

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	309°35.1'	178°23.9'	N 18°04.2'	201°17.7'	N 22°19.6'	301°01.3'	N 2°07.3'	343°53.8'	S 15°05.3'	263°29.4'	N 15°35.7'			
1	324°37.5'	193°23.9'	N 18°03.6'	216°16.9'	N 22°19.4'	316°03.8'	N 2°07.3'	358°56.4'	S 15°05.4'	278°30.3'	N 15°36.2'			
2	339°40.0'	208°24.0'	N 18°02.9'	231°16.1'	N 22°19.1'	331°06.3'	N 2°07.3'	13°59.0'	S 15°05.4'	293°31.2'	N 15°36.7'			
3	354°42.5'	223°24.0'	N 18°02.3'	246°15.3'	N 22°18.8'	346°08.8'	N 2°07.3'	29°01.7'	S 15°05.5'	308°32.0'	N 15°37.1'			
4	9°44.9'	238°24.1'	N 18°01.7'	261°14.5'	N 22°18.6'	1°11.3'	N 2°07.3'	44°04.3'	S 15°05.6'	323°32.9'	N 15°37.6'			
5	24°47.4'	253°24.1'	N 18°01.0'	276°13.7'	N 22°18.3'	16°13.8'	N 2°07.2'	59°06.9'	S 15°05.6'	338°33.7'	N 15°38.1'			
6	39°49.8'	268°24.1'	N 18°00.4'	291°12.9'	N 22°18.0'	31°16.2'	N 2°07.2'	74°09.6'	S 15°05.7'	353°34.6'	N 15°38.5'			
7	54°52.3'	283°24.2'	N 17°59.8'	306°12.1'	N 22°17.7'	46°18.7'	N 2°07.2'	89°12.2'	S 15°05.7'	8°35.5'	N 15°39.0'			
8	69°54.8'	298°24.2'	N 17°59.2'	321°11.3'	N 22°17.5'	61°21.2'	N 2°07.2'	104°14.9'	S 15°05.8'	23°36.3'	N 15°39.5'			
9	84°57.2'	313°24.2'	N 17°58.5'	336°10.5'	N 22°17.2'	76°23.7'	N 2°07.1'	119°17.5'	S 15°05.9'	38°37.2'	N 15°39.9'			
10	99°59.7'	328°24.3'	N 17°57.9'	351°09.6'	N 22°16.9'	91°26.2'	N 2°07.1'	134°20.1'	S 15°05.9'	53°38.0'	N 15°40.4'			
11	115°02.2'	343°24.3'	N 17°57.3'	6°08.8'	N 22°16.6'	106°28.7'	N 2°07.1'	149°22.8'	S 15°06.0'	68°38.9'	N 15°40.8'			
12	130°04.6'	358°24.4'	N 17°56.6'	21°08.0'	N 22°16.3'	121°31.2'	N 2°07.1'	164°25.4'	S 15°06.1'	83°39.8'	N 15°41.3'			
13	145°07.1'	13°24.4'	N 17°56.0'	36°07.2'	N 22°16.0'	136°33.6'	N 2°07.1'	179°28.0'	S 15°06.1'	98°40.6'	N 15°41.8'			
14	160°09.6'	28°24.4'	N 17°55.4'	51°06.4'	N 22°15.8'	151°36.1'	N 2°07.0'	194°30.7'	S 15°06.2'	113°41.5'	N 15°42.2'			
15	175°12.0'	43°24.5'	N 17°54.7'	66°05.6'	N 22°15.5'	166°38.6'	N 2°07.0'	209°33.3'	S 15°06.3'	128°42.4'	N 15°42.7'			
16	190°14.5'	58°24.5'	N 17°54.1'	81°04.8'	N 22°15.2'	181°41.1'	N 2°07.0'	224°36.0'	S 15°06.3'	143°43.2'	N 15°43.1'			
17	205°17.0'	73°24.6'	N 17°53.5'	96°04.0'	N 22°14.9'	196°43.6'	N 2°07.0'	239°38.6'	S 15°06.4'	158°44.1'	N 15°43.6'			
18	220°19.4'	88°24.6'	N 17°52.8'	111°03.2'	N 22°14.6'	211°46.1'	N 2°06.9'	254°41.2'	S 15°06.4'	173°44.9'	N 15°44.1'			
19	235°21.9'	103°24.6'	N 17°52.2'	126°02.4'	N 22°14.3'	226°48.6'	N 2°06.9'	269°43.9'	S 15°06.5'	188°45.8'	N 15°44.5'			
20	250°24.3'	118°24.7'	N 17°51.6'	141°01.6'	N 22°14.0'	241°51.1'	N 2°06.9'	284°46.5'	S 15°06.6'	203°46.7'	N 15°45.0'			
21	265°26.8'	133°24.7'	N 17°50.9'	156°00.8'	N 22°13.7'	256°53.5'	N 2°06.9'	299°49.2'	S 15°06.6'	218°47.5'	N 15°45.4'			
22	280°29.3'	148°24.8'	N 17°50.3'	170°60.0'	N 22°13.4'	271°56.0'	N 2°06.8'	314°51.8'	S 15°06.7'	233°48.4'	N 15°45.9'			
23	295°31.7'	163°24.8'	N 17°49.6'	185°59.2'	N 22°13.2'	286°58.5'	N 2°06.8'	329°54.4'	S 15°06.8'	248°49.3'	N 15°46.4'			
		SD 15.7' d -0.6'		v -0.8' d -0.3'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.5'				
Mer. pass.		12 h 6 m 23 s		10 h 35 m		3 h 55 m		1 h 4 m		6 h 26 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Altair	-Antares	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Sun
0	141°20.2'	N 9°54.8'	15.0'	-13.2'	55.3'		85°08.6'	78°11.9'	74°32.3'	45°15.6'	39°20.6'	15°41.7'	
1	155°54.2'	N 9°41.5'	15.0'	-13.3'	55.3'		84°37.6'	77°49.9'	74°15.0'	44°52.8'	38°49.8'	16°11.5'	
2	170°28.2'	N 9°28.2'	15.0'	-13.3'	55.3'		84°06.6'	77°27.8'	73°57.8'	44°30.0'	38°19.0'	16°41.4'	
3	185°02.2'	N 9°14.9'	15.1'	-13.4'	55.3'		83°35.6'	77°05.8'	73°40.6'	44°07.4'	37°48.1'	17°11.3'	
4	199°36.3'	N 9°01.5'	15.1'	-13.4'	55.3'		83°04.6'	76°43.8'	73°23.5'	43°44.8'	37°17.3'	17°41.3'	
5	214°10.4'	N 8°48.1'	15.1'	-13.5'	55.4'		82°33.5'	76°21.8'	73°06.5'	43°22.5'	36°46.4'	18°11.4'	
6	228°44.5'	N 8°34.6'	15.1'	-13.5'	55.4'		82°02.4'	75°59.9'	72°49.4'	43°00.2'	36°15.5'	18°41.6'	
7	243°18.6'	N 8°21.1'	15.1'	-13.6'	55.4'		81°31.3'	75°37.9'	72°32.5'	42°38.1'	35°44.6'	19°11.8'	40°07.0'
8	257°52.7'	N 8°07.5'	15.1'	-13.6'	55.4'		81°00.2'	75°16.0'	72°15.5'	42°16.1'	35°13.7'	19°42.1'	40°35.5'
9	272°26.8'	N 7°53.9'	15.1'	-13.6'	55.4'		80°29.0'	74°54.1'	71°58.7'	41°54.3'	34°42.7'	20°12.5'	41°04.0'
10	287°01.0'	N 7°40.3'	15.2'	-13.7'	55.5'		79°57.9'	74°32.2'	71°41.8'	41°32.6'	34°11.8'	20°42.9'	41°32.6'
11	301°35.1'	N 7°26.6'	15.2'	-13.7'	55.5'		79°26.7'	74°10.4'	71°25.1'	41°11.0'	33°40.8'	21°13.4'	42°01.2'
12	316°09.3'	N 7°12.9'	15.2'	-13.8'	55.5'		78°55.5'	73°48.6'	71°08.4'	40°49.6'	33°09.9'	21°43.9'	42°29.8'
13	330°43.5'	N 6°59.1'	15.2'	-13.8'	55.5'		78°24.3'	73°26.8'	70°51.7'	40°28.4'	32°38.9'	22°14.5'	42°58.4'
14	345°17.7'	N 6°45.3'	15.2'	-13.8'	55.6'		77°53.0'	73°05.0'	70°35.1'	40°07.4'	32°07.9'	22°45.1'	43°27.1'
15	359°51.9'	N 6°31.5'	15.2'	-13.9'	55.6'		77°21.8'	72°43.2'	70°18.6'	39°46.5'	31°36.9'	23°15.8'	43°55.7'
16	14°26.1'	N 6°17.6'	15.2'	-13.9'	55.6'		76°50.5'	72°21.5'	70°02.1'	39°25.8'	31°05.8'	23°46.5'	44°24.4'
17	29°00.3'	N 6°03.7'	15.2'	-13.9'	55.6'	119°59.0'	76°19.2'	71°59.9'	69°45.7'	39°05.2'	30°34.8'	24°17.3'	44°53.2'
18	43°34.5'	N 5°49.7'	15.2'	-14.0'	55.6'	119°35.1'	75°47.8'	71°38.2'	69°29.4'	38°44.9'	30°03.8'	24°48.1'	45°21.9'
19	58°08.7'	N 5°35.8'	15.2'	-14.0'	55.7'	119°11.1'	75°16.5'	71°16.6'	69°13.1'	38°24.8'	29°32.7'	25°19.0'	45°50.7'
20	72°42.9'	N 5°21.7'	15.2'	-14.0'	55.7'	118°46.9'	74°45.1'	70°55.0'	68°56.9'	38°04.8'	29°01.6'	25°49.9'	46°19.5'
21	87°17.2'	N 5°07.7'	15.2'	-14.1'	55.7'	118°22.8'	74°13.7'	70°33.5'	68°40.8'	37°45.1'	28°30.5'	26°20.8'	46°48.3'
22	101°51.4'	N 4°53.6'	15.2'	-14.1'	55.7'	117°58.5'	73°42.3'	70°12.0'	68°24.7'	37°25.6'	27°59.5'	26°51.8'	47°17.2'
23	116°25.6'	N 4°39.5'	15.2'	-14.1'	55.7'	117°34.1'	73°10.8'	69°50.6'	68°08.7'	37°06.3'	27°28.3'	27°22.8'	47°46.1'
Mer. pass.		15 h 1 m SD 15.1'		phase 10%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.7'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.7'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.1'	Polaris	+2.0	315°02.9'	N 89°21.2'
Rigil Kent	-0.0	139°43.0'	S 60°55.9'	Adhara	+1.5	255°07.8'	S 28°60.0'	Achernar	+0.5	335°21.6'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°38.9'	S 60°29.1'	Canopus	-0.6	263°53.7'	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	310°34.2'	178°24.8'	N 17°49.0'	200°58.3'	N 22°12.9'	302°01.0'	N 2°06.8'	344°57.1'	S 15°06.8'	263°50.1'	N 15°46.8'			
1	325°36.7'	193°24.9'	N 17°48.4'	215°57.5'	N 22°12.6'	317°03.5'	N 2°06.8'	359°59.7'	S 15°06.9'	278°51.0'	N 15°47.3'			
2	340°39.1'	208°24.9'	N 17°47.7'	230°56.7'	N 22°12.3'	332°06.0'	N 2°06.7'	15°02.3'	S 15°07.0'	293°51.9'	N 15°47.7'			
3	355°41.6'	223°25.0'	N 17°47.1'	245°55.9'	N 22°12.0'	347°08.5'	N 2°06.7'	30°05.0'	S 15°07.0'	308°52.7'	N 15°48.2'			
4	10°44.1'	238°25.0'	N 17°46.4'	260°55.1'	N 22°11.7'	2°11.0'	N 2°06.7'	45°07.6'	S 15°07.1'	323°53.6'	N 15°48.6'			
5	25°46.5'	253°25.1'	N 17°45.8'	275°54.3'	N 22°11.4'	17°13.5'	N 2°06.7'	60°10.3'	S 15°07.1'	338°54.4'	N 15°49.1'			
6	40°49.0'	268°25.1'	N 17°45.2'	290°53.5'	N 22°11.1'	32°16.0'	N 2°06.6'	75°12.9'	S 15°07.2'	353°55.3'	N 15°49.6'			
7	55°51.4'	283°25.1'	N 17°44.5'	305°52.7'	N 22°10.8'	47°18.5'	N 2°06.6'	90°15.5'	S 15°07.3'	8°56.2'	N 15°50.0'			
8	70°53.9'	298°25.2'	N 17°43.9'	320°51.9'	N 22°10.5'	62°21.0'	N 2°06.6'	105°18.2'	S 15°07.3'	23°57.0'	N 15°50.5'			
9	85°56.4'	313°25.2'	N 17°43.2'	335°51.1'	N 22°10.1'	77°23.5'	N 2°06.6'	120°20.8'	S 15°07.4'	38°57.9'	N 15°50.9'			
10	100°58.8'	328°25.3'	N 17°42.6'	350°50.3'	N 22°09.8'	92°25.9'	N 2°06.5'	135°23.5'	S 15°07.5'	53°58.8'	N 15°51.4'			
11	116°01.3'	343°25.3'	N 17°41.9'	5°49.5'	N 22°09.5'	107°28.4'	N 2°06.5'	150°26.1'	S 15°07.5'	68°59.6'	N 15°51.8'			
12	131°03.8'	358°25.4'	N 17°41.3'	20°48.7'	N 22°09.2'	122°30.9'	N 2°06.5'	165°28.7'	S 15°07.6'	84°00.5'	N 15°52.3'			
13	146°06.2'	13°25.4'	N 17°40.7'	35°47.9'	N 22°08.9'	137°33.4'	N 2°06.5'	180°31.4'	S 15°07.6'	99°01.4'	N 15°52.7'			
14	161°08.7'	28°25.5'	N 17°40.0'	50°47.1'	N 22°08.6'	152°35.9'	N 2°06.4'	195°34.0'	S 15°07.7'	114°02.2'	N 15°53.2'			
15	176°11.2'	43°25.5'	N 17°39.4'	65°46.3'	N 22°08.3'	167°38.4'	N 2°06.4'	210°36.6'	S 15°07.8'	129°03.1'	N 15°53.6'			
16	191°13.6'	58°25.6'	N 17°38.7'	80°45.5'	N 22°08.0'	182°40.9'	N 2°06.4'	225°39.3'	S 15°07.8'	144°04.0'	N 15°54.1'			
17	206°16.1'	73°25.6'	N 17°38.1'	95°44.7'	N 22°07.7'	197°43.4'	N 2°06.3'	240°41.9'	S 15°07.9'	159°04.8'	N 15°54.6'			
18	221°18.6'	88°25.7'	N 17°37.4'	110°43.9'	N 22°07.3'	212°45.9'	N 2°06.3'	255°44.6'	S 15°08.0'	174°05.7'	N 15°55.0'			
19	236°21.0'	103°25.7'	N 17°36.8'	125°43.1'	N 22°07.0'	227°48.4'	N 2°06.3'	270°47.2'	S 15°08.0'	189°06.6'	N 15°55.5'			
20	251°23.5'	118°25.7'	N 17°36.1'	140°42.3'	N 22°06.7'	242°50.9'	N 2°06.3'	285°49.8'	S 15°08.1'	204°07.4'	N 15°55.9'			
21	266°25.9'	133°25.8'	N 17°35.5'	155°41.5'	N 22°06.4'	257°53.4'	N 2°06.2'	300°52.5'	S 15°08.2'	219°08.3'	N 15°56.4'			
22	281°28.4'	148°25.8'	N 17°34.8'	170°40.7'	N 22°06.1'	272°55.9'	N 2°06.2'	315°55.1'	S 15°08.2'	234°09.2'	N 15°56.8'			
23	296°30.9'	163°25.9'	N 17°34.2'	185°39.9'	N 22°05.8'	287°58.4'	N 2°06.2'	330°57.8'	S 15°08.3'	249°10.0'	N 15°57.3'			
		SD 15.8' d -0.6'		v -0.8' d -0.3'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.5'				
Mer. pass.		12 h 6 m 19 s		10 h 37 m		3 h 51 m		1 h 0 m		6 h 24 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Altair	-Antares	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Sun
0	130°59.8'	N 4°25.4'	15.2'	-14.2'	55.8'	117°09.7'	72°39.4'	69°29.1'	67°52.8'	36°47.2'	26°57.2'	27°53.9'	48°15.0'
1	145°34.0'	N 4°11.2'	15.2'	-14.2'	55.8'	116°45.2'	72°07.9'	69°07.8'	67°37.0'	36°28.4'	26°26.1'	28°25.0'	48°43.9'
2	160°08.3'	N 3°57.0'	15.2'	-14.2'	55.8'	116°20.6'	71°36.4'	68°46.4'	67°21.2'	36°09.8'	25°55.0'	28°56.1'	49°12.9'
3	174°42.5'	N 3°42.8'	15.2'	-14.2'	55.8'	115°56.0'	71°04.8'	68°25.1'	67°05.5'	35°51.4'	25°23.8'	29°27.3'	49°41.9'
4	189°16.7'	N 3°28.6'	15.2'	-14.3'	55.9'	115°31.2'	70°33.3'	68°03.9'	66°49.9'	35°33.3'	24°52.7'	29°58.5'	50°10.9'
5	203°50.9'	N 3°14.3'	15.2'	-14.3'	55.9'	115°06.4'	70°01.7'	67°42.7'	66°34.4'	35°15.5'	24°21.6'	30°29.7'	50°39.9'
6	218°25.0'	N 3°00.0'	15.2'	-14.3'	55.9'	114°41.6'	69°30.1'	67°21.6'	66°18.9'	34°57.9'	23°50.4'	31°01.0'	51°09.0'
7	232°59.2'	N 2°45.7'	15.2'	-14.3'	55.9'	114°16.6'	68°58.5'	67°00.5'	66°03.6'	34°40.6'	23°19.2'	31°32.3'	51°38.1'
8	247°33.4'	N 2°31.4'	15.2'	-14.4'	56.0'	113°51.6'	68°26.8'	66°39.5'	65°48.3'	34°23.6'	22°48.1'	32°03.7'	52°07.2'
9	262°07.6'	N 2°17.0'	15.1'	-14.4'	56.0'	113°26.5'	67°55.1'	66°18.5'	65°33.2'	34°06.9'	22°16.9'	32°35.0'	52°36.3'
10	276°41.7'	N 2°02.6'	15.1'	-14.4'	56.0'	113°01.4'	67°23.4'	65°57.5'		33°50.5'	21°45.8'	33°06.5'	53°05.5'
11	291°15.8'	N 1°48.2'	15.1'	-14.4'	56.0'	112°36.2'	66°51.7'	65°36.7'		33°34.4'	21°14.6'	33°37.9'	53°34.7'
12	305°49.9'	N 1°33.8'	15.1'	-14.4'	56.1'	112°10.9'	66°20.0'	65°15.9'		33°18.6'	20°43.5'	34°09.4'	54°03.9'
13	320°24.0'	N 1°19.4'	15.1'	-14.5'	56.1'	111°45.5'	65°48.2'	64°55.1'		33°03.1'	20°12.3'	34°40.9'	54°33.2'
14	334°58.1'	N 1°04.9'	15.1'	-14.5'	56.1'	111°20.1'	65°16.4'	64°34.4'			19°41.2'	35°12.5'	55°02.5'
15	349°32.2'	N 0°50.5'	15.0'	-14.5'	56.1'	110°54.7'	64°44.6'	64°13.8'			19°10.1'	35°44.0'	55°31.8'
16	4°06.2'	N 0°36.0'	15.0'	-14.5'	56.2'	110°29.1'	64°12.7'	63°53.3'			18°39.0'	36°15.7'	56°01.1'
17	18°40.3'	N 0°21.5'	15.0'	-14.5'	56.2'	110°03.6'	63°40.8'	63°32.8'			18°07.9'	36°47.3'	56°30.5'
18	33°14.3'	N 0°07.0'	15.0'	-14.5'	56.2'	109°37.9'	63°08.9'	63°12.3'			17°36.8'	37°19.0'	56°59.8'
19	47°48.2'	S 0°07.6'	15.0'	-14.5'	56.2'	109°12.2'	62°37.0'	62°52.0'			17°05.8'	37°50.7'	57°29.3'
20	62°22.2'	S 0°22.1'	14.9'	-14.5'	56.3'	108°46.4'	62°05.0'	62°31.7'			16°34.8'	38°22.4'	57°58.7'
21	76°56.1'	S 0°36.7'	14.9'	-14.6'	56.3'	108°20.6'	61°33.1'	62°11.5'			16°03.8'	38°54.2'	58°28.2'
22	91°30.0'	S 0°51.2'	14.9'	-14.6'	56.3'	107°54.7'	61°01.1'	61°51.4'			15°32.9'	39°26.0'	58°57.7'
23	106°03.9'	S 1°05.8'	14.8'	-14.6'	56.3'	107°28.8'	60°29.0'	61°31.4'			15°02.0'	39°57.9'	59°27.2'
Mer. pass.		15 h 43 m SD 15.2'		phase 17%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.7'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.7'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.1'	Polaris	+2.0	315°02.4'	N 89°21.2'
Rigil Kent	-0.0	139°43.0'	S 60°55.9'	Adhara	+1.5	255°07.8'	S 28°60.0'	Achernar	+0.5	335°21.6'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°38.9'	S 60°29.1'	Canopus	-0.6	263°53.7'	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	311°33.3'	178°25.9'	N 17°33.5'	200°39.1'	N 22°05.4'	303°00.9'	N 2°06.2'	346°00.4'	S 15°08.3'	264°10.9'	N 15°57.7'			
1	326°35.8'	193°26.0'	N 17°32.9'	215°38.3'	N 22°05.1'	318°03.4'	N 2°06.1'	1°03.0'	S 15°08.4'	279°11.8'	N 15°58.2'			
2	341°38.3'	208°26.0'	N 17°32.2'	230°37.5'	N 22°04.8'	333°05.9'	N 2°06.1'	16°05.7'	S 15°08.5'	294°12.6'	N 15°58.6'			
3	356°40.7'	223°26.1'	N 17°31.6'	245°36.7'	N 22°04.5'	348°08.4'	N 2°06.1'	31°08.3'	S 15°08.5'	309°13.5'	N 15°59.1'			
4	11°43.2'	238°26.1'	N 17°30.9'	260°35.8'	N 22°04.1'	3°10.9'	N 2°06.0'	46°11.0'	S 15°08.6'	324°14.4'	N 15°59.5'			
5	26°45.7'	253°26.2'	N 17°30.3'	275°35.0'	N 22°03.8'	18°13.4'	N 2°06.0'	61°13.6'	S 15°08.7'	339°15.3'	N 15°60.0'			
6	41°48.1'	268°26.2'	N 17°29.6'	290°34.2'	N 22°03.5'	33°15.9'	N 2°06.0'	76°16.2'	S 15°08.7'	354°16.1'	N 16°00.4'			
7	56°50.6'	283°26.3'	N 17°29.0'	305°33.4'	N 22°03.1'	48°18.4'	N 2°06.0'	91°18.9'	S 15°08.8'	9°17.0'	N 16°00.9'			
8	71°53.0'	298°26.3'	N 17°28.3'	320°32.6'	N 22°02.8'	63°20.9'	N 2°05.9'	106°21.5'	S 15°08.9'	24°17.9'	N 16°01.3'			
9	86°55.5'	313°26.4'	N 17°27.7'	335°31.8'	N 22°02.5'	78°23.4'	N 2°05.9'	121°24.2'	S 15°08.9'	39°18.7'	N 16°01.8'			
10	101°58.0'	328°26.4'	N 17°27.0'	350°31.0'	N 22°02.1'	93°25.9'	N 2°05.9'	136°26.8'	S 15°09.0'	54°19.6'	N 16°02.2'			
11	117°00.4'	343°26.5'	N 17°26.3'	5°30.2'	N 22°01.8'	108°28.4'	N 2°05.8'	151°29.4'	S 15°09.1'	69°20.5'	N 16°02.7'			
12	132°02.9'	358°26.5'	N 17°25.7'	20°29.4'	N 22°01.5'	123°30.9'	N 2°05.8'	166°32.1'	S 15°09.1'	84°21.3'	N 16°03.1'			
13	147°05.4'	13°26.6'	N 17°25.0'	35°28.6'	N 22°01.1'	138°33.4'	N 2°05.8'	181°34.7'	S 15°09.2'	99°22.2'	N 16°03.6'			
14	162°07.8'	28°26.6'	N 17°24.4'	50°27.8'	N 22°00.8'	153°35.9'	N 2°05.8'	196°37.4'	S 15°09.2'	114°23.1'	N 16°04.0'			
15	177°10.3'	43°26.7'	N 17°23.7'	65°27.0'	N 22°00.5'	168°38.4'	N 2°05.7'	211°40.0'	S 15°09.3'	129°23.9'	N 16°04.5'			
16	192°12.8'	58°26.8'	N 17°23.1'	80°26.3'	N 22°00.1'	183°40.9'	N 2°05.7'	226°42.6'	S 15°09.4'	144°24.8'	N 16°04.9'			
17	207°15.2'	73°26.8'	N 17°22.4'	95°25.5'	N 21°59.8'	198°43.4'	N 2°05.7'	241°45.3'	S 15°09.4'	159°25.7'	N 16°05.3'			
18	222°17.7'	88°26.9'	N 17°21.7'	110°24.7'	N 21°59.4'	213°45.9'	N 2°05.6'	256°47.9'	S 15°09.5'	174°26.6'	N 16°05.8'			
19	237°20.2'	103°26.9'	N 17°21.1'	125°23.9'	N 21°59.1'	228°48.4'	N 2°05.6'	271°50.6'	S 15°09.6'	189°27.4'	N 16°06.2'			
20	252°22.6'	118°27.0'	N 17°20.4'	140°23.1'	N 21°58.7'	243°50.9'	N 2°05.6'	286°53.2'	S 15°09.6'	204°28.3'	N 16°06.7'			
21	267°25.1'	133°27.0'	N 17°19.8'	155°22.3'	N 21°58.4'	258°53.4'	N 2°05.5'	301°55.8'	S 15°09.7'	219°29.2'	N 16°07.1'			
22	282°27.5'	148°27.1'	N 17°19.1'	170°21.5'	N 21°58.1'	273°55.9'	N 2°05.5'	316°58.5'	S 15°09.8'	234°30.0'	N 16°07.6'			
23	297°30.0'	163°27.1'	N 17°18.4'	185°20.7'	N 21°57.7'	288°58.4'	N 2°05.5'	332°01.1'	S 15°09.8'	249°30.9'	N 16°08.0'			
		SD 15.8' d -0.7'		v -0.8' d -0.3'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 6 m 15 s		10 h 38 m		3 h 47 m		0 h 56 m		6 h 23 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Saturn	-Altair	-Rigel Kent	-Hadar	-Antares	-Spica	+Regulus	+Sun
0	120°37.8'	S 1°20.4'	14.8'	-14.6'	56.4'		107°02.8'	63°39.3'	61°11.4'	59°57.0'	14°31.2'	40°29.8'	59°56.8'
1	135°11.6'	S 1°34.9'	14.8'	-14.6'	56.4'		106°36.8'	63°17.6'	60°51.6'	59°24.9'	14°00.5'	41°01.7'	60°26.3'
2	149°45.4'	S 1°49.5'	14.8'	-14.6'	56.4'		106°10.7'	62°56.1'	60°31.8'	58°52.8'	13°29.8'	41°33.6'	60°56.0'
3	164°19.1'	S 2°04.1'	14.7'	-14.6'	56.4'		105°44.5'	62°34.6'	60°12.1'	58°20.6'	12°59.3'	42°05.6'	61°25.6'
4	178°52.8'	S 2°18.7'	14.7'	-14.6'	56.5'		105°18.4'	62°13.1'	59°52.5'	57°48.4'	12°28.8'	42°37.6'	61°55.3'
5	193°26.5'	S 2°33.3'	14.6'	-14.6'	56.5'		104°52.1'	61°51.8'	59°33.0'	57°16.2'	11°58.5'	43°09.6'	62°25.0'
6	208°00.2'	S 2°47.9'	14.6'	-14.6'	56.5'		104°25.8'	61°30.5'	59°13.6'	56°44.0'	11°28.3'	43°41.7'	62°54.7'
7	222°33.8'	S 3°02.5'	14.6'	-14.6'	56.5'		103°59.5'	61°09.3'	58°54.2'	56°11.8'	10°58.2'	44°13.8'	63°24.5'
8	237°07.4'	S 3°17.1'	14.5'	-14.6'	56.6'		103°33.1'	60°48.1'	58°35.0'	55°39.5'	10°28.4'	44°45.9'	63°54.3'
9	251°40.9'	S 3°31.7'	14.5'	-14.6'	56.6'		103°06.6'	60°27.1'	58°15.9'	55°07.2'	9°58.8'	45°18.1'	64°24.1'
10	266°14.4'	S 3°46.3'	14.5'	-14.6'	56.6'		102°40.1'	60°06.1'	57°56.9'	54°34.8'	9°29.5'	45°50.3'	64°53.9'
11	280°47.8'	S 4°00.9'	14.4'	-14.6'	56.6'		102°13.6'	59°45.2'	57°38.0'	54°02.5'	9°00.5'	46°22.5'	65°23.8'
12	295°21.2'	S 4°15.5'	14.4'	-14.6'	56.7'		101°47.0'	59°24.4'	57°19.2'	53°30.1'	8°31.8'	46°54.8'	65°53.7'
13	309°54.6'	S 4°30.1'	14.3'	-14.6'	56.7'		101°20.4'	59°03.7'	57°00.6'	52°57.7'	8°03.7'	47°27.1'	66°23.7'
14	324°27.9'	S 4°44.7'	14.3'	-14.6'	56.7'		100°53.7'	58°43.0'	56°42.0'	52°25.2'	7°36.0'	47°59.4'	66°53.6'
15	339°01.2'	S 4°59.3'	14.2'	-14.6'	56.8'		100°27.0'	58°22.5'	56°23.6'	51°52.7'	7°09.1'	48°31.8'	67°23.6'
16	353°34.4'	S 5°13.9'	14.2'	-14.6'	56.8'		100°00.2'	58°02.1'	56°05.3'	51°20.2'		49°04.2'	67°53.7'
17	8°07.6'	S 5°28.4'	14.1'	-14.6'	56.8'		99°33.4'	57°41.7'	55°47.1'	50°47.7'		49°36.6'	68°23.7'
18	22°40.7'	S 5°43.0'	14.1'	-14.5'	56.8'		99°06.6'	57°21.5'	55°29.0'	50°15.1'		50°09.0'	68°53.8'
19	37°13.8'	S 5°57.5'	14.0'	-14.5'	56.9'		98°39.7'	57°01.3'	55°11.1'	49°42.5'		50°41.5'	69°24.0'
20	51°46.8'	S 6°12.0'	14.0'	-14.5'	56.9'		98°12.8'	56°41.3'	54°53.3'	49°09.9'		51°14.1'	69°54.1'
21	66°19.7'	S 6°26.6'	13.9'	-14.5'	56.9'		97°45.8'	56°21.4'	54°35.7'	48°37.2'		51°46.6'	70°24.3'
22	80°52.6'	S 6°41.1'	13.8'	-14.5'	57.0'		97°18.8'	56°01.6'	54°18.1'	48°04.5'		52°19.2'	70°54.5'
23	95°25.5'	S 6°55.5'	13.8'	-14.5'	57.0'	119°44.1'	96°51.8'	55°41.9'	54°00.8'	47°31.8'		52°51.8'	71°24.8'
Mer. pass.		16 h 27 m SD 15.4'		phase 25%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.7'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.2'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.7'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.3'	N 5°10.1'	Polaris	+2.0	315°02.0'	N 89°21.2'
Rigel Kent	-0.0	139°43.0'	S 60°55.9'	Adhara	+1.5	255°07.8'	S 28°60.0'	Achernar	+0.5	335°21.6'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°38.9'	S 60°29.1'	Canopus	-0.6	263°53.7'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	312°32.5'		178°27.2'	N 17°17.8'	200°19.9'	N 21°57.4'	304°00.9'	N 2°05.5'	347°03.8'	S 15°09.9'	264°31.8'	N 16°08.5'
1	327°34.9'		193°27.2'	N 17°17.1'	215°19.1'	N 21°57.0'	319°03.4'	N 2°05.4'	2°06.4'	S 15°09.9'	279°32.7'	N 16°08.9'
2	342°37.4'		208°27.3'	N 17°16.4'	230°18.3'	N 21°56.7'	334°06.0'	N 2°05.4'	17°09.0'	S 15°10.0'	294°33.5'	N 16°09.4'
3	357°39.9'		223°27.4'	N 17°15.8'	245°17.5'	N 21°56.3'	349°08.5'	N 2°05.4'	32°11.7'	S 15°10.1'	309°34.4'	N 16°09.8'
4	12°42.3'		238°27.4'	N 17°15.1'	260°16.7'	N 21°56.0'	4°11.0'	N 2°05.3'	47°14.3'	S 15°10.1'	324°35.3'	N 16°10.2'
5	27°44.8'		253°27.5'	N 17°14.5'	275°15.9'	N 21°55.6'	19°13.5'	N 2°05.3'	62°17.0'	S 15°10.2'	339°36.2'	N 16°10.7'
6	42°47.3'		268°27.5'	N 17°13.8'	290°15.1'	N 21°55.2'	34°16.0'	N 2°05.3'	77°19.6'	S 15°10.3'	354°37.0'	N 16°11.1'
7	57°49.7'		283°27.6'	N 17°13.1'	305°14.3'	N 21°54.9'	49°18.5'	N 2°05.2'	92°22.3'	S 15°10.3'	9°37.9'	N 16°11.6'
8	72°52.2'		298°27.6'	N 17°12.5'	320°13.5'	N 21°54.5'	64°21.0'	N 2°05.2'	107°24.9'	S 15°10.4'	24°38.8'	N 16°12.0'
9	87°54.7'		313°27.7'	N 17°11.8'	335°12.7'	N 21°54.2'	79°23.5'	N 2°05.2'	122°27.5'	S 15°10.5'	39°39.6'	N 16°12.5'
10	102°57.1'		328°27.8'	N 17°11.1'	350°11.9'	N 21°53.8'	94°26.0'	N 2°05.1'	137°30.2'	S 15°10.5'	54°40.5'	N 16°12.9'
11	117°59.6'		343°27.8'	N 17°10.5'	5°11.1'	N 21°53.4'	109°28.5'	N 2°05.1'	152°32.8'	S 15°10.6'	69°41.4'	N 16°13.3'
12	133°02.0'		358°27.9'	N 17°09.8'	20°10.3'	N 21°53.1'	124°31.0'	N 2°05.1'	167°35.5'	S 15°10.6'	84°42.3'	N 16°13.8'
13	148°04.5'		13°27.9'	N 17°09.1'	35°09.5'	N 21°52.7'	139°33.5'	N 2°05.0'	182°38.1'	S 15°10.7'	99°43.1'	N 16°14.2'
14	163°07.0'		28°28.0'	N 17°08.5'	50°08.7'	N 21°52.4'	154°36.1'	N 2°05.0'	197°40.7'	S 15°10.8'	114°44.0'	N 16°14.7'
15	178°09.4'		43°28.0'	N 17°07.8'	65°07.9'	N 21°52.0'	169°38.6'	N 2°05.0'	212°43.4'	S 15°10.8'	129°44.9'	N 16°15.1'
16	193°11.9'		58°28.1'	N 17°07.1'	80°07.1'	N 21°51.6'	184°41.1'	N 2°04.9'	227°46.0'	S 15°10.9'	144°45.8'	N 16°15.6'
17	208°14.4'		73°28.2'	N 17°06.4'	95°06.3'	N 21°51.3'	199°43.6'	N 2°04.9'	242°48.7'	S 15°11.0'	159°46.6'	N 16°16.0'
18	223°16.8'		88°28.2'	N 17°05.8'	110°05.6'	N 21°50.9'	214°46.1'	N 2°04.9'	257°51.3'	S 15°11.0'	174°47.5'	N 16°16.4'
19	238°19.3'		103°28.3'	N 17°05.1'	125°04.8'	N 21°50.5'	229°48.6'	N 2°04.8'	272°53.9'	S 15°11.1'	189°48.4'	N 16°16.9'
20	253°21.8'		118°28.3'	N 17°04.4'	140°04.0'	N 21°50.1'	244°51.1'	N 2°04.8'	287°56.6'	S 15°11.2'	204°49.3'	N 16°17.3'
21	268°24.2'		133°28.4'	N 17°03.8'	155°03.2'	N 21°49.8'	259°53.6'	N 2°04.8'	302°59.2'	S 15°11.2'	219°50.1'	N 16°17.8'
22	283°26.7'		148°28.5'	N 17°03.1'	170°02.4'	N 21°49.4'	274°56.2'	N 2°04.7'	318°01.9'	S 15°11.3'	234°51.0'	N 16°18.2'
23	298°29.1'		163°28.5'	N 17°02.4'	185°01.6'	N 21°49.0'	289°58.7'	N 2°04.7'	333°04.5'	S 15°11.3'	249°51.9'	N 16°18.6'
			SD 15.8' d -0.7'		v -0.8' d -0.4'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.4'	
Mer. pass.			12 h 6 m 9 s		10 h 39 m		3 h 43 m		0 h 52 m		6 h 22 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Saturn	-Rigel Kent	-Hadar	-Antares	-Spica	+Regulus	+Sun
0	109°58.3'	S 7°10.0'	13.7'	-14.5'	57.0'		119°11.1'	55°22.3'	53°43.5'	46°59.1'		53°24.5'	71°55.1'
1	124°31.0'	S 7°24.5'	13.7'	-14.4'	57.0'		118°38.2'	55°02.8'	53°26.5'	46°26.3'		53°57.2'	72°25.4'
2	139°03.6'	S 7°38.9'	13.6'	-14.4'	57.1'		118°05.2'	54°43.5'	53°09.6'	45°53.5'		54°29.9'	72°55.8'
3	153°36.2'	S 7°53.3'	13.5'	-14.4'	57.1'		117°32.2'	54°24.3'	52°52.8'	45°20.6'		55°02.7'	73°26.1'
4	168°08.8'	S 8°07.7'	13.5'	-14.4'	57.1'		116°59.2'	54°05.2'	52°36.2'	44°47.7'		55°35.5'	73°56.6'
5	182°41.3'	S 8°22.1'	13.4'	-14.3'	57.2'		116°26.1'	53°46.2'	52°19.8'	44°14.8'		56°08.3'	74°27.0'
6	197°13.7'	S 8°36.4'	13.3'	-14.3'	57.2'		115°53.0'	53°27.4'	52°03.5'	43°41.9'		56°41.2'	74°57.5'
7	211°46.0'	S 8°50.7'	13.3'	-14.3'	57.2'		115°19.9'	53°08.8'	51°47.4'	43°08.9'		57°14.1'	75°28.0'
8	226°18.3'	S 9°05.0'	13.2'	-14.3'	57.2'		114°46.7'	52°50.2'	51°31.5'	42°35.9'		57°47.0'	75°58.6'
9	240°50.5'	S 9°19.3'	13.1'	-14.2'	57.3'		114°13.5'	52°31.9'	51°15.7'	42°02.9'		58°20.0'	76°29.1'
10	255°22.6'	S 9°33.6'	13.1'	-14.2'	57.3'		113°40.2'	52°13.7'	51°00.2'	41°29.9'		58°53.0'	76°59.8'
11	269°54.6'	S 9°47.8'	13.0'	-14.2'	57.3'		113°07.0'	51°55.6'	50°44.8'	40°56.8'		59°26.1'	77°30.4'
12	284°26.6'	S 10°01.9'	12.9'	-14.1'	57.4'		112°33.7'	51°37.7'		40°23.6'		59°59.1'	78°01.1'
13	298°58.5'	S 10°16.1'	12.8'	-14.1'	57.4'		112°00.3'	51°19.9'		39°50.5'	7°26.7'	60°32.2'	78°31.8'
14	313°30.3'	S 10°30.2'	12.7'	-14.1'	57.4'		111°26.9'	51°02.4'		39°17.3'	7°54.7'	61°05.4'	79°02.6'
15	328°02.1'	S 10°44.3'	12.7'	-14.0'	57.5'		110°53.5'	50°44.9'		38°44.1'	8°23.5'	61°38.6'	79°33.4'
16	342°33.8'	S 10°58.3'	12.6'	-14.0'	57.5'		110°20.1'	50°27.7'		38°10.8'	8°52.8'	62°11.8'	80°04.2'
