

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	310°03.6'	178°24.7'	N 17°56.9'	226°14.6'	N 19°17.1'	18°12.8'	S 22°17.2'	10°05.5'	S 20°50.2'	291°47.7'	N 3°35.2'	
1	325°06.1'	193°24.8'	N 17°56.3'	241°14.8'	N 19°17.3'	33°15.6'	S 22°17.3'	25°08.2'	S 20°50.2'	306°49.1'	N 3°35.5'	
2	340°08.6'	208°24.8'	N 17°55.6'	256°15.0'	N 19°17.5'	48°18.4'	S 22°17.3'	40°10.8'	S 20°50.2'	321°50.5'	N 3°35.9'	
3	355°11.0'	223°24.9'	N 17°55.0'	271°15.3'	N 19°17.7'	63°21.1'	S 22°17.4'	55°13.5'	S 20°50.3'	336°52.0'	N 3°36.3'	
4	10°13.5'	238°24.9'	N 17°54.4'	286°15.5'	N 19°18.0'	78°23.9'	S 22°17.4'	70°16.1'	S 20°50.3'	351°53.4'	N 3°36.7'	
5	25°16.0'	253°25.0'	N 17°53.7'	301°15.7'	N 19°18.2'	93°26.7'	S 22°17.5'	85°18.8'	S 20°50.4'	6°54.8'	N 3°37.0'	
6	40°18.4'	268°25.0'	N 17°53.1'	316°15.9'	N 19°18.4'	108°29.5'	S 22°17.5'	100°21.4'	S 20°50.4'	21°56.2'	N 3°37.4'	
7	55°20.9'	283°25.0'	N 17°52.5'	331°16.2'	N 19°18.6'	123°32.2'	S 22°17.6'	115°24.1'	S 20°50.4'	36°57.6'	N 3°37.8'	
8	70°23.4'	298°25.1'	N 17°51.8'	346°16.4'	N 19°18.8'	138°35.0'	S 22°17.6'	130°26.7'	S 20°50.5'	51°59.1'	N 3°38.1'	
9	85°25.8'	313°25.1'	N 17°51.2'	1°16.6'	N 19°19.0'	153°37.8'	S 22°17.7'	145°29.4'	S 20°50.5'	67°00.5'	N 3°38.5'	
10	100°28.3'	328°25.2'	N 17°50.6'	16°16.8'	N 19°19.2'	168°40.5'	S 22°17.7'	160°32.0'	S 20°50.6'	82°01.9'	N 3°38.9'	
11	115°30.7'	343°25.2'	N 17°49.9'	31°17.1'	N 19°19.4'	183°43.3'	S 22°17.8'	175°34.7'	S 20°50.6'	97°03.3'	N 3°39.3'	
12	130°33.2'	358°25.3'	N 17°49.3'	46°17.3'	N 19°19.7'	198°46.1'	S 22°17.8'	190°37.3'	S 20°50.6'	112°04.8'	N 3°39.6'	
13	145°35.7'	13°25.3'	N 17°48.7'	61°17.5'	N 19°19.9'	213°48.8'	S 22°17.9'	205°40.0'	S 20°50.7'	127°06.2'	N 3°40.0'	
14	160°38.1'	28°25.3'	N 17°48.0'	76°17.7'	N 19°20.1'	228°51.6'	S 22°17.9'	220°42.6'	S 20°50.7'	142°07.6'	N 3°40.4'	
15	175°40.6'	43°25.4'	N 17°47.4'	91°17.9'	N 19°20.3'	243°54.4'	S 22°17.9'	235°45.3'	S 20°50.7'	157°09.0'	N 3°40.7'	
16	190°43.1'	58°25.4'	N 17°46.7'	106°18.2'	N 19°20.5'	258°57.1'	S 22°18.0'	250°47.9'	S 20°50.8'	172°10.5'	N 3°41.1'	
17	205°45.5'	73°25.5'	N 17°46.1'	121°18.4'	N 19°20.7'	273°59.9'	S 22°18.0'	265°50.6'	S 20°50.8'	187°11.9'	N 3°41.5'	
18	220°48.0'	88°25.5'	N 17°45.5'	136°18.6'	N 19°20.9'	289°02.7'	S 22°18.1'	280°53.2'	S 20°50.9'	202°13.3'	N 3°41.8'	
19	235°50.5'	103°25.6'	N 17°44.8'	151°18.8'	N 19°21.1'	304°05.5'	S 22°18.1'	295°55.9'	S 20°50.9'	217°14.8'	N 3°42.2'	
20	250°52.9'	118°25.6'	N 17°44.2'	166°19.0'	N 19°21.3'	319°08.2'	S 22°18.2'	310°58.5'	S 20°50.9'	232°16.2'	N 3°42.6'	
21	265°55.4'	133°25.7'	N 17°43.5'	181°19.2'	N 19°21.5'	334°11.0'	S 22°18.2'	326°01.2'	S 20°51.0'	247°17.6'	N 3°42.9'	
22	280°57.9'	148°25.7'	N 17°42.9'	196°19.4'	N 19°21.8'	349°13.8'	S 22°18.3'	341°03.8'	S 20°51.0'	262°19.1'	N 3°43.3'	
23	296°00.3'	163°25.7'	N 17°42.2'	211°19.6'	N 19°22.0'	4°16.5'	S 22°18.3'	356°06.5'	S 20°51.1'	277°20.5'	N 3°43.7'	
		SD 15.8' d -0.6'		v 0.2' d 0.2'		v 2.8' d -0.0'		v 2.7' d -0.0'		v 1.4' d 0.4'		
Mer. pass.		12 h 6 m 19 s		8 h 55 m		22 h 43 m		23 h 16 m		4 h 32 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Acrux
0	32°40.5'	S 23°59.8'	6.7'	-1.2'	57.5'	59°32.2'	38°33.8'	21°05.5'	13°24.1'	26°56.2'	53°23.5'	57°33.3'	68°54.9'
1	47°06.2'	S 24°01.0'	6.7'	-1.1'	57.5'	59°00.4'	38°16.3'	20°31.9'	12°50.4'	27°28.9'	53°39.6'	57°50.2'	69°10.0'
2	61°31.9'	S 24°02.0'	6.7'	-0.9'	57.5'	58°28.7'	37°59.1'	19°58.3'	12°16.7'	28°01.6'	53°55.8'	58°07.3'	69°25.3'
3	75°57.6'	S 24°02.9'	6.7'	-0.8'	57.5'	57°57.0'	37°42.3'	19°24.7'	11°43.1'	28°34.3'	54°12.3'	58°24.5'	69°40.6'
4	90°23.3'	S 24°03.7'	6.7'	-0.6'	57.5'	57°25.4'	37°25.7'	18°51.2'	11°09.6'	29°07.1'	54°28.9'	58°41.9'	69°56.1'
5	104°49.0'	S 24°04.3'	6.7'	-0.5'	57.4'	56°53.8'	37°09.6'	18°17.8'	10°36.1'	29°39.8'	54°45.6'	58°59.4'	70°11.6'
6	119°14.7'	S 24°04.8'	6.8'	-0.3'	57.4'	56°22.2'	36°53.7'	17°44.3'	10°02.6'	30°12.5'	55°02.6'	59°17.0'	70°27.2'
7	133°40.5'	S 24°05.1'	6.8'	-0.2'	57.4'	55°50.7'	36°38.2'	17°10.9'	9°29.2'	30°45.3'	55°19.6'	59°34.8'	70°42.8'
8	148°06.3'	S 24°05.3'	6.8'	-0.0'	57.4'	55°19.2'		16°37.6'	8°55.9'	31°18.0'	55°36.9'	59°52.6'	70°58.6'
9	162°32.1'	S 24°05.3'	6.8'	0.1'	57.4'	54°47.8'		16°04.3'	8°22.7'	31°50.8'	55°54.3'	60°10.6'	71°14.4'
10	176°57.9'	S 24°05.2'	6.9'	0.3'	57.3'	54°16.5'		15°31.0'	7°49.6'	32°23.5'	56°11.8'	60°28.8'	71°30.3'
11	191°23.8'	S 24°05.0'	6.9'	0.4'	57.3'	53°45.1'		14°57.8'	7°16.5'	32°56.3'	56°29.5'	60°47.0'	71°46.3'
12	205°49.6'	S 24°04.6'	6.9'	0.5'	57.3'	53°13.9'		14°24.6'	6°43.7'	33°29.0'	56°47.4'	61°05.4'	72°02.4'
13	220°15.5'	S 24°04.0'	6.9'	0.7'	57.3'	52°42.7'		13°51.5'	6°11.0'	34°01.8'	57°05.3'	61°23.8'	72°18.5'
14	234°41.5'	S 24°03.3'	7.0'	0.8'	57.3'	52°11.5'		13°18.4'	5°38.4'	34°34.5'	57°23.4'	61°42.4'	72°34.7'
15	249°07.5'	S 24°02.5'	7.0'	1.0'	57.2'	51°40.4'		12°45.4'	5°06.2'	35°07.2'	57°41.7'	62°01.1'	72°51.0'
16	263°33.5'	S 24°01.5'	7.0'	1.1'	57.2'	51°09.3'		12°12.5'	4°34.3'	35°40.0'	58°00.1'	62°19.9'	73°07.3'
17	277°59.5'	S 24°00.4'	7.1'	1.3'	57.2'	50°38.3'		11°39.6'	4°02.9'	36°12.7'	58°18.6'	62°38.8'	73°23.7'
18	292°25.6'	S 23°59.1'	7.1'	1.4'	57.2'	50°07.4'		11°06.9'		36°45.4'	58°37.2'	62°57.8'	73°40.1'
19	306°51.7'	S 23°57.7'	7.2'	1.5'	57.2'	49°36.5'		10°34.2'		37°18.1'	58°55.9'	63°16.9'	73°56.6'
20	321°17.8'	S 23°56.2'	7.2'	1.7'	57.1'	49°05.7'		10°01.6'		37°50.8'	59°14.8'	63°36.1'	74°13.2'
21	335°44.0'	S 23°54.5'	7.2'	1.8'	57.1'	48°34.9'		9°29.2'		38°23.5'	59°33.8'	63°55.3'	74°29.8'
22	350°10.3'	S 23°52.7'	7.3'	2.0'	57.1'	48°04.2'		8°56.8'		38°56.2'	59°52.9'	64°14.7'	74°46.5'
23	4°36.5'	S 23°50.7'	7.3'	2.1'	57.1'	47°33.6'		8°24.7'		39°28.8'	60°12.1'	64°34.2'	75°03.2'
Mer. pass.		22 h 41 m SD 15.7'		phase 92%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.5'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°43.9'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°41.5'	N 89°20.6'
Rigel Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.9'	S 57°07.7'
Arcturus	-0.1	145°51.2'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.0'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	311°02.8'	178°25.8'	N 17°41.6'	226°19.8'	N 19°22.2'	19°19.3'	S 22°18.4'	11°09.1'	S 20°51.1'	292°21.9'	N 3°44.0'			
1	326°05.2'	193°25.8'	N 17°41.0'	241°20.0'	N 19°22.4'	34°22.1'	S 22°18.4'	26°11.8'	S 20°51.1'	307°23.4'	N 3°44.4'			
2	341°07.7'	208°25.9'	N 17°40.3'	256°20.2'	N 19°22.6'	49°24.8'	S 22°18.5'	41°14.4'	S 20°51.2'	322°24.8'	N 3°44.8'			
3	356°10.2'	223°25.9'	N 17°39.7'	271°20.4'	N 19°22.8'	64°27.6'	S 22°18.5'	56°17.1'	S 20°51.2'	337°26.2'	N 3°45.1'			
4	11°12.6'	238°26.0'	N 17°39.0'	286°20.6'	N 19°23.0'	79°30.4'	S 22°18.6'	71°19.7'	S 20°51.3'	352°27.7'	N 3°45.5'			
5	26°15.1'	253°26.0'	N 17°38.4'	301°20.8'	N 19°23.2'	94°33.1'	S 22°18.6'	86°22.4'	S 20°51.3'	7°29.1'	N 3°45.8'			
6	41°17.6'	268°26.1'	N 17°37.7'	316°21.0'	N 19°23.4'	109°35.9'	S 22°18.6'	101°25.0'	S 20°51.3'	22°30.6'	N 3°46.2'			
7	56°20.0'	283°26.1'	N 17°37.1'	331°21.2'	N 19°23.6'	124°38.6'	S 22°18.7'	116°27.7'	S 20°51.4'	37°32.0'	N 3°46.6'			
8	71°22.5'	298°26.2'	N 17°36.4'	346°21.4'	N 19°23.8'	139°41.4'	S 22°18.7'	131°30.3'	S 20°51.4'	52°33.4'	N 3°46.9'			
9	86°25.0'	313°26.2'	N 17°35.8'	1°21.6'	N 19°24.0'	154°44.2'	S 22°18.8'	146°33.0'	S 20°51.4'	67°34.9'	N 3°47.3'			
10	101°27.4'	328°26.3'	N 17°35.1'	16°21.8'	N 19°24.2'	169°46.9'	S 22°18.8'	161°35.6'	S 20°51.5'	82°36.3'	N 3°47.7'			
11	116°29.9'	343°26.3'	N 17°34.5'	31°22.0'	N 19°24.4'	184°49.7'	S 22°18.9'	176°38.3'	S 20°51.5'	97°37.8'	N 3°48.0'			
12	131°32.3'	358°26.4'	N 17°33.8'	46°22.2'	N 19°24.6'	199°52.5'	S 22°18.9'	191°40.9'	S 20°51.6'	112°39.2'	N 3°48.4'			
13	146°34.8'	13°26.4'	N 17°33.2'	61°22.4'	N 19°24.8'	214°55.2'	S 22°19.0'	206°43.6'	S 20°51.6'	127°40.6'	N 3°48.8'			
14	161°37.3'	28°26.5'	N 17°32.5'	76°22.6'	N 19°25.0'	229°58.0'	S 22°19.0'	221°46.2'	S 20°51.6'	142°42.1'	N 3°49.1'			
15	176°39.7'	43°26.5'	N 17°31.9'	91°22.7'	N 19°25.2'	245°00.8'	S 22°19.1'	236°48.9'	S 20°51.7'	157°43.5'	N 3°49.5'			
16	191°42.2'	58°26.6'	N 17°31.2'	106°22.9'	N 19°25.4'	260°03.5'	S 22°19.1'	251°51.5'	S 20°51.7'	172°45.0'	N 3°49.8'			
17	206°44.7'	73°26.6'	N 17°30.6'	121°23.1'	N 19°25.6'	275°06.3'	S 22°19.1'	266°54.2'	S 20°51.8'	187°46.4'	N 3°50.2'			
18	221°47.1'	88°26.7'	N 17°29.9'	136°23.3'	N 19°25.8'	290°09.1'	S 22°19.2'	281°56.8'	S 20°51.8'	202°47.9'	N 3°50.6'			
19	236°49.6'	103°26.7'	N 17°29.3'	151°23.5'	N 19°26.0'	305°11.8'	S 22°19.2'	296°59.5'	S 20°51.8'	217°49.3'	N 3°50.9'			
20	251°52.1'	118°26.8'	N 17°28.6'	166°23.6'	N 19°26.3'	320°14.6'	S 22°19.3'	312°02.1'	S 20°51.9'	232°50.8'	N 3°51.3'			
21	266°54.5'	133°26.8'	N 17°28.0'	181°23.8'	N 19°26.5'	335°17.3'	S 22°19.3'	327°04.8'	S 20°51.9'	247°52.2'	N 3°51.6'			
22	281°57.0'	148°26.9'	N 17°27.3'	196°24.0'	N 19°26.7'	350°20.1'	S 22°19.4'	342°07.4'	S 20°51.9'	262°53.7'	N 3°52.0'			
23	296°59.5'	163°26.9'	N 17°26.7'	211°24.2'	N 19°26.9'	5°22.9'	S 22°19.4'	357°10.1'	S 20°52.0'	277°55.1'	N 3°52.4'			
		SD 15.8' d -0.7'		v 0.2' d 0.2'		v 2.8' d -0.0'		v 2.6' d -0.0'		v 1.4' d 0.4'				
Mer. pass.		12 h 6 m 15 s		8 h 55 m		22 h 39 m		23 h 11 m		4 h 30 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Mars	-Achernar	-Fomalhaut	-Saturn	+Jupiter	+Antares	+Rigel Kent	+Hadar
0	19°02.9'	S 23°48.6'	7.4'	2.2'	57.1'	88°28.7'	71°33.4'	47°03.0'	7°52.7'		40°01.5'	60°31.4'	64°53.7'
1	33°29.2'	S 23°46.3'	7.4'	2.4'	57.0'	87°56.7'	71°16.4'	46°32.5'	7°20.9'		40°34.1'	60°50.8'	65°13.3'
2	47°55.6'	S 23°43.9'	7.5'	2.5'	57.0'	87°24.7'	70°59.4'	46°02.0'	6°49.4'		41°06.8'	61°10.4'	65°33.1'
3	62°22.1'	S 23°41.4'	7.5'	2.7'	57.0'	86°52.7'	70°42.5'	45°31.6'	6°18.2'		41°39.4'	61°30.0'	65°52.8'
4	76°48.6'	S 23°38.8'	7.6'	2.8'	57.0'	86°20.8'	70°25.8'	45°01.3'	5°47.4'		42°12.0'	61°49.7'	66°12.7'
5	91°15.2'	S 23°36.0'	7.6'	2.9'	56.9'	85°48.9'	70°09.1'	44°31.1'	5°17.1'		42°44.6'	62°09.5'	66°32.7'
6	105°41.8'	S 23°33.0'	7.7'	3.1'	56.9'	85°17.0'	69°52.5'	44°00.9'		3°48.1'	43°17.2'	62°29.4'	66°52.7'
7	120°08.4'	S 23°30.0'	7.7'	3.2'	56.9'	84°45.1'	69°36.0'	43°30.8'		4°18.9'	43°49.7'	62°49.5'	67°12.8'
8	134°35.2'	S 23°26.8'	7.8'	3.3'	56.9'	84°13.2'	69°19.6'	43°00.8'		4°50.2'	44°22.3'	63°09.5'	67°32.9'
9	149°01.9'	S 23°23.4'	7.8'	3.5'	56.9'	83°41.4'	69°03.3'	42°30.9'		5°21.9'	44°54.8'	63°29.7'	67°53.1'
10	163°28.8'	S 23°19.9'	7.9'	3.6'	56.8'	83°09.6'	68°47.2'	42°01.1'		5°53.9'	45°27.3'	63°50.0'	68°13.4'
11	177°55.7'	S 23°16.3'	7.9'	3.7'	56.8'	82°37.8'	68°31.1'	41°31.3'		6°26.0'	45°59.8'	64°10.3'	68°33.8'
12	192°22.6'	S 23°12.6'	8.0'	3.9'	56.8'	82°06.0'	68°15.1'	41°01.6'		6°58.2'	46°32.3'	64°30.7'	68°54.2'
13	206°49.6'	S 23°08.7'	8.1'	4.0'	56.8'	81°34.3'	67°59.3'	40°32.0'		7°30.6'	47°04.8'	64°51.2'	69°14.7'
14	221°16.7'	S 23°04.8'	8.1'	4.1'	56.8'	81°02.6'	67°43.5'	40°02.6'		8°03.1'	47°37.2'	65°11.8'	69°35.2'
15	235°43.8'	S 23°00.6'	8.2'	4.2'	56.7'	80°30.9'	67°27.9'	39°33.2'		8°35.6'	48°09.6'	65°32.4'	69°55.8'
16	250°11.0'	S 22°56.4'	8.3'	4.4'	56.7'	79°59.2'	67°12.4'	39°03.8'		9°08.1'	48°42.0'	65°53.2'	70°16.4'
17	264°38.2'	S 22°52.0'	8.3'	4.5'	56.7'	79°27.5'	66°57.0'	38°34.6'		9°40.7'	49°14.4'	66°13.9'	70°37.1'
18	279°05.6'	S 22°47.5'	8.4'	4.6'	56.7'	78°55.9'	66°41.7'	38°05.5'		10°13.3'	49°46.8'	66°34.8'	70°57.8'
19	293°32.9'	S 22°42.9'	8.5'	4.7'	56.6'	78°24.3'	66°26.5'	37°36.5'		10°45.9'	50°19.2'	66°55.7'	71°18.6'
20	308°00.4'	S 22°38.1'	8.5'	4.9'	56.6'	77°52.7'		37°07.7'		11°18.5'	50°51.5'	67°16.7'	71°39.5'
21	322°27.9'	S 22°33.3'	8.6'	5.0'	56.6'	77°21.2'		36°38.9'		11°51.1'	51°23.8'	67°37.7'	72°00.3'
22	336°55.5'	S 22°28.3'	8.7'	5.1'	56.6'	76°49.7'		36°10.2'	5°05.4'	12°23.7'	51°56.1'	67°58.8'	72°21.3'
23	351°23.2'	S 22°23.2'	8.7'	5.2'	56.6'	76°18.2'		35°41.7'	5°35.1'	12°56.3'	52°28.4'	68°19.9'	72°42.2'
Mer. pass.		23 h 36 m SD 15.6'		phase 97%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.5'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.7'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°43.9'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°41.0'	N 89°20.6'
Rigel Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.9'	S 57°07.7'
Arcturus	-0.1	145°51.2'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.0'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	312°01.9'	178°27.0'	N 17°26.0'	226°24.3'	N 19°27.1'	20°25.6'	S 22°19.5'	12°12.7'	S 20°52.0'	292°56.6'	N 3°52.7'			
1	327°04.4'	193°27.0'	N 17°25.3'	241°24.5'	N 19°27.2'	35°28.4'	S 22°19.5'	27°15.4'	S 20°52.1'	307°58.0'	N 3°53.1'			
2	342°06.8'	208°27.1'	N 17°24.7'	256°24.7'	N 19°27.4'	50°31.2'	S 22°19.6'	42°18.0'	S 20°52.1'	322°59.5'	N 3°53.4'			
3	357°09.3'	223°27.2'	N 17°24.0'	271°24.9'	N 19°27.6'	65°33.9'	S 22°19.6'	57°20.7'	S 20°52.1'	338°00.9'	N 3°53.8'			
4	12°11.8'	238°27.2'	N 17°23.4'	286°25.0'	N 19°27.8'	80°36.7'	S 22°19.7'	72°23.3'	S 20°52.2'	353°02.4'	N 3°54.1'			
5	27°14.2'	253°27.3'	N 17°22.7'	301°25.2'	N 19°28.0'	95°39.4'	S 22°19.7'	87°26.0'	S 20°52.2'	8°03.8'	N 3°54.5'			
6	42°16.7'	268°27.3'	N 17°22.1'	316°25.4'	N 19°28.2'	110°42.2'	S 22°19.7'	102°28.6'	S 20°52.3'	23°05.3'	N 3°54.9'			
7	57°19.2'	283°27.4'	N 17°21.4'	331°25.5'	N 19°28.4'	125°45.0'	S 22°19.8'	117°31.3'	S 20°52.3'	38°06.7'	N 3°55.2'			
8	72°21.6'	298°27.4'	N 17°20.7'	346°25.7'	N 19°28.6'	140°47.7'	S 22°19.8'	132°33.9'	S 20°52.3'	53°08.2'	N 3°55.6'			
9	87°24.1'	313°27.5'	N 17°20.1'	1°25.9'	N 19°28.8'	155°50.5'	S 22°19.9'	147°36.6'	S 20°52.4'	68°09.7'	N 3°55.9'			
10	102°26.6'	328°27.5'	N 17°19.4'	16°26.0'	N 19°29.0'	170°53.2'	S 22°19.9'	162°39.2'	S 20°52.4'	83°11.1'	N 3°56.3'			
11	117°29.0'	343°27.6'	N 17°18.8'	31°26.2'	N 19°29.2'	185°56.0'	S 22°20.0'	177°41.9'	S 20°52.4'	98°12.6'	N 3°56.6'			
12	132°31.5'	358°27.6'	N 17°18.1'	46°26.3'	N 19°29.4'	200°58.8'	S 22°20.0'	192°44.5'	S 20°52.5'	113°14.0'	N 3°57.0'			
13	147°34.0'	13°27.7'	N 17°17.4'	61°26.5'	N 19°29.6'	216°01.5'	S 22°20.1'	207°47.2'	S 20°52.5'	128°15.5'	N 3°57.3'			
14	162°36.4'	28°27.8'	N 17°16.8'	76°26.7'	N 19°29.8'	231°04.3'	S 22°20.1'	222°49.8'	S 20°52.6'	143°17.0'	N 3°57.7'			
15	177°38.9'	43°27.8'	N 17°16.1'	91°26.8'	N 19°30.0'	246°07.0'	S 22°20.1'	237°52.5'	S 20°52.6'	158°18.4'	N 3°58.1'			
16	192°41.3'	58°27.9'	N 17°15.4'	106°27.0'	N 19°30.2'	261°09.8'	S 22°20.2'	252°55.1'	S 20°52.6'	173°19.9'	N 3°58.4'			
17	207°43.8'	73°27.9'	N 17°14.8'	121°27.1'	N 19°30.4'	276°12.6'	S 22°20.2'	267°57.8'	S 20°52.7'	188°21.3'	N 3°58.8'			
18	222°46.3'	88°28.0'	N 17°14.1'	136°27.3'	N 19°30.6'	291°15.3'	S 22°20.3'	283°00.4'	S 20°52.7'	203°22.8'	N 3°59.1'			
19	237°48.7'	103°28.1'	N 17°13.4'	151°27.4'	N 19°30.8'	306°18.1'	S 22°20.3'	298°03.1'	S 20°52.7'	218°24.3'	N 3°59.5'			
20	252°51.2'	118°28.1'	N 17°12.8'	166°27.6'	N 19°31.0'	321°20.8'	S 22°20.4'	313°05.7'	S 20°52.8'	233°25.7'	N 3°59.8'			
21	267°53.7'	133°28.2'	N 17°12.1'	181°27.7'	N 19°31.2'	336°23.6'	S 22°20.4'	328°08.4'	S 20°52.8'	248°27.2'	N 4°00.2'			
22	282°56.1'	148°28.2'	N 17°11.4'	196°27.9'	N 19°31.3'	351°26.4'	S 22°20.5'	343°11.0'	S 20°52.9'	263°28.7'	N 4°00.5'			
23	297°58.6'	163°28.3'	N 17°10.8'	211°28.0'	N 19°31.5'	6°29.1'	S 22°20.5'	358°13.6'	S 20°52.9'	278°30.1'	N 4°00.9'			
		SD 15.8' d -0.7'		v 0.2' d 0.2'		v 2.8' d -0.0'		v 2.6' d -0.0'		v 1.5' d 0.4'				
Mer. pass.		12 h 6 m 10 s		8 h 54 m		22 h 34 m		23 h 7 m		4 h 28 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Aldebaran	-Rigel	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Antares	+Rigel Kent
0	5°50.9'	S 22°17.9'	8.8'	5.4'	56.5'			75°46.7'	35°13.3'	6°05.3'	13°28.9'	53°00.6'	68°41.1'
1	20°18.7'	S 22°12.6'	8.9'	5.5'	56.5'			75°15.2'	34°45.0'	6°35.8'	14°01.5'	53°32.9'	69°02.4'
2	34°46.5'	S 22°07.1'	8.9'	5.6'	56.5'			74°43.8'	34°16.8'	7°06.7'	14°34.1'	54°05.1'	69°23.7'
3	49°14.5'	S 22°01.5'	9.0'	5.7'	56.5'			74°12.4'	33°48.8'	7°37.8'	15°06.7'	54°37.3'	69°45.1'
4	63°42.5'	S 21°55.8'	9.1'	5.8'	56.4'			73°41.0'	33°20.9'	8°09.0'	15°39.3'	55°09.4'	70°06.5'
5	78°10.6'	S 21°50.0'	9.2'	5.9'	56.4'			73°09.6'	32°53.1'	8°40.4'	16°11.8'	55°41.6'	70°27.9'
6	92°38.7'	S 21°44.0'	9.2'	6.0'	56.4'			72°38.3'	32°25.6'	9°11.9'	16°44.4'	56°13.7'	70°49.4'
7	107°07.0'	S 21°38.0'	9.3'	6.2'	56.4'			72°07.0'	31°58.1'	9°43.5'	17°16.9'	56°45.8'	71°11.0'
8	121°35.3'	S 21°31.8'	9.4'	6.3'	56.4'			71°35.7'	31°30.8'	10°15.2'	17°49.4'	57°17.9'	71°32.5'
9	136°03.7'	S 21°25.6'	9.5'	6.4'	56.3'			71°04.4'	31°03.7'	10°46.9'	18°21.9'	57°50.0'	71°54.2'
10	150°32.1'	S 21°19.2'	9.5'	6.5'	56.3'			70°33.2'	30°36.8'	11°18.7'	18°54.4'	58°22.0'	72°15.8'
11	165°00.6'	S 21°12.7'	9.6'	6.6'	56.3'		119°44.8'	70°02.0'	30°10.0'	11°50.6'	19°26.8'	58°54.1'	72°37.5'
12	179°29.3'	S 21°06.1'	9.7'	6.7'	56.3'	119°51.4'	119°18.3'	69°30.8'	29°43.5'	12°22.4'	19°59.3'	59°26.1'	72°59.2'
13	193°57.9'	S 20°59.4'	9.8'	6.8'	56.2'	119°19.2'	118°51.9'	68°59.6'	29°17.1'	12°54.3'	20°31.7'	59°58.0'	73°21.0'
14	208°26.7'	S 20°52.6'	9.8'	6.9'	56.2'	118°47.1'	118°25.4'	68°28.5'	28°50.9'	13°26.2'	21°04.0'	60°30.0'	73°42.8'
15	222°55.6'	S 20°45.6'	9.9'	7.0'	56.2'	118°15.1'	117°58.9'	67°57.4'	28°25.0'	13°58.1'	21°36.4'	61°01.9'	74°04.6'
16	237°24.5'	S 20°38.6'	10.0'	7.1'	56.2'	117°43.0'	117°32.4'	67°26.3'	27°59.2'	14°30.0'	22°08.8'	61°33.8'	74°26.5'
17	251°53.5'	S 20°31.5'	10.1'	7.2'	56.2'	117°11.0'	117°05.8'	66°55.2'	27°33.7'	15°01.9'	22°41.1'	62°05.7'	74°48.4'
18	266°22.6'	S 20°24.3'	10.2'	7.3'	56.1'	116°38.9'	116°39.2'	66°24.2'	27°08.4'	15°33.8'	23°13.4'	62°37.6'	75°10.3'
19	280°51.7'	S 20°16.9'	10.2'	7.4'	56.1'	116°07.0'	116°12.6'	65°53.1'	26°43.4'	16°05.7'	23°45.7'	63°09.4'	75°32.2'
20	295°21.0'	S 20°09.5'	10.3'	7.5'	56.1'	115°35.0'	115°46.0'	65°22.2'	26°18.6'	16°37.6'	24°17.9'	63°41.2'	75°54.2'
21	309°50.3'	S 20°02.0'	10.4'	7.6'	56.1'	115°03.1'	115°19.3'	64°51.2'	25°54.1'	17°09.5'	24°50.2'	64°13.0'	76°16.2'
22	324°19.7'	S 19°54.4'	10.5'	7.7'	56.0'	114°31.1'	114°52.6'	64°20.2'	25°29.8'	17°41.4'	25°22.4'	64°44.8'	76°38.2'
23	338°49.1'	S 19°46.7'	10.6'	7.8'	56.0'	113°59.3'	114°25.9'	63°49.3'	25°05.9'	18°13.3'	25°54.6'	65°16.5'	77°00.2'
Mer. pass.		0 h 28 m SD 15.4'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°43.9'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°40.5'	N 89°20.6'
Rigel Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.2'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.0'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	313°01.1'	178°28.3'	N 17°10.1'	226°28.2'	N 19°31.7'	21°31.9'	S 22°20.5'	13°16.3'	S 20°52.9'	293°31.6'	N 4°01.2'			
1	328°03.5'	193°28.4'	N 17°09.4'	241°28.3'	N 19°31.9'	36°34.6'	S 22°20.6'	28°18.9'	S 20°53.0'	308°33.1'	N 4°01.6'			
2	343°06.0'	208°28.5'	N 17°08.8'	256°28.4'	N 19°32.1'	51°37.4'	S 22°20.6'	43°21.6'	S 20°53.0'	323°34.5'	N 4°01.9'			
3	358°08.5'	223°28.5'	N 17°08.1'	271°28.6'	N 19°32.3'	66°40.1'	S 22°20.7'	58°24.2'	S 20°53.1'	338°36.0'	N 4°02.3'			
4	13°10.9'	238°28.6'	N 17°07.4'	286°28.7'	N 19°32.5'	81°42.9'	S 22°20.7'	73°26.9'	S 20°53.1'	353°37.5'	N 4°02.6'			
5	28°13.4'	253°28.6'	N 17°06.8'	301°28.9'	N 19°32.7'	96°45.7'	S 22°20.8'	88°29.5'	S 20°53.1'	8°39.0'	N 4°03.0'			
6	43°15.8'	268°28.7'	N 17°06.1'	316°29.0'	N 19°32.9'	111°48.4'	S 22°20.8'	103°32.2'	S 20°53.2'	23°40.4'	N 4°03.3'			
7	58°18.3'	283°28.8'	N 17°05.4'	331°29.1'	N 19°33.0'	126°51.2'	S 22°20.9'	118°34.8'	S 20°53.2'	38°41.9'	N 4°03.7'			
8	73°20.8'	298°28.8'	N 17°04.8'	346°29.3'	N 19°33.2'	141°53.9'	S 22°20.9'	133°37.5'	S 20°53.2'	53°43.4'	N 4°04.0'			
9	88°23.2'	313°28.9'	N 17°04.1'	1°29.4'	N 19°33.4'	156°56.7'	S 22°20.9'	148°40.1'	S 20°53.3'	68°44.9'	N 4°04.4'			
10	103°25.7'	328°29.0'	N 17°03.4'	16°29.5'	N 19°33.6'	171°59.4'	S 22°21.0'	163°42.8'	S 20°53.3'	83°46.3'	N 4°04.7'			
11	118°28.2'	343°29.0'	N 17°02.7'	31°29.7'	N 19°33.8'	187°02.2'	S 22°21.0'	178°45.4'	S 20°53.4'	98°47.8'	N 4°05.1'			
12	133°30.6'	358°29.1'	N 17°02.1'	46°29.8'	N 19°34.0'	202°05.0'	S 22°21.1'	193°48.1'	S 20°53.4'	113°49.3'	N 4°05.4'			
13	148°33.1'	13°29.1'	N 17°01.4'	61°29.9'	N 19°34.2'	217°07.7'	S 22°21.1'	208°50.7'	S 20°53.4'	128°50.8'	N 4°05.8'			
14	163°35.6'	28°29.2'	N 17°00.7'	76°30.1'	N 19°34.4'	232°10.5'	S 22°21.2'	223°53.4'	S 20°53.5'	143°52.2'	N 4°06.1'			
15	178°38.0'	43°29.3'	N 17°00.0'	91°30.2'	N 19°34.5'	247°13.2'	S 22°21.2'	238°56.0'	S 20°53.5'	158°53.7'	N 4°06.5'			
16	193°40.5'	58°29.3'	N 16°59.4'	106°30.3'	N 19°34.7'	262°16.0'	S 22°21.3'	253°58.7'	S 20°53.5'	173°55.2'	N 4°06.8'			
17	208°42.9'	73°29.4'	N 16°58.7'	121°30.4'	N 19°34.9'	277°18.7'	S 22°21.3'	269°01.3'	S 20°53.6'	188°56.7'	N 4°07.1'			
18	223°45.4'	88°29.5'	N 16°58.0'	136°30.6'	N 19°35.1'	292°21.5'	S 22°21.3'	284°03.9'	S 20°53.6'	203°58.2'	N 4°07.5'			
19	238°47.9'	103°29.5'	N 16°57.3'	151°30.7'	N 19°35.3'	307°24.2'	S 22°21.4'	299°06.6'	S 20°53.7'	218°59.6'	N 4°07.8'			
20	253°50.3'	118°29.6'	N 16°56.7'	166°30.8'	N 19°35.5'	322°27.0'	S 22°21.4'	314°09.2'	S 20°53.7'	234°01.1'	N 4°08.2'			
21	268°52.8'	133°29.6'	N 16°56.0'	181°30.9'	N 19°35.6'	337°29.7'	S 22°21.5'	329°11.9'	S 20°53.7'	249°02.6'	N 4°08.5'			
22	283°55.3'	148°29.7'	N 16°55.3'	196°31.0'	N 19°35.8'	352°32.5'	S 22°21.5'	344°14.5'	S 20°53.8'	264°04.1'	N 4°08.9'			
23	298°57.7'	163°29.8'	N 16°54.6'	211°31.2'	N 19°36.0'	7°35.3'	S 22°21.6'	359°17.2'	S 20°53.8'	279°05.6'	N 4°09.2'			
		SD 15.8' d -0.7'		v 0.1' d 0.2'		v 2.8' d -0.0'		v 2.6' d -0.0'		v 1.5' d 0.3'				
Mer. pass.		12 h 6 m 4 s		8 h 54 m		22 h 30 m		23 h 3 m		4 h 25 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Altair	+Antares
0	353°18.7'	S 19°38.9'	10.6'	7.9'	56.0'	113°59.2'	113°27.4'	63°18.4'	24°42.2'	18°45.2'	26°26.7'		65°48.3'
1	7°48.3'	S 19°31.0'	10.7'	8.0'	56.0'	113°32.4'	112°55.6'	62°47.6'	24°18.9'	19°17.0'	26°58.9'		66°20.0'
2	22°18.1'	S 19°23.0'	10.8'	8.1'	56.0'	113°05.7'	112°23.7'	62°16.7'	23°55.9'	19°48.9'	27°31.0'		66°51.6'
3	36°47.9'	S 19°14.9'	10.9'	8.2'	55.9'	112°38.9'	111°52.0'	61°45.9'	23°33.2'	20°20.7'	28°03.1'		67°23.3'
4	51°17.7'	S 19°06.7'	11.0'	8.3'	55.9'	112°12.1'	111°20.2'	61°15.1'	23°10.9'	20°52.5'	28°35.1'		67°54.9'
5	65°47.7'	S 18°58.4'	11.0'	8.4'	55.9'	111°45.3'	110°48.5'	60°44.3'	22°49.0'	21°24.3'	29°07.2'	36°53.4'	68°26.5'
6	80°17.7'	S 18°50.1'	11.1'	8.4'	55.9'	111°18.5'	110°16.7'	60°13.6'	22°27.4'	21°56.1'	29°39.2'	37°08.4'	68°58.1'
7	94°47.8'	S 18°41.6'	11.2'	8.5'	55.8'	110°51.7'	109°45.1'	59°42.9'	22°06.3'	22°27.9'	30°11.2'	37°23.7'	69°29.7'
8	109°18.0'	S 18°33.1'	11.3'	8.6'	55.8'	110°24.8'	109°13.4'	59°12.2'	21°45.6'	22°59.7'	30°43.2'	37°39.2'	70°01.2'
9	123°48.3'	S 18°24.5'	11.4'	8.7'	55.8'	109°58.0'	108°41.8'	58°41.5'	21°25.3'	23°31.4'	31°15.1'	37°55.1'	70°32.7'
10	138°18.7'	S 18°15.8'	11.4'	8.8'	55.8'	109°31.1'	108°10.1'	58°10.9'	21°05.5'	24°03.1'	31°47.0'	38°11.2'	71°04.2'
11	152°49.1'	S 18°07.0'	11.5'	8.9'	55.8'	109°04.2'	107°38.6'	57°40.2'	20°46.2'	24°34.8'	32°18.9'	38°27.6'	71°35.7'
12	167°19.6'	S 17°58.2'	11.6'	8.9'	55.7'	108°37.4'	107°07.0'	57°09.6'	20°27.4'	25°06.5'	32°50.8'	38°44.2'	72°07.1'
13	181°50.2'	S 17°49.3'	11.7'	9.0'	55.7'	108°10.5'	106°35.5'	56°39.1'	20°09.1'	25°38.1'	33°22.7'	39°01.1'	72°38.5'
14	196°20.9'	S 17°40.2'	11.8'	9.1'	55.7'	107°43.6'	106°03.9'	56°08.5'	19°51.4'	26°09.8'	33°54.5'	39°18.2'	73°09.9'
15	210°51.7'	S 17°31.1'	11.8'	9.2'	55.7'	107°16.7'	105°32.5'	55°38.0'	19°34.2'	26°41.4'	34°26.3'	39°35.5'	73°41.3'
