

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	40°30.1'	184°06.4'	S 14°25.5'	135°19.6'	S 27°05.1'	75°07.8'	S 15°01.1'	90°38.2'	S 19°15.0'	191°31.6'	S 11°22.1'							
1	55°32.5'	199°06.4'	S 14°26.3'	150°19.4'	S 27°05.2'	90°10.1'	S 15°01.1'	105°40.5'	S 19°15.0'	206°32.4'	S 11°22.7'							
2	70°35.0'	214°06.4'	S 14°27.1'	165°19.1'	S 27°05.4'	105°12.5'	S 15°01.1'	120°42.9'	S 19°14.9'	221°33.3'	S 11°23.3'							
3	85°37.5'	229°06.4'	S 14°27.9'	180°18.8'	S 27°05.5'	120°14.8'	S 15°01.0'	135°45.3'	S 19°14.9'	236°34.2'	S 11°23.9'							
4	100°39.9'	244°06.4'	S 14°28.7'	195°18.5'	S 27°05.6'	135°17.2'	S 15°01.0'	150°47.6'	S 19°14.9'	251°35.0'	S 11°24.6'							
5	115°42.4'	259°06.5'	S 14°29.5'	210°18.2'	S 27°05.8'	150°19.5'	S 15°00.9'	165°50.0'	S 19°14.9'	266°35.9'	S 11°25.2'							
6	130°44.9'	274°06.5'	S 14°30.3'	225°17.9'	S 27°05.9'	165°21.9'	S 15°00.9'	180°52.4'	S 19°14.9'	281°36.8'	S 11°25.8'							
7	145°47.3'	289°06.5'	S 14°31.1'	240°17.6'	S 27°06.0'	180°24.2'	S 15°00.8'	195°54.8'	S 19°14.8'	296°37.6'	S 11°26.4'							
8	160°49.8'	304°06.5'	S 14°31.9'	255°17.4'	S 27°06.2'	195°26.6'	S 15°00.8'	210°57.1'	S 19°14.8'	311°38.5'	S 11°27.0'							
9	175°52.3'	319°06.5'	S 14°32.7'	270°17.1'	S 27°06.3'	210°28.9'	S 15°00.8'	225°59.5'	S 19°14.8'	326°39.4'	S 11°27.6'							
10	190°54.7'	334°06.5'	S 14°33.5'	285°16.8'	S 27°06.4'	225°31.3'	S 15°00.7'	241°01.9'	S 19°14.8'	341°40.2'	S 11°28.2'							
11	205°57.2'	349°06.6'	S 14°34.3'	300°16.5'	S 27°06.6'	240°33.6'	S 15°00.7'	256°04.3'	S 19°14.7'	356°41.1'	S 11°28.8'							
12	220°59.6'	4°06.6'	S 14°35.1'	315°16.2'	S 27°06.7'	255°36.0'	S 15°00.6'	271°06.6'	S 19°14.7'	11°41.9'	S 11°29.4'							
13	236°02.1'	19°06.6'	S 14°35.9'	330°15.9'	S 27°06.8'	270°38.3'	S 15°00.6'	286°09.0'	S 19°14.7'	26°42.8'	S 11°30.0'							
14	251°04.6'	34°06.6'	S 14°36.7'	345°15.7'	S 27°06.9'	285°40.7'	S 15°00.5'	301°11.4'	S 19°14.7'	41°43.7'	S 11°30.6'							
15	266°07.0'	49°06.6'	S 14°37.5'	0°15.4'	S 27°07.1'	300°43.0'	S 15°00.5'	316°13.8'	S 19°14.7'	56°44.5'	S 11°31.2'							
16	281°09.5'	64°06.6'	S 14°38.3'	15°15.1'	S 27°07.2'	315°45.4'	S 15°00.4'	331°16.1'	S 19°14.6'	71°45.4'	S 11°31.8'							
17	296°12.0'	79°06.6'	S 14°39.1'	30°14.8'	S 27°07.3'	330°47.7'	S 15°00.4'	346°18.5'	S 19°14.6'	86°46.3'	S 11°32.4'							
18	311°14.4'	94°06.6'	S 14°39.9'	45°14.6'	S 27°07.4'	345°50.1'	S 15°00.4'	1°20.9'	S 19°14.6'	101°47.1'	S 11°33.0'							
19	326°16.9'	109°06.6'	S 14°40.7'	60°14.3'	S 27°07.6'	0°52.4'	S 15°00.3'	16°23.2'	S 19°14.6'	116°48.0'	S 11°33.6'							
20	341°19.4'	124°06.7'	S 14°41.5'	75°14.0'	S 27°07.7'	15°54.8'	S 15°00.3'	31°25.6'	S 19°14.5'	131°48.8'	S 11°34.2'							
21	356°21.8'	139°06.7'	S 14°42.2'	90°13.7'	S 27°07.8'	30°57.1'	S 15°00.2'	46°28.0'	S 19°14.5'	146°49.7'	S 11°34.8'							
22	11°24.3'	154°06.7'	S 14°43.0'	105°13.5'	S 27°07.9'	45°59.5'	S 15°00.2'	61°30.4'	S 19°14.5'	161°50.6'	S 11°35.4'							
23	26°26.8'	169°06.7'	S 14°43.8'	120°13.2'	S 27°08.0'	61°01.8'	S 15°00.1'	76°32.7'	S 19°14.5'	176°51.4'	S 11°36.0'							
		SD 16.1' d -0.8'		v -0.3' d -0.1'		v 2.4' d 0.0'		v 2.4' d 0.0'		v 0.9' d -0.6'								
Mer. pass.		11 h 43 m 35 s		14 h 59 m		18 h 57 m		17 h 55 m		11 h 13 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Sun	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	230°49.2'	N 9°57.7'	12.1'	-14.1'	58.0'	74°22.1'	52°20.6'	43°52.9'	38°09.7'	17°05.7'	52°49.0'	54°15.3'	72°28.5'
1	245°20.2'	N 9°43.6'	12.1'	-14.2'	58.0'	74°03.9'	51°49.1'	43°27.6'	37°36.0'	17°38.3'	53°23.0'	54°46.1'	72°52.3'
2	259°51.3'	N 9°29.4'	12.1'	-14.2'	58.1'	73°45.8'	51°17.6'	43°02.4'	37°02.4'	18°11.1'	53°57.0'	55°16.9'	73°16.2'
3	274°22.4'	N 9°15.2'	12.1'	-14.3'	58.1'	73°27.6'	50°46.0'	42°37.4'	36°28.7'	18°44.0'	54°31.0'	55°47.9'	73°40.1'
4	288°53.4'	N 9°00.9'	12.1'	-14.4'	58.1'	73°09.6'	50°14.4'	42°12.4'	35°54.9'	19°17.0'	55°05.1'	56°18.9'	74°04.1'
5	303°24.5'	N 8°46.5'	12.0'	-14.4'	58.2'	72°51.5'	49°42.7'	41°47.6'	35°21.2'	19°50.1'	55°39.3'	56°50.0'	74°28.3'
6	317°55.5'	N 8°32.1'	12.0'	-14.5'	58.2'	72°33.6'	49°11.0'	41°23.0'	34°47.4'	20°23.4'	56°13.5'	57°21.2'	74°52.5'
7	332°26.6'	N 8°17.6'	12.0'	-14.6'	58.3'	72°15.6'	48°39.2'	40°58.5'	34°13.5'	20°56.7'	56°47.7'	57°52.5'	75°16.7'
8	346°57.6'	N 8°03.0'	12.0'	-14.6'	58.3'	71°57.8'	48°07.4'	40°34.2'	33°39.6'	21°30.1'	57°22.0'	58°23.9'	75°41.1'
9	1°28.6'	N 7°48.4'	12.0'	-14.7'	58.3'	71°40.0'	47°35.5'	40°10.0'	33°05.7'	22°03.6'	57°56.4'	58°55.3'	76°05.5'
10	15°59.6'	N 7°33.7'	12.0'	-14.7'	58.4'	71°22.2'	47°03.6'	39°46.0'	32°31.8'	22°37.2'	58°30.8'	59°26.8'	76°30.1'
11	30°30.7'	N 7°19.0'	12.0'	-14.8'	58.4'	71°04.5'	46°31.6'	39°22.2'	31°57.8'	23°10.9'	59°05.2'	59°58.4'	76°54.6'
12	45°01.7'	N 7°04.2'	12.0'	-14.9'	58.5'	70°46.9'	45°59.6'	38°58.6'	31°23.8'	23°44.7'	59°39.7'	60°30.1'	77°19.3'
13	59°32.7'	N 6°49.3'	12.0'	-14.9'	58.5'	70°29.3'	45°27.5'	38°35.2'	30°49.7'	24°18.6'	60°14.3'	61°01.9'	77°44.1'
14	74°03.6'	N 6°34.4'	12.0'	-15.0'	58.5'	70°11.8'	44°55.4'	38°12.0'	30°15.7'	24°52.5'	60°48.9'	61°33.7'	78°08.9'
15	88°34.6'	N 6°19.4'	12.0'	-15.0'	58.6'	69°54.4'	44°23.2'	37°49.0'	29°41.6'	25°26.5'	61°23.5'	62°05.6'	78°33.7'
16	103°05.5'	N 6°04.4'	11.9'	-15.1'	58.6'	69°37.0'	43°51.0'	37°26.2'	29°07.4'	26°00.6'	61°58.2'	62°37.6'	78°58.7'
17	117°36.5'	N 5°49.4'	11.9'	-15.1'	58.6'	69°19.7'	43°18.8'	37°03.6'	28°33.3'	26°34.8'	62°33.0'	63°09.6'	79°23.7'
18	132°07.4'	N 5°34.2'	11.9'	-15.2'	58.7'	69°02.5'	42°46.5'	36°41.3'	27°59.1'	27°09.0'	63°07.7'	63°41.8'	79°48.8'
19	146°38.3'	N 5°19.1'	11.9'	-15.2'	58.7'	68°45.4'	42°14.1'	36°19.3'	27°24.9'	27°43.3'	63°42.6'	64°13.9'	80°14.0'
20	161°09.2'	N 5°03.9'	11.9'	-15.3'	58.8'	68°28.3'	41°41.7'	35°57.5'	26°50.7'	28°17.7'	64°17.5'	64°46.2'	80°39.2'
21	175°40.1'	N 4°48.6'	11.8'	-15.3'	58.8'	68°11.3'	41°09.2'	35°36.0'	26°16.4'	28°52.2'	64°52.4'	65°18.5'	81°04.5'
22	190°10.9'	N 4°33.3'	11.8'	-15.4'	58.8'	67°54.4'	40°36.7'	35°14.7'	25°42.2'	29°26.7'	65°27.4'	65°50.9'	81°29.8'
23	204°41.7'	N 4°17.9'	11.8'	-15.4'	58.9'	67°37.6'	40°04.2'	34°53.8'	25°07.9'	30°01.3'	66°02.5'	66°23.4'	81°55.2'
Mer. pass.		8 h 54 m SD 15.8' phase 19%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.5'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.5'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.8'	S 28°59.8'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	41°29.2'	184°06.7'	S 14°44.6'	135°12.9'	S 27°08.1'		76°04.2'	S 15°00.1'		91°35.1'	S 19°14.4'		191°52.3'	S 11°36.6'		206°53.2'	S 11°37.2'	
1	56°31.7'	199°06.7'	S 14°45.4'	150°12.6'	S 27°08.3'		91°06.5'	S 15°00.0'		106°37.5'	S 19°14.4'		221°54.0'	S 11°37.8'		236°54.9'	S 11°38.4'	
2	71°34.1'	214°06.7'	S 14°46.2'	165°12.4'	S 27°08.4'		106°08.9'	S 14°59.9'		121°39.8'	S 19°14.3'		251°55.7'	S 11°39.0'		266°56.6'	S 11°39.6'	
3	86°36.6'	229°06.7'	S 14°47.0'	180°12.1'	S 27°08.5'		121°11.2'	S 14°59.9'		136°42.2'	S 19°14.3'		281°57.5'	S 11°40.2'		296°58.3'	S 11°40.8'	
4	101°39.1'	244°06.7'	S 14°47.8'	195°11.8'	S 27°08.6'		136°13.6'	S 14°59.9'		151°44.6'	S 19°14.3'		311°59.2'	S 11°41.4'		327°00.0'	S 11°42.0'	
5	116°41.5'	259°06.7'	S 14°48.6'	210°11.6'	S 27°08.7'		151°15.9'	S 14°59.9'		166°47.0'	S 19°14.3'		342°00.9'	S 11°42.6'		357°01.8'	S 11°43.2'	
6	131°44.0'	274°06.7'	S 14°49.4'	225°11.3'	S 27°08.8'		166°18.2'	S 14°59.8'		181°49.3'	S 19°14.3'		12°02.6'	S 11°43.8'		12°02.6'	S 11°43.8'	
7	146°46.5'	289°06.8'	S 14°50.1'	240°11.0'	S 27°08.9'		181°20.6'	S 14°59.8'		196°51.7'	S 19°14.3'		27°03.5'	S 11°44.4'		27°03.5'	S 11°44.4'	
8	161°48.9'	304°06.8'	S 14°50.9'	255°10.8'	S 27°09.0'		196°22.9'	S 14°59.7'		211°54.1'	S 19°14.3'		42°04.3'	S 11°45.0'		42°04.3'	S 11°45.0'	
9	176°51.4'	319°06.8'	S 14°51.7'	270°10.5'	S 27°09.1'		211°25.3'	S 14°59.7'		226°56.4'	S 19°14.2'		57°05.2'	S 11°45.6'		57°05.2'	S 11°45.6'	
10	191°53.9'	334°06.8'	S 14°52.5'	285°10.2'	S 27°09.2'		226°27.6'	S 14°59.6'		241°58.8'	S 19°14.2'		72°06.0'	S 11°46.2'		72°06.0'	S 11°46.2'	
11	206°56.3'	349°06.8'	S 14°53.3'	300°10.0'	S 27°09.3'		241°30.0'	S 14°59.6'		257°01.2'	S 19°14.2'		87°06.9'	S 11°46.8'		87°06.9'	S 11°46.8'	
12	221°58.8'	4°06.8'	S 14°54.1'	315°09.7'	S 27°09.4'		256°32.3'	S 14°59.5'		272°03.5'	S 19°14.2'		102°07.8'	S 11°47.4'		102°07.8'	S 11°47.4'	
13	237°01.3'	19°06.8'	S 14°54.9'	330°09.4'	S 27°09.5'		271°34.6'	S 14°59.5'		287°05.9'	S 19°14.1'		117°08.6'	S 11°48.0'		117°08.6'	S 11°48.0'	
14	252°03.7'	34°06.8'	S 14°55.7'	345°09.2'	S 27°09.6'		286°37.0'	S 14°59.4'		302°08.3'	S 19°14.1'		132°09.5'	S 11°48.6'		132°09.5'	S 11°48.6'	
15	267°06.2'	49°06.8'	S 14°56.4'	0°08.9'	S 27°09.7'		301°39.3'	S 14°59.4'		317°10.7'	S 19°14.1'		147°10.3'	S 11°49.2'		147°10.3'	S 11°49.2'	
16	282°08.6'	64°06.8'	S 14°57.2'	15°08.7'	S 27°09.8'		316°41.7'	S 14°59.3'		332°13.0'	S 19°14.1'		162°11.2'	S 11°49.8'		162°11.2'	S 11°49.8'	
17	297°11.1'	79°06.8'	S 14°58.0'	30°08.4'	S 27°09.9'		331°44.0'	S 14°59.3'		347°15.4'	S 19°14.0'		177°12.0'	S 11°50.4'		177°12.0'	S 11°50.4'	
18	312°13.6'	94°06.8'	S 14°58.8'	45°08.1'	S 27°10.0'		346°46.4'	S 14°59.2'		2°17.8'	S 19°14.0'							
19	327°16.0'	109°06.8'	S 14°59.6'	60°07.9'	S 27°10.1'		1°48.7'	S 14°59.2'		17°20.1'	S 19°14.0'							
20	342°18.5'	124°06.8'	S 15°00.4'	75°07.6'	S 27°10.2'		16°51.0'	S 14°59.2'		32°22.5'	S 19°14.0'							
21	357°21.0'	139°06.8'	S 15°01.1'	90°07.4'	S 27°10.3'		31°53.4'	S 14°59.1'		47°24.9'	S 19°13.9'							
22	12°23.4'	154°06.8'	S 15°01.9'	105°07.1'	S 27°10.4'		46°55.7'	S 14°59.1'		62°27.2'	S 19°13.9'							
23	27°25.9'	169°06.8'	S 15°02.7'	120°06.8'	S 27°10.5'		61°58.1'	S 14°59.0'		77°29.6'	S 19°13.9'							
		SD 16.1' <i>d</i> -0.8'		<i>v</i> -0.3' <i>d</i> -0.1'			<i>v</i> 2.3' <i>d</i> 0.0'			<i>v</i> 2.4' <i>d</i> 0.0'				<i>v</i> 0.9' <i>d</i> -0.6'				
Mer. pass.		11 h 43 m 34 s		14 h 59 m			18 h 53 m			17 h 51 m				11 h 12 m				

h	Moon					Lunar distance											
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara				
0	219°12.5'	N 4°02.5'	11.8'	-15.4'	58.9'	68°22.9'	67°20.9'	34°33.1'	24°33.6'	30°35.9'	66°37.6'	66°56.0'	81°01.4'				
1	233°43.3'	N 3°47.1'	11.8'	-15.5'	59.0'	67°59.9'	67°04.3'	34°12.8'	23°59.3'	31°10.6'	67°12.7'	67°28.6'	81°21.0'				
2	248°14.1'	N 3°31.6'	11.7'	-15.5'	59.0'	67°37.0'	66°47.8'	33°52.8'	23°25.0'	31°45.4'	67°47.9'	68°01.2'	81°40.6'				
3	262°44.8'	N 3°16.1'	11.7'	-15.6'	59.0'	67°14.1'	66°31.4'	33°33.2'	22°50.7'	32°20.2'	68°23.1'	68°34.0'	82°00.3'				
4	277°15.5'	N 3°00.5'	11.7'	-15.6'	59.1'	66°51.2'	66°15.1'	33°13.9'	22°16.4'	32°55.1'	68°58.4'	69°06.8'	82°20.1'				
5	291°46.2'	N 2°44.9'	11.6'	-15.6'	59.1'	66°28.5'	65°58.9'	32°54.9'	21°42.1'	33°30.1'	69°33.7'	69°39.6'	82°39.9'				
6	306°16.8'	N 2°29.3'	11.6'	-15.7'	59.1'	66°05.7'	65°42.8'	32°36.4'	21°07.8'	34°05.1'	70°09.1'	70°12.6'	82°59.8'				
7	320°47.4'	N 2°13.7'	11.6'	-15.7'	59.2'	65°43.1'	65°26.8'	32°18.2'	20°33.6'	34°40.2'	70°44.5'	70°45.5'	83°19.7'				
8	335°18.0'	N 1°58.0'	11.6'	-15.7'	59.2'	65°20.5'	65°10.9'	32°00.5'	19°59.3'	35°15.3'	71°20.0'	71°18.6'	83°39.7'				
9	349°48.6'	N 1°42.2'	11.5'	-15.8'	59.3'	64°58.0'	64°55.1'	31°43.2'	19°25.1'	35°50.5'	71°55.5'	71°51.7'	83°59.8'				
10	4°19.1'	N 1°26.5'	11.5'	-15.8'	59.3'	64°35.5'	64°39.5'	31°26.3'	18°50.9'	36°25.8'	72°31.1'	72°24.9'	84°19.9'				
11	18°49.6'	N 1°10.7'	11.5'	-15.8'	59.3'	64°13.2'	64°23.9'	31°09.8'	18°16.8'	37°01.1'	73°06.7'	72°58.1'	84°40.0'				
12	33°20.0'	N 0°54.9'	11.4'	-15.8'	59.4'	63°50.9'	64°08.5'	30°53.9'	17°42.7'	37°36.4'	73°42.4'	73°31.4'	85°00.3'				
13	47°50.4'	N 0°39.1'	11.4'	-15.9'	59.4'	63°28.7'	63°53.2'	30°38.4'	17°08.7'	38°11.9'	74°18.1'	74°04.7'	85°20.5'				
14	62°20.8'	N 0°23.2'	11.3'	-15.9'	59.4'	63°06.6'	63°38.1'		16°34.7'	38°47.3'	74°53.8'	74°38.1'	85°40.8'				
15	76°51.2'	N 0°07.3'	11.3'	-15.9'	59.5'	62°44.6'			16°00.8'	39°22.8'	75°29.6'	75°11.6'	86°01.2'				
16	91°21.4'	S 0°08.6'	11.3'	-15.9'	59.5'	62°22.6'			15°27.1'	39°58.4'	76°05.5'	75°45.1'	86°21.5'				
17	105°51.7'	S 0°24.5'	11.2'	-15.9'	59.5'	62°00.8'			14°53.4'	40°34.0'	76°41.4'	76°18.6'	86°42.0'				
18	120°21.9'	S 0°40.4'	11.2'	-16.0'	59.6'	61°39.0'			14°19.9'	41°09.7'	77°17.3'	76°52.2'	87°02.4'				
19	134°52.1'	S 0°56.4'	11.1'	-16.0'	59.6'	61°17.4'			13°46.6'	41°45.4'	77°53.3'	77°25.9'	87°22.9'				
20	149°22.2'	S 1°12.4'	11.1'	-16.0'	59.6'	60°55.9'			13°13.4'	42°21.2'	78°29.3'	77°59.6'	87°43.5'				
21	163°52.3'	S 1°28.4'	11.0'	-16.0'	59.7'	60°34.5'			12°40.5'	42°57.0'	79°05.4'	78°33.4'	88°04.1'				
22	178°22.3'	S 1°44.3'	11.0'	-16.0'	59.7'	60°13.1'			12°07.8'	43°32.9'	79°41.5'	79°07.2'	88°24.7'				
23	192°52.3'	S 2°00.3'	10.9'	-16.0'	59.7'	59°52.0'			11°35.4'	44°08.8'	80°17.6'	79°41.1'	88°45.3'				
Mer. pass.		9 h 42 m SD 16.1' phase 11%															

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.8'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.5'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.8'	S 28°59.9'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	42°28.4'	184°06.8'	S 15°03.5'	135°06.6'	S 27°10.6'	77°00.4'	S 14°59.0'	92°32.0'	S 19°13.9'	192°12.9'	S 11°51.0'							
1	57°30.8'	199°06.8'	S 15°04.3'	150°06.3'	S 27°10.7'	92°02.7'	S 14°58.9'	107°34.3'	S 19°13.8'	207°13.8'	S 11°51.6'							
2	72°33.3'	214°06.8'	S 15°05.0'	165°06.1'	S 27°10.8'	107°05.1'	S 14°58.9'	122°36.7'	S 19°13.8'	222°14.6'	S 11°52.2'							
3	87°35.7'	229°06.8'	S 15°05.8'	180°05.8'	S 27°10.9'	122°07.4'	S 14°58.8'	137°39.1'	S 19°13.8'	237°15.5'	S 11°52.8'							
4	102°38.2'	244°06.8'	S 15°06.6'	195°05.6'	S 27°10.9'	137°09.7'	S 14°58.8'	152°41.4'	S 19°13.8'	252°16.3'	S 11°53.4'							
5	117°40.7'	259°06.8'	S 15°07.4'	210°05.3'	S 27°11.0'	152°12.1'	S 14°58.7'	167°43.8'	S 19°13.7'	267°17.2'	S 11°54.0'							
6	132°43.1'	274°06.8'	S 15°08.2'	225°05.1'	S 27°11.1'	167°14.4'	S 14°58.7'	182°46.2'	S 19°13.7'	282°18.0'	S 11°54.6'							
7	147°45.6'	289°06.8'	S 15°08.9'	240°04.8'	S 27°11.2'	182°16.8'	S 14°58.6'	197°48.5'	S 19°13.7'	297°18.9'	S 11°55.2'							
8	162°48.1'	304°06.8'	S 15°09.7'	255°04.6'	S 27°11.3'	197°19.1'	S 14°58.6'	212°50.9'	S 19°13.7'	312°19.8'	S 11°55.8'							
9	177°50.5'	319°06.8'	S 15°10.5'	270°04.3'	S 27°11.4'	212°21.4'	S 14°58.5'	227°53.3'	S 19°13.6'	327°20.6'	S 11°56.4'							
10	192°53.0'	334°06.8'	S 15°11.3'	285°04.1'	S 27°11.4'	227°23.8'	S 14°58.5'	242°55.6'	S 19°13.6'	342°21.5'	S 11°57.0'							
11	207°55.5'	349°06.8'	S 15°12.1'	300°03.8'	S 27°11.5'	242°26.1'	S 14°58.4'	257°58.0'	S 19°13.6'	357°22.3'	S 11°57.6'							
12	222°57.9'	4°06.8'	S 15°12.8'	315°03.6'	S 27°11.6'	257°28.4'	S 14°58.4'	273°00.4'	S 19°13.6'	12°23.2'	S 11°58.2'							
13	238°00.4'	19°06.8'	S 15°13.6'	330°03.4'	S 27°11.7'	272°30.8'	S 14°58.3'	288°02.7'	S 19°13.5'	27°24.0'	S 11°58.8'							
14	253°02.9'	34°06.8'	S 15°14.4'	345°03.1'	S 27°11.7'	287°33.1'	S 14°58.3'	303°05.1'	S 19°13.5'	42°24.9'	S 11°59.4'							
15	268°05.3'	49°06.8'	S 15°15.2'	0°02.9'	S 27°11.8'	302°35.4'	S 14°58.2'	318°07.4'	S 19°13.5'	57°25.7'	S 11°60.0'							
16	283°07.8'	64°06.8'	S 15°15.9'	15°02.6'	S 27°11.9'	317°37.8'	S 14°58.2'	333°09.8'	S 19°13.5'	72°26.6'	S 12°00.6'							
17	298°10.2'	79°06.8'	S 15°16.7'	30°02.4'	S 27°12.0'	332°40.1'	S 14°58.1'	348°12.2'	S 19°13.4'	87°27.4'	S 12°01.2'							
18	313°12.7'	94°06.8'	S 15°17.5'	45°02.1'	S 27°12.0'	347°42.4'	S 14°58.1'	3°14.5'	S 19°13.4'	102°28.3'	S 12°01.7'							
19	328°15.2'	109°06.8'	S 15°18.2'	60°01.9'	S 27°12.1'	2°44.8'	S 14°58.0'	18°16.9'	S 19°13.4'	117°29.2'	S 12°02.3'							
20	343°17.6'	124°06.7'	S 15°19.0'	75°01.7'	S 27°12.2'	17°47.1'	S 14°58.0'	33°19.3'	S 19°13.4'	132°30.0'	S 12°02.9'							
21	358°20.1'	139°06.7'	S 15°19.8'	90°01.4'	S 27°12.3'	32°49.4'	S 14°57.9'	48°21.6'	S 19°13.3'	147°30.9'	S 12°03.5'							
22	13°22.6'	154°06.7'	S 15°20.6'	105°01.2'	S 27°12.3'	47°51.8'	S 14°57.9'	63°24.0'	S 19°13.3'	162°31.7'	S 12°04.1'							
23	28°25.0'	169°06.7'	S 15°21.3'	120°01.0'	S 27°12.4'	62°54.1'	S 14°57.8'	78°26.4'	S 19°13.3'	177°32.6'	S 12°04.7'							
		SD 16.1'	d -0.8'	v -0.2'	d -0.1'	v 2.3'	d 0.0'	v 2.4'	d 0.0'	v 0.9'	d -0.6'							
Mer. pass.		11 h 43 m 34 s		15 h 0 m		18 h 49 m		17 h 47 m		11 h 11 m								