17	357°05.3'	S 11°12.3'	12.5'	-14.0'	57.5'	119°31.5'	109°46.6'	50°10.7'		37°37.5'	9°22.5'	62°45.0'	80°35.0'
18	11°36.8'	S 11°26.3'	12.4'	-13.9'	57.6'	118°59.9'	109°13.1'	49°53.8'		37°04.2'	9°52.7'	63°18.3'	81°05.9'
19	26°08.3'	S 11°40.2'	12.3'	-13.9'	57.6'	118°28.2'	108°39.5'	49°37.1'		36°30.9'	10°23.3'	63°51.6'	81°36.9'
20	40°39.6'	S 11°54.1'	12.3'	-13.8'	57.6'	117°56.4'	108°05.9'	49°20.6'		35°57.5'	10°54.1'	64°25.0'	82°07.8'
21	55°10.9'	S 12°08.0'	12.2'	-13.8'	57.6'	117°24.6'	107°32.3'	49°04.3'		35°24.1'	11°25.2'	64°58.4'	82°38.8'
22	69°42.0'	S 12°21.8'	12.1'	-13.8'	57.7'	116°52.8'	106°58.6'	48°48.2'		34°50.6'	11°56.6'	65°31.8'	83°09.9'
23	84°13.1'	S 12°35.5'	12.0'	-13.7'	57.7'	116°20.9'	106°24.9'	48°32.3'		34°17.2'	12°28.2'	66°05.3'	83°40.9'
Mer. pass.			17 h 12 m SD 15.5'	phase 34%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.7'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.6'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.1'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.7'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	315°01.5'	N 89°21.2'
Rigel Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.8'	S 28°60.0'	Achernar	+0.5	335°21.5'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°38.9'	S 60°29.1'	Canopus	-0.6	263°53.7'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	313°31.6'	178°28.6' N	17°01.7'	200°00.8' N	21°48.6'	305°01.2' N	2°04.7'	348°07.2' S	15°11.4'	264°52.8' N	16°19.1'	
1	328°34.1'	193°28.7' N	17°01.1'	215°00.0' N	21°48.3'	320°03.7' N	2°04.6'	3°09.8' S	15°11.5'	279°53.6' N	16°19.5'	
2	343°36.5'	208°28.7' N	17°00.4'	229°59.2' N	21°47.9'	335°06.2' N	2°04.6'	18°12.4' S	15°11.5'	294°54.5' N	16°19.9'	
3	358°39.0'	223°28.8' N	16°59.7'	244°58.4' N	21°47.5'	350°08.7' N	2°04.6'	33°15.1' S	15°11.6'	309°55.4' N	16°20.4'	
4	13°41.5'	238°28.8' N	16°59.0'	259°57.6' N	21°47.1'	5°11.2' N	2°04.5'	48°17.7' S	15°11.7'	324°56.3' N	16°20.8'	
5	28°43.9'	253°28.9' N	16°58.4'	274°56.8' N	21°46.8'	20°13.8' N	2°04.5'	63°20.4' S	15°11.7'	339°57.2' N	16°21.3'	
6	43°46.4'	268°29.0' N	16°57.7'	289°56.1' N	21°46.4'	35°16.3' N	2°04.5'	78°23.0' S	15°11.8'	354°58.0' N	16°21.7'	
7	58°48.9'	283°29.0' N	16°57.0'	304°55.3' N	21°46.0'	50°18.8' N	2°04.4'	93°25.6' S	15°11.9'	9°58.9' N	16°22.1'	
8	73°51.3'	298°29.1' N	16°56.3'	319°54.5' N	21°45.6'	65°21.3' N	2°04.4'	108°28.3' S	15°11.9'	24°59.8' N	16°22.6'	
9	88°53.8'	313°29.2' N	16°55.7'	334°53.7' N	21°45.2'	80°23.8' N	2°04.4'	123°30.9' S	15°12.0'	40°00.7' N	16°23.0'	
10	103°56.3'	328°29.2' N	16°55.0'	349°52.9' N	21°44.8'	95°26.3' N	2°04.3'	138°33.6' S	15°12.1'	55°01.5' N	16°23.4'	
11	118°58.7'	343°29.3' N	16°54.3'	4°52.1' N	21°44.4'	110°28.8' N	2°04.3'	153°36.2' S	15°12.1'	70°02.4' N	16°23.9'	
12	134°01.2'	358°29.4' N	16°53.6'	19°51.3' N	21°44.1'	125°31.4' N	2°04.3'	168°38.9' S	15°12.2'	85°03.3' N	16°24.3'	
13	149°03.6'	13°29.4' N	16°52.9'	34°50.5' N	21°43.7'	140°33.9' N	2°04.2'	183°41.5' S	15°12.2'	100°04.2' N	16°24.7'	
14	164°06.1'	28°29.5' N	16°52.3'	49°49.7' N	21°43.3'	155°36.4' N	2°04.2'	198°44.1' S	15°12.3'	115°05.1' N	16°25.2'	
15	179°08.6'	43°29.6' N	16°51.6'	64°48.9' N	21°42.9'	170°38.9' N	2°04.1'	213°46.8' S	15°12.4'	130°05.9' N	16°25.6'	
16	194°11.0'	58°29.6' N	16°50.9'	79°48.2' N	21°42.5'	185°41.4' N	2°04.1'	228°49.4' S	15°12.4'	145°06.8' N	16°26.0'	
17	209°13.5'	73°29.7' N	16°50.2'	94°47.4' N	21°42.1'	200°44.0' N	2°04.1'	243°52.1' S	15°12.5'	160°07.7' N	16°26.5'	
18	224°16.0'	88°29.8' N	16°49.5'	109°46.6' N	21°41.7'	215°46.5' N	2°04.0'	258°54.7' S	15°12.6'	175°08.6' N	16°26.9'	
19	239°18.4'	103°29.8' N	16°48.8'	124°45.8' N	21°41.3'	230°49.0' N	2°04.0'	273°57.4' S	15°12.6'	190°09.5' N	16°27.3'	
20	254°20.9'	118°29.9' N	16°48.2'	139°45.0' N	21°40.9'	245°51.5' N	2°04.0'	288°60.0' S	15°12.7'	205°10.3' N	16°27.8'	
21	269°23.4'	133°30.0' N	16°47.5'	154°44.2' N	21°40.5'	260°54.0' N	2°03.9'	304°02.6' S	15°12.8'	220°11.2' N	16°28.2'	
22	284°25.8'	148°30.0' N	16°46.8'	169°43.4' N	21°40.1'	275°56.6' N	2°03.9'	319°05.3' S	15°12.8'	235°12.1' N	16°28.6'	
23	299°28.3'	163°30.1' N	16°46.1'	184°42.6' N	21°39.7'	290°59.1' N	2°03.9'	334°07.9' S	15°12.9'	250°13.0' N	16°29.1'	
		SD 15.8' d -0.7'		v -0.8' d -0.4'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.4'		
Mer. pass.		12 h 6 m 3 s		10 h 41 m		3 h 39 m		0 h 47 m		6 h 20 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Saturn	-Altair	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Sun
0	98°44.1' S	12°49.2'	11.9'	-13.7'	57.7'	105°51.2'	85°25.0'	48°16.6'	33°43.7'	13°00.0'		66°38.8'	84°12.0'
1	113°15.0' S	13°02.9'	11.8'	-13.6'	57.8'	105°17.4'	84°57.1'	48°01.2'	33°10.1'	13°32.0'		67°12.4'	84°43.2'
2	127°45.8' S	13°16.5'	11.7'	-13.6'	57.8'	104°43.6'	84°29.3'	47°45.9'	32°36.5'	14°04.1'	32°23.2'	67°45.9'	85°14.4'
3	142°16.5' S	13°30.1'	11.6'	-13.5'	57.8'	104°09.8'	84°01.4'		32°02.9'	14°36.4'	32°38.6'	68°19.6'	85°45.6'
4	156°47.1' S	13°43.6'	11.5'	-13.5'	57.9'	103°35.9'	83°33.6'		31°29.3'	15°08.8'	32°54.4'	68°53.2'	86°16.8'
5	171°17.6' S	13°57.1'	11.4'	-13.4'	57.9'	103°02.0'	83°05.7'		30°55.6'	15°41.4'	33°10.6'	69°26.9'	86°48.1'
6	185°48.1' S	14°10.5'	11.3'	-13.3'	57.9'	102°28.0'	82°37.8'		30°21.9'	16°14.1'	33°27.2'	70°00.6'	87°19.4'
7	200°18.4' S	14°23.8'	11.2'	-13.3'	58.0'	101°54.1'	82°09.8'		29°48.2'	16°46.8'	33°44.2'	70°34.4'	87°50.8'
8	214°48.6' S	14°37.1'	11.1'	-13.2'	58.0'	101°20.0'	81°41.9'		29°14.4'	17°19.7'	34°01.6'	71°08.2'	88°22.2'
9	229°18.8' S	14°50.3'	11.0'	-13.2'	58.0'	100°46.0'	81°13.9'		28°40.6'	17°52.7'	34°19.4'	71°42.0'	88°53.6'
10	243°48.8' S	15°03.5'	10.9'	-13.1'	58.0'	100°11.9'	80°45.9'		28°06.8'	18°25.8'	34°37.6'	72°15.9'	89°25.1'
11	258°18.7' S	15°16.6'	10.8'	-13.0'	58.1'	99°37.7'	80°18.0'		27°33.0'	18°59.0'	34°56.1'	72°49.8'	89°56.6'
12	272°48.5' S	15°29.6'	10.7'	-13.0'	58.1'	99°03.6'	79°50.0'		26°59.1'	19°32.2'	35°15.0'	73°23.8'	90°28.1'
13	287°18.3' S	15°42.6'	10.6'	-12.9'	58.1'	98°29.4'	79°21.9'		26°25.2'	20°05.5'	35°34.3'	73°57.8'	90°59.7'
14	301°47.9' S	15°55.5'	10.5'	-12.8'	58.2'	97°55.1'	78°53.9'		25°51.2'	20°38.9'	35°53.8'	74°31.8'	91°31.3'
15	316°17.4' S	16°08.3'	10.4'	-12.8'	58.2'	97°20.8'	78°25.9'		25°17.3'	21°12.4'	36°13.7'	75°05.8'	92°02.9'
16	330°46.8' S	16°21.1'	10.3'	-12.7'	58.2'	96°46.5'	77°57.9'		24°43.3'	21°46.0'	36°34.0'	75°40.0'	92°34.6'
17	345°16.1' S	16°33.8'	10.2'	-12.6'	58.3'	96°12.1'	77°29.8'		24°09.2'	22°19.6'	36°54.5'	76°14.1'	93°06.4'
18	359°45.3' S	16°46.4'	10.1'	-12.5'	58.3'	95°37.7'	77°01.8'		23°35.2'	22°53.3'	37°15.4'	76°48.3'	93°38.1'
19	14°14.3' S	16°59.0'	10.0'	-12.5'	58.3'	95°03.3'	76°33.7'		23°01.1'	23°27.0'	37°36.6'	77°22.5'	94°09.9'
20	28°43.3' S	17°11.4'	9.9'	-12.4'	58.4'	94°28.8'	76°05.7'		22°27.0'	24°00.8'	37°58.1'	77°56.7'	94°41.8'
21	43°12.1' S	17°23.8'	9.7'	-12.3'	58.4'	93°54.3'	75°37.6'		21°52.8'	24°34.7'	38°19.8'	78°31.0'	95°13.6'
22	57°40.9' S	17°36.1'	9.6'	-12.2'	58.4'	93°19.8'	75°09.5'		21°18.7'	25°08.6'	38°41.9'	79°05.4'	95°45.5'
23	72°09.5' S	17°48.3'	9.5'	-12.1'	58.5'	92°45.2'	74°41.5'		20°44.5'	25°42.6'	39°04.2'	79°39.7'	96°17.5'
Mer. pass.		18 h 1 m SD 15.7'		phase 45%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4' S	29°30.1'	Spica	+1.0	158°24.5' S	11°16.7'	Betelgeuse	+0.5	270°54.5' N	7°24.7'
Deneb	+1.2	49°26.7' N	45°21.7'	Acrux	+0.8	173°02.7' S	63°13.6'	Capella	+0.1	280°25.1' N	46°01.1'
Altair	+0.8	62°01.6' N	8°55.7'	Regulus	+1.4	207°36.9' N	11°51.6'	Rigel	+0.2	281°06.0' S	8°10.4'
Vega	+0.0	80°34.2' N	38°48.4'	Pollux	+1.2	243°20.1' N	27°58.4'	Aldebaran	+0.9	290°42.1' N	16°33.2'
Antares	+1.1	112°18.1' S	26°28.9'	Procyon	+0.4	244°53.2' N	5°10.1'	Polaris	+2.0	315°00.9' N	89°21.2'
Rigel Kent	-0.0	139°43.1' S	60°55.9'	Adhara	+1.5	255°07.8' S	28°60.0'	Achernar	+0.5	335°21.5' S	57°07.1'
Arcturus	-0.1	145°49.8' N	19°04.1'	Sirius	-1.4	258°28.3' S	16°44.7'				
Hadar	+0.6	148°38.9' S	60°29.1'	Canopus	-0.6	263°53.7' 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°30.8'	178°30.2'	N 16°45.4'	199°41.9'	N 21°39.3'	306°01.6'	N 2°03.8'	349°10.6'	S 15°13.0'	265°13.9'	N 16°29.5'			
1	329°33.2'	193°30.2'	N 16°44.7'	214°41.1'	N 21°38.9'	321°04.1'	N 2°03.8'	4°13.2'	S 15°13.0'	280°14.7'	N 16°29.9'			
2	344°35.7'	208°30.3'	N 16°44.1'	229°40.3'	N 21°38.5'	336°06.6'	N 2°03.7'	19°15.9'	S 15°13.1'	295°15.6'	N 16°30.4'			
3	359°38.1'	223°30.4'	N 16°43.4'	244°39.5'	N 21°38.1'	351°09.2'	N 2°03.7'	34°18.5'	S 15°13.1'	310°16.5'	N 16°30.8'			
4	14°40.6'	238°30.4'	N 16°42.7'	259°38.7'	N 21°37.7'	6°11.7'	N 2°03.7'	49°21.1'	S 15°13.2'	325°17.4'	N 16°31.2'			
5	29°43.1'	253°30.5'	N 16°42.0'	274°37.9'	N 21°37.3'	21°14.2'	N 2°03.6'	64°23.8'	S 15°13.3'	340°18.3'	N 16°31.7'			
6	44°45.5'	268°30.6'	N 16°41.3'	289°37.1'	N 21°36.9'	36°16.7'	N 2°03.6'	79°26.4'	S 15°13.3'	355°19.1'	N 16°32.1'			
7	59°48.0'	283°30.6'	N 16°40.6'	304°36.4'	N 21°36.5'	51°19.2'	N 2°03.5'	94°29.1'	S 15°13.4'	10°20.0'	N 16°32.5'			
8	74°50.5'	298°30.7'	N 16°39.9'	319°35.6'	N 21°36.1'	66°21.8'	N 2°03.5'	109°31.7'	S 15°13.5'	25°20.9'	N 16°33.0'			
9	89°52.9'	313°30.8'	N 16°39.2'	334°34.8'	N 21°35.6'	81°24.3'	N 2°03.5'	124°34.4'	S 15°13.5'	40°21.8'	N 16°33.4'			
10	104°55.4'	328°30.9'	N 16°38.5'	349°34.0'	N 21°35.2'	96°26.8'	N 2°03.4'	139°37.0'	S 15°13.6'	55°22.7'	N 16°33.8'			
11	119°57.9'	343°30.9'	N 16°37.9'	4°33.2'	N 21°34.8'	111°29.3'	N 2°03.4'	154°39.6'	S 15°13.7'	70°23.5'	N 16°34.2'			
12	135°00.3'	358°31.0'	N 16°37.2'	19°32.4'	N 21°34.4'	126°31.9'	N 2°03.4'	169°42.3'	S 15°13.7'	85°24.4'	N 16°34.7'			
13	150°02.8'	13°31.1'	N 16°36.5'	34°31.7'	N 21°34.0'	141°34.4'	N 2°03.3'	184°44.9'	S 15°13.8'	100°25.3'	N 16°35.1'			
14	165°05.2'	28°31.1'	N 16°35.8'	49°30.9'	N 21°33.6'	156°36.9'	N 2°03.3'	199°47.6'	S 15°13.8'	115°26.2'	N 16°35.5'			
15	180°07.7'	43°31.2'	N 16°35.1'	64°30.1'	N 21°33.1'	171°39.4'	N 2°03.2'	214°50.2'	S 15°13.9'	130°27.1'	N 16°36.0'			
16	195°10.2'	58°31.3'	N 16°34.4'	79°29.3'	N 21°32.7'	186°42.0'	N 2°03.2'	229°52.9'	S 15°14.0'	145°28.0'	N 16°36.4'			
17	210°12.6'	73°31.4'	N 16°33.7'	94°28.5'	N 21°32.3'	201°44.5'	N 2°03.2'	244°55.5'	S 15°14.0'	160°28.8'	N 16°36.8'			
18	225°15.1'	88°31.4'	N 16°33.0'	109°27.7'	N 21°31.9'	216°47.0'	N 2°03.1'	259°58.1'	S 15°14.1'	175°29.7'	N 16°37.2'			
19	240°17.6'	103°31.5'	N 16°32.3'	124°27.0'	N 21°31.5'	231°49.6'	N 2°03.1'	275°00.8'	S 15°14.2'	190°30.6'	N 16°37.7'			
20	255°20.0'	118°31.6'	N 16°31.6'	139°26.2'	N 21°31.0'	246°52.1'	N 2°03.0'	290°03.4'	S 15°14.2'	205°31.5'	N 16°38.1'			
21	270°22.5'	133°31.6'	N 16°30.9'	154°25.4'	N 21°30.6'	261°54.6'	N 2°03.0'	305°06.1'	S 15°14.3'	220°32.4'	N 16°38.5'			
22	285°25.0'	148°31.7'	N 16°30.2'	169°24.6'	N 21°30.2'	276°57.1'	N 2°03.0'	320°08.7'	S 15°14.4'	235°33.3'	N 16°38.9'			
23	300°27.4'	163°31.8'	N 16°29.5'	184°23.8'	N 21°29.8'	291°59.7'	N 2°02.9'	335°11.4'	S 15°14.4'	250°34.2'	N 16°39.4'			
		SD 15.8' d -0.7'		v -0.8' d -0.4'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 5 m 57 s		10 h 42 m		3 h 35 m		0 h 43 m		6 h 19 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Sun
0	86°38.0'	S 18°00.5'	9.4'	-12.1'	58.5'		92°10.6'	74°13.4'	20°10.3'	26°16.7'	39°26.8'	80°14.1'	96°49.5'
1	101°06.4'	S 18°12.5'	9.3'	-12.0'	58.5'		91°35.9'	73°45.4'	19°36.1'	26°50.8'	39°49.6'	80°48.6'	97°21.5'
2	115°34.7'	S 18°24.5'	9.2'	-11.9'	58.6'		91°01.2'	73°17.3'	19°01.8'	27°25.0'	40°12.7'	81°23.1'	97°53.6'
3	130°02.8'	S 18°36.4'	9.0'	-11.8'	58.6'		90°26.4'	72°49.3'	18°27.6'	27°59.2'	40°36.1'	81°57.6'	98°25.7'
4	144°30.9'	S 18°48.2'	8.9'	-11.7'	58.6'		89°51.7'	72°21.2'	17°53.3'	28°33.4'	40°59.7'	82°32.2'	98°57.8'
5	158°58.8'	S 18°59.9'	8.8'	-11.6'	58.7'		89°16.8'	71°53.2'	17°19.0'	29°07.8'	41°23.6'	83°06.8'	99°30.0'
6	173°26.6'	S 19°11.5'	8.7'	-11.5'	58.7'		88°42.0'	71°25.2'	16°44.7'	29°42.1'	41°47.7'	83°41.4'	100°02.2'
7	187°54.3'	S 19°23.0'	8.6'	-11.4'	58.7'		88°07.1'	70°57.2'	16°10.4'	30°16.6'	42°12.0'	84°16.1'	100°34.4'
8	202°21.9'	S 19°34.4'	8.4'	-11.3'	58.7'		87°32.2'	70°29.2'	15°36.1'	30°51.0'	42°36.5'	84°50.8'	101°06.7'
9	216°49.3'	S 19°45.7'	8.3'	-11.2'	58.8'		86°57.2'	70°01.2'	15°01.8'	31°25.6'	43°01.3'	85°25.5'	101°39.1'
10	231°16.6'	S 19°56.9'	8.2'	-11.1'	58.8'		86°22.2'	69°33.2'	14°27.5'	32°00.1'	43°26.3'	86°00.3'	102°11.4'
11	245°43.9'	S 20°08.0'	8.1'	-11.0'	58.8'		85°47.1'	69°05.2'	13°53.2'	32°34.7'	43°51.4'	86°35.2'	102°43.8'
12	260°10.9'	S 20°19.0'	8.0'	-10.9'	58.9'		85°12.1'	68°37.3'	13°19.0'	33°09.4'	44°16.8'	87°10.0'	103°16.3'
13	274°37.9'	S 20°29.9'	7.8'	-10.8'	58.9'		84°36.9'	68°09.4'	12°44.7'	33°44.1'	44°42.4'	87°44.9'	103°48.7'
14	289°04.7'	S 20°40.7'	7.7'	-10.7'	58.9'		84°01.8'	67°41.5'	12°10.5'	34°18.9'	45°08.2'	88°19.9'	104°21.3'
15	303°31.4'	S 20°51.3'	7.6'	-10.6'	59.0'		83°26.6'	67°13.6'	11°36.4'	34°53.7'	45°34.2'	88°54.9'	104°53.8'
16	317°58.0'	S 21°01.9'	7.5'	-10.4'	59.0'		82°51.3'	66°45.8'	11°02.3'	35°28.6'	46°00.3'	89°29.9'	105°26.4'
17	332°24.5'	S 21°12.3'	7.3'	-10.3'	59.0'		82°16.1'	66°17.9'	10°28.2'	36°03.5'	46°26.6'	90°04.9'	105°59.0'
18	346°50.8'	S 21°22.7'	7.2'	-10.2'	59.1'		81°40.8'	65°50.1'	9°54.3'	36°38.4'	46°53.2'	90°40.0'	106°31.7'
19	1°17.1'	S 21°32.9'	7.1'	-10.1'	59.1'	93°07.4'	81°05.4'	65°22.4'	9°20.5'	37°13.4'	47°19.9'	91°15.2'	107°04.4'
20	15°43.2'	S 21°43.0'	7.0'	-10.0'	59.1'	92°52.4'	80°30.0'	64°54.6'	8°46.8'	37°48.4'	47°46.7'	91°50.3'	107°37.1'
21	30°09.1'	S 21°52.9'	6.8'	-9.8'	59.2'	92°37.3'	79°54.6'	64°27.0'	8°13.3'	38°23.5'	48°13.7'	92°25.6'	108°09.9'
22	44°35.0'	S 22°02.8'	6.7'	-9.7'	59.2'	92°22.3'	79°19.1'	63°59.3'	7°40.1'	38°58.6'	48°40.9'	93°00.8'	108°42.7'
23	59°00.7'	S 22°12.5'	6.6'	-9.6'	59.2'	92°07.2'	78°43.6'	63°31.7'	7°07.2'	39°33.8'	49°08.3'	93°36.1'	109°15.6'
Mer. pass.		18 h 55 m SD 16.0'		phase 56%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.1'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.7'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.1'	N 16°33.2'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	315°00.4'	N 89°21.2'
Rigil Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.8'	S 28°60.0'	Achernar	+0.5	335°21.5'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°38.9'	S 60°29.1'	Canopus	-0.6	263°53.7'	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	315°29.9'	178°31.9'	N 16°28.8'	199°23.1'	N 21°29.3'	307°02.2'	N 2°02.9'	350°14.0'	S 15°14.5'	265°35.0'	N 16°39.8'			
1	330°32.4'	193°31.9'	N 16°28.1'	214°22.3'	N 21°28.9'	322°04.7'	N 2°02.8'	5°16.6'	S 15°14.6'	280°35.9'	N 16°40.2'			
2	345°34.8'	208°32.0'	N 16°27.5'	229°21.5'	N 21°28.5'	337°07.2'	N 2°02.8'	20°19.3'	S 15°14.6'	295°36.8'	N 16°40.6'			
3	0°37.3'	223°32.1'	N 16°26.8'	244°20.7'	N 21°28.0'	352°09.8'	N 2°02.8'	35°21.9'	S 15°14.7'	310°37.7'	N 16°41.1'			
4	15°39.7'	238°32.2'	N 16°26.1'	259°19.9'	N 21°27.6'	7°12.3'	N 2°02.7'	50°24.6'	S 15°14.7'	325°38.6'	N 16°41.5'			
5	30°42.2'	253°32.2'	N 16°25.4'	274°19.2'	N 21°27.2'	22°14.8'	N 2°02.7'	65°27.2'	S 15°14.8'	340°39.5'	N 16°41.9'			
6	45°44.7'	268°32.3'	N 16°24.7'	289°18.4'	N 21°26.7'	37°17.4'	N 2°02.6'	80°29.9'	S 15°14.9'	355°40.4'	N 16°42.3'			
7	60°47.1'	283°32.4'	N 16°24.0'	304°17.6'	N 21°26.3'	52°19.9'	N 2°02.6'	95°32.5'	S 15°14.9'	10°41.2'	N 16°42.8'			
8	75°49.6'	298°32.5'	N 16°23.3'	319°16.8'	N 21°25.9'	67°22.4'	N 2°02.6'	110°35.1'	S 15°15.0'	25°42.1'	N 16°43.2'			
9	90°52.1'	313°32.6'	N 16°22.6'	334°16.0'	N 21°25.4'	82°25.0'	N 2°02.5'	125°37.8'	S 15°15.1'	40°43.0'	N 16°43.6'			
10	105°54.5'	328°32.6'	N 16°21.9'	349°15.3'	N 21°25.0'	97°27.5'	N 2°02.5'	140°40.4'	S 15°15.1'	55°43.9'	N 16°44.0'			
11	120°57.0'	343°32.7'	N 16°21.2'	4°14.5'	N 21°24.6'	112°30.0'	N 2°02.4'	155°43.1'	S 15°15.2'	70°44.8'	N 16°44.5'			
12	135°59.5'	358°32.8'	N 16°20.5'	19°13.7'	N 21°24.1'	127°32.6'	N 2°02.4'	170°45.7'	S 15°15.3'	85°45.7'	N 16°44.9'			
13	151°01.9'	13°32.9'	N 16°19.8'	34°12.9'	N 21°23.7'	142°35.1'	N 2°02.3'	185°48.4'	S 15°15.3'	100°46.6'	N 16°45.3'			
14	166°04.4'	28°32.9'	N 16°19.1'	49°12.2'	N 21°23.2'	157°37.6'	N 2°02.3'	200°51.0'	S 15°15.4'	115°47.4'	N 16°45.7'			
15	181°06.9'	43°33.0'	N 16°18.3'	64°11.4'	N 21°22.8'	172°40.2'	N 2°02.3'	215°53.7'	S 15°15.5'	130°48.3'	N 16°46.1'			
16	196°09.3'	58°33.1'	N 16°17.6'	79°10.6'	N 21°22.3'	187°42.7'	N 2°02.2'	230°56.3'	S 15°15.5'	145°49.2'	N 16°46.6'			
17	211°11.8'	73°33.2'	N 16°16.9'	94°09.8'	N 21°21.9'	202°45.2'	N 2°02.2'	245°58.9'	S 15°15.6'	160°50.1'	N 16°47.0'			
18	226°14.2'	88°33.3'	N 16°16.2'	109°09.1'	N 21°21.4'	217°47.8'	N 2°02.1'	261°01.6'	S 15°15.6'	175°51.0'	N 16°47.4'			
19	241°16.7'	103°33.3'	N 16°15.5'	124°08.3'	N 21°21.0'	232°50.3'	N 2°02.1'	276°04.2'	S 15°15.7'	190°51.9'	N 16°47.8'			
20	256°19.2'	118°33.4'	N 16°14.8'	139°07.5'	N 21°20.5'	247°52.8'	N 2°02.0'	291°06.9'	S 15°15.8'	205°52.8'	N 16°48.2'			
21	271°21.6'	133°33.5'	N 16°14.1'	154°06.7'	N 21°20.1'	262°55.4'	N 2°02.0'	306°09.5'	S 15°15.8'	220°53.7'	N 16°48.7'			
22	286°24.1'	148°33.6'	N 16°13.4'	169°06.0'	N 21°19.6'	277°57.9'	N 2°02.0'	321°12.2'	S 15°15.9'	235°54.6'	N 16°49.1'			
23	301°26.6'	163°33.7'	N 16°12.7'	184°05.2'	N 21°19.2'	293°00.4'	N 2°01.9'	336°14.8'	S 15°16.0'	250°55.4'	N 16°49.5'			
		SD 15.8' d -0.7'		v -0.8' d -0.4'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 5 m 50 s		10 h 43 m		3 h 31 m		0 h 39 m		6 h 17 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Sun
0	73°26.3'	S 22°22.1'	6.5'	-9.5'	59.2'	89°22.5'	78°08.1'	63°04.1'	6°34.6'	40°09.0'	49°35.8'	94°11.4'	109°48.4'
1	87°51.8'	S 22°31.5'	6.4'	-9.3'	59.3'	88°48.5'	77°32.5'	62°36.6'	6°02.6'	40°44.3'	50°03.4'	94°46.8'	110°21.4'
2	102°17.1'	S 22°40.9'	6.2'	-9.2'	59.3'	88°14.4'	76°56.9'	62°09.1'		41°19.6'	50°31.2'	95°22.2'	110°54.3'
3	116°42.4'	S 22°50.0'	6.1'	-9.1'	59.3'	87°40.3'	76°21.2'	61°41.7'		41°54.9'	50°59.2'	95°57.6'	111°27.3'
4	131°07.5'	S 22°59.1'	6.0'	-8.9'	59.4'	87°06.1'	75°45.6'	61°14.3'		42°30.3'	51°27.3'	96°33.1'	112°00.4'
5	145°32.4'	S 23°08.0'	5.9'	-8.8'	59.4'	86°31.9'	75°09.8'	60°46.9'		43°05.7'	51°55.5'	97°08.6'	112°33.4'
6	159°57.3'	S 23°16.8'	5.7'	-8.6'	59.4'	85°57.7'	74°34.1'	60°19.7'		43°41.2'	52°23.9'	97°44.2'	113°06.5'
7	174°22.0'	S 23°25.5'	5.6'	-8.5'	59.5'	85°23.4'	73°58.3'	59°52.5'		44°16.7'	52°52.4'	98°19.7'	113°39.7'
8	188°46.7'	S 23°34.0'	5.5'	-8.4'	59.5'	84°49.2'	73°22.4'	59°25.3'		44°52.2'	53°21.0'	98°55.4'	114°12.8'
9	203°11.2'	S 23°42.3'	5.4'	-8.2'	59.5'	84°14.8'	72°46.6'	58°58.2'		45°27.8'	53°49.8'	99°31.0'	114°46.0'
10	217°35.5'	S 23°50.5'	5.3'	-8.1'	59.5'	83°40.5'	72°10.7'	58°31.2'		46°03.4'	54°18.7'	100°06.7'	115°19.3'
11	231°59.8'	S 23°58.6'	5.1'	-7.9'	59.6'	83°06.1'	71°34.7'	58°04.3'		46°39.1'	54°47.7'	100°42.4'	115°52.6'
12	246°24.0'	S 24°06.5'	5.0'	-7.8'	59.6'	82°31.7'	70°58.7'	57°37.4'		47°14.8'	55°16.8'	101°18.2'	116°25.9'
13	260°48.0'	S 24°14.2'	4.9'	-7.6'	59.6'	81°57.2'	70°22.7'	57°10.6'		47°50.5'	55°46.0'	101°54.0'	116°59.2'
14	275°11.9'	S 24°21.8'	4.8'	-7.4'	59.7'	81°22.8'	69°46.7'	56°43.9'		48°26.3'	56°15.4'	102°29.8'	117°32.6'
15	289°35.7'	S 24°29.3'	4.7'	-7.3'	59.7'	80°48.3'	69°10.6'	56°17.2'		49°02.1'	56°44.9'	103°05.7'	118°06.0'
16	303°59.4'	S 24°36.6'	4.6'	-7.1'	59.7'	80°13.7'	68°34.5'	55°50.7'		49°38.0'	57°14.5'	103°41.6'	118°39.5'
17	318°22.9'	S 24°43.7'	4.5'	-7.0'	59.7'	79°39.2'	67°58.3'	55°24.3'		50°13.9'	57°44.2'	104°17.6'	119°13.0'
18	332°46.4'	S 24°50.7'	4.3'	-6.8'	59.8'	79°04.6'	67°22.1'	54°57.9'		50°49.8'	58°14.0'	104°53.5'	119°46.5'
19	347°09.7'	S 24°57.5'	4.2'	-6.6'	59.8'	78°30.0'	66°45.9'	54°31.6'	5°58.7'	51°25.8'	58°43.9'	105°29.6'	
20	1°33.0'	S 25°04.1'	4.1'	-6.5'	59.8'	77°55.3'	66°09.6'	54°05.5'	6°31.3'	52°01.8'	59°13.9'	106°05.6'	
21	15°56.1'	S 25°10.6'	4.0'	-6.3'	59.8'	77°20.6'	65°33.4'	53°39.4'	7°04.6'	52°37.9'	59°44.0'	106°41.7'	
22	30°19.1'	S 25°16.9'	3.9'	-6.1'	59.9'	76°45.9'	64°57.0'	53°13.5'	7°38.2'	53°14.0'	60°14.2'	107°17.8'	
23	44°42.0'	S 25°23.1'	3.8'	-6.0'	59.9'	76°11.2'	64°20.7'	52°47.7'	8°12.3'	53°50.1'	60°44.4'	107°53.9'	
Mer. pass.		19 h 54 m SD 16.2'		phase 67%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.1'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.1'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°59.8'	N 89°21.2'
Rigil Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.8'	S 28°60.0'	Achernar	+0.5	335°21.5'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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°29.0'	178°33.7'	N 16°12.0'	199°04.4'	N 21°18.7'	308°03.0'	N 2°01.9'	351°17.5'	S 15°16.0'	265°56.3'	N 16°49.9'			
1	331°31.5'	193°33.8'	N 16°11.3'	214°03.6'	N 21°18.3'	323°05.5'	N 2°01.8'	6°20.1'	S 15°16.1'	280°57.2'	N 16°50.3'			
2	346°34.0'	208°33.9'	N 16°10.6'	229°02.9'	N 21°17.8'	338°08.0'	N 2°01.8'	21°22.7'	S 15°16.2'	295°58.1'	N 16°50.8'			
3	1°36.4'	223°34.0'	N 16°09.9'	244°02.1'	N 21°17.4'	353°10.6'	N 2°01.7'	36°25.4'	S 15°16.2'	310°59.0'	N 16°51.2'			
4	16°38.9'	238°34.1'	N 16°09.2'	259°01.3'	N 21°16.9'	8°13.1'	N 2°01.7'	51°28.0'	S 15°16.3'	325°59.9'	N 16°51.6'			
5	31°41.4'	253°34.1'	N 16°08.5'	274°00.5'	N 21°16.5'	23°15.6'	N 2°01.7'	66°30.7'	S 15°16.4'	341°00.8'	N 16°52.0'			
6	46°43.8'	268°34.2'	N 16°07.7'	288°59.8'	N 21°16.0'	38°18.2'	N 2°01.6'	81°33.3'	S 15°16.4'	356°01.7'	N 16°52.4'			
7	61°46.3'	283°34.3'	N 16°07.0'	303°59.0'	N 21°15.5'	53°20.7'	N 2°01.6'	96°36.0'	S 15°16.5'	11°02.6'	N 16°52.9'			
8	76°48.7'	298°34.4'	N 16°06.3'	318°58.2'	N 21°15.1'	68°23.3'	N 2°01.5'	111°38.6'	S 15°16.5'	26°03.5'	N 16°53.3'			
9	91°51.2'	313°34.5'	N 16°05.6'	333°57.5'	N 21°14.6'	83°25.8'	N 2°01.5'	126°41.2'	S 15°16.6'	41°04.3'	N 16°53.7'			
10	106°53.7'	328°34.6'	N 16°04.9'	348°56.7'	N 21°14.1'	98°28.3'	N 2°01.4'	141°43.9'	S 15°16.7'	56°05.2'	N 16°54.1'			
11	121°56.1'	343°34.6'	N 16°04.2'	3°55.9'	N 21°13.7'	113°30.9'	N 2°01.4'	156°46.5'	S 15°16.7'	71°06.1'	N 16°54.5'			
12	136°58.6'	358°34.7'	N 16°03.5'	18°55.1'	N 21°13.2'	128°33.4'	N 2°01.3'	171°49.2'	S 15°16.8'	86°07.0'	N 16°54.9'			
13	152°01.1'	13°34.8'	N 16°02.8'	33°54.4'	N 21°12.7'	143°36.0'	N 2°01.3'	186°51.8'	S 15°16.9'	101°07.9'	N 16°55.4'			
14	167°03.5'	28°34.9'	N 16°02.1'	48°53.6'	N 21°12.3'	158°38.5'	N 2°01.3'	201°54.5'	S 15°16.9'	116°08.8'	N 16°55.8'			
15	182°06.0'	43°35.0'	N 16°01.3'	63°52.8'	N 21°11.8'	173°41.0'	N 2°01.2'	216°57.1'	S 15°17.0'	131°09.7'	N 16°56.2'			
16	197°08.5'	58°35.1'	N 16°00.6'	78°52.1'	N 21°11.3'	188°43.6'	N 2°01.2'	231°59.8'	S 15°17.1'	146°10.6'	N 16°56.6'			
17	212°10.9'	73°35.2'	N 15°59.9'	93°51.3'	N 21°10.9'	203°46.1'	N 2°01.1'	247°02.4'	S 15°17.1'	161°11.5'	N 16°57.0'			
18	227°13.4'	88°35.2'	N 15°59.2'	108°50.5'	N 21°10.4'	218°48.7'	N 2°01.1'	262°05.0'	S 15°17.2'	176°12.4'	N 16°57.4'			
19	242°15.9'	103°35.3'	N 15°58.5'	123°49.8'	N 21°09.9'	233°51.2'	N 2°01.0'	277°07.7'	S 15°17.3'	191°13.3'	N 16°57.8'			
20	257°18.3'	118°35.4'	N 15°57.8'	138°49.0'	N 21°09.4'	248°53.7'	N 2°01.0'	292°10.3'	S 15°17.3'	206°14.2'	N 16°58.3'			
21	272°20.8'	133°35.5'	N 15°57.0'	153°48.2'	N 21°09.0'	263°56.3'	N 2°00.9'	307°13.0'	S 15°17.4'	221°15.1'	N 16°58.7'			
22	287°23.2'	148°35.6'	N 15°56.3'	168°47.4'	N 21°08.5'	278°58.8'	N 2°00.9'	322°15.6'	S 15°17.4'	236°16.0'	N 16°59.1'			
23	302°25.7'	163°35.7'	N 15°55.6'	183°46.7'	N 21°08.0'	294°01.4'	N 2°00.8'	337°18.3'	S 15°17.5'	251°16.8'	N 16°59.5'			
		SD 15.8' d -0.7'		v -0.8' d -0.5'		v 2.5' d -0.0'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 5 m 42 s		10 h 44 m		3 h 27 m		0 h 35 m		6 h 16 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Deneb	-Fomalhaut	-Saturn	-Altair	+Antares	+Rigil Kent	+Hadar	+Spica
0	59°04.9'	S 25°29.0'	3.7'	-5.8'	59.9'	85°44.6'	75°36.5'	63°44.3'	52°22.0'	8°46.7'			54°26.2'