16	225°22.5'	S 17°22.0'	11.9'	9.2'	55.7'	106°49.9'	105°01.0'	55°07.5'	19°17.6'	27°13.0'	34°58.1'	39°53.1'	74°12.6'
17	239°53.4'	S 17°12.7'	12.0'	9.3'	55.6'	106°23.0'	104°29.5'	54°37.0'	19°01.7'	27°44.5'	35°29.8'	40°10.9'	74°43.9'
18	254°24.4'	S 17°03.4'	12.1'	9.4'	55.6'	105°56.1'	103°58.1'	54°06.6'		28°16.1'	36°01.5'	40°28.9'	75°15.2'
19	268°55.4'	S 16°54.0'	12.1'	9.5'	55.6'	105°29.2'	103°26.7'	53°36.2'		28°47.6'	36°33.3'	40°47.2'	75°46.5'
20	283°26.6'	S 16°44.5'	12.2'	9.5'	55.6'	105°02.3'	102°55.4'	53°05.8'		29°19.1'	37°04.9'	41°05.6'	76°17.8'
21	297°57.8'	S 16°35.0'	12.3'	9.6'	55.5'	104°35.4'	102°24.0'	52°35.4'		29°50.6'	37°36.6'	41°24.2'	76°49.0'
22	312°29.1'	S 16°25.4'	12.4'	9.7'	55.5'	104°08.5'	101°52.7'	52°05.0'		30°22.1'	38°08.2'	41°43.1'	77°20.2'
23	327°00.5'	S 16°15.7'	12.5'	9.7'	55.5'	103°41.6'	101°21.4'	51°34.7'		30°53.5'	38°39.8'	42°02.1'	77°51.3'
Mer. pass.		0 h 28 m SD 15.3'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.9'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°40.0'	N 89°20.6'
Rigel Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.2'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.0'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	314°00.2'	178°29.8' N	16°54.0'	226°31.3' N	19°36.2'	22°38.0' S	22°21.6'	14°19.8' S	20°53.8'	294°07.1' N	4°09.6'			
1	329°02.7'	193°29.9' N	16°53.3'	241°31.4' N	19°36.4'	37°40.8' S	22°21.7'	29°22.5' S	20°53.9'	309°08.5' N	4°09.9'			
2	344°05.1'	208°30.0' N	16°52.6'	256°31.5' N	19°36.5'	52°43.5' S	22°21.7'	44°25.1' S	20°53.9'	324°10.0' N	4°10.2'			
3	359°07.6'	223°30.0' N	16°51.9'	271°31.6' N	19°36.7'	67°46.3' S	22°21.7'	59°27.8' S	20°54.0'	339°11.5' N	4°10.6'			
4	14°10.1'	238°30.1' N	16°51.2'	286°31.7' N	19°36.9'	82°49.0' S	22°21.8'	74°30.4' S	20°54.0'	354°13.0' N	4°10.9'			
5	29°12.5'	253°30.2' N	16°50.6'	301°31.8' N	19°37.1'	97°51.8' S	22°21.8'	89°33.1' S	20°54.0'	9°14.5' N	4°11.3'			
6	44°15.0'	268°30.2' N	16°49.9'	316°31.9' N	19°37.3'	112°54.5' S	22°21.9'	104°35.7' S	20°54.1'	24°16.0' N	4°11.6'			
7	59°17.4'	283°30.3' N	16°49.2'	331°32.0' N	19°37.4'	127°57.3' S	22°21.9'	119°38.3' S	20°54.1'	39°17.5' N	4°12.0'			
8	74°19.9'	298°30.4' N	16°48.5'	346°32.2' N	19°37.6'	143°00.0' S	22°22.0'	134°41.0' S	20°54.1'	54°19.0' N	4°12.3'			
9	89°22.4'	313°30.4' N	16°47.8'	1°32.3' N	19°37.8'	158°02.8' S	22°22.0'	149°43.6' S	20°54.2'	69°20.5' N	4°12.6'			
10	104°24.8'	328°30.5' N	16°47.1'	16°32.4' N	19°38.0'	173°05.5' S	22°22.0'	164°46.3' S	20°54.2'	84°22.0' N	4°13.0'			
11	119°27.3'	343°30.6' N	16°46.5'	31°32.5' N	19°38.1'	188°08.3' S	22°22.1'	179°48.9' S	20°54.3'	99°23.4' N	4°13.3'			
12	134°29.8'	358°30.7' N	16°45.8'	46°32.6' N	19°38.3'	203°11.0' S	22°22.1'	194°51.6' S	20°54.3'	114°24.9' N	4°13.7'			
13	149°32.2'	13°30.7' N	16°45.1'	61°32.7' N	19°38.5'	218°13.8' S	22°22.2'	209°54.2' S	20°54.3'	129°26.4' N	4°14.0'			
14	164°34.7'	28°30.8' N	16°44.4'	76°32.8' N	19°38.7'	233°16.5' S	22°22.2'	224°56.9' S	20°54.4'	144°27.9' N	4°14.3'			
15	179°37.2'	43°30.9' N	16°43.7'	91°32.9' N	19°38.8'	248°19.3' S	22°22.3'	239°59.5' S	20°54.4'	159°29.4' N	4°14.7'			
16	194°39.6'	58°30.9' N	16°43.0'	106°33.0' N	19°39.0'	263°22.0' S	22°22.3'	255°02.2' S	20°54.4'	174°30.9' N	4°15.0'			
17	209°42.1'	73°31.0' N	16°42.3'	121°33.1' N	19°39.2'	278°24.8' S	22°22.3'	270°04.8' S	20°54.5'	189°32.4' N	4°15.4'			
18	224°44.6'	88°31.1' N	16°41.7'	136°33.2' N	19°39.4'	293°27.5' S	22°22.4'	285°07.4' S	20°54.5'	204°33.9' N	4°15.7'			
19	239°47.0'	103°31.1' N	16°41.0'	151°33.3' N	19°39.5'	308°30.3' S	22°22.4'	300°10.1' S	20°54.6'	219°35.4' N	4°16.0'			
20	254°49.5'	118°31.2' N	16°40.3'	166°33.3' N	19°39.7'	323°33.0' S	22°22.5'	315°12.7' S	20°54.6'	234°36.9' N	4°16.4'			
21	269°51.9'	133°31.3' N	16°39.6'	181°33.4' N	19°39.9'	338°35.8' S	22°22.5'	330°15.4' S	20°54.6'	249°38.4' N	4°16.7'			
22	284°54.4'	148°31.4' N	16°38.9'	196°33.5' N	19°40.0'	353°38.5' S	22°22.6'	345°18.0' S	20°54.7'	264°39.9' N	4°17.0'			
23	299°56.9'	163°31.4' N	16°38.2'	211°33.6' N	19°40.2'	8°41.3' S	22°22.6'	0°20.7' S	20°54.7'	279°41.4' N	4°17.4'			
		SD 15.8' d -0.7'		v 0.1' d 0.2'		v 2.8' d -0.0'		v 2.6' d -0.0'		v 1.5' d 0.3'				
Mer. pass.		12 h 5 m 58 s		8 h 54 m		22 h 25 m		22 h 59 m		4 h 23 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Saturn	+Jupiter	+Altair	+Antares
0	341°31.9' S	16°06.0'	12.5'	9.8'	55.5'	113°17.5'	103°14.8'	100°50.2'	51°04.4'	31°24.9'	39°11.4'	42°21.3'	78°22.5'
1	356°03.5' S	15°56.2'	12.6'	9.9'	55.5'	112°49.2'	102°47.9'	100°18.9'	50°34.1'	31°56.3'	39°43.0'	42°40.7'	78°53.6'
2	10°35.1' S	15°46.3'	12.7'	9.9'	55.4'	112°21.0'	102°21.0'	99°47.7'	50°03.9'	32°27.7'	40°14.5'	43°00.2'	79°24.7'
3	25°06.7' S	15°36.3'	12.7'	10.0'	55.4'	111°52.7'	101°54.1'	99°16.5'	49°33.6'	32°59.1'	40°46.0'	43°20.0'	79°55.8'
4	39°38.5' S	15°26.3'	12.8'	10.1'	55.4'	111°24.4'	101°27.3'	98°45.4'	49°03.4'	33°30.4'	41°17.5'	43°39.8'	80°26.9'
5	54°10.3' S	15°16.3'	12.9'	10.1'	55.4'	110°56.2'	101°00.4'	98°14.2'	48°33.3'	34°01.7'	41°48.9'	43°59.9'	80°57.9'
6	68°42.2' S	15°06.1'	13.0'	10.2'	55.4'	110°27.9'	100°33.6'	97°43.1'	48°03.1'	34°33.0'	42°20.4'	44°20.1'	81°28.9'
7	83°14.2' S	14°56.0'	13.0'	10.2'	55.3'	109°59.6'	100°06.7'	97°12.0'	47°33.0'	35°04.3'	42°51.8'	44°40.5'	81°59.9'
8	97°46.2' S	14°45.7'	13.1'	10.3'	55.3'	109°31.4'	99°39.9'	96°40.9'	47°02.8'	35°35.5'	43°23.2'	45°01.0'	82°30.8'
9	112°18.3' S	14°35.4'	13.2'	10.4'	55.3'	109°03.1'	99°13.1'	96°09.9'	46°32.8'	36°06.7'	43°54.5'	45°21.6'	83°01.8'
10	126°50.5' S	14°25.0'	13.3'	10.4'	55.3'	108°34.9'	98°46.2'	95°38.9'	46°02.7'	36°37.9'	44°25.9'	45°42.4'	83°32.7'
11	141°22.8' S	14°14.6'	13.3'	10.5'	55.3'	108°06.7'	98°19.4'	95°07.9'	45°32.7'	37°09.1'	44°57.2'	46°03.3'	84°03.6'
12	155°55.1' S	14°04.1'	13.4'	10.5'	55.2'	107°38.4'	97°52.6'	94°36.9'	45°02.6'	37°40.2'	45°28.5'	46°24.3'	84°34.4'
13	170°27.5' S	13°53.6'	13.5'	10.6'	55.2'	107°10.2'	97°25.9'	94°05.9'	44°32.6'	38°11.4'	45°59.7'	46°45.5'	85°05.3'
14	184°60.0' S	13°43.0'	13.5'	10.6'	55.2'	106°42.0'	96°59.1'	93°35.0'	44°02.7'	38°42.5'	46°31.0'	47°06.8'	85°36.1'
15	199°32.5' S	13°32.4'	13.6'	10.7'	55.2'	106°13.8'	96°32.3'	93°04.1'	43°32.7'	39°13.6'	47°02.2'	47°28.2'	86°06.9'
16	214°05.1' S	13°21.7'	13.7'	10.7'	55.2'	105°45.6'	96°05.6'	92°33.2'	43°02.8'	39°44.6'	47°33.4'	47°49.8'	86°37.7'
17	228°37.8' S	13°11.0'	13.7'	10.8'	55.1'	105°17.4'	95°38.8'	92°02.4'	42°32.9'	40°15.7'	48°04.6'	48°11.4'	87°08.4'
18	243°10.5' S	13°00.2'	13.8'	10.8'	55.1'	104°49.2'	95°12.1'	91°31.5'	42°03.0'	40°46.7'	48°35.7'	48°33.2'	87°39.1'
19	257°43.3' S	12°49.3'	13.9'	10.9'	55.1'	104°21.0'	94°45.4'	91°00.7'	41°33.2'	41°17.7'	49°06.8'	48°55.0'	88°09.8'
20	272°16.2' S	12°38.4'	13.9'	10.9'	55.1'	103°52.8'	94°18.7'	90°30.0'	41°03.3'	41°48.7'	49°37.9'	49°17.0'	88°40.5'
21	286°49.1' S	12°27.5'	14.0'	11.0'	55.1'	103°24.7'	93°52.0'	89°59.2'	40°33.5'	42°19.6'	50°09.0'	49°39.0'	89°11.2'
22	301°22.1' S	12°16.5'	14.1'	11.0'	55.0'	102°56.5'	93°25.4'	89°28.4'	40°03.7'	42°50.5'	50°40.1'	50°01.2'	89°41.8'
23	315°55.1' S	12°05.5'	14.1'	11.1'	55.0'	102°28.4'	92°58.7'	88°57.7'	39°34.0'	43°21.4'	51°11.1'	50°23.5'	90°12.4'
Mer. pass.		1 h 16 m SD 15.1' phase 98%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.9'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°39.5'	N 89°20.6'
Rigil Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.2'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.0'	S 60°28.4'	Canopus	-0.6	263°54.4'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	314°59.3'	178°31.5'	N 16°37.5'	226°33.7'	N 19°40.4'	23°44.0'	S 22°22.6'	15°23.3'	S 20°54.7'	294°42.9'	N 4°17.7'	
1	330°01.8'	193°31.6'	N 16°36.8'	241°33.8'	N 19°40.6'	38°46.8'	S 22°22.7'	30°26.0'	S 20°54.8'	309°44.4'	N 4°18.0'	
2	345°04.3'	208°31.6'	N 16°36.1'	256°33.9'	N 19°40.7'	53°49.5'	S 22°22.7'	45°28.6'	S 20°54.8'	324°45.9'	N 4°18.4'	
3	0°06.7'	223°31.7'	N 16°35.5'	271°34.0'	N 19°40.9'	68°52.3'	S 22°22.8'	60°31.3'	S 20°54.9'	339°47.5'	N 4°18.7'	
4	15°09.2'	238°31.8'	N 16°34.8'	286°34.0'	N 19°41.1'	83°55.0'	S 22°22.8'	75°33.9'	S 20°54.9'	354°49.0'	N 4°19.1'	
5	30°11.7'	253°31.9'	N 16°34.1'	301°34.1'	N 19°41.2'	98°57.8'	S 22°22.9'	90°36.5'	S 20°54.9'	9°50.5'	N 4°19.4'	
6	45°14.1'	268°31.9'	N 16°33.4'	316°34.2'	N 19°41.4'	114°00.5'	S 22°22.9'	105°39.2'	S 20°55.0'	24°52.0'	N 4°19.7'	
7	60°16.6'	283°32.0'	N 16°32.7'	331°34.3'	N 19°41.6'	129°03.3'	S 22°22.9'	120°41.8'	S 20°55.0'	39°53.5'	N 4°20.1'	
8	75°19.0'	298°32.1'	N 16°32.0'	346°34.4'	N 19°41.7'	144°06.0'	S 22°23.0'	135°44.5'	S 20°55.0'	54°55.0'	N 4°20.4'	
9	90°21.5'	313°32.2'	N 16°31.3'	1°34.5'	N 19°41.9'	159°08.7'	S 22°23.0'	150°47.1'	S 20°55.1'	69°56.5'	N 4°20.7'	
10	105°24.0'	328°32.2'	N 16°30.6'	16°34.5'	N 19°42.1'	174°11.5'	S 22°23.1'	165°49.8'	S 20°55.1'	84°58.0'	N 4°21.1'	
11	120°26.4'	343°32.3'	N 16°29.9'	31°34.6'	N 19°42.2'	189°14.2'	S 22°23.1'	180°52.4'	S 20°55.2'	99°59.5'	N 4°21.4'	
12	135°28.9'	358°32.4'	N 16°29.2'	46°34.7'	N 19°42.4'	204°17.0'	S 22°23.2'	195°55.1'	S 20°55.2'	115°01.0'	N 4°21.7'	
13	150°31.4'	13°32.4'	N 16°28.5'	61°34.8'	N 19°42.6'	219°19.7'	S 22°23.2'	210°57.7'	S 20°55.2'	130°02.6'	N 4°22.1'	
14	165°33.8'	28°32.5'	N 16°27.8'	76°34.8'	N 19°42.7'	234°22.5'	S 22°23.2'	226°00.3'	S 20°55.3'	145°04.1'	N 4°22.4'	
15	180°36.3'	43°32.6'	N 16°27.1'	91°34.9'	N 19°42.9'	249°25.2'	S 22°23.3'	241°03.0'	S 20°55.3'	160°05.6'	N 4°22.7'	
16	195°38.8'	58°32.7'	N 16°26.4'	106°35.0'	N 19°43.1'	264°28.0'	S 22°23.3'	256°05.6'	S 20°55.3'	175°07.1'	N 4°23.0'	
17	210°41.2'	73°32.8'	N 16°25.7'	121°35.0'	N 19°43.2'	279°30.7'	S 22°23.4'	271°08.3'	S 20°55.4'	190°08.6'	N 4°23.4'	
18	225°43.7'	88°32.8'	N 16°25.0'	136°35.1'	N 19°43.4'	294°33.5'	S 22°23.4'	286°10.9'	S 20°55.4'	205°10.1'	N 4°23.7'	
19	240°46.2'	103°32.9'	N 16°24.3'	151°35.2'	N 19°43.5'	309°36.2'	S 22°23.4'	301°13.6'	S 20°55.4'	220°11.6'	N 4°24.0'	
20	255°48.6'	118°33.0'	N 16°23.6'	166°35.2'	N 19°43.7'	324°38.9'	S 22°23.5'	316°16.2'	S 20°55.5'	235°13.2'	N 4°24.4'	
21	270°51.1'	133°33.1'	N 16°22.9'	181°35.3'	N 19°43.9'	339°41.7'	S 22°23.5'	331°18.8'	S 20°55.5'	250°14.7'	N 4°24.7'	
22	285°53.5'	148°33.1'	N 16°22.2'	196°35.4'	N 19°44.0'	354°44.4'	S 22°23.6'	346°21.5'	S 20°55.6'	265°16.2'	N 4°25.0'	
23	300°56.0'	163°33.2'	N 16°21.5'	211°35.4'	N 19°44.2'	9°47.2'	S 22°23.6'	1°24.1'	S 20°55.6'	280°17.7'	N 4°25.4'	
		SD 15.8' d -0.7'		v 0.1' d 0.2'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.5' d 0.3'		
Mer. pass.		12 h 5 m 51 s		8 h 54 m		22 h 21 m		22 h 54 m		4 h 21 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	330°28.2'	S 11°54.5'	14.2'	11.1'	55.0'	102°00.2'	92°32.1'	88°27.0'	39°04.2'		43°52.3'	50°45.8'	51°42.1'
1	345°01.4'	S 11°43.3'	14.2'	11.1'	55.0'	101°32.1'	92°05.5'	87°56.4'	38°34.5'		44°23.2'	51°08.2'	52°13.1'
2	359°34.7'	S 11°32.2'	14.3'	11.2'	55.0'	101°04.0'	91°38.9'	87°25.7'	38°04.8'		44°54.0'	51°30.8'	52°44.1'
3	14°08.0'	S 11°21.0'	14.4'	11.2'	55.0'	100°35.9'	91°12.3'	86°55.1'	37°35.1'		45°24.9'	51°53.4'	53°15.0'
4	28°41.3'	S 11°09.8'	14.4'	11.3'	54.9'	100°07.8'	90°45.8'	86°24.5'	37°05.4'		45°55.7'	52°16.1'	53°45.9'
5	43°14.7'	S 10°58.5'	14.5'	11.3'	54.9'	99°39.8'	90°19.2'	85°53.9'	36°35.8'		46°26.4'	52°38.8'	54°16.8'
6	57°48.2'	S 10°47.2'	14.5'	11.3'	54.9'	99°11.7'	89°52.7'	85°23.3'	36°06.2'	18°53.9'	46°57.2'	53°01.7'	54°47.7'
7	72°21.7'	S 10°35.9'	14.6'	11.4'	54.9'	98°43.7'	89°26.2'	84°52.8'	35°36.6'	19°09.0'	47°27.9'	53°24.6'	55°18.6'
8	86°55.3'	S 10°24.5'	14.6'	11.4'	54.9'	98°15.6'	88°59.7'	84°22.3'	35°07.0'	19°24.8'	47°58.6'	53°47.6'	55°49.4'
9	101°29.0'	S 10°13.1'	14.7'	11.4'	54.8'	97°47.6'	88°33.2'	83°51.8'	34°37.5'	19°41.1'	48°29.3'	54°10.6'	56°20.2'
10	116°02.7'	S 10°01.6'	14.8'	11.5'	54.8'	97°19.6'	88°06.8'	83°21.3'	34°07.9'	19°57.9'	49°00.0'	54°33.8'	56°51.0'
11	130°36.4'	S 9°50.1'	14.8'	11.5'	54.8'	96°51.6'	87°40.4'	82°50.9'	33°38.4'	20°15.2'	49°30.7'	54°56.9'	57°21.8'
12	145°10.2'	S 9°38.6'	14.9'	11.5'	54.8'	96°23.6'	87°14.0'	82°20.4'	33°08.9'	20°33.0'	50°01.3'	55°20.2'	57°52.5'
13	159°44.1'	S 9°27.1'	14.9'	11.6'	54.8'	95°55.7'	86°47.6'	81°50.0'	32°39.5'	20°51.3'	50°31.9'	55°43.5'	58°23.3'
14	174°18.0'	S 9°15.5'	15.0'	11.6'	54.8'	95°27.7'	86°21.2'	81°19.6'	32°10.0'	21°10.0'	51°02.5'	56°06.9'	58°54.0'
15	188°52.0'	S 9°03.9'	15.0'	11.6'	54.7'	94°59.8'	85°54.9'	80°49.3'	31°40.6'	21°29.1'	51°33.1'	56°30.3'	59°24.7'
16	203°26.0'	S 8°52.3'	15.1'	11.7'	54.7'	94°31.8'	85°28.6'	80°18.9'	31°11.2'	21°48.6'	52°03.6'	56°53.8'	59°55.3'
17	218°00.0'	S 8°40.6'	15.1'	11.7'	54.7'	94°03.9'	85°02.3'	79°48.6'	30°41.8'	22°08.5'	52°34.2'	57°17.4'	60°26.0'
18	232°34.1'	S 8°28.9'	15.2'	11.7'	54.7'	93°36.0'	84°36.0'	79°18.3'	30°12.4'	22°28.7'	53°04.7'	57°41.0'	60°56.6'
19	247°08.3'	S 8°17.2'	15.2'	11.7'	54.7'	93°08.2'	84°09.7'	78°48.0'	29°43.0'	22°49.3'	53°35.2'	58°04.6'	61°27.2'
20	261°42.5'	S 8°05.4'	15.2'	11.8'	54.7'	92°40.3'	83°43.5'	78°17.7'	29°13.7'	23°10.2'	54°05.6'	58°28.3'	61°57.8'
21	276°16.7'	S 7°53.7'	15.3'	11.8'	54.7'	92°12.5'	83°17.3'	77°47.5'	28°44.4'	23°31.4'	54°36.1'	58°52.1'	62°28.4'
22	290°51.0'	S 7°41.9'	15.3'	11.8'	54.6'	91°44.6'	82°51.2'	77°17.3'	28°15.1'	23°52.9'	55°06.5'	59°15.9'	62°58.9'
23	305°25.4'	S 7°30.1'	15.4'	11.8'	54.6'	91°16.8'	82°25.0'	76°47.0'	27°45.8'	24°14.7'	55°36.9'	59°39.7'	63°29.4'
Mer. pass.		2 h 2 m SD 15.0'		phase 94%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.9'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°39.1'	N 89°20.6'
Rigil Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.2'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.0'	S 60°28.4'	Canopus	-0.6	263°54.4'	S 52°42.2'				

Friday 07 August 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	315°58.5'	178°33.3'	N 16°20.8'	226°35.5'	N 19°44.3'	24°49.9'	S 22°23.7'	16°26.8'	S 20°55.6'	295°19.3'	N 4°25.7'			
1	331°00.9'	193°33.4'	N 16°20.1'	241°35.6'	N 19°44.5'	39°52.7'	S 22°23.7'	31°29.4'	S 20°55.7'	310°20.8'	N 4°26.0'			
2	346°03.4'	208°33.4'	N 16°19.4'	256°35.6'	N 19°44.7'	54°55.4'	S 22°23.7'	46°32.1'	S 20°55.7'	325°22.3'	N 4°26.3'			
3	1°05.9'	223°33.5'	N 16°18.7'	271°35.7'	N 19°44.8'	69°58.1'	S 22°23.8'	61°34.7'	S 20°55.7'	340°23.8'	N 4°26.7'			
4	16°08.3'	238°33.6'	N 16°18.0'	286°35.7'	N 19°45.0'	85°00.9'	S 22°23.8'	76°37.4'	S 20°55.8'	355°25.3'	N 4°27.0'			
5	31°10.8'	253°33.7'	N 16°17.3'	301°35.8'	N 19°45.1'	100°03.6'	S 22°23.9'	91°40.0'	S 20°55.8'	10°26.9'	N 4°27.3'			
6	46°13.3'	268°33.8'	N 16°16.6'	316°35.8'	N 19°45.3'	115°06.4'	S 22°23.9'	106°42.6'	S 20°55.9'	25°28.4'	N 4°27.6'			
7	61°15.7'	283°33.8'	N 16°15.9'	331°35.9'	N 19°45.4'	130°09.1'	S 22°23.9'	121°45.3'	S 20°55.9'	40°29.9'	N 4°28.0'			
8	76°18.2'	298°33.9'	N 16°15.2'	346°35.9'	N 19°45.6'	145°11.9'	S 22°24.0'	136°47.9'	S 20°55.9'	55°31.5'	N 4°28.3'			
9	91°20.6'	313°34.0'	N 16°14.5'	1°36.0'	N 19°45.8'	160°14.6'	S 22°24.0'	151°50.6'	S 20°56.0'	70°33.0'	N 4°28.6'			
10	106°23.1'	328°34.1'	N 16°13.8'	16°36.0'	N 19°45.9'	175°17.3'	S 22°24.1'	166°53.2'	S 20°56.0'	85°34.5'	N 4°29.0'			
11	121°25.6'	343°34.2'	N 16°13.1'	31°36.1'	N 19°46.1'	190°20.1'	S 22°24.1'	181°55.9'	S 20°56.0'	100°36.0'	N 4°29.3'			
12	136°28.0'	358°34.2'	N 16°12.4'	46°36.1'	N 19°46.2'	205°22.8'	S 22°24.2'	196°58.5'	S 20°56.1'	115°37.6'	N 4°29.6'			
13	151°30.5'	13°34.3'	N 16°11.7'	61°36.2'	N 19°46.4'	220°25.6'	S 22°24.2'	212°01.1'	S 20°56.1'	130°39.1'	N 4°29.9'			
14	166°33.0'	28°34.4'	N 16°11.0'	76°36.2'	N 19°46.5'	235°28.3'	S 22°24.2'	227°03.8'	S 20°56.1'	145°40.6'	N 4°30.3'			
15	181°35.4'	43°34.5'	N 16°10.3'	91°36.3'	N 19°46.7'	250°31.0'	S 22°24.3'	242°06.4'	S 20°56.2'	160°42.2'	N 4°30.6'			
16	196°37.9'	58°34.6'	N 16°09.5'	106°36.3'	N 19°46.8'	265°33.8'	S 22°24.3'	257°09.1'	S 20°56.2'	175°43.7'	N 4°30.9'			
17	211°40.4'	73°34.6'	N 16°08.8'	121°36.4'	N 19°47.0'	280°36.5'	S 22°24.4'	272°11.7'	S 20°56.3'	190°45.2'	N 4°31.2'			
18	226°42.8'	88°34.7'	N 16°08.1'	136°36.4'	N 19°47.1'	295°39.3'	S 22°24.4'	287°14.4'	S 20°56.3'	205°46.8'	N 4°31.5'			
19	241°45.3'	103°34.8'	N 16°07.4'	151°36.5'	N 19°47.3'	310°42.0'	S 22°24.4'	302°17.0'	S 20°56.3'	220°48.3'	N 4°31.9'			
20	256°47.8'	118°34.9'	N 16°06.7'	166°36.5'	N 19°47.4'	325°44.7'	S 22°24.5'	317°19.6'	S 20°56.4'	235°49.9'	N 4°32.2'			
21	271°50.2'	133°35.0'	N 16°06.0'	181°36.5'	N 19°47.6'	340°47.5'	S 22°24.5'	332°22.3'	S 20°56.4'	250°51.4'	N 4°32.5'			
22	286°52.7'	148°35.1'	N 16°05.3'	196°36.6'	N 19°47.7'	355°50.2'	S 22°24.6'	347°24.9'	S 20°56.4'	265°52.9'	N 4°32.8'			
23	301°55.1'	163°35.1'	N 16°04.6'	211°36.6'	N 19°47.9'	10°53.0'	S 22°24.6'	2°27.6'	S 20°56.5'	280°54.5'	N 4°33.2'			
		SD 15.8' d -0.7'		v 0.0' d 0.2'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.5' d 0.3'				
Mer. pass.		12 h 5 m 44 s		8 h 54 m		22 h 17 m		22 h 50 m		4 h 18 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	319°59.8'	S 7°18.2'	15.4'	11.9'	54.6'	90°49.0'	81°58.9'	76°16.9'	27°16.5'	24°36.8'	56°07.3'	60°03.6'	63°59.9'
1	334°34.2'	S 7°06.4'	15.5'	11.9'	54.6'	90°21.3'	81°32.8'	75°46.7'	26°47.3'	24°59.1'	56°37.7'	60°27.5'	64°30.4'
2	349°08.6'	S 6°54.5'	15.5'	11.9'	54.6'	89°53.5'	81°06.7'	75°16.5'	26°18.1'	25°21.7'	57°08.1'	60°51.5'	65°00.9'
3	3°43.1'	S 6°42.6'	15.5'	11.9'	54.6'	89°25.7'	80°40.7'	74°46.4'	25°48.9'	25°44.5'	57°38.4'	61°15.5'	65°31.4'
4	18°17.7'	S 6°30.7'	15.6'	11.9'	54.6'	88°58.0'	80°14.7'	74°16.3'	25°19.7'	26°07.5'	58°08.8'	61°39.6'	66°01.8'
5	32°52.3'	S 6°18.7'	15.6'	12.0'	54.5'	88°30.3'	79°48.7'	73°46.2'	24°50.5'	26°30.7'	58°39.1'	62°03.6'	66°32.2'
6	47°26.9'	S 6°06.8'	15.7'	12.0'	54.5'	88°02.6'	79°22.7'	73°16.1'	24°21.3'	26°54.1'	59°09.4'	62°27.8'	67°02.6'
7	62°01.5'	S 5°54.8'	15.7'	12.0'	54.5'	87°34.9'	78°56.8'	72°46.0'	23°52.2'	27°17.7'	59°39.6'	62°51.9'	67°33.0'
8	76°36.2'	S 5°42.8'	15.7'	12.0'	54.5'	87°07.3'	78°30.9'	72°16.0'	23°23.1'	27°41.5'	60°09.9'	63°16.1'	68°03.4'
9	91°11.0'	S 5°30.8'	15.8'	12.0'	54.5'	86°39.6'	78°05.0'	71°46.0'	22°54.0'	28°05.5'	60°40.1'	63°40.3'	68°33.7'
10	105°45.7'	S 5°18.8'	15.8'	12.0'	54.5'	86°12.0'	77°39.1'	71°16.0'	22°24.9'	28°29.6'	61°10.4'	64°04.6'	69°04.1'
11	120°20.5'	S 5°06.7'	15.8'	12.1'	54.5'	85°44.4'	77°13.3'	70°46.0'	21°55.8'	28°53.9'	61°40.6'	64°28.9'	69°34.4'
12	134°55.3'	S 4°54.7'	15.9'	12.1'	54.4'	85°16.8'	76°47.5'	70°16.0'	21°26.8'	29°18.4'	62°10.8'	64°53.2'	70°04.7'
13	149°30.2'	S 4°42.6'	15.9'	12.1'	54.4'	84°49.2'	76°21.8'	69°46.0'	20°57.7'	29°43.0'	62°40.9'	65°17.6'	70°34.9'
14	164°05.1'	S 4°30.5'	15.9'	12.1'	54.4'	84°21.7'	75°56.1'	69°16.1'	20°28.7'	30°07.7'	63°11.1'	65°41.9'	71°05.2'
15	178°40.0'	S 4°18.4'	15.9'	12.1'	54.4'	83°54.2'	75°30.4'	68°46.2'	19°59.7'	30°32.5'	63°41.2'	66°06.3'	71°35.5'
16	193°15.0'	S 4°06.3'	16.0'	12.1'	54.4'	83°26.6'	75°04.7'	68°16.3'	19°30.7'	30°57.5'	64°11.4'	66°30.8'	72°05.7'
17	207°49.9'	S 3°54.2'	16.0'	12.1'	54.4'	82°59.1'	74°39.1'	67°46.4'	19°01.7'	31°22.6'	64°41.5'	66°55.2'	72°35.9'
18	222°24.9'	S 3°42.1'	16.0'	12.1'	54.4'	82°31.7'	74°13.5'	67°16.5'	18°32.8'	31°47.8'	65°11.6'	67°19.7'	73°06.1'
19	236°60.0'	S 3°30.0'	16.1'	12.1'	54.4'	82°04.2'	73°47.9'	66°46.6'	18°03.8'	32°13.1'	65°41.7'	67°44.2'	73°36.3'
20	251°35.0'	S 3°17.9'	16.1'	12.1'	54.4'	81°36.8'	73°22.4'	66°16.8'	17°34.9'	32°38.6'	66°11.8'	68°08.7'	74°06.5'
21	266°10.1'	S 3°05.7'	16.1'	12.1'	54.3'	81°09.3'	72°56.8'	65°46.9'	17°06.0'	33°04.1'	66°41.8'	68°33.3'	74°36.7'
22	280°45.2'	S 2°53.6'	16.1'	12.2'	54.3'	80°41.9'	72°31.4'	65°17.1'	16°37.1'	33°29.7'	67°11.9'	68°57.9'	75°06.8'
23	295°20.3'	S 2°41.4'	16.1'	12.2'	54.3'	80°14.6'	72°05.9'	64°47.3'	16°08.2'	33°55.4'	67°41.9'	69°22.4'	75°36.9'
Mer. pass.		2 h 45 m SD 14.9'		phase 89%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°38.6'	N 89°20.6'
Rigel Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	316°57.6'	178°35.2'	N 16°03.9'	226°36.6'	N 19°48.0'	25°55.7'	S 22°24.6'	17°30.2'	S 20°56.5'	295°56.0'	N 4°33.5'			
1	332°00.1'	193°35.3'	N 16°03.2'	241°36.7'	N 19°48.2'	40°58.4'	S 22°24.7'	32°32.8'	S 20°56.5'	310°57.6'	N 4°33.8'			
2	347°02.5'	208°35.4'	N 16°02.4'	256°36.7'	N 19°48.3'	56°01.2'	S 22°24.7'	47°35.5'	S 20°56.6'	325°59.1'	N 4°34.1'			
3	2°05.0'	223°35.5'	N 16°01.7'	271°36.7'	N 19°48.5'	71°03.9'	S 22°24.8'	62°38.1'	S 20°56.6'	341°00.6'	N 4°34.4'			
4	17°07.5'	238°35.6'	N 16°01.0'	286°36.8'	N 19°48.6'	86°06.6'	S 22°24.8'	77°40.8'	S 20°56.7'	356°02.2'	N 4°34.8'			
5	32°09.9'	253°35.7'	N 16°00.3'	301°36.8'	N 19°48.8'	101°09.4'	S 22°24.8'	92°43.4'	S 20°56.7'	11°03.7'	N 4°35.1'			
6	47°12.4'	268°35.7'	N 15°59.6'	316°36.8'	N 19°48.9'	116°12.1'	S 22°24.9'	107°46.1'	S 20°56.7'	26°05.3'	N 4°35.4'			
7	62°14.9'	283°35.8'	N 15°58.9'	331°36.9'	N 19°49.0'	131°14.8'	S 22°24.9'	122°48.7'	S 20°56.8'	41°06.8'	N 4°35.7'			
8	77°17.3'	298°35.9'	N 15°58.2'	346°36.9'	N 19°49.2'	146°17.6'	S 22°25.0'	137°51.3'	S 20°56.8'	56°08.4'	N 4°36.0'			
9	92°19.8'	313°36.0'	N 15°57.4'	1°36.9'	N 19°49.3'	161°20.3'	S 22°25.0'	152°54.0'	S 20°56.8'	71°09.9'	N 4°36.3'			
10	107°22.3'	328°36.1'	N 15°56.7'	16°36.9'	N 19°49.5'	176°23.1'	S 22°25.0'	167°56.6'	S 20°56.9'	86°11.5'	N 4°36.7'			
11	122°24.7'	343°36.2'	N 15°56.0'	31°37.0'	N 19°49.6'	191°25.8'	S 22°25.1'	182°59.3'	S 20°56.9'	101°13.0'	N 4°37.0'			
12	137°27.2'	358°36.3'	N 15°55.3'	46°37.0'	N 19°49.8'	206°28.5'	S 22°25.1'	198°01.9'	S 20°56.9'	116°14.6'	N 4°37.3'			
13	152°29.6'	13°36.3'	N 15°54.6'	61°37.0'	N 19°49.9'	221°31.3'	S 22°25.2'	213°04.5'	S 20°57.0'	131°16.1'	N 4°37.6'			
14	167°32.1'	28°36.4'	N 15°53.8'	76°37.0'	N 19°50.0'	236°34.0'	S 22°25.2'	228°07.2'	S 20°57.0'	146°17.7'	N 4°37.9'			
15	182°34.6'	43°36.5'	N 15°53.1'	91°37.1'	N 19°50.2'	251°36.7'	S 22°25.3'	243°09.8'	S 20°57.1'	161°19.2'	N 4°38.2'			
16	197°37.0'	58°36.6'	N 15°52.4'	106°37.1'	N 19°50.3'	266°39.5'	S 22°25.3'	258°12.5'	S 20°57.1'	176°20.8'	N 4°38.6'			
17	212°39.5'	73°36.7'	N 15°51.7'	121°37.1'	N 19°50.5'	281°42.2'	S 22°25.3'	273°15.1'	S 20°57.1'	191°22.3'	N 4°38.9'			
18	227°42.0'	88°36.8'	N 15°51.0'	136°37.1'	N 19°50.6'	296°44.9'	S 22°25.4'	288°17.7'	S 20°57.2'	206°23.9'	N 4°39.2'			
19	242°44.4'	103°36.9'	N 15°50.3'	151°37.1'	N 19°50.7'	311°47.7'	S 22°25.4'	303°20.4'	S 20°57.2'	221°25.5'	N 4°39.5'			
20	257°46.9'	118°37.0'	N 15°49.5'	166°37.1'	N 19°50.9'	326°50.4'	S 22°25.5'	318°23.0'	S 20°57.2'	236°27.0'	N 4°39.8'			
21	272°49.4'	133°37.0'	N 15°48.8'	181°37.2'	N 19°51.0'	341°53.1'	S 22°25.5'	333°25.7'	S 20°57.3'	251°28.6'	N 4°40.1'			
22	287°51.8'	148°37.1'	N 15°48.1'	196°37.2'	N 19°51.1'	356°55.9'	S 22°25.5'	348°28.3'	S 20°57.3'	266°30.1'	N 4°40.4'			
23	302°54.3'	163°37.2'	N 15°47.4'	211°37.2'	N 19°51.3'	11°58.6'	S 22°25.6'	3°30.9'	S 20°57.3'	281°31.7'	N 4°40.8'			
		SD 15.8' d -0.7'		v 0.0' d 0.1'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.6' d 0.3'				
Mer. pass.		12 h 5 m 35 s		8 h 54 m		22 h 12 m		22 h 46 m		4 h 16 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	309°55.5'	S 2°29.3'	16.2'	12.2'	54.3'		71°40.5'	64°17.5'	15°39.3'	34°21.2'	68°11.9'	69°47.1'	76°07.1'
1	324°30.6'	S 2°17.1'	16.2'	12.2'	54.3'		71°15.2'	63°47.7'	15°10.4'	34°47.1'	68°41.9'	70°11.7'	76°37.2'
2	339°05.8'	S 2°05.0'	16.2'	12.2'	54.3'		70°49.9'	63°18.0'	14°41.6'	35°13.1'	69°11.9'	70°36.3'	77°07.3'
3	353°41.0'	S 1°52.8'	16.2'	12.2'	54.3'		70°24.6'	62°48.2'	14°12.7'	35°39.1'	69°41.9'	71°01.0'	77°37.3'
4	8°16.2'	S 1°40.6'	16.2'	12.2'	54.3'		69°59.3'	62°18.5'	13°43.9'	36°05.2'	70°11.8'	71°25.7'	78°07.4'