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Hadar	-Spica	+Regulus	+Procyon	+Pollux	+Adhara	+Sirius
0	207°22.3'	S 2°16.4'	10.9'	-16.0'	59.8'		59°30.9'	11°03.4'	44°44.8'	80°15.0'	80°53.8'	89°06.0'	92°45.9'
1	221°52.2'	S 2°32.4'	10.8'	-16.0'	59.8'		59°09.9'	10°31.7'	45°20.8'	80°48.9'	81°30.0'	89°26.7'	93°12.3'
2	236°22.0'	S 2°48.4'	10.8'	-16.0'	59.8'		58°49.1'	10°00.6'	45°56.9'	81°23.0'	82°06.3'	89°47.4'	93°38.8'
3	250°51.8'	S 3°04.4'	10.7'	-16.0'	59.9'		58°28.5'	9°30.0'	46°33.0'	81°57.0'	82°42.6'	90°08.2'	94°05.3'
4	265°21.5'	S 3°20.5'	10.7'	-16.0'	59.9'		58°07.9'		47°09.2'	82°31.1'	83°19.0'	90°29.0'	94°31.9'
5	279°51.2'	S 3°36.5'	10.6'	-16.0'	59.9'		57°47.5'		47°45.4'	83°05.3'	83°55.4'	90°49.7'	94°58.4'
6	294°20.8'	S 3°52.5'	10.6'	-16.0'	60.0'		57°27.2'		48°21.6'	83°39.4'	84°31.8'	91°10.6'	95°25.0'
7	308°50.4'	S 4°08.5'	10.5'	-16.0'	60.0'		57°07.1'		48°57.9'	84°13.7'	85°08.3'	91°31.4'	95°51.6'
8	323°19.9'	S 4°24.5'	10.5'	-16.0'	60.0'		56°47.2'		49°34.2'	84°47.9'	85°44.8'	91°52.2'	96°18.1'
9	337°49.4'	S 4°40.6'	10.4'	-16.0'	60.1'		56°27.4'		50°10.6'	85°22.2'	86°21.4'	92°13.1'	96°44.7'
10	352°18.8'	S 4°56.6'	10.3'	-16.0'	60.1'		56°07.8'		50°47.0'	85°56.6'	86°58.0'	92°34.0'	97°11.3'
11	6°48.1'	S 5°12.5'	10.3'	-16.0'	60.1'		55°48.3'		51°23.5'	86°31.0'	87°34.6'	92°54.9'	97°37.9'
12	21°17.4'	S 5°28.5'	10.2'	-16.0'	60.1'	117°21.0'	55°29.0'		51°60.0'	87°05.4'	88°11.3'	93°15.7'	98°04.5'
13	35°46.6'	S 5°44.5'	10.1'	-15.9'	60.2'	117°06.0'	55°09.9'		52°36.5'	87°39.9'	88°48.0'	93°36.6'	98°31.1'
14	50°15.7'	S 6°00.4'	10.1'	-15.9'	60.2'	116°50.8'	54°50.9'		53°13.1'	88°14.4'	89°24.7'	93°57.5'	98°57.7'
15	64°44.8'	S 6°16.4'	10.0'	-15.9'	60.2'	116°35.4'	54°32.2'		53°49.7'	88°48.9'	90°01.5'	94°18.4'	99°24.3'
16	79°13.8'	S 6°32.3'	9.9'	-15.9'	60.3'	116°19.9'	54°13.6'		54°26.4'	89°23.5'	90°38.3'	94°39.3'	99°50.9'
17	93°42.8'	S 6°48.2'	9.9'	-15.9'	60.3'	116°04.1'	53°55.3'		55°03.1'	89°58.1'	91°15.2'	95°00.2'	100°17.5'
18	108°11.6'	S 7°04.0'	9.8'	-15.8'	60.3'		53°37.1'		55°39.8'	90°32.7'	91°52.1'	95°21.1'	100°44.1'
19	122°40.5'	S 7°19.9'	9.7'	-15.8'	60.3'		53°19.2'		56°16.6'	91°07.4'	92°29.0'	95°42.0'	101°10.6'
20	137°09.2'	S 7°35.7'	9.7'	-15.8'	60.4'		53°01.4'		56°53.4'	91°42.1'	93°05.9'	96°02.9'	101°37.2'
21	151°37.9'	S 7°51.4'	9.6'	-15.8'	60.4'		52°43.9'		57°30.2'	92°16.8'	93°42.9'	96°23.8'	102°03.7'
22	166°06.5'	S 8°07.2'	9.5'	-15.7'	60.4'		52°26.6'		58°07.1'	92°51.6'	94°19.9'	96°44.6'	102°30.2'
23	180°35.0'	S 8°22.9'	9.4'	-15.7'	60.4'		52°09.5'		58°44.0'	93°26.4'	94°57.0'	97°05.5'	102°56.7'
Mer. pass.		10 h 32 m SD 16.3'	phase 5%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.4'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.8'	S 28°59.9'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	43°27.5'	184°06.7'	S 15°22.1'	135°00.7'	S 27°12.5'	77°56.4'	S 14°57.8'	93°28.7'	S 19°13.3'	192°33.4'	S 12°05.3'	
1	58°30.0'	199°06.7'	S 15°22.9'	150°00.5'	S 27°12.5'	92°58.8'	S 14°57.7'	108°31.1'	S 19°13.2'	207°34.3'	S 12°05.9'	
2	73°32.4'	214°06.7'	S 15°23.6'	165°00.3'	S 27°12.6'	108°01.1'	S 14°57.7'	123°33.4'	S 19°13.2'	222°35.1'	S 12°06.5'	
3	88°34.9'	229°06.7'	S 15°24.4'	180°00.0'	S 27°12.6'	123°03.4'	S 14°57.6'	138°35.8'	S 19°13.2'	237°36.0'	S 12°07.1'	
4	103°37.3'	244°06.7'	S 15°25.2'	194°59.8'	S 27°12.7'	138°05.7'	S 14°57.6'	153°38.2'	S 19°13.2'	252°36.8'	S 12°07.7'	
5	118°39.8'	259°06.7'	S 15°26.0'	209°59.6'	S 27°12.8'	153°08.1'	S 14°57.5'	168°40.5'	S 19°13.1'	267°37.7'	S 12°08.3'	
6	133°42.3'	274°06.7'	S 15°26.7'	224°59.3'	S 27°12.8'	168°10.4'	S 14°57.5'	183°42.9'	S 19°13.1'	282°38.5'	S 12°08.9'	
7	148°44.7'	289°06.6'	S 15°27.5'	239°59.1'	S 27°12.9'	183°12.7'	S 14°57.4'	198°45.3'	S 19°13.1'	297°39.4'	S 12°09.5'	
8	163°47.2'	304°06.6'	S 15°28.3'	254°58.9'	S 27°12.9'	198°15.1'	S 14°57.4'	213°47.6'	S 19°13.1'	312°40.2'	S 12°10.1'	
9	178°49.7'	319°06.6'	S 15°29.0'	269°58.6'	S 27°13.0'	213°17.4'	S 14°57.3'	228°50.0'	S 19°13.0'	327°41.1'	S 12°10.7'	
10	193°52.1'	334°06.6'	S 15°29.8'	284°58.4'	S 27°13.0'	228°19.7'	S 14°57.3'	243°52.3'	S 19°13.0'	342°41.9'	S 12°11.3'	
11	208°54.6'	349°06.6'	S 15°30.6'	299°58.2'	S 27°13.1'	243°22.0'	S 14°57.2'	258°54.7'	S 19°13.0'	357°42.8'	S 12°11.9'	
12	223°57.1'	4°06.6'	S 15°31.3'	314°58.0'	S 27°13.2'	258°24.4'	S 14°57.1'	273°57.1'	S 19°13.0'	12°43.6'	S 12°12.5'	
13	238°59.5'	19°06.6'	S 15°32.1'	329°57.7'	S 27°13.2'	273°26.7'	S 14°57.1'	288°59.4'	S 19°12.9'	27°44.5'	S 12°13.0'	
14	254°02.0'	34°06.6'	S 15°32.9'	344°57.5'	S 27°13.3'	288°29.0'	S 14°57.0'	304°01.8'	S 19°12.9'	42°45.3'	S 12°13.6'	
15	269°04.5'	49°06.5'	S 15°33.6'	359°57.3'	S 27°13.3'	303°31.3'	S 14°57.0'	319°04.1'	S 19°12.9'	57°46.2'	S 12°14.2'	
16	284°06.9'	64°06.5'	S 15°34.4'	14°57.1'	S 27°13.4'	318°33.7'	S 14°56.9'	334°06.5'	S 19°12.9'	72°47.0'	S 12°14.8'	
17	299°09.4'	79°06.5'	S 15°35.1'	29°56.8'	S 27°13.4'	333°36.0'	S 14°56.9'	349°08.9'	S 19°12.8'	87°47.9'	S 12°15.4'	
18	314°11.8'	94°06.5'	S 15°35.9'	44°56.6'	S 27°13.5'	348°38.3'	S 14°56.8'	4°11.2'	S 19°12.8'	102°48.7'	S 12°16.0'	
19	329°14.3'	109°06.5'	S 15°36.7'	59°56.4'	S 27°13.5'	3°40.6'	S 14°56.8'	19°13.6'	S 19°12.8'	117°49.6'	S 12°16.6'	
20	344°16.8'	124°06.5'	S 15°37.4'	74°56.2'	S 27°13.5'	18°43.0'	S 14°56.7'	34°15.9'	S 19°12.7'	132°50.4'	S 12°17.2'	
21	359°19.2'	139°06.5'	S 15°38.2'	89°56.0'	S 27°13.6'	33°45.3'	S 14°56.7'	49°18.3'	S 19°12.7'	147°51.3'	S 12°17.8'	
22	14°21.7'	154°06.4'	S 15°39.0'	104°55.8'	S 27°13.6'	48°47.6'	S 14°56.6'	64°20.7'	S 19°12.7'	162°52.1'	S 12°18.4'	
23	29°24.2'	169°06.4'	S 15°39.7'	119°55.5'	S 27°13.7'	63°49.9'	S 14°56.6'	79°23.0'	S 19°12.7'	177°53.0'	S 12°19.0'	
		SD 16.1' d -0.8'		v -0.2' d -0.1'		v 2.3' d 0.1'		v 2.4' d 0.0'		v 0.9' d -0.6'		
Mer. pass.		11 h 43 m 35 s		15 h 0 m		18 h 45 m		17 h 43 m		11 h 9 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	+Regulus	+Procyon	+Pollux	+Adhara	+Polaris	+Sirius	+Betelgeuse
0	195°03.4'	S 8°38.6'	9.4'	-15.6'	60.5'	51°52.6'	59°20.9'	94°01.2'	95°34.1'	97°26.3'	99°15.6'	103°23.2'	119°57.5'
1	209°31.8'	S 8°54.2'	9.3'	-15.6'	60.5'	51°36.0'	59°57.9'	94°36.0'	96°11.2'	97°47.1'	99°31.4'	103°49.6'	
2	224°00.1'	S 9°09.8'	9.2'	-15.6'	60.5'	51°19.7'	60°34.9'	95°10.9'	96°48.3'	98°07.9'	99°47.1'	104°16.0'	
3	238°28.3'	S 9°25.4'	9.1'	-15.5'	60.5'	51°03.5'	61°11.9'	95°45.7'	97°25.5'	98°28.6'	100°02.8'	104°42.4'	
4	252°56.5'	S 9°40.9'	9.1'	-15.5'	60.6'	50°47.7'	61°49.0'	96°20.6'	98°02.7'	98°49.4'	100°18.4'	105°08.8'	
5	267°24.5'	S 9°56.4'	9.0'	-15.4'	60.6'								
6	281°52.5'	S 10°11.8'	8.9'	-15.4'	60.6'								
7	296°20.4'	S 10°27.2'	8.8'	-15.3'	60.6'								
8	310°48.2'	S 10°42.5'	8.7'	-15.3'	60.6'								
9	325°16.0'	S 10°57.8'	8.7'	-15.2'	60.7'								
10	339°43.6'	S 11°13.0'	8.6'	-15.2'	60.7'								
11	354°11.2'	S 11°28.2'	8.5'	-15.1'	60.7'								
12	8°38.7'	S 11°43.3'	8.4'	-15.0'	60.7'								
13	23°06.1'	S 11°58.4'	8.3'	-15.0'	60.7'								
14	37°33.4'	S 12°13.3'	8.2'	-14.9'	60.8'								
15	52°00.6'	S 12°28.2'	8.1'	-14.8'	60.8'								
16	66°27.8'	S 12°43.1'	8.1'	-14.8'	60.8'								
17	80°54.8'	S 12°57.9'	8.0'	-14.7'	60.8'								
18	95°21.8'	S 13°12.6'	7.9'	-14.6'	60.8'								
19	109°48.7'	S 13°27.2'	7.8'	-14.6'	60.8'								
20	124°15.5'	S 13°41.7'	7.7'	-14.5'	60.8'								
21	138°42.2'	S 13°56.2'	7.6'	-14.4'	60.9'								
22	153°08.8'	S 14°10.6'	7.5'	-14.3'	60.9'								
23	167°35.3'	S 14°24.9'	7.4'	-14.2'	60.9'								
Mer. pass.		11 h 24 m SD 16.5'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.6'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.2'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.2'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.6'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.4'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	44°26.6'	184°06.4'	S 15°40.5'	134°55.3'	S 27°13.7'	78°52.3'	S 14°56.5'	94°25.4'	S 19°12.6'	192°53.8'	S 12°19.6'	
1	59°29.1'	199°06.4'	S 15°41.2'	149°55.1'	S 27°13.8'	93°54.6'	S 14°56.5'	109°27.7'	S 19°12.6'	207°54.7'	S 12°20.2'	
2	74°31.6'	214°06.4'	S 15°42.0'	164°54.9'	S 27°13.8'	108°56.9'	S 14°56.4'	124°30.1'	S 19°12.6'	222°55.5'	S 12°20.7'	
3	89°34.0'	229°06.4'	S 15°42.8'	179°54.7'	S 27°13.8'	123°59.2'	S 14°56.4'	139°32.5'	S 19°12.6'	237°56.4'	S 12°21.3'	
4	104°36.5'	244°06.3'	S 15°43.5'	194°54.5'	S 27°13.9'	139°01.6'	S 14°56.3'	154°34.8'	S 19°12.5'	252°57.2'	S 12°21.9'	
5	119°39.0'	259°06.3'	S 15°44.3'	209°54.3'	S 27°13.9'	154°03.9'	S 14°56.2'	169°37.2'	S 19°12.5'	267°58.1'	S 12°22.5'	
6	134°41.4'	274°06.3'	S 15°45.0'	224°54.1'	S 27°13.9'	169°06.2'	S 14°56.2'	184°39.5'	S 19°12.5'	282°58.9'	S 12°23.1'	
7	149°43.9'	289°06.3'	S 15°45.8'	239°53.8'	S 27°14.0'	184°08.5'	S 14°56.1'	199°41.9'	S 19°12.5'	297°59.7'	S 12°23.7'	
8	164°46.3'	304°06.3'	S 15°46.5'	254°53.6'	S 27°14.0'	199°10.8'	S 14°56.1'	214°44.2'	S 19°12.4'	313°00.6'	S 12°24.3'	
9	179°48.8'	319°06.2'	S 15°47.3'	269°53.4'	S 27°14.0'	214°13.2'	S 14°56.0'	229°46.6'	S 19°12.4'	328°01.4'	S 12°24.9'	
10	194°51.3'	334°06.2'	S 15°48.1'	284°53.2'	S 27°14.1'	229°15.5'	S 14°56.0'	244°49.0'	S 19°12.4'	343°02.3'	S 12°25.5'	
11	209°53.7'	349°06.2'	S 15°48.8'	299°53.0'	S 27°14.1'	244°17.8'	S 14°55.9'	259°51.3'	S 19°12.3'	358°03.1'	S 12°26.1'	
12	224°56.2'	4°06.2'	S 15°49.6'	314°52.8'	S 27°14.1'	259°20.1'	S 14°55.9'	274°53.7'	S 19°12.3'	13°04.0'	S 12°26.7'	
13	239°58.7'	19°06.2'	S 15°50.3'	329°52.6'	S 27°14.2'	274°22.4'	S 14°55.8'	289°56.0'	S 19°12.3'	28°04.8'	S 12°27.2'	
14	255°01.1'	34°06.1'	S 15°51.1'	344°52.4'	S 27°14.2'	289°24.8'	S 14°55.7'	304°58.4'	S 19°12.3'	43°05.7'	S 12°27.8'	
15	270°03.6'	49°06.1'	S 15°51.8'	359°52.2'	S 27°14.2'	304°27.1'	S 14°55.7'	320°00.7'	S 19°12.2'	58°06.5'	S 12°28.4'	
16	285°06.1'	64°06.1'	S 15°52.6'	14°52.0'	S 27°14.2'	319°29.4'	S 14°55.6'	335°03.1'	S 19°12.2'	73°07.4'	S 12°29.0'	
17	300°08.5'	79°06.1'	S 15°53.3'	29°51.8'	S 27°14.3'	334°31.7'	S 14°55.6'	350°05.5'	S 19°12.2'	88°08.2'	S 12°29.6'	
18	315°11.0'	94°06.0'	S 15°54.1'	44°51.6'	S 27°14.3'	349°34.0'	S 14°55.5'	5°07.8'	S 19°12.2'	103°09.1'	S 12°30.2'	
19	330°13.4'	109°06.0'	S 15°54.8'	59°51.4'	S 27°14.3'	4°36.3'	S 14°55.5'	20°10.2'	S 19°12.1'	118°09.9'	S 12°30.8'	
20	345°15.9'	124°06.0'	S 15°55.6'	74°51.2'	S 27°14.3'	19°38.7'	S 14°55.4'	35°12.5'	S 19°12.1'	133°10.7'	S 12°31.4'	
21	0°18.4'	139°06.0'	S 15°56.3'	89°51.0'	S 27°14.3'	34°41.0'	S 14°55.4'	50°14.9'	S 19°12.1'	148°11.6'	S 12°32.0'	
22	15°20.8'	154°06.0'	S 15°57.1'	104°50.8'	S 27°14.4'	49°43.3'	S 14°55.3'	65°17.2'	S 19°12.0'	163°12.4'	S 12°32.5'	
23	30°23.3'	169°05.9'	S 15°57.8'	119°50.6'	S 27°14.4'	64°45.6'	S 14°55.2'	80°19.6'	S 19°12.0'	178°13.3'	S 12°33.1'	
		SD 16.1'	d -0.8'		v -0.2' d -0.0'		v 2.3' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.6'	
Mer. pass.		11 h 43 m 36 s		15 h 1 m		18 h 42 m		17 h 40 m		11 h 8 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Achernar	-Deneb	-Jupiter	-Saturn	-Altair	-Venus	-Antares
0	182°01.7'	S 14°39.2'	7.3'	-14.1'	60.9'								
1	196°28.1'	S 14°53.3'	7.2'	-14.1'	60.9'								
2	210°54.3'	S 15°07.3'	7.1'	-14.0'	60.9'								
3	225°20.4'	S 15°21.3'	7.1'	-13.9'	60.9'								
4	239°46.5'	S 15°35.2'	7.0'	-13.8'	60.9'								
5	254°12.5'	S 15°48.9'	6.9'	-13.7'	61.0'								
6	268°38.3'	S 16°02.6'	6.8'	-13.6'	61.0'								
7	283°04.1'	S 16°16.2'	6.7'	-13.5'	61.0'								
8	297°29.8'	S 16°29.7'	6.6'	-13.4'	61.0'								
9	311°55.4'	S 16°43.0'	6.5'	-13.3'	61.0'								
10	326°20.9'	S 16°56.3'	6.4'	-13.2'	61.0'								
11	340°46.3'	S 17°09.4'	6.3'	-13.0'	61.0'								
12	355°11.6'	S 17°22.5'	6.2'	-12.9'	61.0'								
13	9°36.8'	S 17°35.4'	6.1'	-12.8'	61.0'								
14	24°01.9'	S 17°48.2'	6.0'	-12.7'	61.0'								
15	38°26.9'	S 18°00.9'	5.9'	-12.6'	61.0'	99°55.6'	101°33.1'	95°15.9'	89°06.3'	73°38.1'	70°47.7'	36°37.6'	17°05.1'
16	52°51.8'	S 18°13.5'	5.8'	-12.5'	61.0'	99°19.2'	101°11.9'	95°00.3'	88°28.7'	73°00.5'	70°17.2'	36°02.1'	16°28.3'
17	67°16.7'	S 18°26.0'	5.7'	-12.3'	61.0'	98°42.9'	100°50.6'	94°44.7'	87°51.2'	72°22.9'	69°46.7'	35°26.7'	15°51.6'
18	81°41.4'	S 18°38.3'	5.7'	-12.2'	61.0'	98°06.5'	100°29.3'	94°29.0'	87°13.6'	71°45.2'	69°16.3'	34°51.2'	15°14.9'
19	96°06.1'	S 18°50.5'	5.6'	-12.1'	61.0'	97°30.2'	100°07.9'	94°13.3'	86°36.0'	71°07.6'	68°46.0'	34°15.8'	14°38.3'
20	110°30.6'	S 19°02.6'	5.5'	-12.0'	61.0'	96°53.8'	99°46.4'	93°57.6'	85°58.4'	70°30.0'	68°15.7'	33°40.3'	14°01.9'
21	124°55.1'	S 19°14.5'	5.4'	-11.8'	61.0'	96°17.4'	99°25.0'	93°41.9'	85°20.8'	69°52.4'	67°45.4'	33°04.9'	13°25.5'
22	139°19.5'	S 19°26.4'	5.3'	-11.7'	61.0'	95°41.0'	99°03.4'	93°26.2'	84°43.2'	69°14.7'	67°15.2'	32°29.4'	12°49.3'
23	153°43.8'	S 19°38.1'	5.2'	-11.6'	61.0'	95°04.7'	98°41.8'	93°10.4'	84°05.7'	68°37.1'	66°45.1'	31°54.0'	12°13.3'
Mer. pass.		12 h 20 m SD 16.6'	phase 0%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.4'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°46.1'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	45°25.8'	184°05.9'	S 15°58.6'	134°50.4'	S 27°14.4'	79°47.9'	S 14°55.2'	95°21.9'	S 19°12.0'	193°14.1'	S 12°33.7'	
1	60°28.2'	199°05.9'	S 15°59.3'	149°50.2'	S 27°14.4'	94°50.2'	S 14°55.1'	110°24.3'	S 19°12.0'	208°15.0'	S 12°34.3'	
2	75°30.7'	214°05.9'	S 16°00.1'	164°50.1'	S 27°14.4'	109°52.5'	S 14°55.1'	125°26.6'	S 19°11.9'	223°15.8'	S 12°34.9'	
3	90°33.2'	229°05.8'	S 16°00.8'	179°49.9'	S 27°14.4'	124°54.9'	S 14°55.0'	140°29.0'	S 19°11.9'	238°16.6'	S 12°35.5'	
4	105°35.6'	244°05.8'	S 16°01.6'	194°49.7'	S 27°14.4'	139°57.2'	S 14°55.0'	155°31.4'	S 19°11.9'	253°17.5'	S 12°36.1'	
5	120°38.1'	259°05.8'	S 16°02.3'	209°49.5'	S 27°14.5'	154°59.5'	S 14°54.9'	170°33.7'	S 19°11.8'	268°18.3'	S 12°36.7'	
6	135°40.6'	274°05.7'	S 16°03.1'	224°49.3'	S 27°14.5'	170°01.8'	S 14°54.9'	185°36.1'	S 19°11.8'	283°19.2'	S 12°37.3'	
7	150°43.0'	289°05.7'	S 16°03.8'	239°49.1'	S 27°14.5'	185°04.1'	S 14°54.8'	200°38.4'	S 19°11.8'	298°20.0'	S 12°37.8'	
8	165°45.5'	304°05.7'	S 16°04.6'	254°48.9'	S 27°14.5'	200°06.4'	S 14°54.7'	215°40.8'	S 19°11.8'	313°20.9'	S 12°38.4'	
9	180°47.9'	319°05.7'	S 16°05.3'	269°48.7'	S 27°14.5'	215°08.7'	S 14°54.7'	230°43.1'	S 19°11.7'	328°21.7'	S 12°39.0'	
10	195°50.4'	334°05.6'	S 16°06.1'	284°48.6'	S 27°14.5'	230°11.1'	S 14°54.6'	245°45.5'	S 19°11.7'	343°22.5'	S 12°39.6'	
11	210°52.9'	349°05.6'	S 16°06.8'	299°48.4'	S 27°14.5'	245°13.4'	S 14°54.6'	260°47.8'	S 19°11.7'	358°23.4'	S 12°40.2'	
12	225°55.3'	4°05.6'	S 16°07.5'	314°48.2'	S 27°14.5'	260°15.7'	S 14°54.5'	275°50.2'	S 19°11.7'	13°24.2'	S 12°40.8'	
13	240°57.8'	19°05.5'	S 16°08.3'	329°48.0'	S 27°14.5'	275°18.0'	S 14°54.5'	290°52.5'	S 19°11.6'	28°25.1'	S 12°41.4'	
14	256°00.3'	34°05.5'	S 16°09.0'	344°47.8'	S 27°14.5'	290°20.3'	S 14°54.4'	305°54.9'	S 19°11.6'	43°25.9'	S 12°42.0'	
15	271°02.7'	49°05.5'	S 16°09.8'	359°47.7'	S 27°14.5'	305°22.6'	S 14°54.3'	320°57.2'	S 19°11.6'	58°26.7'	S 12°42.5'	
16	286°05.2'	64°05.4'	S 16°10.5'	14°47.5'	S 27°14.5'	320°24.9'	S 14°54.3'	335°59.6'	S 19°11.5'	73°27.6'	S 12°43.1'	
17	301°07.7'	79°05.4'	S 16°11.3'	29°47.3'	S 27°14.5'	335°27.2'	S 14°54.2'	351°01.9'	S 19°11.5'	88°28.4'	S 12°43.7'	
18	316°10.1'	94°05.4'	S 16°12.0'	44°47.1'	S 27°14.5'	350°29.5'	S 14°54.2'	6°04.3'	S 19°11.5'	103°29.3'	S 12°44.3'	
19	331°12.6'	109°05.4'	S 16°12.7'	59°47.0'	S 27°14.5'	5°31.8'	S 14°54.1'	21°06.6'	S 19°11.5'	118°30.1'	S 12°44.9'	
20	346°15.1'	124°05.3'	S 16°13.5'	74°46.8'	S 27°14.5'	20°34.2'	S 14°54.0'	36°09.0'	S 19°11.4'	133°30.9'	S 12°45.5'	
21	1°17.5'	139°05.3'	S 16°14.2'	89°46.6'	S 27°14.5'	35°36.5'	S 14°54.0'	51°11.4'	S 19°11.4'	148°31.8'	S 12°46.1'	
22	16°20.0'	154°05.3'	S 16°15.0'	104°46.4'	S 27°14.5'	50°38.8'	S 14°53.9'	66°13.7'	S 19°11.4'	163°32.6'	S 12°46.6'	
23	31°22.4'	169°05.2'	S 16°15.7'	119°46.3'	S 27°14.5'	65°41.1'	S 14°53.9'	81°16.1'	S 19°11.3'	178°33.5'	S 12°47.2'	
		SD 16.1' <i>d</i> -0.7'		<i>v</i> -0.2' <i>d</i> -0.0'		<i>v</i> 2.3' <i>d</i> 0.1'		<i>v</i> 2.4' <i>d</i> 0.0'		<i>v</i> 0.8' <i>d</i> -0.6'		
Mer. pass.		11 h 43 m 39 s		15 h 1 m		18 h 38 m		17 h 36 m		11 h 6 m		

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Achernar	-Fomalhaut	-Deneb	-Jupiter	-Saturn	-Altair	-Venus	-Antares
0	168°08.0'	S 19°49.6'	5.1'	-11.4'	61.0'	98°20.2'	94°28.3'	92°54.6'	83°28.1'	67°59.5'	66°15.0'	31°18.5'	11°37.5'
1	182°32.1'	S 20°01.0'	5.0'	-11.3'	61.0'	97°58.6'	93°51.9'	92°38.8'	82°50.5'	67°21.9'	65°45.1'	30°43.1'	11°01.8'
2	196°56.1'	S 20°12.3'	4.9'	-11.1'	61.0'	97°36.9'	93°15.5'	92°23.0'	82°12.9'	66°44.3'	65°15.2'	30°07.7'	10°26.5'
3	211°20.0'	S 20°23.4'	4.8'	-11.0'	61.0'	97°15.1'	92°39.2'	92°07.2'	81°35.4'	66°06.7'	64°45.3'	29°32.2'	9°51.4'
4	225°43.8'	S 20°34.4'	4.8'	-10.9'	61.0'	96°53.3'	92°02.8'	91°51.4'	80°57.8'	65°29.1'	64°15.6'	28°56.8'	9°16.7'
5	240°07.6'	S 20°45.3'	4.7'	-10.7'	61.0'	96°31.6'	91°26.4'	91°35.5'	80°20.3'	64°51.5'	63°45.9'	28°21.3'	8°42.5'
6	254°31.3'	S 20°56.0'	4.6'	-10.6'	61.0'	96°09.7'	90°50.1'	91°19.7'	79°42.7'	64°13.9'	63°16.3'	27°45.9'	8°08.7'
7	268°54.8'	S 21°06.6'	4.5'	-10.4'	61.0'	95°47.9'	90°13.7'	91°03.8'	79°05.2'	63°36.3'	62°46.8'	27°10.5'	7°35.7'
8	283°18.3'	S 21°17.0'	4.4'	-10.3'	61.0'	95°26.0'	89°37.3'	90°47.9'	78°27.6'	62°58.8'	62°17.4'	26°35.1'	
9	297°41.7'	S 21°27.2'	4.3'	-10.1'	61.0'	95°04.1'	89°01.0'	90°32.1'	77°50.1'	62°21.2'	61°48.0'	25°59.7'	
10	312°05.1'	S 21°37.3'	4.3'	-9.9'	61.0'	94°42.2'	88°24.7'	90°16.2'	77°12.6'	61°43.6'	61°18.8'	25°24.3'	
11	326°28.3'	S 21°47.3'	4.2'	-9.8'	61.0'	94°20.2'	87°48.3'	90°00.4'	76°35.1'	61°06.1'	60°49.7'	24°48.9'	
12	340°51.5'	S 21°57.1'	4.1'	-9.6'	61.0'	93°58.3'	87°12.0'	89°44.5'	75°57.6'	60°28.6'	60°20.7'	24°13.6'	
13	355°14.6'	S 22°06.7'	4.0'	-9.5'	61.0'	93°36.3'	86°35.7'	89°28.7'	75°20.1'	59°51.1'	59°51.7'	23°38.2'	
14	9°37.6'	S 22°16.2'	3.9'	-9.3'	61.0'	93°14.4'	85°59.4'	89°12.8'	74°42.6'	59°13.6'	59°22.9'	23°02.9'	
15	24°00.6'	S 22°25.5'	3.9'	-9.1'	61.0'	92°52.4'	85°23.2'	88°57.0'	74°05.2'	58°36.1'	58°54.2'	22°27.5'	
16	38°23.4'	S 22°34.6'	3.8'	-9.0'	60.9'	92°30.4'	84°46.9'	88°41.2'	73°27.7'	57°58.6'	58°25.7'	21°52.2'	
17	52°46.2'	S 22°43.6'	3.7'	-8.8'	60.9'	92°08.4'	84°10.7'	88°25.4'	72°50.3'	57°21.2'	57°57.2'	21°16.9'	
18	67°09.0'	S 22°52.4'	3.7'	-8.6'	60.9'	91°46.4'	83°34.4'	88°09.6'	72°12.9'	56°43.7'	57°28.8'	20°41.6'	
19	81°31.6'	S 23°01.1'	3.6'	-8.5'	60.9'	91°24.4'	82°58.2'	87°53.8'	71°35.5'	56°06.3'	57°00.6'	20°06.4'	
20	95°54.2'	S 23°09.5'	3.5'	-8.3'	60.9'	91°02.4'	82°22.0'	87°38.1'	70°58.1'	55°28.9'	56°32.5'	19°31.1'	
21	110°16.7'	S 23°17.8'	3.5'	-8.1'	60.9'	90°40.4'	81°45.9'	87°22.3'	70°20.8'	54°51.5'	56°04.6'	18°55.9'	
22	124°39.2'	S 23°26.0'	3.4'	-8.0'	60.9'	90°18.5'	81°09.7'	87°06.6'	69°43.4'	54°14.1'	55°36.8'	18°20.7'	
23	139°01.6'	S 23°33.9'	3.3'	-7.8'	60.9'	89°56.5'	80°33.6'	86°50.9'	69°06.1'	53°36.8'	55°09.1'	17°45.5'	
Mer. pass.		13 h 20 m SD 16.6'		phase 2%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°45.9'	N 89°21.3'
Rigil Kent	-0.0	139°44.6'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.4'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	46°24.9'	184°05.2'	S 16°16.4'	134°46.1'	S 27°14.5'		80°43.4'	S 14°53.8'		96°18.4'	S 19°11.3'		193°34.3'	S 12°47.8'				
1	61°27.4'	199°05.2'	S 16°17.2'	149°45.9'	S 27°14.5'		95°45.7'	S 14°53.7'		111°20.8'	S 19°11.3'		208°35.1'	S 12°48.4'				
2	76°29.8'	214°05.1'	S 16°17.9'	164°45.8'	S 27°14.5'		110°48.0'	S 14°53.7'		126°23.1'	S 19°11.3'		223°36.0'	S 12°49.0'				
3	91°32.3'	229°05.1'	S 16°18.6'	179°45.6'	S 27°14.5'		125°50.3'	S 14°53.6'		141°25.5'	S 19°11.2'		238°36.8'	S 12°49.6'				
4	106°34.8'	244°05.0'	S 16°19.4'	194°45.4'	S 27°14.4'		140°52.6'	S 14°53.6'		156°27.8'	S 19°11.2'		253°37.7'	S 12°50.1'				
5	121°37.2'	259°05.0'	S 16°20.1'	209°45.3'	S 27°14.4'		155°54.9'	S 14°53.5'		171°30.2'	S 19°11.2'		268°38.5'	S 12°50.7'				
6	136°39.7'	274°05.0'	S 16°20.9'	224°45.1'	S 27°14.4'		170°57.2'	S 14°53.5'		186°32.5'	S 19°11.1'		283°39.3'	S 12°51.3'				
7	151°42.2'	289°04.9'	S 16°21.6'	239°44.9'	S 27°14.4'		185°59.5'	S 14°53.4'		201°34.9'	S 19°11.1'		298°40.2'	S 12°51.9'				
8	166°44.6'	304°04.9'	S 16°22.3'	254°44.8'	S 27°14.4'		201°01.8'	S 14°53.3'		216°37.2'	S 19°11.1'		313°41.0'	S 12°52.5'				
9	181°47.1'	319°04.9'	S 16°23.1'	269°44.6'	S 27°14.4'		216°04.1'	S 14°53.3'		231°39.6'	S 19°11.1'		328°41.9'	S 12°53.1'				
10	196°49.6'	334°04.8'	S 16°23.8'	284°44.5'	S 27°14.4'		231°06.4'	S 14°53.2'		246°41.9'	S 19°11.0'		343°42.7'	S 12°53.7'				
11	211°52.0'	349°04.8'	S 16°24.5'	299°44.3'	S 27°14.3'		246°08.7'	S 14°53.2'		261°44.3'	S 19°11.0'		358°43.5'	S 12°54.2'				
12	226°54.5'	4°04.7'	S 16°25.3'	314°44.1'	S 27°14.3'		261°11.1'	S 14°53.1'		276°46.6'	S 19°11.0'		13°44.4'	S 12°54.8'				
13	241°56.9'	19°04.7'	S 16°26.0'	329°44.0'	S 27°14.3'		276°13.4'	S 14°53.0'		291°48.9'	S 19°10.9'		28°45.2'	S 12°55.4'				
14	256°59.4'	34°04.7'	S 16°26.7'	344°43.8'	S 27°14.3'		291°15.7'	S 14°53.0'		306°51.3'	S 19°10.9'		43°46.0'	S 12°56.0'				
15	272°01.9'	49°04.6'	S 16°27.5'	359°43.7'	S 27°14.2'		306°18.0'	S 14°52.9'		321°53.6'	S 19°10.9'		58°46.9'	S 12°56.6'				
16	287°04.3'	64°04.6'	S 16°28.2'	14°43.5'	S 27°14.2'		321°20.3'	S 14°52.9'		336°56.0'	S 19°10.8'		73°47.7'	S 12°57.1'				
17	302°06.8'	79°04.6'	S 16°28.9'	29°43.4'	S 27°14.2'		336°22.6'	S 14°52.8'		351°58.3'	S 19°10.8'		88°48.5'	S 12°57.7'				
18	317°09.3'	94°04.5'	S 16°29.6'	44°43.2'	S 27°14.2'		351°24.9'	S 14°52.7'		7°00.7'	S 19°10.8'		103°49.4'	S 12°58.3'				
19	332°11.7'	109°04.5'	S 16°30.4'	59°43.1'	S 27°14.1'		6°27.2'	S 14°52.7'		22°03.0'	S 19°10.8'		118°50.2'	S 12°58.9'				
20	347°14.2'	124°04.4'	S 16°31.1'	74°42.9'	S 27°14.1'		21°29.5'	S 14°52.6'		37°05.4'	S 19°10.7'		133°51.1'	S 12°59.5'				
21	2°16.7'	139°04.4'	S 16°31.8'	89°42.8'	S 27°14.1'		36°31.8'	S 14°52.5'		52°07.7'	S 19°10.7'		148°51.9'	S 13°00.1'				
22	17°19.1'	154°04.3'	S 16°32.6'	104°42.6'	S 27°14.1'		51°34.1'	S 14°52.5'		67°10.1'	S 19°10.7'		163°52.7'	S 13°00.6'				
23	32°21.6'	169°04.3'	S 16°33.3'	119°42.5'	S 27°14.0'		66°36.4'	S 14°52.4'		82°12.4'	S 19°10.6'		178°53.6'	S 13°01.2'				
		SD 16.1'	d -0.7'	v -0.2'	d 0.0'		v 2.3'	d 0.1'		v 2.3'	d 0.0'		v 0.8'	d -0.6'				
Mer. pass.		11 h 43 m 42 s		15 h 1 m			18 h 34 m			17 h 32 m			11 h 5 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Deneb	-Jupiter	-Altair	-Saturn	-Venus	+Antares	+Sun
0	153°23.9'	S 23°41.7'	3.3'	-7.6'	60.9'	89°34.5'	86°35.3'	68°28.8'	54°41.6'	52°59.5'	17°10.3'		
1	167°46.2'	S 23°49.3'	3.2'	-7.4'	60.8'	89°12.6'	86°19.6'	67°51.5'	54°14.2'	52°22.2'	16°35.2'		
2	182°08.4'	S 23°56.7'	3.2'	-7.3'	60.8'	88°50.6'	86°04.0'	67°14.2'	53°47.0'	51°44.9'	16°00.0'		
3	196°30.6'	S 24°04.0'	3.1'	-7.1'	60.8'	88°28.7'	85°48.5'	66°37.0'	53°19.9'	51°07.6'	15°24.9'		
4	210°52.7'	S 24°11.1'	3.1'	-6.9'	60.8'	88°06.8'	85°32.9'	65°59.8'	52°53.0'	50°30.4'	14°49.9'	7°36.3'	
5	225°14.7'	S 24°18.0'	3.0'	-6.7'	60.8'	87°45.0'	85°17.4'	65°22.6'	52°26.3'	49°53.2'	14°14.8'	8°09.1'	
6	239°36.8'	S 24°24.7'	3.0'	-6.5'	60.8'	87°23.1'	85°02.0'	64°45.4'	51°59.7'	49°16.0'	13°39.8'	8°42.6'	
7	253°58.7'	S 24°31.2'	2.9'	-6.3'	60.8'	87°01.3'	84°46.6'	64°08.3'	51°33.3'	48°38.8'	13°04.8'	9°16.5'	
8	268°20.6'	S 24°37.5'	2.9'	-6.2'	60.7'	86°39.5'	84°31.2'	63°31.1'	51°07.1'	48°01.7'	12°29.9'	9°50.8'	
9	282°42.5'	S 24°43.7'	2.8'	-6.0'	60.7'	86°17.7'	84°15.8'	62°54.0'	50°41.1'	47°24.6'	11°55.0'	10°25.5'	
10	297°04.4'	S 24°49.7'	2.8'	-5.8'	60.7'	85°56.0'	84°00.5'	62°16.9'	50°15.2'	46°47.5'	11°20.1'	11°00.4'	
11	311°26.2'	S 24°55.4'	2.8'	-5.6'	60.7'	85°34.3'	83°45.3'	61°39.9'	49°49.6'	46°10.4'	10°45.2'	11°35.5'	
12	325°47.9'	S 25°01.0'	2.7'	-5.4'	60.7'	85°12.6'	83°30.1'	61°02.9'	49°24.1'	45°33.4'	10°10.4'	12°10.9'	
13	340°09.7'	S 25°06.4'	2.7'	-5.2'	60.6'	84°51.0'	83°14.9'	60°25.9'	48°58.9'	44°56.4'	9°35.7'	12°46.4'	
14	354°31.4'	S 25°11.7'	2.7'	-5.0'	60.6'	84°29.4'	82°59.8'	59°48.9'	48°33.8'	44°19.4'	9°01.0'	13°22.0'	
15	8°53.0'	S 25°16.7'	2.6'	-4.8'	60.6'	84°07.8'		59°12.0'	48°09.0'	43°42.5'	8°26.4'	13°57.7'	
16	23°14.7'	S 25°21.5'	2.6'	-4.6'	60.6'	83°46.3'		58°35.1'	47°44.4'	43°05.6'	7°51.8'	14°33.6'	
17	37°36.3'	S 25°26.2'	2.6'	-4.5'	60.6'	83°24.8'		57°58.2'	47°20.1'	42°28.7'	7°17.3'	15°09.5'	
18	51°57.9'	S 25°30.6'	2.6'	-4.3'	60.5'	83°03.4'		57°21.3'	46°55.9'	41°51.9'	6°42.9'	15°45.5'	40°09.5'
19	66°19.5'	S 25°34.9'	2.6'	-4.1'	60.5'	82°42.0'		56°44.5'	46°32.0'	41°15.1'	6°08.6'	16°21.6'	40°44.1'
20	80°41.1'	S 25°39.0'	2.6'	-3.9'	60.5'	82°20.7'		56°07.7'	46°08.3'	40°38.3'	5°34.5'	16°57.7'	41°18.7'
21	95°02.6'	S 25°42.8'	2.5'	-3.7'	60.5'	81°59.5'		55°30.9'	45°44.9'	40°01.6'	5°00.5'	17°33.8'	41°53.2'
22	109°24.2'	S 25°46.5'	2.5'	-3.5'	60.5'	81°38.3'		54°54.2'	45°21.8'	39°24.9'	4°26.7'	18°10.0'	42°27.7'
23	123°45.7'	S 25°50.0'	2.5'	-3.3'	60.4'	81°17.1'		54°17.5'	44°58.9'	38°48.2'	3°53.3'	18°46.2'	43°02.2'
Mer. pass.		14 h 23 m SD 16.6'	phase 7%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°45.7'	N 89°21.3'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	47°24.1'	184°04.3'	S 16°34.0'	134°42.3'	S 27°14.0'		81°38.7'	S 14°52.4'		97°14.8'	S 19°10.6'		193°54.4'	S 13°01.8'				
1	62°26.5'	199°04.2'	S 16°34.7'	149°42.2'	S 27°14.0'		96°41.0'	S 14°52.3'		112°17.1'	S 19°10.6'		208°55.2'	S 13°02.4'				
2	77°29.0'	214°04.2'	S 16°35.5'	164°42.0'	S 27°13.9'		111°43.3'	S 14°52.2'		127°19.5'	S 19°10.5'		223°56.1'	S 13°03.0'				
3	92°31.4'	229°04.1'	S 16°36.2'	179°41.9'	S 27°13.9'		126°45.6'	S 14°52.2'		142°21.8'	S 19°10.5'		238°56.9'	S 13°03.5'				
4	107°33.9'	244°04.1'	S 16°36.9'	194°41.8'	S 27°13.9'		141°47.9'	S 14°52.1'		157°24.2'	S 19°10.5'		253°57.7'	S 13°04.1'				
5	122°36.4'	259°04.0'	S 16°37.6'	209°41.6'	S 27°13.8'		156°50.2'	S 14°52.1'		172°26.5'	S 19°10.5'		268°58.6'	S 13°04.7'				
6	137°38.8'	274°04.0'	S 16°38.4'	224°41.5'	S 27°13.8'		171°52.5'	S 14°52.0'		187°28.8'	S 19°10.4'		283°59.4'	S 13°05.3'				
7	152°41.3'	289°04.0'	S 16°39.1'	239°41.3'	S 27°13.8'		186°54.8'	S 14°51.9'		202°31.2'	S 19°10.4'		299°00.2'	S 13°05.9'				
8	167°43.8'	304°03.9'	S 16°39.8'	254°41.2'	S 27°13.7'		201°57.1'	S 14°51.9'		217°33.5'	S 19°10.4'		314°01.1'	S 13°06.5'				
9	182°46.2'	319°03.9'	S 16°40.5'	269°41.1'	S 27°13.7'		216°59.4'	S 14°51.8'		232°35.9'	S 19°10.3'		329°01.9'	S 13°07.0'				
10	197°48.7'	334°03.8'	S 16°41.2'	284°40.9'	S 27°13.6'		232°01.7'	S 14°51.7'		247°38.2'	S 19°10.3'		344°02.7'	S 13°07.6'				
11	212°51.2'	349°03.8'	S 16°42.0'	299°40.8'	S 27°13.6'		247°03.9'	S 14°51.7'		262°40.6'	S 19°10.3'		359°03.6'	S 13°08.2'				
12	227°53.6'	4°03.7'	S 16°42.7'	314°40.7'	S 27°13.5'		262°06.2'	S 14°51.6'		277°42.9'	S 19°10.2'		14°04.4'	S 13°08.8'				
13	242°56.1'	19°03.7'	S 16°43.4'	329°40.5'	S 27°13.5'		277°08.5'	S 14°51.6'		292°45.3'	S 19°10.2'		29°05.2'	S 13°09.4'				
14	257°58.6'	34°03.6'	S 16°44.1'	344°40.4'	S 27°13.5'		292°10.8'	S 14°51.5'		307°47.6'	S 19°10.2'		44°06.1'	S 13°09.9'				
15	273°01.0'	49°03.6'	S 16°44.8'	359°40.3'	S 27°13.4'		307°13.1'	S 14°51.4'		322°50.0'	S 19°10.2'		59°06.9'	S 13°10.5'				
16	288°03.5'	64°03.5'	S 16°45.6'	14°40.2'	S 27°13.4'		322°15.4'	S 14°51.4'		337°52.3'	S 19°10.1'		74°07.7'	S 13°11.1'				
17	303°05.9'	79°03.5'	S 16°46.3'	29°40.0'	S 27°13.3'		337°17.7'	S 14°51.3'		352°54.6'	S 19°10.1'		89°08.6'	S 13°11.7'				
18	318°08.4'	94°03.4'	S 16°47.0'	44°39.9'	S 27°13.3'		352°20.0'	S 14°51.2'		7°57.0'	S 19°10.1'		104°09.4'	S 13°12.2'				
19	333°10.9'	109°03.4'	S 16°47.7'	59°39.8'	S 27°13.2'		7°22.3'	S 14°51.2'		22°59.3'	S 19°10.0'		119°10.2'	S 13°12.8'				
20	348°13.3'	124°03.3'	S 16°48.4'	74°39.7'	S 27°13.2'		22°24.6'	S 14°51.1'		38°01.7'	S 19°10.0'		134°11.0'	S 13°13.4'				
21	3°15.8'	139°03.3'	S 16°49.2'	89°39.5'	S 27°13.1'		37°26.9'	S 14°51.0'		53°04.0'	S 19°10.0'		149°11.9'	S 13°14.0'				
22	18°18.3'	154°03.2'	S 16°49.9'	104°39.4'	S 27°13.1'		52°29.2'	S 14°51.0'		68°06.4'	S 19°09.9'		164°12.7'	S 13°14.6'				
23	33°20.7'	169°03.2'	S 16°50.6'	119°39.3'	S 27°13.0'		67°31.5'	S 14°50.9'		83°08.7'	S 19°09.9'		179°13.5'	S 13°15.1'				
		SD 16.1'	d -0.7'		v -0.1'	d 0.0'		v 2.3'	d 0.1'		v 2.3'	d 0.0'		v 0.8'	d -0.6'			
Mer. pass.		11 h 43 m 46 s		15 h 1 m			18 h 31 m			17 h 28 m			11 h 4 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Altair	-Saturn	-Venus	+Antares	+Sun
0	138°07.3'	S 25°53.3'	2.5'	-3.1'	60.4'	80°56.0'	65°40.2'	53°40.9'	44°36.2'	38°11.6'	3°20.3'	19°22.4'	43°36.7'
1	152°28.8'	S 25°56.4'	2.5'	-2.9'	60.4'	80°35.0'	65°05.0'	53°04.2'	44°13.9'	37°35.0'		19°58.6'	44°11.1'
2	166°50.3'	S 25°59.3'	2.5'	-2.7'	60.4'	80°14.0'	64°29.8'	52°27.6'	43°51.8'	36°58.4'		20°34.8'	44°45.5'
3	181°11.9'	S 26°02.0'	2.5'	-2.5'	60.3'	79°53.1'	63°54.6'	51°51.1'	43°30.0'	36°21.9'		21°11.1'	45°19.8'
4	195°33.4'	S 26°04.5'	2.5'	-2.3'	60.3'	79°32.2'	63°19.5'	51°14.6'	43°08.5'	35°45.4'		21°47.3'	45°54.1'
5	209°55.0'	S 26°06.9'	2.6'	-2.1'	60.3'	79°11.5'	62°44.5'	50°38.1'	42°47.3'	35°09.0'		22°23.6'	46°28.4'
6	224°16.5'	S 26°09.0'	2.6'	-1.9'	60.3'	78°50.8'	62°09.5'	50°01.6'	42°26.4'	34°32.6'		22°59.8'	47°02.7'
7	238°38.1'	S 26°10.9'	2.6'	-1.7'	60.2'	78°30.1'	61°34.6'	49°25.2'	42°05.8'	33°56.3'		23°36.0'	47°36.9'
8	252°59.7'	S 26°12.7'	2.6'	-1.5'	60.2'	78°09.6'	60°59.7'	48°48.8'	41°45.5'	33°19.9'		24°12.3'	48°11.1'
9	267°21.3'	S 26°14.2'	2.6'	-1.4'	60.2'	77°49.1'	60°24.8'	48°12.5'	41°25.6'	32°43.7'		24°48.5'	48°45.3'
10	281°42.9'	S 26°15.6'	2.7'	-1.2'	60.2'	77°28.7'	59°50.1'	47°36.2'	41°06.0'	32°07.5'		25°24.7'	49°19.4'
11	296°04.6'	S 26°16.7'	2.7'	-1.0'	60.1'	77°08.4'	59°15.3'	46°59.9'	40°46.7'	31°31.3'	3°21.3'	26°00.8'	49°53.5'
12	310°26.3'	S 26°17.7'	2.7'	-0.8'	60.1'	76°48.1'	58°40.7'	46°23.7'	40°27.8'	30°55.2'	3°53.9'	26°37.0'	50°27.5'
13	324°48.0'	S 26°18.5'	2.7'	-0.6'	60.1'	76°28.0'	58°06.1'	45°47.5'	40°09.2'	30°19.1'	4°26.9'	27°13.2'	51°01.5'
14	339°09.7'	S 26°19.1'	2.8'	-0.4'	60.1'	76°07.9'	57°31.5'	45°11.4'	39°51.0'	29°43.0'	5°00.2'	27°49.3'	51°35.5'
15	353°31.5'	S 26°19.5'	2.8'	-0.2'	60.0'	75°47.9'	56°57.0'	44°35.3'	39°33.2'	29°07.1'	5°33.6'	28°25.4'	52°09.5'
16	7°53.3'	S 26°19.7'	2.9'	-0.0'	60.0'	75°28.0'	56°22.6'	43°59.2'	39°15.7'	28°31.1'	6°07.1'	29°01.5'	52°43.4'
17	22°15.2'	S 26°19.7'	2.9'	0.2'	60.0'	75°08.2'	55°48.2'	43°23.2'	38°58.6'	27°55.2'	6°40.7'	29°37.6'	53°17.3'
18	36°37.1'	S 26°19.5'	2.9'	0.4'	59.9'	74°48.5'	55°13.9'	42°47.2'	38°41.9'	27°19.4'	7°14.4'	30°13.6'	53°51.1'
19	50°59.0'	S 26°19.1'	3.0'	0.6'	59.9'	74°28.8'	54°39.7'	42°11.3'	38°25.6'	26°43.6'	7°48.0'	30°49.6'	54°24.9'
20	65°21.0'	S 26°18.6'	3.0'	0.7'	59.9'	74°09.3'	54°05.5'	41°35.4'	38°09.8'	26°07.9'	8°21.7'	31°25.6'	54°58.7'
21	79°43.0'	S 26°17.8'	3.1'	0.9'	59.9'	73°49.9'	53°31.4'	40°59.5'	37°54.3'	25°32.3'	8°55.4'	32°01.5'	55°32.4'
22	94°05.1'	S 26°16.9'	3.1'	1.1'	59.8'	73°30.5'	52°57.4'	40°23.7'		24°56.7'	9°29.0'	32°37.5'	56°06.1'
23	108°27.3'	S 26°15.7'	3.2'	1.3'	59.8'	73°11.3'	52°23.4'	39°47.9'		24°21.1'	10°02.7'	33°13.4'	56°39.7'
Mer. pass.		15 h 27 m SD 16.5'	phase 14%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.4'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.5'	N 5°10.2'	Polaris	+2.0	314°45.5'	N 89°21.3'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	48°23.2'	184°03.1'	S 16°51.3'	134°39.2'	S 27°13.0'		82°33.8'	S 14°50.9'		98°11.0'	S 19°09.9'		194°14.4'	S 13°15.7'				
1	63°25.7'	199°03.1'	S 16°52.0'	149°39.1'	S 27°12.9'		97°36.1'	S 14°50.8'		113°13.4'	S 19°09.9'		209°15.2'	S 13°16.3'				
2	78°28.1'	214°03.0'	S 16°52.7'	164°39.0'	S 27°12.8'		112°38.4'	S 14°50.7'		128°15.7'	S 19°09.8'		224°16.0'	S 13°16.9'				
3	93°30.6'	229°03.0'	S 16°53.4'	179°38.8'	S 27°12.8'		127°40.6'	S 14°50.7'		143°18.1'	S 19°09.8'		239°16.9'	S 13°17.4'				
4	108°33.1'	244°02.9'	S 16°54.2'	194°38.7'	S 27°12.7'		142°42.9'	S 14°50.6'		158°20.4'	S 19°09.8'		254°17.7'	S 13°18.0'				
5	123°35.5'	259°02.9'	S 16°54.9'	209°38.6'	S 27°12.7'		157°45.2'	S 14°50.5'		173°22.8'	S 19°09.7'		269°18.5'	S 13°18.6'				
6	138°38.0'	274°02.8'	S 16°55.6'	224°38.5'	S 27°12.6'		172°47.5'	S 14°50.5'		188°25.1'	S 19°09.7'		284°19.3'	S 13°19.2'				
7	153°40.4'	289°02.8'	S 16°56.3'	239°38.4'	S 27°12.5'		187°49.8'	S 14°50.4'		203°27.4'	S 19°09.7'		299°20.2'	S 13°19.8'				
8	168°42.9'	304°02.7'	S 16°57.0'	254°38.3'	S 27°12.5'		202°52.1'	S 14°50.3'		218°29.8'	S 19°09.6'		314°21.0'	S 13°20.3'				
9	183°45.4'	319°02.7'	S 16°57.7'	269°38.2'	S 27°12.4'		217°54.4'	S 14°50.3'		233°32.1'	S 19°09.6'		329°21.8'	S 13°20.9'				
10	198°47.8'	334°02.6'	S 16°58.4'	284°38.1'	S 27°12.3'		232°56.7'	S 14°50.2'		248°34.5'	S 19°09.6'		344°22.7'	S 13°21.5'				
11	213°50.3'	349°02.5'	S 16°59.1'	299°38.0'	S 27°12.3'		247°59.0'	S 14°50.1'		263°36.8'	S 19°09.5'		359°23.5'	S 13°22.1'				
12	228°52.8'	4°02.5'	S 16°59.8'	314°37.9'	S 27°12.2'		263°01.3'	S 14°50.1'		278°39.1'	S 19°09.5'		14°24.3'	S 13°22.6'				
13	243°55.2'	19°02.4'	S 17°00.5'	329°37.8'	S 27°12.1'		278°03.5'	S 14°50.0'		293°41.5'	S 19°09.5'		29°25.1'	S 13°23.2'				
14	258°57.7'	34°02.4'	S 17°01.3'	344°37.6'	S 27°12.1'		293°05.8'	S 14°49.9'		308°43.8'	S 19°09.4'		44°26.0'	S 13°23.8'				
15	274°00.2'	49°02.3'	S 17°02.0'	359°37.5'	S 27°12.0'		308°08.1'	S 14°49.9'		323°46.2'	S 19°09.4'		59°26.8'	S 13°24.4'				
16	289°02.6'	64°02.3'	S 17°02.7'	14°37.4'	S 27°11.9'		323°10.4'	S 14°49.8'		338°48.5'	S 19°09.4'		74°27.6'	S 13°24.9'				
17	304°05.1'	79°02.2'	S 17°03.4'	29°37.4'	S 27°11.9'		338°12.7'	S 14°49.7'		353°50.8'	S 19°09.4'		89°28.5'	S 13°25.5'				
18	319°07.5'	94°02.1'	S 17°04.1'	44°37.3'	S 27°11.8'		353°15.0'	S 14°49.7'		8°53.2'	S 19°09.3'		104°29.3'	S 13°26.1'				
19	334°10.0'	109°02.1'	S 17°04.8'	59°37.2'	S 27°11.7'		8°17.3'	S 14°49.6'		23°55.5'	S 19°09.3'		119°30.1'	S 13°26.7'				
20	349°12.5'	124°02.0'	S 17°05.5'	74°37.1'	S 27°11.6'		23°19.6'	S 14°49.5'		38°57.9'	S 19°09.3'		134°30.9'	S 13°27.2'				
21	4°14.9'	139°02.0'	S 17°06.2'	89°37.0'	S 27°11.6'		38°21.8'	S 14°49.5'		54°00.2'	S 19°09.2'		149°31.8'	S 13°27.8'				
22	19°17.4'	154°01.9'	S 17°06.9'	104°36.9'	S 27°11.5'		53°24.1'	S 14°49.4'		69°02.5'	S 19°09.2'		164°32.6'	S 13°28.4'				
23	34°19.9'	169°01.9'	S 17°07.6'	119°36.8'	S 27°11.4'		68°26.4'	S 14°49.3'		84°04.9'	S 19°09.2'		179°33.4'	S 13°29.0'				
		SD 16.1'	d -0.7'	v -0.1'	d 0.1'		v 2.3'	d 0.1'		v 2.3'	d 0.0'		v 0.8'	d -0.6'				
Mer. pass.		11 h 43 m 51 s		15 h 2 m			18 h 27 m			17 h 25 m			11 h 2 m					