1	73°27.6'	S 25°34.8'	3.6'	-5.6'	59.9'	85°29.3'	75°01.7'	63°07.9'	51°56.4'	9°21.4'			55°02.4'
2	87°50.2'	S 25°40.4'	3.5'	-5.4'	60.0'	85°13.9'	74°26.9'	62°31.4'	51°31.0'	9°56.3'			55°38.7'
3	102°12.7'	S 25°45.9'	3.4'	-5.3'	60.0'	84°58.6'	73°52.1'	61°54.9'	51°05.7'	10°31.4'			56°14.9'
4	116°35.1'	S 25°51.2'	3.3'	-5.1'	60.0'	84°43.3'	73°17.2'	61°18.4'	50°40.5'	11°06.7'			56°51.2'
5	130°57.4'	S 25°56.2'	3.2'	-4.9'	60.0'	84°28.0'	72°42.4'	60°41.8'	50°15.5'	11°42.1'			57°27.6'
6	145°19.7'	S 26°01.2'	3.1'	-4.7'	60.1'	84°12.7'	72°07.5'	60°05.3'	49°50.6'	12°17.7'			58°03.9'
7	159°41.8'	S 26°05.9'	3.1'	-4.5'	60.1'	83°57.5'	71°32.6'	59°28.6'	49°25.9'	12°53.3'			58°40.3'
8	174°03.9'	S 26°10.4'	3.0'	-4.4'	60.1'	83°42.3'	70°57.7'	58°52.0'	49°01.3'	13°29.1'			59°16.8'
9	188°25.8'	S 26°14.8'	2.9'	-4.2'	60.1'	83°27.0'	70°22.7'	58°15.3'	48°36.9'	14°05.0'	48°58.3'		59°53.2'
10	202°47.7'	S 26°18.9'	2.8'	-4.0'	60.2'	83°11.9'	69°47.8'	57°38.6'	48°12.7'	14°40.9'	49°13.5'		60°29.7'
11	217°09.5'	S 26°22.9'	2.7'	-3.8'	60.2'	82°56.7'	69°12.8'	57°01.9'	47°48.6'	15°17.0'	49°29.0'		61°06.3'
12	231°31.2'	S 26°26.7'	2.6'	-3.6'	60.2'	82°41.6'	68°37.8'	56°25.1'	47°24.7'	15°53.1'		49°44.8'	61°42.8'
13	245°52.9'	S 26°30.3'	2.6'	-3.4'	60.2'	82°26.4'	68°02.8'	55°48.3'	47°01.1'	16°29.3'		50°00.9'	62°19.4'
14	260°14.4'	S 26°33.7'	2.5'	-3.2'	60.3'	82°11.4'	67°27.8'	55°11.5'	46°37.6'	17°05.5'	46°23.2'	50°17.2'	62°56.1'
15	274°35.9'	S 26°37.0'	2.4'	-3.0'	60.3'	81°56.3'	66°52.8'	54°34.7'	46°14.3'	17°41.9'	46°38.3'	50°33.9'	63°32.7'
16	288°57.4'	S 26°40.0'	2.4'	-2.8'	60.3'		66°17.7'	53°57.8'	45°51.2'	18°18.2'	46°53.7'	50°50.8'	64°09.4'
17	303°18.7'	S 26°42.8'	2.3'	-2.6'	60.3'		65°42.7'	53°20.9'	45°28.4'	18°54.7'	47°09.5'	51°08.0'	64°46.1'
18	317°40.0'	S 26°45.5'	2.2'	-2.4'	60.3'		65°07.6'	52°44.0'	45°05.7'	19°31.1'	47°25.5'	51°25.4'	65°22.9'
19	332°01.3'	S 26°47.9'	2.2'	-2.2'	60.4'		64°32.6'	52°07.0'	44°43.3'	20°07.7'	47°41.8'	51°43.1'	65°59.7'
20	346°22.4'	S 26°50.1'	2.1'	-2.0'	60.4'		63°57.5'	51°30.0'	44°21.2'	20°44.3'	47°58.5'	52°01.0'	66°36.5'
21	0°43.5'	S 26°52.2'	2.1'	-1.8'	60.4'		63°22.4'	50°53.0'	43°59.2'	21°20.9'	48°15.4'	52°19.2'	67°13.3'
22	15°04.6'	S 26°54.0'	2.0'	-1.6'	60.4'		62°47.3'	50°16.0'	43°37.6'	21°57.6'	48°32.7'	52°37.7'	67°50.2'
23	29°25.6'	S 26°55.7'	2.0'	-1.4'	60.4'		62°12.2'	49°39.0'	43°16.2'	22°34.3'	48°50.2'	52°56.3'	68°27.0'
Mer. pass.		20 h 57 m SD 16.3'		phase 77%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.1'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.1'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°59.1'	N 89°21.2'
Rigil Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.8'	S 28°60.0'	Achernar	+0.5	335°21.5'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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°28.2'	178°35.8'	N 15°54.9'	198°45.9'	N 21°07.5'	309°03.9'	N 2°00.8'	352°20.9'	S 15°17.6'	266°17.7'	N 16°59.9'			
1	332°30.6'	193°35.8'	N 15°54.2'	213°45.1'	N 21°07.0'	324°06.5'	N 2°00.7'	7°23.6'	S 15°17.6'	281°18.6'	N 17°00.3'			
2	347°33.1'	208°35.9'	N 15°53.5'	228°44.4'	N 21°06.6'	339°09.0'	N 2°00.7'	22°26.2'	S 15°17.7'	296°19.5'	N 17°00.7'			
3	2°35.6'	223°36.0'	N 15°52.7'	243°43.6'	N 21°06.1'	354°11.5'	N 2°00.7'	37°28.9'	S 15°17.8'	311°20.4'	N 17°01.1'			
4	17°38.0'	238°36.1'	N 15°52.0'	258°42.8'	N 21°05.6'	9°14.1'	N 2°00.6'	52°31.5'	S 15°17.8'	326°21.3'	N 17°01.6'			
5	32°40.5'	253°36.2'	N 15°51.3'	273°42.1'	N 21°05.1'	24°16.6'	N 2°00.6'	67°34.1'	S 15°17.9'	341°22.2'	N 17°02.0'			
6	47°43.0'	268°36.3'	N 15°50.6'	288°41.3'	N 21°04.6'	39°19.2'	N 2°00.5'	82°36.8'	S 15°18.0'	356°23.1'	N 17°02.4'			
7	62°45.4'	283°36.4'	N 15°49.9'	303°40.5'	N 21°04.1'	54°21.7'	N 2°00.5'	97°39.4'	S 15°18.0'	11°24.0'	N 17°02.8'			
8	77°47.9'	298°36.5'	N 15°49.1'	318°39.8'	N 21°03.7'	69°24.3'	N 2°00.4'	112°42.1'	S 15°18.1'	26°24.9'	N 17°03.2'			
9	92°50.4'	313°36.6'	N 15°48.4'	333°39.0'	N 21°03.2'	84°26.8'	N 2°00.4'	127°44.7'	S 15°18.2'	41°25.8'	N 17°03.6'			
10	107°52.8'	328°36.6'	N 15°47.7'	348°38.3'	N 21°02.7'	99°29.4'	N 2°00.3'	142°47.4'	S 15°18.2'	56°26.7'	N 17°04.0'			
11	122°55.3'	343°36.7'	N 15°47.0'	3°37.5'	N 21°02.2'	114°31.9'	N 2°00.3'	157°50.0'	S 15°18.3'	71°27.6'	N 17°04.4'			
12	137°57.7'	358°36.8'	N 15°46.3'	18°36.7'	N 21°01.7'	129°34.5'	N 2°00.2'	172°52.7'	S 15°18.3'	86°28.5'	N 17°04.8'			
13	153°00.2'	13°36.9'	N 15°45.5'	33°36.0'	N 21°01.2'	144°37.0'	N 2°00.2'	187°55.3'	S 15°18.4'	101°29.4'	N 17°05.2'			
14	168°02.7'	28°37.0'	N 15°44.8'	48°35.2'	N 21°00.7'	159°39.6'	N 2°00.1'	202°57.9'	S 15°18.5'	116°30.3'	N 17°05.7'			
15	183°05.1'	43°37.1'	N 15°44.1'	63°34.4'	N 21°00.2'	174°42.1'	N 2°00.1'	218°00.6'	S 15°18.5'	131°31.2'	N 17°06.1'			
16	198°07.6'	58°37.2'	N 15°43.4'	78°33.7'	N 20°59.7'	189°44.7'	N 2°00.0'	233°03.2'	S 15°18.6'	146°32.1'	N 17°06.5'			
17	213°10.1'	73°37.3'	N 15°42.6'	93°32.9'	N 20°59.2'	204°47.2'	N 1°60.0'	248°05.9'	S 15°18.7'	161°33.0'	N 17°06.9'			
18	228°12.5'	88°37.4'	N 15°41.9'	108°32.1'	N 20°58.7'	219°49.7'	N 1°59.9'	263°08.5'	S 15°18.7'	176°33.9'	N 17°07.3'			
19	243°15.0'	103°37.5'	N 15°41.2'	123°31.4'	N 20°58.2'	234°52.3'	N 1°59.9'	278°11.2'	S 15°18.8'	191°34.8'	N 17°07.7'			
20	258°17.5'	118°37.6'	N 15°40.5'	138°30.6'	N 20°57.7'	249°54.8'	N 1°59.8'	293°13.8'	S 15°18.9'	206°35.7'	N 17°08.1'			
21	273°19.9'	133°37.6'	N 15°39.7'	153°29.9'	N 20°57.2'	264°57.4'	N 1°59.8'	308°16.5'	S 15°18.9'	221°36.6'	N 17°08.5'			
22	288°22.4'	148°37.7'	N 15°39.0'	168°29.1'	N 20°56.7'	279°59.9'	N 1°59.7'	323°19.1'	S 15°19.0'	236°37.5'	N 17°08.9'			
23	303°24.9'	163°37.8'	N 15°38.3'	183°28.3'	N 20°56.2'	295°02.5'	N 1°59.7'	338°21.8'	S 15°19.1'	251°38.4'	N 17°09.3'			
		SD 15.8' d -0.7'		v -0.8' d -0.5'		v 2.5' d -0.9'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 5 m 34 s		10 h 46 m		3 h 23 m		0 h 31 m		6 h 14 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Saturn	-Altair	+Antares	+Rigel Kent	+Hadar	+Acrux
0	43°46.6'	S 26°57.1'	1.9'	-1.2'	60.5'	78°01.1'	61°37.1'	49°01.9'	42°55.0'	23°11.0'	49°08.0'	53°15.2'	64°41.5'
1	58°07.5'	S 26°58.3'	1.9'	-1.0'	60.5'	77°40.8'	61°02.0'	48°24.8'	42°34.2'	23°47.8'	49°26.1'	53°34.4'	64°58.8'
2	72°28.4'	S 26°59.4'	1.8'	-0.8'	60.5'	77°20.5'	60°26.9'	47°47.7'	42°13.6'	24°24.6'	49°44.4'	53°53.8'	65°16.3'
3	86°49.2'	S 27°00.2'	1.8'	-0.6'	60.5'	77°00.3'	59°51.8'	47°10.5'	41°53.3'	25°01.5'	50°03.1'	54°13.4'	65°33.9'
4	101°10.0'	S 27°00.8'	1.8'	-0.4'	60.5'	76°40.2'	59°16.7'	46°33.4'	41°33.3'	25°38.4'	50°21.9'	54°33.2'	65°51.7'
5	115°30.8'	S 27°01.3'	1.7'	-0.2'	60.6'	76°20.1'	58°41.6'	45°56.2'	41°13.6'	26°15.3'	50°41.1'	54°53.2'	66°09.7'
6	129°51.6'	S 27°01.5'	1.7'	-0.0'	60.6'	76°00.0'	58°06.5'	45°19.0'	40°54.3'	26°52.3'	51°00.5'	55°13.5'	66°27.8'
7	144°12.3'	S 27°01.5'	1.7'	0.2'	60.6'	75°40.0'	57°31.5'	44°41.8'	40°35.3'	27°29.3'	51°20.1'	55°33.9'	66°46.0'
8	158°33.0'	S 27°01.3'	1.7'	0.4'	60.6'	75°20.1'	56°56.4'	44°04.6'	40°16.6'	28°06.3'	51°40.0'	55°54.6'	67°04.4'
9	172°53.6'	S 27°00.9'	1.7'	0.6'	60.6'	75°00.3'	56°21.3'	43°27.3'	39°58.2'	28°43.3'	52°00.1'	56°15.4'	67°22.9'
10	187°14.3'	S 27°00.3'	1.6'	0.8'	60.6'	74°40.5'	55°46.3'	42°50.0'	39°40.2'	29°20.4'	52°20.5'	56°36.5'	67°41.6'
11	201°34.9'	S 26°59.5'	1.6'	1.0'	60.6'	74°20.8'	55°11.2'	42°12.7'	39°22.6'	29°57.5'	52°41.1'	56°57.7'	68°00.3'
12	215°55.6'	S 26°58.5'	1.6'	1.2'	60.7'	74°01.1'	54°36.2'	41°35.4'	39°05.4'	30°34.6'	53°01.9'	57°19.2'	68°19.3'
13	230°16.2'	S 26°57.3'	1.6'	1.4'	60.7'	73°41.5'	54°01.2'	40°58.1'	38°48.5'	31°11.8'	53°22.9'	57°40.8'	68°38.3'
14	244°36.8'	S 26°55.8'	1.6'	1.6'	60.7'	73°22.0'	53°26.2'	40°20.8'	38°32.1'	31°49.0'	53°44.2'	58°02.6'	68°57.5'
15	258°57.4'	S 26°54.2'	1.6'	1.8'	60.7'	73°02.6'	52°51.2'	39°43.4'	38°16.0'	32°26.2'	54°05.6'	58°24.6'	69°16.8'
16	273°18.1'	S 26°52.3'	1.6'	2.1'	60.7'	72°43.3'	52°16.3'	39°06.1'	38°00.4'	33°03.4'	54°27.3'	58°46.7'	69°36.2'
17	287°38.7'	S 26°50.3'	1.6'	2.3'	60.7'	72°24.0'	51°41.3'	38°28.7'		33°40.7'	54°49.1'	59°09.1'	69°55.8'
18	301°59.3'	S 26°48.0'	1.6'	2.5'	60.7'	72°04.8'	51°06.4'	37°51.3'		34°17.9'	55°11.2'	59°31.6'	70°15.4'
19	316°20.0'	S 26°45.6'	1.7'	2.7'	60.7'	71°45.8'	50°31.6'	37°13.9'		34°55.2'	55°33.5'	59°54.2'	70°35.2'
20	330°40.6'	S 26°42.9'	1.7'	2.9'	60.8'	71°26.8'	49°56.7'	36°36.5'		35°32.5'	55°55.9'	60°17.0'	70°55.1'
21	345°01.3'	S 26°40.0'	1.7'	3.1'	60.8'	71°07.9'	49°21.9'	35°59.1'		36°09.9'	56°18.5'	60°40.0'	71°15.1'
22	359°22.0'	S 26°36.9'	1.7'	3.3'	60.8'	70°49.1'	48°47.1'	35°21.7'		36°47.2'	56°41.3'	61°03.1'	71°35.2'
23	13°42.7'	S 26°33.7'	1.7'	3.5'	60.8'	70°30.4'	48°12.4'	34°44.3'		37°24.6'	57°04.3'	61°26.4'	71°55.4'
Mer. pass.		22 h 3 m SD 16.5'		phase 86%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.1'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.4'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°58.5'	N 89°21.2'
Rigel Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°60.0'	Achernar	+0.5	335°21.5'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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	318°27.3'	178°37.9'	N 15°37.5'	198°27.6'	N 20°55.7'	310°05.0'	N 1°59.6'	353°24.4'	S 15°19.1'	266°39.3'	N 17°09.7'			
1	333°29.8'	193°38.0'	N 15°36.8'	213°26.8'	N 20°55.2'	325°07.6'	N 1°59.6'	8°27.0'	S 15°19.2'	281°40.2'	N 17°10.1'			
2	348°32.2'	208°38.1'	N 15°36.1'	228°26.1'	N 20°54.7'	340°10.1'	N 1°59.5'	23°29.7'	S 15°19.2'	296°41.1'	N 17°10.5'			
3	3°34.7'	223°38.2'	N 15°35.4'	243°25.3'	N 20°54.2'	355°12.7'	N 1°59.5'	38°32.3'	S 15°19.3'	311°42.0'	N 17°10.9'			
4	18°37.2'	238°38.3'	N 15°34.6'	258°24.5'	N 20°53.7'	10°15.3'	N 1°59.4'	53°35.0'	S 15°19.4'	326°42.9'	N 17°11.3'			
5	33°39.6'	253°38.4'	N 15°33.9'	273°23.8'	N 20°53.2'	25°17.8'	N 1°59.4'	68°37.6'	S 15°19.4'	341°43.8'	N 17°11.8'			
6	48°42.1'	268°38.5'	N 15°33.2'	288°23.0'	N 20°52.6'	40°20.4'	N 1°59.3'	83°40.3'	S 15°19.5'	356°44.7'	N 17°12.2'			
7	63°44.6'	283°38.6'	N 15°32.4'	303°22.3'	N 20°52.1'	55°22.9'	N 1°59.3'	98°42.9'	S 15°19.6'	11°45.6'	N 17°12.6'			
8	78°47.0'	298°38.7'	N 15°31.7'	318°21.5'	N 20°51.6'	70°25.5'	N 1°59.2'	113°45.6'	S 15°19.6'	26°46.5'	N 17°13.0'			
9	93°49.5'	313°38.8'	N 15°31.0'	333°20.8'	N 20°51.1'	85°28.0'	N 1°59.2'	128°48.2'	S 15°19.7'	41°47.4'	N 17°13.4'			
10	108°52.0'	328°38.9'	N 15°30.2'	348°20.0'	N 20°50.6'	100°30.6'	N 1°59.1'	143°50.9'	S 15°19.8'	56°48.3'	N 17°13.8'			
11	123°54.4'	343°39.0'	N 15°29.5'	3°19.2'	N 20°50.1'	115°33.1'	N 1°59.1'	158°53.5'	S 15°19.8'	71°49.2'	N 17°14.2'			
12	138°56.9'	358°39.1'	N 15°28.8'	18°18.5'	N 20°49.6'	130°35.7'	N 1°59.0'	173°56.1'	S 15°19.9'	86°50.1'	N 17°14.6'			
13	153°59.3'	13°39.2'	N 15°28.0'	33°17.7'	N 20°49.0'	145°38.2'	N 1°59.0'	188°58.8'	S 15°20.0'	101°51.0'	N 17°15.0'			
14	169°01.8'	28°39.3'	N 15°27.3'	48°17.0'	N 20°48.5'	160°40.8'	N 1°58.9'	204°01.4'	S 15°20.0'	116°51.9'	N 17°15.4'			
15	184°04.3'	43°39.4'	N 15°26.6'	63°16.2'	N 20°48.0'	175°43.3'	N 1°58.9'	219°04.1'	S 15°20.1'	131°52.8'	N 17°15.8'			
16	199°06.7'	58°39.5'	N 15°25.8'	78°15.5'	N 20°47.5'	190°45.9'	N 1°58.8'	234°06.7'	S 15°20.1'	146°53.7'	N 17°16.2'			
17	214°09.2'	73°39.6'	N 15°25.1'	93°14.7'	N 20°47.0'	205°48.5'	N 1°58.8'	249°09.4'	S 15°20.2'	161°54.6'	N 17°16.6'			
18	229°11.7'	88°39.6'	N 15°24.4'	108°14.0'	N 20°46.4'	220°51.0'	N 1°58.7'	264°12.0'	S 15°20.3'	176°55.5'	N 17°17.0'			
19	244°14.1'	103°39.7'	N 15°23.6'	123°13.2'	N 20°45.9'	235°53.6'	N 1°58.7'	279°14.7'	S 15°20.3'	191°56.4'	N 17°17.4'			
20	259°16.6'	118°39.8'	N 15°22.9'	138°12.4'	N 20°45.4'	250°56.1'	N 1°58.6'	294°17.3'	S 15°20.4'	206°57.3'	N 17°17.8'			
21	274°19.1'	133°39.9'	N 15°22.2'	153°11.7'	N 20°44.9'	265°58.7'	N 1°58.6'	309°20.0'	S 15°20.5'	221°58.2'	N 17°18.2'			
22	289°21.5'	148°40.0'	N 15°21.4'	168°10.9'	N 20°44.3'	281°01.2'	N 1°58.5'	324°22.6'	S 15°20.5'	236°59.1'	N 17°18.6'			
23	304°24.0'	163°40.1'	N 15°20.7'	183°10.2'	N 20°43.8'	296°03.8'	N 1°58.5'	339°25.2'	S 15°20.6'	251°60.0'	N 17°19.0'			
		SD 15.8' d -0.7'		v -0.8' d -0.5'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 5 m 25 s		10 h 47 m		3 h 19 m		0 h 26 m		6 h 13 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Achernar	-Fomalhaut	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	28°03.4'	S 26°30.2'	1.8'	3.7'	60.8'	80°09.8'	70°11.8'	47°37.7'	34°06.9'	38°01.9'	57°27.5'	61°49.8'	72°15.7'
1	42°24.2'	S 26°26.5'	1.8'	3.9'	60.8'	79°32.3'	69°53.3'	47°03.1'	33°29.4'	38°39.3'	57°50.8'	62°13.3'	72°36.1'
2	56°45.0'	S 26°22.6'	1.8'	4.1'	60.8'	78°54.7'	69°34.9'	46°28.4'	32°52.0'	39°16.7'	58°14.3'	62°37.0'	72°56.6'
3	71°05.9'	S 26°18.5'	1.9'	4.3'	60.8'	78°17.0'	69°16.7'	45°53.9'	32°14.6'	39°54.2'	58°38.0'	63°00.8'	73°17.2'
4	85°26.8'	S 26°14.2'	1.9'	4.5'	60.8'	77°39.4'	68°58.5'	45°19.4'	31°37.1'	40°31.6'	59°01.8'	63°24.8'	73°37.9'
5	99°47.7'	S 26°09.7'	2.0'	4.7'	60.8'	77°01.8'	68°40.5'	44°44.9'	30°59.7'	41°09.0'	59°25.7'	63°48.9'	73°58.6'
6	114°08.6'	S 26°05.0'	2.0'	4.9'	60.8'	76°24.2'	68°22.6'	44°10.5'	30°22.2'	41°46.5'	59°49.9'	64°13.1'	74°19.5'
7	128°29.7'	S 26°00.1'	2.1'	5.1'	60.8'	75°46.5'	68°04.8'	43°36.2'	29°44.8'	42°24.0'	60°14.1'	64°37.4'	74°40.5'
8	142°50.7'	S 25°55.0'	2.1'	5.3'	60.8'	75°08.9'	67°47.1'	43°01.9'	29°07.4'	43°01.5'	60°38.5'	65°01.8'	75°01.5'
9	157°11.8'	S 25°49.7'	2.2'	5.5'	60.8'	74°31.2'	67°29.5'	42°27.7'	28°29.9'	43°38.9'	61°03.1'	65°26.4'	75°22.6'
10	171°33.0'	S 25°44.2'	2.2'	5.7'	60.9'	73°53.5'	67°12.1'	41°53.6'	27°52.5'	44°16.4'	61°27.7'	65°51.1'	75°43.8'
11	185°54.2'	S 25°38.5'	2.3'	5.9'	60.9'	73°15.9'	66°54.9'	41°19.5'	27°15.1'	44°54.0'	61°52.5'	66°15.9'	76°05.1'
12	200°15.5'	S 25°32.6'	2.4'	6.1'	60.9'	72°38.2'	66°37.7'	40°45.5'	26°37.7'	45°31.5'	62°17.5'	66°40.7'	76°26.4'
13	214°36.9'	S 25°26.6'	2.4'	6.3'	60.9'	72°00.5'	66°20.7'	40°11.6'	26°00.3'	46°09.0'	62°42.5'	67°05.7'	76°47.8'
14	228°58.3'	S 25°20.3'	2.5'	6.5'	60.9'	71°22.8'	66°03.8'	39°37.8'	25°23.0'	46°46.5'	63°07.7'	67°30.8'	77°09.3'
15	243°19.8'	S 25°13.8'	2.6'	6.6'	60.9'	70°45.1'	65°47.1'	39°04.1'	24°45.6'	47°24.0'	63°33.0'	67°56.0'	77°30.8'
16	257°41.3'	S 25°07.2'	2.6'	6.8'	60.9'	70°07.4'	65°30.6'	38°30.5'	24°08.3'	48°01.6'	63°58.4'	68°21.3'	77°52.4'
17	272°03.0'	S 25°00.4'	2.7'	7.0'	60.9'	69°29.7'	65°14.1'	37°57.0'	23°31.0'	48°39.1'	64°23.9'	68°46.7'	78°14.1'
18	286°24.7'	S 24°53.4'	2.8'	7.2'	60.9'	68°52.0'	64°57.9'	37°23.6'	22°53.7'	49°16.7'	64°49.6'	69°12.1'	78°35.8'
19	300°46.5'	S 24°46.2'	2.9'	7.4'	60.9'	68°14.3'	64°41.8'	36°50.3'	22°16.4'	49°54.2'	65°15.3'	69°37.7'	78°57.6'
20	315°08.3'	S 24°38.8'	2.9'	7.6'	60.9'	67°36.6'	64°25.8'	36°17.1'	21°39.1'	50°31.8'	65°41.1'	70°03.3'	79°19.4'
21	329°30.3'	S 24°31.2'	3.0'	7.7'	60.9'	66°58.9'	64°10.0'	35°44.1'	21°01.9'	51°09.3'	66°07.1'	70°29.0'	79°41.3'
22	343°52.3'	S 24°23.5'	3.1'	7.9'	60.9'	66°21.2'	63°54.4'	35°11.2'	20°24.8'	51°46.9'	66°33.1'	70°54.8'	80°03.3'
23	358°14.4'	S 24°15.5'	3.2'	8.1'	60.9'	65°43.5'	63°39.0'	34°38.4'	19°47.6'	52°24.4'	66°59.2'	71°20.7'	80°25.2'
Mer. pass.		23 h 7 m SD 16.6'		phase 94%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.7'	S 63°13.6'	Capella	+0.1	280°25.1'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°06.0'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°58.0'	N 89°21.2'
Rigel Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°60.0'	Achernar	+0.5	335°21.5'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.7'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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°26.5'	178°40.2' N 15°19.9'	198°09.4' N 20°43.3'	311°06.4' N 1°58.4'	354°27.9' S 15°20.7'	267°00.9' N 17°19.4'						
1	334°28.9'	193°40.3' N 15°19.2'	213°08.7' N 20°42.7'	326°08.9' N 1°58.4'	9°30.5' S 15°20.7'	282°01.8' N 17°19.8'						
2	349°31.4'	208°40.4' N 15°18.5'	228°07.9' N 20°42.2'	341°11.5' N 1°58.3'	24°33.2' S 15°20.8'	297°02.7' N 17°20.2'						
3	4°33.8'	223°40.5' N 15°17.7'	243°07.2' N 20°41.7'	356°14.0' N 1°58.3'	39°35.8' S 15°20.9'	312°03.6' N 17°20.6'						
4	19°36.3'	238°40.6' N 15°17.0'	258°06.4' N 20°41.1'	11°16.6' N 1°58.2'	54°38.5' S 15°20.9'	327°04.5' N 17°21.0'						
5	34°38.8'	253°40.7' N 15°16.2'	273°05.7' N 20°40.6'	26°19.1' N 1°58.1'	69°41.1' S 15°21.0'	342°05.4' N 17°21.4'						
6	49°41.2'	268°40.8' N 15°15.5'	288°04.9' N 20°40.1'	41°21.7' N 1°58.1'	84°43.8' S 15°21.0'	357°06.3' N 17°21.8'						
7	64°43.7'	283°40.9' N 15°14.8'	303°04.2' N 20°39.5'	56°24.3' N 1°58.0'	99°46.4' S 15°21.1'	12°07.2' N 17°22.2'						
8	79°46.2'	298°41.0' N 15°14.0'	318°03.4' N 20°39.0'	71°26.8' N 1°58.0'	114°49.1' S 15°21.2'	27°08.1' N 17°22.6'						
9	94°48.6'	313°41.1' N 15°13.3'	333°02.7' N 20°38.5'	86°29.4' N 1°57.9'	129°51.7' S 15°21.2'	42°09.0' N 17°23.0'						
10	109°51.1'	328°41.2' N 15°12.5'	348°01.9' N 20°37.9'	101°32.0' N 1°57.9'	144°54.4' S 15°21.3'	57°09.9' N 17°23.4'						
11	124°53.6'	343°41.4' N 15°11.8'	3°01.2' N 20°37.4'	116°34.5' N 1°57.8'	159°57.0' S 15°21.4'	72°10.9' N 17°23.8'						
12	139°56.0'	358°41.5' N 15°11.0'	18°00.4' N 20°36.8'	131°37.1' N 1°57.8'	174°59.6' S 15°21.4'	87°11.8' N 17°24.2'						
13	154°58.5'	13°41.6' N 15°10.3'	32°59.7' N 20°36.3'	146°39.6' N 1°57.7'	190°02.3' S 15°21.5'	102°12.7' N 17°24.6'						
14	170°01.0'	28°41.7' N 15°09.6'	47°58.9' N 20°35.7'	161°42.2' N 1°57.7'	205°04.9' S 15°21.6'	117°13.6' N 17°25.0'						
15	185°03.4'	43°41.8' N 15°08.8'	62°58.2' N 20°35.2'	176°44.8' N 1°57.6'	220°07.6' S 15°21.6'	132°14.5' N 17°25.4'						
16	200°05.9'	58°41.9' N 15°08.1'	77°57.4' N 20°34.7'	191°47.3' N 1°57.6'	235°10.2' S 15°21.7'	147°15.4' N 17°25.8'						
17	215°08.3'	73°42.0' N 15°07.3'	92°56.7' N 20°34.1'	206°49.9' N 1°57.5'	250°12.9' S 15°21.8'	162°16.3' N 17°26.1'						
18	230°10.8'	88°42.1' N 15°06.6'	107°55.9' N 20°33.6'	221°52.5' N 1°57.4'	265°15.5' S 15°21.8'	177°17.2' N 17°26.5'						
19	245°13.3'	103°42.2' N 15°05.8'	122°55.2' N 20°33.0'	236°55.0' N 1°57.4'	280°18.2' S 15°21.9'	192°18.1' N 17°26.9'						
20	260°15.7'	118°42.3' N 15°05.1'	137°54.4' N 20°32.5'	251°57.6' N 1°57.3'	295°20.8' S 15°21.9'	207°19.0' N 17°27.3'						
21	275°18.2'	133°42.4' N 15°04.3'	152°53.7' N 20°31.9'	267°00.1' N 1°57.3'	310°23.5' S 15°22.0'	222°19.9' N 17°27.7'						
22	290°20.7'	148°42.5' N 15°03.6'	167°52.9' N 20°31.4'	282°02.7' N 1°57.2'	325°26.1' S 15°22.1'	237°20.8' N 17°28.1'						
23	305°23.1'	163°42.6' N 15°02.8'	182°52.2' N 20°30.8'	297°05.3' N 1°57.2'	340°28.8' S 15°22.1'	252°21.7' N 17°28.5'						
		SD 15.8' d -0.7'	v -0.7' d -0.5'	v 2.6' d -0.1'	v 2.6' d -0.1'	v 0.9' d 0.4'						
Mer. pass.		12 h 5 m 15 s	10 h 48 m	3 h 15 m	0 h 22 m	6 h 12 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Achernar	-Fomalhaut	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	12°36.6' S	24°07.4' 3.3'	8.3'	60.9'	65°05.8'	63°23.7'	34°05.8'	19°10.6'	53°02.0'	67°25.4'	71°46.6'	80°47.3'	
1	26°58.9' S	23°59.1' 3.4'	8.5'	60.9'	64°28.1'	33°33.3'	18°33.5'	18°33.5'	53°39.5'	67°51.7'	72°12.6'	81°09.3'	
2	41°21.3' S	23°50.7' 3.5'	8.6'	60.8'	63°50.4'	33°01.0'	17°56.5'	17°56.5'	54°17.0'	68°18.1'	72°38.7'	81°31.4'	
3	55°43.7' S	23°42.1' 3.6'	8.8'	60.8'	63°12.7'	32°28.9'	17°19.6'	17°19.6'	54°54.6'	68°44.5'	73°04.8'	81°53.6'	
4	70°06.3' S	23°33.3' 3.7'	9.0'	60.8'	62°35.0'	31°57.0'	16°42.7'	16°42.7'	55°32.1'	69°11.1'	73°31.0'	82°15.8'	
5	84°29.0' S	23°24.3' 3.8'	9.1'	60.8'	61°57.3'	31°25.2'	16°06.0'	16°06.0'	56°09.7'	69°37.7'	73°57.2'	82°38.0'	
6	98°51.7' S	23°15.2' 3.9'	9.3'	60.8'	61°19.7'	30°53.7'	15°29.3'	15°29.3'	56°47.2'	70°04.4'	74°23.5'	83°00.2'	
7	113°14.6' S	23°05.9' 4.0'	9.5'	60.8'	60°42.0'	30°22.3'	14°52.7'	14°52.7'	57°24.7'	70°31.1'	74°49.9'	83°22.5'	
8	127°37.5' S	22°56.4' 4.1'	9.6'	60.8'	60°04.3'	29°51.2'	14°16.2'	14°16.2'	58°02.2'	70°57.9'	75°16.3'	83°44.8'	
9	142°00.6' S	22°46.8' 4.2'	9.8'	60.8'	59°26.7'	29°20.3'	13°39.8'	13°39.8'	58°39.7'	71°24.8'	75°42.8'	84°07.1'	
10	156°23.8' S	22°37.1' 4.3'	9.9'	60.8'	58°49.0'	28°49.7'	13°03.5'	13°03.5'	59°17.2'	71°51.7'	76°09.3'	84°29.5'	
11	170°47.0' S	22°27.1' 4.4'	10.1'	60.8'	58°11.4'	28°19.3'	12°27.5'	12°27.5'	59°54.7'	72°18.7'	76°35.8'	84°51.9'	
12	185°10.4' S	22°17.0' 4.5'	10.2'	60.8'	57°33.8'	27°49.2'	11°51.5'	11°51.5'	60°32.2'	72°45.8'	77°02.4'	85°14.2'	
13	199°33.9' S	22°06.8' 4.6'	10.4'	60.8'	56°56.2'	27°19.4'	11°15.8'	11°15.8'	61°09.6'	73°12.9'	77°29.1'	85°36.6'	
14	213°57.5' S	21°56.4' 4.7'	10.5'	60.8'	56°18.6'	26°49.9'	10°40.4'	10°40.4'	61°47.1'	73°40.0'	77°55.7'	85°59.1'	
15	228°21.2' S	21°45.9' 4.8'	10.7'	60.7'	55°41.0'	26°20.8'	10°05.2'	10°05.2'	62°24.5'	74°07.3'	78°22.4'	86°21.5'	
16	242°45.0' S	21°35.2' 4.9'	10.8'	60.7'	55°03.4'	25°51.9'	9°30.3'	9°30.3'	63°02.0'	74°34.5'	78°49.2'	86°43.9'	
17	257°08.9' S	21°24.3' 5.0'	11.0'	60.7'	54°25.9'	25°23.5'	8°55.8'	8°55.8'	63°39.4'	75°01.8'	79°15.9'	87°06.4'	
18	271°32.9' S	21°13.4' 5.1'	11.1'	60.7'	53°48.3'	24°55.4'	8°21.8'	8°21.8'	64°16.8'	75°29.1'	79°42.7'	87°28.8'	
19	285°57.0' S	21°02.3' 5.2'	11.3'	60.7'	53°10.8'	24°27.7'	7°48.4'	7°48.4'	64°54.2'	75°56.5'	80°09.6'	87°51.3'	
20	300°21.3' S	20°51.0' 5.4'	11.4'	60.7'	52°33.3'	24°00.4'			65°31.6'	76°23.9'	80°36.4'	88°13.7'	
21	314°45.7' S	20°39.6' 5.5'	11.5'	60.7'	51°55.8'	23°33.6'			66°08.9'	76°51.4'	81°03.3'	88°36.2'	
22	329°10.1' S	20°28.1' 5.6'	11.7'	60.7'	51°18.3'	23°07.3'			66°46.3'	77°18.8'	81°30.2'	88°58.6'	
23	343°34.7' S	20°16.4' 5.7'	11.8'	60.6'	50°40.9'	22°41.4'			67°23.6'	77°46.3'	81°57.1'	89°21.1'	
Mer. pass. 0 h 8 m SD 16.6' phase 98%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4' S	29°30.1'	Spica	+1.0	158°24.5' S	11°16.6'	Betelgeuse	+0.5	270°54.5' N	7°24.7'
Deneb	+1.2	49°26.7' N	45°21.7'	Acrux	+0.8	173°02.7' S	63°13.6'	Capella	+0.1	280°25.1' N	46°01.1'
Altair	+0.8	62°01.6' N	8°55.8'	Regulus	+1.4	207°36.9' N	11°51.6'	Rigel	+0.2	281°05.9' S	8°10.4'
Vega	+0.0	80°34.2' N	38°48.4'	Pollux	+1.2	243°20.1' N	27°58.3'	Aldebaran	+0.9	290°42.0' N	16°33.3'
Antares	+1.1	112°18.1' S	26°28.9'	Procyon	+0.4	244°53.2' N	5°10.1'	Polaris	+2.0	314°57.4' N	89°21.2'
Rigel Kent	-0.0	139°43.1' S	60°55.9'	Adhara	+1.5	255°07.7' S	28°60.0'	Achernar	+0.5	335°21.5' S	57°07.1'
Arcturus	-0.1	145°49.8' N	19°04.1'	Sirius	-1.4	258°28.3' S	16°44.7'				
Hadar	+0.6	148°39.0' S	60°29.1'	Canopus	-0.6	263°53.7' S	52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	320°25.6'	178°42.7'	N 15°02.1'	197°51.5'	N 20°30.2'	312°07.8'	N 1°57.1'	355°31.4'	S 15°22.2'	267°22.7'	N 17°28.9'	
1	335°28.1'	193°42.8'	N 15°01.3'	212°50.7'	N 20°29.7'	327°10.4'	N 1°57.1'	10°34.0'	S 15°22.3'	282°23.6'	N 17°29.3'	
2	350°30.5'	208°42.9'	N 15°00.6'	227°50.0'	N 20°29.1'	342°13.0'	N 1°57.0'	25°36.7'	S 15°22.3'	297°24.5'	N 17°29.7'	
3	5°33.0'	223°43.0'	N 14°59.8'	242°49.2'	N 20°28.6'	357°15.5'	N 1°56.9'	40°39.3'	S 15°22.4'	312°25.4'	N 17°30.1'	
4	20°35.5'	238°43.1'	N 14°59.1'	257°48.5'	N 20°28.0'	12°18.1'	N 1°56.9'	55°42.0'	S 15°22.5'	327°26.3'	N 17°30.5'	
5	35°37.9'	253°43.2'	N 14°58.3'	272°47.7'	N 20°27.5'	27°20.7'	N 1°56.8'	70°44.6'	S 15°22.5'	342°27.2'	N 17°30.9'	
6	50°40.4'	268°43.3'	N 14°57.6'	287°47.0'	N 20°26.9'	42°23.2'	N 1°56.8'	85°47.3'	S 15°22.6'	357°28.1'	N 17°31.3'	
7	65°42.8'	283°43.4'	N 14°56.8'	302°46.2'	N 20°26.3'	57°25.8'	N 1°56.7'	100°49.9'	S 15°22.7'	12°29.0'	N 17°31.7'	
8	80°45.3'	298°43.5'	N 14°56.1'	317°45.5'	N 20°25.8'	72°28.4'	N 1°56.7'	115°52.6'	S 15°22.7'	27°29.9'	N 17°32.0'	
9	95°47.8'	313°43.7'	N 14°55.3'	332°44.8'	N 20°25.2'	87°30.9'	N 1°56.6'	130°55.2'	S 15°22.8'	42°30.8'	N 17°32.4'	
10	110°50.2'	328°43.8'	N 14°54.6'	347°44.0'	N 20°24.6'	102°33.5'	N 1°56.5'	145°57.9'	S 15°22.8'	57°31.8'	N 17°32.8'	