5	22°51.5'	S 1°28.4'	16.3'	12.2'	54.3'		69°34.1'	61°48.8'	13°15.1'	36°31.4'	70°41.8'	71°50.4'	78°37.5'
6	37°26.7'	S 1°16.3'	16.3'	12.2'	54.3'		69°08.9'	61°19.0'	12°46.3'	36°57.7'	71°11.7'	72°15.1'	79°07.5'
7	52°02.0'	S 1°04.1'	16.3'	12.2'	54.3'		68°43.8'	60°49.3'	12°17.5'	37°24.0'	71°41.7'	72°39.9'	79°37.5'
8	66°37.3'	S 0°51.9'	16.3'	12.2'	54.2'		68°18.7'	60°19.7'	11°48.8'	37°50.4'	72°11.6'	73°04.6'	80°07.6'
9	81°12.6'	S 0°39.8'	16.3'	12.2'	54.2'		67°53.6'	59°50.0'	11°20.0'	38°16.8'	72°41.5'	73°29.4'	80°37.6'
10	95°47.9'	S 0°27.6'	16.3'	12.2'	54.2'		67°28.6'	59°20.3'	10°51.3'	38°43.3'	73°11.4'	73°54.2'	81°07.6'
11	110°23.2'	S 0°15.4'	16.3'	12.2'	54.2'		67°03.6'	58°50.7'	10°22.6'	39°09.9'	73°41.3'	74°19.0'	81°37.6'
12	124°58.5'	S 0°03.3'	16.3'	12.2'	54.2'		66°38.6'	58°21.0'	9°53.8'	39°36.5'	74°11.2'	74°43.8'	82°07.5'
13	139°33.9'	N 0°08.9'	16.3'	12.2'	54.2'		66°13.7'	57°51.4'	9°25.2'	40°03.2'	74°41.0'	75°08.6'	82°37.5'
14	154°09.2'	N 0°21.1'	16.4'	12.2'	54.2'		65°48.9'	57°21.8'	8°56.5'	40°29.9'	75°10.9'	75°33.4'	83°07.5'
15	168°44.6'	N 0°33.2'	16.4'	12.1'	54.2'		65°24.0'	56°52.2'	8°27.8'	40°56.7'	75°40.8'	75°58.3'	83°37.4'
16	183°19.9'	N 0°45.3'	16.4'	12.1'	54.2'		64°59.3'	56°22.6'	7°59.2'	41°23.5'	76°10.6'	76°23.1'	84°07.3'
17	197°55.3'	N 0°57.5'	16.4'	12.1'	54.2'		64°34.5'	55°53.0'	7°30.6'	41°50.3'	76°40.4'	76°48.0'	84°37.3'
18	212°30.7'	N 1°09.6'	16.4'	12.1'	54.2'		64°09.9'	55°23.4'	7°02.0'	42°17.2'	77°10.3'	77°12.9'	85°07.2'
19	227°06.0'	N 1°21.7'	16.4'	12.1'	54.2'		63°45.2'	54°53.8'	6°33.4'	42°44.2'	77°40.1'	77°37.8'	85°37.1'
20	241°41.4'	N 1°33.9'	16.4'	12.1'	54.2'		63°20.6'	54°24.3'	6°04.9'	43°11.2'	78°09.9'	78°02.7'	86°07.0'
21	256°16.8'	N 1°46.0'	16.4'	12.1'	54.2'		62°56.1'	53°54.7'	5°36.4'	43°38.2'	78°39.7'	78°27.6'	86°36.9'
22	270°52.2'	N 1°58.1'	16.4'	12.1'	54.2'		62°31.6'	53°25.2'	5°07.9'	44°05.3'	79°09.5'	78°52.5'	87°06.8'
23	285°27.6'	N 2°10.1'	16.4'	12.1'	54.2'	119°48.0'	62°07.1'	52°55.6'	4°39.5'	44°32.4'	79°39.3'	79°17.5'	87°36.7'
Mer. pass.		3 h 26 m SD 14.8'		phase 82%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°38.2'	N 89°20.6'
Rigel Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.7'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	317°56.7'	178°37.3'	N 15°46.6'	226°37.2'	N 19°51.4'	27°01.3'	S 22°25.6'	18°33.6'	S 20°57.4'	296°33.3'	N 4°41.1'			
1	332°59.2'	193°37.4'	N 15°45.9'	241°37.2'	N 19°51.5'	42°04.1'	S 22°25.6'	33°36.2'	S 20°57.4'	311°34.8'	N 4°41.4'			
2	348°01.7'	208°37.5'	N 15°45.2'	256°37.2'	N 19°51.7'	57°06.8'	S 22°25.7'	48°38.9'	S 20°57.5'	326°36.4'	N 4°41.7'			
3	3°04.1'	223°37.6'	N 15°44.5'	271°37.2'	N 19°51.8'	72°09.5'	S 22°25.7'	63°41.5'	S 20°57.5'	341°37.9'	N 4°42.0'			
4	18°06.6'	238°37.7'	N 15°43.7'	286°37.2'	N 19°52.0'	87°12.3'	S 22°25.8'	78°44.1'	S 20°57.5'	356°39.5'	N 4°42.3'			
5	33°09.1'	253°37.8'	N 15°43.0'	301°37.2'	N 19°52.1'	102°15.0'	S 22°25.8'	93°46.8'	S 20°57.6'	11°41.1'	N 4°42.6'			
6	48°11.5'	268°37.9'	N 15°42.3'	316°37.2'	N 19°52.2'	117°17.7'	S 22°25.8'	108°49.4'	S 20°57.6'	26°42.6'	N 4°42.9'			
7	63°14.0'	283°37.9'	N 15°41.6'	331°37.2'	N 19°52.3'	132°20.5'	S 22°25.9'	123°52.1'	S 20°57.6'	41°44.2'	N 4°43.3'			
8	78°16.5'	298°38.0'	N 15°40.8'	346°37.2'	N 19°52.5'	147°23.2'	S 22°25.9'	138°54.7'	S 20°57.7'	56°45.8'	N 4°43.6'			
9	93°18.9'	313°38.1'	N 15°40.1'	1°37.2'	N 19°52.6'	162°25.9'	S 22°26.0'	153°57.3'	S 20°57.7'	71°47.3'	N 4°43.9'			
10	108°21.4'	328°38.2'	N 15°39.4'	16°37.2'	N 19°52.7'	177°28.6'	S 22°26.0'	168°60.0'	S 20°57.7'	86°48.9'	N 4°44.2'			
11	123°23.9'	343°38.3'	N 15°38.7'	31°37.2'	N 19°52.9'	192°31.4'	S 22°26.0'	184°02.6'	S 20°57.8'	101°50.5'	N 4°44.5'			
12	138°26.3'	358°38.4'	N 15°37.9'	46°37.2'	N 19°53.0'	207°34.1'	S 22°26.1'	199°05.3'	S 20°57.8'	116°52.0'	N 4°44.8'			
13	153°28.8'	13°38.5'	N 15°37.2'	61°37.2'	N 19°53.1'	222°36.8'	S 22°26.1'	214°07.9'	S 20°57.8'	131°53.6'	N 4°45.1'			
14	168°31.2'	28°38.6'	N 15°36.5'	76°37.2'	N 19°53.3'	237°39.6'	S 22°26.2'	229°10.5'	S 20°57.9'	146°55.2'	N 4°45.4'			
15	183°33.7'	43°38.7'	N 15°35.7'	91°37.2'	N 19°53.4'	252°42.3'	S 22°26.2'	244°13.2'	S 20°57.9'	161°56.8'	N 4°45.7'			
16	198°36.2'	58°38.8'	N 15°35.0'	106°37.2'	N 19°53.5'	267°45.0'	S 22°26.2'	259°15.8'	S 20°58.0'	176°58.3'	N 4°46.0'			
17	213°38.6'	73°38.9'	N 15°34.3'	121°37.2'	N 19°53.6'	282°47.7'	S 22°26.3'	274°18.5'	S 20°58.0'	191°59.9'	N 4°46.3'			
18	228°41.1'	88°39.0'	N 15°33.6'	136°37.2'	N 19°53.8'	297°50.5'	S 22°26.3'	289°21.1'	S 20°58.0'	207°01.5'	N 4°46.6'			
19	243°43.6'	103°39.1'	N 15°32.8'	151°37.2'	N 19°53.9'	312°53.2'	S 22°26.4'	304°23.7'	S 20°58.1'	222°03.1'	N 4°47.0'			
20	258°46.0'	118°39.2'	N 15°32.1'	166°37.2'	N 19°54.0'	327°55.9'	S 22°26.4'	319°26.4'	S 20°58.1'	237°04.6'	N 4°47.3'			
21	273°48.5'	133°39.3'	N 15°31.4'	181°37.2'	N 19°54.1'	342°58.7'	S 22°26.4'	334°29.0'	S 20°58.1'	252°06.2'	N 4°47.6'			
22	288°51.0'	148°39.3'	N 15°30.6'	196°37.2'	N 19°54.3'	358°01.4'	S 22°26.5'	349°31.7'	S 20°58.2'	267°07.8'	N 4°47.9'			
23	303°53.4'	163°39.4'	N 15°29.9'	211°37.2'	N 19°54.4'	13°04.1'	S 22°26.5'	4°34.3'	S 20°58.2'	282°09.4'	N 4°48.2'			
		SD 15.8' d -0.7'		v -0.0' d 0.1'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.6' d 0.3'				
Mer. pass.		12 h 5 m 27 s		8 h 54 m		22 h 8 m		22 h 42 m		4 h 13 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Altair	+Saturn	+Jupiter
0	300°02.9'	N 2°22.2'	16.4'	12.1'	54.2'	119°20.8'	61°42.7'	52°26.1'	4°11.1'	44°59.5'	79°42.4'	80°09.0'	88°06.6'
1	314°38.3'	N 2°34.3'	16.4'	12.1'	54.2'	118°53.7'	61°18.3'	51°56.6'	3°42.9'	45°26.7'	80°07.3'	80°38.8'	88°36.4'
2	329°13.7'	N 2°46.3'	16.4'	12.0'	54.1'	118°26.5'	60°54.0'	51°27.1'	3°14.8'	45°53.9'	80°32.3'	81°08.6'	89°06.3'
3	343°49.1'	N 2°58.4'	16.4'	12.0'	54.1'	117°59.4'	60°29.8'	50°57.6'	2°46.9'	46°21.1'	80°57.2'	81°38.3'	89°36.2'
4	358°24.4'	N 3°10.4'	16.4'	12.0'	54.1'	117°32.2'	60°05.6'	50°28.1'	2°19.3'	46°48.4'	81°22.2'	82°08.1'	90°06.0'
5	12°59.8'	N 3°22.4'	16.4'	12.0'	54.1'	117°05.1'	59°41.4'	49°58.6'		47°15.7'	81°47.2'	82°37.9'	90°35.9'
6	27°35.1'	N 3°34.4'	16.3'	12.0'	54.1'	116°37.9'	59°17.3'	49°29.1'		47°43.1'	82°12.2'	83°07.6'	91°05.7'
7	42°10.5'	N 3°46.4'	16.3'	12.0'	54.1'	116°10.8'	58°53.3'	48°59.6'		48°10.4'	82°37.2'	83°37.3'	91°35.5'
8	56°45.8'	N 3°58.4'	16.3'	12.0'	54.1'	115°43.7'	58°29.3'	48°30.1'		48°37.8'	83°02.2'	84°07.1'	92°05.4'
9	71°21.1'	N 4°10.3'	16.3'	11.9'	54.1'	115°16.6'	58°05.4'	48°00.6'		49°05.3'	83°27.2'	84°36.8'	92°35.2'
10	85°56.5'	N 4°22.3'	16.3'	11.9'	54.1'	114°49.5'	57°41.5'	47°31.2'		49°32.7'	83°52.2'	85°06.6'	93°05.0'
11	100°31.8'	N 4°34.2'	16.3'	11.9'	54.1'	114°22.3'	57°17.7'	47°01.7'		50°00.2'	84°17.2'	85°36.3'	93°34.9'
12	115°07.1'	N 4°46.1'	16.3'	11.9'	54.1'	113°55.2'	56°54.0'	46°32.3'		50°27.7'	84°42.2'	86°06.0'	94°04.7'
13	129°42.3'	N 4°58.0'	16.3'	11.9'	54.1'	113°28.1'	56°30.3'	46°02.8'	2°11.5'	50°55.2'	85°07.2'	86°35.7'	94°34.5'
14	144°17.6'	N 5°09.8'	16.2'	11.8'	54.1'	113°01.0'	56°06.6'	45°33.4'	2°38.9'	51°22.8'	85°32.2'	87°05.5'	95°04.3'
15	158°52.8'	N 5°21.7'	16.2'	11.8'	54.1'	112°33.9'	55°43.1'	45°03.9'	3°06.7'	51°50.4'	85°57.3'	87°35.2'	95°34.1'
16	173°28.1'	N 5°33.5'	16.2'	11.8'	54.1'	112°06.8'	55°19.6'	44°34.5'	3°34.7'	52°18.0'	86°22.3'	88°04.9'	96°03.9'
17	188°03.3'	N 5°45.3'	16.2'	11.8'	54.1'	111°39.7'	54°56.2'	44°05.1'	4°02.9'	52°45.6'	86°47.3'	88°34.6'	96°33.7'
18	202°38.5'	N 5°57.1'	16.2'	11.8'	54.1'	111°12.6'	54°32.8'	43°35.6'	4°31.2'	53°13.3'	87°12.4'	89°04.3'	97°03.5'
19	217°13.7'	N 6°08.9'	16.2'	11.7'	54.1'	110°45.5'	54°09.5'	43°06.2'	4°59.5'	53°40.9'	87°37.4'	89°34.0'	97°33.4'
20	231°48.8'	N 6°20.6'	16.1'	11.7'	54.1'	110°18.4'	53°46.3'	42°36.8'	5°27.9'	54°08.6'	88°02.4'	90°03.8'	98°03.2'
21	246°24.0'	N 6°32.3'	16.1'	11.7'	54.1'	109°51.3'	53°23.1'	42°07.4'	5°56.3'	54°36.4'	88°27.5'	90°33.5'	98°33.0'
22	260°59.1'	N 6°44.0'	16.1'	11.7'	54.1'	109°24.2'	53°00.0'	41°37.9'	6°24.8'	55°04.1'	88°52.5'	91°03.2'	99°02.8'
23	275°34.2'	N 6°55.7'	16.1'	11.6'	54.1'	108°57.1'	52°37.0'	41°08.5'	6°53.3'	55°31.9'	89°17.6'	91°32.9'	99°32.6'
Mer. pass.		4 h 7 m SD 14.8'		phase 75%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°37.7'	N 89°20.6'
Rigil Kent	-0.0	139°45.1'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.4'	S 52°42.2'				

Monday 10 August 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	318°55.9'	178°39.5'	N 15°29.2'	226°37.1'	N 19°54.5'	28°06.8'	S 22°26.6'	19°36.9'	S 20°58.2'	297°11.0'	N 4°48.5'			
1	333°58.3'	193°39.6'	N 15°28.4'	241°37.1'	N 19°54.6'	43°09.6'	S 22°26.6'	34°39.6'	S 20°58.3'	312°12.5'	N 4°48.8'			
2	349°00.8'	208°39.7'	N 15°27.7'	256°37.1'	N 19°54.7'	58°12.3'	S 22°26.6'	49°42.2'	S 20°58.3'	327°14.1'	N 4°49.1'			
3	4°03.3'	223°39.8'	N 15°27.0'	271°37.1'	N 19°54.9'	73°15.0'	S 22°26.7'	64°44.8'	S 20°58.3'	342°15.7'	N 4°49.4'			
4	19°05.7'	238°39.9'	N 15°26.2'	286°37.1'	N 19°55.0'	88°17.7'	S 22°26.7'	79°47.5'	S 20°58.4'	357°17.3'	N 4°49.7'			
5	34°08.2'	253°40.0'	N 15°25.5'	301°37.1'	N 19°55.1'	103°20.5'	S 22°26.7'	94°50.1'	S 20°58.4'	12°18.9'	N 4°50.0'			
6	49°10.7'	268°40.1'	N 15°24.8'	316°37.0'	N 19°55.2'	118°23.2'	S 22°26.8'	109°52.8'	S 20°58.5'	27°20.5'	N 4°50.3'			
7	64°13.1'	283°40.2'	N 15°24.0'	331°37.0'	N 19°55.3'	133°25.9'	S 22°26.8'	124°55.4'	S 20°58.5'	42°22.1'	N 4°50.6'			
8	79°15.6'	298°40.3'	N 15°23.3'	346°37.0'	N 19°55.5'	148°28.6'	S 22°26.9'	139°58.0'	S 20°58.5'	57°23.6'	N 4°50.9'			
9	94°18.1'	313°40.4'	N 15°22.5'	1°37.0'	N 19°55.6'	163°31.4'	S 22°26.9'	155°00.7'	S 20°58.6'	72°25.2'	N 4°51.2'			
10	109°20.5'	328°40.5'	N 15°21.8'	16°37.0'	N 19°55.7'	178°34.1'	S 22°26.9'	170°03.3'	S 20°58.6'	87°26.8'	N 4°51.5'			
11	124°23.0'	343°40.6'	N 15°21.1'	31°36.9'	N 19°55.8'	193°36.8'	S 22°27.0'	185°05.9'	S 20°58.6'	102°28.4'	N 4°51.8'			
12	139°25.5'	358°40.7'	N 15°20.3'	46°36.9'	N 19°55.9'	208°39.5'	S 22°27.0'	200°08.6'	S 20°58.7'	117°30.0'	N 4°52.1'			
13	154°27.9'	13°40.8'	N 15°19.6'	61°36.9'	N 19°56.0'	223°42.3'	S 22°27.0'	215°11.2'	S 20°58.7'	132°31.6'	N 4°52.4'			
14	169°30.4'	28°40.9'	N 15°18.9'	76°36.9'	N 19°56.2'	238°45.0'	S 22°27.1'	230°13.9'	S 20°58.7'	147°33.2'	N 4°52.7'			
15	184°32.8'	43°41.0'	N 15°18.1'	91°36.8'	N 19°56.3'	253°47.7'	S 22°27.1'	245°16.5'	S 20°58.8'	162°34.8'	N 4°53.0'			
16	199°35.3'	58°41.1'	N 15°17.4'	106°36.8'	N 19°56.4'	268°50.4'	S 22°27.2'	260°19.1'	S 20°58.8'	177°36.4'	N 4°53.3'			
17	214°37.8'	73°41.2'	N 15°16.6'	121°36.8'	N 19°56.5'	283°53.2'	S 22°27.2'	275°21.8'	S 20°58.8'	192°38.0'	N 4°53.6'			
18	229°40.2'	88°41.3'	N 15°15.9'	136°36.7'	N 19°56.6'	298°55.9'	S 22°27.2'	290°24.4'	S 20°58.9'	207°39.6'	N 4°53.9'			
19	244°42.7'	103°41.4'	N 15°15.2'	151°36.7'	N 19°56.7'	313°58.6'	S 22°27.3'	305°27.0'	S 20°58.9'	222°41.2'	N 4°54.2'			
20	259°45.2'	118°41.5'	N 15°14.4'	166°36.7'	N 19°56.8'	329°01.3'	S 22°27.3'	320°29.7'	S 20°58.9'	237°42.8'	N 4°54.5'			
21	274°47.6'	133°41.6'	N 15°13.7'	181°36.6'	N 19°56.9'	344°04.0'	S 22°27.4'	335°32.3'	S 20°59.0'	252°44.4'	N 4°54.8'			
22	289°50.1'	148°41.7'	N 15°12.9'	196°36.6'	N 19°57.0'	359°06.8'	S 22°27.4'	350°35.0'	S 20°59.0'	267°46.0'	N 4°55.1'			
23	304°52.6'	163°41.8'	N 15°12.2'	211°36.6'	N 19°57.2'	14°09.5'	S 22°27.4'	5°37.6'	S 20°59.1'	282°47.6'	N 4°55.4'			
		SD 15.8' d -0.7'		v -0.0' d 0.1'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.6' d 0.3'				
Mer. pass.		12 h 5 m 18 s		8 h 54 m		22 h 4 m		22 h 38 m		4 h 11 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Mars	+Fomalhaut	+Altair	+Saturn
0	290°09.2'	N 7°07.3'	16.0'	11.6'	54.1'	108°30.0'	58°19.7'	52°14.1'	40°39.1'	7°21.8'	55°59.7'	89°42.6'	92°02.6'
1	304°44.3'	N 7°18.9'	16.0'	11.6'	54.1'	108°02.8'	57°53.5'	51°51.3'	40°09.7'	7°50.3'	56°27.5'	90°07.7'	92°32.3'
2	319°19.3'	N 7°30.5'	16.0'	11.6'	54.2'	107°35.7'	57°27.3'	51°28.5'	39°40.3'	8°18.9'	56°55.3'	90°32.8'	93°02.1'
3	333°54.3'	N 7°42.0'	16.0'	11.5'	54.2'	107°08.6'	57°01.2'	51°05.8'	39°10.9'	8°47.4'	57°23.2'	90°57.8'	93°31.8'
4	348°29.3'	N 7°53.6'	15.9'	11.5'	54.2'	106°41.5'	56°35.1'	50°43.2'	38°41.5'	9°16.0'	57°51.1'	91°22.9'	94°01.5'
5	3°04.2'	N 8°05.1'	15.9'	11.5'	54.2'	106°14.4'	56°09.1'	50°20.7'	38°12.1'	9°44.6'	58°19.0'	91°47.9'	94°31.2'
6	17°39.1'	N 8°16.5'	15.9'	11.4'	54.2'	105°47.3'	55°43.1'	49°58.2'	37°42.6'	10°13.2'	58°46.9'	92°13.0'	95°01.0'
7	32°14.0'	N 8°28.0'	15.8'	11.4'	54.2'	105°20.1'	55°17.1'	49°35.9'	37°13.2'	10°41.8'	59°14.8'	92°38.1'	95°30.7'
8	46°48.8'	N 8°39.4'	15.8'	11.4'	54.2'	104°53.0'	54°51.2'	49°13.6'	36°43.8'	11°10.4'	59°42.8'	93°03.1'	96°00.4'
9	61°23.6'	N 8°50.8'	15.8'	11.3'	54.2'	104°25.9'	54°25.3'	48°51.5'	36°14.4'	11°39.1'	60°10.7'	93°28.2'	96°30.2'
10	75°58.4'	N 9°02.1'	15.7'	11.3'	54.2'	103°58.7'	53°59.4'	48°29.4'	35°45.0'	12°07.7'	60°38.7'	93°53.2'	96°59.9'
11	90°33.2'	N 9°13.4'	15.7'	11.3'	54.2'	103°31.6'	53°33.6'	48°07.4'	35°15.6'	12°36.3'	61°06.8'	94°18.3'	97°29.7'
12	105°07.9'	N 9°24.7'	15.7'	11.2'	54.2'	103°04.4'	53°07.8'	47°45.6'	34°46.2'	13°05.0'	61°34.8'	94°43.4'	97°59.5'
13	119°42.6'	N 9°36.0'	15.6'	11.2'	54.2'	102°37.3'	52°42.1'	47°23.8'	34°16.8'	13°33.7'	62°02.9'	95°08.4'	98°29.2'
14	134°17.2'	N 9°47.2'	15.6'	11.2'	54.2'	102°10.1'	52°16.4'	47°02.1'	33°47.4'	14°02.3'	62°30.9'	95°33.5'	98°59.0'
15	148°51.8'	N 9°58.3'	15.6'	11.1'	54.2'	101°42.9'	51°50.7'	46°40.6'	33°18.0'	14°31.0'	62°59.0'	95°58.5'	99°28.8'
16	163°26.4'	N 10°09.5'	15.5'	11.1'	54.2'	101°15.7'	51°25.1'	46°19.1'	32°48.5'	14°59.7'	63°27.1'	96°23.6'	99°58.6'
17	178°00.9'	N 10°20.6'	15.5'	11.1'	54.2'	100°48.6'	50°59.6'	45°57.8'	32°19.1'	15°28.4'	63°55.3'	96°48.6'	100°28.3'
18	192°35.4'	N 10°31.7'	15.4'	11.0'	54.2'	100°21.4'	50°34.1'	45°36.5'	31°49.7'	15°57.2'	64°23.4'	97°13.7'	100°58.1'
19	207°09.8'	N 10°42.7'	15.4'	11.0'	54.3'	99°54.2'	50°08.6'	45°15.4'	31°20.3'	16°25.9'	64°51.6'	97°38.7'	101°28.0'
20	221°44.2'	N 10°53.7'	15.4'	11.0'	54.3'	99°27.0'	49°43.2'	44°54.4'	30°50.9'	16°54.6'	65°19.8'	98°03.8'	101°57.8'
21	236°18.6'	N 11°04.6'	15.3'	10.9'	54.3'	98°59.7'	49°17.8'	44°33.6'	30°21.5'	17°23.4'	65°48.0'	98°28.8'	102°27.6'
22	250°52.9'	N 11°15.5'	15.3'	10.9'	54.3'	98°32.5'	48°52.5'	44°12.8'	29°52.0'	17°52.1'	66°16.3'	98°53.8'	102°57.4'
23	265°27.2'	N 11°26.4'	15.2'	10.8'	54.3'	98°05.3'	48°27.2'	43°52.2'	29°22.6'	18°20.9'	66°44.5'	99°18.9'	103°27.3'
Mer. pass.		4 h 47 m SD 14.8'		phase 66%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.3'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°37.2'	N 89°20.6'
Rigel Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	319°55.0'	178°41.9'	N 15°11.4'	226°36.5'	N 19°57.3'	29°12.2'	S 22°27.5'	20°40.2'	S 20°59.1'	297°49.2'	N 4°55.7'			
1	334°57.5'	193°42.0'	N 15°10.7'	241°36.5'	N 19°57.4'	44°14.9'	S 22°27.5'	35°42.9'	S 20°59.1'	312°50.8'	N 4°56.0'			
2	349°60.0'	208°42.1'	N 15°10.0'	256°36.5'	N 19°57.5'	59°17.6'	S 22°27.5'	50°45.5'	S 20°59.2'	327°52.4'	N 4°56.3'			
3	5°02.4'	223°42.2'	N 15°09.2'	271°36.4'	N 19°57.6'	74°20.4'	S 22°27.6'	65°48.1'	S 20°59.2'	342°54.0'	N 4°56.6'			
4	20°04.9'	238°42.3'	N 15°08.5'	286°36.4'	N 19°57.7'	89°23.1'	S 22°27.6'	80°50.8'	S 20°59.2'	357°55.6'	N 4°56.9'			
5	35°07.3'	253°42.4'	N 15°07.7'	301°36.3'	N 19°57.8'	104°25.8'	S 22°27.7'	95°53.4'	S 20°59.3'	12°57.2'	N 4°57.2'			
6	50°09.8'	268°42.5'	N 15°07.0'	316°36.3'	N 19°57.9'	119°28.5'	S 22°27.7'	110°56.0'	S 20°59.3'	27°58.8'	N 4°57.5'			
7	65°12.3'	283°42.6'	N 15°06.2'	331°36.2'	N 19°58.0'	134°31.2'	S 22°27.7'	125°58.7'	S 20°59.3'	43°00.4'	N 4°57.8'			
8	80°14.7'	298°42.7'	N 15°05.5'	346°36.2'	N 19°58.1'	149°34.0'	S 22°27.8'	141°01.3'	S 20°59.4'	58°02.0'	N 4°58.1'			
9	95°17.2'	313°42.8'	N 15°04.7'	1°36.2'	N 19°58.2'	164°36.7'	S 22°27.8'	156°03.9'	S 20°59.4'	73°03.6'	N 4°58.3'			
10	110°19.7'	328°42.9'	N 15°04.0'	16°36.1'	N 19°58.3'	179°39.4'	S 22°27.8'	171°06.6'	S 20°59.4'	88°05.2'	N 4°58.6'			
11	125°22.1'	343°43.0'	N 15°03.2'	31°36.1'	N 19°58.4'	194°42.1'	S 22°27.9'	186°09.2'	S 20°59.5'	103°06.8'	N 4°58.9'			
12	140°24.6'	358°43.1'	N 15°02.5'	46°36.0'	N 19°58.5'	209°44.8'	S 22°27.9'	201°11.9'	S 20°59.5'	118°08.5'	N 4°59.2'			
13	155°27.1'	13°43.2'	N 15°01.7'	61°36.0'	N 19°58.6'	224°47.6'	S 22°28.0'	216°14.5'	S 20°59.5'	133°10.1'	N 4°59.5'			
14	170°29.5'	28°43.3'	N 15°01.0'	76°35.9'	N 19°58.7'	239°50.3'	S 22°28.0'	231°17.1'	S 20°59.6'	148°11.7'	N 4°59.8'			
15	185°32.0'	43°43.4'	N 15°00.2'	91°35.9'	N 19°58.8'	254°53.0'	S 22°28.0'	246°19.8'	S 20°59.6'	163°13.3'	N 5°00.1'			
16	200°34.4'	58°43.6'	N 14°59.5'	106°35.8'	N 19°58.9'	269°55.7'	S 22°28.1'	261°22.4'	S 20°59.6'	178°14.9'	N 5°00.4'			
17	215°36.9'	73°43.7'	N 14°58.7'	121°35.8'	N 19°59.0'	284°58.4'	S 22°28.1'	276°25.0'	S 20°59.7'	193°16.5'	N 5°00.7'			
18	230°39.4'	88°43.8'	N 14°58.0'	136°35.7'	N 19°59.1'	300°01.1'	S 22°28.1'	291°27.7'	S 20°59.7'	208°18.2'	N 5°01.0'			
19	245°41.8'	103°43.9'	N 14°57.2'	151°35.7'	N 19°59.2'	315°03.9'	S 22°28.2'	306°30.3'	S 20°59.8'	223°19.8'	N 5°01.3'			
20	260°44.3'	118°44.0'	N 14°56.5'	166°35.6'	N 19°59.3'	330°06.6'	S 22°28.2'	321°32.9'	S 20°59.8'	238°21.4'	N 5°01.6'			
21	275°46.8'	133°44.1'	N 14°55.7'	181°35.5'	N 19°59.4'	345°09.3'	S 22°28.2'	336°35.6'	S 20°59.8'	253°23.0'	N 5°01.8'			
22	290°49.2'	148°44.2'	N 14°55.0'	196°35.5'	N 19°59.5'	0°12.0'	S 22°28.3'	351°38.2'	S 20°59.9'	268°24.6'	N 5°02.1'			
23	305°51.7'	163°44.3'	N 14°54.2'	211°35.4'	N 19°59.6'	15°14.7'	S 22°28.3'	6°40.8'	S 20°59.9'	283°26.3'	N 5°02.4'			
		SD 15.8' d -0.7'		v -0.0' d 0.1'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.6' d 0.3'				
Mer. pass.		12 h 5 m 8 s		8 h 54 m		21 h 59 m		22 h 33 m		4 h 8 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Mars	+Fomalhaut	+Achernar	+Altair
0	280°01.4'	N 11°37.2'	15.2'	10.8'	54.3'	97°38.0'	48°02.0'	43°31.8'	28°53.2'	18°49.7'	67°12.8'		99°43.9'
1	294°35.6'	N 11°48.0'	15.1'	10.7'	54.3'	97°10.8'	47°36.9'	43°11.4'	28°23.8'	19°18.5'	67°41.1'	70°08.9'	100°08.9'
2	309°09.7'	N 11°58.8'	15.1'	10.7'	54.3'	96°43.5'	47°11.8'	42°51.2'	27°54.4'	19°47.3'	68°09.4'	70°23.9'	100°33.9'
3	323°43.8'	N 12°09.5'	15.0'	10.7'	54.3'	96°16.2'	46°46.8'	42°31.2'	27°24.9'	20°16.1'	68°37.7'	70°39.0'	100°59.0'
4	338°17.8'	N 12°20.1'	15.0'	10.6'	54.3'	95°49.0'	46°21.8'	42°11.3'	26°55.5'	20°45.0'	69°06.1'	70°54.2'	101°24.0'
5	352°51.8'	N 12°30.7'	14.9'	10.6'	54.4'	95°21.7'	45°56.9'	41°51.5'	26°26.1'	21°13.8'	69°34.5'	71°09.4'	101°49.0'
6	7°25.8'	N 12°41.3'	14.9'	10.5'	54.4'	94°54.3'	45°32.0'	41°31.9'	25°56.7'	21°42.7'	70°02.9'	71°24.7'	102°14.0'
7	21°59.6'	N 12°51.8'	14.8'	10.5'	54.4'	94°27.0'	45°07.3'	41°12.4'	25°27.2'	22°11.6'	70°31.3'	71°40.1'	102°39.0'
8	36°33.5'	N 13°02.3'	14.8'	10.4'	54.4'	93°59.7'	44°42.6'	40°53.2'	24°57.8'	22°40.5'	70°59.7'	71°55.5'	103°03.9'
9	51°07.2'	N 13°12.7'	14.7'	10.4'	54.4'	93°32.3'	44°17.9'	40°34.0'	24°28.4'	23°09.4'	71°28.2'	72°11.0'	103°28.9'
10	65°41.0'	N 13°23.1'	14.7'	10.3'	54.4'	93°05.0'	43°53.4'	40°15.1'	23°59.0'	23°38.3'	71°56.6'	72°26.6'	103°53.9'
11	80°14.6'	N 13°33.4'	14.6'	10.3'	54.4'	92°37.6'	43°28.9'	39°56.3'	23°29.6'	24°07.2'	72°25.1'	72°42.2'	104°18.9'
12	94°48.3'	N 13°43.7'	14.6'	10.2'	54.4'	92°10.2'	43°04.5'	39°37.7'	23°00.1'	24°36.2'	72°53.7'	72°57.9'	104°43.8'
13	109°21.8'	N 13°53.9'	14.5'	10.2'	54.5'	91°42.8'	42°40.2'	39°19.3'	22°30.7'	25°05.1'	73°22.2'	73°13.7'	105°08.8'
14	123°55.3'	N 14°04.1'	14.4'	10.1'	54.5'	91°15.4'	42°15.9'	39°01.1'	22°01.3'	25°34.1'	73°50.8'	73°29.5'	105°33.7'
15	138°28.8'	N 14°14.2'	14.4'	10.1'	54.5'	90°47.9'	41°51.8'	38°43.1'	21°31.9'	26°03.1'	74°19.3'	73°45.4'	105°58.6'
16	153°02.2'	N 14°24.3'	14.3'	10.0'	54.5'	90°20.5'	41°27.7'	38°25.2'	21°02.5'	26°32.1'	74°47.9'	74°01.4'	106°23.6'
17	167°35.5'	N 14°34.3'	14.3'	10.0'	54.5'	89°53.0'	41°03.7'	38°07.6'	20°33.2'	27°01.2'	75°16.6'	74°17.4'	106°48.5'
18	182°08.7'	N 14°44.3'	14.2'	9.9'	54.5'	89°25.5'	40°39.9'	37°50.2'	20°03.8'	27°30.2'	75°45.2'	74°33.5'	107°13.4'
19	196°42.0'	N 14°54.2'	14.1'	9.8'	54.5'	88°58.0'	40°16.1'	37°33.0'	19°34.4'	27°59.3'	76°13.9'	74°49.7'	107°38.3'
20	211°15.1'	N 15°04.0'	14.1'	9.8'	54.6'	88°30.5'	39°52.4'	37°16.0'	19°05.1'	28°28.4'	76°42.6'	75°05.9'	108°03.1'
21	225°48.2'	N 15°13.8'	14.0'	9.7'	54.6'	88°03.0'	39°28.8'	36°59.2'	18°35.7'	28°57.5'	77°11.3'	75°22.1'	108°28.0'
22	240°21.2'	N 15°23.6'	14.0'	9.7'	54.6'	87°35.4'	39°05.4'	36°42.7'	18°06.4'	29°26.6'	77°40.0'	75°38.4'	108°52.8'
23	254°54.2'	N 15°33.2'	13.9'	9.6'	54.6'	87°07.9'	38°42.0'	36°26.4'	17°37.1'	29°55.8'	78°08.8'	75°54.8'	109°17.7'
Mer. pass.		5 h 29 m SD 14.8'		phase 57%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.2'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°36.7'	N 89°20.6'
Rigel Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.8'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.4'	S 52°42.2'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	320°54.2'	178°44.4' N	14°53.5'	226°35.4' N	19°59.7'	30°17.4' S	22°28.4'	21°43.5' S	20°59.9'	298°27.9' N	5°02.7'
1	335°56.6'	193°44.5' N	14°52.7'	241°35.3' N	19°59.8'	45°20.2' S	22°28.4'	36°46.1' S	20°60.0'	313°29.5' N	5°03.0'
2	350°59.1'	208°44.6' N	14°52.0'	256°35.2' N	19°59.9'	60°22.9' S	22°28.4'	51°48.7' S	20°60.0'	328°31.1' N	5°03.3'
3	6°01.6'	223°44.7' N	14°51.2'	271°35.2' N	19°60.0'	75°25.6' S	22°28.5'	66°51.4' S	21°00.0'	343°32.8' N	5°03.6'
4	21°04.0'	238°44.8' N	14°50.5'	286°35.1' N	20°00.1'	90°28.3' S	22°28.5'	81°54.0' S	21°00.1'	358°34.4' N	5°03.9'
5	36°06.5'	253°44.9' N	14°49.7'	301°35.1' N	20°00.2'	105°31.0' S	22°28.5'	96°56.6' S	21°00.1'	13°36.0' N	5°04.1'
6	51°08.9'	268°45.0' N	14°48.9'	316°35.0' N	20°00.3'	120°33.7' S	22°28.6'	111°59.3' S	21°00.1'	28°37.6' N	5°04.4'
7	66°11.4'	283°45.2' N	14°48.2'	331°34.9' N	20°00.3'	135°36.4' S	22°28.6'	127°01.9' S	21°00.2'	43°39.3' N	5°04.7'
8	81°13.9'	298°45.3' N	14°47.4'	346°34.9' N	20°00.4'	150°39.1' S	22°28.6'	142°04.5' S	21°00.2'	58°40.9' N	5°05.0'
9	96°16.3'	313°45.4' N	14°46.7'	1°34.8' N	20°00.5'	165°41.9' S	22°28.7'	157°07.2' S	21°00.2'	73°42.5' N	5°05.3'
10	111°18.8'	328°45.5' N	14°45.9'	16°34.7' N	20°00.6'	180°44.6' S	22°28.7'	172°09.8' S	21°00.3'	88°44.2' N	5°05.6'
11	126°21.3'	343°45.6' N	14°45.2'	31°34.7' N	20°00.7'	195°47.3' S	22°28.8'	187°12.4' S	21°00.3'	103°45.8' N	5°05.9'
12	141°23.7'	358°45.7' N	14°44.4'	46°34.6' N	20°00.8'	210°50.0' S	22°28.8'	202°15.1' S	21°00.3'	118°47.4' N	5°06.1'
13	156°26.2'	13°45.8' N	14°43.6'	61°34.5' N	20°00.9'	225°52.7' S	22°28.8'	217°17.7' S	21°00.4'	133°49.1' N	5°06.4'
14	171°28.7'	28°45.9' N	14°42.9'	76°34.4' N	20°01.0'	240°55.4' S	22°28.9'	232°20.3' S	21°00.4'	148°50.7' N	5°06.7'
15	186°31.1'	43°46.0' N	14°42.1'	91°34.4' N	20°01.0'	255°58.1' S	22°28.9'	247°23.0' S	21°00.4'	163°52.3' N	5°07.0'
16	201°33.6'	58°46.1' N	14°41.4'	106°34.3' N	20°01.1'	271°00.8' S	22°28.9'	262°25.6' S	21°00.5'	178°54.0' N	5°07.3'
17	216°36.1'	73°46.3' N	14°40.6'	121°34.2' N	20°01.2'	286°03.6' S	22°29.0'	277°28.2' S	21°00.5'	193°55.6' N	5°07.6'
18	231°38.5'	88°46.4' N	14°39.8'	136°34.2' N	20°01.3'	301°06.3' S	22°29.0'	292°30.9' S	21°00.5'	208°57.2' N	5°07.8'
19	246°41.0'	103°46.5' N	14°39.1'	151°34.1' N	20°01.4'	316°09.0' S	22°29.0'	307°33.5' S	21°00.6'	223°58.9' N	5°08.1'
20	261°43.4'	118°46.6' N	14°38.3'	166°34.0' N	20°01.5'	331°11.7' S	22°29.1'	322°36.1' S	21°00.6'	239°00.5' N	5°08.4'