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Venus	+Antares	+Sun
0	122°49.5'	S 26°14.4'	3.3'	1.5'	59.8'	72°52.2'	51°49.5'	39°12.2'	23°45.6'	10°36.3'	33°49.2'	57°13.3'
1	137°11.7'	S 26°12.9'	3.3'	1.7'	59.7'	72°33.1'	51°15.7'	38°36.5'	23°10.2'	11°10.0'	34°25.1'	57°46.9'
2	151°34.1'	S 26°11.3'	3.4'	1.9'	59.7'	72°14.2'	50°41.9'	38°00.9'	22°34.9'	11°43.6'	35°00.9'	58°20.4'
3	165°56.5'	S 26°09.4'	3.5'	2.0'	59.7'	71°55.4'	50°08.3'	37°25.3'	21°59.6'	12°17.2'	35°36.7'	58°53.9'
4	180°18.9'	S 26°07.4'	3.5'	2.2'	59.6'	71°36.7'	49°34.7'	36°49.8'	21°24.4'	12°50.7'	36°12.4'	59°27.4'
5	194°41.4'	S 26°05.1'	3.6'	2.4'	59.6'	71°18.1'	49°01.2'	36°14.3'	20°49.3'	13°24.2'	36°48.1'	60°00.8'
6	209°04.0'	S 26°02.7'	3.7'	2.6'	59.6'	70°59.7'	48°27.7'	35°38.8'	20°14.2'	13°57.7'	37°23.8'	60°34.2'
7	223°26.7'	S 26°00.1'	3.7'	2.8'	59.5'	70°41.3'	47°54.4'	35°03.5'	19°39.2'	14°31.2'	37°59.5'	61°07.5'
8	237°49.4'	S 25°57.4'	3.8'	2.9'	59.5'	70°23.1'	47°21.1'	34°28.1'	19°04.3'	15°04.6'	38°35.1'	61°40.8'
9	252°12.2'	S 25°54.4'	3.9'	3.1'	59.5'	70°04.9'	46°47.9'	33°52.8'	18°29.5'	15°38.1'	39°10.6'	62°14.1'
10	266°35.1'	S 25°51.3'	4.0'	3.3'	59.5'	69°46.9'	46°14.8'	33°17.6'	17°54.8'	16°11.4'	39°46.2'	62°47.3'
11	280°58.1'	S 25°48.0'	4.1'	3.5'	59.4'	69°29.1'	45°41.8'	32°42.4'	17°20.2'	16°44.8'	40°21.7'	63°20.5'
12	295°21.2'	S 25°44.6'	4.1'	3.6'	59.4'	69°11.3'	45°08.8'	32°07.2'	16°45.7'	17°18.1'	40°57.2'	63°53.6'
13	309°44.3'	S 25°40.9'	4.2'	3.8'	59.4'	68°53.7'	44°36.0'	31°32.1'	16°11.3'	17°51.3'	41°32.6'	64°26.7'
14	324°07.6'	S 25°37.1'	4.3'	4.0'	59.3'	68°36.2'	44°03.3'	30°57.1'	15°37.0'	18°24.6'	42°08.0'	64°59.8'
15	338°30.9'	S 25°33.1'	4.4'	4.1'	59.3'	68°18.8'	43°30.6'	30°22.1'	15°02.8'	18°57.8'	42°43.4'	65°32.8'
16	352°54.3'	S 25°29.0'	4.5'	4.3'	59.3'	68°01.6'	42°58.1'	29°47.1'	14°28.8'	19°30.9'	43°18.7'	66°05.8'
17	7°17.8'	S 25°24.7'	4.6'	4.5'	59.2'	67°44.4'	42°25.6'	29°12.2'	13°55.0'	20°04.1'	43°54.0'	66°38.7'
18	21°41.4'	S 25°20.2'	4.7'	4.6'	59.2'	67°27.5'	41°53.3'	28°37.4'	13°21.3'	20°37.1'	44°29.2'	67°11.6'
19	36°05.0'	S 25°15.6'	4.8'	4.8'	59.2'	67°10.6'	41°21.1'	28°02.6'	12°47.7'	21°10.2'	45°04.4'	67°44.5'
20	50°28.8'	S 25°10.8'	4.9'	5.0'	59.1'	66°53.9'	40°48.9'	27°27.9'	12°14.4'	21°43.2'	45°39.6'	68°17.3'
21	64°52.7'	S 25°05.8'	5.0'	5.1'	59.1'	66°37.4'	40°16.9'	26°53.3'	11°41.3'	22°16.2'	46°14.7'	68°50.0'
22	79°16.7'	S 25°00.7'	5.1'	5.3'	59.1'	66°21.0'	39°45.0'	26°18.7'	11°08.5'	22°49.1'	46°49.8'	69°22.8'
23	93°40.7'	S 24°55.4'	5.2'	5.4'	59.0'	66°04.7'	39°13.2'	25°44.1'	10°35.9'	23°22.0'	47°24.9'	69°55.5'
Mer. pass.		16 h 30 m SD 16.3'	phase 23%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.5'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.5'	Pollux	+1.2	243°20.4'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.3'	N 89°21.3'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	49°22.3'	184°01.8'	S 17°08.3'	134°36.7'	S 27°11.3'	83°28.7'	S 14°49.3'	99°07.2'	S 19°09.1'	194°34.2'	S 13°29.5'	
1	64°24.8'	199°01.7'	S 17°09.0'	149°36.6'	S 27°11.3'	98°31.0'	S 14°49.2'	114°09.6'	S 19°09.1'	209°35.1'	S 13°30.1'	
2	79°27.3'	214°01.7'	S 17°09.7'	164°36.5'	S 27°11.2'	113°33.3'	S 14°49.1'	129°11.9'	S 19°09.1'	224°35.9'	S 13°30.7'	
3	94°29.7'	229°01.6'	S 17°10.4'	179°36.4'	S 27°11.1'	128°35.5'	S 14°49.1'	144°14.2'	S 19°09.0'	239°36.7'	S 13°31.3'	
4	109°32.2'	244°01.5'	S 17°11.1'	194°36.3'	S 27°11.0'	143°37.8'	S 14°49.0'	159°16.6'	S 19°09.0'	254°37.5'	S 13°31.8'	
5	124°34.7'	259°01.5'	S 17°11.8'	209°36.3'	S 27°10.9'	158°40.1'	S 14°48.9'	174°18.9'	S 19°09.0'	269°38.4'	S 13°32.4'	
6	139°37.1'	274°01.4'	S 17°12.5'	224°36.2'	S 27°10.9'	173°42.4'	S 14°48.9'	189°21.3'	S 19°08.9'	284°39.2'	S 13°33.0'	
7	154°39.6'	289°01.4'	S 17°13.2'	239°36.1'	S 27°10.8'	188°44.7'	S 14°48.8'	204°23.6'	S 19°08.9'	299°40.0'	S 13°33.6'	
8	169°42.0'	304°01.3'	S 17°13.9'	254°36.0'	S 27°10.7'	203°47.0'	S 14°48.7'	219°25.9'	S 19°08.9'	314°40.8'	S 13°34.1'	
9	184°44.5'	319°01.2'	S 17°14.6'	269°35.9'	S 27°10.6'	218°49.2'	S 14°48.7'	234°28.3'	S 19°08.8'	329°41.7'	S 13°34.7'	
10	199°47.0'	334°01.2'	S 17°15.3'	284°35.9'	S 27°10.5'	233°51.5'	S 14°48.6'	249°30.6'	S 19°08.8'	344°42.5'	S 13°35.3'	
11	214°49.4'	349°01.1'	S 17°16.0'	299°35.8'	S 27°10.4'	248°53.8'	S 14°48.5'	264°32.9'	S 19°08.8'	359°43.3'	S 13°35.8'	
12	229°51.9'	4°01.0'	S 17°16.7'	314°35.7'	S 27°10.3'	263°56.1'	S 14°48.5'	279°35.3'	S 19°08.8'	14°44.1'	S 13°36.4'	
13	244°54.4'	19°01.0'	S 17°17.4'	329°35.6'	S 27°10.2'	278°58.4'	S 14°48.4'	294°37.6'	S 19°08.7'	29°44.9'	S 13°37.0'	
14	259°56.8'	34°00.9'	S 17°18.1'	344°35.6'	S 27°10.1'	294°00.6'	S 14°48.3'	309°39.9'	S 19°08.7'	44°45.8'	S 13°37.6'	
15	274°59.3'	49°00.9'	S 17°18.8'	359°35.5'	S 27°10.1'	309°02.9'	S 14°48.3'	324°42.3'	S 19°08.7'	59°46.6'	S 13°38.1'	
16	290°01.8'	64°00.8'	S 17°19.5'	14°35.4'	S 27°10.0'	324°05.2'	S 14°48.2'	339°44.6'	S 19°08.6'	74°47.4'	S 13°38.7'	
17	305°04.2'	79°00.7'	S 17°20.2'	29°35.3'	S 27°09.9'	339°07.5'	S 14°48.1'	354°47.0'	S 19°08.6'	89°48.2'	S 13°39.3'	
18	320°06.7'	94°00.7'	S 17°20.9'	44°35.3'	S 27°09.8'	354°09.8'	S 14°48.1'	9°49.3'	S 19°08.6'	104°49.1'	S 13°39.8'	
19	335°09.2'	109°00.6'	S 17°21.6'	59°35.2'	S 27°09.7'	9°12.0'	S 14°48.0'	24°51.6'	S 19°08.5'	119°49.9'	S 13°40.4'	
20	350°11.6'	124°00.5'	S 17°22.3'	74°35.1'	S 27°09.6'	24°14.3'	S 14°47.9'	39°54.0'	S 19°08.5'	134°50.7'	S 13°41.0'	
21	5°14.1'	139°00.5'	S 17°22.9'	89°35.1'	S 27°09.5'	39°16.6'	S 14°47.9'	54°56.3'	S 19°08.5'	149°51.5'	S 13°41.6'	
22	20°16.5'	154°00.4'	S 17°23.6'	104°35.0'	S 27°09.4'	54°18.9'	S 14°47.8'	69°58.6'	S 19°08.4'	164°52.3'	S 13°42.1'	
23	35°19.0'	169°00.3'	S 17°24.3'	119°35.0'	S 27°09.3'	69°21.2'	S 14°47.7'	85°01.0'	S 19°08.4'	179°53.2'	S 13°42.7'	
		SD 16.1' <i>d</i> -0.7'		<i>v</i> -0.1' <i>d</i> 0.1'		<i>v</i> 2.3' <i>d</i> 0.1'		<i>v</i> 2.3' <i>d</i> 0.0'		<i>v</i> 0.8' <i>d</i> -0.6'		
Mer. pass.		11 h 43 m 57 s		15 h 2 m		18 h 23 m		17 h 21 m		11 h 1 m		

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Aldebaran	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Venus	+Antares	+Sun
0	108°04.9'	S 24°49.9'	5.3'	5.6'	59.0'		65°48.5'	38°41.6'	25°09.6'	10°03.6'	23°54.9'	47°59.9'	70°28.1'
1	122°29.2'	S 24°44.3'	5.4'	5.8'	59.0'		65°32.6'	38°10.0'	24°35.2'	9°31.7'	24°27.7'	48°34.9'	71°00.7'
2	136°53.6'	S 24°38.6'	5.5'	5.9'	58.9'		65°16.7'	37°38.6'	24°00.9'	9°00.2'	25°00.5'	49°09.8'	71°33.3'
3	151°18.1'	S 24°32.7'	5.6'	6.1'	58.9'		65°01.0'	37°07.3'	23°26.6'	8°29.2'	25°33.2'	49°44.7'	72°05.8'
4	165°42.6'	S 24°26.6'	5.7'	6.2'	58.9'		64°45.5'	36°36.2'	22°52.4'	7°58.8'	26°05.9'	50°19.6'	72°38.3'
5	180°07.3'	S 24°20.4'	5.8'	6.4'	58.8'		64°30.1'	36°05.2'	22°18.2'		26°38.6'	50°54.4'	73°10.7'
6	194°32.1'	S 24°14.1'	5.9'	6.5'	58.8'		64°14.9'	35°34.3'	21°44.1'		27°11.2'	51°29.2'	73°43.1'
7	208°57.0'	S 24°07.6'	6.0'	6.6'	58.8'			35°03.6'	21°10.1'		27°43.8'	52°04.0'	74°15.5'
8	223°22.1'	S 24°00.9'	6.1'	6.8'	58.7'			34°33.0'	20°36.2'		28°16.3'	52°38.7'	74°47.8'
9	237°47.2'	S 23°54.1'	6.2'	6.9'	58.7'			34°02.6'	20°02.4'		28°48.8'	53°13.3'	75°20.1'
10	252°12.4'	S 23°47.2'	6.3'	7.1'	58.7'			33°32.3'	19°28.6'		29°21.3'	53°48.0'	75°52.3'
11	266°37.8'	S 23°40.1'	6.5'	7.2'	58.6'			33°02.2'	18°54.9'		29°53.7'	54°22.6'	76°24.5'
12	281°03.2'	S 23°32.9'	6.6'	7.3'	58.6'			32°32.3'	18°21.4'		30°26.1'	54°57.1'	76°56.7'
13	295°28.8'	S 23°25.6'	6.7'	7.5'	58.6'			32°02.5'	17°47.9'		30°58.4'	55°31.6'	77°28.8'
14	309°54.5'	S 23°18.1'	6.8'	7.6'	58.5'			31°33.0'	17°14.5'		31°30.8'	56°06.1'	78°00.8'
15	324°20.3'	S 23°10.5'	6.9'	7.7'	58.5'			31°03.6'	16°41.2'		32°03.0'	56°40.5'	78°32.9'
16	338°46.2'	S 23°02.8'	7.0'	7.9'	58.5'			30°34.4'	16°08.0'		32°35.2'	57°14.9'	79°04.8'
17	353°12.2'	S 22°54.9'	7.1'	8.0'	58.4'			30°05.4'	15°35.0'		33°07.4'	57°49.3'	79°36.8'
18	7°38.4'	S 22°46.9'	7.3'	8.1'	58.4'			29°36.7'	15°02.1'		33°39.6'	58°23.6'	80°08.7'
19	22°04.6'	S 22°38.8'	7.4'	8.3'	58.4'			29°08.1'	14°29.3'		34°11.7'	58°57.8'	80°40.6'
20	36°31.0'	S 22°30.5'	7.5'	8.4'	58.3'	119°28.1'		28°39.8'	13°56.6'		34°43.8'	59°32.1'	81°12.4'
21	50°57.5'	S 22°22.1'	7.6'	8.5'	58.3'	118°54.1'		28°11.7'	13°24.2'		35°15.8'	60°06.3'	81°44.2'
22	65°24.1'	S 22°13.6'	7.7'	8.6'	58.3'	118°20.1'		27°43.9'	12°51.9'		35°47.8'	60°40.4'	82°15.9'
23	79°50.8'	S 22°05.0'	7.8'	8.7'	58.2'	117°46.1'		27°16.3'	12°19.8'		36°19.8'	61°14.5'	82°47.6'
Mer. pass.		17 h 28 m SD 16.1'		phase 33%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.4'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.3'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	50°21.5'	184°00.2'	S 17°25.0'	134°34.9'	S 27°09.2'	84°23.4'	S 14°47.7'	100°03.3'	S 19°08.4'	194°54.0'	S 13°43.3'	
1	65°23.9'	199°00.2'	S 17°25.7'	149°34.8'	S 27°09.1'	99°25.7'	S 14°47.6'	115°05.6'	S 19°08.3'	209°54.8'	S 13°43.8'	
2	80°26.4'	214°00.1'	S 17°26.4'	164°34.8'	S 27°09.0'	114°28.0'	S 14°47.5'	130°08.0'	S 19°08.3'	224°55.6'	S 13°44.4'	
3	95°28.9'	229°00.0'	S 17°27.1'	179°34.7'	S 27°08.9'	129°30.3'	S 14°47.4'	145°10.3'	S 19°08.3'	239°56.5'	S 13°45.0'	
4	110°31.3'	243°60.0'	S 17°27.8'	194°34.7'	S 27°08.8'	144°32.5'	S 14°47.4'	160°12.6'	S 19°08.2'	254°57.3'	S 13°45.5'	
5	125°33.8'	258°59.9'	S 17°28.5'	209°34.6'	S 27°08.7'	159°34.8'	S 14°47.3'	175°15.0'	S 19°08.2'	269°58.1'	S 13°46.1'	
6	140°36.3'	273°59.8'	S 17°29.1'	224°34.6'	S 27°08.6'	174°37.1'	S 14°47.2'	190°17.3'	S 19°08.2'	284°58.9'	S 13°46.7'	
7	155°38.7'	288°59.8'	S 17°29.8'	239°34.5'	S 27°08.4'	189°39.4'	S 14°47.2'	205°19.6'	S 19°08.1'	299°59.7'	S 13°47.3'	
8	170°41.2'	303°59.7'	S 17°30.5'	254°34.5'	S 27°08.3'	204°41.6'	S 14°47.1'	220°22.0'	S 19°08.1'	315°00.6'	S 13°47.8'	
9	185°43.7'	318°59.6'	S 17°31.2'	269°34.4'	S 27°08.2'	219°43.9'	S 14°47.0'	235°24.3'	S 19°08.1'	330°01.4'	S 13°48.4'	
10	200°46.1'	333°59.5'	S 17°31.9'	284°34.4'	S 27°08.1'	234°46.2'	S 14°47.0'	250°26.6'	S 19°08.0'	345°02.2'	S 13°49.0'	
11	215°48.6'	348°59.5'	S 17°32.6'	299°34.3'	S 27°08.0'	249°48.5'	S 14°46.9'	265°29.0'	S 19°08.0'	0°03.0'	S 13°49.5'	
12	230°51.0'	3°59.4'	S 17°33.3'	314°34.3'	S 27°07.9'	264°50.7'	S 14°46.8'	280°31.3'	S 19°08.0'	15°03.8'	S 13°50.1'	
13	245°53.5'	18°59.3'	S 17°33.9'	329°34.2'	S 27°07.8'	279°53.0'	S 14°46.7'	295°33.6'	S 19°07.9'	30°04.6'	S 13°50.7'	
14	260°56.0'	33°59.3'	S 17°34.6'	344°34.2'	S 27°07.7'	294°55.3'	S 14°46.7'	310°36.0'	S 19°07.9'	45°05.5'	S 13°51.2'	
15	275°58.4'	48°59.2'	S 17°35.3'	359°34.1'	S 27°07.5'	309°57.6'	S 14°46.6'	325°38.3'	S 19°07.9'	60°06.3'	S 13°51.8'	
16	291°00.9'	63°59.1'	S 17°36.0'	14°34.1'	S 27°07.4'	324°59.8'	S 14°46.5'	340°40.6'	S 19°07.8'	75°07.1'	S 13°52.4'	
17	306°03.4'	78°59.0'	S 17°36.7'	29°34.1'	S 27°07.3'	340°02.1'	S 14°46.5'	355°43.0'	S 19°07.8'	90°07.9'	S 13°52.9'	
18	321°05.8'	93°59.0'	S 17°37.4'	44°34.0'	S 27°07.2'	355°04.4'	S 14°46.4'	10°45.3'	S 19°07.8'	105°08.7'	S 13°53.5'	
19	336°08.3'	108°58.9'	S 17°38.0'	59°34.0'	S 27°07.1'	10°06.6'	S 14°46.3'	25°47.6'	S 19°07.7'	120°09.6'	S 13°54.1'	
20	351°10.8'	123°58.8'	S 17°38.7'	74°33.9'	S 27°07.0'	25°08.9'	S 14°46.2'	40°50.0'	S 19°07.7'	135°10.4'	S 13°54.6'	
21	6°13.2'	138°58.7'	S 17°39.4'	89°33.9'	S 27°06.8'	40°11.2'	S 14°46.2'	55°52.3'	S 19°07.7'	150°11.2'	S 13°55.2'	
22	21°15.7'	153°58.6'	S 17°40.1'	104°33.9'	S 27°06.7'	55°13.5'	S 14°46.1'	70°54.6'	S 19°07.6'	165°12.0'	S 13°55.8'	
23	36°18.1'	168°58.6'	S 17°40.7'	119°33.8'	S 27°06.6'	70°15.7'	S 14°46.0'	85°57.0'	S 19°07.6'	180°12.8'	S 13°56.3'	
		SD 16.1'	<i>d</i> -0.7'		<i>v</i> -0.0' <i>d</i> 0.1'		<i>v</i> 2.3' <i>d</i> 0.1'		<i>v</i> 2.3' <i>d</i> 0.0'		<i>v</i> 0.8' <i>d</i> -0.6'	
Mer. pass.		11 h 44 m 3 s		15 h 2 m		18 h 20 m		17 h 17 m		11 h 0 m		

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Aldebaran	-Rigel	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Venus	+Sun
0	94°17.6'	S 21°56.3'	7.9'	8.9'	58.2'	117°12.2'	116°24.3'	26°49.0'	11°47.9'			36°51.7'	83°19.3'
1	108°44.6'	S 21°47.4'	8.1'	9.0'	58.2'	116°38.3'	115°56.9'	26°22.0'	11°16.2'			37°23.5'	83°50.9'
2	123°11.6'	S 21°38.4'	8.2'	9.1'	58.1'	116°04.5'	115°29.5'	25°55.2'	10°44.9'			37°55.4'	84°22.5'
3	137°38.8'	S 21°29.3'	8.3'	9.2'	58.1'	115°30.7'	115°02.1'	25°28.8'	10°13.8'	7°26.2'		38°27.2'	84°54.0'
4	152°06.1'	S 21°20.1'	8.4'	9.3'	58.1'	114°56.9'	114°34.6'	25°02.7'	9°43.0'	7°55.1'		38°58.9'	85°25.5'
5	166°33.5'	S 21°10.8'	8.5'	9.4'	58.0'	114°23.2'	114°07.1'	24°36.9'	9°12.7'	8°24.6'		39°30.7'	85°57.0'
6	181°01.0'	S 21°01.4'	8.6'	9.5'	58.0'	113°49.5'	113°39.6'	24°11.4'	8°42.8'	8°54.5'		40°02.4'	86°28.4'
7	195°28.7'	S 20°51.9'	8.8'	9.6'	57.9'	113°15.9'	113°12.1'	23°46.3'	8°13.4'	9°24.8'		40°34.0'	86°59.8'
8	209°56.4'	S 20°42.3'	8.9'	9.7'	57.9'	112°42.2'	112°44.6'	23°21.6'	7°44.7'	9°55.5'		41°05.6'	87°31.1'
9	224°24.3'	S 20°32.5'	9.0'	9.8'	57.9'	112°08.6'	112°17.0'	22°57.3'		10°26.4'		41°37.2'	88°02.4'
10	238°52.3'	S 20°22.7'	9.1'	9.9'	57.8'	111°35.1'	111°49.4'	22°33.4'		10°57.6'		42°08.7'	88°33.7'
11	253°20.4'	S 20°12.7'	9.2'	10.0'	57.8'	111°01.6'	111°21.9'	22°09.9'		11°29.0'		42°40.2'	89°04.9'
12	267°48.6'	S 20°02.7'	9.3'	10.1'	57.8'	110°28.1'	110°54.3'	21°46.9'		12°00.5'		43°11.7'	89°36.1'
13	282°16.9'	S 19°52.6'	9.4'	10.2'	57.7'	109°54.7'	110°26.7'	21°24.4'		12°32.2'		43°43.1'	90°07.3'
14	296°45.3'	S 19°42.3'	9.5'	10.3'	57.7'	109°21.3'	109°59.1'	21°02.3'		13°03.9'	38°33.4'	44°14.5'	90°38.4'
15	311°13.9'	S 19°32.0'	9.7'	10.4'	57.7'	108°47.9'	109°31.4'	20°40.8'		13°35.8'	38°48.6'	44°45.8'	91°09.4'
16	325°42.5'	S 19°21.6'	9.8'	10.5'	57.7'	108°14.6'	109°03.8'	20°19.8'		14°07.8'	39°04.1'	45°17.1'	91°40.5'
17	340°11.3'	S 19°11.1'	9.9'	10.6'	57.6'	107°41.3'	108°36.2'	19°59.4'		14°39.8'	39°19.9'	45°48.4'	92°11.5'
18	354°40.1'	S 19°00.5'	10.0'	10.7'	57.6'	107°08.1'	108°08.6'	19°39.6'		15°11.9'	39°36.0'	46°19.6'	92°42.4'
19	9°09.1'	S 18°49.8'	10.1'	10.8'	57.6'	106°34.8'	107°40.9'	19°20.4'		15°44.0'	39°52.4'	46°50.8'	93°13.3'
20	23°38.2'	S 18°39.0'	10.2'	10.9'	57.5'	106°01.7'	107°13.3'	19°01.8'		16°16.2'	40°09.1'	47°22.0'	93°44.2'
21	38°07.4'	S 18°28.1'	10.3'	11.0'	57.5'	105°28.5'	106°45.6'	18°44.0'		16°48.4'	40°26.0'	47°53.1'	94°15.1'
22	52°36.7'	S 18°17.2'	10.4'	11.0'	57.5'	104°55.4'	106°18.0'	18°26.8'		17°20.7'	40°43.2'	48°24.2'	94°45.9'
23	67°06.1'	S 18°06.1'	10.5'	11.1'	57.4'	104°22.3'	105°50.4'	18°10.4'		17°52.9'	41°00.7'	48°55.3'	95°16.7'
Mer. pass.		18 h 22 m SD 15.9'	phase 44%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.7'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.4'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.3'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars				
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec			
0	51°20.6'	183°58.5'	S 17°41.4'	134°33.8'	S 27°06.5'	85°18.0'	S 14°46.0'	100°59.3'	S 19°07.6'	195°13.6'	S 13°56.9'				
1	66°23.1'	198°58.4'	S 17°42.1'	149°33.8'	S 27°06.3'	100°20.3'	S 14°45.9'	116°01.6'	S 19°07.5'	210°14.5'	S 13°57.5'				
2	81°25.5'	213°58.3'	S 17°42.8'	164°33.8'	S 27°06.2'	115°22.5'	S 14°45.8'	131°04.0'	S 19°07.5'	225°15.3'	S 13°58.0'				
3	96°28.0'	228°58.3'	S 17°43.5'	179°33.7'	S 27°06.1'	130°24.8'	S 14°45.7'	146°06.3'	S 19°07.5'	240°16.1'	S 13°58.6'				
4	111°30.5'	243°58.2'	S 17°44.1'	194°33.7'	S 27°06.0'	145°27.1'	S 14°45.7'	161°08.6'	S 19°07.4'	255°16.9'	S 13°59.2'				
5	126°32.9'	258°58.1'	S 17°44.8'	209°33.7'	S 27°05.8'	160°29.3'	S 14°45.6'	176°11.0'	S 19°07.4'	270°17.7'	S 13°59.7'				
6	141°35.4'	273°58.0'	S 17°45.5'	224°33.7'	S 27°05.7'	175°31.6'	S 14°45.5'	191°13.3'	S 19°07.4'	285°18.5'	S 14°00.3'				
7	156°37.9'	288°57.9'	S 17°46.2'	239°33.6'	S 27°05.6'	190°33.9'	S 14°45.5'	206°15.6'	S 19°07.3'	300°19.3'	S 14°00.9'				
8	171°40.3'	303°57.9'	S 17°46.8'	254°33.6'	S 27°05.4'	205°36.1'	S 14°45.4'	221°17.9'	S 19°07.3'	315°20.2'	S 14°01.4'				
9	186°42.8'	318°57.8'	S 17°47.5'	269°33.6'	S 27°05.3'	220°38.4'	S 14°45.3'	236°20.3'	S 19°07.3'	330°21.0'	S 14°02.0'				
10	201°45.3'	333°57.7'	S 17°48.2'	284°33.6'	S 27°05.2'	235°40.7'	S 14°45.2'	251°22.6'	S 19°07.2'	345°21.8'	S 14°02.6'				
11	216°47.7'	348°57.6'	S 17°48.8'	299°33.6'	S 27°05.0'	250°42.9'	S 14°45.2'	266°24.9'	S 19°07.2'	0°22.6'	S 14°03.1'				
12	231°50.2'	3°57.5'	S 17°49.5'	314°33.6'	S 27°04.9'	265°45.2'	S 14°45.1'	281°27.3'	S 19°07.2'	15°23.4'	S 14°03.7'				
13	246°52.6'	18°57.5'	S 17°50.2'	329°33.6'	S 27°04.8'	280°47.5'	S 14°45.0'	296°29.6'	S 19°07.1'	30°24.2'	S 14°04.2'				
14	261°55.1'	33°57.4'	S 17°50.9'	344°33.5'	S 27°04.6'	295°49.7'	S 14°44.9'	311°31.9'	S 19°07.1'	45°25.0'	S 14°04.8'				
15	276°57.6'	48°57.3'	S 17°51.5'	359°33.5'	S 27°04.5'	310°52.0'	S 14°44.9'	326°34.2'	S 19°07.1'	60°25.9'	S 14°05.4'				
16	292°00.0'	63°57.2'	S 17°52.2'	14°33.5'	S 27°04.4'	325°54.3'	S 14°44.8'	341°36.6'	S 19°07.0'	75°26.7'	S 14°05.9'				
17	307°02.5'	78°57.1'	S 17°52.9'	29°33.5'	S 27°04.2'	340°56.5'	S 14°44.7'	356°38.9'	S 19°07.0'	90°27.5'	S 14°06.5'				
18	322°05.0'	93°57.0'	S 17°53.5'	44°33.5'	S 27°04.1'	355°58.8'	S 14°44.6'	11°41.2'	S 19°06.9'	105°28.3'	S 14°07.1'				
19	337°07.4'	108°57.0'	S 17°54.2'	59°33.5'	S 27°03.9'	11°01.1'	S 14°44.6'	26°43.6'	S 19°06.9'	120°29.1'	S 14°07.6'				
20	352°09.9'	123°56.9'	S 17°54.9'	74°33.5'	S 27°03.8'	26°03.3'	S 14°44.5'	41°45.9'	S 19°06.9'	135°29.9'	S 14°08.2'				
21	7°12.4'	138°56.8'	S 17°55.5'	89°33.5'	S 27°03.7'	41°05.6'	S 14°44.4'	56°48.2'	S 19°06.8'	150°30.7'	S 14°08.8'				
22	22°14.8'	153°56.7'	S 17°56.2'	104°33.5'	S 27°03.5'	56°07.9'	S 14°44.4'	71°50.5'	S 19°06.8'	165°31.5'	S 14°09.3'				
23	37°17.3'	168°56.6'	S 17°56.9'	119°33.5'	S 27°03.4'	71°10.1'	S 14°44.3'	86°52.9'	S 19°06.8'	180°32.4'	S 14°09.9'				
		SD 16.2'	d -0.7'		v -0.0'	d 0.1'		v 2.3'	d 0.1'		v 2.3'	d 0.0'		v 0.8'	d -0.6'
Mer. pass.		11 h 44 m	11 s		15 h 2 m		18 h 16 m		17 h 13 m		10 h 59 m				