11	125°52.7'	343°43.9'	N 14°53.8'	2°43.3'	N 20°24.1'	117°36.1'	N 1°56.5'	161°00.5'	S 15°22.9'	72°32.7'	N 17°33.2'	
12	140°55.2'	358°44.0'	N 14°53.1'	17°42.5'	N 20°23.5'	132°38.6'	N 1°56.4'	176°03.2'	S 15°23.0'	87°33.6'	N 17°33.6'	
13	155°57.6'	13°44.1'	N 14°52.3'	32°41.8'	N 20°22.9'	147°41.2'	N 1°56.4'	191°05.8'	S 15°23.0'	102°34.5'	N 17°34.0'	
14	171°00.1'	28°44.2'	N 14°51.6'	47°41.1'	N 20°22.4'	162°43.8'	N 1°56.3'	206°08.4'	S 15°23.1'	117°35.4'	N 17°34.4'	
15	186°02.6'	43°44.3'	N 14°50.8'	62°40.3'	N 20°21.8'	177°46.4'	N 1°56.3'	221°11.1'	S 15°23.2'	132°36.3'	N 17°34.8'	
16	201°05.0'	58°44.4'	N 14°50.1'	77°39.6'	N 20°21.2'	192°48.9'	N 1°56.2'	236°13.7'	S 15°23.2'	147°37.2'	N 17°35.2'	
17	216°07.5'	73°44.5'	N 14°49.3'	92°38.8'	N 20°20.7'	207°51.5'	N 1°56.1'	251°16.4'	S 15°23.3'	162°38.1'	N 17°35.6'	
18	231°09.9'	88°44.6'	N 14°48.5'	107°38.1'	N 20°20.1'	222°54.1'	N 1°56.1'	266°19.0'	S 15°23.4'	177°39.1'	N 17°35.9'	
19	246°12.4'	103°44.7'	N 14°47.8'	122°37.4'	N 20°19.5'	237°56.6'	N 1°56.0'	281°21.7'	S 15°23.4'	192°40.0'	N 17°36.3'	
20	261°14.9'	118°44.9'	N 14°47.0'	137°36.6'	N 20°18.9'	252°59.2'	N 1°56.0'	296°24.3'	S 15°23.5'	207°40.9'	N 17°36.7'	
21	276°17.3'	133°45.0'	N 14°46.3'	152°35.9'	N 20°18.4'	268°01.8'	N 1°55.9'	311°27.0'	S 15°23.6'	222°41.8'	N 17°37.1'	
22	291°19.8'	148°45.1'	N 14°45.5'	167°35.1'	N 20°17.8'	283°04.4'	N 1°55.9'	326°29.6'	S 15°23.6'	237°42.7'	N 17°37.5'	
23	306°22.3'	163°45.2'	N 14°44.8'	182°34.4'	N 20°17.2'	298°06.9'	N 1°55.8'	341°32.3'	S 15°23.7'	252°43.6'	N 17°37.9'	
		SD 15.8' d -0.8'		v -0.7' d -0.6'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d 0.4'		
Mer. pass.		12 h 5 m 5 s		10 h 49 m		3 h 11 m		0 h 18 m		6 h 10 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Mars	-Jupiter	-Fomalhaut	-Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	357°59.4'	S 20°04.6'	5.8'	11.9'	60.6'	96°28.3'	50°03.4'	22°16.1'		37°41.7'	68°00.9'	78°13.9'	82°24.0'
1	12°24.2'	S 19°52.7'	5.9'	12.0'	60.6'	95°52.5'	49°26.0'	21°51.4'		37°56.8'	68°38.2'	78°41.4'	82°50.9'
2	26°49.2'	S 19°40.7'	6.0'	12.2'	60.6'	95°16.7'	48°48.6'	21°27.2'		38°12.4'	69°15.4'	79°09.0'	83°17.8'
3	41°14.2'	S 19°28.5'	6.2'	12.3'	60.6'	94°41.0'	48°11.2'	21°03.7'		38°28.3'	69°52.7'	79°36.6'	83°44.8'
4	55°39.4'	S 19°16.3'	6.3'	12.4'	60.6'	94°05.3'	47°33.9'	20°40.8'		38°44.6'	70°29.9'	80°04.2'	84°11.7'
5	70°04.6'	S 19°03.8'	6.4'	12.5'	60.5'	93°29.6'	46°56.5'	20°18.6'		39°01.4'	71°07.1'	80°31.8'	84°38.7'
6	84°30.0'	S 18°51.3'	6.5'	12.6'	60.5'	92°53.9'	46°19.2'	19°57.1'		39°18.5'	71°44.3'	80°59.5'	85°05.6'
7	98°55.5'	S 18°38.7'	6.6'	12.7'	60.5'	92°18.3'	45°41.9'			39°36.0'	72°21.5'	81°27.2'	85°32.6'
8	113°21.2'	S 18°26.0'	6.7'	12.9'	60.5'	91°42.6'	45°04.6'			39°53.9'	72°58.6'	81°54.8'	85°59.6'
9	127°46.9'	S 18°13.1'	6.9'	13.0'	60.5'	91°07.0'	44°27.4'			40°12.1'	73°35.7'	82°22.5'	86°26.5'
10	142°12.7'	S 18°00.1'	7.0'	13.1'	60.4'	90°31.5'	43°50.2'			40°30.6'	74°12.8'	82°50.2'	86°53.5'
11	156°38.7'	S 17°47.1'	7.1'	13.2'	60.4'	89°55.9'	43°13.0'			40°49.5'	74°49.9'	83°17.9'	87°20.4'
12	171°04.8'	S 17°33.9'	7.2'	13.3'	60.4'	89°20.4'	42°35.8'			41°08.8'	75°26.9'	83°45.6'	87°47.3'
13	185°31.0'	S 17°20.6'	7.3'	13.4'	60.4'	88°44.9'	41°58.7'			41°28.3'	76°03.9'	84°13.2'	88°14.3'
14	199°57.3'	S 17°07.2'	7.4'	13.5'	60.4'	88°09.4'	41°21.5'			41°48.2'	76°40.9'	84°40.9'	88°41.2'
15	214°23.7'	S 16°53.8'	7.5'	13.6'	60.3'	87°33.9'	40°44.5'			42°08.3'	77°17.9'	85°08.6'	89°08.1'
16	228°50.3'	S 16°40.2'	7.7'	13.7'	60.3'	86°58.5'	40°07.4'			42°28.8'	77°54.8'	85°36.3'	89°34.9'
17	243°16.9'	S 16°26.5'	7.8'	13.7'	60.3'	86°23.1'	39°30.4'		7°45.4'	42°49.5'	78°31.7'	86°04.0'	90°01.8'
18	257°43.7'	S 16°12.8'	7.9'	13.8'	60.3'	85°47.8'	38°53.4'		8°18.3'	43°10.5'	79°08.6'	86°31.6'	90°28.6'
19	272°10.6'	S 15°59.0'	8.0'	13.9'	60.2'	85°12.4'	38°16.4'		8°51.7'	43°31.8'	79°45.5'	86°59.3'	90°55.4'
20	286°37.5'	S 15°45.0'	8.1'	14.0'	60.2'	84°37.1'	37°39.5'		9°25.6'	43°53.3'	80°22.3'	87°26.9'	91°22.2'
21	301°04.6'	S 15°31.0'	8.2'	14.1'	60.2'	84°01.9'	37°02.6'		9°59.8'	44°15.1'	80°59.1'	87°54.5'	91°49.0'
22	315°31.8'	S 15°16.9'	8.3'	14.2'	60.2'	83°26.6'	36°25.7'		10°34.3'	44°37.1'	81°35.8'	88°22.1'	92°15.7'
23	329°59.2'	S 15°02.8'	8.4'	14.2'	60.2'	82°51.4'	35°48.8'		11°09.0'	44°59.3'	82°12.5'	88°49.7'	92°42.4'
Mer. pass.		0 h 8 m SD 16.5'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.6'	Capella	+0.1	280°25.1'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°57.0'	N 89°21.2'
Rigel Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°60.0'	Achernar	+0.5	335°21.5'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.3'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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°24.7'	178°45.3'	N 14°44.0'	197°33.7'	N 20°16.6'		313°09.5'	N 1°55.7'		356°34.9'	S 15°23.7'		267°44.5'	N 17°38.3'				
1	336°27.2'	193°45.4'	N 14°43.2'	212°32.9'	N 20°16.0'		328°12.1'	N 1°55.7'		11°37.6'	S 15°23.8'		282°45.4'	N 17°38.7'				
2	351°29.7'	208°45.5'	N 14°42.5'	227°32.2'	N 20°15.5'		343°14.6'	N 1°55.6'		26°40.2'	S 15°23.9'		297°46.4'	N 17°39.0'				
3	6°32.1'	223°45.6'	N 14°41.7'	242°31.5'	N 20°14.9'		358°17.2'	N 1°55.6'		41°42.9'	S 15°23.9'		312°47.3'	N 17°39.4'				
4	21°34.6'	238°45.7'	N 14°41.0'	257°30.7'	N 20°14.3'		13°19.8'	N 1°55.5'		56°45.5'	S 15°24.0'		327°48.2'	N 17°39.8'				
5	36°37.1'	253°45.9'	N 14°40.2'	272°30.0'	N 20°13.7'		28°22.4'	N 1°55.4'		71°48.1'	S 15°24.1'		342°49.1'	N 17°40.2'				
6	51°39.5'	268°46.0'	N 14°39.4'	287°29.3'	N 20°13.1'		43°24.9'	N 1°55.4'		86°50.8'	S 15°24.1'		357°50.0'	N 17°40.6'				
7	66°42.0'	283°46.1'	N 14°38.7'	302°28.5'	N 20°12.5'		58°27.5'	N 1°55.3'		101°53.4'	S 15°24.2'		12°50.9'	N 17°41.0'				
8	81°44.4'	298°46.2'	N 14°37.9'	317°27.8'	N 20°12.0'		73°30.1'	N 1°55.3'		116°56.1'	S 15°24.3'		27°51.9'	N 17°41.4'				
9	96°46.9'	313°46.3'	N 14°37.2'	332°27.0'	N 20°11.4'		88°32.7'	N 1°55.2'		131°58.7'	S 15°24.3'		42°52.8'	N 17°41.7'				
10	111°49.4'	328°46.4'	N 14°36.4'	347°26.3'	N 20°10.8'		103°35.2'	N 1°55.1'		147°01.4'	S 15°24.4'		57°53.7'	N 17°42.1'				
11	126°51.8'	343°46.5'	N 14°35.6'	2°25.6'	N 20°10.2'		118°37.8'	N 1°55.1'		162°04.0'	S 15°24.5'		72°54.6'	N 17°42.5'				
12	141°54.3'	358°46.6'	N 14°34.9'	17°24.8'	N 20°09.6'		133°40.4'	N 1°55.0'		177°06.7'	S 15°24.5'		87°55.5'	N 17°42.9'				
13	156°56.8'	13°46.8'	N 14°34.1'	32°24.1'	N 20°09.0'		148°43.0'	N 1°55.0'		192°09.3'	S 15°24.6'		102°56.4'	N 17°43.3'				
14	171°59.2'	28°46.9'	N 14°33.3'	47°23.4'	N 20°08.4'		163°45.5'	N 1°54.9'		207°12.0'	S 15°24.6'		117°57.4'	N 17°43.7'				
15	187°01.7'	43°47.0'	N 14°32.6'	62°22.6'	N 20°07.8'		178°48.1'	N 1°54.8'		222°14.6'	S 15°24.7'		132°58.3'	N 17°44.0'				
16	202°04.2'	58°47.1'	N 14°31.8'	77°21.9'	N 20°07.2'		193°50.7'	N 1°54.8'		237°17.3'	S 15°24.8'		147°59.2'	N 17°44.4'				
17	217°06.6'	73°47.2'	N 14°31.1'	92°21.2'	N 20°06.6'		208°53.3'	N 1°54.7'		252°19.9'	S 15°24.8'		163°00.1'	N 17°44.8'				
18	232°09.1'	88°47.3'	N 14°30.3'	107°20.5'	N 20°06.0'		223°55.9'	N 1°54.7'		267°22.6'	S 15°24.9'		178°01.0'	N 17°45.2'				
19	247°11.6'	103°47.5'	N 14°29.5'	122°19.7'	N 20°05.4'		238°58.4'	N 1°54.6'		282°25.2'	S 15°25.0'		193°02.0'	N 17°45.6'				
20	262°14.0'	118°47.6'	N 14°28.8'	137°19.0'	N 20°04.8'		254°01.0'	N 1°54.5'		297°27.8'	S 15°25.0'		208°02.9'	N 17°45.9'				
21	277°16.5'	133°47.7'	N 14°28.0'	152°18.3'	N 20°04.2'		269°03.6'	N 1°54.5'		312°30.5'	S 15°25.1'		223°03.8'	N 17°46.3'				
22	292°18.9'	148°47.8'	N 14°27.2'	167°17.5'	N 20°03.6'		284°06.2'	N 1°54.4'		327°33.1'	S 15°25.2'		238°04.7'	N 17°46.7'				
23	307°21.4'	163°47.9'	N 14°26.5'	182°16.8'	N 20°03.0'		299°08.8'	N 1°54.4'		342°35.8'	S 15°25.2'		253°05.6'	N 17°47.1'				
		SD 15.8' d -0.8'		v -0.7' d -0.6'			v 2.6' d -0.1'			v 2.6' d -0.1'			v 0.9' d 0.4'					
Mer. pass.		12 h 4 m 54 s		10 h 50 m			3 h 7 m			0 h 14 m			6 h 9 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Aldebaran	-Mars	-Jupiter	-Fomalhaut	+Saturn	+Altair	+Antares	+Rigel Kent
0	344°26.6'	S 14°48.5'	8.5'	14.3'	60.1'	96°20.7'	82°16.2'	35°12.0'		11°44.0'	45°21.8'	82°49.2'	89°17.3'
1	358°54.1'	S 14°34.2'	8.6'	14.4'	60.1'	95°44.3'	81°41.1'	34°35.3'		12°19.0'	45°44.5'	83°25.9'	89°44.8'
2	13°21.8'	S 14°19.8'	8.7'	14.5'	60.1'	95°07.9'	81°06.0'	33°58.5'		12°54.2'	46°07.4'	84°02.5'	90°12.3'
3	27°49.5'	S 14°05.3'	8.9'	14.5'	60.0'	94°31.6'	80°30.9'	33°21.8'		13°29.6'	46°30.6'	84°39.1'	90°39.8'
4	42°17.4'	S 13°50.8'	9.0'	14.6'	60.0'	93°55.3'	79°55.9'	32°45.1'		14°05.0'	46°53.9'	85°15.7'	91°07.3'
5	56°45.3'	S 13°36.2'	9.1'	14.7'	60.0'	93°19.1'	79°20.8'	32°08.5'		14°40.5'	47°17.4'	85°52.2'	91°34.7'
6	71°13.4'	S 13°21.5'	9.2'	14.7'	60.0'	92°42.8'	78°45.9'	31°31.9'		15°16.0'	47°41.1'	86°28.7'	92°02.1'
7	85°41.6'	S 13°06.8'	9.3'	14.8'	59.9'	92°06.7'	78°10.9'	30°55.4'		15°51.6'	48°05.0'	87°05.1'	92°29.5'
8	100°09.8'	S 12°52.0'	9.4'	14.9'	59.9'	91°30.5'	77°36.0'	30°18.8'		16°27.3'	48°29.0'	87°41.5'	92°56.8'
9	114°38.2'	S 12°37.1'	9.5'	14.9'	59.9'	90°54.4'	77°01.2'	29°42.4'		17°03.0'	48°53.2'	88°17.9'	93°24.1'
10	129°06.7'	S 12°22.2'	9.6'	15.0'	59.8'	90°18.3'	76°26.3'	29°05.9'		17°38.7'	49°17.6'	88°54.3'	93°51.4'
11	143°35.3'	S 12°07.3'	9.7'	15.0'	59.8'	89°42.3'	75°51.5'	28°29.5'		18°14.4'	49°42.1'	89°30.6'	94°18.6'
12	158°03.9'	S 11°52.2'	9.8'	15.1'	59.8'	89°06.3'	75°16.8'	27°53.1'		18°50.1'	50°06.8'	90°06.8'	94°45.8'
13	172°32.7'	S 11°37.2'	9.9'	15.1'	59.8'	88°30.3'	74°42.1'	27°16.8'		19°25.9'	50°31.7'	90°43.1'	95°12.9'
14	187°01.6'	S 11°22.0'	10.0'	15.2'	59.7'	87°54.4'	74°07.4'	26°40.5'		20°01.6'	50°56.6'	91°19.3'	95°40.0'
15	201°30.5'	S 11°06.9'	10.1'	15.2'	59.7'	87°18.5'	73°32.8'	26°04.3'		20°37.4'	51°21.7'	91°55.4'	96°07.1'
16	215°59.6'	S 10°51.7'	10.2'	15.3'	59.7'	86°42.6'	72°58.2'	25°28.1'		21°13.1'	51°47.0'	92°31.5'	96°34.1'
17	230°28.7'	S 10°36.4'	10.2'	15.3'	59.6'	86°06.8'	72°23.6'	24°52.0'		21°48.8'	52°12.3'	93°07.6'	97°01.1'
18	244°58.0'	S 10°21.1'	10.3'	15.3'	59.6'	85°31.0'	71°49.1'	24°15.8'	19°17.2'	22°24.6'	52°37.8'	93°43.6'	97°28.0'
19	259°27.3'	S 10°05.8'	10.4'	15.4'	59.6'	84°55.3'	71°14.6'	23°39.8'	19°36.4'	23°00.3'	53°03.4'	94°19.6'	97°54.8'
20	273°56.8'	S 9°50.4'	10.5'	15.4'	59.5'	84°19.6'	70°40.2'	23°03.8'	19°56.4'	23°36.0'	53°29.1'	94°55.6'	98°21.6'
21	288°26.3'	S 9°35.0'	10.6'	15.4'	59.5'	83°44.0'	70°05.8'	22°27.8'	20°17.1'	24°11.6'	53°54.9'	95°31.5'	98°48.4'
22	302°55.9'	S 9°19.6'	10.7'	15.5'	59.5'	83°08.4'	69°31.4'	21°51.8'	20°38.5'	24°47.3'	54°20.8'	96°07.3'	99°15.0'
23	317°25.6'	S 9°04.1'	10.8'	15.5'	59.4'	82°32.8'	68°57.1'	21°16.0'	21°00.4'	25°22.9'	54°46.8'	96°43.2'	99°41.7'
Mer. pass.		1 h 5 m SD 16.4'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.6'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°56.5'	N 89°21.2'
Rigel Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°60.0'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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°23.9'	178°48.0'	N 14°25.7'	197°16.1'	N 20°02.4'	314°11.3'	N 1°54.3'	357°38.4'	S 15°25.3'	268°06.5'	N 17°47.5'			
1	337°26.3'	193°48.1'	N 14°24.9'	212°15.3'	N 20°01.8'	329°13.9'	N 1°54.2'	12°41.1'	S 15°25.4'	283°07.5'	N 17°47.8'			
2	352°28.8'	208°48.3'	N 14°24.1'	227°14.6'	N 20°01.2'	344°16.5'	N 1°54.2'	27°43.7'	S 15°25.4'	298°08.4'	N 17°48.2'			
3	7°31.3'	223°48.4'	N 14°23.4'	242°13.9'	N 20°00.6'	359°19.1'	N 1°54.1'	42°46.4'	S 15°25.5'	313°09.3'	N 17°48.6'			
4	22°33.7'	238°48.5'	N 14°22.6'	257°13.2'	N 19°60.0'	14°21.7'	N 1°54.0'	57°49.0'	S 15°25.5'	328°10.2'	N 17°49.0'			
5	37°36.2'	253°48.6'	N 14°21.8'	272°12.4'	N 19°59.4'	29°24.2'	N 1°54.0'	72°51.7'	S 15°25.6'	343°11.1'	N 17°49.4'			
6	52°38.7'	268°48.7'	N 14°21.1'	287°11.7'	N 19°58.8'	44°26.8'	N 1°53.9'	87°54.3'	S 15°25.7'	358°12.1'	N 17°49.7'			
7	67°41.1'	283°48.9'	N 14°20.3'	302°11.0'	N 19°58.2'	59°29.4'	N 1°53.9'	102°57.0'	S 15°25.7'	13°13.0'	N 17°50.1'			
8	82°43.6'	298°49.0'	N 14°19.5'	317°10.3'	N 19°57.6'	74°32.0'	N 1°53.8'	117°59.6'	S 15°25.8'	28°13.9'	N 17°50.5'			
9	97°46.0'	313°49.1'	N 14°18.8'	332°09.5'	N 19°56.9'	89°34.6'	N 1°53.7'	133°02.3'	S 15°25.9'	43°14.8'	N 17°50.9'			
10	112°48.5'	328°49.2'	N 14°18.0'	347°08.8'	N 19°56.3'	104°37.1'	N 1°53.7'	148°04.9'	S 15°25.9'	58°15.8'	N 17°51.3'			
11	127°51.0'	343°49.3'	N 14°17.2'	2°08.1'	N 19°55.7'	119°39.7'	N 1°53.6'	163°07.5'	S 15°26.0'	73°16.7'	N 17°51.6'			
12	142°53.4'	358°49.4'	N 14°16.4'	17°07.4'	N 19°55.1'	134°42.3'	N 1°53.5'	178°10.2'	S 15°26.1'	88°17.6'	N 17°52.0'			
13	157°55.9'	13°49.6'	N 14°15.7'	32°06.6'	N 19°54.5'	149°44.9'	N 1°53.5'	193°12.8'	S 15°26.1'	103°18.5'	N 17°52.4'			
14	172°58.4'	28°49.7'	N 14°14.9'	47°05.9'	N 19°53.9'	164°47.5'	N 1°53.4'	208°15.5'	S 15°26.2'	118°19.4'	N 17°52.8'			
15	188°00.8'	43°49.8'	N 14°14.1'	62°05.2'	N 19°53.2'	179°50.1'	N 1°53.4'	223°18.1'	S 15°26.2'	133°20.4'	N 17°53.1'			
16	203°03.3'	58°49.9'	N 14°13.3'	77°04.5'	N 19°52.6'	194°52.6'	N 1°53.3'	238°20.8'	S 15°26.3'	148°21.3'	N 17°53.5'			
17	218°05.8'	73°50.0'	N 14°12.6'	92°03.7'	N 19°52.0'	209°55.2'	N 1°53.2'	253°23.4'	S 15°26.4'	163°22.2'	N 17°53.9'			
18	233°08.2'	88°50.2'	N 14°11.8'	107°03.0'	N 19°51.4'	224°57.8'	N 1°53.2'	268°26.1'	S 15°26.4'	178°23.1'	N 17°54.3'			
19	248°10.7'	103°50.3'	N 14°11.0'	122°02.3'	N 19°50.8'	240°00.4'	N 1°53.1'	283°28.7'	S 15°26.5'	193°24.1'	N 17°54.6'			
20	263°13.2'	118°50.4'	N 14°10.2'	137°01.6'	N 19°50.1'	255°03.0'	N 1°53.0'	298°31.4'	S 15°26.6'	208°25.0'	N 17°55.0'			
21	278°15.6'	133°50.5'	N 14°09.5'	152°00.8'	N 19°49.5'	270°05.6'	N 1°53.0'	313°34.0'	S 15°26.6'	223°25.9'	N 17°55.4'			
22	293°18.1'	148°50.7'	N 14°08.7'	167°00.1'	N 19°48.9'	285°08.2'	N 1°52.9'	328°36.7'	S 15°26.7'	238°26.8'	N 17°55.8'			
23	308°20.5'	163°50.8'	N 14°07.9'	181°59.4'	N 19°48.3'	300°10.7'	N 1°52.8'	343°39.3'	S 15°26.8'	253°27.8'	N 17°56.1'			
		SD 15.8' d -0.8'		v -0.7' d -0.6'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 4 m 43 s		10 h 51 m		3 h 3 m		0 h 9 m		6 h 7 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Mars	-Jupiter	+Fomalhaut	+Saturn	+Altair	+Antares
0	331°55.3'	S 8°48.6'	10.9'	15.5'	59.4'	87°12.7'	81°57.3'	68°22.8'	20°40.1'	21°22.9'	25°58.5'	55°12.9'	97°18.9'
1	346°25.2'	S 8°33.0'	10.9'	15.6'	59.4'	86°42.9'	81°21.8'	67°48.6'	20°04.3'	21°45.9'	26°34.1'	55°39.1'	97°54.7'
2	0°55.2'	S 8°17.5'	11.0'	15.6'	59.3'	86°13.1'	80°46.4'	67°14.4'	19°28.6'	22°09.5'	27°09.7'	56°05.4'	98°30.4'
3	15°25.2'	S 8°01.9'	11.1'	15.6'	59.3'	85°43.4'	80°11.0'	66°40.3'	18°52.9'	22°33.5'	27°45.2'	56°31.7'	99°06.0'
4	29°55.3'	S 7°46.3'	11.2'	15.6'	59.3'	85°13.7'	79°35.7'	66°06.2'	18°17.3'	22°58.0'	28°20.7'	56°58.2'	99°41.6'
5	44°25.5'	S 7°30.6'	11.3'	15.7'	59.2'	84°44.1'	79°00.4'	65°32.1'	17°41.7'	23°22.9'	28°56.2'	57°24.7'	100°17.2'
6	58°55.7'	S 7°15.0'	11.3'	15.7'	59.2'	84°14.5'	78°25.1'	64°58.1'	17°06.2'	23°48.2'	29°31.6'	57°51.3'	100°52.7'
7	73°26.1'	S 6°59.3'	11.4'	15.7'	59.2'	83°44.9'	77°49.9'	64°24.1'	16°30.7'	24°13.9'	30°07.0'	58°17.9'	101°28.2'
8	87°56.5'	S 6°43.6'	11.5'	15.7'	59.1'	83°15.4'	77°14.7'	63°50.2'	15°55.3'	24°39.9'	30°42.4'	58°44.6'	102°03.6'
9	102°27.0'	S 6°27.9'	11.6'	15.7'	59.1'	82°46.0'	76°39.6'	63°16.4'	15°20.0'	25°06.3'	31°17.7'	59°11.4'	102°39.0'
10	116°57.6'	S 6°12.2'	11.6'	15.7'	59.1'	82°16.6'	76°04.5'	62°42.5'	14°44.7'	25°33.0'	31°53.0'	59°38.2'	103°14.4'
11	131°28.2'	S 5°56.5'	11.7'	15.7'	59.0'	81°47.2'	75°29.5'	62°08.7'	14°09.4'	25°59.9'	32°28.3'	60°05.1'	103°49.7'
12	145°58.9'	S 5°40.7'	11.8'	15.7'	59.0'	81°18.0'	74°54.5'	61°35.0'	13°34.3'	26°27.1'	33°03.5'	60°32.1'	104°24.9'
13	160°29.7'	S 5°25.0'	11.9'	15.8'	58.9'	80°48.7'	74°19.6'	61°01.3'	12°59.2'	26°54.6'	33°38.7'	60°59.1'	105°00.1'
14	175°00.6'	S 5°09.2'	11.9'	15.8'	58.9'	80°19.6'	73°44.7'	60°27.6'	12°24.1'	27°22.3'	34°13.8'	61°26.1'	105°35.3'
15	189°31.5'	S 4°53.5'	12.0'	15.8'	58.9'	79°50.4'	73°09.9'	59°54.0'	11°49.2'	27°50.3'	34°48.9'	61°53.2'	106°10.4'
16	204°02.5'	S 4°37.7'	12.1'	15.8'	58.8'	79°21.4'	72°35.1'	59°20.5'	11°14.3'	28°18.4'	35°24.0'	62°20.3'	106°45.5'
17	218°33.5'	S 4°21.9'	12.1'	15.8'	58.8'	78°52.4'	72°00.4'	58°47.0'	10°39.5'	28°46.8'	35°59.0'	62°47.5'	107°20.5'
18	233°04.6'	S 4°06.2'	12.2'	15.8'	58.8'	78°23.4'	71°25.7'	58°13.5'	10°04.8'	29°15.3'	36°34.0'	63°14.7'	107°55.5'
19	247°35.8'	S 3°50.4'	12.2'	15.8'	58.7'	77°54.6'	70°51.0'	57°40.1'	9°30.2'	29°44.0'	37°09.0'	63°41.9'	108°30.4'
20	262°07.1'	S 3°34.6'	12.3'	15.8'	58.7'	77°25.8'	70°16.4'	57°06.7'	8°55.7'	30°12.9'	37°43.9'	64°09.2'	109°05.3'
21	276°38.4'	S 3°18.9'	12.4'	15.8'	58.7'	76°57.0'	69°41.9'	56°33.4'	8°21.4'	30°41.9'	38°18.8'	64°36.5'	109°40.1'
22	291°09.7'	S 3°03.1'	12.4'	15.8'	58.6'	76°28.3'	69°07.4'	56°00.1'	7°47.2'	31°11.1'	38°53.6'	65°03.8'	110°14.9'
23	305°41.1'	S 2°47.3'	12.5'	15.7'	58.6'	75°59.7'	68°32.9'	55°26.9'	7°13.1'	31°40.4'	39°28.4'	65°31.2'	110°49.6'
Mer. pass.		1 h 56 m SD 16.2'		phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.6'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.4'	Pollux	+1.2	243°20.1'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°56.1'	N 89°21.2'
Rigel Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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°23.0'	178°50.9'	N 14°07.1'	196°58.7'	N 19°47.6'	315°13.3'	N 1°52.8'	358°42.0'	S 15°26.8'	268°28.7'	N 17°56.5'			
1	338°25.5'	193°51.0'	N 14°06.4'	211°58.0'	N 19°47.0'	330°15.9'	N 1°52.7'	13°44.6'	S 15°26.9'	283°29.6'	N 17°56.9'			
2	353°27.9'	208°51.1'	N 14°05.6'	226°57.2'	N 19°46.4'	345°18.5'	N 1°52.6'	28°47.2'	S 15°27.0'	298°30.5'	N 17°57.3'			
3	8°30.4'	223°51.3'	N 14°04.8'	241°56.5'	N 19°45.7'	0°21.1'	N 1°52.6'	43°49.9'	S 15°27.0'	313°31.5'	N 17°57.6'			
4	23°32.9'	238°51.4'	N 14°04.0'	256°55.8'	N 19°45.1'	15°23.7'	N 1°52.5'	58°52.5'	S 15°27.1'	328°32.4'	N 17°58.0'			
5	38°35.3'	253°51.5'	N 14°03.2'	271°55.1'	N 19°44.5'	30°26.3'	N 1°52.5'	73°55.2'	S 15°27.1'	343°33.3'	N 17°58.4'			
6	53°37.8'	268°51.6'	N 14°02.5'	286°54.4'	N 19°43.9'	45°28.9'	N 1°52.4'	88°57.8'	S 15°27.2'	358°34.3'	N 17°58.8'			
7	68°40.3'	283°51.8'	N 14°01.7'	301°53.6'	N 19°43.2'	60°31.5'	N 1°52.3'	104°00.5'	S 15°27.3'	13°35.2'	N 17°59.1'			
8	83°42.7'	298°51.9'	N 14°00.9'	316°52.9'	N 19°42.6'	75°34.0'	N 1°52.3'	119°03.1'	S 15°27.3'	28°36.1'	N 17°59.5'			
9	98°45.2'	313°52.0'	N 14°00.1'	331°52.2'	N 19°41.9'	90°36.6'	N 1°52.2'	134°05.8'	S 15°27.4'	43°37.0'	N 17°59.9'			
10	113°47.6'	328°52.1'	N 13°59.3'	346°51.5'	N 19°41.3'	105°39.2'	N 1°52.1'	149°08.4'	S 15°27.5'	58°38.0'	N 18°00.2'			
11	128°50.1'	343°52.3'	N 13°58.6'	1°50.8'	N 19°40.7'	120°41.8'	N 1°52.1'	164°11.1'	S 15°27.5'	73°38.9'	N 18°00.6'			
12	143°52.6'	358°52.4'	N 13°57.8'	16°50.1'	N 19°40.0'	135°44.4'	N 1°52.0'	179°13.7'	S 15°27.6'	88°39.8'	N 18°01.0'			
13	158°55.0'	13°52.5'	N 13°57.0'	31°49.3'	N 19°39.4'	150°47.0'	N 1°51.9'	194°16.4'	S 15°27.7'	103°40.7'	N 18°01.4'			
14	173°57.5'	28°52.6'	N 13°56.2'	46°48.6'	N 19°38.7'	165°49.6'	N 1°51.9'	209°19.0'	S 15°27.7'	118°41.7'	N 18°01.7'			
15	188°60.0'	43°52.8'	N 13°55.4'	61°47.9'	N 19°38.1'	180°52.2'	N 1°51.8'	224°21.7'	S 15°27.8'	133°42.6'	N 18°02.1'			
16	204°02.4'	58°52.9'	N 13°54.6'	76°47.2'	N 19°37.5'	195°54.8'	N 1°51.7'	239°24.3'	S 15°27.8'	148°43.5'	N 18°02.5'			
17	219°04.9'	73°53.0'	N 13°53.9'	91°46.5'	N 19°36.8'	210°57.4'	N 1°51.7'	254°27.0'	S 15°27.9'	163°44.5'	N 18°02.8'			
18	234°07.4'	88°53.1'	N 13°53.1'	106°45.8'	N 19°36.2'	225°60.0'	N 1°51.6'	269°29.6'	S 15°28.0'	178°45.4'	N 18°03.2'			
19	249°09.8'	103°53.3'	N 13°52.3'	121°45.1'	N 19°35.5'	241°02.5'	N 1°51.5'	284°32.2'	S 15°28.0'	193°46.3'	N 18°03.6'			
20	264°12.3'	118°53.4'	N 13°51.5'	136°44.3'	N 19°34.9'	256°05.1'	N 1°51.5'	299°34.9'	S 15°28.1'	208°47.3'	N 18°03.9'			
21	279°14.8'	133°53.5'	N 13°50.7'	151°43.6'	N 19°34.2'	271°07.7'	N 1°51.4'	314°37.5'	S 15°28.2'	223°48.2'	N 18°04.3'			
22	294°17.2'	148°53.6'	N 13°49.9'	166°42.9'	N 19°33.6'	286°10.3'	N 1°51.3'	329°40.2'	S 15°28.2'	238°49.1'	N 18°04.7'			
23	309°19.7'	163°53.8'	N 13°49.2'	181°42.2'	N 19°32.9'	301°12.9'	N 1°51.3'	344°42.8'	S 15°28.3'	253°50.0'	N 18°05.0'			
		SD 15.8' d -0.8'		v -0.7' d -0.6'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 4 m 31 s		10 h 53 m		2 h 59 m		0 h 5 m		6 h 6 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Mars	-Jupiter	+Fomalhaut	+Saturn	+Altair	+Rigil Kent
0	320°12.6'	S 2°31.6'	12.5'	15.7'	58.5'	75°31.2'	67°58.5'	54°53.7'	6°39.3'	32°09.8'	40°03.1'	65°58.5'	110°24.0'
1	334°44.1'	S 2°15.9'	12.6'	15.7'	58.5'	75°02.7'	67°24.2'	54°20.6'	6°05.6'	32°39.3'	40°37.8'	66°25.9'	110°48.6'
2	349°15.7'	S 2°00.1'	12.6'	15.7'	58.5'	74°34.3'	66°49.9'	53°47.5'	5°32.3'	33°09.0'	41°12.5'	66°53.3'	111°13.0'
3	3°47.3'	S 1°44.4'	12.7'	15.7'	58.4'	74°05.9'	66°15.6'	53°14.5'	4°59.3'	33°38.7'	41°47.1'	67°20.8'	111°37.4'
4	18°19.0'	S 1°28.7'	12.7'	15.7'	58.4'	73°37.7'	65°41.4'	52°41.5'	4°26.9'	34°08.5'	42°21.7'	67°48.2'	112°01.7'
5	32°50.8'	S 1°13.0'	12.8'	15.7'	58.3'	73°09.5'	65°07.3'	52°08.5'		34°38.4'	42°56.2'	68°15.7'	112°25.9'
6	47°22.5'	S 0°57.4'	12.8'	15.7'	58.3'	72°41.3'	64°33.2'	51°35.6'		35°08.5'	43°30.7'	68°43.2'	112°49.9'
7	61°54.4'	S 0°41.7'	12.9'	15.6'	58.3'	72°13.3'	63°59.1'	51°02.8'		35°38.5'	44°05.1'	69°10.6'	113°13.9'
8	76°26.2'	S 0°26.1'	12.9'	15.6'	58.2'	71°45.3'	63°25.1'	50°30.0'		36°08.7'	44°39.5'	69°38.1'	113°37.7'
9	90°58.2'	S 0°10.4'	13.0'	15.6'	58.2'	71°17.4'	62°51.2'	49°57.3'		36°38.9'	45°13.9'	70°05.6'	114°01.5'
10	105°30.1'	N 0°05.2'	13.0'	15.6'	58.2'	70°49.6'	62°17.3'	49°24.6'		37°09.2'	45°48.2'	70°33.1'	114°25.1'
11	120°22.1'	N 0°20.7'	13.0'	15.6'	58.1'	70°21.9'	61°43.5'	48°51.9'		37°39.5'	46°22.4'	71°00.7'	114°48.6'
12	134°34.2'	N 0°36.3'	13.1'	15.5'	58.1'	69°54.2'	61°09.7'	48°19.3'		38°09.9'	46°56.6'	71°28.2'	115°12.0'
13	149°06.3'	N 0°51.8'	13.1'	15.5'	58.0'	69°26.7'	60°35.9'	47°46.7'		38°40.3'	47°30.8'	71°55.7'	115°35.3'
14	163°38.4'	N 1°07.3'	13.2'	15.5'	58.0'	68°59.2'	60°02.2'	47°14.2'		39°10.8'	48°04.9'	72°23.2'	115°58.4'
15	178°10.5'	N 1°22.8'	13.2'	15.4'	58.0'	68°31.8'	59°28.6'	46°41.8'		39°41.3'	48°39.0'	72°50.7'	116°21.5'
16	192°42.7'	N 1°38.2'	13.2'	15.4'	57.9'	68°04.4'	58°55.0'	46°09.4'		40°11.8'	49°13.0'	73°18.2'	116°44.4'
17	207°15.0'	N 1°53.7'	13.3'	15.4'	57.9'	67°37.2'	58°21.5'	45°37.0'		40°42.4'	49°47.0'	73°45.7'	117°07.2'
18	221°47.2'	N 2°09.1'	13.3'	15.4'	57.8'	67°10.1'	57°48.0'	45°04.7'	4°13.2'	41°13.0'	50°21.0'	74°13.2'	117°29.8'
19	236°19.5'	N 2°24.4'	13.3'	15.3'	57.8'	66°43.0'	57°14.6'	44°32.4'	4°44.7'	41°43.6'	50°54.9'	74°40.7'	117°52.4'
20	250°51.9'	N 2°39.7'	13.4'	15.3'	57.8'	66°16.0'	56°41.2'	44°00.2'	5°16.7'	42°14.3'	51°28.7'	75°08.2'	118°14.8'
21	265°24.2'	N 2°55.0'	13.4'	15.3'	57.7'	65°49.1'	56°07.8'	43°28.1'	5°49.0'	42°45.0'	52°02.5'	75°35.7'	118°37.1'
22	279°56.6'	N 3°10.3'	13.4'	15.2'	57.7'	65°22.4'	55°34.6'	42°55.9'	6°21.6'	43°15.6'	52°36.3'	76°03.1'	118°59.2'
23	294°29.0'	N 3°25.5'	13.4'	15.2'	57.7'	64°55.7'	55°01.3'	42°23.9'	6°54.3'	43°46.4'	53°10.0'	76°30.6'	119°21.2'
Mer. pass.		2 h 44 m SD 16.0'	phase 88%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.6'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.5'	Pollux	+1.2	243°20.1'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.1'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°55.6'	N 89°21.2'
Rigil Kent	-0.0	139°43.1'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.7'	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°22.1'	178°53.9'	N 13°48.4'	196°41.5'	N 19°32.3'	316°15.5'	N 1°51.2'	359°45.5'	S 15°28.4'	268°51.0'	N 18°05.4'			
