

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	249°41.8'	180°33.1' N	22°03.2'	161°46.9' N	24°18.8'	275°47.5' S	11°43.8'	293°34.7' S	17°24.4'	134°05.2' N	22°44.0'	
1	264°44.3'	195°33.0' N	22°03.5'	176°46.0' N	24°18.9'	290°49.8' S	11°43.7'	308°37.2' S	17°24.4'	149°06.0' N	22°43.7'	
2	279°46.8'	210°32.9' N	22°03.9'	191°45.2' N	24°19.0'	305°52.1' S	11°43.7'	323°39.7' S	17°24.4'	164°06.8' N	22°43.4'	
3	294°49.2'	225°32.8' N	22°04.2'	206°44.3' N	24°19.2'	320°54.4' S	11°43.7'	338°42.2' S	17°24.4'	179°07.7' N	22°43.1'	
4	309°51.7'	240°32.7' N	22°04.6'	221°43.4' N	24°19.3'	335°56.7' S	11°43.6'	353°44.7' S	17°24.5'	194°08.5' N	22°42.9'	
5	324°54.2'	255°32.6' N	22°04.9'	236°42.5' N	24°19.4'	350°59.0' S	11°43.6'	8°47.2' S	17°24.5'	209°09.3' N	22°42.6'	
6	339°56.6'	270°32.5' N	22°05.2'	251°41.6' N	24°19.6'	6°01.3' S	11°43.5'	23°49.7' S	17°24.5'	224°10.1' N	22°42.3'	
7	354°59.1'	285°32.4' N	22°05.6'	266°40.7' N	24°19.7'	21°03.7' S	11°43.5'	38°52.2' S	17°24.5'	239°11.0' N	22°42.0'	
8	10°01.6'	300°32.3' N	22°05.9'	281°39.8' N	24°19.8'	36°06.0' S	11°43.4'	53°54.7' S	17°24.5'	254°11.8' N	22°41.8'	
9	25°04.0'	315°32.2' N	22°06.2'	296°38.9' N	24°19.9'	51°08.3' S	11°43.4'	68°57.2' S	17°24.5'	269°12.6' N	22°41.5'	
10	40°06.5'	330°32.1' N	22°06.6'	311°38.1' N	24°20.1'	66°10.6' S	11°43.4'	83°59.7' S	17°24.5'	284°13.4' N	22°41.2'	
11	55°08.9'	345°32.0' N	22°06.9'	326°37.2' N	24°20.2'	81°12.9' S	11°43.3'	99°02.2' S	17°24.6'	299°14.3' N	22°41.0'	
12	70°11.4'	0°31.9' N	22°07.2'	341°36.3' N	24°20.3'	96°15.2' S	11°43.3'	114°04.7' S	17°24.6'	314°15.1' N	22°40.7'	
13	85°13.9'	15°31.8' N	22°07.6'	356°35.4' N	24°20.4'	111°17.6' S	11°43.2'	129°07.2' S	17°24.6'	329°15.9' N	22°40.4'	
14	100°16.3'	30°31.7' N	22°07.9'	11°34.5' N	24°20.5'	126°19.9' S	11°43.2'	144°09.7' S	17°24.6'	344°16.8' N	22°40.1'	
15	115°18.8'	45°31.6' N	22°08.2'	26°33.6' N	24°20.7'	141°22.2' S	11°43.1'	159°12.2' S	17°24.6'	359°17.6' N	22°39.8'	
16	130°21.3'	60°31.5' N	22°08.5'	41°32.7' N	24°20.8'	156°24.5' S	11°43.1'	174°14.7' S	17°24.6'	14°18.4' N	22°39.6'	
17	145°23.7'	75°31.4' N	22°08.9'	56°31.8' N	24°20.9'	171°26.8' S	11°43.1'	189°17.2' S	17°24.7'	29°19.2' N	22°39.3'	
18	160°26.2'	90°31.3' N	22°09.2'	71°30.9' N	24°21.0'	186°29.1' S	11°43.0'	204°19.7' S	17°24.7'	44°20.1' N	22°39.0'	
19	175°28.7'	105°31.2' N	22°09.5'	86°30.1' N	24°21.1'	201°31.5' S	11°43.0'	219°22.2' S	17°24.7'	59°20.9' N	22°38.7'	
20	190°31.1'	120°31.1' N	22°09.9'	101°29.2' N	24°21.2'	216°33.8' S	11°42.9'	234°24.7' S	17°24.7'	74°21.7' N	22°38.5'	
21	205°33.6'	135°31.0' N	22°10.2'	116°28.3' N	24°21.3'	231°36.1' S	11°42.9'	249°27.2' S	17°24.7'	89°22.6' N	22°38.2'	
22	220°36.0'	150°30.9' N	22°10.5'	131°27.4' N	24°21.4'	246°38.4' S	11°42.8'	264°29.7' S	17°24.7'	104°23.4' N	22°37.9'	
23	235°38.5'	165°30.8' N	22°10.8'	146°26.5' N	24°21.5'	261°40.7' S	11°42.8'	279°32.2' S	17°24.8'	119°24.2' N	22°37.6'	
		SD 15.8' d 0.3'		v -0.9' d 0.1'		v 2.3' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'		