h	Moon				Lunar distance										
	GHA	dec	v	d	HP	-Capella	-Adhara	-Rigel	-Aldebaran	+Jupiter	+Saturn	+Altair	+Sun		
0	81°35.7'	S 17°55.0'	10.6'	11.2'	57.4'	116°27.3'		105°22.7'	103°49.3'		18°25.2'	41°18.4'	95°47.4'		
1	96°05.3'	S 17°43.8'	10.7'	11.3'	57.4'	115°56.8'		104°55.1'	103°16.3'		18°57.5'	41°36.3'	96°18.1'		
2	110°35.0'	S 17°32.5'	10.8'	11.4'	57.3'	115°26.4'		104°27.5'	102°43.3'		19°29.8'	41°54.5'	96°48.7'		
3	125°04.8'	S 17°21.2'	10.9'	11.4'	57.3'	114°56.0'		103°59.9'	102°10.4'		20°02.1'	42°12.9'	97°19.4'		
4	139°34.8'	S 17°09.8'	11.0'	11.5'	57.3'	114°25.5'		103°32.3'	101°37.5'		20°34.3'	42°31.5'	97°50.0'		
5	154°04.8'	S 16°58.3'	11.1'	11.6'	57.2'	113°55.1'		103°04.6'	101°04.6'		21°06.6'	42°50.3'	98°20.5'		
6	168°34.9'	S 16°46.7'	11.2'	11.6'	57.2'	113°24.7'		102°37.0'	100°31.8'		21°38.9'	43°09.4'	98°51.0'		
7	183°05.2'	S 16°35.1'	11.3'	11.7'	57.2'	112°54.3'		102°09.5'	99°59.0'	7°25.7'	22°11.2'	43°28.6'	99°21.5'		
8	197°35.5'	S 16°23.3'	11.4'	11.8'	57.1'	112°23.9'		101°41.9'	99°26.3'	7°53.2'	22°43.5'	43°48.1'	99°52.0'		
9	212°06.0'	S 16°11.6'	11.5'	11.8'	57.1'	111°53.5'		101°14.3'	98°53.5'	8°21.3'	23°15.7'	44°07.7'	100°22.4'		
10	226°36.5'	S 15°59.7'	11.6'	11.9'	57.1'	111°23.2'		100°46.7'	98°20.9'	8°49.9'	23°48.0'	44°27.5'	100°52.8'		
11	241°07.1'	S 15°47.8'	11.7'	12.0'	57.0'	110°52.8'		100°19.2'	97°48.2'	9°18.9'	24°20.2'	44°47.5'	101°23.1'		
12	255°37.8'	S 15°35.8'	11.8'	12.0'	57.0'	110°22.5'		99°51.6'	97°15.6'	9°48.3'	24°52.5'	45°07.7'	101°53.4'		
13	270°08.7'	S 15°23.8'	11.9'	12.1'	57.0'	109°52.2'		99°24.1'	96°43.0'	10°18.0'	25°24.7'	45°28.1'	102°23.7'		
14	284°39.6'	S 15°11.7'	12.0'	12.2'	57.0'	109°21.9'		98°56.6'	96°10.4'	10°47.9'	25°56.8'	45°48.6'	102°53.9'		
15	299°10.6'	S 14°59.5'	12.1'	12.2'	56.9'	108°51.6'		98°29.1'	95°37.9'	11°18.0'	26°29.0'	46°09.3'	103°24.1'		
16	313°41.7'	S 14°47.3'	12.2'	12.3'	56.9'	108°21.3'	112°20.3'	98°01.6'	95°05.4'	11°48.3'	27°01.2'	46°30.1'	103°54.3'		
17	328°12.9'	S 14°35.0'	12.3'	12.3'	56.9'	107°51.1'	112°05.2'	97°34.1'	94°33.0'	12°18.7'	27°33.3'	46°51.1'	104°24.5'		
18	342°44.2'	S 14°22.7'	12.4'	12.4'	56.8'	107°20.8'	111°50.1'	97°06.7'	94°00.5'	12°49.3'	28°05.4'	47°12.3'	104°54.6'		
19	357°15.5'	S 14°10.3'	12.5'	12.4'	56.8'	106°50.6'	111°34.8'	96°39.3'	93°28.1'	13°20.0'	28°37.5'	47°33.6'	105°24.6'		
20	11°47.0'	S 13°57.8'	12.5'	12.5'	56.8'	106°20.4'	111°19.5'	96°11.8'	92°55.8'	13°50.8'	29°09.6'	47°55.0'	105°54.7'		
21	26°18.5'	S 13°45.3'	12.6'	12.6'	56.7'	105°50.2'	111°04.1'	95°44.4'	92°23.5'	14°21.7'	29°41.7'	48°16.6'	106°24.7'		
22	40°50.2'	S 13°32.8'	12.7'	12.6'	56.7'	105°20.0'	110°48.7'	95°17.0'	91°51.2'	14°52.6'	30°13.7'	48°38.2'	106°54.7'		
23	55°21.9'	S 13°20.1'	12.8'	12.7'	56.7'	104°49.9'	110°33.1'	94°49.7'	91°18.9'	15°23.6'	30°45.7'	49°00.1'	107°24.6'		
Mer. pass.		19 h 11 m	SD 15.7'	phase 55%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.6'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.9'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.3'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.7'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.2'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	52°19.8'	183°56.5'	S 17°57.5'	134°33.5'	S 27°03.2'	86°12.4'	S 14°44.2'	101°55.2'	S 19°06.7'	195°33.2'	S 14°10.4'	
1	67°22.2'	198°56.4'	S 17°58.2'	149°33.5'	S 27°03.1'	101°14.6'	S 14°44.1'	116°57.5'	S 19°06.7'	210°34.0'	S 14°11.0'	
2	82°24.7'	213°56.4'	S 17°58.9'	164°33.5'	S 27°02.9'	116°16.9'	S 14°44.1'	131°59.9'	S 19°06.7'	225°34.8'	S 14°11.6'	
3	97°27.1'	228°56.3'	S 17°59.5'	179°33.5'	S 27°02.8'	131°19.2'	S 14°44.0'	147°02.2'	S 19°06.6'	240°35.6'	S 14°12.1'	
4	112°29.6'	243°56.2'	S 18°00.2'	194°33.5'	S 27°02.6'	146°21.4'	S 14°43.9'	162°04.5'	S 19°06.6'	255°36.4'	S 14°12.7'	
5	127°32.1'	258°56.1'	S 18°00.8'	209°33.5'	S 27°02.5'	161°23.7'	S 14°43.8'	177°06.8'	S 19°06.6'	270°37.2'	S 14°13.3'	
6	142°34.5'	273°56.0'	S 18°01.5'	224°33.6'	S 27°02.3'	176°26.0'	S 14°43.8'	192°09.2'	S 19°06.5'	285°38.0'	S 14°13.8'	
7	157°37.0'	288°55.9'	S 18°02.2'	239°33.6'	S 27°02.2'	191°28.2'	S 14°43.7'	207°11.5'	S 19°06.5'	300°38.8'	S 14°14.4'	
8	172°39.5'	303°55.8'	S 18°02.8'	254°33.6'	S 27°02.0'	206°30.5'	S 14°43.6'	222°13.8'	S 19°06.5'	315°39.7'	S 14°14.9'	
9	187°41.9'	318°55.7'	S 18°03.5'	269°33.6'	S 27°01.9'	221°32.7'	S 14°43.5'	237°16.1'	S 19°06.4'	330°40.5'	S 14°15.5'	
10	202°44.4'	333°55.7'	S 18°04.1'	284°33.6'	S 27°01.7'	236°35.0'	S 14°43.5'	252°18.5'	S 19°06.4'	345°41.3'	S 14°16.1'	
11	217°46.9'	348°55.6'	S 18°04.8'	299°33.6'	S 27°01.6'	251°37.3'	S 14°43.4'	267°20.8'	S 19°06.4'	0°42.1'	S 14°16.6'	
12	232°49.3'	3°55.5'	S 18°05.5'	314°33.7'	S 27°01.4'	266°39.5'	S 14°43.3'	282°23.1'	S 19°06.3'	15°42.9'	S 14°17.2'	
13	247°51.8'	18°55.4'	S 18°06.1'	329°33.7'	S 27°01.3'	281°41.8'	S 14°43.2'	297°25.4'	S 19°06.3'	30°43.7'	S 14°17.7'	
14	262°54.2'	33°55.3'	S 18°06.8'	344°33.7'	S 27°01.1'	296°44.0'	S 14°43.2'	312°27.8'	S 19°06.3'	45°44.5'	S 14°18.3'	
15	277°56.7'	48°55.2'	S 18°07.4'	359°33.7'	S 27°00.9'	311°46.3'	S 14°43.1'	327°30.1'	S 19°06.2'	60°45.3'	S 14°18.9'	
16	292°59.2'	63°55.1'	S 18°08.1'	14°33.8'	S 27°00.8'	326°48.5'	S 14°43.0'	342°32.4'	S 19°06.2'	75°46.1'	S 14°19.4'	
17	308°01.6'	78°55.0'	S 18°08.7'	29°33.8'	S 27°00.6'	341°50.8'	S 14°42.9'	357°34.7'	S 19°06.1'	90°46.9'	S 14°20.0'	
18	323°04.1'	93°54.9'	S 18°09.4'	44°33.8'	S 27°00.4'	356°53.1'	S 14°42.9'	12°37.1'	S 19°06.1'	105°47.7'	S 14°20.5'	
19	338°06.6'	108°54.8'	S 18°10.0'	59°33.8'	S 27°00.3'	11°55.3'	S 14°42.8'	27°39.4'	S 19°06.1'	120°48.6'	S 14°21.1'	
20	353°09.0'	123°54.7'	S 18°10.7'	74°33.9'	S 27°00.1'	26°57.6'	S 14°42.7'	42°41.7'	S 19°06.0'	135°49.4'	S 14°21.6'	
21	8°11.5'	138°54.6'	S 18°11.4'	89°33.9'	S 26°60.0'	41°59.8'	S 14°42.6'	57°44.0'	S 19°06.0'	150°50.2'	S 14°22.2'	
22	23°14.0'	153°54.6'	S 18°12.0'	104°33.9'	S 26°59.8'	57°02.1'	S 14°42.5'	72°46.4'	S 19°06.0'	165°51.0'	S 14°22.8'	
23	38°16.4'	168°54.5'	S 18°12.7'	119°34.0'	S 26°59.6'	72°04.3'	S 14°42.5'	87°48.7'	S 19°05.9'	180°51.8'	S 14°23.3'	
		SD 16.2' d -0.7'		v 0.0' d 0.2'		v 2.3' d 0.1'		v 2.3' d 0.0'		v 0.8' d -0.6'		
Mer. pass.		11 h 44 m 19 s		15 h 2 m		18 h 12 m		17 h 10 m		10 h 57 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Sun
0	69°53.7'	S 13°07.5'	12.9'	12.7'	56.7'	107°49.4'	104°19.8'	94°22.3'	90°46.7'	15°54.6'			107°54.5'
1	84°25.6'	S 12°54.8'	13.0'	12.7'	56.6'	107°18.8'	103°49.6'	93°55.0'	90°14.5'	16°25.7'			108°24.4'
2	98°57.5'	S 12°42.0'	13.0'	12.8'	56.6'	106°48.3'	103°19.6'	93°27.7'	89°42.3'	16°56.8'			108°54.3'
3	113°29.6'	S 12°29.3'	13.1'	12.8'	56.6'	106°17.7'	102°49.5'	93°00.4'	89°10.1'	17°28.0'			109°24.1'
4	128°01.7'	S 12°16.4'	13.2'	12.9'	56.5'	105°47.2'	102°19.4'	92°33.1'	88°38.0'	17°59.1'			109°53.9'
5	142°33.9'	S 12°03.5'	13.3'	12.9'	56.5'	105°16.7'	101°49.4'	92°05.9'	88°06.0'	18°30.3'			110°23.6'
6	157°06.2'	S 11°50.6'	13.4'	13.0'	56.5'	104°46.3'	101°19.4'	91°38.7'	87°33.9'	19°01.5'			110°53.4'
7	171°38.5'	S 11°37.6'	13.4'	13.0'	56.5'	104°15.8'	100°49.4'	91°11.5'	87°01.9'	19°32.8'	17°55.2'		111°23.1'
8	186°10.9'	S 11°24.6'	13.5'	13.0'	56.4'	103°45.4'	100°19.4'	90°44.3'	86°29.9'	20°04.0'	18°10.4'		111°52.7'
9	200°43.4'	S 11°11.6'	13.6'	13.1'	56.4'	103°15.0'	99°49.4'	90°17.2'	85°57.9'	20°35.2'	18°26.2'		112°22.4'
10	215°16.0'	S 10°58.5'	13.6'	13.1'	56.4'	102°44.6'	99°19.5'	89°50.0'	85°26.0'	21°06.5'	18°42.7'		112°52.0'
11	229°48.7'	S 10°45.4'	13.7'	13.2'	56.3'	102°14.2'	98°49.6'	89°22.9'	84°54.1'	21°37.7'	18°59.8'		113°21.5'
12	244°21.4'	S 10°32.2'	13.8'	13.2'	56.3'	101°43.9'	98°19.7'	88°55.9'	84°22.3'	22°09.0'	19°17.6'		113°51.1'
13	258°54.2'	S 10°19.1'	13.9'	13.2'	56.3'	101°13.6'	97°49.8'	88°28.8'	83°50.4'	22°40.2'	19°35.9'		114°20.6'
14	273°27.0'	S 10°05.8'	13.9'	13.3'	56.3'	100°43.2'	97°20.0'	88°01.8'	83°18.6'	23°11.4'	19°54.7'		114°50.1'
15	287°59.9'	S 9°52.6'	14.0'	13.3'	56.2'	100°13.0'	96°50.1'	87°34.8'	82°46.8'	23°42.7'	20°14.0'		115°19.6'
16	302°32.9'	S 9°39.3'	14.0'	13.3'	56.2'	99°42.7'	96°20.3'	87°07.8'	82°15.1'	24°13.9'	20°33.9'		115°49.0'
17	317°06.0'	S 9°26.0'	14.1'	13.3'	56.2'	99°12.5'	95°50.6'	86°40.9'	81°43.3'	24°45.1'	20°54.1'		116°18.4'
18	331°39.1'	S 9°12.6'	14.2'	13.4'	56.2'	98°42.2'	95°20.8'	86°14.0'	81°11.6'	25°16.3'	21°14.9'		116°47.8'
19	346°12.2'	S 8°59.3'	14.2'	13.4'	56.1'	98°12.0'	94°51.1'	85°47.1'	80°40.0'	25°47.5'	21°36.0'		117°17.2'
20	0°45.5'	S 8°45.9'	14.3'	13.4'	56.1'	97°41.9'	94°21.3'	85°20.3'	80°08.3'	26°18.7'	21°57.5'		117°46.5'
21	15°18.8'	S 8°32.5'	14.4'	13.4'	56.1'	97°11.7'	93°51.6'	84°53.4'	79°36.7'	26°49.9'	22°19.4'		118°15.8'
22	29°52.1'	S 8°19.0'	14.4'	13.5'	56.1'	96°41.6'	93°22.0'	84°26.6'	79°05.1'	27°21.1'	22°41.7'		118°45.0'
23	44°25.5'	S 8°05.5'	14.5'	13.5'	56.0'	96°11.5'	92°52.3'	83°59.9'	78°33.6'	27°52.2'	23°04.3'		119°14.3'
Mer. pass.		19 h 57 m SD 15.5'		phase 65%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.5'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.6'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	53°18.9'	183°54.4'	S 18°13.3'	134°34.0'	S 26°59.5'	87°06.6'	S 14°42.4'	102°51.0'	S 19°05.9'	195°52.6'	S 14°23.9'			
1	68°21.4'	198°54.3'	S 18°14.0'	149°34.1'	S 26°59.3'	102°08.9'	S 14°42.3'	117°53.3'	S 19°05.9'	210°53.4'	S 14°24.4'			
2	83°23.8'	213°54.2'	S 18°14.6'	164°34.1'	S 26°59.1'	117°11.1'	S 14°42.2'	132°55.7'	S 19°05.8'	225°54.2'	S 14°25.0'			
3	98°26.3'	228°54.1'	S 18°15.3'	179°34.1'	S 26°59.0'	132°13.4'	S 14°42.2'	147°58.0'	S 19°05.8'	240°55.0'	S 14°25.6'			
4	113°28.7'	243°54.0'	S 18°15.9'	194°34.2'	S 26°58.8'	147°15.6'	S 14°42.1'	163°00.3'	S 19°05.8'	255°55.8'	S 14°26.1'			
5	128°31.2'	258°53.9'	S 18°16.6'	209°34.2'	S 26°58.6'	162°17.9'	S 14°42.0'	178°02.6'	S 19°05.7'	270°56.6'	S 14°26.7'			
6	143°33.7'	273°53.8'	S 18°17.2'	224°34.3'	S 26°58.4'	177°20.1'	S 14°41.9'	193°04.9'	S 19°05.7'	285°57.4'	S 14°27.2'			
7	158°36.1'	288°53.7'	S 18°17.9'	239°34.3'	S 26°58.3'	192°22.4'	S 14°41.9'	208°07.3'	S 19°05.6'	300°58.2'	S 14°27.8'			
8	173°38.6'	303°53.6'	S 18°18.5'	254°34.4'	S 26°58.1'	207°24.6'	S 14°41.8'	223°09.6'	S 19°05.6'	315°59.0'	S 14°28.3'			
9	188°41.1'	318°53.5'	S 18°19.1'	269°34.4'	S 26°57.9'	222°26.9'	S 14°41.7'	238°11.9'	S 19°05.6'	330°59.8'	S 14°28.9'			
10	203°43.5'	333°53.4'	S 18°19.8'	284°34.5'	S 26°57.7'	237°29.1'	S 14°41.6'	253°14.2'	S 19°05.5'	346°00.6'	S 14°29.5'			
11	218°46.0'	348°53.3'	S 18°20.4'	299°34.5'	S 26°57.6'	252°31.4'	S 14°41.5'	268°16.6'	S 19°05.5'	1°01.5'	S 14°30.0'			
12	233°48.5'	3°53.2'	S 18°21.1'	314°34.6'	S 26°57.4'	267°33.6'	S 14°41.5'	283°18.9'	S 19°05.5'	16°02.3'	S 14°30.6'			
13	248°50.9'	18°53.1'	S 18°21.7'	329°34.6'	S 26°57.2'	282°35.9'	S 14°41.4'	298°21.2'	S 19°05.4'	31°03.1'	S 14°31.1'			
14	263°53.4'	33°53.0'	S 18°22.4'	344°34.7'	S 26°57.0'	297°38.1'	S 14°41.3'	313°23.5'	S 19°05.4'	46°03.9'	S 14°31.7'			
15	278°55.9'	48°52.9'	S 18°23.0'	359°34.8'	S 26°56.8'	312°40.4'	S 14°41.2'	328°25.8'	S 19°05.4'	61°04.7'	S 14°32.2'			
16	293°58.3'	63°52.8'	S 18°23.7'	14°34.8'	S 26°56.7'	327°42.6'	S 14°41.2'	343°28.2'	S 19°05.3'	76°05.5'	S 14°32.8'			
17	309°00.8'	78°52.7'	S 18°24.3'	29°34.9'	S 26°56.5'	342°44.9'	S 14°41.1'	358°30.5'	S 19°05.3'	91°06.3'	S 14°33.3'			
18	324°03.2'	93°52.6'	S 18°24.9'	44°34.9'	S 26°56.3'	357°47.1'	S 14°41.0'	13°32.8'	S 19°05.2'	106°07.1'	S 14°33.9'			
19	339°05.7'	108°52.5'	S 18°25.6'	59°35.0'	S 26°56.1'	12°49.4'	S 14°40.9'	28°35.1'	S 19°05.2'	121°07.9'	S 14°34.5'			
20	354°08.2'	123°52.4'	S 18°26.2'	74°35.1'	S 26°55.9'	27°51.6'	S 14°40.8'	43°37.4'	S 19°05.2'	136°08.7'	S 14°35.0'			
21	9°10.6'	138°52.3'	S 18°26.9'	89°35.1'	S 26°55.7'	42°53.9'	S 14°40.8'	58°39.8'	S 19°05.1'	151°09.5'	S 14°35.6'			
22	24°13.1'	153°52.2'	S 18°27.5'	104°35.2'	S 26°55.6'	57°56.1'	S 14°40.7'	73°42.1'	S 19°05.1'	166°10.3'	S 14°36.1'			
23	39°15.6'	168°52.1'	S 18°28.1'	119°35.3'	S 26°55.4'	72°58.4'	S 14°40.6'	88°44.4'	S 19°05.1'	181°11.1'	S 14°36.7'			
		SD 16.2' d -0.6'		v 0.1' d 0.2'		v 2.3' d 0.1'		v 2.3' d 0.0'		v 0.8' d -0.6'				
Mer. pass.		11 h 44 m 28 s		15 h 2 m		18 h 9 m		17 h 6 m		10 h 56 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Sun
0	58°59.0'	S 7°52.0'	14.5'	13.5'	56.0'	95°41.4'	92°22.7'	83°33.2'	78°02.0'	23°27.2'	28°23.4'	43°58.5'	119°43.5'
1	73°32.5'	S 7°38.5'	14.6'	13.5'	56.0'	95°11.3'	91°53.1'	83°06.5'	77°30.5'	23°50.4'	28°54.5'	44°29.9'	
2	88°06.1'	S 7°25.0'	14.6'	13.6'	56.0'	94°41.3'	91°23.5'	82°39.8'	76°59.0'	24°13.9'	29°25.6'	45°01.3'	
3	102°39.8'	S 7°11.4'	14.7'	13.6'	55.9'	94°11.2'	90°53.9'	82°13.2'	76°27.6'	24°37.6'	29°56.7'	45°32.6'	
4	117°13.4'	S 6°57.8'	14.7'	13.6'	55.9'	93°41.2'	90°24.4'	81°46.6'	75°56.2'	25°01.6'	30°27.8'	46°04.0'	
5	131°47.2'	S 6°44.3'	14.8'	13.6'	55.9'	93°11.3'	89°54.9'	81°20.0'	75°24.8'	25°25.9'	30°58.8'	46°35.3'	
6	146°21.0'	S 6°30.6'	14.8'	13.6'	55.9'	92°41.3'	89°25.4'	80°53.5'	74°53.4'	25°50.4'	31°29.9'	47°06.6'	
7	160°54.8'	S 6°17.0'	14.9'	13.6'	55.8'	92°11.4'	88°55.9'	80°27.0'	74°22.0'	26°15.1'	32°00.9'	47°37.8'	
8	175°28.7'	S 6°03.4'	14.9'	13.7'	55.8'	91°41.5'	88°26.5'	80°00.5'	73°50.7'	26°40.0'	32°31.9'	48°09.1'	
9	190°02.6'	S 5°49.7'	15.0'	13.7'	55.8'	91°11.6'	87°57.1'	79°34.1'	73°19.4'	27°05.1'	33°02.9'	48°40.3'	
10	204°36.6'	S 5°36.0'	15.0'	13.7'	55.8'	90°41.7'	87°27.7'	79°07.7'	72°48.1'	27°30.3'	33°33.9'	49°11.5'	
11	219°10.6'	S 5°22.3'	15.1'	13.7'	55.7'	90°11.9'	86°58.3'	78°41.3'	72°16.9'	27°55.8'	34°04.9'	49°42.7'	
12	233°44.6'	S 5°08.7'	15.1'	13.7'	55.7'	89°42.0'	86°29.0'	78°15.0'	71°45.7'	28°21.4'	34°35.8'	50°13.8'	
13	248°18.7'	S 4°54.9'	15.1'	13.7'	55.7'	89°12.2'	85°59.6'	77°48.7'	71°14.5'	28°47.2'	35°06.8'	50°45.0'	
14	262°52.9'	S 4°41.2'	15.2'	13.7'	55.7'	88°42.5'	85°30.4'	77°22.5'	70°43.3'	29°13.1'	35°37.7'	51°16.1'	
15	277°27.1'	S 4°27.5'	15.2'	13.7'	55.6'	88°12.7'	85°01.1'	76°56.3'	70°12.2'	29°39.2'	36°08.6'	51°47.2'	
16	292°01.3'	S 4°13.8'	15.3'	13.7'	55.6'	87°43.0'	84°31.8'	76°30.1'	69°41.0'	30°05.4'	36°39.5'	52°18.2'	
17	306°35.5'	S 4°00.0'	15.3'	13.7'	55.6'	87°13.3'	84°02.6'	76°04.0'	69°09.9'	30°31.7'	37°10.3'	52°49.3'	
18	321°09.8'	S 3°46.3'	15.3'	13.8'	55.6'	86°43.6'	83°33.4'	75°37.9'	68°38.8'	30°58.1'	37°41.2'	53°20.3'	
19	335°44.2'	S 3°32.5'	15.4'	13.8'	55.6'	86°13.9'	83°04.2'	75°11.9'	68°07.8'	31°24.7'	38°12.0'	53°51.3'	
20	350°18.5'	S 3°18.8'	15.4'	13.8'	55.5'	85°44.3'	82°35.1'	74°45.9'	67°36.8'	31°51.3'	38°42.8'	54°22.3'	
21	4°52.9'	S 3°05.0'	15.4'	13.8'	55.5'	85°14.7'	82°06.0'	74°19.9'	67°05.8'	32°18.1'	39°13.6'	54°53.3'	
22	19°27.3'	S 2°51.3'	15.5'	13.8'	55.5'	84°45.1'	81°36.9'	73°54.0'	66°34.8'	32°45.0'	39°44.4'	55°24.2'	
23	34°01.8'	S 2°37.5'	15.5'	13.8'	55.5'	84°15.5'	81°07.8'	73°28.1'	66°03.8'	33°12.0'	40°15.1'	55°55.1'	
Mer. pass.		20 h 40 m SD 15.3' phase 75%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigel Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.6'	N 19°04.3'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	54°18.0'	183°52.0'	S 18°28.8'	134°35.4'	S 26°55.2'	88°00.6'	S 14°40.5'	103°46.7'	S 19°05.0'	196°11.9'	S 14°37.2'	
1	69°20.5'	198°51.9'	S 18°29.4'	149°35.4'	S 26°55.0'	103°02.9'	S 14°40.4'	118°49.0'	S 19°05.0'	211°12.7'	S 14°37.8'	
2	84°23.0'	213°51.8'	S 18°30.1'	164°35.5'	S 26°54.8'	118°05.1'	S 14°40.4'	133°51.4'	S 19°05.0'	226°13.5'	S 14°38.3'	
3	99°25.4'	228°51.7'	S 18°30.7'	179°35.6'	S 26°54.6'	133°07.4'	S 14°40.3'	148°53.7'	S 19°04.9'	241°14.3'	S 14°38.9'	
4	114°27.9'	243°51.6'	S 18°31.3'	194°35.7'	S 26°54.4'	148°09.6'	S 14°40.2'	163°56.0'	S 19°04.9'	256°15.1'	S 14°39.4'	
5	129°30.3'	258°51.5'	S 18°32.0'	209°35.8'	S 26°54.2'	163°11.9'	S 14°40.1'	178°58.3'	S 19°04.8'	271°15.9'	S 14°40.0'	
6	144°32.8'	273°51.4'	S 18°32.6'	224°35.8'	S 26°54.0'	178°14.1'	S 14°40.0'	194°00.6'	S 19°04.8'	286°16.7'	S 14°40.5'	
7	159°35.3'	288°51.3'	S 18°33.2'	239°35.9'	S 26°53.8'	193°16.4'	S 14°40.0'	209°03.0'	S 19°04.8'	301°17.5'	S 14°41.1'	
8	174°37.7'	303°51.2'	S 18°33.9'	254°36.0'	S 26°53.6'	208°18.6'	S 14°39.9'	224°05.3'	S 19°04.7'	316°18.3'	S 14°41.6'	
9	189°40.2'	318°51.0'	S 18°34.5'	269°36.1'	S 26°53.4'	223°20.9'	S 14°39.8'	239°07.6'	S 19°04.7'	331°19.1'	S 14°42.2'	
10	204°42.7'	333°50.9'	S 18°35.1'	284°36.2'	S 26°53.2'	238°23.1'	S 14°39.7'	254°09.9'	S 19°04.7'	346°19.9'	S 14°42.8'	
11	219°45.1'	348°50.8'	S 18°35.8'	299°36.3'	S 26°53.0'	253°25.4'	S 14°39.6'	269°12.2'	S 19°04.6'	1°20.7'	S 14°43.3'	
12	234°47.6'	3°50.7'	S 18°36.4'	314°36.4'	S 26°52.8'	268°27.6'	S 14°39.6'	284°14.5'	S 19°04.6'	16°21.5'	S 14°43.9'	
13	249°50.1'	18°50.6'	S 18°37.0'	329°36.5'	S 26°52.6'	283°29.8'	S 14°39.5'	299°16.9'	S 19°04.5'	31°22.3'	S 14°44.4'	
14	264°52.5'	33°50.5'	S 18°37.6'	344°36.6'	S 26°52.4'	298°32.1'	S 14°39.4'	314°19.2'	S 19°04.5'	46°23.1'	S 14°45.0'	
15	279°55.0'	48°50.4'	S 18°38.3'	359°36.6'	S 26°52.2'	313°34.3'	S 14°39.3'	329°21.5'	S 19°04.5'	61°23.9'	S 14°45.5'	
16	294°57.5'	63°50.3'	S 18°38.9'	14°36.7'	S 26°52.0'	328°36.6'	S 14°39.2'	344°23.8'	S 19°04.4'	76°24.7'	S 14°46.1'	
17	309°59.9'	78°50.2'	S 18°39.5'	29°36.8'	S 26°51.8'	343°38.8'	S 14°39.2'	359°26.1'	S 19°04.4'	91°25.5'	S 14°46.6'	
18	325°02.4'	93°50.1'	S 18°40.2'	44°36.9'	S 26°51.6'	358°41.1'	S 14°39.1'	14°28.5'	S 19°04.4'	106°26.3'	S 14°47.2'	
19	340°04.8'	108°50.0'	S 18°40.8'	59°37.1'	S 26°51.4'	13°43.3'	S 14°39.0'	29°30.8'	S 19°04.3'	121°27.1'	S 14°47.7'	
20	355°07.3'	123°49.9'	S 18°41.4'	74°37.2'	S 26°51.2'	28°45.5'	S 14°38.9'	44°33.1'	S 19°04.3'	136°27.9'	S 14°48.3'	
21	10°09.8'	138°49.7'	S 18°42.0'	89°37.3'	S 26°51.0'	43°47.8'	S 14°38.8'	59°35.4'	S 19°04.2'	151°28.7'	S 14°48.8'	
22	25°12.2'	153°49.6'	S 18°42.7'	104°37.4'	S 26°50.8'	58°50.0'	S 14°38.7'	74°37.7'	S 19°04.2'	166°29.5'	S 14°49.4'	
23	40°14.7'	168°49.5'	S 18°43.3'	119°37.5'	S 26°50.6'	73°52.3'	S 14°38.7'	89°40.0'	S 19°04.2'	181°30.3'	S 14°49.9'	
		SD 16.2' d -0.6'		v 0.1' d 0.2'		v 2.2' d 0.1'		v 2.3' d 0.0'		v 0.8' d -0.6'		
Mer. pass.		11 h 44 m 38 s		15 h 2 m		18 h 5 m		17 h 2 m		10 h 55 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	48°36.3'	S 2°23.7'	15.5'	13.8'	55.4'	83°46.0'	80°38.8'	73°02.3'	65°32.9'	33°39.0'	40°45.9'	56°26.0'	68°26.6'
1	63°10.8'	S 2°10.7'	15.5'	13.8'	55.4'	83°16.4'	80°09.7'	72°36.5'	65°02.0'	34°06.1'	41°16.6'	56°56.9'	68°51.6'
2	77°45.3'	S 1°56.2'	15.6'	13.8'	55.4'	82°46.9'	79°40.7'	72°10.8'	64°31.1'	34°33.4'	41°47.3'	57°27.8'	69°16.6'
3	92°19.9'	S 1°42.4'	15.6'	13.8'	55.4'	82°17.5'	79°11.8'	71°45.1'	64°00.2'	35°00.7'	42°18.0'	57°58.6'	69°41.6'
4	106°54.5'	S 1°28.7'	15.6'	13.8'	55.4'	81°48.0'	78°42.8'	71°19.4'	63°29.4'	35°28.0'	42°48.7'	58°29.5'	70°06.6'
5	121°29.1'	S 1°14.9'	15.6'	13.8'	55.3'	81°18.6'	78°13.9'	70°53.8'	62°58.5'	35°55.5'	43°19.3'	59°00.3'	70°31.6'
6	136°03.8'	S 1°01.2'	15.7'	13.7'	55.3'	80°49.2'	77°45.0'	70°28.3'	62°27.7'	36°23.0'	43°50.0'	59°31.1'	70°56.6'
7	150°38.4'	S 0°47.4'	15.7'	13.7'	55.3'	80°19.8'	77°16.2'	70°02.8'	61°57.0'	36°50.5'	44°20.6'	60°01.8'	71°21.7'
8	165°13.1'	S 0°33.7'	15.7'	13.7'	55.3'	79°50.4'	76°47.3'	69°37.3'	61°26.2'	37°18.2'	44°51.2'	60°32.6'	71°46.8'
9	179°47.8'	S 0°19.9'	15.7'	13.7'	55.3'	79°21.1'	76°18.5'	69°11.9'	60°55.5'	37°45.8'	45°21.8'	61°03.3'	72°11.9'
10	194°22.5'	S 0°06.2'	15.7'	13.7'	55.2'	78°51.8'	75°49.8'	68°46.6'	60°24.8'	38°13.6'	45°52.3'	61°34.0'	72°37.0'
11	208°57.3'	N 0°07.5'	15.8'	13.7'	55.2'	78°22.5'	75°21.0'	68°21.3'	59°54.1'	38°41.4'	46°22.9'	62°04.7'	73°02.1'
12	223°32.0'	N 0°21.2'	15.8'	13.7'	55.2'	77°53.2'	74°52.3'	67°56.0'	59°23.4'	39°09.2'	46°53.4'	62°35.4'	73°27.3'
13	238°06.8'	N 0°34.9'	15.8'	13.7'	55.2'	77°24.0'	74°23.6'	67°30.8'	58°52.7'	39°37.1'	47°23.9'	63°06.0'	73°52.4'
14	252°41.6'	N 0°48.6'	15.8'	13.7'	55.2'	76°54.8'	73°54.9'	67°05.7'	58°22.1'	40°05.0'	47°54.4'	63°36.7'	74°17.6'
15	267°16.4'	N 1°02.3'	15.8'	13.7'	55.1'	76°25.6'	73°26.3'	66°40.6'	57°51.5'	40°33.0'	48°24.9'	64°07.3'	74°42.8'
16	281°51.2'	N 1°16.0'	15.8'	13.7'	55.1'	75°56.4'	72°57.7'	66°15.6'	57°20.9'	41°01.0'	48°55.4'	64°37.9'	75°08.0'
17	296°26.0'	N 1°29.6'	15.8'	13.6'	55.1'	75°27.3'	72°29.1'	65°50.6'	56°50.4'	41°29.0'	49°25.9'	65°08.5'	75°33.2'
18	311°00.9'	N 1°43.3'	15.8'	13.6'	55.1'	74°58.2'	72°00.5'	65°25.7'	56°19.8'	41°57.1'	49°56.3'	65°39.1'	75°58.4'
19	325°35.7'	N 1°56.9'	15.9'	13.6'	55.1'	74°29.1'	71°32.0'	65°00.8'	55°49.3'	42°25.3'	50°26.7'	66°09.6'	76°23.6'
20	340°10.6'	N 2°10.5'	15.9'	13.6'	55.1'	73°60.0'	71°03.5'	64°36.0'	55°18.8'	42°53.4'	50°57.1'	66°40.1'	76°48.8'
21	354°45.4'	N 2°24.1'	15.9'	13.6'	55.0'	73°31.0'	70°35.0'	64°11.3'	54°48.3'	43°21.6'	51°27.5'	67°10.7'	77°14.0'
22	9°20.3'	N 2°37.7'	15.9'	13.6'	55.0'	73°01.9'	70°06.6'	63°46.6'	54°17.8'	43°49.8'	51°57.9'	67°41.2'	77°39.3'
23	23°55.2'	N 2°51.3'	15.9'	13.5'	55.0'	72°32.9'	69°38.2'	63°22.0'	53°47.4'	44°18.1'	52°28.2'	68°11.6'	78°04.5'
Mer. pass.		21 h 22 m SD 15.1'		phase 83%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.7'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	55°17.2'	183°49.4'	S 18°43.9'	134°37.6'	S 26°50.4'		88°54.5'	S 14°38.6'		104°42.4'	S 19°04.1'		196°31.1'	S 14°50.5'				
1	70°19.6'	198°49.3'	S 18°44.5'	149°37.7'	S 26°50.2'		103°56.8'	S 14°38.5'		119°44.7'	S 19°04.1'		211°31.9'	S 14°51.0'				
2	85°22.1'	213°49.2'	S 18°45.2'	164°37.8'	S 26°50.0'		118°59.0'	S 14°38.4'		134°47.0'	S 19°04.1'		226°32.7'	S 14°51.6'				
3	100°24.6'	228°49.1'	S 18°45.8'	179°37.9'	S 26°49.8'		134°01.2'	S 14°38.3'		149°49.3'	S 19°04.0'		241°33.5'	S 14°52.1'				
4	115°27.0'	243°49.0'	S 18°46.4'	194°38.1'	S 26°49.5'		149°03.5'	S 14°38.3'		164°51.6'	S 19°04.0'		256°34.3'	S 14°52.7'				
5	130°29.5'	258°48.8'	S 18°47.0'	209°38.2'	S 26°49.3'		164°05.7'	S 14°38.2'		179°53.9'	S 19°03.9'		271°35.1'	S 14°53.2'				
6	145°31.9'	273°48.7'	S 18°47.7'	224°38.3'	S 26°49.1'		179°08.0'	S 14°38.1'		194°56.2'	S 19°03.9'		286°35.9'	S 14°53.8'				
7	160°34.4'	288°48.6'	S 18°48.3'	239°38.4'	S 26°48.9'		194°10.2'	S 14°38.0'		209°58.6'	S 19°03.9'		301°36.7'	S 14°54.3'				
8	175°36.9'	303°48.5'	S 18°48.9'	254°38.5'	S 26°48.7'		209°12.4'	S 14°37.9'		225°00.9'	S 19°03.8'		316°37.5'	S 14°54.9'				
9	190°39.3'	318°48.4'	S 18°49.5'	269°38.7'	S 26°48.5'		224°14.7'	S 14°37.8'		240°03.2'	S 19°03.8'		331°38.2'	S 14°55.4'				
10	205°41.8'	333°48.3'	S 18°50.1'	284°38.8'	S 26°48.3'		239°16.9'	S 14°37.8'		255°05.5'	S 19°03.8'		346°39.0'	S 14°55.9'				
11	220°44.3'	348°48.2'	S 18°50.7'	299°38.9'	S 26°48.0'		254°19.2'	S 14°37.7'		270°07.8'	S 19°03.7'		1°39.8'	S 14°56.5'				
12	235°46.7'	3°48.0'	S 18°51.4'	314°39.1'	S 26°47.8'		269°21.4'	S 14°37.6'		285°10.1'	S 19°03.7'		16°40.6'	S 14°57.0'				
13	250°49.2'	18°47.9'	S 18°52.0'	329°39.2'	S 26°47.6'		284°23.6'	S 14°37.5'		300°12.4'	S 19°03.6'		31°41.4'	S 14°57.6'				
14	265°51.7'	33°47.8'	S 18°52.6'	344°39.3'	S 26°47.4'		299°25.9'	S 14°37.4'		315°14.8'	S 19°03.6'		46°42.2'	S 14°58.1'				
15	280°54.1'	48°47.7'	S 18°53.2'	359°39.5'	S 26°47.1'		314°28.1'	S 14°37.3'		330°17.1'	S 19°03.6'		61°43.0'	S 14°58.7'				
16	295°56.6'	63°47.6'	S 18°53.8'	14°39.6'	S 26°46.9'		329°30.3'	S 14°37.3'		345°19.4'	S 19°03.5'		76°43.8'	S 14°59.2'				
17	310°59.1'	78°47.5'	S 18°54.4'	29°39.7'	S 26°46.7'		344°32.6'	S 14°37.2'		0°21.7'	S 19°03.5'		91°44.6'	S 14°59.8'				
18	326°01.5'	93°47.3'	S 18°55.1'	44°39.9'	S 26°46.5'		359°34.8'	S 14°37.1'		15°24.0'	S 19°03.5'		106°45.4'	S 15°00.3'				
19	341°04.0'	108°47.2'	S 18°55.7'	59°40.0'	S 26°46.3'		14°37.0'	S 14°37.0'		30°26.3'	S 19°03.4'		121°46.2'	S 15°00.9'				
20	356°06.4'	123°47.1'	S 18°56.3'	74°40.2'	S 26°46.0'		29°39.3'	S 14°36.9'		45°28.6'	S 19°03.4'		136°47.0'	S 15°01.4'				
21	11°08.9'	138°47.0'	S 18°56.9'	89°40.3'	S 26°45.8'		44°41.5'	S 14°36.8'		60°31.0'	S 19°03.3'		151°47.8'	S 15°02.0'				
22	26°11.4'	153°46.9'	S 18°57.5'	104°40.4'	S 26°45.6'		59°43.7'	S 14°36.8'		75°33.3'	S 19°03.3'		166°48.6'	S 15°02.5'				
23	41°13.8'	168°46.7'	S 18°58.1'	119°40.6'	S 26°45.3'		74°46.0'	S 14°36.7'		90°35.6'	S 19°03.3'		181°49.4'	S 15°03.1'				
		SD 16.2' d -0.6'		v 0.1' d 0.2'			v 2.2' d 0.1'			v 2.3' d 0.0'			v 0.8' d -0.5'					
Mer. pass.		11 h 44 m 49 s		15 h 1 m			18 h 2 m			16 h 59 m			10 h 53 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	38°30.1'	N 3°04.8'	15.9'	13.5'	55.0'	72°04.0'	69°09.8'	62°57.4'	53°17.0'	44°46.3'	52°58.6'	68°42.1'	78°29.7'
1	53°04.9'	N 3°18.3'	15.9'	13.5'	55.0'	71°35.0'	68°41.5'	62°32.9'	52°46.6'	45°14.6'	53°28.9'	69°12.6'	78°55.0'
2	67°39.8'	N 3°31.8'	15.9'	13.5'	54.9'	71°06.1'	68°13.2'	62°08.5'	52°16.2'	45°43.0'	53°59.2'	69°43.0'	79°20.2'
3	82°14.7'	N 3°45.3'	15.9'	13.5'	54.9'	70°37.2'	67°44.9'	61°44.2'	51°45.9'	46°11.3'	54°29.5'	70°13.4'	79°45.5'
4	96°49.6'	N 3°58.8'	15.9'	13.4'	54.9'	70°08.4'	67°16.6'	61°19.9'	51°15.5'	46°39.7'	54°59.8'	70°43.8'	80°10.7'
5	111°24.5'	N 4°12.2'	15.9'	13.4'	54.9'	69°39.5'	66°48.4'	60°55.7'	50°45.2'	47°08.1'	55°30.0'	71°14.2'	80°36.0'
6	125°59.4'	N 4°25.6'	15.9'	13.4'	54.9'	69°10.7'	66°20.2'	60°31.5'	50°14.9'	47°36.5'	56°00.3'	71°44.6'	81°01.3'
7	140°34.2'	N 4°39.0'	15.9'	13.4'	54.9'	68°41.9'	65°52.1'	60°07.4'	49°44.6'	48°04.9'	56°30.5'	72°14.9'	81°26.5'
8	155°09.1'	N 4°52.4'	15.9'	13.3'	54.8'	68°13.2'	65°24.0'	59°43.4'	49°14.4'	48°33.3'	57°00.8'	72°45.3'	81°51.8'
9	169°44.0'	N 5°05.7'	15.9'	13.3'	54.8'	67°44.5'	64°55.9'	59°19.5'	48°44.1'	49°01.8'	57°31.0'	73°15.6'	82°17.0'
10	184°18.9'	N 5°19.0'	15.9'	13.3'	54.8'	67°15.8'	64°27.8'	58°55.6'	48°13.9'	49°30.3'	58°01.1'	73°45.9'	82°42.3'
11	198°53.7'	N 5°32.3'	15.9'	13.3'	54.8'	66°47.1'	63°59.8'	58°31.8'	47°43.7'	49°58.8'	58°31.3'	74°16.2'	83°07.5'
12	213°28.6'	N 5°45.6'	15.8'	13.2'	54.8'	66°18.5'	63°31.8'	58°08.1'	47°13.6'	50°27.3'	59°01.5'	74°46.5'	83°32.8'
13	228°03.4'	N 5°58.8'	15.8'	13.2'	54.8'	65°49.8'	63°03.9'	57°44.5'	46°43.4'	50°55.8'	59°31.6'	75°16.7'	83°58.0'
14	242°38.3'	N 6°12.0'	15.8'	13.2'	54.8'	65°21.2'	62°36.0'	57°20.9'	46°13.3'	51°24.4'	60°01.8'	75°47.0'	84°23.3'
15	257°13.1'	N 6°25.2'	15.8'	13.1'	54.7'	64°52.7'	62°08.1'	56°57.5'	45°43.1'	51°52.9'	60°31.9'	76°17.2'	84°48.5'
16	271°47.9'	N 6°38.3'	15.8'	13.1'	54.7'	64°24.2'	61°40.3'	56°34.1'	45°13.1'	52°21.5'	61°02.0'	76°47.4'	85°13.8'
17	286°22.7'	N 6°51.4'	15.8'	13.1'	54.7'	63°55.7'	61°12.5'	56°10.8'	44°43.0'	52°50.1'	61°32.1'	77°17.6'	85°39.0'
18	300°57.5'	N 7°04.5'	15.8'	13.0'	54.7'	63°27.2'	60°44.7'	55°47.6'	44°12.9'	53°18.7'	62°02.2'	77°47.8'	86°04.2'
19	315°32.3'	N 7°17.6'	15.8'	13.0'	54.7'	62°58.8'	60°17.0'	55°24.4'	43°42.9'	53°47.2'	62°32.2'	78°18.0'	86°29.4'
20	330°07.1'	N 7°30.6'	15.8'	13.0'	54.7'	62°30.3'	59°49.3'	55°01.4'	43°12.9'	54°15.9'	63°02.3'	78°48.2'	86°54.7'
21	344°41.8'	N 7°43.5'	15.7'	12.9'	54.7'	62°02.0'	59°21.6'	54°38.5'	42°42.9'	54°44.5'	63°32.3'	79°18.3'	87°19.9'
22	359°16.6'	N 7°56.5'	15.7'	12.9'	54.6'	61°33.6'	58°54.0'	54°15.6'	42°12.9'	55°13.1'	64°02.3'	79°48.5'	87°45.1'
23	13°51.3'	N 8°09.4'	15.7'	12.9'	54.6'	61°05.3'	58°26.5'	53°52.8'	41°43.0'	55°41.7'	64°32.4'	80°18.6'	88°10.3'
Mer. pass.		22 h 3 m SD 15.0' phase 90%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	56°16.3'	183°46.6'	S 18°58.7'	134°40.7'	S 26°45.1'		89°48.2'	S 14°36.6'		105°37.9'	S 19°03.2'		196°50.2'	S 15°03.6'				
1	71°18.8'	198°46.5'	S 18°59.3'	149°40.9'	S 26°44.9'		104°50.5'	S 14°36.5'		120°40.2'	S 19°03.2'		211°50.9'	S 15°04.1'				
2	86°21.2'	213°46.4'	S 18°59.9'	164°41.1'	S 26°44.7'		119°52.7'	S 14°36.4'		135°42.5'	S 19°03.1'		226°51.7'	S 15°04.7'				
3	101°23.7'	228°46.3'	S 19°00.6'	179°41.2'	S 26°44.4'		134°54.9'	S 14°36.3'		150°44.8'	S 19°03.1'		241°52.5'	S 15°05.2'				
4	116°26.2'	243°46.1'	S 19°01.2'	194°41.4'	S 26°44.2'		149°57.2'	S 14°36.3'		165°47.1'	S 19°03.1'		256°53.3'	S 15°05.8'				
5	131°28.6'	258°46.0'	S 19°01.8'	209°41.5'	S 26°44.0'		164°59.4'	S 14°36.2'		180°49.5'	S 19°03.0'		271°54.1'	S 15°06.3'				
6	146°31.1'	273°45.9'	S 19°02.4'	224°41.7'	S 26°43.7'		180°01.6'	S 14°36.1'		195°51.8'	S 19°03.0'		286°54.9'	S 15°06.9'				
7	161°33.6'	288°45.8'	S 19°03.0'	239°41.8'	S 26°43.5'		195°03.9'	S 14°36.0'		210°54.1'	S 19°02.9'		301°55.7'	S 15°07.4'				
8	176°36.0'	303°45.6'	S 19°03.6'	254°42.0'	S 26°43.2'		210°06.1'	S 14°35.9'		225°56.4'	S 19°02.9'		316°56.5'	S 15°08.0'				
9	191°38.5'	318°45.5'	S 19°04.2'	269°42.2'	S 26°43.0'		225°08.3'	S 14°35.8'		240°58.7'	S 19°02.9'		331°57.3'	S 15°08.5'				
10	206°40.9'	333°45.4'	S 19°04.8'	284°42.3'	S 26°42.8'		240°10.5'	S 14°35.7'		256°01.0'	S 19°02.8'		346°58.1'	S 15°09.0'				
11	221°43.4'	348°45.3'	S 19°05.4'	299°42.5'	S 26°42.5'		255°12.8'	S 14°35.7'		271°03.3'	S 19°02.8'		1°58.9'	S 15°09.6'				
12	236°45.9'	3°45.1'	S 19°06.0'	314°42.7'	S 26°42.3'		270°15.0'	S 14°35.6'		286°05.6'	S 19°02.8'		16°59.6'	S 15°10.1'				
13	251°48.3'	18°45.0'	S 19°06.6'	329°42.9'	S 26°42.1'		285°17.2'	S 14°35.5'		301°07.9'	S 19°02.7'		32°00.4'	S 15°10.7'				
14	266°50.8'	33°44.9'	S 19°07.2'	344°43.0'	S 26°41.8'		300°19.5'	S 14°35.4'		316°10.3'	S 19°02.7'		47°01.2'	S 15°11.2'				
15	281°53.3'	48°44.8'	S 19°07.8'	359°43.2'	S 26°41.6'		315°21.7'	S 14°35.3'		331°12.6'	S 19°02.6'		62°02.0'	S 15°11.8'				
16	296°55.7'	63°44.6'	S 19°08.4'	14°43.4'	S 26°41.3'		330°23.9'	S 14°35.2'		346°14.9'	S 19°02.6'		77°02.8'	S 15°12.3'				
17	311°58.2'	78°44.5'	S 19°09.0'	29°43.6'	S 26°41.1'		345°26.2'	S 14°35.1'		1°17.2'	S 19°02.6'		92°03.6'	S 15°12.8'				
18	327°00.7'	93°44.4'	S 19°09.6'	44°43.7'	S 26°40.8'		0°28.4'	S 14°35.1'		16°19.5'	S 19°02.5'		107°04.4'	S 15°13.4'				
19	342°03.1'	108°44.3'	S 19°10.2'	59°43.9'	S 26°40.6'		15°30.6'	S 14°35.0'		31°21.8'	S 19°02.5'		122°05.2'	S 15°13.9'				
20	357°05.6'	123°44.1'	S 19°10.8'	74°44.1'	S 26°40.3'		30°32.8'	S 14°34.9'		46°24.1'	S 19°02.4'		137°06.0'	S 15°14.5'				
21	12°08.0'	138°44.0'	S 19°11.4'	89°44.3'	S 26°40.1'		45°35.1'	S 14°34.8'		61°26.4'	S 19°02.4'		152°06.7'	S 15°15.0'				
22	27°10.5'	153°43.9'	S 19°12.0'	104°44.5'	S 26°39.9'		60°37.3'	S 14°34.7'		76°28.7'	S 19°02.4'		167°07.5'	S 15°15.5'				
23	42°13.0'	168°43.8'	S 19°12.6'	119°44.7'	S 26°39.6'		75°39.5'	S 14°34.6'		91°31.0'	S 19°02.3'		182°08.3'	S 15°16.1'				
		SD 16.2' d -0.6'		v 0.2' d 0.2'			v 2.2' d 0.1'			v 2.3' d 0.0'			v 0.8' d -0.5'					
Mer. pass.		11 h 45 m 0 s		15 h 1 m			17 h 58 m			16 h 55 m			10 h 52 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Achernar	+Saturn
0	28°26.0'	N 8°22.2'	15.7'	12.8'	54.6'	60°37.0'	57°58.9'	53°30.2'	41°13.1'	56°10.4'	65°02.4'		80°48.7'
1	43°00.7'	N 8°35.1'	15.7'	12.8'	54.6'	60°08.8'	57°31.5'	53°07.6'	40°43.2'	56°39.0'	65°32.3'		81°18.8'
2	57°35.4'	N 8°47.9'	15.6'	12.7'	54.6'	59°40.5'	57°04.0'	52°45.1'	40°13.3'	57°07.7'	66°02.3'		81°48.9'
3	72°10.0'	N 9°00.6'	15.6'	12.7'	54.6'	59°12.4'	56°36.6'	52°22.8'	39°43.4'	57°36.3'	66°32.3'		82°18.9'
4	86°44.6'	N 9°13.3'	15.6'	12.7'	54.6'	58°44.2'	56°09.3'	52°00.5'	39°13.6'	58°05.0'	67°02.2'		82°49.0'
5	101°19.2'	N 9°26.0'	15.6'	12.6'	54.5'	58°16.1'	55°41.9'	51°38.4'	38°43.7'	58°33.6'	67°32.2'		83°19.0'
6	115°53.8'	N 9°38.6'	15.6'	12.6'	54.5'	57°48.0'	55°14.7'	51°16.3'	38°14.0'	59°02.3'	68°02.1'		83°49.1'
7	130°28.4'	N 9°51.2'	15.5'	12.5'	54.5'	57°19.9'	54°47.5'	50°54.4'	37°44.2'	59°31.0'	68°32.0'		84°19.1'
8	145°02.9'	N 10°03.7'	15.5'	12.5'	54.5'	56°51.9'	54°20.3'	50°32.6'	37°14.4'	59°59.7'	69°01.9'		84°49.1'
9	159°37.4'	N 10°16.2'	15.5'	12.5'	54.5'	56°23.9'	53°53.2'	50°10.8'	36°44.7'	60°28.4'	69°31.8'		85°19.1'
10	174°11.9'	N 10°28.7'	15.5'	12.4'	54.5'	55°56.0'	53°26.1'	49°49.2'	36°15.0'	60°57.0'	70°01.7'		85°49.1'
11	188°46.4'	N 10°41.1'	15.4'	12.4'	54.5'	55°28.1'	52°59.1'	49°27.8'	35°45.3'	61°25.7'	70°31.5'		86°19.0'
12	203°20.8'	N 10°53.4'	15.4'	12.3'	54.5'	55°00.2'	52°32.1'	49°06.4'	35°15.7'	61°54.4'	71°01.4'		86°49.0'
13	217°55.2'	N 11°05.8'	15.4'	12.3'	54.4'	54°32.4'	52°05.2'	48°45.2'	34°46.0'	62°23.1'	71°31.2'		87°18.9'
14	232°29.6'	N 11°18.0'	15.3'	12.2'	54.4'	54°04.6'	51°38.3'	48°24.1'	34°16.4'	62°51.8'	72°01.1'		87°48.9'
15	247°03.9'	N 11°30.2'	15.3'	12.2'	54.4'	53°36.9'	51°11.5'	48°03.1'	33°46.9'	63°20.5'	72°30.9'		88°18.8'
16	261°38.2'	N 11°42.4'	15.3'	12.1'	54.4'	53°09.2'	50°44.7'	47°42.3'	33°17.3'	63°49.2'	73°00.7'		88°48.7'
17	276°12.5'	N 11°54.5'	15.3'	12.1'	54.4'	52°41.5'	50°18.0'	47°21.5'	32°47.8'	64°17.9'	73°30.5'	69°23.9'	89°18.6'
18	290°46.8'	N 12°06.6'	15.2'	12.0'	54.4'	52°13.9'	49°51.4'	47°01.0'	32°18.3'	64°46.6'	74°00.3'	69°54.1'	89°48.5'
19	305°21.0'	N 12°18.6'	15.2'	12.0'	54.4'	51°46.3'	49°24.8'	46°40.5'	31°48.8'	65°15.3'	74°30.0'	70°09.2'	90°18.4'
20	319°55.2'	N 12°30.6'	15.2'	11.9'	54.4'	51°18.7'	48°58.3'	46°20.2'	31°19.4'	65°44.0'	74°59.8'	70°24.5'	90°48.2'
21	334°29.4'	N 12°42.5'	15.1'	11.9'	54.3'	50°51.2'	48°31.8'	46°00.1'	30°50.0'	66°12.7'	75°29.6'	70°39.8'	91°18.1'
22	349°03.5'	N 12°54.3'	15.1'	11.8'	54.3'	50°23.8'	48°05.4'	45°40.1'	30°20.6'	66°41.4'	75°59.3'	70°55.2'	91°47.9'
23	3°37.6'	N 13°06.1'	15.1'	11.7'	54.3'	49°56.4'	47°39.0'	45°20.2'	29°51.2'	67°10.1'	76°29.0'	71°10.7'	92°17.8'
Mer. pass.		22 h 45 m SD 14.9'		phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.3'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