1	339°24.6'	193°54.0'	N 13°47.6'	211°40.8'	N 19°31.6'	331°18.1'	N 1°51.1'	14°48.1'	S 15°28.4'	283°51.9'	N 18°05.8'			
2	354°27.1'	208°54.2'	N 13°46.8'	226°40.1'	N 19°31.0'	346°20.7'	N 1°51.1'	29°50.8'	S 15°28.5'	298°52.8'	N 18°06.1'			
3	9°29.5'	223°54.3'	N 13°46.0'	241°39.4'	N 19°30.3'	1°23.3'	N 1°51.0'	44°53.4'	S 15°28.5'	313°53.8'	N 18°06.5'			
4	24°32.0'	238°54.4'	N 13°45.2'	256°38.7'	N 19°29.7'	16°25.9'	N 1°50.9'	59°56.1'	S 15°28.6'	328°54.7'	N 18°06.9'			
5	39°34.5'	253°54.5'	N 13°44.4'	271°37.9'	N 19°29.0'	31°28.5'	N 1°50.8'	74°58.7'	S 15°28.7'	343°55.6'	N 18°07.2'			
6	54°36.9'	268°54.7'	N 13°43.6'	286°37.2'	N 19°28.4'	46°31.1'	N 1°50.8'	90°01.4'	S 15°28.7'	358°56.6'	N 18°07.6'			
7	69°39.4'	283°54.8'	N 13°42.8'	301°36.5'	N 19°27.7'	61°33.7'	N 1°50.7'	105°04.0'	S 15°28.8'	13°57.5'	N 18°08.0'			
8	84°41.9'	298°54.9'	N 13°42.1'	316°35.8'	N 19°27.0'	76°36.3'	N 1°50.6'	120°06.7'	S 15°28.9'	28°58.4'	N 18°08.3'			
9	99°44.3'	313°55.1'	N 13°41.3'	331°35.1'	N 19°26.4'	91°38.9'	N 1°50.6'	135°09.3'	S 15°28.9'	43°59.4'	N 18°08.7'			
10	114°46.8'	328°55.2'	N 13°40.5'	346°34.4'	N 19°25.7'	106°41.5'	N 1°50.5'	150°11.9'	S 15°29.0'	59°00.3'	N 18°09.1'			
11	129°49.3'	343°55.3'	N 13°39.7'	1°33.7'	N 19°25.1'	121°44.1'	N 1°50.4'	165°14.6'	S 15°29.1'	74°01.2'	N 18°09.4'			
12	144°51.7'	358°55.4'	N 13°38.9'	16°33.0'	N 19°24.4'	136°46.7'	N 1°50.4'	180°17.2'	S 15°29.1'	89°02.2'	N 18°09.8'			
13	159°54.2'	13°55.6'	N 13°38.1'	31°32.3'	N 19°23.7'	151°49.3'	N 1°50.3'	195°19.9'	S 15°29.2'	104°03.1'	N 18°10.2'			
14	174°56.6'	28°55.7'	N 13°37.3'	46°31.6'	N 19°23.1'	166°51.9'	N 1°50.2'	210°22.5'	S 15°29.2'	119°04.0'	N 18°10.5'			
15	189°59.1'	43°55.8'	N 13°36.5'	61°30.9'	N 19°22.4'	181°54.5'	N 1°50.2'	225°25.2'	S 15°29.3'	134°05.0'	N 18°10.9'			
16	205°01.6'	58°56.0'	N 13°35.7'	76°30.2'	N 19°21.7'	196°57.1'	N 1°50.1'	240°27.8'	S 15°29.4'	149°05.9'	N 18°11.3'			
17	220°04.0'	73°56.1'	N 13°34.9'	91°29.5'	N 19°21.1'	211°59.7'	N 1°50.0'	255°30.5'	S 15°29.4'	164°06.9'	N 18°11.6'			
18	235°06.5'	88°56.2'	N 13°34.1'	106°28.7'	N 19°20.4'	227°02.3'	N 1°50.0'	270°33.1'	S 15°29.5'	179°07.8'	N 18°12.0'			
19	250°09.0'	103°56.4'	N 13°33.3'	121°28.0'	N 19°19.7'	242°04.9'	N 1°49.9'	285°35.8'	S 15°29.6'	194°08.7'	N 18°12.3'			
20	265°11.4'	118°56.5'	N 13°32.5'	136°27.3'	N 19°19.1'	257°07.5'	N 1°49.8'	300°38.4'	S 15°29.6'	209°09.7'	N 18°12.7'			
21	280°13.9'	133°56.6'	N 13°31.8'	151°26.6'	N 19°18.4'	272°10.1'	N 1°49.7'	315°41.1'	S 15°29.7'	224°10.6'	N 18°13.1'			
22	295°16.4'	148°56.9'	N 13°31.0'	166°25.9'	N 19°17.7'	287°12.7'	N 1°49.7'	330°43.7'	S 15°29.8'	239°11.5'	N 18°13.4'			
23	310°18.8'	163°56.8'	N 13°30.2'	181°25.2'	N 19°17.0'	302°15.3'	N 1°49.6'	345°46.4'	S 15°29.8'	254°12.5'	N 18°13.8'			
		SD 15.8' d -0.8'		v -0.7' d -0.7'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d 0.4'				
Mer. pass.		12 h 4 m 19 s		10 h 54 m		2 h 54 m		0 h 1 m		6 h 4 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Mars	+Jupiter	+Fomalhaut	+Saturn	+Altair
0	309°01.5'	N 3°40.7'	13.5'	15.1'	57.6'		64°29.1'	54°28.2'	41°51.8'	7°27.1'	44°17.1'	53°43.7'	76°58.0'
1	323°34.0'	N 3°55.8'	13.5'	15.1'	57.6'		64°02.6'	53°55.1'	41°19.9'	8°00.0'	44°47.8'	54°17.3'	77°25.5'
2	338°06.5'	N 4°10.9'	13.5'	15.1'	57.5'		63°36.2'	53°22.0'	40°47.9'	8°33.0'	45°18.6'	54°50.9'	77°52.9'
3	352°39.0'	N 4°26.0'	13.5'	15.0'	57.5'		63°09.9'	52°49.0'	40°16.1'	9°06.0'	45°49.3'	55°24.4'	78°20.3'
4	7°11.5'	N 4°41.0'	13.6'	15.0'	57.5'		62°43.7'	52°16.0'	39°44.2'	9°39.0'	46°20.1'	55°57.9'	78°47.7'
5	21°44.1'	N 4°56.0'	13.6'	14.9'	57.4'		62°17.6'	51°43.1'	39°12.5'	10°12.0'	46°50.8'	56°31.3'	79°15.0'
6	36°16.6'	N 5°11.0'	13.6'	14.9'	57.4'		61°51.6'	51°10.3'	38°40.7'	10°45.0'	47°21.6'	57°04.7'	79°42.4'
7	50°49.2'	N 5°25.9'	13.6'	14.9'	57.4'		61°25.7'	50°37.5'	38°09.0'	11°18.1'	47°52.3'	57°38.1'	80°09.7'
8	65°21.9'	N 5°40.7'	13.6'	14.8'	57.3'		60°59.9'	50°04.7'	37°37.4'	11°51.1'	48°23.1'	58°11.4'	80°37.0'
9	79°54.5'	N 5°55.5'	13.6'	14.8'	57.3'		60°34.2'	49°32.0'	37°05.8'	12°24.1'	48°53.9'	58°44.6'	81°04.3'
10	94°27.1'	N 6°10.3'	13.7'	14.7'	57.2'		60°08.6'	48°59.4'	36°34.3'	12°57.1'	49°24.6'	59°17.9'	81°31.5'
11	108°59.8'	N 6°25.0'	13.7'	14.7'	57.2'		59°43.1'	48°26.8'	36°02.8'	13°30.0'	49°55.4'	59°51.0'	81°58.8'
12	123°32.5'	N 6°39.7'	13.7'	14.6'	57.2'		59°17.8'	47°54.3'	35°31.3'	14°03.0'	50°26.1'	60°24.1'	82°26.0'
13	138°05.1'	N 6°54.3'	13.7'	14.6'	57.1'		58°52.5'	47°21.8'	34°59.9'	14°35.9'	50°56.8'	60°57.2'	82°53.2'
14	152°37.8'	N 7°08.8'	13.7'	14.5'	57.1'		58°27.4'	46°49.4'	34°28.6'	15°08.8'	51°27.6'	61°30.3'	83°20.4'
15	167°10.5'	N 7°23.3'	13.7'	14.5'	57.0'	119°52.6'	58°02.4'	46°17.0'	33°57.3'	15°41.6'	51°58.3'	62°03.3'	83°47.5'
16	181°43.3'	N 7°37.8'	13.7'	14.4'	57.0'	119°22.4'	57°37.5'	45°44.7'	33°26.0'	16°14.4'	52°29.0'	62°36.2'	84°14.6'
17	196°16.0'	N 7°52.2'	13.7'	14.4'	57.0'	118°52.1'	57°12.7'	45°12.4'	32°54.8'	16°47.2'	52°59.7'	63°09.1'	84°41.7'
18	210°48.7'	N 8°06.6'	13.7'	14.3'	56.9'	118°21.9'	56°48.1'	44°40.2'	32°23.7'	17°20.0'	53°30.4'	63°42.0'	85°08.8'
19	225°21.4'	N 8°20.9'	13.7'	14.2'	56.9'	117°51.8'	56°23.6'	44°08.0'	31°52.5'	17°52.7'	54°01.0'	64°14.8'	85°35.8'
20	239°54.2'	N 8°35.1'	13.7'	14.2'	56.9'	117°21.7'	55°59.1'	43°35.9'	31°21.5'	18°25.4'	54°31.7'	64°47.6'	86°02.8'
21	254°26.9'	N 8°49.3'	13.7'	14.1'	56.8'	116°51.6'	55°34.9'	43°03.9'	30°50.5'	18°58.0'	55°02.3'	65°20.3'	86°29.8'
22	268°59.6'	N 9°03.4'	13.7'	14.1'	56.8'	116°21.6'	55°10.7'	42°31.9'	30°19.5'	19°30.6'	55°32.9'	65°53.0'	86°56.7'
23	283°32.4'	N 9°17.5'	13.7'	14.0'	56.8'	115°51.6'	54°46.7'	41°60.0'	29°48.6'	20°03.2'	56°03.5'	66°25.6'	87°23.6'
Mer. pass.		3 h 30 m SD 15.7' phase 80%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.2'	N 38°48.5'	Pollux	+1.2	243°20.1'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°55.2'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.6'	S 52°42.2'				



h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	325°21.3'	178°57.0'	N 13°29.4'	196°24.5'	N 19°16.4'	317°17.9'	N 1°49.5'	0°49.0'	S 15°29.9'	269°13.4'	N 18°14.1'
1	340°23.7'	193°57.2'	N 13°28.6'	211°23.8'	N 19°15.7'	332°20.5'	N 1°49.5'	15°51.7'	S 15°29.9'	284°14.3'	N 18°14.5'
2	355°26.2'	208°57.3'	N 13°27.8'	226°23.1'	N 19°15.0'	347°23.1'	N 1°49.4'	30°54.3'	S 15°30.0'	299°15.3'	N 18°14.9'
3	10°28.7'	223°57.4'	N 13°27.0'	241°22.4'	N 19°14.3'	2°25.7'	N 1°49.3'	45°56.9'	S 15°30.1'	314°16.2'	N 18°15.2'
4	25°31.1'	238°57.6'	N 13°26.2'	256°21.7'	N 19°13.7'	17°28.3'	N 1°49.2'	60°59.6'	S 15°30.1'	329°17.2'	N 18°15.6'
5	40°33.6'	253°57.7'	N 13°25.4'	271°21.0'	N 19°13.0'	32°30.9'	N 1°49.2'	76°02.2'	S 15°30.2'	344°18.1'	N 18°15.9'
6	55°36.1'	268°57.8'	N 13°24.6'	286°20.3'	N 19°12.3'	47°33.5'	N 1°49.1'	91°04.9'	S 15°30.3'	359°19.0'	N 18°16.3'
7	70°38.5'	283°58.0'	N 13°23.8'	301°19.6'	N 19°11.6'	62°36.1'	N 1°49.0'	106°07.5'	S 15°30.3'	14°20.0'	N 18°16.7'
8	85°41.0'	298°58.1'	N 13°23.0'	316°18.9'	N 19°10.9'	77°38.7'	N 1°49.0'	121°10.2'	S 15°30.4'	29°20.9'	N 18°17.0'
9	100°43.5'	313°58.2'	N 13°22.2'	331°18.2'	N 19°10.3'	92°41.3'	N 1°48.9'	136°12.8'	S 15°30.5'	44°21.9'	N 18°17.4'
10	115°45.9'	328°58.4'	N 13°21.4'	346°17.5'	N 19°09.6'	107°43.9'	N 1°48.8'	151°15.5'	S 15°30.5'	59°22.8'	N 18°17.7'
11	130°48.4'	343°58.5'	N 13°20.6'	1°16.8'	N 19°08.9'	122°46.5'	N 1°48.7'	166°18.1'	S 15°30.6'	74°23.7'	N 18°18.1'
12	145°50.9'	358°58.6'	N 13°19.8'	16°16.1'	N 19°08.2'	137°49.1'	N 1°48.7'	181°20.8'	S 15°30.6'	89°24.7'	N 18°18.5'
13	160°53.3'	13°58.8'	N 13°19.0'	31°15.4'	N 19°07.5'	152°51.7'	N 1°48.6'	196°23.4'	S 15°30.7'	104°25.6'	N 18°18.8'
14	175°55.8'	28°58.9'	N 13°18.2'	46°14.7'	N 19°06.8'	167°54.3'	N 1°48.5'	211°26.1'	S 15°30.8'	119°26.6'	N 18°19.2'
15	190°58.2'	43°59.0'	N 13°17.4'	61°14.0'	N 19°06.1'	182°56.9'	N 1°48.5'	226°28.7'	S 15°30.8'	134°27.5'	N 18°19.5'
16	206°00.7'	58°59.2'	N 13°16.6'	76°13.3'	N 19°05.5'	197°59.5'	N 1°48.4'	241°31.4'	S 15°30.9'	149°28.5'	N 18°19.9'
17	221°03.2'	73°59.3'	N 13°15.8'	91°12.6'	N 19°04.8'	213°02.1'	N 1°48.3'	256°34.0'	S 15°31.0'	164°29.4'	N 18°20.2'
18	236°05.6'	88°59.4'	N 13°15.0'	106°11.9'	N 19°04.1'	228°04.7'	N 1°48.2'	271°36.6'	S 15°31.0'	179°30.3'	N 18°20.6'
19	251°08.1'	103°59.6'	N 13°14.2'	121°11.2'	N 19°03.4'	243°07.3'	N 1°48.2'	286°39.3'	S 15°31.1'	194°31.3'	N 18°21.0'
20	266°10.6'	118°59.7'	N 13°13.4'	136°10.5'	N 19°02.7'	258°09.9'	N 1°48.1'	301°41.9'	S 15°31.1'	209°32.2'	N 18°21.3'
21	281°13.0'	133°59.9'	N 13°12.6'	151°09.8'	N 19°02.0'	273°12.6'	N 1°48.0'	316°44.6'	S 15°31.2'	224°33.2'	N 18°21.7'
22	296°15.5'	148°60.0'	N 13°11.8'	166°09.2'	N 19°01.3'	288°15.2'	N 1°48.0'	331°47.2'	S 15°31.3'	239°34.1'	N 18°22.0'
23	311°18.0'	164°00.1'	N 13°11.0'	181°08.5'	N 19°00.6'	303°17.8'	N 1°47.9'	346°49.9'	S 15°31.3'	254°35.1'	N 18°22.4'
		SD 15.8' d -0.8'		v -0.7' d -0.7'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d 0.4'	
Mer. pass.		12 h 4 m 6 s		10 h 55 m		2 h 50 m		23 h 53 m		6 h 3 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Mars	+Jupiter	+Fomalhaut	+Achernar	+Saturn
0	298°05.1'	N 9°31.5'	13.7'	13.9'	56.7'	115°21.6'	54°22.8'	41°28.1'	29°17.7'	20°35.7'	56°34.1'		66°58.2'
1	312°37.9'	N 9°45.4'	13.7'	13.9'	56.7'	114°51.7'	53°59.0'	40°56.3'	28°46.9'	21°08.2'	57°04.7'		67°30.8'
2	327°10.6'	N 9°59.3'	13.7'	13.8'	56.6'	114°21.9'	53°35.4'	40°24.5'	28°16.1'	21°40.7'	57°35.2'		68°03.3'
3	341°43.4'	N 10°13.1'	13.7'	13.8'	56.6'	113°52.1'	53°11.9'	39°52.8'	27°45.3'	22°13.1'	58°05.8'	67°25.3'	68°35.8'
4	356°16.1'	N 10°26.9'	13.7'	13.7'	56.6'	113°22.3'	52°48.6'	39°21.1'	27°14.6'	22°45.5'	58°36.3'	67°40.4'	69°08.2'
5	10°48.8'	N 10°40.6'	13.7'	13.6'	56.5'	112°52.6'	52°25.4'	38°49.5'	26°44.0'	23°17.8'	59°06.8'	67°55.5'	69°40.6'
6	25°21.5'	N 10°54.2'	13.7'	13.6'	56.5'	112°22.9'	52°02.3'	38°18.0'	26°13.4'	23°50.1'	59°37.3'	68°10.7'	70°12.9'
7	39°54.3'	N 11°07.8'	13.7'	13.5'	56.5'	111°53.2'	51°39.4'	37°46.5'	25°42.9'	24°22.4'	60°07.7'	68°26.0'	70°45.3'
8	54°27.0'	N 11°21.3'	13.7'	13.4'	56.4'	111°23.6'	51°16.6'	37°15.1'	25°12.4'	24°54.7'	60°38.1'	68°41.3'	71°17.5'
9	68°59.7'	N 11°34.7'	13.7'	13.4'	56.4'	110°54.0'	50°54.0'	36°43.7'	24°41.9'	25°26.8'	61°08.6'	68°56.8'	71°49.7'
10	83°32.4'	N 11°48.1'	13.7'	13.3'	56.4'	110°24.5'	50°31.5'	36°12.4'	24°11.5'	25°59.0'	61°38.9'	69°12.3'	72°21.9'
11	98°05.0'	N 12°01.4'	13.7'	13.2'	56.3'	109°55.0'	50°09.2'	35°41.2'	23°41.1'	26°31.1'	62°09.3'	69°27.8'	72°54.1'
12	112°37.7'	N 12°14.6'	13.7'	13.2'	56.3'	109°25.6'	49°47.1'	35°10.0'	23°10.8'	27°03.2'	62°39.6'	69°43.4'	73°26.2'
13	127°10.4'	N 12°27.8'	13.6'	13.1'	56.3'	108°56.2'	49°25.1'	34°38.8'	22°40.6'	27°35.3'	63°10.0'	69°59.1'	73°58.2'
14	141°43.0'	N 12°40.8'	13.6'	13.0'	56.2'	108°26.8'	49°03.3'	34°07.8'	22°10.4'	28°07.3'	63°40.3'	70°14.9'	74°30.3'
15	156°15.6'	N 12°53.9'	13.6'	12.9'	56.2'	107°57.4'	48°41.6'	33°36.8'	21°40.2'	28°39.2'	64°10.5'	70°30.7'	75°02.2'
16	170°48.3'	N 13°06.8'	13.6'	12.9'	56.2'	107°28.2'	48°20.1'	33°05.8'	21°10.1'	29°11.2'	64°40.8'	70°46.6'	75°34.2'
17	185°20.9'	N 13°19.7'	13.6'	12.8'	56.1'	106°58.9'	47°58.8'	32°34.9'	20°40.0'	29°43.1'	65°11.0'	71°02.5'	76°06.1'
18	199°53.5'	N 13°32.5'	13.6'	12.7'	56.1'	106°29.7'	47°37.6'	32°04.1'	20°10.0'	30°14.9'	65°41.2'	71°18.5'	76°38.0'
19	214°26.0'	N 13°45.2'	13.6'	12.6'	56.1'	106°00.5'	47°16.6'	31°33.4'	19°40.0'	30°46.7'	66°11.4'	71°34.5'	77°09.8'
20	228°58.6'	N 13°57.8'	13.5'	12.6'	56.0'	105°31.4'	46°55.8'	31°02.7'	19°10.1'	31°18.5'	66°41.5'	71°50.6'	77°41.6'
21	243°31.1'	N 14°10.4'	13.5'	12.5'	56.0'	105°02.3'	46°35.2'	30°32.1'	18°40.2'	31°50.3'	67°11.7'	72°06.7'	78°13.4'
22	258°03.6'	N 14°22.9'	13.5'	12.4'	56.0'	104°33.2'	46°14.7'	30°01.5'	18°10.4'	32°22.0'	67°41.8'	72°22.9'	78°45.1'
23	272°36.1'	N 14°35.3'	13.5'	12.3'	55.9'	104°04.2'	45°54.5'	29°31.1'	17°40.6'	32°53.7'	68°11.8'	72°39.2'	79°16.7'
Mer. pass.		4 h 15 m SD 15.5'		phase 71%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.4'	S 29°30.1'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.1'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°54.7'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.6'	S 52°42.2'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	326°20.4'	179°00.3'	N 13°10.2'	196°07.8'	N 18°59.9'	318°20.4'	N 1°47.8'	1°52.5'	S 15°31.4'	269°36.0'	N 18°22.7'	
1	341°22.9'	194°00.4'	N 13°09.4'	211°07.1'	N 18°59.2'	333°23.0'	N 1°47.7'	16°55.2'	S 15°31.5'	284°36.9'	N 18°23.1'	
2	356°25.3'	209°00.6'	N 13°08.5'	226°06.4'	N 18°58.5'	348°25.6'	N 1°47.7'	31°57.8'	S 15°31.5'	299°37.9'	N 18°23.4'	
3	11°27.8'	224°00.7'	N 13°07.7'	241°05.7'	N 18°57.8'	3°28.2'	N 1°47.6'	47°00.5'	S 15°31.6'	314°38.8'	N 18°23.8'	
4	26°30.3'	239°00.8'	N 13°06.9'	256°05.0'	N 18°57.1'	18°30.8'	N 1°47.5'	62°03.1'	S 15°31.7'	329°39.8'	N 18°24.1'	
5	41°32.7'	254°01.0'	N 13°06.1'	271°04.3'	N 18°56.4'	33°33.4'	N 1°47.4'	77°05.8'	S 15°31.7'	344°40.7'	N 18°24.5'	
6	56°35.2'	269°01.1'	N 13°05.3'	286°03.6'	N 18°55.7'	48°36.0'	N 1°47.4'	92°08.4'	S 15°31.8'	359°41.7'	N 18°24.8'	
7	71°37.7'	284°01.2'	N 13°04.5'	301°02.9'	N 18°55.0'	63°38.6'	N 1°47.3'	107°11.1'	S 15°31.8'	14°42.6'	N 18°25.2'	
8	86°40.1'	299°01.4'	N 13°03.7'	316°02.2'	N 18°54.3'	78°41.3'	N 1°47.2'	122°13.7'	S 15°31.9'	29°43.6'	N 18°25.6'	
9	101°42.6'	314°01.5'	N 13°02.9'	331°01.5'	N 18°53.6'	93°43.9'	N 1°47.1'	137°16.3'	S 15°32.0'	44°44.5'	N 18°25.9'	
10	116°45.1'	329°01.7'	N 13°02.1'	346°00.8'	N 18°52.9'	108°46.5'	N 1°47.1'	152°19.0'	S 15°32.0'	59°45.5'	N 18°26.3'	
11	131°47.5'	344°01.8'	N 13°01.3'	1°00.2'	N 18°52.2'	123°49.1'	N 1°47.0'	167°21.6'	S 15°32.1'	74°46.4'	N 18°26.6'	
12	146°50.0'	359°01.9'	N 13°00.5'	15°59.5'	N 18°51.5'	138°51.7'	N 1°46.9'	182°24.3'	S 15°32.2'	89°47.3'	N 18°27.0'	
13	161°52.5'	14°02.1'	N 12°59.7'	30°58.8'	N 18°50.8'	153°54.3'	N 1°46.8'	197°26.9'	S 15°32.2'	104°48.3'	N 18°27.3'	
14	176°54.9'	29°02.2'	N 12°58.9'	45°58.1'	N 18°50.0'	168°56.9'	N 1°46.8'	212°29.6'	S 15°32.3'	119°49.2'	N 18°27.7'	
15	191°57.4'	44°02.4'	N 12°58.0'	60°57.4'	N 18°49.3'	183°59.5'	N 1°46.7'	227°32.2'	S 15°32.4'	134°50.2'	N 18°28.0'	
16	206°59.8'	59°02.5'	N 12°57.2'	75°56.7'	N 18°48.6'	199°02.2'	N 1°46.6'	242°34.9'	S 15°32.4'	149°51.1'	N 18°28.4'	
17	222°02.3'	74°02.6'	N 12°56.4'	90°56.0'	N 18°47.9'	214°04.8'	N 1°46.5'	257°37.5'	S 15°32.5'	164°52.1'	N 18°28.7'	
18	237°04.8'	89°02.8'	N 12°55.6'	105°55.3'	N 18°47.2'	229°07.4'	N 1°46.5'	272°40.2'	S 15°32.5'	179°53.0'	N 18°29.1'	
19	252°07.2'	104°02.9'	N 12°54.8'	120°54.7'	N 18°46.5'	244°10.0'	N 1°46.4'	287°42.8'	S 15°32.6'	194°54.0'	N 18°29.4'	
20	267°09.7'	119°03.1'	N 12°54.0'	135°54.0'	N 18°45.8'	259°12.6'	N 1°46.3'	302°45.5'	S 15°32.7'	209°54.9'	N 18°29.8'	
21	282°12.2'	134°03.2'	N 12°53.2'	150°53.3'	N 18°45.0'	274°15.2'	N 1°46.2'	317°48.1'	S 15°32.7'	224°55.9'	N 18°30.1'	
22	297°14.6'	149°03.4'	N 12°52.4'	165°52.6'	N 18°44.3'	289°17.8'	N 1°46.2'	332°50.8'	S 15°32.8'	239°56.8'	N 18°30.5'	
23	312°17.1'	164°03.5'	N 12°51.6'	180°51.9'	N 18°43.6'	304°20.4'	N 1°46.1'	347°53.4'	S 15°32.9'	254°57.8'	N 18°30.8'	
		SD 15.8' d -0.8'		v -0.7' d -0.7'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d 0.4'		
Mer. pass.		12 h 3 m 53 s		10 h 56 m		2 h 46 m		23 h 48 m		6 h 1 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Mars	+Jupiter	+Fomalhaut	+Achernar	+Saturn
0	287°08.6'	N 14°47.6'	13.5'	12.3'	55.9'	103°35.2'	45°34.4'	29°00.6'	17°10.9'	33°25.3'	68°41.9'	72°55.5'	79°48.4'
1	301°41.0'	N 14°59.9'	13.4'	12.2'	55.9'	103°06.2'	45°14.6'	28°30.3'	16°41.3'	33°56.9'	69°11.9'	73°11.8'	80°20.0'
2	316°13.5'	N 15°12.1'	13.4'	12.1'	55.8'	102°37.3'	44°54.9'	28°00.0'	16°11.7'	34°28.5'	69°41.9'	73°28.2'	80°51.6'
3	330°45.9'	N 15°24.2'	13.4'	12.0'	55.8'	102°08.4'	44°35.4'	27°29.9'	15°42.2'	35°00.0'	70°11.9'	73°44.6'	81°23.1'
4	345°18.3'	N 15°36.2'	13.4'	11.9'	55.8'	101°39.5'	44°16.1'	26°59.8'	15°12.7'	35°31.5'	70°41.9'	74°01.1'	81°54.6'
5	359°50.6'	N 15°48.1'	13.3'	11.9'	55.7'	101°10.7'	43°57.1'	26°29.7'	14°43.3'	36°03.0'	71°11.8'	74°17.6'	82°26.1'
6	14°22.9'	N 15°60.0'	13.3'	11.8'	55.7'	100°41.9'	43°38.2'	25°59.8'	14°13.9'	36°34.4'	71°41.7'	74°34.1'	82°57.5'
7	28°55.2'	N 16°11.8'	13.3'	11.7'	55.7'	100°13.2'	43°19.5'	25°29.9'	13°44.6'	37°05.8'	72°11.6'	74°50.7'	83°28.9'
8	43°27.5'	N 16°23.4'	13.3'	11.6'	55.7'	99°44.5'	43°01.1'	25°00.1'	13°15.4'	37°37.2'	72°41.4'	75°07.3'	84°00.3'
9	57°59.8'	N 16°35.0'	13.2'	11.5'	55.6'	99°15.8'	42°42.9'	24°30.5'	12°46.3'	38°08.5'	73°11.3'	75°24.0'	84°31.6'
10	72°32.0'	N 16°46.6'	13.2'	11.4'	55.6'	98°47.2'	42°24.9'	24°00.9'	12°17.2'	38°39.8'	73°41.1'	75°40.7'	85°02.9'
11	87°04.2'	N 16°58.0'	13.2'	11.3'	55.6'	98°18.5'	42°07.2'	23°31.4'	11°48.3'	39°11.1'	74°10.9'	75°57.4'	85°34.1'
12	101°36.4'	N 17°09.3'	13.1'	11.3'	55.5'	97°50.0'	41°49.6'	23°02.0'	11°19.4'	39°42.4'	74°40.6'	76°14.1'	86°05.4'
13	116°08.5'	N 17°20.6'	13.1'	11.2'	55.5'	97°21.4'	41°32.3'	22°32.7'	10°50.6'	40°13.6'	75°10.3'	76°30.9'	86°36.5'
14	130°40.6'	N 17°31.8'	13.1'	11.1'	55.5'	96°52.9'	41°15.3'	22°03.5'	10°21.9'	40°44.7'	75°40.0'	76°47.7'	87°07.7'
15	145°12.7'	N 17°42.8'	13.0'	11.0'	55.5'	96°24.4'	40°58.4'	21°34.4'	9°53.4'	41°15.9'	76°09.7'	77°04.6'	87°38.8'
16	159°44.7'	N 17°53.8'	13.0'	10.9'	55.4'	95°56.0'	40°41.9'	21°05.4'	9°24.9'	41°47.0'	76°39.4'	77°21.5'	88°09.9'
17	174°16.8'	N 18°04.7'	13.0'	10.8'	55.4'	95°27.5'	40°25.5'	20°36.6'	8°56.7'	42°18.1'	77°09.0'	77°38.4'	88°41.0'
18	188°48.7'	N 18°15.5'	13.0'	10.7'	55.4'	94°59.1'	40°09.5'	20°07.9'	8°28.5'	42°49.1'	77°38.6'	77°55.3'	89°12.0'
19	203°20.7'	N 18°26.3'	12.9'	10.6'	55.3'	94°30.8'	39°53.7'	19°39.3'	8°00.6'	43°20.1'	78°08.2'	78°12.2'	89°43.0'
20	217°52.6'	N 18°36.9'	12.9'	10.5'	55.3'	94°02.5'	39°38.1'	19°10.9'	7°32.9'	43°51.1'	78°37.7'	78°29.2'	90°14.0'
21	232°24.5'	N 18°47.4'	12.9'	10.4'	55.3'	93°34.2'	39°22.8'	18°42.6'	7°05.4'	44°22.1'	79°07.3'	78°46.2'	90°44.9'
22	246°56.4'	N 18°57.9'	12.8'	10.3'	55.3'	93°05.9'		18°14.5'	6°38.2'	44°53.0'	79°36.8'	79°03.2'	91°15.9'
23	261°28.2'	N 19°08.2'	12.8'	10.3'	55.2'	92°37.7'		17°46.5'	6°11.4'	45°23.9'	80°06.3'	79°20.3'	91°46.7'
Mer. pass.		5 h 1 m SD 15.2'		phase 62%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.7'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°54.1'	N 89°21.2'
Rigel Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.6'	S 52°42.2'				

Friday 19 August 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	327°19.6'	179°03.6'	N 12°50.7'	195°51.2'	N 18°42.9'		319°23.1'	N 1°46.0'		2°56.0'	S 15°32.9'		269°58.7'	N 18°31.2'				
1	342°22.0'	194°03.8'	N 12°49.9'	210°50.5'	N 18°42.2'		334°25.7'	N 1°45.9'		17°58.7'	S 15°33.0'		284°59.7'	N 18°31.5'				
2	357°24.5'	209°03.9'	N 12°49.1'	225°49.9'	N 18°41.4'		349°28.3'	N 1°45.9'		33°01.3'	S 15°33.0'		300°00.6'	N 18°31.9'				
3	12°27.0'	224°04.1'	N 12°48.3'	240°49.2'	N 18°40.7'		4°30.9'	N 1°45.8'		48°04.0'	S 15°33.1'		315°01.6'	N 18°32.2'				
4	27°29.4'	239°04.2'	N 12°47.5'	255°48.5'	N 18°40.0'		19°33.5'	N 1°45.7'		63°06.6'	S 15°33.2'		330°02.5'	N 18°32.5'				
5	42°31.9'	254°04.4'	N 12°46.7'	270°47.8'	N 18°39.3'		34°36.1'	N 1°45.6'		78°09.3'	S 15°33.2'		345°03.5'	N 18°32.9'				
6	57°34.3'	269°04.5'	N 12°45.9'	285°47.1'	N 18°38.6'		49°38.8'	N 1°45.6'		93°11.9'	S 15°33.3'		0°04.4'	N 18°33.2'				
7	72°36.8'	284°04.7'	N 12°45.0'	300°46.4'	N 18°37.8'		64°41.4'	N 1°45.5'		108°14.6'	S 15°33.4'		15°05.4'	N 18°33.6'				
8	87°39.3'	299°04.8'	N 12°44.2'	315°45.8'	N 18°37.1'		79°44.0'	N 1°45.4'		123°17.2'	S 15°33.4'		30°06.4'	N 18°33.9'				
9	102°41.7'	314°04.9'	N 12°43.4'	330°45.1'	N 18°36.4'		94°46.6'	N 1°45.3'		138°19.9'	S 15°33.5'		45°07.3'	N 18°34.3'				
10	117°44.2'	329°05.1'	N 12°42.6'	345°44.4'	N 18°35.6'		109°49.2'	N 1°45.2'		153°22.5'	S 15°33.5'		60°08.3'	N 18°34.6'				
11	132°46.7'	344°05.4'	N 12°41.8'	0°43.7'	N 18°34.9'		124°51.9'	N 1°45.2'		168°25.2'	S 15°33.6'		75°09.2'	N 18°35.0'				
12	147°49.1'	359°05.4'	N 12°41.0'	15°43.0'	N 18°34.2'		139°54.5'	N 1°45.1'		183°27.8'	S 15°33.7'		90°10.2'	N 18°35.3'				
13	162°51.6'	14°05.5'	N 12°40.1'	30°42.4'	N 18°33.5'		154°57.1'	N 1°45.0'		198°30.4'	S 15°33.7'		105°11.1'	N 18°35.7'				
14	177°54.1'	29°05.7'	N 12°39.3'	45°41.7'	N 18°32.7'		169°59.7'	N 1°44.9'		213°33.1'	S 15°33.8'		120°12.1'	N 18°36.0'				
15	192°56.5'	44°05.8'	N 12°38.5'	60°41.0'	N 18°32.0'		185°02.3'	N 1°44.9'		228°35.7'	S 15°33.9'		135°13.0'	N 18°36.3'				
16	207°59.0'	59°06.0'	N 12°37.7'	75°40.3'	N 18°31.3'		200°04.9'	N 1°44.8'		243°38.4'	S 15°33.9'		150°14.0'	N 18°36.7'				
17	223°01.4'	74°06.1'	N 12°36.9'	90°39.6'	N 18°30.5'		215°07.6'	N 1°44.7'		258°41.0'	S 15°34.0'		165°14.9'	N 18°37.0'				
18	238°03.9'	89°06.3'	N 12°36.0'	105°39.0'	N 18°29.8'		230°10.2'	N 1°44.6'		273°43.7'	S 15°34.0'		180°15.9'	N 18°37.4'				
19	253°06.4'	104°06.4'	N 12°35.2'	120°38.3'	N 18°29.0'		245°12.8'	N 1°44.5'		288°46.3'	S 15°34.1'		195°16.9'	N 18°37.7'				
20	268°08.8'	119°06.5'	N 12°34.4'	135°37.6'	N 18°28.3'		260°15.4'	N 1°44.5'		303°49.0'	S 15°34.2'		210°17.8'	N 18°38.1'				
21	283°11.3'	134°06.7'	N 12°33.6'	150°36.9'	N 18°27.6'		275°18.1'	N 1°44.4'		318°51.6'	S 15°34.2'		225°18.8'	N 18°38.4'				
22	298°13.8'	149°06.8'	N 12°32.8'	165°36.3'	N 18°26.8'		290°20.7'	N 1°44.3'		333°54.3'	S 15°34.3'		240°19.7'	N 18°38.7'				
23	313°16.2'	164°07.0'	N 12°31.9'	180°35.6'	N 18°26.1'		305°23.3'	N 1°44.2'		348°56.9'	S 15°34.4'		255°20.7'	N 18°39.1'				
		SD 15.8' d -0.8'		v -0.7' d -0.7'			v 2.6' d -0.1'			v 2.6' d -0.1'			v 1.0' d 0.3'					
Mer. pass.		12 h 3 m 39 s		10 h 57 m			2 h 42 m			23 h 44 m			6 h 0 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Aldebaran	-Mars	+Jupiter	+Achernar	+Fomalhaut	+Saturn
0	275°60.0'	N 19°18.5'	12.7'	10.2'	55.2'	92°09.4'	35°23.6'	17°18.7'	5°45.0'	45°54.8'	79°37.3'	80°35.7'	92°17.6'
1	290°31.7'	N 19°28.6'	12.7'	10.1'	55.2'	91°41.3'	34°58.8'	16°51.1'	5°19.1'	46°25.7'	79°54.4'	81°05.2'	92°48.4'
2	305°03.4'	N 19°38.7'	12.7'	10.0'	55.2'	91°13.1'	34°34.2'	16°23.8'		46°56.5'	80°11.5'	81°34.6'	93°19.2'
3	319°35.1'	N 19°48.7'	12.6'	9.9'	55.1'	90°45.0'	34°09.8'	15°56.6'		47°27.3'	80°28.6'	82°04.0'	93°50.0'
4	334°06.7'	N 19°58.5'	12.6'	9.8'	55.1'	90°16.9'	33°45.5'	15°29.7'		47°58.0'	80°45.7'	82°33.3'	94°20.7'
5	348°38.3'	N 20°08.3'	12.6'	9.7'	55.1'	89°48.8'	33°21.4'	15°03.0'		48°28.8'	81°02.9'	83°02.7'	94°51.4'
6	3°09.9'	N 20°18.0'	12.5'	9.6'	55.1'	89°20.8'	32°57.5'	14°36.6'		48°59.5'	81°20.0'	83°32.0'	95°22.1'
7	17°41.4'	N 20°27.5'	12.5'	9.5'	55.0'	88°52.8'	32°33.8'	14°10.5'		49°30.2'	81°37.2'	84°01.3'	95°52.8'
8	32°12.9'	N 20°37.0'	12.5'	9.4'	55.0'	88°24.8'	32°10.2'	13°44.7'		50°00.8'	81°54.4'	84°30.6'	96°23.4'
9	46°44.4'	N 20°46.4'	12.4'	9.3'	55.0'	87°56.8'	31°46.9'	13°19.3'		50°31.5'	82°11.6'	84°59.8'	96°54.0'
10	61°15.8'	N 20°55.7'	12.4'	9.2'	55.0'	87°28.9'	31°23.7'	12°54.2'		51°02.1'	82°28.8'	85°29.0'	97°24.6'
11	75°47.2'	N 21°04.8'	12.3'	9.1'	54.9'	87°00.9'	31°00.8'	12°29.6'		51°32.7'	82°46.0'	85°58.2'	97°55.2'
12	90°18.5'	N 21°13.9'	12.3'	9.0'	54.9'	86°33.0'	30°38.1'	12°05.4'		52°03.2'	83°03.2'	86°27.4'	98°25.7'
13	104°49.8'	N 21°22.9'	12.3'	8.9'	54.9'	86°05.2'	30°15.6'	11°41.7'		52°33.8'	83°20.5'	86°56.6'	98°56.2'
14	119°21.1'	N 21°31.8'	12.2'	8.8'	54.9'	85°37.3'	29°53.3'	11°18.6'		53°04.3'	83°37.7'	87°25.7'	99°26.7'
15	133°52.3'	N 21°40.5'	12.2'	8.7'	54.9'	85°09.5'	29°31.2'	10°56.0'		53°34.8'	83°55.0'	87°54.8'	99°57.1'
16	148°23.5'	N 21°49.2'	12.1'	8.6'	54.8'	84°41.7'	29°09.5'	10°34.1'		54°05.2'	84°12.2'	88°23.9'	100°27.6'
17	162°54.6'	N 21°57.7'	12.1'	8.4'	54.8'	84°14.0'	28°47.9'	10°13.0'		54°35.7'	84°29.5'	88°53.0'	100°58.0'
18	177°25.7'	N 22°06.2'	12.1'	8.3'	54.8'	83°46.2'	28°26.6'			55°06.1'	84°46.7'	89°22.0'	101°28.4'