Mer. pass.		11 h 57 m 53 s		13 h 14 m		5 h 36 m		4 h 25 m		15 h 3 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	280°37.8'	S 17°59.2'	10.6'	10.6'	57.2'	105°40.7'	18°20.3'	7°48.7'	12°20.8'	40°50.2'	74°37.2'	83°03.1'	87°05.8'
1	295°07.5'	S 17°48.7'	10.7'	10.6'	57.2'	105°10.1'	18°04.3'		12°52.0'	41°08.2'	75°10.1'	83°26.9'	87°28.9'
2	309°37.2'	S 17°38.0'	10.8'	10.7'	57.1'	104°39.5'			13°23.3'	41°26.4'	75°42.9'	83°50.7'	87°52.0'
3	324°07.0'	S 17°27.3'	11.0'	10.8'	57.1'	104°09.0'			13°54.8'	41°44.8'	76°15.7'	84°14.5'	88°15.1'
4	338°37.0'	S 17°16.5'	11.1'	10.9'	57.1'	103°38.5'			14°26.2'	42°03.4'	76°48.4'	84°38.3'	88°38.1'
5	353°07.1'	S 17°05.7'	11.2'	10.9'	57.0'	103°08.1'			14°57.8'	42°22.2'	77°21.1'	85°02.0'	89°01.1'
6	7°37.2'	S 16°54.7'	11.3'	11.0'	57.0'	102°37.7'			15°29.4'	42°41.3'	77°53.8'	85°25.8'	89°24.1'
7	22°07.5'	S 16°43.7'	11.4'	11.1'	56.9'	102°07.4'			16°01.0'	43°00.5'	78°26.4'	85°49.5'	89°47.1'
8	36°37.9'	S 16°32.7'	11.5'	11.1'	56.9'	101°37.1'			16°32.6'	43°19.9'	78°58.9'	86°13.2'	90°10.0'
9	51°08.4'	S 16°21.5'	11.6'	11.2'	56.9'	101°06.9'			17°04.3'	43°39.5'	79°31.5'	86°36.8'	90°32.9'
10	65°38.9'	S 16°10.3'	11.7'	11.3'	56.8'	100°36.7'			17°36.0'	43°59.3'	80°03.9'	87°00.5'	90°55.8'
11	80°09.6'	S 15°59.1'	11.8'	11.3'	56.8'	100°06.5'			18°07.7'	44°19.3'	80°36.4'	87°24.1'	91°18.6'
12	94°40.4'	S 15°47.7'	11.9'	11.4'	56.8'	99°36.4'			18°39.4'	44°39.4'	81°08.8'	87°47.7'	91°41.4'
13	109°11.3'	S 15°36.3'	12.0'	11.5'	56.7'	99°06.3'			19°11.1'	44°59.7'	81°41.1'	88°11.3'	92°04.2'
14	123°42.3'	S 15°24.9'	12.1'	11.5'	56.7'	98°36.3'			19°42.8'	45°20.1'	82°13.4'	88°34.8'	92°26.9'
15	138°13.4'	S 15°13.4'	12.2'	11.6'	56.7'	98°06.3'			20°14.6'	45°40.8'	82°45.7'	88°58.4'	92°49.6'
16	152°44.6'	S 15°01.8'	12.3'	11.6'	56.6'	97°36.3'			20°46.3'	46°01.5'	83°17.9'	89°21.9'	93°12.3'
17	167°15.9'	S 14°50.2'	12.4'	11.7'	56.6'	97°06.4'			21°18.0'	46°22.4'	83°50.1'	89°45.3'	93°34.9'
18	181°47.2'	S 14°38.5'	12.5'	11.7'	56.6'	96°36.6'			21°49.6'	46°43.5'	84°22.3'	90°08.8'	93°57.5'
19	196°18.7'	S 14°26.8'	12.6'	11.8'	56.5'	96°06.7'			22°21.3'	47°04.6'	84°54.4'	90°32.2'	94°20.0'
20	210°50.3'	S 14°15.0'	12.7'	11.8'	56.5'	95°37.0'			22°53.0'	47°25.9'	85°26.4'	90°55.5'	94°42.5'
21	225°21.9'	S 14°03.2'	12.8'	11.9'	56.4'	95°07.2'			23°24.6'	47°47.4'	85°58.5'	91°18.9'	95°05.0'
22	239°53.7'	S 13°51.3'	12.8'	11.9'	56.4'	94°37.5'			23°56.2'	48°08.9'	86°30.4'	91°42.2'	95°27.4'
23	254°25.5'	S 13°39.3'	12.9'	12.0'	56.4'	94°07.8'		7°20.3'	24°27.8'	48°30.6'	87°02.4'	92°05.5'	95°49.8'
Mer. pass.		5 h 28 m SD 15.6' phase 64%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°48.9'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	250°41.0'	180°30.7'	N 22°11.2'	161°25.6'	N 24°21.7'	276°43.1'	S 11°42.8'	294°34.7'	S 17°24.8'	134°25.0'	N 22°37.4'			
1	265°43.4'	195°30.6'	N 22°11.5'	176°24.7'	N 24°21.8'	291°45.4'	S 11°42.7'	309°37.2'	S 17°24.8'	149°25.9'	N 22°37.1'			
2	280°45.9'	210°30.5'	N 22°11.8'	191°23.8'	N 24°21.9'	306°47.7'	S 11°42.7'	324°39.7'	S 17°24.8'	164°26.7'	N 22°36.8'			
3	295°48.4'	225°30.4'	N 22°12.1'	206°22.9'	N 24°22.0'	321°50.0'	S 11°42.6'	339°42.2'	S 17°24.8'	179°27.5'	N 22°36.5'			