21	276°45.9'	133°46.7' N	14°37.6'	181°33.9' N	20°01.5'	346°14.4' S	22°29.1'	337°38.8' S	21°00.6'	254°02.2' N	5°08.7'
22	291°48.4'	148°46.8' N	14°36.8'	196°33.8' N	20°01.6'	1°17.1' S	22°29.2'	352°41.4' S	21°00.7'	269°03.8' N	5°09.0'
23	306°50.8'	163°46.9' N	14°36.0'	211°33.8' N	20°01.7'	16°19.8' S	22°29.2'	7°44.0' S	21°00.7'	284°05.5' N	5°09.2'
		SD 15.8' d -0.8'		v -0.1' d 0.1'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.6' d 0.3'	
Mer. pass.		12 h 4 m 58 s		8 h 54 m		21 h 55 m		22 h 29 m		4 h 6 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Betelgeuse	-Rigel	-Aldebaran	+Mars	+Achernar	+Fomalhaut	+Altair
0	269°27.1' N	15°42.8'	13.8'	9.6'	54.6'	86°40.3'	37°42.6'	36°10.4'	17°07.9'	30°24.9'	76°11.3'	78°37.5'	109°42.5'
1	283°59.9' N	15°52.4'	13.8'	9.5'	54.6'	86°12.7'	37°15.8'	35°54.6'	16°38.6'	30°54.1'	76°27.8'	79°06.3'	110°07.3'
2	298°32.6' N	16°01.9'	13.7'	9.4'	54.7'	85°45.1'	36°49.1'	35°39.0'	16°09.4'	31°23.3'	76°44.3'	79°35.2'	110°32.1'
3	313°05.3' N	16°11.3'	13.6'	9.4'	54.7'	85°17.4'	36°22.4'	35°23.7'	15°40.2'	31°52.6'	77°00.9'	80°04.0'	110°56.9'
4	327°38.0' N	16°20.7'	13.6'	9.3'	54.7'	84°49.8'	35°55.8'		15°11.1'	32°21.8'	77°17.6'	80°32.9'	111°21.7'
5	342°10.5' N	16°30.0'	13.5'	9.2'	54.7'	84°22.1'	35°29.3'		14°42.0'	32°51.1'	77°34.3'	81°01.8'	111°46.4'
6	356°43.0' N	16°39.2'	13.4'	9.2'	54.7'	83°54.4'	35°02.8'		14°13.0'	33°20.4'	77°51.0'	81°30.7'	112°11.1'
7	11°15.4' N	16°48.4'	13.4'	9.1'	54.7'	83°26.6'	34°36.4'		13°44.0'	33°49.7'	78°07.8'	81°59.6'	112°35.8'
8	25°47.8' N	16°57.5'	13.3'	9.0'	54.8'	82°58.9'	34°10.0'		13°15.1'	34°19.0'	78°24.7'	82°28.6'	113°00.5'
9	40°20.1' N	17°06.6'	13.2'	9.0'	54.8'	82°31.1'	33°43.8'		12°46.2'	34°48.4'	78°41.6'	82°57.6'	113°25.2'
10	54°52.3' N	17°15.5'	13.1'	8.9'	54.8'	82°03.3'	33°17.6'		12°17.5'	35°17.8'	78°58.6'	83°26.6'	113°49.9'
11	69°24.4' N	17°24.4'	13.1'	8.8'	54.8'	81°35.5'	32°51.5'		11°48.9'	35°47.2'	79°15.6'	83°55.6'	114°14.5'
12	83°56.5' N	17°33.3'	13.0'	8.8'	54.8'	81°07.7'	32°25.5'		11°20.3'	36°16.6'	79°32.6'	84°24.7'	114°39.1'
13	98°28.5' N	17°42.0'	12.9'	8.7'	54.9'	80°39.8'	31°59.6'		10°52.0'	36°46.1'	79°49.7'	84°53.8'	115°03.7'
14	113°00.4' N	17°50.7'	12.8'	8.6'	54.9'	80°12.0'	31°33.8'		10°23.7'	37°15.6'	80°06.9'	85°22.9'	115°28.2'
15	127°32.2' N	17°59.3'	12.8'	8.5'	54.9'	79°44.1'	31°08.0'		9°55.7'	37°45.1'	80°24.1'	85°52.0'	115°52.8'
16	142°04.0' N	18°07.9'	12.7'	8.5'	54.9'	79°16.1'	30°42.4'		9°27.9'	38°14.6'	80°41.3'	86°21.2'	116°17.3'
17	156°35.7' N	18°16.3'	12.6'	8.4'	55.0'	78°48.2'	30°16.9'		9°00.3'	38°44.2'	80°58.6'	86°50.4'	116°41.8'
18	171°07.3' N	18°24.7'	12.5'	8.3'	55.0'	78°20.2'	29°51.5'		8°33.0'	39°13.7'	81°15.9'	87°19.6'	117°06.2'
19	185°38.9' N	18°33.1'	12.5'	8.2'	55.0'	77°52.2'	29°26.3'		8°06.1'	39°43.4'	81°33.3'	87°48.8'	117°30.7'
20	200°10.3' N	18°41.3'	12.4'	8.2'	55.0'	77°24.2'	29°01.2'		7°39.6'	40°13.0'	81°50.7'	88°18.1'	117°55.1'
21	214°41.7' N	18°49.5'	12.3'	8.1'	55.0'	76°56.1'	28°36.2'		7°13.6'	40°42.7'	82°08.1'	88°47.3'	118°19.4'
22	229°13.1' N	18°57.6'	12.2'	8.0'	55.1'	76°28.0'	28°11.3'		6°48.2'	41°12.3'	82°25.6'	89°16.7'	118°43.8'
23	243°44.3' N	19°05.6'	12.2'	7.9'	55.1'	75°59.9'	27°46.6'			41°42.1'	82°43.1'	89°46.0'	119°08.1'
Mer. pass.		6 h 14 m SD 14.9'		phase 47%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.9'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°36.2'	N 89°20.6'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°09.0'	S 28°59.9'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.4'	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	321°53.3'	178°47.0'	N 14°35.3'	226°33.7'	N 20°01.8'	31°22.5'	S 22°29.2'	22°46.7'	S 21°00.8'	299°07.1'	N 5°09.5'			
1	336°55.8'	193°47.1'	N 14°34.5'	241°33.6'	N 20°01.9'	46°25.2'	S 22°29.3'	37°49.3'	S 21°00.8'	314°08.7'	N 5°09.8'			
2	351°58.2'	208°47.3'	N 14°33.7'	256°33.5'	N 20°01.9'	61°27.9'	S 22°29.3'	52°51.9'	S 21°00.8'	329°10.4'	N 5°10.1'			
3	7°00.7'	223°47.4'	N 14°33.0'	271°33.4'	N 20°02.0'	76°30.6'	S 22°29.3'	67°54.6'	S 21°00.9'	344°12.0'	N 5°10.4'			
4	22°03.2'	238°47.5'	N 14°32.2'	286°33.3'	N 20°02.1'	91°33.4'	S 22°29.4'	82°57.2'	S 21°00.9'	359°13.7'	N 5°10.6'			
5	37°05.6'	253°47.6'	N 14°31.4'	301°33.3'	N 20°02.2'	106°36.1'	S 22°29.4'	97°59.8'	S 21°00.9'	14°15.3'	N 5°10.9'			
6	52°08.1'	268°47.7'	N 14°30.7'	316°33.2'	N 20°02.3'	121°38.8'	S 22°29.4'	113°02.5'	S 21°01.0'	29°17.0'	N 5°11.2'			
7	67°10.5'	283°47.8'	N 14°29.9'	331°33.1'	N 20°02.3'	136°41.5'	S 22°29.5'	128°05.1'	S 21°01.0'	44°18.6'	N 5°11.5'			
8	82°13.0'	298°47.9'	N 14°29.2'	346°33.0'	N 20°02.4'	151°44.2'	S 22°29.5'	143°07.7'	S 21°01.0'	59°20.3'	N 5°11.7'			
9	97°15.5'	313°48.1'	N 14°28.4'	1°32.9'	N 20°02.5'	166°46.9'	S 22°29.5'	158°10.4'	S 21°01.1'	74°22.0'	N 5°12.0'			
10	112°17.9'	328°48.2'	N 14°27.6'	16°32.8'	N 20°02.6'	181°49.6'	S 22°29.6'	173°13.0'	S 21°01.1'	89°23.6'	N 5°12.3'			
11	127°20.4'	343°48.3'	N 14°26.8'	31°32.7'	N 20°02.6'	196°52.3'	S 22°29.6'	188°15.6'	S 21°01.1'	104°25.3'	N 5°12.6'			
12	142°22.9'	358°48.4'	N 14°26.1'	46°32.6'	N 20°02.7'	211°55.0'	S 22°29.6'	203°18.3'	S 21°01.2'	119°26.9'	N 5°12.9'			
13	157°25.3'	13°48.5'	N 14°25.3'	61°32.5'	N 20°02.8'	226°57.7'	S 22°29.7'	218°20.9'	S 21°01.2'	134°28.6'	N 5°13.1'			
14	172°27.8'	28°48.6'	N 14°24.5'	76°32.5'	N 20°02.8'	242°00.4'	S 22°29.7'	233°23.5'	S 21°01.2'	149°30.2'	N 5°13.4'			
15	187°30.3'	43°48.7'	N 14°23.8'	91°32.4'	N 20°02.9'	257°03.1'	S 22°29.8'	248°26.2'	S 21°01.3'	164°31.9'	N 5°13.7'			
16	202°32.7'	58°48.9'	N 14°23.0'	106°32.3'	N 20°03.0'	272°05.8'	S 22°29.8'	263°28.8'	S 21°01.3'	179°33.6'	N 5°14.0'			
17	217°35.2'	73°49.0'	N 14°22.2'	121°32.2'	N 20°03.1'	287°08.5'	S 22°29.8'	278°31.4'	S 21°01.3'	194°35.2'	N 5°14.2'			
18	232°37.7'	88°49.1'	N 14°21.5'	136°32.1'	N 20°03.1'	302°11.2'	S 22°29.9'	293°34.0'	S 21°01.4'	209°36.9'	N 5°14.5'			
19	247°40.1'	103°49.2'	N 14°20.7'	151°32.0'	N 20°03.2'	317°13.9'	S 22°29.9'	308°36.7'	S 21°01.4'	224°38.5'	N 5°14.8'			
20	262°42.6'	118°49.3'	N 14°19.9'	166°31.9'	N 20°03.3'	332°16.6'	S 22°29.9'	323°39.3'	S 21°01.4'	239°40.2'	N 5°15.0'			
21	277°45.0'	133°49.4'	N 14°19.1'	181°31.8'	N 20°03.3'	347°19.3'	S 22°30.0'	338°41.9'	S 21°01.5'	254°41.9'	N 5°15.3'			
22	292°47.5'	148°49.6'	N 14°18.4'	196°31.7'	N 20°03.4'	2°22.0'	S 22°30.0'	353°44.6'	S 21°01.5'	269°43.5'	N 5°15.6'			
23	307°50.0'	163°49.7'	N 14°17.6'	211°31.6'	N 20°03.5'	17°24.8'	S 22°30.0'	8°47.2'	S 21°01.5'	284°45.2'	N 5°15.9'			
		SD 15.8' d -0.8'		v -0.1' d 0.1'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.7' d 0.3'				
Mer. pass.		12 h 4 m 47 s		8 h 54 m		21 h 51 m		22 h 25 m		4 h 3 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Betelgeuse	-Aldebaran	+Mars	+Achernar	+Fomalhaut	+Altair
0	258°15.5'	N 19°13.5'	12.1'	7.8'	55.1'	75°31.8'	29°49.3'	27°22.1'		42°11.8'	83°00.7'	90°15.4'	119°32.3'
1	272°46.5'	N 19°21.3'	12.0'	7.8'	55.1'	75°03.7'	29°21.3'	26°57.7'		42°41.6'	83°18.3'	90°44.7'	119°56.6'
2	287°17.5'	N 19°29.1'	11.9'	7.7'	55.2'	74°35.5'	28°53.3'	26°33.6'		43°11.4'	83°36.0'	91°14.2'	
3	301°48.5'	N 19°36.8'	11.8'	7.6'	55.2'	74°07.3'	28°25.3'	26°09.6'		43°41.2'	83°53.6'	91°43.6'	
4	316°19.3'	N 19°44.3'	11.8'	7.5'	55.2'	73°39.0'	27°57.3'	25°45.8'		44°11.1'	84°11.4'	92°13.1'	
5	330°50.1'	N 19°51.9'	11.7'	7.4'	55.2'	73°10.7'	27°29.3'	25°22.2'		44°41.0'	84°29.1'	92°42.6'	
6	345°20.8'	N 19°59.3'	11.6'	7.3'	55.3'	72°42.5'	27°01.2'	24°58.8'		45°10.9'	84°46.9'	93°12.1'	
7	359°51.4'	N 20°06.6'	11.5'	7.2'	55.3'	72°14.1'	26°33.2'	24°35.7'		45°40.9'	85°04.7'	93°41.6'	
8	14°21.9'	N 20°13.8'	11.4'	7.2'	55.3'	71°45.8'	26°05.1'	24°12.8'		46°10.9'	85°22.6'	94°11.2'	
9	28°52.4'	N 20°21.0'	11.4'	7.1'	55.3'	71°17.4'	25°37.0'	23°50.1'		46°40.9'	85°40.4'	94°40.8'	
10	43°22.7'	N 20°28.1'	11.3'	7.0'	55.4'	70°49.0'	25°08.9'	23°27.8'		47°10.9'	85°58.4'	95°10.4'	
11	57°53.0'	N 20°35.0'	11.2'	6.9'	55.4'	70°20.5'	24°40.7'	23°05.7'		47°41.0'	86°16.3'	95°40.1'	
12	72°23.2'	N 20°41.9'	11.1'	6.8'	55.4'	69°52.1'	24°12.6'	22°43.9'		48°11.1'	86°34.3'	96°09.8'	
13	86°53.3'	N 20°48.7'	11.0'	6.7'	55.4'	69°23.6'	23°44.4'	22°22.5'		48°41.3'	86°52.3'	96°39.5'	
14	101°23.4'	N 20°55.4'	11.0'	6.6'	55.5'	68°55.0'	23°16.2'	22°01.4'		49°11.4'	87°10.3'	97°09.2'	
15	115°53.3'	N 21°02.0'	10.9'	6.5'	55.5'	68°26.5'	22°48.0'	21°40.6'		49°41.7'	87°28.4'	97°39.0'	
16	130°23.2'	N 21°08.5'	10.8'	6.4'	55.5'	67°57.9'	22°19.8'	21°20.3'		50°11.9'	87°46.5'	98°08.8'	
17	144°53.0'	N 21°14.9'	10.7'	6.3'	55.5'	67°29.2'	21°51.6'	21°00.3'		50°42.2'	88°04.6'	98°38.6'	
18	159°22.7'	N 21°21.2'	10.6'	6.2'	55.6'	67°00.6'	21°23.4'	20°40.7'		51°12.5'	88°22.7'	99°08.5'	
19	173°52.3'	N 21°27.4'	10.6'	6.1'	55.6'	66°31.9'	20°55.2'	20°21.6'		51°42.8'	88°40.9'	99°38.4'	
20	188°21.9'	N 21°33.5'	10.5'	6.0'	55.6'	66°03.2'	20°26.9'	20°02.9'	6°56.0'	52°13.2'	88°59.1'	100°08.3'	
21	202°51.4'	N 21°39.5'	10.4'	5.9'	55.7'	65°34.4'	19°58.7'	19°44.7'	7°22.2'	52°43.6'	89°17.3'	100°38.2'	
22	217°20.8'	N 21°45.4'	10.3'	5.8'	55.7'	65°05.6'	19°30.4'	19°27.1'	7°49.1'	53°14.1'	89°35.5'	101°08.2'	
23	231°50.1'	N 21°51.2'	10.2'	5.7'	55.7'	64°36.8'	19°02.1'	19°10.0'	8°16.4'	53°44.6'	89°53.8'	101°38.2'	
Mer. pass.		7 h 1 m SD 15.0'		phase 38%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.4'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.5'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.9'	N 5°10.4'	Polaris	+2.0	315°35.6'	N 89°20.6'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.9'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.3'	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	322°52.4'	178°49.8'	N 14°16.8'	226°31.5'	N 20°03.5'	32°27.5'	S 22°30.1'	23°49.8'	S 21°01.6'	299°46.9'	N 5°16.1'			
1	337°54.9'	193°49.9'	N 14°16.1'	241°31.4'	N 20°03.6'	47°30.2'	S 22°30.1'	38°52.5'	S 21°01.6'	314°48.5'	N 5°16.4'			
2	352°57.4'	208°50.0'	N 14°15.3'	256°31.3'	N 20°03.6'	62°32.9'	S 22°30.1'	53°55.1'	S 21°01.6'	329°50.2'	N 5°16.7'			
3	7°59.8'	223°50.2'	N 14°14.5'	271°31.2'	N 20°03.7'	77°35.6'	S 22°30.2'	68°57.7'	S 21°01.7'	344°51.9'	N 5°16.9'			
4	23°02.3'	238°50.3'	N 14°13.7'	286°31.1'	N 20°03.8'	92°38.3'	S 22°30.2'	84°00.3'	S 21°01.7'	359°53.5'	N 5°17.2'			
5	38°04.8'	253°50.4'	N 14°13.0'	301°31.0'	N 20°03.8'	107°41.0'	S 22°30.2'	99°03.0'	S 21°01.7'	14°55.2'	N 5°17.5'			
6	53°07.2'	268°50.5'	N 14°12.2'	316°30.9'	N 20°03.9'	122°43.7'	S 22°30.3'	114°05.6'	S 21°01.8'	29°56.9'	N 5°17.8'			
7	68°09.7'	283°50.6'	N 14°11.4'	331°30.7'	N 20°04.0'	137°46.4'	S 22°30.3'	129°08.2'	S 21°01.8'	44°58.6'	N 5°18.0'			
8	83°12.2'	298°50.8'	N 14°10.6'	346°30.6'	N 20°04.0'	152°49.1'	S 22°30.3'	144°10.9'	S 21°01.8'	60°00.2'	N 5°18.3'			
9	98°14.6'	313°50.9'	N 14°09.9'	1°30.5'	N 20°04.1'	167°51.8'	S 22°30.4'	159°13.5'	S 21°01.9'	75°01.9'	N 5°18.6'			
10	113°17.1'	328°51.0'	N 14°09.1'	16°30.4'	N 20°04.1'	182°54.5'	S 22°30.4'	174°16.1'	S 21°01.9'	90°03.6'	N 5°18.8'			
11	128°19.5'	343°51.1'	N 14°08.3'	31°30.3'	N 20°04.2'	197°57.2'	S 22°30.4'	189°18.8'	S 21°01.9'	105°05.3'	N 5°19.1'			
12	143°22.0'	358°51.2'	N 14°07.5'	46°30.2'	N 20°04.2'	212°59.9'	S 22°30.5'	204°21.4'	S 21°02.0'	120°06.9'	N 5°19.4'			
13	158°24.5'	13°51.4'	N 14°06.7'	61°30.1'	N 20°04.3'	228°02.6'	S 22°30.5'	219°24.0'	S 21°02.0'	135°08.6'	N 5°19.6'			
14	173°26.9'	28°51.5'	N 14°06.0'	76°30.0'	N 20°04.4'	243°05.3'	S 22°30.5'	234°26.6'	S 21°02.0'	150°10.3'	N 5°19.9'			
15	188°29.4'	43°51.6'	N 14°05.2'	91°29.9'	N 20°04.4'	258°08.0'	S 22°30.6'	249°29.3'	S 21°02.1'	165°12.0'	N 5°20.2'			
16	203°31.9'	58°51.7'	N 14°04.4'	106°29.7'	N 20°04.5'	273°10.7'	S 22°30.6'	264°31.9'	S 21°02.1'	180°13.7'	N 5°20.4'			
17	218°34.3'	73°51.8'	N 14°03.6'	121°29.6'	N 20°04.5'	288°13.4'	S 22°30.6'	279°34.5'	S 21°02.1'	195°15.4'	N 5°20.7'			
18	233°36.8'	88°52.0'	N 14°02.9'	136°29.5'	N 20°04.6'	303°16.1'	S 22°30.7'	294°37.2'	S 21°02.2'	210°17.0'	N 5°21.0'			
19	248°39.3'	103°52.1'	N 14°02.1'	151°29.4'	N 20°04.6'	318°18.7'	S 22°30.7'	309°39.8'	S 21°02.2'	225°18.7'	N 5°21.2'			
20	263°41.7'	118°52.2'	N 14°01.3'	166°29.3'	N 20°04.7'	333°21.4'	S 22°30.7'	324°42.4'	S 21°02.2'	240°20.4'	N 5°21.5'			
21	278°44.2'	133°52.3'	N 14°00.5'	181°29.2'	N 20°04.7'	348°24.1'	S 22°30.8'	339°45.0'	S 21°02.3'	255°22.1'	N 5°21.8'			
22	293°46.7'	148°52.5'	N 13°59.7'	196°29.0'	N 20°04.8'	3°26.8'	S 22°30.8'	354°47.7'	S 21°02.3'	270°23.8'	N 5°22.0'			
23	308°49.1'	163°52.6'	N 13°58.9'	211°28.9'	N 20°04.8'	18°29.5'	S 22°30.9'	9°50.3'	S 21°02.3'	285°25.5'	N 5°22.3'			
		SD 15.8' d -0.8'		v -0.1' d 0.1'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.7' d 0.3'				
Mer. pass.		12 h 4 m 36 s		8 h 54 m		21 h 46 m		22 h 21 m		4 h 0 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Pollux	-Betelgeuse	-Venus	+Aldebaran	+Mars	+Achernar	+Fomalhaut
0	246°19.3'	N 21°56.8'	10.1'	5.6'	55.7'	64°07.9'	36°40.2'	18°53.4'	18°33.9'	8°44.3'	54°15.1'	90°12.1'	102°08.2'
1	260°48.4'	N 22°02.4'	10.1'	5.5'	55.8'	63°39.0'	36°09.1'	18°37.4'	18°05.6'	9°12.6'	54°45.6'	90°30.4'	102°38.2'
2	275°17.5'	N 22°07.9'	10.0'	5.4'	55.8'	63°10.1'	35°37.9'		17°37.4'	9°41.2'	55°16.2'	90°48.7'	103°08.3'
3	289°46.5'	N 22°13.3'	9.9'	5.3'	55.8'	62°41.2'	35°06.8'		17°09.1'	10°10.1'	55°46.9'	91°07.0'	103°38.4'
4	304°15.4'	N 22°18.5'	9.8'	5.2'	55.9'	62°12.2'	34°35.6'		16°40.9'	10°39.3'	56°17.5'	91°25.3'	104°08.5'
5	318°44.2'	N 22°23.7'	9.7'	5.0'	55.9'	61°43.1'	34°04.3'		16°12.7'	11°08.7'	56°48.2'	91°43.7'	104°38.7'
6	333°13.0'	N 22°28.7'	9.7'	4.9'	55.9'	61°14.1'	33°33.1'		15°44.5'	11°38.4'	57°19.0'	92°02.1'	105°08.9'
7	347°41.6'	N 22°33.7'	9.6'	4.8'	56.0'	60°45.0'	33°01.8'		15°16.3'	12°08.2'	57°49.8'	92°20.5'	105°39.1'
8	2°10.2'	N 22°38.5'	9.5'	4.7'	56.0'	60°15.8'	32°30.4'		14°48.1'	12°38.2'	58°20.6'	92°38.9'	106°09.4'
9	16°38.7'	N 22°43.2'	9.4'	4.6'	56.0'	59°46.7'	31°59.1'		14°20.0'	13°08.4'	58°51.4'	92°57.3'	106°39.6'
10	31°07.1'	N 22°47.8'	9.4'	4.5'	56.0'	59°17.5'	31°27.7'		13°51.9'	13°38.7'	59°22.3'	93°15.7'	107°09.9'
11	45°35.5'	N 22°52.2'	9.3'	4.4'	56.1'	58°48.2'	30°56.3'		13°23.9'	14°09.2'	59°53.2'	93°34.2'	107°40.3'
12	60°03.8'	N 22°56.6'	9.2'	4.2'	56.1'	58°18.9'	30°24.9'		12°56.0'	14°39.8'	60°24.2'	93°52.6'	108°10.6'
13	74°32.0'	N 23°00.8'	9.1'	4.1'	56.1'	57°49.6'	29°53.4'		12°28.1'	15°10.5'	60°55.2'	94°11.1'	108°41.0'
14	89°00.1'	N 23°05.0'	9.0'	4.0'	56.2'	57°20.3'	29°22.0'		12°00.3'	15°41.3'	61°26.3'	94°29.5'	109°11.4'
15	103°28.1'	N 23°09.0'	9.0'	3.9'	56.2'	56°50.9'	28°50.5'		11°32.5'	16°12.2'	61°57.4'	94°48.0'	109°41.8'
16	117°56.1'	N 23°12.8'	8.9'	3.8'	56.2'	56°21.5'	28°18.9'		11°04.9'	16°43.2'	62°28.5'	95°06.5'	110°12.3'
17	132°24.0'	N 23°16.6'	8.8'	3.6'	56.3'	55°52.0'	27°47.4'		10°37.5'	17°14.3'	62°59.6'	95°25.0'	110°42.8'
18	146°51.8'	N 23°20.2'	8.7'	3.5'	56.3'	55°22.5'	27°15.8'		10°10.2'	17°45.5'	63°30.9'	95°43.5'	111°13.3'
19	161°19.6'	N 23°23.7'	8.7'	3.4'	56.3'	54°53.0'	26°44.2'		9°43.0'	18°16.8'	64°02.1'	96°02.0'	111°43.9'
20	175°47.2'	N 23°27.1'	8.6'	3.3'	56.4'	54°23.4'	26°12.6'		9°16.1'	18°48.2'	64°33.4'	96°20.4'	112°14.4'
21	190°14.8'	N 23°30.4'	8.5'	3.1'	56.4'	53°53.8'	25°41.0'		8°49.5'	19°19.6'	65°04.7'	96°38.9'	112°45.0'
22	204°42.4'	N 23°33.5'	8.5'	3.0'	56.4'	53°24.1'	25°09.3'		8°23.2'	19°51.1'	65°36.1'	96°57.4'	113°15.7'
23	219°09.8'	N 23°36.6'	8.4'	2.9'	56.5'	52°54.4'	24°37.7'		7°57.2'	20°22.7'	66°07.5'	97°15.9'	113°46.3'
Mer. pass.		7 h 51 m SD 15.2'		phase 28%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°35.0'	N 89°20.6'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.9'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.3'	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	323°51.6'	178°52.7'	N 13°58.2'	226°28.8'	N 20°04.9'	33°32.2'	S 22°30.9'	24°52.9'	S 21°02.4'	300°27.2'	N 5°22.5'			
1	338°54.0'	193°52.8'	N 13°57.4'	241°28.7'	N 20°04.9'	48°34.9'	S 22°30.9'	39°55.6'	S 21°02.4'	315°28.9'	N 5°22.8'			
2	353°56.5'	208°52.9'	N 13°56.6'	256°28.5'	N 20°05.0'	63°37.6'	S 22°31.0'	54°58.2'	S 21°02.4'	330°30.6'	N 5°23.1'			
3	8°59.0'	223°53.1'	N 13°55.8'	271°28.4'	N 20°05.0'	78°40.3'	S 22°31.0'	70°00.8'	S 21°02.5'	345°32.3'	N 5°23.3'			
4	24°01.4'	238°53.2'	N 13°55.0'	286°28.3'	N 20°05.1'	93°43.0'	S 22°31.0'	85°03.4'	S 21°02.5'	0°33.9'	N 5°23.6'			
5	39°03.9'	253°53.3'	N 13°54.2'	301°28.2'	N 20°05.1'	108°45.7'	S 22°31.1'	100°06.1'	S 21°02.5'	15°35.6'	N 5°23.8'			
6	54°06.4'	268°53.4'	N 13°53.5'	316°28.0'	N 20°05.2'	123°48.4'	S 22°31.1'	115°08.7'	S 21°02.6'	30°37.3'	N 5°24.1'			
7	69°08.8'	283°53.6'	N 13°52.7'	331°27.9'	N 20°05.2'	138°51.1'	S 22°31.1'	130°11.3'	S 21°02.6'	45°39.0'	N 5°24.4'			
8	84°11.3'	298°53.7'	N 13°51.9'	346°27.8'	N 20°05.3'	153°53.8'	S 22°31.2'	145°13.9'	S 21°02.6'	60°40.7'	N 5°24.6'			
9	99°13.8'	313°53.8'	N 13°51.1'	1°27.7'	N 20°05.3'	168°56.5'	S 22°31.2'	160°16.6'	S 21°02.7'	75°42.4'	N 5°24.9'			
10	114°16.2'	328°53.9'	N 13°50.3'	16°27.5'	N 20°05.3'	183°59.2'	S 22°31.2'	175°19.2'	S 21°02.7'	90°44.1'	N 5°25.1'			
11	129°18.7'	343°54.1'	N 13°49.5'	31°27.4'	N 20°05.4'	199°01.9'	S 22°31.3'	190°21.8'	S 21°02.7'	105°45.8'	N 5°25.4'			
12	144°21.1'	358°54.2'	N 13°48.7'	46°27.3'	N 20°05.4'	214°04.6'	S 22°31.3'	205°24.5'	S 21°02.8'	120°47.5'	N 5°25.7'			
13	159°23.6'	13°54.3'	N 13°48.0'	61°27.1'	N 20°05.5'	229°07.3'	S 22°31.3'	220°27.1'	S 21°02.8'	135°49.2'	N 5°25.9'			
14	174°26.1'	28°54.4'	N 13°47.2'	76°27.0'	N 20°05.5'	244°09.9'	S 22°31.3'	235°29.7'	S 21°02.8'	150°50.9'	N 5°26.2'			
15	189°28.5'	43°54.6'	N 13°46.4'	91°26.9'	N 20°05.5'	259°12.6'	S 22°31.4'	250°32.3'	S 21°02.9'	165°52.7'	N 5°26.4'			
16	204°31.0'	58°54.7'	N 13°45.6'	106°26.7'	N 20°05.6'	274°15.3'	S 22°31.4'	265°35.0'	S 21°02.9'	180°54.4'	N 5°26.7'			
17	219°33.5'	73°54.8'	N 13°44.8'	121°26.6'	N 20°05.6'	289°18.0'	S 22°31.4'	280°37.6'	S 21°02.9'	195°56.1'	N 5°27.0'			
18	234°35.9'	88°55.0'	N 13°44.0'	136°26.5'	N 20°05.7'	304°20.7'	S 22°31.5'	295°40.2'	S 21°03.0'	210°57.8'	N 5°27.2'			
19	249°38.4'	103°55.1'	N 13°43.2'	151°26.3'	N 20°05.7'	319°23.4'	S 22°31.5'	310°42.8'	S 21°03.0'	225°59.5'	N 5°27.5'			
20	264°40.9'	118°55.2'	N 13°42.4'	166°26.2'	N 20°05.7'	334°26.1'	S 22°31.5'	325°45.5'	S 21°03.0'	241°01.2'	N 5°27.7'			
21	279°43.3'	133°55.3'	N 13°41.6'	181°26.1'	N 20°05.8'	349°28.8'	S 22°31.6'	340°48.1'	S 21°03.1'	256°02.9'	N 5°28.0'			
22	294°45.8'	148°55.5'	N 13°40.9'	196°25.9'	N 20°05.8'	4°31.5'	S 22°31.6'	355°50.7'	S 21°03.1'	271°04.6'	N 5°28.2'			
23	309°48.3'	163°55.6'	N 13°40.1'	211°25.8'	N 20°05.8'	19°34.2'	S 22°31.6'	10°53.3'	S 21°03.1'	286°06.3'	N 5°28.5'			
		SD 15.8' d -0.8'		v -0.1' d 0.0'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.7' d 0.3'				
Mer. pass.		12 h 4 m 24 s		8 h 54 m		21 h 42 m		22 h 17 m		3 h 58 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Procyon	-Pollux	-Venus	+Betelgeuse	+Aldebaran	+Capella	+Rigel
0	233°37.2'	N 23°39.4'	8.3'	2.8'	56.5'	52°24.7'	30°14.1'	24°06.0'	7°31.7'		20°54.4'		
1	248°04.5'	N 23°42.2'	8.3'	2.6'	56.5'	51°55.0'	29°49.0'	23°34.3'	7°06.6'		21°26.1'		
2	262°31.8'	N 23°44.8'	8.2'	2.5'	56.6'	51°25.2'	29°24.1'	23°02.5'	6°42.3'		21°57.9'		
3	276°59.0'	N 23°47.3'	8.1'	2.4'	56.6'	50°55.3'	28°59.4'	22°30.8'			22°29.8'		34°26.5'
4	291°26.1'	N 23°49.7'	8.1'	2.2'	56.6'	50°25.4'	28°34.9'	21°59.1'			23°01.7'		34°41.7'
5	305°53.1'	N 23°51.9'	8.0'	2.1'	56.7'	49°55.5'	28°10.6'	21°27.3'			23°33.7'		34°57.3'
6	320°20.1'	N 23°54.0'	7.9'	2.0'	56.7'	49°25.6'	27°46.6'	20°55.6'			24°05.7'		35°13.3'
7	334°47.0'	N 23°56.0'	7.9'	1.8'	56.7'	48°55.6'	27°22.8'	20°23.8'			24°37.8'		35°29.6'
8	349°13.9'	N 23°57.8'	7.8'	1.7'	56.8'	48°25.5'	26°59.2'	19°52.1'			25°10.0'		35°46.3'
9	3°40.7'	N 23°59.5'	7.7'	1.6'	56.8'	47°55.5'	26°35.9'	19°20.3'			25°42.2'		36°03.3'
10	18°07.4'	N 24°01.1'	7.7'	1.4'	56.8'	47°25.3'	26°12.9'	18°48.6'			26°14.5'		36°20.6'
11	32°34.1'	N 24°02.5'	7.6'	1.3'	56.9'	46°55.2'	25°50.1'	18°16.9'		18°11.2'	26°46.8'		36°38.3'
12	47°00.7'	N 24°03.8'	7.6'	1.2'	56.9'	46°25.0'	25°27.7'	17°45.1'		18°26.7'	27°19.2'		36°56.3'
13	61°27.3'	N 24°04.9'	7.5'	1.0'	56.9'	45°54.8'	25°05.6'	17°13.4'		18°42.9'	27°51.7'	26°27.7'	37°14.5'
14	75°53.8'	N 24°06.0'	7.4'	0.9'	57.0'	45°24.5'	24°43.8'	16°41.8'		18°59.8'	28°24.2'	26°43.1'	37°33.1'
15	90°20.2'	N 24°06.8'	7.4'	0.7'	57.0'	44°54.2'	24°22.4'	16°10.2'		19°17.5'	28°56.7'	26°59.1'	37°52.0'
16	104°46.6'	N 24°07.6'	7.3'	0.6'	57.0'	44°23.9'	24°01.4'	15°38.6'		19°35.7'	29°29.3'	27°15.5'	38°11.2'
17	119°13.0'	N 24°08.2'	7.3'	0.4'	57.1'	43°53.5'	23°40.8'	15°07.1'		19°54.6'	30°02.0'	27°32.4'	38°30.7'
18	133°39.3'	N 24°08.6'	7.2'	0.3'	57.1'	43°23.0'	23°20.6'	14°35.6'		20°14.2'	30°34.7'	27°49.8'	38°50.4'
19	148°05.5'	N 24°08.9'	7.2'	0.2'	57.1'	42°52.6'	23°00.8'	14°04.2'		20°34.2'	31°07.5'	28°07.7'	39°10.4'
20	162°31.7'	N 24°09.1'	7.1'	0.0'	57.2'	42°22.1'	22°41.5'	13°32.9'		20°54.9'	31°40.3'	28°25.9'	39°30.8'
21	176°57.8'	N 24°09.1'	7.1'	-0.1'	57.2'	41°51.5'	22°22.7'	13°01.7'		21°16.0'	32°13.1'	28°44.6'	39°51.3'
22	191°23.9'	N 24°09.0'	7.1'	-0.3'	57.2'	41°21.0'	22°04.4'	12°30.6'		21°37.7'	32°46.1'	29°03.8'	40°12.1'
23	205°50.0'	N 24°08.7'	7.0'	-0.4'	57.3'	40°50.4'	21°46.7'	11°59.7'		21°59.9'	33°19.0'	29°23.3'	40°33.2'
Mer. pass.		8 h 45 m SD 15.4' phase 20%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°34.5'	N 89°20.6'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.9'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.6'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.3'	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	324°50.7'	178°55.7' N	13°39.3'	226°25.6' N	20°05.9'	34°36.9' S	22°31.7'	25°56.0' S	21°03.2'	301°08.0' N	5°28.7'			
1	339°53.2'	193°55.9' N	13°38.5'	241°25.5' N	20°05.9'	49°39.5' S	22°31.7'	40°58.6' S	21°03.2'	316°09.8' N	5°29.0'			
2	354°55.6'	208°56.0' N	13°37.7'	256°25.4' N	20°05.9'	64°42.2' S	22°31.7'	56°01.2' S	21°03.2'	331°11.5' N	5°29.2'			
3	9°58.1'	223°56.1' N	13°36.9'	271°25.2' N	20°06.0'	79°44.9' S	22°31.8'	71°03.8' S	21°03.3'	346°13.2' N	5°29.5'			
4	25°00.6'	238°56.2' N	13°36.1'	286°25.1' N	20°06.0'	94°47.6' S	22°31.8'	86°06.5' S	21°03.3'	1°14.9' N	5°29.7'			
5	40°03.0'	253°56.4' N	13°35.3'	301°24.9' N	20°06.0'	109°50.3' S	22°31.8'	101°09.1' S	21°03.3'	16°16.6' N	5°30.0'			
6	55°05.5'	268°56.5' N	13°34.5'	316°24.8' N	20°06.0'	124°53.0' S	22°31.9'	116°11.7' S	21°03.4'	31°18.4' N	5°30.3'			
7	70°08.0'	283°56.6' N	13°33.7'	331°24.6' N	20°06.1'	139°55.7' S	22°31.9'	131°14.3' S	21°03.4'	46°20.1' N	5°30.5'			
8	85°10.4'	298°56.8' N	13°32.9'	346°24.5' N	20°06.1'	154°58.4' S	22°31.9'	146°17.0' S	21°03.4'	61°21.8' N	5°30.8'			
9	100°12.9'	313°56.9' N	13°32.1'	1°24.3' N	20°06.1'	170°01.0' S	22°32.0'	161°19.6' S	21°03.5'	76°23.5' N	5°31.0'			
10	115°15.4'	328°57.0' N	13°31.3'	16°24.2' N	20°06.2'	185°03.7' S	22°32.0'	176°22.2' S	21°03.5'	91°25.2' N	5°31.3'			
11	130°17.8'	343°57.2' N	13°30.5'	31°24.0' N	20°06.2'	200°06.4' S	22°32.0'	191°24.8' S	21°03.5'	106°27.0' N	5°31.5'			
12	145°20.3'	358°57.3' N	13°29.7'	46°23.9' N	20°06.2'	215°09.1' S	22°32.1'	206°27.5' S	21°03.5'	121°28.7' N	5°31.8'			
13	160°22.8'	13°57.4' N	13°29.0'	61°23.7' N	20°06.2'	230°11.8' S	22°32.1'	221°30.1' S	21°03.6'	136°30.4' N	5°32.0'			
14	175°25.2'	28°57.5' N	13°28.2'	76°23.6' N	20°06.2'	245°14.5' S	22°32.1'	236°32.7' S	21°03.6'	151°32.2' N	5°32.3'			
15	190°27.7'	43°57.7' N	13°27.4'	91°23.4' N	20°06.3'	260°17.2' S	22°32.2'	251°35.3' S	21°03.6'	166°33.9' N	5°32.5'			