Thursday 18 November 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	57°15.4'	183°43.6'	S 19°13.2'	134°44.9'	S 26°39.4'		90°41.8'	S 14°34.5'		106°33.3'	S 19°02.3'		197°09.1'	S 15°16.6'				
1	72°17.9'	198°43.5'	S 19°13.8'	149°45.1'	S 26°39.1'		105°44.0'	S 14°34.5'		121°35.7'	S 19°02.2'		212°09.9'	S 15°17.2'				
2	87°20.4'	213°43.4'	S 19°14.4'	164°45.3'	S 26°38.9'		120°46.2'	S 14°34.4'		136°38.0'	S 19°02.2'		227°10.7'	S 15°17.7'				
3	102°22.8'	228°43.2'	S 19°15.0'	179°45.5'	S 26°38.6'		135°48.4'	S 14°34.3'		151°40.3'	S 19°02.2'		242°11.5'	S 15°18.2'				
4	117°25.3'	243°43.1'	S 19°15.6'	194°45.7'	S 26°38.4'		150°50.7'	S 14°34.2'		166°42.6'	S 19°02.1'		257°12.2'	S 15°18.8'				
5	132°27.8'	258°43.0'	S 19°16.2'	209°45.9'	S 26°38.1'		165°52.9'	S 14°34.1'		181°44.9'	S 19°02.1'		272°13.0'	S 15°19.3'				
6	147°30.2'	273°42.8'	S 19°16.8'	224°46.1'	S 26°37.8'		180°55.1'	S 14°34.0'		196°47.2'	S 19°02.0'		287°13.8'	S 15°19.9'				
7	162°32.7'	288°42.7'	S 19°17.3'	239°46.3'	S 26°37.6'		195°57.3'	S 14°33.9'		211°49.5'	S 19°02.0'		302°14.6'	S 15°20.4'				
8	177°35.2'	303°42.6'	S 19°17.9'	254°46.5'	S 26°37.3'		210°59.6'	S 14°33.8'		226°51.8'	S 19°02.0'		317°15.4'	S 15°20.9'				
9	192°37.6'	318°42.4'	S 19°18.5'	269°46.7'	S 26°37.1'		226°01.8'	S 14°33.8'		241°54.1'	S 19°01.9'		332°16.2'	S 15°21.5'				
10	207°40.1'	333°42.3'	S 19°19.1'	284°46.9'	S 26°36.8'		241°04.0'	S 14°33.7'		256°56.4'	S 19°01.9'		347°17.0'	S 15°22.0'				
11	222°42.5'	348°42.2'	S 19°19.7'	299°47.1'	S 26°36.6'		256°06.2'	S 14°33.6'		271°58.7'	S 19°01.8'		2°17.7'	S 15°22.6'				
12	237°45.0'	3°42.0'	S 19°20.3'	314°47.3'	S 26°36.3'		271°08.5'	S 14°33.5'		287°01.0'	S 19°01.8'		17°18.5'	S 15°23.1'				
13	252°47.5'	18°41.9'	S 19°20.9'	329°47.5'	S 26°36.0'		286°10.7'	S 14°33.4'		302°03.3'	S 19°01.8'		32°19.3'	S 15°23.6'				
14	267°49.9'	33°41.8'	S 19°21.5'	344°47.7'	S 26°35.8'		301°12.9'	S 14°33.3'		317°05.7'	S 19°01.7'		47°20.1'	S 15°24.2'				
15	282°52.4'	48°41.6'	S 19°22.1'	359°48.0'	S 26°35.5'		316°15.1'	S 14°33.2'		332°08.0'	S 19°01.7'		62°20.9'	S 15°24.7'				
16	297°54.9'	63°41.5'	S 19°22.6'	14°48.2'	S 26°35.3'		331°17.4'	S 14°33.1'		347°10.3'	S 19°01.6'		77°21.7'	S 15°25.3'				
17	312°57.3'	78°41.4'	S 19°23.2'	29°48.4'	S 26°35.0'		346°19.6'	S 14°33.1'		2°12.6'	S 19°01.6'		92°22.5'	S 15°25.8'				
18	327°59.8'	93°41.2'	S 19°23.8'	44°48.6'	S 26°34.7'		1°21.8'	S 14°33.0'		17°14.9'	S 19°01.6'		107°23.2'	S 15°26.3'				
19	343°02.3'	108°41.1'	S 19°24.4'	59°48.8'	S 26°34.5'		16°24.0'	S 14°32.9'		32°17.2'	S 19°01.5'		122°24.0'	S 15°26.9'				
20	358°04.7'	123°41.0'	S 19°25.0'	74°49.1'	S 26°34.2'		31°26.2'	S 14°32.8'		47°19.5'	S 19°01.5'		137°24.8'	S 15°27.4'				
21	13°07.2'	138°40.8'	S 19°25.6'	89°49.3'	S 26°33.9'		46°28.5'	S 14°32.7'		62°21.8'	S 19°01.4'		152°25.6'	S 15°27.9'				
22	28°09.7'	153°40.7'	S 19°26.2'	104°49.5'	S 26°33.7'		61°30.7'	S 14°32.6'		77°24.1'	S 19°01.4'		167°26.4'	S 15°28.5'				
23	43°12.1'	168°40.6'	S 19°26.7'	119°49.8'	S 26°33.4'		76°32.9'	S 14°32.5'		92°26.4'	S 19°01.4'		182°27.1'	S 15°29.0'				
		SD 16.2' d -0.6'		v 0.2' d 0.3'			v 2.2' d 0.1'			v 2.3' d 0.0'			v 0.8' d -0.5'					
Mer. pass.		11 h 45 m 13 s		15 h 1 m			17 h 55 m			16 h 51 m			10 h 51 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Achernar	+Jupiter	+Saturn
0	18°11.6'	N 13°17.8'	15.0'	11.7'	54.3'	49°29.0'	47°12.8'	45°00.5'	29°21.9'	67°38.8'	71°26.2'	76°58.7'	92°47.6'
1	32°45.6'	N 13°29.5'	15.0'	11.6'	54.3'	49°01.7'	46°46.5'	44°41.0'	28°52.6'	68°07.5'	71°41.7'	77°28.5'	93°17.4'
2	47°19.6'	N 13°41.2'	14.9'	11.6'	54.3'	48°34.5'	46°20.4'	44°21.6'	28°23.4'	68°36.2'	71°57.4'	77°58.2'	93°47.2'
3	61°53.6'	N 13°52.7'	14.9'	11.5'	54.3'	48°07.3'	45°54.3'	44°02.4'	27°54.2'	69°04.9'	72°13.1'	78°27.8'	94°17.0'
4	76°27.5'	N 14°04.2'	14.9'	11.4'	54.3'	47°40.1'	45°28.3'	43°43.4'	27°25.0'	69°33.7'	72°28.8'	78°57.5'	94°46.8'
5	91°01.3'	N 14°15.7'	14.8'	11.4'	54.3'	47°13.0'	45°02.4'	43°24.5'	26°55.8'	70°02.3'	72°44.6'	79°27.2'	95°16.6'
6	105°35.2'	N 14°27.1'	14.8'	11.3'	54.3'	46°45.9'	44°36.5'	43°05.8'	26°26.7'	70°31.0'	73°00.4'	79°56.9'	95°46.3'
7	120°09.0'	N 14°38.4'	14.7'	11.3'	54.2'	46°19.0'	44°10.8'	42°47.3'	25°57.7'	70°59.7'	73°16.3'	80°26.5'	96°16.1'
8	134°42.7'	N 14°49.7'	14.7'	11.2'	54.2'	45°52.0'	43°45.1'	42°28.9'	25°28.6'	71°28.4'	73°32.3'	80°56.1'	96°45.8'
9	149°16.4'	N 15°00.9'	14.7'	11.1'	54.2'	45°25.1'	43°19.4'	42°10.8'	24°59.7'	71°57.1'	73°48.3'	81°25.8'	97°15.5'
10	163°50.1'	N 15°12.0'	14.6'	11.1'	54.2'	44°58.3'	42°53.9'	41°52.8'	24°30.7'	72°25.8'	74°04.3'	81°55.4'	97°45.3'
11	178°23.7'	N 15°23.1'	14.6'	11.0'	54.2'	44°31.5'	42°28.5'	41°35.0'	24°01.8'	72°54.5'	74°20.4'	82°25.0'	98°15.0'
12	192°57.3'	N 15°34.1'	14.5'	10.9'	54.2'	44°04.8'	42°03.1'	41°17.4'	23°33.0'	73°23.2'	74°36.6'	82°54.6'	98°44.7'
13	207°30.8'	N 15°45.0'	14.5'	10.9'	54.2'	43°38.2'	41°37.8'	41°00.1'	23°04.2'	73°51.9'	74°52.8'	83°24.2'	99°14.4'
14	222°04.3'	N 15°55.9'	14.5'	10.8'	54.2'	43°11.6'	41°12.6'	40°42.9'	22°35.5'	74°20.6'	75°09.0'	83°53.8'	99°44.0'
15	236°37.8'	N 16°06.7'	14.4'	10.7'	54.2'	42°45.1'	40°47.6'	40°25.9'	22°06.8'	74°49.2'	75°25.3'	84°23.4'	100°13.7'
16	251°11.2'	N 16°17.5'	14.4'	10.7'	54.2'	42°18.7'	40°22.6'	40°09.2'	21°38.2'	75°17.9'	75°41.6'	84°52.9'	100°43.4'
17	265°44.5'	N 16°28.1'	14.3'	10.6'	54.2'	41°52.3'	39°57.7'	39°52.6'	21°09.7'	75°46.6'	75°58.0'	85°22.5'	101°13.0'
18	280°17.9'	N 16°38.7'	14.3'	10.5'	54.1'	41°26.0'	39°32.9'	39°36.3'	20°41.2'	76°15.3'	76°14.4'	85°52.0'	101°42.7'
19	294°51.1'	N 16°49.3'	14.2'	10.5'	54.1'	40°59.8'	39°08.2'	39°20.2'	20°12.8'	76°43.9'	76°30.8'	86°21.6'	102°12.3'
20	309°24.4'	N 16°59.7'	14.2'	10.4'	54.1'	40°33.7'	38°43.6'	39°04.4'	19°44.5'	77°12.6'	76°47.3'	86°51.1'	102°42.0'
21	323°57.6'	N 17°10.1'	14.1'	10.3'	54.1'	40°07.6'	38°19.2'	38°48.8'	19°16.3'	77°41.3'	77°03.8'	87°20.6'	103°11.6'
22	338°30.7'	N 17°20.4'	14.1'	10.2'	54.1'	39°41.6'	37°54.8'	38°33.4'	18°48.1'	78°09.9'	77°20.4'	87°50.2'	103°41.2'
23	353°03.8'	N 17°30.7'	14.0'	10.2'	54.1'	39°15.7'	37°30.6'		18°20.0'	78°38.6'	77°37.0'	88°19.7'	104°10.8'
Mer. pass.		23 h 29 m SD 14.8'		phase 98%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.3'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	58°14.6'	183°40.4'	S 19°27.3'	134°50.0'	S 26°33.1'		91°35.1'	S 14°32.4'		107°28.7'	S 19°01.3'		197°27.9'	S 15°29.5'				
1	73°17.0'	198°40.3'	S 19°27.9'	149°50.2'	S 26°32.9'		106°37.3'	S 14°32.3'		122°31.0'	S 19°01.3'		212°28.7'	S 15°30.1'				
2	88°19.5'	213°40.1'	S 19°28.5'	164°50.5'	S 26°32.6'		121°39.6'	S 14°32.3'		137°33.3'	S 19°01.2'		227°29.5'	S 15°30.6'				
3	103°22.0'	228°40.0'	S 19°29.1'	179°50.7'	S 26°32.3'		136°41.8'	S 14°32.2'		152°35.6'	S 19°01.2'		242°30.3'	S 15°31.2'				
4	118°24.4'	243°39.9'	S 19°29.6'	194°51.0'	S 26°32.1'		151°44.0'	S 14°32.1'		167°37.9'	S 19°01.2'		257°31.1'	S 15°31.7'				
5	133°26.9'	258°39.7'	S 19°30.2'	209°51.2'	S 26°31.8'		166°46.2'	S 14°32.0'		182°40.2'	S 19°01.1'		272°31.8'	S 15°32.2'				
6	148°29.4'	273°39.6'	S 19°30.8'	224°51.4'	S 26°31.5'		181°48.4'	S 14°31.9'		197°42.5'	S 19°01.1'		287°32.6'	S 15°32.8'				
7	163°31.8'	288°39.4'	S 19°31.4'	239°51.7'	S 26°31.2'		196°50.7'	S 14°31.8'		212°44.8'	S 19°01.0'		302°33.4'	S 15°33.3'				
8	178°34.3'	303°39.3'	S 19°31.9'	254°51.9'	S 26°31.0'		211°52.9'	S 14°31.7'		227°47.2'	S 19°01.0'		317°34.2'	S 15°33.8'				
9	193°36.8'	318°39.2'	S 19°32.5'	269°52.2'	S 26°30.7'		226°55.1'	S 14°31.6'		242°49.5'	S 19°01.0'		332°35.0'	S 15°34.4'				
10	208°39.2'	333°39.0'	S 19°33.1'	284°52.4'	S 26°30.4'		241°57.3'	S 14°31.5'		257°51.8'	S 19°00.9'		347°35.7'	S 15°34.9'				
11	223°41.7'	348°38.9'	S 19°33.7'	299°52.7'	S 26°30.1'		256°59.5'	S 14°31.4'		272°54.1'	S 19°00.9'		2°36.5'	S 15°35.4'				
12	238°44.1'	3°38.7'	S 19°34.2'	314°53.0'	S 26°29.9'		272°01.8'	S 14°31.4'		287°56.4'	S 19°00.8'		17°37.3'	S 15°36.0'				
13	253°46.6'	18°38.6'	S 19°34.8'	329°53.2'	S 26°29.6'		287°04.0'	S 14°31.3'		302°58.7'	S 19°00.8'		32°38.1'	S 15°36.5'				
14	268°49.1'	33°38.5'	S 19°35.4'	344°53.5'	S 26°29.3'		302°06.2'	S 14°31.2'		318°01.0'	S 19°00.7'		47°38.9'	S 15°37.0'				
15	283°51.5'	48°38.3'	S 19°36.0'	359°53.7'	S 26°29.0'		317°08.4'	S 14°31.1'		333°03.3'	S 19°00.7'		62°39.6'	S 15°37.6'				
16	298°54.0'	63°38.2'	S 19°36.5'	14°54.0'	S 26°28.7'		332°10.8'	S 14°31.0'		348°05.6'	S 19°00.7'		77°40.4'	S 15°38.1'				
17	313°56.5'	78°38.0'	S 19°37.1'	29°54.3'	S 26°28.5'		347°12.6'	S 14°30.9'		3°07.9'	S 19°00.6'		92°41.2'	S 15°38.6'				
18	328°58.9'	93°37.9'	S 19°37.7'	44°54.5'	S 26°28.2'		2°15.0'	S 14°30.8'		18°10.2'	S 19°00.6'		107°42.0'	S 15°39.2'				
19	344°01.4'	108°37.7'	S 19°38.2'	59°54.8'	S 26°27.9'		17°17.3'	S 14°30.7'		33°12.5'	S 19°00.5'		122°42.8'	S 15°39.7'				
20	359°03.9'	123°37.6'	S 19°38.8'	74°55.1'	S 26°27.6'		32°19.5'	S 14°30.6'		48°14.8'	S 19°00.5'		137°43.5'	S 15°40.2'				
21	14°06.3'	138°37.4'	S 19°39.4'	89°55.3'	S 26°27.3'		47°21.7'	S 14°30.5'		63°17.1'	S 19°00.5'		152°44.3'	S 15°40.8'				
22	29°08.8'	153°37.3'	S 19°40.0'	104°55.6'	S 26°27.0'		62°23.9'	S 14°30.4'		78°19.4'	S 19°00.4'		167°45.1'	S 15°41.3'				
23	44°11.3'	168°37.2'	S 19°40.5'	119°55.9'	S 26°26.7'		77°26.1'	S 14°30.4'		93°21.7'	S 19°00.4'		182°45.9'	S 15°41.8'				
		SD 16.2' d -0.6'		v 0.3' d 0.3'			v 2.2' d 0.1'			v 2.3' d 0.0'			v 0.8' d -0.5'					
Mer. pass.		11 h 45 m 26 s		15 h 0 m			17 h 51 m			16 h 48 m			10 h 50 m					