4	310°50.8'	240°30.3'	N 22°12.4'	221°22.1'	N 24°22.1'	336°52.3'	S 11°42.6'	354°44.7'	S 17°24.8'	194°28.4'	N 22°36.2'			
5	325°53.3'	255°30.2'	N 22°12.8'	236°21.2'	N 24°22.2'	351°54.7'	S 11°42.5'	9°47.2'	S 17°24.9'	209°29.2'	N 22°36.0'			
6	340°55.8'	270°30.1'	N 22°13.1'	251°20.3'	N 24°22.3'	6°57.0'	S 11°42.5'	24°49.7'	S 17°24.9'	224°30.0'	N 22°35.7'			
7	355°58.2'	285°30.0'	N 22°13.4'	266°19.4'	N 24°22.4'	21°59.3'	S 11°42.5'	39°52.2'	S 17°24.9'	239°30.8'	N 22°35.4'			
8	11°00.7'	300°29.9'	N 22°13.7'	281°18.5'	N 24°22.5'	37°01.6'	S 11°42.4'	54°54.7'	S 17°24.9'	254°31.7'	N 22°35.1'			
9	26°03.2'	315°29.8'	N 22°14.0'	296°17.6'	N 24°22.5'	52°04.0'	S 11°42.4'	69°57.2'	S 17°24.9'	269°32.5'	N 22°34.8'			
10	41°05.6'	330°29.7'	N 22°14.4'	311°16.7'	N 24°22.6'	67°06.3'	S 11°42.3'	84°59.7'	S 17°24.9'	284°33.3'	N 22°34.5'			
11	56°08.1'	345°29.6'	N 22°14.7'	326°15.8'	N 24°22.7'	82°08.6'	S 11°42.3'	100°02.2'	S 17°25.0'	299°34.2'	N 22°34.3'			
12	71°10.5'	0°29.5'	N 22°15.0'	341°14.9'	N 24°22.8'	97°10.9'	S 11°42.3'	115°04.7'	S 17°25.0'	314°35.0'	N 22°34.0'			
13	86°13.0'	15°29.4'	N 22°15.3'	356°14.0'	N 24°22.9'	112°13.3'	S 11°42.2'	130°07.2'	S 17°25.0'	329°35.8'	N 22°33.7'			
14	101°15.5'	30°29.3'	N 22°15.6'	11°13.2'	N 24°23.0'	127°15.6'	S 11°42.2'	145°09.7'	S 17°25.0'	344°36.7'	N 22°33.4'			
15	116°17.9'	45°29.2'	N 22°15.9'	26°12.3'	N 24°23.1'	142°17.9'	S 11°42.1'	160°12.2'	S 17°25.0'	359°37.5'	N 22°33.1'			
16	131°20.4'	60°29.1'	N 22°16.2'	41°11.4'	N 24°23.2'	157°20.2'	S 11°42.1'	175°14.7'	S 17°25.1'	14°38.3'	N 22°32.9'			
17	146°22.9'	75°29.0'	N 22°16.5'	56°10.5'	N 24°23.3'	172°22.6'	S 11°42.1'	190°17.2'	S 17°25.1'	29°39.1'	N 22°32.6'			
18	161°25.3'	90°28.9'	N 22°16.9'	71°09.6'	N 24°23.3'	187°24.9'	S 11°42.0'	205°19.7'	S 17°25.1'	44°40.0'	N 22°32.3'			
19	176°27.8'	105°28.8'	N 22°17.2'	86°08.7'	N 24°23.4'	202°27.2'	S 11°42.0'	220°22.2'	S 17°25.1'	59°40.8'	N 22°32.0'			
20	191°30.3'	120°28.7'	N 22°17.5'	101°07.8'	N 24°23.5'	217°29.5'	S 11°41.9'	235°24.7'	S 17°25.1'	74°41.6'	N 22°31.7'			
21	206°32.7'	135°28.6'	N 22°17.8'	116°06.9'	N 24°23.6'	232°31.9'	S 11°41.9'	250°27.2'	S 17°25.1'	89°42.5'	N 22°31.4'			
22	221°35.2'	150°28.5'	N 22°18.1'	131°06.0'	N 24°23.7'	247°34.2'	S 11°41.9'	265°29.7'	S 17°25.2'	104°43.3'	N 22°31.2'			
23	236°37.7'	165°28.4'	N 22°18.4'	146°05.1'	N 24°23.7'	262°36.5'	S 11°41.8'	280°32.2'	S 17°25.2'	119°44.1'	N 22°30.9'			
		SD 15.8' d 0.3'		v -0.9' d 0.1'		v 2.3' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'				
Mer. pass.		11 h 58 m 3 s		13 h 15 m		5 h 32 m		4 h 21 m		15 h 2 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	+Jupiter	+Fomalhaut	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	268°57.5'	S 13°27.4'	13.0'	12.0'	56.3'	93°38.2'	7°46.3'		24°59.4'	48°52.4'	87°34.3'	92°28.7'	96°12.1'
1	283°29.5'	S 13°15.3'	13.1'	12.1'	56.3'	93°08.6'	8°12.9'		25°31.0'	49°14.3'	88°06.2'	92°51.9'	96°34.4'
2	298°01.6'	S 13°03.3'	13.2'	12.1'	56.3'	92°39.1'	8°40.1'		26°02.5'	49°36.3'	88°38.0'	93°15.1'	96°56.6'
3	312°33.8'	S 12°51.1'	13.3'	12.2'	56.2'	92°09.6'	9°07.8'		26°34.1'	49°58.5'	89°09.8'	93°38.2'	97°18.8'