16	205°30.1'	58°57.8' N	13°26.6'	106°23.3' N	20°06.3'	275°19.8' S	22°32.2'	266°38.0' S	21°03.7'	181°35.6' N	5°32.7'			
17	220°32.6'	73°57.9' N	13°25.8'	121°23.1' N	20°06.3'	290°22.5' S	22°32.2'	281°40.6' S	21°03.7'	196°37.3' N	5°33.0'			
18	235°35.1'	88°58.1' N	13°25.0'	136°23.0' N	20°06.3'	305°25.2' S	22°32.3'	296°43.2' S	21°03.7'	211°39.1' N	5°33.2'			
19	250°37.5'	103°58.2' N	13°24.2'	151°22.8' N	20°06.4'	320°27.9' S	22°32.3'	311°45.8' S	21°03.8'	226°40.8' N	5°33.5'			
20	265°40.0'	118°58.3' N	13°23.4'	166°22.7' N	20°06.4'	335°30.6' S	22°32.3'	326°48.5' S	21°03.8'	241°42.5' N	5°33.7'			
21	280°42.5'	133°58.5' N	13°22.6'	181°22.5' N	20°06.4'	350°33.3' S	22°32.3'	341°51.1' S	21°03.8'	256°44.3' N	5°34.0'			
22	295°44.9'	148°58.6' N	13°21.8'	196°22.4' N	20°06.4'	5°35.9' S	22°32.4'	356°53.7' S	21°03.9'	271°46.0' N	5°34.2'			
23	310°47.4'	163°58.7' N	13°21.0'	211°22.2' N	20°06.4'	20°38.6' S	22°32.4'	11°56.3' S	21°03.9'	286°47.8' N	5°34.5'			
		SD 15.8' d -0.8'		v -0.2' d 0.0'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.7' d 0.2'				
Mer. pass.		12 h 4 m 11 s		8 h 54 m		21 h 38 m		22 h 12 m		3 h 55 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Procyon	-Pollux	+Venus	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	220°16.0' N	24°08.3'	7.0'	-0.6'	57.3'	40°19.7'	21°29.4'	11°28.9'	6°59.5'	22°22.5'	29°43.2'	33°52.0'	40°54.6'
1	234°42.0' N	24°07.7'	6.9'	-0.7'	57.4'		21°12.8'	10°58.4'	7°25.1'	22°45.6'	30°03.5'	34°25.1'	41°16.1'
2	249°07.9' N	24°07.0'	6.9'	-0.8'	57.4'		20°56.8'	10°28.1'	7°51.5'	23°09.1'	30°24.2'	34°58.2'	41°38.0'
3	263°33.8' N	24°06.2'	6.8'	-1.0'	57.4'			9°58.0'	8°18.4'	23°33.0'	30°45.3'	35°31.4'	42°00.0'
4	277°59.6' N	24°05.2'	6.8'	-1.1'	57.5'			9°28.3'	8°45.7'	23°57.2'	31°06.7'	36°04.6'	42°22.3'
5	292°25.4' N	24°04.1'	6.8'	-1.3'	57.5'			8°59.0'	9°13.5'	24°21.9'	31°28.4'	36°37.9'	42°44.8'
6	306°51.2' N	24°02.8'	6.7'	-1.4'	57.5'			8°30.2'	9°41.6'	24°46.9'	31°50.5'	37°11.2'	43°07.5'
7	321°16.9' N	24°01.3'	6.7'	-1.6'	57.6'			8°02.0'	10°10.1'	25°12.3'	32°12.9'	37°44.5'	43°30.5'
8	335°42.6' N	23°59.7'	6.7'	-1.7'	57.6'				10°38.9'	25°38.0'	32°35.6'	38°17.9'	43°53.6'
9	350°08.3' N	23°58.0'	6.6'	-1.9'	57.6'				11°07.9'	26°04.0'	32°58.7'	38°51.4'	44°17.0'
10	4°34.0' N	23°56.1'	6.6'	-2.0'	57.7'				11°37.1'	26°30.3'	33°22.0'	39°24.9'	44°40.6'
11	18°59.6' N	23°54.1'	6.6'	-2.2'	57.7'				12°06.5'	26°56.8'	33°45.6'	39°58.5'	45°04.4'
12	33°25.2' N	23°51.9'	6.6'	-2.3'	57.7'				12°36.2'	27°23.7'	34°09.5'	40°32.1'	45°28.3'
13	47°50.7' N	23°49.6'	6.5'	-2.5'	57.8'				13°06.0'	27°50.8'	34°33.7'	41°05.7'	45°52.5'
14	62°16.3' N	23°47.1'	6.5'	-2.6'	57.8'				13°35.9'	28°18.2'	34°58.1'	41°39.4'	46°16.8'
15	76°41.8' N	23°44.5'	6.5'	-2.8'	57.8'				14°06.0'	28°45.9'	35°22.8'	42°13.1'	46°41.4'
16	91°07.3' N	23°41.7'	6.5'	-2.9'	57.9'				14°36.2'	29°13.7'	35°47.7'	42°46.9'	47°06.1'
17	105°32.8' N	23°38.8'	6.5'	-3.1'	57.9'				15°06.6'	29°41.8'	36°12.9'	43°20.8'	47°31.0'
18	119°58.2' N	23°35.7'	6.4'	-3.2'	57.9'				15°37.1'	30°10.2'	36°38.3'	43°54.6'	47°56.0'
19	134°23.7' N	23°32.4'	6.4'	-3.4'	58.0'				16°07.6'	30°38.7'	37°04.0'	44°28.6'	48°21.3'
20	148°49.1' N	23°29.1'	6.4'	-3.5'	58.0'				16°38.3'	31°07.4'	37°29.9'	45°02.5'	48°46.7'
21	163°14.5' N	23°25.5'	6.4'	-3.7'	58.0'				17°09.1'	31°36.4'	37°56.0'	45°36.6'	49°12.2'
22	177°39.9' N	23°21.8'	6.4'	-3.8'	58.1'				17°40.0'	32°05.5'	38°22.3'	46°10.6'	49°37.9'
23	192°05.3' N	23°18.0'	6.4'	-4.0'	58.1'				18°10.9'	32°34.8'	38°48.8'	46°44.7'	50°03.8'
Mer. pass.		9 h 41 m SD 15.6'		phase 12%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7' N	45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3' N	46°00.9'
Altair	+0.8	62°03.1' N	8°55.5'	Regulus	+1.4	207°38.6' N	11°52.2'	Rigel	+0.2	281°07.4' N	S 8°10.6'
Vega	+0.0	80°35.3' N	38°48.4'	Pollux	+1.2	243°22.0' N	27°58.6'	Aldebaran	+0.9	290°43.8' N	16°32.9'
Antares	+1.1	112°20.1' S	26°28.6'	Procyon	+0.4	244°54.8' N	5°10.4'	Polaris	+2.0	315°33.9' N	89°20.6'
Rigil Kent	-0.0	139°45.2' S	60°55.3'	Adhara	+1.5	255°08.9' S	28°59.9'	Achernar	+0.5	335°22.7' S	57°07.7'
Arcturus	-0.1	145°51.3' N	19°04.8'	Sirius	-1.4	258°29.6' S	16°44.5'				
Hadar	+0.6	148°41.1' S	60°28.4'	Canopus	-0.6	263°54.3' 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	325°49.9'	178°58.9'	N 13°20.2'	226°22.0'	N 20°06.4'	35°41.3'	S 22°32.4'	26°59.0'	S 21°03.9'	301°49.5'	N 5°34.7'			
1	340°52.3'	193°59.0'	N 13°19.4'	241°21.9'	N 20°06.5'	50°44.0'	S 22°32.5'	42°01.6'	S 21°04.0'	316°51.2'	N 5°35.0'			
2	355°54.8'	208°59.1'	N 13°18.6'	256°21.7'	N 20°06.5'	65°46.7'	S 22°32.5'	57°04.2'	S 21°04.0'	331°53.0'	N 5°35.2'			
3	10°57.3'	223°59.3'	N 13°17.8'	271°21.6'	N 20°06.5'	80°49.4'	S 22°32.5'	72°06.8'	S 21°04.0'	346°54.7'	N 5°35.5'			
4	25°59.7'	238°59.4'	N 13°17.0'	286°21.4'	N 20°06.5'	95°52.0'	S 22°32.6'	87°09.4'	S 21°04.1'	1°56.5'	N 5°35.7'			
5	41°02.2'	253°59.5'	N 13°16.2'	301°21.2'	N 20°06.5'	110°54.7'	S 22°32.6'	102°12.1'	S 21°04.1'	16°58.2'	N 5°35.9'			
6	56°04.6'	268°59.7'	N 13°15.4'	316°21.1'	N 20°06.5'	125°57.4'	S 22°32.6'	117°14.7'	S 21°04.1'	31°59.9'	N 5°36.2'			
7	71°07.1'	283°59.8'	N 13°14.6'	331°20.9'	N 20°06.5'	141°00.1'	S 22°32.7'	132°17.3'	S 21°04.2'	47°01.7'	N 5°36.4'			
8	86°09.6'	298°60.0'	N 13°13.7'	346°20.7'	N 20°06.6'	156°02.8'	S 22°32.7'	147°19.9'	S 21°04.2'	62°03.4'	N 5°36.7'			
9	101°12.0'	314°00.1'	N 13°12.9'	1°20.6'	N 20°06.6'	171°05.4'	S 22°32.7'	162°22.6'	S 21°04.2'	77°05.2'	N 5°36.9'			
10	116°14.5'	329°00.2'	N 13°12.1'	16°20.4'	N 20°06.6'	186°08.1'	S 22°32.8'	177°25.2'	S 21°04.3'	92°06.9'	N 5°37.1'			
11	131°17.0'	344°00.4'	N 13°11.3'	31°20.2'	N 20°06.6'	201°10.8'	S 22°32.8'	192°27.8'	S 21°04.3'	107°08.7'	N 5°37.4'			
12	146°19.4'	359°00.5'	N 13°10.5'	46°20.1'	N 20°06.6'	216°13.5'	S 22°32.8'	207°30.4'	S 21°04.3'	122°10.4'	N 5°37.6'			
13	161°21.9'	14°00.6'	N 13°09.7'	61°19.9'	N 20°06.6'	231°16.2'	S 22°32.8'	222°33.1'	S 21°04.4'	137°12.2'	N 5°37.9'			
14	176°24.4'	29°00.8'	N 13°08.9'	76°19.7'	N 20°06.6'	246°18.8'	S 22°32.9'	237°35.7'	S 21°04.4'	152°13.9'	N 5°38.1'			
15	191°26.8'	44°00.9'	N 13°08.1'	91°19.6'	N 20°06.6'	261°21.5'	S 22°32.9'	252°38.3'	S 21°04.4'	167°15.7'	N 5°38.3'			
16	206°29.3'	59°01.0'	N 13°07.3'	106°19.4'	N 20°06.6'	276°24.2'	S 22°32.9'	267°40.9'	S 21°04.4'	182°17.5'	N 5°38.6'			
17	221°31.8'	74°01.2'	N 13°06.5'	121°19.2'	N 20°06.6'	291°26.9'	S 22°33.0'	282°43.5'	S 21°04.5'	197°19.2'	N 5°38.8'			
18	236°34.2'	89°01.3'	N 13°05.7'	136°19.1'	N 20°06.6'	306°29.5'	S 22°33.0'	297°46.2'	S 21°04.5'	212°21.0'	N 5°39.1'			
19	251°36.7'	104°01.5'	N 13°04.9'	151°18.9'	N 20°06.6'	321°32.2'	S 22°33.0'	312°48.8'	S 21°04.5'	227°22.7'	N 5°39.3'			
20	266°39.1'	119°01.6'	N 13°04.1'	166°18.7'	N 20°06.6'	336°34.9'	S 22°33.1'	327°51.4'	S 21°04.6'	242°24.5'	N 5°39.5'			
21	281°41.6'	134°01.7'	N 13°03.3'	181°18.5'	N 20°06.6'	351°37.6'	S 22°33.1'	342°54.0'	S 21°04.6'	257°26.2'	N 5°39.8'			
22	296°44.1'	149°01.9'	N 13°02.5'	196°18.4'	N 20°06.6'	6°40.3'	S 22°33.1'	357°56.6'	S 21°04.6'	272°28.0'	N 5°40.0'			
23	311°46.5'	164°02.0'	N 13°01.7'	211°18.2'	N 20°06.6'	21°42.9'	S 22°33.2'	12°59.3'	S 21°04.7'	287°29.8'	N 5°40.3'			
		SD 15.8' d -0.8'		v -0.2' d 0.0'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.8' d 0.2'				
Mer. pass.		12 h 3 m 58 s		8 h 55 m		21 h 33 m		22 h 8 m		3 h 52 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	+Pollux	+Procyon	+Venus	+Betelgeuse	+Capella	+Sirius	+Aldebaran	+Rigel
0	206°30.7'	N 23°14.0'	6.4'	-4.1'	58.1'			18°42.0'	33°04.3'	39°15.5'		47°18.9'	50°29.8'
1	220°56.0'	N 23°09.9'	6.4'	-4.3'	58.2'			19°13.1'	33°33.9'	39°42.4'		47°53.1'	50°56.0'
2	235°21.4'	N 23°05.6'	6.4'	-4.4'	58.2'			19°44.3'	34°03.8'	40°09.5'		48°27.3'	51°22.4'
3	249°46.8'	N 23°01.2'	6.4'	-4.6'	58.2'			20°15.6'	34°33.7'	40°36.8'		49°01.6'	51°48.8'
4	264°12.1'	N 22°56.6'	6.4'	-4.7'	58.3'			20°47.0'	35°03.9'	41°04.3'		49°35.9'	52°15.5'
5	278°37.5'	N 22°51.8'	6.4'	-4.9'	58.3'			21°18.4'	35°34.2'	41°32.0'		50°10.3'	52°42.2'
6	293°02.8'	N 22°47.0'	6.4'	-5.0'	58.3'			21°49.9'	36°04.6'	41°59.8'		50°44.7'	53°09.1'
7	307°28.2'	N 22°41.9'	6.4'	-5.2'	58.4'	8°14.8'		22°21.5'	36°35.2'	42°27.8'		51°19.2'	53°36.1'
8	321°53.6'	N 22°36.7'	6.4'	-5.3'	58.4'	8°44.2'		22°53.1'	37°05.9'	42°55.9'		51°53.7'	54°03.3'
9	336°18.9'	N 22°31.4'	6.4'	-5.5'	58.4'	9°14.3'		23°24.8'	37°36.7'	43°24.2'		52°28.2'	54°30.6'
10	350°44.3'	N 22°25.9'	6.4'	-5.6'	58.5'	9°44.9'		23°56.5'	38°07.7'	43°52.7'		53°02.8'	54°58.0'
11	5°09.7'	N 22°20.3'	6.4'	-5.8'	58.5'	10°16.0'		24°28.3'	38°38.8'	44°21.3'		53°37.4'	55°25.5'
12	19°35.0'	N 22°14.5'	6.4'	-5.9'	58.5'	10°47.5'	20°27.3'	25°00.2'	39°10.1'	44°50.1'		54°12.1'	55°53.2'
13	34°00.4'	N 22°08.6'	6.4'	-6.1'	58.6'	11°19.4'	20°42.6'	25°32.1'	39°41.4'	45°19.0'	46°23.9'	54°46.8'	56°21.0'
14	48°25.8'	N 22°02.5'	6.4'	-6.2'	58.6'	11°51.6'	20°58.7'	26°04.1'	40°12.9'	45°48.1'	46°38.9'	55°21.6'	56°48.9'
15	62°51.2'	N 21°56.3'	6.4'	-6.4'	58.6'	12°24.0'	21°15.6'	26°36.1'	40°44.4'	46°17.3'	46°54.3'	55°56.3'	57°16.9'
16	77°16.7'	N 21°49.9'	6.4'	-6.5'	58.7'	12°56.7'	21°33.2'	27°08.2'	41°16.1'	46°46.6'	47°09.9'	56°31.2'	57°45.0'
17	91°42.1'	N 21°43.4'	6.5'	-6.7'	58.7'	13°29.6'	21°51.4'	27°40.3'	41°47.9'	47°16.1'	47°25.8'	57°06.1'	58°13.2'
18	106°07.6'	N 21°36.8'	6.5'	-6.8'	58.7'	14°02.7'	22°10.3'	28°12.5'	42°19.8'	47°45.7'	47°42.0'	57°41.0'	58°41.6'
19	120°33.0'	N 21°30.0'	6.5'	-6.9'	58.8'	14°36.0'	22°29.9'	28°44.8'	42°51.8'	48°15.4'	47°58.4'	58°15.9'	59°10.0'
20	134°58.5'	N 21°23.0'	6.5'	-7.1'	58.8'	15°09.5'	22°50.0'	29°17.1'	43°23.9'	48°45.2'	48°15.1'	58°50.9'	59°38.6'
21	149°24.0'	N 21°16.0'	6.5'	-7.2'	58.8'	15°43.1'	23°10.8'	29°49.4'	43°56.1'	49°15.2'	48°32.1'	59°26.0'	60°07.2'
22	163°49.6'	N 21°08.7'	6.5'	-7.4'	58.9'	16°16.9'	23°32.1'	30°21.8'	44°28.4'	49°45.2'	48°49.3'	60°01.0'	60°36.0'
23	178°15.1'	N 21°01.4'	6.6'	-7.5'	58.9'	16°50.8'	23°53.9'	30°54.2'	45°00.8'	50°15.4'	49°06.8'	60°36.2'	61°04.8'
Mer. pass.		10 h 39 m SD 15.9'		phase 6%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°33.4'	N 89°20.7'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.3'	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	326°49.0'	179°02.2'	N 13°00.8'	226°18.0'	N 20°06.6'	36°45.6'	S 22°33.2'	28°01.9'	S 21°04.7'	302°31.5'	N 5°40.5'			
1	341°51.5'	194°02.3'	N 13°00.0'	241°17.8'	N 20°06.6'	51°48.3'	S 22°33.2'	43°04.5'	S 21°04.7'	317°33.3'	N 5°40.7'			
2	356°53.9'	209°02.4'	N 12°59.2'	256°17.7'	N 20°06.6'	66°51.0'	S 22°33.2'	58°07.1'	S 21°04.8'	332°35.1'	N 5°41.0'			
3	11°56.4'	224°02.6'	N 12°58.4'	271°17.5'	N 20°06.6'	81°53.6'	S 22°33.3'	73°09.7'	S 21°04.8'	347°36.8'	N 5°41.2'			
4	26°58.9'	239°02.7'	N 12°57.6'	286°17.3'	N 20°06.6'	96°56.3'	S 22°33.3'	88°12.4'	S 21°04.8'	2°38.6'	N 5°41.4'			
5	42°01.3'	254°02.9'	N 12°56.8'	301°17.1'	N 20°06.6'	111°59.0'	S 22°33.3'	103°15.0'	S 21°04.9'	17°40.4'	N 5°41.7'			
6	57°03.8'	269°03.0'	N 12°56.0'	316°16.9'	N 20°06.6'	127°01.7'	S 22°33.4'	118°17.6'	S 21°04.9'	32°42.1'	N 5°41.9'			
7	72°06.2'	284°03.1'	N 12°55.2'	331°16.8'	N 20°06.6'	142°04.3'	S 22°33.4'	133°20.2'	S 21°04.9'	47°43.9'	N 5°42.1'			
8	87°08.7'	299°03.3'	N 12°54.4'	346°16.6'	N 20°06.6'	157°07.0'	S 22°33.4'	148°22.8'	S 21°05.0'	62°45.7'	N 5°42.4'			
9	102°11.2'	314°03.4'	N 12°53.5'	1°16.4'	N 20°06.6'	172°09.7'	S 22°33.5'	163°25.5'	S 21°05.0'	77°47.5'	N 5°42.6'			
10	117°13.6'	329°03.6'	N 12°52.7'	16°16.2'	N 20°06.6'	187°12.3'	S 22°33.5'	178°28.1'	S 21°05.0'	92°49.2'	N 5°42.8'			
11	132°16.1'	344°03.7'	N 12°51.9'	31°16.0'	N 20°06.6'	202°15.0'	S 22°33.5'	193°30.7'	S 21°05.0'	107°51.0'	N 5°43.1'			
12	147°18.6'	359°03.8'	N 12°51.1'	46°15.8'	N 20°06.6'	217°17.7'	S 22°33.5'	208°33.3'	S 21°05.1'	122°52.8'	N 5°43.3'			
13	162°21.0'	14°04.0'	N 12°50.3'	61°15.7'	N 20°06.6'	232°20.4'	S 22°33.6'	223°35.9'	S 21°05.1'	137°54.6'	N 5°43.5'			
14	177°23.5'	29°04.1'	N 12°49.5'	76°15.5'	N 20°06.5'	247°23.0'	S 22°33.6'	238°38.6'	S 21°05.1'	152°56.3'	N 5°43.8'			
15	192°26.0'	44°04.3'	N 12°48.7'	91°15.3'	N 20°06.5'	262°25.7'	S 22°33.6'	253°41.2'	S 21°05.2'	167°58.1'	N 5°44.0'			
16	207°28.4'	59°04.4'	N 12°47.9'	106°15.1'	N 20°06.5'	277°28.4'	S 22°33.7'	268°43.8'	S 21°05.2'	182°59.9'	N 5°44.2'			
17	222°30.9'	74°04.6'	N 12°47.0'	121°14.9'	N 20°06.5'	292°31.0'	S 22°33.7'	283°46.4'	S 21°05.2'	198°01.7'	N 5°44.4'			
18	237°33.4'	89°04.7'	N 12°46.2'	136°14.7'	N 20°06.5'	307°33.7'	S 22°33.7'	298°49.0'	S 21°05.3'	213°03.5'	N 5°44.7'			
19	252°35.8'	104°04.8'	N 12°45.4'	151°14.5'	N 20°06.5'	322°36.4'	S 22°33.8'	313°51.7'	S 21°05.3'	228°05.2'	N 5°44.9'			
20	267°38.3'	119°05.0'	N 12°44.6'	166°14.3'	N 20°06.5'	337°39.1'	S 22°33.8'	328°54.3'	S 21°05.3'	243°07.0'	N 5°45.1'			
21	282°40.7'	134°05.1'	N 12°43.8'	181°14.1'	N 20°06.4'	352°41.7'	S 22°33.8'	343°56.9'	S 21°05.4'	258°08.8'	N 5°45.4'			
22	297°43.2'	149°05.3'	N 12°43.0'	196°14.0'	N 20°06.4'	7°44.4'	S 22°33.8'	358°59.5'	S 21°05.4'	273°10.6'	N 5°45.6'			
23	312°45.7'	164°05.4'	N 12°42.1'	211°13.8'	N 20°06.4'	22°47.1'	S 22°33.9'	14°02.1'	S 21°05.4'	288°12.4'	N 5°45.8'			
		SD 15.8' d -0.8'		v -0.2' d -0.0'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.8' d 0.2'				
Mer. pass.		12 h 3 m 45 s		8 h 55 m		21 h 29 m		22 h 4 m		3 h 49 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	+Pollux	+Procyon	+Venus	+Betelgeuse	+Sirius	+Capella	+Aldebaran	+Rigel
0	192°40.7'	N 20°53.9'	6.6'	-7.6'	58.9'	17°24.8'	24°16.3'	31°26.7'	45°33.2'	49°24.6'	50°45.7'	61°11.3'	61°33.8'
1	207°06.3'	N 20°46.2'	6.6'	-7.8'	58.9'	17°58.9'	24°39.1'	31°59.2'	46°05.8'	49°42.6'	51°16.1'	61°46.5'	62°02.8'
2	221°31.9'	N 20°38.4'	6.6'	-7.9'	59.0'	18°33.2'	25°02.5'	32°31.8'	46°38.4'	50°00.8'	51°46.6'	62°21.7'	62°32.0'
3	235°57.5'	N 20°30.5'	6.7'	-8.1'	59.0'	19°07.5'	25°26.3'	33°04.4'	47°11.2'	50°19.3'	52°17.3'	62°57.0'	63°01.2'
4	250°23.2'	N 20°22.4'	6.7'	-8.2'	59.0'	19°41.9'	25°50.5'	33°37.0'	47°44.0'	50°38.0'	52°48.0'	63°32.3'	63°30.5'
5	264°48.9'	N 20°14.2'	6.7'	-8.3'	59.1'	20°16.4'	26°15.1'	34°09.7'	48°16.8'	50°57.0'	53°18.8'	64°07.6'	63°59.9'
6	279°14.6'	N 20°05.9'	6.8'	-8.5'	59.1'	20°51.0'	26°40.2'	34°42.4'	48°49.8'	51°16.2'	53°49.7'	64°43.0'	64°29.4'
7	293°40.4'	N 19°57.4'	6.8'	-8.6'	59.1'	21°25.7'	27°05.6'	35°15.2'	49°22.8'	51°35.6'	54°20.7'	65°18.4'	64°58.9'
8	308°06.2'	N 19°48.8'	6.8'	-8.7'	59.1'	22°00.5'	27°31.4'	35°48.0'	49°56.0'	51°55.2'	54°51.8'	65°53.9'	65°28.6'
9	322°32.0'	N 19°40.1'	6.9'	-8.9'	59.2'	22°35.3'	27°57.6'	36°20.9'	50°29.1'	52°15.0'	55°23.0'	66°29.3'	65°58.3'
10	336°57.9'	N 19°31.2'	6.9'	-9.0'	59.2'	23°10.2'	28°24.1'	36°53.8'	51°02.4'	52°35.1'	55°54.3'	67°04.8'	66°28.1'
11	351°23.7'	N 19°22.2'	6.9'	-9.1'	59.2'								
12	5°49.7'	N 19°13.1'	7.0'	-9.3'	59.3'								
13	20°15.6'	N 19°03.8'	7.0'	-9.4'	59.3'								
14	34°41.6'	N 18°54.4'	7.0'	-9.5'	59.3'								
15	49°07.6'	N 18°44.9'	7.1'	-9.6'	59.3'								
16	63°33.7'	N 18°35.3'	7.1'	-9.8'	59.4'								
17	77°59.8'	N 18°25.5'	7.1'	-9.9'	59.4'								
18	92°25.9'	N 18°15.6'	7.2'	-10.0'	59.4'								
19	106°52.1'	N 18°05.6'	7.2'	-10.1'	59.4'								
20	121°18.3'	N 17°55.4'	7.3'	-10.3'	59.5'								
21	135°44.6'	N 17°45.2'	7.3'	-10.4'	59.5'								
22	150°10.9'	N 17°34.8'	7.3'	-10.5'	59.5'								
23	164°37.2'	N 17°24.3'	7.4'	-10.6'	59.5'								
Mer. pass.		11 h 36 m SD 16.1'		phase 2%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°32.9'	N 89°20.7'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.1'	S 60°28.4'	Canopus	-0.6	263°54.3'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	327°48.1'		179°05.6'	N 12°41.3'	226°13.6'	N 20°06.4'	37°49.7'	S 22°33.9'	29°04.8'	S 21°05.5'	303°14.2'	N 5°46.0'
1	342°50.6'		194°05.7'	N 12°40.5'	241°13.4'	N 20°06.4'	52°52.4'	S 22°33.9'	44°07.4'	S 21°05.5'	318°16.0'	N 5°46.3'
2	357°53.1'		209°05.8'	N 12°39.7'	256°13.2'	N 20°06.4'	67°55.1'	S 22°34.0'	59°10.0'	S 21°05.5'	333°17.8'	N 5°46.5'
3	12°55.5'		224°06.0'	N 12°38.9'	271°13.0'	N 20°06.3'	82°57.7'	S 22°34.0'	74°12.6'	S 21°05.5'	348°19.6'	N 5°46.7'
4	27°58.0'		239°06.1'	N 12°38.0'	286°12.8'	N 20°06.3'	98°00.4'	S 22°34.0'	89°15.2'	S 21°05.6'	3°21.3'	N 5°46.9'
5	43°00.5'		254°06.3'	N 12°37.2'	301°12.6'	N 20°06.3'	113°03.1'	S 22°34.0'	104°17.8'	S 21°05.6'	18°23.1'	N 5°47.2'
6	58°02.9'		269°06.4'	N 12°36.4'	316°12.4'	N 20°06.3'	128°05.7'	S 22°34.1'	119°20.5'	S 21°05.6'	33°24.9'	N 5°47.4'
7	73°05.4'		284°06.6'	N 12°35.6'	331°12.2'	N 20°06.2'	143°08.4'	S 22°34.1'	134°23.1'	S 21°05.7'	48°26.7'	N 5°47.6'
8	88°07.9'		299°06.7'	N 12°34.8'	346°12.0'	N 20°06.2'	158°11.1'	S 22°34.1'	149°25.7'	S 21°05.7'	63°28.5'	N 5°47.8'
9	103°10.3'		314°06.9'	N 12°33.9'	1°11.8'	N 20°06.2'	173°13.7'	S 22°34.2'	164°28.3'	S 21°05.7'	78°30.3'	N 5°48.1'
10	118°12.8'		329°07.0'	N 12°33.1'	16°11.6'	N 20°06.2'	188°16.4'	S 22°34.2'	179°30.9'	S 21°05.8'	93°32.1'	N 5°48.3'
11	133°15.2'		344°07.2'	N 12°32.3'	31°11.4'	N 20°06.1'	203°19.1'	S 22°34.2'	194°33.5'	S 21°05.8'	108°33.9'	N 5°48.5'
12	148°17.7'		359°07.3'	N 12°31.5'	46°11.2'	N 20°06.1'	218°21.7'	S 22°34.2'	209°36.2'	S 21°05.8'	123°35.7'	N 5°48.7'
13	163°20.2'		14°07.4'	N 12°30.7'	61°11.0'	N 20°06.1'	233°24.4'	S 22°34.3'	224°38.8'	S 21°05.9'	138°37.5'	N 5°49.0'
14	178°22.6'		29°07.6'	N 12°29.8'	76°10.8'	N 20°06.1'	248°27.1'	S 22°34.3'	239°41.4'	S 21°05.9'	153°39.3'	N 5°49.2'
15	193°25.1'		44°07.7'	N 12°29.0'	91°10.6'	N 20°06.0'	263°29.7'	S 22°34.3'	254°44.0'	S 21°05.9'	168°41.1'	N 5°49.4'
16	208°27.6'		59°07.9'	N 12°28.2'	106°10.4'	N 20°06.0'	278°32.4'	S 22°34.4'	269°46.6'	S 21°05.9'	183°43.0'	N 5°49.6'
17	223°30.0'		74°08.0'	N 12°27.4'	121°10.2'	N 20°06.0'	293°35.0'	S 22°34.4'	284°49.2'	S 21°06.0'	198°44.8'	N 5°49.8'
18	238°32.5'		89°08.2'	N 12°26.5'	136°10.0'	N 20°05.9'	308°37.7'	S 22°34.4'	299°51.9'	S 21°06.0'	213°46.6'	N 5°50.1'
19	253°35.0'		104°08.3'	N 12°25.7'	151°09.8'	N 20°05.9'	323°40.4'	S 22°34.4'	314°54.5'	S 21°06.0'	228°48.4'	N 5°50.3'
20	268°37.4'		119°08.5'	N 12°24.9'	166°09.6'	N 20°05.9'	338°43.0'	S 22°34.5'	329°57.1'	S 21°06.1'	243°50.2'	N 5°50.5'
21	283°39.9'		134°08.6'	N 12°24.1'	181°09.4'	N 20°05.8'	353°45.7'	S 22°34.5'	344°59.7'	S 21°06.1'	258°52.0'	N 5°50.7'
22	298°42.3'		149°08.8'	N 12°23.2'	196°09.2'	N 20°05.8'	8°48.4'	S 22°34.5'	0°02.3'	S 21°06.1'	273°53.8'	N 5°50.9'
23	313°44.8'		164°08.9'	N 12°22.4'	211°08.9'	N 20°05.8'	23°51.0'	S 22°34.6'	15°04.9'	S 21°06.2'	288°55.6'	N 5°51.2'
			SD 15.8' d -0.8'		v -0.2' d -0.0'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.8' d 0.2'	
Mer. pass.			12 h 3 m 31 s		8 h 55 m		21 h 25 m		22 h 0 m		3 h 47 m	

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Vega	-Antares	-Rigil Kent	-Hadar	-Acrux	-Arcturus	-Spica
0	179°03.6'	N 17°13.7'	7.4'	-10.7'	59.6'							
1	193°30.0'	N 17°03.0'	7.5'	-10.8'	59.6'							
2	207°56.4'	N 16°52.1'	7.5'	-11.0'	59.6'							
3	222°22.9'	N 16°41.1'	7.5'	-11.1'	59.6'							
4	236°49.5'	N 16°30.1'	7.6'	-11.2'	59.6'							
5	251°16.1'	N 16°18.9'	7.6'	-11.3'	59.7'							
6	265°42.7'	N 16°07.6'	7.7'	-11.4'	59.7'							
7	280°09.4'	N 15°56.2'	7.7'	-11.5'	59.7'							
8	294°36.1'	N 15°44.7'	7.8'	-11.6'	59.7'							
9	309°02.9'	N 15°33.1'	7.8'	-11.7'	59.7'							
10	323°29.7'	N 15°21.4'	7.9'	-11.8'	59.8'							
11	337°56.5'	N 15°09.6'	7.9'	-11.9'	59.8'							
12	352°23.4'	N 14°57.7'	7.9'	-12.0'	59.8'							
13	6°50.3'	N 14°45.6'	8.0'	-12.1'	59.8'							
14	21°17.3'	N 14°33.5'	8.0'	-12.2'	59.8'							
15	35°44.4'	N 14°21.3'	8.1'	-12.3'	59.9'							
16	50°11.4'	N 14°09.0'	8.1'	-12.4'	59.9'							
17	64°38.6'	N 13°56.6'	8.2'	-12.5'	59.9'							
18	79°05.7'	N 13°44.1'	8.2'	-12.6'	59.9'							
19	93°32.9'	N 13°31.5'	8.2'	-12.7'	59.9'		93°55.0'	88°15.7'	84°28.7'	79°30.8'	52°02.5'	48°04.6'
20	108°00.2'	N 13°18.9'	8.3'	-12.8'	59.9'		93°18.7'	87°49.8'	84°03.9'	79°11.4'	51°32.2'	47°28.5'
21	122°27.5'	N 13°06.1'	8.3'	-12.8'	60.0'	102°30.7'	92°42.3'	87°23.8'	83°39.0'	78°52.0'	51°02.1'	46°52.4'
22	136°54.8'	N 12°53.3'	8.4'	-12.9'	60.0'	102°15.7'	92°06.0'	86°57.9'	83°14.1'	78°32.7'	50°32.1'	46°16.3'
23	151°22.2'	N 12°40.3'	8.4'	-13.0'	60.0'	102°00.6'	91°29.6'	86°32.0'	82°49.3'	78°13.4'	50°02.1'	45°40.2'
Mer. pass.			12 h 32 m SD 16.2'	phase 0%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.6'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.8'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°32.5'	N 89°20.7'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.3'	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	328°47.3'	179°09.1'	N 12°21.6'	226°08.7'	N 20°05.7'	38°53.7'	S 22°34.6'	30°07.6'	S 21°06.2'	303°57.4'	N 5°51.4'			
1	343°49.7'	194°09.2'	N 12°20.8'	241°08.5'	N 20°05.7'	53°56.3'	S 22°34.6'	45°10.2'	S 21°06.2'	318°59.3'	N 5°51.6'			
2	358°52.2'	209°09.4'	N 12°19.9'	256°08.3'	N 20°05.7'	68°59.0'	S 22°34.6'	60°12.8'	S 21°06.3'	334°01.1'	N 5°51.8'			
3	13°54.7'	224°09.5'	N 12°19.1'	271°08.1'	N 20°05.6'	84°01.7'	S 22°34.7'	75°15.4'	S 21°06.3'	349°02.9'	N 5°52.0'			
4	28°57.1'	239°09.7'	N 12°18.3'	286°07.9'	N 20°05.6'	99°04.3'	S 22°34.7'	90°18.0'	S 21°06.3'	4°04.7'	N 5°52.2'			
5	43°59.6'	254°09.8'	N 12°17.5'	301°07.7'	N 20°05.6'	114°07.0'	S 22°34.7'	105°20.6'	S 21°06.3'	19°06.5'	N 5°52.5'			
6	59°02.1'	269°10.0'	N 12°16.6'	316°07.5'	N 20°05.5'	129°09.6'	S 22°34.8'	120°23.2'	S 21°06.4'	34°08.4'	N 5°52.7'			
7	74°04.5'	284°10.1'	N 12°15.8'	331°07.3'	N 20°05.5'	144°12.3'	S 22°34.8'	135°25.9'	S 21°06.4'	49°10.2'	N 5°52.9'			
8	89°07.0'	299°10.3'	N 12°15.0'	346°07.0'	N 20°05.4'	159°15.0'	S 22°34.8'	150°28.5'	S 21°06.4'	64°12.0'	N 5°53.1'			
9	104°09.5'	314°10.4'	N 12°14.1'	1°06.8'	N 20°05.4'	174°17.6'	S 22°34.8'	165°31.1'	S 21°06.5'	79°13.8'	N 5°53.3'			
10	119°11.9'	329°10.6'	N 12°13.3'	16°06.6'	N 20°05.3'	189°20.3'	S 22°34.9'	180°33.7'	S 21°06.5'	94°15.7'	N 5°53.5'			
11	134°14.4'	344°10.7'	N 12°12.5'	31°06.4'	N 20°05.3'	204°22.9'	S 22°34.9'	195°36.3'	S 21°06.5'	109°17.5'	N 5°53.7'			
12	149°16.8'	359°10.9'	N 12°11.7'	46°06.2'	N 20°05.3'	219°25.6'	S 22°34.9'	210°38.9'	S 21°06.6'	124°19.3'	N 5°54.0'			
13	164°19.3'	14°11.0'	N 12°10.8'	61°06.0'	N 20°05.2'	234°28.2'	S 22°35.0'	225°41.5'	S 21°06.6'	139°21.1'	N 5°54.2'			
14	179°21.8'	29°11.2'	N 12°10.0'	76°05.7'	N 20°05.2'	249°30.9'	S 22°35.0'	240°44.2'	S 21°06.6'	154°23.0'	N 5°54.4'			
15	194°24.2'	44°11.3'	N 12°09.2'	91°05.5'	N 20°05.1'	264°33.6'	S 22°35.0'	255°46.8'	S 21°06.6'	169°24.8'	N 5°54.6'			
16	209°26.7'	59°11.5'	N 12°08.3'	106°05.3'	N 20°05.1'	279°36.2'	S 22°35.0'	270°49.4'	S 21°06.7'	184°26.6'	N 5°54.8'			
17	224°29.2'	74°11.6'	N 12°07.5'	121°05.1'	N 20°05.0'	294°38.9'	S 22°35.1'	285°52.0'	S 21°06.7'	199°28.5'	N 5°55.0'			
18	239°31.6'	89°11.8'	N 12°06.7'	136°04.9'	N 20°05.0'	309°41.5'	S 22°35.1'	300°54.6'	S 21°06.7'	214°30.3'	N 5°55.2'			
19	254°34.1'	104°12.0'	N 12°05.8'	151°04.7'	N 20°04.9'	324°44.2'	S 22°35.1'	315°57.2'	S 21°06.8'	229°32.1'	N 5°55.4'			
20	269°36.6'	119°12.1'	N 12°05.0'	166°04.4'	N 20°04.9'	339°46.8'	S 22°35.1'	330°59.8'	S 21°06.8'	244°34.0'	N 5°55.6'			
21	284°39.0'	134°12.3'	N 12°04.2'	181°04.2'	N 20°04.8'	354°49.5'	S 22°35.2'	346°02.5'	S 21°06.8'	259°35.8'	N 5°55.9'			
22	299°41.5'	149°12.4'	N 12°03.3'	196°04.0'	N 20°04.8'	9°52.2'	S 22°35.2'	1°05.1'	S 21°06.9'	274°37.7'	N 5°56.1'			