h	Moon						Lunar distance							
	GHA	dec	v	d	HP		-Sirius	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn
0	7°36.8'	N 17°40.8'	14.0'	10.1'	54.1'		60°47.8'	38°49.9'	37°06.5'	17°52.1'	77°53.6'	79°07.2'	88°49.2'	104°40.4'
1	22°09.8'	N 17°50.9'	13.9'	10.0'	54.1'		60°29.2'	38°24.2'	36°42.5'	17°24.2'	78°10.3'	79°35.9'	89°18.7'	105°10.0'
2	36°42.8'	N 18°00.9'	13.9'	9.9'	54.1'		60°10.8'	37°58.5'	36°18.7'	16°56.5'	78°27.0'	80°04.5'	89°48.1'	105°39.6'
3	51°15.7'	N 18°10.9'	13.8'	9.9'	54.1'		59°52.5'	37°33.0'	35°55.0'	16°28.9'	78°43.7'	80°33.2'	90°17.6'	106°09.1'
4	65°48.5'	N 18°20.7'	13.8'	9.8'	54.1'		59°34.2'	37°07.5'	35°31.4'	16°01.4'	79°00.5'	81°01.8'	90°47.1'	106°38.7'
5	80°21.3'	N 18°30.5'	13.8'	9.7'	54.1'		59°16.1'	36°42.2'	35°08.0'	15°34.1'	79°17.3'	81°30.4'	91°16.5'	107°08.3'
6	94°54.1'	N 18°40.2'	13.7'	9.6'	54.1'		58°58.1'	36°16.9'	34°44.7'	15°06.9'	79°34.1'	81°59.1'	91°46.0'	107°37.8'
7	109°26.8'	N 18°49.8'	13.7'	9.5'	54.1'		58°40.1'	35°51.8'	34°21.6'	14°39.9'	79°50.9'	82°27.7'	92°15.4'	108°07.3'
8	123°59.4'	N 18°59.3'	13.6'	9.5'	54.0'		58°22.3'	35°26.8'	33°58.6'	14°13.1'	80°07.8'	82°56.3'	92°44.9'	108°36.9'
9	138°32.0'	N 19°08.8'	13.6'	9.4'	54.0'		58°04.6'	35°01.9'	33°35.8'	13°46.4'	80°24.7'	83°24.9'	93°14.3'	109°06.4'
10	153°04.6'	N 19°18.2'	13.5'	9.3'	54.0'		57°47.0'	34°37.1'	33°13.1'	13°20.0'	80°41.6'	83°53.5'	93°43.7'	109°35.9'
11	167°37.1'	N 19°27.5'	13.5'	9.2'	54.0'		57°29.5'	34°12.4'	32°50.7'	12°53.9'	80°58.6'	84°22.1'	94°13.2'	110°05.4'
12	182°09.5'	N 19°36.7'	13.4'	9.1'	54.0'		57°12.1'	33°47.8'	32°28.4'	12°28.0'	81°15.6'	84°50.8'	94°42.6'	110°34.9'
13	196°41.9'	N 19°45.8'	13.4'	9.0'	54.0'		56°54.8'	33°23.4'	32°06.2'	12°02.5'	81°32.6'	85°19.4'	95°12.0'	111°04.4'
14	211°14.3'	N 19°54.8'	13.3'	8.9'	54.0'		56°37.6'	32°59.1'	31°44.3'	11°37.2'	81°49.6'	85°47.9'	95°41.4'	111°33.9'
15	225°46.6'	N 20°03.8'	13.2'	8.9'	54.0'		56°20.6'	32°35.0'	31°22.6'	11°12.3'	82°06.6'	86°16.5'	96°10.8'	112°03.4'
16	240°18.8'	N 20°12.6'	13.2'	8.8'	54.0'		56°03.7'	32°10.9'	31°01.1'	10°47.9'	82°23.7'	86°45.1'	96°40.1'	112°32.9'
17	254°51.0'	N 20°21.4'	13.1'	8.7'	54.0'		55°46.9'	31°47.1'	30°39.7'	10°23.8'	82°40.8'	87°13.7'	97°09.5'	113°02.3'
18	269°23.2'	N 20°30.1'	13.1'	8.6'	54.0'		55°30.2'	31°23.4'	30°18.6'	10°00.3'	82°57.9'	87°42.3'	97°38.9'	113°31.8'
19	283°55.3'	N 20°38.7'	13.0'	8.5'	54.0'		55°13.6'	30°59.8'	29°57.8'	9°37.4'	83°15.0'	88°10.9'	98°08.2'	114°01.3'
20	298°27.3'	N 20°47.2'	13.0'	8.4'	54.0'		54°57.2'	30°36.4'	29°37.1'	9°15.1'	83°32.1'	88°39.4'	98°37.6'	114°30.7'
21	312°59.3'	N 20°55.6'	12.9'	8.3'	54.0'		54°40.9'	30°13.2'	29°16.7'		83°49.3'	89°08.0'	99°07.0'	115°00.2'
22	327°31.2'	N 21°03.9'	12.9'	8.2'	54.0'		54°24.7'	29°50.2'	28°56.6'		84°06.4'	89°36.5'	99°36.3'	115°29.6'
23	342°03.1'	N 21°12.2'	12.8'	8.1'	54.0'		54°08.6'	29°27.3'	28°36.7'		84°23.6'	90°05.1'	100°05.6'	115°59.0'
Mer. pass.		0 h 14 m SD 14.8'			phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.1'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars			
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec		
0	59°13.7'	183°37.0'	S 19°41.1'	134°56.2'	S 26°26.5'		92°28.3'	S 14°30.3'		108°24.0'	S 19°00.3'		197°46.6'	S 15°42.4'					
1	74°16.2'	198°36.9'	S 19°41.7'	149°56.5'	S 26°26.2'		107°30.5'	S 14°30.2'		123°26.3'	S 19°00.3'		212°47.4'	S 15°42.9'					
2	89°18.6'	213°36.7'	S 19°42.2'	164°56.7'	S 26°25.9'		122°32.8'	S 14°30.1'		138°28.6'	S 19°00.3'		227°48.2'	S 15°43.4'					
3	104°21.1'	228°36.6'	S 19°42.8'	179°57.0'	S 26°25.6'		137°35.0'	S 14°30.0'		153°30.9'	S 19°00.2'		242°49.0'	S 15°43.9'					
4	119°23.6'	243°36.4'	S 19°43.4'	194°57.3'	S 26°25.3'		152°37.2'	S 14°29.9'		168°33.2'	S 19°00.2'		257°49.7'	S 15°44.5'					
5	134°26.0'	258°36.3'	S 19°43.9'	209°57.6'	S 26°25.0'		167°39.4'	S 14°29.8'		183°35.5'	S 19°00.1'		272°50.5'	S 15°45.0'					
6	149°28.5'	273°36.1'	S 19°44.5'	224°57.9'	S 26°24.7'		182°41.6'	S 14°29.7'		198°37.8'	S 19°00.1'		287°51.3'	S 15°45.5'					
7	164°31.0'	288°36.0'	S 19°45.0'	239°58.2'	S 26°24.4'		197°43.8'	S 14°29.6'		213°40.1'	S 19°00.0'		302°52.1'	S 15°46.1'					
8	179°33.4'	303°35.8'	S 19°45.6'	254°58.5'	S 26°24.1'		212°46.0'	S 14°29.5'		228°42.4'	S 19°00.0'		317°52.8'	S 15°46.6'					
9	194°35.9'	318°35.7'	S 19°46.2'	269°58.8'	S 26°23.8'		227°48.2'	S 14°29.4'		243°44.7'	S 18°60.0'		332°53.6'	S 15°47.1'					
10	209°38.4'	333°35.5'	S 19°46.7'	284°59.1'	S 26°23.5'		242°50.5'	S 14°29.3'		258°47.0'	S 18°59.9'		347°54.4'	S 15°47.7'					
11	224°40.8'	348°35.4'	S 19°47.3'	299°59.4'	S 26°23.3'		257°52.7'	S 14°29.3'		273°49.3'	S 18°59.9'		2°55.2'	S 15°48.2'					
12	239°43.3'	3°35.2'	S 19°47.8'	314°59.7'	S 26°23.0'		272°54.9'	S 14°29.2'		288°51.6'	S 18°59.8'		17°55.9'	S 15°48.7'					
13	254°45.8'	18°35.1'	S 19°48.4'	329°60.0'	S 26°22.7'		287°57.1'	S 14°29.1'		303°53.9'	S 18°59.8'		32°56.7'	S 15°49.2'					
14	269°48.2'	33°34.9'	S 19°49.0'	345°00.3'	S 26°22.4'		302°59.3'	S 14°29.0'		318°56.2'	S 18°59.7'		47°57.5'	S 15°49.8'					
15	284°50.7'	48°34.8'	S 19°49.5'	0°00.6'	S 26°22.1'		318°01.5'	S 14°28.9'		333°58.5'	S 18°59.7'		62°58.3'	S 15°50.3'					
16	299°53.1'	63°34.6'	S 19°50.1'	15°00.9'	S 26°21.8'		333°03.7'	S 14°28.8'		349°00.8'	S 18°59.7'		77°59.0'	S 15°50.8'					
17	314°55.6'	78°34.5'	S 19°50.6'	30°01.2'	S 26°21.5'		348°05.9'	S 14°28.7'		4°03.1'	S 18°59.6'		92°59.8'	S 15°51.4'					
18	329°58.1'	93°34.3'	S 19°51.2'	45°01.5'	S 26°21.2'		3°08.1'	S 14°28.6'		19°05.4'	S 18°59.6'		108°00.6'	S 15°51.9'					
19	345°00.5'	108°34.2'	S 19°51.7'	60°01.8'	S 26°20.9'		18°10.3'	S 14°28.5'		34°07.7'	S 18°59.5'		123°01.4'	S 15°52.4'					
20	0°03.0'	123°34.0'	S 19°52.3'	75°02.1'	S 26°20.6'		33°12.6'	S 14°28.4'		49°10.0'	S 18°59.5'		138°02.1'	S 15°52.9'					
21	15°05.5'	138°33.9'	S 19°52.8'	90°02.5'	S 26°20.3'		48°14.8'	S 14°28.3'		64°12.3'	S 18°59.5'		153°02.9'	S 15°53.5'					
22	30°07.9'	153°33.7'	S 19°53.4'	105°02.8'	S 26°20.0'		63°17.0'	S 14°28.2'		79°14.6'	S 18°59.4'		168°03.7'	S 15°54.0'					
23	45°10.4'	168°33.6'	S 19°54.0'	120°03.1'	S 26°19.6'		78°19.2'	S 14°28.1'		94°16.9'	S 18°59.4'		183°04.5'	S 15°54.5'					
		SD 16.2'	d -0.6'		v 0.3'	d 0.3'		v 2.2'	d 0.1'		v 2.3'	d 0.0'		v 0.8'	d -0.5'				
Mer. pass.		11 h 45 m 40 s		15 h 0 m			17 h 48 m			16 h 44 m			10 h 48 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn
0	356°35.0'	N 21°20.3'	12.8'	8.0'	54.0'	49°09.3'	29°04.7'	28°17.0'		84°40.8'	90°33.6'	100°35.0'	116°28.4'
1	11°06.8'	N 21°28.3'	12.7'	7.9'	54.0'	48°39.7'	28°42.2'	27°57.7'		84°58.0'	91°02.2'	101°04.3'	116°57.9'
2	25°38.5'	N 21°36.3'	12.7'	7.9'	54.0'	48°10.1'	28°20.0'	27°38.6'		85°15.2'	91°30.7'	101°33.6'	117°27.3'
3	40°10.2'	N 21°44.1'	12.6'	7.8'	54.0'	47°40.5'	27°57.9'	27°19.8'		85°32.5'	91°59.2'	102°03.0'	117°56.7'
4	54°41.8'	N 21°51.9'	12.6'	7.7'	53.9'	47°10.9'	27°36.1'	27°01.3'		85°49.7'	92°27.8'	102°32.3'	118°26.1'
5	69°13.4'	N 21°59.5'	12.5'	7.6'	53.9'	46°41.3'	27°14.5'	26°43.1'		86°07.0'	92°56.3'	103°01.6'	118°55.5'
6	83°44.9'	N 22°07.1'	12.5'	7.5'	53.9'	46°11.7'	26°53.2'	26°25.3'		86°24.2'	93°24.8'	103°30.9'	119°24.9'
7	98°16.4'	N 22°14.6'	12.4'	7.4'	53.9'	45°42.1'	26°32.0'	26°07.8'		86°41.5'	93°53.3'	104°00.2'	119°54.3'
8	112°47.9'	N 22°21.9'	12.4'	7.3'	53.9'	45°12.5'	26°11.2'	25°50.6'		86°58.8'	94°21.8'	104°29.5'	
9	127°19.2'	N 22°29.2'	12.3'	7.2'	53.9'	44°42.9'	25°50.6'	25°33.8'		87°16.1'	94°50.3'	104°58.8'	
10	141°50.6'	N 22°36.4'	12.3'	7.1'	53.9'	44°13.3'	25°30.3'	25°17.4'		87°33.4'	95°18.8'	105°28.0'	
11	156°21.9'	N 22°43.4'	12.2'	7.0'	53.9'	43°43.8'	25°10.3'	25°01.3'		87°50.6'	95°47.3'	105°57.3'	
12	170°53.1'	N 22°50.4'	12.2'	6.9'	53.9'	43°14.2'	24°50.6'	24°45.6'		88°07.9'	96°15.8'	106°26.6'	
13	185°24.3'	N 22°57.2'	12.1'	6.8'	53.9'	42°44.7'	24°31.2'			88°25.2'	96°44.3'	106°55.9'	
14	199°55.4'	N 23°04.0'	12.1'	6.7'	53.9'	42°15.1'	24°12.2'			88°42.6'	97°12.8'	107°25.1'	
15	214°26.5'	N 23°10.7'	12.0'	6.5'	53.9'	41°45.6'	23°53.4'			88°59.9'	97°41.2'	107°54.4'	
16	228°57.6'	N 23°17.2'	12.0'	6.4'	53.9'	41°16.0'	23°35.1'			89°17.2'	98°09.7'	108°23.6'	
17	243°28.5'	N 23°23.6'	11.9'	6.3'	53.9'	40°46.5'	23°17.1'			89°34.5'	98°38.1'	108°52.9'	
18	257°59.5'	N 23°30.0'	11.9'	6.2'	53.9'	40°16.9'	22°59.4'			89°51.8'	99°06.6'	109°22.2'	
19	272°30.4'	N 23°36.2'	11.9'	6.1'	53.9'	39°47.4'	22°42.2'			90°09.1'	99°35.0'	109°51.4'	
20	287°01.2'	N 23°42.3'	11.8'	6.0'	53.9'	39°17.9'	22°25.4'			90°26.4'	100°03.5'	110°20.6'	
21	301°32.0'	N 23°48.3'	11.8'	5.9'	53.9'	38°48.4'	22°09.0'			90°43.7'	100°31.9'	110°49.9'	
22	316°02.8'	N 23°54.3'	11.7'	5.8'	53.9'	38°18.8'	21°53.0'			91°01.0'	101°00.3'	111°19.1'	
23	330°33.5'	N 24°00.1'	11.7'	5.7'	53.9'	37°49.3'	21°37.5'		8°57.7'	91°18.3'	101°28.7'	111°48.3'	
Mer. pass.		0 h 14 m SD 14.7'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.1'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars					
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec				
0	60°12.9'	183°33.4'	S	19°54.5'	135°03.4'	S	26°19.3'	93°21.4'	S	14°28.0'	109°19.2'	S	18°59.3'	198°05.2'	S	15°55.1'
1	75°15.3'	198°33.2'	S	19°55.1'	150°03.8'	S	26°19.0'	108°23.6'	S	14°27.9'	124°21.5'	S	18°59.3'	213°06.0'	S	15°55.6'
2	90°17.8'	213°33.1'	S	19°55.6'	165°04.1'	S	26°18.7'	123°25.8'	S	14°27.9'	139°23.8'	S	18°59.2'	228°06.8'	S	15°56.1'
3	105°20.3'	228°32.9'	S	19°56.2'	180°04.4'	S	26°18.4'	138°28.0'	S	14°27.8'	154°26.1'	S	18°59.2'	243°07.5'	S	15°56.6'
4	120°22.7'	243°32.8'	S	19°56.7'	195°04.8'	S	26°18.1'	153°30.2'	S	14°27.7'	169°28.4'	S	18°59.2'	258°08.3'	S	15°57.2'
5	135°25.2'	258°32.6'	S	19°57.3'	210°05.1'	S	26°17.8'	168°32.4'	S	14°27.6'	184°30.7'	S	18°59.1'	273°09.1'	S	15°57.7'
6	150°27.6'	273°32.5'	S	19°57.8'	225°05.4'	S	26°17.5'	183°34.6'	S	14°27.5'	199°33.0'	S	18°59.1'	288°09.8'	S	15°58.2'
7	165°30.1'	288°32.3'	S	19°58.4'	240°05.8'	S	26°17.2'	198°36.8'	S	14°27.4'	214°35.3'	S	18°59.0'	303°10.6'	S	15°58.7'
8	180°32.6'	303°32.2'	S	19°58.9'	255°06.1'	S	26°16.9'	213°39.0'	S	14°27.3'	229°37.6'	S	18°59.0'	318°11.4'	S	15°59.3'
9	195°35.0'	318°32.0'	S	19°59.4'	270°06.4'	S	26°16.6'	228°41.2'	S	14°27.2'	244°39.9'	S	18°58.9'	333°12.2'	S	15°59.8'
10	210°37.5'	333°31.8'	S	19°60.0'	285°06.8'	S	26°16.3'	243°43.4'	S	14°27.1'	259°42.2'	S	18°58.9'	348°12.9'	S	16°00.3'
11	225°40.0'	348°31.7'	S	20°00.5'	300°07.1'	S	26°15.9'	258°45.6'	S	14°27.0'	274°44.5'	S	18°58.9'	3°13.7'	S	16°00.8'
12	240°42.4'	3°31.5'	S	20°01.1'	315°07.5'	S	26°15.6'	273°47.8'	S	14°26.9'	289°46.8'	S	18°58.8'	18°14.5'	S	16°01.4'
13	255°44.9'	18°31.4'	S	20°01.6'	330°07.8'	S	26°15.3'	288°50.0'	S	14°26.8'	304°49.1'	S	18°58.8'	33°15.2'	S	16°01.9'
14	270°47.4'	33°31.2'	S	20°02.2'	345°08.2'	S	26°15.0'	303°52.2'	S	14°26.7'	319°51.3'	S	18°58.7'	48°16.0'	S	16°02.4'
15	285°49.8'	48°31.0'	S	20°02.7'	0°08.5'	S	26°14.7'	318°54.5'	S	14°26.6'	334°53.6'	S	18°58.7'	63°16.8'	S	16°02.9'
16	300°52.3'	63°30.9'	S	20°03.3'	15°08.9'	S	26°14.4'	333°56.7'	S	14°26.5'	349°55.9'	S	18°58.6'	78°17.5'	S	16°03.5'
17	315°54.8'	78°30.7'	S	20°03.8'	30°09.3'	S	26°14.0'	348°58.9'	S	14°26.4'	4°58.2'	S	18°58.6'	93°18.3'	S	16°04.0'
18	330°57.2'	93°30.6'	S	20°04.3'	45°09.6'	S	26°13.7'	4°01.1'	S	14°26.3'	20°00.5'	S	18°58.6'	108°19.1'	S	16°04.5'
19	345°59.7'	108°30.4'	S	20°04.9'	60°10.0'	S	26°13.4'	19°03.3'	S	14°26.2'	35°02.8'	S	18°58.5'	123°19.8'	S	16°05.0'
20	1°02.1'	123°30.2'	S	20°05.4'	75°10.4'	S	26°13.1'	34°05.5'	S	14°26.1'	50°05.1'	S	18°58.5'	138°20.6'	S	16°05.5'
21	16°04.6'	138°30.1'	S	20°06.0'	90°10.7'	S	26°12.8'	49°07.7'	S	14°26.0'	65°07.4'	S	18°58.4'	153°21.4'	S	16°06.1'
22	31°07.1'	153°29.9'	S	20°06.5'	105°11.1'	S	26°12.4'	64°09.9'	S	14°26.0'	80°09.7'	S	18°58.4'	168°22.1'	S	16°06.6'
23	46°09.5'	168°29.7'	S	20°07.0'	120°11.5'	S	26°12.1'	79°12.1'	S	14°25.9'	95°12.0'	S	18°58.3'	183°22.9'	S	16°07.1'
		SD 16.2'	d -0.5'		v 0.3'	d 0.3'		v 2.2'	d 0.1'		v 2.3'	d 0.0'		v 0.8'	d -0.5'	
Mer. pass.		11 h 45 m 55 s			14 h 59 m			17 h 44 m			16 h 40 m			10 h 47 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Aldebaran	+Achernar	+Fomalhaut	+Jupiter
0	345°04.2'	N 24°05.7'	11.6'	5.6'	53.9'		73°39.7'	42°48.7'	37°19.8'	9°19.4'	91°35.6'	101°57.2'	112°17.6'
1	359°34.8'	N 24°11.3'	11.6'	5.5'	53.9'		73°10.2'	42°23.3'	36°50.3'	9°41.7'	91°52.9'	102°25.6'	112°46.8'
2	14°05.4'	N 24°16.8'	11.5'	5.4'	53.9'		72°40.8'	41°58.0'	36°20.8'	10°04.7'	92°10.1'	102°54.0'	113°16.0'
3	28°35.9'	N 24°22.1'	11.5'	5.2'	53.9'	119°56.4'	72°11.3'	41°32.8'	35°51.3'	10°28.2'	92°27.4'	103°22.4'	113°45.3'
4	43°06.4'	N 24°27.4'	11.5'	5.1'	53.9'	119°31.3'	71°41.8'	41°07.6'	35°21.8'	10°52.2'	92°44.7'	103°50.8'	114°14.5'
5	57°36.9'	N 24°32.5'	11.4'	5.0'	53.9'	119°06.2'	71°12.4'	40°42.5'	34°52.3'	11°16.6'	93°01.9'	104°19.1'	114°43.7'
6	72°07.3'	N 24°37.5'	11.4'	4.9'	53.9'	118°41.0'	70°42.9'	40°17.5'	34°22.8'	11°41.4'	93°19.1'	104°47.5'	115°12.9'
7	86°37.6'	N 24°42.4'	11.3'	4.8'	53.9'	118°15.8'	70°13.4'	39°52.6'	33°53.3'	12°06.6'	93°36.4'	105°15.9'	115°42.1'
8	101°08.0'	N 24°47.2'	11.3'	4.7'	53.9'	117°50.6'	69°44.0'	39°27.8'	33°23.9'	12°32.1'	93°53.6'	105°44.3'	116°11.3'
9	115°38.3'	N 24°51.9'	11.2'	4.6'	53.9'	117°25.3'	69°14.5'	39°03.0'	32°54.4'	12°57.8'	94°10.8'	106°12.6'	116°40.5'
10	130°08.5'	N 24°56.5'	11.2'	4.4'	53.9'	117°00.0'	68°45.1'	38°38.4'	32°24.9'	13°23.9'	94°28.0'	106°41.0'	117°09.7'
11	144°38.7'	N 25°00.9'	11.2'	4.3'	53.9'	116°34.7'	68°15.6'	38°13.9'	31°55.4'	13°50.1'	94°45.2'	107°09.3'	117°38.9'
12	159°08.9'	N 25°05.3'	11.1'	4.2'	53.9'	116°09.3'	67°46.2'	37°49.4'	31°26.0'	14°16.6'	95°02.4'	107°37.6'	118°08.2'
13	173°39.0'	N 25°09.5'	11.1'	4.1'	53.9'	115°43.9'	67°16.7'	37°25.1'	30°56.5'	14°43.3'	95°19.5'	108°06.0'	118°37.4'
14	188°09.1'	N 25°13.6'	11.1'	4.0'	53.9'	115°18.5'	66°47.3'	37°00.9'	30°27.0'	15°10.1'	95°36.6'	108°34.3'	119°06.6'
15	202°39.2'	N 25°17.5'	11.0'	3.9'	53.9'	114°53.1'	66°17.8'	36°36.8'	29°57.6'	15°37.1'	95°53.8'	109°02.6'	119°35.8'
16	217°09.2'	N 25°21.4'	11.0'	3.7'	53.9'	114°27.6'	65°48.4'	36°12.8'	29°28.1'	16°04.2'	96°10.9'	109°30.9'	
17	231°39.2'	N 25°25.1'	11.0'	3.6'	53.9'	114°02.0'	65°18.9'	35°48.9'	28°58.6'	16°31.5'	96°28.0'	109°59.2'	
18	246°09.1'	N 25°28.8'	10.9'	3.5'	53.9'	113°36.5'	64°49.5'	35°25.1'	28°29.2'	16°58.9'	96°45.0'	110°27.5'	
19	260°39.1'	N 25°32.3'	10.9'	3.4'	53.9'	113°10.9'	64°20.0'	35°01.5'	27°59.7'	17°26.5'	97°02.1'	110°55.8'	
20	275°09.0'	N 25°35.7'	10.9'	3.3'	53.9'	112°45.3'	63°50.6'	34°38.0'	27°30.3'	17°54.1'	97°19.1'	111°24.1'	
21	289°38.8'	N 25°38.9'	10.8'	3.1'	53.9'	112°19.7'	63°21.1'	34°14.7'	27°00.9'	18°21.8'	97°36.1'	111°52.4'	
22	304°08.7'	N 25°42.1'	10.8'	3.0'	53.9'	111°54.0'	62°51.7'	33°51.4'	26°31.4'	18°49.6'	97°53.1'	112°20.6'	
23	318°38.5'	N 25°45.1'	10.8'	2.9'	53.9'	111°28.3'	62°22.2'	33°28.4'	26°02.0'	19°17.6'	98°10.1'	112°48.9'	
Mer. pass.		1 h 2 m SD 14.7'	phase 98%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.4'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.4'	N 5°10.2'	Polaris	+2.0	314°45.1'	N 89°21.4'
Rigil Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	61°12.0'	183°29.6'	S 20°07.6'	135°11.8'	S 26°11.8'	94°14.3'	S 14°25.8'	110°14.3'	S 18°58.3'	198°23.7'	S 16°07.6'	
1	76°14.5'	198°29.4'	S 20°08.1'	150°12.2'	S 26°11.5'	109°16.5'	S 14°25.7'	125°16.6'	S 18°58.3'	213°24.5'	S 16°08.2'	
2	91°16.9'	213°29.3'	S 20°08.6'	165°12.6'	S 26°11.2'	124°18.7'	S 14°25.6'	140°18.9'	S 18°58.2'	228°25.2'	S 16°08.7'	
3	106°19.4'	228°29.1'	S 20°09.2'	180°13.0'	S 26°10.8'	139°20.9'	S 14°25.5'	155°21.2'	S 18°58.2'	243°26.0'	S 16°09.2'	
4	121°21.9'	243°28.9'	S 20°09.7'	195°13.3'	S 26°10.5'	154°23.1'	S 14°25.4'	170°23.5'	S 18°58.1'	258°26.7'	S 16°09.7'	
5	136°24.3'	258°28.8'	S 20°10.2'	210°13.7'	S 26°10.2'	169°25.3'	S 14°25.3'	185°25.8'	S 18°58.1'	273°27.5'	S 16°10.2'	
6	151°26.8'	273°28.6'	S 20°10.8'	225°14.1'	S 26°09.9'	184°27.5'	S 14°25.2'	200°28.1'	S 18°58.0'	288°28.3'	S 16°10.8'	
7	166°29.2'	288°28.4'	S 20°11.3'	240°14.5'	S 26°09.5'	199°29.7'	S 14°25.1'	215°30.4'	S 18°58.0'	303°29.0'	S 16°11.3'	
8	181°31.7'	303°28.3'	S 20°11.8'	255°14.9'	S 26°09.2'	214°31.9'	S 14°25.0'	230°32.7'	S 18°57.9'	318°29.8'	S 16°11.8'	
9	196°34.2'	318°28.1'	S 20°12.4'	270°15.3'	S 26°08.9'	229°34.1'	S 14°24.9'	245°34.9'	S 18°57.9'	333°30.6'	S 16°12.3'	
10	211°36.6'	333°27.9'	S 20°12.9'	285°15.7'	S 26°08.5'	244°36.3'	S 14°24.8'	260°37.2'	S 18°57.9'	348°31.3'	S 16°12.8'	
11	226°39.1'	348°27.8'	S 20°13.4'	300°16.1'	S 26°08.2'	259°38.5'	S 14°24.7'	275°39.5'	S 18°57.8'	3°32.1'	S 16°13.4'	
12	241°41.6'	3°27.6'	S 20°14.0'	315°16.5'	S 26°07.9'	274°40.6'	S 14°24.6'	290°41.8'	S 18°57.8'	18°32.9'	S 16°13.9'	
13	256°44.0'	18°27.4'	S 20°14.5'	330°16.9'	S 26°07.5'	289°42.8'	S 14°24.5'	305°44.1'	S 18°57.7'	33°33.6'	S 16°14.4'	
14	271°46.5'	33°27.3'	S 20°15.0'	345°17.3'	S 26°07.2'	304°45.0'	S 14°24.4'	320°46.4'	S 18°57.7'	48°34.4'	S 16°14.9'	
15	286°49.0'	48°27.1'	S 20°15.5'	0°17.7'	S 26°06.9'	319°47.2'	S 14°24.3'	335°48.7'	S 18°57.6'	63°35.2'	S 16°15.4'	
16	301°51.4'	63°26.9'	S 20°16.1'	15°18.1'	S 26°06.5'	334°49.4'	S 14°24.2'	350°51.0'	S 18°57.6'	78°35.9'	S 16°16.0'	
17	316°53.9'	78°26.8'	S 20°16.6'	30°18.5'	S 26°06.2'	349°51.6'	S 14°24.1'	5°53.3'	S 18°57.6'	93°36.7'	S 16°16.5'	
18	331°56.4'	93°26.6'	S 20°17.1'	45°18.9'	S 26°05.9'	4°53.8'	S 14°24.0'	20°55.6'	S 18°57.5'	108°37.4'	S 16°17.0'	
19	346°58.8'	108°26.4'	S 20°17.6'	60°19.3'	S 26°05.5'	19°56.0'	S 14°23.9'	35°57.9'	S 18°57.5'	123°38.2'	S 16°17.5'	
20	2°01.3'	123°26.3'	S 20°18.2'	75°19.7'	S 26°05.2'	34°58.2'	S 14°23.8'	51°00.2'	S 18°57.4'	138°39.0'	S 16°18.0'	
21	17°03.7'	138°26.1'	S 20°18.7'	90°20.1'	S 26°04.9'	50°00.4'	S 14°23.7'	66°02.5'	S 18°57.4'	153°39.7'	S 16°18.5'	
22	32°06.2'	153°25.9'	S 20°19.2'	105°20.6'	S 26°04.5'	65°02.6'	S 14°23.6'	81°04.7'	S 18°57.3'	168°40.5'	S 16°19.1'	
23	47°08.7'	168°25.7'	S 20°19.7'	120°21.0'	S 26°04.2'	80°04.8'	S 14°23.5'	96°07.0'	S 18°57.3'	183°41.3'	S 16°19.6'	
		SD 16.2' d -0.5'		v 0.4' d 0.3'		v 2.2' d 0.1'		v 2.3' d 0.0'		v 0.8' d -0.5'		
Mer. pass.		11 h 46 m 11 s		14 h 59 m		17 h 40 m		16 h 37 m		10 h 46 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Aldebaran	+Capella	+Rigel
0	333°08.2'	N 25°48.0'	10.7'	2.8'	54.0'	111°02.6'	61°52.8'	33°05.5'	25°32.5'		19°45.5'		
1	347°38.0'	N 25°50.8'	10.7'	2.7'	54.0'	110°36.9'	61°23.3'	32°42.7'	25°03.1'		20°13.6'		
2	2°07.7'	N 25°53.4'	10.7'	2.5'	54.0'	110°11.1'	60°53.9'	32°20.1'	24°33.7'		20°41.7'		
3	16°37.4'	N 25°56.0'	10.7'	2.4'	54.0'	109°45.3'	60°24.4'	31°57.7'	24°04.3'		21°09.9'		
4	31°07.0'	N 25°58.4'	10.6'	2.3'	54.0'	109°19.5'	59°55.0'	31°35.4'	23°34.9'		21°38.2'		
5	45°36.7'	N 26°00.7'	10.6'	2.2'	54.0'	108°53.6'	59°25.5'	31°13.3'	23°05.4'		22°06.5'		
6	60°06.3'	N 26°02.8'	10.6'	2.0'	54.0'	108°27.8'	58°56.1'	30°51.4'	22°36.0'		22°34.9'		
7	74°35.9'	N 26°04.9'	10.6'	1.9'	54.0'	108°01.9'	58°26.6'	30°29.7'	22°06.6'		23°03.3'		
8	89°05.4'	N 26°06.8'	10.5'	1.8'	54.0'	107°36.0'	57°57.2'	30°08.2'	21°37.2'		23°31.8'		
9	103°35.0'	N 26°08.6'	10.5'	1.7'	54.0'	107°10.1'	57°27.7'	29°47.0'	21°07.8'		24°00.3'		
10	118°04.5'	N 26°10.2'	10.5'	1.5'	54.0'	106°44.1'	56°58.3'	29°25.9'	20°38.5'		24°28.9'		
11	132°34.0'	N 26°11.8'	10.5'	1.4'	54.0'	106°18.1'	56°28.8'	29°05.0'	20°09.1'		24°57.5'		
12	147°03.5'	N 26°13.2'	10.5'	1.3'	54.0'	105°52.2'	55°59.3'	28°44.4'	19°39.7'		25°26.1'		
13	161°33.0'	N 26°14.5'	10.5'	1.2'	54.0'	105°26.1'	55°29.9'	28°24.0'	19°10.4'		25°54.8'		
14	176°02.5'	N 26°15.7'	10.4'	1.0'	54.0'	105°00.1'	55°00.4'	28°03.9'	18°41.0'		26°23.5'		
15	190°31.9'	N 26°16.7'	10.4'	0.9'	54.0'	104°34.1'	54°30.9'	27°44.0'	18°11.7'		26°52.3'		38°22.1'
16	205°01.3'	N 26°17.6'	10.4'	0.8'	54.0'	104°08.0'	54°01.4'	27°24.4'	17°42.3'		27°21.0'		38°37.2'
17	219°30.7'	N 26°18.4'	10.4'	0.7'	54.0'	103°41.9'	53°32.0'	27°05.1'	17°13.0'		27°49.9'		38°52.5'
18	234°00.1'	N 26°19.1'	10.4'	0.5'	54.1'	103°15.8'	53°02.5'	26°46.0'	16°43.7'		28°18.7'	24°31.4'	39°08.1'
19	248°29.5'	N 26°19.6'	10.4'	0.4'	54.1'	102°49.7'	52°33.0'	26°27.3'	16°14.4'		28°47.6'	24°46.7'	39°23.9'
20	262°58.9'	N 26°20.0'	10.4'	0.3'	54.1'	102°23.5'	52°03.5'	26°08.8'	15°45.1'		29°16.5'	25°02.4'	39°39.9'
21	277°28.3'	N 26°20.3'	10.4'	0.2'	54.1'	101°57.4'	51°34.0'	25°50.7'	15°15.9'	21°24.1'	29°45.4'	25°18.5'	39°56.2'
22	291°57.6'	N 26°20.5'	10.4'	0.0'	54.1'	101°31.2'	51°04.5'	25°32.9'	14°46.6'	21°39.2'	30°14.4'	25°35.0'	40°12.6'
23	306°27.0'	N 26°20.5'	10.3'	-0.1'	54.1'	101°05.0'	50°35.0'	25°15.5'	14°17.4'	21°54.8'	30°43.4'	25°51.9'	40°29.3'
Mer. pass.		1 h 51 m SD 14.7'		phase 94%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.3'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.5'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.0'	N 89°21.4'
Rigel Kent	-0.0	139°44.5'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	62°11.1'	183°25.6'	S 20°20.3'	135°21.4'	S 26°03.9'		95°07.0'	S 14°23.4'		111°09.3'	S 18°57.2'		198°42.0'	S 16°20.1'				
1	77°13.6'	198°25.4'	S 20°20.8'	150°21.8'	S 26°03.5'		110°09.2'	S 14°23.3'		126°11.6'	S 18°57.2'		213°42.8'	S 16°20.6'				
2	92°16.1'	213°25.2'	S 20°21.3'	165°22.3'	S 26°03.2'		125°11.4'	S 14°23.2'		141°13.9'	S 18°57.2'		228°43.5'	S 16°21.1'				
3	107°18.5'	228°25.1'	S 20°21.8'	180°22.7'	S 26°02.8'		140°13.6'	S 14°23.1'		156°16.2'	S 18°57.1'		243°44.3'	S 16°21.6'				
4	122°21.0'	243°24.9'	S 20°22.3'	195°23.1'	S 26°02.5'		155°15.8'	S 14°23.0'		171°18.5'	S 18°57.1'		258°45.1'	S 16°22.2'				
5	137°23.5'	258°24.7'	S 20°22.8'	210°23.6'	S 26°02.1'		170°18.0'	S 14°22.9'		186°20.8'	S 18°57.0'		273°45.8'	S 16°22.7'				
6	152°25.9'	273°24.5'	S 20°23.4'	225°24.0'	S 26°01.8'		185°20.2'	S 14°22.8'		201°23.1'	S 18°57.0'		288°46.6'	S 16°23.2'				
7	167°28.4'	288°24.4'	S 20°23.9'	240°24.4'	S 26°01.5'		200°22.3'	S 14°22.7'		216°25.4'	S 18°56.9'		303°47.3'	S 16°23.7'				
8	182°30.9'	303°24.2'	S 20°24.4'	255°24.9'	S 26°01.1'		215°24.5'	S 14°22.6'		231°27.7'	S 18°56.9'		318°48.1'	S 16°24.2'				
9	197°33.3'	318°24.0'	S 20°24.9'	270°25.3'	S 26°00.8'		230°26.7'	S 14°22.5'		246°29.9'	S 18°56.8'		333°48.9'	S 16°24.7'				
10	212°35.8'	333°23.8'	S 20°25.4'	285°25.8'	S 26°00.4'		245°28.9'	S 14°22.4'		261°32.2'	S 18°56.8'		348°49.6'	S 16°25.3'				
11	227°38.2'	348°23.7'	S 20°25.9'	300°26.2'	S 26°00.1'		260°31.1'	S 14°22.3'		276°34.5'	S 18°56.8'		3°50.4'	S 16°25.8'				
12	242°40.7'	3°23.5'	S 20°26.5'	315°26.6'	S 25°59.7'		275°33.3'	S 14°22.2'		291°36.8'	S 18°56.7'		18°51.1'	S 16°26.3'				
13	257°43.2'	18°23.3'	S 20°27.0'	330°27.1'	S 25°59.4'		290°35.5'	S 14°22.1'		306°39.1'	S 18°56.7'		33°51.9'	S 16°26.8'				
14	272°45.6'	33°23.1'	S 20°27.5'	345°27.6'	S 25°59.0'		305°37.7'	S 14°22.0'		321°41.4'	S 18°56.6'		48°52.7'	S 16°27.3'				
15	287°48.1'	48°23.0'	S 20°28.0'	0°28.0'	S 25°58.7'		320°39.9'	S 14°21.9'		336°43.7'	S 18°56.6'		63°53.4'	S 16°27.8'				
16	302°50.6'	63°22.8'	S 20°28.5'	15°28.5'	S 25°58.3'		335°42.1'	S 14°21.8'		351°46.0'	S 18°56.5'		78°54.2'	S 16°28.3'				
17	317°53.0'	78°22.6'	S 20°29.0'	30°28.9'	S 25°58.0'		350°44.2'	S 14°21.7'		6°48.3'	S 18°56.5'		93°54.9'	S 16°28.9'				
18	332°55.5'	93°22.4'	S 20°29.5'	45°29.4'	S 25°57.6'		5°46.4'	S 14°21.6'		21°50.5'	S 18°56.4'		108°55.7'	S 16°29.4'				
19	347°58.0'	108°22.3'	S 20°30.0'	60°29.8'	S 25°57.3'		20°48.6'	S 14°21.5'		36°52.8'	S 18°56.4'		123°56.4'	S 16°29.9'				
20	3°00.4'	123°22.1'	S 20°30.5'	75°30.3'	S 25°56.9'		35°50.8'	S 14°21.4'		51°55.1'	S 18°56.3'		138°57.2'	S 16°30.4'				
21	18°02.9'	138°21.9'	S 20°31.0'	90°30.8'	S 25°56.6'		50°53.0'	S 14°21.3'		66°57.4'	S 18°56.3'		153°58.0'	S 16°30.9'				
22	33°05.4'	153°21.7'	S 20°31.6'	105°31.3'	S 25°56.2'		65°55.2'	S 14°21.2'		81°59.7'	S 18°56.3'		168°58.7'	S 16°31.4'				
23	48°07.8'	168°21.5'	S 20°32.1'	120°31.7'	S 25°55.9'		80°57.4'	S 14°21.1'		97°02.0'	S 18°56.2'		183°59.5'	S 16°31.9'				
		SD 16.2' <i>d</i> -0.5'		<i>v</i> 0.4' <i>d</i> 0.3'			<i>v</i> 2.2' <i>d</i> 0.1'			<i>v</i> 2.3' <i>d</i> 0.0'			<i>v</i> 0.8' <i>d</i> -0.5'					
Mer. pass.		11 h 46 m 27 s		14 h 58 m			17 h 37 m			16 h 33 m			10 h 45 m					