4	327°06.0'	S 12°39.0'	13.4'	12.2'	56.2'	91°40.1'	9°35.8'		27°05.6'	50°20.7'	89°41.5'	94°01.3'	97°41.0'
5	341°38.4'	S 12°26.8'	13.4'	12.2'	56.2'	91°10.7'	10°04.2'		27°37.0'	50°43.0'	90°13.2'	94°24.4'	98°03.1'
6	356°10.9'	S 12°14.5'	13.5'	12.3'	56.1'	90°41.3'	10°32.8'		28°08.5'	51°05.4'	90°44.9'	94°47.4'	98°25.1'
7	10°43.4'	S 12°02.2'	13.6'	12.3'	56.1'	90°11.9'	11°01.7'		28°39.9'	51°27.9'	91°16.6'	95°10.4'	98°47.2'
8	25°16.0'	S 11°49.9'	13.7'	12.4'	56.1'	89°42.6'	11°30.8'		29°11.3'	51°50.5'	91°48.2'	95°33.4'	99°09.1'
9	39°48.7'	S 11°37.6'	13.8'	12.4'	56.0'	89°13.3'	12°00.1'		29°42.7'	52°13.2'	92°19.7'	95°56.3'	99°31.0'
10	54°21.4'	S 11°25.2'	13.8'	12.4'	56.0'	88°44.1'	12°29.5'		30°14.1'	52°36.0'	92°51.3'	96°19.1'	99°52.9'
11	68°54.3'	S 11°12.7'	13.9'	12.5'	56.0'	88°14.9'	12°59.0'	18°11.2'	30°45.4'	52°58.8'	93°22.8'	96°42.0'	100°14.7'
12	83°27.2'	S 11°00.3'	14.0'	12.5'	55.9'	87°45.7'	13°28.6'	18°43.0'	31°16.7'	53°21.7'	93°54.2'	97°04.8'	100°36.5'
13	98°00.2'	S 10°47.8'	14.1'	12.5'	55.9'	87°16.5'	13°58.4'	18°59.8'	31°48.0'	53°44.7'	94°25.6'	97°27.5'	100°58.2'
14	112°33.2'	S 10°35.2'	14.1'	12.6'	55.9'	86°47.4'	14°28.2'	19°17.1'	32°19.2'	54°07.8'	94°57.0'	97°50.2'	101°19.8'
15	127°06.4'	S 10°22.7'	14.2'	12.6'	55.9'	86°18.4'	14°58.1'	19°35.1'	32°50.5'	54°30.9'	95°28.4'	98°12.9'	101°41.4'
16	141°39.6'	S 10°10.1'	14.3'	12.6'	55.8'	85°49.3'	15°28.0'	19°53.5'	33°21.6'	54°54.2'	95°59.7'	98°35.5'	102°02.9'
17	156°12.9'	S 9°57.5'	14.3'	12.7'	55.8'	85°20.3'	15°58.0'	20°12.4'	33°52.8'	55°17.4'	96°31.0'	98°58.0'	102°24.4'
18	170°46.2'	S 9°44.8'	14.4'	12.7'	55.8'	84°51.3'	16°28.0'	20°31.8'	34°24.0'	55°40.8'	97°02.2'	99°20.5'	102°45.9'
19	185°19.6'	S 9°32.1'	14.5'	12.7'	55.7'	84°22.4'	16°58.1'	20°51.6'	34°55.1'	56°04.2'	97°33.5'	99°43.0'	103°07.2'
20	199°53.1'	S 9°19.4'	14.5'	12.7'	55.7'	83°53.5'	17°28.2'	21°11.9'	35°26.2'	56°27.6'	98°04.6'	100°05.4'	103°28.6'
21	214°26.6'	S 9°06.7'	14.6'	12.8'	55.7'	83°24.6'	17°58.3'	21°32.5'	35°57.2'	56°51.2'	98°35.8'	100°27.8'	103°49.8'
22	229°00.3'	S 8°53.9'	14.7'	12.8'	55.6'	82°55.8'	18°28.5'	21°53.5'	36°28.3'	57°14.7'	99°06.9'	100°50.1'	104°11.0'
23	243°33.9'	S 8°41.1'	14.7'	12.8'	55.6'	82°27.0'	18°58.7'	22°14.9'	36°59.3'	57°38.4'	99°38.0'	101°12.4'	104°32.1'
Mer. pass.		6 h 16 m SD 15.4'		phase 53%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°48.7'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	251°40.1'	180°28.3'	N 22°18.7'	161°04.3'	N 24°23.8'	277°38.8'	S 11°41.8'	295°34.7'	S 17°25.2'	134°45.0'	N 22°30.6'			
1	266°42.6'	195°28.2'	N 22°19.0'	176°03.4'	N 24°23.9'	292°41.2'	S 11°41.7'	310°37.2'	S 17°25.2'	149°45.8'	N 22°30.3'			
2	281°45.0'	210°28.1'	N 22°19.3'	191°02.5'	N 24°24.0'	307°43.5'	S 11°41.7'	325°39.8'	S 17°25.2'	164°46.6'	N 22°30.0'			
3	296°47.5'	225°28.0'	N 22°19.6'	206°01.6'	N 24°24.0'	322°45.8'	S 11°41.7'	340°42.3'	S 17°25.2'	179°47.5'	N 22°29.7'			
4	311°50.0'	240°27.9'	N 22°19.9'	221°00.7'	N 24°24.1'	337°48.2'	S 11°41.6'	355°44.8'	S 17°25.3'	194°48.3'	N 22°29.4'			
5	326°52.4'	255°27.8'	N 22°20.2'	235°59.8'	N 24°24.2'	352°50.5'	S 11°41.6'	10°47.3'	S 17°25.3'	209°49.1'	N 22°29.2'			
