°11.3	14.1°	06°07.9	14.9'	57.0'
Betelgeuse	270°50.0	7°24.7	16	59°21.5	08.1	153°44.4	14.1°	06°22.8	14.8'	57.0'
Canopus	263°51.1	-52°42.6	17	74°21.2	07.9	168°17.5	14.1°	06°37.6	14.8'	57.0'
Sirius	258°24.4	-16°45.2	18	89°20.9	S23°07.7	182°50.6	14.1°	S06°52.4	14.7'	56.9'
Adhara	255°04.2	-29°00.5	19	104°20.6	07.6	197°23.7	14.1°	07°07.1	14.7'	56.9'
Procyon	244°48.8	5°09.3	20	119°20.3	07.4	211°56.9	14.1°	07°21.8	14.6'	56.9'
Pollux	243°14.9	27°57.5	21	134°20.0	•• 7.2	226°30.0	14.1°	07°36.4	14.6'	56.8'
Avior	234°13.5	-59°35.6	22	149°19.7	07.0	241°03.1	14.1°	07°51.0	14.5'	56.8'
Suhail	222°44.7	-43°32.4	23	164°19.4	06.9	255°36.3	14.1°	08°05.5	14.5'	56.8'
Miaplacidus	217°35.1	-69°49.5								
Alphard	217°47.9	-8°46.6								

Conversion of Arc to Time

0° - 59°			60° - 119°			120° - 179°			180° - 239°			240° - 299°			300° - 360°			0' - 59'			0" - 59"	
°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	'	m	s	"	s
0	0	00	60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	0	0	00	0	0.00
1	0	04	61	4	04	121	8	04	181	12	04	241	16	04	301	20	04	1	0	04	1	0.07
2	0	08	62	4	08	122	8	08	182	12	08	242	16	08	302	20	08	2	0	08	2	0.13
3	0	12	63	4	12	123	8	12	183	12	12	243	16	12	303	20	12	3	0	12	3	0.20
4	0	16	64	4	16	124	8	16	184	12	16	244	16	16	304	20	16	4	0	16	4	0.27
5	0	20	65	4	20	125	8	20	185	12	20	245	16	20	305	20	20	5	0	20	5	0.33
6	0	24	66	4	24	126	8	24	186	12	24	246	16	24	306	20	24	6	0	24	6	0.40
7	0	28	67	4	28	127	8	28	187	12	28	247	16	28	307	20	28	7	0	28	7	0.47
8	0	32	68	4	32	128	8	32	188	12	32	248	16	32	308	20	32	8	0	32	8	0.53
9	0	36	69	4	36	129	8	36	189	12	36	249	16	36	309	20	36	9	0	36	9	0.60
10	0	40	70	4	40	130	8	40	190	12	40	250	16	40	310	20	40	10	0	40	10	0.67
11	0	44	71	4	44	131	8	44	191	12	44	251	16	44	311	20	44	11	0	44	11	0.73
12	0	48	72	4	48	132	8	48	192	12	48	252	16	48	312	20	48	12	0	48	12	0.80
13	0	52	73	4	52	133	8	52	193	12	52	253	16	52	313	20	52	13	0	52	13	0.87
14	0	56	74	4	56	134	8	56	194	12	56	254	16	56	314	20	56	14	0	56	14	0.93
15	1	00	75	5	00	135	9	00	195	13	00	255	17	00	315	21	00	15	1	00	15	1.00
16	1	04	76	5	04	136	9	04	196	13	04	256	17	04	316	21	04	16	1	04	16	1.07
17	1	08	77	5	08	137	9	08	197	13	08	257	17	08	317	21	08	17	1	08	17	1.13
18	1	12	78	5	12	138	9	12	198	13	12	258	17	12	318	21	12	18	1	12	18	1.20
19	1	16	79	5	16	139	9	16	199	13	16	259	17	16	319	21	16	19	1	16	19	1.27
20	1	20	80	5	20	140	9	20	200	13	20	260	17	20	320	21	20	20	1	20	20	1.33
21	1	24	81	5	24	141	9	24	201	13	24	261	17	24	321	21	24	21	1	24	21	1.40
22	1	28	82	5	28	142	9	28	202	13	28	262	17	28	322	21	28	22	1	28	22	1.47
23	1	32	83	5	32	143	9	32	203	13	32	263	17	32	323	21	32	23	1	32	23	1.53
24	1	36	84	5	36	144	9	36	204	13	36	264	17	36	324	21	36	24	1	36	24	1.60
25	1	40	85	5	40	145	9	40	205	13	40	265	17	40	325	21	40	25	1	40	25	1.67
26	1	44	86	5	44	146	9	44	206	13	44	266	17	44	326	21	44	26	1	44	26	1.73
27	1	48	87	5	48	147	9	48	207	13	48	267	17	48	327	21	48	27	1	48	27	1.80
28	1	52	88	5	52	148	9	52	208	13	52	268	17	52	328	21	52	28	1	52	28	1.87
29	1	56	89	5	56	149	9	56	209	13	56	269	17	56	329	21	56	29	1	56	29	1.93
30	2	00	90	6	00	150	10	00	210	14	00	270	18	00	330	22	00	30	2	00	30	2.00
31	2	04	91	6	04	151	10	04	211	14	04	271	18	04	331	22	04	31	2	04	31	2.07
32	2	08	92	6	08	152	10	08	212	14	08	272	18	08	332	22	08	32	2	08	32	2.13
33	2	12	93	6	12	153	10	12	213	14	12	273	18	12	333	22	12	33	2	12	33	2.20
34	2	16	94	6	16	154	10	16	214	14	16	274	18	16	334	22	16	34	2	16	34	2.27
35	2	20	95	6	20	155	10	20	215	14	20	275	18	20	335	22	20	35	2	20	35	2.33
36	2	24	96	6	24	156	10	24	216	14	24	276	18	24	336	22	24	36	2	24	36	2.40
37	2	28	97	6	28	157	10	28	217	14	28	277	18	28	337	22	28	37	2	28	37	2.47
38	2	32	98	6	32	158	10	32	218	14	32	278	18	32	338	22	32	38	2	32	38	2.53
39	2	36	99	6	36	159	10	36	219	14	36	279	18	36	339	22	36	39	2	36	39	2.60
40	2	40	100	6	40	160	10	40	220	14	40	280	18	40	340	22	40	40	2	40	40	2.67
41	2	44	101	6	44	161	10	44	221	14	44	281	18	44	341	22	44	41	2	44	41	2.73
42	2	48	102	6	48	162	10	48	222	14	48	282	18	48	342	22	48	42	2	48	42	2.80
43	2	52	103	6	52	163	10	52	223	14	52	283	18	52	343	22	52	43	2	52	43	2.87
44	2	56	104	6	56	164	10	56	224	14	56	284	18	56	344	22	56	44	2	56	44	2.93
45	3	00	105	7	00	165	11	00	225	15	00	285	19	00	345	23	00	45	3	00	45	3.00
46	3	04	106	7	04	166	11	04	226	15	04	286	19	04	346	23	04	46	3	04	46	3.07
47	3	08	107	7	08	167	11	08	227	15	08	287	19	08	347	23	08	47	3	08	47	3.13
48	3	12	108	7	12	168	11	12	228	15	12	288	19	12	348	23	12	48	3	12	48	3.20
49	3	16	109	7	16	169	11	16	229	15	16	289	19	16	349	23	16	49	3	16	49	3.27
50	3	20	110	7	20	170	11	20	230	15	20	290	19	20	350	23	20	50	3	20	50	3.33
51	3	24	111	7	24	171	11	24	231	15	24	291	19	24	351	23	24	51	3	24	51	3.40
52	3	28	112	7	28	172	11	28	232	15	28	292	19	28	352	23	28	52	3	28	52	3.47
53	3	32	113	7	32	173	11	32	233	15	32	293	19	32	353	23	32	53	3	32	53	3.53
54	3	36	114	7	36	174	11	36	234	15	36	294	19	36	354	23	36	54	3	36	54	3.60
55	3	40	115	7	40	175	11	40	235	15	40	295	19	40	355	23	40	55	3	40	55	3.67
56	3	44	116	7	44	176	11	44	236	15	44	296	19	44	356	23	44	56	3	44	56	3.73
57	3	48	117	7	48	177	11	48	237	15	48	297	19	48	357	23	48	57	3	48	57	3.80
58	3	52	118	7	52	178	11	52	238	15	52	298	19	52	358	23	52	58	3	52	58	3.87
59	3	56	119	7	56	179	11	56	239	15	56	299	19	56	359	23	56	59	3	56	59	3.93
60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	360	24	00	60	4	00	60	4.00

h= hours of time m= minutes of time s = seconds of time ' = minutes of arc " = seconds of arc

Increments and Corrections

m 0	Sun Plan.	Aries	Moon	v and d corr			m 1	Sun Plan.	Aries	Moon	v and d corr			m 2	Sun Plan.	Aries	Moon	v and d corr		
0	0°00.0	0°00.0	0°00.0	0.0 - 0.0	6.0 - 0.1	12.0 - 0.1	0	0°15.0	0°15.0	0°14.3	0.0 - 0.0	6.0 - 0.2	12.0 - 0.3	0	0°30.0	0°30.1	0°28.6	0.0 - 0.0	6.0 - 0.3	12.0 - 0.5
1	0°00.3	0°00.3	0°00.2	0.1 - 0.0	6.1 - 0.1	12.1 - 0.1	1	0°15.3	0°15.3	0°14.6	0.1 - 0.0	6.1 - 0.2	12.1 - 0.3	1	0°30.3	0°30.3	0°28.9	0.1 - 0.0	6.1 - 0.3	12.1 - 0.5
2	0°00.5	0°00.5	0°00.5	0.2 - 0.0	6.2 - 0.1	12.2 - 0.1	2	0°15.5	0°15.5	0°14.8	0.2 - 0.0	6.2 - 0.2	12.2 - 0.3	2	0°30.5	0°30.6	0°29.1	0.2 - 0.0	6.2 - 0.3	12.2 - 0.5
3	0°00.8	0°00.8	0°00.7	0.3 - 0.0	6.3 - 0.1	12.3 - 0.1	3	0°15.8	0°15.8	0°15.0	0.3 - 0.0	6.3 - 0.2	12.3 - 0.3	3	0°30.7	0°30.8	0°29.3	0.3 - 0.0	6.3 - 0.3	12.3 - 0.5
4	0°01.0	0°01.0	0°01.0	0.4 - 0.0	6.4 - 0.1	12.4 - 0.1	4	0°16.0	0°16.0	0°15.3	0.4 - 0.0	6.4 - 0.2	12.4 - 0.3	4	0°31.0	0°31.1	0°29.6	0.4 - 0.0	6.4 - 0.3	12.4 - 0.5
5	0°01.3	0°01.3	0°01.2	0.5 - 0.0	6.5 - 0.1	12.5 - 0.1	5	0°16.3	0°16.3	0°15.5	0.5 - 0.0	6.5 - 0.2	12.5 - 0.3	5	0°31.3	0°31.3	0°29.8	0.5 - 0.0	6.5 - 0.3	12.5 - 0.5
6	0°01.5	0°01.5	0°01.4	0.6 - 0.0	6.6 - 0.1	12.6 - 0.1	6	0°16.5	0°16.5	0°15.7	0.6 - 0.0	6.6 - 0.2	12.6 - 0.3	6	0°31.5	0°31.6	0°30.1	0.6 - 0.0	6.6 - 0.3	12.6 - 0.5
7	0°01.8	0°01.8	0°01.7	0.7 - 0.0	6.7 - 0.1	12.7 - 0.1	7	0°16.8	0°16.8	0°16.0	0.7 - 0.0	6.7 - 0.2	12.7 - 0.3	7	0°31.8	0°31.8	0°30.3	0.7 - 0.0	6.7 - 0.3	12.7 - 0.5
8	0°02.0	0°02.0	0°01.9	0.8 - 0.0	6.8 - 0.1	12.8 - 0.1	8	0°17.0	0°17.0	0°16.2	0.8 - 0.0	6.8 - 0.2	12.8 - 0.3	8	0°32.0	0°32.1	0°30.5	0.8 - 0.0	6.8 - 0.3	12.8 - 0.5
9	0°02.3	0°02.3	0°02.1	0.9 - 0.0	6.9 - 0.1	12.9 - 0.1	9	0°17.3	0°17.3	0°16.5	0.9 - 0.0	6.9 - 0.2	12.9 - 0.3	9	0°32.3	0°32.3	0°30.8	0.9 - 0.0	6.9 - 0.3	12.9 - 0.5
10	0°02.5	0°02.5	0°02.4	1.0 - 0.0	7.0 - 0.1	13.0 - 0.1	10	0°17.5	0°17.5	0°16.7	1.0 - 0.0	7.0 - 0.2	13.0 - 0.3	10	0°32.5	0°32.6	0°31.0	1.0 - 0.0	7.0 - 0.3	13.0 - 0.5
11	0°02.8	0°02.8	0°02.6	1.1 - 0.0	7.1 - 0.1	13.1 - 0.1	11	0°17.8	0°17.8	0°16.9	1.1 - 0.0	7.1 - 0.2	13.1 - 0.3	11	0°32.8	0°32.8	0°31.3	1.1 - 0.0	7.1 - 0.3	13.1 - 0.5
12	0°03.0	0°03.0	0°02.9	1.2 - 0.0	7.2 - 0.1	13.2 - 0.1	12	0°18.0	0°18.0	0°17.2	1.2 - 0.0	7.2 - 0.2	13.2 - 0.3	12	0°33.0	0°33.1	0°31.5	1.2 - 0.1	7.2 - 0.3	13.2 - 0.5
13	0°03.3	0°03.3	0°03.1	1.3 - 0.0	7.3 - 0.1	13.3 - 0.1	13	0°18.3	0°18.3	0°17.4	1.3 - 0.0	7.3 - 0.2	13.3 - 0.3	13	0°33.3	0°33.3	0°31.7	1.3 - 0.1	7.3 - 0.3	13.3 - 0.6
14	0°03.5	0°03.5	0°03.3	1.4 - 0.0	7.4 - 0.1	13.4 - 0.1	14	0°18.5	0°18.6	0°17.7	1.4 - 0.0	7.4 - 0.2	13.4 - 0.3	14	0°33.5	0°33.6	0°32.0	1.4 - 0.1	7.4 - 0.3	13.4 - 0.6
15	0°03.8	0°03.8	0°03.6	1.5 - 0.0	7.5 - 0.1	13.5 - 0.1	15	0°18.8	0°18.8	0°17.9	1.5 - 0.0	7.5 - 0.2	13.5 - 0.3	15	0°33.8	0°33.8	0°32.2	1.5 - 0.1	7.5 - 0.3	13.5 - 0.6
16	0°04.0	0°04.0	0°03.8	1.6 - 0.0	7.6 - 0.1	13.6 - 0.1	16	0°19.0	0°19.1	0°18.1	1.6 - 0.0	7.6 - 0.2	13.6 - 0.3	16	0°34.0	0°34.1	0°32.5	1.6 - 0.1	7.6 - 0.3	13.6 - 0.6
17	0°04.3	0°04.3	0°04.1	1.7 - 0.0	7.7 - 0.1	13.7 - 0.1	17	0°19.3	0°19.3	0°18.4	1.7 - 0.0	7.7 - 0.2	13.7 - 0.3	17	0°34.3	0°34.3	0°32.7	1.7 - 0.1	7.7 - 0.3	13.7 - 0.6
18	0°04.5	0°04.5	0°04.3	1.8 - 0.0	7.8 - 0.1	13.8 - 0.1	18	0°19.5	0°19.6	0°18.6	1.8 - 0.0	7.8 - 0.2	13.8 - 0.3	18	0°34.5	0°34.6	0°32.9	1.8 - 0.1	7.8 - 0.3	13.8 - 0.6
19	0°04.8	0°04.8	0°04.5	1.9 - 0.0	7.9 - 0.1	13.9 - 0.1	19	0°19.8	0°19.8	0°18.9	1.9 - 0.0	7.9 - 0.2	13.9 - 0.3	19	0°34.8	0°34.8	0°33.2	1.9 - 0.1	7.9 - 0.3	13.9 - 0.6
20	0°05.0	0°05.0	0°04.8	2.0 - 0.0	8.0 - 0.1	14.0 - 0.1	20	0°20.0	0°20.1	0°19.1	2.0 - 0.1	8.0 - 0.2	14.0 - 0.4	20	0°35.0	0°35.1	0°33.4	2.0 - 0.1	8.0 - 0.3	14.0 - 0.6
21	0°05.3	0°05.3	0°05.0	2.1 - 0.0	8.1 - 0.1	14.1 - 0.1	21	0°20.3	0°20.3	0°19.3	2.1 - 0.1	8.1 - 0.2	14.1 - 0.4	21	0°35.3	0°35.3	0°33.6	2.1 - 0.1	8.1 - 0.3	14.1 - 0.6
22	0°05.5	0°05.5	0°05.2	2.2 - 0.0	8.2 - 0.1	14.2 - 0.1	22	0°20.5	0°20.6	0°19.6	2.2 - 0.1	8.2 - 0.2	14.2 - 0.4	22	0°35.5	0°35.6	0°33.9	2.2 - 0.1	8.2 - 0.3	14.2 - 0.6
23	0°05.8	0°05.8	0°05.5	2.3 - 0.0	8.3 - 0.1	14.3 - 0.1	23	0°20.8	0°20.8	0°19.8	2.3 - 0.1	8.3 - 0.2	14.3 - 0.4	23	0°35.8	0°35.8	0°34.1	2.3 - 0.1	8.3 - 0.3	14.3 - 0.6
24	0°06.0	0°06.0	0°05.7	2.4 - 0.0	8.4 - 0.1	14.4 - 0.1	24	0°21.0	0°21.1	0°20.0	2.4 - 0.1	8.4 - 0.2	14.4 - 0.4	24	0°36.0	0°36.1	0°34.4	2.4 - 0.1	8.4 - 0.3	14.4 - 0.6
25	0°06.3	0°06.3	0°06.0	2.5 - 0.0	8.5 - 0.1	14.5 - 0.1	25	0°21.3	0°21.3	0°20.3	2.5 - 0.1	8.5 - 0.2	14.5 - 0.4	25	0°36.3	0°36.3	0°34.6	2.5 - 0.1	8.5 - 0.4	14.5 - 0.6
26	0°06.5	0°06.5	0°06.2	2.6 - 0.0	8.6 - 0.1	14.6 - 0.1	26	0°21.5	0°21.6	0°20.5	2.6 - 0.1	8.6 - 0.2	14.6 - 0.4	26	0°36.5	0°36.6	0°34.8	2.6 - 0.1	8.6 - 0.4	14.6 - 0.6
27	0°06.8	0°06.8	0°06.4	2.7 - 0.0	8.7 - 0.1	14.7 - 0.1	27	0°21.8	0°21.8	0°20.8	2.7 - 0.1	8.7 - 0.2	14.7 - 0.4	27	0°36.8	0°36.9	0°35.1	2.7 - 0.1	8.7 - 0.4	14.7 - 0.6
28	0°07.0	0°07.0	0°06.7	2.8 - 0.0	8.8 - 0.1	14.8 - 0.1	28	0°22.0	0°22.1	0°21.0	2.8 - 0.1	8.8 - 0.2	14.8 - 0.4	28	0°37.0	0°37.1	0°35.3	2.8 - 0.1	8.8 - 0.4	14.8 - 0.6
29	0°07.3	0°07.3	0°06.9	2.9 - 0.0	8.9 - 0.1	14.9 - 0.1	29	0°22.3	0°22.3	0°21.2	2.9 - 0.1	8.9 - 0.2	14.9 - 0.4	29	0°37.3	0°37.4	0°35.6	2.9 - 0.1	8.9 - 0.4	14.9 - 0.6
30	0°07.5	0°07.5	0°07.2	3.0 - 0.0	9.0 - 0.1	15.0 - 0.1	30	0°22.5	0°22.6	0°21.5	3.0 - 0.1	9.0 - 0.2	15.0 - 0.4	30	0°37.5	0°37.6	0°35.8	3.0 - 0.1	9.0 - 0.4	15.0 - 0.6
31	0°07.8	0°07.8	0°07.4	3.1 - 0.0	9.1 - 0.1	15.1 - 0.1	31	0°22.8	0°22.8	0°21.7	3.1 - 0.1	9.1 - 0.2	15.1 - 0.4	31	0°37.8	0°37.9	0°36.0	3.1 - 0.1	9.1 - 0.4	15.1 - 0.6
32	0°08.0	0°08.0	0°07.6	3.2 - 0.0	9.2 - 0.1	15.2 - 0.1	32	0°23.0	0°23.1	0°22.0	3.2 - 0.1	9.2 - 0.2	15.2 - 0.4	32	0°38.0	0°38.1	0°36.3	3.2 - 0.1	9.2 - 0.4	15.2 - 0.6
33	0°08.3	0°08.3	0°07.9	3.3 - 0.0	9.3 - 0.1	15.3 - 0.1	33	0°23.3	0°23.3	0°22.2	3.3 - 0.1	9.3 - 0.2	15.3 - 0.4	33	0°38.3	0°38.4	0°36.5	3.3 - 0.1	9.3 - 0.4	15.3 - 0.6
34	0°08.5	0°08.5	0°08.1	3.4 - 0.0	9.4 - 0.1	15.4 - 0.1	34	0°23.5	0°23.6	0°22.4	3.4 - 0.1	9.4 - 0.2	15.4 - 0.4	34	0°38.5	0°38.6	0°36.7	3.4 - 0.1	9.4 - 0.4	15.4 - 0.6
35	0°08.8	0°08.8	0°08.4	3.5 - 0.0	9.5 - 0.1	15.5 - 0.1	35	0°23.8	0°23.8	0°22.7	3.5 - 0.1	9.5 - 0.2	15.5 - 0.4	35	0°38.8	0°38.9	0°37.0	3.5 - 0.1	9.5 - 0.4	15.5 - 0.6
36	0°09.0	0°09.0	0°08.6	3.6 - 0.0	9.6 - 0.1	15.6 - 0.1	36	0°24.0	0°24.1	0°22.9	3.6 - 0.1	9.6 - 0.2	15.6 - 0.4	36	0°39.0	0°39.1	0°37.2	3.6 - 0.1	9.6 - 0.4	15.6 - 0.6
37	0°09.3	0°09.3	0°08.8	3.7 - 0.0	9.7 - 0.1	15.7 - 0.1	37	0°24.3	0°24.3	0°23.1	3.7 - 0.1	9.7 - 0.2	15.7 - 0.4	37	0°39.3	0°39.4	0°37.5	3.7 - 0.2	9.7 - 0.4	15.7 - 0.7
38	0°09.5	0°09.5	0°09.1	3.8 - 0.0	9.8 - 0.1	15.8 - 0.1	38	0°24.5	0°24.6	0°23.4	3.8 - 0.1	9.8 - 0.2	15.8 - 0.4	38	0°39.5	0°39.6	0°37.7	3.8 - 0.2	9.8 - 0.4	15.8 - 0.7
39	0°09.8	0°09.8	0°09.3	3.9 - 0.0	9.9 - 0.1	15.9 - 0.1	39	0°24.8	0°24.8	0°23.6	3.9 - 0.1	9.9 - 0.2	15.9 - 0.4	39	0°39.8	0°39.9	0°37.9	3.9 - 0.2	9.9 - 0.4	15.9 - 0.7
40	0°10.0	0°10.0	0°09.5	4.0 - 0.0	10.0 - 0.1	16.0 - 0.1	40	0°25.0	0°25.1	0°23.9	4.0 - 0.1	10.0 - 0.3	16.0 - 0.4	40	0°40.0	0°40.1	0°38.2	4.0 - 0.2	10.0 - 0.4	16.0 - 0.7
41	0°10.3	0°10.3	0°09.8	4.1 - 0.0	10.1 - 0.1	16.1 - 0.1	41	0°25.3	0°25.3	0°24.1	4.1 - 0.1	10.1 - 0.3	16.1 - 0.4	41	0°40.3	0°40.4	0°38.4	4.1 - 0.2	10.1 - 0.4	16.1 - 0.7
42	0°10.5	0°10.5	0°10.0	4.2 - 0.0	10.2 - 0.1	16.2 - 0.1	42	0°25.5	0°25.6	0°24.3	4.2 - 0.1	10.2 - 0.3	16.2 - 0.4	42	0°40.5	0°40.6	0°38.7	4.2 - 0.2	10.2 - 0.4	16.2 - 0.7
43	0°10.8	0°10.8	0°10.3	4.3 - 0.0	10.3 - 0.1	16.3 - 0.1	43	0°25.8	0°25.8	0°24.6	4.3 - 0.1	10.3 - 0.3	16.3 - 0.4	43	0°40.8	0°40.9	0°38.9	4.3 - 0.2	10.3 - 0.4	16.3 - 0.7
44	0°11.0	0°11.0	0°10.5	4.4 - 0.0	10.4 - 0.1	16.4 - 0.1	44	0°26.0	0°26.1	0°24.8	4.4 - 0.1	10.4 - 0.3	16.4 - 0.4	44	0°41.0	0°41.1	0°39.1	4.4 - 0.2	10.4 - 0.4	16.4 - 0.7
45	0°11.3	0°11.3	0°10.7	4.5 - 0.0	10.5 - 0.1	16.5 - 0.1	45	0°26.3	0°26.3	0°25.1	4.5 - 0.1	10.5 - 0.3	16.5 - 0.4	45	0°41.3	0°41.4	0°39.4	4.5 - 0.2	10.5 - 0.4	16.5 - 0.7
46	0°11.5	0°11.5	0°11.0	4.6 - 0.0	10.6 - 0.1	16.6 - 0.1	46	0°26.5	0°26.6	0°25.3	4.6 - 0.1	10.6 - 0.3	16.6 - 0.4	46	0°41.5	0°41.6	0°39.6	4.6 - 0.2	10.6 - 0.4	16.6 - 0.7
47	0°11.8	0°11.8	0°11.2	4.7 - 0.0	10.7 - 0.1	16.7 - 0.1	47	0°26.8	0°26.8	0°25.5	4.7 - 0.1	10.7 - 0.3	16.7 - 0.4	47	0°41.8	0°41.9	0°39.8	4.7 - 0.2	10.7 - 0.4	16.7 - 0.7
48	0°12.0	0°12.0	0°11.5	4.8 - 0.0	10.8 - 0.1	16.8 - 0.1	48	0°27.0	0°27.1	0°25.8	4.8 - 0.1	10.8 - 0.3	16.8 - 0.4	48	0°42.0	0°42.1	0°40.1	4.8 - 0.2	10.8 - 0.5	16.8 - 0.7
49	0°12.3	0°12.3	0°11.7	4.9 - 0.0	10.9 - 0.1	16.9 - 0.1	49	0°27.3	0°27.3											

Increments and Corrections

m 3	Sun Plan.	Aries	Moon	v and d corr		
0	0°45.0	0°45.1	0°43.0	0.0 - 0.0	6.0 - 0.3	12.0 - 0.7
1	0°45.3	0°45.4	0°43.2	0.1 - 0.0	6.1 - 0.4	12.1 - 0.7
2	0°45.5	0°45.6	0°43.4	0.2 - 0.0	6.2 - 0.4	12.2 - 0.7
3	0°45.8	0°45.9	0°43.7	0.3 - 0.0	6.3 - 0.4	12.3 - 0.7
4	0°46.0	0°46.1	0°43.9	0.4 - 0.0	6.4 - 0.4	12.4 - 0.7
5	0°46.3	0°46.4	0°44.1	0.5 - 0.0	6.5 - 0.4	12.5 - 0.7
6	0°46.5	0°46.6	0°44.4	0.6 - 0.0	6.6 - 0.4	12.6 - 0.7
7	0°46.8	0°46.9	0°44.6	0.7 - 0.0	6.7 - 0.4	12.7 - 0.7
8	0°47.0	0°47.1	0°44.9	0.8 - 0.0	6.8 - 0.4	12.8 - 0.7
9	0°47.3	0°47.4	0°45.1	0.9 - 0.1	6.9 - 0.4	12.9 - 0.8
10	0°47.5	0°47.6	0°45.3	1.0 - 0.1	7.0 - 0.4	13.0 - 0.8
11	0°47.8	0°47.9	0°45.6	1.1 - 0.1	7.1 - 0.4	13.1 - 0.8
12	0°48.0	0°48.1	0°45.8	1.2 - 0.1	7.2 - 0.4	13.2 - 0.8
13	0°48.3	0°48.4	0°46.1	1.3 - 0.1	7.3 - 0.4	13.3 - 0.8
14	0°48.5	0°48.6	0°46.3	1.4 - 0.1	7.4 - 0.4	13.4 - 0.8
15	0°48.8	0°48.9	0°46.5	1.5 - 0.1	7.5 - 0.4	13.5 - 0.8
16	0°49.0	0°49.1	0°46.8	1.6 - 0.1	7.6 - 0.4	13.6 - 0.8
17	0°49.3	0°49.4	0°47.0	1.7 - 0.1	7.7 - 0.4	13.7 - 0.8
18	0°49.5	0°49.6	0°47.2	1.8 - 0.1	7.8 - 0.5	13.8 - 0.8
19	0°49.8	0°49.9	0°47.5	1.9 - 0.1	7.9 - 0.5	13.9 - 0.8
20	0°50.0	0°50.1	0°47.7	2.0 - 0.1	8.0 - 0.5	14.0 - 0.8
21	0°50.3	0°50.4	0°48.0	2.1 - 0.1	8.1 - 0.5	14.1 - 0.8
22	0°50.5	0°50.6	0°48.2	2.2 - 0.1	8.2 - 0.5	14.2 - 0.8
23	0°50.8	0°50.9	0°48.4	2.3 - 0.1	8.3 - 0.5	14.3 - 0.8
24	0°51.0	0°51.1	0°48.7	2.4 - 0.1	8.4 - 0.5	14.4 - 0.8
25	0°51.3	0°51.4	0°48.9	2.5 - 0.1	8.5 - 0.5	14.5 - 0.8
26	0°51.5	0°51.6	0°49.2	2.6 - 0.2	8.6 - 0.5	14.6 - 0.9
27	0°51.8	0°51.9	0°49.4	2.7 - 0.2	8.7 - 0.5	14.7 - 0.9
28	0°52.0	0°52.1	0°49.6	2.8 - 0.2	8.8 - 0.5	14.8 - 0.9
29	0°52.3	0°52.4	0°49.9	2.9 - 0.2	8.9 - 0.5	14.9 - 0.9
30	0°52.5	0°52.6	0°50.1	3.0 - 0.2	9.0 - 0.5	15.0 - 0.9
31	0°52.8	0°52.9	0°50.3	3.1 - 0.2	9.1 - 0.5	15.1 - 0.9
32	0°53.0	0°53.1	0°50.6	3.2 - 0.2	9.2 - 0.5	15.2 - 0.9
33	0°53.3	0°53.4	0°50.8	3.3 - 0.2	9.3 - 0.5	15.3 - 0.9
34	0°53.5	0°53.6	0°51.1	3.4 - 0.2	9.4 - 0.5	15.4 - 0.9
35	0°53.8	0°53.9	0°51.3	3.5 - 0.2	9.5 - 0.6	15.5 - 0.9
36	0°54.0	0°54.1	0°51.5	3.6 - 0.2	9.6 - 0.6	15.6 - 0.9
37	0°54.3	0°54.4	0°51.8	3.7 - 0.2	9.7 - 0.6	15.7 - 0.9
38	0°54.5	0°54.6	0°52.0	3.8 - 0.2	9.8 - 0.6	15.8 - 0.9
39	0°54.8	0°54.9	0°52.3	3.9 - 0.2	9.9 - 0.6	15.9 - 0.9
40	0°55.0	0°55.2	0°52.5	4.0 - 0.2	10.0 - 0.6	16.0 - 0.9
41	0°55.3	0°55.4	0°52.7	4.1 - 0.2	10.1 - 0.6	16.1 - 0.9
42	0°55.5	0°55.7	0°53.0	4.2 - 0.2	10.2 - 0.6	16.2 - 0.9
43	0°55.8	0°55.9	0°53.2	4.3 - 0.3	10.3 - 0.6	16.3 - 1.0
44	0°56.0	0°56.2	0°53.4	4.4 - 0.3	10.4 - 0.6	16.4 - 1.0
45	0°56.3	0°56.4	0°53.7	4.5 - 0.3	10.5 - 0.6	16.5 - 1.0
46	0°56.5	0°56.7	0°53.9	4.6 - 0.3	10.6 - 0.6	16.6 - 1.0
47	0°56.8	0°56.9	0°54.2	4.7 - 0.3	10.7 - 0.6	16.7 - 1.0
48	0°57.0	0°57.2	0°54.4	4.8 - 0.3	10.8 - 0.6	16.8 - 1.0
49	0°57.3	0°57.4	0°54.6	4.9 - 0.3	10.9 - 0.6	16.9 - 1.0
50	0°57.5	0°57.7	0°54.9	5.0 - 0.3	11.0 - 0.6	17.0 - 1.0
51	0°57.7	0°57.9	0°55.1	5.1 - 0.3	11.1 - 0.6	17.1 - 1.0
52	0°58.0	0°58.2	0°55.4	5.2 - 0.3	11.2 - 0.7	17.2 - 1.0
53	0°58.3	0°58.4	0°55.6	5.3 - 0.3	11.3 - 0.7	17.3 - 1.0
54	0°58.5	0°58.7	0°55.8	5.4 - 0.3	11.4 - 0.7	17.4 - 1.0
55	0°58.8	0°58.9	0°56.1	5.5 - 0.3	11.5 - 0.7	17.5 - 1.0
56	0°59.0	0°59.2	0°56.3	5.6 - 0.3	11.6 - 0.7	17.6 - 1.0
57	0°59.3	0°59.4	0°56.6	5.7 - 0.3	11.7 - 0.7	17.7 - 1.0
58	0°59.5	0°59.7	0°56.8	5.8 - 0.3	11.8 - 0.7	17.8 - 1.0
59	0°59.8	0°59.9	0°57.0	5.9 - 0.3	11.9 - 0.7	17.9 - 1.0

m 4	Sun Plan.	Aries	Moon	v and d corr		
0	1°00.0	1°00.2	0°57.3	0.0 - 0.0	6.0 - 0.4	12.0 - 0.9
1	1°00.2	1°00.4	0°57.5	0.1 - 0.0	6.1 - 0.5	12.1 - 0.9
2	1°00.5	1°00.7	0°57.7	0.2 - 0.0	6.2 - 0.5	12.2 - 0.9
3	1°00.7	1°00.9	0°58.0	0.3 - 0.0	6.3 - 0.5	12.3 - 0.9
4	1°01.0	1°01.2	0°58.2	0.4 - 0.0	6.4 - 0.5	12.4 - 0.9
5	1°01.2	1°01.4	0°58.5	0.5 - 0.0	6.5 - 0.5	12.5 - 0.9
6	1°01.5	1°01.7	0°58.7	0.6 - 0.0	6.6 - 0.5	12.6 - 0.9
7	1°01.7	1°01.9	0°58.9	0.7 - 0.1	6.7 - 0.5	12.7 - 1.0
8	1°02.0	1°02.2	0°59.2	0.8 - 0.1	6.8 - 0.5	12.8 - 1.0
9	1°02.3	1°02.4	0°59.4	0.9 - 0.1	6.9 - 0.5	12.9 - 1.0
10	1°02.5	1°02.7	0°59.7	1.0 - 0.1	7.0 - 0.5	13.0 - 1.0
11	1°02.8	1°02.9	0°59.9	1.1 - 0.1	7.1 - 0.5	13.1 - 1.0
12	1°03.0	1°03.2	1°00.1	1.2 - 0.1	7.2 - 0.5	13.2 - 1.0
13	1°03.3	1°03.4	1°00.4	1.3 - 0.1	7.3 - 0.5	13.3 - 1.0
14	1°03.5	1°03.7	1°00.6	1.4 - 0.1	7.4 - 0.6	13.4 - 1.0
15	1°03.8	1°03.9	1°00.8	1.5 - 0.1	7.5 - 0.6	13.5 - 1.0
16	1°04.0	1°04.2	1°01.1	1.6 - 0.1	7.6 - 0.6	13.6 - 1.0
17	1°04.2	1°04.4	1°01.3	1.7 - 0.1	7.7 - 0.6	13.7 - 1.0
18	1°04.5	1°04.7	1°01.6	1.8 - 0.1	7.8 - 0.6	13.8 - 1.0
19	1°04.7	1°04.9	1°01.8	1.9 - 0.1	7.9 - 0.6	13.9 - 1.0
20	1°05.0	1°05.2	1°02.0	2.0 - 0.1	8.0 - 0.6	14.0 - 1.1
21	1°05.2	1°05.4	1°02.3	2.1 - 0.2	8.1 - 0.6	14.1 - 1.1
22	1°05.5	1°05.7	1°02.5	2.2 - 0.2	8.2 - 0.6	14.2 - 1.1
23	1°05.8	1°05.9	1°02.8	2.3 - 0.2	8.3 - 0.6	14.3 - 1.1
24	1°06.0	1°06.2	1°03.0	2.4 - 0.2	8.4 - 0.6	14.4 - 1.1
25	1°06.3	1°06.4	1°03.2	2.5 - 0.2	8.5 - 0.6	14.5 - 1.1
26	1°06.5	1°06.7	1°03.5	2.6 - 0.2	8.6 - 0.6	14.6 - 1.1
27	1°06.8	1°06.9	1°03.7	2.7 - 0.2	8.7 - 0.7	14.7 - 1.1
28	1°07.0	1°07.2	1°03.9	2.8 - 0.2	8.8 - 0.7	14.8 - 1.1
29	1°07.3	1°07.4	1°04.2	2.9 - 0.2	8.9 - 0.7	14.9 - 1.1
30	1°07.5	1°07.7	1°04.4	3.0 - 0.2	9.0 - 0.7	15.0 - 1.1
31	1°07.7	1°07.9	1°04.7	3.1 - 0.2	9.1 - 0.7	15.1 - 1.1
32	1°08.0	1°08.2	1°04.9	3.2 - 0.2	9.2 - 0.7	15.2 - 1.1
33	1°08.2	1°08.4	1°05.1	3.3 - 0.2	9.3 - 0.7	15.3 - 1.1
34	1°08.5	1°08.7	1°05.4	3.4 - 0.3	9.4 - 0.7	15.4 - 1.2
35	1°08.7	1°08.9	1°05.6	3.5 - 0.3	9.5 - 0.7	15.5 - 1.2
36	1°09.0	1°09.2	1°05.9	3.6 - 0.3	9.6 - 0.7	15.6 - 1.2
37	1°09.3	1°09.4	1°06.1	3.7 - 0.3	9.7 - 0.7	15.7 - 1.2
38	1°09.5	1°09.7	1°06.3	3.8 - 0.3	9.8 - 0.7	15.8 - 1.2
39	1°09.8	1°09.9	1°06.6	3.9 - 0.3	9.9 - 0.7	15.9 - 1.2
40	1°10.0	1°10.2	1°06.8	4.0 - 0.3	10.0 - 0.8	16.0 - 1.2
41	1°10.3	1°10.4	1°07.0	4.1 - 0.3	10.1 - 0.8	16.1 - 1.2
42	1°10.5	1°10.7	1°07.3	4.2 - 0.3	10.2 - 0.8	16.2 - 1.2
43	1°10.8	1°10.9	1°07.5	4.3 - 0.3	10.3 - 0.8	16.3 - 1.2
44	1°11.0	1°11.2	1°07.8	4.4 - 0.3	10.4 - 0.8	16.4 - 1.2
45	1°11.3	1°11.4	1°08.0	4.5 - 0.3	10.5 - 0.8	16.5 - 1.2
46	1°11.5	1°11.7	1°08.2	4.6 - 0.3	10.6 - 0.8	16.6 - 1.2
47	1°11.7	1°11.9	1°08.5	4.7 - 0.4	10.7 - 0.8	16.7 - 1.3
48	1°12.0	1°12.2	1°08.7	4.8 - 0.4	10.8 - 0.8	16.8 - 1.3
49	1°12.2	1°12.4	1°09.0	4.9 - 0.4	10.9 - 0.8	16.9 - 1.3
50	1°12.5	1°12.7	1°09.2	5.0 - 0.4	11.0 - 0.8	17.0 - 1.3
51	1°12.7	1°12.9	1°09.4	5.1 - 0.4	11.1 - 0.8	17.1 - 1.3
52	1°13.0	1°13.2	1°09.7	5.2 - 0.4	11.2 - 0.8	17.2 - 1.3
53	1°13.2	1°13.5	1°09.9	5.3 - 0.4	11.3 - 0.8	17.3 - 1.3
54	1°13.5	1°13.7	1°10.2	5.4 - 0.4	11.4 - 0.9	17.4 - 1.3
55	1°13.8	1°14.0	1°10.4	5.5 - 0.4	11.5 - 0.9	17.5 - 1.3
56	1°14.0	1°14.2	1°10.6	5.6 - 0.4	11.6 - 0.9	17.6 - 1.3
57	1°14.3	1°14.5	1°10.9	5.7 - 0.4	11.7 - 0.9	17.7 - 1.3
58	1°14.5	1°14.7	1°11.1	5.8 - 0.4	11.8 - 0.9	17.8 - 1.3
59	1°14.8	1°15.0	1°11.3	5.9 - 0.4	11.9 - 0.9	17.9 - 1.3

m 5	Sun Plan.	Aries	Moon	v and d corr		
0	1°15.0	1°15.2	1°11.6	0.0 - 0.0	6.0 - 0.5	12.0 - 1.1
1	1°15.3	1°15.5	1°11.8	0.1 - 0.0	6.1 - 0.6	12.1 - 1.1
2	1°15.5	1°15.7	1°12.1	0.2 - 0.0	6.2 - 0.6	12.2 - 1.1
3	1°15.7	1°16.0	1°12.3	0.3 - 0.0	6.3 - 0.6	12.3 - 1.1
4	1°16.0	1°16.2	1°12.5	0.4 - 0.0	6.4 - 0.6	12.4 - 1.1
5	1°16.2	1°16.5	1°12.8	0.5 - 0.0	6.5 - 0.6	12.5 - 1.1
6	1°16.5	1°16.7	1°13.0	0.6 - 0.1	6.6 - 0.6	12.6 - 1.2
7	1°16.7	1°17.0	1°13.3	0.7 - 0.1	6.7 - 0.6	12.7 - 1.2
8	1°17.0	1°17.2	1°13.5	0.8 - 0.1	6.8 - 0.6	12.8 - 1.2
9	1°17.3	1°17.5	1°13.7	0.9 - 0.1	6.9 - 0.6	12.9 - 1.2
10	1°17.5	1°17.7	1°14.0	1.0 - 0.1	7.0 - 0.6	13.0 - 1.2
11	1°17.8	1°18.0	1°14.2	1.1 - 0.1	7.1 - 0.7	13.1 - 1.2
12	1°18.0	1°18.2	1°14.4	1.2 - 0.1	7.2 - 0.7	13.2 - 1.2
13	1°18.3	1°18.5	1°14.7	1.3 - 0.1	7.3 - 0.7	13.3 - 1.2
14	1°18.5	1°18.7	1°14.9	1.4 - 0.1	7.4 - 0.7	13.4 - 1.2
15	1°18.8	1°19.0	1°15.2	1.5 - 0.1	7.5 - 0.7	13.5 - 1.2
16	1°19.0	1°19.2	1°15.4	1.6 - 0.1	7.6 - 0.7	13.6 - 1.2
17	1°19.3	1°19.5	1°15.6	1.7 - 0.2	7.7 - 0.7	13.7 - 1.3
18	1°19.5	1°19.7	1°15.9	1.8 - 0.2	7.8 - 0.7	13.8 - 1.3
19	1°19.7	1°20.0	1°16.1	1.9 - 0.2	7.9 - 0.7	13.9 - 1.3
20	1°20.0	1°20.2	1°16.4	2.0 - 0.2	8.0 - 0.7	14.0 - 1.3
21	1°20.2	1°20.5	1°16.6	2.1 - 0.2	8.1 - 0.7	14.1 - 1.3
22	1°20.5	1°20.7	1°16.8	2.2 - 0.2	8.2 - 0.8	14.2 - 1.3
23	1°20.8	1°21.0	1°17.1	2.3 - 0.2	8.3 - 0.8	14.3 - 1.3
24	1°21.0	1°21.2	1°17.3	2.4 - 0.2	8.4 - 0.8	14.4 - 1.3
25	1°21.3	1°21.5	1°17.5	2.5 - 0.2	8.5 - 0.8	14.5 - 1.3
26	1°21.5	1°21.7	1°17.8	2.6 - 0.2	8.6 - 0.8	14.6 - 1.3
27	1°21.8	1°22.0	1°18.0	2.7 - 0.2	8.7 - 0.8	14.7 - 1.3
28	1°22.0	1°22.2	1°18.3	2.8 - 0.3	8.8 - 0.8	14.8 - 1.4
29	1°22.3	1°22.5	1°18.5	2.9 - 0.3	8.9 - 0.8	14.9 - 1.4
30	1°22.5	1°22.7	1°18.7	3.0 - 0.3	9.0 - 0.8	15.0 - 1.4
31	1°22.8	1°23.0	1°19.0	3.1 - 0.3	9.1 - 0.8	15.1 - 1.4
32	1°23.0	1°23.2	1°19.2	3.2 - 0.3	9.2 - 0.8	15.2 - 1.4
33	1°23.2	1°23.5	1°19.5	3.3 - 0.3	9.3 - 0.9	15.3 - 1.4
34	1°23.5	1°23.7	1°19.7	3.4 - 0.3	9.4 - 0.9	15.4 - 1.4
35	1°23.7	1°24.0	1°19.9	3.5 - 0.3	9.5 - 0.9	15.5 - 1.4
36	1°24.0	1°24.2	1°20.2	3.6 - 0.3	9.6 - 0.9	15.6 - 1.4
37	1°24.3	1°24.5	1°20.4	3.7 - 0.3	9.7 - 0.9	15.7 - 1.4
38	1°24.5	1°24.7	1°20.7	3.8 - 0.3	9.8 - 0.9	15.8 - 1.4
39	1°24.8	1°25.0	1°20.9	3.9 - 0.4	9.9 - 0.9	15.9 - 1.5
40	1°25.0	1°25.2	1°21.1	4.0 - 0.4	10.0 - 0.9	16.0 - 1.5
41	1°25.3	1°25.5	1°21.4	4.1 - 0.4	10.1 - 0.9	16.1 - 1.5
42	1°25.5	1°25.7	1°21.6	4.2 - 0.4	10.2 - 0.9	16.2 - 1.5
43	1°25.8	1°26.0	1°21.8	4.3 - 0.4	10.3 - 0.9	16.3 - 1.5
44	1°26.0	1°26.2	1°22.1	4.4 - 0.4	10.4 - 1.0	16.4 - 1.5
45	1°26.3	1°26.5	1°22.3	4.5 - 0.4	10.5 - 1.0	16.5 - 1.5
46	1°26.5	1°26.7	1°22.6	4.6 - 0.4	10.6 - 1.0	16.6 - 1.5
47	1°26.8	1°27.0	1°22.8	4.7 - 0.4	10.7 - 1.0	16.7 - 1.5
48	1°27.0	1°27.2	1°23.0	4.8 - 0.4	10.8 - 1.0	16.8 - 1.5
49	1°27.2	1°27.5	1°23.3	4.9 - 0.4	10.9 - 1.0	16.9 - 1.5
50	1°27.5	1°27.7	1°23.5	5.0 - 0.5	11.0 - 1.0	17.0 - 1.6
51	1°27.7	1°28.0	1°23.8	5.1 - 0.5	11.1 - 1.0	17.1 - 1.6
52	1°28.0	1°28.2	1°24.0	5.2 - 0.5	11.2 - 1.0	17.2 - 1.6
53	1°28.3	1°28.5	1°24.2	5.3 - 0.5	11.3 - 1.0	17.3 - 1.6
54	1°28.5	1°28.7	1°24.5	5.4 - 0.5	11.4 - 1.0	17.4 - 1.6
55	1°28.8	1°29.0	1°24.7	5.5 - 0.5	11.5 - 1.1	17.5 - 1.6
56	1°29.0	1°29.2	1°24.9	5.6 - 0.5	11.6 - 1.1	17.6 - 1.6
57	1°29.3	1°29.5	1°25.2	5.7 - 0.5	11.7 - 1.1	17.7 - 1.6
58	1°29.5	1°29.7	1°25.4	5.8 - 0.5	11.8 - 1.1	17.8 - 1.6
59	1°29.8	1°30.0	1°25.7	5.9 - 0.5	11.9 - 1.1	17.9 - 1.6

Increments and Corrections

m 6	Sun Plan.	Aries	Moon	v and d corr			m 7	Sun Plan.	Aries	Moon	v and d corr			m 8	Sun Plan.	Aries	Moon	v and d corr		
0	1°30.0	1°30.2	1°25.9	0.0 - 0.0	6.0 - 0.7	12.0 - 1.3	0	1°45.0	1°45.3	1°40.2	0.0 - 0.0	6.0 - 0.8	12.0 - 1.5	0	2°00.0	2°00.3	1°54.5	0.0 - 0.0	6.0 - 0.8	12.0 - 1.7
1	1°30.3	1°30.5	1°26.1	0.1 - 0.0	6.1 - 0.7	12.1 - 1.3	1	1°45.3	1°45.5	1°40.5	0.1 - 0.0	6.1 - 0.8	12.1 - 1.5	1	2°00.3	2°00.6	1°54.8	0.1 - 0.0	6.1 - 0.9	12.1 - 1.7
2	1°30.5	1°30.7	1°26.4	0.2 - 0.0	6.2 - 0.7	12.2 - 1.3	2	1°45.5	1°45.8	1°40.7	0.2 - 0.0	6.2 - 0.8	12.2 - 1.5	2	2°00.5	2°00.8	1°55.0	0.2 - 0.0	6.2 - 0.9	12.2 - 1.7
3	1°30.7	1°31.0	1°26.6	0.3 - 0.0	6.3 - 0.7	12.3 - 1.3	3	1°45.8	1°46.0	1°40.9	0.3 - 0.0	6.3 - 0.8	12.3 - 1.5	3	2°00.8	2°01.1	1°55.2	0.3 - 0.0	6.3 - 0.9	12.3 - 1.7
4	1°31.0	1°31.2	1°26.9	0.4 - 0.0	6.4 - 0.7	12.4 - 1.3	4	1°46.0	1°46.3	1°41.2	0.4 - 0.1	6.4 - 0.8	12.4 - 1.6	4	2°01.0	2°01.3	1°55.5	0.4 - 0.1	6.4 - 0.9	12.4 - 1.8
5	1°31.2	1°31.5	1°27.1	0.5 - 0.1	6.5 - 0.7	12.5 - 1.4	5	1°46.2	1°46.5	1°41.4	0.5 - 0.1	6.5 - 0.8	12.5 - 1.6	5	2°01.3	2°01.6	1°55.7	0.5 - 0.1	6.5 - 0.9	12.5 - 1.8
6	1°31.5	1°31.8	1°27.3	0.6 - 0.1	6.6 - 0.7	12.6 - 1.4	6	1°46.5	1°46.8	1°41.6	0.6 - 0.1	6.6 - 0.8	12.6 - 1.6	6	2°01.5	2°01.8	1°56.0	0.6 - 0.1	6.6 - 0.9	12.6 - 1.8
7	1°31.7	1°32.0	1°27.6	0.7 - 0.1	6.7 - 0.7	12.7 - 1.4	7	1°46.7	1°47.0	1°41.9	0.7 - 0.1	6.7 - 0.8	12.7 - 1.6	7	2°01.8	2°02.1	1°56.2	0.7 - 0.1	6.7 - 0.9	12.7 - 1.8
8	1°32.0	1°32.3	1°27.8	0.8 - 0.1	6.8 - 0.7	12.8 - 1.4	8	1°47.0	1°47.3	1°42.1	0.8 - 0.1	6.8 - 0.8	12.8 - 1.6	8	2°02.0	2°02.3	1°56.4	0.8 - 0.1	6.8 - 1.0	12.8 - 1.8
9	1°32.3	1°32.5	1°28.0	0.9 - 0.1	6.9 - 0.7	12.9 - 1.4	9	1°47.3	1°47.5	1°42.4	0.9 - 0.1	6.9 - 0.9	12.9 - 1.6	9	2°02.3	2°02.6	1°56.7	0.9 - 0.1	6.9 - 1.0	12.9 - 1.8
10	1°32.5	1°32.8	1°28.3	1.0 - 0.1	7.0 - 0.8	13.0 - 1.4	10	1°47.5	1°47.8	1°42.6	1.0 - 0.1	7.0 - 0.9	13.0 - 1.6	10	2°02.5	2°02.8	1°56.9	1.0 - 0.1	7.0 - 1.0	13.0 - 1.8
11	1°32.8	1°33.0	1°28.5	1.1 - 0.1	7.1 - 0.8	13.1 - 1.4	11	1°47.8	1°48.0	1°42.8	1.1 - 0.1	7.1 - 0.9	13.1 - 1.6	11	2°02.8	2°03.1	1°57.2	1.1 - 0.2	7.1 - 1.0	13.1 - 1.9
12	1°33.0	1°33.3	1°28.8	1.2 - 0.1	7.2 - 0.8	13.2 - 1.4	12	1°48.0	1°48.3	1°43.1	1.2 - 0.2	7.2 - 0.9	13.2 - 1.6	12	2°03.0	2°03.3	1°57.4	1.2 - 0.2	7.2 - 1.0	13.2 - 1.9
13	1°33.3	1°33.5	1°29.0	1.3 - 0.1	7.3 - 0.8	13.3 - 1.4	13	1°48.3	1°48.5	1°43.3	1.3 - 0.2	7.3 - 0.9	13.3 - 1.7	13	2°03.3	2°03.6	1°57.6	1.3 - 0.2	7.3 - 1.0	13.3 - 1.9
14	1°33.5	1°33.8	1°29.2	1.4 - 0.2	7.4 - 0.8	13.4 - 1.5	14	1°48.5	1°48.8	1°43.6	1.4 - 0.2	7.4 - 0.9	13.4 - 1.7	14	2°03.5	2°03.8	1°57.9	1.4 - 0.2	7.4 - 1.0	13.4 - 1.9
15	1°33.8	1°34.0	1°29.5	1.5 - 0.2	7.5 - 0.8	13.5 - 1.5	15	1°48.8	1°49.0	1°43.8	1.5 - 0.2	7.5 - 0.9	13.5 - 1.7	15	2°03.8	2°04.1	1°58.1	1.5 - 0.2	7.5 - 1.1	13.5 - 1.9
16	1°34.0	1°34.3	1°29.7	1.6 - 0.2	7.6 - 0.8	13.6 - 1.5	16	1°49.0	1°49.3	1°44.0	1.6 - 0.2	7.6 - 0.9	13.6 - 1.7	16	2°04.0	2°04.3	1°58.4	1.6 - 0.2	7.6 - 1.1	13.6 - 1.9
17	1°34.3	1°34.5	1°30.0	1.7 - 0.2	7.7 - 0.8	13.7 - 1.5	17	1°49.3	1°49.5	1°44.3	1.7 - 0.2	7.7 - 1.0	13.7 - 1.7	17	2°04.2	2°04.6	1°58.6	1.7 - 0.2	7.7 - 1.1	13.7 - 1.9
18	1°34.5	1°34.8	1°30.2	1.8 - 0.2	7.8 - 0.8	13.8 - 1.5	18	1°49.5	1°49.8	1°44.5	1.8 - 0.2	7.8 - 1.0	13.8 - 1.7	18	2°04.5	2°04.8	1°58.8	1.8 - 0.3	7.8 - 1.1	13.8 - 2.0
19	1°34.8	1°35.0	1°30.4	1.9 - 0.2	7.9 - 0.9	13.9 - 1.5	19	1°49.8	1°50.0	1°44.8	1.9 - 0.2	7.9 - 1.0	13.9 - 1.7	19	2°04.7	2°05.1	1°59.1	1.9 - 0.3	7.9 - 1.1	13.9 - 2.0
20	1°35.0	1°35.3	1°30.7	2.0 - 0.2	8.0 - 0.9	14.0 - 1.5	20	1°50.0	1°50.3	1°45.0	2.0 - 0.3	8.0 - 1.0	14.0 - 1.8	20	2°05.0	2°05.3	1°59.3	2.0 - 0.3	8.0 - 1.1	14.0 - 2.0
21	1°35.2	1°35.5	1°30.9	2.1 - 0.2	8.1 - 0.9	14.1 - 1.5	21	1°50.2	1°50.6	1°45.2	2.1 - 0.3	8.1 - 1.0	14.1 - 1.8	21	2°05.2	2°05.6	1°59.5	2.1 - 0.3	8.1 - 1.1	14.1 - 2.0
22	1°35.5	1°35.8	1°31.1	2.2 - 0.2	8.2 - 0.9	14.2 - 1.5	22	1°50.5	1°50.8	1°45.5	2.2 - 0.3	8.2 - 1.0	14.2 - 1.8	22	2°05.5	2°05.8	1°59.8	2.2 - 0.3	8.2 - 1.2	14.2 - 2.0
23	1°35.8	1°36.0	1°31.4	2.3 - 0.2	8.3 - 0.9	14.3 - 1.5	23	1°50.8	1°51.1	1°45.7	2.3 - 0.3	8.3 - 1.0	14.3 - 1.8	23	2°05.7	2°06.1	2°00.0	2.3 - 0.3	8.3 - 1.2	14.3 - 2.0
24	1°36.0	1°36.3	1°31.6	2.4 - 0.3	8.4 - 0.9	14.4 - 1.6	24	1°51.0	1°51.3	1°45.9	2.4 - 0.3	8.4 - 1.1	14.4 - 1.8	24	2°06.0	2°06.3	2°00.3	2.4 - 0.3	8.4 - 1.2	14.4 - 2.0
25	1°36.3	1°36.5	1°31.9	2.5 - 0.3	8.5 - 0.9	14.5 - 1.6	25	1°51.3	1°51.6	1°46.2	2.5 - 0.3	8.5 - 1.1	14.5 - 1.8	25	2°06.2	2°06.6	2°00.5	2.5 - 0.4	8.5 - 1.2	14.5 - 2.1
26	1°36.5	1°36.8	1°32.1	2.6 - 0.3	8.6 - 0.9	14.6 - 1.6	26	1°51.5	1°51.8	1°46.4	2.6 - 0.3	8.6 - 1.1	14.6 - 1.8	26	2°06.5	2°06.8	2°00.7	2.6 - 0.4	8.6 - 1.2	14.6 - 2.1
27	1°36.8	1°37.0	1°32.3	2.7 - 0.3	8.7 - 0.9	14.7 - 1.6	27	1°51.8	1°52.1	1°46.7	2.7 - 0.3	8.7 - 1.1	14.7 - 1.8	27	2°06.7	2°07.1	2°01.0	2.7 - 0.4	8.7 - 1.2	14.7 - 2.1
28	1°37.0	1°37.3	1°32.6	2.8 - 0.3	8.8 - 1.0	14.8 - 1.6	28	1°52.0	1°52.3	1°46.9	2.8 - 0.4	8.8 - 1.1	14.8 - 1.9	28	2°07.0	2°07.3	2°01.2	2.8 - 0.4	8.8 - 1.2	14.8 - 2.1
29	1°37.3	1°37.5	1°32.8	2.9 - 0.3	8.9 - 1.0	14.9 - 1.6	29	1°52.3	1°52.6	1°47.1	2.9 - 0.4	8.9 - 1.1	14.9 - 1.9	29	2°07.2	2°07.6	2°01.5	2.9 - 0.4	8.9 - 1.3	14.9 - 2.1
30	1°37.5	1°37.8	1°33.1	3.0 - 0.3	9.0 - 1.0	15.0 - 1.6	30	1°52.5	1°52.8	1°47.4	3.0 - 0.4	9.0 - 1.1	15.0 - 1.9	30	2°07.5	2°07.8	2°01.7	3.0 - 0.4	9.0 - 1.3	15.0 - 2.1
31	1°37.8	1°38.0	1°33.3	3.1 - 0.3	9.1 - 1.0	15.1 - 1.6	31	1°52.7	1°53.1	1°47.6	3.1 - 0.4	9.1 - 1.1	15.1 - 1.9	31	2°07.8	2°08.1	2°01.9	3.1 - 0.4	9.1 - 1.3	15.1 - 2.1
32	1°38.0	1°38.3	1°33.5	3.2 - 0.3	9.2 - 1.0	15.2 - 1.6	32	1°53.0	1°53.3	1°47.9	3.2 - 0.4	9.2 - 1.1	15.2 - 1.9	32	2°08.0	2°08.3	2°02.2	3.2 - 0.5	9.2 - 1.3	15.2 - 2.2
33	1°38.3	1°38.5	1°33.8	3.3 - 0.4	9.3 - 1.0	15.3 - 1.7	33	1°53.3	1°53.6	1°48.1	3.3 - 0.4	9.3 - 1.2	15.3 - 1.9	33	2°08.3	2°08.6	2°02.4	3.3 - 0.5	9.3 - 1.3	15.3 - 2.2
34	1°38.5	1°38.8	1°34.0	3.4 - 0.4	9.4 - 1.0	15.4 - 1.7	34	1°53.5	1°53.8	1°48.3	3.4 - 0.4	9.4 - 1.2	15.4 - 1.9	34	2°08.5	2°08.9	2°02.6	3.4 - 0.5	9.4 - 1.3	15.4 - 2.2
35	1°38.7	1°39.0	1°34.3	3.5 - 0.4	9.5 - 1.0	15.5 - 1.7	35	1°53.7	1°54.1	1°48.6	3.5 - 0.4	9.5 - 1.2	15.5 - 1.9	35	2°08.8	2°09.1	2°02.9	3.5 - 0.5	9.5 - 1.3	15.5 - 2.2
36	1°39.0	1°39.3	1°34.5	3.6 - 0.4	9.6 - 1.0	15.6 - 1.7	36	1°54.0	1°54.3	1°48.8	3.6 - 0.5	9.6 - 1.2	15.6 - 1.9	36	2°09.0	2°09.4	2°03.1	3.6 - 0.5	9.6 - 1.4	15.6 - 2.2
37	1°39.3	1°39.5	1°34.7	3.7 - 0.4	9.7 - 1.1	15.7 - 1.7	37	1°54.2	1°54.6	1°49.0	3.7 - 0.5	9.7 - 1.2	15.7 - 2.0	37	2°09.3	2°09.6	2°03.4	3.7 - 0.5	9.7 - 1.4	15.7 - 2.2
38	1°39.5	1°39.8	1°35.0	3.8 - 0.4	9.8 - 1.1	15.8 - 1.7	38	1°54.5	1°54.8	1°49.3	3.8 - 0.5	9.8 - 1.2	15.8 - 2.0	38	2°09.5	2°09.9	2°03.6	3.8 - 0.5	9.8 - 1.4	15.8 - 2.2
39	1°39.8	1°40.0	1°35.2	3.9 - 0.4	9.9 - 1.1	15.9 - 1.7	39	1°54.8	1°55.1	1°49.5	3.9 - 0.5	9.9 - 1.2	15.9 - 2.0	39	2°09.8	2°10.1	2°03.8	3.9 - 0.6	9.9 - 1.4	15.9 - 2.3
40	1°40.0	1°40.3	1°35.4	4.0 - 0.4	10.0 - 1.1	16.0 - 1.7	40	1°55.0	1°55.3	1°49.8	4.0 - 0.5	10.0 - 1.3	16.0 - 2.0	40	2°10.0	2°10.4	2°04.1	4.0 - 0.6	10.0 - 1.4	16.0 - 2.3
41	1°40.3	1°40.5	1°35.7	4.1 - 0.4	10.1 - 1.1	16.1 - 1.7	41	1°55.3	1°55.6	1°50.0	4.1 - 0.5	10.1 - 1.3	16.1 - 2.0	41	2°10.3	2°10.6	2°04.3	4.1 - 0.6	10.1 - 1.4	16.1 - 2.3
42	1°40.5	1°40.8	1°35.9	4.2 - 0.5	10.2 - 1.1	16.2 - 1.8	42	1°55.5	1°55.8	1°50.2	4.2 - 0.5	10.2 - 1.3	16.2 - 2.0	42	2°10.5	2°10.9	2°04.6	4.2 - 0.6	10.2 - 1.4	16.2 - 2.3
43	1°40.8	1°41.0	1°36.2	4.3 - 0.5	10.3 - 1.1	16.3 - 1.8	43	1°55.8	1°56.1	1°50.5	4.3 - 0.5	10.3 - 1.3	16.3 - 2.0	43	2°10.8	2°11.1	2°04.8	4.3 - 0.6	10.3 - 1.5	16.3 - 2.3
44	1°41.0	1°41.3	1°36.4	4.4 - 0.5	10.4 - 1.1	16.4 - 1.8	44	1°56.0	1°56.3	1°50.7	4.4 - 0.6	10.4 - 1.3	16.4 - 2.0	44	2°11.0	2°11.4	2°05.0	4.4 - 0.6	10.4 - 1.5	16.4 - 2.3
45	1°41.3	1°41.5	1°36.6	4.5 - 0.5	10.5 - 1.1	16.5 - 1.8	45	1°56.3	1°56.6	1°51.0	4.5 - 0.6	10.5 - 1.3	16.5 - 2.1	45	2°11.3	2°11.6	2°05.3	4.5 - 0.6	10.5 - 1.5	16.5 - 2.3
46	1°41.5	1°41.8	1°36.9	4.6 - 0.5	10.6 - 1.1	16.6 - 1.8	46	1°56.5	1°56.8	1°51.2	4.6 - 0.6	10.6 - 1.3	16.6 - 2.1	46	2°11.5	2°11.9	2°05.5	4.6 - 0.7	10.6 - 1.5	16.6 - 2.4
47	1°41.8	1°42.0	1°37.1	4.7 - 0.5	10.7 - 1.2	16.7 - 1.8	47	1°56.7	1°57.1	1°51.4	4.7 - 0.6	10.7 - 1.3	16.7 - 2.1	47	2°11.7	2°12.1	2°05.7	4.7 - 0.7	10.7 - 1.5	16.7 - 2.4
48	1°42.0	1°42.3	1°37.4	4.8 - 0.5	10.8 - 1.2	16.8 - 1.8	48	1°57.0	1°57.3	1°51.7	4.8 - 0.6	10.8 - 1.4	16.8 - 2.1	48	2°12.0	2°12.4	2°06.0	4.8 - 0.7	10.8 - 1.5	16.8 - 2.4
49	1°42.3	1°42.5	1°37.6	4.9 - 0.5	10.9 - 1.2	16.9 - 1.8	49	1°57.3	1°57.6											