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	320°56.3'	N 26°20.4'	10.3'	-0.2'	54.1'	100°38.8'	50°05.5'	24°58.4'	13°48.2'	22°10.9'	26°09.1'	31°12.4'	40°46.2'
1	335°25.7'	N 26°20.2'	10.3'	-0.3'	54.1'	100°12.6'	49°36.0'	24°41.7'	13°19.0'	22°27.4'	26°26.7'	31°41.4'	41°03.2'
2	349°55.0'	N 26°19.9'	10.3'	-0.5'	54.1'	99°46.3'	49°06.5'	24°25.3'	12°49.9'	22°44.3'	26°44.6'	32°10.5'	41°20.5'
3	4°24.3'	N 26°19.4'	10.3'	-0.6'	54.1'	99°20.0'	48°37.0'	24°09.4'	12°20.8'	23°01.7'	27°02.8'	32°39.6'	41°38.0'
4	18°53.7'	N 26°18.8'	10.3'	-0.7'	54.1'	98°53.8'	48°07.5'	23°53.8'	11°51.8'	23°19.4'	27°21.4'	33°08.7'	41°55.7'
5	33°23.0'	N 26°18.0'	10.3'	-0.9'	54.1'	98°27.5'	47°38.0'		11°22.8'	23°37.5'	27°40.2'	33°37.8'	42°13.5'
6	47°52.3'	N 26°17.2'	10.3'	-1.0'	54.2'	98°01.2'	47°08.4'		10°53.8'	23°56.0'	27°59.4'	34°07.0'	42°31.6'
7	62°21.6'	N 26°16.2'	10.3'	-1.1'	54.2'	97°34.9'	46°38.9'		10°24.9'	24°14.9'	28°18.8'	34°36.2'	42°49.8'
8	76°51.0'	N 26°15.1'	10.3'	-1.2'	54.2'	97°08.5'	46°09.4'		9°56.1'	24°34.1'	28°38.5'	35°05.4'	43°08.2'
9	91°20.3'	N 26°13.9'	10.3'	-1.4'	54.2'	96°42.2'	45°39.8'		9°27.4'	24°53.6'	28°58.5'	35°34.6'	43°26.8'
10	105°49.6'	N 26°12.5'	10.3'	-1.5'	54.2'	96°15.8'	45°10.3'		8°58.8'	25°13.4'	29°18.7'	36°03.8'	43°45.5'
11	120°19.0'	N 26°11.0'	10.3'	-1.6'	54.2'	95°49.4'	44°40.7'		8°30.3'	25°33.6'	29°39.2'	36°33.1'	44°04.4'
12	134°48.3'	N 26°09.4'	10.3'	-1.7'	54.2'	95°23.0'	44°11.2'		8°01.9'	25°54.0'	29°59.9'	37°02.4'	44°23.5'
13	149°17.6'	N 26°07.6'	10.3'	-1.9'	54.2'	94°56.6'	43°41.6'		7°33.7'	26°14.8'	30°20.8'	37°31.7'	44°42.7'
14	163°47.0'	N 26°05.8'	10.4'	-2.0'	54.2'	94°30.2'	43°12.0'		7°05.8'	26°35.8'	30°42.0'	38°01.0'	45°02.1'
15	178°16.3'	N 26°03.8'	10.4'	-2.1'	54.2'	94°03.8'	42°42.5'		6°38.0'	26°57.0'	31°03.4'	38°30.4'	45°21.6'
16	192°45.7'	N 26°01.6'	10.4'	-2.3'	54.3'	93°37.3'	42°12.9'		6°10.6'	27°18.5'	31°25.0'	38°59.7'	45°41.3'
17	207°15.1'	N 25°59.4'	10.4'	-2.4'	54.3'	93°10.9'	41°43.3'		5°43.6'	27°40.3'	31°46.9'	39°29.1'	46°01.2'
18	221°44.5'	N 25°57.0'	10.4'	-2.5'	54.3'	92°44.4'	41°13.7'		5°17.1'	28°02.3'	32°08.9'	39°58.5'	46°21.2'
19	236°13.9'	N 25°54.5'	10.4'	-2.6'	54.3'	92°17.9'	40°44.1'			28°24.5'	32°31.1'	40°27.9'	46°41.3'
20	250°43.3'	N 25°51.9'	10.4'	-2.8'	54.3'	91°51.4'	40°14.5'			28°47.0'	32°53.5'	40°57.4'	47°01.6'
21	265°12.7'	N 25°49.1'	10.4'	-2.9'	54.3'	91°24.9'	39°44.9'			29°09.6'	33°16.1'	41°26.8'	47°22.0'
22	279°42.1'	N 25°46.2'	10.4'	-3.0'	54.3'	90°58.4'	39°15.3'			29°32.5'	33°38.9'	41°56.3'	47°42.5'
23	294°11.6'	N 25°43.2'	10.5'	-3.1'	54.4'	90°31.9'	38°45.6'			29°55.5'	34°01.8'	42°25.8'	48°03.2'
Mer. pass.		2 h 42 m SD 14.8'		phase 89%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.7'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.0'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	63°10.3'	183°21.4'	S 20°32.6'	135°32.2'	S 25°55.5'	95°59.6'	S 14°21.0'	112°04.3'	S 18°56.2'	199°00.2'	S 16°32.4'	
1	78°12.7'	198°21.2'	S 20°33.1'	150°32.7'	S 25°55.2'	111°01.8'	S 14°20.9'	127°06.6'	S 18°56.1'	214°01.0'	S 16°33.0'	
2	93°15.2'	213°21.0'	S 20°33.6'	165°33.2'	S 25°54.8'	126°03.9'	S 14°20.8'	142°08.9'	S 18°56.1'	229°01.7'	S 16°33.5'	
3	108°17.7'	228°20.8'	S 20°34.1'	180°33.6'	S 25°54.4'	141°06.1'	S 14°20.7'	157°11.1'	S 18°56.0'	244°02.5'	S 16°34.0'	
4	123°20.1'	243°20.6'	S 20°34.6'	195°34.1'	S 25°54.1'	156°08.3'	S 14°20.6'	172°13.4'	S 18°56.0'	259°03.3'	S 16°34.5'	
5	138°22.6'	258°20.5'	S 20°35.1'	210°34.6'	S 25°53.7'	171°10.5'	S 14°20.5'	187°15.7'	S 18°55.9'	274°04.0'	S 16°35.0'	
6	153°25.1'	273°20.3'	S 20°35.6'	225°35.1'	S 25°53.4'	186°12.7'	S 14°20.4'	202°18.0'	S 18°55.9'	289°04.8'	S 16°35.5'	
7	168°27.5'	288°20.1'	S 20°36.1'	240°35.6'	S 25°53.0'	201°14.9'	S 14°20.3'	217°20.3'	S 18°55.9'	304°05.5'	S 16°36.0'	
8	183°30.0'	303°19.9'	S 20°36.6'	255°36.1'	S 25°52.6'	216°17.1'	S 14°20.2'	232°22.6'	S 18°55.8'	319°06.3'	S 16°36.5'	
9	198°32.5'	318°19.7'	S 20°37.1'	270°36.6'	S 25°52.3'	231°19.2'	S 14°20.1'	247°24.9'	S 18°55.8'	334°07.0'	S 16°37.0'	
10	213°34.9'	333°19.5'	S 20°37.6'	285°37.1'	S 25°51.9'	246°21.4'	S 14°20.0'	262°27.1'	S 18°55.7'	349°07.8'	S 16°37.6'	
11	228°37.4'	348°19.4'	S 20°38.1'	300°37.6'	S 25°51.6'	261°23.6'	S 14°19.9'	277°29.4'	S 18°55.7'	4°08.5'	S 16°38.1'	
12	243°39.9'	3°19.2'	S 20°38.6'	315°38.1'	S 25°51.2'	276°25.8'	S 14°19.8'	292°31.7'	S 18°55.6'	19°09.3'	S 16°38.6'	
13	258°42.3'	18°19.0'	S 20°39.1'	330°38.6'	S 25°50.8'	291°28.0'	S 14°19.7'	307°34.0'	S 18°55.6'	34°10.0'	S 16°39.1'	
14	273°44.8'	33°18.8'	S 20°39.6'	345°39.1'	S 25°50.5'	306°30.2'	S 14°19.6'	322°36.3'	S 18°55.5'	49°10.8'	S 16°39.6'	
15	288°47.2'	48°18.6'	S 20°40.1'	0°39.6'	S 25°50.1'	321°32.3'	S 14°19.5'	337°38.6'	S 18°55.5'	64°11.5'	S 16°40.1'	
16	303°49.7'	63°18.4'	S 20°40.6'	15°40.1'	S 25°49.7'	336°34.5'	S 14°19.4'	352°40.9'	S 18°55.4'	79°12.3'	S 16°40.6'	
17	318°52.2'	78°18.3'	S 20°41.1'	30°40.6'	S 25°49.4'	351°36.7'	S 14°19.3'	7°43.1'	S 18°55.4'	94°13.1'	S 16°41.1'	
18	333°54.6'	93°18.1'	S 20°41.6'	45°41.1'	S 25°49.0'	6°38.9'	S 14°19.2'	22°45.4'	S 18°55.3'	109°13.8'	S 16°41.6'	
19	348°57.1'	108°17.9'	S 20°42.0'	60°41.6'	S 25°48.6'	21°41.1'	S 14°19.1'	37°47.7'	S 18°55.3'	124°14.6'	S 16°42.1'	
20	3°59.6'	123°17.7'	S 20°42.5'	75°42.2'	S 25°48.3'	36°43.3'	S 14°19.0'	52°50.0'	S 18°55.3'	139°15.3'	S 16°42.6'	
21	19°02.0'	138°17.5'	S 20°43.0'	90°42.7'	S 25°47.9'	51°45.4'	S 14°18.9'	67°52.3'	S 18°55.2'	154°16.1'	S 16°43.1'	
22	34°04.5'	153°17.3'	S 20°43.5'	105°43.2'	S 25°47.5'	66°47.6'	S 14°18.8'	82°54.6'	S 18°55.2'	169°16.8'	S 16°43.7'	
23	49°07.0'	168°17.1'	S 20°44.0'	120°43.7'	S 25°47.2'	81°49.8'	S 14°18.7'	97°56.9'	S 18°55.1'	184°17.6'	S 16°44.2'	
		SD 16.2' d -0.5'		v 0.5' d 0.4'		v 2.2' d 0.1'		v 2.3' d 0.0'		v 0.8' d -0.5'		
Mer. pass.		11 h 46 m 44 s		14 h 57 m		17 h 33 m		16 h 29 m		10 h 43 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Arcturus	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	308°41.0'	N 25°40.1'	10.5'	-3.3'	54.4'		90°05.3'	38°16.0'		30°18.8'	34°24.9'	42°55.3'	48°24.0'
1	323°10.5'	N 25°36.8'	10.5'	-3.4'	54.4'		89°38.8'	37°46.4'		30°42.2'	34°48.2'	43°24.9'	48°45.0'
2	337°40.0'	N 25°33.5'	10.5'	-3.5'	54.4'		89°12.2'	37°16.7'		31°05.8'	35°11.6'	43°54.4'	49°06.0'
3	352°09.5'	N 25°29.9'	10.5'	-3.6'	54.4'		88°45.6'	36°47.1'		31°29.6'	35°35.1'	44°24.0'	49°27.2'
4	6°39.0'	N 25°26.3'	10.5'	-3.8'	54.4'		88°19.0'	36°17.4'		31°53.5'	35°58.9'	44°53.6'	49°48.5'
5	21°08.6'	N 25°22.6'	10.6'	-3.9'	54.4'		87°52.5'	35°47.8'		32°17.6'	36°22.7'	45°23.2'	50°09.9'
6	35°38.1'	N 25°18.7'	10.6'	-4.0'	54.5'		87°25.8'	35°18.1'		32°41.9'	36°46.7'	45°52.9'	50°31.5'
7	50°07.7'	N 25°14.7'	10.6'	-4.1'	54.5'		86°59.2'	34°48.4'		33°06.3'	37°10.9'	46°22.5'	50°53.1'
8	64°37.3'	N 25°10.6'	10.6'	-4.2'	54.5'		86°32.6'	34°18.8'		33°30.9'	37°35.1'	46°52.2'	51°14.9'
9	79°07.0'	N 25°06.3'	10.7'	-4.4'	54.5'		86°06.0'	33°49.1'		33°55.6'	37°59.5'	47°21.9'	51°36.7'
10	93°36.6'	N 25°01.9'	10.7'	-4.5'	54.5'		85°39.3'	33°19.4'		34°20.4'	38°24.1'	47°51.6'	51°58.7'
11	108°06.3'	N 24°57.4'	10.7'	-4.6'	54.5'		85°12.7'	32°49.7'		34°45.4'	38°48.7'	48°21.4'	52°20.8'
12	122°36.0'	N 24°52.8'	10.7'	-4.7'	54.5'		84°46.0'	32°20.0'	5°00.5'	35°10.5'	39°13.5'	48°51.1'	52°43.0'
13	137°05.7'	N 24°48.1'	10.7'	-4.9'	54.6'		84°19.3'	31°50.3'	5°26.9'	35°35.7'	39°38.3'	49°20.9'	53°05.3'
14	151°35.5'	N 24°43.2'	10.8'	-5.0'	54.6'		83°52.7'	31°20.6'	5°53.9'	36°01.1'	40°03.3'	49°50.7'	53°27.7'
15	166°05.2'	N 24°38.3'	10.8'	-5.1'	54.6'		83°26.0'	30°50.9'	6°21.3'	36°26.5'	40°28.4'	50°20.5'	53°50.2'
16	180°35.0'	N 24°33.2'	10.8'	-5.2'	54.6'		82°59.3'	30°21.1'	6°49.2'	36°52.1'	40°53.7'	50°50.3'	54°12.8'
17	195°04.9'	N 24°27.9'	10.9'	-5.3'	54.6'		82°32.6'	29°51.4'	7°17.3'	37°17.8'	41°19.0'	51°20.2'	54°35.5'
18	209°34.7'	N 24°22.6'	10.9'	-5.5'	54.7'		82°05.9'	29°21.7'	7°45.8'	37°43.6'	41°44.4'	51°50.1'	54°58.2'
19	224°04.6'	N 24°17.1'	10.9'	-5.6'	54.7'		81°39.1'	28°52.0'	8°14.4'	38°09.5'	42°09.9'	52°20.0'	55°21.1'
20	238°34.5'	N 24°11.6'	10.9'	-5.7'	54.7'		81°12.4'	28°22.2'	8°43.3'	38°35.5'	42°35.5'	52°49.9'	55°44.1'
21	253°04.4'	N 24°05.9'	11.0'	-5.8'	54.7'		80°45.7'	27°52.5'	9°12.3'	39°01.6'	43°01.2'	53°19.9'	56°07.1'
22	267°34.4'	N 24°00.1'	11.0'	-5.9'	54.7'	119°41.5'	80°18.9'	27°22.7'	9°41.4'	39°27.8'	43°27.0'	53°49.8'	56°30.3'
23	282°04.4'	N 23°54.1'	11.0'	-6.0'	54.7'	119°13.8'	79°52.2'	26°53.0'	10°10.7'	39°54.1'	43°52.9'	54°19.8'	56°53.5'
Mer. pass.		3 h 32 m SD 14.8'		phase 82%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.3'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.0'	N 89°21.4'
Rigel Kent	-0.0	139°44.4'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	64°09.4'	183°17.0'	S 20°44.5'	135°44.3'	S 25°46.8'	96°52.0'	S 14°18.6'	112°59.1'	S 18°55.1'	199°18.3'	S 16°44.7'	
1	79°11.9'	198°16.8'	S 20°45.0'	150°44.8'	S 25°46.4'	111°54.2'	S 14°18.5'	128°01.4'	S 18°55.0'	214°19.1'	S 16°45.2'	
2	94°14.3'	213°16.6'	S 20°45.5'	165°45.3'	S 25°46.0'	126°56.3'	S 14°18.4'	143°03.7'	S 18°55.0'	229°19.8'	S 16°45.7'	
3	109°16.8'	228°16.4'	S 20°46.0'	180°45.9'	S 25°45.7'	141°58.5'	S 14°18.3'	158°06.0'	S 18°54.9'	244°20.6'	S 16°46.2'	
4	124°19.3'	243°16.2'	S 20°46.5'	195°46.4'	S 25°45.3'	157°00.7'	S 14°18.2'	173°08.3'	S 18°54.9'	259°21.3'	S 16°46.7'	
5	139°21.7'	258°16.0'	S 20°46.9'	210°46.9'	S 25°44.9'	172°02.9'	S 14°18.1'	188°10.6'	S 18°54.8'	274°22.1'	S 16°47.2'	
6	154°24.2'	273°15.8'	S 20°47.4'	225°47.5'	S 25°44.5'	187°05.1'	S 14°18.0'	203°12.8'	S 18°54.8'	289°22.8'	S 16°47.7'	
7	169°26.7'	288°15.6'	S 20°47.9'	240°48.0'	S 25°44.2'	202°07.2'	S 14°17.9'	218°15.1'	S 18°54.7'	304°23.6'	S 16°48.2'	
8	184°29.1'	303°15.4'	S 20°48.4'	255°48.6'	S 25°43.8'	217°09.4'	S 14°17.7'	233°17.4'	S 18°54.7'	319°24.3'	S 16°48.7'	
9	199°31.6'	318°15.2'	S 20°48.9'	270°49.1'	S 25°43.4'	232°11.6'	S 14°17.6'	248°19.7'	S 18°54.7'	334°25.1'	S 16°49.2'	
10	214°34.1'	333°15.1'	S 20°49.4'	285°49.7'	S 25°43.0'	247°13.8'	S 14°17.5'	263°22.0'	S 18°54.6'	349°25.8'	S 16°49.7'	
11	229°36.5'	348°14.9'	S 20°49.8'	300°50.2'	S 25°42.7'	262°16.0'	S 14°17.4'	278°24.3'	S 18°54.6'	4°26.6'	S 16°50.2'	
12	244°39.0'	3°14.7'	S 20°50.3'	315°50.8'	S 25°42.3'	277°18.1'	S 14°17.3'	293°26.5'	S 18°54.5'	19°27.3'	S 16°50.7'	
13	259°41.5'	18°14.5'	S 20°50.8'	330°51.3'	S 25°41.9'	292°20.3'	S 14°17.2'	308°28.8'	S 18°54.5'	34°28.1'	S 16°51.2'	
14	274°43.9'	33°14.3'	S 20°51.3'	345°51.9'	S 25°41.5'	307°22.5'	S 14°17.1'	323°31.1'	S 18°54.4'	49°28.8'	S 16°51.7'	
15	289°46.4'	48°14.1'	S 20°51.8'	0°52.5'	S 25°41.1'	322°24.7'	S 14°17.0'	338°33.4'	S 18°54.4'	64°29.5'	S 16°52.2'	
16	304°48.8'	63°13.9'	S 20°52.2'	15°53.0'	S 25°40.8'	337°26.8'	S 14°16.9'	353°35.7'	S 18°54.3'	79°30.3'	S 16°52.8'	
17	319°51.3'	78°13.7'	S 20°52.7'	30°53.6'	S 25°40.4'	352°29.0'	S 14°16.8'	8°38.0'	S 18°54.3'	94°31.0'	S 16°53.3'	
18	334°53.8'	93°13.5'	S 20°53.2'	45°54.2'	S 25°40.0'	7°31.2'	S 14°16.7'	23°40.2'	S 18°54.2'	109°31.8'	S 16°53.8'	
19	349°56.2'	108°13.3'	S 20°53.7'	60°54.7'	S 25°39.6'	22°33.4'	S 14°16.6'	38°42.5'	S 18°54.2'	124°32.5'	S 16°54.3'	
20	4°58.7'	123°13.1'	S 20°54.2'	75°55.3'	S 25°39.2'	37°35.5'	S 14°16.5'	53°44.8'	S 18°54.1'	139°33.3'	S 16°54.8'	
21	20°01.2'	138°12.9'	S 20°54.6'	90°55.9'	S 25°38.9'	52°37.7'	S 14°16.4'	68°47.1'	S 18°54.1'	154°34.0'	S 16°55.3'	
22	35°03.6'	153°12.7'	S 20°55.1'	105°56.5'	S 25°38.5'	67°39.9'	S 14°16.3'	83°49.4'	S 18°54.0'	169°34.8'	S 16°55.8'	
23	50°06.1'	168°12.5'	S 20°55.6'	120°57.1'	S 25°38.1'	82°42.1'	S 14°16.2'	98°51.6'	S 18°54.0'	184°35.5'	S 16°56.3'	
		SD 16.2'	d -0.5'		v 0.6'	d 0.4'		v 2.2'	d 0.1'		v 2.3'	d 0.0'
Mer. pass.		11 h 47 m 2 s		14 h 57 m		17 h 30 m		16 h 26 m		10 h 42 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	296°34.4'	N 23°48.1'	11.1'	-6.2'	54.8'	118°46.0'	80°17.9'	79°25.4'	26°23.3'	10°40.1'		40°20.5'	44°18.9'
1	311°04.5'	N 23°41.9'	11.1'	-6.3'	54.8'	118°18.2'	79°47.7'	78°58.7'	25°53.5'	11°09.5'		40°47.0'	44°45.0'
2	325°34.6'	N 23°35.6'	11.1'	-6.4'	54.8'	117°50.4'	79°17.6'	78°31.9'	25°23.8'	11°39.1'		41°13.6'	45°11.2'
3	340°04.7'	N 23°29.2'	11.1'	-6.5'	54.8'	117°22.6'	78°47.4'	78°05.1'	24°54.0'	12°08.7'		41°40.3'	45°37.4'
4	354°34.8'	N 23°22.7'	11.2'	-6.6'	54.8'	116°54.8'	78°17.1'	77°38.4'	24°24.3'	12°38.5'		42°07.0'	46°03.7'
5	9°05.0'	N 23°16.1'	11.2'	-6.7'	54.9'	116°26.9'	77°46.9'	77°11.6'	23°54.6'	13°08.2'		42°33.9'	46°30.2'
6	23°35.2'	N 23°09.4'	11.2'	-6.9'	54.9'	115°59.0'	77°16.6'	76°44.8'	23°24.9'	13°38.1'	23°31.0'	43°00.8'	46°56.7'
7	38°05.4'	N 23°02.5'	11.3'	-7.0'	54.9'	115°31.1'	76°46.3'	76°18.0'	22°55.1'	14°08.0'	23°46.2'	43°27.8'	47°23.2'
8	52°35.7'	N 22°55.5'	11.3'	-7.1'	54.9'	115°03.2'	76°16.0'	75°51.2'	22°25.4'	14°38.0'	24°02.0'	43°54.9'	47°49.9'
9	67°06.0'	N 22°48.4'	11.3'	-7.2'	55.0'	114°35.3'	75°45.7'	75°24.4'	21°55.7'	15°08.0'	24°18.1'	44°22.0'	48°16.6'
10	81°36.4'	N 22°41.2'	11.4'	-7.3'	55.0'	114°07.3'	75°15.4'	74°57.6'	21°26.1'	15°38.1'	24°34.7'	44°49.2'	48°43.4'
11	96°06.7'	N 22°33.9'	11.4'	-7.4'	55.0'	113°39.3'	74°45.0'	74°30.8'	20°56.4'	16°08.2'	24°51.8'	45°16.6'	49°10.3'
12	110°37.1'	N 22°26.5'	11.4'	-7.5'	55.0'	113°11.3'	74°14.6'	74°04.0'	20°26.7'	16°38.3'	25°09.2'	45°43.9'	49°37.2'
13	125°07.6'	N 22°19.0'	11.5'	-7.6'	55.0'	112°43.2'	73°44.2'	73°37.2'	19°57.1'	17°08.5'	25°27.0'	46°11.4'	50°04.2'
14	139°38.1'	N 22°11.4'	11.5'	-7.8'	55.1'	112°15.2'	73°13.7'	73°10.4'	19°27.5'	17°38.8'	25°45.3'	46°38.9'	50°31.3'
15	154°08.6'	N 22°03.6'	11.5'	-7.9'	55.1'	111°47.1'	72°43.3'	72°43.5'	18°57.9'	18°09.1'	26°03.8'	47°06.5'	50°58.5'
16	168°39.1'	N 21°55.7'	11.6'	-8.0'	55.1'	111°19.0'	72°12.8'	72°16.7'	18°28.4'	18°39.4'	26°22.8'	47°34.2'	51°25.7'
17	183°09.7'	N 21°47.8'	11.6'	-8.1'	55.1'	110°50.9'	71°42.3'	71°49.9'	17°58.8'	19°09.8'	26°42.1'	48°01.9'	51°53.0'
18	197°40.3'	N 21°39.7'	11.6'	-8.2'	55.2'	110°22.7'	71°11.8'	71°23.1'	17°29.4'	19°40.2'	27°01.8'	48°29.7'	52°20.3'
19	212°10.9'	N 21°31.5'	11.7'	-8.3'	55.2'	109°54.5'	70°41.2'	70°56.3'	16°59.9'	20°10.6'	27°21.7'	48°57.5'	52°47.7'
20	226°41.6'	N 21°23.2'	11.7'	-8.4'	55.2'	109°26.3'	70°10.6'	70°29.5'	16°30.5'	20°41.1'	27°42.0'	49°25.5'	53°15.2'
21	241°12.3'	N 21°14.8'	11.7'	-8.5'	55.2'	108°58.1'	69°40.0'	70°02.6'	16°01.2'	21°11.6'	28°02.6'	49°53.5'	53°42.8'
22	255°43.1'	N 21°06.3'	11.8'	-8.6'	55.3'	108°29.8'	69°09.4'	69°35.8'	15°32.0'	21°42.2'	28°23.6'	50°21.5'	54°10.4'
23	270°13.8'	N 20°57.7'	11.8'	-8.7'	55.3'	108°01.5'	68°38.7'	69°09.0'	15°02.8'	22°12.8'	28°44.7'	50°49.6'	54°38.0'
Mer. pass.	4 h 22 m	SD 14.9'	phase 74%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.2'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.1'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.1'	S 52°42.2'				

Friday 26 November 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	65°08.6'	183°12.4'	S 20°56.1'	135°57.6'	S 25°37.7'		97°44.2'	S 14°16.1'		113°53.9'	S 18°54.0'		199°36.3'	S 16°56.8'				
1	80°11.0'	198°12.2'	S 20°56.5'	150°58.2'	S 25°37.3'		112°46.4'	S 14°16.0'		128°56.2'	S 18°53.9'		214°37.0'	S 16°57.3'				
2	95°13.5'	213°12.0'	S 20°57.0'	165°58.8'	S 25°36.9'		127°48.6'	S 14°15.9'		143°58.5'	S 18°53.9'		229°37.8'	S 16°57.8'				
3	110°16.0'	228°11.8'	S 20°57.5'	180°59.4'	S 25°36.5'		142°50.8'	S 14°15.8'		159°00.8'	S 18°53.8'		244°38.5'	S 16°58.3'				
4	125°18.4'	243°11.6'	S 20°57.9'	195°60.0'	S 25°36.2'		157°52.9'	S 14°15.7'		174°03.0'	S 18°53.8'		259°39.2'	S 16°58.8'				
5	140°20.9'	258°11.4'	S 20°58.4'	211°00.6'	S 25°35.8'		172°55.1'	S 14°15.5'		189°05.3'	S 18°53.7'		274°40.0'	S 16°59.3'				
6	155°23.3'	273°11.2'	S 20°58.9'	226°01.2'	S 25°35.4'		187°57.3'	S 14°15.4'		204°07.6'	S 18°53.7'		289°40.7'	S 16°59.8'				
7	170°25.8'	288°11.0'	S 20°59.3'	241°01.8'	S 25°35.0'		202°59.5'	S 14°15.3'		219°09.9'	S 18°53.6'		304°41.5'	S 17°00.3'				
8	185°28.3'	303°10.8'	S 20°59.8'	256°02.4'	S 25°34.6'		218°01.6'	S 14°15.2'		234°12.2'	S 18°53.6'		319°42.2'	S 17°00.8'				
9	200°30.7'	318°10.6'	S 21°00.3'	271°03.0'	S 25°34.2'		233°03.8'	S 14°15.1'		249°14.4'	S 18°53.5'		334°43.0'	S 17°01.3'				
10	215°33.2'	333°10.4'	S 21°00.8'	286°03.6'	S 25°33.8'		248°06.0'	S 14°15.0'		264°16.7'	S 18°53.5'		349°43.7'	S 17°01.8'				
11	230°35.7'	348°10.2'	S 21°01.2'	301°04.2'	S 25°33.4'		263°08.1'	S 14°14.9'		279°19.0'	S 18°53.4'		4°44.5'	S 17°02.3'				
12	245°38.1'	3°10.0'	S 21°01.7'	316°04.8'	S 25°33.0'		278°10.3'	S 14°14.8'		294°21.3'	S 18°53.4'		19°45.2'	S 17°02.8'				
13	260°40.6'	18°09.8'	S 21°02.1'	331°05.4'	S 25°32.6'		293°12.5'	S 14°14.7'		309°23.6'	S 18°53.3'		34°45.9'	S 17°03.3'				
14	275°43.1'	33°09.6'	S 21°02.6'	346°06.1'	S 25°32.2'		308°14.7'	S 14°14.6'		324°25.8'	S 18°53.3'		49°46.7'	S 17°03.8'				
15	290°45.5'	48°09.4'	S 21°03.1'	1°06.7'	S 25°31.8'		323°16.8'	S 14°14.5'		339°28.1'	S 18°53.2'		64°47.4'	S 17°04.3'				
16	305°48.0'	63°09.2'	S 21°03.5'	16°07.3'	S 25°31.4'		338°19.0'	S 14°14.4'		354°30.4'	S 18°53.2'		79°48.2'	S 17°04.8'				
17	320°50.5'	78°09.0'	S 21°04.0'	31°07.9'	S 25°31.1'		353°21.2'	S 14°14.3'		9°32.7'	S 18°53.1'		94°48.9'	S 17°05.3'				
18	335°52.9'	93°08.8'	S 21°04.5'	46°08.6'	S 25°30.7'		8°23.3'	S 14°14.2'		24°35.0'	S 18°53.1'		109°49.7'	S 17°05.8'				
19	350°55.4'	108°08.6'	S 21°04.9'	61°09.2'	S 25°30.3'		23°25.5'	S 14°14.1'		39°37.2'	S 18°53.1'		124°50.4'	S 17°06.3'				
20	5°57.8'	123°08.4'	S 21°05.4'	76°09.8'	S 25°29.9'		38°27.7'	S 14°13.9'		54°39.5'	S 18°53.0'		139°51.1'	S 17°06.8'				
21	21°00.3'	138°08.2'	S 21°05.8'	91°10.5'	S 25°29.5'		53°29.8'	S 14°13.8'		69°41.8'	S 18°53.0'		154°51.9'	S 17°07.3'				
22	36°02.8'	153°08.0'	S 21°06.3'	106°11.1'	S 25°29.1'		68°32.0'	S 14°13.7'		84°44.1'	S 18°52.9'		169°52.6'	S 17°07.8'				
23	51°05.2'	168°07.8'	S 21°06.8'	121°11.7'	S 25°28.7'		83°34.2'	S 14°13.6'		99°46.4'	S 18°52.9'		184°53.4'	S 17°08.2'				
		SD 16.2'	d -0.5'		v 0.6'	d 0.4'		v 2.2'	d 0.1'		v 2.3'	d 0.0'		v 0.7'	d -0.5'			
Mer. pass.		11 h 47 m 21 s		14 h 56 m			17 h 27 m			16 h 22 m			10 h 41 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius
0	284°44.7'	N 20°49.0'	11.8'	-8.8'	55.3'	107°33.2'	68°42.2'	68°08.1'	14°33.7'	22°43.4'	29°06.2'	51°17.8'	53°31.3'
1	299°15.5'	N 20°40.2'	11.9'	-8.9'	55.3'	107°04.9'	68°15.4'	67°37.4'	14°04.7'	23°14.1'	29°28.0'	51°46.0'	53°47.6'
2	313°46.4'	N 20°31.2'	11.9'	-9.0'	55.4'	106°36.5'	67°48.6'	67°06.6'	13°35.7'	23°44.7'	29°50.0'	52°14.3'	54°04.2'
3	328°17.3'	N 20°22.2'	11.9'	-9.1'	55.4'	106°08.1'	67°21.8'	66°35.9'	13°07.0'	24°15.5'	30°12.2'	52°42.7'	54°20.8'
4	342°48.2'	N 20°13.1'	12.0'	-9.2'	55.4'	105°39.7'	66°55.0'	66°05.1'	12°38.3'	24°46.2'	30°34.8'	53°11.1'	54°37.7'
5	357°19.2'	N 20°03.9'	12.0'	-9.3'	55.4'	105°11.3'	66°28.2'	65°34.3'	12°09.8'	25°17.0'	30°57.5'	53°39.6'	54°54.6'
6	11°50.2'	N 19°54.5'	12.0'	-9.4'	55.5'	104°42.8'	66°01.4'	65°03.5'	11°41.5'	25°47.9'	31°20.5'	54°08.1'	55°11.8'
7	26°21.3'	N 19°45.1'	12.1'	-9.5'	55.5'	104°14.3'	65°34.7'	64°32.6'	11°13.4'	26°18.7'	31°43.7'	54°36.7'	55°29.1'
8	40°52.4'	N 19°35.6'	12.1'	-9.6'	55.5'	103°45.7'	65°07.9'	64°01.7'	10°45.6'	26°49.7'	32°07.1'	55°05.4'	55°46.5'
9	55°23.5'	N 19°25.9'	12.1'	-9.7'	55.5'	103°17.2'	64°41.1'	63°30.8'	10°18.0'	27°20.6'	32°30.8'	55°34.1'	56°04.1'
10	69°54.6'	N 19°16.2'	12.2'	-9.8'	55.6'	102°48.6'	64°14.4'	62°59.8'	9°50.7'	27°51.6'	32°54.6'	56°02.8'	56°21.8'
11	84°25.8'	N 19°06.4'	12.2'	-9.9'	55.6'	102°20.0'	63°47.6'	62°28.9'	9°23.8'	28°22.6'	33°18.7'	56°31.6'	56°39.7'
12	98°57.0'	N 18°56.4'	12.2'	-10.0'	55.6'	101°51.3'	63°20.9'	61°57.8'	8°57.4'	28°53.6'	33°42.9'	57°00.5'	56°57.7'
13	113°28.2'	N 18°46.4'	12.3'	-10.1'	55.7'	101°22.6'	62°54.2'	61°26.8'	8°31.4'	29°24.7'	34°07.4'	57°29.4'	57°15.8'
14	127°59.5'	N 18°36.3'	12.3'	-10.2'	55.7'	100°53.9'	62°27.5'	60°55.8'	8°06.0'	29°55.8'	34°32.0'	57°58.4'	57°34.1'
15	142°30.8'	N 18°26.1'	12.3'	-10.3'	55.7'	100°25.1'	62°00.8'	60°24.7'		30°27.0'	34°56.8'	58°27.4'	57°52.6'
16	157°02.1'	N 18°15.8'	12.4'	-10.4'	55.7'	99°56.4'	61°34.1'	59°53.5'		30°58.1'	35°21.8'	58°56.5'	58°11.1'
17	171°33.5'	N 18°05.3'	12.4'	-10.5'	55.8'	99°27.6'	61°07.4'	59°22.4'		31°29.4'	35°46.9'	59°25.7'	58°29.8'
18	186°04.9'	N 17°54.8'	12.4'	-10.6'	55.8'	98°58.7'	60°40.8'	58°51.2'		32°00.6'	36°12.2'	59°54.8'	58°48.6'
19	200°36.3'	N 17°44.3'	12.4'	-10.7'	55.8'	98°29.8'	60°14.1'	58°20.0'		32°31.9'	36°37.7'	60°24.1'	59°07.6'
20	215°07.7'	N 17°33.6'	12.5'	-10.8'	55.9'	98°00.9'	59°47.5'	57°48.7'		33°03.2'	37°03.3'	60°53.4'	59°26.7'
21	229°39.2'	N 17°22.8'	12.5'	-10.9'	55.9'	97°32.0'	59°20.9'	57°17.5'		33°34.6'	37°29.1'	61°22.7'	59°45.9'
22	244°10.7'	N 17°11.9'	12.5'	-11.0'	55.9'	97°03.0'	58°54.4'	56°46.2'		34°06.0'	37°55.1'	61°52.1'	60°05.2'
23	258°42.2'	N 17°01.0'	12.6'	-11.0'	56.0'	96°34.0'	58°27.8'	56°14.8'		34°37.4'	38°21.1'	62°21.6'	60°24.7'
Mer. pass.		5 h 11 m SD 15.1'		phase 65%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.2'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.2'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.3'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	66°07.7'		183°07.6'	S 21°07.2'	136°12.4'	S 25°28.3'	98°36.4'	S 14°13.5'	114°48.6'	S 18°52.8'	199°54.1'	S 17°08.7'
1	81°10.2'		198°07.4'	S 21°07.7'	151°13.0'	S 25°27.9'	113°38.5'	S 14°13.4'	129°50.9'	S 18°52.8'	214°54.8'	S 17°09.2'
2	96°12.6'		213°07.2'	S 21°08.1'	166°13.7'	S 25°27.5'	128°40.7'	S 14°13.3'	144°53.2'	S 18°52.7'	229°55.6'	S 17°09.7'
3	111°15.1'		228°06.9'	S 21°08.6'	181°14.3'	S 25°27.1'	143°42.9'	S 14°13.2'	159°55.5'	S 18°52.7'	244°56.3'	S 17°10.2'
4	126°17.6'		243°06.7'	S 21°09.0'	196°15.0'	S 25°26.7'	158°45.0'	S 14°13.1'	174°57.7'	S 18°52.6'	259°57.1'	S 17°10.7'
5	141°20.0'		258°06.5'	S 21°09.5'	211°15.6'	S 25°26.3'	173°47.2'	S 14°13.0'	190°00.0'	S 18°52.6'	274°57.8'	S 17°11.2'
6	156°22.5'		273°06.3'	S 21°09.9'	226°16.3'	S 25°25.9'	188°49.4'	S 14°12.9'	205°02.3'	S 18°52.5'	289°58.5'	S 17°11.7'
7	171°24.9'		288°06.1'	S 21°10.4'	241°16.9'	S 25°25.4'	203°51.5'	S 14°12.8'	220°04.6'	S 18°52.5'	304°59.3'	S 17°12.2'
8	186°27.4'		303°05.9'	S 21°10.8'	256°17.6'	S 25°25.0'	218°53.7'	S 14°12.6'	235°06.8'	S 18°52.4'	320°00.0'	S 17°12.7'
9	201°29.9'		318°05.7'	S 21°11.3'	271°18.3'	S 25°24.6'	233°55.9'	S 14°12.5'	250°09.1'	S 18°52.4'	335°00.7'	S 17°13.2'
10	216°32.3'		333°05.5'	S 21°11.7'	286°18.9'	S 25°24.2'	248°58.0'	S 14°12.4'	265°11.4'	S 18°52.3'	350°01.5'	S 17°13.7'
11	231°34.8'		348°05.3'	S 21°12.2'	301°19.6'	S 25°23.8'	264°00.2'	S 14°12.3'	280°13.7'	S 18°52.3'	5°02.2'	S 17°14.2'
12	246°37.3'		3°05.1'	S 21°12.6'	316°20.3'	S 25°23.4'	279°02.4'	S 14°12.2'	295°16.0'	S 18°52.2'	20°03.0'	S 17°14.7'
13	261°39.7'		18°04.9'	S 21°13.1'	331°20.9'	S 25°23.0'	294°04.5'	S 14°12.1'	310°18.2'	S 18°52.2'	35°03.7'	S 17°15.2'
14	276°42.2'		33°04.7'	S 21°13.5'	346°21.6'	S 25°22.6'	309°06.7'	S 14°12.0'	325°20.5'	S 18°52.1'	50°04.4'	S 17°15.7'
15	291°44.7'		48°04.5'	S 21°14.0'	1°22.3'	S 25°22.2'	324°08.8'	S 14°11.9'	340°22.8'	S 18°52.1'	65°05.2'	S 17°16.2'
16	306°47.1'		63°04.3'	S 21°14.4'	16°23.0'	S 25°21.8'	339°11.0'	S 14°11.8'	355°25.1'	S 18°52.0'	80°05.9'	S 17°16.7'
17	321°49.6'		78°04.1'	S 21°14.9'	31°23.7'	S 25°21.4'	354°13.2'	S 14°11.7'	10°27.3'	S 18°52.0'	95°06.6'	S 17°17.1'
18	336°52.1'		93°03.8'	S 21°15.3'	46°24.3'	S 25°21.0'	9°15.3'	S 14°11.6'	25°29.6'	S 18°51.9'	110°07.4'	S 17°17.6'
19	351°54.5'		108°03.6'	S 21°15.8'	61°25.0'	S 25°20.6'	24°17.5'	S 14°11.4'	40°31.9'	S 18°51.9'	125°08.1'	S 17°18.1'
20	6°57.0'		123°03.4'	S 21°16.2'	76°25.7'	S 25°20.1'	39°19.7'	S 14°11.3'	55°34.2'	S 18°51.8'	140°08.9'	S 17°18.6'
21	21°59.4'		138°03.2'	S 21°16.7'	91°26.4'	S 25°19.7'	54°21.8'	S 14°11.2'	70°36.4'	S 18°51.8'	155°09.6'	S 17°19.1'
22	37°01.9'		153°03.0'	S 21°17.1'	106°27.1'	S 25°19.3'	69°24.0'	S 14°11.1'	85°38.7'	S 18°51.7'	170°10.3'	S 17°19.6'
23	52°04.4'		168°02.8'	S 21°17.5'	121°27.8'	S 25°18.9'	84°26.2'	S 14°11.0'	100°41.0'	S 18°51.7'	185°11.1'	S 17°20.1'
			SD 16.2'	<i>d</i> -0.4'	<i>v</i> 0.7'	<i>d</i> 0.4'	<i>v</i> 2.2'	<i>d</i> 0.1'	<i>v</i> 2.3'	<i>d</i> 0.0'	<i>v</i> 0.7'	<i>d</i> -0.5'
Mer. pass.			11 h 47 m 41 s		14 h 55 m		17 h 23 m		16 h 18 m		10 h 40 m	