6	341°54.9'	270°27.7'	N 22°20.5'	250°58.9'	N 24°24.2'	7°52.8'	S 11°41.5'	25°49.8'	S 17°25.3'	224°50.0'	N 22°28.9'			
7	356°57.4'	285°27.6'	N 22°20.8'	265°58.0'	N 24°24.3'	22°55.1'	S 11°41.5'	40°52.3'	S 17°25.3'	239°50.8'	N 22°28.6'			
8	11°59.8'	300°27.5'	N 22°21.1'	280°57.1'	N 24°24.4'	37°57.5'	S 11°41.5'	55°54.8'	S 17°25.3'	254°51.6'	N 22°28.3'			
9	27°02.3'	315°27.4'	N 22°21.5'	295°56.2'	N 24°24.4'	52°59.8'	S 11°41.4'	70°57.3'	S 17°25.4'	269°52.4'	N 22°28.0'			
10	42°04.8'	330°27.3'	N 22°21.8'	310°55.4'	N 24°24.5'	68°02.1'	S 11°41.4'	85°59.8'	S 17°25.4'	284°53.3'	N 22°27.7'			
11	57°07.2'	345°27.2'	N 22°22.1'	325°54.5'	N 24°24.6'	83°04.5'	S 11°41.4'	101°02.3'	S 17°25.4'	299°54.1'	N 22°27.4'			
12	72°09.7'	0°27.1'	N 22°22.4'	340°53.6'	N 24°24.6'	98°06.8'	S 11°41.3'	116°04.8'	S 17°25.4'	314°54.9'	N 22°27.1'			
13	87°12.1'	15°27.0'	N 22°22.6'	355°52.7'	N 24°24.7'	113°09.1'	S 11°41.3'	131°07.3'	S 17°25.4'	329°55.8'	N 22°26.9'			
14	102°14.6'	30°26.9'	N 22°22.9'	10°51.8'	N 24°24.7'	128°11.5'	S 11°41.2'	146°09.8'	S 17°25.4'	344°56.6'	N 22°26.6'			
15	117°17.1'	45°26.8'	N 22°23.2'	25°50.9'	N 24°24.8'	143°13.8'	S 11°41.2'	161°12.3'	S 17°25.5'	359°57.4'	N 22°26.3'			
16	132°19.5'	60°26.7'	N 22°23.5'	40°50.0'	N 24°24.9'	158°16.1'	S 11°41.2'	176°14.8'	S 17°25.5'	14°58.3'	N 22°26.0'			
17	147°22.0'	75°26.5'	N 22°23.8'	55°49.1'	N 24°24.9'	173°18.5'	S 11°41.1'	191°17.3'	S 17°25.5'	29°59.1'	N 22°25.7'			
18	162°24.5'	90°26.4'	N 22°24.1'	70°48.2'	N 24°25.0'	188°20.8'	S 11°41.1'	206°19.9'	S 17°25.5'	44°59.9'	N 22°25.4'			
19	177°26.9'	105°26.3'	N 22°24.4'	85°47.3'	N 24°25.0'	203°23.1'	S 11°41.1'	221°22.4'	S 17°25.5'	60°00.8'	N 22°25.1'			
20	192°29.4'	120°26.2'	N 22°24.7'	100°46.5'	N 24°25.1'	218°25.5'	S 11°41.0'	236°24.9'	S 17°25.6'	75°01.6'	N 22°24.8'			
21	207°31.9'	135°26.1'	N 22°25.0'	115°45.6'	N 24°25.1'	233°27.8'	S 11°41.0'	251°27.4'	S 17°25.6'	90°02.4'	N 22°24.5'			
22	222°34.3'	150°26.0'	N 22°25.3'	130°44.7'	N 24°25.2'	248°30.1'	S 11°40.9'	266°29.9'	S 17°25.6'	105°03.3'	N 22°24.2'			
23	237°36.8'	165°25.9'	N 22°25.6'	145°43.8'	N 24°25.2'	263°32.5'	S 11°40.9'	281°32.4'	S 17°25.6'	120°04.1'	N 22°24.0'			
		SD 15.8' d 0.3'		v -0.9' d 0.1'		v 2.3' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'				
Mer. pass.		11 h 58 m 13 s		13 h 17 m		5 h 29 m		4 h 17 m		15 h 0 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	+Jupiter	+Fomalhaut	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	258°07.7'	S 8°28.3'	14.8'	12.8'	55.6'	81°58.2'	19°28.9'	22°36.6'	37°30.3'	58°02.0'	100°09.0'	101°34.6'	104°53.2'
1	272°41.5'	S 8°15.5'	14.9'	12.8'	55.6'	81°29.5'	19°59.0'	22°58.7'	38°01.2'	58°25.8'	100°40.1'	101°56.8'	105°14.2'
2	287°15.3'	S 8°02.7'	14.9'	12.9'	55.5'	81°00.8'	20°29.2'	23°21.0'	38°32.2'	58°49.6'	101°11.1'	102°18.9'	105°35.2'
3	301°49.2'	S 7°49.8'	15.0'	12.9'	55.5'	80°32.1'	20°59.5'	23°43.7'	39°03.1'	59°13.4'	101°42.0'	102°41.0'	105°56.1'
4	316°23.2'	S 7°36.9'	15.0'	12.9'	55.5'	80°03.4'	21°29.7'	24°06.6'	39°34.0'	59°37.3'	102°13.0'	103°03.0'	106°16.9'
5	330°57.2'	S 7°24.0'	15.1'	12.9'	55.4'	79°34.8'	21°59.9'	24°29.7'	40°04.8'	60°01.2'	102°43.8'	103°25.0'	106°37.6'