Increments and Corrections

m 9	Sun Plan.	Aries	Moon	v and d corr			m 10	Sun Plan.	Aries	Moon	v and d corr			m 11	Sun Plan.	Aries	Moon	v and d corr		
0	2°15.0	2°15.4	2°08.8	0.0 - 0.0	6.0 - 0.9	12.0 - 1.9	0	2°30.0	2°30.4	2°23.2	0.0 - 0.0	6.0 - 1.0	12.0 - 2.1	0	2°45.0	2°45.5	2°37.5	0.0 - 0.0	6.0 - 1.2	12.0 - 2.3
1	2°15.3	2°15.6	2°09.1	0.1 - 0.0	6.1 - 1.0	12.1 - 1.9	1	2°30.3	2°30.7	2°23.4	0.1 - 0.0	6.1 - 1.1	12.1 - 2.1	1	2°45.3	2°45.7	2°37.7	0.1 - 0.0	6.1 - 1.2	12.1 - 2.3
2	2°15.5	2°15.9	2°09.3	0.2 - 0.0	6.2 - 1.0	12.2 - 1.9	2	2°30.5	2°30.9	2°23.6	0.2 - 0.0	6.2 - 1.1	12.2 - 2.1	2	2°45.5	2°46.0	2°38.0	0.2 - 0.0	6.2 - 1.2	12.2 - 2.3
3	2°15.8	2°16.1	2°09.6	0.3 - 0.0	6.3 - 1.0	12.3 - 1.9	3	2°30.8	2°31.2	2°23.9	0.3 - 0.1	6.3 - 1.1	12.3 - 2.2	3	2°45.8	2°46.2	2°38.2	0.3 - 0.1	6.3 - 1.2	12.3 - 2.4
4	2°16.0	2°16.4	2°09.8	0.4 - 0.1	6.4 - 1.0	12.4 - 2.0	4	2°31.0	2°31.4	2°24.1	0.4 - 0.1	6.4 - 1.1	12.4 - 2.2	4	2°46.0	2°46.5	2°38.4	0.4 - 0.1	6.4 - 1.2	12.4 - 2.4
5	2°16.3	2°16.6	2°10.0	0.5 - 0.1	6.5 - 1.0	12.5 - 2.0	5	2°31.3	2°31.7	2°24.4	0.5 - 0.1	6.5 - 1.1	12.5 - 2.2	5	2°46.3	2°46.7	2°38.7	0.5 - 0.1	6.5 - 1.2	12.5 - 2.4
6	2°16.5	2°16.9	2°10.3	0.6 - 0.1	6.6 - 1.0	12.6 - 2.0	6	2°31.5	2°31.9	2°24.6	0.6 - 0.1	6.6 - 1.2	12.6 - 2.2	6	2°46.5	2°47.0	2°38.9	0.6 - 0.1	6.6 - 1.3	12.6 - 2.4
7	2°16.8	2°17.1	2°10.5	0.7 - 0.1	6.7 - 1.1	12.7 - 2.0	7	2°31.8	2°32.2	2°24.8	0.7 - 0.1	6.7 - 1.2	12.7 - 2.2	7	2°46.8	2°47.2	2°39.2	0.7 - 0.1	6.7 - 1.3	12.7 - 2.4
8	2°17.0	2°17.4	2°10.8	0.8 - 0.1	6.8 - 1.1	12.8 - 2.0	8	2°32.0	2°32.4	2°25.1	0.8 - 0.1	6.8 - 1.2	12.8 - 2.2	8	2°47.0	2°47.5	2°39.4	0.8 - 0.2	6.8 - 1.3	12.8 - 2.5
9	2°17.3	2°17.6	2°11.0	0.9 - 0.1	6.9 - 1.1	12.9 - 2.0	9	2°32.3	2°32.7	2°25.3	0.9 - 0.2	6.9 - 1.2	12.9 - 2.3	9	2°47.3	2°47.7	2°39.6	0.9 - 0.2	6.9 - 1.3	12.9 - 2.5
10	2°17.5	2°17.9	2°11.2	1.0 - 0.2	7.0 - 1.1	13.0 - 2.1	10	2°32.5	2°32.9	2°25.6	1.0 - 0.2	7.0 - 1.2	13.0 - 2.3	10	2°47.5	2°48.0	2°39.9	1.0 - 0.2	7.0 - 1.3	13.0 - 2.5
11	2°17.8	2°18.1	2°11.5	1.1 - 0.2	7.1 - 1.1	13.1 - 2.1	11	2°32.8	2°33.2	2°25.8	1.1 - 0.2	7.1 - 1.2	13.1 - 2.3	11	2°47.8	2°48.2	2°40.1	1.1 - 0.2	7.1 - 1.4	13.1 - 2.5
12	2°18.0	2°18.4	2°11.7	1.2 - 0.2	7.2 - 1.1	13.2 - 2.1	12	2°33.0	2°33.4	2°26.0	1.2 - 0.2	7.2 - 1.3	13.2 - 2.3	12	2°48.0	2°48.5	2°40.3	1.2 - 0.2	7.2 - 1.4	13.2 - 2.5
13	2°18.3	2°18.6	2°12.0	1.3 - 0.2	7.3 - 1.2	13.3 - 2.1	13	2°33.3	2°33.7	2°26.3	1.3 - 0.2	7.3 - 1.3	13.3 - 2.3	13	2°48.3	2°48.7	2°40.6	1.3 - 0.2	7.3 - 1.4	13.3 - 2.5
14	2°18.5	2°18.9	2°12.2	1.4 - 0.2	7.4 - 1.2	13.4 - 2.1	14	2°33.5	2°33.9	2°26.5	1.4 - 0.2	7.4 - 1.3	13.4 - 2.3	14	2°48.5	2°49.0	2°40.8	1.4 - 0.3	7.4 - 1.4	13.4 - 2.6
15	2°18.8	2°19.1	2°12.4	1.5 - 0.2	7.5 - 1.2	13.5 - 2.1	15	2°33.8	2°34.2	2°26.7	1.5 - 0.3	7.5 - 1.3	13.5 - 2.4	15	2°48.8	2°49.2	2°41.1	1.5 - 0.3	7.5 - 1.4	13.5 - 2.6
16	2°19.0	2°19.4	2°12.7	1.6 - 0.3	7.6 - 1.2	13.6 - 2.2	16	2°34.0	2°34.4	2°27.0	1.6 - 0.3	7.6 - 1.3	13.6 - 2.4	16	2°49.0	2°49.5	2°41.3	1.6 - 0.3	7.6 - 1.5	13.6 - 2.6
17	2°19.3	2°19.6	2°12.9	1.7 - 0.3	7.7 - 1.2	13.7 - 2.2	17	2°34.3	2°34.7	2°27.2	1.7 - 0.3	7.7 - 1.3	13.7 - 2.4	17	2°49.3	2°49.7	2°41.5	1.7 - 0.3	7.7 - 1.5	13.7 - 2.6
18	2°19.5	2°19.9	2°13.1	1.8 - 0.3	7.8 - 1.2	13.8 - 2.2	18	2°34.5	2°34.9	2°27.5	1.8 - 0.3	7.8 - 1.4	13.8 - 2.4	18	2°49.5	2°50.0	2°41.8	1.8 - 0.3	7.8 - 1.5	13.8 - 2.6
19	2°19.7	2°20.1	2°13.4	1.9 - 0.3	7.9 - 1.3	13.9 - 2.2	19	2°34.8	2°35.2	2°27.7	1.9 - 0.3	7.9 - 1.4	13.9 - 2.4	19	2°49.8	2°50.2	2°42.0	1.9 - 0.4	7.9 - 1.5	13.9 - 2.7
20	2°20.0	2°20.4	2°13.6	2.0 - 0.3	8.0 - 1.3	14.0 - 2.2	20	2°35.0	2°35.4	2°27.9	2.0 - 0.3	8.0 - 1.4	14.0 - 2.4	20	2°50.0	2°50.5	2°42.3	2.0 - 0.4	8.0 - 1.5	14.0 - 2.7
21	2°20.2	2°20.6	2°13.9	2.1 - 0.3	8.1 - 1.3	14.1 - 2.2	21	2°35.2	2°35.7	2°28.2	2.1 - 0.4	8.1 - 1.4	14.1 - 2.5	21	2°50.2	2°50.7	2°42.5	2.1 - 0.4	8.1 - 1.6	14.1 - 2.7
22	2°20.5	2°20.9	2°14.1	2.2 - 0.3	8.2 - 1.3	14.2 - 2.2	22	2°35.5	2°35.9	2°28.4	2.2 - 0.4	8.2 - 1.4	14.2 - 2.5	22	2°50.5	2°51.0	2°42.7	2.2 - 0.4	8.2 - 1.6	14.2 - 2.7
23	2°20.7	2°21.1	2°14.3	2.3 - 0.4	8.3 - 1.3	14.3 - 2.3	23	2°35.7	2°36.2	2°28.7	2.3 - 0.4	8.3 - 1.5	14.3 - 2.5	23	2°50.7	2°51.2	2°43.0	2.3 - 0.4	8.3 - 1.6	14.3 - 2.7
24	2°21.0	2°21.4	2°14.6	2.4 - 0.4	8.4 - 1.3	14.4 - 2.3	24	2°36.0	2°36.4	2°28.9	2.4 - 0.4	8.4 - 1.5	14.4 - 2.5	24	2°51.0	2°51.5	2°43.2	2.4 - 0.5	8.4 - 1.6	14.4 - 2.8
25	2°21.2	2°21.6	2°14.8	2.5 - 0.4	8.5 - 1.3	14.5 - 2.3	25	2°36.2	2°36.7	2°29.1	2.5 - 0.4	8.5 - 1.5	14.5 - 2.5	25	2°51.2	2°51.7	2°43.4	2.5 - 0.5	8.5 - 1.6	14.5 - 2.8
26	2°21.5	2°21.9	2°15.1	2.6 - 0.4	8.6 - 1.4	14.6 - 2.3	26	2°36.5	2°36.9	2°29.4	2.6 - 0.5	8.6 - 1.5	14.6 - 2.6	26	2°51.5	2°52.0	2°43.7	2.6 - 0.5	8.6 - 1.6	14.6 - 2.8
27	2°21.7	2°22.1	2°15.3	2.7 - 0.4	8.7 - 1.4	14.7 - 2.3	27	2°36.7	2°37.2	2°29.6	2.7 - 0.5	8.7 - 1.5	14.7 - 2.6	27	2°51.7	2°52.2	2°43.9	2.7 - 0.5	8.7 - 1.7	14.7 - 2.8
28	2°22.0	2°22.4	2°15.5	2.8 - 0.4	8.8 - 1.4	14.8 - 2.3	28	2°37.0	2°37.4	2°29.8	2.8 - 0.5	8.8 - 1.5	14.8 - 2.6	28	2°52.0	2°52.5	2°44.2	2.8 - 0.5	8.8 - 1.7	14.8 - 2.8
29	2°22.2	2°22.6	2°15.8	2.9 - 0.5	8.9 - 1.4	14.9 - 2.4	29	2°37.2	2°37.7	2°30.1	2.9 - 0.5	8.9 - 1.6	14.9 - 2.6	29	2°52.2	2°52.7	2°44.4	2.9 - 0.6	8.9 - 1.7	14.9 - 2.9
30	2°22.5	2°22.9	2°16.0	3.0 - 0.5	9.0 - 1.4	15.0 - 2.4	30	2°37.5	2°37.9	2°30.3	3.0 - 0.5	9.0 - 1.6	15.0 - 2.6	30	2°52.5	2°53.0	2°44.6	3.0 - 0.6	9.0 - 1.7	15.0 - 2.9
31	2°22.8	2°23.1	2°16.2	3.1 - 0.5	9.1 - 1.4	15.1 - 2.4	31	2°37.8	2°38.2	2°30.6	3.1 - 0.5	9.1 - 1.6	15.1 - 2.6	31	2°52.8	2°53.2	2°44.9	3.1 - 0.6	9.1 - 1.7	15.1 - 2.9
32	2°23.0	2°23.4	2°16.5	3.2 - 0.5	9.2 - 1.5	15.2 - 2.4	32	2°38.0	2°38.4	2°30.8	3.2 - 0.6	9.2 - 1.6	15.2 - 2.7	32	2°53.0	2°53.5	2°45.1	3.2 - 0.6	9.2 - 1.8	15.2 - 2.9
33	2°23.3	2°23.6	2°16.7	3.3 - 0.5	9.3 - 1.5	15.3 - 2.4	33	2°38.3	2°38.7	2°31.0	3.3 - 0.6	9.3 - 1.6	15.3 - 2.7	33	2°53.3	2°53.7	2°45.4	3.3 - 0.6	9.3 - 1.8	15.3 - 2.9
34	2°23.5	2°23.9	2°17.0	3.4 - 0.5	9.4 - 1.5	15.4 - 2.4	34	2°38.5	2°38.9	2°31.3	3.4 - 0.6	9.4 - 1.6	15.4 - 2.7	34	2°53.5	2°54.0	2°45.6	3.4 - 0.7	9.4 - 1.8	15.4 - 3.0
35	2°23.8	2°24.1	2°17.2	3.5 - 0.6	9.5 - 1.5	15.5 - 2.5	35	2°38.8	2°39.2	2°31.5	3.5 - 0.6	9.5 - 1.7	15.5 - 2.7	35	2°53.8	2°54.2	2°45.8	3.5 - 0.7	9.5 - 1.8	15.5 - 3.0
36	2°24.0	2°24.4	2°17.4	3.6 - 0.6	9.6 - 1.5	15.6 - 2.5	36	2°39.0	2°39.4	2°31.8	3.6 - 0.6	9.6 - 1.7	15.6 - 2.7	36	2°54.0	2°54.5	2°46.1	3.6 - 0.7	9.6 - 1.8	15.6 - 3.0
37	2°24.3	2°24.6	2°17.7	3.7 - 0.6	9.7 - 1.5	15.7 - 2.5	37	2°39.3	2°39.7	2°32.0	3.7 - 0.6	9.7 - 1.7	15.7 - 2.7	37	2°54.3	2°54.7	2°46.3	3.7 - 0.7	9.7 - 1.9	15.7 - 3.0
38	2°24.5	2°24.9	2°17.9	3.8 - 0.6	9.8 - 1.6	15.8 - 2.5	38	2°39.5	2°39.9	2°32.2	3.8 - 0.7	9.8 - 1.7	15.8 - 2.8	38	2°54.5	2°55.0	2°46.6	3.8 - 0.7	9.8 - 1.9	15.8 - 3.0
39	2°24.8	2°25.1	2°18.2	3.9 - 0.6	9.9 - 1.6	15.9 - 2.5	39	2°39.8	2°40.2	2°32.5	3.9 - 0.7	9.9 - 1.7	15.9 - 2.8	39	2°54.8	2°55.2	2°46.8	3.9 - 0.7	9.9 - 1.9	15.9 - 3.0
40	2°25.0	2°25.4	2°18.4	4.0 - 0.6	10.0 - 1.6	16.0 - 2.5	40	2°40.0	2°40.4	2°32.7	4.0 - 0.7	10.0 - 1.8	16.0 - 2.8	40	2°55.0	2°55.5	2°47.0	4.0 - 0.8	10.0 - 1.9	16.0 - 3.1
41	2°25.3	2°25.6	2°18.6	4.1 - 0.6	10.1 - 1.6	16.1 - 2.5	41	2°40.3	2°40.7	2°32.9	4.1 - 0.7	10.1 - 1.8	16.1 - 2.8	41	2°55.3	2°55.7	2°47.3	4.1 - 0.8	10.1 - 1.9	16.1 - 3.1
42	2°25.5	2°25.9	2°18.9	4.2 - 0.7	10.2 - 1.6	16.2 - 2.6	42	2°40.5	2°40.9	2°33.2	4.2 - 0.7	10.2 - 1.8	16.2 - 2.8	42	2°55.5	2°56.0	2°47.5	4.2 - 0.8	10.2 - 2.0	16.2 - 3.1
43	2°25.8	2°26.1	2°19.1	4.3 - 0.7	10.3 - 1.6	16.3 - 2.6	43	2°40.8	2°41.2	2°33.4	4.3 - 0.8	10.3 - 1.8	16.3 - 2.9	43	2°55.8	2°56.2	2°47.7	4.3 - 0.8	10.3 - 2.0	16.3 - 3.1
44	2°26.0	2°26.4	2°19.3	4.4 - 0.7	10.4 - 1.6	16.4 - 2.6	44	2°41.0	2°41.4	2°33.7	4.4 - 0.8	10.4 - 1.8	16.4 - 2.9	44	2°56.0	2°56.5	2°48.0	4.4 - 0.8	10.4 - 2.0	16.4 - 3.1
45	2°26.3	2°26.6	2°19.6	4.5 - 0.7	10.5 - 1.7	16.5 - 2.6	45	2°41.3	2°41.7	2°33.9	4.5 - 0.8	10.5 - 1.8	16.5 - 2.9	45	2°56.3	2°56.7	2°48.2	4.5 - 0.9	10.5 - 2.0	16.5 - 3.2
46	2°26.5	2°26.9	2°19.8	4.6 - 0.7	10.6 - 1.7	16.6 - 2.6	46	2°41.5	2°41.9	2°34.1	4.6 - 0.8	10.6 - 1.9	16.6 - 2.9	46	2°56.5	2°57.0	2°48.5	4.6 - 0.9	10.6 - 2.0	16.6 - 3.2
47	2°26.8	2°27.2	2°20.1	4.7 - 0.7	10.7 - 1.7	16.7 - 2.6	47	2°41.8	2°42.2	2°34.4	4.7 - 0.8	10.7 - 1.9	16.7 - 2.9	47	2°56.8	2°57.2	2°48.7	4.7 - 0.9	10.7 - 2.1	16.7 - 3.2
48	2°27.0	2°27.4	2°20.3	4.8 - 0.8	10.8 - 1.7	16.8 - 2.7	48	2°42.0	2°42.4	2°34.6	4.8 - 0.8	10.8 - 1.9	16.8 - 2.9	48	2°57.0	2°57.5	2°48.9	4.8 - 0.9	10.8 - 2.1	16.8 - 3.2
49	2°27.2	2°27.7	2°20.5	4.9 - 0.8	10.9 - 1.7	16.9 - 2.7	49	2°42.3	2											

Increments and Corrections

m 12	Sun Plan.	Aries	Moon	v and d corr		
0	3°00.0	3°00.5	2°51.8	0.0 - 0.0	6.0 - 1.3	12.0 - 2.5
1	3°00.3	3°00.7	2°52.0	0.1 - 0.0	6.1 - 1.3	12.1 - 2.5
2	3°00.5	3°01.0	2°52.3	0.2 - 0.0	6.2 - 1.3	12.2 - 2.5
3	3°00.8	3°01.2	2°52.5	0.3 - 0.1	6.3 - 1.3	12.3 - 2.6
4	3°01.0	3°01.5	2°52.8	0.4 - 0.1	6.4 - 1.3	12.4 - 2.6
5	3°01.3	3°01.7	2°53.0	0.5 - 0.1	6.5 - 1.4	12.5 - 2.6
6	3°01.5	3°02.0	2°53.2	0.6 - 0.1	6.6 - 1.4	12.6 - 2.6
7	3°01.8	3°02.2	2°53.5	0.7 - 0.1	6.7 - 1.4	12.7 - 2.6
8	3°02.0	3°02.5	2°53.7	0.8 - 0.2	6.8 - 1.4	12.8 - 2.7
9	3°02.3	3°02.7	2°53.9	0.9 - 0.2	6.9 - 1.4	12.9 - 2.7
10	3°02.5	3°03.0	2°54.2	1.0 - 0.2	7.0 - 1.5	13.0 - 2.7
11	3°02.8	3°03.2	2°54.4	1.1 - 0.2	7.1 - 1.5	13.1 - 2.7
12	3°03.0	3°03.5	2°54.7	1.2 - 0.3	7.2 - 1.5	13.2 - 2.8
13	3°03.3	3°03.8	2°54.9	1.3 - 0.3	7.3 - 1.5	13.3 - 2.8
14	3°03.5	3°04.0	2°55.1	1.4 - 0.3	7.4 - 1.5	13.4 - 2.8
15	3°03.8	3°04.3	2°55.4	1.5 - 0.3	7.5 - 1.6	13.5 - 2.8
16	3°04.0	3°04.5	2°55.6	1.6 - 0.3	7.6 - 1.6	13.6 - 2.8
17	3°04.2	3°04.8	2°55.9	1.7 - 0.4	7.7 - 1.6	13.7 - 2.9
18	3°04.5	3°05.0	2°56.1	1.8 - 0.4	7.8 - 1.6	13.8 - 2.9
19	3°04.7	3°05.3	2°56.3	1.9 - 0.4	7.9 - 1.6	13.9 - 2.9
20	3°05.0	3°05.5	2°56.6	2.0 - 0.4	8.0 - 1.7	14.0 - 2.9
21	3°05.2	3°05.8	2°56.8	2.1 - 0.4	8.1 - 1.7	14.1 - 2.9
22	3°05.5	3°06.0	2°57.0	2.2 - 0.5	8.2 - 1.7	14.2 - 3.0
23	3°05.7	3°06.3	2°57.3	2.3 - 0.5	8.3 - 1.7	14.3 - 3.0
24	3°06.0	3°06.5	2°57.5	2.4 - 0.5	8.4 - 1.8	14.4 - 3.0
25	3°06.2	3°06.8	2°57.8	2.5 - 0.5	8.5 - 1.8	14.5 - 3.0
26	3°06.5	3°07.0	2°58.0	2.6 - 0.5	8.6 - 1.8	14.6 - 3.0
27	3°06.7	3°07.3	2°58.2	2.7 - 0.6	8.7 - 1.8	14.7 - 3.1
28	3°07.0	3°07.5	2°58.5	2.8 - 0.6	8.8 - 1.8	14.8 - 3.1
29	3°07.2	3°07.8	2°58.7	2.9 - 0.6	8.9 - 1.9	14.9 - 3.1
30	3°07.5	3°08.0	2°59.0	3.0 - 0.6	9.0 - 1.9	15.0 - 3.1
31	3°07.8	3°08.3	2°59.2	3.1 - 0.6	9.1 - 1.9	15.1 - 3.1
32	3°08.0	3°08.5	2°59.4	3.2 - 0.7	9.2 - 1.9	15.2 - 3.2
33	3°08.3	3°08.8	2°59.7	3.3 - 0.7	9.3 - 1.9	15.3 - 3.2
34	3°08.5	3°09.0	2°59.9	3.4 - 0.7	9.4 - 2.0	15.4 - 3.2
35	3°08.8	3°09.3	3°00.2	3.5 - 0.7	9.5 - 2.0	15.5 - 3.2
36	3°09.0	3°09.5	3°00.4	3.6 - 0.8	9.6 - 2.0	15.6 - 3.3
37	3°09.3	3°09.8	3°00.6	3.7 - 0.8	9.7 - 2.0	15.7 - 3.3
38	3°09.5	3°10.0	3°00.9	3.8 - 0.8	9.8 - 2.0	15.8 - 3.3
39	3°09.8	3°10.3	3°01.1	3.9 - 0.8	9.9 - 2.1	15.9 - 3.3
40	3°10.0	3°10.5	3°01.3	4.0 - 0.8	10.0 - 2.1	16.0 - 3.3
41	3°10.3	3°10.8	3°01.6	4.1 - 0.9	10.1 - 2.1	16.1 - 3.4
42	3°10.5	3°11.0	3°01.8	4.2 - 0.9	10.2 - 2.1	16.2 - 3.4
43	3°10.8	3°11.3	3°02.1	4.3 - 0.9	10.3 - 2.1	16.3 - 3.4
44	3°11.0	3°11.5	3°02.3	4.4 - 0.9	10.4 - 2.2	16.4 - 3.4
45	3°11.3	3°11.8	3°02.5	4.5 - 0.9	10.5 - 2.2	16.5 - 3.4
46	3°11.5	3°12.0	3°02.8	4.6 - 1.0	10.6 - 2.2	16.6 - 3.5
47	3°11.7	3°12.3	3°03.0	4.7 - 1.0	10.7 - 2.2	16.7 - 3.5
48	3°12.0	3°12.5	3°03.3	4.8 - 1.0	10.8 - 2.3	16.8 - 3.5
49	3°12.2	3°12.8	3°03.5	4.9 - 1.0	10.9 - 2.3	16.9 - 3.5
50	3°12.5	3°13.0	3°03.7	5.0 - 1.0	11.0 - 2.3	17.0 - 3.5
51	3°12.7	3°13.3	3°04.0	5.1 - 1.1	11.1 - 2.3	17.1 - 3.6
52	3°13.0	3°13.5	3°04.2	5.2 - 1.1	11.2 - 2.3	17.2 - 3.6
53	3°13.2	3°13.8	3°04.4	5.3 - 1.1	11.3 - 2.4	17.3 - 3.6
54	3°13.5	3°14.0	3°04.7	5.4 - 1.1	11.4 - 2.4	17.4 - 3.6
55	3°13.7	3°14.3	3°04.9	5.5 - 1.1	11.5 - 2.4	17.5 - 3.6
56	3°14.0	3°14.5	3°05.2	5.6 - 1.2	11.6 - 2.4	17.6 - 3.7
57	3°14.2	3°14.8	3°05.4	5.7 - 1.2	11.7 - 2.4	17.7 - 3.7
58	3°14.5	3°15.0	3°05.6	5.8 - 1.2	11.8 - 2.5	17.8 - 3.7
59	3°14.7	3°15.3	3°05.9	5.9 - 1.2	11.9 - 2.5	17.9 - 3.7

m 13	Sun Plan.	Aries	Moon	v and d corr		
0	3°15.0	3°15.5	3°06.1	0.0 - 0.0	6.0 - 1.4	12.0 - 2.7
1	3°15.3	3°15.8	3°06.4	0.1 - 0.0	6.1 - 1.4	12.1 - 2.7
2	3°15.5	3°16.0	3°06.6	0.2 - 0.0	6.2 - 1.4	12.2 - 2.7
3	3°15.8	3°16.3	3°06.8	0.3 - 0.1	6.3 - 1.4	12.3 - 2.8
4	3°16.0	3°16.5	3°07.1	0.4 - 0.1	6.4 - 1.4	12.4 - 2.8
5	3°16.3	3°16.8	3°07.3	0.5 - 0.1	6.5 - 1.5	12.5 - 2.8
6	3°16.5	3°17.0	3°07.5	0.6 - 0.1	6.6 - 1.5	12.6 - 2.8
7	3°16.8	3°17.3	3°07.8	0.7 - 0.2	6.7 - 1.5	12.7 - 2.9
8	3°17.0	3°17.5	3°08.0	0.8 - 0.2	6.8 - 1.5	12.8 - 2.9
9	3°17.3	3°17.8	3°08.3	0.9 - 0.2	6.9 - 1.6	12.9 - 2.9
10	3°17.5	3°18.0	3°08.5	1.0 - 0.2	7.0 - 1.6	13.0 - 2.9
11	3°17.8	3°18.3	3°08.7	1.1 - 0.2	7.1 - 1.6	13.1 - 2.9
12	3°18.0	3°18.5	3°09.0	1.2 - 0.3	7.2 - 1.6	13.2 - 3.0
13	3°18.3	3°18.8	3°09.2	1.3 - 0.3	7.3 - 1.6	13.3 - 3.0
14	3°18.5	3°19.0	3°09.5	1.4 - 0.3	7.4 - 1.7	13.4 - 3.0
15	3°18.8	3°19.3	3°09.7	1.5 - 0.3	7.5 - 1.7	13.5 - 3.0
16	3°19.0	3°19.5	3°09.9	1.6 - 0.4	7.6 - 1.7	13.6 - 3.1
17	3°19.3	3°19.8	3°10.2	1.7 - 0.4	7.7 - 1.7	13.7 - 3.1
18	3°19.5	3°20.0	3°10.4	1.8 - 0.4	7.8 - 1.8	13.8 - 3.1
19	3°19.7	3°20.3	3°10.7	1.9 - 0.4	7.9 - 1.8	13.9 - 3.1
20	3°20.0	3°20.5	3°10.9	2.0 - 0.5	8.0 - 1.8	14.0 - 3.1
21	3°20.2	3°20.8	3°11.1	2.1 - 0.5	8.1 - 1.8	14.1 - 3.2
22	3°20.5	3°21.0	3°11.4	2.2 - 0.5	8.2 - 1.8	14.2 - 3.2
23	3°20.7	3°21.3	3°11.6	2.3 - 0.5	8.3 - 1.9	14.3 - 3.2
24	3°21.0	3°21.5	3°11.8	2.4 - 0.5	8.4 - 1.9	14.4 - 3.2
25	3°21.2	3°21.8	3°12.1	2.5 - 0.6	8.5 - 1.9	14.5 - 3.3
26	3°21.5	3°22.1	3°12.3	2.6 - 0.6	8.6 - 1.9	14.6 - 3.3
27	3°21.7	3°22.3	3°12.6	2.7 - 0.6	8.7 - 2.0	14.7 - 3.3
28	3°22.0	3°22.6	3°12.8	2.8 - 0.6	8.8 - 2.0	14.8 - 3.3
29	3°22.2	3°22.8	3°13.0	2.9 - 0.7	8.9 - 2.0	14.9 - 3.4
30	3°22.5	3°23.1	3°13.3	3.0 - 0.7	9.0 - 2.0	15.0 - 3.4
31	3°22.8	3°23.3	3°13.5	3.1 - 0.7	9.1 - 2.0	15.1 - 3.4
32	3°23.0	3°23.6	3°13.8	3.2 - 0.7	9.2 - 2.1	15.2 - 3.4
33	3°23.3	3°23.8	3°14.0	3.3 - 0.7	9.3 - 2.1	15.3 - 3.4
34	3°23.5	3°24.1	3°14.2	3.4 - 0.8	9.4 - 2.1	15.4 - 3.5
35	3°23.8	3°24.3	3°14.5	3.5 - 0.8	9.5 - 2.1	15.5 - 3.5
36	3°24.0	3°24.6	3°14.7	3.6 - 0.8	9.6 - 2.2	15.6 - 3.5
37	3°24.3	3°24.8	3°14.9	3.7 - 0.8	9.7 - 2.2	15.7 - 3.5
38	3°24.5	3°25.1	3°15.2	3.8 - 0.9	9.8 - 2.2	15.8 - 3.6
39	3°24.8	3°25.3	3°15.4	3.9 - 0.9	9.9 - 2.2	15.9 - 3.6
40	3°25.0	3°25.6	3°15.7	4.0 - 0.9	10.0 - 2.3	16.0 - 3.6
41	3°25.3	3°25.8	3°15.9	4.1 - 0.9	10.1 - 2.3	16.1 - 3.6
42	3°25.5	3°26.1	3°16.1	4.2 - 0.9	10.2 - 2.3	16.2 - 3.6
43	3°25.8	3°26.3	3°16.4	4.3 - 1.0	10.3 - 2.3	16.3 - 3.7
44	3°26.0	3°26.6	3°16.6	4.4 - 1.0	10.4 - 2.3	16.4 - 3.7
45	3°26.3	3°26.8	3°16.9	4.5 - 1.0	10.5 - 2.4	16.5 - 3.7
46	3°26.5	3°27.1	3°17.1	4.6 - 1.0	10.6 - 2.4	16.6 - 3.7
47	3°26.8	3°27.3	3°17.3	4.7 - 1.1	10.7 - 2.4	16.7 - 3.8
48	3°27.0	3°27.6	3°17.6	4.8 - 1.1	10.8 - 2.4	16.8 - 3.8
49	3°27.2	3°27.8	3°17.8	4.9 - 1.1	10.9 - 2.5	16.9 - 3.8
50	3°27.5	3°28.1	3°18.0	5.0 - 1.1	11.0 - 2.5	17.0 - 3.8
51	3°27.7	3°28.3	3°18.3	5.1 - 1.1	11.1 - 2.5	17.1 - 3.8
52	3°28.0	3°28.6	3°18.5	5.2 - 1.2	11.2 - 2.5	17.2 - 3.9
53	3°28.2	3°28.8	3°18.8	5.3 - 1.2	11.3 - 2.5	17.3 - 3.9
54	3°28.5	3°29.1	3°19.0	5.4 - 1.2	11.4 - 2.6	17.4 - 3.9
55	3°28.7	3°29.3	3°19.2	5.5 - 1.2	11.5 - 2.6	17.5 - 3.9
56	3°29.0	3°29.6	3°19.5	5.6 - 1.3	11.6 - 2.6	17.6 - 4.0
57	3°29.2	3°29.8	3°19.7	5.7 - 1.3	11.7 - 2.6	17.7 - 4.0
58	3°29.5	3°30.1	3°20.0	5.8 - 1.3	11.8 - 2.7	17.8 - 4.0
59	3°29.7	3°30.3	3°20.2	5.9 - 1.3	11.9 - 2.7	17.9 - 4.0

m	Sun Plan.	Aries	Moon	v and d corr		
14						
0	3°30.0	3°30.6	3°20.4	0.0 - 0.0	6.0 - 1.4	12.0 - 2.9
1	3°30.3	3°30.8	3°20.7	0.1 - 0.0	6.1 - 1.5	12.1 - 2.9
2	3°30.5	3°31.1	3°20.9	0.2 - 0.0	6.2 - 1.5	12.2 - 2.9
3	3°30.8	3°31.3	3°21.1	0.3 - 0.1	6.3 - 1.5	12.3 - 3.0
4	3°31.0	3°31.6	3°21.4	0.4 - 0.1	6.4 - 1.5	12.4 - 3.0
5	3°31.3	3°31.8	3°21.6	0.5 - 0.1	6.5 - 1.6	12.5 - 3.0
6	3°31.5	3°32.1	3°21.9	0.6 - 0.1	6.6 - 1.6	12.6 - 3.0
7	3°31.8	3°32.3	3°22.1	0.7 - 0.2	6.7 - 1.6	12.7 - 3.1
8	3°32.0	3°32.6	3°22.3	0.8 - 0.2	6.8 - 1.6	12.8 - 3.1
9	3°32.3	3°32.8	3°22.6	0.9 - 0.2	6.9 - 1.7	12.9 - 3.1
10	3°32.5	3°33.1	3°22.8	1.0 - 0.2	7.0 - 1.7	13.0 - 3.1
11	3°32.8	3°33.3	3°23.1	1.1 - 0.3	7.1 - 1.7	13.1 - 3.2
12	3°33.0	3°33.6	3°23.3	1.2 - 0.3	7.2 - 1.7	13.2 - 3.2
13	3°33.3	3°33.8	3°23.5	1.3 - 0.3	7.3 - 1.8	13.3 - 3.2
14	3°33.5	3°34.1	3°23.8	1.4 - 0.3	7.4 - 1.8	13.4 - 3.2
15	3°33.8	3°34.3	3°24.0	1.5 - 0.4	7.5 - 1.8	13.5 - 3.3
16	3°34.0	3°34.6	3°24.3	1.6 - 0.4	7.6 - 1.8	13.6 - 3.3
17	3°34.3	3°34.8	3°24.5	1.7 - 0.4	7.7 - 1.9	13.7 - 3.3
18	3°34.5	3°35.1	3°24.7	1.8 - 0.4	7.8 - 1.9	13.8 - 3.3
19	3°34.8	3°35.3	3°25.0	1.9 - 0.5	7.9 - 1.9	13.9 - 3.4
20	3°35.0	3°35.6	3°25.2	2.0 - 0.5	8.0 - 1.9	14.0 - 3.4
21	3°35.2	3°35.8	3°25.4	2.1 - 0.5	8.1 - 2.0	14.1 - 3.4
22	3°35.5	3°36.1	3°25.7	2.2 - 0.5	8.2 - 2.0	14.2 - 3.4
23	3°35.7	3°36.3	3°25.9	2.3 - 0.6	8.3 - 2.0	14.3 - 3.5
24	3°36.0	3°36.6	3°26.2	2.4 - 0.6	8.4 - 2.0	14.4 - 3.5
25	3°36.2	3°36.8	3°26.4	2.5 - 0.6	8.5 - 2.1	14.5 - 3.5
26	3°36.5	3°37.1	3°26.6	2.6 - 0.6	8.6 - 2.1	14.6 - 3.5
27	3°36.7	3°37.3	3°26.9	2.7 - 0.7	8.7 - 2.1	14.7 - 3.6
28	3°37.0	3°37.6	3°27.1	2.8 - 0.7	8.8 - 2.1	14.8 - 3.6
29	3°37.2	3°37.8	3°27.4	2.9 - 0.7	8.9 - 2.2	14.9 - 3.6
30	3°37.5	3°38.1	3°27.6	3.0 - 0.7	9.0 - 2.2	15.0 - 3.6
31	3°37.8	3°38.3	3°27.8	3.1 - 0.7	9.1 - 2.2	15.1 - 3.6
32	3°38.0	3°38.6	3°28.1	3.2 - 0.8	9.2 - 2.2	15.2 - 3.7
33	3°38.3	3°38.8	3°28.3	3.3 - 0.8	9.3 - 2.2	15.3 - 3.7
34	3°38.5	3°39.1	3°28.5	3.4 - 0.8	9.4 - 2.3	15.4 - 3.7
35	3°38.8	3°39.3	3°28.8	3.5 - 0.8	9.5 - 2.3	15.5 - 3.7
36	3°39.0	3°39.6	3°29.0	3.6 - 0.9	9.6 - 2.3	15.6 - 3.8
37	3°39.3	3°39.8	3°29.3	3.7 - 0.9	9.7 - 2.3	15.7 - 3.8
38	3°39.5	3°40.1	3°29.5	3.8 - 0.9	9.8 - 2.4	15.8 - 3.8
39	3°39.8	3°40.4	3°29.7	3.9 - 0.9	9.9 - 2.4	15.9 - 3.8
40	3°40.0	3°40.6	3°30.0	4.0 - 1.0	10.0 - 2.4	16.0 - 3.9
41	3°40.3	3°40.9	3°30.2	4.1 - 1.0	10.1 - 2.4	16.1 - 3.9
42	3°40.5	3°41.1	3°30.5	4.2 - 1.0	10.2 - 2.5	16.2 - 3.9
43	3°40.8	3°41.4	3°30.7	4.3 - 1.0	10.3 - 2.5	16.3 - 3.9
44	3°41.0	3°41.6	3°30.9	4.4 - 1.1	10.4 - 2.5	16.4 - 4.0
45	3°41.3	3°41.9	3°31.2	4.5 - 1.1	10.5 - 2.5	16.5 - 4.0
46	3°41.5	3°42.1	3°31.4	4.6 - 1.1	10.6 - 2.6	16.6 - 4.0
47	3°41.8	3°42.4	3°31.6	4.7 - 1.1	10.7 - 2.6	16.7 - 4.0
48	3°42.0	3°42.6	3°31.9	4.8 - 1.2	10.8 - 2.6	16.8 - 4.1
49	3°42.3	3°42.9	3°32.1	4.9 - 1.2	10.9 - 2.6	16.9 - 4.1
50	3°42.5	3°43.1	3°32.4	5.0 - 1.2	11.0 - 2.7	17.0 - 4.1
51	3°42.7	3°43.4	3°32.6	5.1 - 1.2	11.1 - 2.7	17.1 - 4.1
52	3°43.0	3°43.6	3°32.8	5.2 - 1.3	11.2 - 2.7	17.2 - 4.2
53	3°43.2	3°43.9	3°33.1	5.3 - 1.3	11.3 - 2.7	17.3 - 4.2
54	3°43.5	3°44.1	3°33.3	5.4 - 1.3	11.4 - 2.8	17.4 - 4.2
55	3°43.7	3°44.4	3°33.6	5.5 - 1.3	11.5 - 2.8	17.5 - 4.2
56	3°44.0	3°44.6	3°33.8	5.6 - 1.4	11.6 - 2.8	17.6 - 4.3
57	3°44.2	3°44.9	3°34.0	5.7 - 1.4	11.7 - 2.8	17.7 - 4.3
58	3°44.5	3°45.1	3°34.3	5.8 - 1.4	11.8 - 2.9	17.8 - 4.3
59	3°44.7	3°45.4	3°34.5	5.9 - 1.4	11.9 - 2.9	17.9 - 4.4

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
15	Plan.					
0	3°45.0	3°45.6	3°34.8	0.0 - 0.0	6.0 - 1.6	12.0 - 3.1
1	3°45.2	3°45.9	3°35.0	0.1 - 0.0	6.1 - 1.6	12.1 - 3.1
2	3°45.5	3°46.1	3°35.2	0.2 - 0.1	6.2 - 1.6	12.2 - 3.2
3	3°45.8	3°46.4	3°35.5	0.3 - 0.1	6.3 - 1.6	12.3 - 3.2
4	3°46.0	3°46.6	3°35.7	0.4 - 0.1	6.4 - 1.7	12.4 - 3.2
5	3°46.2	3°46.9	3°35.9	0.5 - 0.1	6.5 - 1.7	12.5 - 3.2
6	3°46.5	3°47.1	3°36.2	0.6 - 0.2	6.6 - 1.7	12.6 - 3.3
7	3°46.8	3°47.4	3°36.4	0.7 - 0.2	6.7 - 1.7	12.7 - 3.3
8	3°47.0	3°47.6	3°36.7	0.8 - 0.2	6.8 - 1.8	12.8 - 3.3
9	3°47.3	3°47.9	3°36.9	0.9 - 0.2	6.9 - 1.8	12.9 - 3.3
10	3°47.5	3°48.1	3°37.1	1.0 - 0.3	7.0 - 1.8	13.0 - 3.4
11	3°47.7	3°48.4	3°37.4	1.1 - 0.3	7.1 - 1.8	13.1 - 3.4
12	3°48.0	3°48.6	3°37.6	1.2 - 0.3	7.2 - 1.9	13.2 - 3.4
13	3°48.3	3°48.9	3°37.9	1.3 - 0.3	7.3 - 1.9	13.3 - 3.4
14	3°48.5	3°49.1	3°38.1	1.4 - 0.4	7.4 - 1.9	13.4 - 3.5
15	3°48.8	3°49.4	3°38.3	1.5 - 0.4	7.5 - 1.9	13.5 - 3.5
16	3°49.0	3°49.6	3°38.6	1.6 - 0.4	7.6 - 2.0	13.6 - 3.5
17	3°49.3	3°49.9	3°38.8	1.7 - 0.4	7.7 - 2.0	13.7 - 3.5
18	3°49.5	3°50.1	3°39.0	1.8 - 0.5	7.8 - 2.0	13.8 - 3.6
19	3°49.8	3°50.4	3°39.3	1.9 - 0.5	7.9 - 2.0	13.9 - 3.6
20	3°50.0	3°50.6	3°39.5	2.0 - 0.5	8.0 - 2.1	14.0 - 3.6
21	3°50.2	3°50.9	3°39.8	2.1 - 0.5	8.1 - 2.1	14.1 - 3.6
22	3°50.5	3°51.1	3°40.0	2.2 - 0.6	8.2 - 2.1	14.2 - 3.7
23	3°50.7	3°51.4	3°40.2	2.3 - 0.6	8.3 - 2.1	14.3 - 3.7
24	3°51.0	3°51.6	3°40.5	2.4 - 0.6	8.4 - 2.2	14.4 - 3.7
25	3°51.2	3°51.9	3°40.7	2.5 - 0.6	8.5 - 2.2	14.5 - 3.7
26	3°51.5	3°52.1	3°41.0	2.6 - 0.7	8.6 - 2.2	14.6 - 3.8
27	3°51.8	3°52.4	3°41.2	2.7 - 0.7	8.7 - 2.2	14.7 - 3.8
28	3°52.0	3°52.6	3°41.4	2.8 - 0.7	8.8 - 2.3	14.8 - 3.8
29	3°52.2	3°52.9	3°41.7	2.9 - 0.7	8.9 - 2.3	14.9 - 3.8
30	3°52.5	3°53.1	3°41.9	3.0 - 0.8	9.0 - 2.3	15.0 - 3.9
31	3°52.8	3°53.4	3°42.1	3.1 - 0.8	9.1 - 2.4	15.1 - 3.9
32	3°53.0	3°53.6	3°42.4	3.2 - 0.8	9.2 - 2.4	15.2 - 3.9
33	3°53.2	3°53.9	3°42.6	3.3 - 0.9	9.3 - 2.4	15.3 - 4.0
34	3°53.5	3°54.1	3°42.9	3.4 - 0.9	9.4 - 2.4	15.4 - 4.0
35	3°53.8	3°54.4	3°43.1	3.5 - 0.9	9.5 - 2.5	15.5 - 4.0
36	3°54.0	3°54.6	3°43.3	3.6 - 0.9	9.6 - 2.5	15.6 - 4.0
37	3°54.3	3°54.9	3°43.6	3.7 - 1.0	9.7 - 2.5	15.7 - 4.1
38	3°54.5	3°55.1	3°43.8	3.8 - 1.0	9.8 - 2.5	15.8 - 4.1
39	3°54.8	3°55.4	3°44.1	3.9 - 1.0	9.9 - 2.6	15.9 - 4.1
40	3°55.0	3°55.6	3°44.3	4.0 - 1.0	10.0 - 2.6	16.0 - 4.1
41	3°55.3	3°55.9	3°44.5	4.1 - 1.1	10.1 - 2.6	16.1 - 4.2
42	3°55.5	3°56.1	3°44.8	4.2 - 1.1	10.2 - 2.6	16.2 - 4.2
43	3°55.7	3°56.4	3°45.0	4.3 - 1.1	10.3 - 2.7	16.3 - 4.2
44	3°56.0	3°56.6	3°45.2	4.4 - 1.1	10.4 - 2.7	16.4 - 4.2
45	3°56.3	3°56.9	3°45.5	4.5 - 1.2	10.5 - 2.7	16.5 - 4.3
46	3°56.5	3°57.1	3°45.7	4.6 - 1.2	10.6 - 2.7	16.6 - 4.3
47	3°56.8	3°57.4	3°46.0	4.7 - 1.2	10.7 - 2.8	16.7 - 4.3
48	3°57.0	3°57.6	3°46.2	4.8 - 1.2	10.8 - 2.8	16.8 - 4.3
49	3°57.3	3°57.9	3°46.4	4.9 - 1.3	10.9 - 2.8	16.9 - 4.4
50	3°57.5	3°58.1	3°46.7	5.0 - 1.3	11.0 - 2.8	17.0 - 4.4
51	3°57.7	3°58.4	3°46.9	5.1 - 1.3	11.1 - 2.9	17.1 - 4.4
52	3°58.0	3°58.7	3°47.2	5.2 - 1.3	11.2 - 2.9	17.2 - 4.4
53	3°58.2	3°58.9	3°47.4	5.3 - 1.4	11.3 - 2.9	17.3 - 4.5
54	3°58.5	3°59.2	3°47.6	5.4 - 1.4	11.4 - 2.9	17.4 - 4.5
55	3°58.7	3°59.4	3°47.9	5.5 - 1.4	11.5 - 3.0	17.5 - 4.5
56	3°59.0	3°59.7	3°48.1	5.6 - 1.4	11.6 - 3.0	17.6 - 4.5
57	3°59.2	3°59.9	3°48.4	5.7 - 1.5	11.7 - 3.0	17.7 - 4.6
58	3°59.5	4°00.2	3°48.6	5.8 - 1.5	11.8 - 3.0	17.8 - 4.6
59	3°59.8	4°00.4	3°48.8	5.9 - 1.5	11.9 - 3.1	17.9 - 4.6

m	Sun	Aries	Moon	v and d corr		
16	Plan.					
0	4°00.0	4°00.7	3°49.1	0.0 - 0.0	6.0 - 1.7	12.0 - 3.3
1	4°00.2	4°00.9	3°49.3	0.1 - 0.0	6.1 - 1.7	12.1 - 3.3
2	4°00.5	4°01.2	3°49.5	0.2 - 0.1	6.2 - 1.7	12.2 - 3.4
3	4°00.8	4°01.4	3°49.8	0.3 - 0.1	6.3 - 1.7	12.3 - 3.4
4	4°01.0	4°01.7	3°50.0	0.4 - 0.1	6.4 - 1.8	12.4 - 3.4
5	4°01.2	4°01.9	3°50.3	0.5 - 0.1	6.5 - 1.8	12.5 - 3.4
6	4°01.5	4°02.2	3°50.5	0.6 - 0.2	6.6 - 1.8	12.6 - 3.5
7	4°01.8	4°02.4	3°50.7	0.7 - 0.2	6.7 - 1.8	12.7 - 3.5
8	4°02.0	4°02.7	3°51.0	0.8 - 0.2	6.8 - 1.9	12.8 - 3.5
9	4°02.2	4°02.9	3°51.2	0.9 - 0.2	6.9 - 1.9	12.9 - 3.5
10	4°02.5	4°03.2	3°51.5	1.0 - 0.3	7.0 - 1.9	13.0 - 3.6
11	4°02.8	4°03.4	3°51.7	1.1 - 0.3	7.1 - 2.0	13.1 - 3.6
12	4°03.0	4°03.7	3°51.9	1.2 - 0.3	7.2 - 2.0	13.2 - 3.6
13	4°03.2	4°03.9	3°52.2	1.3 - 0.4	7.3 - 2.0	13.3 - 3.7
14	4°03.5	4°04.2	3°52.4	1.4 - 0.4	7.4 - 2.0	13.4 - 3.7
15	4°03.8	4°04.4	3°52.6	1.5 - 0.4	7.5 - 2.1	13.5 - 3.7
16	4°04.0	4°04.7	3°52.9	1.6 - 0.4	7.6 - 2.1	13.6 - 3.7
17	4°04.3	4°04.9	3°53.1	1.7 - 0.5	7.7 - 2.1	13.7 - 3.8
18	4°04.5	4°05.2	3°53.4	1.8 - 0.5	7.8 - 2.1	13.8 - 3.8
19	4°04.7	4°05.4	3°53.6	1.9 - 0.5	7.9 - 2.2	13.9 - 3.8
20	4°05.0	4°05.7	3°53.8	2.0 - 0.6	8.0 - 2.2	14.0 - 3.9
21	4°05.3	4°05.9	3°54.1	2.1 - 0.6	8.1 - 2.2	14.1 - 3.9
22	4°05.5	4°06.2	3°54.3	2.2 - 0.6	8.2 - 2.3	14.2 - 3.9
23	4°05.7	4°06.4	3°54.6	2.3 - 0.6	8.3 - 2.3	14.3 - 3.9
24	4°06.0	4°06.7	3°54.8	2.4 - 0.7	8.4 - 2.3	14.4 - 4.0
25	4°06.3	4°06.9	3°55.0	2.5 - 0.7	8.5 - 2.3	14.5 - 4.0
26	4°06.5	4°07.2	3°55.3	2.6 - 0.7	8.6 - 2.4	14.6 - 4.0
27	4°06.7	4°07.4	3°55.5	2.7 - 0.7	8.7 - 2.4	14.7 - 4.0
28	4°07.0	4°07.7	3°55.7	2.8 - 0.8	8.8 - 2.4	14.8 - 4.1
29	4°07.3	4°07.9	3°56.0	2.9 - 0.8	8.9 - 2.4	14.9 - 4.1
30	4°07.5	4°08.2	3°56.2	3.0 - 0.8	9.0 - 2.5	15.0 - 4.1
31	4°07.7	4°08.4	3°56.5	3.1 - 0.9	9.1 - 2.5	15.1 - 4.2
32	4°08.0	4°08.7	3°56.7	3.2 - 0.9	9.2 - 2.5	15.2 - 4.2
33	4°08.3	4°08.9	3°56.9	3.3 - 0.9	9.3 - 2.6	15.3 - 4.2
34	4°08.5	4°09.2	3°57.2	3.4 - 0.9	9.4 - 2.6	15.4 - 4.2
35	4°08.7	4°09.4	3°57.4	3.5 - 1.0	9.5 - 2.6	15.5 - 4.3
36	4°09.0	4°09.7	3°57.7	3.6 - 1.0	9.6 - 2.6	15.6 - 4.3
37	4°09.3	4°09.9	3°57.9	3.7 - 1.0	9.7 - 2.7	15.7 - 4.3
38	4°09.5	4°10.2	3°58.1	3.8 - 1.0	9.8 - 2.7	15.8 - 4.3
39	4°09.7	4°10.4	3°58.4	3.9 - 1.1	9.9 - 2.7	15.9 - 4.4
40	4°10.0	4°10.7	3°58.6	4.0 - 1.1	10.0 - 2.8	16.0 - 4.4
41	4°10.3	4°10.9	3°58.8	4.1 - 1.1	10.1 - 2.8	16.1 - 4.4
42	4°10.5	4°11.2	3°59.1	4.2 - 1.2	10.2 - 2.8	16.2 - 4.5
43	4°10.7	4°11.4	3°59.3	4.3 - 1.2	10.3 - 2.8	16.3 - 4.5
44	4°11.0	4°11.7	3°59.6	4.4 - 1.2	10.4 - 2.9	16.4 - 4.5
45	4°11.3	4°11.9	3°59.8	4.5 - 1.2	10.5 - 2.9	16.5 - 4.5
46	4°11.5	4°12.2	4°00.0	4.6 - 1.3	10.6 - 2.9	16.6 - 4.6
47	4°11.8	4°12.4	4°00.3	4.7 - 1.3	10.7 - 2.9	16.7 - 4.6
48	4°12.0	4°12.7	4°00.5	4.8 - 1.3	10.8 - 3.0	16.8 - 4.6
49	4°12.2	4°12.9	4°00.8	4.9 - 1.3	10.9 - 3.0	16.9 - 4.6
50	4°12.5	4°13.2	4°01.0	5.0 - 1.4	11.0 - 3.0	17.0 - 4.7
51	4°12.8	4°13.4	4°01.2	5.1 - 1.4	11.1 - 3.1	17.1 - 4.7
52	4°13.0	4°13.7	4°01.5	5.2 - 1.4	11.2 - 3.1	17.2 - 4.7
53	4°13.2	4°13.9	4°01.7	5.3 - 1.5	11.3 - 3.1	17.3 - 4.8
54	4°13.5	4°14.2	4°02.0	5.4 - 1.5	11.4 - 3.1	17.4 - 4.8
55	4°13.8	4°14.4	4°02.2	5.5 - 1.5	11.5 - 3.2	17.5 - 4.8
56	4°14.0	4°14.7	4°02.4	5.6 - 1.5	11.6 - 3.2	17.6 - 4.8
57	4°14.2	4°14.9	4°02.7	5.7 - 1.6	11.7 - 3.2	17.7 - 4.9
58	4°14.5	4°15.2	4°02.9	5.8 - 1.6	11.8 - 3.2	17.8 - 4.9
59	4°14.8	4°15.4	4°03.1	5.9 - 1.6	11.9 - 3.3	17.9 - 4.9

m	Sun Plan.	Aries	Moon	v and d corr		
17						
0	4°15.0	4°15.7	4°03.4	0.0 - 0.0	6.0 - 1.8	12.0 - 3.5
1	4°15.2	4°15.9	4°03.6	0.1 - 0.0	6.1 - 1.8	12.1 - 3.5
2	4°15.5	4°16.2	4°03.9	0.2 - 0.1	6.2 - 1.8	12.2 - 3.6
3	4°15.8	4°16.4	4°04.1	0.3 - 0.1	6.3 - 1.8	12.3 - 3.6
4	4°16.0	4°16.7	4°04.3	0.4 - 0.1	6.4 - 1.9	12.4 - 3.6
5	4°16.2	4°17.0	4°04.6	0.5 - 0.1	6.5 - 1.9	12.5 - 3.6
6	4°16.5	4°17.2	4°04.8	0.6 - 0.2	6.6 - 1.9	12.6 - 3.7
7	4°16.8	4°17.5	4°05.1	0.7 - 0.2	6.7 - 2.0	12.7 - 3.7
8	4°17.0	4°17.7	4°05.3	0.8 - 0.2	6.8 - 2.0	12.8 - 3.7
9	4°17.2	4°18.0	4°05.5	0.9 - 0.3	6.9 - 2.0	12.9 - 3.8
10	4°17.5	4°18.2	4°05.8	1.0 - 0.3	7.0 - 2.0	13.0 - 3.8
11	4°17.8	4°18.5	4°06.0	1.1 - 0.3	7.1 - 2.1	13.1 - 3.8
12	4°18.0	4°18.7	4°06.2	1.2 - 0.4	7.2 - 2.1	13.2 - 3.9
13	4°18.2	4°19.0	4°06.5	1.3 - 0.4	7.3 - 2.1	13.3 - 3.9
14	4°18.5	4°19.2	4°06.7	1.4 - 0.4	7.4 - 2.2	13.4 - 3.9
15	4°18.8	4°19.5	4°07.0	1.5 - 0.4	7.5 - 2.2	13.5 - 3.9
16	4°19.0	4°19.7	4°07.2	1.6 - 0.5	7.6 - 2.2	13.6 - 4.0
17	4°19.3	4°20.0	4°07.4	1.7 - 0.5	7.7 - 2.2	13.7 - 4.0
18	4°19.5	4°20.2	4°07.7	1.8 - 0.5	7.8 - 2.3	13.8 - 4.0
19	4°19.7	4°20.5	4°07.9	1.9 - 0.6	7.9 - 2.3	13.9 - 4.1
20	4°20.0	4°20.7	4°08.2	2.0 - 0.6	8.0 - 2.3	14.0 - 4.1
21	4°20.3	4°21.0	4°08.4	2.1 - 0.6	8.1 - 2.4	14.1 - 4.1
22	4°20.5	4°21.2	4°08.6	2.2 - 0.6	8.2 - 2.4	14.2 - 4.1
23	4°20.7	4°21.5	4°08.9	2.3 - 0.7	8.3 - 2.4	14.3 - 4.2
24	4°21.0	4°21.7	4°09.1	2.4 - 0.7	8.4 - 2.5	14.4 - 4.2
25	4°21.3	4°22.0	4°09.3	2.5 - 0.7	8.5 - 2.5	14.5 - 4.2
26	4°21.5	4°22.2	4°09.6	2.6 - 0.8	8.6 - 2.5	14.6 - 4.3
27	4°21.7	4°22.5	4°09.8	2.7 - 0.8	8.7 - 2.5	14.7 - 4.3
28	4°22.0	4°22.7	4°10.1	2.8 - 0.8	8.8 - 2.6	14.8 - 4.3
29	4°22.3	4°23.0	4°10.3	2.9 - 0.8	8.9 - 2.6	14.9 - 4.3
30	4°22.5	4°23.2	4°10.5	3.0 - 0.9	9.0 - 2.6	15.0 - 4.4
31	4°22.7	4°23.5	4°10.8	3.1 - 0.9	9.1 - 2.7	15.1 - 4.4
32	4°23.0	4°23.7	4°11.0	3.2 - 0.9	9.2 - 2.7	15.2 - 4.4
33	4°23.3	4°24.0	4°11.3	3.3 - 1.0	9.3 - 2.7	15.3 - 4.5
34	4°23.5	4°24.2	4°11.5	3.4 - 1.0	9.4 - 2.7	15.4 - 4.5
35	4°23.7	4°24.5	4°11.7	3.5 - 1.0	9.5 - 2.8	15.5 - 4.5
36	4°24.0	4°24.7	4°12.0	3.6 - 1.1	9.6 - 2.8	15.6 - 4.5
37	4°24.3	4°25.0	4°12.2	3.7 - 1.1	9.7 - 2.8	15.7 - 4.6
38	4°24.5	4°25.2	4°12.5	3.8 - 1.1	9.8 - 2.9	15.8 - 4.6
39	4°24.7	4°25.5	4°12.7	3.9 - 1.1	9.9 - 2.9	15.9 - 4.6
40	4°25.0	4°25.7	4°12.9	4.0 - 1.2	10.0 - 2.9	16.0 - 4.7
41	4°25.3	4°26.0	4°13.2	4.1 - 1.2	10.1 - 2.9	16.1 - 4.7
42	4°25.5	4°26.2	4°13.4	4.2 - 1.2	10.2 - 3.0	16.2 - 4.7
43	4°25.7	4°26.5	4°13.6	4.3 - 1.3	10.3 - 3.0	16.3 - 4.8
44	4°26.0	4°26.7	4°13.9	4.4 - 1.3	10.4 - 3.0	16.4 - 4.8
45	4°26.3	4°27.0	4°14.1	4.5 - 1.3	10.5 - 3.1	16.5 - 4.8
46	4°26.5	4°27.2	4°14.4	4.6 - 1.3	10.6 - 3.1	16.6 - 4.8
47	4°26.8	4°27.5	4°14.6	4.7 - 1.4	10.7 - 3.1	16.7 - 4.9
48	4°27.0	4°27.7	4°14.8	4.8 - 1.4	10.8 - 3.2	16.8 - 4.9
49	4°27.2	4°28.0	4°15.1	4.9 - 1.4	10.9 - 3.2	16.9 - 4.9
50	4°27.5	4°28.2	4°15.3	5.0 - 1.5	11.0 - 3.2	17.0 - 5.0
51	4°27.8	4°28.5	4°15.6	5.1 - 1.5	11.1 - 3.2	17.1 - 5.0
52	4°28.0	4°28.7	4°15.8	5.2 - 1.5	11.2 - 3.3	17.2 - 5.0
53	4°28.2	4°29.0	4°16.0	5.3 - 1.5	11.3 - 3.3	17.3 - 5.0
54	4°28.5	4°29.2	4°16.3	5.4 - 1.6	11.4 - 3.3	17.4 - 5.1
55	4°28.8	4°29.5	4°16.5	5.5 - 1.6	11.5 - 3.4	17.5 - 5.1
56	4°29.0	4°29.7	4°16.7	5.6 - 1.6	11.6 - 3.4	17.6 - 5.1
57	4°29.2	4°30.0	4°17.0	5.7 - 1.7	11.7 - 3.4	17.7 - 5.2
58	4°29.5	4°30.2	4°17.2	5.8 - 1.7	11.8 - 3.4	17.8 - 5.2
59	4°29.8	4°30.5	4°17.5	5.9 - 1.7	11.9 - 3.5	17.9 - 5.2