19	191°56.8'	N 22°14.5'	12.0'	8.2'	54.8'	83°18.5'	28°05.6'			55°36.5'	85°04.0'	89°51.1'	101°58.7'
20	206°27.8'	N 22°22.7'	12.0'	8.1'	54.8'	82°50.8'	27°44.9'		5°11.2'	56°06.9'	85°21.3'	90°20.1'	102°29.1'
21	220°58.8'	N 22°30.9'	12.0'	8.0'	54.7'	82°23.1'	27°24.4'		5°36.5'	56°37.2'	85°38.5'	90°49.1'	102°59.4'
22	235°29.8'	N 22°38.9'	11.9'	7.9'	54.7'	81°55.4'	27°04.2'		6°02.3'	57°07.6'	85°55.8'	91°18.0'	103°29.7'
23	250°00.7'	N 22°46.8'	11.9'	7.8'	54.7'	81°27.8'	26°44.4'		6°28.4'	57°37.9'	86°13.1'	91°47.0'	103°60.0'
Mer. pass.		5 h 47 m SD 15.1'	phase 52%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°53.6'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.0'	S 60°29.1'	Canopus	-0.6	263°53.6'	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°18.7'	179°07.1'	N 12°31.1'	195°34.9'	N 18°25.3'	320°25.9'	N 1°44.1'	3°59.6'	S 15°34.4'	270°21.6'	N 18°39.4'			
1	343°21.2'	194°07.3'	N 12°30.3'	210°34.2'	N 18°24.6'	335°28.5'	N 1°44.1'	19°02.2'	S 15°34.5'	285°22.6'	N 18°39.8'			
2	358°23.6'	209°07.4'	N 12°29.5'	225°33.6'	N 18°23.9'	350°31.2'	N 1°44.0'	34°04.8'	S 15°34.6'	300°23.6'	N 18°40.1'			
3	13°26.1'	224°07.6'	N 12°28.6'	240°32.9'	N 18°23.1'	5°33.8'	N 1°43.9'	49°07.5'	S 15°34.6'	315°24.5'	N 18°40.5'			
4	28°28.6'	239°07.7'	N 12°27.8'	255°32.2'	N 18°22.4'	20°36.4'	N 1°43.8'	64°10.1'	S 15°34.7'	330°25.5'	N 18°40.8'			
5	43°31.0'	254°07.9'	N 12°27.0'	270°31.5'	N 18°21.6'	35°39.0'	N 1°43.8'	79°12.8'	S 15°34.7'	345°26.4'	N 18°41.1'			
6	58°33.5'	269°08.0'	N 12°26.2'	285°30.9'	N 18°20.9'	50°41.7'	N 1°43.7'	94°15.4'	S 15°34.8'	0°27.4'	N 18°41.5'			
7	73°35.9'	284°08.2'	N 12°25.4'	300°30.2'	N 18°20.1'	65°44.3'	N 1°43.6'	109°18.1'	S 15°34.9'	15°28.4'	N 18°41.8'			
8	88°38.4'	299°08.3'	N 12°24.5'	315°29.5'	N 18°19.4'	80°46.9'	N 1°43.5'	124°20.7'	S 15°34.9'	30°29.3'	N 18°42.2'			
9	103°40.9'	314°08.5'	N 12°23.7'	330°28.8'	N 18°18.6'	95°49.5'	N 1°43.4'	139°23.4'	S 15°35.0'	45°30.3'	N 18°42.5'			
10	118°43.3'	329°08.6'	N 12°22.9'	345°28.2'	N 18°17.9'	110°52.2'	N 1°43.4'	154°26.0'	S 15°35.1'	60°31.2'	N 18°42.8'			
11	133°45.8'	344°08.8'	N 12°22.1'	0°27.5'	N 18°17.1'	125°54.8'	N 1°43.3'	169°28.7'	S 15°35.1'	75°32.2'	N 18°43.2'			
12	148°48.3'	359°08.9'	N 12°21.2'	15°26.8'	N 18°16.4'	140°57.4'	N 1°43.2'	184°31.3'	S 15°35.2'	90°33.2'	N 18°43.5'			
13	163°50.7'	14°09.1'	N 12°20.4'	30°26.2'	N 18°15.6'	156°00.0'	N 1°43.1'	199°34.0'	S 15°35.2'	105°34.1'	N 18°43.8'			
14	178°53.2'	29°09.2'	N 12°19.6'	45°25.5'	N 18°14.9'	171°02.7'	N 1°43.0'	214°36.6'	S 15°35.3'	120°35.1'	N 18°44.2'			
15	193°55.7'	44°09.4'	N 12°18.7'	60°24.8'	N 18°14.1'	186°05.3'	N 1°43.0'	229°39.2'	S 15°35.4'	135°36.0'	N 18°44.5'			
16	208°58.1'	59°09.5'	N 12°17.9'	75°24.2'	N 18°13.4'	201°07.9'	N 1°42.9'	244°41.9'	S 15°35.4'	150°37.0'	N 18°44.9'			
17	224°00.6'	74°09.7'	N 12°17.1'	90°23.5'	N 18°12.6'	216°10.5'	N 1°42.8'	259°44.5'	S 15°35.5'	165°38.0'	N 18°45.2'			
18	239°03.1'	89°09.8'	N 12°16.3'	105°22.8'	N 18°11.8'	231°13.2'	N 1°42.7'	274°47.2'	S 15°35.6'	180°38.9'	N 18°45.5'			
19	254°05.5'	104°10.0'	N 12°15.4'	120°22.2'	N 18°11.1'	246°15.8'	N 1°42.6'	289°49.8'	S 15°35.6'	195°39.9'	N 18°45.9'			
20	269°08.0'	119°10.1'	N 12°14.6'	135°21.5'	N 18°10.3'	261°18.4'	N 1°42.5'	304°52.5'	S 15°35.7'	210°40.9'	N 18°46.2'			
21	284°10.4'	134°10.3'	N 12°13.8'	150°20.8'	N 18°09.6'	276°21.0'	N 1°42.5'	319°55.1'	S 15°35.7'	225°41.8'	N 18°46.5'			
22	299°12.9'	149°10.4'	N 12°12.9'	165°20.2'	N 18°08.8'	291°23.7'	N 1°42.4'	334°57.8'	S 15°35.8'	240°42.8'	N 18°46.9'			
23	314°15.4'	164°10.6'	N 12°12.1'	180°19.5'	N 18°08.0'	306°26.3'	N 1°42.3'	350°00.4'	S 15°35.9'	255°43.8'	N 18°47.2'			
		SD 15.8' d -0.8'		v -0.7' d -0.8'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 1.0' d 0.3'				
Mer. pass.		12 h 3 m 25 s		10 h 58 m		2 h 38 m		23 h 40 m		5 h 58 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Betelgeuse	-Capella	-Aldebaran	+Mars	+Jupiter	+Achernar	+Fomalhaut
0	264°31.6'	N 22°54.6'	11.8'	7.7'	54.7'	81°00.2'	28°50.4'	26°24.8'		6°54.9'	58°08.2'	86°30.4'	92°15.9'
1	279°02.4'	N 23°02.3'	11.8'	7.6'	54.7'	80°32.6'	28°28.6'	26°05.6'		7°21.6'	58°38.5'	86°47.6'	92°44.8'
2	293°33.2'	N 23°09.9'	11.8'	7.5'	54.6'	80°05.0'	28°07.1'	25°46.7'		7°48.6'	59°08.7'	87°04.9'	93°13.7'
3	308°04.0'	N 23°17.4'	11.7'	7.4'	54.6'	79°37.5'	27°45.8'	25°28.2'		8°15.7'	59°39.0'	87°22.2'	93°42.6'
4	322°34.7'	N 23°24.7'	11.7'	7.2'	54.6'	79°09.9'	27°24.8'	25°10.0'		8°43.0'	60°09.2'	87°39.4'	94°11.4'
5	337°05.4'	N 23°32.0'	11.6'	7.1'	54.6'	78°42.4'	27°04.1'	24°52.2'		9°10.3'	60°39.4'	87°56.7'	94°40.2'
6	351°36.0'	N 23°39.1'	11.6'	7.0'	54.6'	78°14.9'	26°43.7'	24°34.7'		9°37.8'	61°09.6'	88°14.0'	95°09.0'
7	6°06.6'	N 23°46.1'	11.6'	6.9'	54.5'	77°47.4'	26°23.5'	24°17.7'		10°05.3'	61°39.8'	88°31.2'	95°37.8'
8	20°37.2'	N 23°53.0'	11.5'	6.8'	54.5'	77°19.9'	26°03.7'	24°01.1'		10°33.0'	62°09.9'	88°48.5'	96°06.6'
9	35°07.7'	N 23°59.8'	11.5'	6.7'	54.5'	76°52.5'	25°44.2'	23°44.9'		11°00.6'	62°40.0'	89°05.7'	96°35.3'
10	49°38.2'	N 24°06.5'	11.5'	6.6'	54.5'	76°25.1'	25°25.0'	23°29.1'		11°28.4'	63°10.2'	89°22.9'	97°04.1'
11	64°08.6'	N 24°13.1'	11.4'	6.5'	54.5'	75°57.7'	25°06.1'			11°56.2'	63°40.3'	89°40.2'	97°32.8'
12	78°39.1'	N 24°19.5'	11.4'	6.3'	54.5'	75°30.3'	24°47.6'			12°24.0'	64°10.4'	89°57.4'	98°01.5'
13	93°09.4'	N 24°25.9'	11.3'	6.2'	54.5'	75°02.9'	24°29.5'			12°51.8'	64°40.4'	90°14.6'	98°30.2'
14	107°39.8'	N 24°32.1'	11.3'	6.1'	54.4'	74°35.5'	24°11.7'			13°19.7'	65°10.5'	90°31.8'	98°58.8'
15	122°10.1'	N 24°38.2'	11.3'	6.0'	54.4'	74°08.2'	23°54.3'			13°47.6'	65°40.5'	90°49.0'	99°27.5'
16	136°40.3'	N 24°44.2'	11.2'	5.9'	54.4'	73°40.8'	23°37.3'			14°15.5'	66°10.5'	91°06.2'	99°56.1'
17	151°10.6'	N 24°50.0'	11.2'	5.8'	54.4'	73°13.5'	23°20.7'			14°43.4'	66°40.6'	91°23.3'	100°24.7'
18	165°40.8'	N 24°55.8'	11.2'	5.6'	54.4'	72°46.2'	23°04.6'			15°11.4'	67°10.6'	91°40.5'	100°53.3'
19	180°10.9'	N 25°01.4'	11.1'	5.5'	54.4'	72°18.9'	22°48.9'			15°39.3'	67°40.5'	91°57.6'	101°21.8'
20	194°41.1'	N 25°06.9'	11.1'	5.4'	54.4'	71°51.6'				16°07.3'	68°10.5'	92°14.7'	101°50.4'
21	209°11.2'	N 25°12.3'	11.1'	5.3'	54.3'	71°24.4'			10°08.9'	16°35.2'	68°40.5'	92°31.9'	102°18.9'
22	223°41.2'	N 25°17.6'	11.0'	5.2'	54.3'	70°57.1'			10°29.6'	17°03.2'	69°10.4'	92°48.9'	102°47.4'
23	238°11.2'	N 25°22.8'	11.0'	5.0'	54.3'	70°29.9'			10°50.9'	17°31.2'	69°40.3'	93°06.0'	103°15.9'
Mer. pass.		6 h 35 m SD 14.9'		phase 42%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°42.0'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°53.0'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	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	329°17.8'	179°10.7'	N 12°11.3'	195°18.8'	N 18°07.3'	321°28.9'	N 1°42.2'	5°03.1'	S 15°35.9'	270°44.7'	N 18°47.5'			
1	344°20.3'	194°10.9'	N 12°10.5'	210°18.2'	N 18°06.5'	336°31.6'	N 1°42.1'	20°05.7'	S 15°36.0'	285°45.7'	N 18°47.9'			
2	359°22.8'	209°11.0'	N 12°09.6'	225°17.5'	N 18°05.7'	351°34.2'	N 1°42.1'	35°08.3'	S 15°36.1'	300°46.7'	N 18°48.2'			
3	14°25.2'	224°11.2'	N 12°08.8'	240°16.8'	N 18°05.0'	6°36.8'	N 1°42.0'	50°11.0'	S 15°36.1'	315°47.6'	N 18°48.6'			
4	29°27.7'	239°11.4'	N 12°08.0'	255°16.2'	N 18°04.2'	21°39.5'	N 1°41.9'	65°13.6'	S 15°36.2'	330°48.6'	N 18°48.9'			
5	44°30.2'	254°11.5'	N 12°07.1'	270°15.5'	N 18°03.4'	36°42.1'	N 1°41.8'	80°16.3'	S 15°36.2'	345°49.6'	N 18°49.2'			
6	59°32.6'	269°11.7'	N 12°06.3'	285°14.8'	N 18°02.7'	51°44.7'	N 1°41.7'	95°18.9'	S 15°36.3'	0°50.5'	N 18°49.6'			
7	74°35.1'	284°11.8'	N 12°05.5'	300°14.2'	N 18°01.9'	66°47.3'	N 1°41.6'	110°21.6'	S 15°36.4'	15°51.5'	N 18°49.9'			
8	89°37.6'	299°12.0'	N 12°04.6'	315°13.5'	N 18°01.1'	81°50.0'	N 1°41.6'	125°24.2'	S 15°36.4'	30°52.5'	N 18°50.2'			
9	104°40.0'	314°12.1'	N 12°03.8'	330°12.8'	N 18°00.4'	96°52.6'	N 1°41.5'	140°26.9'	S 15°36.5'	45°53.4'	N 18°50.6'			
10	119°42.5'	329°12.3'	N 12°03.0'	345°12.2'	N 17°59.6'	111°55.2'	N 1°41.4'	155°29.5'	S 15°36.5'	60°54.4'	N 18°50.9'			
11	134°44.9'	344°12.4'	N 12°02.1'	0°11.5'	N 17°58.8'	126°57.9'	N 1°41.3'	170°32.2'	S 15°36.6'	75°55.4'	N 18°51.2'			
12	149°47.4'	359°12.6'	N 12°01.3'	15°10.9'	N 17°58.0'	142°00.5'	N 1°41.2'	185°34.8'	S 15°36.7'	90°56.3'	N 18°51.5'			
13	164°49.9'	14°12.7'	N 12°00.5'	30°10.2'	N 17°57.3'	157°03.1'	N 1°41.1'	200°37.4'	S 15°36.7'	105°57.3'	N 18°51.9'			
14	179°52.3'	29°12.9'	N 11°59.6'	45°09.5'	N 17°56.5'	172°05.8'	N 1°41.1'	215°40.1'	S 15°36.8'	120°58.3'	N 18°52.2'			
15	194°54.8'	44°13.1'	N 11°58.8'	60°08.9'	N 17°55.7'	187°08.4'	N 1°41.0'	230°42.7'	S 15°36.9'	135°59.2'	N 18°52.5'			
16	209°57.3'	59°13.2'	N 11°58.0'	75°08.2'	N 17°54.9'	202°11.0'	N 1°40.9'	245°45.4'	S 15°36.9'	151°00.2'	N 18°52.9'			
17	224°59.7'	74°13.4'	N 11°57.1'	90°07.6'	N 17°54.2'	217°13.7'	N 1°40.8'	260°48.0'	S 15°37.0'	166°01.2'	N 18°53.2'			
18	240°02.2'	89°13.5'	N 11°56.3'	105°06.9'	N 17°53.4'	232°16.3'	N 1°40.7'	275°50.7'	S 15°37.0'	181°02.1'	N 18°53.5'			
19	255°04.7'	104°13.7'	N 11°55.5'	120°06.2'	N 17°52.6'	247°18.9'	N 1°40.6'	290°53.3'	S 15°37.1'	196°03.1'	N 18°53.9'			
20	270°07.1'	119°13.8'	N 11°54.6'	135°05.6'	N 17°51.8'	262°21.6'	N 1°40.6'	305°56.0'	S 15°37.2'	211°04.1'	N 18°54.2'			
21	285°09.6'	134°14.0'	N 11°53.8'	150°04.9'	N 17°51.0'	277°24.2'	N 1°40.5'	320°58.6'	S 15°37.2'	226°05.1'	N 18°54.5'			
22	300°12.1'	149°14.1'	N 11°52.9'	165°04.3'	N 17°50.2'	292°26.8'	N 1°40.4'	336°01.3'	S 15°37.3'	241°06.0'	N 18°54.9'			
23	315°14.5'	164°14.3'	N 11°52.1'	180°03.6'	N 17°49.5'	307°29.5'	N 1°40.3'	351°03.9'	S 15°37.4'	256°07.0'	N 18°55.2'			
		SD 15.8' d -0.8'		v -0.7' d -0.8'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 1.0' d 0.3'				
Mer. pass.		12 h 3 m 11 s		10 h 59 m		2 h 34 m		23 h 36 m		5 h 57 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Procyon	-Pollux	+Aldebaran	+Mars	+Jupiter	+Achernar
0	252°41.2'	N 25°27.8'	11.0'	4.9'	54.3'	70°02.7'	53°23.4'	42°03.8'	35°42.6'	11°12.9'	17°59.2'	70°10.3'	93°23.1'
1	267°11.2'	N 25°32.7'	10.9'	4.8'	54.3'	69°35.5'	52°56.9'	41°38.6'	35°12.9'	11°35.4'	18°27.2'	70°40.2'	93°40.1'
2	281°41.1'	N 25°37.5'	10.9'	4.7'	54.3'	69°08.3'	52°30.3'	41°13.4'	34°43.2'	11°58.5'	18°55.2'	71°10.1'	93°57.2'
3	296°11.0'	N 25°42.2'	10.9'	4.5'	54.3'	68°41.1'	52°03.8'	40°48.4'	34°13.6'	12°22.0'	19°23.2'	71°40.0'	94°14.2'
4	310°40.9'	N 25°46.7'	10.8'	4.4'	54.3'	68°13.9'	51°37.3'	40°23.5'	33°43.9'	12°45.9'	19°51.2'	72°09.9'	94°31.2'
5	325°10.8'	N 25°51.1'	10.8'	4.3'	54.2'	67°46.7'	51°10.8'	39°58.6'	33°14.3'	13°10.2'	20°19.2'	72°39.7'	94°48.1'
6	339°40.6'	N 25°55.4'	10.8'	4.2'	54.2'	67°19.6'	50°44.3'	39°33.9'	32°44.7'	13°34.8'	20°47.2'	73°09.6'	95°05.1'
7	354°10.4'	N 25°59.6'	10.8'	4.1'	54.2'	66°52.4'	50°17.8'	39°09.3'	32°15.1'	13°59.8'	21°15.2'	73°39.4'	95°22.0'
8	8°40.1'	N 26°03.7'	10.7'	3.9'	54.2'	66°25.3'	49°51.3'	38°44.7'	31°45.5'	14°25.0'	21°43.2'	74°09.3'	95°38.9'
9	23°09.8'	N 26°07.6'	10.7'	3.8'	54.2'	65°58.2'	49°24.9'	38°20.3'	31°15.9'	14°50.5'	22°11.2'	74°39.1'	95°55.8'
10	37°39.5'	N 26°11.4'	10.7'	3.7'	54.2'	65°31.1'	48°58.4'	37°56.0'	30°46.3'	15°16.3'	22°39.2'	75°08.9'	96°12.7'
11	52°09.2'	N 26°15.1'	10.7'	3.6'	54.2'	65°04.0'	48°32.0'	37°31.8'	30°16.7'	15°42.2'	23°07.2'	75°38.8'	96°29.5'
12	66°38.9'	N 26°18.6'	10.6'	3.4'	54.2'	64°36.9'	48°05.6'	37°07.8'	29°47.2'	16°08.4'	23°35.2'	76°08.6'	96°46.3'
13	81°08.5'	N 26°22.0'	10.6'	3.3'	54.2'	64°09.8'	47°39.1'	36°43.8'	29°17.6'	16°34.7'	24°03.2'	76°38.4'	97°03.1'
14	95°38.1'	N 26°25.3'	10.6'	3.2'	54.2'	63°42.7'	47°12.7'	36°20.0'	28°48.1'	17°01.2'	24°31.2'	77°08.2'	97°19.9'
15	110°07.7'	N 26°28.5'	10.6'	3.0'	54.1'	63°15.6'	46°46.3'	35°56.3'	28°18.5'	17°27.9'	24°59.2'	77°37.9'	97°36.6'
16	124°37.2'	N 26°31.6'	10.5'	2.9'	54.1'	62°48.5'	46°19.9'	35°32.8'	27°49.0'	17°54.7'	25°27.2'	78°07.7'	97°53.3'
17	139°06.8'	N 26°34.5'	10.5'	2.8'	54.1'	62°21.5'	45°53.6'	35°09.3'	27°19.5'	18°21.6'	25°55.2'	78°37.5'	98°10.0'
18	153°36.3'	N 26°37.3'	10.5'	2.7'	54.1'	61°54.4'	45°27.2'	34°46.0'	26°50.0'	18°48.7'	26°23.2'	79°07.3'	98°26.7'
19	168°05.8'	N 26°39.9'	10.5'	2.5'	54.1'	61°27.4'	45°00.8'	34°22.9'	26°20.5'	19°15.8'	26°51.2'	79°37.0'	98°43.3'
20	182°35.3'	N 26°42.5'	10.5'	2.4'	54.1'	61°00.4'	44°34.4'	33°59.9'	25°51.0'	19°43.1'	27°19.2'	80°06.8'	98°59.9'
21	197°04.7'	N 26°44.9'	10.4'	2.3'	54.1'	60°33.3'	44°08.1'	33°37.1'	25°21.6'	20°10.5'	27°47.2'	80°36.6'	99°16.5'
22	211°34.2'	N 26°47.2'	10.4'	2.2'	54.1'	60°06.3'	43°41.7'	33°14.4'	24°52.1'	20°38.0'	28°15.2'	81°06.3'	99°33.0'
23	226°03.6'	N 26°49.3'	10.4'	2.0'	54.1'	59°39.3'	43°15.4'	32°51.9'	24°22.6'	21°05.5'	28°43.2'	81°36.1'	99°49.5'
Mer. pass.		7 h 24 m SD 14.8'		phase 33%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°52.4'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	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	330°17.0'	179°14.5'	N 11°51.3'	195°03.0'	N 17°48.7'	322°32.1'	N 1°40.2'	6°06.5'	S 15°37.4'	271°08.0'	N 18°55.5'			
1	345°19.4'	194°14.6'	N 11°50.4'	210°02.3'	N 17°47.9'	337°34.7'	N 1°40.1'	21°09.2'	S 15°37.5'	286°08.9'	N 18°55.8'			
2	0°21.9'	209°14.8'	N 11°49.6'	225°01.7'	N 17°47.1'	352°37.4'	N 1°40.1'	36°11.8'	S 15°37.5'	301°09.9'	N 18°56.2'			
3	15°24.4'	224°14.9'	N 11°48.8'	240°01.0'	N 17°46.3'	7°40.0'	N 1°40.0'	51°14.5'	S 15°37.6'	316°10.9'	N 18°56.5'			
4	30°26.8'	239°15.1'	N 11°47.9'	255°00.3'	N 17°45.5'	22°42.7'	N 1°39.9'	66°17.1'	S 15°37.7'	331°11.9'	N 18°56.8'			
5	45°29.3'	254°15.2'	N 11°47.1'	269°59.7'	N 17°44.7'	37°45.3'	N 1°39.8'	81°19.8'	S 15°37.7'	346°12.8'	N 18°57.2'			
6	60°31.8'	269°15.4'	N 11°46.2'	284°59.0'	N 17°44.0'	52°47.9'	N 1°39.7'	96°22.4'	S 15°37.8'	1°13.8'	N 18°57.5'			
7	75°34.2'	284°15.6'	N 11°45.4'	299°58.4'	N 17°43.2'	67°50.6'	N 1°39.6'	111°25.1'	S 15°37.9'	16°14.8'	N 18°57.8'			
8	90°36.7'	299°15.7'	N 11°44.6'	314°57.7'	N 17°42.4'	82°53.2'	N 1°39.5'	126°27.7'	S 15°37.9'	31°15.8'	N 18°58.1'			
9	105°39.2'	314°15.9'	N 11°43.7'	329°57.1'	N 17°41.6'	97°55.8'	N 1°39.5'	141°30.3'	S 15°38.0'	46°16.7'	N 18°58.5'			
10	120°41.6'	329°16.0'	N 11°42.9'	344°56.4'	N 17°40.8'	112°58.5'	N 1°39.4'	156°33.0'	S 15°38.0'	61°17.7'	N 18°58.8'			
11	135°44.1'	344°16.2'	N 11°42.0'	359°55.8'	N 17°40.0'	128°01.1'	N 1°39.3'	171°35.6'	S 15°38.1'	76°18.7'	N 18°59.1'			
12	150°46.5'	359°16.4'	N 11°41.2'	14°55.1'	N 17°39.2'	143°03.8'	N 1°39.2'	186°38.3'	S 15°38.2'	91°19.7'	N 18°59.4'			
13	165°49.0'	14°16.5'	N 11°40.3'	29°54.5'	N 17°38.4'	158°06.4'	N 1°39.1'	201°40.9'	S 15°38.2'	106°20.6'	N 18°59.8'			
14	180°51.5'	29°16.7'	N 11°39.5'	44°53.8'	N 17°37.6'	173°09.0'	N 1°39.0'	216°43.6'	S 15°38.3'	121°21.6'	N 19°00.1'			
15	195°53.9'	44°16.8'	N 11°38.7'	59°53.2'	N 17°36.8'	188°11.7'	N 1°38.9'	231°46.2'	S 15°38.3'	136°22.6'	N 19°00.4'			
16	210°56.4'	59°17.0'	N 11°37.8'	74°52.5'	N 17°36.0'	203°14.3'	N 1°38.9'	246°48.9'	S 15°38.4'	151°23.6'	N 19°00.7'			
17	225°58.9'	74°17.2'	N 11°37.0'	89°51.9'	N 17°35.2'	218°17.0'	N 1°38.8'	261°51.5'	S 15°38.5'	166°24.6'	N 19°01.1'			
18	241°01.3'	89°17.3'	N 11°36.1'	104°51.2'	N 17°34.4'	233°19.6'	N 1°38.7'	276°54.2'	S 15°38.5'	181°25.5'	N 19°01.4'			
19	256°03.8'	104°17.5'	N 11°35.3'	119°50.6'	N 17°33.6'	248°22.2'	N 1°38.6'	291°56.8'	S 15°38.6'	196°26.5'	N 19°01.7'			
20	271°06.3'	119°17.6'	N 11°34.4'	134°49.9'	N 17°32.8'	263°24.9'	N 1°38.5'	306°59.4'	S 15°38.7'	211°27.5'	N 19°02.0'			
21	286°08.7'	134°17.8'	N 11°33.6'	149°49.3'	N 17°32.0'	278°27.5'	N 1°38.4'	322°02.1'	S 15°38.7'	226°28.5'	N 19°02.4'			
22	301°11.2'	149°18.0'	N 11°32.8'	164°48.6'	N 17°31.2'	293°30.2'	N 1°38.3'	337°04.7'	S 15°38.8'	241°29.5'	N 19°02.7'			
23	316°13.7'	164°18.1'	N 11°31.9'	179°48.0'	N 17°30.4'	308°32.8'	N 1°38.3'	352°07.4'	S 15°38.8'	256°30.4'	N 19°03.0'			
		SD 15.8' d -0.8'		v -0.7' d -0.8'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 1.0' d 0.3'				
Mer. pass.		12 h 2 m 55 s		11 h 0 m		2 h 29 m		23 h 31 m		5 h 55 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Venus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Mars
0	240°33.0'	N 26°51.4'	10.4'	1.9'	54.1'	59°12.3'	42°49.1'	32°29.6'	23°53.2'			21°33.2'	29°11.2'
1	255°02.4'	N 26°53.3'	10.4'	1.8'	54.1'	58°45.3'	42°22.7'	32°07.4'	23°23.7'			22°00.9'	29°39.2'
2	269°31.8'	N 26°55.0'	10.4'	1.6'	54.1'	58°18.3'	41°56.4'	31°45.4'	22°54.3'			22°28.7'	30°07.2'
3	284°01.1'	N 26°56.7'	10.4'	1.5'	54.1'	57°51.3'	41°30.1'	31°23.7'	22°24.9'			22°56.5'	30°35.2'
4	298°30.5'	N 26°58.2'	10.3'	1.4'	54.1'	57°24.3'	41°03.8'	31°02.1'	21°55.5'			23°24.4'	31°03.2'
5	312°59.8'	N 26°59.6'	10.3'	1.3'	54.1'	56°57.3'	40°37.5'	30°40.7'	21°26.1'			23°52.4'	31°31.2'
6	327°29.2'	N 27°00.8'	10.3'	1.1'	54.1'	56°30.3'	40°11.2'	30°19.5'	20°56.7'			24°20.5'	31°59.2'
7	341°58.5'	N 27°01.9'	10.3'	1.0'	54.1'	56°03.3'	39°44.9'	29°58.5'	20°27.3'			24°48.5'	32°27.1'
8	356°27.8'	N 27°02.9'	10.3'	0.9'	54.1'	55°36.3'	39°18.6'	29°37.7'	19°57.9'			25°16.7'	32°55.1'
9	10°57.1'	N 27°03.8'	10.3'	0.7'	54.0'	55°09.3'	38°52.3'	29°17.2'	19°28.5'			25°44.9'	33°23.1'
10	25°26.4'	N 27°04.5'	10.3'	0.6'	54.0'	54°42.4'	38°26.0'	28°56.9'	18°59.2'			26°13.1'	33°51.2'
11	39°55.7'	N 27°05.1'	10.3'	0.5'	54.0'	54°15.4'	37°59.7'	28°36.9'	18°29.8'			26°41.4'	34°19.2'
12	54°25.0'	N 27°05.6'	10.3'	0.3'	54.0'	53°48.4'	37°33.5'	28°17.1'	18°00.5'			27°09.7'	34°47.2'
13	68°54.3'	N 27°05.9'	10.3'	0.2'	54.0'	53°21.4'	37°07.2'	27°57.6'	17°31.1'		23°22.6'	27°38.0'	35°15.2'
14	83°23.6'	N 27°06.2'	10.3'	0.1'	54.0'	52°54.5'	36°40.9'	27°38.3'	17°01.8'		23°37.9'	28°06.4'	35°43.2'
15	97°52.8'	N 27°06.2'	10.3'	-0.0'	54.0'	52°27.5'	36°14.7'	27°19.4'	16°32.5'		23°53.7'	28°34.8'	36°11.2'
16	112°22.1'	N 27°06.2'	10.3'	-0.2'	54.0'	52°00.5'	35°48.4'	27°00.7'	16°03.2'		24°09.9'	29°03.3'	36°39.2'
17	126°51.4'	N 27°06.0'	10.3'	-0.3'	54.0'	51°33.6'	35°22.2'	26°42.3'	15°33.9'		24°26.5'	29°31.8'	37°07.2'
18	141°20.7'	N 27°05.7'	10.3'	-0.4'	54.0'	51°06.6'	34°55.9'	26°24.2'	15°04.7'		24°43.5'	30°00.3'	37°35.3'
19	155°50.0'	N 27°05.3'	10.3'	-0.6'	54.0'	50°39.6'	34°29.6'	26°06.5'	14°35.4'		25°00.8'	30°28.9'	38°03.3'
20	170°19.3'	N 27°04.7'	10.3'	-0.7'	54.0'	50°12.7'	34°03.4'	25°49.1'	14°06.2'	22°34.7'	25°18.5'	30°57.5'	38°31.3'
21	184°48.5'	N 27°04.0'	10.3'	-0.8'	54.0'	49°45.7'	33°37.2'	25°32.0'	13°37.0'	22°49.8'	25°36.5'	31°26.1'	38°59.3'
22	199°17.8'	N 27°03.2'	10.3'	-1.0'	54.0'	49°18.8'	33°10.9'	25°15.3'	13°07.8'	23°05.4'	25°54.9'	31°54.7'	39°27.4'
23	213°47.1'	N 27°02.2'	10.3'	-1.1'	54.0'	48°51.8'	32°44.7'	24°58.9'	12°38.7'	23°21.4'	26°13.6'	32°23.4'	39°55.4'
Mer. pass.		8 h 15 m SD 14.7'		phase 24%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°25.0'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°51.8'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.4'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	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	331°16.1'	179°18.3'	N 11°31.1'	194°47.3'	N 17°29.6'	323°35.4'	N 1°38.2'	7°10.0'	S 15°38.9'	271°31.4'	N 19°03.3'			
1	346°18.6'	194°18.4'	N 11°30.2'	209°46.7'	N 17°28.8'	338°38.1'	N 1°38.1'	22°12.7'	S 15°39.0'	286°32.4'	N 19°03.6'			
2	1°21.0'	209°18.6'	N 11°29.4'	224°46.1'	N 17°28.0'	353°40.7'	N 1°38.0'	37°15.3'	S 15°39.0'	301°33.4'	N 19°04.0'			
3	16°23.5'	224°18.8'	N 11°28.5'	239°45.4'	N 17°27.2'	8°43.4'	N 1°37.9'	52°18.0'	S 15°39.1'	316°34.4'	N 19°04.3'			
4	31°26.0'	239°18.9'	N 11°27.7'	254°44.8'	N 17°26.4'	23°46.0'	N 1°37.8'	67°20.6'	S 15°39.1'	331°35.3'	N 19°04.6'			
5	46°28.4'	254°19.1'	N 11°26.8'	269°44.1'	N 17°25.5'	38°48.7'	N 1°37.7'	82°23.2'	S 15°39.2'	346°36.3'	N 19°04.9'			
6	61°30.9'	269°19.3'	N 11°26.0'	284°43.5'	N 17°24.7'	53°51.3'	N 1°37.6'	97°25.9'	S 15°39.3'	1°37.3'	N 19°05.3'			
7	76°33.4'	284°19.4'	N 11°25.1'	299°42.8'	N 17°23.9'	68°54.0'	N 1°37.6'	112°28.5'	S 15°39.3'	16°38.3'	N 19°05.6'			
8	91°35.8'	299°19.6'	N 11°24.3'	314°42.2'	N 17°23.1'	83°56.6'	N 1°37.5'	127°31.2'	S 15°39.4'	31°39.3'	N 19°05.9'			
9	106°38.3'	314°19.7'	N 11°23.4'	329°41.5'	N 17°22.3'	98°59.2'	N 1°37.4'	142°33.8'	S 15°39.5'	46°40.3'	N 19°06.2'			
10	121°40.8'	329°19.9'	N 11°22.6'	344°40.9'	N 17°21.5'	114°01.9'	N 1°37.3'	157°36.5'	S 15°39.5'	61°41.2'	N 19°06.5'			
11	136°43.2'	344°20.1'	N 11°21.7'	359°40.3'	N 17°20.7'	129°04.5'	N 1°37.2'	172°39.1'	S 15°39.6'	76°42.2'	N 19°06.9'			
12	151°45.7'	359°20.2'	N 11°20.9'	14°39.6'	N 17°19.8'	144°07.2'	N 1°37.1'	187°41.8'	S 15°39.6'	91°43.2'	N 19°07.2'			
13	166°48.2'	14°20.4'	N 11°20.0'	29°39.0'	N 17°19.0'	159°09.8'	N 1°37.0'	202°44.4'	S 15°39.7'	106°44.2'	N 19°07.5'			
14	181°50.6'	29°20.6'	N 11°19.2'	44°38.3'	N 17°18.2'	174°12.5'	N 1°36.9'	217°47.0'	S 15°39.8'	121°45.2'	N 19°07.8'			
15	196°53.1'	44°20.7'	N 11°18.3'	59°37.7'	N 17°17.4'	189°15.1'	N 1°36.9'	232°49.7'	S 15°39.8'	136°46.2'	N 19°08.1'			
16	211°55.5'	59°20.9'	N 11°17.5'	74°37.1'	N 17°16.6'	204°17.8'	N 1°36.8'	247°52.3'	S 15°39.9'	151°47.1'	N 19°08.4'			
17	226°58.0'	74°21.1'	N 11°16.6'	89°36.4'	N 17°15.8'	219°20.4'	N 1°36.7'	262°55.0'	S 15°39.9'	166°48.1'	N 19°08.8'			
18	242°00.5'	89°21.2'	N 11°15.8'	104°35.8'	N 17°14.9'	234°23.1'	N 1°36.6'	277°57.6'	S 15°40.0'	181°49.1'	N 19°09.1'			
19	257°02.9'	104°21.4'	N 11°14.9'	119°35.1'	N 17°14.1'	249°25.7'	N 1°36.5'	293°00.3'	S 15°40.1'	196°50.1'	N 19°09.4'			
20	272°05.4'	119°21.6'	N 11°14.1'	134°34.5'	N 17°13.3'	264°28.3'	N 1°36.4'	308°02.9'	S 15°40.1'	211°51.1'	N 19°09.7'			
21	287°07.9'	134°21.7'	N 11°13.2'	149°33.9'	N 17°12.5'	279°31.0'	N 1°36.3'	323°05.5'	S 15°40.2'	226°52.1'	N 19°10.0'			
22	302°10.3'	149°21.9'	N 11°12.4'	164°33.2'	N 17°11.6'	294°33.6'	N 1°36.2'	338°08.2'	S 15°40.3'	241°53.1'	N 19°10.3'			
23	317°12.8'	164°22.1'	N 11°11.5'	179°32.6'	N 17°10.8'	309°36.3'	N 1°36.1'	353°10.8'	S 15°40.3'	256°54.1'	N 19°10.7'			
		SD 15.8' d -0.8'		v -0.6' d -0.8'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 1.0' d 0.3'				
Mer. pass.		12 h 2 m 40 s		11 h 1 m		2 h 25 m		23 h 27 m		5 h 54 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Venus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Mars
0	228°16.4'	N 27°01.1'	10.3'	-1.2'	54.0'	48°24.8'	32°18.4'	24°43.0'	12°09.5'	23°37.8'	26°32.6'	32°52.1'	40°23.5'
1	242°45.8'	N 26°59.9'	10.3'	-1.3'	54.0'	47°57.9'	31°52.2'	24°27.4'	11°40.4'	23°54.7'	26°51.9'	33°20.8'	40°51.5'
2	257°15.1'	N 26°58.6'	10.3'	-1.5'	54.0'	47°30.9'	31°26.0'		11°11.4'	24°11.9'	27°11.4'	33°49.5'	41°19.6'
3	271°44.4'	N 26°57.1'	10.3'	-1.6'	54.0'	47°03.9'	30°59.8'		10°42.3'	24°29.4'	27°31.3'	34°18.3'	41°47.6'
4	286°13.8'	N 26°55.5'	10.4'	-1.7'	54.0'	46°37.0'	30°33.5'		10°13.4'	24°47.4'	27°51.4'	34°47.1'	42°15.7'
5	300°43.1'	N 26°53.7'	10.4'	-1.9'	54.0'	46°10.0'	30°07.3'		9°44.4'	25°05.7'	28°11.8'	35°15.9'	42°43.8'
6	315°12.5'	N 26°51.9'	10.4'	-2.0'	54.0'	45°43.0'	29°41.1'		9°15.6'	25°24.3'	28°32.4'	35°44.7'	43°11.8'
7	329°41.9'	N 26°49.9'	10.4'	-2.1'	54.0'	45°16.1'	29°14.9'		8°46.8'	25°43.2'	28°53.3'	36°13.6'	43°39.9'
8	344°11.3'	N 26°47.8'	10.4'	-2.3'	54.0'	44°49.1'	28°48.7'		8°18.1'	26°02.5'	29°14.4'	36°42.5'	44°08.0'
9	358°40.7'	N 26°45.5'	10.4'	-2.4'	54.0'	44°22.1'	28°22.4'		7°49.5'	26°22.0'	29°35.7'	37°11.4'	44°36.1'
10	13°10.1'	N 26°43.1'	10.4'	-2.5'	54.0'	43°55.1'	27°56.2'		7°21.0'	26°41.9'	29°57.3'	37°40.3'	45°04.2'
11	27°39.6'	N 26°40.6'	10.5'	-2.6'	54.0'	43°28.1'	27°30.0'		6°52.7'	27°02.0'	30°19.0'	38°09.2'	45°32.3'
12	42°09.0'	N 26°38.0'	10.5'	-2.8'	54.1'	43°01.2'	27°03.8'		6°24.6'	27°22.4'	30°41.0'	38°38.2'	46°00.4'
13	56°38.5'	N 26°35.2'	10.5'	-2.9'	54.1'	42°34.2'	26°37.6'		5°56.7'	27°43.0'	31°03.1'	39°07.2'	46°28.6'
14	71°08.0'	N 26°32.3'	10.5'	-3.0'	54.1'	42°07.2'	26°11.4'		5°29.1'	28°03.9'	31°25.5'	39°36.2'	46°56.7'