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Sun	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Sirius	+Betelgeuse
0	273°13.8'	N 16°49.9'	12.6'	-11.1'	56.0'	96°04.9'	58°01.3'	55°43.5'		35°08.9'	38°47.4'	60°44.3'	62°51.1'
1	287°45.4'	N 16°38.8'	12.6'	-11.2'	56.0'	95°35.9'	57°34.8'	55°12.1'		35°40.4'	39°13.7'	61°04.0'	63°20.6'
2	302°17.0'	N 16°27.5'	12.6'	-11.3'	56.1'	95°06.7'	57°08.3'	54°40.6'		36°12.0'	39°40.2'	61°23.8'	63°50.2'
3	316°48.6'	N 16°16.2'	12.7'	-11.4'	56.1'	94°37.6'	56°41.8'	54°09.2'		36°43.5'	40°06.9'	61°43.8'	64°19.9'
4	331°20.3'	N 16°04.8'	12.7'	-11.5'	56.1'	94°08.4'	56°15.4'	53°37.7'		37°15.2'	40°33.6'	62°03.8'	64°49.6'
5	345°52.0'	N 15°53.3'	12.7'	-11.6'	56.1'	93°39.2'	55°49.0'	53°06.1'		37°46.8'	41°00.5'	62°24.0'	65°19.4'
6	0°23.7'	N 15°41.8'	12.7'	-11.7'	56.2'	93°09.9'	55°22.7'	52°34.6'		38°18.5'	41°27.5'	62°44.3'	65°49.2'
7	14°55.4'	N 15°30.1'	12.8'	-11.7'	56.2'	92°40.6'	54°56.3'	52°03.0'		38°50.3'	41°54.7'	63°04.7'	66°19.0'
8	29°27.2'	N 15°18.4'	12.8'	-11.8'	56.2'	92°11.3'	54°30.0'	51°31.3'		39°22.0'	42°21.9'	63°25.2'	66°48.9'
9	43°58.9'	N 15°06.5'	12.8'	-11.9'	56.3'	91°41.9'	54°03.8'	50°59.7'		39°53.8'	42°49.3'	63°45.8'	67°18.9'
10	58°30.7'	N 14°54.6'	12.8'	-12.0'	56.3'	91°12.5'	53°37.5'	50°28.0'		40°25.7'	43°16.8'	64°06.6'	67°48.9'
11	73°02.6'	N 14°42.6'	12.8'	-12.1'	56.3'	90°43.1'	53°11.4'	49°56.2'		40°57.6'	43°44.4'	64°27.4'	68°19.0'
12	87°34.4'	N 14°30.6'	12.9'	-12.2'	56.4'	90°13.6'	52°45.2'	49°24.4'		41°29.5'	44°12.1'	64°48.4'	68°49.1'
13	102°06.2'	N 14°18.4'	12.9'	-12.2'	56.4'	89°44.1'	52°19.1'	48°52.6'		42°01.5'	44°40.0'	65°09.4'	69°19.2'
14	116°38.1'	N 14°06.2'	12.9'	-12.3'	56.4'	89°14.5'	51°53.1'	48°20.8'		42°33.5'	45°07.9'	65°30.6'	69°49.4'
15	131°10.0'	N 13°53.9'	12.9'	-12.4'	56.5'	88°44.9'	51°27.1'	47°48.9'	8°14.7'	43°05.6'	45°35.9'	65°51.9'	70°19.7'
16	145°41.9'	N 13°41.5'	12.9'	-12.5'	56.5'	88°15.3'	51°01.2'	47°17.0'	8°41.1'	43°37.6'	46°04.1'	66°13.2'	70°50.0'
17	160°13.8'	N 13°29.0'	12.9'	-12.5'	56.6'	87°45.6'	50°35.3'	46°45.1'	9°08.1'	44°09.8'	46°32.3'	66°34.7'	71°20.3'
18	174°45.8'	N 13°16.4'	13.0'	-12.6'	56.6'	87°15.9'	50°09.4'	46°13.1'	9°35.7'	44°42.0'	47°00.7'	66°56.2'	71°50.7'
19	189°17.7'	N 13°03.8'	13.0'	-12.7'	56.6'	86°46.1'	49°43.6'	45°41.1'	10°03.8'	45°14.2'	47°29.1'	67°17.9'	72°21.2'
20	203°49.7'	N 12°51.1'	13.0'	-12.8'	56.7'	86°16.3'	49°17.9'	45°09.0'	10°32.3'	45°46.4'	47°57.7'	67°39.7'	72°51.7'
21	218°21.7'	N 12°38.3'	13.0'	-12.8'	56.7'	85°46.5'	48°52.3'	44°37.0'	11°01.2'	46°18.7'	48°26.3'	68°01.5'	73°22.2'
22	232°53.7'	N 12°25.5'	13.0'	-12.9'	56.7'	85°16.6'	48°26.7'	44°04.8'	11°30.4'	46°51.1'	48°55.1'	68°23.5'	73°52.8'
23	247°25.7'	N 12°12.6'	13.0'	-13.0'	56.8'	84°46.7'	48°01.2'	43°32.7'	11°59.9'	47°23.5'	49°23.9'	68°45.5'	74°23.5'
Mer. pass.			5 h 58 m SD 15.3'	phase 55%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.2'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.3'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.3'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	67°06.8'	183°02.6'	S 21°18.0'	136°28.5'	S 25°18.5'		99°28.3'	S 14°10.9'		115°43.3'	S 18°51.7'		200°11.8'	S 17°20.6'				
1	82°09.3'	198°02.4'	S 21°18.4'	151°29.2'	S 25°18.1'		114°30.5'	S 14°10.8'		130°45.5'	S 18°51.6'		215°12.5'	S 17°21.1'				
2	97°11.8'	213°02.2'	S 21°18.9'	166°29.9'	S 25°17.7'		129°32.6'	S 14°10.7'		145°47.8'	S 18°51.6'		230°13.3'	S 17°21.6'				
3	112°14.2'	228°02.0'	S 21°19.3'	181°30.6'	S 25°17.3'		144°34.8'	S 14°10.6'		160°50.1'	S 18°51.5'		245°14.0'	S 17°22.1'				
4	127°16.7'	243°01.7'	S 21°19.7'	196°31.3'	S 25°16.8'		159°37.0'	S 14°10.5'		175°52.4'	S 18°51.5'		260°14.7'	S 17°22.6'				
5	142°19.2'	258°01.5'	S 21°20.2'	211°32.1'	S 25°16.4'		174°39.1'	S 14°10.3'		190°54.6'	S 18°51.4'		275°15.5'	S 17°23.0'				
6	157°21.6'	273°01.3'	S 21°20.6'	226°32.8'	S 25°16.0'		189°41.3'	S 14°10.2'		205°56.9'	S 18°51.4'		290°16.2'	S 17°23.5'				
7	172°24.1'	288°01.1'	S 21°21.0'	241°33.5'	S 25°15.6'		204°43.4'	S 14°10.1'		220°59.2'	S 18°51.3'		305°16.9'	S 17°24.0'				
8	187°26.6'	303°00.9'	S 21°21.5'	256°34.2'	S 25°15.2'		219°45.6'	S 14°10.0'		236°01.4'	S 18°51.3'		320°17.7'	S 17°24.5'				
9	202°29.0'	318°00.7'	S 21°21.9'	271°34.9'	S 25°14.8'		234°47.8'	S 14°09.9'		251°03.7'	S 18°51.2'		335°18.4'	S 17°25.0'				
10	217°31.5'	333°00.5'	S 21°22.3'	286°35.7'	S 25°14.3'		249°49.9'	S 14°09.8'		266°06.0'	S 18°51.2'		350°19.1'	S 17°25.5'				
11	232°33.9'	348°00.2'	S 21°22.8'	301°36.4'	S 25°13.9'		264°52.1'	S 14°09.7'		281°08.3'	S 18°51.1'		5°19.9'	S 17°26.0'				
12	247°36.4'	3°00.0'	S 21°23.2'	316°37.1'	S 25°13.5'		279°54.2'	S 14°09.6'		296°10.5'	S 18°51.1'		20°20.6'	S 17°26.5'				
13	262°38.9'	17°59.8'	S 21°23.6'	331°37.9'	S 25°13.1'		294°56.4'	S 14°09.5'		311°12.8'	S 18°51.0'		35°21.3'	S 17°27.0'				
14	277°41.3'	32°59.6'	S 21°24.1'	346°38.6'	S 25°12.7'		309°58.6'	S 14°09.4'		326°15.1'	S 18°51.0'		50°22.1'	S 17°27.4'				
15	292°43.8'	47°59.4'	S 21°24.5'	1°39.3'	S 25°12.2'		325°00.7'	S 14°09.2'		341°17.4'	S 18°50.9'		65°22.8'	S 17°27.9'				
16	307°46.3'	62°59.2'	S 21°24.9'	16°40.1'	S 25°11.8'		340°02.9'	S 14°09.1'		356°19.6'	S 18°50.9'		80°23.5'	S 17°28.4'				
17	322°48.7'	77°59.0'	S 21°25.4'	31°40.8'	S 25°11.4'		355°05.0'	S 14°09.0'		11°21.9'	S 18°50.8'		95°24.3'	S 17°28.9'				
18	337°51.2'	92°58.7'	S 21°25.8'	46°41.6'	S 25°11.0'		10°07.2'	S 14°08.9'		26°24.2'	S 18°50.8'		110°25.0'	S 17°29.4'				
19	352°53.7'	107°58.5'	S 21°26.2'	61°42.3'	S 25°10.5'		25°09.3'	S 14°08.8'		41°26.4'	S 18°50.7'		125°25.7'	S 17°29.9'				
20	7°56.1'	122°58.3'	S 21°26.6'	76°43.1'	S 25°10.1'		40°11.5'	S 14°08.7'		56°28.7'	S 18°50.7'		140°26.4'	S 17°30.4'				
21	22°58.6'	137°58.1'	S 21°27.1'	91°43.8'	S 25°09.7'		55°13.7'	S 14°08.6'		71°31.0'	S 18°50.6'		155°27.2'	S 17°30.8'				
22	38°01.0'	152°57.9'	S 21°27.5'	106°44.6'	S 25°09.3'		70°15.8'	S 14°08.5'		86°33.3'	S 18°50.6'		170°27.9'	S 17°31.3'				
23	53°03.5'	167°57.6'	S 21°27.9'	121°45.4'	S 25°08.8'		85°18.0'	S 14°08.3'		101°35.5'	S 18°50.5'		185°28.6'	S 17°31.8'				
		SD 16.2'	d -0.4'		v 0.7'	d 0.4'		v 2.2'	d 0.1'		v 2.3'	d 0.0'		v 0.7'	d -0.5'			
Mer. pass.		11 h 48 m 1 s		14 h 53 m			17 h 20 m			16 h 15 m			10 h 39 m					

h	Moon					Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Mars	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius	
0	261°57.7'	N 11°59.6'	13.0'	-13.1'	56.8'	84°16.7'	67°40.8'	47°35.7'	43°00.5'	12°29.7'	47°55.9'	49°52.8'	69°07.6'	
1	276°29.7'	N 11°46.5'	13.0'	-13.1'	56.8'	83°46.7'	67°10.0'	47°10.4'	42°28.3'	12°59.8'	48°28.4'	50°21.8'	69°29.9'	
2	291°01.7'	N 11°33.4'	13.0'	-13.2'	56.9'	83°16.7'	66°39.1'	46°45.1'	41°56.0'	13°30.1'	49°00.9'	50°50.9'	69°52.2'	
3	305°33.8'	N 11°20.2'	13.0'	-13.3'	56.9'	82°46.6'	66°08.2'	46°19.9'	41°23.7'	14°00.6'	49°33.4'	51°20.1'	70°14.6'	
4	320°05.8'	N 11°06.9'	13.1'	-13.3'	56.9'	82°16.4'	65°37.3'	45°54.8'	40°51.4'	14°31.3'	50°06.0'	51°49.4'	70°37.1'	
5	334°37.9'	N 10°53.6'	13.1'	-13.4'	57.0'	81°46.3'	65°06.3'	45°29.7'	40°19.0'	15°02.1'	50°38.7'	52°18.7'	70°59.7'	
6	349°09.9'	N 10°40.2'	13.1'	-13.5'	57.0'	81°16.0'	64°35.3'	45°04.8'	39°46.6'	15°33.2'	51°11.4'	52°48.2'	71°22.3'	
7	3°42.0'	N 10°26.7'	13.1'	-13.5'	57.1'	80°45.8'	64°04.2'	44°40.0'	39°14.2'	16°04.4'	51°44.1'	53°17.7'	71°45.1'	
8	18°14.1'	N 10°13.1'	13.1'	-13.6'	57.1'	80°15.5'	63°33.1'	44°15.3'	38°41.7'	16°35.7'	52°16.9'	53°47.3'	72°07.9'	
9	32°46.1'	N 9°59.5'	13.1'	-13.7'	57.1'	79°45.1'	63°02.0'	43°50.6'	38°09.2'	17°07.1'	52°49.7'	54°17.0'	72°30.8'	
10	47°18.2'	N 9°45.8'	13.1'	-13.7'	57.2'	79°14.7'	62°30.8'	43°26.1'	37°36.6'	17°38.7'	53°22.6'	54°46.8'	72°53.8'	
11	61°50.3'	N 9°32.1'	13.1'	-13.8'	57.2'	78°44.3'	61°59.6'	43°01.7'	37°04.0'	18°10.4'	53°55.5'	55°16.7'	73°16.9'	
12	76°22.4'	N 9°18.3'	13.1'	-13.9'	57.2'	78°13.8'	61°28.3'	42°37.5'	36°31.4'	18°42.2'	54°28.4'	55°46.6'	73°40.1'	
13	90°54.4'	N 9°04.5'	13.1'	-13.9'	57.3'	77°43.3'	60°56.9'	42°13.3'	35°58.8'	19°14.1'	55°01.4'	56°16.6'	74°03.3'	
14	105°26.5'	N 8°50.5'	13.1'	-14.0'	57.3'	77°12.7'	60°25.6'	41°49.3'	35°26.1'	19°46.2'	55°34.5'	56°46.7'	74°26.6'	
15	119°58.5'	N 8°36.5'	13.1'	-14.0'	57.4'	76°42.1'	59°54.1'	41°25.4'	34°53.4'	20°18.3'	56°07.6'	57°16.9'	74°50.0'	
16	134°30.6'	N 8°22.5'	13.1'	-14.1'	57.4'	76°11.4'	59°22.7'	41°01.7'	34°20.6'	20°50.5'	56°40.7'	57°47.2'	75°13.5'	
17	149°02.7'	N 8°08.4'	13.0'	-14.2'	57.4'	75°40.7'	58°51.2'	40°38.1'	33°47.8'	21°22.8'	57°13.9'	58°17.5'	75°37.1'	
18	163°34.7'	N 7°54.2'	13.0'	-14.2'	57.5'	75°09.9'	58°19.6'	40°14.7'	33°15.0'	21°55.2'	57°47.2'	58°47.9'	76°00.7'	
19	178°06.7'	N 7°40.0'	13.0'	-14.3'	57.5'	74°39.1'	57°48.0'	39°51.4'	32°42.2'	22°27.7'	58°20.4'	59°18.4'	76°24.4'	
20	192°38.8'	N 7°25.8'	13.0'	-14.3'	57.6'	74°08.3'	57°16.3'	39°28.3'	32°09.3'	23°00.3'	58°53.8'	59°48.9'	76°48.1'	
21	207°10.8'	N 7°11.4'	13.0'	-14.4'	57.6'	73°37.4'	56°44.6'	39°05.4'	31°36.4'	23°32.9'	59°27.1'	60°19.6'	77°12.0'	
22	221°42.8'	N 6°57.1'	13.0'	-14.4'	57.6'	73°06.4'	56°12.9'	38°42.7'	31°03.5'	24°05.7'	60°00.6'	60°50.2'	77°35.9'	
23	236°14.8'	N 6°42.6'	13.0'	-14.5'	57.7'	72°35.5'	55°41.1'	38°20.1'	30°30.5'	24°38.5'	60°34.0'	61°21.0'	77°59.8'	
Mer. pass.		6 h 45 m SD 15.5'		phase 45%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.2'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.4'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.3'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.3'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec		
0	68°06.0'	182°57.4'	S 21°28.3'	136°46.1'	S 25°08.4'	100°20.1'	S 14°08.2'	116°37.8'	S 18°50.5'	200°29.4'	S 17°32.3'							
1	83°08.4'	197°57.2'	S 21°28.8'	151°46.9'	S 25°08.0'	115°22.3'	S 14°08.1'	131°40.1'	S 18°50.4'	215°30.1'	S 17°32.8'							
2	98°10.9'	212°57.0'	S 21°29.2'	166°47.6'	S 25°07.6'	130°24.4'	S 14°08.0'	146°42.3'	S 18°50.4'	230°30.8'	S 17°33.3'							
3	113°13.4'	227°56.8'	S 21°29.6'	181°48.4'	S 25°07.1'	145°26.6'	S 14°07.9'	161°44.6'	S 18°50.3'	245°31.5'	S 17°33.8'							
4	128°15.8'	242°56.6'	S 21°30.0'	196°49.2'	S 25°06.7'	160°28.8'	S 14°07.8'	176°46.9'	S 18°50.3'	260°32.3'	S 17°34.2'							
5	143°18.3'	257°56.3'	S 21°30.5'	211°50.0'	S 25°06.3'	175°30.9'	S 14°07.7'	191°49.2'	S 18°50.2'	275°33.0'	S 17°34.7'							
6	158°20.8'	272°56.1'	S 21°30.9'	226°50.8'	S 25°05.8'	190°33.1'	S 14°07.6'	206°51.4'	S 18°50.2'	290°33.7'	S 17°35.2'							
7	173°23.2'	287°55.9'	S 21°31.3'	241°51.5'	S 25°05.4'	205°35.2'	S 14°07.4'	221°53.7'	S 18°50.1'	305°34.5'	S 17°35.7'							
8	188°25.7'	302°55.7'	S 21°31.7'	256°52.3'	S 25°05.0'	220°37.4'	S 14°07.3'	236°56.0'	S 18°50.1'	320°35.2'	S 17°36.2'							
9	203°28.2'	317°55.4'	S 21°32.1'	271°53.1'	S 25°04.6'	235°39.5'	S 14°07.2'	251°58.2'	S 18°50.0'	335°35.9'	S 17°36.7'							
10	218°30.6'	332°55.2'	S 21°32.5'	286°53.9'	S 25°04.1'	250°41.7'	S 14°07.1'	267°00.5'	S 18°50.0'	350°36.6'	S 17°37.1'							
11	233°33.1'	347°55.0'	S 21°33.0'	301°54.7'	S 25°03.7'	265°43.8'	S 14°07.0'	282°02.8'	S 18°49.9'	5°37.4'	S 17°37.6'							
12	248°35.5'	2°54.8'	S 21°33.4'	316°55.5'	S 25°03.3'	280°46.0'	S 14°06.9'	297°05.0'	S 18°49.9'	20°38.1'	S 17°38.1'							
13	263°38.0'	17°54.6'	S 21°33.8'	331°56.3'	S 25°02.8'	295°48.1'	S 14°06.8'	312°07.3'	S 18°49.8'	35°38.8'	S 17°38.6'							
14	278°40.5'	32°54.3'	S 21°34.2'	346°57.1'	S 25°02.4'	310°50.3'	S 14°06.7'	327°09.6'	S 18°49.8'	50°39.6'	S 17°39.1'							
15	293°42.9'	47°54.1'	S 21°34.6'	1°57.9'	S 25°02.0'	325°52.4'	S 14°06.5'	342°11.9'	S 18°49.7'	65°40.3'	S 17°39.6'							
16	308°45.4'	62°53.9'	S 21°35.0'	16°58.7'	S 25°01.5'	340°54.6'	S 14°06.4'	357°14.1'	S 18°49.7'	80°41.0'	S 17°40.0'							
17	323°47.9'	77°53.7'	S 21°35.4'	31°59.5'	S 25°01.1'	355°56.7'	S 14°06.3'	12°16.4'	S 18°49.6'	95°41.7'	S 17°40.5'							
18	338°50.3'	92°53.4'	S 21°35.8'	47°00.3'	S 25°00.7'	10°58.9'	S 14°06.2'	27°18.7'	S 18°49.6'	110°42.5'	S 17°41.0'							
19	353°52.8'	107°53.2'	S 21°36.3'	62°01.1'	S 25°00.2'	26°01.0'	S 14°06.1'	42°20.9'	S 18°49.5'	125°43.2'	S 17°41.5'							
20	8°55.3'	122°53.0'	S 21°36.7'	77°01.9'	S 24°59.8'	41°03.2'	S 14°06.0'	57°23.2'	S 18°49.5'	140°43.9'	S 17°42.0'							
21	23°57.7'	137°52.8'	S 21°37.1'	92°02.8'	S 24°59.3'	56°05.3'	S 14°05.9'	72°25.5'	S 18°49.4'	155°44.6'	S 17°42.4'							
22	39°00.2'	152°52.5'	S 21°37.5'	107°03.6'	S 24°58.9'	71°07.5'	S 14°05.7'	87°27.7'	S 18°49.4'	170°45.4'	S 17°42.9'							
23	54°02.6'	167°52.3'	S 21°37.9'	122°04.4'	S 24°58.5'	86°09.6'	S 14°05.6'	102°30.0'	S 18°49.3'	185°46.1'	S 17°43.4'							
		SD 16.2' d -0.4'		v 0.8' d 0.4'		v 2.2' d 0.1'		v 2.3' d 0.1'		v 0.7' d -0.5'								
Mer. pass.		11 h 48 m 22 s		14 h 52 m		17 h 16 m		16 h 11 m		10 h 38 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Mars	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara
0	250°46.8'	N 6°28.2'	13.0'	-14.5'	57.7'	72°04.4'	55°09.3'	37°57.7'	29°57.5'	25°11.4'	61°07.6'	61°51.9'	78°01.5'
1	265°18.8'	N 6°13.6'	13.0'	-14.6'	57.8'	71°33.3'	54°37.4'	37°35.6'	29°24.5'	25°44.3'	61°41.1'	62°22.8'	78°19.8'
2	279°50.7'	N 5°59.0'	12.9'	-14.6'	57.8'	71°02.2'	54°05.4'	37°13.6'	28°51.4'	26°17.4'	62°14.7'	62°53.8'	78°38.1'
3	294°22.7'	N 5°44.4'	12.9'	-14.7'	57.8'	70°31.0'	53°33.5'	36°51.9'	28°18.3'	26°50.5'	62°48.4'	63°24.8'	78°56.5'
4	308°54.6'	N 5°29.7'	12.9'	-14.7'	57.9'	69°59.8'	53°01.4'	36°30.4'	27°45.2'	27°23.6'	63°22.1'	63°55.9'	79°15.0'
5	323°26.5'	N 5°15.0'	12.9'	-14.8'	57.9'	69°28.5'	52°29.4'	36°09.2'	27°12.1'	27°56.9'	63°55.9'	64°27.1'	79°33.6'
6	337°58.4'	N 5°00.2'	12.9'	-14.8'	58.0'	68°57.2'	51°57.2'	35°48.2'	26°39.0'	28°30.2'	64°29.7'	64°58.4'	79°52.2'
7	352°30.2'	N 4°45.4'	12.8'	-14.9'	58.0'	68°25.8'	51°25.0'	35°27.4'	26°05.8'	29°03.6'	65°03.6'	65°29.7'	80°10.9'
8	7°02.1'	N 4°30.6'	12.8'	-14.9'	58.0'	67°54.4'	50°52.8'	35°06.9'	25°32.6'	29°37.0'	65°37.5'	66°01.1'	80°29.7'
9	21°33.9'	N 4°15.6'	12.8'	-14.9'	58.1'	67°22.9'	50°20.6'	34°46.7'	24°59.4'	30°10.5'	66°11.4'	66°32.6'	80°48.5'
10	36°05.7'	N 4°00.7'	12.8'	-15.0'	58.1'	66°51.4'	49°48.2'	34°26.8'	24°26.2'	30°44.1'	66°45.4'	67°04.1'	81°07.4'
11	50°37.4'	N 3°45.7'	12.7'	-15.0'	58.2'	66°19.8'	49°15.9'	34°07.2'	23°53.0'	31°17.7'	67°19.5'	67°35.7'	81°26.4'
12	65°09.2'	N 3°30.7'	12.7'	-15.1'	58.2'	65°48.2'	48°43.4'	33°47.9'	23°19.8'	31°51.4'	67°53.6'	68°07.3'	81°45.4'
13	79°40.9'	N 3°15.6'	12.7'	-15.1'	58.2'	65°16.5'	48°11.0'	33°28.9'	22°46.5'	32°25.2'	68°27.7'	68°39.1'	82°04.5'
14	94°12.6'	N 3°00.5'	12.7'	-15.1'	58.3'	64°44.8'	47°38.5'	33°10.2'	22°13.3'	32°59.0'	69°02.0'	69°10.8'	82°23.6'
15	108°44.2'	N 2°45.4'	12.6'	-15.2'	58.3'	64°13.0'	47°05.9'	32°51.9'	21°40.0'	33°32.9'	69°36.2'	69°42.7'	82°42.8'
16	123°15.9'	N 2°30.2'	12.6'	-15.2'	58.4'	63°41.2'	46°33.3'	32°34.0'	21°06.8'	34°06.8'	70°10.5'	70°14.6'	83°02.1'
17	137°47.5'	N 2°15.0'	12.6'	-15.2'	58.4'	63°09.3'	46°00.6'	32°16.4'	20°33.6'	34°40.9'	70°44.9'	70°46.6'	83°21.4'
18	152°19.0'	N 1°59.8'	12.5'	-15.3'	58.4'	62°37.4'	45°27.9'	31°59.2'	20°00.4'	35°14.9'	71°19.3'	71°18.6'	83°40.8'
19	166°50.5'	N 1°44.5'	12.5'	-15.3'	58.5'	62°05.5'	44°55.1'	31°42.4'	19°27.2'	35°49.1'	71°53.7'	71°50.7'	84°00.2'
20	181°22.0'	N 1°29.2'	12.4'	-15.3'	58.5'	61°33.4'	44°22.3'	31°26.0'	18°54.0'	36°23.2'	72°28.2'	72°22.9'	84°19.7'
21	195°53.5'	N 1°13.9'	12.4'	-15.4'	58.6'	61°01.4'	43°49.4'	31°10.0'	18°20.9'	36°57.5'	73°02.8'	72°55.1'	84°39.3'
22	210°24.9'	N 0°58.5'	12.4'	-15.4'	58.6'	60°29.3'	43°16.5'	30°54.4'	17°47.8'	37°31.8'	73°37.4'	73°27.4'	84°58.8'
23	224°56.2'	N 0°43.1'	12.3'	-15.4'	58.6'	59°57.1'	42°43.5'	30°42.8'	17°14.8'	38°06.1'	74°12.0'	73°59.7'	85°18.5'
Mer. pass.		7 h 31 m SD 15.7' phase 35%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°54.6'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.7'	Acrux	+0.8	173°03.3'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°37.2'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.2'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.6'	N 89°21.4'
Rigil Kent	-0.0	139°44.4'	S 60°55.2'	Adhara	+1.5	255°07.6'	S 28°60.0'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.3'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	69°05.1'	182°52.1'	S 21°38.3'	137°05.2'	S 24°58.0'		101°11.8'	S 14°05.5'		117°32.3'	S 18°49.3'		200°46.8'	S 17°43.9'				
1	84°07.6'	197°51.9'	S 21°38.7'	152°06.1'	S 24°57.6'		116°13.9'	S 14°05.4'		132°34.5'	S 18°49.2'		215°47.5'	S 17°44.4'				
2	99°10.0'	212°51.6'	S 21°39.1'	167°06.9'	S 24°57.2'		131°16.1'	S 14°05.3'		147°36.8'	S 18°49.2'		230°48.2'	S 17°44.8'				
3	114°12.5'	227°51.4'	S 21°39.5'	182°07.7'	S 24°56.7'		146°18.2'	S 14°05.2'		162°39.1'	S 18°49.1'		245°49.0'	S 17°45.3'				
4	129°15.0'	242°51.2'	S 21°39.9'	197°08.6'	S 24°56.3'		161°20.4'	S 14°05.1'		177°41.3'	S 18°49.1'		260°49.7'	S 17°45.8'				
5	144°17.4'	257°51.0'	S 21°40.3'	212°09.4'	S 24°55.8'		176°22.5'	S 14°04.9'		192°43.6'	S 18°49.0'		275°50.4'	S 17°46.3'				
6	159°19.9'	272°50.7'	S 21°40.7'	227°10.2'	S 24°55.4'		191°24.7'	S 14°04.8'		207°45.9'	S 18°49.0'		290°51.1'	S 17°46.8'				
7	174°22.4'	287°50.5'	S 21°41.1'	242°11.1'	S 24°54.9'		206°26.8'	S 14°04.7'		222°48.1'	S 18°48.9'		305°51.9'	S 17°47.2'				
8	189°24.8'	302°50.3'	S 21°41.5'	257°11.9'	S 24°54.5'		221°29.0'	S 14°04.6'		237°50.4'	S 18°48.9'		320°52.6'	S 17°47.7'				
9	204°27.3'	317°50.1'	S 21°41.9'	272°12.8'	S 24°54.1'		236°31.1'	S 14°04.5'		252°52.7'	S 18°48.8'		335°53.3'	S 17°48.2'				
10	219°29.8'	332°49.8'	S 21°42.3'	287°13.7'	S 24°53.6'		251°33.3'	S 14°04.4'		267°54.9'	S 18°48.8'		350°54.0'	S 17°48.7'				
11	234°32.2'	347°49.6'	S 21°42.7'	302°14.5'	S 24°53.2'		266°35.4'	S 14°04.2'		282°57.2'	S 18°48.7'		5°54.8'	S 17°49.1'				
12	249°34.7'	2°49.4'	S 21°43.1'	317°15.4'	S 24°52.7'		281°37.6'	S 14°04.1'		297°59.5'	S 18°48.7'		20°55.5'	S 17°49.6'				
13	264°37.1'	17°49.1'	S 21°43.5'	332°16.2'	S 24°52.3'		296°39.7'	S 14°04.0'		313°01.7'	S 18°48.6'		35°56.2'	S 17°50.1'				
14	279°39.6'	32°48.9'	S 21°43.9'	347°17.1'	S 24°51.8'		311°41.9'	S 14°03.9'		328°04.0'	S 18°48.6'		50°56.9'	S 17°50.6'				
15	294°42.1'	47°48.7'	S 21°44.3'	2°18.0'	S 24°51.4'		326°44.0'	S 14°03.8'		343°06.3'	S 18°48.5'		65°57.6'	S 17°51.1'				
16	309°44.5'	62°48.4'	S 21°44.7'	17°18.8'	S 24°51.0'		341°46.2'	S 14°03.7'		358°08.5'	S 18°48.4'		80°58.4'	S 17°51.5'				
17	324°47.0'	77°48.2'	S 21°45.1'	32°19.7'	S 24°50.5'		356°48.3'	S 14°03.6'		13°10.8'	S 18°48.4'		95°59.1'	S 17°52.0'				
18	339°49.5'	92°48.0'	S 21°45.5'	47°20.6'	S 24°50.1'		11°50.5'	S 14°03.4'		28°13.1'	S 18°48.3'		110°59.8'	S 17°52.5'				
19	354°51.9'	107°47.8'	S 21°45.9'	62°21.5'	S 24°49.6'		26°52.6'	S 14°03.3'		43°15.3'	S 18°48.3'		126°00.5'	S 17°53.0'				
20	9°54.4'	122°47.5'	S 21°46.3'	77°22.3'	S 24°49.2'		41°54.7'	S 14°03.2'		58°17.6'	S 18°48.2'		141°01.2'	S 17°53.4'				
21	24°56.9'	137°47.3'	S 21°46.7'	92°23.2'	S 24°48.7'		56°56.9'	S 14°03.1'		73°19.9'	S 18°48.2'		156°02.0'	S 17°53.9'				
22	39°59.3'	152°47.1'	S 21°47.1'	107°24.1'	S 24°48.3'		71°59.0'	S 14°03.0'		88°22.1'	S 18°48.1'		171°02.7'	S 17°54.4'				
23	55°01.8'	167°46.8'	S 21°47.5'	122°25.0'	S 24°47.8'		87°01.2'	S 14°02.9'		103°24.4'	S 18°48.1'		186°03.4'	S 17°54.9'				
		SD 16.2'	<i>d</i> -0.4'		<i>v</i> 0.9'	<i>d</i> 0.4'		<i>v</i> 2.1'	<i>d</i> 0.1'		<i>v</i> 2.3'	<i>d</i> 0.1'		<i>v</i> 0.7'	<i>d</i> -0.5'			
Mer. pass.		11 h 48 m 44 s		14 h 51 m			17 h 13 m			16 h 7 m			10 h 36 m					

h	Moon				Lunar distance										
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Hadar	-Sun	-Mars	-Spica	+Regulus	+Procyon	+Pollux	+Adhara		
0	239°27.6'	N 0°27.7'	12.3'	-15.4'	58.7'	63°12.1'	59°24.9'	42°10.5'	16°41.8'	38°40.6'	74°32.2'	74°46.8'	85°38.2'		
1	253°58.8'	N 0°12.3'	12.2'	-15.5'	58.7'	62°50.6'	58°52.6'	41°37.5'	16°08.9'	39°15.0'	75°04.6'	75°21.5'	85°57.9'		
2	268°30.1'	S 0°03.2'	12.2'	-15.5'	58.8'	62°29.3'	58°20.3'	41°04.4'	15°36.1'	39°49.6'	75°37.1'	75°56.3'	86°17.7'		
3	283°01.3'	S 0°18.7'	12.1'	-15.5'	58.8'	62°08.0'	57°47.9'	40°31.2'	15°03.4'	40°24.2'	76°09.7'	76°31.2'	86°37.5'		
4	297°32.4'	S 0°34.2'	12.1'	-15.5'	58.8'	61°46.9'	57°15.5'	39°58.0'	14°30.8'	40°58.8'	76°42.4'	77°06.1'	86°57.4'		
5	312°03.5'	S 0°49.7'	12.1'	-15.5'	58.9'	61°25.8'	56°43.1'	39°24.7'	13°58.4'	41°33.5'	77°15.1'	77°41.0'	87°17.3'		
6	326°34.6'	S 1°05.2'	12.0'	-15.6'	58.9'	61°04.8'	56°10.5'	38°51.4'	13°26.1'	42°08.3'	77°47.8'	78°16.0'	87°37.2'		
7	341°05.6'	S 1°20.8'	12.0'	-15.6'	59.0'	60°43.9'	55°38.0'	38°18.0'	12°54.0'	42°43.1'	78°20.6'	78°51.1'	87°57.2'		
8	355°36.5'	S 1°36.4'	11.9'	-15.6'	59.0'	60°23.2'	55°05.4'	37°44.6'	12°22.1'	43°18.0'	78°53.5'	79°26.2'	88°17.2'		
9	10°07.4'	S 1°51.9'	11.8'	-15.6'	59.0'	60°02.5'	54°32.7'	37°11.2'	11°50.5'	43°52.9'	79°26.4'	80°01.4'	88°37.3'		
10	24°38.3'	S 2°07.5'	11.8'	-15.6'	59.1'	59°41.9'	53°60.0'	36°37.6'	11°19.1'	44°27.9'	79°59.4'	80°36.6'	88°57.3'		
11	39°09.1'	S 2°23.2'	11.7'	-15.6'	59.1'	59°21.4'	53°27.2'	36°04.1'	10°48.2'	45°02.9'	80°32.4'	81°11.8'	89°17.5'		
12	53°39.8'	S 2°38.8'	11.7'	-15.6'	59.2'	59°01.1'	52°54.4'	35°30.5'	10°17.6'	45°38.0'	81°05.5'	81°47.1'	89°37.6'		
13	68°10.5'	S 2°54.4'	11.6'	-15.6'	59.2'	58°40.9'	52°21.6'	34°56.8'	9°47.6'	46°13.2'	81°38.6'	82°22.5'	89°57.8'		
14	82°41.1'	S 3°10.0'	11.6'	-15.6'	59.2'	58°20.8'	51°48.6'	34°23.1'	9°18.1'	46°48.4'	82°11.8'	82°57.9'	90°18.0'		
15	97°11.6'	S 3°25.7'	11.5'	-15.6'	59.3'	58°00.8'	51°15.7'	33°49.3'		47°23.6'	82°45.1'	83°33.3'	90°38.2'		
16	111°42.1'	S 3°41.3'	11.4'	-15.6'	59.3'	57°40.9'	50°42.7'	33°15.5'		47°58.9'	83°18.4'	84°08.8'	90°58.5'		
17	126°12.6'	S 3°57.0'	11.4'	-15.6'	59.4'	57°21.2'	50°09.6'	32°41.7'		48°34.3'	83°51.7'	84°44.4'	91°18.8'		
18	140°42.9'	S 4°12.6'	11.3'	-15.6'	59.4'	57°01.6'	49°36.5'	32°07.8'		49°09.7'	84°25.1'	85°20.0'	91°39.1'		
19	155°13.2'	S 4°28.3'	11.2'	-15.6'	59.4'	56°42.2'	49°03.3'	31°33.8'		49°45.2'	84°58.6'	85°55.6'	91°59.4'		
20	169°43.5'	S 4°43.9'	11.2'	-15.6'	59.5'	56°22.9'	48°30.1'	30°59.8'		50°20.7'	85°32.1'	86°31.3'	92°19.8'		
21	184°13.6'	S 4°59.5'	11.1'	-15.6'	59.5'	56°03.8'	47°56.9'	30°25.7'		50°56.3'	86°05.6'	87°07.1'	92°40.1'		
22	198°43.7'	S 5°15.2'	11.0'	-15.6'	59.5'	55°44.8'	47°23.6'	29°51.6'		51°31.9'	86°39.2'	87°42.9'	93°00.5'		
23	213°13.7'	S 5°30.8'	11.0'	-15.6'	59.6'	55°25.9'	46°50.2'	29°17.5'		52°07.5'	87°12.9'	88°18.7'	93°20.9'		
Mer. pass.		8 h 18 m SD 16.0'	phase 25%												

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.7'	Acrux	+0.8	173°03.2'	S 63°12.8'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.6'	Regulus	+1.4	207°37.1'	N 11°51.7'	Rigel	+0.2	281°06.0'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°20.2'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°53.3'	N 5°10.2'	Polaris	+2.0	314°45.7'	N 89°21.5'
Rigil Kent	-0.0	139°44.4'	S 60°55.2'	Adhara	+1.5	255°07.6'	S 28°60.0'	Achernar	+0.5	335°21.7'	S 57°07.8'
Arcturus	-0.1	145°50.6'	N 19°04.2'	Sirius	-1.4	258°28.2'	S 16°44.7'				
Hadar	+0.6	148°40.1'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.3'				