Increments and Corrections

m 18	Sun Plan.	Aries	Moon	v and d corr			m 19	Sun Plan.	Aries	Moon	v and d corr			m 20	Sun Plan.	Aries	Moon	v and d corr		
0	4°30.0	4°30.7	4°17.7	0.0 - 0.0	6.0 - 1.9	12.0 - 3.7	0	4°45.0	4°45.8	4°32.0	0.0 - 0.0	6.0 - 2.0	12.0 - 3.9	0	5°00.0	5°00.8	4°46.3	0.0 - 0.0	6.0 - 2.0	12.0 - 4.1
1	4°30.2	4°31.0	4°17.9	0.1 - 0.0	6.1 - 1.9	12.1 - 3.7	1	4°45.2	4°46.0	4°32.3	0.1 - 0.0	6.1 - 2.0	12.1 - 3.9	1	5°00.2	5°01.1	4°46.6	0.1 - 0.0	6.1 - 2.1	12.1 - 4.1
2	4°30.5	4°31.2	4°18.2	0.2 - 0.1	6.2 - 1.9	12.2 - 3.8	2	4°45.5	4°46.3	4°32.5	0.2 - 0.1	6.2 - 2.0	12.2 - 4.0	2	5°00.5	5°01.3	4°46.8	0.2 - 0.1	6.2 - 2.1	12.2 - 4.2
3	4°30.8	4°31.5	4°18.4	0.3 - 0.1	6.3 - 1.9	12.3 - 3.8	3	4°45.8	4°46.5	4°32.7	0.3 - 0.1	6.3 - 2.0	12.3 - 4.0	3	5°00.8	5°01.6	4°47.0	0.3 - 0.1	6.3 - 2.2	12.3 - 4.2
4	4°31.0	4°31.7	4°18.7	0.4 - 0.1	6.4 - 2.0	12.4 - 3.8	4	4°46.0	4°46.8	4°33.0	0.4 - 0.1	6.4 - 2.1	12.4 - 4.0	4	5°01.0	5°01.8	4°47.3	0.4 - 0.1	6.4 - 2.2	12.4 - 4.2
5	4°31.2	4°32.0	4°18.9	0.5 - 0.2	6.5 - 2.0	12.5 - 3.9	5	4°46.2	4°47.0	4°33.2	0.5 - 0.2	6.5 - 2.1	12.5 - 4.1	5	5°01.2	5°02.1	4°47.5	0.5 - 0.2	6.5 - 2.2	12.5 - 4.3
6	4°31.5	4°32.2	4°19.1	0.6 - 0.2	6.6 - 2.0	12.6 - 3.9	6	4°46.5	4°47.3	4°33.4	0.6 - 0.2	6.6 - 2.1	12.6 - 4.1	6	5°01.5	5°02.3	4°47.8	0.6 - 0.2	6.6 - 2.3	12.6 - 4.3
7	4°31.8	4°32.5	4°19.4	0.7 - 0.2	6.7 - 2.1	12.7 - 3.9	7	4°46.8	4°47.5	4°33.7	0.7 - 0.2	6.7 - 2.2	12.7 - 4.1	7	5°01.8	5°02.6	4°48.0	0.7 - 0.2	6.7 - 2.3	12.7 - 4.3
8	4°32.0	4°32.7	4°19.6	0.8 - 0.2	6.8 - 2.1	12.8 - 3.9	8	4°47.0	4°47.8	4°33.9	0.8 - 0.3	6.8 - 2.2	12.8 - 4.2	8	5°02.0	5°02.8	4°48.2	0.8 - 0.3	6.8 - 2.3	12.8 - 4.4
9	4°32.2	4°33.0	4°19.8	0.9 - 0.3	6.9 - 2.1	12.9 - 4.0	9	4°47.2	4°48.0	4°34.2	0.9 - 0.3	6.9 - 2.2	12.9 - 4.2	9	5°02.2	5°03.1	4°48.5	0.9 - 0.3	6.9 - 2.4	12.9 - 4.4
10	4°32.5	4°33.2	4°20.1	1.0 - 0.3	7.0 - 2.2	13.0 - 4.0	10	4°47.5	4°48.3	4°34.4	1.0 - 0.3	7.0 - 2.3	13.0 - 4.2	10	5°02.5	5°03.3	4°48.7	1.0 - 0.3	7.0 - 2.4	13.0 - 4.4
11	4°32.8	4°33.5	4°20.3	1.1 - 0.3	7.1 - 2.2	13.1 - 4.0	11	4°47.8	4°48.5	4°34.6	1.1 - 0.4	7.1 - 2.3	13.1 - 4.3	11	5°02.8	5°03.6	4°49.0	1.1 - 0.4	7.1 - 2.4	13.1 - 4.5
12	4°33.0	4°33.7	4°20.6	1.2 - 0.4	7.2 - 2.2	13.2 - 4.1	12	4°48.0	4°48.8	4°34.9	1.2 - 0.4	7.2 - 2.3	13.2 - 4.3	12	5°03.0	5°03.8	4°49.2	1.2 - 0.4	7.2 - 2.5	13.2 - 4.5
13	4°33.2	4°34.0	4°20.8	1.3 - 0.4	7.3 - 2.3	13.3 - 4.1	13	4°48.2	4°49.0	4°35.1	1.3 - 0.4	7.3 - 2.4	13.3 - 4.3	13	5°03.2	5°04.1	4°49.4	1.3 - 0.4	7.3 - 2.5	13.3 - 4.5
14	4°33.5	4°34.2	4°21.0	1.4 - 0.4	7.4 - 2.3	13.4 - 4.1	14	4°48.5	4°49.3	4°35.4	1.4 - 0.5	7.4 - 2.4	13.4 - 4.4	14	5°03.5	5°04.3	4°49.7	1.4 - 0.5	7.4 - 2.5	13.4 - 4.6
15	4°33.8	4°34.5	4°21.3	1.5 - 0.5	7.5 - 2.3	13.5 - 4.2	15	4°48.8	4°49.5	4°35.6	1.5 - 0.5	7.5 - 2.4	13.5 - 4.4	15	5°03.8	5°04.6	4°49.9	1.5 - 0.5	7.5 - 2.6	13.5 - 4.6
16	4°34.0	4°34.7	4°21.5	1.6 - 0.5	7.6 - 2.3	13.6 - 4.2	16	4°49.0	4°49.8	4°35.8	1.6 - 0.5	7.6 - 2.5	13.6 - 4.4	16	5°04.0	5°04.8	4°50.2	1.6 - 0.5	7.6 - 2.6	13.6 - 4.6
17	4°34.3	4°35.0	4°21.8	1.7 - 0.5	7.7 - 2.4	13.7 - 4.2	17	4°49.3	4°50.0	4°36.1	1.7 - 0.6	7.7 - 2.5	13.7 - 4.5	17	5°04.3	5°05.1	4°50.4	1.7 - 0.6	7.7 - 2.6	13.7 - 4.7
18	4°34.5	4°35.3	4°22.0	1.8 - 0.6	7.8 - 2.4	13.8 - 4.3	18	4°49.5	4°50.3	4°36.3	1.8 - 0.6	7.8 - 2.5	13.8 - 4.5	18	5°04.5	5°05.3	4°50.6	1.8 - 0.6	7.8 - 2.7	13.8 - 4.7
19	4°34.8	4°35.5	4°22.2	1.9 - 0.6	7.9 - 2.4	13.9 - 4.3	19	4°49.8	4°50.5	4°36.6	1.9 - 0.6	7.9 - 2.6	13.9 - 4.5	19	5°04.7	5°05.6	4°50.9	1.9 - 0.6	7.9 - 2.7	13.9 - 4.7
20	4°35.0	4°35.8	4°22.5	2.0 - 0.6	8.0 - 2.5	14.0 - 4.3	20	4°50.0	4°50.8	4°36.8	2.0 - 0.7	8.0 - 2.6	14.0 - 4.5	20	5°05.0	5°05.8	4°51.1	2.0 - 0.7	8.0 - 2.7	14.0 - 4.8
21	4°35.3	4°36.0	4°22.7	2.1 - 0.6	8.1 - 2.5	14.1 - 4.3	21	4°50.3	4°51.0	4°37.0	2.1 - 0.7	8.1 - 2.6	14.1 - 4.6	21	5°05.3	5°06.1	4°51.3	2.1 - 0.7	8.1 - 2.8	14.1 - 4.8
22	4°35.5	4°36.3	4°22.9	2.2 - 0.7	8.2 - 2.5	14.2 - 4.4	22	4°50.5	4°51.3	4°37.3	2.2 - 0.7	8.2 - 2.7	14.2 - 4.6	22	5°05.5	5°06.3	4°51.6	2.2 - 0.8	8.2 - 2.8	14.2 - 4.9
23	4°35.7	4°36.5	4°23.2	2.3 - 0.7	8.3 - 2.6	14.3 - 4.4	23	4°50.7	4°51.5	4°37.5	2.3 - 0.7	8.3 - 2.7	14.3 - 4.6	23	5°05.7	5°06.6	4°51.8	2.3 - 0.8	8.3 - 2.8	14.3 - 4.9
24	4°36.0	4°36.8	4°23.4	2.4 - 0.7	8.4 - 2.6	14.4 - 4.4	24	4°51.0	4°51.8	4°37.7	2.4 - 0.8	8.4 - 2.7	14.4 - 4.7	24	5°06.0	5°06.8	4°52.1	2.4 - 0.8	8.4 - 2.9	14.4 - 4.9
25	4°36.3	4°37.0	4°23.7	2.5 - 0.8	8.5 - 2.6	14.5 - 4.5	25	4°51.3	4°52.0	4°38.0	2.5 - 0.8	8.5 - 2.8	14.5 - 4.7	25	5°06.3	5°07.1	4°52.3	2.5 - 0.9	8.5 - 2.9	14.5 - 5.0
26	4°36.5	4°37.3	4°23.9	2.6 - 0.8	8.6 - 2.7	14.6 - 4.5	26	4°51.5	4°52.3	4°38.2	2.6 - 0.8	8.6 - 2.8	14.6 - 4.7	26	5°06.5	5°07.3	4°52.5	2.6 - 0.9	8.6 - 2.9	14.6 - 5.0
27	4°36.7	4°37.5	4°24.1	2.7 - 0.8	8.7 - 2.7	14.7 - 4.5	27	4°51.7	4°52.5	4°38.5	2.7 - 0.9	8.7 - 2.8	14.7 - 4.8	27	5°06.7	5°07.6	4°52.8	2.7 - 0.9	8.7 - 3.0	14.7 - 5.0
28	4°37.0	4°37.8	4°24.4	2.8 - 0.9	8.8 - 2.7	14.8 - 4.6	28	4°52.0	4°52.8	4°38.7	2.8 - 0.9	8.8 - 2.9	14.8 - 4.8	28	5°07.0	5°07.8	4°53.0	2.8 - 1.0	8.8 - 3.0	14.8 - 5.1
29	4°37.3	4°38.0	4°24.6	2.9 - 0.9	8.9 - 2.7	14.9 - 4.6	29	4°52.3	4°53.0	4°38.9	2.9 - 0.9	8.9 - 2.9	14.9 - 4.8	29	5°07.3	5°08.1	4°53.3	2.9 - 1.0	8.9 - 3.0	14.9 - 5.1
30	4°37.5	4°38.3	4°24.9	3.0 - 0.9	9.0 - 2.8	15.0 - 4.6	30	4°52.5	4°53.3	4°39.2	3.0 - 1.0	9.0 - 2.9	15.0 - 4.9	30	5°07.5	5°08.3	4°53.5	3.0 - 1.0	9.0 - 3.1	15.0 - 5.1
31	4°37.7	4°38.5	4°25.1	3.1 - 1.0	9.1 - 2.8	15.1 - 4.7	31	4°52.7	4°53.6	4°39.4	3.1 - 1.0	9.1 - 3.0	15.1 - 4.9	31	5°07.7	5°08.6	4°53.7	3.1 - 1.1	9.1 - 3.1	15.1 - 5.2
32	4°38.0	4°38.8	4°25.3	3.2 - 1.0	9.2 - 2.8	15.2 - 4.7	32	4°53.0	4°53.8	4°39.7	3.2 - 1.0	9.2 - 3.0	15.2 - 4.9	32	5°08.0	5°08.8	4°54.0	3.2 - 1.1	9.2 - 3.1	15.2 - 5.2
33	4°38.3	4°39.0	4°25.6	3.3 - 1.0	9.3 - 2.9	15.3 - 4.7	33	4°53.3	4°54.1	4°39.9	3.3 - 1.1	9.3 - 3.0	15.3 - 5.0	33	5°08.3	5°09.1	4°54.2	3.3 - 1.1	9.3 - 3.2	15.3 - 5.2
34	4°38.5	4°39.3	4°25.8	3.4 - 1.0	9.4 - 2.9	15.4 - 4.7	34	4°53.5	4°54.3	4°40.1	3.4 - 1.1	9.4 - 3.1	15.4 - 5.0	34	5°08.5	5°09.3	4°54.4	3.4 - 1.2	9.4 - 3.2	15.4 - 5.3
35	4°38.7	4°39.5	4°26.1	3.5 - 1.1	9.5 - 2.9	15.5 - 4.8	35	4°53.7	4°54.6	4°40.4	3.5 - 1.1	9.5 - 3.1	15.5 - 5.0	35	5°08.7	5°09.6	4°54.7	3.5 - 1.2	9.5 - 3.2	15.5 - 5.3
36	4°39.0	4°39.8	4°26.3	3.6 - 1.1	9.6 - 3.0	15.6 - 4.8	36	4°54.0	4°54.8	4°40.6	3.6 - 1.2	9.6 - 3.1	15.6 - 5.1	36	5°09.0	5°09.8	4°54.9	3.6 - 1.2	9.6 - 3.3	15.6 - 5.3
37	4°39.3	4°40.0	4°26.5	3.7 - 1.1	9.7 - 3.0	15.7 - 4.8	37	4°54.3	4°55.1	4°40.8	3.7 - 1.2	9.7 - 3.2	15.7 - 5.1	37	5°09.3	5°10.1	4°55.2	3.7 - 1.3	9.7 - 3.3	15.7 - 5.4
38	4°39.5	4°40.3	4°26.8	3.8 - 1.2	9.8 - 3.0	15.8 - 4.9	38	4°54.5	4°55.3	4°41.1	3.8 - 1.2	9.8 - 3.2	15.8 - 5.1	38	5°09.5	5°10.3	4°55.4	3.8 - 1.3	9.8 - 3.3	15.8 - 5.4
39	4°39.7	4°40.5	4°27.0	3.9 - 1.2	9.9 - 3.1	15.9 - 4.9	39	4°54.7	4°55.6	4°41.3	3.9 - 1.3	9.9 - 3.2	15.9 - 5.2	39	5°09.7	5°10.6	4°55.6	3.9 - 1.3	9.9 - 3.4	15.9 - 5.4
40	4°40.0	4°40.8	4°27.2	4.0 - 1.2	10.0 - 3.1	16.0 - 4.9	40	4°55.0	4°55.8	4°41.6	4.0 - 1.3	10.0 - 3.3	16.0 - 5.2	40	5°10.0	5°10.8	4°55.9	4.0 - 1.4	10.0 - 3.4	16.0 - 5.5
41	4°40.3	4°41.0	4°27.5	4.1 - 1.3	10.1 - 3.1	16.1 - 5.0	41	4°55.3	4°56.1	4°41.8	4.1 - 1.3	10.1 - 3.3	16.1 - 5.2	41	5°10.3	5°11.1	4°56.1	4.1 - 1.4	10.1 - 3.5	16.1 - 5.5
42	4°40.5	4°41.3	4°27.7	4.2 - 1.3	10.2 - 3.1	16.2 - 5.0	42	4°55.5	4°56.3	4°42.0	4.2 - 1.4	10.2 - 3.3	16.2 - 5.3	42	5°10.5	5°11.3	4°56.4	4.2 - 1.4	10.2 - 3.5	16.2 - 5.5
43	4°40.7	4°41.5	4°28.0	4.3 - 1.3	10.3 - 3.2	16.3 - 5.0	43	4°55.7	4°56.6	4°42.3	4.3 - 1.4	10.3 - 3.3	16.3 - 5.3	43	5°10.7	5°11.6	4°56.6	4.3 - 1.5	10.3 - 3.5	16.3 - 5.6
44	4°41.0	4°41.8	4°28.2	4.4 - 1.4	10.4 - 3.2	16.4 - 5.1	44	4°56.0	4°56.8	4°42.5	4.4 - 1.4	10.4 - 3.4	16.4 - 5.3	44	5°11.0	5°11.9	4°56.8	4.4 - 1.5	10.4 - 3.6	16.4 - 5.6
45	4°41.3	4°42.0	4°28.4	4.5 - 1.4	10.5 - 3.2	16.5 - 5.1	45	4°56.3	4°57.1	4°42.8	4.5 - 1.5	10.5 - 3.4	16.5 - 5.4	45	5°11.3	5°12.1	4°57.1	4.5 - 1.5	10.5 - 3.6	16.5 - 5.6
46	4°41.5	4°42.3	4°28.7	4.6 - 1.4	10.6 - 3.3	16.6 - 5.1	46	4°56.5	4°57.3	4°43.0	4.6 - 1.5	10.6 - 3.4	16.6 - 5.4	46	5°11.5	5°12.4	4°57.3	4.6 - 1.6	10.6 - 3.6	16.6 - 5.7
47	4°41.8	4°42.5	4°28.9	4.7 - 1.4	10.7 - 3.3	16.7 - 5.1	47	4°56.8	4°57.6	4°43.2	4.7 - 1.5	10.7 - 3.5	16.7 - 5.4	47	5°11.8	5°12.6	4°57.5	4.7 - 1.6	10.7 - 3.7	16.7 - 5.7
48	4°42.0	4°42.8	4°29.2	4.8 - 1.5	10.8 - 3.3	16.8 - 5.2	48	4°57.0	4°57.8	4°43.5	4.8 - 1.6	10.8 - 3.5	16.8 - 5.5	48	5°12.0	5°12.9	4°57.8	4.8 - 1.6	10.8 - 3.7	16.8 - 5.7
49	4°42.3	4°43.0	4°29.4	4.9 - 1.5	10.9 - 3.4	16.9 - 5.2	49	4°57.3												

Increments and Corrections

m 21	Sun Plan.	Aries	Moon	v and d corr		
0	5°15.0	5°15.9	5°00.6	0.0 - 0.0	6.0 - 2.1	12.0 - 4.3
1	5°15.2	5°16.1	5°00.9	0.1 - 0.0	6.1 - 2.2	12.1 - 4.3
2	5°15.5	5°16.4	5°01.1	0.2 - 0.1	6.2 - 2.2	12.2 - 4.4
3	5°15.8	5°16.6	5°01.4	0.3 - 0.1	6.3 - 2.3	12.3 - 4.4
4	5°16.0	5°16.9	5°01.6	0.4 - 0.1	6.4 - 2.3	12.4 - 4.4
5	5°16.2	5°17.1	5°01.8	0.5 - 0.2	6.5 - 2.3	12.5 - 4.5
6	5°16.5	5°17.4	5°02.1	0.6 - 0.2	6.6 - 2.4	12.6 - 4.5
7	5°16.8	5°17.6	5°02.3	0.7 - 0.3	6.7 - 2.4	12.7 - 4.6
8	5°17.0	5°17.9	5°02.6	0.8 - 0.3	6.8 - 2.4	12.8 - 4.6
9	5°17.2	5°18.1	5°02.8	0.9 - 0.3	6.9 - 2.5	12.9 - 4.6
10	5°17.5	5°18.4	5°03.0	1.0 - 0.4	7.0 - 2.5	13.0 - 4.7
11	5°17.8	5°18.6	5°03.3	1.1 - 0.4	7.1 - 2.5	13.1 - 4.7
12	5°18.0	5°18.9	5°03.5	1.2 - 0.4	7.2 - 2.6	13.2 - 4.7
13	5°18.2	5°19.1	5°03.8	1.3 - 0.5	7.3 - 2.6	13.3 - 4.8
14	5°18.5	5°19.4	5°04.0	1.4 - 0.5	7.4 - 2.7	13.4 - 4.8
15	5°18.8	5°19.6	5°04.2	1.5 - 0.5	7.5 - 2.7	13.5 - 4.8
16	5°19.0	5°19.9	5°04.5	1.6 - 0.6	7.6 - 2.7	13.6 - 4.9
17	5°19.3	5°20.1	5°04.7	1.7 - 0.6	7.7 - 2.8	13.7 - 4.9
18	5°19.5	5°20.4	5°04.9	1.8 - 0.6	7.8 - 2.8	13.8 - 4.9
19	5°19.7	5°20.6	5°05.2	1.9 - 0.7	7.9 - 2.8	13.9 - 5.0
20	5°20.0	5°20.9	5°05.4	2.0 - 0.7	8.0 - 2.9	14.0 - 5.0
21	5°20.3	5°21.1	5°05.7	2.1 - 0.8	8.1 - 2.9	14.1 - 5.1
22	5°20.5	5°21.4	5°05.9	2.2 - 0.8	8.2 - 2.9	14.2 - 5.1
23	5°20.7	5°21.6	5°06.1	2.3 - 0.8	8.3 - 3.0	14.3 - 5.1
24	5°21.0	5°21.9	5°06.4	2.4 - 0.9	8.4 - 3.0	14.4 - 5.2
25	5°21.3	5°22.1	5°06.6	2.5 - 0.9	8.5 - 3.0	14.5 - 5.2
26	5°21.5	5°22.4	5°06.9	2.6 - 0.9	8.6 - 3.1	14.6 - 5.2
27	5°21.7	5°22.6	5°07.1	2.7 - 1.0	8.7 - 3.1	14.7 - 5.3
28	5°22.0	5°22.9	5°07.3	2.8 - 1.0	8.8 - 3.2	14.8 - 5.3
29	5°22.3	5°23.1	5°07.6	2.9 - 1.0	8.9 - 3.2	14.9 - 5.3
30	5°22.5	5°23.4	5°07.8	3.0 - 1.1	9.0 - 3.2	15.0 - 5.4
31	5°22.7	5°23.6	5°08.0	3.1 - 1.1	9.1 - 3.3	15.1 - 5.4
32	5°23.0	5°23.9	5°08.3	3.2 - 1.1	9.2 - 3.3	15.2 - 5.4
33	5°23.3	5°24.1	5°08.5	3.3 - 1.2	9.3 - 3.3	15.3 - 5.5
34	5°23.5	5°24.4	5°08.8	3.4 - 1.2	9.4 - 3.4	15.4 - 5.5
35	5°23.7	5°24.6	5°09.0	3.5 - 1.3	9.5 - 3.4	15.5 - 5.6
36	5°24.0	5°24.9	5°09.2	3.6 - 1.3	9.6 - 3.4	15.6 - 5.6
37	5°24.3	5°25.1	5°09.5	3.7 - 1.3	9.7 - 3.5	15.7 - 5.6
38	5°24.5	5°25.4	5°09.7	3.8 - 1.4	9.8 - 3.5	15.8 - 5.7
39	5°24.7	5°25.6	5°10.0	3.9 - 1.4	9.9 - 3.5	15.9 - 5.7
40	5°25.0	5°25.9	5°10.2	4.0 - 1.4	10.0 - 3.6	16.0 - 5.7
41	5°25.3	5°26.1	5°10.4	4.1 - 1.5	10.1 - 3.6	16.1 - 5.8
42	5°25.5	5°26.4	5°10.7	4.2 - 1.5	10.2 - 3.7	16.2 - 5.8
43	5°25.7	5°26.6	5°10.9	4.3 - 1.5	10.3 - 3.7	16.3 - 5.8
44	5°26.0	5°26.9	5°11.1	4.4 - 1.6	10.4 - 3.7	16.4 - 5.9
45	5°26.3	5°27.1	5°11.4	4.5 - 1.6	10.5 - 3.8	16.5 - 5.9
46	5°26.5	5°27.4	5°11.6	4.6 - 1.6	10.6 - 3.8	16.6 - 5.9
47	5°26.8	5°27.6	5°11.9	4.7 - 1.7	10.7 - 3.8	16.7 - 6.0
48	5°27.0	5°27.9	5°12.1	4.8 - 1.7	10.8 - 3.9	16.8 - 6.0
49	5°27.2	5°28.1	5°12.3	4.9 - 1.8	10.9 - 3.9	16.9 - 6.1
50	5°27.5	5°28.4	5°12.6	5.0 - 1.8	11.0 - 3.9	17.0 - 6.1
51	5°27.8	5°28.6	5°12.8	5.1 - 1.8	11.1 - 4.0	17.1 - 6.1
52	5°28.0	5°28.9	5°13.1	5.2 - 1.9	11.2 - 4.0	17.2 - 6.2
53	5°28.2	5°29.1	5°13.3	5.3 - 1.9	11.3 - 4.0	17.3 - 6.2
54	5°28.5	5°29.4	5°13.5	5.4 - 1.9	11.4 - 4.1	17.4 - 6.2
55	5°28.8	5°29.6	5°13.8	5.5 - 2.0	11.5 - 4.1	17.5 - 6.3
56	5°29.0	5°29.9	5°14.0	5.6 - 2.0	11.6 - 4.2	17.6 - 6.3
57	5°29.2	5°30.1	5°14.3	5.7 - 2.0	11.7 - 4.2	17.7 - 6.3
58	5°29.5	5°30.4	5°14.5	5.8 - 2.1	11.8 - 4.2	17.8 - 6.4
59	5°29.8	5°30.7	5°14.7	5.9 - 2.1	11.9 - 4.3	17.9 - 6.4

m 22	Sun Plan.	Aries	Moon	v and d corr		
0	5°30.0	5°30.9	5°15.0	0.0 - 0.0	6.0 - 2.3	12.0 - 4.5
1	5°30.2	5°31.2	5°15.2	0.1 - 0.0	6.1 - 2.3	12.1 - 4.5
2	5°30.5	5°31.4	5°15.4	0.2 - 0.1	6.2 - 2.3	12.2 - 4.6
3	5°30.8	5°31.7	5°15.7	0.3 - 0.1	6.3 - 2.4	12.3 - 4.6
4	5°31.0	5°31.9	5°15.9	0.4 - 0.2	6.4 - 2.4	12.4 - 4.7
5	5°31.2	5°32.2	5°16.2	0.5 - 0.2	6.5 - 2.4	12.5 - 4.7
6	5°31.5	5°32.4	5°16.4	0.6 - 0.2	6.6 - 2.5	12.6 - 4.7
7	5°31.8	5°32.7	5°16.6	0.7 - 0.3	6.7 - 2.5	12.7 - 4.8
8	5°32.0	5°32.9	5°16.9	0.8 - 0.3	6.8 - 2.5	12.8 - 4.8
9	5°32.2	5°33.2	5°17.1	0.9 - 0.3	6.9 - 2.6	12.9 - 4.8
10	5°32.5	5°33.4	5°17.4	1.0 - 0.4	7.0 - 2.6	13.0 - 4.9
11	5°32.8	5°33.7	5°17.6	1.1 - 0.4	7.1 - 2.7	13.1 - 4.9
12	5°33.0	5°33.9	5°17.8	1.2 - 0.5	7.2 - 2.7	13.2 - 4.9
13	5°33.2	5°34.2	5°18.1	1.3 - 0.5	7.3 - 2.7	13.3 - 5.0
14	5°33.5	5°34.4	5°18.3	1.4 - 0.5	7.4 - 2.8	13.4 - 5.0
15	5°33.8	5°34.7	5°18.5	1.5 - 0.6	7.5 - 2.8	13.5 - 5.1
16	5°34.0	5°34.9	5°18.8	1.6 - 0.6	7.6 - 2.8	13.6 - 5.1
17	5°34.3	5°35.2	5°19.0	1.7 - 0.6	7.7 - 2.9	13.7 - 5.1
18	5°34.5	5°35.4	5°19.3	1.8 - 0.7	7.8 - 2.9	13.8 - 5.2
19	5°34.8	5°35.7	5°19.5	1.9 - 0.7	7.9 - 3.0	13.9 - 5.2
20	5°35.0	5°35.9	5°19.7	2.0 - 0.8	8.0 - 3.0	14.0 - 5.3
21	5°35.3	5°36.2	5°20.0	2.1 - 0.8	8.1 - 3.0	14.1 - 5.3
22	5°35.5	5°36.4	5°20.2	2.2 - 0.8	8.2 - 3.1	14.2 - 5.3
23	5°35.7	5°36.7	5°20.5	2.3 - 0.9	8.3 - 3.1	14.3 - 5.4
24	5°36.0	5°36.9	5°20.7	2.4 - 0.9	8.4 - 3.2	14.4 - 5.4
25	5°36.3	5°37.2	5°20.9	2.5 - 0.9	8.5 - 3.2	14.5 - 5.4
26	5°36.5	5°37.4	5°21.2	2.6 - 1.0	8.6 - 3.2	14.6 - 5.5
27	5°36.7	5°37.7	5°21.4	2.7 - 1.0	8.7 - 3.3	14.7 - 5.5
28	5°37.0	5°37.9	5°21.6	2.8 - 1.1	8.8 - 3.3	14.8 - 5.6
29	5°37.3	5°38.2	5°21.9	2.9 - 1.1	8.9 - 3.3	14.9 - 5.6
30	5°37.5	5°38.4	5°22.1	3.0 - 1.1	9.0 - 3.4	15.0 - 5.6
31	5°37.7	5°38.7	5°22.4	3.1 - 1.2	9.1 - 3.4	15.1 - 5.7
32	5°38.0	5°38.9	5°22.6	3.2 - 1.2	9.2 - 3.4	15.2 - 5.7
33	5°38.3	5°39.2	5°22.8	3.3 - 1.2	9.3 - 3.5	15.3 - 5.7
34	5°38.5	5°39.4	5°23.1	3.4 - 1.3	9.4 - 3.5	15.4 - 5.8
35	5°38.7	5°39.7	5°23.3	3.5 - 1.3	9.5 - 3.6	15.5 - 5.8
36	5°39.0	5°39.9	5°23.6	3.6 - 1.4	9.6 - 3.6	15.6 - 5.8
37	5°39.3	5°40.2	5°23.8	3.7 - 1.4	9.7 - 3.6	15.7 - 5.9
38	5°39.5	5°40.4	5°24.0	3.8 - 1.4	9.8 - 3.7	15.8 - 5.9
39	5°39.7	5°40.7	5°24.3	3.9 - 1.5	9.9 - 3.7	15.9 - 6.0
40	5°40.0	5°40.9	5°24.5	4.0 - 1.5	10.0 - 3.8	16.0 - 6.0
41	5°40.3	5°41.2	5°24.7	4.1 - 1.5	10.1 - 3.8	16.1 - 6.0
42	5°40.5	5°41.4	5°25.0	4.2 - 1.6	10.2 - 3.8	16.2 - 6.1
43	5°40.7	5°41.7	5°25.2	4.3 - 1.6	10.3 - 3.9	16.3 - 6.1
44	5°41.0	5°41.9	5°25.5	4.4 - 1.7	10.4 - 3.9	16.4 - 6.1
45	5°41.3	5°42.2	5°25.7	4.5 - 1.7	10.5 - 3.9	16.5 - 6.2
46	5°41.5	5°42.4	5°25.9	4.6 - 1.7	10.6 - 4.0	16.6 - 6.2
47	5°41.8	5°42.7	5°26.2	4.7 - 1.8	10.7 - 4.0	16.7 - 6.3
48	5°42.0	5°42.9	5°26.4	4.8 - 1.8	10.8 - 4.1	16.8 - 6.3
49	5°42.3	5°43.2	5°26.7	4.9 - 1.8	10.9 - 4.1	16.9 - 6.3
50	5°42.5	5°43.4	5°26.9	5.0 - 1.9	11.0 - 4.1	17.0 - 6.4
51	5°42.8	5°43.7	5°27.1	5.1 - 1.9	11.1 - 4.2	17.1 - 6.4
52	5°43.0	5°43.9	5°27.4	5.2 - 2.0	11.2 - 4.2	17.2 - 6.4
53	5°43.2	5°44.2	5°27.6	5.3 - 2.0	11.3 - 4.2	17.3 - 6.5
54	5°43.5	5°44.4	5°27.9	5.4 - 2.0	11.4 - 4.3	17.4 - 6.5
55	5°43.8	5°44.7	5°28.1	5.5 - 2.1	11.5 - 4.3	17.5 - 6.6
56	5°44.0	5°44.9	5°28.3	5.6 - 2.1	11.6 - 4.4	17.6 - 6.6
57	5°44.2	5°45.2	5°28.6	5.7 - 2.1	11.7 - 4.4	17.7 - 6.6
58	5°44.5	5°45.4	5°28.8	5.8 - 2.2	11.8 - 4.4	17.8 - 6.7
59	5°44.8	5°45.7	5°29.0	5.9 - 2.2	11.9 - 4.5	17.9 - 6.7

m	Sun Plan.	Aries	Moon	v and d corr		
23						
0	5°45.0	5°45.9	5°29.3	0.0 - 0.0	6.0 - 2.4	12.0 - 4.7
1	5°45.2	5°46.2	5°29.5	0.1 - 0.0	6.1 - 2.4	12.1 - 4.7
2	5°45.5	5°46.4	5°29.8	0.2 - 0.1	6.2 - 2.4	12.2 - 4.8
3	5°45.8	5°46.7	5°30.0	0.3 - 0.1	6.3 - 2.5	12.3 - 4.8
4	5°46.0	5°46.9	5°30.2	0.4 - 0.2	6.4 - 2.5	12.4 - 4.9
5	5°46.2	5°47.2	5°30.5	0.5 - 0.2	6.5 - 2.5	12.5 - 4.9
6	5°46.5	5°47.4	5°30.7	0.6 - 0.2	6.6 - 2.6	12.6 - 4.9
7	5°46.8	5°47.7	5°31.0	0.7 - 0.3	6.7 - 2.6	12.7 - 5.0
8	5°47.0	5°47.9	5°31.2	0.8 - 0.3	6.8 - 2.7	12.8 - 5.0
9	5°47.2	5°48.2	5°31.4	0.9 - 0.4	6.9 - 2.7	12.9 - 5.1
10	5°47.5	5°48.4	5°31.7	1.0 - 0.4	7.0 - 2.7	13.0 - 5.1
11	5°47.8	5°48.7	5°31.9	1.1 - 0.4	7.1 - 2.8	13.1 - 5.1
12	5°48.0	5°49.0	5°32.1	1.2 - 0.5	7.2 - 2.8	13.2 - 5.2
13	5°48.2	5°49.2	5°32.4	1.3 - 0.5	7.3 - 2.9	13.3 - 5.2
14	5°48.5	5°49.5	5°32.6	1.4 - 0.5	7.4 - 2.9	13.4 - 5.2
15	5°48.8	5°49.7	5°32.9	1.5 - 0.6	7.5 - 2.9	13.5 - 5.3
16	5°49.0	5°50.0	5°33.1	1.6 - 0.6	7.6 - 3.0	13.6 - 5.3
17	5°49.3	5°50.2	5°33.3	1.7 - 0.7	7.7 - 3.0	13.7 - 5.4
18	5°49.5	5°50.5	5°33.6	1.8 - 0.7	7.8 - 3.1	13.8 - 5.4
19	5°49.8	5°50.7	5°33.8	1.9 - 0.7	7.9 - 3.1	13.9 - 5.4
20	5°50.0	5°51.0	5°34.1	2.0 - 0.8	8.0 - 3.1	14.0 - 5.5
21	5°50.3	5°51.2	5°34.3	2.1 - 0.8	8.1 - 3.2	14.1 - 5.5
22	5°50.5	5°51.5	5°34.5	2.2 - 0.9	8.2 - 3.2	14.2 - 5.6
23	5°50.7	5°51.7	5°34.8	2.3 - 0.9	8.3 - 3.3	14.3 - 5.6
24	5°51.0	5°52.0	5°35.0	2.4 - 0.9	8.4 - 3.3	14.4 - 5.6
25	5°51.3	5°52.2	5°35.2	2.5 - 1.0	8.5 - 3.3	14.5 - 5.7
26	5°51.5	5°52.5	5°35.5	2.6 - 1.0	8.6 - 3.4	14.6 - 5.7
27	5°51.7	5°52.7	5°35.7	2.7 - 1.1	8.7 - 3.4	14.7 - 5.8
28	5°52.0	5°53.0	5°36.0	2.8 - 1.1	8.8 - 3.4	14.8 - 5.8
29	5°52.3	5°53.2	5°36.2	2.9 - 1.1	8.9 - 3.5	14.9 - 5.8
30	5°52.5	5°53.5	5°36.4	3.0 - 1.2	9.0 - 3.5	15.0 - 5.9
31	5°52.7	5°53.7	5°36.7	3.1 - 1.2	9.1 - 3.6	15.1 - 5.9
32	5°53.0	5°54.0	5°36.9	3.2 - 1.3	9.2 - 3.6	15.2 - 6.0
33	5°53.3	5°54.2	5°37.2	3.3 - 1.3	9.3 - 3.6	15.3 - 6.0
34	5°53.5	5°54.5	5°37.4	3.4 - 1.3	9.4 - 3.7	15.4 - 6.0
35	5°53.7	5°54.7	5°37.6	3.5 - 1.4	9.5 - 3.7	15.5 - 6.1
36	5°54.0	5°55.0	5°37.9	3.6 - 1.4	9.6 - 3.8	15.6 - 6.1
37	5°54.3	5°55.2	5°38.1	3.7 - 1.4	9.7 - 3.8	15.7 - 6.1
38	5°54.5	5°55.5	5°38.4	3.8 - 1.5	9.8 - 3.8	15.8 - 6.2
39	5°54.7	5°55.7	5°38.6	3.9 - 1.5	9.9 - 3.9	15.9 - 6.2
40	5°55.0	5°56.0	5°38.8	4.0 - 1.6	10.0 - 3.9	16.0 - 6.3
41	5°55.3	5°56.2	5°39.1	4.1 - 1.6	10.1 - 4.0	16.1 - 6.3
42	5°55.5	5°56.5	5°39.3	4.2 - 1.6	10.2 - 4.0	16.2 - 6.3
43	5°55.7	5°56.7	5°39.5	4.3 - 1.7	10.3 - 4.0	16.3 - 6.4
44	5°56.0	5°57.0	5°39.8	4.4 - 1.7	10.4 - 4.1	16.4 - 6.4
45	5°56.3	5°57.2	5°40.0	4.5 - 1.8	10.5 - 4.1	16.5 - 6.5
46	5°56.5	5°57.5	5°40.3	4.6 - 1.8	10.6 - 4.2	16.6 - 6.5
47	5°56.8	5°57.7	5°40.5	4.7 - 1.8	10.7 - 4.2	16.7 - 6.5
48	5°57.0	5°58.0	5°40.7	4.8 - 1.9	10.8 - 4.2	16.8 - 6.6
49	5°57.3	5°58.2	5°41.0	4.9 - 1.9	10.9 - 4.3	16.9 - 6.6
50	5°57.5	5°58.5	5°41.2	5.0 - 2.0	11.0 - 4.3	17.0 - 6.7
51	5°57.8	5°58.7	5°41.5	5.1 - 2.0	11.1 - 4.3	17.1 - 6.7
52	5°58.0	5°59.0	5°41.7	5.2 - 2.0	11.2 - 4.4	17.2 - 6.7
53	5°58.2	5°59.2	5°41.9	5.3 - 2.1	11.3 - 4.4	17.3 - 6.8
54	5°58.5	5°59.5	5°42.2	5.4 - 2.1	11.4 - 4.5	17.4 - 6.8
55	5°58.8	5°59.7	5°42.4	5.5 - 2.2	11.5 - 4.5	17.5 - 6.9
56	5°59.0	6°00.0	5°42.6	5.6 - 2.2	11.6 - 4.5	17.6 - 6.9
57	5°59.2	6°00.2	5°42.9	5.7 - 2.2	11.7 - 4.6	17.7 - 6.9
58	5°59.5	6°00.5	5°43.1	5.8 - 2.3	11.8 - 4.6	17.8 - 7.0
59	5°59.8	6°00.7	5°43.4	5.9 - 2.3	11.9 - 4.7	17.9 - 7.0

Increments and Corrections

m 24	Sun Plan.	Aries	Moon	v and d corr		
0	6°00.0	6°01.0	5°43.6	0.0 - 0.0	6.0 - 2.5	12.0 - 4.9
1	6°00.2	6°01.2	5°43.8	0.1 - 0.0	6.1 - 2.5	12.1 - 4.9
2	6°00.5	6°01.5	5°44.1	0.2 - 0.1	6.2 - 2.5	12.2 - 5.0
3	6°00.8	6°01.7	5°44.3	0.3 - 0.1	6.3 - 2.6	12.3 - 5.0
4	6°01.0	6°02.0	5°44.6	0.4 - 0.2	6.4 - 2.6	12.4 - 5.1
5	6°01.2	6°02.2	5°44.8	0.5 - 0.2	6.5 - 2.7	12.5 - 5.1
6	6°01.5	6°02.5	5°45.0	0.6 - 0.2	6.6 - 2.7	12.6 - 5.1
7	6°01.8	6°02.7	5°45.3	0.7 - 0.3	6.7 - 2.7	12.7 - 5.2
8	6°02.0	6°03.0	5°45.5	0.8 - 0.3	6.8 - 2.8	12.8 - 5.2
9	6°02.2	6°03.2	5°45.7	0.9 - 0.4	6.9 - 2.8	12.9 - 5.3
10	6°02.5	6°03.5	5°46.0	1.0 - 0.4	7.0 - 2.9	13.0 - 5.3
11	6°02.8	6°03.7	5°46.2	1.1 - 0.4	7.1 - 2.9	13.1 - 5.3
12	6°03.0	6°04.0	5°46.5	1.2 - 0.5	7.2 - 2.9	13.2 - 5.4
13	6°03.2	6°04.2	5°46.7	1.3 - 0.5	7.3 - 3.0	13.3 - 5.4
14	6°03.5	6°04.5	5°46.9	1.4 - 0.6	7.4 - 3.0	13.4 - 5.5
15	6°03.8	6°04.7	5°47.2	1.5 - 0.6	7.5 - 3.1	13.5 - 5.5
16	6°04.0	6°05.0	5°47.4	1.6 - 0.7	7.6 - 3.1	13.6 - 5.6
17	6°04.3	6°05.2	5°47.7	1.7 - 0.7	7.7 - 3.1	13.7 - 5.6
18	6°04.5	6°05.5	5°47.9	1.8 - 0.7	7.8 - 3.2	13.8 - 5.6
19	6°04.7	6°05.7	5°48.1	1.9 - 0.8	7.9 - 3.2	13.9 - 5.7
20	6°05.0	6°06.0	5°48.4	2.0 - 0.8	8.0 - 3.3	14.0 - 5.7
21	6°05.3	6°06.2	5°48.6	2.1 - 0.9	8.1 - 3.3	14.1 - 5.8
22	6°05.5	6°06.5	5°48.8	2.2 - 0.9	8.2 - 3.3	14.2 - 5.8
23	6°05.7	6°06.7	5°49.1	2.3 - 0.9	8.3 - 3.4	14.3 - 5.8
24	6°06.0	6°07.0	5°49.3	2.4 - 1.0	8.4 - 3.4	14.4 - 5.9
25	6°06.3	6°07.3	5°49.6	2.5 - 1.0	8.5 - 3.5	14.5 - 5.9
26	6°06.5	6°07.5	5°49.8	2.6 - 1.1	8.6 - 3.5	14.6 - 6.0
27	6°06.7	6°07.8	5°50.0	2.7 - 1.1	8.7 - 3.6	14.7 - 6.0
28	6°07.0	6°08.0	5°50.3	2.8 - 1.1	8.8 - 3.6	14.8 - 6.0
29	6°07.3	6°08.3	5°50.5	2.9 - 1.2	8.9 - 3.6	14.9 - 6.1
30	6°07.5	6°08.5	5°50.8	3.0 - 1.2	9.0 - 3.7	15.0 - 6.1
31	6°07.7	6°08.8	5°51.0	3.1 - 1.3	9.1 - 3.7	15.1 - 6.2
32	6°08.0	6°09.0	5°51.2	3.2 - 1.3	9.2 - 3.8	15.2 - 6.2
33	6°08.3	6°09.3	5°51.5	3.3 - 1.3	9.3 - 3.8	15.3 - 6.2
34	6°08.5	6°09.5	5°51.7	3.4 - 1.4	9.4 - 3.8	15.4 - 6.3
35	6°08.7	6°09.8	5°52.0	3.5 - 1.4	9.5 - 3.9	15.5 - 6.3
36	6°09.0	6°10.0	5°52.2	3.6 - 1.5	9.6 - 3.9	15.6 - 6.4
37	6°09.3	6°10.3	5°52.4	3.7 - 1.5	9.7 - 4.0	15.7 - 6.4
38	6°09.5	6°10.5	5°52.7	3.8 - 1.6	9.8 - 4.0	15.8 - 6.5
39	6°09.7	6°10.8	5°52.9	3.9 - 1.6	9.9 - 4.0	15.9 - 6.5
40	6°10.0	6°11.0	5°53.1	4.0 - 1.6	10.0 - 4.1	16.0 - 6.5
41	6°10.3	6°11.3	5°53.4	4.1 - 1.7	10.1 - 4.1	16.1 - 6.6
42	6°10.5	6°11.5	5°53.6	4.2 - 1.7	10.2 - 4.2	16.2 - 6.6
43	6°10.7	6°11.8	5°53.9	4.3 - 1.8	10.3 - 4.2	16.3 - 6.7
44	6°11.0	6°12.0	5°54.1	4.4 - 1.8	10.4 - 4.2	16.4 - 6.7
45	6°11.3	6°12.3	5°54.3	4.5 - 1.8	10.5 - 4.3	16.5 - 6.7
46	6°11.5	6°12.5	5°54.6	4.6 - 1.9	10.6 - 4.3	16.6 - 6.8
47	6°11.8	6°12.8	5°54.8	4.7 - 1.9	10.7 - 4.4	16.7 - 6.8
48	6°12.0	6°13.0	5°55.1	4.8 - 2.0	10.8 - 4.4	16.8 - 6.9
49	6°12.2	6°13.3	5°55.3	4.9 - 2.0	10.9 - 4.5	16.9 - 6.9
50	6°12.5	6°13.5	5°55.5	5.0 - 2.0	11.0 - 4.5	17.0 - 6.9
51	6°12.8	6°13.8	5°55.8	5.1 - 2.1	11.1 - 4.5	17.1 - 7.0
52	6°13.0	6°14.0	5°56.0	5.2 - 2.1	11.2 - 4.6	17.2 - 7.0
53	6°13.2	6°14.3	5°56.2	5.3 - 2.2	11.3 - 4.6	17.3 - 7.1
54	6°13.5	6°14.5	5°56.5	5.4 - 2.2	11.4 - 4.7	17.4 - 7.1
55	6°13.8	6°14.8	5°56.7	5.5 - 2.2	11.5 - 4.7	17.5 - 7.1
56	6°14.0	6°15.0	5°57.0	5.6 - 2.3	11.6 - 4.7	17.6 - 7.2
57	6°14.2	6°15.3	5°57.2	5.7 - 2.3	11.7 - 4.8	17.7 - 7.2
58	6°14.5	6°15.5	5°57.4	5.8 - 2.4	11.8 - 4.8	17.8 - 7.3
59	6°14.8	6°15.8	5°57.7	5.9 - 2.4	11.9 - 4.9	17.9 - 7.3

m 25	Sun Plan.	Aries	Moon	v and d corr		
0	6°15.0	6°16.0	5°57.9	0.0 - 0.0	6.0 - 2.5	12.0 - 5.1
1	6°15.2	6°16.3	5°58.2	0.1 - 0.0	6.1 - 2.6	12.1 - 5.1
2	6°15.5	6°16.5	5°58.4	0.2 - 0.1	6.2 - 2.6	12.2 - 5.2
3	6°15.8	6°16.8	5°58.6	0.3 - 0.1	6.3 - 2.7	12.3 - 5.2
4	6°16.0	6°17.0	5°58.9	0.4 - 0.2	6.4 - 2.7	12.4 - 5.3
5	6°16.2	6°17.3	5°59.1	0.5 - 0.2	6.5 - 2.8	12.5 - 5.3
6	6°16.5	6°17.5	5°59.3	0.6 - 0.3	6.6 - 2.8	12.6 - 5.4
7	6°16.8	6°17.8	5°59.6	0.7 - 0.3	6.7 - 2.8	12.7 - 5.4
8	6°17.0	6°18.0	5°59.8	0.8 - 0.3	6.8 - 2.9	12.8 - 5.4
9	6°17.2	6°18.3	6°00.1	0.9 - 0.4	6.9 - 2.9	12.9 - 5.5
10	6°17.5	6°18.5	6°00.3	1.0 - 0.4	7.0 - 3.0	13.0 - 5.5
11	6°17.8	6°18.8	6°00.5	1.1 - 0.5	7.1 - 3.0	13.1 - 5.6
12	6°18.0	6°19.0	6°00.8	1.2 - 0.5	7.2 - 3.1	13.2 - 5.6
13	6°18.2	6°19.3	6°01.0	1.3 - 0.6	7.3 - 3.1	13.3 - 5.7
14	6°18.5	6°19.5	6°01.3	1.4 - 0.6	7.4 - 3.1	13.4 - 5.7
15	6°18.8	6°19.8	6°01.5	1.5 - 0.6	7.5 - 3.2	13.5 - 5.7
16	6°19.0	6°20.0	6°01.7	1.6 - 0.7	7.6 - 3.2	13.6 - 5.8
17	6°19.3	6°20.3	6°02.0	1.7 - 0.7	7.7 - 3.3	13.7 - 5.8
18	6°19.5	6°20.5	6°02.2	1.8 - 0.8	7.8 - 3.3	13.8 - 5.9
19	6°19.7	6°20.8	6°02.5	1.9 - 0.8	7.9 - 3.4	13.9 - 5.9
20	6°20.0	6°21.0	6°02.7	2.0 - 0.8	8.0 - 3.4	14.0 - 6.0
21	6°20.3	6°21.3	6°02.9	2.1 - 0.9	8.1 - 3.4	14.1 - 6.0
22	6°20.5	6°21.5	6°03.2	2.2 - 0.9	8.2 - 3.5	14.2 - 6.0
23	6°20.7	6°21.8	6°03.4	2.3 - 1.0	8.3 - 3.5	14.3 - 6.1
24	6°21.0	6°22.0	6°03.6	2.4 - 1.0	8.4 - 3.6	14.4 - 6.1
25	6°21.3	6°22.3	6°03.9	2.5 - 1.1	8.5 - 3.6	14.5 - 6.2
26	6°21.5	6°22.5	6°04.1	2.6 - 1.1	8.6 - 3.7	14.6 - 6.2
27	6°21.7	6°22.8	6°04.4	2.7 - 1.1	8.7 - 3.7	14.7 - 6.2
28	6°22.0	6°23.0	6°04.6	2.8 - 1.2	8.8 - 3.7	14.8 - 6.3
29	6°22.3	6°23.3	6°04.8	2.9 - 1.2	8.9 - 3.8	14.9 - 6.3
30	6°22.5	6°23.5	6°05.1	3.0 - 1.3	9.0 - 3.8	15.0 - 6.4
31	6°22.7	6°23.8	6°05.3	3.1 - 1.3	9.1 - 3.9	15.1 - 6.4
32	6°23.0	6°24.0	6°05.6	3.2 - 1.4	9.2 - 3.9	15.2 - 6.5
33	6°23.3	6°24.3	6°05.8	3.3 - 1.4	9.3 - 4.0	15.3 - 6.5
34	6°23.5	6°24.5	6°06.0	3.4 - 1.4	9.4 - 4.0	15.4 - 6.5
35	6°23.7	6°24.8	6°06.3	3.5 - 1.5	9.5 - 4.0	15.5 - 6.6
36	6°24.0	6°25.0	6°06.5	3.6 - 1.5	9.6 - 4.1	15.6 - 6.6
37	6°24.3	6°25.3	6°06.7	3.7 - 1.6	9.7 - 4.1	15.7 - 6.7
38	6°24.5	6°25.6	6°07.0	3.8 - 1.6	9.8 - 4.2	15.8 - 6.7
39	6°24.7	6°25.8	6°07.2	3.9 - 1.7	9.9 - 4.2	15.9 - 6.8
40	6°25.0	6°26.1	6°07.5	4.0 - 1.7	10.0 - 4.3	16.0 - 6.8
41	6°25.3	6°26.3	6°07.7	4.1 - 1.7	10.1 - 4.3	16.1 - 6.8
42	6°25.5	6°26.6	6°07.9	4.2 - 1.8	10.2 - 4.3	16.2 - 6.9
43	6°25.7	6°26.8	6°08.2	4.3 - 1.8	10.3 - 4.4	16.3 - 6.9
44	6°26.0	6°27.1	6°08.4	4.4 - 1.9	10.4 - 4.4	16.4 - 7.0
45	6°26.3	6°27.3	6°08.7	4.5 - 1.9	10.5 - 4.5	16.5 - 7.0
46	6°26.5	6°27.6	6°08.9	4.6 - 2.0	10.6 - 4.5	16.6 - 7.1
47	6°26.8	6°27.8	6°09.1	4.7 - 2.0	10.7 - 4.5	16.7 - 7.1
48	6°27.0	6°28.1	6°09.4	4.8 - 2.0	10.8 - 4.6	16.8 - 7.1
49	6°27.2	6°28.3	6°09.6	4.9 - 2.1	10.9 - 4.6	16.9 - 7.2
50	6°27.5	6°28.6	6°09.8	5.0 - 2.1	11.0 - 4.7	17.0 - 7.2
51	6°27.8	6°28.8	6°10.1	5.1 - 2.2	11.1 - 4.7	17.1 - 7.3
52	6°28.0	6°29.1	6°10.3	5.2 - 2.2	11.2 - 4.8	17.2 - 7.3
53	6°28.2	6°29.3	6°10.6	5.3 - 2.3	11.3 - 4.8	17.3 - 7.4
54	6°28.5	6°29.6	6°10.8	5.4 - 2.3	11.4 - 4.8	17.4 - 7.4
55	6°28.8	6°29.8	6°11.0	5.5 - 2.3	11.5 - 4.9	17.5 - 7.4
56	6°29.0	6°30.1	6°11.3	5.6 - 2.4	11.6 - 4.9	17.6 - 7.5
57	6°29.2	6°30.3	6°11.5	5.7 - 2.4	11.7 - 5.0	17.7 - 7.5
58	6°29.5	6°30.6	6°11.8	5.8 - 2.5	11.8 - 5.0	17.8 - 7.6
59	6°29.8	6°30.8	6°12.0	5.9 - 2.5	11.9 - 5.1	17.9 - 7.6

m	Sun Plan.	Aries	Moon	v and d corr		
26						
0	6°30.0	6°31.1	6°12.2	0.0 - 0.0	6.0 - 2.6	12.0 - 5.3
1	6°30.2	6°31.3	6°12.5	0.1 - 0.0	6.1 - 2.7	12.1 - 5.3
2	6°30.5	6°31.6	6°12.7	0.2 - 0.1	6.2 - 2.7	12.2 - 5.4
3	6°30.8	6°31.8	6°12.9	0.3 - 0.1	6.3 - 2.8	12.3 - 5.4
4	6°31.0	6°32.1	6°13.2	0.4 - 0.2	6.4 - 2.8	12.4 - 5.5
5	6°31.2	6°32.3	6°13.4	0.5 - 0.2	6.5 - 2.9	12.5 - 5.5
6	6°31.5	6°32.6	6°13.7	0.6 - 0.3	6.6 - 2.9	12.6 - 5.6
7	6°31.8	6°32.8	6°13.9	0.7 - 0.3	6.7 - 3.0	12.7 - 5.6
8	6°32.0	6°33.1	6°14.1	0.8 - 0.4	6.8 - 3.0	12.8 - 5.7
9	6°32.2	6°33.3	6°14.4	0.9 - 0.4	6.9 - 3.0	12.9 - 5.7
10	6°32.5	6°33.6	6°14.6	1.0 - 0.4	7.0 - 3.1	13.0 - 5.7
11	6°32.8	6°33.8	6°14.9	1.1 - 0.5	7.1 - 3.1	13.1 - 5.8
12	6°33.0	6°34.1	6°15.1	1.2 - 0.5	7.2 - 3.2	13.2 - 5.8
13	6°33.2	6°34.3	6°15.3	1.3 - 0.6	7.3 - 3.2	13.3 - 5.9
14	6°33.5	6°34.6	6°15.6	1.4 - 0.6	7.4 - 3.3	13.4 - 5.9
15	6°33.8	6°34.8	6°15.8	1.5 - 0.7	7.5 - 3.3	13.5 - 6.0
16	6°34.0	6°35.1	6°16.1	1.6 - 0.7	7.6 - 3.4	13.6 - 6.0
17	6°34.3	6°35.3	6°16.3	1.7 - 0.8	7.7 - 3.4	13.7 - 6.1
18	6°34.5	6°35.6	6°16.5	1.8 - 0.8	7.8 - 3.4	13.8 - 6.1
19	6°34.8	6°35.8	6°16.8	1.9 - 0.8	7.9 - 3.5	13.9 - 6.1
20	6°35.0	6°36.1	6°17.0	2.0 - 0.9	8.0 - 3.5	14.0 - 6.2
21	6°35.3	6°36.3	6°17.2	2.1 - 0.9	8.1 - 3.6	14.1 - 6.2
22	6°35.5	6°36.6	6°17.5	2.2 - 1.0	8.2 - 3.6	14.2 - 6.3
23	6°35.7	6°36.8	6°17.7	2.3 - 1.0	8.3 - 3.7	14.3 - 6.3
24	6°36.0	6°37.1	6°18.0	2.4 - 1.1	8.4 - 3.7	14.4 - 6.4
25	6°36.3	6°37.3	6°18.2	2.5 - 1.1	8.5 - 3.8	14.5 - 6.4
26	6°36.5	6°37.6	6°18.4	2.6 - 1.1	8.6 - 3.8	14.6 - 6.4
27	6°36.7	6°37.8	6°18.7	2.7 - 1.2	8.7 - 3.8	14.7 - 6.5
28	6°37.0	6°38.1	6°18.9	2.8 - 1.2	8.8 - 3.9	14.8 - 6.5
29	6°37.3	6°38.3	6°19.2	2.9 - 1.3	8.9 - 3.9	14.9 - 6.6
30	6°37.5	6°38.6	6°19.4	3.0 - 1.3	9.0 - 4.0	15.0 - 6.6
31	6°37.7	6°38.8	6°19.6	3.1 - 1.4	9.1 - 4.0	15.1 - 6.7
32	6°38.0	6°39.1	6°19.9	3.2 - 1.4	9.2 - 4.1	15.2 - 6.7
33	6°38.3	6°39.3	6°20.1	3.3 - 1.5	9.3 - 4.1	15.3 - 6.8
34	6°38.5	6°39.6	6°20.3	3.4 - 1.5	9.4 - 4.2	15.4 - 6.8
35	6°38.7	6°39.8	6°20.6	3.5 - 1.5	9.5 - 4.2	15.5 - 6.8
36	6°39.0	6°40.1	6°20.8	3.6 - 1.6	9.6 - 4.2	15.6 - 6.9
37	6°39.3	6°40.3	6°21.1	3.7 - 1.6	9.7 - 4.3	15.7 - 6.9
38	6°39.5	6°40.6	6°21.3	3.8 - 1.7	9.8 - 4.3	15.8 - 7.0
39	6°39.7	6°40.8	6°21.5	3.9 - 1.7	9.9 - 4.4	15.9 - 7.0
40	6°40.0	6°41.1	6°21.8	4.0 - 1.8	10.0 - 4.4	16.0 - 7.1
41	6°40.3	6°41.3	6°22.0	4.1 - 1.8	10.1 - 4.5	16.1 - 7.1
42	6°40.5	6°41.6	6°22.3	4.2 - 1.9	10.2 - 4.5	16.2 - 7.2
43	6°40.7	6°41.8	6°22.5	4.3 - 1.9	10.3 - 4.5	16.3 - 7.2
44	6°41.0	6°42.1	6°22.7	4.4 - 1.9	10.4 - 4.6	16.4 - 7.2
45	6°41.3	6°42.3	6°23.0	4.5 - 2.0	10.5 - 4.6	16.5 - 7.3
46	6°41.5	6°42.6	6°23.2	4.6 - 2.0	10.6 - 4.7	16.6 - 7.3
47	6°41.8	6°42.8	6°23.4	4.7 - 2.1	10.7 - 4.7	16.7 - 7.4
48	6°42.0	6°43.1	6°23.7	4.8 - 2.1	10.8 - 4.8	16.8 - 7.4
49	6°42.3	6°43.3	6°23.9	4.9 - 2.2	10.9 - 4.8	16.9 - 7.5
50	6°42.5	6°43.6	6°24.2	5.0 - 2.2	11.0 - 4.9	17.0 - 7.5
51	6°42.8	6°43.9	6°24.4	5.1 - 2.3	11.1 - 4.9	17.1 - 7.6
52	6°43.0	6°44.1	6°24.6	5.2 - 2.3	11.2 - 4.9	17.2 - 7.6
53	6°43.2	6°44.4	6°24.9	5.3 - 2.3	11.3 - 5.0	17.3 - 7.6
54	6°43.5	6°44.6	6°25.1	5.4 - 2.4	11.4 - 5.0	17.4 - 7.7
55	6°43.8	6°44.9	6°25.4	5.5 - 2.4	11.5 - 5.1	17.5 - 7.7
56	6°44.0	6°45.1	6°25.6	5.6 - 2.5	11.6 - 5.1	17.6 - 7.8
57	6°44.2	6°45.4	6°25.8	5.7 - 2.5	11.7 - 5.2	17.7 - 7.8
58	6°44.5	6°45.6	6°26.1	5.8 - 2.6	11.8 - 5.2	17.8 - 7.9
59	6°44.8	6°45.9	6°26.3	5.9 - 2.6	11.9 - 5.3	17.9 - 7.9