6	345°31.3'	S 7°11.1'	15.1'	12.9'	55.4'	79°06.2'	22°30.1'	24°53.2'	40°35.7'	60°25.1'	103°14.7'	103°46.9'	106°58.3'
7	0°05.5'	S 6°58.2'	15.2'	13.0'	55.4'	78°37.7'	23°00.3'	25°16.8'	41°06.5'	60°49.1'	103°45.6'	104°08.8'	107°18.9'
8	14°39.7'	S 6°45.2'	15.2'	13.0'	55.4'	78°09.1'	23°30.5'	25°40.7'	41°37.2'	61°13.2'	104°16.4'	104°30.6'	107°39.5'
9	29°13.9'	S 6°32.2'	15.3'	13.0'	55.3'	77°40.6'	24°00.7'	26°04.7'	42°08.0'	61°37.2'	104°47.1'	104°52.3'	107°60.0'
10	43°48.2'	S 6°19.2'	15.3'	13.0'	55.3'	77°12.2'	24°30.9'	26°29.0'	42°38.7'	62°01.3'	105°17.9'	105°14.0'	108°20.4'
11	58°22.5'	S 6°06.2'	15.4'	13.0'	55.3'	76°43.7'	25°01.1'	26°53.4'	43°09.4'	62°25.5'	105°48.6'	105°35.6'	108°40.7'
12	72°56.9'	S 5°53.2'	15.4'	13.0'	55.3'	76°15.3'	25°31.3'	27°18.1'	43°40.1'	62°49.7'	106°19.3'	105°57.2'	109°01.0'
13	87°31.4'	S 5°40.2'	15.5'	13.0'	55.2'	75°46.9'	26°01.4'	27°42.9'	44°10.8'	63°13.9'	106°50.0'	106°18.7'	109°21.2'
14	102°05.8'	S 5°27.2'	15.5'	13.0'	55.2'	75°18.5'	26°31.6'	28°07.8'	44°41.4'	63°38.1'	107°20.6'	106°40.2'	109°41.4'
15	116°40.4'	S 5°14.1'	15.6'	13.1'	55.2'	74°50.2'	27°01.7'	28°32.9'	45°12.0'	64°02.4'	107°51.2'	107°01.5'	110°01.4'
16	131°14.9'	S 5°01.1'	15.6'	13.1'	55.2'	74°21.9'	27°31.9'	28°58.2'	45°42.6'	64°26.7'	108°21.8'	107°22.9'	110°21.4'
17	145°49.6'	S 4°48.0'	15.7'	13.1'	55.1'	73°53.6'	28°02.0'	29°23.6'	46°13.2'	64°51.0'	108°52.4'	107°44.1'	110°41.3'
18	160°24.2'	S 4°35.0'	15.7'	13.1'	55.1'	73°25.4'	28°32.1'	29°49.1'	46°43.7'	65°15.4'	109°22.9'	108°05.3'	111°01.1'
19	174°58.9'	S 4°21.9'	15.7'	13.1'	55.1'	72°57.1'	29°02.2'	30°14.7'	47°14.2'	65°39.8'	109°53.4'	108°26.5'	111°20.9'
20	189°33.6'	S 4°08.8'	15.8'	13.1'	55.1'	72°28.9'	29°32.3'	30°40.5'	47°44.7'	66°04.2'	110°23.9'	108°47.5'	111°40.6'
21	204°08.4'	S 3°55.7'	15.8'	13.1'	55.0'	72°00.7'	30°02.4'	31°06.3'	48°15.2'	66°28.6'	110°54.3'	109°08.6'	112°00.2'
22	218°43.2'	S 3°42.6'	15.8'	13.1'	55.0'	71°32.6'	30°32.4'	31°32.3'	48°45.7'	66°53.1'	111°24.8'	109°29.5'	112°19.7'
23	233°18.1'	S 3°29.5'	15.9'	13.1'	55.0'	71°04.4'	31°02.5'	31°58.4'	49°16.1'	67°17.5'	111°55.2'	109°50.4'	112°39.1'
Mer. pass.		7 h 0 m SD 15.2'		phase 43%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°48.5'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.6'				

Friday 04 June 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	252°39.3'	180°25.8'	N 22°25.9'	160°42.9'	N 24°25.3'	278°34.8'	S 11°40.9'	296°34.9'	S 17°25.6'	135°04.9'	N 22°23.7'			
1	267°41.7'	195°25.7'	N 22°26.2'	175°42.0'	N 24°25.3'	293°37.1'	S 11°40.8'	311°37.4'	S 17°25.7'	150°05.8'	N 22°23.4'			
2	282°44.2'	210°25.6'	N 22°26.5'	190°41.1'	N 24°25.3'	308°39.5'	S 11°40.8'	326°39.9'	S 17°25.7'	165°06.6'	N 22°23.1'			
3	297°46.6'	225°25.5'	N 22°26.8'	205°40.2'	N 24°25.4'	323°41.8'	S 11°40.8'	341°42.4'	S 17°25.7'	180°07.4'	N 22°22.8'			
4	312°49.1'	240°25.4'	N 22°27.0'	220°39.3'	N 24°25.4'	338°44.1'	S 11°40.7'	356°44.9'	S 17°25.7'	195°08.3'	N 22°22.5'			
5	327°51.6'	255°25.3'	N 22°27.3'	235°38.4'	N 24°25.5'	353°46.5'	S 11°40.7'	11°47.5'	S 17°25.7'	210°09.1'	N 22°22.2'			