23	314°43.9'	164°12.6'	N 12°02.5'	211°03.8'	N 20°04.7'	24°54.8'	S 22°35.2'	16°07.7'	S 21°06.9'	289°39.5'	N 5°56.3'			
		SD 15.8' d -0.8'		v -0.2' d -0.0'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.8' d 0.2'				
Mer. pass.		12 h 3 m 17 s		8 h 56 m		21 h 21 m		21 h 56 m		3 h 44 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Altair	-Jupiter	-Vega	-Antares	-Hadar	-Acrux	-Arcturus	-Spica
0	165°49.6'	N 12°27.3'	8.5'	-13.1'	60.0'			101°45.4'	90°53.2'	82°24.5'	77°54.1'	49°32.3'	45°04.1'
1	180°17.1'	N 12°14.2'	8.5'	-13.2'	60.0'			101°30.2'	90°16.8'	81°59.6'	77°34.9'	49°02.5'	44°28.0'
2	194°44.6'	N 12°01.1'	8.6'	-13.2'	60.0'			101°14.8'	89°40.4'	81°34.9'	77°15.8'	48°32.8'	43°51.9'
3	209°12.1'	N 11°47.8'	8.6'	-13.3'	60.0'			100°59.5'	89°04.0'	81°10.1'	76°56.7'	48°03.3'	43°15.7'
4	223°39.7'	N 11°34.5'	8.6'	-13.4'	60.1'			100°44.0'	88°27.5'	80°45.3'	76°37.7'	47°33.9'	42°39.6'
5	238°07.4'	N 11°21.1'	8.7'	-13.5'	60.1'			100°28.5'	87°51.1'	80°20.6'	76°18.7'	47°04.5'	42°03.5'
6	252°35.1'	N 11°07.6'	8.7'	-13.5'	60.1'			100°12.9'	87°14.6'	79°55.9'	75°59.8'	46°35.3'	41°27.3'
7	267°02.8'	N 10°54.1'	8.8'	-13.6'	60.1'			99°57.2'	86°38.1'	79°31.2'	75°41.0'	46°06.3'	40°51.2'
8	281°30.5'	N 10°40.5'	8.8'	-13.7'	60.1'			99°41.5'	86°01.6'	79°06.6'	75°22.2'	45°37.3'	40°15.1'
9	295°58.4'	N 10°26.8'	8.8'	-13.8'	60.1'			99°25.7'	85°25.1'	78°42.0'	75°03.5'	45°08.5'	39°38.9'
10	310°26.2'	N 10°13.0'	8.9'	-13.8'	60.1'			99°09.9'	84°48.6'	78°17.4'	74°44.9'	44°39.9'	39°02.8'
11	324°54.1'	N 9°59.2'	8.9'	-13.9'	60.1'			98°54.0'	84°12.0'	77°52.9'	74°26.3'	44°11.4'	38°26.7'
12	339°22.0'	N 9°45.3'	9.0'	-13.9'	60.1'			98°38.1'	83°35.5'	77°28.4'	74°07.8'	43°43.0'	37°50.6'
13	353°50.0'	N 9°31.4'	9.0'	-14.0'	60.2'			98°22.1'	82°58.9'	77°04.0'	73°49.4'	43°14.8'	37°14.5'
14	8°18.0'	N 9°17.4'	9.0'	-14.1'	60.2'			98°06.1'	82°22.4'	76°39.5'	73°31.1'	42°46.8'	36°38.4'
15	22°46.0'	N 9°03.3'	9.1'	-14.1'	60.2'		119°26.1'	97°50.0'	81°45.8'	76°15.2'	73°12.9'	42°18.9'	36°02.3'
16	37°14.1'	N 8°49.2'	9.1'	-14.2'	60.2'		118°49.1'	97°33.8'	81°09.2'	75°50.9'	72°54.7'	41°51.2'	35°26.2'
17	51°42.2'	N 8°35.0'	9.2'	-14.2'	60.2'		118°12.2'	97°17.6'	80°32.7'	75°26.6'	72°36.6'	41°23.8'	34°50.2'
18	66°10.4'	N 8°20.8'	9.2'	-14.3'	60.2'		117°35.2'	97°01.4'	79°56.1'	75°02.4'	72°18.7'	40°56.5'	34°14.1'
19	80°38.5'	N 8°06.5'	9.2'	-14.3'	60.2'		116°58.2'	96°45.1'	79°19.5'	74°38.3'	72°00.8'	40°29.4'	33°38.1'
20	95°06.8'	N 7°52.2'	9.3'	-14.4'	60.2'		116°21.2'	96°28.8'	78°42.9'	74°14.2'	71°43.0'	40°02.5'	33°02.1'
21	109°35.0'	N 7°37.8'	9.3'	-14.4'	60.2'		115°44.3'	96°12.5'	78°06.3'	73°50.1'	71°25.3'	39°35.8'	32°26.1'
22	124°03.3'	N 7°23.4'	9.3'	-14.5'	60.2'		115°07.3'	95°56.1'	77°29.7'	73°26.2'	71°07.7'	39°09.4'	31°50.1'
23	138°31.6'	N 7°08.9'	9.4'	-14.5'	60.2'	119°45.7'	114°30.3'	95°39.7'	76°53.0'	73°02.2'	70°50.2'	38°43.2'	31°14.2'
Mer. pass.		13 h 26 m SD 16.4'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.3'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°32.9'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°32.0'	N 89°20.7'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.7'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.3'	S 52°42.2'				

Friday 21 August 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	329°46.4'	179°12.7'	N 12°01.7'	226°03.5'	N 20°04.7'	39°57.5'	S 22°35.3'	31°10.3'	S 21°06.9'	304°41.3'	N 5°56.5'			
1	344°48.9'	194°12.9'	N 12°00.8'	241°03.3'	N 20°04.6'	55°00.1'	S 22°35.3'	46°12.9'	S 21°06.9'	319°43.2'	N 5°56.7'			
2	359°51.3'	209°13.0'	N 11°60.0'	256°03.1'	N 20°04.5'	70°02.8'	S 22°35.3'	61°15.5'	S 21°07.0'	334°45.0'	N 5°56.9'			
3	14°53.8'	224°13.2'	N 11°59.2'	271°02.9'	N 20°04.5'	85°05.4'	S 22°35.3'	76°18.1'	S 21°07.0'	349°46.9'	N 5°57.1'			
4	29°56.3'	239°13.3'	N 11°58.3'	286°02.6'	N 20°04.4'	100°08.1'	S 22°35.4'	91°20.7'	S 21°07.0'	4°48.7'	N 5°57.3'			
5	44°58.7'	254°13.5'	N 11°57.5'	301°02.4'	N 20°04.4'	115°10.7'	S 22°35.4'	106°23.4'	S 21°07.1'	19°50.6'	N 5°57.5'			
6	60°01.2'	269°13.7'	N 11°56.7'	316°02.2'	N 20°04.3'	130°13.4'	S 22°35.4'	121°26.0'	S 21°07.1'	34°52.4'	N 5°57.7'			
7	75°03.7'	284°13.8'	N 11°55.8'	331°02.0'	N 20°04.3'	145°16.0'	S 22°35.4'	136°28.6'	S 21°07.1'	49°54.3'	N 5°57.9'			
8	90°06.1'	299°14.0'	N 11°55.0'	346°01.7'	N 20°04.2'	160°18.7'	S 22°35.5'	151°31.2'	S 21°07.2'	64°56.1'	N 5°58.1'			
9	105°08.6'	314°14.1'	N 11°54.1'	1°01.5'	N 20°04.1'	175°21.3'	S 22°35.5'	166°33.8'	S 21°07.2'	79°58.0'	N 5°58.3'			
10	120°11.1'	329°14.3'	N 11°53.3'	16°01.3'	N 20°04.1'	190°24.0'	S 22°35.5'	181°36.4'	S 21°07.2'	94°59.8'	N 5°58.5'			
11	135°13.5'	344°14.4'	N 11°52.5'	31°01.0'	N 20°04.0'	205°26.6'	S 22°35.6'	196°39.0'	S 21°07.2'	110°01.7'	N 5°58.8'			
12	150°16.0'	359°14.6'	N 11°51.6'	46°00.8'	N 20°03.9'	220°29.3'	S 22°35.6'	211°41.6'	S 21°07.3'	125°03.5'	N 5°59.0'			
13	165°18.4'	14°14.7'	N 11°50.8'	61°00.6'	N 20°03.9'	235°31.9'	S 22°35.6'	226°44.2'	S 21°07.3'	140°05.4'	N 5°59.2'			
14	180°20.9'	29°14.9'	N 11°50.0'	76°00.3'	N 20°03.8'	250°34.6'	S 22°35.6'	241°46.9'	S 21°07.3'	155°07.2'	N 5°59.4'			
15	195°23.4'	44°15.1'	N 11°49.1'	91°00.1'	N 20°03.8'	265°37.2'	S 22°35.7'	256°49.5'	S 21°07.4'	170°09.1'	N 5°59.6'			
16	210°25.8'	59°15.2'	N 11°48.3'	105°59.9'	N 20°03.7'	280°39.9'	S 22°35.7'	271°52.1'	S 21°07.4'	185°11.0'	N 5°59.8'			
17	225°28.3'	74°15.4'	N 11°47.4'	120°59.6'	N 20°03.6'	295°42.5'	S 22°35.7'	286°54.7'	S 21°07.4'	200°12.8'	N 5°60.0'			
18	240°30.8'	89°15.5'	N 11°46.6'	135°59.4'	N 20°03.6'	310°45.2'	S 22°35.7'	301°57.3'	S 21°07.5'	215°14.7'	N 5°60.2'			
19	255°33.2'	104°15.7'	N 11°45.8'	150°59.2'	N 20°03.5'	325°47.8'	S 22°35.8'	316°59.9'	S 21°07.5'	230°16.5'	N 5°60.4'			
20	270°35.7'	119°15.8'	N 11°44.9'	165°58.9'	N 20°03.4'	340°50.5'	S 22°35.8'	332°02.5'	S 21°07.5'	245°18.4'	N 5°60.6'			
21	285°38.2'	134°16.0'	N 11°44.1'	180°58.7'	N 20°03.3'	355°53.1'	S 22°35.8'	347°05.1'	S 21°07.5'	260°20.3'	N 5°60.8'			
22	300°40.6'	149°16.2'	N 11°43.2'	195°58.5'	N 20°03.3'	10°55.8'	S 22°35.8'	2°07.7'	S 21°07.6'	275°22.1'	N 5°61.0'			
23	315°43.1'	164°16.3'	N 11°42.4'	210°58.2'	N 20°03.2'	25°58.4'	S 22°35.9'	17°10.4'	S 21°07.6'	290°24.0'	N 5°61.2'			
		SD 15.8' d -0.8'		v -0.2' d -0.1'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 1.9' d 0.2'				
Mer. pass.		12 h 3 m 2 s		8 h 56 m		21 h 16 m		21 h 52 m		3 h 41 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Saturn	-Altair	-Jupiter	-Vega	-Hadar	-Acrux	-Arcturus	-Spica
0	152°60.0'	N 6°54.4'	9.4'	-14.6'	60.2'		119°16.5'	113°53.3'	95°23.2'	72°38.4'	70°32.8'	38°17.2'	30°38.3'
1	167°28.4'	N 6°39.9'	9.4'	-14.6'	60.2'		118°47.3'	113°16.3'	95°06.8'	72°14.6'	70°15.5'	37°51.5'	30°02.4'
2	181°56.8'	N 6°25.3'	9.4'	-14.6'	60.2'		118°18.0'	112°39.3'	94°50.2'	71°50.9'	69°58.4'	37°26.0'	29°26.5'
3	196°25.3'	N 6°10.6'	9.5'	-14.7'	60.2'		117°48.6'	112°02.3'	94°33.7'	71°27.3'	69°41.3'	37°00.9'	28°50.7'
4	210°53.7'	N 5°56.0'	9.5'	-14.7'	60.2'	119°39.5'	117°19.1'	111°25.3'	94°17.1'	71°03.8'	69°24.4'	36°36.0'	28°15.0'
5	225°22.2'	N 5°41.3'	9.5'	-14.7'	60.2'	119°02.6'	116°49.5'	110°48.3'	94°00.6'	70°40.3'	69°07.5'	36°11.4'	27°39.2'
6	239°50.8'	N 5°26.5'	9.6'	-14.8'	60.2'	118°25.6'	116°19.9'	110°11.3'	93°43.9'	70°16.9'	68°50.8'	35°47.1'	27°03.5'
7	254°19.3'	N 5°11.7'	9.6'	-14.8'	60.2'	117°48.7'	115°50.2'	109°34.3'	93°27.3'	69°53.6'	68°34.2'	35°23.1'	26°27.9'
8	268°47.9'	N 4°56.9'	9.6'	-14.8'	60.2'	117°11.7'	115°20.4'	108°57.3'	93°10.7'	69°30.4'	68°17.8'	34°59.4'	25°52.3'
9	283°16.6'	N 4°42.1'	9.6'	-14.9'	60.2'	116°34.8'	114°50.6'	108°20.3'	92°54.0'	69°07.3'	68°01.4'	34°36.1'	25°16.8'
10	297°45.2'	N 4°27.2'	9.7'	-14.9'	60.2'	115°57.8'	114°20.7'	107°43.3'	92°37.3'	68°44.2'	67°45.2'	34°13.1'	24°41.3'
11	312°13.9'	N 4°12.4'	9.7'	-14.9'	60.2'	115°20.9'	113°50.8'	107°06.3'	92°20.6'	68°21.3'	67°29.1'	33°50.4'	24°05.9'
12	326°42.6'	N 3°57.5'	9.7'	-14.9'	60.2'	114°43.9'	113°20.8'	106°29.3'	92°03.9'	67°58.4'	67°13.2'	33°28.2'	23°30.6'
13	341°11.3'	N 3°42.5'	9.7'	-15.0'	60.2'	114°07.0'	112°50.7'	105°52.3'	91°47.2'	67°35.7'	66°57.4'	33°06.3'	22°55.3'
14	355°40.0'	N 3°27.6'	9.8'	-15.0'	60.2'	113°30.1'	112°20.6'	105°15.3'	91°30.5'	67°13.1'	66°41.7'	32°44.8'	22°20.2'
15	10°08.8'	N 3°12.6'	9.8'	-15.0'	60.2'	112°53.1'	111°50.4'	104°38.3'	91°13.8'	66°50.5'	66°26.1'	32°23.8'	21°45.1'
16	24°37.5'	N 2°57.6'	9.8'	-15.0'	60.2'	112°16.2'	111°20.2'	104°01.3'	90°57.0'	66°28.1'	66°10.8'	32°03.1'	21°10.1'
17	39°06.3'	N 2°42.6'	9.8'	-15.0'	60.2'	111°39.3'	110°50.0'	103°24.3'	90°40.3'	66°05.8'	65°55.5'	31°42.9'	20°35.2'
18	53°35.2'	N 2°27.6'	9.8'	-15.0'	60.2'	111°02.4'	110°19.7'	102°47.4'	90°23.5'	65°43.6'		31°23.2'	20°00.5'
19	68°04.0'	N 2°12.6'	9.9'	-15.0'	60.2'	110°25.4'	109°49.3'	102°10.4'	90°06.8'	65°21.5'		31°03.9'	19°25.8'
20	82°32.9'	N 1°57.5'	9.9'	-15.0'	60.2'	109°48.5'	109°18.9'	101°33.4'	89°50.1'	64°59.5'		30°45.1'	18°51.4'
21	97°01.7'	N 1°42.5'	9.9'	-15.1'	60.2'	109°11.6'	108°48.5'	100°56.5'	89°33.3'	64°37.7'		30°26.8'	18°17.0'
22	111°30.6'	N 1°27.4'	9.9'	-15.1'	60.2'	108°34.7'	108°18.1'	100°19.5'	89°16.6'	64°16.0'		30°09.0'	17°42.8'
23	125°59.5'	N 1°12.4'	9.9'	-15.1'	60.2'	107°57.8'	107°47.6'	99°42.6'	88°59.9'	63°54.4'		29°51.8'	17°08.8'
Mer. pass.		14 h 18 m SD 16.4'		phase 5%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°31.6'	N 89°20.7'
Rigil Kent	-0.0	139°45.2'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.7'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.3'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	330°45.6'	179°16.5' N 11°41.6'	225°58.0' N 20°03.1'	41°01.1' S 22°35.9'	32°13.0' S 21°07.6'	305°25.9' N 6°01.4'						
1	345°48.0'	194°16.6' N 11°40.7'	240°57.7' N 20°03.1'	56°03.7' S 22°35.9'	47°15.6' S 21°07.7'	320°27.7' N 6°01.6'						
2	0°50.5'	209°16.8' N 11°39.9'	255°57.5' N 20°03.0'	71°06.3' S 22°35.9'	62°18.2' S 21°07.7'	335°29.6' N 6°01.8'						
3	15°52.9'	224°17.0' N 11°39.0'	270°57.3' N 20°02.9'	86°09.0' S 22°36.0'	77°20.8' S 21°07.7'	350°31.5' N 6°02.0'						
4	30°55.4'	239°17.1' N 11°38.2'	285°57.0' N 20°02.8'	101°11.6' S 22°36.0'	92°23.4' S 21°07.7'	5°33.4' N 6°02.2'						
5	45°57.9'	254°17.3' N 11°37.3'	300°56.8' N 20°02.8'	116°14.3' S 22°36.0'	107°26.0' S 21°07.8'	20°35.2' N 6°02.4'						
6	61°00.3'	269°17.4' N 11°36.5'	315°56.5' N 20°02.7'	131°16.9' S 22°36.0'	122°28.6' S 21°07.8'	35°37.1' N 6°02.6'						
7	76°02.8'	284°17.6' N 11°35.7'	330°56.3' N 20°02.6'	146°19.6' S 22°36.1'	137°31.2' S 21°07.8'	50°39.0' N 6°02.8'						
8	91°05.3'	299°17.8' N 11°34.8'	345°56.1' N 20°02.5'	161°22.2' S 22°36.1'	152°33.8' S 21°07.9'	65°40.9' N 6°03.0'						
9	106°07.7'	314°17.9' N 11°34.0'	0°55.8' N 20°02.4'	176°24.9' S 22°36.1'	167°36.5' S 21°07.9'	80°42.7' N 6°03.2'						
10	121°10.2'	329°18.1' N 11°33.1'	15°55.6' N 20°02.4'	191°27.5' S 22°36.2'	182°39.1' S 21°07.9'	95°44.6' N 6°03.3'						
11	136°12.7'	344°18.2' N 11°32.3'	30°55.3' N 20°02.3'	206°30.1' S 22°36.2'	197°41.7' S 21°07.9'	110°46.5' N 6°03.5'						
12	151°15.1'	359°18.4' N 11°31.4'	45°55.1' N 20°02.2'	221°32.8' S 22°36.2'	212°44.3' S 21°08.0'	125°48.4' N 6°03.7'						
13	166°17.6'	14°18.6' N 11°30.6'	60°54.8' N 20°02.1'	236°35.4' S 22°36.2'	227°46.9' S 21°08.0'	140°50.3' N 6°03.9'						
14	181°20.0'	29°18.7' N 11°29.7'	75°54.6' N 20°02.0'	251°38.1' S 22°36.3'	242°49.5' S 21°08.0'	155°52.2' N 6°04.1'						
15	196°22.5'	44°18.9' N 11°28.9'	90°54.3' N 20°02.0'	266°40.7' S 22°36.3'	257°52.1' S 21°08.1'	170°54.0' N 6°04.3'						
16	211°25.0'	59°19.1' N 11°28.0'	105°54.1' N 20°01.9'	281°43.4' S 22°36.3'	272°54.7' S 21°08.1'	185°55.9' N 6°04.5'						
17	226°27.4'	74°19.2' N 11°27.2'	120°53.8' N 20°01.8'	296°46.0' S 22°36.3'	287°57.3' S 21°08.1'	200°57.8' N 6°04.7'						
18	241°29.9'	89°19.4' N 11°26.3'	135°53.6' N 20°01.7'	311°48.6' S 22°36.4'	302°59.9' S 21°08.2'	215°59.7' N 6°04.9'						
19	256°32.4'	104°19.5' N 11°25.5'	150°53.4' N 20°01.6'	326°51.3' S 22°36.4'	318°02.5' S 21°08.2'	231°01.6' N 6°05.1'						
20	271°34.8'	119°19.7' N 11°24.7'	165°53.1' N 20°01.5'	341°53.9' S 22°36.4'	333°05.1' S 21°08.2'	246°03.5' N 6°05.3'						
21	286°37.3'	134°19.9' N 11°23.8'	180°52.9' N 20°01.4'	356°56.6' S 22°36.4'	348°07.7' S 21°08.2'	261°05.4' N 6°05.5'						
22	301°39.8'	149°20.0' N 11°23.0'	195°52.6' N 20°01.3'	11°59.2' S 22°36.5'	3°10.4' S 21°08.3'	276°07.3' N 6°05.7'						
23	316°42.2'	164°20.2' N 11°22.1'	210°52.3' N 20°01.2'	27°01.8' S 22°36.5'	18°13.0' S 21°08.3'	291°09.2' N 6°05.9'						
		SD 15.8' d -0.8'	v -0.2' d -0.1'	v 2.6' d -0.0'	v 2.6' d -0.0'	v 1.9' d 0.2'						
Mer. pass.		12 h 2 m 47 s	8 h 56 m	21 h 12 m	21 h 47 m	3 h 38 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Saturn	-Altair	-Jupiter	-Hadar	-Antares	-Arcturus	-Spica	+Sun
0	140°28.4'	N 0°57.3'	9.9'	-15.1'	60.2'	107°21.0'	107°17.0'	99°05.7'	63°32.9'	61°38.3'	29°35.1'	16°35.0'	
1	154°57.3'	N 0°42.3'	9.9'	-15.1'	60.2'	106°44.1'	106°46.5'	98°28.7'	63°11.6'	61°01.8'	29°18.9'	16°01.4'	40°32.1'
2	169°26.3'	N 0°27.2'	9.9'	-15.1'	60.2'	106°07.2'	106°15.9'	97°51.8'	62°50.4'	60°25.3'		15°28.1'	41°06.2'
3	183°55.2'	N 0°12.1'	10.0'	-15.1'	60.2'	105°30.4'	105°45.3'	97°14.9'	62°29.4'	59°48.8'		14°55.0'	41°40.3'
4	198°24.2'	S 0°02.9'	10.0'	-15.1'	60.2'	104°53.5'	105°14.7'	96°38.0'	62°08.5'	59°12.4'		14°22.3'	42°14.4'
5	212°53.2'	S 0°18.0'	10.0'	-15.1'	60.2'	104°16.7'	104°44.0'	96°01.2'	61°47.7'	58°35.9'		13°49.8'	42°48.4'
6	227°22.1'	S 0°33.0'	10.0'	-15.0'	60.2'	103°39.9'	104°13.3'	95°24.3'	61°27.1'	57°59.5'		13°17.8'	43°22.5'
7	241°51.1'	S 0°48.1'	10.0'	-15.0'	60.2'	103°03.1'	103°42.6'	94°47.4'	61°06.6'	57°23.1'		12°46.1'	43°56.6'
8	256°20.1'	S 1°03.1'	10.0'	-15.0'	60.2'	102°26.3'	103°11.9'	94°10.6'	60°46.3'	56°46.7'		12°15.0'	44°30.7'
9	270°49.1'	S 1°18.2'	10.0'	-15.0'	60.2'	101°49.5'	102°41.2'	93°33.8'	60°26.2'	56°10.3'		11°44.3'	45°04.7'
10	285°18.1'	S 1°33.2'	10.0'	-15.0'	60.1'	101°12.7'	102°10.4'	92°56.9'	60°06.2'	55°33.9'		11°14.3'	45°38.8'
11	299°47.1'	S 1°48.2'	10.0'	-15.0'	60.1'	100°35.9'	101°39.6'	92°20.1'	59°46.4'	54°57.6'		10°44.9'	46°12.8'
12	314°16.1'	S 2°03.1'	10.0'	-15.0'	60.1'	99°59.2'	101°08.9'	91°43.3'	59°26.8'	54°21.2'			46°46.8'
13	328°45.1'	S 2°18.1'	10.0'	-14.9'	60.1'	99°22.5'	100°38.1'	91°06.5'	59°07.3'	53°44.9'			47°20.9'
14	343°14.1'	S 2°33.1'	10.0'	-14.9'	60.1'	98°45.7'	100°07.3'	90°29.8'	58°48.0'	53°08.6'			47°54.9'
15	357°43.2'	S 2°48.0'	10.0'	-14.9'	60.1'	98°09.0'	99°36.5'	89°53.0'	58°28.9'	52°32.3'			48°28.9'
16	12°12.2'	S 3°02.9'	10.0'	-14.9'	60.1'	97°32.3'	99°05.7'	89°16.3'	58°09.9'	51°56.1'			49°02.9'
17	26°41.2'	S 3°17.8'	10.0'	-14.9'	60.1'	96°55.7'	98°34.8'	88°39.6'	57°51.2'	51°19.9'			49°36.8'
18	41°10.2'	S 3°32.6'	10.0'	-14.8'	60.1'	96°19.0'	98°04.0'	88°02.9'	57°32.6'	50°43.6'			50°10.8'
19	55°39.2'	S 3°47.5'	10.0'	-14.8'	60.1'	95°42.4'	97°33.2'	87°26.2'	57°14.2'	50°07.4'			50°44.7'
20	70°08.2'	S 4°02.3'	10.0'	-14.8'	60.0'	95°05.7'	97°02.4'	86°49.5'	56°56.1'	49°31.3'			51°18.7'
21	84°37.2'	S 4°17.0'	10.0'	-14.7'	60.0'	94°29.1'	96°31.5'	86°12.9'	56°38.1'	48°55.1'			51°52.6'
22	99°06.2'	S 4°31.8'	10.0'	-14.7'	60.0'	93°52.5'	96°00.7'	85°36.2'	56°20.3'	48°19.0'			52°26.5'
23	113°35.2'	S 4°46.5'	10.0'	-14.7'	60.0'	93°16.0'	95°29.9'	84°59.6'	56°02.7'	47°42.9'			53°00.4'
Mer. pass.													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°16.0'	Betelgeuse	+0.5	270°56.1'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°31.2'	N 89°20.7'
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.3'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	331°44.7'		179°20.4'	N 11°21.3'	225°52.1'	N 20°01.2'	42°04.5'	S 22°36.5'	33°15.6'	S 21°08.3'	306°11.1'	N 6°06.0'
1	346°47.2'		194°20.5'	N 11°20.4'	240°51.8'	N 20°01.1'	57°07.1'	S 22°36.5'	48°18.2'	S 21°08.4'	321°13.0'	N 6°06.2'
2	1°49.6'		209°20.7'	N 11°19.6'	255°51.6'	N 20°01.0'	72°09.7'	S 22°36.6'	63°20.8'	S 21°08.4'	336°14.9'	N 6°06.4'
3	16°52.1'		224°20.9'	N 11°18.7'	270°51.3'	N 20°00.9'	87°12.4'	S 22°36.6'	78°23.4'	S 21°08.4'	351°16.8'	N 6°06.6'
4	31°54.5'		239°21.0'	N 11°17.9'	285°51.1'	N 20°00.8'	102°15.0'	S 22°36.6'	93°26.0'	S 21°08.4'	6°18.7'	N 6°06.8'
5	46°57.0'		254°21.2'	N 11°17.0'	300°50.8'	N 20°00.7'	117°17.7'	S 22°36.6'	108°28.6'	S 21°08.5'	21°20.6'	N 6°07.0'
6	61°59.5'		269°21.3'	N 11°16.2'	315°50.6'	N 20°00.6'	132°20.3'	S 22°36.7'	123°31.2'	S 21°08.5'	36°22.5'	N 6°07.2'
7	77°01.9'		284°21.5'	N 11°15.3'	330°50.3'	N 20°00.5'	147°22.9'	S 22°36.7'	138°33.8'	S 21°08.5'	51°24.4'	N 6°07.4'
8	92°04.4'		299°21.7'	N 11°14.5'	345°50.1'	N 20°00.4'	162°25.6'	S 22°36.7'	153°36.4'	S 21°08.6'	66°26.3'	N 6°07.5'
9	107°06.9'		314°21.8'	N 11°13.6'	0°49.8'	N 20°00.3'	177°28.2'	S 22°36.7'	168°39.0'	S 21°08.6'	81°28.2'	N 6°07.7'
10	122°09.3'		329°22.0'	N 11°12.7'	15°49.5'	N 20°00.2'	192°30.8'	S 22°36.7'	183°41.6'	S 21°08.6'	96°30.1'	N 6°07.9'
11	137°11.8'		344°22.2'	N 11°11.9'	30°49.3'	N 20°00.1'	207°33.5'	S 22°36.8'	198°44.2'	S 21°08.6'	111°32.0'	N 6°08.1'
12	152°14.3'		359°22.3'	N 11°11.0'	45°49.0'	N 20°00.0'	222°36.1'	S 22°36.8'	213°46.8'	S 21°08.7'	126°33.9'	N 6°08.3'
13	167°16.7'		14°22.5'	N 11°10.2'	60°48.8'	N 19°59.9'	237°38.7'	S 22°36.8'	228°49.4'	S 21°08.7'	141°35.8'	N 6°08.5'
14	182°19.2'		29°22.7'	N 11°09.3'	75°48.5'	N 19°59.8'	252°41.4'	S 22°36.8'	243°52.1'	S 21°08.7'	156°37.7'	N 6°08.7'
15	197°21.6'		44°22.8'	N 11°08.5'	90°48.3'	N 19°59.7'	267°44.0'	S 22°36.9'	258°54.7'	S 21°08.8'	171°39.6'	N 6°08.8'
16	212°24.1'		59°23.0'	N 11°07.6'	105°48.0'	N 19°59.6'	282°46.6'	S 22°36.9'	273°57.3'	S 21°08.8'	186°41.6'	N 6°09.0'
17	227°26.6'		74°23.2'	N 11°06.8'	120°47.7'	N 19°59.5'	297°49.3'	S 22°36.9'	288°59.9'	S 21°08.8'	201°43.5'	N 6°09.2'
18	242°29.0'		89°23.3'	N 11°05.9'	135°47.5'	N 19°59.4'	312°51.9'	S 22°36.9'	304°02.5'	S 21°08.8'	216°45.4'	N 6°09.4'
19	257°31.5'		104°23.5'	N 11°05.1'	150°47.2'	N 19°59.3'	327°54.5'	S 22°37.0'	319°05.1'	S 21°08.9'	231°47.3'	N 6°09.6'
20	272°34.0'		119°23.7'	N 11°04.2'	165°46.9'	N 19°59.2'	342°57.2'	S 22°37.0'	334°07.7'	S 21°08.9'	246°49.2'	N 6°09.8'
21	287°36.4'		134°23.8'	N 11°03.3'	180°46.7'	N 19°59.1'	357°59.8'	S 22°37.0'	349°10.3'	S 21°08.9'	261°51.1'	N 6°09.9'
22	302°38.9'		149°24.0'	N 11°02.5'	195°46.4'	N 19°59.0'	13°02.4'	S 22°37.0'	4°12.9'	S 21°08.9'	276°53.1'	N 6°10.1'
23	317°41.4'		164°24.2'	N 11°01.6'	210°46.2'	N 19°58.8'	28°05.1'	S 22°37.1'	19°15.5'	S 21°09.0'	291°55.0'	N 6°10.3'
			SD 15.8' d -0.9'		v -0.3' d -0.1'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 1.9' d 0.2'	
Mer. pass.			12 h 2 m 31 s		8 h 57 m		21 h 8 m		21 h 43 m		3 h 35 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Achernar	-Rigel Kent	-Hadar	-Antares	-Spica	+Arcturus	+Sun
0	128°04.1'	S 5°01.2'	10.0'	-14.6'	60.0'			57°16.9'	55°45.4'	47°06.8'			53°34.3'
1	142°33.1'	S 5°15.8'	10.0'	-14.6'	60.0'			56°57.0'	55°28.2'	46°30.7'			54°08.1'
2	157°02.1'	S 5°30.4'	9.9'	-14.6'	60.0'			56°37.4'	55°11.3'	45°54.7'			54°42.0'
3	171°31.0'	S 5°45.0'	9.9'	-14.5'	60.0'			56°17.9'	54°54.6'	45°18.7'			55°15.8'
4	185°59.9'	S 5°59.5'	9.9'	-14.5'	59.9'			55°58.6'	54°38.1'	44°42.7'			55°49.6'
5	200°28.9'	S 6°14.0'	9.9'	-14.4'	59.9'			55°39.5'	54°21.8'	44°06.8'			56°23.4'
6	214°57.8'	S 6°28.4'	9.9'	-14.4'	59.9'			55°20.6'	54°05.8'	43°30.9'			56°57.2'
7	229°26.7'	S 6°42.8'	9.9'	-14.4'	59.9'			55°01.9'	53°50.0'	42°55.0'			57°30.9'
8	243°55.6'	S 6°57.2'	9.9'	-14.3'	59.9'			54°43.4'	53°34.4'	42°19.1'			58°04.7'
9	258°24.4'	S 7°11.5'	9.9'	-14.3'	59.9'			54°25.2'	53°19.1'	41°43.3'			58°38.4'
10	272°53.3'	S 7°25.7'	9.8'	-14.2'	59.9'			54°07.1'		41°07.5'			59°12.1'
11	287°22.1'	S 7°39.9'	9.8'	-14.2'	59.8'			53°49.3'		40°31.7'			59°45.8'
12	301°51.0'	S 7°54.1'	9.8'	-14.1'	59.8'			53°31.7'		39°56.0'			60°19.4'
13	316°19.8'	S 8°08.2'	9.8'	-14.0'	59.8'			53°14.3'		39°20.3'			60°53.1'
14	330°48.5'	S 8°22.2'	9.8'	-14.0'	59.8'			52°57.1'		38°44.6'			61°26.7'
15	345°17.3'	S 8°36.2'	9.7'	-13.9'	59.8'			52°40.2'		38°09.0'	10°41.2'		62°00.3'
16	359°46.0'	S 8°50.2'	9.7'	-13.9'	59.8'			52°23.5'		37°33.4'	11°10.1'		62°33.9'
17	14°14.8'	S 9°04.0'	9.7'	-13.8'	59.7'	119°27.6'	113°25.7'	52°07.1'		36°57.9'	11°39.5'		63°07.4'
18	28°43.5'	S 9°17.8'	9.7'	-13.8'	59.7'	118°53.5'	113°09.0'	51°50.9'		36°22.3'	12°09.6'		63°41.0'
19	43°12.1'	S 9°31.6'	9.7'	-13.7'	59.7'	118°19.4'	112°52.0'	51°34.9'		35°46.9'	12°40.1'		64°14.5'
20	57°40.8'	S 9°45.3'	9.6'	-13.6'	59.7'	117°45.3'	112°35.0'	51°19.2'		35°11.4'	13°11.1'		64°48.0'
21	72°09.4'	S 9°58.9'	9.6'	-13.6'	59.7'	117°11.1'	112°17.9'	51°03.8'		34°36.0'	13°42.5'	29°05.4'	65°21.4'
22	86°38.0'	S 10°12.5'	9.6'	-13.5'	59.6'	116°37.0'	112°00.7'			34°00.7'	14°14.2'	29°20.8'	65°54.9'
23	101°06.6'	S 10°26.0'	9.6'	-13.4'	59.6'	116°02.9'	111°43.3'			33°25.3'	14°46.2'	29°36.6'	66°28.3'
Mer. pass.			16 h 1 m SD 16.4'	phase 20%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec	
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.1'	N 7°24.7'	
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.3'	N 46°00.9'	
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'	
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'	
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°30.7'	N 89°20.7'	
Rigel Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'	
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'					
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.3'	S 52°42.2'					

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	332°43.8'		179°24.3'	N 11°00.8'	225°45.9'	N 19°58.7'	43°07.7'	S 22°37.1'	34°18.1'	S 21°09.0'	306°56.9'	N 6°10.5'
1	347°46.3'		194°24.5'	N 10°59.9'	240°45.6'	N 19°58.6'	58°10.3'	S 22°37.1'	49°20.7'	S 21°09.0'	321°58.8'	N 6°10.7'
2	2°48.8'		209°24.7'	N 10°59.1'	255°45.4'	N 19°58.5'	73°13.0'	S 22°37.1'	64°23.3'	S 21°09.1'	337°00.8'	N 6°10.8'
3	17°51.2'		224°24.9'	N 10°58.2'	270°45.1'	N 19°58.4'	88°15.6'	S 22°37.2'	79°25.9'	S 21°09.1'	352°02.7'	N 6°11.0'
4	32°53.7'		239°25.0'	N 10°57.4'	285°44.8'	N 19°58.3'	103°18.2'	S 22°37.2'	94°28.5'	S 21°09.1'	7°04.6'	N 6°11.2'
5	47°56.1'		254°25.2'	N 10°56.5'	300°44.6'	N 19°58.2'	118°20.9'	S 22°37.2'	109°31.1'	S 21°09.1'	22°06.6'	N 6°11.4'
6	62°58.6'		269°25.4'	N 10°55.6'	315°44.3'	N 19°58.1'	133°23.5'	S 22°37.2'	124°33.7'	S 21°09.2'	37°08.5'	N 6°11.6'
7	78°01.1'		284°25.5'	N 10°54.8'	330°44.0'	N 19°57.9'	148°26.1'	S 22°37.3'	139°36.3'	S 21°09.2'	52°10.4'	N 6°11.7'
8	93°03.5'		299°25.7'	N 10°53.9'	345°43.8'	N 19°57.8'	163°28.7'	S 22°37.3'	154°38.9'	S 21°09.2'	67°12.3'	N 6°11.9'
9	108°06.0'		314°25.9'	N 10°53.1'	0°43.5'	N 19°57.7'	178°31.4'	S 22°37.3'	169°41.5'	S 21°09.3'	82°14.3'	N 6°12.1'
10	123°08.5'		329°26.0'	N 10°52.2'	15°43.2'	N 19°57.6'	193°34.0'	S 22°37.3'	184°44.1'	S 21°09.3'	97°16.2'	N 6°12.3'
11	138°10.9'		344°26.4'	N 10°51.3'	30°42.9'	N 19°57.5'	208°36.6'	S 22°37.3'	199°46.7'	S 21°09.3'	112°18.2'	N 6°12.4'
12	153°13.4'		359°26.4'	N 10°50.5'	45°42.7'	N 19°57.3'	223°39.2'	S 22°37.4'	214°49.3'	S 21°09.3'	127°20.1'	N 6°12.6'
13	168°15.9'		14°26.6'	N 10°49.6'	60°42.4'	N 19°57.2'	238°41.9'	S 22°37.4'	229°51.9'	S 21°09.4'	142°22.0'	N 6°12.8'
14	183°18.3'		29°26.7'	N 10°48.8'	75°42.1'	N 19°57.1'	253°44.5'	S 22°37.4'	244°54.5'	S 21°09.4'	157°24.0'	N 6°13.0'
15	198°20.8'		44°26.9'	N 10°47.9'	90°41.9'	N 19°57.0'	268°47.1'	S 22°37.4'	259°57.1'	S 21°09.4'	172°25.9'	N 6°13.2'