Increments and Corrections

m 27	Sun Plan.	Aries	Moon	v and d corr			m 28	Sun Plan.	Aries	Moon	v and d corr			m 29	Sun Plan.	Aries	Moon	v and d corr		
0	6°45.0	6°46.1	6°26.5	0.0 - 0.0	6.0 - 2.8	12.0 - 5.5	0	7°00.0	7°01.1	6°40.9	0.0 - 0.0	6.0 - 2.8	12.0 - 5.7	0	7°15.0	7°16.2	6°55.2	0.0 - 0.0	6.0 - 2.9	12.0 - 5.9
1	6°45.2	6°46.4	6°26.8	0.1 - 0.0	6.1 - 2.8	12.1 - 5.5	1	7°00.2	7°01.4	6°41.1	0.1 - 0.0	6.1 - 2.9	12.1 - 5.7	1	7°15.2	7°16.4	6°55.4	0.1 - 0.0	6.1 - 3.0	12.1 - 5.9
2	6°45.5	6°46.6	6°27.0	0.2 - 0.1	6.2 - 2.8	12.2 - 5.6	2	7°00.5	7°01.6	6°41.3	0.2 - 0.1	6.2 - 2.9	12.2 - 5.8	2	7°15.5	7°16.7	6°55.7	0.2 - 0.1	6.2 - 3.0	12.2 - 6.0
3	6°45.8	6°46.9	6°27.3	0.3 - 0.1	6.3 - 2.9	12.3 - 5.6	3	7°00.8	7°01.9	6°41.6	0.3 - 0.1	6.3 - 3.0	12.3 - 5.8	3	7°15.8	7°16.9	6°55.9	0.3 - 0.1	6.3 - 3.1	12.3 - 6.0
4	6°46.0	6°47.1	6°27.5	0.4 - 0.2	6.4 - 2.9	12.4 - 5.7	4	7°01.0	7°02.2	6°41.8	0.4 - 0.2	6.4 - 3.0	12.4 - 5.9	4	7°16.0	7°17.2	6°56.1	0.4 - 0.2	6.4 - 3.1	12.4 - 6.1
5	6°46.2	6°47.4	6°27.7	0.5 - 0.2	6.5 - 3.0	12.5 - 5.7	5	7°01.2	7°02.4	6°42.1	0.5 - 0.2	6.5 - 3.1	12.5 - 5.9	5	7°16.2	7°17.4	6°56.4	0.5 - 0.2	6.5 - 3.2	12.5 - 6.1
6	6°46.5	6°47.6	6°28.0	0.6 - 0.3	6.6 - 3.0	12.6 - 5.8	6	7°01.5	7°02.7	6°42.3	0.6 - 0.3	6.6 - 3.1	12.6 - 6.0	6	7°16.5	7°17.7	6°56.6	0.6 - 0.3	6.6 - 3.2	12.6 - 6.2
7	6°46.8	6°47.9	6°28.2	0.7 - 0.3	6.7 - 3.1	12.7 - 5.8	7	7°01.8	7°02.9	6°42.5	0.7 - 0.3	6.7 - 3.2	12.7 - 6.0	7	7°16.8	7°17.9	6°56.9	0.7 - 0.3	6.7 - 3.3	12.7 - 6.2
8	6°47.0	6°48.1	6°28.5	0.8 - 0.4	6.8 - 3.1	12.8 - 5.9	8	7°02.0	7°03.2	6°42.8	0.8 - 0.4	6.8 - 3.2	12.8 - 6.1	8	7°17.0	7°18.2	6°57.1	0.8 - 0.4	6.8 - 3.3	12.8 - 6.3
9	6°47.2	6°48.4	6°28.7	0.9 - 0.4	6.9 - 3.2	12.9 - 5.9	9	7°02.2	7°03.4	6°43.0	0.9 - 0.4	6.9 - 3.3	12.9 - 6.1	9	7°17.2	7°18.4	6°57.3	0.9 - 0.4	6.9 - 3.4	12.9 - 6.3
10	6°47.5	6°48.6	6°28.9	1.0 - 0.5	7.0 - 3.2	13.0 - 6.0	10	7°02.5	7°03.7	6°43.3	1.0 - 0.5	7.0 - 3.3	13.0 - 6.2	10	7°17.5	7°18.7	6°57.6	1.0 - 0.5	7.0 - 3.4	13.0 - 6.4
11	6°47.8	6°48.9	6°29.2	1.1 - 0.5	7.1 - 3.3	13.1 - 6.0	11	7°02.8	7°03.9	6°43.5	1.1 - 0.5	7.1 - 3.4	13.1 - 6.2	11	7°17.8	7°18.9	6°57.8	1.1 - 0.5	7.1 - 3.5	13.1 - 6.4
12	6°48.0	6°49.1	6°29.4	1.2 - 0.6	7.2 - 3.3	13.2 - 6.0	12	7°03.0	7°04.2	6°43.7	1.2 - 0.6	7.2 - 3.4	13.2 - 6.3	12	7°18.0	7°19.2	6°58.0	1.2 - 0.6	7.2 - 3.5	13.2 - 6.5
13	6°48.2	6°49.4	6°29.7	1.3 - 0.6	7.3 - 3.3	13.3 - 6.1	13	7°03.2	7°04.4	6°44.0	1.3 - 0.6	7.3 - 3.5	13.3 - 6.3	13	7°18.2	7°19.4	6°58.3	1.3 - 0.6	7.3 - 3.6	13.3 - 6.5
14	6°48.5	6°49.6	6°29.9	1.4 - 0.6	7.4 - 3.4	13.4 - 6.1	14	7°03.5	7°04.7	6°44.2	1.4 - 0.7	7.4 - 3.5	13.4 - 6.4	14	7°18.5	7°19.7	6°58.5	1.4 - 0.7	7.4 - 3.6	13.4 - 6.6
15	6°48.8	6°49.9	6°30.1	1.5 - 0.7	7.5 - 3.4	13.5 - 6.2	15	7°03.8	7°04.9	6°44.4	1.5 - 0.7	7.5 - 3.6	13.5 - 6.4	15	7°18.8	7°19.9	6°58.8	1.5 - 0.7	7.5 - 3.7	13.5 - 6.6
16	6°49.0	6°50.1	6°30.4	1.6 - 0.7	7.6 - 3.5	13.6 - 6.2	16	7°04.0	7°05.2	6°44.7	1.6 - 0.8	7.6 - 3.6	13.6 - 6.5	16	7°19.0	7°20.2	6°59.0	1.6 - 0.8	7.6 - 3.7	13.6 - 6.7
17	6°49.3	6°50.4	6°30.6	1.7 - 0.8	7.7 - 3.5	13.7 - 6.3	17	7°04.3	7°05.4	6°44.9	1.7 - 0.8	7.7 - 3.7	13.7 - 6.5	17	7°19.3	7°20.5	6°59.2	1.7 - 0.8	7.7 - 3.8	13.7 - 6.7
18	6°49.5	6°50.6	6°30.8	1.8 - 0.8	7.8 - 3.6	13.8 - 6.3	18	7°04.5	7°05.7	6°45.2	1.8 - 0.9	7.8 - 3.7	13.8 - 6.6	18	7°19.5	7°20.7	6°59.5	1.8 - 0.9	7.8 - 3.8	13.8 - 6.8
19	6°49.8	6°50.9	6°31.1	1.9 - 0.9	7.9 - 3.6	13.9 - 6.4	19	7°04.7	7°05.9	6°45.4	1.9 - 0.9	7.9 - 3.8	13.9 - 6.6	19	7°19.7	7°21.0	6°59.7	1.9 - 0.9	7.9 - 3.9	13.9 - 6.8
20	6°50.0	6°51.1	6°31.3	2.0 - 0.9	8.0 - 3.7	14.0 - 6.4	20	7°05.0	7°06.2	6°45.6	2.0 - 0.9	8.0 - 3.8	14.0 - 6.6	20	7°20.0	7°21.2	7°00.0	2.0 - 1.0	8.0 - 3.9	14.0 - 6.9
21	6°50.3	6°51.4	6°31.6	2.1 - 1.0	8.1 - 3.7	14.1 - 6.5	21	7°05.3	7°06.4	6°45.9	2.1 - 1.0	8.1 - 3.8	14.1 - 6.7	21	7°20.3	7°21.5	7°00.2	2.1 - 1.0	8.1 - 4.0	14.1 - 6.9
22	6°50.5	6°51.6	6°31.8	2.2 - 1.0	8.2 - 3.8	14.2 - 6.5	22	7°05.5	7°06.7	6°46.1	2.2 - 1.0	8.2 - 3.9	14.2 - 6.7	22	7°20.5	7°21.7	7°00.4	2.2 - 1.1	8.2 - 4.0	14.2 - 7.0
23	6°50.7	6°51.9	6°32.0	2.3 - 1.1	8.3 - 3.8	14.3 - 6.6	23	7°05.7	7°06.9	6°46.4	2.3 - 1.1	8.3 - 3.9	14.3 - 6.8	23	7°20.7	7°22.0	7°00.7	2.3 - 1.1	8.3 - 4.1	14.3 - 7.0
24	6°51.0	6°52.1	6°32.3	2.4 - 1.1	8.4 - 3.9	14.4 - 6.6	24	7°06.0	7°07.2	6°46.6	2.4 - 1.1	8.4 - 4.0	14.4 - 6.8	24	7°21.0	7°22.2	7°00.9	2.4 - 1.2	8.4 - 4.1	14.4 - 7.1
25	6°51.3	6°52.4	6°32.5	2.5 - 1.1	8.5 - 3.9	14.5 - 6.6	25	7°06.3	7°07.4	6°46.8	2.5 - 1.2	8.5 - 4.0	14.5 - 6.9	25	7°21.3	7°22.5	7°01.1	2.5 - 1.2	8.5 - 4.2	14.5 - 7.1
26	6°51.5	6°52.6	6°32.8	2.6 - 1.2	8.6 - 3.9	14.6 - 6.7	26	7°06.5	7°07.7	6°47.1	2.6 - 1.2	8.6 - 4.1	14.6 - 6.9	26	7°21.5	7°22.7	7°01.4	2.6 - 1.3	8.6 - 4.2	14.6 - 7.2
27	6°51.7	6°52.9	6°33.0	2.7 - 1.2	8.7 - 4.0	14.7 - 6.7	27	7°06.7	7°07.9	6°47.3	2.7 - 1.3	8.7 - 4.1	14.7 - 7.0	27	7°21.7	7°23.0	7°01.6	2.7 - 1.3	8.7 - 4.3	14.7 - 7.2
28	6°52.0	6°53.1	6°33.2	2.8 - 1.3	8.8 - 4.0	14.8 - 6.8	28	7°07.0	7°08.2	6°47.5	2.8 - 1.3	8.8 - 4.2	14.8 - 7.0	28	7°22.0	7°23.2	7°01.9	2.8 - 1.4	8.8 - 4.3	14.8 - 7.3
29	6°52.3	6°53.4	6°33.5	2.9 - 1.3	8.9 - 4.1	14.9 - 6.8	29	7°07.3	7°08.4	6°47.8	2.9 - 1.4	8.9 - 4.2	14.9 - 7.1	29	7°22.3	7°23.5	7°02.1	2.9 - 1.4	8.9 - 4.4	14.9 - 7.3
30	6°52.5	6°53.6	6°33.7	3.0 - 1.4	9.0 - 4.1	15.0 - 6.9	30	7°07.5	7°08.7	6°48.0	3.0 - 1.4	9.0 - 4.3	15.0 - 7.1	30	7°22.5	7°23.7	7°02.3	3.0 - 1.5	9.0 - 4.4	15.0 - 7.4
31	6°52.7	6°53.9	6°33.9	3.1 - 1.4	9.1 - 4.2	15.1 - 6.9	31	7°07.7	7°08.9	6°48.3	3.1 - 1.5	9.1 - 4.3	15.1 - 7.2	31	7°22.7	7°24.0	7°02.6	3.1 - 1.5	9.1 - 4.5	15.1 - 7.4
32	6°53.0	6°54.1	6°34.2	3.2 - 1.5	9.2 - 4.2	15.2 - 7.0	32	7°08.0	7°09.2	6°48.5	3.2 - 1.5	9.2 - 4.4	15.2 - 7.2	32	7°23.0	7°24.2	7°02.8	3.2 - 1.6	9.2 - 4.5	15.2 - 7.5
33	6°53.3	6°54.4	6°34.4	3.3 - 1.5	9.3 - 4.3	15.3 - 7.0	33	7°08.3	7°09.4	6°48.7	3.3 - 1.6	9.3 - 4.4	15.3 - 7.3	33	7°23.3	7°24.5	7°03.1	3.3 - 1.6	9.3 - 4.6	15.3 - 7.5
34	6°53.5	6°54.6	6°34.7	3.4 - 1.6	9.4 - 4.3	15.4 - 7.1	34	7°08.5	7°09.7	6°49.0	3.4 - 1.6	9.4 - 4.5	15.4 - 7.3	34	7°23.5	7°24.7	7°03.3	3.4 - 1.7	9.4 - 4.6	15.4 - 7.6
35	6°53.7	6°54.9	6°34.9	3.5 - 1.6	9.5 - 4.4	15.5 - 7.1	35	7°08.7	7°09.9	6°49.2	3.5 - 1.7	9.5 - 4.5	15.5 - 7.4	35	7°23.7	7°25.0	7°03.5	3.5 - 1.7	9.5 - 4.7	15.5 - 7.6
36	6°54.0	6°55.1	6°35.1	3.6 - 1.6	9.6 - 4.4	15.6 - 7.1	36	7°09.0	7°10.2	6°49.5	3.6 - 1.7	9.6 - 4.6	15.6 - 7.4	36	7°24.0	7°25.2	7°03.8	3.6 - 1.8	9.6 - 4.7	15.6 - 7.7
37	6°54.3	6°55.4	6°35.4	3.7 - 1.7	9.7 - 4.4	15.7 - 7.2	37	7°09.3	7°10.4	6°49.7	3.7 - 1.8	9.7 - 4.6	15.7 - 7.5	37	7°24.3	7°25.5	7°04.0	3.7 - 1.8	9.7 - 4.8	15.7 - 7.7
38	6°54.5	6°55.6	6°35.6	3.8 - 1.7	9.8 - 4.5	15.8 - 7.2	38	7°09.5	7°10.7	6°49.9	3.8 - 1.8	9.8 - 4.7	15.8 - 7.5	38	7°24.5	7°25.7	7°04.3	3.8 - 1.9	9.8 - 4.8	15.8 - 7.8
39	6°54.7	6°55.9	6°35.9	3.9 - 1.8	9.9 - 4.5	15.9 - 7.3	39	7°09.7	7°10.9	6°50.2	3.9 - 1.9	9.9 - 4.7	15.9 - 7.6	39	7°24.7	7°26.0	7°04.5	3.9 - 1.9	9.9 - 4.9	15.9 - 7.8
40	6°55.0	6°56.1	6°36.1	4.0 - 1.8	10.0 - 4.6	16.0 - 7.3	40	7°10.0	7°11.2	6°50.4	4.0 - 1.9	10.0 - 4.8	16.0 - 7.6	40	7°25.0	7°26.2	7°04.7	4.0 - 2.0	10.0 - 4.9	16.0 - 7.9
41	6°55.3	6°56.4	6°36.3	4.1 - 1.9	10.1 - 4.6	16.1 - 7.4	41	7°10.3	7°11.4	6°50.6	4.1 - 1.9	10.1 - 4.8	16.1 - 7.6	41	7°25.3	7°26.5	7°05.0	4.1 - 2.0	10.1 - 5.0	16.1 - 7.9
42	6°55.5	6°56.6	6°36.6	4.2 - 1.9	10.2 - 4.7	16.2 - 7.4	42	7°10.5	7°11.7	6°50.9	4.2 - 2.0	10.2 - 4.8	16.2 - 7.7	42	7°25.5	7°26.7	7°05.2	4.2 - 2.1	10.2 - 5.0	16.2 - 8.0
43	6°55.7	6°56.9	6°36.8	4.3 - 2.0	10.3 - 4.7	16.3 - 7.5	43	7°10.7	7°11.9	6°51.1	4.3 - 2.0	10.3 - 4.9	16.3 - 7.7	43	7°25.7	7°27.0	7°05.4	4.3 - 2.1	10.3 - 5.1	16.3 - 8.0
44	6°56.0	6°57.1	6°37.0	4.4 - 2.0	10.4 - 4.8	16.4 - 7.5	44	7°11.0	7°12.2	6°51.4	4.4 - 2.1	10.4 - 4.9	16.4 - 7.8	44	7°26.0	7°27.2	7°05.7	4.4 - 2.2	10.4 - 5.1	16.4 - 8.1
45	6°56.3	6°57.4	6°37.3	4.5 - 2.1	10.5 - 4.8	16.5 - 7.6	45	7°11.3	7°12.4	6°51.6	4.5 - 2.1	10.5 - 5.0	16.5 - 7.8	45	7°26.3	7°27.5	7°05.9	4.5 - 2.2	10.5 - 5.2	16.5 - 8.1
46	6°56.5	6°57.6	6°37.5	4.6 - 2.1	10.6 - 4.9	16.6 - 7.6	46	7°11.5	7°12.7	6°51.8	4.6 - 2.2	10.6 - 5.0	16.6 - 7.9	46	7°26.5	7°27.7	7°06.2	4.6 - 2.3	10.6 - 5.2	16.6 - 8.2
47	6°56.8	6°57.9	6°37.8	4.7 - 2.2	10.7 - 4.9	16.7 - 7.7	47	7°11.8	7°12.9	6°52.1	4.7 - 2.2	10.7 - 5.1	16.7 - 7.9	47	7°26.8	7°28.0	7°06.4	4.7 - 2.3	10.7 - 5.3	16.7 - 8.2
48	6°57.0	6°58.1	6°38.0	4.8 - 2.2	10.8 - 5.0	16.8 - 7.7	48	7°12.0	7°13.2	6°52.3	4.8 - 2.3	10.8 - 5.1	16.8 - 8.0	48	7°27.0	7°28.2	7°06.6	4.8 - 2.4	10.8 - 5.3	16.8 - 8.3
49	6°57.3	6°58.4	6°38.2	4.9 - 2.2	10.9 - 5.0	16.9 - 7.7	49	7°12.2	7°13.4</											

Increments and Corrections

m 30	Sun Plan.	Aries	Moon	v and d corr		
0	7°30.0	7°31.2	7°09.5	0.0 - 0.0	6.0 - 3.0	12.0 - 6.1
1	7°30.2	7°31.5	7°09.7	0.1 - 0.1	6.1 - 3.1	12.1 - 6.2
2	7°30.5	7°31.7	7°10.0	0.2 - 0.1	6.2 - 3.2	12.2 - 6.2
3	7°30.8	7°32.0	7°10.2	0.3 - 0.2	6.3 - 3.2	12.3 - 6.3
4	7°31.0	7°32.2	7°10.5	0.4 - 0.2	6.4 - 3.3	12.4 - 6.3
5	7°31.2	7°32.5	7°10.7	0.5 - 0.3	6.5 - 3.3	12.5 - 6.4
6	7°31.5	7°32.7	7°10.9	0.6 - 0.3	6.6 - 3.4	12.6 - 6.4
7	7°31.7	7°33.0	7°11.2	0.7 - 0.4	6.7 - 3.4	12.7 - 6.5
8	7°32.0	7°33.2	7°11.4	0.8 - 0.4	6.8 - 3.5	12.8 - 6.5
9	7°32.2	7°33.5	7°11.6	0.9 - 0.5	6.9 - 3.5	12.9 - 6.6
10	7°32.5	7°33.7	7°11.9	1.0 - 0.5	7.0 - 3.6	13.0 - 6.6
11	7°32.8	7°34.0	7°12.1	1.1 - 0.6	7.1 - 3.6	13.1 - 6.7
12	7°33.0	7°34.2	7°12.4	1.2 - 0.6	7.2 - 3.7	13.2 - 6.7
13	7°33.3	7°34.5	7°12.6	1.3 - 0.7	7.3 - 3.7	13.3 - 6.8
14	7°33.5	7°34.7	7°12.8	1.4 - 0.7	7.4 - 3.8	13.4 - 6.8
15	7°33.8	7°35.0	7°13.1	1.5 - 0.8	7.5 - 3.8	13.5 - 6.9
16	7°34.0	7°35.2	7°13.3	1.6 - 0.8	7.6 - 3.9	13.6 - 6.9
17	7°34.3	7°35.5	7°13.6	1.7 - 0.9	7.7 - 3.9	13.7 - 7.0
18	7°34.5	7°35.7	7°13.8	1.8 - 0.9	7.8 - 4.0	13.8 - 7.0
19	7°34.8	7°36.0	7°14.0	1.9 - 1.0	7.9 - 4.0	13.9 - 7.1
20	7°35.0	7°36.2	7°14.3	2.0 - 1.0	8.0 - 4.1	14.0 - 7.1
21	7°35.3	7°36.5	7°14.5	2.1 - 1.1	8.1 - 4.1	14.1 - 7.2
22	7°35.5	7°36.7	7°14.7	2.2 - 1.1	8.2 - 4.2	14.2 - 7.2
23	7°35.7	7°37.0	7°15.0	2.3 - 1.2	8.3 - 4.2	14.3 - 7.3
24	7°36.0	7°37.2	7°15.2	2.4 - 1.2	8.4 - 4.3	14.4 - 7.3
25	7°36.2	7°37.5	7°15.5	2.5 - 1.3	8.5 - 4.3	14.5 - 7.4
26	7°36.5	7°37.7	7°15.7	2.6 - 1.3	8.6 - 4.4	14.6 - 7.4
27	7°36.7	7°38.0	7°15.9	2.7 - 1.4	8.7 - 4.4	14.7 - 7.5
28	7°37.0	7°38.2	7°16.2	2.8 - 1.4	8.8 - 4.5	14.8 - 7.5
29	7°37.3	7°38.5	7°16.4	2.9 - 1.5	8.9 - 4.5	14.9 - 7.6
30	7°37.5	7°38.8	7°16.7	3.0 - 1.5	9.0 - 4.6	15.0 - 7.6
31	7°37.7	7°39.0	7°16.9	3.1 - 1.6	9.1 - 4.6	15.1 - 7.7
32	7°38.0	7°39.3	7°17.1	3.2 - 1.6	9.2 - 4.7	15.2 - 7.7
33	7°38.3	7°39.5	7°17.4	3.3 - 1.7	9.3 - 4.7	15.3 - 7.8
34	7°38.5	7°39.8	7°17.6	3.4 - 1.7	9.4 - 4.8	15.4 - 7.8
35	7°38.7	7°40.0	7°17.9	3.5 - 1.8	9.5 - 4.8	15.5 - 7.9
36	7°39.0	7°40.3	7°18.1	3.6 - 1.8	9.6 - 4.9	15.6 - 7.9
37	7°39.3	7°40.5	7°18.3	3.7 - 1.9	9.7 - 4.9	15.7 - 8.0
38	7°39.5	7°40.8	7°18.6	3.8 - 1.9	9.8 - 5.0	15.8 - 8.0
39	7°39.8	7°41.0	7°18.8	3.9 - 2.0	9.9 - 5.0	15.9 - 8.1
40	7°40.0	7°41.3	7°19.0	4.0 - 2.0	10.0 - 5.1	16.0 - 8.1
41	7°40.3	7°41.5	7°19.3	4.1 - 2.1	10.1 - 5.1	16.1 - 8.2
42	7°40.5	7°41.8	7°19.5	4.2 - 2.1	10.2 - 5.2	16.2 - 8.2
43	7°40.7	7°42.0	7°19.8	4.3 - 2.2	10.3 - 5.2	16.3 - 8.3
44	7°41.0	7°42.3	7°20.0	4.4 - 2.2	10.4 - 5.3	16.4 - 8.3
45	7°41.2	7°42.5	7°20.2	4.5 - 2.3	10.5 - 5.3	16.5 - 8.4
46	7°41.5	7°42.8	7°20.5	4.6 - 2.3	10.6 - 5.4	16.6 - 8.4
47	7°41.8	7°43.0	7°20.7	4.7 - 2.4	10.7 - 5.4	16.7 - 8.5
48	7°42.0	7°43.3	7°21.0	4.8 - 2.4	10.8 - 5.5	16.8 - 8.5
49	7°42.3	7°43.5	7°21.2	4.9 - 2.5	10.9 - 5.5	16.9 - 8.6
50	7°42.5	7°43.8	7°21.4	5.0 - 2.5	11.0 - 5.6	17.0 - 8.6
51	7°42.8	7°44.0	7°21.7	5.1 - 2.6	11.1 - 5.6	17.1 - 8.7
52	7°43.0	7°44.3	7°21.9	5.2 - 2.6	11.2 - 5.7	17.2 - 8.7
53	7°43.2	7°44.5	7°22.1	5.3 - 2.7	11.3 - 5.7	17.3 - 8.8
54	7°43.5	7°44.8	7°22.4	5.4 - 2.7	11.4 - 5.8	17.4 - 8.8
55	7°43.8	7°45.0	7°22.6	5.5 - 2.8	11.5 - 5.8	17.5 - 8.9
56	7°44.0	7°45.3	7°22.9	5.6 - 2.8	11.6 - 5.9	17.6 - 8.9
57	7°44.3	7°45.5	7°23.1	5.7 - 2.9	11.7 - 5.9	17.7 - 9.0
58	7°44.5	7°45.8	7°23.3	5.8 - 2.9	11.8 - 6.0	17.8 - 9.0
59	7°44.8	7°46.0	7°23.6	5.9 - 3.0	11.9 - 6.0	17.9 - 9.1

m 31	Sun Plan.	Aries	Moon	v and d corr		
0	7°45.0	7°46.3	7°23.8	0.0 - 0.0	6.0 - 3.2	12.0 - 6.3
1	7°45.2	7°46.5	7°24.1	0.1 - 0.1	6.1 - 3.2	12.1 - 6.4
2	7°45.5	7°46.8	7°24.3	0.2 - 0.1	6.2 - 3.3	12.2 - 6.4
3	7°45.7	7°47.0	7°24.5	0.3 - 0.2	6.3 - 3.3	12.3 - 6.5
4	7°46.0	7°47.3	7°24.8	0.4 - 0.2	6.4 - 3.4	12.4 - 6.5
5	7°46.2	7°47.5	7°25.0	0.5 - 0.3	6.5 - 3.4	12.5 - 6.6
6	7°46.5	7°47.8	7°25.2	0.6 - 0.3	6.6 - 3.5	12.6 - 6.6
7	7°46.8	7°48.0	7°25.5	0.7 - 0.4	6.7 - 3.5	12.7 - 6.7
8	7°47.0	7°48.3	7°25.7	0.8 - 0.4	6.8 - 3.6	12.8 - 6.7
9	7°47.2	7°48.5	7°26.0	0.9 - 0.5	6.9 - 3.6	12.9 - 6.8
10	7°47.5	7°48.8	7°26.2	1.0 - 0.5	7.0 - 3.7	13.0 - 6.8
11	7°47.7	7°49.0	7°26.4	1.1 - 0.6	7.1 - 3.7	13.1 - 6.9
12	7°48.0	7°49.3	7°26.7	1.2 - 0.6	7.2 - 3.8	13.2 - 6.9
13	7°48.2	7°49.5	7°26.9	1.3 - 0.7	7.3 - 3.8	13.3 - 7.0
14	7°48.5	7°49.8	7°27.2	1.4 - 0.7	7.4 - 3.9	13.4 - 7.0
15	7°48.8	7°50.0	7°27.4	1.5 - 0.8	7.5 - 3.9	13.5 - 7.1
16	7°49.0	7°50.3	7°27.6	1.6 - 0.8	7.6 - 4.0	13.6 - 7.1
17	7°49.3	7°50.5	7°27.9	1.7 - 0.9	7.7 - 4.0	13.7 - 7.2
18	7°49.5	7°50.8	7°28.1	1.8 - 0.9	7.8 - 4.1	13.8 - 7.2
19	7°49.8	7°51.0	7°28.4	1.9 - 1.0	7.9 - 4.1	13.9 - 7.3
20	7°50.0	7°51.3	7°28.6	2.0 - 1.1	8.0 - 4.2	14.0 - 7.4
21	7°50.3	7°51.5	7°28.8	2.1 - 1.1	8.1 - 4.3	14.1 - 7.4
22	7°50.5	7°51.8	7°29.1	2.2 - 1.2	8.2 - 4.3	14.2 - 7.5
23	7°50.7	7°52.0	7°29.3	2.3 - 1.2	8.3 - 4.4	14.3 - 7.5
24	7°51.0	7°52.3	7°29.5	2.4 - 1.3	8.4 - 4.4	14.4 - 7.6
25	7°51.3	7°52.5	7°29.8	2.5 - 1.3	8.5 - 4.5	14.5 - 7.6
26	7°51.5	7°52.8	7°30.0	2.6 - 1.4	8.6 - 4.5	14.6 - 7.7
27	7°51.7	7°53.0	7°30.3	2.7 - 1.4	8.7 - 4.6	14.7 - 7.7
28	7°52.0	7°53.3	7°30.5	2.8 - 1.5	8.8 - 4.6	14.8 - 7.8
29	7°52.2	7°53.5	7°30.7	2.9 - 1.5	8.9 - 4.7	14.9 - 7.8
30	7°52.5	7°53.8	7°31.0	3.0 - 1.6	9.0 - 4.7	15.0 - 7.9
31	7°52.7	7°54.0	7°31.2	3.1 - 1.6	9.1 - 4.8	15.1 - 7.9
32	7°53.0	7°54.3	7°31.5	3.2 - 1.7	9.2 - 4.8	15.2 - 8.0
33	7°53.3	7°54.5	7°31.7	3.3 - 1.7	9.3 - 4.9	15.3 - 8.0
34	7°53.5	7°54.8	7°31.9	3.4 - 1.8	9.4 - 4.9	15.4 - 8.1
35	7°53.8	7°55.0	7°32.2	3.5 - 1.8	9.5 - 5.0	15.5 - 8.1
36	7°54.0	7°55.3	7°32.4	3.6 - 1.9	9.6 - 5.0	15.6 - 8.2
37	7°54.3	7°55.5	7°32.6	3.7 - 1.9	9.7 - 5.1	15.7 - 8.2
38	7°54.5	7°55.8	7°32.9	3.8 - 2.0	9.8 - 5.1	15.8 - 8.3
39	7°54.7	7°56.0	7°33.1	3.9 - 2.0	9.9 - 5.2	15.9 - 8.3
40	7°55.0	7°56.3	7°33.4	4.0 - 2.1	10.0 - 5.3	16.0 - 8.4
41	7°55.3	7°56.5	7°33.6	4.1 - 2.2	10.1 - 5.3	16.1 - 8.5
42	7°55.5	7°56.8	7°33.8	4.2 - 2.2	10.2 - 5.4	16.2 - 8.5
43	7°55.7	7°57.1	7°34.1	4.3 - 2.3	10.3 - 5.4	16.3 - 8.6
44	7°56.0	7°57.3	7°34.3	4.4 - 2.3	10.4 - 5.5	16.4 - 8.6
45	7°56.3	7°57.6	7°34.6	4.5 - 2.4	10.5 - 5.5	16.5 - 8.7
46	7°56.5	7°57.8	7°34.8	4.6 - 2.4	10.6 - 5.6	16.6 - 8.7
47	7°56.7	7°58.1	7°35.0	4.7 - 2.5	10.7 - 5.6	16.7 - 8.8
48	7°57.0	7°58.3	7°35.3	4.8 - 2.5	10.8 - 5.7	16.8 - 8.8
49	7°57.2	7°58.6	7°35.5	4.9 - 2.6	10.9 - 5.7	16.9 - 8.9
50	7°57.5	7°58.8	7°35.7	5.0 - 2.6	11.0 - 5.8	17.0 - 8.9
51	7°57.8	7°59.1	7°36.0	5.1 - 2.7	11.1 - 5.8	17.1 - 9.0
52	7°58.0	7°59.3	7°36.2	5.2 - 2.7	11.2 - 5.9	17.2 - 9.0
53	7°58.2	7°59.6	7°36.5	5.3 - 2.8	11.3 - 5.9	17.3 - 9.1
54	7°58.5	7°59.8	7°36.7	5.4 - 2.8	11.4 - 6.0	17.4 - 9.1
55	7°58.8	8°00.1	7°36.9	5.5 - 2.9	11.5 - 6.0	17.5 - 9.2
56	7°59.0	8°00.3	7°37.2	5.6 - 2.9	11.6 - 6.1	17.6 - 9.2
57	7°59.2	8°00.6	7°37.4	5.7 - 3.0	11.7 - 6.1	17.7 - 9.3
58	7°59.5	8°00.8	7°37.7	5.8 - 3.0	11.8 - 6.2	17.8 - 9.3
59	7°59.8	8°01.1	7°37.9	5.9 - 3.1	11.9 - 6.2	17.9 - 9.4

m	Sun Plan.	Aries	Moon	v and d corr		
32						
0	8°00.0	8°01.3	7°38.1	0.0 - 0.0	6.0 - 3.3	12.0 - 6.5
1	8°00.2	8°01.6	7°38.4	0.1 - 0.1	6.1 - 3.3	12.1 - 6.6
2	8°00.5	8°01.8	7°38.6	0.2 - 0.1	6.2 - 3.4	12.2 - 6.6
3	8°00.7	8°02.1	7°38.8	0.3 - 0.2	6.3 - 3.4	12.3 - 6.7
4	8°01.0	8°02.3	7°39.1	0.4 - 0.2	6.4 - 3.5	12.4 - 6.7
5	8°01.3	8°02.6	7°39.3	0.5 - 0.3	6.5 - 3.5	12.5 - 6.8
6	8°01.5	8°02.8	7°39.6	0.6 - 0.3	6.6 - 3.6	12.6 - 6.8
7	8°01.8	8°03.1	7°39.8	0.7 - 0.4	6.7 - 3.6	12.7 - 6.9
8	8°02.0	8°03.3	7°40.0	0.8 - 0.4	6.8 - 3.7	12.8 - 6.9
9	8°02.2	8°03.6	7°40.3	0.9 - 0.5	6.9 - 3.7	12.9 - 7.0
10	8°02.5	8°03.8	7°40.5	1.0 - 0.5	7.0 - 3.8	13.0 - 7.0
11	8°02.7	8°04.1	7°40.8	1.1 - 0.6	7.1 - 3.8	13.1 - 7.1
12	8°03.0	8°04.3	7°41.0	1.2 - 0.7	7.2 - 3.9	13.2 - 7.1
13	8°03.3	8°04.6	7°41.2	1.3 - 0.7	7.3 - 4.0	13.3 - 7.2
14	8°03.5	8°04.8	7°41.5	1.4 - 0.8	7.4 - 4.0	13.4 - 7.3
15	8°03.8	8°05.1	7°41.7	1.5 - 0.8	7.5 - 4.1	13.5 - 7.3
16	8°04.0	8°05.3	7°42.0	1.6 - 0.9	7.6 - 4.1	13.6 - 7.4
17	8°04.2	8°05.6	7°42.2	1.7 - 0.9	7.7 - 4.2	13.7 - 7.4
18	8°04.5	8°05.8	7°42.4	1.8 - 1.0	7.8 - 4.2	13.8 - 7.5
19	8°04.8	8°06.1	7°42.7	1.9 - 1.0	7.9 - 4.3	13.9 - 7.5
20	8°05.0	8°06.3	7°42.9	2.0 - 1.1	8.0 - 4.3	14.0 - 7.6
21	8°05.3	8°06.6	7°43.1	2.1 - 1.1	8.1 - 4.4	14.1 - 7.6
22	8°05.5	8°06.8	7°43.4	2.2 - 1.2	8.2 - 4.4	14.2 - 7.7
23	8°05.7	8°07.1	7°43.6	2.3 - 1.2	8.3 - 4.5	14.3 - 7.7
24	8°06.0	8°07.3	7°43.9	2.4 - 1.3	8.4 - 4.5	14.4 - 7.8
25	8°06.2	8°07.6	7°44.1	2.5 - 1.4	8.5 - 4.6	14.5 - 7.9
26	8°06.5	8°07.8	7°44.3	2.6 - 1.4	8.6 - 4.7	14.6 - 7.9
27	8°06.8	8°08.1	7°44.6	2.7 - 1.5	8.7 - 4.7	14.7 - 8.0
28	8°07.0	8°08.3	7°44.8	2.8 - 1.5	8.8 - 4.8	14.8 - 8.0
29	8°07.3	8°08.6	7°45.1	2.9 - 1.6	8.9 - 4.8	14.9 - 8.1
30	8°07.5	8°08.8	7°45.3	3.0 - 1.6	9.0 - 4.9	15.0 - 8.1
31	8°07.7	8°09.1	7°45.5	3.1 - 1.7	9.1 - 4.9	15.1 - 8.2
32	8°08.0	8°09.3	7°45.8	3.2 - 1.7	9.2 - 5.0	15.2 - 8.2
33	8°08.2	8°09.6	7°46.0	3.3 - 1.8	9.3 - 5.0	15.3 - 8.3
34	8°08.5	8°09.8	7°46.2	3.4 - 1.8	9.4 - 5.1	15.4 - 8.3
35	8°08.8	8°10.1	7°46.5	3.5 - 1.9	9.5 - 5.1	15.5 - 8.4
36	8°09.0	8°10.3	7°46.7	3.6 - 1.9	9.6 - 5.2	15.6 - 8.4
37	8°09.3	8°10.6	7°47.0	3.7 - 2.0	9.7 - 5.3	15.7 - 8.5
38	8°09.5	8°10.8	7°47.2	3.8 - 2.1	9.8 - 5.3	15.8 - 8.6
39	8°09.7	8°11.1	7°47.4	3.9 - 2.1	9.9 - 5.4	15.9 - 8.6
40	8°10.0	8°11.3	7°47.7	4.0 - 2.2	10.0 - 5.4	16.0 - 8.7
41	8°10.2	8°11.6	7°47.9	4.1 - 2.2	10.1 - 5.5	16.1 - 8.7
42	8°10.5	8°11.8	7°48.2	4.2 - 2.3	10.2 - 5.5	16.2 - 8.8
43	8°10.8	8°12.1	7°48.4	4.3 - 2.3	10.3 - 5.6	16.3 - 8.8
44	8°11.0	8°12.3	7°48.6	4.4 - 2.4	10.4 - 5.6	16.4 - 8.9
45	8°11.3	8°12.6	7°48.9	4.5 - 2.4	10.5 - 5.7	16.5 - 8.9
46	8°11.5	8°12.8	7°49.1	4.6 - 2.5	10.6 - 5.7	16.6 - 9.0
47	8°11.7	8°13.1	7°49.3	4.7 - 2.5	10.7 - 5.8	16.7 - 9.0
48	8°12.0	8°13.3	7°49.6	4.8 - 2.6	10.8 - 5.8	16.8 - 9.1
49	8°12.3	8°13.6	7°49.8	4.9 - 2.7	10.9 - 5.9	16.9 - 9.2
50	8°12.5	8°13.8	7°50.1	5.0 - 2.7	11.0 - 6.0	17.0 - 9.2
51	8°12.8	8°14.1	7°50.3	5.1 - 2.8	11.1 - 6.0	17.1 - 9.3
52	8°13.0	8°14.3	7°50.5	5.2 - 2.8	11.2 - 6.1	17.2 - 9.3
53	8°13.2	8°14.6	7°50.8	5.3 - 2.9	11.3 - 6.1	17.3 - 9.4
54	8°13.5	8°14.8	7°51.0	5.4 - 2.9	11.4 - 6.2	17.4 - 9.4
55	8°13.7	8°15.1	7°51.3	5.5 - 3.0	11.5 - 6.2	17.5 - 9.5
56	8°14.0	8°15.4	7°51.5	5.6 - 3.0	11.6 - 6.3	17.6 - 9.5
57	8°14.3	8°15.6	7°51.7	5.7 - 3.1	11.7 - 6.3	17.7 - 9.6
58	8°14.5	8°15.9	7°52.0	5.8 - 3.1	11.8 - 6.4	17.8 - 9.6
59	8°14.8	8°16.1	7°52.2	5.9 - 3.2	11.9 - 6.4	17.9 - 9.7

Increments and Corrections

m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr		
33	Plan.						34	Plan.						35	Plan.					
0	8°15.0	8°16.4	7°52.5	0.0 - 0.0	6.0 - 3.4	12.0 - 6.7	0	8°30.0	8°31.4	8°06.8	0.0 - 0.0	6.0 - 3.4	12.0 - 6.9	0	8°45.0	8°46.4	8°21.1	0.0 - 0.0	6.0 - 3.5	12.0 - 7.1
1	8°15.2	8°16.6	7°52.7	0.1 - 0.1	6.1 - 3.4	12.1 - 6.8	1	8°30.2	8°31.6	8°07.0	0.1 - 0.1	6.1 - 3.5	12.1 - 7.0	1	8°45.2	8°46.7	8°21.3	0.1 - 0.1	6.1 - 3.6	12.1 - 7.2
2	8°15.5	8°16.9	7°52.9	0.2 - 0.1	6.2 - 3.5	12.2 - 6.8	2	8°30.5	8°31.9	8°07.2	0.2 - 0.1	6.2 - 3.6	12.2 - 7.0	2	8°45.5	8°46.9	8°21.6	0.2 - 0.1	6.2 - 3.7	12.2 - 7.2
3	8°15.7	8°17.1	7°53.2	0.3 - 0.2	6.3 - 3.5	12.3 - 6.9	3	8°30.7	8°32.1	8°07.5	0.3 - 0.2	6.3 - 3.6	12.3 - 7.1	3	8°45.7	8°47.2	8°21.8	0.3 - 0.2	6.3 - 3.7	12.3 - 7.3
4	8°16.0	8°17.4	7°53.4	0.4 - 0.2	6.4 - 3.6	12.4 - 6.9	4	8°31.0	8°32.4	8°07.7	0.4 - 0.2	6.4 - 3.7	12.4 - 7.1	4	8°46.0	8°47.4	8°22.0	0.4 - 0.2	6.4 - 3.8	12.4 - 7.3
5	8°16.3	8°17.6	7°53.6	0.5 - 0.3	6.5 - 3.6	12.5 - 7.0	5	8°31.3	8°32.6	8°08.0	0.5 - 0.3	6.5 - 3.7	12.5 - 7.2	5	8°46.3	8°47.7	8°22.3	0.5 - 0.3	6.5 - 3.8	12.5 - 7.4
6	8°16.5	8°17.9	7°53.9	0.6 - 0.3	6.6 - 3.7	12.6 - 7.0	6	8°31.5	8°32.9	8°08.2	0.6 - 0.3	6.6 - 3.8	12.6 - 7.2	6	8°46.5	8°47.9	8°22.5	0.6 - 0.4	6.6 - 3.9	12.6 - 7.5
7	8°16.8	8°18.1	7°54.1	0.7 - 0.4	6.7 - 3.7	12.7 - 7.1	7	8°31.8	8°33.1	8°08.4	0.7 - 0.4	6.7 - 3.9	12.7 - 7.3	7	8°46.8	8°48.2	8°22.8	0.7 - 0.4	6.7 - 4.0	12.7 - 7.5
8	8°17.0	8°18.4	7°54.4	0.8 - 0.4	6.8 - 3.8	12.8 - 7.1	8	8°32.0	8°33.4	8°08.7	0.8 - 0.5	6.8 - 3.9	12.8 - 7.4	8	8°47.0	8°48.4	8°23.0	0.8 - 0.5	6.8 - 4.0	12.8 - 7.6
9	8°17.2	8°18.6	7°54.6	0.9 - 0.5	6.9 - 3.9	12.9 - 7.2	9	8°32.2	8°33.7	8°08.9	0.9 - 0.5	6.9 - 4.0	12.9 - 7.4	9	8°47.2	8°48.7	8°23.2	0.9 - 0.5	6.9 - 4.1	12.9 - 7.6
10	8°17.5	8°18.9	7°54.8	1.0 - 0.6	7.0 - 3.9	13.0 - 7.3	10	8°32.5	8°33.9	8°09.2	1.0 - 0.6	7.0 - 4.0	13.0 - 7.5	10	8°47.5	8°48.9	8°23.5	1.0 - 0.6	7.0 - 4.1	13.0 - 7.7
11	8°17.7	8°19.1	7°55.1	1.1 - 0.6	7.1 - 4.0	13.1 - 7.3	11	8°32.7	8°34.2	8°09.4	1.1 - 0.6	7.1 - 4.1	13.1 - 7.5	11	8°47.7	8°49.2	8°23.7	1.1 - 0.7	7.1 - 4.2	13.1 - 7.8
12	8°18.0	8°19.4	7°55.3	1.2 - 0.7	7.2 - 4.0	13.2 - 7.4	12	8°33.0	8°34.4	8°09.6	1.2 - 0.7	7.2 - 4.1	13.2 - 7.6	12	8°48.0	8°49.4	8°23.9	1.2 - 0.7	7.2 - 4.3	13.2 - 7.8
13	8°18.3	8°19.6	7°55.6	1.3 - 0.7	7.3 - 4.1	13.3 - 7.4	13	8°33.3	8°34.7	8°09.9	1.3 - 0.7	7.3 - 4.2	13.3 - 7.6	13	8°48.3	8°49.7	8°24.2	1.3 - 0.8	7.3 - 4.3	13.3 - 7.9
14	8°18.5	8°19.9	7°55.8	1.4 - 0.8	7.4 - 4.1	13.4 - 7.5	14	8°33.5	8°34.9	8°10.1	1.4 - 0.8	7.4 - 4.3	13.4 - 7.7	14	8°48.5	8°49.9	8°24.4	1.4 - 0.8	7.4 - 4.4	13.4 - 7.9
15	8°18.8	8°20.1	7°56.0	1.5 - 0.8	7.5 - 4.2	13.5 - 7.5	15	8°33.8	8°35.2	8°10.3	1.5 - 0.9	7.5 - 4.3	13.5 - 7.8	15	8°48.8	8°50.2	8°24.7	1.5 - 0.9	7.5 - 4.4	13.5 - 8.0
16	8°19.0	8°20.4	7°56.3	1.6 - 0.9	7.6 - 4.2	13.6 - 7.6	16	8°34.0	8°35.4	8°10.6	1.6 - 0.9	7.6 - 4.4	13.6 - 7.8	16	8°49.0	8°50.4	8°24.9	1.6 - 0.9	7.6 - 4.5	13.6 - 8.0
17	8°19.2	8°20.6	7°56.5	1.7 - 0.9	7.7 - 4.3	13.7 - 7.6	17	8°34.2	8°35.7	8°10.8	1.7 - 1.0	7.7 - 4.4	13.7 - 7.9	17	8°49.2	8°50.7	8°25.1	1.7 - 1.0	7.7 - 4.6	13.7 - 8.1
18	8°19.5	8°20.9	7°56.7	1.8 - 1.0	7.8 - 4.4	13.8 - 7.7	18	8°34.5	8°35.9	8°11.1	1.8 - 1.0	7.8 - 4.5	13.8 - 7.9	18	8°49.5	8°50.9	8°25.4	1.8 - 1.1	7.8 - 4.6	13.8 - 8.2
19	8°19.8	8°21.1	7°57.0	1.9 - 1.1	7.9 - 4.4	13.9 - 7.8	19	8°34.8	8°36.2	8°11.3	1.9 - 1.1	7.9 - 4.5	13.9 - 8.0	19	8°49.8	8°51.2	8°25.6	1.9 - 1.1	7.9 - 4.7	13.9 - 8.2
20	8°20.0	8°21.4	7°57.2	2.0 - 1.1	8.0 - 4.5	14.0 - 7.8	20	8°35.0	8°36.4	8°11.5	2.0 - 1.1	8.0 - 4.6	14.0 - 8.0	20	8°50.0	8°51.4	8°25.9	2.0 - 1.2	8.0 - 4.7	14.0 - 8.3
21	8°20.3	8°21.6	7°57.5	2.1 - 1.2	8.1 - 4.5	14.1 - 7.9	21	8°35.3	8°36.7	8°11.8	2.1 - 1.2	8.1 - 4.7	14.1 - 8.1	21	8°50.3	8°51.7	8°26.1	2.1 - 1.2	8.1 - 4.8	14.1 - 8.3
22	8°20.5	8°21.9	7°57.7	2.2 - 1.2	8.2 - 4.6	14.2 - 7.9	22	8°35.5	8°36.9	8°12.0	2.2 - 1.3	8.2 - 4.7	14.2 - 8.2	22	8°50.5	8°52.0	8°26.3	2.2 - 1.3	8.2 - 4.9	14.2 - 8.4
23	8°20.7	8°22.1	7°57.9	2.3 - 1.3	8.3 - 4.6	14.3 - 8.0	23	8°35.7	8°37.2	8°12.3	2.3 - 1.3	8.3 - 4.8	14.3 - 8.2	23	8°50.7	8°52.2	8°26.6	2.3 - 1.4	8.3 - 4.9	14.3 - 8.5
24	8°21.0	8°22.4	7°58.2	2.4 - 1.3	8.4 - 4.7	14.4 - 8.0	24	8°36.0	8°37.4	8°12.5	2.4 - 1.4	8.4 - 4.8	14.4 - 8.3	24	8°51.0	8°52.5	8°26.8	2.4 - 1.4	8.4 - 5.0	14.4 - 8.5
25	8°21.2	8°22.6	7°58.4	2.5 - 1.4	8.5 - 4.7	14.5 - 8.1	25	8°36.2	8°37.7	8°12.7	2.5 - 1.4	8.5 - 4.9	14.5 - 8.3	25	8°51.2	8°52.7	8°27.0	2.5 - 1.5	8.5 - 5.0	14.5 - 8.6
26	8°21.5	8°22.9	7°58.7	2.6 - 1.5	8.6 - 4.8	14.6 - 8.2	26	8°36.5	8°37.9	8°13.0	2.6 - 1.5	8.6 - 4.9	14.6 - 8.4	26	8°51.5	8°53.0	8°27.3	2.6 - 1.5	8.6 - 5.1	14.6 - 8.6
27	8°21.8	8°23.1	7°58.9	2.7 - 1.5	8.7 - 4.9	14.7 - 8.2	27	8°36.8	8°38.2	8°13.2	2.7 - 1.6	8.7 - 5.0	14.7 - 8.5	27	8°51.8	8°53.2	8°27.5	2.7 - 1.6	8.7 - 5.1	14.7 - 8.7
28	8°22.0	8°23.4	7°59.1	2.8 - 1.6	8.8 - 4.9	14.8 - 8.3	28	8°37.0	8°38.4	8°13.4	2.8 - 1.6	8.8 - 5.1	14.8 - 8.5	28	8°52.0	8°53.5	8°27.8	2.8 - 1.7	8.8 - 5.2	14.8 - 8.8
29	8°22.3	8°23.6	7°59.4	2.9 - 1.6	8.9 - 5.0	14.9 - 8.3	29	8°37.3	8°38.7	8°13.7	2.9 - 1.7	8.9 - 5.1	14.9 - 8.6	29	8°52.3	8°53.7	8°28.0	2.9 - 1.7	8.9 - 5.3	14.9 - 8.8
30	8°22.5	8°23.9	7°59.6	3.0 - 1.7	9.0 - 5.0	15.0 - 8.4	30	8°37.5	8°38.9	8°13.9	3.0 - 1.7	9.0 - 5.2	15.0 - 8.6	30	8°52.5	8°54.0	8°28.2	3.0 - 1.8	9.0 - 5.3	15.0 - 8.9
31	8°22.7	8°24.1	7°59.8	3.1 - 1.7	9.1 - 5.1	15.1 - 8.4	31	8°37.7	8°39.2	8°14.2	3.1 - 1.8	9.1 - 5.2	15.1 - 8.7	31	8°52.7	8°54.2	8°28.5	3.1 - 1.8	9.1 - 5.4	15.1 - 8.9
32	8°23.0	8°24.4	8°00.1	3.2 - 1.8	9.2 - 5.1	15.2 - 8.5	32	8°38.0	8°39.4	8°14.4	3.2 - 1.8	9.2 - 5.3	15.2 - 8.7	32	8°53.0	8°54.5	8°28.7	3.2 - 1.9	9.2 - 5.4	15.2 - 9.0
33	8°23.2	8°24.6	8°00.3	3.3 - 1.8	9.3 - 5.2	15.3 - 8.5	33	8°38.2	8°39.7	8°14.6	3.3 - 1.9	9.3 - 5.3	15.3 - 8.8	33	8°53.2	8°54.7	8°29.0	3.3 - 2.0	9.3 - 5.5	15.3 - 9.1
34	8°23.5	8°24.9	8°00.6	3.4 - 1.9	9.4 - 5.2	15.4 - 8.6	34	8°38.5	8°39.9	8°14.9	3.4 - 2.0	9.4 - 5.4	15.4 - 8.9	34	8°53.5	8°55.0	8°29.2	3.4 - 2.0	9.4 - 5.6	15.4 - 9.1
35	8°23.8	8°25.1	8°00.8	3.5 - 2.0	9.5 - 5.3	15.5 - 8.7	35	8°38.8	8°40.2	8°15.1	3.5 - 2.0	9.5 - 5.5	15.5 - 8.9	35	8°53.8	8°55.2	8°29.4	3.5 - 2.1	9.5 - 5.6	15.5 - 9.2
36	8°24.0	8°25.4	8°01.0	3.6 - 2.0	9.6 - 5.4	15.6 - 8.7	36	8°39.0	8°40.4	8°15.4	3.6 - 2.1	9.6 - 5.5	15.6 - 9.0	36	8°54.0	8°55.5	8°29.7	3.6 - 2.1	9.6 - 5.7	15.6 - 9.2
37	8°24.3	8°25.6	8°01.3	3.7 - 2.1	9.7 - 5.4	15.7 - 8.8	37	8°39.3	8°40.7	8°15.6	3.7 - 2.1	9.7 - 5.6	15.7 - 9.0	37	8°54.3	8°55.7	8°29.9	3.7 - 2.2	9.7 - 5.7	15.7 - 9.3
38	8°24.5	8°25.9	8°01.5	3.8 - 2.1	9.8 - 5.5	15.8 - 8.8	38	8°39.5	8°40.9	8°15.8	3.8 - 2.2	9.8 - 5.6	15.8 - 9.1	38	8°54.5	8°56.0	8°30.2	3.8 - 2.2	9.8 - 5.8	15.8 - 9.3
39	8°24.7	8°26.1	8°01.8	3.9 - 2.2	9.9 - 5.5	15.9 - 8.9	39	8°39.7	8°41.2	8°16.1	3.9 - 2.2	9.9 - 5.7	15.9 - 9.1	39	8°54.7	8°56.2	8°30.4	3.9 - 2.3	9.9 - 5.9	15.9 - 9.4
40	8°25.0	8°26.4	8°02.0	4.0 - 2.2	10.0 - 5.6	16.0 - 8.9	40	8°40.0	8°41.4	8°16.3	4.0 - 2.3	10.0 - 5.8	16.0 - 9.2	40	8°55.0	8°56.5	8°30.6	4.0 - 2.4	10.0 - 5.9	16.0 - 9.5
41	8°25.2	8°26.6	8°02.2	4.1 - 2.3	10.1 - 5.6	16.1 - 9.0	41	8°40.2	8°41.7	8°16.5	4.1 - 2.4	10.1 - 5.8	16.1 - 9.3	41	8°55.2	8°56.7	8°30.9	4.1 - 2.4	10.1 - 6.0	16.1 - 9.5
42	8°25.5	8°26.9	8°02.5	4.2 - 2.3	10.2 - 5.7	16.2 - 9.0	42	8°40.5	8°41.9	8°16.8	4.2 - 2.4	10.2 - 5.9	16.2 - 9.3	42	8°55.5	8°57.0	8°31.1	4.2 - 2.5	10.2 - 6.0	16.2 - 9.6
43	8°25.8	8°27.1	8°02.7	4.3 - 2.4	10.3 - 5.8	16.3 - 9.1	43	8°40.8	8°42.2	8°17.0	4.3 - 2.5	10.3 - 5.9	16.3 - 9.4	43	8°55.8	8°57.2	8°31.3	4.3 - 2.5	10.3 - 6.1	16.3 - 9.6
44	8°26.0	8°27.4	8°02.9	4.4 - 2.5	10.4 - 5.8	16.4 - 9.2	44	8°41.0	8°42.4	8°17.3	4.4 - 2.5	10.4 - 6.0	16.4 - 9.4	44	8°56.0	8°57.5	8°31.6	4.4 - 2.6	10.4 - 6.2	16.4 - 9.7
45	8°26.3	8°27.6	8°03.2	4.5 - 2.5	10.5 - 5.9	16.5 - 9.2	45	8°41.3	8°42.7	8°17.5	4.5 - 2.6	10.5 - 6.0	16.5 - 9.5	45	8°56.3	8°57.7	8°31.8	4.5 - 2.7	10.5 - 6.2	16.5 - 9.8
46	8°26.5	8°27.9	8°03.4	4.6 - 2.6	10.6 - 5.9	16.6 - 9.3	46	8°41.5	8°42.9	8°17.7	4.6 - 2.6	10.6 - 6.1	16.6 - 9.5	46	8°56.5	8°58.0	8°32.1	4.6 - 2.7	10.6 - 6.3	16.6 - 9.8
47	8°26.7	8°28.1	8°03.7	4.7 - 2.6	10.7 - 6.0	16.7 - 9.3	47	8°41.7	8°43.2	8°18.0	4.7 - 2.7	10.7 - 6.2	16.7 - 9.6	47	8°56.7	8°58.2	8°32.3	4.7 - 2.8	10.7 - 6.3	16.7 - 9.9
48	8°27.0	8°28.4	8°03.9	4.8 - 2.7	10.8 - 6.0	16.8 - 9.4	48	8°42.0	8°43.4	8°18.2	4.8 - 2.8	10.8 - 6.2	16.8 - 9.7	48	8°57.0	8°58.5	8°32.5	4.8 - 2.8	10.8 - 6.4	16.8 - 9.9
49	8°27.3	8°28																		