6	342°54.0'	270°25.2'	N 22°27.6'	250°37.5'	N 24°25.5'	8°48.8'	S 11°40.7'	26°50.0'	S 17°25.7'	225°09.9'	N 22°21.9'			
7	357°56.5'	285°25.0'	N 22°27.9'	265°36.7'	N 24°25.5'	23°51.1'	S 11°40.6'	41°52.5'	S 17°25.8'	240°10.8'	N 22°21.6'			
8	12°59.0'	300°24.9'	N 22°28.2'	280°35.8'	N 24°25.6'	38°53.5'	S 11°40.6'	56°55.0'	S 17°25.8'	255°11.6'	N 22°21.3'			
9	28°01.4'	315°24.8'	N 22°28.5'	295°34.9'	N 24°25.6'	53°55.8'	S 11°40.5'	71°57.5'	S 17°25.8'	270°12.4'	N 22°21.0'			
10	43°03.9'	330°24.7'	N 22°28.8'	310°34.0'	N 24°25.7'	68°58.2'	S 11°40.5'	87°00.0'	S 17°25.8'	285°13.3'	N 22°20.7'			
11	58°06.4'	345°24.6'	N 22°29.0'	325°33.1'	N 24°25.7'	84°00.5'	S 11°40.5'	102°02.5'	S 17°25.8'	300°14.1'	N 22°20.4'			
12	73°08.8'	0°24.5'	N 22°29.3'	340°32.2'	N 24°25.7'	99°02.8'	S 11°40.4'	117°05.0'	S 17°25.9'	315°14.9'	N 22°20.1'			
13	88°11.3'	15°24.4'	N 22°29.6'	355°31.3'	N 24°25.7'	114°05.2'	S 11°40.4'	132°07.5'	S 17°25.9'	330°15.8'	N 22°19.9'			
14	103°13.7'	30°24.3'	N 22°29.9'	10°30.4'	N 24°25.8'	129°07.5'	S 11°40.4'	147°10.1'	S 17°25.9'	345°16.6'	N 22°19.6'			
15	118°16.2'	45°24.2'	N 22°30.2'	25°29.5'	N 24°25.8'	144°09.8'	S 11°40.3'	162°12.6'	S 17°25.9'	0°17.4'	N 22°19.3'			
16	133°18.7'	60°24.1'	N 22°30.5'	40°28.6'	N 24°25.8'	159°12.2'	S 11°40.3'	177°15.1'	S 17°25.9'	15°18.3'	N 22°19.0'			
17	148°21.1'	75°24.0'	N 22°30.7'	55°27.7'	N 24°25.9'	174°14.5'	S 11°40.3'	192°17.6'	S 17°26.0'	30°19.1'	N 22°18.7'			
18	163°23.6'	90°23.8'	N 22°31.0'	70°26.9'	N 24°25.9'	189°16.9'	S 11°40.2'	207°20.1'	S 17°26.0'	45°20.0'	N 22°18.4'			
19	178°26.1'	105°23.7'	N 22°31.3'	85°26.0'	N 24°25.9'	204°19.2'	S 11°40.2'	222°22.6'	S 17°26.0'	60°20.8'	N 22°18.1'			
20	193°28.5'	120°23.6'	N 22°31.6'	100°25.1'	N 24°25.9'	219°21.5'	S 11°40.2'	237°25.1'	S 17°26.0'	75°21.6'	N 22°17.8'			
21	208°31.0'	135°23.5'	N 22°31.8'	115°24.2'	N 24°25.9'	234°23.9'	S 11°40.1'	252°27.6'	S 17°26.0'	90°22.5'	N 22°17.5'			
22	223°33.5'	150°23.4'	N 22°32.1'	130°23.3'	N 24°26.0'	249°26.2'	S 11°40.1'	267°30.1'	S 17°26.1'	105°23.3'	N 22°17.2'			
23	238°35.9'	165°23.3'	N 22°32.4'	145°22.4'	N 24°26.0'	264°28.6'	S 11°40.1'	282°32.7'	S 17°26.1'	120°24.1'	N 22°16.9'			
		SD 15.8' d 0.3'		v -0.9' d 0.0'		v 2.3' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'				
Mer. pass.		11 h 58 m 23 s		13 h 18 m		5 h 25 m		4 h 13 m		14 h 59 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	+Jupiter	+Fomalhaut	+Saturn	+Altair	+Rigel Kent	+Antares	+Hadar
0	247°52.9'	S 3°16.4'	15.9'	13.1'	55.0'	70°36.3'	31°32.5'	32°24.6'	49°46.5'	67°42.0'	110°11.2'	112°25.6'	112°58.4'
1	262°27.9'	S 3°03.3'	15.9'	13.1'	54.9'	70°08.3'	32°02.6'	32°50.8'	50°16.9'	68°06.6'	110°31.9'	112°55.9'	113°17.7'
2	277°02.8'	S 2°50.2'	16.0'	13.1'	54.9'	69°40.2'	32°32.6'	33°17.2'	50°47.3'	68°31.1'	110°52.6'	113°26.2'	113°36.9'
3	291°37.8'	S 2°37.1'	16.0'	13.1'	54.9'	69°12.1'	33°02.6'	33°43.6'	51°17.6'	68°55.6'	111°13.2'	113°56.5'	113°56.0'
4	306°12.8'	S 2°24.0'	16.0'	13.1'	54.9'	68°44.1'	33°32.5'	34°10.1'	51°47.9'	69°20.2'	111°33.7'	114°26.8'	114°15.0'
5	320°47.8'	S 2°10.9'	16.1'	13.1'	54.9'	68°16.1'	34°02.5'	34°36.7'	52°18.2'	69°44.8'	111°54.1'	114°57.1'	114°33.9'