15	85°37.6'	N 26°29.3'	10.5'	-3.1'	54.1'	41°40.2'	25°45.3'		5°01.9'	28°25.1'	31°48.0'	40°05.2'	47°24.8'
16	100°07.1'	N 26°26.2'	10.6'	-3.3'	54.1'	41°13.2'	25°19.1'		4°35.2'	28°46.5'	32°10.7'	40°34.2'	47°53.0'
17	114°36.7'	N 26°22.9'	10.6'	-3.4'	54.1'	40°46.2'	24°52.9'			29°08.1'	32°33.6'	41°03.3'	48°21.1'
18	129°06.3'	N 26°19.5'	10.6'	-3.5'	54.1'	40°19.2'	24°26.7'			29°29.9'	32°56.6'	41°32.4'	48°49.3'
19	143°35.9'	N 26°16.0'	10.6'	-3.6'	54.1'		24°00.6'			29°51.9'	33°19.8'	42°01.5'	49°17.5'
20	158°05.5'	N 26°12.3'	10.7'	-3.8'	54.1'		23°34.4'			30°14.1'	33°43.2'	42°30.6'	49°45.7'
21	172°35.2'	N 26°08.5'	10.7'	-3.9'	54.1'		23°08.2'			30°36.6'	34°06.7'	42°59.7'	50°13.9'
22	187°04.9'	N 26°04.6'	10.7'	-4.0'	54.1'		22°42.1'			30°59.2'	34°30.4'	43°28.8'	50°42.1'
23	201°34.6'	N 26°00.6'	10.8'	-4.1'	54.1'		22°16.0'			31°22.0'	34°54.2'	43°58.0'	51°10.3'
Mer. pass.		9 h 5 m SD 14.7'	phase 17%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.7'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.2'	N 5°10.1'	Polaris	+2.0	314°51.3'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	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	332°15.3'	179°22.2' N 11°10.7'	194°32.0' N 17°10.0'	324°38.9' N 1°36.0'	8°13.5' S 15°40.4'	271°55.0' N 19°11.0'						
1	347°17.7'	194°22.4' N 11°09.8'	209°31.3' N 17°09.2'	339°41.6' N 1°36.0'	23°16.1' S 15°40.4'	286°56.0' N 19°11.3'						
2	2°20.2'	209°22.6' N 11°09.0'	224°30.7' N 17°08.3'	354°44.2' N 1°35.9'	38°18.8' S 15°40.5'	301°57.0' N 19°11.6'						
3	17°22.7'	224°22.7' N 11°08.1'	239°30.0' N 17°07.5'	9°46.9' N 1°35.8'	53°21.4' S 15°40.6'	316°58.0' N 19°11.9'						
4	32°25.1'	239°22.9' N 11°07.3'	254°29.4' N 17°06.7'	24°49.5' N 1°35.7'	68°24.1' S 15°40.6'	331°59.0' N 19°12.2'						
5	47°27.6'	254°23.1' N 11°06.4'	269°28.8' N 17°05.8'	39°52.2' N 1°35.6'	83°26.7' S 15°40.7'	346°60.0' N 19°12.6'						
6	62°30.0'	269°23.2' N 11°05.5'	284°28.1' N 17°05.0'	54°54.8' N 1°35.5'	98°29.3' S 15°40.7'	2°01.0' N 19°12.9'						
7	77°32.5'	284°23.4' N 11°04.7'	299°27.5' N 17°04.2'	69°57.5' N 1°35.4'	113°32.0' S 15°40.8'	17°02.0' N 19°13.2'						
8	92°35.0'	299°23.6' N 11°03.8'	314°26.9' N 17°03.3'	85°00.1' N 1°35.3'	128°34.6' S 15°40.9'	32°03.0' N 19°13.5'						
9	107°37.4'	314°23.7' N 11°03.0'	329°26.2' N 17°02.5'	100°02.8' N 1°35.2'	143°37.3' S 15°40.9'	47°04.0' N 19°13.8'						
10	122°39.9'	329°23.9' N 11°02.1'	344°25.6' N 17°01.7'	115°05.4' N 1°35.1'	158°39.9' S 15°41.0'	62°04.9' N 19°14.1'						
11	137°42.4'	344°24.1' N 11°01.3'	359°25.0' N 17°00.8'	130°08.1' N 1°35.1'	173°42.6' S 15°41.0'	77°05.9' N 19°14.4'						
12	152°44.8'	359°24.2' N 11°00.4'	14°24.4' N 17°00.0'	145°10.7' N 1°35.0'	188°45.2' S 15°41.1'	92°06.9' N 19°14.8'						
13	167°47.3'	14°24.4' N 10°59.6'	29°23.7' N 16°59.2'	160°13.4' N 1°34.9'	203°47.8' S 15°41.2'	107°07.9' N 19°15.1'						
14	182°49.8'	29°24.6' N 10°58.7'	44°23.1' N 16°58.3'	175°16.1' N 1°34.8'	218°50.5' S 15°41.2'	122°08.9' N 19°15.4'						
15	197°52.2'	44°24.7' N 10°57.8'	59°22.5' N 16°57.5'	190°18.7' N 1°34.7'	233°53.1' S 15°41.3'	137°09.9' N 19°15.7'						
16	212°54.7'	59°24.9' N 10°57.0'	74°21.8' N 16°56.7'	205°21.4' N 1°34.6'	248°55.8' S 15°41.4'	152°10.9' N 19°16.0'						
17	227°57.1'	74°25.1' N 10°56.1'	89°21.2' N 16°55.8'	220°24.0' N 1°34.5'	263°58.4' S 15°41.4'	167°11.9' N 19°16.3'						
18	242°59.6'	89°25.2' N 10°55.3'	104°20.6' N 16°55.0'	235°26.7' N 1°34.4'	279°01.1' S 15°41.5'	182°12.9' N 19°16.6'						
19	258°02.1'	104°25.4' N 10°54.4'	119°19.9' N 16°54.1'	250°29.3' N 1°34.3'	294°03.7' S 15°41.5'	197°13.9' N 19°16.9'						
20	273°04.5'	119°25.6' N 10°53.5'	134°19.3' N 16°53.3'	265°32.0' N 1°34.2'	309°06.3' S 15°41.6'	212°14.9' N 19°17.2'						
21	288°07.0'	134°25.7' N 10°52.7'	149°18.7' N 16°52.4'	280°34.6' N 1°34.1'	324°09.0' S 15°41.7'	227°15.9' N 19°17.6'						
22	303°09.5'	149°25.9' N 10°51.8'	164°18.1' N 16°51.6'	295°37.3' N 1°34.0'	339°11.6' S 15°41.7'	242°16.9' N 19°17.9'						
23	318°11.9'	164°26.1' N 10°51.0'	179°17.4' N 16°50.8'	310°39.9' N 1°34.0'	354°14.3' S 15°41.8'	257°17.9' N 19°18.2'						
		SD 15.8' d -0.9'	v -0.6' d -0.8'	v 2.7' d -0.1'	v 2.6' d -0.1'	v 1.0' d 0.3'						
Mer. pass.		12 h 2 m 24 s	11 h 2 m	2 h 21 m	23 h 23 m	5 h 52 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Venus	+Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel	+Mars	+Jupiter
0	216°04.4'	N 25°56.5'	10.8'	-4.3'	54.1'	21°49.8'		31°45.0'	35°18.1'	44°27.2'	49°45.2'	51°38.5'	105°54.6'
1	230°34.2'	N 25°52.2'	10.8'	-4.4'	54.1'	21°23.7'		32°08.1'	35°42.2'	44°56.4'	50°05.8'	52°06.7'	106°24.5'
2	245°04.0'	N 25°47.8'	10.8'	-4.5'	54.1'	20°57.6'		32°31.4'	36°06.4'	45°25.6'	50°26.4'	52°35.0'	106°54.4'
3	259°33.8'	N 25°43.3'	10.9'	-4.6'	54.1'	20°31.5'		32°54.9'	36°30.7'	45°54.8'	50°47.2'	53°03.2'	107°24.3'
4	274°03.7'	N 25°38.6'	10.9'	-4.8'	54.1'	20°05.4'		33°18.6'	36°55.1'	46°24.1'	51°08.1'	53°31.5'	107°54.3'
5	288°33.6'	N 25°33.9'	10.9'	-4.9'	54.1'	19°39.4'		33°42.3'	37°19.7'	46°53.4'	51°29.1'	53°59.7'	108°24.2'
6	303°03.6'	N 25°29.0'	11.0'	-5.0'	54.1'	19°13.3'		34°06.3'	37°44.4'	47°22.6'	51°50.2'	54°28.0'	108°54.1'
7	317°33.5'	N 25°24.0'	11.0'	-5.1'	54.1'	18°47.3'		34°30.3'	38°09.1'	47°51.9'	52°11.5'	54°56.3'	109°24.1'
8	332°03.5'	N 25°18.9'	11.0'	-5.2'	54.2'	18°21.3'	4°21.2'	34°54.5'	38°34.0'	48°21.3'	52°32.8'	55°24.6'	109°54.1'
9	346°33.6'	N 25°13.6'	11.1'	-5.4'	54.2'	17°55.3'	4°47.7'	35°18.9'	38°59.0'	48°50.6'	52°54.2'	55°52.9'	110°24.0'
10	1°03.7'	N 25°08.2'	11.1'	-5.5'	54.2'	17°29.3'	5°14.8'	35°43.3'	39°24.2'	49°20.0'	53°15.7'	56°21.2'	110°54.0'
11	15°33.8'	N 25°02.7'	11.2'	-5.6'	54.2'	17°03.4'	5°42.4'	36°07.9'	39°49.4'	49°49.3'	53°37.4'	56°49.6'	111°24.0'
12	30°03.9'	N 24°57.1'	11.2'	-5.7'	54.2'	16°37.5'	6°10.3'	36°32.6'	40°14.7'	50°18.7'	53°59.1'	57°17.9'	111°54.0'
13	44°34.1'	N 24°51.4'	11.2'	-5.8'	54.2'	16°11.6'	6°38.6'	36°57.5'	40°40.1'	50°48.1'	54°20.9'	57°46.3'	112°24.1'
14	59°04.3'	N 24°45.6'	11.3'	-6.0'	54.2'	15°45.7'	7°07.0'	37°22.4'	41°05.5'	51°17.5'	54°42.8'	58°14.7'	112°54.1'
15	73°34.6'	N 24°39.6'	11.3'	-6.1'	54.2'	15°19.9'	7°35.6'	37°47.5'	41°31.1'	51°47.0'	55°04.8'	58°43.0'	113°24.2'
16	88°04.9'	N 24°33.5'	11.3'	-6.2'	54.2'	14°54.2'	8°04.4'	38°12.6'	41°56.8'	52°16.4'	55°26.9'	59°11.4'	113°54.2'
17	102°35.3'	N 24°27.3'	11.4'	-6.3'	54.2'	14°28.5'	8°33.4'	38°37.9'	42°22.5'	52°45.9'	55°49.1'	59°39.9'	114°24.3'
18	117°05.6'	N 24°21.0'	11.4'	-6.4'	54.2'	14°02.8'	9°02.4'	39°03.3'	42°48.4'	53°15.4'	56°11.4'	60°08.3'	114°54.4'
19	131°36.1'	N 24°14.6'	11.5'	-6.5'	54.2'	13°37.2'	9°31.5'	39°28.7'	43°14.3'	53°44.9'	56°33.8'	60°36.7'	115°24.5'
20	146°06.5'	N 24°08.0'	11.5'	-6.7'	54.3'	13°11.7'	10°00.8'	39°54.3'	43°40.3'	54°14.4'	56°56.2'	61°05.2'	115°54.6'
21	160°37.1'	N 24°01.4'	11.6'	-6.8'	54.3'	12°46.2'	10°30.1'	40°20.0'	44°06.3'	54°44.0'	57°18.7'	61°33.6'	116°24.7'
22	175°07.6'	N 23°54.6'	11.6'	-6.9'	54.3'	12°20.9'	10°59.4'	40°45.7'	44°32.5'	55°13.5'	57°41.4'	62°02.1'	116°54.8'
23	189°38.2'	N 23°47.7'	11.6'	-7.0'	54.3'	11°55.6'	11°28.9'	41°11.5'	44°58.7'	55°43.1'	58°04.0'	62°30.6'	117°25.0'
Mer. pass.													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.9'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°50.8'	N 89°21.2'
Rigel Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.8'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	S 52°42.1'				



h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	333°14.4'	179°26.3'	N 10°50.1'	194°16.8'	N 16°49.9'	325°42.6'	N 1°33.9'	9°16.9'	S 15°41.8'	272°18.9'	N 19°18.5'	
1	348°16.9'	194°26.4'	N 10°49.2'	209°16.2'	N 16°49.1'	340°45.2'	N 1°33.8'	24°19.6'	S 15°41.9'	287°19.9'	N 19°18.8'	
2	3°19.3'	209°26.6'	N 10°48.4'	224°15.6'	N 16°48.2'	355°47.9'	N 1°33.7'	39°22.2'	S 15°42.0'	302°20.9'	N 19°19.1'	
3	18°21.8'	224°26.8'	N 10°47.5'	239°14.9'	N 16°47.4'	10°50.6'	N 1°33.6'	54°24.8'	S 15°42.0'	317°21.9'	N 19°19.4'	
4	33°24.3'	239°26.9'	N 10°46.7'	254°14.3'	N 16°46.5'	25°53.2'	N 1°33.5'	69°27.5'	S 15°42.1'	332°22.9'	N 19°19.7'	
5	48°26.7'	254°27.1'	N 10°45.8'	269°13.7'	N 16°45.7'	40°55.9'	N 1°33.4'	84°30.1'	S 15°42.1'	347°23.9'	N 19°20.0'	
6	63°29.2'	269°27.3'	N 10°44.9'	284°13.1'	N 16°44.8'	55°58.5'	N 1°33.3'	99°32.8'	S 15°42.2'	2°24.9'	N 19°20.3'	
7	78°31.6'	284°27.5'	N 10°44.1'	299°12.4'	N 16°44.0'	71°01.2'	N 1°33.2'	114°35.4'	S 15°42.3'	17°25.9'	N 19°20.6'	
8	93°34.1'	299°27.6'	N 10°43.2'	314°11.8'	N 16°43.1'	86°03.8'	N 1°33.1'	129°38.1'	S 15°42.3'	32°26.9'	N 19°21.0'	
9	108°36.6'	314°27.8'	N 10°42.3'	329°11.2'	N 16°42.3'	101°06.5'	N 1°33.0'	144°40.7'	S 15°42.4'	47°27.9'	N 19°21.3'	
10	123°39.0'	329°28.0'	N 10°41.5'	344°10.6'	N 16°41.4'	116°09.2'	N 1°32.9'	159°43.3'	S 15°42.4'	62°28.9'	N 19°21.6'	
11	138°41.5'	344°28.1'	N 10°40.6'	359°09.9'	N 16°40.5'	131°11.8'	N 1°32.8'	174°46.0'	S 15°42.5'	77°29.9'	N 19°21.9'	
12	153°44.0'	359°28.3'	N 10°39.8'	14°09.3'	N 16°39.7'	146°14.5'	N 1°32.7'	189°48.6'	S 15°42.6'	92°30.9'	N 19°22.2'	
13	168°46.4'	14°28.5'	N 10°38.9'	29°08.7'	N 16°38.8'	161°17.1'	N 1°32.7'	204°51.3'	S 15°42.6'	107°31.9'	N 19°22.5'	
14	183°48.9'	29°28.7'	N 10°38.0'	44°08.1'	N 16°38.0'	176°19.8'	N 1°32.6'	219°53.9'	S 15°42.7'	122°32.9'	N 19°22.8'	
15	198°51.4'	44°28.8'	N 10°37.2'	59°07.5'	N 16°37.1'	191°22.4'	N 1°32.5'	234°56.6'	S 15°42.7'	137°33.9'	N 19°23.1'	
16	213°53.8'	59°29.0'	N 10°36.3'	74°06.8'	N 16°36.3'	206°25.1'	N 1°32.4'	249°59.2'	S 15°42.8'	152°34.9'	N 19°23.4'	
17	228°56.3'	74°29.2'	N 10°35.4'	89°06.2'	N 16°35.4'	221°27.8'	N 1°32.3'	265°01.8'	S 15°42.9'	167°35.9'	N 19°23.7'	
18	243°58.8'	89°29.4'	N 10°34.6'	104°05.6'	N 16°34.5'	236°30.4'	N 1°32.2'	280°04.5'	S 15°42.9'	182°36.9'	N 19°24.0'	
19	259°01.2'	104°29.5'	N 10°33.7'	119°05.0'	N 16°33.7'	251°33.1'	N 1°32.1'	295°07.1'	S 15°43.0'	197°37.9'	N 19°24.3'	
20	274°03.7'	119°29.7'	N 10°32.8'	134°04.4'	N 16°32.8'	266°35.7'	N 1°32.0'	310°09.8'	S 15°43.0'	212°38.9'	N 19°24.6'	
21	289°06.1'	134°29.9'	N 10°32.0'	149°03.7'	N 16°31.9'	281°38.4'	N 1°31.9'	325°12.4'	S 15°43.1'	227°39.9'	N 19°24.9'	
22	304°08.6'	149°30.1'	N 10°31.1'	164°03.1'	N 16°31.1'	296°41.1'	N 1°31.8'	340°15.1'	S 15°43.2'	242°40.9'	N 19°25.2'	
23	319°11.1'	164°30.2'	N 10°30.2'	179°02.5'	N 16°30.2'	311°43.7'	N 1°31.7'	355°17.7'	S 15°43.2'	257°41.9'	N 19°25.5'	
		SD 15.8' d -0.9'		v -0.6' d -0.9'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 1.0' d 0.3'		
Mer. pass.		12 h 2 m 8 s		11 h 3 m		2 h 17 m		23 h 19 m		5 h 50 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Venus	+Pollux	+Procyon	+Betelgeuse	+Capella	+Sirius	+Aldebaran	+Rigel
0	204°08.8'	N 23°40.7'	11.7'	-7.1'	54.3'	11°30.4'	11°58.4'		41°37.5'	45°25.0'		56°12.7'	58°26.8'
1	218°39.5'	N 23°33.6'	11.7'	-7.2'	54.3'	11°05.4'	12°27.9'		42°03.5'	45°51.4'		56°42.3'	58°49.7'
2	233°10.2'	N 23°26.4'	11.8'	-7.3'	54.3'	10°40.4'	12°57.5'		42°29.6'	46°17.8'		57°12.0'	59°12.6'
3	247°41.0'	N 23°19.1'	11.8'	-7.4'	54.3'	10°15.7'	13°27.1'		42°55.7'	46°44.3'		57°41.6'	59°35.6'
4	262°11.8'	N 23°11.7'	11.9'	-7.5'	54.3'	9°51.1'	13°56.8'		43°22.0'	47°10.9'		58°11.3'	59°58.7'
5	276°42.7'	N 23°04.1'	11.9'	-7.7'	54.4'	9°26.7'	14°26.5'	24°01.9'	43°48.3'	47°37.5'		58°41.0'	60°21.8'
6	291°13.6'	N 22°56.5'	11.9'	-7.8'	54.4'	9°02.5'	14°56.2'	24°17.0'	44°14.7'	48°04.2'		59°10.7'	60°45.0'
7	305°44.5'	N 22°48.7'	12.0'	-7.9'	54.4'	8°38.6'	15°26.0'	24°32.6'	44°41.2'	48°31.0'		59°40.4'	61°08.3'
8	320°15.5'	N 22°40.8'	12.0'	-8.0'	54.4'	8°15.0'	15°55.8'	24°48.6'	45°07.7'	48°57.8'		60°10.1'	61°31.6'
9	334°46.5'	N 22°32.8'	12.1'	-8.1'	54.4'	7°51.8'	16°25.6'	25°05.0'	45°34.4'	49°24.7'		60°39.9'	61°55.1'
10	349°17.6'	N 22°24.8'	12.1'	-8.2'	54.4'	7°28.9'	16°55.5'	25°21.8'	46°01.1'	49°51.6'		61°09.6'	62°18.6'
11	3°48.7'	N 22°16.6'	12.2'	-8.3'	54.4'	7°06.5'	17°25.4'	25°38.9'	46°27.8'	50°18.6'		61°39.4'	62°42.1'
12	18°19.9'	N 22°08.3'	12.2'	-8.4'	54.4'	6°44.7'	17°55.3'	25°56.5'	46°54.6'	50°45.6'		62°09.2'	63°05.7'
13	32°51.1'	N 21°59.9'	12.3'	-8.5'	54.4'	6°23.5'	18°25.2'	26°14.4'	47°21.5'	51°12.8'		62°39.1'	63°29.4'
14	47°22.4'	N 21°51.4'	12.3'	-8.6'	54.5'		18°55.2'	26°32.7'	47°48.5'	51°39.9'		63°08.9'	63°53.1'
15	61°53.7'	N 21°42.8'	12.4'	-8.7'	54.5'		19°25.2'	26°51.3'	48°15.5'	52°07.1'		63°38.8'	64°17.0'
16	76°25.1'	N 21°34.1'	12.4'	-8.8'	54.5'		19°55.2'	27°10.2'	48°42.5'	52°34.4'		64°08.6'	64°40.8'
17	90°56.5'	N 21°25.3'	12.5'	-8.9'	54.5'		20°25.3'	27°29.5'	49°09.7'	53°01.7'		64°38.5'	65°04.7'
18	105°27.9'	N 21°16.4'	12.5'	-9.0'	54.5'		20°55.3'	27°49.1'	49°36.8'	53°29.1'		65°08.4'	65°28.7'
19	119°59.4'	N 21°07.4'	12.5'	-9.1'	54.5'		21°25.4'	28°08.9'	50°04.1'	53°56.5'	52°46.9'	65°38.4'	65°52.8'
20	134°31.0'	N 20°58.3'	12.6'	-9.2'	54.5'		21°55.6'	28°29.1'	50°31.4'	54°24.0'	53°01.9'	66°08.3'	66°16.8'
21	149°02.6'	N 20°49.1'	12.6'	-9.3'	54.5'		22°25.7'	28°49.5'	50°58.7'	54°51.5'	53°17.1'	66°38.3'	66°41.0'
22	163°34.2'	N 20°39.8'	12.7'	-9.4'	54.6'		22°55.8'	29°10.3'	51°26.2'	55°19.0'	53°32.5'	67°08.3'	67°05.2'
23	178°05.9'	N 20°30.4'	12.7'	-9.5'	54.6'		23°26.0'	29°31.2'	51°53.6'	55°46.7'	53°48.0'	67°38.3'	67°29.5'
Mer. pass.		10 h 44 m SD 14.8'		phase 5%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.9'	N 11°51.6'	Rigel	+0.2	281°05.8'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.1'	Polaris	+2.0	314°50.3'	N 89°21.2'
Rigel Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.7'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.9'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	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°13.5'	179°30.4'	N 10°29.4'	194°01.9'	N 16°29.4'	326°46.4'	N 1°31.6'	10°20.3'	S 15°43.3'	272°42.9'	N 19°25.8'			
1	349°16.0'	194°30.6'	N 10°28.5'	209°01.3'	N 16°28.5'	341°49.1'	N 1°31.5'	25°23.0'	S 15°43.4'	287°43.9'	N 19°26.1'			
2	4°18.5'	209°30.8'	N 10°27.6'	224°00.7'	N 16°27.6'	356°51.7'	N 1°31.4'	40°25.6'	S 15°43.4'	302°44.9'	N 19°26.4'			
3	19°20.9'	224°30.9'	N 10°26.8'	239°00.0'	N 16°26.8'	11°54.4'	N 1°31.3'	55°28.3'	S 15°43.5'	317°45.9'	N 19°26.8'			
4	34°23.4'	239°31.1'	N 10°25.9'	253°59.4'	N 16°25.9'	26°57.0'	N 1°31.2'	70°30.9'	S 15°43.5'	332°46.9'	N 19°27.1'			
5	49°25.9'	254°31.3'	N 10°25.0'	268°58.8'	N 16°25.0'	41°59.7'	N 1°31.1'	85°33.5'	S 15°43.6'	347°47.9'	N 19°27.4'			
6	64°28.3'	269°31.5'	N 10°24.2'	283°58.2'	N 16°24.1'	57°02.4'	N 1°31.0'	100°36.2'	S 15°43.7'	2°48.9'	N 19°27.7'			
7	79°30.8'	284°31.6'	N 10°23.3'	298°57.6'	N 16°23.3'	72°05.0'	N 1°31.0'	115°38.8'	S 15°43.7'	17°50.0'	N 19°28.0'			
8	94°33.2'	299°31.8'	N 10°22.4'	313°57.0'	N 16°22.4'	87°07.7'	N 1°30.9'	130°41.5'	S 15°43.8'	32°51.0'	N 19°28.3'			
9	109°35.7'	314°32.0'	N 10°21.5'	328°56.4'	N 16°21.5'	102°10.4'	N 1°30.8'	145°44.1'	S 15°43.8'	47°52.0'	N 19°28.6'			
10	124°38.2'	329°32.2'	N 10°20.7'	343°55.8'	N 16°20.7'	117°13.0'	N 1°30.7'	160°46.8'	S 15°43.9'	62°53.0'	N 19°28.9'			
11	139°40.6'	344°32.3'	N 10°19.8'	358°55.1'	N 16°19.8'	132°15.7'	N 1°30.6'	175°49.4'	S 15°44.0'	77°54.0'	N 19°29.2'			
12	154°43.1'	359°32.5'	N 10°18.9'	13°54.5'	N 16°18.9'	147°18.4'	N 1°30.5'	190°52.0'	S 15°44.0'	92°55.0'	N 19°29.5'			
13	169°45.6'	14°32.7'	N 10°18.1'	28°53.9'	N 16°18.0'	162°21.0'	N 1°30.4'	205°54.7'	S 15°44.1'	107°56.0'	N 19°29.8'			
14	184°48.0'	29°32.9'	N 10°17.2'	43°53.3'	N 16°17.1'	177°23.7'	N 1°30.3'	220°57.3'	S 15°44.1'	122°57.0'	N 19°30.1'			
15	199°50.5'	44°33.0'	N 10°16.3'	58°52.7'	N 16°16.3'	192°26.3'	N 1°30.2'	235°60.0'	S 15°44.2'	137°58.0'	N 19°30.4'			
16	214°53.0'	59°33.2'	N 10°15.4'	73°52.1'	N 16°15.4'	207°29.0'	N 1°30.1'	251°02.6'	S 15°44.3'	152°59.0'	N 19°30.7'			
17	229°55.4'	74°33.4'	N 10°14.6'	88°51.5'	N 16°14.5'	222°31.7'	N 1°30.0'	266°05.2'	S 15°44.3'	168°00.1'	N 19°31.0'			
18	244°57.9'	89°33.6'	N 10°13.7'	103°50.9'	N 16°13.6'	237°34.3'	N 1°29.9'	281°07.9'	S 15°44.4'	183°01.1'	N 19°31.3'			
19	260°00.4'	104°33.7'	N 10°12.8'	118°50.3'	N 16°12.8'	252°37.0'	N 1°29.8'	296°10.5'	S 15°44.4'	198°02.1'	N 19°31.6'			
20	275°02.8'	119°33.9'	N 10°12.0'	133°49.7'	N 16°11.9'	267°39.7'	N 1°29.7'	311°13.2'	S 15°44.5'	213°03.1'	N 19°31.9'			
21	290°05.3'	134°34.1'	N 10°11.1'	148°49.0'	N 16°11.0'	282°42.3'	N 1°29.6'	326°15.8'	S 15°44.6'	228°04.1'	N 19°32.2'			
22	305°07.7'	149°34.3'	N 10°10.2'	163°48.4'	N 16°10.1'	297°45.0'	N 1°29.5'	341°18.4'	S 15°44.6'	243°05.1'	N 19°32.5'			
23	320°10.2'	164°34.5'	N 10°09.3'	178°47.8'	N 16°09.2'	312°47.7'	N 1°29.4'	356°21.1'	S 15°44.7'	258°06.1'	N 19°32.8'			
		SD 15.8' d -0.9'		v -0.6' d -0.9'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 1.0' d 0.3'				
Mer. pass.		12 h 1 m 51 s		11 h 4 m		2 h 13 m		23 h 15 m		5 h 49 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	+Venus	+Pollux	+Procyon	+Betelgeuse	+Sirius	+Capella	+Rigel	+Aldebaran
0	192°37.6'	N 20°20.9'	12.8'	-9.6'	54.6'		23°56.2'	29°52.5'	52°21.1'	54°03.6'	56°14.3'	67°53.8'	68°08.3'
1	207°09.4'	N 20°11.3'	12.8'	-9.7'	54.6'		24°26.5'	30°13.9'	52°48.7'	54°19.4'	56°42.0'	68°18.1'	68°38.4'
2	221°41.2'	N 20°01.6'	12.9'	-9.8'	54.6'		24°56.7'	30°35.7'	53°16.3'	54°35.4'	57°09.8'	68°42.5'	69°08.4'
3	236°13.1'	N 19°51.8'	12.9'	-9.9'	54.6'		25°27.0'	30°57.6'	53°44.0'	54°51.5'	57°37.6'	69°07.0'	69°38.5'
4	250°45.0'	N 19°42.0'	13.0'	-10.0'	54.6'		25°57.2'	31°19.8'	54°11.7'	55°07.8'	58°05.4'	69°31.5'	70°08.6'
5	265°17.0'	N 19°32.0'	13.0'	-10.1'	54.7'		26°27.6'	31°42.2'	54°39.4'	55°24.1'	58°33.3'	69°56.1'	70°38.7'
6	279°49.0'	N 19°21.9'	13.1'	-10.1'	54.7'		26°57.9'	32°04.8'	55°07.3'	55°40.7'	59°01.2'	70°20.7'	71°08.8'
7	294°21.0'	N 19°11.8'	13.1'	-10.2'	54.7'		27°28.2'	32°27.6'	55°35.1'	55°57.3'	59°29.1'	70°45.3'	71°39.0'
8	308°53.1'	N 19°01.6'	13.1'	-10.3'	54.7'		27°58.6'	32°50.6'	56°03.0'	56°14.2'	59°57.1'	71°10.0'	72°09.2'
9	323°25.3'	N 18°51.3'	13.2'	-10.4'	54.7'		28°29.0'	33°13.7'	56°31.0'	56°31.1'	60°25.2'	71°34.8'	72°39.4'
10	337°57.5'	N 18°40.9'	13.2'	-10.5'	54.7'		28°59.4'	33°37.1'	56°58.9'	56°48.2'	60°53.3'	71°59.6'	73°09.6'
11	352°29.7'	N 18°30.4'	13.3'	-10.6'	54.7'	6°30.2'	29°29.8'	34°00.7'	57°27.0'	57°05.4'	61°21.4'	72°24.4'	73°39.8'
12	7°02.0'	N 18°19.8'	13.3'	-10.7'	54.8'	6°51.9'	30°00.3'	34°24.4'	57°55.0'	57°22.7'	61°49.5'	72°49.3'	74°10.1'
13	21°34.3'	N 18°09.1'	13.4'	-10.8'	54.8'	7°14.3'	30°30.7'	34°48.3'	58°23.2'	57°40.2'	62°17.7'	73°14.2'	74°40.3'
14	36°06.7'	N 17°58.4'	13.4'	-10.8'	54.8'								
15	50°39.1'	N 17°47.5'	13.5'	-10.9'	54.8'								
16	65°11.5'	N 17°36.6'	13.5'	-11.0'	54.8'								
17	79°44.0'	N 17°25.6'	13.5'	-11.1'	54.8'								
18	94°16.6'	N 17°14.5'	13.6'	-11.2'	54.9'								
19	108°49.2'	N 17°03.4'	13.6'	-11.2'	54.9'								
20	123°21.8'	N 16°52.1'	13.7'	-11.3'	54.9'								
21	137°54.5'	N 16°40.8'	13.7'	-11.4'	54.9'								
22	152°27.2'	N 16°29.4'	13.7'	-11.5'	54.9'								
23	166°59.9'	N 16°17.9'	13.8'	-11.6'	54.9'								
Mer. pass.		11 h 31 m SD 14.9'		phase 2%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.3'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.8'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.8'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.2'	Polaris	+2.0	314°49.8'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.9'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	S 52°42.1'				

Saturday 27 August 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	335°12.7'	179°34.6'	N 10°08.5'	193°47.2'	N 16°08.3'		327°50.3'	N 1°29.3'		11°23.7'	S 15°44.7'		273°07.1'	N 19°33.0'				
1	350°15.1'	194°34.8'	N 10°07.6'	208°46.6'	N 16°07.4'		342°53.0'	N 1°29.2'		26°26.4'	S 15°44.8'		288°08.2'	N 19°33.3'				
2	5°17.6'	209°35.0'	N 10°06.7'	223°46.0'	N 16°06.6'		357°55.7'	N 1°29.1'		41°29.0'	S 15°44.9'		303°09.2'	N 19°33.6'				
3	20°20.1'	224°35.2'	N 10°05.8'	238°45.4'	N 16°05.7'		12°58.3'	N 1°29.0'		56°31.7'	S 15°44.9'		318°10.2'	N 19°33.9'				
4	35°22.5'	239°35.4'	N 10°05.0'	253°44.8'	N 16°04.8'		28°01.0'	N 1°28.9'		71°34.3'	S 15°45.0'		333°11.2'	N 19°34.2'				
5	50°25.0'	254°35.5'	N 10°04.1'	268°44.2'	N 16°03.9'		43°03.7'	N 1°28.8'		86°36.9'	S 15°45.0'		348°12.2'	N 19°34.5'				
6	65°27.5'	269°35.7'	N 10°03.2'	283°43.6'	N 16°03.0'		58°06.4'	N 1°28.7'		101°39.6'	S 15°45.1'		3°13.2'	N 19°34.8'				
7	80°29.9'	284°35.9'	N 10°02.3'	298°43.0'	N 16°02.1'		73°09.0'	N 1°28.6'		116°42.2'	S 15°45.1'		18°14.3'	N 19°35.1'				
8	95°32.4'	299°36.1'	N 10°01.4'	313°42.4'	N 16°01.2'		88°11.7'	N 1°28.5'		131°44.9'	S 15°45.2'		33°15.3'	N 19°35.4'				
9	110°34.9'	314°36.3'	N 10°00.6'	328°41.8'	N 16°00.3'		103°14.4'	N 1°28.4'		146°47.5'	S 15°45.3'		48°16.3'	N 19°35.7'				
10	125°37.3'	329°36.4'	N 9°59.7'	343°41.2'	N 15°59.4'		118°17.0'	N 1°28.3'		161°50.1'	S 15°45.3'		63°17.3'	N 19°36.0'				
11	140°39.8'	344°36.6'	N 9°58.8'	358°40.6'	N 15°58.5'		133°19.7'	N 1°28.2'		176°52.8'	S 15°45.4'		78°18.3'	N 19°36.3'				
12	155°42.2'	359°36.8'	N 9°57.9'	13°40.0'	N 15°57.7'		148°22.4'	N 1°28.1'		191°55.4'	S 15°45.4'		93°19.4'	N 19°36.6'				
13	170°44.7'	14°37.0'	N 9°57.1'	28°39.4'	N 15°56.8'		163°25.0'	N 1°28.0'		206°58.1'	S 15°45.5'		108°20.4'	N 19°36.9'				
14	185°47.2'	29°37.2'	N 9°56.2'	43°38.8'	N 15°55.9'		178°27.7'	N 1°27.9'		222°00.7'	S 15°45.6'		123°21.4'	N 19°37.2'				
15	200°49.6'	44°37.3'	N 9°55.3'	58°38.2'	N 15°55.0'		193°30.4'	N 1°27.8'		237°03.3'	S 15°45.6'		138°22.4'	N 19°37.5'				
16	215°52.1'	59°37.5'	N 9°54.4'	73°37.6'	N 15°54.1'		208°33.1'	N 1°27.7'		252°06.0'	S 15°45.7'		153°23.4'	N 19°37.8'				
17	230°54.6'	74°37.7'	N 9°53.5'	88°37.0'	N 15°53.2'		223°35.7'	N 1°27.6'		267°08.6'	S 15°45.7'		168°24.5'	N 19°38.1'				
18	245°57.0'	89°37.9'	N 9°52.7'	103°36.4'	N 15°52.3'		238°38.4'	N 1°27.5'		282°11.3'	S 15°45.8'		183°25.5'	N 19°38.4'				
19	260°59.5'	104°38.1'	N 9°51.8'	118°35.8'	N 15°51.4'		253°41.1'	N 1°27.4'		297°13.9'	S 15°45.9'		198°26.5'	N 19°38.6'				
20	276°02.0'	119°38.2'	N 9°50.9'	133°35.2'	N 15°50.5'		268°43.7'	N 1°27.3'		312°16.5'	S 15°45.9'		213°27.5'	N 19°38.9'				
21	291°04.4'	134°38.4'	N 9°50.0'	148°34.6'	N 15°49.6'		283°46.4'	N 1°27.2'		327°19.2'	S 15°46.0'		228°28.5'	N 19°39.2'				
22	306°06.9'	149°38.6'	N 9°49.1'	163°34.0'	N 15°48.7'		298°49.1'	N 1°27.1'		342°21.8'	S 15°46.0'		243°29.6'	N 19°39.5'				
23	321°09.3'	164°38.8'	N 9°48.3'	178°33.4'	N 15°47.8'		313°51.8'	N 1°27.0'		357°24.5'	S 15°46.1'		258°30.6'	N 19°39.8'				
		SD 15.8'	d -0.9'	v -0.6'	d -0.9'		v 2.7'	d -0.1'		v 2.6'	d -0.1'		v 1.0'	d 0.3'				
Mer. pass.		12 h 1 m 34 s		11 h 5 m			2 h 8 m			23 h 10 m			5 h 47 m					

h	Moon				
	GHA	dec	v	d	HP
0	181°32.7'	N 16°06.4'	13.8'	-11.6'	54.9'
1	196°05.5'	N 15°54.7'	13.9'	-11.7'	55.0'
2	210°38.4'	N 15°43.0'	13.9'	-11.8'	55.0'
3	225°11.3'	N 15°31.3'	13.9'	-11.9'	55.0'
4	239°44.3'	N 15°19.4'	14.0'	-11.9'	55.0'
5	254°17.3'	N 15°07.5'	14.0'	-12.0'	55.0'
6	268°50.3'	N 14°55.5'	14.1'	-12.1'	55.0'
7	283°23.3'	N 14°43.4'	14.1'	-12.1'	55.1'
8	297°56.4'	N 14°31.3'	14.1'	-12.2'	55.1'
9	312°29.6'	N 14°19.1'	14.2'	-12.3'	55.1'
10	327°02.7'	N 14°06.8'	14.2'	-12.3'	55.1'
11	341°35.9'	N 13°54.5'	14.2'	-12.4'	55.1'
12	356°09.2'	N 13°42.1'	14.3'	-12.5'	55.2'
13	10°42.4'	N 13°29.6'	14.3'	-12.5'	55.2'
14	25°15.7'	N 13°17.1'	14.3'	-12.6'	55.2'
15	39°49.1'	N 13°04.5'	14.4'	-12.7'	55.2'
16	54°22.4'	N 12°51.8'	14.4'	-12.7'	55.2'
17	68°55.8'	N 12°39.1'	14.4'	-12.8'	55.2'
18	83°29.2'	N 12°26.3'	14.5'	-12.8'	55.3'
19	98°02.7'	N 12°13.5'	14.5'	-12.9'	55.3'
20	112°36.2'	N 12°00.6'	14.5'	-13.0'	55.3'
21	127°09.7'	N 11°47.6'	14.5'	-13.0'	55.3'
22	141°43.2'	N 11°34.6'	14.6'	-13.1'	55.3'
23	156°16.8'	N 11°21.5'	14.6'	-13.1'	55.3'
Mer. pass.	12 h 16 m	SD 15.0'	phase 0%		