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
36	Plan.					
0	9°00.0	9°01.5	8°35.4	0.0 - 0.0	6.0 - 3.6	12.0 - 7.3
1	9°00.2	9°01.7	8°35.6	0.1 - 0.1	6.1 - 3.7	12.1 - 7.4
2	9°00.5	9°02.0	8°35.9	0.2 - 0.1	6.2 - 3.8	12.2 - 7.4
3	9°00.7	9°02.2	8°36.1	0.3 - 0.2	6.3 - 3.8	12.3 - 7.5
4	9°01.0	9°02.5	8°36.4	0.4 - 0.2	6.4 - 3.9	12.4 - 7.5
5	9°01.3	9°02.7	8°36.6	0.5 - 0.3	6.5 - 4.0	12.5 - 7.6
6	9°01.5	9°03.0	8°36.8	0.6 - 0.4	6.6 - 4.0	12.6 - 7.7
7	9°01.8	9°03.2	8°37.1	0.7 - 0.4	6.7 - 4.1	12.7 - 7.7
8	9°02.0	9°03.5	8°37.3	0.8 - 0.5	6.8 - 4.1	12.8 - 7.8
9	9°02.2	9°03.7	8°37.5	0.9 - 0.5	6.9 - 4.2	12.9 - 7.8
10	9°02.5	9°04.0	8°37.8	1.0 - 0.6	7.0 - 4.3	13.0 - 7.9
11	9°02.7	9°04.2	8°38.0	1.1 - 0.7	7.1 - 4.3	13.1 - 8.0
12	9°03.0	9°04.5	8°38.3	1.2 - 0.7	7.2 - 4.4	13.2 - 8.0
13	9°03.3	9°04.7	8°38.5	1.3 - 0.8	7.3 - 4.4	13.3 - 8.1
14	9°03.5	9°05.0	8°38.7	1.4 - 0.9	7.4 - 4.5	13.4 - 8.2
15	9°03.8	9°05.2	8°39.0	1.5 - 0.9	7.5 - 4.6	13.5 - 8.2
16	9°04.0	9°05.5	8°39.2	1.6 - 1.0	7.6 - 4.6	13.6 - 8.3
17	9°04.2	9°05.7	8°39.5	1.7 - 1.0	7.7 - 4.7	13.7 - 8.3
18	9°04.5	9°06.0	8°39.7	1.8 - 1.1	7.8 - 4.7	13.8 - 8.4
19	9°04.8	9°06.2	8°39.9	1.9 - 1.2	7.9 - 4.8	13.9 - 8.5
20	9°05.0	9°06.5	8°40.2	2.0 - 1.2	8.0 - 4.9	14.0 - 8.5
21	9°05.3	9°06.7	8°40.4	2.1 - 1.3	8.1 - 4.9	14.1 - 8.6
22	9°05.5	9°07.0	8°40.6	2.2 - 1.3	8.2 - 5.0	14.2 - 8.6
23	9°05.7	9°07.2	8°40.9	2.3 - 1.4	8.3 - 5.0	14.3 - 8.7
24	9°06.0	9°07.5	8°41.1	2.4 - 1.5	8.4 - 5.1	14.4 - 8.8
25	9°06.2	9°07.7	8°41.4	2.5 - 1.5	8.5 - 5.2	14.5 - 8.8
26	9°06.5	9°08.0	8°41.6	2.6 - 1.6	8.6 - 5.2	14.6 - 8.9
27	9°06.8	9°08.2	8°41.8	2.7 - 1.6	8.7 - 5.3	14.7 - 8.9
28	9°07.0	9°08.5	8°42.1	2.8 - 1.7	8.8 - 5.4	14.8 - 9.0
29	9°07.3	9°08.7	8°42.3	2.9 - 1.8	8.9 - 5.4	14.9 - 9.1
30	9°07.5	9°09.0	8°42.6	3.0 - 1.8	9.0 - 5.5	15.0 - 9.1
31	9°07.7	9°09.2	8°42.8	3.1 - 1.9	9.1 - 5.5	15.1 - 9.2
32	9°08.0	9°09.5	8°43.0	3.2 - 1.9	9.2 - 5.6	15.2 - 9.2
33	9°08.2	9°09.7	8°43.3	3.3 - 2.0	9.3 - 5.7	15.3 - 9.3
34	9°08.5	9°10.0	8°43.5	3.4 - 2.1	9.4 - 5.7	15.4 - 9.4
35	9°08.8	9°10.2	8°43.8	3.5 - 2.1	9.5 - 5.8	15.5 - 9.4
36	9°09.0	9°10.5	8°44.0	3.6 - 2.2	9.6 - 5.8	15.6 - 9.5
37	9°09.3	9°10.8	8°44.2	3.7 - 2.3	9.7 - 5.9	15.7 - 9.6
38	9°09.5	9°11.0	8°44.5	3.8 - 2.3	9.8 - 6.0	15.8 - 9.6
39	9°09.7	9°11.3	8°44.7	3.9 - 2.4	9.9 - 6.0	15.9 - 9.7
40	9°10.0	9°11.5	8°44.9	4.0 - 2.4	10.0 - 6.1	16.0 - 9.7
41	9°10.2	9°11.8	8°45.2	4.1 - 2.5	10.1 - 6.1	16.1 - 9.8
42	9°10.5	9°12.0	8°45.4	4.2 - 2.6	10.2 - 6.2	16.2 - 9.9
43	9°10.8	9°12.3	8°45.7	4.3 - 2.6	10.3 - 6.3	16.3 - 9.9
44	9°11.0	9°12.5	8°45.9	4.4 - 2.7	10.4 - 6.3	16.4 - 10.0
45	9°11.3	9°12.8	8°46.1	4.5 - 2.7	10.5 - 6.4	16.5 - 10.0
46	9°11.5	9°13.0	8°46.4	4.6 - 2.8	10.6 - 6.4	16.6 - 10.1
47	9°11.7	9°13.3	8°46.6	4.7 - 2.9	10.7 - 6.5	16.7 - 10.2
48	9°12.0	9°13.5	8°46.9	4.8 - 2.9	10.8 - 6.6	16.8 - 10.2
49	9°12.3	9°13.8	8°47.1	4.9 - 3.0	10.9 - 6.6	16.9 - 10.3
50	9°12.5	9°14.0	8°47.3	5.0 - 3.0	11.0 - 6.7	17.0 - 10.3
51	9°12.8	9°14.3	8°47.6	5.1 - 3.1	11.1 - 6.8	17.1 - 10.4
52	9°13.0	9°14.5	8°47.8	5.2 - 3.2	11.2 - 6.8	17.2 - 10.5
53	9°13.2	9°14.8	8°48.0	5.3 - 3.2	11.3 - 6.9	17.3 - 10.5
54	9°13.5	9°15.0	8°48.3	5.4 - 3.3	11.4 - 6.9	17.4 - 10.6
55	9°13.7	9°15.3	8°48.5	5.5 - 3.3	11.5 - 7.0	17.5 - 10.6
56	9°14.0	9°15.5	8°48.8	5.6 - 3.4	11.6 - 7.1	17.6 - 10.7
57	9°14.3	9°15.8	8°49.0	5.7 - 3.5	11.7 - 7.1	17.7 - 10.8
58	9°14.5	9°16.0	8°49.2	5.8 - 3.5	11.8 - 7.2	17.8 - 10.8
59	9°14.8	9°16.3	8°49.5	5.9 - 3.6	11.9 - 7.2	17.9 - 10.9

m	Sun	Aries	Moon	v and d corr		
37	Plan.					
0	9°15.0	9°16.5	8°49.7	0.0 - 0.0	6.0 - 3.8	12.0 - 7.5
1	9°15.2	9°16.8	8°50.0	0.1 - 0.1	6.1 - 3.8	12.1 - 7.6
2	9°15.5	9°17.0	8°50.2	0.2 - 0.1	6.2 - 3.9	12.2 - 7.6
3	9°15.7	9°17.3	8°50.4	0.3 - 0.2	6.3 - 3.9	12.3 - 7.7
4	9°16.0	9°17.5	8°50.7	0.4 - 0.3	6.4 - 4.0	12.4 - 7.8
5	9°16.3	9°17.8	8°50.9	0.5 - 0.3	6.5 - 4.1	12.5 - 7.8
6	9°16.5	9°18.0	8°51.1	0.6 - 0.4	6.6 - 4.1	12.6 - 7.9
7	9°16.8	9°18.3	8°51.4	0.7 - 0.4	6.7 - 4.2	12.7 - 7.9
8	9°17.0	9°18.5	8°51.6	0.8 - 0.5	6.8 - 4.3	12.8 - 8.0
9	9°17.2	9°18.8	8°51.9	0.9 - 0.6	6.9 - 4.3	12.9 - 8.1
10	9°17.5	9°19.0	8°52.1	1.0 - 0.6	7.0 - 4.4	13.0 - 8.1
11	9°17.7	9°19.3	8°52.3	1.1 - 0.7	7.1 - 4.4	13.1 - 8.2
12	9°18.0	9°19.5	8°52.6	1.2 - 0.8	7.2 - 4.5	13.2 - 8.3
13	9°18.3	9°19.8	8°52.8	1.3 - 0.8	7.3 - 4.6	13.3 - 8.3
14	9°18.5	9°20.0	8°53.1	1.4 - 0.9	7.4 - 4.6	13.4 - 8.4
15	9°18.8	9°20.3	8°53.3	1.5 - 0.9	7.5 - 4.7	13.5 - 8.4
16	9°19.0	9°20.5	8°53.5	1.6 - 1.0	7.6 - 4.8	13.6 - 8.5
17	9°19.2	9°20.8	8°53.8	1.7 - 1.1	7.7 - 4.8	13.7 - 8.6
18	9°19.5	9°21.0	8°54.0	1.8 - 1.1	7.8 - 4.9	13.8 - 8.6
19	9°19.8	9°21.3	8°54.3	1.9 - 1.2	7.9 - 4.9	13.9 - 8.7
20	9°20.0	9°21.5	8°54.5	2.0 - 1.3	8.0 - 5.0	14.0 - 8.8
21	9°20.3	9°21.8	8°54.7	2.1 - 1.3	8.1 - 5.1	14.1 - 8.8
22	9°20.5	9°22.0	8°55.0	2.2 - 1.4	8.2 - 5.1	14.2 - 8.9
23	9°20.7	9°22.3	8°55.2	2.3 - 1.4	8.3 - 5.2	14.3 - 8.9
24	9°21.0	9°22.5	8°55.4	2.4 - 1.5	8.4 - 5.3	14.4 - 9.0
25	9°21.2	9°22.8	8°55.7	2.5 - 1.6	8.5 - 5.3	14.5 - 9.1
26	9°21.5	9°23.0	8°55.9	2.6 - 1.6	8.6 - 5.4	14.6 - 9.1
27	9°21.8	9°23.3	8°56.2	2.7 - 1.7	8.7 - 5.4	14.7 - 9.2
28	9°22.0	9°23.5	8°56.4	2.8 - 1.8	8.8 - 5.5	14.8 - 9.3
29	9°22.3	9°23.8	8°56.6	2.9 - 1.8	8.9 - 5.6	14.9 - 9.3
30	9°22.5	9°24.0	8°56.9	3.0 - 1.9	9.0 - 5.6	15.0 - 9.4
31	9°22.7	9°24.3	8°57.1	3.1 - 1.9	9.1 - 5.7	15.1 - 9.4
32	9°23.0	9°24.5	8°57.4	3.2 - 2.0	9.2 - 5.8	15.2 - 9.5
33	9°23.2	9°24.8	8°57.6	3.3 - 2.1	9.3 - 5.8	15.3 - 9.6
34	9°23.5	9°25.0	8°57.8	3.4 - 2.1	9.4 - 5.9	15.4 - 9.6
35	9°23.8	9°25.3	8°58.1	3.5 - 2.2	9.5 - 5.9	15.5 - 9.7
36	9°24.0	9°25.5	8°58.3	3.6 - 2.3	9.6 - 6.0	15.6 - 9.8
37	9°24.3	9°25.8	8°58.5	3.7 - 2.3	9.7 - 6.1	15.7 - 9.8
38	9°24.5	9°26.0	8°58.8	3.8 - 2.4	9.8 - 6.1	15.8 - 9.9
39	9°24.7	9°26.3	8°59.0	3.9 - 2.4	9.9 - 6.2	15.9 - 9.9
40	9°25.0	9°26.5	8°59.3	4.0 - 2.5	10.0 - 6.3	16.0 - 10.0
41	9°25.2	9°26.8	8°59.5	4.1 - 2.6	10.1 - 6.3	16.1 - 10.1
42	9°25.5	9°27.0	8°59.7	4.2 - 2.6	10.2 - 6.4	16.2 - 10.1
43	9°25.8	9°27.3	9°00.0	4.3 - 2.7	10.3 - 6.4	16.3 - 10.2
44	9°26.0	9°27.5	9°00.2	4.4 - 2.8	10.4 - 6.5	16.4 - 10.3
45	9°26.3	9°27.8	9°00.5	4.5 - 2.8	10.5 - 6.6	16.5 - 10.3
46	9°26.5	9°28.0	9°00.7	4.6 - 2.9	10.6 - 6.6	16.6 - 10.4
47	9°26.7	9°28.3	9°00.9	4.7 - 2.9	10.7 - 6.7	16.7 - 10.4
48	9°27.0	9°28.5	9°01.2	4.8 - 3.0	10.8 - 6.8	16.8 - 10.5
49	9°27.3	9°28.8	9°01.4	4.9 - 3.1	10.9 - 6.8	16.9 - 10.6
50	9°27.5	9°29.1	9°01.6	5.0 - 3.1	11.0 - 6.9	17.0 - 10.6
51	9°27.8	9°29.3	9°01.9	5.1 - 3.2	11.1 - 6.9	17.1 - 10.7
52	9°28.0	9°29.6	9°02.1	5.2 - 3.3	11.2 - 7.0	17.2 - 10.8
53	9°28.2	9°29.8	9°02.4	5.3 - 3.3	11.3 - 7.1	17.3 - 10.8
54	9°28.5	9°30.1	9°02.6	5.4 - 3.4	11.4 - 7.1	17.4 - 10.9
55	9°28.7	9°30.3	9°02.8	5.5 - 3.4	11.5 - 7.2	17.5 - 10.9
56	9°29.0	9°30.6	9°03.1	5.6 - 3.5	11.6 - 7.3	17.6 - 11.0
57	9°29.3	9°30.8	9°03.3	5.7 - 3.6	11.7 - 7.3	17.7 - 11.1
58	9°29.5	9°31.1	9°03.6	5.8 - 3.6	11.8 - 7.4	17.8 - 11.1
59	9°29.8	9°31.3	9°03.8	5.9 - 3.7	11.9 - 7.4	17.9 - 11.2

m	Sun	Aries	Moon	v and d corr		
38	Plan.					
0	9°30.0	9°31.6	9°04.0	0.0 - 0.0	6.0 - 3.9	12.0 - 7.7
1	9°30.2	9°31.8	9°04.3	0.1 - 0.1	6.1 - 3.9	12.1 - 7.8
2	9°30.5	9°32.1	9°04.5	0.2 - 0.1	6.2 - 4.0	12.2 - 7.8
3	9°30.7	9°32.3	9°04.7	0.3 - 0.2	6.3 - 4.0	12.3 - 7.9
4	9°31.0	9°32.6	9°05.0	0.4 - 0.3	6.4 - 4.1	12.4 - 8.0
5	9°31.3	9°32.8	9°05.2	0.5 - 0.3	6.5 - 4.2	12.5 - 8.0
6	9°31.5	9°33.1	9°05.5	0.6 - 0.4	6.6 - 4.2	12.6 - 8.1
7	9°31.8	9°33.3	9°05.7	0.7 - 0.4	6.7 - 4.3	12.7 - 8.1
8	9°32.0	9°33.6	9°05.9	0.8 - 0.5	6.8 - 4.4	12.8 - 8.2
9	9°32.2	9°33.8	9°06.2	0.9 - 0.6	6.9 - 4.4	12.9 - 8.3
10	9°32.5	9°34.1	9°06.4	1.0 - 0.6	7.0 - 4.5	13.0 - 8.3
11	9°32.7	9°34.3	9°06.7	1.1 - 0.7	7.1 - 4.6	13.1 - 8.4
12	9°33.0	9°34.6	9°06.9	1.2 - 0.8	7.2 - 4.6	13.2 - 8.5
13	9°33.3	9°34.8	9°07.1	1.3 - 0.8	7.3 - 4.7	13.3 - 8.5
14	9°33.5	9°35.1	9°07.4	1.4 - 0.9	7.4 - 4.7	13.4 - 8.6
15	9°33.8	9°35.3	9°07.6	1.5 - 1.0	7.5 - 4.8	13.5 - 8.7
16	9°34.0	9°35.6	9°07.9	1.6 - 1.0	7.6 - 4.9	13.6 - 8.7
17	9°34.2	9°35.8	9°08.1	1.7 - 1.1	7.7 - 4.9	13.7 - 8.8
18	9°34.5	9°36.1	9°08.3	1.8 - 1.2	7.8 - 5.0	13.8 - 8.9
19	9°34.8	9°36.3	9°08.6	1.9 - 1.2	7.9 - 5.1	13.9 - 8.9
20	9°35.0	9°36.6	9°08.8	2.0 - 1.3	8.0 - 5.1	14.0 - 9.0
21	9°35.3	9°36.8	9°09.0	2.1 - 1.3	8.1 - 5.2	14.1 - 9.0
22	9°35.5	9°37.1	9°09.3	2.2 - 1.4	8.2 - 5.3	14.2 - 9.1
23	9°35.7	9°37.3	9°09.5	2.3 - 1.5	8.3 - 5.3	14.3 - 9.2
24	9°36.0	9°37.6	9°09.8	2.4 - 1.5	8.4 - 5.4	14.4 - 9.2
25	9°36.2	9°37.8	9°10.0	2.5 - 1.6	8.5 - 5.5	14.5 - 9.3
26	9°36.5	9°38.1	9°10.2	2.6 - 1.7	8.6 - 5.5	14.6 - 9.4
27	9°36.8	9°38.3	9°10.5	2.7 - 1.7	8.7 - 5.6	14.7 - 9.4
28	9°37.0	9°38.6	9°10.7	2.8 - 1.8	8.8 - 5.6	14.8 - 9.5
29	9°37.3	9°38.8	9°11.0	2.9 - 1.9	8.9 - 5.7	14.9 - 9.6
30	9°37.5	9°39.1	9°11.2	3.0 - 1.9	9.0 - 5.8	15.0 - 9.6
31	9°37.7	9°39.3	9°11.4	3.1 - 2.0	9.1 - 5.8	15.1 - 9.7
32	9°38.0	9°39.6	9°11.7	3.2 - 2.1	9.2 - 5.9	15.2 - 9.8
33	9°38.2	9°39.8	9°11.9	3.3 - 2.1	9.3 - 6.0	15.3 - 9.8
34	9°38.5	9°40.1	9°12.1	3.4 - 2.2	9.4 - 6.0	15.4 - 9.9
35	9°38.8	9°40.3	9°12.4	3.5 - 2.2	9.5 - 6.1	15.5 - 9.9
36	9°39.0	9°40.6	9°12.6	3.6 - 2.3	9.6 - 6.2	15.6 - 10.0
37	9°39.3	9°40.8	9°12.9	3.7 - 2.4	9.7 - 6.2	15.7 - 10.1
38	9°39.5	9°41.1	9°13.1	3.8 - 2.4	9.8 - 6.3	15.8 - 10.1
39	9°39.7	9°41.3	9°13.3	3.9 - 2.5	9.9 - 6.4	15.9 - 10.2
40	9°40.0	9°41.6	9°13.6	4.0 - 2.6	10.0 - 6.4	16.0 - 10.3
41	9°40.2	9°41.8	9°13.8	4.1 - 2.6	10.1 - 6.5	16.1 - 10.3
42	9°40.5	9°42.1	9°14.1	4.2 - 2.7	10.2 - 6.5	16.2 - 10.4
43	9°40.8	9°42.3	9°14.3	4.3 - 2.8	10.3 - 6.6	16.3 - 10.5
44	9°41.0	9°42.6	9°14.5	4.4 - 2.8	10.4 - 6.7	16.4 - 10.5
45	9°41.3	9°42.8	9°14.8	4.5 - 2.9	10.5 - 6.7	16.5 - 10.6
46	9°41.5	9°43.1	9°15.0	4.6 - 3.0	10.6 - 6.8	16.6 - 10.7
47	9°41.7	9°43.3	9°15.2	4.7 - 3.0	10.7 - 6.9	16.7 - 10.7
48	9°42.0	9°43.6	9°15.5	4.8 - 3.1	10.8 - 6.9	16.8 - 10.8
49	9°42.3	9°43.8	9°15.7	4.9 - 3.1	10.9 - 7.0	16.9 - 10.8
50	9°42.5	9°44.1	9°16.0	5.0 - 3.2	11.0 - 7.1	17.0 - 10.9
51	9°42.8	9°44.3	9°16.2	5.1 - 3.3	11.1 - 7.1	17.1 - 11.0
52	9°43.0	9°44.6	9°16.4	5.2 - 3.3	11.2 - 7.2	17.2 - 11.0
53	9°43.2	9°44.8	9°16.7	5.3 - 3.4	11.3 - 7.3	17.3 - 11.1
54	9°43.5	9°45.1	9°16.9	5.4 - 3.5	11.4 - 7.3	17.4 - 11.2
55	9°43.7	9°45.3	9°17.2	5.5 - 3.5	11.5 - 7.4	17.5 - 11.2
56	9°44.0	9°45.6	9°17.4	5.6 - 3.6	11.6 - 7.4	17.6 - 11.3
57	9°44.3	9°45.8	9°17.6	5.7 - 3.7	11.7 - 7.5	17.7 - 11.4
58	9°44.5	9°46.1	9°17.9	5.8 - 3.7	11.8 - 7.6	17.8 - 11.4
59	9°44.8	9°46.3	9°18.1	5.9 - 3.8	11.9 - 7.6	17.9 - 11.5

Increments and Corrections

m 39	Sun Plan.	Aries	Moon	v and d corr		
0	9°45.0	9°46.6	9°18.4	0.0 - 0.0	6.0 - 4.0	12.0 - 7.9
1	9°45.2	9°46.8	9°18.6	0.1 - 0.1	6.1 - 4.0	12.1 - 8.0
2	9°45.5	9°47.1	9°18.8	0.2 - 0.1	6.2 - 4.1	12.2 - 8.0
3	9°45.7	9°47.4	9°19.1	0.3 - 0.2	6.3 - 4.1	12.3 - 8.1
4	9°46.0	9°47.6	9°19.3	0.4 - 0.3	6.4 - 4.2	12.4 - 8.2
5	9°46.3	9°47.9	9°19.5	0.5 - 0.3	6.5 - 4.3	12.5 - 8.2
6	9°46.5	9°48.1	9°19.8	0.6 - 0.4	6.6 - 4.3	12.6 - 8.3
7	9°46.8	9°48.4	9°20.0	0.7 - 0.5	6.7 - 4.4	12.7 - 8.4
8	9°47.0	9°48.6	9°20.3	0.8 - 0.5	6.8 - 4.5	12.8 - 8.4
9	9°47.2	9°48.9	9°20.5	0.9 - 0.6	6.9 - 4.5	12.9 - 8.5
10	9°47.5	9°49.1	9°20.7	1.0 - 0.7	7.0 - 4.6	13.0 - 8.6
11	9°47.7	9°49.4	9°21.0	1.1 - 0.7	7.1 - 4.7	13.1 - 8.6
12	9°48.0	9°49.6	9°21.2	1.2 - 0.8	7.2 - 4.7	13.2 - 8.7
13	9°48.3	9°49.9	9°21.5	1.3 - 0.9	7.3 - 4.8	13.3 - 8.8
14	9°48.5	9°50.1	9°21.7	1.4 - 0.9	7.4 - 4.9	13.4 - 8.8
15	9°48.8	9°50.4	9°21.9	1.5 - 1.0	7.5 - 4.9	13.5 - 8.9
16	9°49.0	9°50.6	9°22.2	1.6 - 1.1	7.6 - 5.0	13.6 - 9.0
17	9°49.2	9°50.9	9°22.4	1.7 - 1.1	7.7 - 5.1	13.7 - 9.0
18	9°49.5	9°51.1	9°22.6	1.8 - 1.2	7.8 - 5.1	13.8 - 9.1
19	9°49.8	9°51.4	9°22.9	1.9 - 1.3	7.9 - 5.2	13.9 - 9.2
20	9°50.0	9°51.6	9°23.1	2.0 - 1.3	8.0 - 5.3	14.0 - 9.2
21	9°50.3	9°51.9	9°23.4	2.1 - 1.4	8.1 - 5.3	14.1 - 9.3
22	9°50.5	9°52.1	9°23.6	2.2 - 1.4	8.2 - 5.4	14.2 - 9.3
23	9°50.7	9°52.4	9°23.8	2.3 - 1.5	8.3 - 5.5	14.3 - 9.4
24	9°51.0	9°52.6	9°24.1	2.4 - 1.6	8.4 - 5.5	14.4 - 9.5
25	9°51.2	9°52.9	9°24.3	2.5 - 1.6	8.5 - 5.6	14.5 - 9.5
26	9°51.5	9°53.1	9°24.6	2.6 - 1.7	8.6 - 5.7	14.6 - 9.6
27	9°51.8	9°53.4	9°24.8	2.7 - 1.8	8.7 - 5.7	14.7 - 9.7
28	9°52.0	9°53.6	9°25.0	2.8 - 1.8	8.8 - 5.8	14.8 - 9.7
29	9°52.3	9°53.9	9°25.3	2.9 - 1.9	8.9 - 5.9	14.9 - 9.8
30	9°52.5	9°54.1	9°25.5	3.0 - 2.0	9.0 - 5.9	15.0 - 9.9
31	9°52.7	9°54.4	9°25.7	3.1 - 2.0	9.1 - 6.0	15.1 - 9.9
32	9°53.0	9°54.6	9°26.0	3.2 - 2.1	9.2 - 6.1	15.2 - 10.0
33	9°53.2	9°54.9	9°26.2	3.3 - 2.2	9.3 - 6.1	15.3 - 10.1
34	9°53.5	9°55.1	9°26.5	3.4 - 2.2	9.4 - 6.2	15.4 - 10.1
35	9°53.8	9°55.4	9°26.7	3.5 - 2.3	9.5 - 6.3	15.5 - 10.2
36	9°54.0	9°55.6	9°26.9	3.6 - 2.4	9.6 - 6.3	15.6 - 10.3
37	9°54.3	9°55.9	9°27.2	3.7 - 2.4	9.7 - 6.4	15.7 - 10.3
38	9°54.5	9°56.1	9°27.4	3.8 - 2.5	9.8 - 6.5	15.8 - 10.4
39	9°54.7	9°56.4	9°27.7	3.9 - 2.6	9.9 - 6.5	15.9 - 10.5
40	9°55.0	9°56.6	9°27.9	4.0 - 2.6	10.0 - 6.6	16.0 - 10.5
41	9°55.2	9°56.9	9°28.1	4.1 - 2.7	10.1 - 6.6	16.1 - 10.6
42	9°55.5	9°57.1	9°28.4	4.2 - 2.8	10.2 - 6.7	16.2 - 10.7
43	9°55.8	9°57.4	9°28.6	4.3 - 2.8	10.3 - 6.8	16.3 - 10.7
44	9°56.0	9°57.6	9°28.8	4.4 - 2.9	10.4 - 6.8	16.4 - 10.8
45	9°56.3	9°57.9	9°29.1	4.5 - 3.0	10.5 - 6.9	16.5 - 10.9
46	9°56.5	9°58.1	9°29.3	4.6 - 3.0	10.6 - 7.0	16.6 - 10.9
47	9°56.7	9°58.4	9°29.6	4.7 - 3.1	10.7 - 7.0	16.7 - 11.0
48	9°57.0	9°58.6	9°29.8	4.8 - 3.2	10.8 - 7.1	16.8 - 11.1
49	9°57.3	9°58.9	9°30.0	4.9 - 3.2	10.9 - 7.2	16.9 - 11.1
50	9°57.5	9°59.1	9°30.3	5.0 - 3.3	11.0 - 7.2	17.0 - 11.2
51	9°57.8	9°59.4	9°30.5	5.1 - 3.4	11.1 - 7.3	17.1 - 11.3
52	9°58.0	9°59.6	9°30.8	5.2 - 3.4	11.2 - 7.4	17.2 - 11.3
53	9°58.2	9°59.9	9°31.0	5.3 - 3.5	11.3 - 7.4	17.3 - 11.4
54	9°58.5	10°00.1	9°31.2	5.4 - 3.6	11.4 - 7.5	17.4 - 11.5
55	9°58.7	10°00.4	9°31.5	5.5 - 3.6	11.5 - 7.6	17.5 - 11.5
56	9°59.0	10°00.6	9°31.7	5.6 - 3.7	11.6 - 7.6	17.6 - 11.6
57	9°59.3	10°00.9	9°32.0	5.7 - 3.8	11.7 - 7.7	17.7 - 11.7
58	9°59.5	10°01.1	9°32.2	5.8 - 3.8	11.8 - 7.8	17.8 - 11.7
59	9°59.8	10°01.4	9°32.4	5.9 - 3.9	11.9 - 7.8	17.9 - 11.8

m 40	Sun Plan.	Aries	Moon	v and d corr		
0	10°00.0	10°01.6	9°32.7	0.0 - 0.0	6.0 - 4.1	12.0 - 8.1
1	10°00.2	10°01.9	9°32.9	0.1 - 0.1	6.1 - 4.1	12.1 - 8.2
2	10°00.5	10°02.1	9°33.1	0.2 - 0.1	6.2 - 4.2	12.2 - 8.2
3	10°00.7	10°02.4	9°33.4	0.3 - 0.2	6.3 - 4.3	12.3 - 8.3
4	10°01.0	10°02.6	9°33.6	0.4 - 0.3	6.4 - 4.3	12.4 - 8.4
5	10°01.3	10°02.9	9°33.9	0.5 - 0.3	6.5 - 4.4	12.5 - 8.4
6	10°01.5	10°03.1	9°34.1	0.6 - 0.4	6.6 - 4.5	12.6 - 8.5
7	10°01.8	10°03.4	9°34.3	0.7 - 0.5	6.7 - 4.5	12.7 - 8.6
8	10°02.0	10°03.6	9°34.6	0.8 - 0.5	6.8 - 4.6	12.8 - 8.6
9	10°02.2	10°03.9	9°34.8	0.9 - 0.6	6.9 - 4.7	12.9 - 8.7
10	10°02.5	10°04.1	9°35.1	1.0 - 0.7	7.0 - 4.7	13.0 - 8.8
11	10°02.7	10°04.4	9°35.3	1.1 - 0.7	7.1 - 4.8	13.1 - 8.8
12	10°03.0	10°04.6	9°35.5	1.2 - 0.8	7.2 - 4.9	13.2 - 8.9
13	10°03.3	10°04.9	9°35.8	1.3 - 0.9	7.3 - 4.9	13.3 - 9.0
14	10°03.5	10°05.1	9°36.0	1.4 - 0.9	7.4 - 5.0	13.4 - 9.0
15	10°03.8	10°05.4	9°36.2	1.5 - 1.0	7.5 - 5.1	13.5 - 9.1
16	10°04.0	10°05.7	9°36.5	1.6 - 1.1	7.6 - 5.1	13.6 - 9.2
17	10°04.2	10°05.9	9°36.7	1.7 - 1.1	7.7 - 5.2	13.7 - 9.2
18	10°04.5	10°06.2	9°37.0	1.8 - 1.2	7.8 - 5.3	13.8 - 9.3
19	10°04.8	10°06.4	9°37.2	1.9 - 1.3	7.9 - 5.3	13.9 - 9.4
20	10°05.0	10°06.7	9°37.4	2.0 - 1.4	8.0 - 5.4	14.0 - 9.5
21	10°05.3	10°06.9	9°37.7	2.1 - 1.4	8.1 - 5.5	14.1 - 9.5
22	10°05.5	10°07.2	9°37.9	2.2 - 1.5	8.2 - 5.5	14.2 - 9.6
23	10°05.7	10°07.4	9°38.2	2.3 - 1.6	8.3 - 5.6	14.3 - 9.7
24	10°06.0	10°07.7	9°38.4	2.4 - 1.6	8.4 - 5.7	14.4 - 9.7
25	10°06.2	10°07.9	9°38.6	2.5 - 1.7	8.5 - 5.7	14.5 - 9.8
26	10°06.5	10°08.2	9°38.9	2.6 - 1.8	8.6 - 5.8	14.6 - 9.9
27	10°06.8	10°08.4	9°39.1	2.7 - 1.8	8.7 - 5.9	14.7 - 9.9
28	10°07.0	10°08.7	9°39.3	2.8 - 1.9	8.8 - 5.9	14.8 - 10.0
29	10°07.3	10°08.9	9°39.6	2.9 - 2.0	8.9 - 6.0	14.9 - 10.1
30	10°07.5	10°09.2	9°39.8	3.0 - 2.0	9.0 - 6.1	15.0 - 10.1
31	10°07.7	10°09.4	9°40.1	3.1 - 2.1	9.1 - 6.1	15.1 - 10.2
32	10°08.0	10°09.7	9°40.3	3.2 - 2.2	9.2 - 6.2	15.2 - 10.3
33	10°08.2	10°09.9	9°40.5	3.3 - 2.2	9.3 - 6.3	15.3 - 10.3
34	10°08.5	10°10.2	9°40.8	3.4 - 2.3	9.4 - 6.3	15.4 - 10.4
35	10°08.8	10°10.4	9°41.0	3.5 - 2.4	9.5 - 6.4	15.5 - 10.5
36	10°09.0	10°10.7	9°41.3	3.6 - 2.4	9.6 - 6.5	15.6 - 10.5
37	10°09.3	10°10.9	9°41.5	3.7 - 2.5	9.7 - 6.5	15.7 - 10.6
38	10°09.5	10°11.2	9°41.7	3.8 - 2.6	9.8 - 6.6	15.8 - 10.7
39	10°09.7	10°11.4	9°42.0	3.9 - 2.6	9.9 - 6.7	15.9 - 10.7
40	10°10.0	10°11.7	9°42.2	4.0 - 2.7	10.0 - 6.8	16.0 - 10.8
41	10°10.2	10°11.9	9°42.4	4.1 - 2.8	10.1 - 6.8	16.1 - 10.9
42	10°10.5	10°12.2	9°42.7	4.2 - 2.8	10.2 - 6.9	16.2 - 10.9
43	10°10.8	10°12.4	9°42.9	4.3 - 2.9	10.3 - 7.0	16.3 - 11.0
44	10°11.0	10°12.7	9°43.2	4.4 - 3.0	10.4 - 7.0	16.4 - 11.1
45	10°11.3	10°12.9	9°43.4	4.5 - 3.0	10.5 - 7.1	16.5 - 11.1
46	10°11.5	10°13.2	9°43.6	4.6 - 3.1	10.6 - 7.2	16.6 - 11.2
47	10°11.7	10°13.4	9°43.9	4.7 - 3.2	10.7 - 7.2	16.7 - 11.3
48	10°12.0	10°13.7	9°44.1	4.8 - 3.2	10.8 - 7.3	16.8 - 11.3
49	10°12.3	10°13.9	9°44.4	4.9 - 3.3	10.9 - 7.4	16.9 - 11.4
50	10°12.5	10°14.2	9°44.6	5.0 - 3.4	11.0 - 7.4	17.0 - 11.5
51	10°12.8	10°14.4	9°44.8	5.1 - 3.4	11.1 - 7.5	17.1 - 11.5
52	10°13.0	10°14.7	9°45.1	5.2 - 3.5	11.2 - 7.6	17.2 - 11.6
53	10°13.2	10°14.9	9°45.3	5.3 - 3.6	11.3 - 7.6	17.3 - 11.7
54	10°13.5	10°15.2	9°45.6	5.4 - 3.6	11.4 - 7.7	17.4 - 11.7
55	10°13.7	10°15.4	9°45.8	5.5 - 3.7	11.5 - 7.8	17.5 - 11.8
56	10°14.0	10°15.7	9°46.0	5.6 - 3.8	11.6 - 7.8	17.6 - 11.9
57	10°14.3	10°15.9	9°46.3	5.7 - 3.8	11.7 - 7.9	17.7 - 11.9
58	10°14.5	10°16.2	9°46.5	5.8 - 3.9	11.8 - 8.0	17.8 - 12.0
59	10°14.8	10°16.4	9°46.7	5.9 - 4.0	11.9 - 8.0	17.9 - 12.1

m	Sun	Aries	Moon	v and d corr		
41	Plan.					
0	10°15.0	10°16.7	9°47.0	0.0 - 0.0	6.0 - 4.2	12.0 - 8.3
1	10°15.2	10°16.9	9°47.2	0.1 - 0.1	6.1 - 4.2	12.1 - 8.4
2	10°15.5	10°17.2	9°47.5	0.2 - 0.1	6.2 - 4.3	12.2 - 8.4
3	10°15.7	10°17.4	9°47.7	0.3 - 0.2	6.3 - 4.4	12.3 - 8.5
4	10°16.0	10°17.7	9°47.9	0.4 - 0.3	6.4 - 4.4	12.4 - 8.6
5	10°16.3	10°17.9	9°48.2	0.5 - 0.3	6.5 - 4.5	12.5 - 8.6
6	10°16.5	10°18.2	9°48.4	0.6 - 0.4	6.6 - 4.6	12.6 - 8.7
7	10°16.8	10°18.4	9°48.7	0.7 - 0.5	6.7 - 4.6	12.7 - 8.8
8	10°17.0	10°18.7	9°48.9	0.8 - 0.6	6.8 - 4.7	12.8 - 8.9
9	10°17.2	10°18.9	9°49.1	0.9 - 0.6	6.9 - 4.8	12.9 - 8.9
10	10°17.5	10°19.2	9°49.4	1.0 - 0.7	7.0 - 4.8	13.0 - 9.0
11	10°17.7	10°19.4	9°49.6	1.1 - 0.8	7.1 - 4.9	13.1 - 9.1
12	10°18.0	10°19.7	9°49.8	1.2 - 0.8	7.2 - 5.0	13.2 - 9.1
13	10°18.3	10°19.9	9°50.1	1.3 - 0.9	7.3 - 5.0	13.3 - 9.2
14	10°18.5	10°20.2	9°50.3	1.4 - 1.0	7.4 - 5.1	13.4 - 9.3
15	10°18.8	10°20.4	9°50.6	1.5 - 1.0	7.5 - 5.2	13.5 - 9.3
16	10°19.0	10°20.7	9°50.8	1.6 - 1.1	7.6 - 5.3	13.6 - 9.4
17	10°19.2	10°20.9	9°51.0	1.7 - 1.2	7.7 - 5.3	13.7 - 9.5
18	10°19.5	10°21.2	9°51.3	1.8 - 1.2	7.8 - 5.4	13.8 - 9.5
19	10°19.8	10°21.4	9°51.5	1.9 - 1.3	7.9 - 5.5	13.9 - 9.6
20	10°20.0	10°21.7	9°51.8	2.0 - 1.4	8.0 - 5.5	14.0 - 9.7
21	10°20.3	10°21.9	9°52.0	2.1 - 1.5	8.1 - 5.6	14.1 - 9.8
22	10°20.5	10°22.2	9°52.2	2.2 - 1.5	8.2 - 5.7	14.2 - 9.8
23	10°20.7	10°22.4	9°52.5	2.3 - 1.6	8.3 - 5.7	14.3 - 9.9
24	10°21.0	10°22.7	9°52.7	2.4 - 1.7	8.4 - 5.8	14.4 - 10.0
25	10°21.2	10°22.9	9°52.9	2.5 - 1.7	8.5 - 5.9	14.5 - 10.0
26	10°21.5	10°23.2	9°53.2	2.6 - 1.8	8.6 - 5.9	14.6 - 10.1
27	10°21.8	10°23.4	9°53.4	2.7 - 1.9	8.7 - 6.0	14.7 - 10.2
28	10°22.0	10°23.7	9°53.7	2.8 - 1.9	8.8 - 6.1	14.8 - 10.2
29	10°22.3	10°24.0	9°53.9	2.9 - 2.0	8.9 - 6.2	14.9 - 10.3
30	10°22.5	10°24.2	9°54.1	3.0 - 2.1	9.0 - 6.2	15.0 - 10.4
31	10°22.7	10°24.5	9°54.4	3.1 - 2.1	9.1 - 6.3	15.1 - 10.4
32	10°23.0	10°24.7	9°54.6	3.2 - 2.2	9.2 - 6.4	15.2 - 10.5
33	10°23.2	10°25.0	9°54.9	3.3 - 2.3	9.3 - 6.4	15.3 - 10.6
34	10°23.5	10°25.2	9°55.1	3.4 - 2.4	9.4 - 6.5	15.4 - 10.7
35	10°23.8	10°25.5	9°55.3	3.5 - 2.4	9.5 - 6.6	15.5 - 10.7
36	10°24.0	10°25.7	9°55.6	3.6 - 2.5	9.6 - 6.6	15.6 - 10.8
37	10°24.3	10°26.0	9°55.8	3.7 - 2.6	9.7 - 6.7	15.7 - 10.9
38	10°24.5	10°26.2	9°56.1	3.8 - 2.6	9.8 - 6.8	15.8 - 10.9
39	10°24.7	10°26.5	9°56.3	3.9 - 2.7	9.9 - 6.8	15.9 - 11.0
40	10°25.0	10°26.7	9°56.6	4.0 - 2.8	10.0 - 6.9	16.0 - 11.1
41	10°25.2	10°27.0	9°56.8	4.1 - 2.8	10.1 - 7.0	16.1 - 11.1
42	10°25.5	10°27.2	9°57.0	4.2 - 2.9	10.2 - 7.1	16.2 - 11.2
43	10°25.8	10°27.5	9°57.2	4.3 - 3.0	10.3 - 7.1	16.3 - 11.3
44	10°26.0	10°27.7	9°57.5	4.4 - 3.0	10.4 - 7.2	16.4 - 11.3
45	10°26.3	10°28.0	9°57.7	4.5 - 3.1	10.5 - 7.3	16.5 - 11.4
46	10°26.5	10°28.2	9°58.0	4.6 - 3.2	10.6 - 7.3	16.6 - 11.5
47	10°26.7	10°28.5	9°58.2	4.7 - 3.3	10.7 - 7.4	16.7 - 11.6
48	10°27.0	10°28.7	9°58.4	4.8 - 3.3	10.8 - 7.5	16.8 - 11.6
49	10°27.3	10°29.0	9°58.7	4.9 - 3.4	10.9 - 7.5	16.9 - 11.7
50	10°27.5	10°29.2	9°58.9	5.0 - 3.5	11.0 - 7.6	17.0 - 11.8
51	10°27.8	10°29.5	9°59.2	5.1 - 3.5	11.1 - 7.7	17.1 - 11.8
52	10°28.0	10°29.7	9°59.4	5.2 - 3.6	11.2 - 7.7	17.2 - 11.9
53	10°28.2	10°30.0	9°59.6	5.3 - 3.7	11.3 - 7.8	17.3 - 12.0
54	10°28.5	10°30.2	9°59.9	5.4 - 3.7	11.4 - 7.9	17.4 - 12.0
55	10°28.7	10°30.5	10°00.1	5.5 - 3.8	11.5 - 8.0	17.5 - 12.1
56	10°29.0	10°30.7	10°00.3	5.6 - 3.9	11.6 - 8.0	17.6 - 12.2
57	10°29.3	10°31.0	10°00.6	5.7 - 3.9	11.7 - 8.1	17.7 - 12.2
58	10°29.5	10°31.2	10°00.8	5.8 - 4.0	11.8 - 8.2	17.8 - 12.3
59	10°29.8	10°31.5	10°01.1	5.9 - 4.1	11.9 - 8.2	17.9 - 12.4

Increments and Corrections

m 42	Sun Plan.	Aries	Moon	v and d corr		
0	10°30.0	10°31.7	10°01.3	0.0 - 0.0	6.0 - 4.3	12.0 - 8.5
1	10°30.2	10°32.0	10°01.5	0.1 - 0.1	6.1 - 4.3	12.1 - 8.6
2	10°30.5	10°32.2	10°01.8	0.2 - 0.1	6.2 - 4.4	12.2 - 8.6
3	10°30.7	10°32.5	10°02.0	0.3 - 0.2	6.3 - 4.5	12.3 - 8.7
4	10°31.0	10°32.7	10°02.3	0.4 - 0.3	6.4 - 4.5	12.4 - 8.8
5	10°31.3	10°33.0	10°02.5	0.5 - 0.4	6.5 - 4.6	12.5 - 8.9
6	10°31.5	10°33.2	10°02.7	0.6 - 0.4	6.6 - 4.7	12.6 - 8.9
7	10°31.8	10°33.5	10°03.0	0.7 - 0.5	6.7 - 4.7	12.7 - 9.0
8	10°32.0	10°33.7	10°03.2	0.8 - 0.6	6.8 - 4.8	12.8 - 9.1
9	10°32.2	10°34.0	10°03.4	0.9 - 0.6	6.9 - 4.9	12.9 - 9.1
10	10°32.5	10°34.2	10°03.7	1.0 - 0.7	7.0 - 5.0	13.0 - 9.2
11	10°32.7	10°34.5	10°03.9	1.1 - 0.8	7.1 - 5.0	13.1 - 9.3
12	10°33.0	10°34.7	10°04.2	1.2 - 0.9	7.2 - 5.1	13.2 - 9.3
13	10°33.3	10°35.0	10°04.4	1.3 - 0.9	7.3 - 5.2	13.3 - 9.4
14	10°33.5	10°35.2	10°04.6	1.4 - 1.0	7.4 - 5.2	13.4 - 9.5
15	10°33.8	10°35.5	10°04.9	1.5 - 1.1	7.5 - 5.3	13.5 - 9.6
16	10°34.0	10°35.7	10°05.1	1.6 - 1.1	7.6 - 5.4	13.6 - 9.6
17	10°34.2	10°36.0	10°05.4	1.7 - 1.2	7.7 - 5.5	13.7 - 9.7
18	10°34.5	10°36.2	10°05.6	1.8 - 1.3	7.8 - 5.5	13.8 - 9.8
19	10°34.8	10°36.5	10°05.8	1.9 - 1.3	7.9 - 5.6	13.9 - 9.8
20	10°35.0	10°36.7	10°06.1	2.0 - 1.4	8.0 - 5.7	14.0 - 9.9
21	10°35.3	10°37.0	10°06.3	2.1 - 1.5	8.1 - 5.7	14.1 - 10.0
22	10°35.5	10°37.2	10°06.5	2.2 - 1.6	8.2 - 5.8	14.2 - 10.1
23	10°35.7	10°37.5	10°06.8	2.3 - 1.6	8.3 - 5.9	14.3 - 10.1
24	10°36.0	10°37.7	10°07.0	2.4 - 1.7	8.4 - 6.0	14.4 - 10.2
25	10°36.2	10°38.0	10°07.3	2.5 - 1.8	8.5 - 6.0	14.5 - 10.3
26	10°36.5	10°38.2	10°07.5	2.6 - 1.8	8.6 - 6.1	14.6 - 10.3
27	10°36.8	10°38.5	10°07.7	2.7 - 1.9	8.7 - 6.2	14.7 - 10.4
28	10°37.0	10°38.7	10°08.0	2.8 - 2.0	8.8 - 6.2	14.8 - 10.5
29	10°37.3	10°39.0	10°08.2	2.9 - 2.1	8.9 - 6.3	14.9 - 10.6
30	10°37.5	10°39.2	10°08.5	3.0 - 2.1	9.0 - 6.4	15.0 - 10.6
31	10°37.7	10°39.5	10°08.7	3.1 - 2.2	9.1 - 6.4	15.1 - 10.7
32	10°38.0	10°39.7	10°08.9	3.2 - 2.3	9.2 - 6.5	15.2 - 10.8
33	10°38.2	10°40.0	10°09.2	3.3 - 2.3	9.3 - 6.6	15.3 - 10.8
34	10°38.5	10°40.2	10°09.4	3.4 - 2.4	9.4 - 6.7	15.4 - 10.9
35	10°38.8	10°40.5	10°09.7	3.5 - 2.5	9.5 - 6.7	15.5 - 11.0
36	10°39.0	10°40.7	10°09.9	3.6 - 2.6	9.6 - 6.8	15.6 - 11.1
37	10°39.3	10°41.0	10°10.1	3.7 - 2.6	9.7 - 6.9	15.7 - 11.1
38	10°39.5	10°41.2	10°10.4	3.8 - 2.7	9.8 - 6.9	15.8 - 11.2
39	10°39.7	10°41.5	10°10.6	3.9 - 2.8	9.9 - 7.0	15.9 - 11.3
40	10°40.0	10°41.7	10°10.8	4.0 - 2.8	10.0 - 7.1	16.0 - 11.3
41	10°40.2	10°42.0	10°11.1	4.1 - 2.9	10.1 - 7.2	16.1 - 11.4
42	10°40.5	10°42.3	10°11.3	4.2 - 3.0	10.2 - 7.2	16.2 - 11.5
43	10°40.8	10°42.5	10°11.6	4.3 - 3.0	10.3 - 7.3	16.3 - 11.5
44	10°41.0	10°42.8	10°11.8	4.4 - 3.1	10.4 - 7.4	16.4 - 11.6
45	10°41.3	10°43.0	10°12.0	4.5 - 3.2	10.5 - 7.4	16.5 - 11.7
46	10°41.5	10°43.3	10°12.3	4.6 - 3.3	10.6 - 7.5	16.6 - 11.8
47	10°41.7	10°43.5	10°12.5	4.7 - 3.3	10.7 - 7.6	16.7 - 11.8
48	10°42.0	10°43.8	10°12.8	4.8 - 3.4	10.8 - 7.7	16.8 - 11.9
49	10°42.3	10°44.0	10°13.0	4.9 - 3.5	10.9 - 7.7	16.9 - 12.0
50	10°42.5	10°44.3	10°13.2	5.0 - 3.5	11.0 - 7.8	17.0 - 12.0
51	10°42.8	10°44.5	10°13.5	5.1 - 3.6	11.1 - 7.9	17.1 - 12.1
52	10°43.0	10°44.8	10°13.7	5.2 - 3.7	11.2 - 7.9	17.2 - 12.2
53	10°43.2	10°45.0	10°13.9	5.3 - 3.8	11.3 - 8.0	17.3 - 12.3
54	10°43.5	10°45.3	10°14.2	5.4 - 3.8	11.4 - 8.1	17.4 - 12.3
55	10°43.7	10°45.5	10°14.4	5.5 - 3.9	11.5 - 8.1	17.5 - 12.4
56	10°44.0	10°45.8	10°14.7	5.6 - 4.0	11.6 - 8.2	17.6 - 12.5
57	10°44.3	10°46.0	10°14.9	5.7 - 4.0	11.7 - 8.3	17.7 - 12.5
58	10°44.5	10°46.3	10°15.1	5.8 - 4.1	11.8 - 8.4	17.8 - 12.6
59	10°44.8	10°46.5	10°15.4	5.9 - 4.2	11.9 - 8.4	17.9 - 12.7

m 43	Sun Plan.	Aries	Moon	v and d corr		
0	10°45.0	10°46.8	10°15.6	0.0 - 0.0	6.0 - 4.3	12.0 - 8.7
1	10°45.2	10°47.0	10°15.9	0.1 - 0.1	6.1 - 4.4	12.1 - 8.8
2	10°45.5	10°47.3	10°16.1	0.2 - 0.1	6.2 - 4.5	12.2 - 8.8
3	10°45.7	10°47.5	10°16.3	0.3 - 0.2	6.3 - 4.6	12.3 - 8.9
4	10°46.0	10°47.8	10°16.6	0.4 - 0.3	6.4 - 4.6	12.4 - 9.0
5	10°46.3	10°48.0	10°16.8	0.5 - 0.4	6.5 - 4.7	12.5 - 9.1
6	10°46.5	10°48.3	10°17.0	0.6 - 0.4	6.6 - 4.8	12.6 - 9.1
7	10°46.8	10°48.5	10°17.3	0.7 - 0.5	6.7 - 4.9	12.7 - 9.2
8	10°47.0	10°48.8	10°17.5	0.8 - 0.6	6.8 - 4.9	12.8 - 9.3
9	10°47.2	10°49.0	10°17.8	0.9 - 0.7	6.9 - 5.0	12.9 - 9.4
10	10°47.5	10°49.3	10°18.0	1.0 - 0.7	7.0 - 5.1	13.0 - 9.4
11	10°47.7	10°49.5	10°18.2	1.1 - 0.8	7.1 - 5.1	13.1 - 9.5
12	10°48.0	10°49.8	10°18.5	1.2 - 0.9	7.2 - 5.2	13.2 - 9.6
13	10°48.3	10°50.0	10°18.7	1.3 - 0.9	7.3 - 5.3	13.3 - 9.6
14	10°48.5	10°50.3	10°19.0	1.4 - 1.0	7.4 - 5.4	13.4 - 9.7
15	10°48.8	10°50.5	10°19.2	1.5 - 1.1	7.5 - 5.4	13.5 - 9.8
16	10°49.0	10°50.8	10°19.4	1.6 - 1.2	7.6 - 5.5	13.6 - 9.9
17	10°49.2	10°51.0	10°19.7	1.7 - 1.2	7.7 - 5.6	13.7 - 9.9
18	10°49.5	10°51.3	10°19.9	1.8 - 1.3	7.8 - 5.7	13.8 - 10.0
19	10°49.8	10°51.5	10°20.2	1.9 - 1.4	7.9 - 5.7	13.9 - 10.1
20	10°50.0	10°51.8	10°20.4	2.0 - 1.4	8.0 - 5.8	14.0 - 10.2
21	10°50.3	10°52.0	10°20.6	2.1 - 1.5	8.1 - 5.9	14.1 - 10.2
22	10°50.5	10°52.3	10°20.9	2.2 - 1.6	8.2 - 5.9	14.2 - 10.3
23	10°50.7	10°52.5	10°21.1	2.3 - 1.7	8.3 - 6.0	14.3 - 10.4
24	10°51.0	10°52.8	10°21.3	2.4 - 1.7	8.4 - 6.1	14.4 - 10.4
25	10°51.2	10°53.0	10°21.6	2.5 - 1.8	8.5 - 6.2	14.5 - 10.5
26	10°51.5	10°53.3	10°21.8	2.6 - 1.9	8.6 - 6.2	14.6 - 10.6
27	10°51.8	10°53.5	10°22.1	2.7 - 2.0	8.7 - 6.3	14.7 - 10.7
28	10°52.0	10°53.8	10°22.3	2.8 - 2.0	8.8 - 6.4	14.8 - 10.7
29	10°52.3	10°54.0	10°22.5	2.9 - 2.1	8.9 - 6.5	14.9 - 10.8
30	10°52.5	10°54.3	10°22.8	3.0 - 2.2	9.0 - 6.5	15.0 - 10.9
31	10°52.7	10°54.5	10°23.0	3.1 - 2.2	9.1 - 6.6	15.1 - 10.9
32	10°53.0	10°54.8	10°23.3	3.2 - 2.3	9.2 - 6.7	15.2 - 11.0
33	10°53.2	10°55.0	10°23.5	3.3 - 2.4	9.3 - 6.7	15.3 - 11.1
34	10°53.5	10°55.3	10°23.7	3.4 - 2.5	9.4 - 6.8	15.4 - 11.2
35	10°53.8	10°55.5	10°24.0	3.5 - 2.5	9.5 - 6.9	15.5 - 11.2
36	10°54.0	10°55.8	10°24.2	3.6 - 2.6	9.6 - 7.0	15.6 - 11.3
37	10°54.3	10°56.0	10°24.4	3.7 - 2.7	9.7 - 7.0	15.7 - 11.4
38	10°54.5	10°56.3	10°24.7	3.8 - 2.8	9.8 - 7.1	15.8 - 11.5
39	10°54.7	10°56.5	10°24.9	3.9 - 2.8	9.9 - 7.2	15.9 - 11.5
40	10°55.0	10°56.8	10°25.2	4.0 - 2.9	10.0 - 7.3	16.0 - 11.6
41	10°55.2	10°57.0	10°25.4	4.1 - 3.0	10.1 - 7.3	16.1 - 11.7
42	10°55.5	10°57.3	10°25.6	4.2 - 3.0	10.2 - 7.4	16.2 - 11.7
43	10°55.8	10°57.5	10°25.9	4.3 - 3.1	10.3 - 7.5	16.3 - 11.8
44	10°56.0	10°57.8	10°26.1	4.4 - 3.2	10.4 - 7.5	16.4 - 11.9
45	10°56.3	10°58.0	10°26.4	4.5 - 3.3	10.5 - 7.6	16.5 - 12.0
46	10°56.5	10°58.3	10°26.6	4.6 - 3.3	10.6 - 7.7	16.6 - 12.0
47	10°56.7	10°58.5	10°26.8	4.7 - 3.4	10.7 - 7.8	16.7 - 12.1
48	10°57.0	10°58.8	10°27.1	4.8 - 3.5	10.8 - 7.8	16.8 - 12.2
49	10°57.3	10°59.0	10°27.3	4.9 - 3.6	10.9 - 7.9	16.9 - 12.3
50	10°57.5	10°59.3	10°27.5	5.0 - 3.6	11.0 - 8.0	17.0 - 12.3
51	10°57.8	10°59.5	10°27.8	5.1 - 3.7	11.1 - 8.0	17.1 - 12.4
52	10°58.0	10°59.8	10°28.0	5.2 - 3.8	11.2 - 8.1	17.2 - 12.5
53	10°58.2	11°00.0	10°28.3	5.3 - 3.8	11.3 - 8.2	17.3 - 12.5
54	10°58.5	11°00.3	10°28.5	5.4 - 3.9	11.4 - 8.3	17.4 - 12.6
55	10°58.7	11°00.6	10°28.7	5.5 - 4.0	11.5 - 8.3	17.5 - 12.7
56	10°59.0	11°00.8	10°29.0	5.6 - 4.1	11.6 - 8.4	17.6 - 12.8
57	10°59.3	11°01.1	10°29.2	5.7 - 4.1	11.7 - 8.5	17.7 - 12.8
58	10°59.5	11°01.3	10°29.5	5.8 - 4.2	11.8 - 8.6	17.8 - 12.9
59	10°59.8	11°01.6	10°29.7	5.9 - 4.3	11.9 - 8.6	17.9 - 13.0

m	Sun	Aries	Moon	v and d corr		
44	Plan.					
0	11°00.0	11°01.8	10°29.9	0.0 - 0.0	6.0 - 4.5	12.0 - 8.9
1	11°00.2	11°02.1	10°30.2	0.1 - 0.1	6.1 - 4.5	12.1 - 9.0
2	11°00.5	11°02.3	10°30.4	0.2 - 0.1	6.2 - 4.6	12.2 - 9.0
3	11°00.7	11°02.6	10°30.6	0.3 - 0.2	6.3 - 4.7	12.3 - 9.1
4	11°01.0	11°02.8	10°30.9	0.4 - 0.3	6.4 - 4.7	12.4 - 9.2
5	11°01.3	11°03.1	10°31.1	0.5 - 0.4	6.5 - 4.8	12.5 - 9.3
6	11°01.5	11°03.3	10°31.4	0.6 - 0.4	6.6 - 4.9	12.6 - 9.3
7	11°01.8	11°03.6	10°31.6	0.7 - 0.5	6.7 - 5.0	12.7 - 9.4
8	11°02.0	11°03.8	10°31.8	0.8 - 0.6	6.8 - 5.0	12.8 - 9.5
9	11°02.2	11°04.1	10°32.1	0.9 - 0.7	6.9 - 5.1	12.9 - 9.6
10	11°02.5	11°04.3	10°32.3	1.0 - 0.7	7.0 - 5.2	13.0 - 9.6
11	11°02.7	11°04.6	10°32.6	1.1 - 0.8	7.1 - 5.3	13.1 - 9.7
12	11°03.0	11°04.8	10°32.8	1.2 - 0.9	7.2 - 5.3	13.2 - 9.8
13	11°03.3	11°05.1	10°33.0	1.3 - 1.0	7.3 - 5.4	13.3 - 9.9
14	11°03.5	11°05.3	10°33.3	1.4 - 1.0	7.4 - 5.5	13.4 - 9.9
15	11°03.8	11°05.6	10°33.5	1.5 - 1.1	7.5 - 5.6	13.5 - 10.0
16	11°04.0	11°05.8	10°33.8	1.6 - 1.2	7.6 - 5.6	13.6 - 10.1
17	11°04.2	11°06.1	10°34.0	1.7 - 1.3	7.7 - 5.7	13.7 - 10.2
18	11°04.5	11°06.3	10°34.2	1.8 - 1.3	7.8 - 5.8	13.8 - 10.2
19	11°04.8	11°06.6	10°34.5	1.9 - 1.4	7.9 - 5.9	13.9 - 10.3
20	11°05.0	11°06.8	10°34.7	2.0 - 1.5	8.0 - 5.9	14.0 - 10.4
21	11°05.3	11°07.1	10°34.9	2.1 - 1.6	8.1 - 6.0	14.1 - 10.5
22	11°05.5	11°07.3	10°35.2	2.2 - 1.6	8.2 - 6.1	14.2 - 10.5
23	11°05.7	11°07.6	10°35.4	2.3 - 1.7	8.3 - 6.2	14.3 - 10.6
24	11°06.0	11°07.8	10°35.7	2.4 - 1.8	8.4 - 6.2	14.4 - 10.7
25	11°06.2	11°08.1	10°35.9	2.5 - 1.9	8.5 - 6.3	14.5 - 10.8
26	11°06.5	11°08.3	10°36.1	2.6 - 1.9	8.6 - 6.4	14.6 - 10.8
27	11°06.8	11°08.6	10°36.4	2.7 - 2.0	8.7 - 6.5	14.7 - 10.9
28	11°07.0	11°08.8	10°36.6	2.8 - 2.1	8.8 - 6.5	14.8 - 11.0
29	11°07.3	11°09.1	10°36.9	2.9 - 2.2	8.9 - 6.6	14.9 - 11.1
30	11°07.5	11°09.3	10°37.1	3.0 - 2.2	9.0 - 6.7	15.0 - 11.1
31	11°07.7	11°09.6	10°37.3	3.1 - 2.3	9.1 - 6.7	15.1 - 11.2
32	11°08.0	11°09.8	10°37.6	3.2 - 2.4	9.2 - 6.8	15.2 - 11.3
33	11°08.2	11°10.1	10°37.8	3.3 - 2.4	9.3 - 6.9	15.3 - 11.3
34	11°08.5	11°10.3	10°38.0	3.4 - 2.5	9.4 - 7.0	15.4 - 11.4
35	11°08.8	11°10.6	10°38.3	3.5 - 2.6	9.5 - 7.0	15.5 - 11.5
36	11°09.0	11°10.8	10°38.5	3.6 - 2.7	9.6 - 7.1	15.6 - 11.6
37	11°09.3	11°11.1	10°38.8	3.7 - 2.7	9.7 - 7.2	15.7 - 11.6
38	11°09.5	11°11.3	10°39.0	3.8 - 2.8	9.8 - 7.3	15.8 - 11.7
39	11°09.7	11°11.6	10°39.2	3.9 - 2.9	9.9 - 7.3	15.9 - 11.8
40	11°10.0	11°11.8	10°39.5	4.0 - 3.0	10.0 - 7.4	16.0 - 11.9
41	11°10.2	11°12.1	10°39.7	4.1 - 3.0	10.1 - 7.5	16.1 - 11.9
42	11°10.5	11°12.3	10°40.0	4.2 - 3.1	10.2 - 7.6	16.2 - 12.0
43	11°10.8	11°12.6	10°40.2	4.3 - 3.2	10.3 - 7.6	16.3 - 12.1
44	11°11.0	11°12.8	10°40.4	4.4 - 3.3	10.4 - 7.7	16.4 - 12.2
45	11°11.3	11°13.1	10°40.7	4.5 - 3.3	10.5 - 7.8	16.5 - 12.2
46	11°11.5	11°13.3	10°40.9	4.6 - 3.4	10.6 - 7.9	16.6 - 12.3
47	11°11.7	11°13.6	10°41.1	4.7 - 3.5	10.7 - 7.9	16.7 - 12.4
48	11°12.0	11°13.8	10°41.4	4.8 - 3.6	10.8 - 8.0	16.8 - 12.5
49	11°12.3	11°14.1	10°41.6	4.9 - 3.6	10.9 - 8.1	16.9 - 12.5
50	11°12.5	11°14.3	10°41.9	5.0 - 3.7	11.0 - 8.2	17.0 - 12.6
51	11°12.8	11°14.6	10°42.1	5.1 - 3.8	11.1 - 8.2	17.1 - 12.7
52	11°13.0	11°14.8	10°42.3	5.2 - 3.9	11.2 - 8.3	17.2 - 12.8
53	11°13.2	11°15.1	10°42.6	5.3 - 3.9	11.3 - 8.4	17.3 - 12.8
54	11°13.5	11°15.3	10°42.8	5.4 - 4.0	11.4 - 8.5	17.4 - 12.9
55	11°13.7	11°15.6	10°43.1	5.5 - 4.1	11.5 - 8.5	17.5 - 13.0
56	11°14.0	11°15.8	10°43.3	5.6 - 4.2	11.6 - 8.6	17.6 - 13.1
57	11°14.3	11°16.1	10°43.5	5.7 - 4.2	11.7 - 8.7	17.7 - 13.1
58	11°14.5	11°16.3	10°43.8	5.8 - 4.3	11.8 - 8.8	17.8 - 13.2
59	11°14.8	11°16.6	10°44.0	5.9 - 4.4	11.9 - 8.8	17.9 - 13.3