16	213°23.3'		59°27.1'	N 10°47.0'	105°41.6'	N 19°56.9'	283°49.8'	S 22°37.5'	274°59.7'	S 21°09.5'	187°27.9'	N 6°13.3'
17	228°25.7'		74°27.2'	N 10°46.2'	120°41.3'	N 19°56.7'	298°52.4'	S 22°37.5'	290°02.3'	S 21°09.5'	202°29.8'	N 6°13.5'
18	243°28.2'		89°27.4'	N 10°45.3'	135°41.0'	N 19°56.6'	313°55.0'	S 22°37.5'	305°05.0'	S 21°09.5'	217°31.7'	N 6°13.7'
19	258°30.6'		104°27.6'	N 10°44.4'	150°40.8'	N 19°56.5'	328°57.6'	S 22°37.5'	320°07.6'	S 21°09.5'	232°33.7'	N 6°13.8'
20	273°33.1'		119°27.8'	N 10°43.6'	165°40.5'	N 19°56.4'	344°00.3'	S 22°37.6'	335°10.2'	S 21°09.6'	247°35.6'	N 6°14.0'
21	288°35.6'		134°27.9'	N 10°42.7'	180°40.2'	N 19°56.2'	359°02.9'	S 22°37.6'	350°12.8'	S 21°09.6'	262°37.6'	N 6°14.2'
22	303°38.0'		149°28.1'	N 10°41.9'	195°39.9'	N 19°56.1'	14°05.5'	S 22°37.6'	5°15.4'	S 21°09.6'	277°39.5'	N 6°14.4'
23	318°40.5'		164°28.3'	N 10°41.0'	210°39.7'	N 19°56.0'	29°08.1'	S 22°37.6'	20°18.0'	S 21°09.6'	292°41.5'	N 6°14.5'
			SD 15.8' d -0.9'		v -0.3' d -0.1'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 1.9' d 0.2'	
Mer. pass.			12 h 2 m 15 s		8 h 57 m		21 h 4 m		21 h 39 m		3 h 32 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Sun
0	115°35.2'	S 10°39.4'	9.5'	-13.4'	59.6'	115°28.8'	82°44.1'	78°08.1'	69°50.7'	32°50.1'	15°18.4'	29°53.0'	67°01.7'
1	130°03.7'	S 10°52.7'	9.5'	-13.3'	59.6'	114°54.7'	82°13.8'	77°32.1'	69°14.7'	32°14.8'	15°50.9'	30°09.9'	67°35.1'
2	144°32.2'	S 11°06.0'	9.5'	-13.2'	59.6'	114°20.5'	81°43.5'	76°56.1'	68°38.7'	31°39.7'	16°23.7'	30°27.3'	68°08.4'
3	159°00.7'	S 11°19.2'	9.4'	-13.1'	59.6'	113°46.5'	81°13.2'	76°20.1'	68°02.6'	31°04.5'	16°56.6'	30°45.1'	68°41.8'
4	173°29.1'	S 11°32.4'	9.4'	-13.1'	59.5'	113°12.4'	80°43.1'	75°44.2'	67°26.7'	30°29.4'	17°29.6'	31°03.4'	69°15.1'
5	187°57.5'	S 11°45.4'	9.4'	-13.0'	59.5'	112°38.3'	80°12.9'	75°08.2'	66°50.7'	29°54.4'	18°02.8'	31°22.1'	69°48.3'
6	202°25.9'	S 11°58.4'	9.4'	-12.9'	59.5'	112°04.2'	79°42.8'	74°32.4'	66°14.8'	29°19.4'	18°36.2'	31°41.3'	70°21.6'
7	216°54.2'	S 12°11.3'	9.3'	-12.8'	59.5'	111°30.1'	79°12.7'	73°56.5'	65°38.9'	28°44.5'	19°09.6'	32°00.9'	70°54.8'
8	231°22.6'	S 12°24.1'	9.3'	-12.7'	59.5'	110°56.1'	78°42.7'	73°20.6'	65°03.0'	28°09.7'	19°43.2'	32°20.8'	71°28.0'
9	245°50.9'	S 12°36.9'	9.3'	-12.7'	59.4'	110°22.1'	78°12.7'	72°44.8'	64°27.1'	27°34.9'	20°16.9'	32°41.2'	72°01.2'
10	260°19.1'	S 12°49.6'	9.2'	-12.6'	59.4'	109°48.0'	77°42.7'	72°09.0'	63°51.3'	27°00.1'	20°50.6'	33°01.9'	72°34.4'
11	274°47.3'	S 13°02.1'	9.2'	-12.5'	59.4'	109°14.0'	77°12.8'	71°33.3'	63°15.5'	26°25.4'	21°24.4'	33°23.0'	73°07.5'
12	289°15.5'	S 13°14.6'	9.2'	-12.4'	59.4'	108°40.0'	76°43.0'	70°57.5'	62°39.7'	25°50.8'	21°58.3'	33°44.5'	73°40.6'
13	303°43.7'	S 13°27.1'	9.1'	-12.3'	59.4'	108°06.0'	76°13.2'	70°21.8'	62°04.0'	25°16.3'	22°32.3'	34°06.2'	74°13.7'
14	318°11.8'	S 13°39.4'	9.1'	-12.2'	59.3'	107°32.0'	75°43.4'	69°46.1'	61°28.3'	24°41.8'	23°06.3'	34°28.3'	74°46.7'
15	332°39.9'	S 13°51.6'	9.1'	-12.2'	59.3'	106°58.1'	75°13.7'	69°10.5'	60°52.6'	24°07.4'	23°40.3'	34°50.7'	75°19.8'
16	347°08.0'	S 14°03.8'	9.0'	-12.1'	59.3'	106°24.1'	74°44.1'	68°34.8'	60°16.9'	23°33.1'	24°14.4'	35°13.4'	75°52.8'
17	1°36.0'	S 14°15.8'	9.0'	-12.0'	59.3'	105°50.2'	74°14.5'	67°59.2'	59°41.3'	22°58.9'	24°48.6'	35°36.4'	76°25.7'
18	16°04.0'	S 14°27.8'	9.0'	-11.9'	59.2'	105°16.3'	73°44.9'	67°23.7'	59°05.7'	22°24.7'	25°22.7'	35°59.7'	76°58.7'
19	30°32.0'	S 14°39.7'	8.9'	-11.8'	59.2'	104°42.4'	73°15.4'	66°48.1'	58°30.1'	21°50.7'	25°56.9'	36°23.2'	77°31.6'
20	44°59.9'	S 14°51.5'	8.9'	-11.7'	59.2'	104°08.5'	72°46.0'	66°12.6'	57°54.5'	21°16.7'	26°31.2'	36°47.0'	78°04.5'
21	59°27.8'	S 15°03.1'	8.8'	-11.6'	59.2'	103°34.7'	72°16.6'	65°37.1'	57°19.0'	20°42.9'	27°05.4'	37°11.0'	78°37.4'
22	73°55.6'	S 15°14.7'	8.8'	-11.5'	59.2'	103°00.8'	71°47.3'	65°01.6'	56°43.5'	20°09.1'	27°39.7'	37°35.3'	79°10.2'
23	88°23.4'	S 15°26.2'	8.8'	-11.4'	59.1'	102°27.0'	71°18.0'	64°26.2'	56°08.0'	19°35.5'	28°13.9'	37°59.8'	79°43.0'
Mer. pass.			16 h 53 m SD 16.3'		phase 30%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.1'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.4'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°30.2'	N 89°20.7'
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.3'	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	333°43.0'	179°28.4'	N 10°40.1'	225°39.4'	N 19°55.8'	44°10.7'	S 22°37.6'	35°20.6'	S 21°09.7'	307°43.4'	N 6°14.7'			
1	348°45.4'	194°28.6'	N 10°39.3'	240°39.1'	N 19°55.7'	59°13.4'	S 22°37.7'	50°23.2'	S 21°09.7'	322°45.4'	N 6°14.9'			
2	3°47.9'	209°28.8'	N 10°38.4'	255°38.8'	N 19°55.6'	74°16.0'	S 22°37.7'	65°25.8'	S 21°09.7'	337°47.4'	N 6°15.0'			
3	18°50.4'	224°29.0'	N 10°37.5'	270°38.5'	N 19°55.5'	89°18.6'	S 22°37.7'	80°28.4'	S 21°09.8'	352°49.3'	N 6°15.2'			
4	33°52.8'	239°29.1'	N 10°36.7'	285°38.3'	N 19°55.3'	104°21.2'	S 22°37.7'	95°31.0'	S 21°09.8'	7°51.3'	N 6°15.4'			
5	48°55.3'	254°29.3'	N 10°35.8'	300°38.0'	N 19°55.2'	119°23.9'	S 22°37.8'	110°33.6'	S 21°09.8'	22°53.2'	N 6°15.6'			
6	63°57.7'	269°29.5'	N 10°34.9'	315°37.7'	N 19°55.1'	134°26.5'	S 22°37.8'	125°36.2'	S 21°09.8'	37°55.2'	N 6°15.7'			
7	79°00.2'	284°29.7'	N 10°34.1'	330°37.4'	N 19°54.9'	149°29.1'	S 22°37.8'	140°38.8'	S 21°09.9'	52°57.1'	N 6°15.9'			
8	94°02.7'	299°29.8'	N 10°33.2'	345°37.1'	N 19°54.8'	164°31.7'	S 22°37.8'	155°41.4'	S 21°09.9'	67°59.1'	N 6°16.1'			
9	109°05.1'	314°30.0'	N 10°32.3'	0°36.9'	N 19°54.6'	179°34.3'	S 22°37.8'	170°44.0'	S 21°09.9'	83°01.1'	N 6°16.2'			
10	124°07.6'	329°30.2'	N 10°31.5'	15°36.6'	N 19°54.5'	194°37.0'	S 22°37.9'	185°46.6'	S 21°09.9'	98°03.0'	N 6°16.4'			
11	139°10.1'	344°30.4'	N 10°30.6'	30°36.3'	N 19°54.4'	209°39.6'	S 22°37.9'	200°49.2'	S 21°10.0'	113°05.0'	N 6°16.6'			
12	154°12.5'	359°30.5'	N 10°29.7'	45°36.0'	N 19°54.2'	224°42.2'	S 22°37.9'	215°51.8'	S 21°10.0'	128°07.0'	N 6°16.7'			
13	169°15.0'	14°30.7'	N 10°28.9'	60°35.7'	N 19°54.1'	239°44.8'	S 22°37.9'	230°54.4'	S 21°10.0'	143°08.9'	N 6°16.9'			
14	184°17.5'	29°30.9'	N 10°28.0'	75°35.4'	N 19°53.9'	254°47.4'	S 22°38.0'	245°57.0'	S 21°10.1'	158°10.9'	N 6°17.1'			
15	199°19.9'	44°31.1'	N 10°27.1'	90°35.2'	N 19°53.8'	269°50.1'	S 22°38.0'	260°59.6'	S 21°10.1'	173°12.9'	N 6°17.2'			
16	214°22.4'	59°31.2'	N 10°26.3'	105°34.9'	N 19°53.7'	284°52.7'	S 22°38.0'	276°02.2'	S 21°10.1'	188°14.8'	N 6°17.4'			
17	229°24.9'	74°31.4'	N 10°25.4'	120°34.6'	N 19°53.5'	299°55.3'	S 22°38.0'	291°04.8'	S 21°10.1'	203°16.8'	N 6°17.6'			
18	244°27.3'	89°31.6'	N 10°24.5'	135°34.3'	N 19°53.4'	314°57.9'	S 22°38.0'	306°07.4'	S 21°10.2'	218°18.8'	N 6°17.7'			
19	259°29.8'	104°31.8'	N 10°23.7'	150°34.0'	N 19°53.2'	330°00.5'	S 22°38.1'	321°10.0'	S 21°10.2'	233°20.8'	N 6°17.9'			
20	274°32.2'	119°31.9'	N 10°22.8'	165°33.7'	N 19°53.1'	345°03.1'	S 22°38.1'	336°12.6'	S 21°10.2'	248°22.7'	N 6°18.1'			
21	289°34.7'	134°32.1'	N 10°21.9'	180°33.4'	N 19°52.9'	0°05.8'	S 22°38.1'	351°15.2'	S 21°10.2'	263°24.7'	N 6°18.2'			
22	304°37.2'	149°32.3'	N 10°21.1'	195°33.2'	N 19°52.8'	15°08.4'	S 22°38.1'	6°17.7'	S 21°10.3'	278°26.7'	N 6°18.4'			
23	319°39.6'	164°32.5'	N 10°20.2'	210°32.9'	N 19°52.6'	30°11.0'	S 22°38.2'	21°20.3'	S 21°10.3'	293°28.7'	N 6°18.5'			
		SD 15.8' d -0.9'		v -0.3' d -0.1'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 2.0' d 0.2'				
Mer. pass.		12 h 1 m 58 s		8 h 58 m		21 h 0 m		21 h 35 m		3 h 29 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Sun
0	102°51.2'	S 15°37.6'	8.7'	-11.3'	59.1'	104°02.3'	70°48.8'	63°50.8'	55°32.6'	19°02.0'	28°48.2'	38°24.5'	80°15.8'
1	117°18.9'	S 15°48.9'	8.7'	-11.2'	59.1'	103°43.0'	70°19.7'	63°15.4'	54°57.2'	18°28.7'	29°22.5'	38°49.5'	80°48.6'
2	131°46.6'	S 16°00.1'	8.7'	-11.1'	59.1'	103°23.7'	69°50.6'	62°40.0'	54°21.8'	17°55.5'	29°56.8'	39°14.6'	81°21.3'
3	146°14.3'	S 16°11.2'	8.6'	-11.0'	59.0'	103°04.3'	69°21.6'	62°04.7'	53°46.4'	17°22.4'	30°31.1'	39°39.9'	81°54.0'
4	160°41.9'	S 16°22.2'	8.6'	-10.9'	59.0'	102°44.9'	68°52.7'	61°29.4'	53°11.1'	16°49.5'	31°05.4'	40°05.5'	82°26.7'
5	175°09.5'	S 16°33.1'	8.5'	-10.8'	59.0'	102°25.4'	68°23.8'	60°54.1'	52°35.8'	16°16.8'	31°39.8'	40°31.2'	82°59.4'
6	189°37.0'	S 16°43.9'	8.5'	-10.7'	59.0'	102°05.9'	67°55.0'	60°18.9'	52°00.5'	15°44.3'	32°14.1'	40°57.0'	83°32.0'
7	204°04.5'	S 16°54.5'	8.5'	-10.6'	59.0'	101°46.4'	67°26.3'	59°43.7'	51°25.2'	15°12.0'	32°48.4'	41°23.1'	84°04.6'
8	218°32.0'	S 17°05.1'	8.4'	-10.5'	58.9'	101°26.8'	66°57.6'	59°08.5'	50°50.0'	14°39.9'	33°22.7'	41°49.3'	84°37.1'
9	232°59.4'	S 17°15.6'	8.4'	-10.3'	58.9'	101°07.2'	66°29.0'	58°33.3'	50°14.8'	14°08.1'	33°57.0'	42°15.6'	85°09.7'
10	247°26.8'	S 17°25.9'	8.4'	-10.2'	58.9'	100°47.6'	66°00.5'	57°58.2'	49°39.7'	13°36.6'	34°31.3'	42°42.2'	85°42.2'
11	261°54.2'	S 17°36.2'	8.3'	-10.1'	58.9'	100°27.9'	65°32.1'	57°23.1'	49°04.5'	13°05.4'	35°05.6'	43°08.8'	86°14.7'
12	276°21.5'	S 17°46.3'	8.3'	-10.0'	58.8'	100°08.2'	65°03.7'	56°48.0'	48°29.4'	12°34.6'	35°39.9'	43°35.6'	86°47.1'
13	290°48.8'	S 17°56.3'	8.2'	-9.9'	58.8'	99°48.5'	64°35.5'	56°13.0'	47°54.3'	12°04.2'	36°14.2'	44°02.5'	87°19.6'
14	305°16.0'	S 18°06.2'	8.2'	-9.8'	58.8'	99°28.7'	64°07.3'	55°38.0'	47°19.3'	11°34.1'	36°48.5'	44°29.6'	87°52.0'
15	319°43.2'	S 18°16.0'	8.2'	-9.7'	58.8'	99°08.9'	63°39.2'	55°03.0'	46°44.3'	11°04.6'	37°22.8'	44°56.7'	88°24.3'
16	334°10.4'	S 18°25.7'	8.1'	-9.6'	58.7'	98°49.1'	63°11.1'	54°28.0'	46°09.3'	10°35.7'	37°57.0'	45°24.0'	88°56.7'
17	348°37.5'	S 18°35.2'	8.1'	-9.4'	58.7'	98°29.3'	62°43.2'	53°53.1'	45°34.3'	10°07.4'	38°31.3'	45°51.4'	89°29.0'
18	3°04.6'	S 18°44.6'	8.1'	-9.3'	58.7'	98°09.4'	62°15.3'	53°18.2'	44°59.4'		39°05.5'	46°18.9'	90°01.3'
19	17°31.7'	S 18°54.0'	8.0'	-9.2'	58.7'	97°49.6'	61°47.6'	52°43.3'	44°24.5'		39°39.7'	46°46.5'	90°33.5'
20	31°58.7'	S 19°03.2'	8.0'	-9.1'	58.7'	97°29.7'	61°19.9'	52°08.5'	43°49.6'		40°13.9'	47°14.2'	91°05.8'
21	46°25.7'	S 19°12.2'	7.9'	-9.0'	58.6'	97°09.8'	60°52.3'	51°33.7'	43°14.8'		40°48.1'	47°42.0'	91°38.0'
22	60°52.7'	S 19°21.2'	7.9'	-8.8'	58.6'	96°49.9'	60°24.9'	50°58.9'	42°39.9'		41°22.3'	48°09.9'	92°10.2'
23	75°19.6'	S 19°30.0'	7.9'	-8.7'	58.6'	96°30.0'	59°57.5'	50°24.1'	42°05.1'		41°56.4'	48°37.9'	92°42.3'
Mer. pass.		17 h 47 m SD 16.1'		phase 42%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.1'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.4'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°29.7'	N 89°20.7'
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.6'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.3'	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	334°42.1'	179°32.7'	N 10°19.3'	225°32.6'	N 19°52.5'	45°13.6'	S 22°38.2'	36°22.9'	S 21°10.3'	308°30.7'	N 6°18.7'			
1	349°44.6'	194°32.8'	N 10°18.4'	240°32.3'	N 19°52.3'	60°16.2'	S 22°38.2'	51°25.5'	S 21°10.3'	323°32.6'	N 6°18.9'			
2	4°47.0'	209°33.0'	N 10°17.6'	255°32.0'	N 19°52.2'	75°18.8'	S 22°38.2'	66°28.1'	S 21°10.4'	338°34.6'	N 6°19.0'			
3	19°49.5'	224°33.2'	N 10°16.7'	270°31.7'	N 19°52.0'	90°21.4'	S 22°38.2'	81°30.7'	S 21°10.4'	353°36.6'	N 6°19.2'			
4	34°52.0'	239°33.4'	N 10°15.8'	285°31.4'	N 19°51.9'	105°24.1'	S 22°38.3'	96°33.3'	S 21°10.4'	8°38.6'	N 6°19.3'			
5	49°54.4'	254°33.5'	N 10°15.0'	300°31.1'	N 19°51.7'	120°26.7'	S 22°38.3'	111°35.9'	S 21°10.5'	23°40.6'	N 6°19.5'			
6	64°56.9'	269°33.7'	N 10°14.1'	315°30.8'	N 19°51.6'	135°29.3'	S 22°38.3'	126°38.5'	S 21°10.5'	38°42.6'	N 6°19.7'			
7	79°59.4'	284°33.9'	N 10°13.2'	330°30.5'	N 19°51.4'	150°31.9'	S 22°38.3'	141°41.1'	S 21°10.5'	53°44.6'	N 6°19.8'			
8	95°01.8'	299°34.1'	N 10°12.3'	345°30.3'	N 19°51.3'	165°34.5'	S 22°38.3'	156°43.7'	S 21°10.5'	68°46.6'	N 6°20.0'			
9	110°04.3'	314°34.3'	N 10°11.5'	0°30.0'	N 19°51.1'	180°37.1'	S 22°38.4'	171°46.3'	S 21°10.6'	83°48.6'	N 6°20.1'			
10	125°06.7'	329°34.4'	N 10°10.6'	15°29.7'	N 19°51.0'	195°39.7'	S 22°38.4'	186°48.9'	S 21°10.6'	98°50.5'	N 6°20.3'			
11	140°09.2'	344°34.6'	N 10°09.7'	30°29.4'	N 19°50.8'	210°42.4'	S 22°38.4'	201°51.5'	S 21°10.6'	113°52.5'	N 6°20.5'			
12	155°11.7'	359°34.8'	N 10°08.7'	45°29.1'	N 19°50.6'	225°45.0'	S 22°38.4'	216°54.1'	S 21°10.6'	128°54.5'	N 6°20.6'			
13	170°14.1'	14°35.0'	N 10°08.0'	60°28.8'	N 19°50.5'	240°47.6'	S 22°38.5'	231°56.7'	S 21°10.7'	143°56.5'	N 6°20.8'			
14	185°16.6'	29°35.2'	N 10°07.1'	75°28.5'	N 19°50.3'	255°50.2'	S 22°38.5'	246°59.3'	S 21°10.7'	158°58.5'	N 6°20.9'			
15	200°19.1'	44°35.3'	N 10°06.2'	90°28.2'	N 19°50.2'	270°52.8'	S 22°38.5'	262°01.9'	S 21°10.7'	174°00.5'	N 6°21.1'			
16	215°21.5'	59°35.5'	N 10°05.3'	105°27.9'	N 19°50.0'	285°55.4'	S 22°38.5'	277°04.5'	S 21°10.7'	189°02.5'	N 6°21.2'			
17	230°24.0'	74°35.7'	N 10°04.5'	120°27.6'	N 19°49.8'	300°58.0'	S 22°38.5'	292°07.1'	S 21°10.8'	204°04.5'	N 6°21.4'			
18	245°26.5'	89°35.9'	N 10°03.6'	135°27.3'	N 19°49.7'	316°00.6'	S 22°38.6'	307°09.7'	S 21°10.8'	219°06.5'	N 6°21.6'			
19	260°28.9'	104°36.1'	N 10°02.7'	150°27.0'	N 19°49.5'	331°03.2'	S 22°38.6'	322°12.3'	S 21°10.8'	234°08.5'	N 6°21.7'			
20	275°31.4'	119°36.2'	N 10°01.8'	165°26.7'	N 19°49.3'	346°05.8'	S 22°38.6'	337°14.9'	S 21°10.9'	249°10.5'	N 6°21.9'			
21	290°33.8'	134°36.4'	N 10°01.0'	180°26.4'	N 19°49.2'	1°08.4'	S 22°38.6'	352°17.5'	S 21°10.9'	264°12.6'	N 6°22.0'			
22	305°36.3'	149°36.6'	N 10°00.1'	195°26.1'	N 19°49.0'	16°11.1'	S 22°38.6'	7°20.1'	S 21°10.9'	279°14.6'	N 6°22.2'			
23	320°38.8'	164°36.8'	N 9°59.2'	210°25.8'	N 19°48.8'	31°13.7'	S 22°38.7'	22°22.7'	S 21°10.9'	294°16.6'	N 6°22.3'			
		SD 15.8' d -0.9'		v -0.3' d -0.2'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 2.0' d 0.2'				
Mer. pass.		12 h 1 m 41 s		8 h 58 m		20 h 55 m		21 h 31 m		3 h 26 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Sun
0	89°46.4'	S 19°38.7'	7.8'	-8.6'	58.6'	96°10.1'	59°30.2'	49°49.4'	41°30.4'		42°30.6'	49°06.0'	93°14.4'
1	104°13.3'	S 19°47.3'	7.8'	-8.5'	58.5'	95°50.1'	59°03.0'	49°14.7'	40°55.7'		43°04.7'	49°34.1'	93°46.5'
2	118°40.1'	S 19°55.8'	7.8'	-8.3'	58.5'	95°30.2'	58°35.9'	48°40.0'	40°21.0'		43°38.8'	50°02.3'	94°18.6'
3	133°06.9'	S 20°04.1'	7.7'	-8.2'	58.5'	95°10.2'	58°08.9'	48°05.4'	39°46.3'		44°12.9'	50°30.6'	94°50.6'
4	147°33.6'	S 20°12.3'	7.7'	-8.1'	58.5'	94°50.3'	57°42.0'	47°30.8'	39°11.6'		44°46.9'	50°59.0'	95°22.6'
5	162°00.3'	S 20°20.4'	7.7'	-8.0'	58.4'	94°30.3'	57°15.3'	46°56.2'	38°37.0'		45°21.0'	51°27.4'	95°54.6'
6	176°27.0'	S 20°28.4'	7.6'	-7.8'	58.4'	94°10.3'	56°48.6'	46°21.6'	38°02.4'		45°55.0'	51°55.9'	96°26.5'
7	190°53.6'	S 20°36.2'	7.6'	-7.7'	58.4'	93°50.4'	56°22.1'	45°47.1'	37°27.9'		46°29.0'	52°24.5'	96°58.5'
8	205°20.2'	S 20°43.9'	7.6'	-7.6'	58.4'	93°30.4'	55°55.7'	45°12.6'	36°53.3'		47°03.0'	52°53.1'	97°30.3'
9	219°46.8'	S 20°51.5'	7.5'	-7.4'	58.3'	93°10.5'	55°29.3'	44°38.2'	36°18.8'		47°37.0'	53°21.8'	98°02.2'
10	234°13.4'	S 20°58.9'	7.5'	-7.3'	58.3'	92°50.5'	55°03.2'	44°03.7'	35°44.4'		48°11.0'	53°50.5'	98°34.0'
11	248°39.9'	S 21°06.2'	7.5'	-7.2'	58.3'	92°30.6'	54°37.1'	43°29.3'	35°09.9'		48°49.9'	54°19.3'	99°05.9'
12	263°06.4'	S 21°13.4'	7.5'	-7.0'	58.3'	92°10.6'	54°11.1'	42°54.9'	34°35.5'		49°18.8'	54°48.1'	99°37.6'
13	277°32.8'	S 21°20.4'	7.4'	-6.9'	58.2'	91°50.7'	53°45.3'	42°20.6'	34°01.1'		49°52.7'	55°17.0'	100°09.4'
14	291°59.2'	S 21°27.3'	7.4'	-6.8'	58.2'	91°30.8'	53°19.6'	41°46.3'	33°26.8'		50°26.6'	55°45.9'	100°41.1'
15	306°25.7'	S 21°34.1'	7.4'	-6.6'	58.2'	91°10.8'	52°54.1'	41°12.0'	32°52.5'		51°00.4'	56°14.9'	101°12.8'
16	320°52.0'	S 21°40.8'	7.4'	-6.5'	58.2'	90°50.9'	52°28.7'	40°37.7'	32°18.2'		51°34.3'	56°43.9'	101°44.5'
17	335°18.4'	S 21°47.3'	7.3'	-6.4'	58.1'	90°31.0'	52°03.4'	40°03.5'	31°43.9'		52°08.1'	57°13.0'	102°16.1'
18	349°44.7'	S 21°53.6'	7.3'	-6.2'	58.1'	90°11.2'	51°38.2'	39°29.3'	31°09.6'		52°41.9'	57°42.0'	102°47.7'
19	4°11.0'	S 21°59.9'	7.3'	-6.1'	58.1'	89°51.3'	51°13.2'	38°55.1'	30°35.4'		53°15.6'	58°11.2'	103°19.3'
20	18°37.3'	S 22°05.9'	7.3'	-6.0'	58.1'	89°31.4'	50°48.4'	38°20.9'	30°01.3'	9°29.1'	53°49.4'	58°40.3'	103°50.9'
21	33°03.5'	S 22°11.9'	7.2'	-5.8'	58.0'	89°11.6'	50°23.7'	37°46.8'	29°27.1'	9°55.8'	54°23.1'	59°09.5'	104°22.4'
22	47°29.8'	S 22°17.7'	7.2'	-5.7'	58.0'	88°51.8'	49°59.1'	37°12.7'	28°53.0'	10°23.1'	54°56.8'	59°38.7'	104°53.9'
23	61°56.0'	S 22°23.4'	7.2'	-5.5'	58.0'	88°32.0'	49°34.8'	36°38.7'	28°18.9'	10°51.1'	55°30.5'	60°07.9'	105°25.4'
Mer. pass.		18 h 43 m SD 16.0'		phase 53%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.1'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.4'	S 8°10.6'
Vega	+0.0	80°35.3'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°29.1'	N 89°20.7'
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	335°41.2'		179°37.0'	N 9°58.3'	225°25.5'	N 19°48.7'	46°16.3'	S 22°38.7'	37°25.3'	S 21°11.0'	309°18.6'	N 6°22.5'
1	350°43.7'		194°37.1'	N 9°57.5'	240°25.2'	N 19°48.5'	61°18.9'	S 22°38.7'	52°27.8'	S 21°11.0'	324°20.6'	N 6°22.6'
2	5°46.2'		209°37.3'	N 9°56.6'	255°24.9'	N 19°48.3'	76°21.5'	S 22°38.7'	67°30.4'	S 21°11.0'	339°22.6'	N 6°22.8'
3	20°48.6'		224°37.5'	N 9°55.7'	270°24.6'	N 19°48.2'	91°24.1'	S 22°38.7'	82°33.0'	S 21°11.0'	354°24.6'	N 6°22.9'
4	35°51.1'		239°37.7'	N 9°54.8'	285°24.3'	N 19°48.0'	106°26.7'	S 22°38.8'	97°35.6'	S 21°11.1'	9°26.6'	N 6°23.1'
5	50°53.6'		254°37.9'	N 9°53.9'	300°24.0'	N 19°47.8'	121°29.3'	S 22°38.8'	112°38.2'	S 21°11.1'	24°28.7'	N 6°23.2'
6	65°56.0'		269°38.0'	N 9°53.1'	315°23.7'	N 19°47.6'	136°31.9'	S 22°38.8'	127°40.8'	S 21°11.1'	39°30.7'	N 6°23.4'
7	80°58.5'		284°38.2'	N 9°52.2'	330°23.4'	N 19°47.5'	151°34.5'	S 22°38.8'	142°43.4'	S 21°11.1'	54°32.7'	N 6°23.5'
8	96°01.0'		299°38.4'	N 9°51.3'	345°23.1'	N 19°47.3'	166°37.1'	S 22°38.8'	157°46.0'	S 21°11.2'	69°34.7'	N 6°23.7'
9	111°03.4'		314°38.6'	N 9°50.4'	0°22.8'	N 19°47.1'	181°39.7'	S 22°38.9'	172°48.6'	S 21°11.2'	84°36.7'	N 6°23.8'
10	126°05.9'		329°38.8'	N 9°49.5'	15°22.5'	N 19°46.9'	196°42.3'	S 22°38.9'	187°51.2'	S 21°11.2'	99°38.8'	N 6°24.0'
11	141°08.3'		344°39.0'	N 9°48.7'	30°22.2'	N 19°46.8'	211°44.9'	S 22°38.9'	202°53.8'	S 21°11.2'	114°40.8'	N 6°24.1'
12	156°10.8'		359°39.1'	N 9°47.8'	45°21.9'	N 19°46.6'	226°47.5'	S 22°38.9'	217°56.4'	S 21°11.3'	129°42.8'	N 6°24.3'
13	171°13.3'		14°39.3'	N 9°46.9'	60°21.6'	N 19°46.4'	241°50.1'	S 22°38.9'	232°59.0'	S 21°11.3'	144°44.8'	N 6°24.4'
14	186°15.7'		29°39.5'	N 9°46.0'	75°21.3'	N 19°46.2'	256°52.7'	S 22°39.0'	248°01.6'	S 21°11.3'	159°46.9'	N 6°24.6'
15	201°18.2'		44°39.7'	N 9°45.1'	90°21.0'	N 19°46.0'	271°55.3'	S 22°39.0'	263°04.2'	S 21°11.3'	174°48.9'	N 6°24.7'
16	216°20.7'		59°39.9'	N 9°44.3'	105°20.6'	N 19°45.9'	286°57.9'	S 22°39.0'	278°06.8'	S 21°11.4'	189°50.9'	N 6°24.9'
17	231°23.1'		74°40.1'	N 9°43.4'	120°20.3'	N 19°45.7'	302°00.5'	S 22°39.0'	293°09.3'	S 21°11.4'	204°53.0'	N 6°25.0'
18	246°25.6'		89°40.3'	N 9°42.5'	135°20.0'	N 19°45.5'	317°03.1'	S 22°39.0'	308°11.9'	S 21°11.4'	219°55.0'	N 6°25.2'
19	261°28.1'		104°40.4'	N 9°41.6'	150°19.7'	N 19°45.3'	332°05.7'	S 22°39.1'	323°14.5'	S 21°11.5'	234°57.0'	N 6°25.3'
20	276°30.5'		119°40.6'	N 9°40.7'	165°19.4'	N 19°45.1'	347°08.3'	S 22°39.1'	338°17.1'	S 21°11.5'	249°59.1'	N 6°25.4'
21	291°33.0'		134°40.8'	N 9°39.8'	180°19.1'	N 19°44.9'	2°10.9'	S 22°39.1'	353°19.7'	S 21°11.5'	265°01.1'	N 6°25.6'
22	306°35.5'		149°41.0'	N 9°39.0'	195°18.8'	N 19°44.7'	17°13.5'	S 22°39.1'	8°22.3'	S 21°11.5'	280°03.1'	N 6°25.7'
23	321°37.9'		164°41.2'	N 9°38.1'	210°18.5'	N 19°44.6'	32°16.1'	S 22°39.1'	23°24.9'	S 21°11.6'	295°05.2'	N 6°25.9'
			SD 15.8'	<i>d</i> -0.9'	<i>v</i> -0.3'	<i>d</i> -0.2'	<i>v</i> 2.6'	<i>d</i> -0.0'	<i>v</i> 2.6'	<i>d</i> -0.0'	<i>v</i> 2.0'	<i>d</i> 0.1'
Mer. pass.			12 h 1 m 24 s		8 h 58 m		20 h 51 m		21 h 27 m		3 h 22 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	+Antares	+Hadar	+Spica	+Sun
0	76°22.2'	S 22°28.9'	7.2'	-5.4'	58.0'	75°20.2'	49°10.5'	36°04.6'	27°44.8'	11°19.6'		56°04.1'	105°56.8'
1	90°48.4'	S 22°34.3'	7.2'	-5.3'	58.0'	74°47.8'	48°46.4'	35°30.6'	27°10.8'	11°48.5'		56°37.7'	106°28.2'
2	105°14.5'	S 22°39.6'	7.1'	-5.1'	57.9'	74°15.4'	48°22.5'	34°56.7'	26°36.8'	12°17.9'		57°11.3'	106°59.6'
3	119°40.7'	S 22°44.7'	7.1'	-5.0'	57.9'	73°43.0'	47°58.8'	34°22.7'	26°02.8'	12°47.5'		57°44.9'	107°31.0'
4	134°06.8'	S 22°49.7'	7.1'	-4.8'	57.9'	73°10.6'	47°35.2'	33°48.8'	25°28.9'	13°17.5'		58°18.5'	108°02.3'
5	148°32.9'	S 22°54.5'	7.1'	-4.7'	57.9'	72°38.3'	47°11.9'	33°14.9'	24°54.9'	13°47.8'		58°52.0'	108°33.6'
6	162°59.0'	S 22°59.2'	7.1'	-4.6'	57.8'	72°06.0'	46°48.7'	32°41.1'	24°21.0'	14°18.3'		59°25.5'	109°04.9'
7	177°25.1'	S 23°03.8'	7.1'	-4.4'	57.8'	71°33.7'	46°25.6'	32°07.2'	23°47.2'	14°49.0'		59°59.0'	109°36.1'
8	191°51.2'	S 23°08.2'	7.1'	-4.3'	57.8'	71°01.5'	46°02.8'	31°33.4'	23°13.4'	15°19.9'		60°32.5'	110°07.3'
9	206°17.2'	S 23°12.4'	7.1'	-4.1'	57.8'	70°29.3'	45°40.2'	30°59.7'	22°39.6'	15°51.0'		61°06.0'	110°38.5'
10	220°43.3'	S 23°16.6'	7.0'	-4.0'	57.7'	69°57.2'	45°17.7'	30°25.9'	22°05.8'	16°22.2'		61°39.4'	111°09.7'
11	235°09.3'	S 23°20.5'	7.0'	-3.8'	57.7'	69°25.1'	44°55.5'	29°52.2'	21°32.1'	16°53.5'		62°12.8'	111°40.8'
12	249°35.3'	S 23°24.4'	7.0'	-3.7'	57.7'	68°53.0'	44°33.4'	29°18.6'	20°58.3'	17°25.0'		62°46.2'	112°12.0'
13	264°01.4'	S 23°28.1'	7.0'	-3.5'	57.7'	68°21.0'	44°11.6'	28°44.9'	20°24.7'	17°56.6'		63°19.5'	112°43.0'
14	278°27.4'	S 23°31.6'	7.0'	-3.4'	57.6'	67°49.0'	43°50.0'	28°11.3'	19°51.0'	18°28.2'		63°52.8'	113°14.1'
15	292°53.4'	S 23°35.0'	7.0'	-3.3'	57.6'	67°17.0'	43°28.6'	27°37.7'	19°17.4'	18°60.0'		64°26.1'	113°45.1'
16	307°19.4'	S 23°38.3'	7.0'	-3.1'	57.6'	66°45.1'	43°07.4'	27°04.1'	18°43.8'	19°31.8'		64°59.4'	114°16.1'
17	321°45.5'	S 23°41.4'	7.0'	-3.0'	57.6'	66°13.2'	42°46.5'	26°30.6'	18°10.3'	20°03.7'		65°32.7'	114°47.1'
18	336°11.5'	S 23°44.4'	7.0'	-2.8'	57.5'	65°41.3'	42°25.8'	25°57.1'	17°36.7'	20°35.6'		66°05.9'	115°18.1'
19	350°37.5'	S 23°47.2'	7.0'	-2.7'	57.5'	65°09.5'	42°05.3'	25°23.7'	17°03.3'	21°07.6'	54°34.5'	66°39.1'	115°49.0'
20	5°03.5'	S 23°49.9'	7.0'	-2.5'	57.5'	64°37.8'	41°45.1'	24°50.2'	16°29.8'	21°39.6'	54°49.7'	67°12.3'	116°19.9'
21	19°29.5'	S 23°52.4'	7.0'	-2.4'	57.5'	64°06.0'	41°25.1'	24°16.8'	15°56.4'	22°11.7'	55°04.9'	67°45.5'	116°50.7'
22	33°55.6'	S 23°54.8'	7.0'	-2.2'	57.4'	63°34.3'	41°05.3'	23°43.5'	15°23.0'	22°43.8'	55°20.4'	68°18.6'	117°21.6'
23	48°21.6'	S 23°57.0'	7.0'	-2.1'	57.4'	63°02.7'	40°45.9'	23°10.1'	14°49.7'	23°16.0'	55°36.0'	68°51.8'	117°52.4'
Mer. pass.			19 h 39 m	SD 15.8'	phase 64%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°28.5'	N 89°20.7'
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'				

Friday 28 August 2020 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	336°40.4'	179°41.4'	N 9°37.2'	225°18.2'	N 19°44.4'	47°18.7'	S 22°39.2'	38°27.5'	S 21°11.6'	310°07.2'	N 6°26.0'							
1	351°42.8'	194°41.5'	N 9°36.3'	240°17.9'	N 19°44.2'	62°21.3'	S 22°39.2'	53°30.1'	S 21°11.6'	325°09.3'	N 6°26.2'							
2	6°45.3'	209°41.7'	N 9°35.4'	255°17.6'	N 19°44.0'	77°23.9'	S 22°39.2'	68°32.7'	S 21°11.6'	340°11.3'	N 6°26.3'							
3	21°47.8'	224°41.9'	N 9°34.5'	270°17.2'	N 19°43.8'	92°26.5'	S 22°39.2'	83°35.3'	S 21°11.7'	355°13.3'	N 6°26.5'							
4	36°50.2'	239°42.1'	N 9°33.7'	285°16.9'	N 19°43.6'	107°29.1'	S 22°39.2'	98°37.9'	S 21°11.7'	10°15.4'	N 6°26.6'							
5	51°52.7'	254°42.3'	N 9°32.8'	300°16.6'	N 19°43.4'	122°31.7'	S 22°39.3'	113°40.4'	S 21°11.7'	25°17.4'	N 6°26.7'							
6	66°55.2'	269°42.5'	N 9°31.9'	315°16.3'	N 19°43.2'	137°34.3'	S 22°39.3'	128°43.0'	S 21°11.7'	40°19.5'	N 6°26.9'							