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.3'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.9'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.8'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.2'	Polaris	+2.0	314°49.4'	N 89°21.2'
Rigil Kent	-0.0	139°43.2'	S 60°55.9'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.9'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	336°11.8'	179°39.0' N 9°47.4'	193°32.8' N 15°46.9'	328°54.4' N 1°26.9'	12°27.1' S 15°46.2'	273°31.6' N 19°40.1'						
1	351°14.3'	194°39.2' N 9°46.5'	208°32.2' N 15°46.0'	343°57.1' N 1°26.8'	27°29.7' S 15°46.2'	288°32.6' N 19°40.4'						
2	6°16.7'	209°39.3' N 9°45.6'	223°31.6' N 15°45.1'	358°59.8' N 1°26.7'	42°32.4' S 15°46.3'	303°33.7' N 19°40.7'						
3	21°19.2'	224°39.5' N 9°44.7'	238°31.0' N 15°44.1'	14°02.5' N 1°26.6'	57°35.0' S 15°46.3'	318°34.7' N 19°41.0'						
4	36°21.7'	239°39.7' N 9°43.9'	253°30.4' N 15°43.2'	29°05.1' N 1°26.5'	72°37.7' S 15°46.4'	333°35.7' N 19°41.3'						
5	51°24.1'	254°39.9' N 9°43.0'	268°29.8' N 15°42.3'	44°07.8' N 1°26.4'	87°40.3' S 15°46.5'	348°36.7' N 19°41.6'						
6	66°26.6'	269°40.1' N 9°42.1'	283°29.2' N 15°41.4'	59°10.5' N 1°26.3'	102°42.9' S 15°46.5'	3°37.8' N 19°41.8'						
7	81°29.1'	284°40.3' N 9°41.2'	298°28.6' N 15°40.5'	74°13.2' N 1°26.2'	117°45.6' S 15°46.6'	18°38.8' N 19°42.1'						
8	96°31.5'	299°40.4' N 9°40.3'	313°28.0' N 15°39.6'	89°15.8' N 1°26.1'	132°48.2' S 15°46.6'	33°39.8' N 19°42.4'						
9	111°34.0'	314°40.6' N 9°39.4'	328°27.4' N 15°38.7'	104°18.5' N 1°26.0'	147°50.9' S 15°46.7'	48°40.8' N 19°42.7'						
10	126°36.5'	329°40.8' N 9°38.6'	343°26.8' N 15°37.8'	119°21.2' N 1°25.9'	162°53.5' S 15°46.7'	63°41.9' N 19°43.0'						
11	141°38.9'	344°41.0' N 9°37.7'	358°26.3' N 15°36.9'	134°23.9' N 1°25.8'	177°56.1' S 15°46.8'	78°42.9' N 19°43.3'						
12	156°41.4'	359°41.2' N 9°36.8'	13°25.7' N 15°36.0'	149°26.5' N 1°25.7'	192°58.8' S 15°46.9'	93°43.9' N 19°43.6'						
13	171°43.8'	14°41.4' N 9°35.9'	28°25.1' N 15°35.0'	164°29.2' N 1°25.6'	208°01.4' S 15°46.9'	108°45.0' N 19°43.9'						
14	186°46.3'	29°41.5' N 9°35.0'	43°24.5' N 15°34.1'	179°31.9' N 1°25.5'	223°04.1' S 15°47.0'	123°46.0' N 19°44.2'						
15	201°48.8'	44°41.7' N 9°34.1'	58°23.9' N 15°33.2'	194°34.6' N 1°25.4'	238°06.7' S 15°47.0'	138°47.0' N 19°44.4'						
16	216°51.2'	59°41.9' N 9°33.3'	73°23.3' N 15°32.3'	209°37.3' N 1°25.3'	253°09.3' S 15°47.1'	153°48.0' N 19°44.7'						
17	231°53.7'	74°42.1' N 9°32.4'	88°22.7' N 15°31.4'	224°39.9' N 1°25.2'	268°12.0' S 15°47.2'	168°49.1' N 19°45.0'						
18	246°56.2'	89°42.3' N 9°31.5'	103°22.1' N 15°30.5'	239°42.6' N 1°25.1'	283°14.6' S 15°47.2'	183°50.1' N 19°45.3'						
19	261°58.6'	104°42.5' N 9°30.6'	118°21.5' N 15°29.5'	254°45.3' N 1°25.0'	298°17.2' S 15°47.3'	198°51.1' N 19°45.6'						
20	277°01.1'	119°42.7' N 9°29.7'	133°20.9' N 15°28.6'	269°48.0' N 1°24.9'	313°19.9' S 15°47.3'	213°52.2' N 19°45.9'						
21	292°03.6'	134°42.8' N 9°28.8'	148°20.4' N 15°27.7'	284°50.6' N 1°24.8'	328°22.5' S 15°47.4'	228°53.2' N 19°46.2'						
22	307°06.0'	149°43.0' N 9°27.9'	163°19.8' N 15°26.8'	299°53.3' N 1°24.7'	343°25.2' S 15°47.5'	243°54.2' N 19°46.4'						
23	322°08.5'	164°43.2' N 9°27.0'	178°19.2' N 15°25.9'	314°56.0' N 1°24.6'	358°27.8' S 15°47.5'	258°55.3' N 19°46.7'						
		SD 15.8' d -0.9'	v -0.6' d -0.9'	v 2.7' d -0.1'	v 2.6' d -0.1'	v 1.0' d 0.3'						
Mer. pass.		12 h 1 m 16 s	11 h 6 m	2 h 4 m	23 h 6 m	5 h 46 m						

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Altair	-Antares	-Rigil Kent	-Hadar	-Acrux	-Arcturus	-Spica
0	170°50.4'	N 11°08.4'	14.6'	-13.2'	55.4'							
1	185°24.0'	N 10°55.2'	14.6'	-13.2'	55.4'							
2	199°57.6'	N 10°41.9'	14.7'	-13.3'	55.4'							
3	214°31.3'	N 10°28.7'	14.7'	-13.3'	55.4'							
4	229°05.0'	N 10°15.3'	14.7'	-13.4'	55.4'							
5	243°38.7'	N 10°01.9'	14.7'	-13.4'	55.5'							
6	258°12.4'	N 9°48.5'	14.8'	-13.5'	55.5'							
7	272°46.2'	N 9°35.0'	14.8'	-13.5'	55.5'							
8	287°19.9'	N 9°21.4'	14.8'	-13.6'	55.5'							
9	301°53.7'	N 9°07.8'	14.8'	-13.6'	55.5'							
10	316°27.5'	N 8°54.2'	14.8'	-13.7'	55.6'							
11	331°01.4'	N 8°40.5'	14.8'	-13.7'	55.6'							
12	345°35.2'	N 8°26.8'	14.9'	-13.8'	55.6'							
13	0°09.1'	N 8°13.0'	14.9'	-13.8'	55.6'							
14	14°42.9'	N 7°59.2'	14.9'	-13.9'	55.6'							
15	29°16.8'	N 7°45.3'	14.9'	-13.9'	55.6'							
16	43°50.7'	N 7°31.4'	14.9'	-13.9'	55.7'							
17	58°24.6'	N 7°17.5'	14.9'	-14.0'	55.7'							
18	72°58.5'	N 7°03.5'	14.9'	-14.0'	55.7'							
19	87°32.5'	N 6°49.5'	14.9'	-14.1'	55.7'							
20	102°06.4'	N 6°35.4'	14.9'	-14.1'	55.7'							
21	116°40.4'	N 6°21.4'	15.0'	-14.1'	55.8'							
22	131°14.3'	N 6°07.2'	15.0'	-14.2'	55.8'							
23	145°48.3'	N 5°53.1'	15.0'	-14.2'	55.8'							
						119°58.1'	76°10.8'	75°01.5'	71°48.6'	69°34.7'	39°06.1'	30°25.8'
Mer. pass.		12 h 59 m SD 15.1'	phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.3'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.9'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.8'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.2'	Polaris	+2.0	314°48.9'	N 89°21.2'
Rigil Kent	-0.0	139°43.3'	S 60°55.8'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.9'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.5'	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	337°10.9'	179°43.4'	N 9°26.2'	193°18.6'	N 15°24.9'		329°58.7'	N 1°24.5'		13°30.4'	S 15°47.6'		273°56.3'	N 19°47.0'				
1	352°13.4'	194°43.6'	N 9°25.3'	208°18.0'	N 15°24.0'		345°01.4'	N 1°24.4'		28°33.1'	S 15°47.6'		288°57.3'	N 19°47.3'				
2	7°15.9'	209°43.8'	N 9°24.4'	223°17.4'	N 15°23.1'		0°04.0'	N 1°24.3'		43°35.7'	S 15°47.7'		303°58.4'	N 19°47.6'				
3	22°18.3'	224°44.0'	N 9°23.5'	238°16.8'	N 15°22.2'		15°06.7'	N 1°24.2'		58°38.4'	S 15°47.7'		318°59.4'	N 19°47.9'				
4	37°20.8'	239°44.2'	N 9°22.6'	253°16.3'	N 15°21.2'		30°09.4'	N 1°24.1'		73°41.0'	S 15°47.8'		334°00.4'	N 19°48.2'				
5	52°23.3'	254°44.3'	N 9°21.7'	268°15.7'	N 15°20.3'		45°12.1'	N 1°24.0'		88°43.6'	S 15°47.9'		349°01.5'	N 19°48.4'				
6	67°25.7'	269°44.5'	N 9°20.8'	283°15.1'	N 15°19.4'		60°14.8'	N 1°23.9'		103°46.3'	S 15°47.9'		4°02.5'	N 19°48.7'				
7	82°28.2'	284°44.7'	N 9°19.9'	298°14.5'	N 15°18.5'		75°17.4'	N 1°23.8'		118°48.9'	S 15°48.0'		19°03.5'	N 19°49.0'				
8	97°30.7'	299°44.9'	N 9°19.1'	313°13.9'	N 15°17.5'		90°20.1'	N 1°23.7'		133°51.5'	S 15°48.0'		34°04.6'	N 19°49.3'				
9	112°33.1'	314°45.1'	N 9°18.2'	328°13.3'	N 15°16.6'		105°22.8'	N 1°23.6'		148°54.2'	S 15°48.1'		49°05.6'	N 19°49.6'				
10	127°35.6'	329°45.3'	N 9°17.3'	343°12.8'	N 15°15.7'		120°25.5'	N 1°23.5'		163°56.8'	S 15°48.2'		64°06.7'	N 19°49.8'				
11	142°38.1'	344°45.5'	N 9°16.4'	358°12.2'	N 15°14.8'		135°28.2'	N 1°23.4'		178°59.5'	S 15°48.2'		79°07.7'	N 19°50.1'				
12	157°40.5'	359°45.7'	N 9°15.5'	13°11.6'	N 15°13.8'		150°30.9'	N 1°23.3'		194°02.1'	S 15°48.3'		94°08.7'	N 19°50.4'				
13	172°43.0'	14°45.8'	N 9°14.6'	28°11.0'	N 15°12.9'		165°33.5'	N 1°23.2'		209°04.7'	S 15°48.3'		109°09.8'	N 19°50.7'				
14	187°45.4'	29°46.0'	N 9°13.7'	43°10.4'	N 15°12.0'		180°36.2'	N 1°23.1'		224°07.4'	S 15°48.4'		124°10.8'	N 19°51.0'				
15	202°47.9'	44°46.2'	N 9°12.8'	58°09.8'	N 15°11.0'		195°38.9'	N 1°23.0'		239°10.0'	S 15°48.4'		139°11.8'	N 19°51.3'				
16	217°50.4'	59°46.4'	N 9°11.9'	73°09.3'	N 15°10.1'		210°41.6'	N 1°22.9'		254°12.7'	S 15°48.5'		154°12.9'	N 19°51.5'				
17	232°52.8'	74°46.6'	N 9°11.0'	88°08.7'	N 15°09.2'		225°44.3'	N 1°22.8'		269°15.3'	S 15°48.6'		169°13.9'	N 19°51.8'				
18	247°55.3'	89°46.8'	N 9°10.1'	103°08.1'	N 15°08.2'		240°47.0'	N 1°22.7'		284°17.9'	S 15°48.6'		184°15.0'	N 19°52.1'				
19	262°57.8'	104°47.0'	N 9°09.3'	118°07.5'	N 15°07.3'		255°49.6'	N 1°22.6'		299°20.6'	S 15°48.7'		199°16.0'	N 19°52.4'				
20	278°00.2'	119°47.2'	N 9°08.4'	133°07.0'	N 15°06.3'		270°52.3'	N 1°22.5'		314°23.2'	S 15°48.7'		214°17.0'	N 19°52.7'				
21	293°02.7'	134°47.4'	N 9°07.5'	148°06.4'	N 15°05.4'		285°55.0'	N 1°22.4'		329°25.8'	S 15°48.8'		229°18.1'	N 19°52.9'				
22	308°05.2'	149°47.5'	N 9°06.6'	163°05.8'	N 15°04.5'		300°57.7'	N 1°22.3'		344°28.5'	S 15°48.9'		244°19.1'	N 19°53.2'				
23	323°07.6'	164°47.7'	N 9°05.7'	178°05.2'	N 15°03.5'		316°00.4'	N 1°22.2'		359°31.1'	S 15°48.9'		259°20.2'	N 19°53.5'				
		SD 15.8' d -0.9'		v -0.6' d -0.9'			v 2.7' d -0.1'			v 2.6' d -0.1'			v 1.0' d 0.3'					
Mer. pass.		12 h 0 m 58 s		11 h 7 m			2 h 0 m			23 h 2 m			5 h 44 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Altair	-Antares	-Rigel Kent	-Hadar	-Acrux	-Arcturus	-Spica	
0	160°22.2'	N 5°38.9'	15.0'	-14.2'	55.8'	119°33.9'	75°39.2'	74°38.3'	71°26.6'	69°18.1'	38°45.7'	29°54.4'	
1	174°56.2'	N 5°24.6'	15.0'	-14.3'	55.8'	119°09.7'	75°07.5'	74°15.2'	71°04.7'	69°01.6'	38°25.5'	29°23.0'	
2	189°30.2'	N 5°10.4'	15.0'	-14.3'	55.9'	118°45.4'	74°35.7'	73°52.1'	70°42.8'	68°45.1'	38°05.6'	28°51.5'	
3	204°04.2'	N 4°56.1'	15.0'	-14.3'	55.9'	118°20.9'	74°04.0'	73°29.0'	70°21.0'	68°28.8'	37°45.8'	28°20.1'	
4	218°38.1'	N 4°41.8'	15.0'	-14.4'	55.9'	117°56.4'	73°32.2'	73°05.9'	69°59.2'	68°12.4'	37°26.3'	27°48.6'	
5	233°12.1'	N 4°27.4'	15.0'	-14.4'	55.9'	117°31.9'	73°00.5'	72°42.8'	69°37.4'	67°56.2'	37°07.0'	27°17.2'	
6	247°46.1'	N 4°13.0'	15.0'	-14.4'	55.9'	117°07.2'	72°28.7'	72°19.8'	69°15.7'	67°40.0'	36°47.9'	26°45.7'	
7	262°20.1'	N 3°58.6'	15.0'	-14.4'	56.0'	116°42.5'	71°56.8'	71°56.8'	68°54.1'	67°24.0'	36°29.1'	26°14.2'	
8	276°54.1'	N 3°44.2'	15.0'	-14.5'	56.0'	116°17.7'	71°25.0'	71°33.9'	68°32.4'	67°08.0'	36°10.6'	25°42.7'	
9	291°28.0'	N 3°29.7'	15.0'	-14.5'	56.0'	115°52.8'	70°53.1'	71°10.9'	68°10.9'	66°52.0'	35°52.2'	25°11.2'	
10	306°02.0'	N 3°15.3'	15.0'	-14.5'	56.0'	115°27.8'	70°21.3'	70°48.0'	67°49.3'	66°36.2'	35°34.2'	24°39.7'	
11	320°36.0'	N 3°00.8'	15.0'	-14.5'	56.0'	115°02.8'	69°49.3'	70°25.2'	67°27.9'	66°20.5'	35°16.4'	24°08.2'	
12	335°09.9'	N 2°46.2'	15.0'	-14.5'	56.1'	114°37.7'	69°17.4'	70°02.4'	67°06.4'	66°04.8'	34°58.9'	23°36.7'	
13	349°43.9'	N 2°31.7'	14.9'	-14.6'	56.1'	114°12.5'	68°45.5'	69°39.6'	66°45.1'	65°49.2'	34°41.7'	23°05.2'	
14	4°17.8'	N 2°17.1'	14.9'	-14.6'	56.1'	113°47.3'	68°13.5'	69°16.8'	66°23.8'	65°33.8'	34°24.8'	22°33.7'	
15	18°51.8'	N 2°02.5'	14.9'	-14.6'	56.1'	113°22.0'	67°41.5'	68°54.1'	66°02.5'	65°18.4'	34°08.2'	22°02.2'	
16	33°25.7'	N 1°47.9'	14.9'	-14.6'	56.1'	112°56.6'	67°09.5'	68°31.5'	65°41.3'	65°03.1'	33°51.9'	21°30.7'	
17	47°59.6'	N 1°33.3'	14.9'	-14.6'	56.2'	112°31.2'	66°37.5'	68°08.8'	65°20.6'	64°47.9'	33°36.0'	20°59.2'	
18	62°33.5'	N 1°18.6'	14.9'	-14.7'	56.2'	112°05.7'	66°05.4'	67°46.3'	64°59.1'		33°20.3'	20°27.7'	
19	77°07.4'	N 1°04.0'	14.9'	-14.7'	56.2'	111°40.2'	65°33.3'	67°23.7'	64°38.1'			19°56.3'	
20	91°41.3'	N 0°49.3'	14.9'	-14.7'	56.2'	111°14.6'	65°01.3'	67°01.2'	64°17.2'			19°24.8'	
21	106°15.1'	N 0°34.6'	14.8'	-14.7'	56.3'	110°48.9'	64°29.1'	66°38.8'	63°56.4'			18°53.3'	
22	120°49.0'	N 0°19.9'	14.8'	-14.7'	56.3'	110°23.2'	63°57.0'	66°16.4'	63°35.6'			18°21.9'	
23	135°22.8'	N 0°05.2'	14.8'	-14.7'	56.3'	109°57.4'	63°24.8'	65°54.1'	63°14.9'			17°50.5'	
Mer. pass.		13 h 42 m SD 15.2'		phase 3%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.3'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.9'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.8'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.2'	Polaris	+2.0	314°48.5'	N 89°21.2'
Rigel Kent	-0.0	139°43.3'	S 60°55.8'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.9'	N 19°04.1'	Sirius	-1.4	258°28.2'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.5'	S 52°42.1'				

Tuesday 30 August 2022 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	338°10.1'	179°47.9'	N 9°04.8'	193°04.6'	N 15°02.6'		331°03.1'	N 1°22.1'		14°33.8'	S 15°49.0'		274°21.2'	N 19°53.8'				
1	353°12.5'	194°48.1'	N 9°03.9'	208°04.1'	N 15°01.7'		346°05.7'	N 1°21.9'		29°36.4'	S 15°49.0'		289°22.3'	N 19°54.1'				
2	8°15.0'	209°48.3'	N 9°03.0'	223°03.5'	N 15°00.7'		1°08.4'	N 1°21.8'		44°39.0'	S 15°49.1'		304°23.3'	N 19°54.3'				
3	23°17.5'	224°48.5'	N 9°02.1'	238°02.9'	N 14°59.8'		16°11.1'	N 1°21.7'		59°41.7'	S 15°49.1'		319°24.3'	N 19°54.6'				
4	38°19.9'	239°48.7'	N 9°01.2'	253°02.3'	N 14°58.8'		31°13.8'	N 1°21.6'		74°44.3'	S 15°49.2'		334°25.4'	N 19°54.9'				
5	53°22.4'	254°48.9'	N 9°00.3'	268°01.8'	N 14°57.9'		46°16.5'	N 1°21.5'		89°46.9'	S 15°49.3'		349°26.4'	N 19°55.2'				
6	68°24.9'	269°49.1'	N 8°59.4'	283°01.2'	N 14°56.9'		61°19.2'	N 1°21.4'		104°49.6'	S 15°49.3'		4°27.5'	N 19°55.4'				
7	83°27.3'	284°49.3'	N 8°58.5'	298°00.6'	N 14°56.0'		76°21.9'	N 1°21.3'		119°52.2'	S 15°49.4'		19°28.5'	N 19°55.7'				
8	98°29.8'	299°49.4'	N 8°57.6'	313°00.0'	N 14°55.0'		91°24.6'	N 1°21.2'		134°54.8'	S 15°49.4'		34°29.6'	N 19°56.0'				
9	113°32.3'	314°49.6'	N 8°56.7'	327°59.5'	N 14°54.1'		106°27.2'	N 1°21.1'		149°57.5'	S 15°49.5'		49°30.6'	N 19°56.3'				
10	128°34.7'	329°49.8'	N 8°55.8'	342°58.9'	N 14°53.2'		121°29.9'	N 1°21.0'		165°00.1'	S 15°49.6'		64°31.7'	N 19°56.5'				
11	143°37.2'	344°50.0'	N 8°54.9'	357°58.3'	N 14°52.2'		136°32.6'	N 1°20.9'		180°02.8'	S 15°49.6'		79°32.7'	N 19°56.8'				
12	158°39.7'	359°50.2'	N 8°54.0'	12°57.8'	N 14°51.3'		151°35.3'	N 1°20.8'		195°05.4'	S 15°49.7'		94°33.8'	N 19°57.1'				
13	173°42.1'	14°50.4'	N 8°53.1'	27°57.2'	N 14°50.3'		166°38.0'	N 1°20.7'		210°08.0'	S 15°49.7'		109°34.8'	N 19°57.4'				
14	188°44.6'	29°50.6'	N 8°52.3'	42°56.6'	N 14°49.4'		181°40.7'	N 1°20.6'		225°10.7'	S 15°49.8'		124°35.9'	N 19°57.7'				
15	203°47.0'	44°50.8'	N 8°51.4'	57°56.0'	N 14°48.4'		196°43.4'	N 1°20.5'		240°13.3'	S 15°49.8'		139°36.9'	N 19°57.9'				
16	218°49.5'	59°51.0'	N 8°50.5'	72°55.5'	N 14°47.5'		211°46.1'	N 1°20.4'		255°15.9'	S 15°49.9'		154°38.0'	N 19°58.2'				
17	233°52.0'	74°51.2'	N 8°49.6'	87°54.9'	N 14°46.5'		226°48.7'	N 1°20.3'		270°18.6'	S 15°50.0'		169°39.0'	N 19°58.5'				
18	248°54.4'	89°51.4'	N 8°48.7'	102°54.3'	N 14°45.6'		241°51.4'	N 1°20.2'		285°21.2'	S 15°50.0'		184°40.1'	N 19°58.8'				
19	263°56.9'	104°51.6'	N 8°47.8'	117°53.8'	N 14°44.6'		256°54.1'	N 1°20.1'		300°23.8'	S 15°50.1'		199°41.1'	N 19°59.0'				
20	278°59.4'	119°51.8'	N 8°46.9'	132°53.2'	N 14°43.6'		271°56.8'	N 1°19.9'		315°26.5'	S 15°50.1'		214°42.2'	N 19°59.3'				
21	294°01.8'	134°51.9'	N 8°46.0'	147°52.6'	N 14°42.7'		286°59.5'	N 1°19.8'		330°29.1'	S 15°50.2'		229°43.2'	N 19°59.6'				
22	309°04.3'	149°52.1'	N 8°45.1'	162°52.1'	N 14°41.7'		302°02.2'	N 1°19.7'		345°31.8'	S 15°50.2'		244°44.3'	N 19°59.8'				
23	324°06.8'	164°52.3'	N 8°44.2'	177°51.5'	N 14°40.8'		317°04.9'	N 1°19.6'		0°34.4'	S 15°50.3'		259°45.3'	N 20°00.1'				
		SD 15.8'	d -0.9'		v -0.6'	d -0.9'		v 2.7'	d -0.1'		v 2.6'	d -0.1'		v 1.0'	d 0.3'			
Mer. pass.		12 h 0 m 40 s		11 h 8 m			1 h 55 m			22 h 58 m			5 h 42 m					

h	Moon					Lunar distance					
	GHA	dec	v	d	HP	-Altair	-Rigel Kent	-Hadar	-Antares	-Spica	+Sun
0	149°56.6'	S 0°09.5'	14.8'	-14.7'	56.3'	109°31.5'	65°31.8'	62°54.2'	62°52.7'	17°19.1'	
1	164°30.4'	S 0°24.2'	14.8'	-14.7'	56.3'	109°05.6'	65°09.6'	62°33.6'	62°20.5'	16°47.7'	
2	179°04.2'	S 0°39.0'	14.7'	-14.7'	56.4'	108°39.7'	64°47.5'	62°13.2'	61°48.2'	16°16.4'	
3	193°37.9'	S 0°53.7'	14.7'	-14.8'	56.4'	108°13.7'	64°25.4'	61°52.8'	61°16.0'	15°45.1'	
4	208°11.6'	S 1°08.5'	14.7'	-14.8'	56.4'	107°47.6'	64°03.3'	61°32.4'	60°43.7'	15°13.9'	
5	222°45.3'	S 1°23.2'	14.7'	-14.8'	56.4'	107°21.5'	63°41.4'	61°12.2'	60°11.5'	14°42.7'	
6	237°19.0'	S 1°38.0'	14.6'	-14.8'	56.4'	106°55.4'	63°19.5'	60°52.1'	59°39.1'	14°11.6'	
7	251°52.6'	S 1°52.7'	14.6'	-14.8'	56.5'	106°29.2'	62°57.6'	60°32.0'	59°06.8'	13°40.5'	
8	266°26.3'	S 2°07.5'	14.6'	-14.8'	56.5'	106°02.9'	62°35.9'	60°12.0'	58°34.5'	13°09.6'	
9	280°59.9'	S 2°22.3'	14.6'	-14.8'	56.5'	105°36.6'	62°14.2'	59°52.2'	58°02.1'	12°38.7'	
10	295°33.4'	S 2°37.0'	14.5'	-14.8'	56.5'	105°10.2'	61°52.6'	59°32.4'	57°29.7'	12°07.9'	
11	310°06.9'	S 2°51.8'	14.5'	-14.8'	56.5'	104°43.8'	61°31.0'	59°12.7'	56°57.3'	11°37.3'	
12	324°40.4'	S 3°06.6'	14.5'	-14.8'	56.6'	104°17.4'	61°09.6'	58°53.2'	56°24.9'	11°06.8'	
13	339°13.9'	S 3°21.3'	14.4'	-14.8'	56.6'	103°50.9'	60°48.2'	58°33.7'	55°52.4'	10°36.5'	
14	353°47.3'	S 3°36.1'	14.4'	-14.8'	56.6'	103°24.4'	60°26.9'	58°14.4'	55°19.9'	10°06.4'	
15	8°20.7'	S 3°50.9'	14.4'	-14.7'	56.6'	102°57.8'	60°05.7'	57°55.1'	54°47.4'	9°36.5'	
16	22°54.1'	S 4°05.6'	14.3'	-14.7'	56.6'	102°31.2'	59°44.5'	57°36.0'	54°14.9'	9°07.0'	
17	37°27.4'	S 4°20.3'	14.3'	-14.7'	56.7'	102°04.6'	59°23.5'	57°17.0'	53°42.4'	8°37.7'	
18	52°00.7'	S 4°35.1'	14.2'	-14.7'	56.7'	101°37.9'	59°02.6'	56°58.1'	53°09.8'	8°08.9'	40°02.3'
19	66°33.9'	S 4°49.8'	14.2'	-14.7'	56.7'	101°11.1'	58°41.7'	56°39.3'	52°37.2'	7°40.5'	40°32.2'
20	81°07.1'	S 5°04.5'	14.2'	-14.7'	56.7'	100°44.4'	58°21.0'	56°20.6'	52°04.6'	7°12.7'	41°02.2'
21	95°40.3'	S 5°19.2'	14.1'	-14.7'	56.8'	100°17.6'	58°00.3'	56°02.1'	51°32.0'		41°32.2'
22	110°13.4'	S 5°33.9'	14.1'	-14.7'	56.8'	99°50.7'	57°39.8'	55°43.7'	50°59.3'		42°02.3'
23	124°46.5'	S 5°48.6'	14.0'	-14.7'	56.8'	99°23.8'	57°19.3'	55°25.4'	50°26.7'		42°32.3'
Mer. pass.		14 h 26 m SD 15.4'	phase 7%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.3'	N 7°24.8'
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.9'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.8'	S 8°10.4'
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.2'	Polaris	+2.0	314°48.1'	N 89°21.2'
Rigel Kent	-0.0	139°43.3'	S 60°55.8'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'
Arcturus	-0.1	145°49.9'	N 19°04.1'	Sirius	-1.4	258°28.1'	S 16°44.6'				
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.5'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	339°09.2'	179°52.5'	N 8°43.3'	192°50.9'	N 14°39.8'	332°07.6'	N 1°19.5'	15°37.0'	S 15°50.4'	274°46.4'	N 20°00.4'
1	354°11.7'	194°52.7'	N 8°42.4'	207°50.4'	N 14°38.9'	347°10.3'	N 1°19.4'	30°39.7'	S 15°50.4'	289°47.4'	N 20°00.7'
2	9°14.2'	209°52.9'	N 8°41.5'	222°49.8'	N 14°37.9'	2°13.0'	N 1°19.3'	45°42.3'	S 15°50.5'	304°48.5'	N 20°00.9'
3	24°16.6'	224°53.1'	N 8°40.6'	237°49.2'	N 14°36.9'	17°15.6'	N 1°19.2'	60°44.9'	S 15°50.5'	319°49.5'	N 20°01.2'
4	39°19.1'	239°53.3'	N 8°39.7'	252°48.7'	N 14°36.0'	32°18.3'	N 1°19.1'	75°47.6'	S 15°50.6'	334°50.6'	N 20°01.5'
5	54°21.5'	254°53.5'	N 8°38.8'	267°48.1'	N 14°35.0'	47°21.0'	N 1°19.0'	90°50.2'	S 15°50.6'	349°51.6'	N 20°01.8'
6	69°24.0'	269°53.7'	N 8°37.9'	282°47.5'	N 14°34.1'	62°23.7'	N 1°18.9'	105°52.8'	S 15°50.7'	4°52.7'	N 20°02.0'
7	84°26.5'	284°53.9'	N 8°37.0'	297°47.0'	N 14°33.1'	77°26.4'	N 1°18.8'	120°55.5'	S 15°50.8'	19°53.8'	N 20°02.3'
8	99°28.9'	299°54.1'	N 8°36.1'	312°46.4'	N 14°32.1'	92°29.1'	N 1°18.7'	135°58.1'	S 15°50.8'	34°54.8'	N 20°02.6'
9	114°31.4'	314°54.3'	N 8°35.2'	327°45.8'	N 14°31.2'	107°31.8'	N 1°18.6'	151°00.7'	S 15°50.9'	49°55.9'	N 20°02.8'
10	129°33.9'	329°54.5'	N 8°34.3'	342°45.3'	N 14°30.2'	122°34.5'	N 1°18.5'	166°03.4'	S 15°50.9'	64°56.9'	N 20°03.1'
11	144°36.3'	344°54.7'	N 8°33.4'	357°44.7'	N 14°29.2'	137°37.2'	N 1°18.3'	181°06.0'	S 15°51.0'	79°58.0'	N 20°03.4'
12	159°38.8'	359°54.9'	N 8°32.5'	12°44.1'	N 14°28.3'	152°39.9'	N 1°18.2'	196°08.7'	S 15°51.0'	94°59.0'	N 20°03.6'
13	174°41.3'	14°55.1'	N 8°31.6'	27°43.6'	N 14°27.3'	167°42.6'	N 1°18.1'	211°11.3'	S 15°51.1'	110°00.1'	N 20°03.9'
14	189°43.7'	29°55.2'	N 8°30.6'	42°43.0'	N 14°26.3'	182°45.3'	N 1°18.0'	226°13.9'	S 15°51.2'	125°01.2'	N 20°04.2'
15	204°46.2'	44°55.4'	N 8°29.7'	57°42.5'	N 14°25.4'	197°48.0'	N 1°17.9'	241°16.6'	S 15°51.2'	140°02.2'	N 20°04.5'
16	219°48.6'	59°55.6'	N 8°28.8'	72°41.9'	N 14°24.4'	212°50.7'	N 1°17.8'	256°19.2'	S 15°51.3'	155°03.3'	N 20°04.7'
17	234°51.1'	74°55.8'	N 8°27.9'	87°41.3'	N 14°23.4'	227°53.4'	N 1°17.7'	271°21.8'	S 15°51.3'	170°04.3'	N 20°05.0'
18	249°53.6'	89°56.0'	N 8°27.0'	102°40.8'	N 14°22.5'	242°56.0'	N 1°17.6'	286°24.5'	S 15°51.4'	185°05.4'	N 20°05.3'
19	264°56.0'	104°56.2'	N 8°26.1'	117°40.2'	N 14°21.5'	257°58.7'	N 1°17.5'	301°27.1'	S 15°51.4'	200°06.5'	N 20°05.5'
20	279°58.5'	119°56.4'	N 8°25.2'	132°39.7'	N 14°20.5'	273°01.4'	N 1°17.4'	316°29.7'	S 15°51.5'	215°07.5'	N 20°05.8'
21	295°01.0'	134°56.6'	N 8°24.3'	147°39.1'	N 14°19.6'	288°04.1'	N 1°17.3'	331°32.4'	S 15°51.6'	230°08.6'	N 20°06.1'
22	310°03.4'	149°56.8'	N 8°23.4'	162°38.5'	N 14°18.6'	303°06.8'	N 1°17.2'	346°35.0'	S 15°51.6'	245°09.6'	N 20°06.3'
23	325°05.9'	164°57.0'	N 8°22.5'	177°38.0'	N 14°17.6'	318°09.5'	N 1°17.1'	1°37.6'	S 15°51.7'	260°10.7'	N 20°06.6'
		SD 15.8'	d -0.9'	v -0.6'	d -1.0'	v 2.7'	d -0.1'	v 2.6'	d -0.1'	v 1.1'	d 0.3'
Mer. pass.		12 h 0 m 22 s		11 h 9 m		1 h 51 m		22 h 54 m		5 h 41 m	

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Fomalhaut	-Saturn	-Achernar	-Rigel Kent	-Hadar	-Antares	-Spica	+Sun	
0	139°19.5'	S 6°03.2'	14.0'	-14.6'	56.8'				56°59.0'	55°07.3'	49°54.0'		43°02.4'	
1	153°52.5'	S 6°17.9'	13.9'	-14.6'	56.8'				56°38.8'	54°49.3'	49°21.2'		43°32.5'	
2	168°25.4'	S 6°32.5'	13.9'	-14.6'	56.9'				56°18.7'	54°31.5'	48°48.5'		44°02.7'	
3	182°58.3'	S 6°47.1'	13.8'	-14.6'	56.9'				55°58.7'	54°13.8'	48°15.8'		44°32.9'	
4	197°31.1'	S 7°01.7'	13.8'	-14.6'	56.9'				55°38.8'	53°56.2'	47°43.0'		45°03.1'	
5	212°03.9'	S 7°16.3'	13.7'	-14.5'	56.9'				55°19.0'	53°38.8'	47°10.2'		45°33.3'	
6	226°36.6'	S 7°30.8'	13.7'	-14.5'	57.0'				54°59.4'	53°21.6'	46°37.3'		46°03.5'	
7	241°09.3'	S 7°45.3'	13.6'	-14.5'	57.0'				54°39.9'	53°04.5'	46°04.5'		46°33.8'	
8	255°41.9'	S 7°59.8'	13.6'	-14.5'	57.0'				54°20.6'	52°47.6'	45°31.6'		47°04.1'	
9	270°14.5'	S 8°14.3'	13.5'	-14.4'	57.0'				54°01.3'	52°30.8'	44°58.8'		47°34.4'	
10	284°47.0'	S 8°28.7'	13.4'	-14.4'	57.0'				53°42.2'	52°14.2'	44°25.8'		48°04.8'	
11	299°19.5'	S 8°43.2'	13.4'	-14.4'	57.1'				53°23.3'	51°57.8'	43°52.9'		48°35.2'	
12	313°51.9'	S 8°57.5'	13.3'	-14.4'	57.1'				53°04.5'	51°41.5'	43°20.0'		49°05.6'	
13	328°24.2'	S 9°11.9'	13.3'	-14.3'	57.1'				52°45.8'	51°25.5'	42°47.0'		49°36.0'	
14	342°56.5'	S 9°26.2'	13.2'	-14.3'	57.1'				52°26.4'	51°09.6'	42°14.0'		50°06.5'	
15	357°28.7'	S 9°40.5'	13.1'	-14.3'	57.1'				52°09.0'	50°53.9'	41°41.0'		50°37.0'	
16	12°00.8'	S 9°54.8'	13.1'	-14.2'	57.2'				51°50.8'	50°38.4'	41°07.9'		51°07.5'	
17	26°32.9'	S 10°09.0'	13.0'	-14.2'	57.2'				51°32.8'	50°23.1'	40°34.9'		51°38.0'	
18	41°04.9'	S 10°23.2'	12.9'	-14.1'	57.2'				51°14.9'		40°01.8'	7°08.9'	52°08.6'	
19	55°36.8'	S 10°37.3'	12.9'	-14.1'	57.2'				50°57.2'		39°28.7'	7°37.0'	52°39.1'	
20	70°08.7'	S 10°51.4'	12.8'	-14.1'	57.3'				50°39.7'		38°55.6'	8°05.8'	53°09.7'	
21	84°40.5'	S 11°05.5'	12.7'	-14.0'	57.3'				50°22.4'		38°22.4'	8°35.2'	53°40.4'	
22	99°12.3'	S 11°19.5'	12.7'	-14.0'	57.3'				50°05.2'		37°49.3'	9°05.0'	54°11.0'	
23	113°43.9'	S 11°33.5'	12.6'	-13.9'	57.3'	119°39.3'	108°00.3'	111°21.8'	49°48.3'		37°16.1'	9°35.2'	54°41.7'	
						119°07.8'	107°27.0'	111°05.9'						
Mer. pass.		15 h 10 m SD 15.5'	phase 13%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°16.3'	S 29°30.1'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.3'	N 7°24.8'		
Deneb	+1.2	49°26.7'	N 45°21.8'	Acrux	+0.8	173°02.9'	S 63°13.5'	Capella	+0.1	280°24.9'	N 46°01.1'		
Altair	+0.8	62°01.6'	N 8°55.8'	Regulus	+1.4	207°36.8'	N 11°51.6'	Rigel	+0.2	281°05.8'	S 8°10.4'		
Vega	+0.0	80°34.3'	N 38°48.5'	Pollux	+1.2	243°20.0'	N 27°58.3'	Aldebaran	+0.9	290°41.9'	N 16°33.3'		
Antares	+1.1	112°18.2'	S 26°28.9'	Procyon	+0.4	244°53.1'	N 5°10.2'	Polaris	+2.0	314°47.6'	N 89°21.2'		
Rigel Kent	-0.0	139°43.3'	S 60°55.8'	Adhara	+1.5	255°07.6'	S 28°59.9'	Achernar	+0.5	335°21.3'	S 57°07.1'		
Arcturus	-0.1	145°49.9'	N 19°04.1'	Sirius	-1.4	258°28.1'	S 16°44.6'						
Hadar	+0.6	148°39.1'	S 60°29.0'	Canopus	-0.6	263°53.5'	S 52°42.1'						