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
45	Plan.					
0	11°15.0	11°16.8	10°44.3	0.0 - 0.0	6.0 - 4.5	12.0 - 9.1
1	11°15.2	11°17.1	10°44.5	0.1 - 0.1	6.1 - 4.6	12.1 - 9.2
2	11°15.5	11°17.3	10°44.7	0.2 - 0.2	6.2 - 4.7	12.2 - 9.3
3	11°15.7	11°17.6	10°45.0	0.3 - 0.2	6.3 - 4.8	12.3 - 9.3
4	11°16.0	11°17.8	10°45.2	0.4 - 0.3	6.4 - 4.9	12.4 - 9.4
5	11°16.3	11°18.1	10°45.4	0.5 - 0.4	6.5 - 4.9	12.5 - 9.5
6	11°16.5	11°18.3	10°45.7	0.6 - 0.5	6.6 - 5.0	12.6 - 9.6
7	11°16.8	11°18.6	10°45.9	0.7 - 0.5	6.7 - 5.1	12.7 - 9.6
8	11°17.0	11°18.9	10°46.2	0.8 - 0.6	6.8 - 5.2	12.8 - 9.7
9	11°17.2	11°19.1	10°46.4	0.9 - 0.7	6.9 - 5.2	12.9 - 9.8
10	11°17.5	11°19.4	10°46.6	1.0 - 0.8	7.0 - 5.3	13.0 - 9.9
11	11°17.7	11°19.6	10°46.9	1.1 - 0.8	7.1 - 5.4	13.1 - 9.9
12	11°18.0	11°19.9	10°47.1	1.2 - 0.9	7.2 - 5.5	13.2 - 10.0
13	11°18.3	11°20.1	10°47.4	1.3 - 1.0	7.3 - 5.5	13.3 - 10.1
14	11°18.5	11°20.4	10°47.6	1.4 - 1.1	7.4 - 5.6	13.4 - 10.2
15	11°18.8	11°20.6	10°47.8	1.5 - 1.1	7.5 - 5.7	13.5 - 10.2
16	11°19.0	11°20.9	10°48.1	1.6 - 1.2	7.6 - 5.8	13.6 - 10.3
17	11°19.2	11°21.1	10°48.3	1.7 - 1.3	7.7 - 5.8	13.7 - 10.4
18	11°19.5	11°21.4	10°48.5	1.8 - 1.4	7.8 - 5.9	13.8 - 10.5
19	11°19.8	11°21.6	10°48.8	1.9 - 1.4	7.9 - 6.0	13.9 - 10.5
20	11°20.0	11°21.9	10°49.0	2.0 - 1.5	8.0 - 6.1	14.0 - 10.6
21	11°20.3	11°22.1	10°49.3	2.1 - 1.6	8.1 - 6.1	14.1 - 10.7
22	11°20.5	11°22.4	10°49.5	2.2 - 1.7	8.2 - 6.2	14.2 - 10.8
23	11°20.7	11°22.6	10°49.7	2.3 - 1.7	8.3 - 6.3	14.3 - 10.8
24	11°21.0	11°22.9	10°50.0	2.4 - 1.8	8.4 - 6.4	14.4 - 10.9
25	11°21.2	11°23.1	10°50.2	2.5 - 1.9	8.5 - 6.4	14.5 - 11.0
26	11°21.5	11°23.4	10°50.5	2.6 - 2.0	8.6 - 6.5	14.6 - 11.1
27	11°21.8	11°23.6	10°50.7	2.7 - 2.0	8.7 - 6.6	14.7 - 11.1
28	11°22.0	11°23.9	10°50.9	2.8 - 2.1	8.8 - 6.7	14.8 - 11.2
29	11°22.3	11°24.1	10°51.2	2.9 - 2.2	8.9 - 6.7	14.9 - 11.3
30	11°22.5	11°24.4	10°51.4	3.0 - 2.3	9.0 - 6.8	15.0 - 11.4
31	11°22.7	11°24.6	10°51.6	3.1 - 2.4	9.1 - 6.9	15.1 - 11.5
32	11°23.0	11°24.9	10°51.9	3.2 - 2.4	9.2 - 7.0	15.2 - 11.5
33	11°23.2	11°25.1	10°52.1	3.3 - 2.5	9.3 - 7.1	15.3 - 11.6
34	11°23.5	11°25.4	10°52.4	3.4 - 2.6	9.4 - 7.1	15.4 - 11.7
35	11°23.8	11°25.6	10°52.6	3.5 - 2.7	9.5 - 7.2	15.5 - 11.8
36	11°24.0	11°25.9	10°52.8	3.6 - 2.7	9.6 - 7.3	15.6 - 11.8
37	11°24.3	11°26.1	10°53.1	3.7 - 2.8	9.7 - 7.4	15.7 - 11.9
38	11°24.5	11°26.4	10°53.3	3.8 - 2.9	9.8 - 7.4	15.8 - 12.0
39	11°24.7	11°26.6	10°53.6	3.9 - 3.0	9.9 - 7.5	15.9 - 12.1
40	11°25.0	11°26.9	10°53.8	4.0 - 3.0	10.0 - 7.6	16.0 - 12.1
41	11°25.2	11°27.1	10°54.0	4.1 - 3.1	10.1 - 7.7	16.1 - 12.2
42	11°25.5	11°27.4	10°54.3	4.2 - 3.2	10.2 - 7.7	16.2 - 12.3
43	11°25.8	11°27.6	10°54.5	4.3 - 3.3	10.3 - 7.8	16.3 - 12.4
44	11°26.0	11°27.9	10°54.7	4.4 - 3.3	10.4 - 7.9	16.4 - 12.4
45	11°26.3	11°28.1	10°55.0	4.5 - 3.4	10.5 - 8.0	16.5 - 12.5
46	11°26.5	11°28.4	10°55.2	4.6 - 3.5	10.6 - 8.0	16.6 - 12.6
47	11°26.7	11°28.6	10°55.5	4.7 - 3.6	10.7 - 8.1	16.7 - 12.7
48	11°27.0	11°28.9	10°55.7	4.8 - 3.6	10.8 - 8.2	16.8 - 12.7
49	11°27.3	11°29.1	10°55.9	4.9 - 3.7	10.9 - 8.3	16.9 - 12.8
50	11°27.5	11°29.4	10°56.2	5.0 - 3.8	11.0 - 8.3	17.0 - 12.9
51	11°27.8	11°29.6	10°56.4	5.1 - 3.9	11.1 - 8.4	17.1 - 13.0
52	11°28.0	11°29.9	10°56.7	5.2 - 3.9	11.2 - 8.5	17.2 - 13.0
53	11°28.2	11°30.1	10°56.9	5.3 - 4.0	11.3 - 8.6	17.3 - 13.1
54	11°28.5	11°30.4	10°57.1	5.4 - 4.1	11.4 - 8.6	17.4 - 13.2
55	11°28.7	11°30.6	10°57.4	5.5 - 4.2	11.5 - 8.7	17.5 - 13.3
56	11°29.0	11°30.9	10°57.6	5.6 - 4.2	11.6 - 8.8	17.6 - 13.3
57	11°29.3	11°31.1	10°57.9	5.7 - 4.3	11.7 - 8.9	17.7 - 13.4
58	11°29.5	11°31.4	10°58.1	5.8 - 4.4	11.8 - 8.9	17.8 - 13.5
59	11°29.8	11°31.6	10°58.3	5.9 - 4.5	11.9 - 9.0	17.9 - 13.6

m	Sun	Aries	Moon	v and d corr		
46	Plan.					
0	11°30.0	11°31.9	10°58.6	0.0 - 0.0	6.0 - 4.7	12.0 - 9.3
1	11°30.2	11°32.1	10°58.8	0.1 - 0.1	6.1 - 4.7	12.1 - 9.4
2	11°30.5	11°32.4	10°59.0	0.2 - 0.2	6.2 - 4.8	12.2 - 9.5
3	11°30.7	11°32.6	10°59.3	0.3 - 0.2	6.3 - 4.9	12.3 - 9.5
4	11°31.0	11°32.9	10°59.5	0.4 - 0.3	6.4 - 5.0	12.4 - 9.6
5	11°31.3	11°33.1	10°59.8	0.5 - 0.4	6.5 - 5.0	12.5 - 9.7
6	11°31.5	11°33.4	11°00.0	0.6 - 0.5	6.6 - 5.1	12.6 - 9.8
7	11°31.8	11°33.6	11°00.2	0.7 - 0.5	6.7 - 5.2	12.7 - 9.8
8	11°32.0	11°33.9	11°00.5	0.8 - 0.6	6.8 - 5.3	12.8 - 9.9
9	11°32.2	11°34.1	11°00.7	0.9 - 0.7	6.9 - 5.3	12.9 - 10.0
10	11°32.5	11°34.4	11°01.0	1.0 - 0.8	7.0 - 5.4	13.0 - 10.1
11	11°32.7	11°34.6	11°01.2	1.1 - 0.9	7.1 - 5.5	13.1 - 10.2
12	11°33.0	11°34.9	11°01.4	1.2 - 0.9	7.2 - 5.6	13.2 - 10.2
13	11°33.3	11°35.1	11°01.7	1.3 - 1.0	7.3 - 5.7	13.3 - 10.3
14	11°33.5	11°35.4	11°01.9	1.4 - 1.1	7.4 - 5.7	13.4 - 10.4
15	11°33.8	11°35.6	11°02.1	1.5 - 1.2	7.5 - 5.8	13.5 - 10.5
16	11°34.0	11°35.9	11°02.4	1.6 - 1.2	7.6 - 5.9	13.6 - 10.5
17	11°34.2	11°36.1	11°02.6	1.7 - 1.3	7.7 - 6.0	13.7 - 10.6
18	11°34.5	11°36.4	11°02.9	1.8 - 1.4	7.8 - 6.0	13.8 - 10.7
19	11°34.8	11°36.6	11°03.1	1.9 - 1.5	7.9 - 6.1	13.9 - 10.8
20	11°35.0	11°36.9	11°03.3	2.0 - 1.6	8.0 - 6.2	14.0 - 10.8
21	11°35.3	11°37.2	11°03.6	2.1 - 1.6	8.1 - 6.3	14.1 - 10.9
22	11°35.5	11°37.4	11°03.8	2.2 - 1.7	8.2 - 6.4	14.2 - 11.0
23	11°35.7	11°37.7	11°04.1	2.3 - 1.8	8.3 - 6.4	14.3 - 11.1
24	11°36.0	11°37.9	11°04.3	2.4 - 1.9	8.4 - 6.5	14.4 - 11.2
25	11°36.2	11°38.2	11°04.5	2.5 - 1.9	8.5 - 6.6	14.5 - 11.2
26	11°36.5	11°38.4	11°04.8	2.6 - 2.0	8.6 - 6.7	14.6 - 11.3
27	11°36.8	11°38.7	11°05.0	2.7 - 2.1	8.7 - 6.7	14.7 - 11.4
28	11°37.0	11°38.9	11°05.2	2.8 - 2.2	8.8 - 6.8	14.8 - 11.5
29	11°37.3	11°39.2	11°05.5	2.9 - 2.2	8.9 - 6.9	14.9 - 11.5
30	11°37.5	11°39.4	11°05.7	3.0 - 2.3	9.0 - 7.0	15.0 - 11.6
31	11°37.7	11°39.7	11°06.0	3.1 - 2.4	9.1 - 7.1	15.1 - 11.7
32	11°38.0	11°39.9	11°06.2	3.2 - 2.5	9.2 - 7.1	15.2 - 11.8
33	11°38.2	11°40.2	11°06.4	3.3 - 2.6	9.3 - 7.2	15.3 - 11.9
34	11°38.5	11°40.4	11°06.7	3.4 - 2.6	9.4 - 7.3	15.4 - 11.9
35	11°38.8	11°40.7	11°06.9	3.5 - 2.7	9.5 - 7.4	15.5 - 12.0
36	11°39.0	11°40.9	11°07.2	3.6 - 2.8	9.6 - 7.4	15.6 - 12.1
37	11°39.3	11°41.2	11°07.4	3.7 - 2.9	9.7 - 7.5	15.7 - 12.2
38	11°39.5	11°41.4	11°07.6	3.8 - 2.9	9.8 - 7.6	15.8 - 12.2
39	11°39.7	11°41.7	11°07.9	3.9 - 3.0	9.9 - 7.7	15.9 - 12.3
40	11°40.0	11°41.9	11°08.1	4.0 - 3.1	10.0 - 7.8	16.0 - 12.4
41	11°40.2	11°42.2	11°08.3	4.1 - 3.2	10.1 - 7.8	16.1 - 12.5
42	11°40.5	11°42.4	11°08.6	4.2 - 3.3	10.2 - 7.9	16.2 - 12.6
43	11°40.8	11°42.7	11°08.8	4.3 - 3.3	10.3 - 8.0	16.3 - 12.6
44	11°41.0	11°42.9	11°09.1	4.4 - 3.4	10.4 - 8.1	16.4 - 12.7
45	11°41.3	11°43.2	11°09.3	4.5 - 3.5	10.5 - 8.1	16.5 - 12.8
46	11°41.5	11°43.4	11°09.5	4.6 - 3.6	10.6 - 8.2	16.6 - 12.9
47	11°41.7	11°43.7	11°09.8	4.7 - 3.6	10.7 - 8.3	16.7 - 12.9
48	11°42.0	11°43.9	11°10.0	4.8 - 3.7	10.8 - 8.4	16.8 - 13.0
49	11°42.3	11°44.2	11°10.3	4.9 - 3.8	10.9 - 8.4	16.9 - 13.1
50	11°42.5	11°44.4	11°10.5	5.0 - 3.9	11.0 - 8.5	17.0 - 13.2
51	11°42.8	11°44.7	11°10.7	5.1 - 4.0	11.1 - 8.6	17.1 - 13.3
52	11°43.0	11°44.9	11°11.0	5.2 - 4.0	11.2 - 8.7	17.2 - 13.3
53	11°43.2	11°45.2	11°11.2	5.3 - 4.1	11.3 - 8.8	17.3 - 13.4
54	11°43.5	11°45.4	11°11.5	5.4 - 4.2	11.4 - 8.8	17.4 - 13.5
55	11°43.7	11°45.7	11°11.7	5.5 - 4.3	11.5 - 8.9	17.5 - 13.6
56	11°44.0	11°45.9	11°11.9	5.6 - 4.3	11.6 - 9.0	17.6 - 13.6
57	11°44.3	11°46.2	11°12.2	5.7 - 4.4	11.7 - 9.1	17.7 - 13.7
58	11°44.5	11°46.4	11°12.4	5.8 - 4.5	11.8 - 9.1	17.8 - 13.8
59	11°44.8	11°46.7	11°12.6	5.9 - 4.6	11.9 - 9.2	17.9 - 13.9

m	Sun	Aries	Moon	v and d corr		
47	Plan.					
0	11°45.0	11°46.9	11°12.9	0.0 - 0.0	6.0 - 4.8	12.0 - 9.5
1	11°45.2	11°47.2	11°13.1	0.1 - 0.1	6.1 - 4.8	12.1 - 9.6
2	11°45.5	11°47.4	11°13.4	0.2 - 0.2	6.2 - 4.9	12.2 - 9.7
3	11°45.7	11°47.7	11°13.6	0.3 - 0.2	6.3 - 5.0	12.3 - 9.7
4	11°46.0	11°47.9	11°13.8	0.4 - 0.3	6.4 - 5.1	12.4 - 9.8
5	11°46.3	11°48.2	11°14.1	0.5 - 0.4	6.5 - 5.1	12.5 - 9.9
6	11°46.5	11°48.4	11°14.3	0.6 - 0.5	6.6 - 5.2	12.6 - 10.0
7	11°46.8	11°48.7	11°14.6	0.7 - 0.6	6.7 - 5.3	12.7 - 10.1
8	11°47.0	11°48.9	11°14.8	0.8 - 0.6	6.8 - 5.4	12.8 - 10.1
9	11°47.2	11°49.2	11°15.0	0.9 - 0.7	6.9 - 5.5	12.9 - 10.2
10	11°47.5	11°49.4	11°15.3	1.0 - 0.8	7.0 - 5.5	13.0 - 10.3
11	11°47.7	11°49.7	11°15.5	1.1 - 0.9	7.1 - 5.6	13.1 - 10.4
12	11°48.0	11°49.9	11°15.7	1.2 - 1.0	7.2 - 5.7	13.2 - 10.4
13	11°48.3	11°50.2	11°16.0	1.3 - 1.0	7.3 - 5.8	13.3 - 10.5
14	11°48.5	11°50.4	11°16.2	1.4 - 1.1	7.4 - 5.9	13.4 - 10.6
15	11°48.8	11°50.7	11°16.5	1.5 - 1.2	7.5 - 5.9	13.5 - 10.7
16	11°49.0	11°50.9	11°16.7	1.6 - 1.3	7.6 - 6.0	13.6 - 10.8
17	11°49.2	11°51.2	11°16.9	1.7 - 1.3	7.7 - 6.1	13.7 - 10.8
18	11°49.5	11°51.4	11°17.2	1.8 - 1.4	7.8 - 6.2	13.8 - 10.9
19	11°49.8	11°51.7	11°17.4	1.9 - 1.5	7.9 - 6.3	13.9 - 11.0
20	11°50.0	11°51.9	11°17.7	2.0 - 1.6	8.0 - 6.3	14.0 - 11.1
21	11°50.3	11°52.2	11°17.9	2.1 - 1.7	8.1 - 6.4	14.1 - 11.2
22	11°50.5	11°52.4	11°18.1	2.2 - 1.7	8.2 - 6.5	14.2 - 11.2
23	11°50.7	11°52.7	11°18.4	2.3 - 1.8	8.3 - 6.6	14.3 - 11.3
24	11°51.0	11°52.9	11°18.6	2.4 - 1.9	8.4 - 6.7	14.4 - 11.4
25	11°51.2	11°53.2	11°18.8	2.5 - 2.0	8.5 - 6.7	14.5 - 11.5
26	11°51.5	11°53.4	11°19.1	2.6 - 2.1	8.6 - 6.8	14.6 - 11.6
27	11°51.8	11°53.7	11°19.3	2.7 - 2.1	8.7 - 6.9	14.7 - 11.6
28	11°52.0	11°53.9	11°19.6	2.8 - 2.2	8.8 - 7.0	14.8 - 11.7
29	11°52.3	11°54.2	11°19.8	2.9 - 2.3	8.9 - 7.0	14.9 - 11.8
30	11°52.5	11°54.4	11°20.0	3.0 - 2.4	9.0 - 7.1	15.0 - 11.9
31	11°52.7	11°54.7	11°20.3	3.1 - 2.5	9.1 - 7.2	15.1 - 12.0
32	11°53.0	11°54.9	11°20.5	3.2 - 2.5	9.2 - 7.3	15.2 - 12.0
33	11°53.2	11°55.2	11°20.8	3.3 - 2.6	9.3 - 7.4	15.3 - 12.1
34	11°53.5	11°55.5	11°21.0	3.4 - 2.7	9.4 - 7.4	15.4 - 12.2
35	11°53.8	11°55.7	11°21.2	3.5 - 2.8	9.5 - 7.5	15.5 - 12.3
36	11°54.0	11°56.0	11°21.5	3.6 - 2.9	9.6 - 7.6	15.6 - 12.3
37	11°54.3	11°56.2	11°21.7	3.7 - 2.9	9.7 - 7.7	15.7 - 12.4
38	11°54.5	11°56.5	11°22.0	3.8 - 3.0	9.8 - 7.8	15.8 - 12.5
39	11°54.7	11°56.7	11°22.2	3.9 - 3.1	9.9 - 7.8	15.9 - 12.6
40	11°55.0	11°57.0	11°22.4	4.0 - 3.2	10.0 - 7.9	16.0 - 12.7
41	11°55.2	11°57.2	11°22.7	4.1 - 3.2	10.1 - 8.0	16.1 - 12.7
42	11°55.5	11°57.5	11°22.9	4.2 - 3.3	10.2 - 8.1	16.2 - 12.8
43	11°55.8	11°57.7	11°23.1	4.3 - 3.4	10.3 - 8.2	16.3 - 12.9
44	11°56.0	11°58.0	11°23.4	4.4 - 3.5	10.4 - 8.2	16.4 - 13.0
45	11°56.3	11°58.2	11°23.6	4.5 - 3.6	10.5 - 8.3	16.5 - 13.1
46	11°56.5	11°58.5	11°23.9	4.6 - 3.6	10.6 - 8.4	16.6 - 13.1
47	11°56.7	11°58.7	11°24.1	4.7 - 3.7	10.7 - 8.5	16.7 - 13.2
48	11°57.0	11°59.0	11°24.3	4.8 - 3.8	10.8 - 8.6	16.8 - 13.3
49	11°57.3	11°59.2	11°24.6	4.9 - 3.9	10.9 - 8.6	16.9 - 13.4
50	11°57.5	11°59.5	11°24.8	5.0 - 4.0	11.0 - 8.7	17.0 - 13.5
51	11°57.8	11°59.7	11°25.1	5.1 - 4.0	11.1 - 8.8	17.1 - 13.5
52	11°58.0	12°00.0	11°25.3	5.2 - 4.1	11.2 - 8.9	17.2 - 13.6
53	11°58.2	12°00.2	11°25.5	5.3 - 4.2	11.3 - 8.9	17.3 - 13.7
54	11°58.5	12°00.5	11°25.8	5.4 - 4.3	11.4 - 9.0	17.4 - 13.8
55	11°58.7	12°00.7	11°26.0	5.5 - 4.4	11.5 - 9.1	17.5 - 13.9
56	11°59.0	12°01.0	11°26.2	5.6 - 4.4	11.6 - 9.2	17.6 - 13.9
57	11°59.3	12°01.2	11°26.5	5.7 - 4.5	11.7 - 9.3	17.7 - 14.0
58	11°59.5	12°01.5	11°26.7	5.8 - 4.6	11.8 - 9.3	17.8 - 14.1
59	11°59.8	12°01.7	11°27.0	5.9 - 4.7	11.9 - 9.4	17.9 - 14.2

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
48	Plan.					
0	12°00.0	12°02.0	11°27.2	0.0 - 0.0	6.0 - 4.8	12.0 - 9.7
1	12°00.2	12°02.2	11°27.4	0.1 - 0.1	6.1 - 4.9	12.1 - 9.8
2	12°00.5	12°02.5	11°27.7	0.2 - 0.2	6.2 - 5.0	12.2 - 9.9
3	12°00.7	12°02.7	11°27.9	0.3 - 0.2	6.3 - 5.1	12.3 - 9.9
4	12°01.0	12°03.0	11°28.2	0.4 - 0.3	6.4 - 5.2	12.4 - 10.0
5	12°01.3	12°03.2	11°28.4	0.5 - 0.4	6.5 - 5.3	12.5 - 10.1
6	12°01.5	12°03.5	11°28.6	0.6 - 0.5	6.6 - 5.3	12.6 - 10.2
7	12°01.8	12°03.7	11°28.9	0.7 - 0.6	6.7 - 5.4	12.7 - 10.3
8	12°02.0	12°04.0	11°29.1	0.8 - 0.6	6.8 - 5.5	12.8 - 10.3
9	12°02.2	12°04.2	11°29.3	0.9 - 0.7	6.9 - 5.6	12.9 - 10.4
10	12°02.5	12°04.5	11°29.6	1.0 - 0.8	7.0 - 5.7	13.0 - 10.5
11	12°02.7	12°04.7	11°29.8	1.1 - 0.9	7.1 - 5.7	13.1 - 10.6
12	12°03.0	12°05.0	11°30.1	1.2 - 1.0	7.2 - 5.8	13.2 - 10.7
13	12°03.3	12°05.2	11°30.3	1.3 - 1.1	7.3 - 5.9	13.3 - 10.8
14	12°03.5	12°05.5	11°30.5	1.4 - 1.1	7.4 - 6.0	13.4 - 10.8
15	12°03.8	12°05.7	11°30.8	1.5 - 1.2	7.5 - 6.1	13.5 - 10.9
16	12°04.0	12°06.0	11°31.0	1.6 - 1.3	7.6 - 6.1	13.6 - 11.0
17	12°04.2	12°06.2	11°31.3	1.7 - 1.4	7.7 - 6.2	13.7 - 11.1
18	12°04.5	12°06.5	11°31.5	1.8 - 1.5	7.8 - 6.3	13.8 - 11.2
19	12°04.8	12°06.7	11°31.7	1.9 - 1.5	7.9 - 6.4	13.9 - 11.2
20	12°05.0	12°07.0	11°32.0	2.0 - 1.6	8.0 - 6.5	14.0 - 11.3
21	12°05.3	12°07.2	11°32.2	2.1 - 1.7	8.1 - 6.5	14.1 - 11.4
22	12°05.5	12°07.5	11°32.4	2.2 - 1.8	8.2 - 6.6	14.2 - 11.5
23	12°05.7	12°07.7	11°32.7	2.3 - 1.9	8.3 - 6.7	14.3 - 11.6
24	12°06.0	12°08.0	11°32.9	2.4 - 1.9	8.4 - 6.8	14.4 - 11.6
25	12°06.2	12°08.2	11°33.2	2.5 - 2.0	8.5 - 6.9	14.5 - 11.7
26	12°06.5	12°08.5	11°33.4	2.6 - 2.1	8.6 - 7.0	14.6 - 11.8
27	12°06.8	12°08.7	11°33.6	2.7 - 2.2	8.7 - 7.0	14.7 - 11.9
28	12°07.0	12°09.0	11°33.9	2.8 - 2.3	8.8 - 7.1	14.8 - 12.0
29	12°07.3	12°09.2	11°34.1	2.9 - 2.3	8.9 - 7.2	14.9 - 12.0
30	12°07.5	12°09.5	11°34.4	3.0 - 2.4	9.0 - 7.3	15.0 - 12.1
31	12°07.7	12°09.7	11°34.6	3.1 - 2.5	9.1 - 7.4	15.1 - 12.2
32	12°08.0	12°10.0	11°34.8	3.2 - 2.6	9.2 - 7.4	15.2 - 12.3
33	12°08.2	12°10.2	11°35.1	3.3 - 2.7	9.3 - 7.5	15.3 - 12.4
34	12°08.5	12°10.5	11°35.3	3.4 - 2.7	9.4 - 7.6	15.4 - 12.4
35	12°08.8	12°10.7	11°35.6	3.5 - 2.8	9.5 - 7.7	15.5 - 12.5
36	12°09.0	12°11.0	11°35.8	3.6 - 2.9	9.6 - 7.8	15.6 - 12.6
37	12°09.3	12°11.2	11°36.0	3.7 - 3.0	9.7 - 7.8	15.7 - 12.7
38	12°09.5	12°11.5	11°36.3	3.8 - 3.1	9.8 - 7.9	15.8 - 12.8
39	12°09.7	12°11.7	11°36.5	3.9 - 3.2	9.9 - 8.0	15.9 - 12.9
40	12°10.0	12°12.0	11°36.7	4.0 - 3.2	10.0 - 8.1	16.0 - 12.9
41	12°10.2	12°12.2	11°37.0	4.1 - 3.3	10.1 - 8.2	16.1 - 13.0
42	12°10.5	12°12.5	11°37.2	4.2 - 3.4	10.2 - 8.2	16.2 - 13.1
43	12°10.8	12°12.7	11°37.5	4.3 - 3.5	10.3 - 8.3	16.3 - 13.2
44	12°11.0	12°13.0	11°37.7	4.4 - 3.6	10.4 - 8.4	16.4 - 13.3
45	12°11.3	12°13.2	11°37.9	4.5 - 3.6	10.5 - 8.5	16.5 - 13.3
46	12°11.5	12°13.5	11°38.2	4.6 - 3.7	10.6 - 8.6	16.6 - 13.4
47	12°11.7	12°13.8	11°38.4	4.7 - 3.8	10.7 - 8.6	16.7 - 13.5
48	12°12.0	12°14.0	11°38.7	4.8 - 3.9	10.8 - 8.7	16.8 - 13.6
49	12°12.3	12°14.3	11°38.9	4.9 - 4.0	10.9 - 8.8	16.9 - 13.7
50	12°12.5	12°14.5	11°39.1	5.0 - 4.0	11.0 - 8.9	17.0 - 13.7
51	12°12.8	12°14.8	11°39.4	5.1 - 4.1	11.1 - 9.0	17.1 - 13.8
52	12°13.0	12°15.0	11°39.6	5.2 - 4.2	11.2 - 9.1	17.2 - 13.9
53	12°13.2	12°15.3	11°39.8	5.3 - 4.3	11.3 - 9.1	17.3 - 14.0
54	12°13.5	12°15.5	11°40.1	5.4 - 4.4	11.4 - 9.2	17.4 - 14.1
55	12°13.7	12°15.8	11°40.3	5.5 - 4.4	11.5 - 9.3	17.5 - 14.1
56	12°14.0	12°16.0	11°40.6	5.6 - 4.5	11.6 - 9.4	17.6 - 14.2
57	12°14.3	12°16.3	11°40.8	5.7 - 4.6	11.7 - 9.5	17.7 - 14.3
58	12°14.5	12°16.5	11°41.0	5.8 - 4.7	11.8 - 9.5	17.8 - 14.4
59	12°14.8	12°16.8	11°41.3	5.9 - 4.8	11.9 - 9.6	17.9 - 14.5

m	Sun	Aries	Moon	v and d corr		
49	Plan.					
0	12°15.0	12°17.0	11°41.5	0.0 - 0.0	6.0 - 4.9	12.0 - 9.9
1	12°15.2	12°17.3	11°41.8	0.1 - 0.1	6.1 - 5.0	12.1 - 10.0
2	12°15.5	12°17.5	11°42.0	0.2 - 0.2	6.2 - 5.1	12.2 - 10.1
3	12°15.7	12°17.8	11°42.2	0.3 - 0.2	6.3 - 5.2	12.3 - 10.1
4	12°16.0	12°18.0	11°42.5	0.4 - 0.3	6.4 - 5.3	12.4 - 10.2
5	12°16.3	12°18.3	11°42.7	0.5 - 0.4	6.5 - 5.4	12.5 - 10.3
6	12°16.5	12°18.5	11°42.9	0.6 - 0.5	6.6 - 5.4	12.6 - 10.4
7	12°16.8	12°18.8	11°43.2	0.7 - 0.6	6.7 - 5.5	12.7 - 10.5
8	12°17.0	12°19.0	11°43.4	0.8 - 0.7	6.8 - 5.6	12.8 - 10.6
9	12°17.2	12°19.3	11°43.7	0.9 - 0.7	6.9 - 5.7	12.9 - 10.6
10	12°17.5	12°19.5	11°43.9	1.0 - 0.8	7.0 - 5.8	13.0 - 10.7
11	12°17.7	12°19.8	11°44.1	1.1 - 0.9	7.1 - 5.9	13.1 - 10.8
12	12°18.0	12°20.0	11°44.4	1.2 - 1.0	7.2 - 5.9	13.2 - 10.9
13	12°18.3	12°20.3	11°44.6	1.3 - 1.1	7.3 - 6.0	13.3 - 11.0
14	12°18.5	12°20.5	11°44.9	1.4 - 1.2	7.4 - 6.1	13.4 - 11.1
15	12°18.8	12°20.8	11°45.1	1.5 - 1.2	7.5 - 6.2	13.5 - 11.1
16	12°19.0	12°21.0	11°45.3	1.6 - 1.3	7.6 - 6.3	13.6 - 11.2
17	12°19.2	12°21.3	11°45.6	1.7 - 1.4	7.7 - 6.4	13.7 - 11.3
18	12°19.5	12°21.5	11°45.8	1.8 - 1.5	7.8 - 6.4	13.8 - 11.4
19	12°19.8	12°21.8	11°46.1	1.9 - 1.6	7.9 - 6.5	13.9 - 11.5
20	12°20.0	12°22.0	11°46.3	2.0 - 1.6	8.0 - 6.6	14.0 - 11.5
21	12°20.3	12°22.3	11°46.5	2.1 - 1.7	8.1 - 6.7	14.1 - 11.6
22	12°20.5	12°22.5	11°46.8	2.2 - 1.8	8.2 - 6.8	14.2 - 11.7
23	12°20.7	12°22.8	11°47.0	2.3 - 1.9	8.3 - 6.8	14.3 - 11.8
24	12°21.0	12°23.0	11°47.2	2.4 - 2.0	8.4 - 6.9	14.4 - 11.9
25	12°21.2	12°23.3	11°47.5	2.5 - 2.1	8.5 - 7.0	14.5 - 12.0
26	12°21.5	12°23.5	11°47.7	2.6 - 2.1	8.6 - 7.1	14.6 - 12.0
27	12°21.8	12°23.8	11°48.0	2.7 - 2.2	8.7 - 7.2	14.7 - 12.1
28	12°22.0	12°24.0	11°48.2	2.8 - 2.3	8.8 - 7.3	14.8 - 12.2
29	12°22.3	12°24.3	11°48.4	2.9 - 2.4	8.9 - 7.3	14.9 - 12.3
30	12°22.5	12°24.5	11°48.7	3.0 - 2.5	9.0 - 7.4	15.0 - 12.4
31	12°22.7	12°24.8	11°48.9	3.1 - 2.6	9.1 - 7.5	15.1 - 12.5
32	12°23.0	12°25.0	11°49.2	3.2 - 2.6	9.2 - 7.6	15.2 - 12.5
33	12°23.2	12°25.3	11°49.4	3.3 - 2.7	9.3 - 7.7	15.3 - 12.6
34	12°23.5	12°25.5	11°49.6	3.4 - 2.8	9.4 - 7.8	15.4 - 12.7
35	12°23.8	12°25.8	11°49.9	3.5 - 2.9	9.5 - 7.8	15.5 - 12.8
36	12°24.0	12°26.0	11°50.1	3.6 - 3.0	9.6 - 7.9	15.6 - 12.9
37	12°24.3	12°26.3	11°50.3	3.7 - 3.1	9.7 - 8.0	15.7 - 13.0
38	12°24.5	12°26.5	11°50.6	3.8 - 3.1	9.8 - 8.1	15.8 - 13.0
39	12°24.7	12°26.8	11°50.8	3.9 - 3.2	9.9 - 8.2	15.9 - 13.1
40	12°25.0	12°27.0	11°51.1	4.0 - 3.3	10.0 - 8.3	16.0 - 13.2
41	12°25.2	12°27.3	11°51.3	4.1 - 3.4	10.1 - 8.3	16.1 - 13.3
42	12°25.5	12°27.5	11°51.5	4.2 - 3.5	10.2 - 8.4	16.2 - 13.4
43	12°25.8	12°27.8	11°51.8	4.3 - 3.5	10.3 - 8.5	16.3 - 13.4
44	12°26.0	12°28.0	11°52.0	4.4 - 3.6	10.4 - 8.6	16.4 - 13.5
45	12°26.3	12°28.3	11°52.3	4.5 - 3.7	10.5 - 8.7	16.5 - 13.6
46	12°26.5	12°28.5	11°52.5	4.6 - 3.8	10.6 - 8.7	16.6 - 13.7
47	12°26.7	12°28.8	11°52.7	4.7 - 3.9	10.7 - 8.8	16.7 - 13.8
48	12°27.0	12°29.0	11°53.0	4.8 - 4.0	10.8 - 8.9	16.8 - 13.9
49	12°27.3	12°29.3	11°53.2	4.9 - 4.0	10.9 - 9.0	16.9 - 13.9
50	12°27.5	12°29.5	11°53.4	5.0 - 4.1	11.0 - 9.1	17.0 - 14.0
51	12°27.8	12°29.8	11°53.7	5.1 - 4.2	11.1 - 9.2	17.1 - 14.1
52	12°28.0	12°30.0	11°53.9	5.2 - 4.3	11.2 - 9.2	17.2 - 14.2
53	12°28.2	12°30.3	11°54.2	5.3 - 4.4	11.3 - 9.3	17.3 - 14.3
54	12°28.5	12°30.5	11°54.4	5.4 - 4.5	11.4 - 9.4	17.4 - 14.4
55	12°28.7	12°30.8	11°54.6	5.5 - 4.5	11.5 - 9.5	17.5 - 14.4
56	12°29.0	12°31.0	11°54.9	5.6 - 4.6	11.6 - 9.6	17.6 - 14.5
57	12°29.3	12°31.3	11°55.1	5.7 - 4.7	11.7 - 9.7	17.7 - 14.6
58	12°29.5	12°31.5	11°55.4	5.8 - 4.8	11.8 - 9.7	17.8 - 14.7
59	12°29.8	12°31.8	11°55.6	5.9 - 4.9	11.9 - 9.8	17.9 - 14.8

m	Sun	Aries	Moon	v and d corr		
50	Plan.					
0	12°30.0	12°32.1	11°55.8	0.0 - 0.0	6.0 - 5.0	12.0 - 10.1
1	12°30.2	12°32.3	11°56.1	0.1 - 0.1	6.1 - 5.1	12.1 - 10.2
2	12°30.5	12°32.6	11°56.3	0.2 - 0.2	6.2 - 5.2	12.2 - 10.3
3	12°30.7	12°32.8	11°56.5	0.3 - 0.3	6.3 - 5.3	12.3 - 10.4
4	12°31.0	12°33.1	11°56.8	0.4 - 0.3	6.4 - 5.4	12.4 - 10.4
5	12°31.3	12°33.3	11°57.0	0.5 - 0.4	6.5 - 5.5	12.5 - 10.5
6	12°31.5	12°33.6	11°57.3	0.6 - 0.5	6.6 - 5.6	12.6 - 10.6
7	12°31.8	12°33.8	11°57.5	0.7 - 0.6	6.7 - 5.6	12.7 - 10.7
8	12°32.0	12°34.1	11°57.7	0.8 - 0.7	6.8 - 5.7	12.8 - 10.8
9	12°32.2	12°34.3	11°58.0	0.9 - 0.8	6.9 - 5.8	12.9 - 10.9
10	12°32.5	12°34.6	11°58.2	1.0 - 0.8	7.0 - 5.9	13.0 - 10.9
11	12°32.7	12°34.8	11°58.5	1.1 - 0.9	7.1 - 6.0	13.1 - 11.0
12	12°33.0	12°35.1	11°58.7	1.2 - 1.0	7.2 - 6.1	13.2 - 11.1
13	12°33.3	12°35.3	11°58.9	1.3 - 1.1	7.3 - 6.1	13.3 - 11

Increments and Corrections

m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr		
51	Plan.						52	Plan.						53	Plan.					
0	12°45.0	12°47.1	12°10.1	0.0 - 0.0	6.0 - 5.1	12.0 - 10.3	0	13°00.0	13°02.1	12°24.5	0.0 - 0.0	6.0 - 5.3	12.0 - 10.5	0	13°15.0	13°17.2	12°38.8	0.0 - 0.0	6.0 - 5.4	12.0 - 10.7
1	12°45.2	12°47.3	12°10.4	0.1 - 0.1	6.1 - 5.2	12.1 - 10.4	1	13°00.2	13°02.4	12°24.7	0.1 - 0.1	6.1 - 5.3	12.1 - 10.6	1	13°15.2	13°17.4	12°39.0	0.1 - 0.1	6.1 - 5.4	12.1 - 10.8
2	12°45.5	12°47.6	12°10.6	0.2 - 0.2	6.2 - 5.3	12.2 - 10.5	2	13°00.5	13°02.6	12°24.9	0.2 - 0.2	6.2 - 5.4	12.2 - 10.7	2	13°15.5	13°17.7	12°39.3	0.2 - 0.2	6.2 - 5.5	12.2 - 10.9
3	12°45.7	12°47.8	12°10.9	0.3 - 0.3	6.3 - 5.4	12.3 - 10.6	3	13°00.7	13°02.9	12°25.2	0.3 - 0.3	6.3 - 5.5	12.3 - 10.8	3	13°15.7	13°17.9	12°39.5	0.3 - 0.3	6.3 - 5.6	12.3 - 11.0
4	12°46.0	12°48.1	12°11.1	0.4 - 0.3	6.4 - 5.5	12.4 - 10.6	4	13°01.0	13°03.1	12°25.4	0.4 - 0.4	6.4 - 5.6	12.4 - 10.8	4	13°16.0	13°18.2	12°39.7	0.4 - 0.4	6.4 - 5.7	12.4 - 11.1
5	12°46.3	12°48.3	12°11.3	0.5 - 0.4	6.5 - 5.6	12.5 - 10.7	5	13°01.3	13°03.4	12°25.7	0.5 - 0.4	6.5 - 5.7	12.5 - 10.9	5	13°16.3	13°18.4	12°40.0	0.5 - 0.4	6.5 - 5.8	12.5 - 11.1
6	12°46.5	12°48.6	12°11.6	0.6 - 0.5	6.6 - 5.7	12.6 - 10.8	6	13°01.5	13°03.6	12°25.9	0.6 - 0.5	6.6 - 5.8	12.6 - 11.0	6	13°16.5	13°18.7	12°40.2	0.6 - 0.5	6.6 - 5.9	12.6 - 11.2
7	12°46.8	12°48.8	12°11.8	0.7 - 0.6	6.7 - 5.8	12.7 - 10.9	7	13°01.8	13°03.9	12°26.1	0.7 - 0.6	6.7 - 5.9	12.7 - 11.1	7	13°16.8	13°18.9	12°40.5	0.7 - 0.6	6.7 - 6.0	12.7 - 11.3
8	12°47.0	12°49.1	12°12.1	0.8 - 0.7	6.8 - 5.8	12.8 - 11.0	8	13°02.0	13°04.1	12°26.4	0.8 - 0.7	6.8 - 6.0	12.8 - 11.2	8	13°17.0	13°19.2	12°40.7	0.8 - 0.7	6.8 - 6.1	12.8 - 11.4
9	12°47.2	12°49.3	12°12.3	0.9 - 0.8	6.9 - 5.9	12.9 - 11.1	9	13°02.2	13°04.4	12°26.6	0.9 - 0.8	6.9 - 6.0	12.9 - 11.3	9	13°17.2	13°19.4	12°40.9	0.9 - 0.8	6.9 - 6.2	12.9 - 11.5
10	12°47.5	12°49.6	12°12.5	1.0 - 0.9	7.0 - 6.0	13.0 - 11.2	10	13°02.5	13°04.6	12°26.9	1.0 - 0.9	7.0 - 6.1	13.0 - 11.4	10	13°17.5	13°19.7	12°41.2	1.0 - 0.9	7.0 - 6.2	13.0 - 11.6
11	12°47.7	12°49.8	12°12.8	1.1 - 0.9	7.1 - 6.1	13.1 - 11.2	11	13°02.7	13°04.9	12°27.1	1.1 - 1.0	7.1 - 6.2	13.1 - 11.5	11	13°17.7	13°19.9	12°41.4	1.1 - 1.0	7.1 - 6.3	13.1 - 11.7
12	12°48.0	12°50.1	12°13.0	1.2 - 1.0	7.2 - 6.2	13.2 - 11.3	12	13°03.0	13°05.1	12°27.3	1.2 - 1.1	7.2 - 6.3	13.2 - 11.5	12	13°18.0	13°20.2	12°41.6	1.2 - 1.1	7.2 - 6.4	13.2 - 11.8
13	12°48.3	12°50.3	12°13.3	1.3 - 1.1	7.3 - 6.3	13.3 - 11.4	13	13°03.3	13°05.4	12°27.6	1.3 - 1.1	7.3 - 6.4	13.3 - 11.6	13	13°18.3	13°20.4	12°41.9	1.3 - 1.2	7.3 - 6.5	13.3 - 11.9
14	12°48.5	12°50.6	12°13.5	1.4 - 1.2	7.4 - 6.4	13.4 - 11.5	14	13°03.5	13°05.6	12°27.8	1.4 - 1.2	7.4 - 6.5	13.4 - 11.7	14	13°18.5	13°20.7	12°42.1	1.4 - 1.2	7.4 - 6.6	13.4 - 11.9
15	12°48.8	12°50.9	12°13.7	1.5 - 1.3	7.5 - 6.4	13.5 - 11.6	15	13°03.8	13°05.9	12°28.0	1.5 - 1.3	7.5 - 6.6	13.5 - 11.8	15	13°18.8	13°20.9	12°42.4	1.5 - 1.3	7.5 - 6.7	13.5 - 12.0
16	12°49.0	12°51.1	12°14.0	1.6 - 1.4	7.6 - 6.5	13.6 - 11.7	16	13°04.0	13°06.1	12°28.3	1.6 - 1.4	7.6 - 6.6	13.6 - 11.9	16	13°19.0	13°21.2	12°42.6	1.6 - 1.4	7.6 - 6.8	13.6 - 12.1
17	12°49.2	12°51.4	12°14.2	1.7 - 1.5	7.7 - 6.6	13.7 - 11.8	17	13°04.2	13°06.4	12°28.5	1.7 - 1.5	7.7 - 6.7	13.7 - 12.0	17	13°19.2	13°21.4	12°42.8	1.7 - 1.5	7.7 - 6.9	13.7 - 12.2
18	12°49.5	12°51.6	12°14.4	1.8 - 1.5	7.8 - 6.7	13.8 - 11.8	18	13°04.5	13°06.6	12°28.8	1.8 - 1.6	7.8 - 6.8	13.8 - 12.1	18	13°19.5	13°21.7	12°43.1	1.8 - 1.6	7.8 - 7.0	13.8 - 12.3
19	12°49.8	12°51.9	12°14.7	1.9 - 1.6	7.9 - 6.8	13.9 - 11.9	19	13°04.8	13°06.9	12°29.0	1.9 - 1.7	7.9 - 6.9	13.9 - 12.2	19	13°19.8	13°21.9	12°43.3	1.9 - 1.7	7.9 - 7.0	13.9 - 12.4
20	12°50.0	12°52.1	12°14.9	2.0 - 1.7	8.0 - 6.9	14.0 - 12.0	20	13°05.0	13°07.1	12°29.2	2.0 - 1.8	8.0 - 7.0	14.0 - 12.3	20	13°20.0	13°22.2	12°43.6	2.0 - 1.8	8.0 - 7.1	14.0 - 12.5
21	12°50.3	12°52.4	12°15.2	2.1 - 1.8	8.1 - 7.0	14.1 - 12.1	21	13°05.3	13°07.4	12°29.5	2.1 - 1.8	8.1 - 7.1	14.1 - 12.3	21	13°20.3	13°22.4	12°43.8	2.1 - 1.9	8.1 - 7.2	14.1 - 12.6
22	12°50.5	12°52.6	12°15.4	2.2 - 1.9	8.2 - 7.0	14.2 - 12.2	22	13°05.5	13°07.6	12°29.7	2.2 - 1.9	8.2 - 7.2	14.2 - 12.4	22	13°20.5	13°22.7	12°44.0	2.2 - 2.0	8.2 - 7.3	14.2 - 12.7
23	12°50.7	12°52.9	12°15.6	2.3 - 2.0	8.3 - 7.1	14.3 - 12.3	23	13°05.7	13°07.9	12°30.0	2.3 - 2.0	8.3 - 7.3	14.3 - 12.5	23	13°20.7	13°22.9	12°44.3	2.3 - 2.1	8.3 - 7.4	14.3 - 12.8
24	12°51.0	12°53.1	12°15.9	2.4 - 2.1	8.4 - 7.2	14.4 - 12.4	24	13°06.0	13°08.1	12°30.2	2.4 - 2.1	8.4 - 7.4	14.4 - 12.6	24	13°21.0	13°23.2	12°44.5	2.4 - 2.1	8.4 - 7.5	14.4 - 12.8
25	12°51.2	12°53.4	12°16.1	2.5 - 2.1	8.5 - 7.3	14.5 - 12.4	25	13°06.2	13°08.4	12°30.4	2.5 - 2.2	8.5 - 7.4	14.5 - 12.7	25	13°21.2	13°23.4	12°44.7	2.5 - 2.2	8.5 - 7.6	14.5 - 12.9
26	12°51.5	12°53.6	12°16.4	2.6 - 2.2	8.6 - 7.4	14.6 - 12.5	26	13°06.5	13°08.6	12°30.7	2.6 - 2.3	8.6 - 7.5	14.6 - 12.8	26	13°21.5	13°23.7	12°45.0	2.6 - 2.3	8.6 - 7.7	14.6 - 13.0
27	12°51.8	12°53.9	12°16.6	2.7 - 2.3	8.7 - 7.5	14.7 - 12.6	27	13°06.8	13°08.9	12°30.9	2.7 - 2.4	8.7 - 7.6	14.7 - 12.9	27	13°21.8	13°23.9	12°45.2	2.7 - 2.4	8.7 - 7.8	14.7 - 13.1
28	12°52.0	12°54.1	12°16.8	2.8 - 2.4	8.8 - 7.6	14.8 - 12.7	28	13°07.0	13°09.2	12°31.1	2.8 - 2.5	8.8 - 7.7	14.8 - 13.0	28	13°22.0	13°24.2	12°45.5	2.8 - 2.5	8.8 - 7.8	14.8 - 13.2
29	12°52.3	12°54.4	12°17.1	2.9 - 2.5	8.9 - 7.6	14.9 - 12.8	29	13°07.3	13°09.4	12°31.4	2.9 - 2.5	8.9 - 7.8	14.9 - 13.0	29	13°22.3	13°24.4	12°45.7	2.9 - 2.6	8.9 - 7.9	14.9 - 13.3
30	12°52.5	12°54.6	12°17.3	3.0 - 2.6	9.0 - 7.7	15.0 - 12.9	30	13°07.5	13°09.7	12°31.6	3.0 - 2.6	9.0 - 7.9	15.0 - 13.1	30	13°22.5	13°24.7	12°45.9	3.0 - 2.7	9.0 - 8.0	15.0 - 13.4
31	12°52.7	12°54.9	12°17.5	3.1 - 2.7	9.1 - 7.8	15.1 - 13.0	31	13°07.7	13°09.9	12°31.9	3.1 - 2.7	9.1 - 8.0	15.1 - 13.2	31	13°22.7	13°24.9	12°46.2	3.1 - 2.8	9.1 - 8.1	15.1 - 13.5
32	12°53.0	12°55.1	12°17.8	3.2 - 2.7	9.2 - 7.9	15.2 - 13.0	32	13°08.0	13°10.2	12°32.1	3.2 - 2.8	9.2 - 8.0	15.2 - 13.3	32	13°23.0	13°25.2	12°46.4	3.2 - 2.9	9.2 - 8.2	15.2 - 13.6
33	12°53.2	12°55.4	12°18.0	3.3 - 2.8	9.3 - 8.0	15.3 - 13.1	33	13°08.2	13°10.4	12°32.3	3.3 - 2.9	9.3 - 8.1	15.3 - 13.4	33	13°23.2	13°25.4	12°46.7	3.3 - 2.9	9.3 - 8.3	15.3 - 13.6
34	12°53.5	12°55.6	12°18.3	3.4 - 2.9	9.4 - 8.1	15.4 - 13.2	34	13°08.5	13°10.7	12°32.6	3.4 - 3.0	9.4 - 8.2	15.4 - 13.5	34	13°23.5	13°25.7	12°46.9	3.4 - 3.0	9.4 - 8.4	15.4 - 13.7
35	12°53.8	12°55.9	12°18.5	3.5 - 3.0	9.5 - 8.2	15.5 - 13.3	35	13°08.8	13°10.9	12°32.8	3.5 - 3.1	9.5 - 8.3	15.5 - 13.6	35	13°23.8	13°25.9	12°47.1	3.5 - 3.1	9.5 - 8.5	15.5 - 13.8
36	12°54.0	12°56.1	12°18.7	3.6 - 3.1	9.6 - 8.2	15.6 - 13.4	36	13°09.0	13°11.2	12°33.1	3.6 - 3.1	9.6 - 8.4	15.6 - 13.7	36	13°24.0	13°26.2	12°47.4	3.6 - 3.2	9.6 - 8.6	15.6 - 13.9
37	12°54.3	12°56.4	12°19.0	3.7 - 3.2	9.7 - 8.3	15.7 - 13.5	37	13°09.3	13°11.4	12°33.3	3.7 - 3.2	9.7 - 8.5	15.7 - 13.7	37	13°24.3	13°26.4	12°47.6	3.7 - 3.3	9.7 - 8.6	15.7 - 14.0
38	12°54.5	12°56.6	12°19.2	3.8 - 3.3	9.8 - 8.4	15.8 - 13.6	38	13°09.5	13°11.7	12°33.5	3.8 - 3.3	9.8 - 8.6	15.8 - 13.8	38	13°24.5	13°26.7	12°47.9	3.8 - 3.4	9.8 - 8.7	15.8 - 14.1
39	12°54.7	12°56.9	12°19.5	3.9 - 3.3	9.9 - 8.5	15.9 - 13.6	39	13°09.7	13°11.9	12°33.8	3.9 - 3.4	9.9 - 8.7	15.9 - 13.9	39	13°24.7	13°26.9	12°48.1	3.9 - 3.5	9.9 - 8.8	15.9 - 14.2
40	12°55.0	12°57.1	12°19.7	4.0 - 3.4	10.0 - 8.6	16.0 - 13.7	40	13°10.0	13°12.2	12°34.0	4.0 - 3.5	10.0 - 8.8	16.0 - 14.0	40	13°25.0	13°27.2	12°48.3	4.0 - 3.6	10.0 - 8.9	16.0 - 14.3
41	12°55.2	12°57.4	12°19.9	4.1 - 3.5	10.1 - 8.7	16.1 - 13.8	41	13°10.2	13°12.4	12°34.2	4.1 - 3.6	10.1 - 8.8	16.1 - 14.1	41	13°25.2	13°27.5	12°48.6	4.1 - 3.7	10.1 - 9.0	16.1 - 14.4
42	12°55.5	12°57.6	12°20.2	4.2 - 3.6	10.2 - 8.8	16.2 - 13.9	42	13°10.5	13°12.7	12°34.5	4.2 - 3.7	10.2 - 8.9	16.2 - 14.2	42	13°25.5	13°27.7	12°48.8	4.2 - 3.7	10.2 - 9.1	16.2 - 14.4
43	12°55.8	12°57.9	12°20.4	4.3 - 3.7	10.3 - 8.8	16.3 - 14.0	43	13°10.8	13°12.9	12°34.7	4.3 - 3.8	10.3 - 9.0	16.3 - 14.3	43	13°25.8	13°28.0	12°49.0	4.3 - 3.8	10.3 - 9.2	16.3 - 14.5
44	12°56.0	12°58.1	12°20.6	4.4 - 3.8	10.4 - 8.9	16.4 - 14.1	44	13°11.0	13°13.2	12°35.0	4.4 - 3.9	10.4 - 9.1	16.4 - 14.3	44	13°26.0	13°28.2	12°49.3	4.4 - 3.9	10.4 - 9.3	16.4 - 14.6
45	12°56.3	12°58.4	12°20.9	4.5 - 3.9	10.5 - 9.0	16.5 - 14.2	45	13°11.3	13°13.4	12°35.2	4.5 - 3.9	10.5 - 9.2	16.5 - 14.4	45	13°26.3	13°28.5	12°49.5	4.5 - 4.0	10.5 - 9.4	16.5 - 14.7
46	12°56.5	12°58.6	12°21.1	4.6 - 3.9	10.6 - 9.1	16.6 - 14.2	46	13°11.5	13°13.7	12°35.4	4.6 - 4.0	10.6 - 9.3	16.6 - 14.5	46	13°26.5	13°28.7	12°49.			

Increments and Corrections

m	Sun	Aries	Moon	v and d corr		
54	Plan.					
0	13°30.0	13°32.2	12°53.1	0.0 - 0.0	6.0 - 5.5	12.0 - 10.9
1	13°30.2	13°32.5	12°53.3	0.1 - 0.1	6.1 - 5.5	12.1 - 11.0
2	13°30.5	13°32.7	12°53.6	0.2 - 0.2	6.2 - 5.6	12.2 - 11.1
3	13°30.7	13°33.0	12°53.8	0.3 - 0.3	6.3 - 5.7	12.3 - 11.2
4	13°31.0	13°33.2	12°54.1	0.4 - 0.4	6.4 - 5.8	12.4 - 11.3
5	13°31.3	13°33.5	12°54.3	0.5 - 0.5	6.5 - 5.9	12.5 - 11.4
6	13°31.5	13°33.7	12°54.5	0.6 - 0.5	6.6 - 6.0	12.6 - 11.4
7	13°31.8	13°34.0	12°54.8	0.7 - 0.6	6.7 - 6.1	12.7 - 11.5
8	13°32.0	13°34.2	12°55.0	0.8 - 0.7	6.8 - 6.2	12.8 - 11.6
9	13°32.2	13°34.5	12°55.2	0.9 - 0.8	6.9 - 6.3	12.9 - 11.7
10	13°32.5	13°34.7	12°55.5	1.0 - 0.9	7.0 - 6.4	13.0 - 11.8
11	13°32.7	13°35.0	12°55.7	1.1 - 1.0	7.1 - 6.4	13.1 - 11.9
12	13°33.0	13°35.2	12°56.0	1.2 - 1.1	7.2 - 6.5	13.2 - 12.0
13	13°33.3	13°35.5	12°56.2	1.3 - 1.2	7.3 - 6.6	13.3 - 12.1
14	13°33.5	13°35.7	12°56.4	1.4 - 1.3	7.4 - 6.7	13.4 - 12.2
15	13°33.8	13°36.0	12°56.7	1.5 - 1.4	7.5 - 6.8	13.5 - 12.3
16	13°34.0	13°36.2	12°56.9	1.6 - 1.5	7.6 - 6.9	13.6 - 12.4
17	13°34.2	13°36.5	12°57.2	1.7 - 1.5	7.7 - 7.0	13.7 - 12.4
18	13°34.5	13°36.7	12°57.4	1.8 - 1.6	7.8 - 7.1	13.8 - 12.5
19	13°34.8	13°37.0	12°57.6	1.9 - 1.7	7.9 - 7.2	13.9 - 12.6
20	13°35.0	13°37.2	12°57.9	2.0 - 1.8	8.0 - 7.3	14.0 - 12.7
21	13°35.3	13°37.5	12°58.1	2.1 - 1.9	8.1 - 7.4	14.1 - 12.8
22	13°35.5	13°37.7	12°58.3	2.2 - 2.0	8.2 - 7.4	14.2 - 12.9
23	13°35.7	13°38.0	12°58.6	2.3 - 2.1	8.3 - 7.5	14.3 - 13.0
24	13°36.0	13°38.2	12°58.8	2.4 - 2.2	8.4 - 7.6	14.4 - 13.1
25	13°36.2	13°38.5	12°59.1	2.5 - 2.3	8.5 - 7.7	14.5 - 13.2
26	13°36.5	13°38.7	12°59.3	2.6 - 2.4	8.6 - 7.8	14.6 - 13.3
27	13°36.8	13°39.0	12°59.5	2.7 - 2.5	8.7 - 7.9	14.7 - 13.4
28	13°37.0	13°39.2	12°59.8	2.8 - 2.5	8.8 - 8.0	14.8 - 13.4
29	13°37.3	13°39.5	13°00.0	2.9 - 2.6	8.9 - 8.1	14.9 - 13.5
30	13°37.5	13°39.7	13°00.3	3.0 - 2.7	9.0 - 8.2	15.0 - 13.6
31	13°37.7	13°40.0	13°00.5	3.1 - 2.8	9.1 - 8.3	15.1 - 13.7
32	13°38.0	13°40.2	13°00.7	3.2 - 2.9	9.2 - 8.4	15.2 - 13.8
33	13°38.2	13°40.5	13°01.0	3.3 - 3.0	9.3 - 8.4	15.3 - 13.9
34	13°38.5	13°40.7	13°01.2	3.4 - 3.1	9.4 - 8.5	15.4 - 14.0
35	13°38.8	13°41.0	13°01.5	3.5 - 3.2	9.5 - 8.6	15.5 - 14.1
36	13°39.0	13°41.2	13°01.7	3.6 - 3.3	9.6 - 8.7	15.6 - 14.2
37	13°39.3	13°41.5	13°01.9	3.7 - 3.4	9.7 - 8.8	15.7 - 14.3
38	13°39.5	13°41.7	13°02.2	3.8 - 3.5	9.8 - 8.9	15.8 - 14.4
39	13°39.7	13°42.0	13°02.4	3.9 - 3.5	9.9 - 9.0	15.9 - 14.4
40	13°40.0	13°42.2	13°02.6	4.0 - 3.6	10.0 - 9.1	16.0 - 14.5
41	13°40.2	13°42.5	13°02.9	4.1 - 3.7	10.1 - 9.2	16.1 - 14.6
42	13°40.5	13°42.7	13°03.1	4.2 - 3.8	10.2 - 9.3	16.2 - 14.7
43	13°40.8	13°43.0	13°03.4	4.3 - 3.9	10.3 - 9.4	16.3 - 14.8
44	13°41.0	13°43.2	13°03.6	4.4 - 4.0	10.4 - 9.4	16.4 - 14.9
45	13°41.3	13°43.5	13°03.8	4.5 - 4.1	10.5 - 9.5	16.5 - 15.0
46	13°41.5	13°43.7	13°04.1	4.6 - 4.2	10.6 - 9.6	16.6 - 15.1
47	13°41.7	13°44.0	13°04.3	4.7 - 4.3	10.7 - 9.7	16.7 - 15.2
48	13°42.0	13°44.2	13°04.6	4.8 - 4.4	10.8 - 9.8	16.8 - 15.3
49	13°42.3	13°44.5	13°04.8	4.9 - 4.5	10.9 - 9.9	16.9 - 15.4
50	13°42.5	13°44.7	13°05.0	5.0 - 4.5	11.0 - 10.0	17.0 - 15.4
51	13°42.8	13°45.0	13°05.3	5.1 - 4.6	11.1 - 10.1	17.1 - 15.5
52	13°43.0	13°45.2	13°05.5	5.2 - 4.7	11.2 - 10.2	17.2 - 15.6
53	13°43.2	13°45.5	13°05.7	5.3 - 4.8	11.3 - 10.3	17.3 - 15.7
54	13°43.5	13°45.8	13°06.0	5.4 - 4.9	11.4 - 10.4	17.4 - 15.8
55	13°43.7	13°46.0	13°06.2	5.5 - 5.0	11.5 - 10.4	17.5 - 15.9
56	13°44.0	13°46.3	13°06.5	5.6 - 5.1	11.6 - 10.5	17.6 - 16.0
57	13°44.3	13°46.5	13°06.7	5.7 - 5.2	11.7 - 10.6	17.7 - 16.1
58	13°44.5	13°46.8	13°06.9	5.8 - 5.3	11.8 - 10.7	17.8 - 16.2
59	13°44.8	13°47.0	13°07.2	5.9 - 5.4	11.9 - 10.8	17.9 - 16.3