7	81°57.6'	284°42.7'	N 9°31.0'	330°16.0'	N 19°43.0'	152°36.9'	S 22°39.3'	143°45.6'	S 21°11.8'	55°21.5'	N 6°27.0'							
8	97°00.1'	299°42.9'	N 9°30.1'	345°15.7'	N 19°42.8'	167°39.5'	S 22°39.3'	158°48.2'	S 21°11.8'	70°23.6'	N 6°27.2'							
9	112°02.6'	314°43.0'	N 9°29.2'	0°15.4'	N 19°42.6'	182°42.1'	S 22°39.3'	173°50.8'	S 21°11.8'	85°25.6'	N 6°27.3'							
10	127°05.0'	329°43.2'	N 9°28.3'	15°15.0'	N 19°42.4'	197°44.7'	S 22°39.4'	188°53.4'	S 21°11.8'	100°27.7'	N 6°27.4'							
11	142°07.5'	344°43.4'	N 9°27.5'	30°14.7'	N 19°42.2'	212°47.3'	S 22°39.4'	203°56.0'	S 21°11.9'	115°29.7'	N 6°27.6'							
12	157°10.0'	359°43.6'	N 9°26.6'	45°14.4'	N 19°42.0'	227°49.9'	S 22°39.4'	218°58.6'	S 21°11.9'	130°31.8'	N 6°27.7'							
13	172°12.4'	14°43.8'	N 9°25.7'	60°14.1'	N 19°41.8'	242°52.5'	S 22°39.4'	234°01.2'	S 21°11.9'	145°33.8'	N 6°27.9'							
14	187°14.9'	29°44.0'	N 9°24.8'	75°13.8'	N 19°41.6'	257°55.1'	S 22°39.4'	249°03.8'	S 21°11.9'	160°35.9'	N 6°28.0'							
15	202°17.3'	44°44.2'	N 9°23.9'	90°13.5'	N 19°41.4'	272°57.7'	S 22°39.4'	264°06.3'	S 21°12.0'	175°38.0'	N 6°28.1'							
16	217°19.8'	59°44.4'	N 9°23.0'	105°13.1'	N 19°41.2'	288°00.3'	S 22°39.5'	279°08.9'	S 21°12.0'	190°40.0'	N 6°28.3'							
17	232°22.3'	74°44.5'	N 9°22.1'	120°12.8'	N 19°41.0'	303°02.9'	S 22°39.5'	294°11.5'	S 21°12.0'	205°42.1'	N 6°28.4'							
18	247°24.7'	89°44.7'	N 9°21.2'	135°12.5'	N 19°40.8'	318°05.5'	S 22°39.5'	309°14.1'	S 21°12.0'	220°44.2'	N 6°28.5'							
19	262°27.2'	104°44.9'	N 9°20.4'	150°12.2'	N 19°40.6'	333°08.1'	S 22°39.5'	324°16.7'	S 21°12.1'	235°46.2'	N 6°28.7'							
20	277°29.7'	119°45.1'	N 9°19.5'	165°11.9'	N 19°40.4'	348°10.7'	S 22°39.5'	339°19.3'	S 21°12.1'	250°48.3'	N 6°28.8'							
21	292°32.1'	134°45.3'	N 9°18.6'	180°11.6'	N 19°40.2'	3°13.2'	S 22°39.6'	354°21.9'	S 21°12.1'	265°50.4'	N 6°28.9'							
22	307°34.6'	149°45.5'	N 9°17.7'	195°11.2'	N 19°40.0'	18°15.8'	S 22°39.6'	9°24.5'	S 21°12.1'	280°52.4'	N 6°29.1'							
23	322°37.1'	164°45.7'	N 9°16.8'	210°10.9'	N 19°39.8'	33°18.4'	S 22°39.6'	24°27.1'	S 21°12.2'	295°54.5'	N 6°29.2'							
		SD 15.8' d -0.9'		v -0.3' d -0.2'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 2.1' d 0.1'								
Mer. pass.		12 h 1 m 6 s		8 h 59 m		20 h 47 m		21 h 22 m		3 h 19 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	+Antares	+Rigil Kent	+Hadar	+Sun
0	62°47.7'	S 23°59.1'	7.1'	-2.0'	57.4'	62°31.1'	40°26.7'	22°36.8'	14°16.3'	23°48.1'		55°51.8'	118°23.2'
1	77°13.7'	S 24°01.1'	7.1'	-1.8'	57.4'	61°59.5'	40°07.7'	22°03.5'	13°43.1'	24°20.3'	52°02.2'	56°07.7'	118°53.9'
2	91°39.8'	S 24°02.9'	7.1'	-1.7'	57.4'	61°28.0'	39°49.1'	21°30.3'	13°09.8'	24°52.6'	52°17.3'	56°23.8'	119°24.7'
3	106°05.8'	S 24°04.6'	7.1'	-1.5'	57.3'	60°56.5'	39°30.7'	20°57.1'	12°36.6'	25°24.8'	52°32.6'	56°40.1'	119°55.4'
4	120°31.9'	S 24°06.1'	7.1'	-1.4'	57.3'	60°25.1'	39°12.6'	20°23.9'	12°03.5'	25°57.1'	52°48.1'	56°56.5'	
5	134°58.0'	S 24°07.5'	7.1'	-1.2'	57.3'	59°53.7'	38°54.8'	19°50.8'	11°30.4'	26°29.3'	53°03.7'	57°13.0'	
6	149°24.1'	S 24°08.7'	7.1'	-1.1'	57.3'	59°22.3'	38°37.3'	19°17.7'	10°57.3'	27°01.6'	53°19.6'	57°29.7'	
7	163°50.3'	S 24°09.8'	7.1'	-0.9'	57.2'	58°51.0'	38°20.1'	18°44.6'	10°24.3'	27°33.9'	53°35.5'	57°46.5'	
8	178°16.4'	S 24°10.7'	7.2'	-0.8'	57.2'	58°19.7'	38°03.2'	18°11.6'	9°51.4'	28°06.2'	53°51.7'	58°03.5'	
9	192°42.6'	S 24°11.5'	7.2'	-0.7'	57.2'	57°48.5'	37°46.6'	17°38.6'	9°18.5'	28°38.5'	54°08.0'	58°20.6'	
10	207°08.8'	S 24°12.2'	7.2'	-0.5'	57.2'	57°17.3'	37°30.3'	17°05.7'	8°45.7'	29°10.8'	54°24.5'	58°37.8'	
11	221°35.0'	S 24°12.7'	7.2'	-0.4'	57.1'	56°46.2'	37°14.4'	16°32.8'	8°13.0'	29°43.1'	54°41.2'	58°55.1'	
12	236°01.2'	S 24°13.1'	7.3'	-0.2'	57.1'	56°15.1'	36°58.8'	15°59.9'	7°40.3'	30°15.5'	54°58.0'	59°12.6'	
13	250°27.5'	S 24°13.3'	7.3'	-0.1'	57.1'	55°44.1'		15°27.1'	7°07.8'	30°47.8'	55°14.9'	59°30.2'	
14	264°53.8'	S 24°13.4'	7.3'	0.1'	57.1'	55°13.1'		14°54.4'	6°35.4'	31°20.1'	55°32.0'	59°47.9'	
15	279°20.1'	S 24°13.3'	7.3'	0.2'	57.0'	54°42.2'		14°21.7'	6°03.1'	31°52.4'	55°49.3'	60°05.8'	
16	293°46.4'	S 24°13.1'	7.4'	0.3'	57.0'	54°11.3'		13°49.0'	5°31.0'	32°24.7'	56°06.7'	60°23.7'	
17	308°12.8'	S 24°12.8'	7.4'	0.5'	57.0'	53°40.4'		13°16.4'	4°59.2'	32°57.0'	56°24.2'	60°41.8'	
18	322°39.2'	S 24°12.3'	7.4'	0.6'	57.0'	53°09.7'		12°43.9'	4°27.7'	33°29.3'	56°41.9'	60°60.0'	
19	337°05.6'	S 24°11.6'	7.5'	0.8'	57.0'	52°38.9'		12°11.4'	3°56.6'	34°01.6'	56°59.7'	61°18.3'	
20	351°32.1'	S 24°10.9'	7.5'	0.9'	56.9'	52°08.3'		11°39.0'		34°33.8'	57°17.6'	61°36.7'	
21	5°58.6'	S 24°10.0'	7.5'	1.1'	56.9'	51°37.6'		11°06.7'		35°06.1'	57°35.7'	61°55.2'	
22	20°25.1'	S 24°08.9'	7.6'	1.2'	56.9'	51°07.1'		10°34.4'		35°38.4'	57°53.9'	62°13.7'	
23	34°51.7'	S 24°07.7'	7.6'	1.3'	56.9'	50°36.5'		10°02.3'		36°10.6'	58°12.2'	62°32.4'	
Mer. pass.		20 h 35 m SD 15.7' phase 74%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec	
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'	
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'	
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.3'	S 8°10.6'	
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'	
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°28.0'	N 89°20.7'	
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.9'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'	
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'					
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'					

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	337°39.5'	179°45.9'	N 9°15.9'	225°10.6'	N 19°39.6'	48°21.0'	S 22°39.6'	39°29.6'	S 21°12.2'	310°56.6'	N 6°29.3'	
1	352°42.0'	194°46.1'	N 9°15.0'	240°10.3'	N 19°39.4'	63°23.6'	S 22°39.6'	54°32.2'	S 21°12.2'	325°58.6'	N 6°29.5'	
2	7°44.5'	209°46.2'	N 9°14.1'	255°10.0'	N 19°39.2'	78°26.2'	S 22°39.6'	69°34.8'	S 21°12.2'	341°00.7'	N 6°29.6'	
3	22°46.9'	224°46.4'	N 9°13.2'	270°09.6'	N 19°39.0'	93°28.8'	S 22°39.7'	84°37.4'	S 21°12.3'	356°02.8'	N 6°29.7'	
4	37°49.4'	239°46.6'	N 9°12.3'	285°09.3'	N 19°38.7'	108°31.4'	S 22°39.7'	99°40.0'	S 21°12.3'	11°04.9'	N 6°29.9'	
5	52°51.8'	254°46.8'	N 9°11.5'	300°09.0'	N 19°38.5'	123°34.0'	S 22°39.7'	114°42.6'	S 21°12.3'	26°06.9'	N 6°30.0'	
6	67°54.3'	269°47.0'	N 9°10.6'	315°08.7'	N 19°38.3'	138°36.6'	S 22°39.7'	129°45.2'	S 21°12.3'	41°09.0'	N 6°30.1'	
7	82°56.8'	284°47.2'	N 9°09.7'	330°08.3'	N 19°38.1'	153°39.2'	S 22°39.7'	144°47.8'	S 21°12.4'	56°11.1'	N 6°30.3'	
8	97°59.2'	299°47.4'	N 9°08.8'	345°08.0'	N 19°37.9'	168°41.7'	S 22°39.8'	159°50.3'	S 21°12.4'	71°13.2'	N 6°30.4'	
9	113°01.7'	314°47.6'	N 9°07.9'	0°07.7'	N 19°37.7'	183°44.3'	S 22°39.8'	174°52.9'	S 21°12.4'	86°15.3'	N 6°30.5'	
10	128°04.2'	329°47.8'	N 9°07.0'	15°07.4'	N 19°37.5'	198°46.9'	S 22°39.8'	189°55.5'	S 21°12.4'	101°17.3'	N 6°30.7'	
11	143°06.6'	344°48.0'	N 9°06.1'	30°07.0'	N 19°37.2'	213°49.5'	S 22°39.8'	204°58.1'	S 21°12.5'	116°19.4'	N 6°30.8'	
12	158°09.1'	359°48.1'	N 9°05.2'	45°06.7'	N 19°37.0'	228°52.1'	S 22°39.8'	220°00.7'	S 21°12.5'	131°21.5'	N 6°30.9'	
13	173°11.6'	14°48.3'	N 9°04.3'	60°06.4'	N 19°36.8'	243°54.7'	S 22°39.8'	235°03.3'	S 21°12.5'	146°23.6'	N 6°31.0'	
14	188°14.0'	29°48.5'	N 9°03.4'	75°06.1'	N 19°36.6'	258°57.3'	S 22°39.9'	250°05.9'	S 21°12.5'	161°25.7'	N 6°31.2'	
15	203°16.5'	44°48.7'	N 9°02.5'	90°05.7'	N 19°36.4'	273°59.8'	S 22°39.9'	265°08.4'	S 21°12.6'	176°27.8'	N 6°31.3'	
16	218°18.9'	59°48.9'	N 9°01.6'	105°05.4'	N 19°36.1'	289°02.4'	S 22°39.9'	280°11.0'	S 21°12.6'	191°29.9'	N 6°31.4'	
17	233°21.4'	74°49.1'	N 9°00.7'	120°05.1'	N 19°35.9'	304°05.0'	S 22°39.9'	295°13.6'	S 21°12.6'	206°32.0'	N 6°31.6'	
18	248°23.9'	89°49.3'	N 8°59.8'	135°04.8'	N 19°35.7'	319°07.6'	S 22°39.9'	310°16.2'	S 21°12.6'	221°34.1'	N 6°31.7'	
19	263°26.3'	104°49.5'	N 8°59.0'	150°04.4'	N 19°35.5'	334°10.2'	S 22°40.0'	325°18.8'	S 21°12.7'	236°36.1'	N 6°31.8'	
20	278°28.8'	119°49.7'	N 8°58.1'	165°04.1'	N 19°35.2'	349°12.8'	S 22°40.0'	340°21.4'	S 21°12.7'	251°38.2'	N 6°31.9'	
21	293°31.3'	134°49.9'	N 8°57.2'	180°03.8'	N 19°35.0'	4°15.4'	S 22°40.0'	355°24.0'	S 21°12.7'	266°40.3'	N 6°32.1'	
22	308°33.7'	149°50.3'	N 8°56.3'	195°03.4'	N 19°34.8'	19°17.9'	S 22°40.0'	10°26.5'	S 21°12.7'	281°42.4'	N 6°32.2'	
23	323°36.2'	164°50.3'	N 8°55.4'	210°03.1'	N 19°34.5'	34°20.5'	S 22°40.0'	25°29.1'	S 21°12.8'	296°44.5'	N 6°32.3'	
		SD 15.8'	d -0.9'	v -0.3'	d -0.2'	v 2.6'	d -0.0'	v 2.6'	d -0.0'	v 2.1'	d 0.1'	
Mer. pass.		12 h 0 m 48 s		9 h 0 m		20 h 43 m		21 h 18 m		3 h 16 m		

h	Moon				HP	Lunar distance							
	GHA	dec	v	d		-Achernar	-Fomalhaut	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Acrux
0	49°18.3'	S 24°06.4'	7.6'	1.5'	56.8'	73°12.3'	50°06.1'	9°30.3'		36°42.9'	58°30.6'	62°51.2'	73°33.3'
1	63°44.9'	S 24°04.9'	7.7'	1.6'	56.8'	72°55.1'	49°35.7'	8°58.4'		37°15.1'	58°49.1'	63°10.1'	73°49.6'
2	78°11.6'	S 24°03.3'	7.7'	1.7'	56.8'	72°37.9'	49°05.3'	8°26.6'		37°47.3'	59°07.8'	63°29.1'	74°06.0'
3	92°38.3'	S 24°01.6'	7.8'	1.9'	56.8'	72°20.8'	48°35.1'	7°55.0'		38°19.5'	59°26.6'	63°48.1'	74°22.5'
4	107°05.1'	S 23°59.7'	7.8'	2.0'	56.8'	72°03.9'	48°04.8'	7°23.6'		38°51.7'	59°45.5'	64°07.3'	74°39.0'
5	121°31.9'	S 23°57.7'	7.9'	2.2'	56.7'	71°47.0'	47°34.7'	6°52.4'		39°23.9'	60°04.5'	64°26.5'	74°55.5'
6	135°58.7'	S 23°55.5'	7.9'	2.3'	56.7'	71°30.1'	47°04.6'	6°21.6'		39°56.1'	60°23.5'	64°45.8'	75°12.1'
7	150°25.6'	S 23°53.2'	7.9'	2.4'	56.7'	71°13.4'	46°34.6'	5°51.0'		40°28.3'	60°42.7'	65°05.2'	75°28.8'
8	164°52.6'	S 23°50.8'	8.0'	2.6'	56.7'	70°56.8'	46°04.6'	5°21.0'	3°42.2'	41°00.4'	61°02.0'	65°24.7'	75°45.5'
9	179°19.6'	S 23°48.3'	8.0'	2.7'	56.6'	70°40.2'	45°34.7'	4°51.5'	4°12.7'	41°32.6'	61°21.4'	65°44.3'	76°02.2'
10	193°46.6'	S 23°45.6'	8.1'	2.8'	56.6'	70°23.8'	45°04.9'	4°23.6'	4°43.7'	42°04.7'	61°40.9'	66°03.9'	76°19.0'
11	208°13.7'	S 23°42.7'	8.1'	3.0'	56.6'	70°07.4'	44°35.1'	3°52.4'	5°15.0'	42°36.8'	62°00.5'	66°23.6'	76°35.9'
12	222°40.9'	S 23°39.8'	8.2'	3.1'	56.6'	69°51.1'	44°05.4'	3°21.6'	5°46.5'	43°08.9'	62°20.2'	66°43.4'	76°52.7'
13	237°08.1'	S 23°36.7'	8.2'	3.2'	56.6'	69°34.9'	43°35.8'	2°51.0'	6°18.2'	43°41.0'	62°39.9'	67°03.2'	77°09.7'
14	251°35.3'	S 23°33.5'	8.3'	3.3'	56.5'	69°18.9'	43°06.3'	2°21.0'	6°50.0'	44°13.0'	62°59.8'	67°23.1'	77°26.6'
15	266°02.6'	S 23°30.1'	8.4'	3.5'	56.5'	69°02.9'	42°36.8'	1°51.0'	7°21.8'	44°45.1'	63°19.7'	67°43.1'	77°43.6'
16	280°30.0'	S 23°26.7'	8.4'	3.6'	56.5'	68°47.0'	42°07.4'	1°21.0'	7°53.8'	45°17.1'	63°39.7'	68°03.1'	78°00.6'
17	294°57.4'	S 23°23.1'	8.5'	3.7'	56.5'	68°31.2'	41°38.1'	9°0.0'	8°25.8'	45°49.1'	63°59.8'	68°23.2'	78°17.7'
18	309°24.9'	S 23°19.3'	8.5'	3.9'	56.4'	68°15.6'	41°08.9'	8°28.8'	8°57.8'	46°21.1'	64°19.9'	68°43.4'	78°34.8'
19	323°52.4'	S 23°15.5'	8.6'	4.0'	56.4'	67°60.0'	40°39.8'	7°57.0'	9°29.8'	46°53.1'	64°40.2'	69°03.6'	78°51.9'
20	338°20.0'	S 23°11.5'	8.6'	4.1'	56.4'	67°44.5'	40°10.7'	7°26.0'	10°01.9'	47°25.1'	65°00.5'	69°23.9'	79°09.1'
21	352°47.6'	S 23°07.4'	8.7'	4.2'	56.4'	67°29.2'	39°41.8'	6°55.0'	10°34.0'	47°57.0'	65°20.9'	69°44.2'	79°26.3'
22	7°15.3'	S 23°03.1'	8.8'	4.4'	56.4'	67°13.9'	39°12.9'	6°24.0'	11°06.1'	48°28.9'	65°41.3'	70°04.6'	79°43.5'
23	21°43.1'	S 22°58.8'	8.8'	4.5'	56.3'	66°58.8'	38°44.1'	5°53.0'	11°38.2'	49°00.9'	66°01.8'	70°25.0'	80°00.8'
Mer. pass.		21 h 30 m SD 15.5'	phase 83%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°27.5'	N 89°20.7'
Rigel Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	338°38.7'		179°50.5'	N 8°54.5'	225°02.8'	N 19°34.3'	49°23.1'	S 22°40.0'	40°31.7'	S 21°12.8'	311°46.6'	N 6°32.4'
1	353°41.1'		194°50.6'	N 8°53.6'	240°02.5'	N 19°34.1'	64°25.7'	S 22°40.1'	55°34.3'	S 21°12.8'	326°48.7'	N 6°32.6'
2	8°43.6'		209°50.8'	N 8°52.7'	255°02.1'	N 19°33.9'	79°28.3'	S 22°40.1'	70°36.9'	S 21°12.8'	341°50.9'	N 6°32.7'
3	23°46.1'		224°51.0'	N 8°51.8'	270°01.8'	N 19°33.6'	94°30.9'	S 22°40.1'	85°39.5'	S 21°12.8'	356°53.0'	N 6°32.8'
4	38°48.5'		239°51.2'	N 8°50.9'	285°01.5'	N 19°33.4'	109°33.4'	S 22°40.1'	100°42.1'	S 21°12.9'	11°55.1'	N 6°32.9'
5	53°51.0'		254°51.4'	N 8°50.0'	300°01.1'	N 19°33.2'	124°36.0'	S 22°40.1'	115°44.6'	S 21°12.9'	26°57.2'	N 6°33.1'
6	68°53.4'		269°51.6'	N 8°49.1'	315°00.8'	N 19°32.9'	139°38.6'	S 22°40.1'	130°47.2'	S 21°12.9'	41°59.3'	N 6°33.2'
7	83°55.9'		284°51.8'	N 8°48.2'	330°00.5'	N 19°32.7'	154°41.2'	S 22°40.2'	145°49.8'	S 21°12.9'	57°01.4'	N 6°33.3'
8	98°58.4'		299°52.0'	N 8°47.3'	345°00.1'	N 19°32.5'	169°43.8'	S 22°40.2'	160°52.4'	S 21°13.0'	72°03.5'	N 6°33.4'
9	114°00.8'		314°52.2'	N 8°46.4'	359°59.8'	N 19°32.2'	184°46.3'	S 22°40.2'	175°55.0'	S 21°13.0'	87°05.6'	N 6°33.5'
10	129°03.3'		329°52.4'	N 8°45.5'	14°59.5'	N 19°32.0'	199°48.9'	S 22°40.2'	190°57.6'	S 21°13.0'	102°07.7'	N 6°33.7'
11	144°05.8'		344°52.6'	N 8°44.6'	29°59.1'	N 19°31.7'	214°51.5'	S 22°40.2'	206°00.1'	S 21°13.0'	117°09.8'	N 6°33.8'
12	159°08.2'		359°52.8'	N 8°43.7'	44°58.8'	N 19°31.5'	229°54.1'	S 22°40.2'	221°02.7'	S 21°13.1'	132°12.0'	N 6°33.9'
13	174°10.7'		14°53.0'	N 8°42.8'	59°58.5'	N 19°31.3'	244°56.7'	S 22°40.3'	236°05.3'	S 21°13.1'	147°14.1'	N 6°34.0'
14	189°13.2'		29°53.2'	N 8°41.9'	74°58.1'	N 19°31.0'	259°59.2'	S 22°40.3'	251°07.9'	S 21°13.1'	162°16.2'	N 6°34.1'
15	204°15.6'		44°53.4'	N 8°41.0'	89°57.8'	N 19°30.8'	275°01.8'	S 22°40.3'	266°10.5'	S 21°13.1'	177°18.3'	N 6°34.3'
16	219°18.1'		59°53.6'	N 8°40.1'	104°57.5'	N 19°30.5'	290°04.4'	S 22°40.3'	281°13.1'	S 21°13.2'	192°20.4'	N 6°34.4'
17	234°20.6'		74°53.8'	N 8°39.2'	119°57.1'	N 19°30.3'	305°07.0'	S 22°40.3'	296°15.6'	S 21°13.2'	207°22.6'	N 6°34.5'
18	249°23.0'		89°53.9'	N 8°38.3'	134°56.8'	N 19°30.0'	320°09.5'	S 22°40.3'	311°18.2'	S 21°13.2'	222°24.7'	N 6°34.6'
19	264°25.5'		104°54.1'	N 8°37.4'	149°56.5'	N 19°29.8'	335°12.1'	S 22°40.4'	326°20.8'	S 21°13.2'	237°26.8'	N 6°34.7'
20	279°27.9'		119°54.3'	N 8°36.5'	164°56.1'	N 19°29.6'	350°14.7'	S 22°40.4'	341°23.4'	S 21°13.3'	252°29.0'	N 6°34.8'
21	294°30.4'		134°54.5'	N 8°35.6'	179°55.8'	N 19°29.3'	5°17.3'	S 22°40.4'	356°26.0'	S 21°13.3'	267°31.1'	N 6°35.0'
22	309°32.9'		149°54.7'	N 8°34.7'	194°55.4'	N 19°29.1'	20°19.8'	S 22°40.4'	11°28.5'	S 21°13.3'	282°33.2'	N 6°35.1'
23	324°35.3'		164°54.9'	N 8°33.8'	209°55.1'	N 19°28.8'	35°22.4'	S 22°40.4'	26°31.1'	S 21°13.3'	297°35.3'	N 6°35.2'
			SD 15.8'	d -0.9'	v -0.3'	d -0.2'	v 2.6'	d -0.0'	v 2.6'	d -0.0'	v 2.1'	d 0.1'
Mer. pass.			12 h 0 m 29 s		9 h 0 m		20 h 39 m		21 h 14 m		3 h 12 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Aldebaran	-Rigel	-Mars	-Fomalhaut	+Saturn	+Antares	+Rigel Kent	
0	36°10.9'	S 22°54.3'	8.9'	4.6'	56.3'			87°25.6'	38°15.4'		12°10.3'	49°32.8'	66°22.4'
1	50°38.8'	S 22°49.7'	9.0'	4.7'	56.3'			86°53.8'	37°46.9'	4°50.5'	12°42.3'	50°04.7'	66°43.1'
2	65°06.8'	S 22°45.0'	9.0'	4.8'	56.3'			86°22.0'	37°18.4'	5°19.7'	13°14.4'	50°36.5'	67°03.8'
3	79°34.8'	S 22°40.1'	9.1'	5.0'	56.3'			85°50.2'	36°50.0'	5°49.3'	13°46.5'	51°08.4'	67°24.6'
4	94°02.9'	S 22°35.2'	9.1'	5.1'	56.2'			85°18.5'	36°21.8'	6°19.4'	14°18.6'	51°40.2'	67°45.4'
5	108°31.0'	S 22°30.1'	9.2'	5.2'	56.2'			84°46.8'	35°53.6'	6°49.7'	14°50.6'	52°12.0'	68°06.3'
6	122°59.2'	S 22°24.9'	9.3'	5.3'	56.2'			84°15.1'	35°25.6'	7°20.3'	15°22.7'	52°43.8'	68°27.2'
7	137°27.5'	S 22°19.6'	9.3'	5.4'	56.2'			83°43.4'	34°57.7'	7°51.1'	15°54.7'	53°15.6'	68°48.2'
8	151°55.8'	S 22°14.1'	9.4'	5.5'	56.1'			83°11.7'	34°29.9'	8°22.1'	16°26.7'	53°47.4'	69°09.3'
9	166°24.3'	S 22°08.6'	9.5'	5.7'	56.1'			82°40.1'	34°02.2'	8°53.2'	16°58.7'	54°19.1'	69°30.4'
10	180°52.7'	S 22°02.9'	9.5'	5.8'	56.1'			82°08.4'	33°34.7'	9°24.3'	17°30.7'	54°50.8'	69°51.5'
11	195°21.3'	S 21°57.1'	9.6'	5.9'	56.1'			81°36.8'	33°07.3'	9°55.6'	18°02.7'	55°22.6'	70°12.7'
12	209°49.9'	S 21°51.2'	9.7'	6.0'	56.1'			81°05.2'	32°40.1'	10°26.9'	18°34.6'	55°54.2'	70°34.0'
13	224°18.6'	S 21°45.2'	9.8'	6.1'	56.0'			80°33.7'	32°13.0'	10°58.2'	19°06.6'	56°25.9'	70°55.3'
14	238°47.4'	S 21°39.1'	9.8'	6.2'	56.0'			80°02.1'	31°46.0'	11°29.6'	19°38.5'	56°57.6'	71°16.6'
15	253°16.2'	S 21°32.9'	9.9'	6.3'	56.0'			79°30.6'	31°19.2'	12°01.1'	20°10.4'	57°29.2'	71°38.0'
16	267°45.1'	S 21°26.6'	10.0'	6.4'	56.0'			78°59.1'	30°52.6'	12°32.5'	20°42.3'	58°00.8'	71°59.4'
17	282°14.1'	S 21°20.2'	10.0'	6.5'	56.0'			78°27.6'	30°26.1'	13°04.0'	21°14.2'	58°32.4'	72°20.8'
18	296°43.1'	S 21°13.6'	10.1'	6.6'	55.9'			77°56.1'	29°59.8'	13°35.5'	21°46.0'	59°04.0'	72°42.3'
19	311°12.2'	S 21°07.0'	10.2'	6.8'	55.9'	119°41.5'	119°08.7'	77°24.7'	29°33.7'	14°07.0'	22°17.9'	59°35.6'	73°03.8'
20	325°41.4'	S 21°00.2'	10.3'	6.9'	55.9'	119°09.8'	118°42.7'	76°53.3'	29°07.8'	14°38.5'	22°49.7'	60°07.1'	73°25.4'
21	340°10.7'	S 20°53.4'	10.3'	7.0'	55.9'	118°38.2'	118°16.6'	76°21.9'	28°42.1'	15°10.0'	23°21.5'	60°38.7'	73°47.0'
22	354°40.0'	S 20°46.4'	10.4'	7.1'	55.9'	118°06.5'	117°50.5'	75°50.5'	28°16.6'	15°41.5'	23°53.3'	61°10.2'	74°08.6'
23	9°09.4'	S 20°39.3'	10.5'	7.2'	55.8'	117°34.9'	117°24.4'	75°19.1'	27°51.3'	16°13.1'	24°25.0'	61°41.7'	74°30.3'
Mer. pass.			22 h 22 m	SD 15.4'	phase 90%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.8'	N 5°10.4'	Polaris	+2.0	315°27.0'	N 89°20.7'
Rigel Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.6'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	339°37.8'		179°55.1'	N 8°32.9'	224°54.8'	N 19°28.6'	50°25.0'	S 22°40.4'	41°33.7'	S 21°13.3'	312°37.5'	N 6°35.3'
1	354°40.3'		194°55.3'	N 8°32.0'	239°54.4'	N 19°28.3'	65°27.6'	S 22°40.5'	56°36.3'	S 21°13.4'	327°39.6'	N 6°35.4'
2	9°42.7'		209°55.5'	N 8°31.1'	254°54.1'	N 19°28.1'	80°30.1'	S 22°40.5'	71°38.9'	S 21°13.4'	342°41.7'	N 6°35.5'
3	24°45.2'		224°55.7'	N 8°30.2'	269°53.8'	N 19°27.8'	95°32.7'	S 22°40.5'	86°41.5'	S 21°13.4'	357°43.9'	N 6°35.6'
4	39°47.7'		239°55.9'	N 8°29.3'	284°53.4'	N 19°27.6'	110°35.3'	S 22°40.5'	101°44.0'	S 21°13.4'	12°46.0'	N 6°35.8'
5	54°50.1'		254°56.1'	N 8°28.4'	299°53.1'	N 19°27.3'	125°37.9'	S 22°40.5'	116°46.6'	S 21°13.5'	27°48.2'	N 6°35.9'
6	69°52.6'		269°56.3'	N 8°27.5'	314°52.7'	N 19°27.0'	140°40.4'	S 22°40.5'	131°49.2'	S 21°13.5'	42°50.3'	N 6°36.0'
7	84°55.1'		284°56.5'	N 8°26.6'	329°52.4'	N 19°26.8'	155°43.0'	S 22°40.6'	146°51.8'	S 21°13.5'	57°52.4'	N 6°36.1'
8	99°57.5'		299°56.7'	N 8°25.7'	344°52.0'	N 19°26.5'	170°45.6'	S 22°40.6'	161°54.4'	S 21°13.5'	72°54.6'	N 6°36.2'
9	114°60.0'		314°56.9'	N 8°24.8'	359°51.7'	N 19°26.3'	185°48.2'	S 22°40.6'	176°56.9'	S 21°13.6'	87°56.7'	N 6°36.3'
10	130°02.4'		329°57.1'	N 8°23.9'	14°51.4'	N 19°26.0'	200°50.7'	S 22°40.6'	191°59.5'	S 21°13.6'	102°58.9'	N 6°36.4'
11	145°04.9'		344°57.3'	N 8°23.0'	29°51.0'	N 19°25.8'	215°53.3'	S 22°40.6'	207°02.1'	S 21°13.6'	118°01.0'	N 6°36.5'
12	160°07.4'		359°57.5'	N 8°22.1'	44°50.7'	N 19°25.5'	230°55.9'	S 22°40.6'	222°04.7'	S 21°13.6'	133°03.2'	N 6°36.6'
13	175°09.8'		14°57.7'	N 8°21.2'	59°50.3'	N 19°25.2'	245°58.4'	S 22°40.6'	237°07.3'	S 21°13.7'	148°05.3'	N 6°36.8'
14	190°12.3'		29°57.9'	N 8°20.3'	74°50.0'	N 19°25.0'	261°01.0'	S 22°40.7'	252°09.8'	S 21°13.7'	163°07.5'	N 6°36.9'
15	205°14.8'		44°58.1'	N 8°19.4'	89°49.7'	N 19°24.7'	276°03.6'	S 22°40.7'	267°12.4'	S 21°13.7'	178°09.6'	N 6°37.0'
16	220°17.2'		59°58.3'	N 8°18.4'	104°49.3'	N 19°24.5'	291°06.1'	S 22°40.7'	282°15.0'	S 21°13.7'	193°11.8'	N 6°37.1'
17	235°19.7'		74°58.5'	N 8°17.5'	119°49.0'	N 19°24.2'	306°08.7'	S 22°40.7'	297°17.6'	S 21°13.7'	208°13.9'	N 6°37.2'
18	250°22.2'		89°58.7'	N 8°16.6'	134°48.6'	N 19°23.9'	321°11.3'	S 22°40.7'	312°20.1'	S 21°13.8'	223°16.1'	N 6°37.3'
19	265°24.6'		104°58.9'	N 8°15.7'	149°48.3'	N 19°23.7'	336°13.8'	S 22°40.7'	327°22.7'	S 21°13.8'	238°18.3'	N 6°37.4'
20	280°27.1'		119°59.1'	N 8°14.8'	164°47.9'	N 19°23.4'	351°16.4'	S 22°40.8'	342°25.3'	S 21°13.8'	253°20.4'	N 6°37.5'
21	295°29.5'		134°59.3'	N 8°13.9'	179°47.6'	N 19°23.1'	6°19.0'	S 22°40.8'	357°27.9'	S 21°13.8'	268°22.6'	N 6°37.6'
22	310°32.0'		149°59.5'	N 8°13.0'	194°47.2'	N 19°22.9'	21°21.6'	S 22°40.8'	12°30.5'	S 21°13.9'	283°24.7'	N 6°37.7'
23	325°34.5'		164°59.7'	N 8°12.1'	209°46.9'	N 19°22.6'	36°24.1'	S 22°40.8'	27°33.0'	S 21°13.9'	298°26.9'	N 6°37.8'
			SD 15.8'	d -0.9'	v -0.3'	d -0.3'	v 2.6'	d -0.0'	v 2.6'	d -0.0'	v 2.1'	d 0.1'
Mer. pass.			12 h 0 m 11 s		9 h 1 m		20 h 35 m		21 h 10 m		3 h 9 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Aldebaran	-Rigel	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Altair	+Antares
0	23°38.9'	S 20°32.2'	10.6'	7.3'	55.8'	117°03.3'	116°58.2'	74°47.7'	27°26.2'	16°44.6'	24°56.8'		62°13.2'
1	38°08.4'	S 20°24.9'	10.6'	7.4'	55.8'	116°31.7'	116°32.1'	74°16.4'	27°01.3'	17°16.1'	25°28.5'		62°44.6'
2	52°38.0'	S 20°17.6'	10.7'	7.5'	55.8'	116°00.2'	116°05.8'	73°45.1'	26°36.7'	17°47.6'	26°00.2'		63°16.1'
3	67°07.7'	S 20°10.1'	10.8'	7.6'	55.8'	115°28.6'	115°39.6'	73°13.8'	26°12.3'	18°19.1'	26°31.9'		63°47.5'
4	81°37.5'	S 20°02.6'	10.8'	7.6'	55.7'	114°57.1'	115°13.3'	72°42.5'	25°48.2'	18°50.6'	27°03.6'		64°18.9'
5	96°07.4'	S 19°54.9'	10.9'	7.7'	55.7'	114°25.6'	114°47.0'	72°11.3'	25°24.4'	19°22.1'	27°35.2'		64°50.3'
6	110°37.3'	S 19°47.2'	11.0'	7.8'	55.7'	113°54.1'	114°20.7'	71°40.0'	25°00.8'	19°53.6'	28°06.9'		65°21.6'
7	125°07.3'	S 19°39.3'	11.1'	7.9'	55.7'	113°22.7'	113°54.4'	71°08.8'	24°37.6'	20°25.0'	28°38.5'		65°53.0'
8	139°37.3'	S 19°31.4'	11.1'	8.0'	55.7'	112°51.2'	113°28.0'	70°37.6'	24°14.6'	20°56.5'	29°10.1'		66°24.3'
9	154°07.5'	S 19°23.4'	11.2'	8.1'	55.6'	112°19.8'	113°01.6'	70°06.5'	23°52.0'	21°27.9'	29°41.6'		66°55.6'
10	168°37.7'	S 19°15.3'	11.3'	8.2'	55.6'	111°48.4'	112°35.2'	69°35.3'	23°29.7'	21°59.4'	30°13.2'		67°26.9'
11	183°08.0'	S 19°07.1'	11.4'	8.3'	55.6'	111°17.0'	112°08.8'	69°04.1'	23°07.8'	22°30.8'	30°44.7'		67°58.2'
12	197°38.3'	S 18°58.8'	11.4'	8.4'	55.6'	110°45.6'	111°42.4'	68°33.0'	22°46.2'	23°02.2'	31°16.3'		68°29.4'
13	212°08.8'	S 18°50.4'	11.5'	8.5'	55.6'	110°14.3'	111°15.9'	68°01.9'	22°25.0'	23°33.6'	31°47.8'	37°10.6'	69°00.7'
14	226°39.3'	S 18°42.0'	11.6'	8.5'	55.5'	109°43.0'	110°49.4'	67°30.8'	22°04.2'	24°05.0'	32°19.2'	37°25.6'	69°31.9'
15	241°09.9'	S 18°33.4'	11.7'	8.6'	55.5'	109°11.7'	110°23.0'	66°59.8'	21°43.8'	24°36.4'	32°50.7'	37°41.0'	70°03.1'
16	255°40.5'	S 18°24.8'	11.7'	8.7'	55.5'	108°40.4'	109°56.5'	66°28.7'	21°23.9'	25°07.7'	33°22.1'	37°56.6'	70°34.3'
17	270°11.3'	S 18°16.1'	11.8'	8.8'	55.5'	108°09.1'	109°30.0'	65°57.7'	21°04.4'	25°39.0'	33°53.6'	38°12.4'	71°05.4'
18	284°42.1'	S 18°07.3'	11.9'	8.9'	55.5'	107°37.9'	109°03.4'	65°26.7'	20°45.4'	26°10.4'	34°25.0'	38°28.5'	71°36.6'
19	299°12.9'	S 17°58.4'	12.0'	9.0'	55.5'	107°06.6'	108°36.9'	64°55.7'	20°26.8'	26°41.7'	34°56.3'	38°44.9'	72°07.7'
20	313°43.9'	S 17°49.5'	12.0'	9.0'	55.4'	106°35.4'	108°10.4'	64°24.7'	20°08.8'	27°13.0'	35°27.7'	39°01.5'	72°38.8'
21	328°14.9'	S 17°40.4'	12.1'	9.1'	55.4'	106°04.2'	107°43.8'	63°53.8'	19°51.4'	27°44.2'	35°59.0'	39°18.4'	73°09.9'
22	342°46.0'	S 17°31.3'	12.2'	9.2'	55.4'	105°33.0'	107°17.2'	63°22.8'	19°34.4'	28°15.5'	36°30.4'	39°35.4'	73°41.0'
23	357°17.2'	S 17°22.1'	12.2'	9.3'	55.4'	105°01.9'	106°50.7'	62°51.9'	19°18.1'	28°46.7'	37°01.7'	39°52.8'	74°12.0'
Mer. pass.			23 h 11 m SD 15.2'	phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.7'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°26.6'	N 89°20.7'
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.2'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'				