m	Sun	Aries	Moon	v and d corr		
55	Plan.					
0	13°45.0	13°47.3	13°07.4	0.0 - 0.0	6.0 - 5.6	12.0 - 11.1
1	13°45.2	13°47.5	13°07.7	0.1 - 0.1	6.1 - 5.6	12.1 - 11.2
2	13°45.5	13°47.8	13°07.9	0.2 - 0.2	6.2 - 5.7	12.2 - 11.3
3	13°45.7	13°48.0	13°08.1	0.3 - 0.3	6.3 - 5.8	12.3 - 11.4
4	13°46.0	13°48.3	13°08.4	0.4 - 0.4	6.4 - 5.9	12.4 - 11.5
5	13°46.3	13°48.5	13°08.6	0.5 - 0.5	6.5 - 6.0	12.5 - 11.6
6	13°46.5	13°48.8	13°08.8	0.6 - 0.6	6.6 - 6.1	12.6 - 11.7
7	13°46.8	13°49.0	13°09.1	0.7 - 0.6	6.7 - 6.2	12.7 - 11.7
8	13°47.0	13°49.3	13°09.3	0.8 - 0.7	6.8 - 6.3	12.8 - 11.8
9	13°47.2	13°49.5	13°09.6	0.9 - 0.8	6.9 - 6.4	12.9 - 11.9
10	13°47.5	13°49.8	13°09.8	1.0 - 0.9	7.0 - 6.5	13.0 - 12.0
11	13°47.7	13°50.0	13°10.0	1.1 - 1.0	7.1 - 6.6	13.1 - 12.1
12	13°48.0	13°50.3	13°10.3	1.2 - 1.1	7.2 - 6.7	13.2 - 12.2
13	13°48.3	13°50.5	13°10.5	1.3 - 1.2	7.3 - 6.8	13.3 - 12.3
14	13°48.5	13°50.8	13°10.8	1.4 - 1.3	7.4 - 6.8	13.4 - 12.4
15	13°48.8	13°51.0	13°11.0	1.5 - 1.4	7.5 - 6.9	13.5 - 12.5
16	13°49.0	13°51.3	13°11.2	1.6 - 1.5	7.6 - 7.0	13.6 - 12.6
17	13°49.2	13°51.5	13°11.5	1.7 - 1.6	7.7 - 7.1	13.7 - 12.7
18	13°49.5	13°51.8	13°11.7	1.8 - 1.7	7.8 - 7.2	13.8 - 12.8
19	13°49.8	13°52.0	13°12.0	1.9 - 1.8	7.9 - 7.3	13.9 - 12.9
20	13°50.0	13°52.3	13°12.2	2.0 - 1.9	8.0 - 7.4	14.0 - 13.0
21	13°50.3	13°52.5	13°12.4	2.1 - 1.9	8.1 - 7.5	14.1 - 13.0
22	13°50.5	13°52.8	13°12.7	2.2 - 2.0	8.2 - 7.6	14.2 - 13.1
23	13°50.7	13°53.0	13°12.9	2.3 - 2.1	8.3 - 7.7	14.3 - 13.2
24	13°51.0	13°53.3	13°13.1	2.4 - 2.2	8.4 - 7.8	14.4 - 13.3
25	13°51.2	13°53.5	13°13.4	2.5 - 2.3	8.5 - 7.9	14.5 - 13.4
26	13°51.5	13°53.8	13°13.6	2.6 - 2.4	8.6 - 8.0	14.6 - 13.5
27	13°51.8	13°54.0	13°13.9	2.7 - 2.5	8.7 - 8.0	14.7 - 13.6
28	13°52.0	13°54.3	13°14.1	2.8 - 2.6	8.8 - 8.1	14.8 - 13.7
29	13°52.3	13°54.5	13°14.3	2.9 - 2.7	8.9 - 8.2	14.9 - 13.8
30	13°52.5	13°54.8	13°14.6	3.0 - 2.8	9.0 - 8.3	15.0 - 13.9
31	13°52.7	13°55.0	13°14.8	3.1 - 2.9	9.1 - 8.4	15.1 - 14.0
32	13°53.0	13°55.3	13°15.1	3.2 - 3.0	9.2 - 8.5	15.2 - 14.1
33	13°53.2	13°55.5	13°15.3	3.3 - 3.1	9.3 - 8.6	15.3 - 14.2
34	13°53.5	13°55.8	13°15.5	3.4 - 3.1	9.4 - 8.7	15.4 - 14.2
35	13°53.8	13°56.0	13°15.8	3.5 - 3.2	9.5 - 8.8	15.5 - 14.3
36	13°54.0	13°56.3	13°16.0	3.6 - 3.3	9.6 - 8.9	15.6 - 14.4
37	13°54.3	13°56.5	13°16.2	3.7 - 3.4	9.7 - 9.0	15.7 - 14.5
38	13°54.5	13°56.8	13°16.5	3.8 - 3.5	9.8 - 9.1	15.8 - 14.6
39	13°54.7	13°57.0	13°16.7	3.9 - 3.6	9.9 - 9.2	15.9 - 14.7
40	13°55.0	13°57.3	13°17.0	4.0 - 3.7	10.0 - 9.3	16.0 - 14.8
41	13°55.2	13°57.5	13°17.2	4.1 - 3.8	10.1 - 9.3	16.1 - 14.9
42	13°55.5	13°57.8	13°17.4	4.2 - 3.9	10.2 - 9.4	16.2 - 15.0
43	13°55.8	13°58.0	13°17.7	4.3 - 4.0	10.3 - 9.5	16.3 - 15.1
44	13°56.0	13°58.3	13°17.9	4.4 - 4.1	10.4 - 9.6	16.4 - 15.2
45	13°56.3	13°58.5	13°18.2	4.5 - 4.2	10.5 - 9.7	16.5 - 15.3
46	13°56.5	13°58.8	13°18.4	4.6 - 4.3	10.6 - 9.8	16.6 - 15.4
47	13°56.7	13°59.0	13°18.6	4.7 - 4.3	10.7 - 9.9	16.7 - 15.4
48	13°57.0	13°59.3	13°18.9	4.8 - 4.4	10.8 - 10.0	16.8 - 15.5
49	13°57.3	13°59.5	13°19.1	4.9 - 4.5	10.9 - 10.1	16.9 - 15.6
50	13°57.5	13°59.8	13°19.3	5.0 - 4.6	11.0 - 10.2	17.0 - 15.7
51	13°57.8	14°00.0	13°19.6	5.1 - 4.7	11.1 - 10.3	17.1 - 15.8
52	13°58.0	14°00.3	13°19.8	5.2 - 4.8	11.2 - 10.4	17.2 - 15.9
53	13°58.2	14°00.5	13°20.1	5.3 - 4.9	11.3 - 10.5	17.3 - 16.0
54	13°58.5	14°00.8	13°20.3	5.4 - 5.0	11.4 - 10.5	17.4 - 16.1
55	13°58.7	14°01.0	13°20.5	5.5 - 5.1	11.5 - 10.6	17.5 - 16.2
56	13°59.0	14°01.3	13°20.8	5.6 - 5.2	11.6 - 10.7	17.6 - 16.3
57	13°59.3	14°01.5	13°21.0	5.7 - 5.3	11.7 - 10.8	17.7 - 16.4
58	13°59.5	14°01.8	13°21.3	5.8 - 5.4	11.8 - 10.9	17.8 - 16.5
59	13°59.8	14°02.0	13°21.5	5.9 - 5.5	11.9 - 11.0	17.9 - 16.6

m	Sun	Aries	Moon	v and d corr		
56	Plan.					
0	14°00.0	14°02.3	13°21.7	0.0 - 0.0	6.0 - 5.7	12.0 - 11.3
1	14°00.2	14°02.5	13°22.0	0.1 - 0.1	6.1 - 5.7	12.1 - 11.4
2	14°00.5	14°02.8	13°22.2	0.2 - 0.2	6.2 - 5.8	12.2 - 11.5
3	14°00.7	14°03.0	13°22.4	0.3 - 0.3	6.3 - 5.9	12.3 - 11.6
4	14°01.0	14°03.3	13°22.7	0.4 - 0.4	6.4 - 6.0	12.4 - 11.7
5	14°01.3	14°03.5	13°22.9	0.5 - 0.5	6.5 - 6.1	12.5 - 11.8
6	14°01.5	14°03.8	13°23.2	0.6 - 0.6	6.6 - 6.2	12.6 - 11.9
7	14°01.8	14°04.1	13°23.4	0.7 - 0.7	6.7 - 6.3	12.7 - 12.0
8	14°02.0	14°04.3	13°23.6	0.8 - 0.8	6.8 - 6.4	12.8 - 12.1
9	14°02.2	14°04.6	13°23.9	0.9 - 0.8	6.9 - 6.5	12.9 - 12.1
10	14°02.5	14°04.8	13°24.1	1.0 - 0.9	7.0 - 6.6	13.0 - 12.2
11	14°02.7	14°05.1	13°24.4	1.1 - 1.0	7.1 - 6.7	13.1 - 12.3
12	14°03.0	14°05.3	13°24.6	1.2 - 1.1	7.2 - 6.8	13.2 - 12.4
13	14°03.3	14°05.6	13°24.8	1.3 - 1.2	7.3 - 6.9	13.3 - 12.5
14	14°03.5	14°05.8	13°25.1	1.4 - 1.3	7.4 - 7.0	13.4 - 12.6
15	14°03.8	14°06.1	13°25.3	1.5 - 1.4	7.5 - 7.1	13.5 - 12.7
16	14°04.0	14°06.3	13°25.6	1.6 - 1.5	7.6 - 7.2	13.6 - 12.8
17	14°04.2	14°06.6	13°25.8	1.7 - 1.6	7.7 - 7.3	13.7 - 12.9
18	14°04.5	14°06.8	13°26.0	1.8 - 1.7	7.8 - 7.3	13.8 - 13.0
19	14°04.8	14°07.1	13°26.3	1.9 - 1.8	7.9 - 7.4	13.9 - 13.1
20	14°05.0	14°07.3	13°26.5	2.0 - 1.9	8.0 - 7.5	14.0 - 13.2
21	14°05.3	14°07.6	13°26.7	2.1 - 2.0	8.1 - 7.6	14.1 - 13.3
22	14°05.5	14°07.8	13°27.0	2.2 - 2.1	8.2 - 7.7	14.2 - 13.4
23	14°05.7	14°08.1	13°27.2	2.3 - 2.2	8.3 - 7.8	14.3 - 13.5
24	14°06.0	14°08.3	13°27.5	2.4 - 2.3	8.4 - 7.9	14.4 - 13.6
25	14°06.2	14°08.6	13°27.7	2.5 - 2.4	8.5 - 8.0	14.5 - 13.7
26	14°06.5	14°08.8	13°27.9	2.6 - 2.4	8.6 - 8.1	14.6 - 13.7
27	14°06.8	14°09.1	13°28.2	2.7 - 2.5	8.7 - 8.2	14.7 - 13.8
28	14°07.0	14°09.3	13°28.4	2.8 - 2.6	8.8 - 8.3	14.8 - 13.9
29	14°07.3	14°09.6	13°28.7	2.9 - 2.7	8.9 - 8.4	14.9 - 14.0
30	14°07.5	14°09.8	13°28.9	3.0 - 2.8	9.0 - 8.5	15.0 - 14.1
31	14°07.7	14°10.1	13°29.1	3.1 - 2.9	9.1 - 8.6	15.1 - 14.2
32	14°08.0	14°10.3	13°29.4	3.2 - 3.0	9.2 - 8.7	15.2 - 14.3
33	14°08.2	14°10.6	13°29.6	3.3 - 3.1	9.3 - 8.8	15.3 - 14.4
34	14°08.5	14°10.8	13°29.8	3.4 - 3.2	9.4 - 8.9	15.4 - 14.5
35	14°08.8	14°11.1	13°30.1	3.5 - 3.3	9.5 - 8.9	15.5 - 14.6
36	14°09.0	14°11.3	13°30.3	3.6 - 3.4	9.6 - 9.0	15.6 - 14.7
37	14°09.3	14°11.6	13°30.6	3.7 - 3.5	9.7 - 9.1	15.7 - 14.8
38	14°09.5	14°11.8	13°30.8	3.8 - 3.6	9.8 - 9.2	15.8 - 14.9
39	14°09.7	14°12.1	13°31.0	3.9 - 3.7	9.9 - 9.3	15.9 - 15.0
40	14°10.0	14°12.3	13°31.3	4.0 - 3.8	10.0 - 9.4	16.0 - 15.1
41	14°10.2	14°12.6	13°31.5	4.1 - 3.9	10.1 - 9.5	16.1 - 15.2
42	14°10.5	14°12.8	13°31.8	4.2 - 4.0	10.2 - 9.6	16.2 - 15.3
43	14°10.8	14°13.1	13°32.0	4.3 - 4.0	10.3 - 9.7	16.3 - 15.3
44	14°11.0	14°13.3	13°32.2	4.4 - 4.1	10.4 - 9.8	16.4 - 15.4
45	14°11.3	14°13.6	13°32.5	4.5 - 4.2	10.5 - 9.9	16.5 - 15.5
46	14°11.5	14°13.8	13°32.7	4.6 - 4.3	10.6 - 10.0	16.6 - 15.6
47	14°11.7	14°14.1	13°32.9	4.7 - 4.4	10.7 - 10.1	16.7 - 15.7
48	14°12.0	14°14.3	13°33.2	4.8 - 4.5	10.8 - 10.2	16.8 - 15.8
49	14°12.3	14°14.6	13°33.4	4.9 - 4.6	10.9 - 10.3	16.9 - 15.9
50	14°12.5	14°14.8	13°33.7	5.0 - 4.7	11.0 - 10.4	17.0 - 16.0
51	14°12.8	14°15.1	13°33.9	5.1 - 4.8	11.1 - 10.5	17.1 - 16.1
52	14°13.0	14°15.3	13°34.1	5.2 - 4.9	11.2 - 10.5	17.2 - 16.2
53	14°13.2	14°15.6	13°34.4	5.3 - 5.0	11.3 - 10.6	17.3 - 16.3
54	14°13.5	14°15.8	13°34.6	5.4 - 5.1	11.4 - 10.7	17.4 - 16.4
55	14°13.7	14°16.1	13°34.9	5.5 - 5.2	11.5 - 10.8	17.5 - 16.5
56	14°14.0	14°16.3	13°35.1	5.6 - 5.3	11.6 - 10.9	17.6 - 16.6
57	14°14.3	14°16.6	13°35.3	5.7 - 5.4	11.7 - 11.0	17.7 - 16.7
58	14°14.5	14°16.8	13°35.6	5.8 - 5.5	11.8 - 11.1	17.8 - 16.8
59	14°14.8	14°17.1	13°35.8	5.9 - 5.6	11.9 - 11.2	17.9 - 16.9

Increments and Corrections

m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr			m	Sun	Aries	Moon	v and d corr		
57	Plan.						58	Plan.						59	Plan.					
0	14°15.0	14°17.3	13°36.0	0.0 - 0.0	6.0 - 5.8	12.0 - 11.5	0	14°30.0	14°32.4	13°50.4	0.0 - 0.0	6.0 - 5.8	12.0 - 11.7	0	14°45.0	14°47.4	14°04.7	0.0 - 0.0	6.0 - 6.0	12.0 - 11.9
1	14°15.2	14°17.6	13°36.3	0.1 - 0.1	6.1 - 5.8	12.1 - 11.6	1	14°30.2	14°32.6	13°50.6	0.1 - 0.1	6.1 - 5.9	12.1 - 11.8	1	14°45.2	14°47.7	14°04.9	0.1 - 0.1	6.1 - 6.0	12.1 - 12.0
2	14°15.5	14°17.8	13°36.5	0.2 - 0.2	6.2 - 5.9	12.2 - 11.7	2	14°30.5	14°32.9	13°50.8	0.2 - 0.2	6.2 - 6.0	12.2 - 11.9	2	14°45.5	14°47.9	14°05.2	0.2 - 0.2	6.2 - 6.1	12.2 - 12.1
3	14°15.7	14°18.1	13°36.8	0.3 - 0.3	6.3 - 6.0	12.3 - 11.8	3	14°30.7	14°33.1	13°51.1	0.3 - 0.3	6.3 - 6.1	12.3 - 12.0	3	14°45.7	14°48.2	14°05.4	0.3 - 0.3	6.3 - 6.2	12.3 - 12.2
4	14°16.0	14°18.3	13°37.0	0.4 - 0.4	6.4 - 6.1	12.4 - 11.9	4	14°31.0	14°33.4	13°51.3	0.4 - 0.4	6.4 - 6.2	12.4 - 12.1	4	14°46.0	14°48.4	14°05.6	0.4 - 0.4	6.4 - 6.3	12.4 - 12.3
5	14°16.3	14°18.6	13°37.2	0.5 - 0.5	6.5 - 6.2	12.5 - 12.0	5	14°31.3	14°33.6	13°51.6	0.5 - 0.5	6.5 - 6.3	12.5 - 12.2	5	14°46.3	14°48.7	14°05.9	0.5 - 0.5	6.5 - 6.4	12.5 - 12.4
6	14°16.5	14°18.8	13°37.5	0.6 - 0.6	6.6 - 6.3	12.6 - 12.1	6	14°31.5	14°33.9	13°51.8	0.6 - 0.6	6.6 - 6.4	12.6 - 12.3	6	14°46.5	14°48.9	14°06.1	0.6 - 0.6	6.6 - 6.5	12.6 - 12.5
7	14°16.8	14°19.1	13°37.7	0.7 - 0.7	6.7 - 6.4	12.7 - 12.2	7	14°31.8	14°34.1	13°52.0	0.7 - 0.7	6.7 - 6.5	12.7 - 12.4	7	14°46.8	14°49.2	14°06.4	0.7 - 0.7	6.7 - 6.6	12.7 - 12.6
8	14°17.0	14°19.3	13°38.0	0.8 - 0.8	6.8 - 6.5	12.8 - 12.3	8	14°32.0	14°34.4	13°52.3	0.8 - 0.8	6.8 - 6.6	12.8 - 12.5	8	14°47.0	14°49.4	14°06.6	0.8 - 0.8	6.8 - 6.7	12.8 - 12.7
9	14°17.2	14°19.6	13°38.2	0.9 - 0.9	6.9 - 6.6	12.9 - 12.4	9	14°32.2	14°34.6	13°52.5	0.9 - 0.9	6.9 - 6.7	12.9 - 12.6	9	14°47.2	14°49.7	14°06.8	0.9 - 0.9	6.9 - 6.8	12.9 - 12.8
10	14°17.5	14°19.8	13°38.4	1.0 - 1.0	7.0 - 6.7	13.0 - 12.5	10	14°32.5	14°34.9	13°52.8	1.0 - 1.0	7.0 - 6.8	13.0 - 12.7	10	14°47.5	14°49.9	14°07.1	1.0 - 1.0	7.0 - 6.9	13.0 - 12.9
11	14°17.7	14°20.1	13°38.7	1.1 - 1.1	7.1 - 6.8	13.1 - 12.6	11	14°32.7	14°35.1	13°53.0	1.1 - 1.1	7.1 - 6.9	13.1 - 12.8	11	14°47.7	14°50.2	14°07.3	1.1 - 1.1	7.1 - 7.0	13.1 - 13.0
12	14°18.0	14°20.3	13°38.9	1.2 - 1.2	7.2 - 6.9	13.2 - 12.7	12	14°33.0	14°35.4	13°53.2	1.2 - 1.2	7.2 - 7.0	13.2 - 12.9	12	14°48.0	14°50.4	14°07.5	1.2 - 1.2	7.2 - 7.1	13.2 - 13.1
13	14°18.3	14°20.6	13°39.2	1.3 - 1.2	7.3 - 7.0	13.3 - 12.7	13	14°33.3	14°35.6	13°53.5	1.3 - 1.3	7.3 - 7.1	13.3 - 13.0	13	14°48.3	14°50.7	14°07.8	1.3 - 1.3	7.3 - 7.2	13.3 - 13.2
14	14°18.5	14°20.8	13°39.4	1.4 - 1.3	7.4 - 7.1	13.4 - 12.8	14	14°33.5	14°35.9	13°53.7	1.4 - 1.4	7.4 - 7.2	13.4 - 13.1	14	14°48.5	14°50.9	14°08.0	1.4 - 1.4	7.4 - 7.3	13.4 - 13.3
15	14°18.8	14°21.1	13°39.6	1.5 - 1.4	7.5 - 7.2	13.5 - 12.9	15	14°33.8	14°36.1	13°53.9	1.5 - 1.5	7.5 - 7.3	13.5 - 13.2	15	14°48.8	14°51.2	14°08.3	1.5 - 1.5	7.5 - 7.4	13.5 - 13.4
16	14°19.0	14°21.3	13°39.9	1.6 - 1.5	7.6 - 7.3	13.6 - 13.0	16	14°34.0	14°36.4	13°54.2	1.6 - 1.6	7.6 - 7.4	13.6 - 13.3	16	14°49.0	14°51.4	14°08.5	1.6 - 1.6	7.6 - 7.5	13.6 - 13.5
17	14°19.2	14°21.6	13°40.1	1.7 - 1.6	7.7 - 7.4	13.7 - 13.1	17	14°34.2	14°36.6	13°54.4	1.7 - 1.7	7.7 - 7.5	13.7 - 13.4	17	14°49.2	14°51.7	14°08.7	1.7 - 1.7	7.7 - 7.6	13.7 - 13.6
18	14°19.5	14°21.8	13°40.3	1.8 - 1.7	7.8 - 7.5	13.8 - 13.2	18	14°34.5	14°36.9	13°54.7	1.8 - 1.8	7.8 - 7.6	13.8 - 13.5	18	14°49.5	14°51.9	14°09.0	1.8 - 1.8	7.8 - 7.7	13.8 - 13.7
19	14°19.8	14°22.1	13°40.6	1.9 - 1.8	7.9 - 7.6	13.9 - 13.3	19	14°34.8	14°37.1	13°54.9	1.9 - 1.9	7.9 - 7.7	13.9 - 13.6	19	14°49.8	14°52.2	14°09.2	1.9 - 1.9	7.9 - 7.8	13.9 - 13.8
20	14°20.0	14°22.4	13°40.8	2.0 - 1.9	8.0 - 7.7	14.0 - 13.4	20	14°35.0	14°37.4	13°55.1	2.0 - 1.9	8.0 - 7.8	14.0 - 13.7	20	14°50.0	14°52.4	14°09.5	2.0 - 2.0	8.0 - 7.9	14.0 - 13.9
21	14°20.3	14°22.6	13°41.1	2.1 - 2.0	8.1 - 7.8	14.1 - 13.5	21	14°35.3	14°37.6	13°55.4	2.1 - 2.0	8.1 - 7.9	14.1 - 13.7	21	14°50.3	14°52.7	14°09.7	2.1 - 2.1	8.1 - 8.0	14.1 - 14.0
22	14°20.5	14°22.9	13°41.3	2.2 - 2.1	8.2 - 7.9	14.2 - 13.6	22	14°35.5	14°37.9	13°55.6	2.2 - 2.1	8.2 - 8.0	14.2 - 13.8	22	14°50.5	14°52.9	14°09.9	2.2 - 2.2	8.2 - 8.1	14.2 - 14.1
23	14°20.7	14°23.1	13°41.5	2.3 - 2.2	8.3 - 8.0	14.3 - 13.7	23	14°35.7	14°38.1	13°55.9	2.3 - 2.2	8.3 - 8.1	14.3 - 13.9	23	14°50.7	14°53.2	14°10.2	2.3 - 2.3	8.3 - 8.2	14.3 - 14.2
24	14°21.0	14°23.4	13°41.8	2.4 - 2.3	8.4 - 8.1	14.4 - 13.8	24	14°36.0	14°38.4	13°56.1	2.4 - 2.3	8.4 - 8.2	14.4 - 14.0	24	14°51.0	14°53.4	14°10.4	2.4 - 2.4	8.4 - 8.3	14.4 - 14.3
25	14°21.2	14°23.6	13°42.0	2.5 - 2.4	8.5 - 8.1	14.5 - 13.9	25	14°36.2	14°38.6	13°56.3	2.5 - 2.4	8.5 - 8.3	14.5 - 14.1	25	14°51.2	14°53.7	14°10.6	2.5 - 2.5	8.5 - 8.4	14.5 - 14.4
26	14°21.5	14°23.9	13°42.3	2.6 - 2.5	8.6 - 8.2	14.6 - 14.0	26	14°36.5	14°38.9	13°56.6	2.6 - 2.5	8.6 - 8.4	14.6 - 14.2	26	14°51.5	14°53.9	14°10.9	2.6 - 2.6	8.6 - 8.5	14.6 - 14.5
27	14°21.8	14°24.1	13°42.5	2.7 - 2.6	8.7 - 8.3	14.7 - 14.1	27	14°36.8	14°39.1	13°56.8	2.7 - 2.6	8.7 - 8.5	14.7 - 14.3	27	14°51.8	14°54.2	14°11.1	2.7 - 2.7	8.7 - 8.6	14.7 - 14.6
28	14°22.0	14°24.4	13°42.7	2.8 - 2.7	8.8 - 8.4	14.8 - 14.2	28	14°37.0	14°39.4	13°57.0	2.8 - 2.7	8.8 - 8.6	14.8 - 14.4	28	14°52.0	14°54.4	14°11.4	2.8 - 2.8	8.8 - 8.7	14.8 - 14.7
29	14°22.3	14°24.6	13°43.0	2.9 - 2.8	8.9 - 8.5	14.9 - 14.3	29	14°37.3	14°39.6	13°57.3	2.9 - 2.8	8.9 - 8.7	14.9 - 14.5	29	14°52.3	14°54.7	14°11.6	2.9 - 2.9	8.9 - 8.8	14.9 - 14.8
30	14°22.5	14°24.9	13°43.2	3.0 - 2.9	9.0 - 8.6	15.0 - 14.4	30	14°37.5	14°39.9	13°57.5	3.0 - 2.9	9.0 - 8.8	15.0 - 14.6	30	14°52.5	14°54.9	14°11.8	3.0 - 3.0	9.0 - 8.9	15.0 - 14.9
31	14°22.7	14°25.1	13°43.4	3.1 - 3.0	9.1 - 8.7	15.1 - 14.5	31	14°37.7	14°40.1	13°57.8	3.1 - 3.0	9.1 - 8.9	15.1 - 14.7	31	14°52.7	14°55.2	14°12.1	3.1 - 3.1	9.1 - 9.0	15.1 - 15.0
32	14°23.0	14°25.4	13°43.7	3.2 - 3.1	9.2 - 8.8	15.2 - 14.6	32	14°38.0	14°40.4	13°58.0	3.2 - 3.1	9.2 - 9.0	15.2 - 14.8	32	14°53.0	14°55.4	14°12.3	3.2 - 3.2	9.2 - 9.1	15.2 - 15.1
33	14°23.2	14°25.6	13°43.9	3.3 - 3.2	9.3 - 8.9	15.3 - 14.7	33	14°38.2	14°40.7	13°58.2	3.3 - 3.2	9.3 - 9.1	15.3 - 14.9	33	14°53.2	14°55.7	14°12.6	3.3 - 3.3	9.3 - 9.2	15.3 - 15.2
34	14°23.5	14°25.9	13°44.2	3.4 - 3.3	9.4 - 9.0	15.4 - 14.8	34	14°38.5	14°40.9	13°58.5	3.4 - 3.3	9.4 - 9.2	15.4 - 15.0	34	14°53.5	14°55.9	14°12.8	3.4 - 3.4	9.4 - 9.3	15.4 - 15.3
35	14°23.8	14°26.1	13°44.4	3.5 - 3.4	9.5 - 9.1	15.5 - 14.9	35	14°38.8	14°41.2	13°58.7	3.5 - 3.4	9.5 - 9.3	15.5 - 15.1	35	14°53.8	14°56.2	14°13.0	3.5 - 3.5	9.5 - 9.4	15.5 - 15.4
36	14°24.0	14°26.4	13°44.6	3.6 - 3.5	9.6 - 9.2	15.6 - 15.0	36	14°39.0	14°41.4	13°59.0	3.6 - 3.5	9.6 - 9.4	15.6 - 15.2	36	14°54.0	14°56.4	14°13.3	3.6 - 3.6	9.6 - 9.5	15.6 - 15.5
37	14°24.3	14°26.6	13°44.9	3.7 - 3.5	9.7 - 9.3	15.7 - 15.0	37	14°39.3	14°41.7	13°59.2	3.7 - 3.6	9.7 - 9.5	15.7 - 15.3	37	14°54.3	14°56.7	14°13.5	3.7 - 3.7	9.7 - 9.6	15.7 - 15.6
38	14°24.5	14°26.9	13°45.1	3.8 - 3.6	9.8 - 9.4	15.8 - 15.1	38	14°39.5	14°41.9	13°59.4	3.8 - 3.7	9.8 - 9.6	15.8 - 15.4	38	14°54.5	14°56.9	14°13.8	3.8 - 3.8	9.8 - 9.7	15.8 - 15.7
39	14°24.7	14°27.1	13°45.4	3.9 - 3.7	9.9 - 9.5	15.9 - 15.2	39	14°39.7	14°42.2	13°59.7	3.9 - 3.8	9.9 - 9.7	15.9 - 15.5	39	14°54.7	14°57.2	14°14.0	3.9 - 3.9	9.9 - 9.8	15.9 - 15.8
40	14°25.0	14°27.4	13°45.6	4.0 - 3.8	10.0 - 9.6	16.0 - 15.3	40	14°40.0	14°42.4	13°59.9	4.0 - 3.9	10.0 - 9.8	16.0 - 15.6	40	14°55.0	14°57.4	14°14.2	4.0 - 4.0	10.0 - 9.9	16.0 - 15.9
41	14°25.2	14°27.6	13°45.8	4.1 - 3.9	10.1 - 9.7	16.1 - 15.4	41	14°40.2	14°42.7	14°00.1	4.1 - 4.0	10.1 - 9.8	16.1 - 15.7	41	14°55.2	14°57.7	14°14.5	4.1 - 4.1	10.1 - 10.0	16.1 - 16.0
42	14°25.5	14°27.9	13°46.1	4.2 - 4.0	10.2 - 9.8	16.2 - 15.5	42	14°40.5	14°42.9	14°00.4	4.2 - 4.1	10.2 - 9.9	16.2 - 15.8	42	14°55.5	14°57.9	14°14.7	4.2 - 4.2	10.2 - 10.1	16.2 - 16.1
43	14°25.8	14°28.1	13°46.3	4.3 - 4.1	10.3 - 9.9	16.3 - 15.6	43	14°40.8	14°43.2	14°00.6	4.3 - 4.2	10.3 - 10.0	16.3 - 15.9	43	14°55.8	14°58.2	14°14.9	4.3 - 4.3	10.3 - 10.2	16.3 - 16.2
44	14°26.0	14°28.4	13°46.5	4.4 - 4.2	10.4 - 10.0	16.4 - 15.7	44	14°41.0	14°43.4	14°00.9	4.4 - 4.3	10.4 - 10.1	16.4 - 16.0	44	14°56.0	14°58.4	14°15.2	4.4 - 4.4	10.4 - 10.3	16.4 - 16.3
45	14°26.3	14°28.6	13°46.8	4.5 - 4.3	10.5 - 10.1	16.5 - 15.8	45	14°41.3	14°43.7	14°01.1	4.5 - 4.4	10.5 - 10.2	16.5 - 16.1	45	14°56.3	14°58.7	14°15.4	4.5 - 4.5	10.5 - 10.4	16.5 - 16.4
46	14°26.5	14°28.9	13°47.0	4.6 - 4.4	10.6 - 10.2	16.6 - 15.9	46	14°41.5	14°43.9	14°01.3	4.6 - 4.5	10.6 - 10.3	16.6 - 16.2	46	14°56.5	14°59.0	1			

Altitude Correction Tables for 10° to 90° — Sun, Stars, Planets

SUN			SUN			Stars & Planets		Additional Altitude Correction for Mars & Venus	Refraction		DIP				
October – March			April – September								always subtracted from Hs				
App. Alt.	Lower Limb	Upper Limb	App. Alt.	Lower Limb	Upper Limb	App. Alt.	Corr	App. Alt.	Corr	Ht. of Eye	Corr	Ht. of Eye	Ht. of Eye	Corr	
° ' "	' "	' "	° ' "	' "	' "	° ' "	' "			meters	' "	feet	meters	' "	
9 33	+10.8	– 21.5	9 39	+10.6	– 21.2	9 55	– 5.3	A small additional altitude correction for Mars & Venus can be obtained in the Daily Pages of The Nautical Almanac for the day of the observation.	5.5	– 9.1	2.4	– 2.8	8.0	1.0	– 1.8
9 45	+10.9	– 21.4	9 50	+10.7	– 21.1	10 07	– 5.2		6.0	– 8.5	2.6	– 2.9	8.6	1.5	– 2.2
9 56	+11.0	– 21.3	10 02	+10.8	– 21.0	10 20	– 5.1		6.5	– 7.9	2.8	– 3.0	9.2	2.0	– 2.5
10 08	+11.1	– 21.2	10 14	+10.9	– 20.9	10 32	– 5.0		7.0	– 7.5	3.0	– 3.1	9.8	2.5	– 2.8
10 20	+11.2	– 21.1	10 27	+11.0	– 20.8	10 46	– 4.9		7.5	– 7.0	3.2	– 3.1	10.5	3.0	– 3.0
10 33	+11.3	– 21.0	10 40	+11.1	– 20.7	10 59	– 4.8		8.0	– 6.6	3.4	– 3.2	11.2	See table ←	
10 46	+11.4	– 20.9	10 53	+11.2	– 20.6	11 14	– 4.7		8.5	– 6.3	3.6	– 3.3	11.9		
11 00	+11.5	– 20.8	11 07	+11.3	– 20.5	11 29	– 4.6		9.0	– 5.9	3.8	– 3.4	12.6	meters	
11 15	+11.6	– 20.7	11 22	+11.4	– 20.4	11 44	– 4.5		9.5	– 5.7	4.0	– 3.5	13.3		20
11 30	+11.7	– 20.6	11 37	+11.5	– 20.3	12 00	– 4.4		10.0	– 5.4	4.3	– 3.6	14.1	22	– 8.3
11 45	+11.8	– 20.5	11 53	+11.6	– 20.2	12 17	– 4.3	10.5	– 5.1	4.5	– 3.7	14.9	24	– 8.6	
12 01	+11.9	– 20.4	12 10	+11.7	– 20.1	12 35	– 4.2	11.0	– 4.9	4.7	– 3.8	15.7	26	– 9.0	
12 18	+12.0	– 20.3	12 27	+11.8	– 20.0	12 53	– 4.1	11.5	– 4.7	5.0	– 3.9	16.5	28	– 9.3	
12 36	+12.1	– 20.2	14 45	+11.9	– 19.9	13 12	– 4.0	12.0	– 4.5	5.2	– 4.0	17.4	30	– 9.6	
12 54	+12.2	– 20.1	13 04	+12.0	– 19.8	13 32	– 3.9	12.5	– 4.4	5.5	– 4.1	18.3		32	– 10.0
13 14	+12.3	– 20.0	13 24	+12.1	– 19.7	13 53	– 3.8	13.0	– 4.2	5.8	– 4.2	19.1	34	– 10.3	
13 34	+12.4	– 19.9	13 44	+12.2	– 19.6	14 16	– 3.7	13.5	– 4.0	6.1	– 4.4	20.1	36	– 10.6	
13 55	+12.5	– 19.8	14 06	+12.3	– 19.5	14 39	– 3.6	14.0	– 3.9	6.3	– 4.5	21.0	38	– 10.8	
14 17	+12.6	– 19.7	14 29	+12.4	– 19.4	15 03	– 3.5	14.5	– 3.8	6.6	– 4.6	22.0	feet		
14 41	+12.7	– 19.6	14 53	+12.5	– 19.3	15 29	– 3.4	15.0	– 3.6	6.9	– 4.7	22.9		2	– 1.4
15 05	+12.8	– 19.5	15 18	+12.6	– 19.2	15 56	– 3.3	15.5	– 3.5	7.2	– 4.8	23.9	40	– 11.1	
15 31	+12.9	– 19.4	15 45	+12.7	– 19.1	16 25	– 3.2	16.0	– 3.4	7.5	– 4.9	24.9	42	– 11.4	
15 59	+13.0	– 19.3	16 13	+12.8	– 19.0	16 55	– 3.1	16.5	– 3.3	7.9	– 5.0	26.0	44	– 11.7	
16 27	+13.1	– 19.2	16 43	+12.9	– 18.9	17 27	– 3.0	17.0	– 3.2	8.2	– 5.1	27.1	46	– 11.9	
16 58	+13.2	– 19.1	17 14	+13.0	– 18.8	18 01	– 2.9	17.5	– 3.1	8.5	– 5.2	28.1	48	– 12.2	
17 30	+13.3	– 19.0	17 47	+13.1	– 18.7	18 37	– 2.8	18.0	– 3.0	8.8	– 5.3	29.2	feet		
18 05	+13.4	– 18.9	18 23	+13.2	– 18.6	19 16	– 2.7	18.5	– 2.9	9.2	– 5.4	30.4		2	– 1.4
18 41	+13.5	– 18.8	19 00	+13.3	– 18.5	19 56	– 2.6	19.0	– 2.9	9.5	– 5.5	31.5	4	– 1.9	
19 20	+13.6	– 18.7	19 41	+13.4	– 18.4	20 40	– 2.5	19.5	– 2.8	9.9	– 5.6	32.7	6	– 2.4	
20 02	+13.7	– 18.6	20 24	+13.5	– 18.3	21 27	– 2.4	20.0	– 2.7	10.3	– 5.7	33.9	8	– 2.7	
20 46	+13.8	– 18.5	21 10	+13.6	– 18.2	22 17	– 2.3	21.0	– 2.6	10.6	– 5.8	35.1	10	– 3.1	
21 34	+13.9	– 18.4	21 59	+13.7	– 18.1	23 11	– 2.2	22.0	– 2.4	11.0	– 5.9	36.3	See table ←		
22 25	+14.0	– 18.3	22 52	+13.8	– 18.0	24 09	– 2.1	23.0	– 2.3	11.4	– 6.0	37.6		feet	
23 20	+14.1	– 18.2	23 49	+13.9	– 17.9	25 12	– 2.0	24.0	– 2.2	11.8	– 6.1	38.9	70		– 8.1
24 20	+14.2	– 18.1	24 51	+14.0	– 17.8	26 20	– 1.9	25.0	– 2.1	12.2	– 6.2	40.1	75	– 8.4	
25 24	+14.3	– 18.0	25 58	+14.1	– 17.7	27 34	– 1.8	26.0	– 2.0	12.6	– 6.3	41.5	80	– 8.7	
26 34	+14.4	– 17.9	27 11	+14.2	– 17.6	28 54	– 1.7	27.0	– 1.9	13.0	– 6.4	42.8	85	– 8.9	
27 50	+14.5	– 17.8	28 31	+14.3	– 17.5	30 22	– 1.6	28.0	– 1.9	13.4	– 6.5	44.2	90	– 9.2	
29 13	+14.6	– 17.7	29 58	+14.4	– 17.4	31 58	– 1.5	29.0	– 1.8	13.8	– 6.6	45.5	95	9.5	
30 44	+14.7	– 17.6	31 33	+14.5	– 17.3	33 43	– 1.4	30.0	– 1.7	14.2	– 6.7	46.9	100	– 9.7	
32 24	+14.8	– 17.5	33 18	+14.6	– 17.2	35 38	– 1.3	31.0	– 1.7	14.7	– 6.8	48.4		105	– 9.9
34 15	+14.9	– 17.4	35 15	+14.7	– 17.1	37 45	– 1.2	32.0	– 1.6	15.1	– 6.9	49.8	110	– 10.2	
36 17	+15.0	– 17.3	37 24	+14.8	– 17.0	40 06	– 1.1	33.0	– 1.5	15.5	– 7.0	51.3	115	– 10.4	
38 34	+15.1	– 17.2	39 48	+14.9	– 16.9	42 42	– 1.0	34.0	– 1.5	16.0	– 7.1	52.8	120	– 10.6	
41 06	+15.2	– 17.1	42 28	+15.0	– 16.8	45 34	– 0.9	35.0	– 1.4	16.5	– 7.2	54.3	125	– 10.8	
43 56	+15.3	– 17.0	45 29	+15.1	– 16.7	48 45	– 0.8	36.0	– 1.4	16.9	– 7.3	55.8	130	– 11.1	
47 07	+15.4	– 16.9	48 52	+15.2	– 16.6	52 16	– 0.7	37.0	– 1.3	17.4	– 7.4	57.4		135	– 11.3
50 43	+15.5	– 16.8	51 41	+15.3	– 16.5	56 09	– 0.6	38.0	– 1.3	17.9	– 7.5	58.9	140	– 11.5	
54 46	+15.6	– 16.7	56 59	+15.4	– 16.4	60 26	– 0.5	39.0	– 1.2	18.4	– 7.6	60.5	145	– 11.7	
59 21	+15.7	– 16.6	61 50	+15.5	– 16.3	65 06	– 0.4	40.0	– 1.2	18.8	– 7.7	62.1	150	– 11.9	
64 28	+15.8	– 16.5	67 15	+15.6	– 16.2	70 09	– 0.3	45.0	– 1.0	19.3	– 7.8	63.8	155	– 12.1	
70 10	+15.9	– 16.4	73 14	+15.7	– 16.1	75 32	– 0.2	50.0	– 0.8	19.8	– 7.9	65.4			
76 24	+16.0	– 16.3	79 42	+15.8	– 16.0	81 12	– 0.1	55.0	– 0.7	20.4	– 8.0	67.1			
83 05	+16.1	– 16.2	86 21	+15.9	– 15.9	87 03	0.0	60.0	– 0.6	20.9	– 8.1	68.8			
90 00			90 00			90 00		65.0	– 0.5	21.4		70.5			
								70.0	– 0.4						
								75.0	– 0.3						
								80.0	– 0.2						
								85.0	– 0.1						

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

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Altitude Correction Tables for 0° to 10° — Sun, Stars, Planets

App. Alt.	Sun		Sun		Stars & Planets	App. Alt.	Sun		Sun		Stars & Planets
	October – March		April – September				October – March		April – September		
	Lower Limb	Upper Limb	Lower Limb	Upper Limb			Lower Limb	Upper Limb	Lower Limb	Upper Limb	
0 00	-17.5	-49.8	-17.8	-49.6	-33.8	3 30	+ 3.4	-28.9	+ 3.1	-28.7	-12.9
0 03	16.9	49.2	17.2	49.0	33.2	3 35	3.6	28.7	3.3	28.5	12.7
0 06	16.3	48.6	16.6	48.4	32.6	3 40	3.8	28.5	3.6	28.2	12.5
0 09	15.7	48.0	16.0	47.8	32.0	3 45	4.0	28.3	3.8	28.0	12.3
0 12	15.2	47.5	15.4	47.2	31.5	3 50	4.2	28.1	4.0	27.8	12.1
0 15	14.6	46.9	14.8	46.6	30.9	3 55	4.4	27.9	4.1	27.7	11.9
0 18	-14.1	-46.4	-14.3	-46.1	-30.4	4 00	+ 4.6	-27.7	+ 4.3	-27.5	-11.7
0 21	13.5	45.8	13.8	45.5	29.8	4 05	4.8	27.5	4.5	27.3	11.5
0 24	13.0	45.3	13.3	45.1	29.3	4 10	4.9	27.4	4.7	27.1	11.4
0 27	12.5	44.8	12.8	44.6	28.8	4 15	5.1	27.2	4.9	26.9	11.2
0 30	12.0	44.3	12.3	44.1	28.3	4 20	5.3	27.0	5.0	26.8	11.0
0 33	11.6	43.9	11.8	43.6	27.9	4 25	5.4	26.9	5.2	26.6	10.9
0 36	-11.1	-10.0	-11.3	-43.1	-27.4	4 30	+ 5.6	-26.7	+ 5.3	-26.5	-10.7
0 39	10.6	42.9	10.9	42.7	26.9	4 35	5.7	26.6	5.5	26.3	10.6
0 42	10.2	42.5	10.5	42.3	26.5	4 40	5.9	26.4	5.6	26.2	10.4
0 45	9.8	42.1	10.0	41.8	26.1	4 45	6.0	26.3	5.8	26.0	10.3
0 48	9.4	41.7	9.6	41.4	25.7	4 50	6.2	26.1	5.9	25.9	10.1
0 51	9.0	41.3	9.2	41.0	25.3	4 55	6.3	26.0	6.1	25.7	10.0
0 54	-8.6	-40.9	-8.8	-40.6	-24.9	5 00	+ 6.4	-25.9	+ 6.2	-25.6	-9.9
0 57	8.2	40.5	8.4	40.2	24.5	5 05	6.6	25.7	6.3	25.5	9.7
1 00	7.8	40.1	8.0	39.8	24.1	5 10	6.7	25.6	6.5	25.3	9.6
1 03	7.4	39.7	7.7	39.5	23.7	5 15	6.8	25.5	6.6	25.2	9.5
1 06	7.1	39.4	7.3	39.1	23.4	5 20	7.0	25.3	6.7	25.1	9.3
1 09	6.7	39.0	7.0	38.8	23.0	5 25	7.1	25.2	6.8	25.0	9.2
1 12	-6.4	-38.7	-6.6	-38.4	-22.7	5 30	+ 7.2	-25.1	+ 6.9	-24.9	-9.1
1 15	6.0	38.3	6.3	38.1	22.3	5 35	7.3	25.0	7.1	24.7	9.0
1 18	5.7	38.0	6.0	37.8	22.0	5 40	7.4	24.9	7.2	24.6	8.9
1 21	5.4	37.7	5.7	37.5	21.7	5 45	7.5	24.8	7.3	24.5	8.8
1 24	5.1	37.4	5.3	37.1	21.4	5 50	7.6	24.7	7.4	24.4	8.7
1 27	4.8	37.1	5.0	36.8	21.1	5 55	7.7	24.6	7.5	24.3	8.6
1 30	-4.5	-36.8	-4.7	-36.5	-20.8	6 00	+ 7.8	-24.5	+ 7.6	-24.2	-8.5
1 35	4.0	36.3	4.3	36.1	20.3	6 10	8.0	24.3	7.8	24.0	8.3
1 40	3.6	35.9	3.8	35.6	19.9	6 20	8.2	24.1	8.0	23.8	8.1
1 45	3.1	35.4	3.4	35.2	19.4	6 30	8.4	23.9	8.2	23.6	7.9
1 50	2.7	35.0	2.9	34.7	19.0	6 40	8.6	23.7	8.3	23.5	7.7
1 55	2.3	34.6	2.5	34.3	18.6	6 50	8.7	23.6	8.5	23.3	7.6
2 00	-1.9	-34.2	-2.1	-33.9	-18.2	7 00	+ 8.9	-23.4	+ 8.7	-23.1	-7.4
2 05	1.5	33.8	1.7	33.5	17.8	7 10	9.1	23.2	8.8	23.0	7.2
2 10	1.1	33.4	1.4	33.2	17.4	7 20	9.2	23.1	9.0	22.8	7.1
2 15	0.8	33.1	1.0	32.8	17.1	7 30	9.3	23.0	9.1	22.7	6.9
2 20	0.4	32.7	0.7	32.5	16.7	7 40	9.5	22.8	9.2	22.6	6.8
2 25	-0.1	32.4	-0.3	32.1	16.4	7 50	9.6	22.7	9.4	22.4	6.7
2 30	+ 0.2	-32.1	0.0	-31.8	-16.1	8 00	+ 9.7	-22.6	+ 9.5	-22.3	-6.6
2 35	0.5	31.8	+ 0.3	31.5	15.8	8 10	9.9	22.4	9.6	22.2	6.4
2 40	0.8	31.5	0.6	31.2	15.4	8 20	10.0	22.3	9.7	22.1	6.3
2 45	1.1	31.2	0.9	30.9	15.2	8 30	10.1	22.2	9.9	21.9	6.2
2 50	1.4	30.9	1.2	30.6	14.9	8 40	10.2	22.1	10.0	21.8	6.1
2 55	1.7	30.6	1.4	30.4	14.9	8 50	10.3	22.0	10.1	21.7	6.0
3 00	+ 2.0	-30.3	+ 1.7	-30.1	-14.3	9 00	+ 10.4	-21.9	+ 10.2	-21.6	-5.9
3 05	2.2	30.1	2.0	29.8	14.1	9 10	10.5	21.8	10.3	21.5	5.8
3 10	2.5	29.8	2.2	29.6	13.8	9 20	10.6	21.7	10.4	21.4	5.7
3 15	2.7	29.6	2.5	29.3	13.6	9 30	10.7	21.6	10.5	21.3	5.6
3 20	2.9	29.4	2.7	29.1	13.4	9 40	10.8	21.5	10.6	21.2	5.5
3 25	3.2	29.1	2.9	28.9	13.4	9 50	10.9	21.4	10.6	21.2	5.4
3 30	3.4	-28.9	+ 3.1	-28.7	-12.9	10 00	+ 11.0	-21.3	+ 10.7	-21.1	-5.3

For bubble sextant observations- ignore dip and use star corrections for the Sun, planets and stars.

ALTITUDE CORRECTION TABLES 0° – 35° — MOON

App. Alt.	0° – 4°		5° – 9°		10° – 14°		15° – 19°		20° – 24°		25° – 29°		30° – 34°		App. Alt.
	Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		
	0°		5°		10°		15°		20°		25°		30°		
00	34.5		58.2		62.1		62.8		62.2		60.8		58.9		00
10	36.5		58.5		62.2		62.8		62.2		60.8		58.8		10
20	38.3		58.7		62.2		62.8		62.1		60.7		58.8		20
30	40.0		58.9		62.3		62.8		62.1		60.7		58.7		30
40	41.5		59.1		62.3		62.8		62.0		60.6		58.6		40
50	42.9		59.3		62.4		62.7		62.0		60.6		58.5		50
00	1°		6°		11°		16°		21°		26°		31°		00
10	44.2		59.5		62.4		62.7		61.9		60.4		58.4		10
20	45.4		59.7		62.4		62.7		61.9		60.4		58.3		20
30	46.5		59.9		62.5		62.7		61.9		60.3		58.2		30
40	47.5		60.0		62.5		62.7		61.8		60.3		58.2		40
50	48.4		60.2		62.5		62.7		61.8		60.2		58.1		50
00	2°		7°		12°		17°		22°		27°		32°		00
10	50.1		60.5		62.6		62.7		61.7		60.1		58.0		10
20	50.8		60.6		62.6		62.6		61.7		60.1		57.9		20
30	51.5		60.7		62.6		62.6		61.6		60.0		57.8		30
40	52.2		60.9		62.7		62.6		61.6		59.9		57.8		40
50	52.8		61.0		62.7		62.6		61.6		59.9		57.7		50
00	3°		8°		13°		18°		23°		28°		33°		00
10	53.9		61.2		62.7		62.5		61.5		59.7		57.5		10
20	54.4		61.3		62.7		62.5		61.4		59.7		57.4		20
30	54.9		61.4		62.7		62.5		61.4		59.6		57.4		30
40	55.3		61.5		62.8		62.5		61.3		59.5		57.3		40
50	55.7		61.6		62.8		62.4		61.3		59.5		57.2		50
00	4°		9°		14°		19°		24°		29°		34°		00
10	56.4		61.7		62.8		62.4		61.2		59.3		57.0		10
20	56.8		61.8		62.8		62.4		61.1		59.3		56.9		20
30	57.1		61.9		62.8		62.3		61.1		59.2		56.9		30
40	57.4		61.9		62.8		62.3		61.0		59.1		56.8		40
50	57.7		62.0		62.8		62.3		61.0		59.1		56.7		50
HP	L	U	L	U	L	U	L	U	L	U	L	U	L	U	HP
54.0	0.3	0.9	0.3	0.9	0.4	1.0	0.5	1.1	0.6	1.2	0.7	1.3	0.9	1.5	54.0
54.3	0.7	1.1	0.7	1.2	0.8	1.2	0.8	1.3	0.9	1.4	1.1	1.5	1.2	1.7	54.3
54.6	1.1	1.4	1.1	1.4	1.1	1.4	1.2	1.5	1.3	1.6	1.4	1.7	1.5	1.8	54.6
54.9	1.4	1.6	1.4	1.6	1.5	1.6	1.6	1.7	1.6	1.8	1.8	1.9	1.9	2.0	54.9
55.2	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2	55.2
55.5	2.2	2.0	2.2	2.0	2.3	2.1	2.3	2.1	2.4	2.2	2.4	2.3	2.5	2.4	55.5
55.8	2.6	2.2	2.6	2.2	2.6	2.3	2.7	2.3	2.7	2.4	2.8	2.4	2.9	2.5	55.8
56.1	3.0	2.4	3.0	2.5	3.0	2.5	3.0	2.5	3.1	2.6	3.1	2.6	3.2	2.7	56.1
56.4	3.3	2.7	3.3	2.7	3.4	2.7	3.4	2.7	3.4	2.8	3.5	2.8	3.5	2.9	56.4
56.7	3.7	2.9	3.7	2.9	3.8	2.9	3.8	2.9	3.8	3.0	3.8	3.0	3.9	3.0	56.7
57.0	4.1	3.1	4.1	3.1	4.1	3.1	4.1	3.1	4.2	3.2	4.2	3.2	4.2	3.2	57.0
57.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.4	4.6	3.4	57.3
57.6	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.6	57.6
57.9	5.3	3.8	5.3	3.8	5.2	3.8	5.2	3.7	5.2	3.7	5.2	3.7	5.2	3.7	57.9
58.2	5.6	4.0	5.6	4.0	5.6	4.0	5.6	4.0	5.6	3.9	5.6	3.9	5.6	3.9	58.2
58.5	6.0	4.2	6.0	4.2	6.0	4.2	6.0	4.2	6.0	4.1	5.9	4.1	5.9	4.1	58.5
58.8	6.4	4.4	6.4	4.4	6.4	4.4	6.3	4.4	6.3	4.3	6.3	4.3	6.2	4.2	58.8
59.1	6.8	4.6	6.8	4.6	6.7	4.6	6.7	4.6	6.7	4.5	6.6	4.5	6.6	4.4	59.1
59.4	7.2	4.8	7.1	4.8	7.1	4.8	7.1	4.8	7.0	4.7	7.0	4.7	6.9	4.6	59.4
59.7	7.5	5.1	7.5	5.0	7.5	5.0	7.5	5.0	7.4	4.9	7.3	4.8	7.2	4.8	59.7
60.0	7.9	5.3	7.9	5.3	7.9	5.2	7.8	5.2	7.8	5.1	7.7	5.0	7.6	4.9	60.0
60.3	8.3	5.5	8.3	5.5	8.2	5.4	8.2	5.4	8.1	5.3	8.0	5.2	7.9	5.1	60.3
60.6	8.7	5.7	8.7	5.7	8.6	5.7	8.6	5.6	8.5	5.5	8.4	5.4	8.2	5.3	60.6
60.9	9.1	5.9	9.0	5.9	9.0	5.9	8.9	5.8	8.8	5.7	8.7	5.6	8.6	5.4	60.9
61.2	9.5	6.2	9.4	6.1	9.4	6.1	9.3	6.0	9.2	5.9	9.1	5.8	8.9	5.6	61.2
61.5	9.8	6.4	9.8	6.3	9.7	6.3	9.7	6.2	9.5	6.1	9.4	5.9	9.2	5.8	61.5

DIP					
Ht. of Eye	Corr ⁿ	Ht. of Eye	Ht. of Eye	Corr ⁿ	Ht. of Eye
m		ft	m		ft
2.4	-2.8	7.9	9.5	-5.5	31.2
2.6	-2.9	8.5	9.9	-5.6	32.5
2.8	-3.0	9.2	10.3	-5.7	33.8
3.0	-3.1	9.8	10.6	-5.8	34.8
3.2	-3.2	10.5	11.0	-5.9	36.1
3.4	-3.3	11.2	11.4	-6.0	37.4
3.6	-3.4	11.8	11.8	-6.1	38.7
3.8	-3.5	12.5	12.2	-6.2	40.0
4.0	-3.6	13.1	12.6	-6.3	41.3
4.3	-3.7	14.1	13.0	-6.4	42.7
4.5	-3.8	14.8	13.4	-6.5	44.0
4.7	-3.9	15.4	13.8	-6.6	45.3
5.0	-4.0	16.4	14.2	-6.7	46.6
5.2	-4.1	17.1	14.7	-6.8	48.2
5.5	-4.2	18.0	15.1	-6.9	49.5
5.8	-4.3	19.0	15.5	-7.0	50.9
6.1	-4.4	20.0	16.0	-7.1	52.5
6.3	-4.5	20.7	16.5	-7.2	54.1
6.6	-4.6	21.7	16.9	-7.3	55.4
6.9	-4.7	22.6	17.4	-7.4	57.1
7.2	-4.8	23.6	17.9	-7.5	58.7
7.5	-4.9	24.6	18.4	-7.6	60.4
7.9	-5.0	25.9	18.8	-7.7	61.7
8.2	-5.1	26.9	19.3	-7.8	63.3
8.5	-5.2	27.9	19.8	-7.9	65.0
8.8	-5.3	28.9	20.4	-8.0	66.9
9.2	-5.4	30.2	20.9	-8.1	68.6
9.5		31.2	21.4		70.2

MOON CORRECTION TABLE

The correction is in two parts; the first correction is taken from the upper part of the table with argument apparent altitude, and the second from the lower part, with argument HP, in the same column as that from which the first correction was taken. Separate corrections are given in the lower part for lower (L) and upper (U) limbs. All corrections are to be **added** to apparent altitude, *but 30' is to be subtracted from the altitude of the upper limb.*

For corrections for pressure and temperature see page A4.

For bubble sextant observations ignore dip, take the mean of upper and lower limb corrections and subtract 15' from the altitude.

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

ALTITUDE CORRECTION TABLES 35° – 90° — MOON

App. Alt.	35° – 39°		40° – 44°		45° – 49°		50° – 54°		55° – 59°		60° – 64°		65° – 69°		70° – 74°		75° – 79°		80° – 84°		85° – 89°		App. Alt.
	Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		Corr ⁿ		
'	35°	'	40°	'	45°	'	50°	'	55°	'	60°	'	65°	'	70°	'	75°	'	80°	'	85°	'	'
00	56.5		53.7		50.5		46.9		43.1		38.9		34.6		30.0		25.3		20.5		15.6		00
10	56.4		53.6		50.4		46.8		42.9		38.8		34.4		29.9		25.2		20.4		15.5		10
20	56.3		53.5		50.2		46.7		42.8		38.7		34.3		29.7		25.0		20.2		15.3		20
30	56.2		53.4		50.1		46.5		42.7		38.5		34.1		29.6		24.9		20.0		15.1		30
40	56.2		53.3		50.0		46.4		42.5		38.4		34.0		29.4		24.7		19.9		15.0		40
50	56.1		53.2		49.9		46.3		42.4		38.2		33.8		29.3		24.5		19.7		14.8		50
00	36°	56.0	41°	53.1	46°	49.8	51°	46.2	56°	42.3	61°	38.1	66°	33.7	71°	29.1	76°	24.4	81°	19.6	86°	14.6	00
10		55.9		53.0		49.7		46.0		42.1		37.9		33.5		29.0		24.2		19.4		14.5	10
20		55.8		52.9		49.5		45.9		42.0		37.8		33.4		28.8		24.1		19.2		14.3	20
30		55.7		52.8		49.4		45.8		41.9		37.7		33.2		28.7		23.9		19.1		14.2	30
40		55.6		52.6		49.3		45.7		41.7		37.5		33.1		28.5		23.8		18.9		14.0	40
50		55.5		52.5		49.2		45.5		41.6		37.4		32.9		28.3		23.6		18.7		13.8	50
00	37°	55.4	42°	52.4	47°	49.1	52°	45.4	57°	41.4	62°	37.2	67°	32.8	72°	28.2	77°	23.4	82°	18.6	87°	13.7	00
10		55.3		52.3		49.0		45.3		41.3		37.1		32.6		28.0		23.3		18.4		13.5	10
20		55.2		52.2		48.8		45.2		41.2		36.9		32.5		27.9		23.1		18.2		13.3	20
30		55.1		52.1		48.7		45.0		41.0		36.8		32.3		27.7		22.9		18.1		13.2	30
40		55.0		52.0		48.6		44.9		40.9		36.6		32.2		27.6		22.8		17.9		13.0	40
50		55.0		51.9		48.5		44.8		40.8		36.5		32.0		27.4		22.6		17.8		12.8	50
00	38°	54.9	43°	51.8	48°	48.4	53°	44.6	58°	40.6	63°	36.4	68°	31.9	73°	27.2	78°	22.5	83°	17.6	88°	12.7	00
10		54.8		51.7		48.3		44.5		40.5		36.2		31.7		27.1		22.3		17.4		12.5	10
20		54.7		51.6		48.1		44.4		40.3		36.1		31.6		26.9		22.1		17.3		12.3	20
30		54.6		51.5		48.0		44.2		40.2		35.9		31.4		26.8		22.0		17.1		12.2	30
40		54.5		51.4		47.9		44.1		40.1		35.8		31.3		26.6		21.8		16.9		12.0	40
50		54.4		51.2		47.8		44.0		39.9		35.6		31.1		26.5		21.7		16.8		11.8	50
00	39°	54.3	44°	51.1	49°	47.7	54°	43.9	59°	39.8	64°	35.5	69°	31.0	74°	26.3	79°	21.5	84°	16.6	89°	11.7	00
10		54.2		51.0		47.5		43.7		39.6		35.3		30.8		26.1		21.3		16.4		11.5	10
20		54.1		50.9		47.4		43.6		39.5		35.2		30.7		26.0		21.2		16.3		11.4	20
30		54.0		50.8		47.3		43.5		39.4		35.0		30.5		25.8		21.0		16.1		11.2	30
40		53.9		50.7		47.2		43.3		39.2		34.9		30.4		25.7		20.9		16.0		11.0	40
50		53.8		50.6		47.0		43.2		39.1		34.7		30.2		25.5		20.7		15.8		10.9	50
HP	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	HP
54.0	1.1	1.7	1.3	1.9	1.5	2.1	1.7	2.4	2.0	2.6	2.3	2.9	2.6	3.2	2.9	3.5	3.2	3.8	3.5	4.1	3.8	4.5	54.0
54.3	1.4	1.8	1.6	2.0	1.8	2.2	2.0	2.5	2.2	2.7	2.5	3.0	2.8	3.2	3.1	3.5	3.3	3.8	3.6	4.1	3.9	4.4	54.3
54.6	1.7	2.0	1.9	2.2	2.1	2.4	2.3	2.6	2.5	2.8	2.7	3.0	3.0	3.3	3.2	3.5	3.5	3.8	3.8	4.0	4.0	4.3	54.6
54.9	2.0	2.2	2.2	2.3	2.4	2.5	2.5	2.7	2.7	2.9	2.9	3.1	3.2	3.3	3.4	3.5	3.6	3.8	3.9	4.0	4.1	4.3	54.9
55.2	2.3	2.3	2.5	2.4	2.6	2.6	2.8	2.8	3.0	2.9	3.2	3.1	3.4	3.3	3.6	3.5	3.8	3.7	4.0	4.0	4.2	4.2	55.2
55.5	2.7	2.5	2.8	2.6	2.9	2.7	3.1	2.9	3.2	3.0	3.4	3.2	3.6	3.4	3.7	3.5	3.9	3.7	4.1	3.9	4.3	4.1	55.5
55.8	3.0	2.6	3.1	2.7	3.2	2.8	3.3	3.0	3.5	3.1	3.6	3.3	3.8	3.4	3.9	3.6	4.1	3.7	4.2	3.9	4.4	4.0	55.8
56.1	3.3	2.8	3.4	2.9	3.5	3.0	3.6	3.1	3.7	3.2	3.8	3.3	4.0	3.4	4.1	3.6	4.2	3.7	4.4	3.8	4.5	4.0	56.1
56.4	3.6	2.9	3.7	3.0	3.8	3.1	3.9	3.2	3.9	3.3	4.0	3.4	4.1	3.5	4.3	3.6	4.4	3.7	4.5	3.8	4.6	3.9	56.4
56.7	3.9	3.1	4.0	3.1	4.1	3.2	4.1	3.3	4.2	3.3	4.3	3.4	4.3	3.5	4.4	3.6	4.5	3.7	4.6	3.8	4.7	3.8	56.7
57.0	4.3	3.2	4.3	3.3	4.3	3.3	4.4	3.4	4.4	3.4	4.5	3.5	4.5	3.5	4.6	3.6	4.7	3.6	4.7	3.7	4.8	3.8	57.0
57.3	4.6	3.4	4.6	3.4	4.6	3.4	4.6	3.5	4.7	3.5	4.7	3.5	4.7	3.6	4.8	3.6	4.8	3.6	4.8	3.7	4.9	3.7	57.3
57.6	4.9	3.6	4.9	3.6	4.9	3.6	4.9	3.6	4.9	3.6	4.9	3.6	4.9	3.6	4.9	3.6	5.0	3.6	5.0	3.6	5.0	3.6	57.6
57.9	5.2	3.7	5.2	3.7	5.2	3.7	5.2	3.7	5.2	3.7	5.1	3.6	5.1	3.6	5.1	3.6	5.1	3.6	5.1	3.6	5.1	3.6	57.9
58.2	5.5	3.9	5.5	3.8	5.5	3.8	5.4	3.8	5.4	3.7	5.4	3.7	5.3	3.7	5.3	3.6	5.2	3.6	5.2	3.5	5.2	3.5	58.2
58.5	5.9	4.0	5.8	4.0	5.8	3.9	5.7	3.9	5.6	3.8	5.6	3.8	5.5	3.7	5.5	3.6	5.4	3.6	5.3	3.5	5.3	3.4	58.5
58.8	6.2	4.2	6.1	4.1	6.0	4.1	6.0	4.0	5.9	3.9	5.8	3.8	5.7	3.7	5.6	3.6	5.5	3.5	5.4	3.5	5.3	3.4	58.8
59.1	6.5	4.3	6.4	4.3	6.3	4.2	6.2	4.1	6.1	4.0	6.0	3.9	5.9	3.8	5.8	3.6	5.7	3.5	5.6	3.4	5.4	3.3	59.1
59.4	6.8	4.5	6.7	4.4	6.6	4.3	6.5	4.2	6.4	4.1	6.2	3.9	6.1	3.8	6.0	3.7	5.8	3.5	5.7	3.4	5.5	3.2	59.4
59.7	7.1	4.7	7.0	4.5	6.9	4.4	6.8	4.3	6.6	4.1	6.5	4.0	6.3	3.8	6.1	3.7	6.0	3.5	5.8	3.3	5.6	3.2	59.7
60.0	7.5	4.8	7.3	4.7	7.2	4.5	7.0	4.4	6.9	4.2	6.7	4.0	6.5	3.9	6.3	3.7	6.1	3.5	5.9	3.3	5.7	3.1	60.0
60.3	7.8	5.0	7.6	4.8	7.5	4.7	7.3	4.5	7.1	4.3	6.9	4.1	6.7	3.9	6.5	3.7	6.3	3.5	6.0	3.2	5.8	3.0	60.3
60.6	8.1	5.1	7.9	5.0	7.7	4.8	7.6	4.6	7.3	4.4	7.1	4.2	6.9	3.9	6.7	3.7	6.4	3					

POLARIS (POLE STAR) TABLE, 2026
For Determining The Latitude From a Sextant Altitude

LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q	LHA Aries	Q
359°	-26'	30°	-36'	60°	-37'	90°	-27'	120°	-11'	150°	+9'	180°	+26'	210°	+36'	240°	+37'	270°	+27'	300°	+11'	330°	-9'		
1°	-27'	31°	-36'	61°	-36'	91°	-27'	121°	-10'	151°	+10'	181°	+27'	211°	+36'	241°	+36'	271°	+27'	301°	+10'	331°	-10'		
2°	-27'	32°	-37'	62°	-36'	92°	-26'	122°	-9'	152°	+10'	182°	+27'	212°	+37'	242°	+36'	272°	+26'	302°	+9'	332°	-10'		
3°	-27'	33°	-37'	63°	-36'	93°	-26'	123°	-9'	153°	+11'	183°	+27'	213°	+37'	243°	+36'	273°	+26'	303°	+9'	333°	-11'		
4°	-28'	34°	-37'	64°	-36'	94°	-25'	124°	-8'	154°	+11'	184°	+28'	214°	+37'	244°	+36'	274°	+25'	304°	+8'	334°	-11'		
5°	-28'	35°	-37'	65°	-36'	95°	-25'	125°	-7'	155°	+12'	185°	+28'	215°	+37'	245°	+36'	275°	+25'	305°	+7'	335°	-12'		
6°	-29'	36°	-37'	66°	-35'	96°	-24'	126°	-7'	156°	+13'	186°	+29'	216°	+37'	246°	+35'	276°	+24'	306°	+7'	336°	-13'		
7°	-29'	37°	-37'	67°	-35'	97°	-24'	127°	-6'	157°	+13'	187°	+29'	217°	+37'	247°	+35'	277°	+24'	307°	+6'	337°	-13'		
8°	-30'	38°	-37'	68°	-35'	98°	-23'	128°	-5'	158°	+14'	188°	+30'	218°	+37'	248°	+35'	278°	+23'	308°	+5'	338°	-14'		
9°	-30'	39°	-37'	69°	-35'	99°	-23'	129°	-5'	159°	+15'	189°	+30'	219°	+37'	249°	+35'	279°	+23'	309°	+5'	339°	-15'		
10°	-30'	40°	-37'	70°	-35'	100°	-22'	130°	-4'	160°	+15'	190°	+30'	220°	+37'	250°	+35'	280°	+22'	310°	+4'	340°	-15'		
11°	-31'	41°	-38'	71°	-34'	101°	-22'	131°	-3'	161°	+16'	191°	+31'	221°	+38'	251°	+34'	281°	+22'	311°	+3'	341°	-16'		
12°	-31'	42°	-38'	72°	-34'	102°	-21'	132°	-3'	162°	+16'	192°	+31'	222°	+38'	252°	+34'	282°	+21'	312°	+3'	342°	-16'		
13°	-32'	43°	-38'	73°	-34'	103°	-21'	133°	-2'	163°	+17'	193°	+32'	223°	+38'	253°	+34'	283°	+21'	313°	+2'	343°	-17'		
14°	-32'	44°	-38'	74°	-33'	104°	-20'	134°	-2'	164°	+18'	194°	+32'	224°	+38'	254°	+33'	284°	+20'	314°	+2'	344°	-18'		
15°	-32'	45°	-38'	75°	-33'	105°	-20'	135°	-1'	165°	+18'	195°	+32'	225°	+38'	255°	+33'	285°	+20'	315°	+1'	345°	-18'		
16°	-33'	46°	-38'	76°	-33'	106°	-19'	136°	-0'	166°	+19'	196°	+33'	226°	+38'	256°	+33'	286°	+19'	316°	+0'	346°	-19'		
17°	-33'	47°	-38'	77°	-32'	107°	-18'	137°	+0'	167°	+19'	197°	+33'	227°	+38'	257°	+32'	287°	+18'	317°	-0'	347°	-19'		
18°	-33'	48°	-38'	78°	-32'	108°	-18'	138°	+1'	168°	+20'	198°	+33'	228°	+38'	258°	+32'	288°	+18'	318°	-1'	348°	-20'		
19°	-34'	49°	-38'	79°	-32'	109°	-17'	139°	+2'	169°	+20'	199°	+34'	229°	+38'	259°	+32'	289°	+17'	319°	-2'	349°	-20'		
20°	-34'	50°	-38'	80°	-31'	110°	-17'	140°	+2'	170°	+21'	200°	+34'	230°	+38'	260°	+31'	290°	+17'	320°	-2'	350°	-21'		
21°	-34'	51°	-38'	81°	-31'	111°	-16'	141°	+3'	171°	+21'	201°	+34'	231°	+38'	261°	+31'	291°	+16'	321°	-3'	351°	-21'		
22°	-34'	52°	-38'	82°	-31'	112°	-16'	142°	+4'	172°	+22'	202°	+34'	232°	+38'	262°	+31'	292°	+16'	322°	-4'	352°	-22'		
23°	-35'	53°	-37'	83°	-30'	113°	-15'	143°	+4'	173°	+23'	203°	+35'	233°	+37'	263°	+30'	293°	+15'	323°	-4'	353°	-23'		
24°	-35'	54°	-37'	84°	-30'	114°	-14'	144°	+5'	174°	+23'	204°	+35'	234°	+37'	264°	+30'	294°	+14'	324°	-5'	354°	-23'		
25°	-35'	55°	-37'	85°	-29'	115°	-14'	145°	+6'	175°	+24'	205°	+35'	235°	+37'	265°	+29'	295°	+14'	325°	-6'	355°	-24'		
26°	-35'	56°	-37'	86°	-29'	116°	-13'	146°	+6'	176°	+24'	206°	+35'	236°	+37'	266°	+29'	296°	+13'	326°	-6'	356°	-24'		
27°	-36'	57°	-37'	87°	-29'	117°	-12'	147°	+7'	177°	+25'	207°	+36'	237°	+37'	267°	+29'	297°	+12'	327°	-7'	357°	-25'		
28°	-36'	58°	-37'	88°	-28'	118°	-12'	148°	+8'	178°	+25'	208°	+36'	238°	+37'	268°	+28'	298°	+12'	328°	-8'	358°	-25'		
29°	-36'	59°	-37'	89°	-28'	119°	-11'	149°	+8'	179°	+26'	209°	+36'	239°	+37'	269°	+28'	299°	+11'	329°	-8'	359°	-26'		
																								360°	-26'

In critical cases, ascend

Q, which does not include refraction, is to be applied to the corrected sextant altitude of *Polaris*
Polaris, Mag. 2.0 SHA 313° 42.2', Dec N 89° 22.3'

Azimuth of Polaris- 2026

LHA Aries	Latitude							LHA Aries	Latitude						
	0	30°	50°	55°	60°	65°	70°		0	30°	50°	55°	60°	65°	70°
0	0.5	0.5	0.7	0.8	0.9	1.1	1.3	180	359.5	359.5	359.3	359.2	359.1	358.9	358.7
10	0.4	0.4	0.6	0.6	0.7	0.9	1.1	190	359.6	359.6	359.4	359.4	359.3	359.1	358.9
20	0.3	0.3	0.4	0.5	0.6	0.7	0.8	200	359.7	359.7	359.6	359.5	359.4	359.3	359.2
30	0.2	0.2	0.3	0.3	0.4	0.4	0.5	210	359.8	359.8	359.7	359.7	359.6	359.6	359.5
40	0.1	0.1	0.1	0.1	0.1	0.2	0.2	220	359.9	359.9	359.9	359.9	359.9	359.8	359.8
50	360.0	360.0	359.9	359.9	359.9	359.9	359.9	230	0.0	0.0	0.1	0.1	0.1	0.1	0.1
60	359.9	359.8	359.8	359.7	359.7	359.6	359.6	240	0.1	0.2	0.2	0.3	0.3	0.4	0.4
70	359.7	359.7	359.6	359.6	359.5	359.4	359.3	250	0.3	0.3	0.4	0.4	0.5	0.6	0.7
80	359.7	359.6	359.5	359.4	359.3	359.2	359.0	260	0.3	0.4	0.5	0.6	0.7	0.8	1.0
90	359.6	359.5	359.3	359.2	359.1	359.0	358.7	270	0.4	0.5	0.7	0.8	0.9	1.0	1.3
100	359.5	359.4	359.2	359.1	359.0	358.8	358.5	280	0.5	0.6	0.8	0.9	1.0	1.2	1.5
110	359.4	359.3	359.1	359.0	358.9	358.7	358.4	290	0.6	0.7	0.9	1.0	1.1	1.3	1.6
120	359.4	359.3	359.1	358.9	358.8	358.6	358.2	300	0.6	0.7	0.9	1.1	1.2	1.4	1.8
130	359.4	359.3	359.0	358.9	358.8	358.5	358.2	310	0.6	0.7	1.0	1.1	1.2	1.5	1.8
140	359.4	359.3	359.0	358.9	358.7	358.5	358.2	320	0.6	0.7	1.0	1.1	1.3	1.5	1.8
150	359.4	359.3	359.1	358.9	358.8	358.6	358.2	330	0.6	0.7	0.9	1.1	1.2	1.4	1.8
160	359.4	359.3	359.1	359.0	358.8	358.6	358.3	340	0.6	0.7	0.9	1.0	1.2	1.4	1.7
170	359.5	359.4	359.2	359.1	359.0	358.8	358.5	350	0.5	0.6	0.8	0.9	1.0	1.2	1.5
180	359.5	359.5	359.3	359.2	359.1	358.9	358.7	360	0.5	0.5	0.7	0.8	0.9	1.1	1.3

When Cassiopeia is left (right), Polaris is west (east)
www.TheNauticalAlmanac.com

Annular Solar Eclipse of 2026 Feb 17

Geocentric Conjunction = 11:18:37.8 UT J.D. = 2461088.971271

Greatest Eclipse = 12:11:44.6 UT J.D. = 2461089.008155

Eclipse Magnitude = 0.9630 Gamma = -0.9742

Saros Series = 121 Member = 61 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 22h03m54.2s

Dec. = -11°52'42.6"

S.D. = 00°16'11.1"

H.P. = 00°00'08.9"

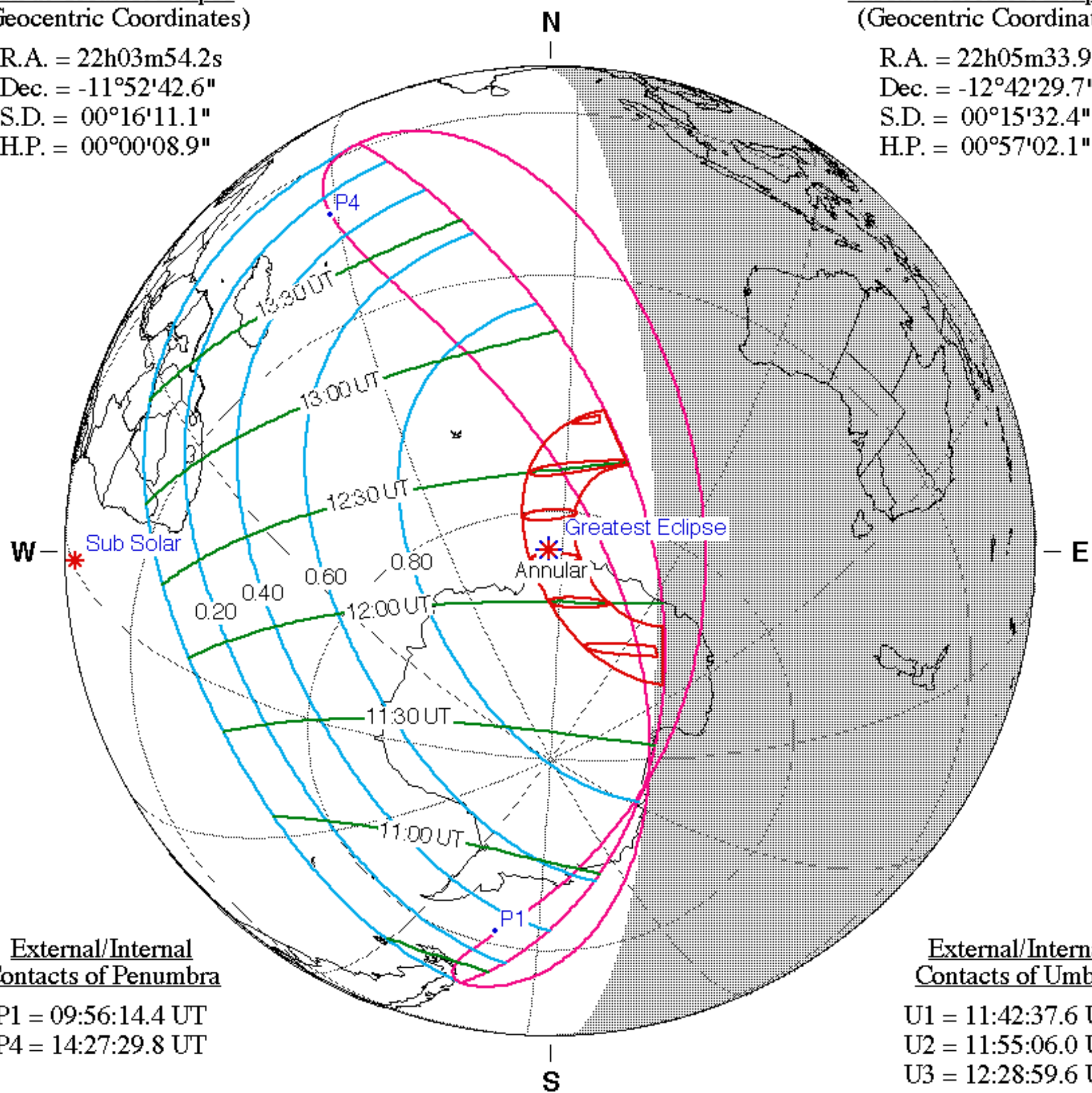
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 22h05m33.9s

Dec. = -12°42'29.7"

S.D. = 00°15'32.4"

H.P. = 00°57'02.1"



External/Internal Contacts of Penumbra

P1 = 09:56:14.4 UT

P4 = 14:27:29.8 UT

External/Internal Contacts of Umbra

U1 = 11:42:37.6 UT

U2 = 11:55:06.0 UT

U3 = 12:28:59.6 UT

U4 = 12:41:21.0 UT

Local Circumstances at Greatest Eclipse

Lat. = 64°43.1'S

Sun Alt. = 12.3°

Long. = 086°45.3'E

Sun Azm. = 268.3°

Path Width = 615.6 km Duration = 02m19.6s

Ephemeris & Constants

Eph. = Newcomb/ILE

$\Delta T = 83.2$ s

$k_1 = 0.2724880$

$k_2 = 0.2722810$

$\Delta b = 0.0''$ $\Delta l = 0.0''$

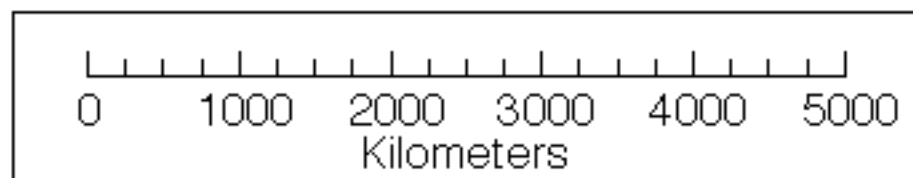
Geocentric Libration (Optical + Physical)

$l = -5.01^\circ$

$b = 1.24^\circ$

$c = -18.93^\circ$

Brown Lun. No. = 1276



F. Espenak, NASA's GSFC - Fri, Jul 2,

sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Total Solar Eclipse of 2026 Aug 12

Geocentric Conjunction = 17:03:39.9 UT J.D. = 2461265.210878

Greatest Eclipse = 17:45:43.7 UT J.D. = 2461265.240089

Eclipse Magnitude = 1.0386 Gamma = 0.8976

Saros Series = 126 Member = 48 of 72

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 09h29m47.2s

Dec. = +14°48'04.7"

S.D. = 00°15'47.0"

H.P. = 00°00'08.7"

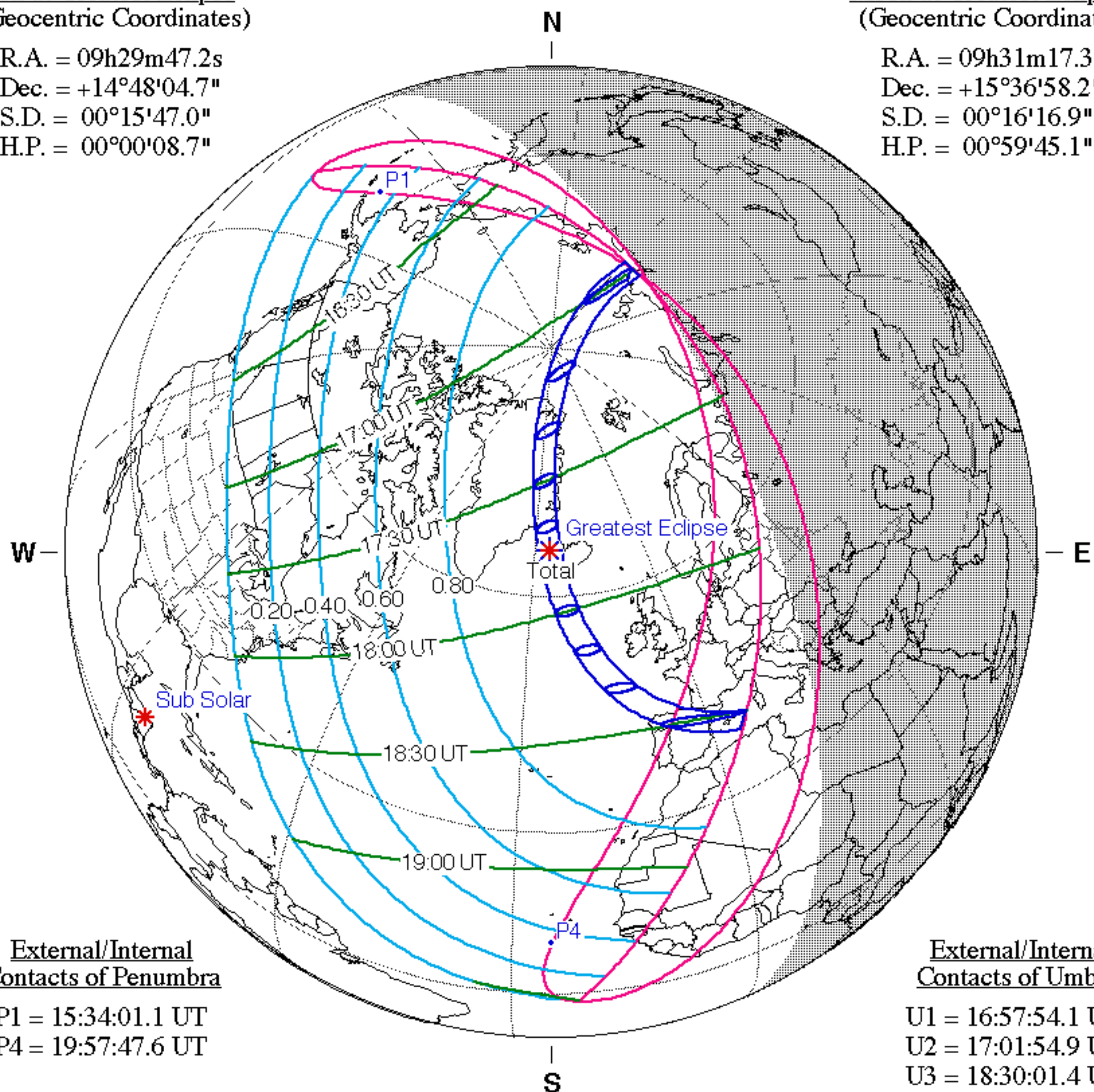
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 09h31m17.3s

Dec. = +15°36'58.2"

S.D. = 00°16'16.9"

H.P. = 00°59'45.1"



External/Internal Contacts of Penumbra

P1 = 15:34:01.1 UT

P4 = 19:57:47.6 UT

External/Internal Contacts of Umbra

U1 = 16:57:54.1 UT

U2 = 17:01:54.9 UT

U3 = 18:30:01.4 UT

U4 = 18:33:57.4 UT

Local Circumstances at Greatest Eclipse

Lat. = 65°13.0'N

Sun Alt. = 25.8°

Long. = 025°13.6'W

Sun Azm. = 248.3°

Path Width = 293.8 km Duration = 02m18.3s

Ephemeris & Constants

Eph. = Newcomb/ILE

$\Delta T = 83.8$ s

$k_1 = 0.2724880$

$k_2 = 0.2722810$

$\Delta b = 0.0''$ $\Delta l = 0.0''$

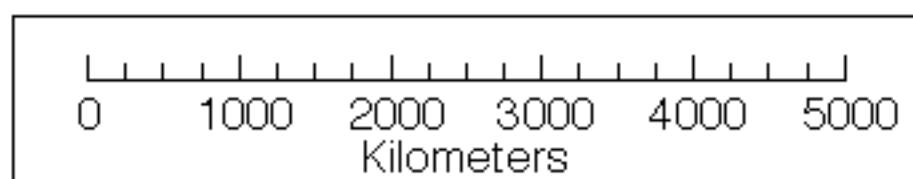
Geocentric Libration (Optical + Physical)

$l = 4.08^\circ$

$b = -1.12^\circ$

$c = 16.98^\circ$

Brown Lun. No. = 1282



F. Espenak, NASA's GSFC - Fri, Jul 2,

sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Total Lunar Eclipse of 2026 Mar 03

Ecliptic Conjunction = 11:39:03.2 TD (= 11:37:48.1 UT)

Greatest Eclipse = 11:34:52.1 TD (= 11:33:37.0 UT)

Penumbral Magnitude = 2.1838

P. Radius = 1.2361°

Gamma = -0.3765

Umbral Magnitude = 1.1507

U. Radius = 0.6983°

Axis = 0.3596°

Saros Series = 133 Member = 27 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 22h56m56.0s

Dec. = -06°43'06.3"

S.D. = 00°16'08.0"

H.P. = 00°00'08.9"

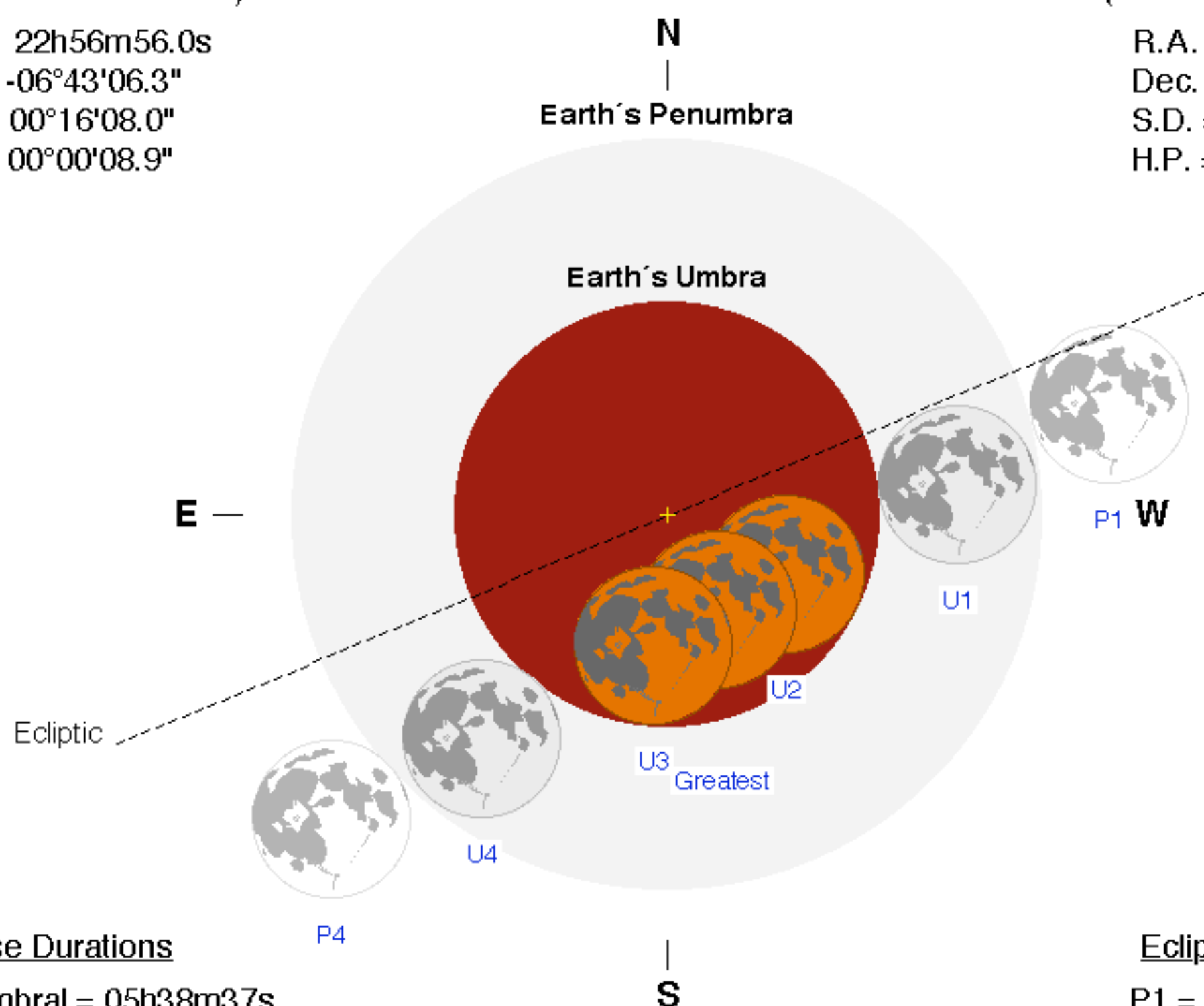
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 10h56m15.0s

Dec. = +06°24'05.2"

S.D. = 00°15'37.0"

H.P. = 00°57'18.7"



Eclipse Durations

Penumbral = 05h38m37s

Umbral = 03h27m10s

Total = 00h58m19s

$\Delta T = 75$ s

Rule = CdT (Danjon)

Eph. = VSOP87/ELP2000-85

Eclipse Contacts

P1 = 08:44:22 UT

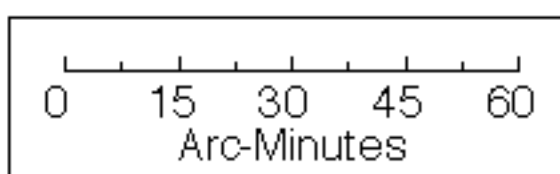
U1 = 09:50:00 UT

U2 = 11:04:26 UT

U3 = 12:02:45 UT

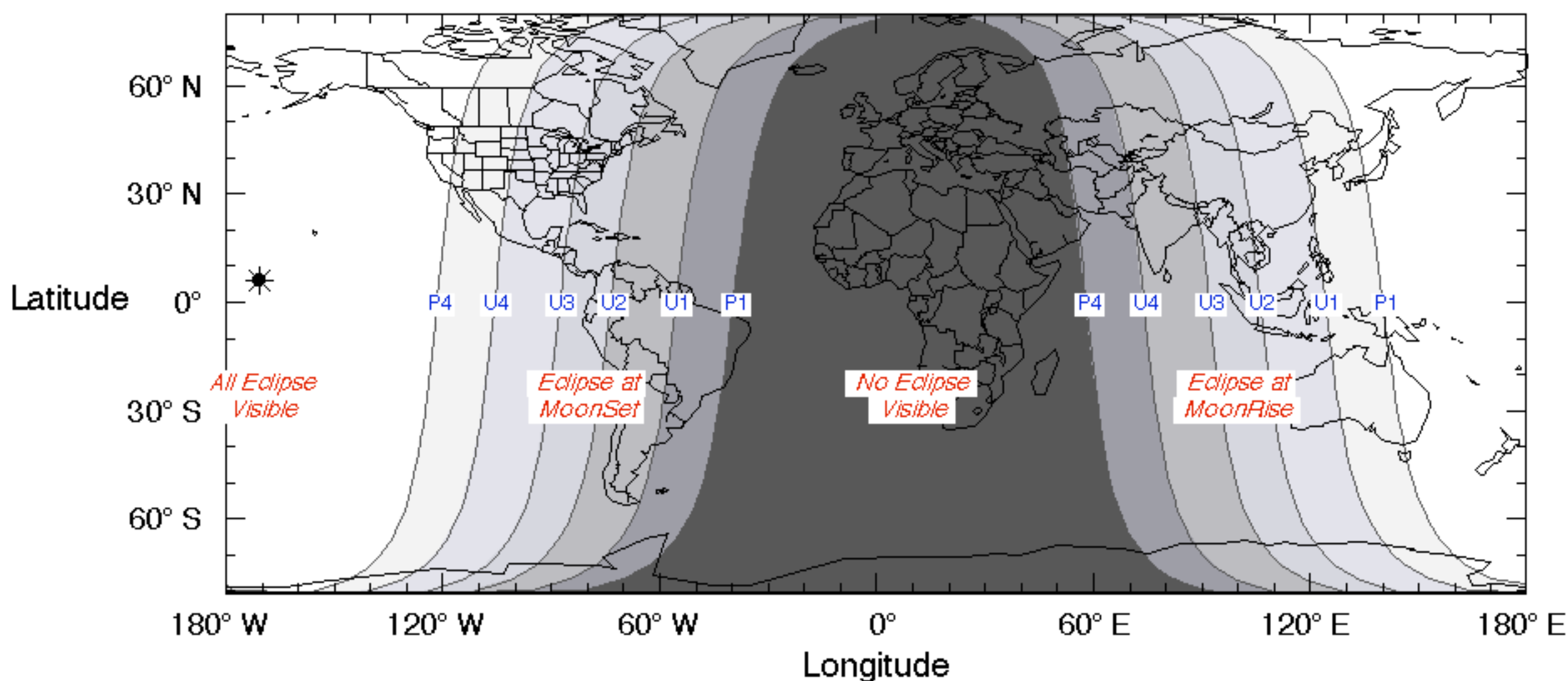
U4 = 13:17:10 UT

P4 = 14:22:59 UT



F. Espenak, NASA's GSFC

eclipse.gsfc.nasa.gov/eclipse.html



Partial Lunar Eclipse of 2026 Aug 28

Ecliptic Conjunction = 04:19:41.5 TD (= 04:18:26.0 UT)

Greatest Eclipse = 04:14:04.4 TD (= 04:12:49.0 UT)

Penumbral Magnitude = 1.9645

P. Radius = 1.2117°

Gamma = 0.4964

Umbral Magnitude = 0.9299

U. Radius = 0.6840°

Axis = 0.4647°

Saros Series = 138

Member = 30 of 83

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 10h26m57.9s

Dec. = +09°42'52.6"

S.D. = 00°15'50.0"

H.P. = 00°00'08.7"

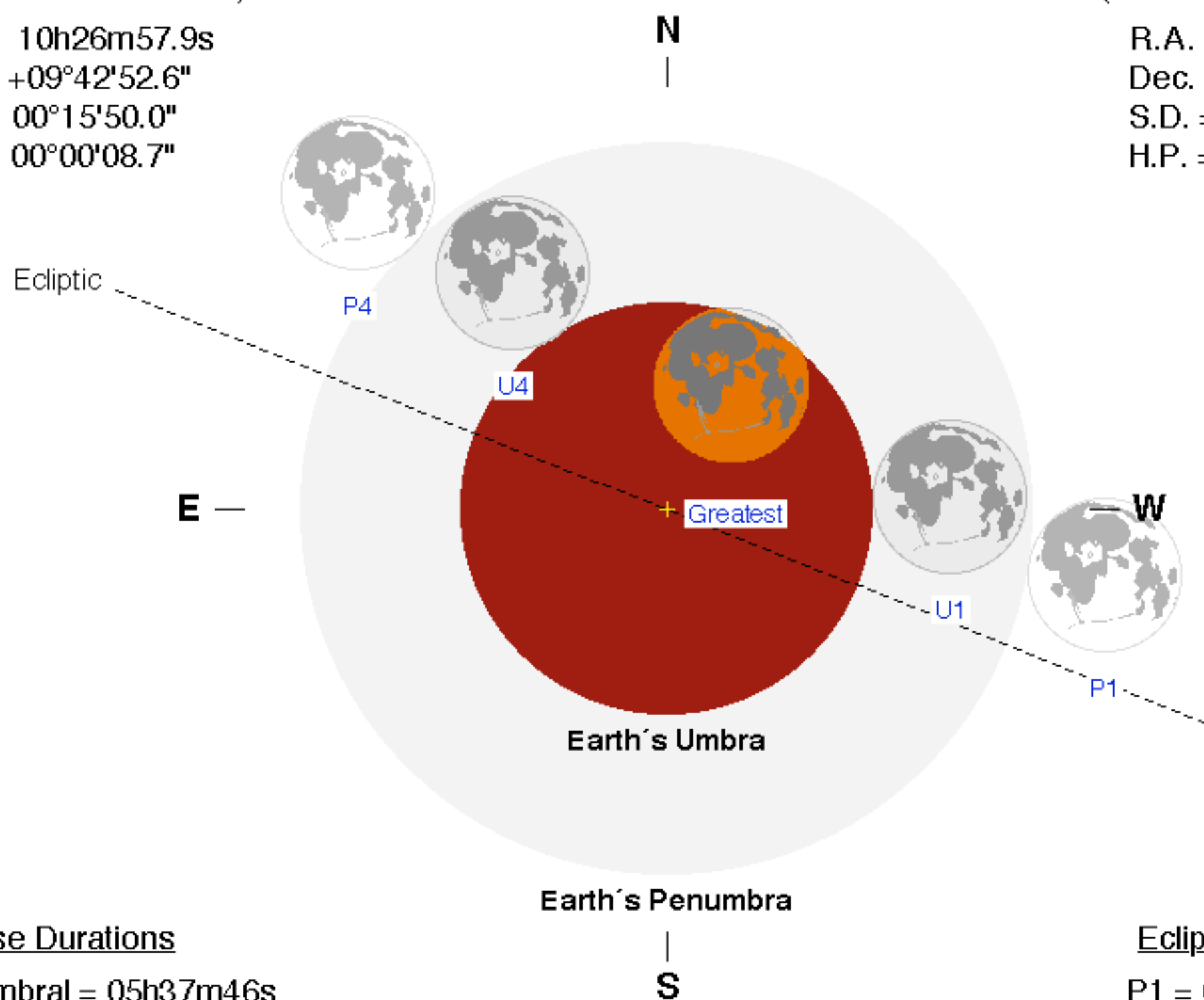
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 22h26m06.3s

Dec. = -09°18'03.5"

S.D. = 00°15'18.2"

H.P. = 00°56'09.9"



Eclipse Durations

Penumbral = 05h37m46s

Umbral = 03h18m07s

Eclipse Contacts

P1 = 01:23:55 UT

U1 = 02:33:48 UT

U4 = 05:51:55 UT

P4 = 07:01:41 UT

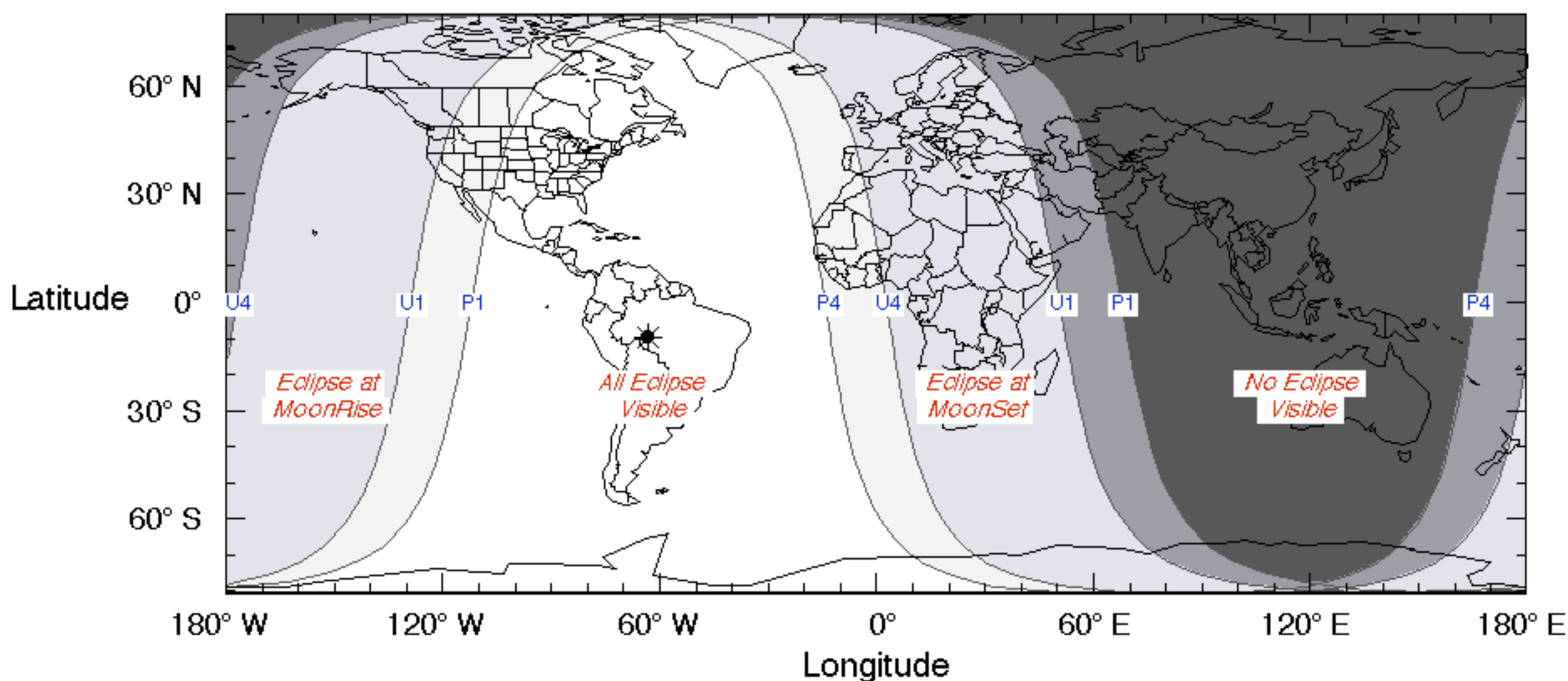
$\Delta T = 75$ s

Rule = CdT (Danjon)

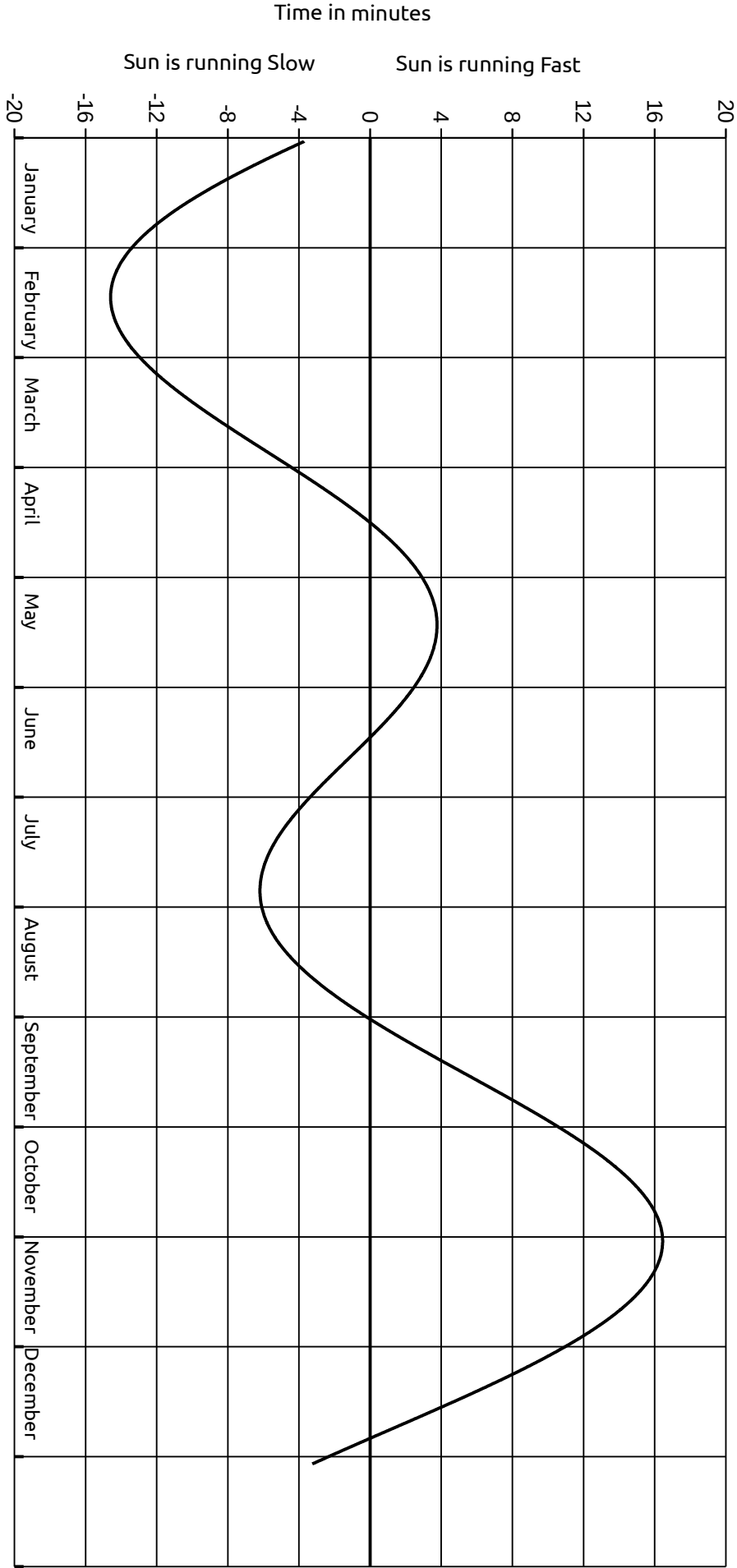
Eph. = VSOP87/ELP2000-85

F. Espenak, NASA's GSFC

eclipse.gsfc.nasa.gov/eclipse.html

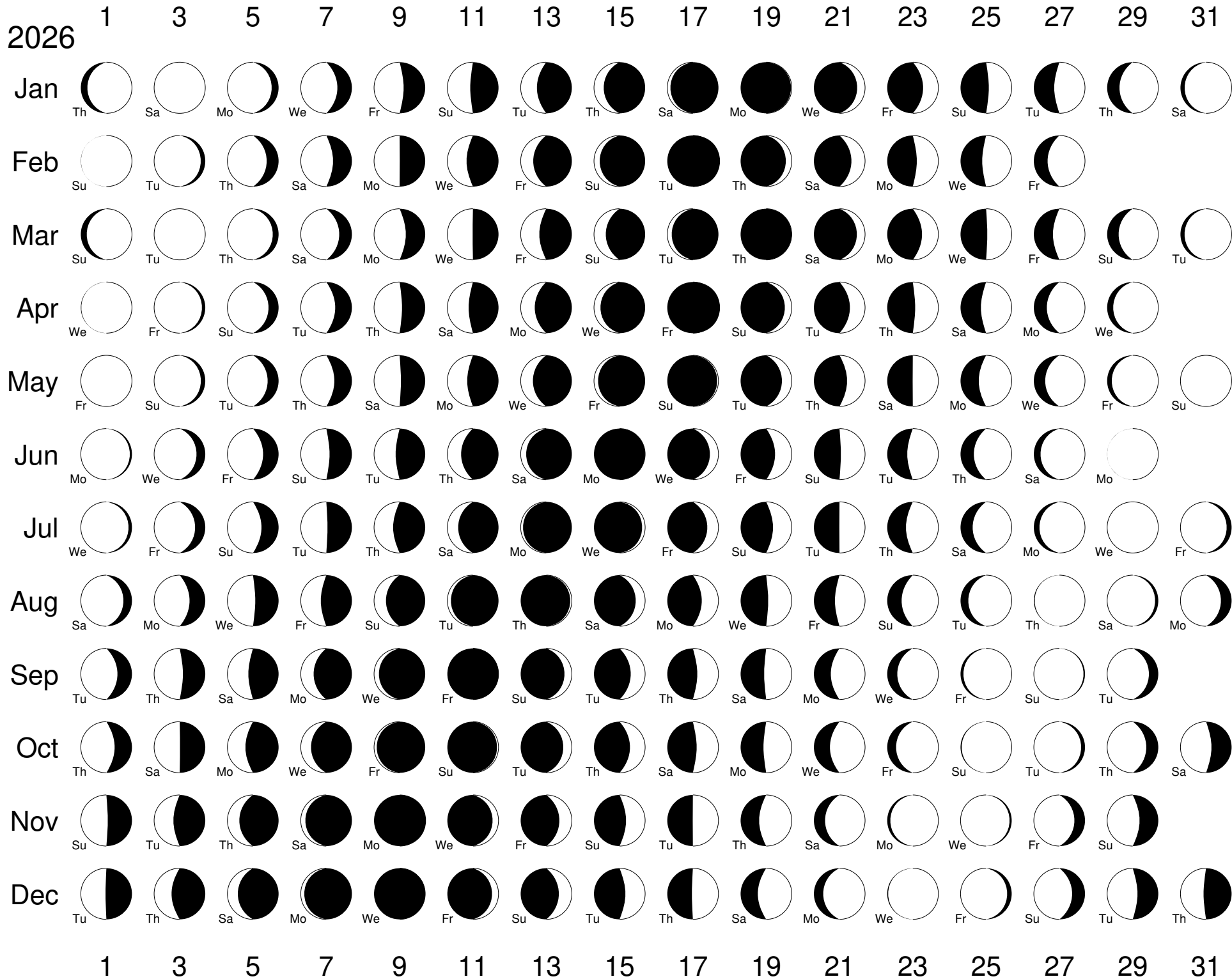


Equation of Time
for the Sun

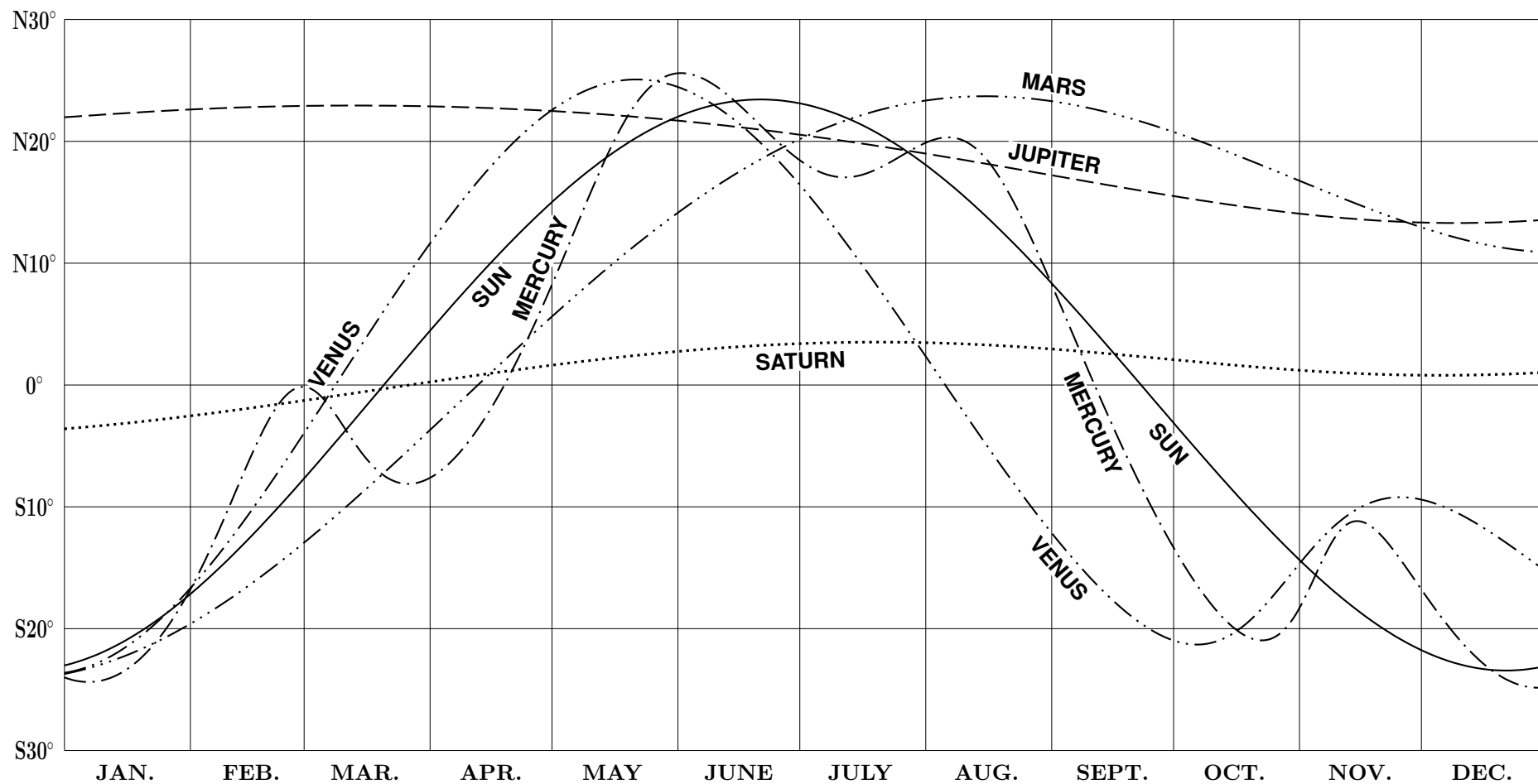


2026

Date and Time (Universal Time)			
New Moon	First Quarter	Full Moon	Last Quarter
--	--	Jan 3 10:03	Jan 10 15:48
Jan 18 19:52	Jan 26 04:47	Feb 1 22:09	Feb 9 12:43
Feb 17 12:01	Feb 24 12:27	Mar 3 11:38	Mar 11 09:38
Mar 19 01:23	Mar 25 19:18	Apr 2 02:12	Apr 10 04:51
Apr 17 11:52	Apr 24 02:32	May 1 17:23	May 9 21:10
May 16 20:01	May 23 11:11	May 31 08:45	Jun 8 10:00
Jun 15 02:54	Jun 21 21:55	Jun 29 23:56	Jul 7 19:29
Jul 14 09:43	Jul 21 11:05	Jul 29 14:36	Aug 6 02:21
Aug 12 17:37	Aug 20 02:46	Aug 28 04:18	Sep 4 07:51
Sep 11 03:27	Sep 18 20:44	Sep 26 16:49	Oct 3 13:25
Oct 10 15:50	Oct 18 16:12	Oct 26 04:12	Nov 1 20:28
Nov 9 07:02	Nov 17 11:48	Nov 24 14:53	Dec 1 06:08
Dec 9 00:52	Dec 17 05:42	Dec 24 01:28	Dec 30 18:59



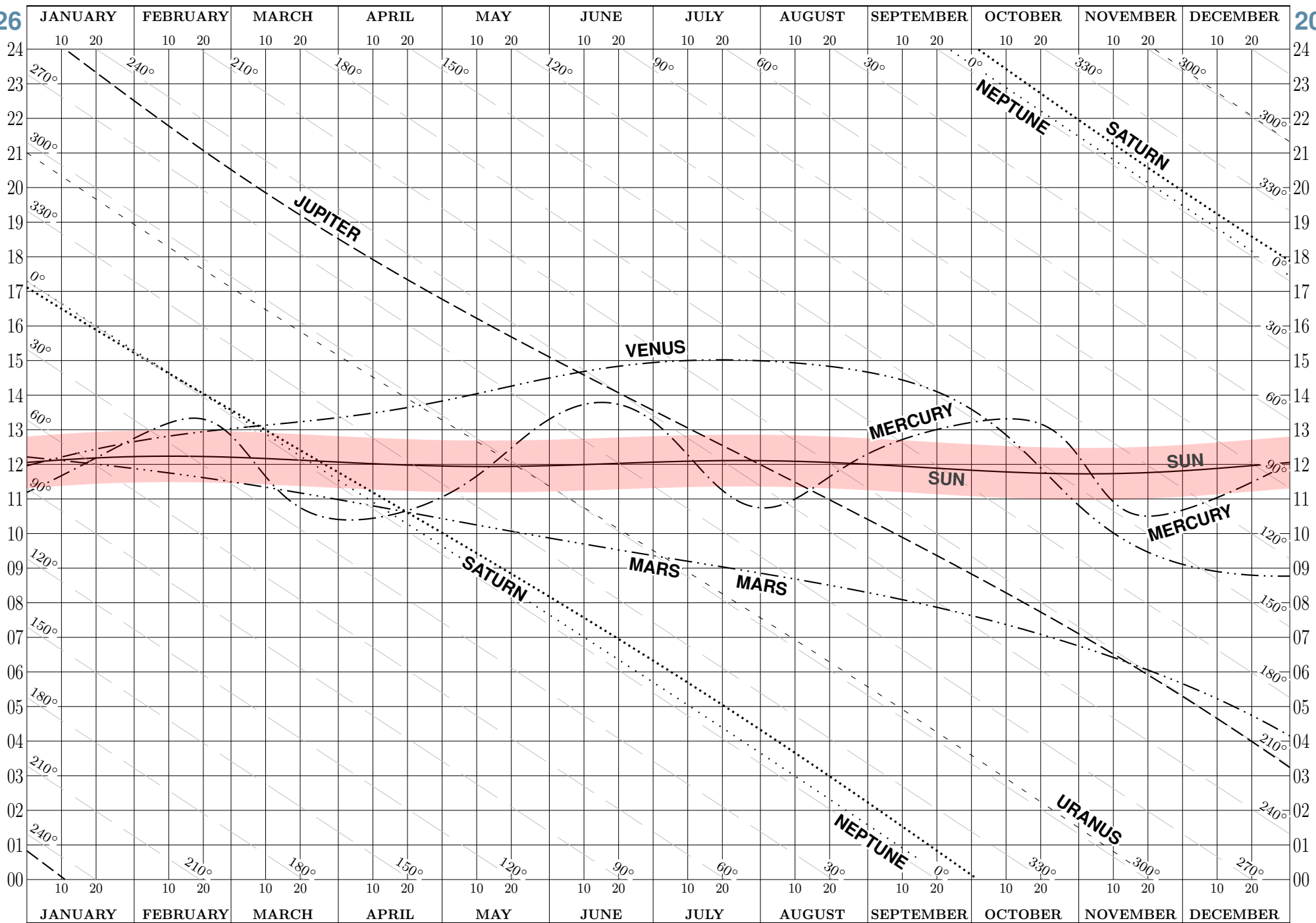
DECLINATION OF SUN AND PLANETS, 2026



2026

2026

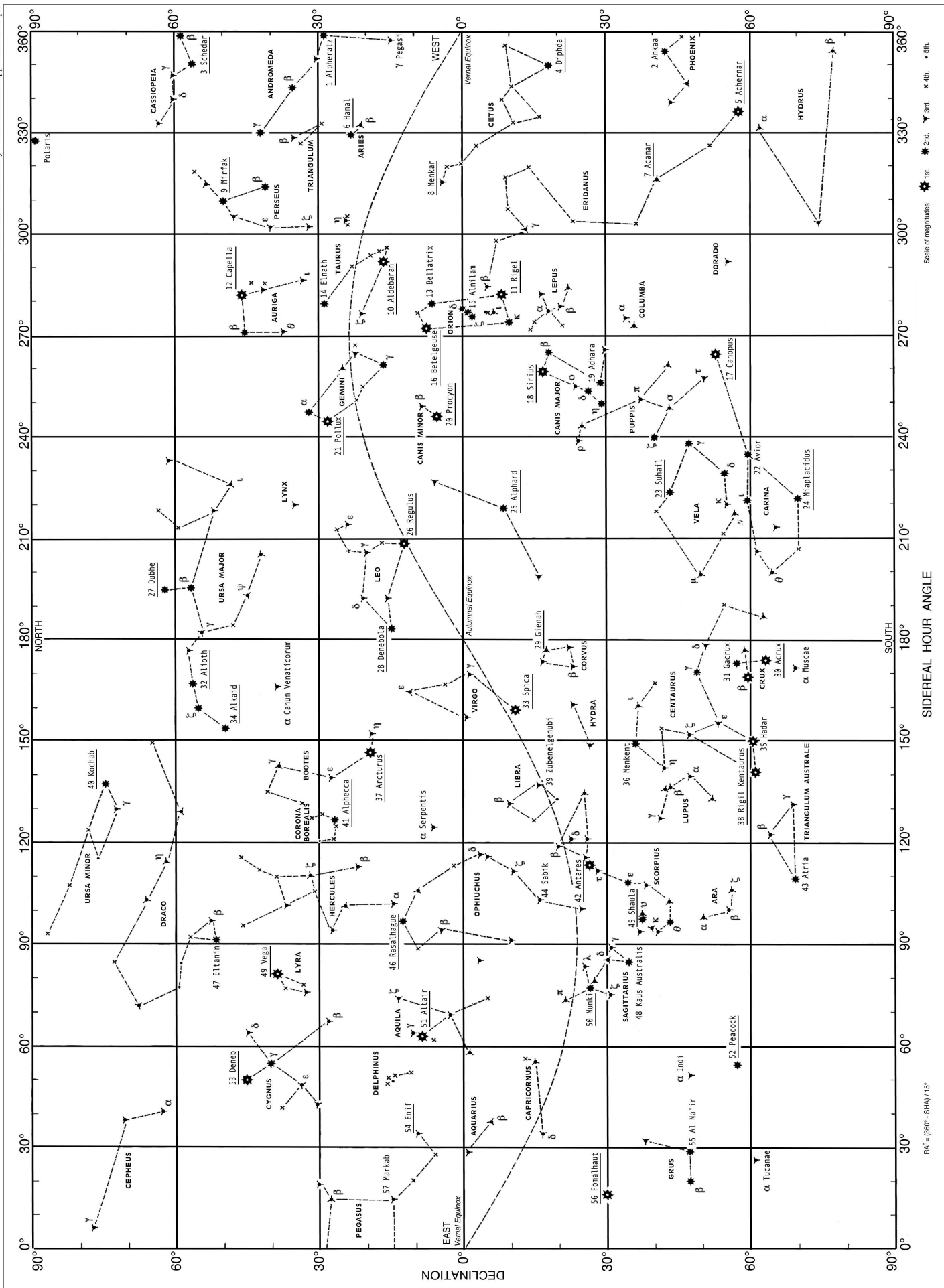
LOCAL MEAN TIME OF MERIDIAN PASSAGE

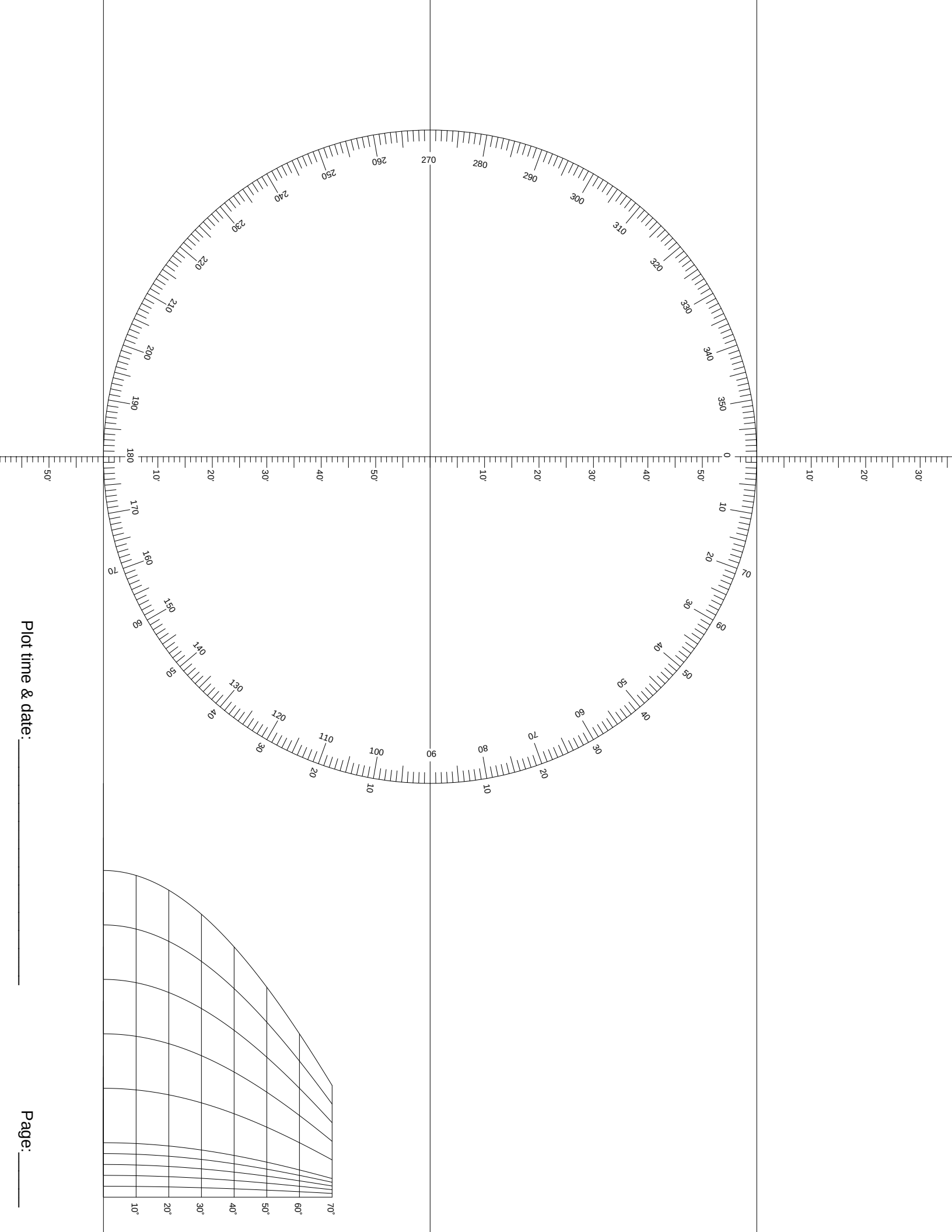


LOCAL MEAN TIME OF MERIDIAN PASSAGE

NAVIGATIONAL STAR CHART

U.S. Naval Observatory / Astronomical Applications Dept.





Plot time & date: _____

Page: _____