6	335°22.9'	S 1°57.8'	16.1'	13.1'	54.8'	67°48.2'	34°32.5'	35°03.3'	52°48.5'	70°09.4'	112°14.5'	115°27.3'	114°52.8'
7	349°58.0'	S 1°44.7'	16.1'	13.1'	54.8'	67°20.2'	35°02.4'	35°30.0'	53°18.8'	70°34.0'	112°34.8'	115°57.5'	115°11.5'
8	4°33.1'	S 1°31.6'	16.1'	13.1'	54.8'	66°52.3'	35°32.3'	35°56.8'	53°49.0'	70°58.7'	112°55.0'	116°27.7'	115°30.1'
9	19°08.2'	S 1°18.5'	16.2'	13.1'	54.8'	66°24.4'	36°02.2'	36°23.7'	54°19.3'	71°23.3'	113°15.2'	116°57.9'	115°48.7'
10	33°43.4'	S 1°05.4'	16.2'	13.1'	54.8'	65°56.5'	36°32.1'	36°50.6'	54°49.5'	71°48.0'	113°35.3'	117°28.1'	116°07.2'
11	48°18.5'	S 0°52.3'	16.2'	13.1'	54.7'	65°28.6'	37°02.0'	37°17.5'	55°19.7'	72°12.7'	113°55.2'	117°58.2'	116°25.5'
12	62°53.8'	S 0°39.3'	16.2'	13.1'	54.7'	65°00.8'	37°31.9'	37°44.6'	55°49.8'	72°37.4'	114°15.2'	118°28.3'	116°43.8'
13	77°29.0'	S 0°26.2'	16.2'	13.1'	54.7'	64°32.9'	38°01.7'	38°11.6'	56°20.0'	73°02.1'	114°35.0'	118°58.4'	117°02.0'
14	92°04.2'	S 0°13.1'	16.3'	13.1'	54.7'	64°05.1'	38°31.6'	38°38.7'	56°50.1'	73°26.8'	114°54.7'	119°28.4'	117°20.1'
15	106°39.5'	S 0°00.1'	16.3'	13.1'	54.7'	63°37.3'	39°01.4'	39°05.9'	57°20.2'	73°51.5'	115°14.4'	119°58.5'	117°38.1'
16	121°14.8'	N 0°13.0'	16.3'	13.0'	54.6'	63°09.6'	39°31.2'	39°33.1'	57°50.3'	74°16.2'	115°34.0'	117°55.9'	117°55.9'
17	135°50.1'	N 0°26.0'	16.3'	13.0'	54.6'	62°41.8'	40°01.0'	40°00.3'	58°20.4'	74°41.0'	115°53.5'	118°13.7'	118°13.7'
18	150°25.4'	N 0°39.1'	16.3'	13.0'	54.6'	62°14.1'	40°30.8'	40°27.6'	58°50.5'	75°05.7'	116°12.9'		118°31.4'
19	165°00.7'	N 0°52.1'	16.3'	13.0'	54.6'	61°46.4'	41°00.6'	40°54.9'	59°20.5'	75°30.5'	116°32.2'		118°49.0'
20	179°36.0'	N 1°05.1'	16.3'	13.0'	54.6'	61°18.7'	41°30.3'	41°22.3'	59°50.6'	75°55.3'	116°51.4'		119°06.4'
21	194°11.4'	N 1°18.1'	16.4'	13.0'	54.6'	60°51.0'	42°00.1'	41°49.7'	60°20.6'	76°20.0'	117°10.6'		119°23.8'
22	208°46.7'	N 1°31.1'	16.4'	13.0'	54.5'	60°23.3'	42°29.8'	42°17.1'	60°50.6'	76°44.8'	117°29.6'		119°41.0'
23	223°22.1'	N 1°44.1'	16.4'	13.0'	54.5'	59°55.7'	42°59.6'	42°44.6'	61°20.6'	77°09.6'	117°48.6'		119°58.2'
Mer. pass.		7 h 41 m SD 15.0'		phase 33%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°48.3'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	253°38.4'		180°23.2'	N 22°32.7'	160°21.5'	N 24°26.0'	279°30.9'	S 11°40.0'	297°35.2'	S 17°26.1'	135°25.0'	N 22°16.6'
1	268°40.9'		195°23.1'	N 22°32.9'	175°20.6'	N 24°26.0'	294°33.3'	S 11°40.0'	312°37.7'	S 17°26.1'	150°25.8'	N 22°16.3'
2	283°43.3'		210°23.0'	N 22°33.2'	190°19.7'	N 24°26.0'	309°35.6'	S 11°40.0'	327°40.2'	S 17°26.1'	165°26.6'	N 22°16.0'
3	298°45.8'		225°22.9'	N 22°33.5'	205°18.8'	N 24°26.0'	324°37.9'	S 11°39.9'	342°42.7'	S 17°26.2'	180°27.5'	N 22°15.7'
4	313°48.2'		240°22.7'	N 22°33.8'	220°18.0'	N 24°26.0'	339°40.3'	S 11°39.9'	357°45.2'	S 17°26.2'	195°28.3'	N 22°15.4'
5	328°50.7'		255°22.6'	N 22°34.0'	235°17.1'	N 24°26.0'	354°42.6'	S 11°39.9'	12°47.7'	S 17°26.2'	210°29.1'	N 22°15.1'
6	343°53.2'		270°22.5'	N 22°34.3'	250°16.2'	N 24°26.1'	9°45.0'	S 11°39.8'	27°50.3'	S 17°26.2'	225°30.0'	N 22°14.8'
7	358°55.6'		285°22.4'	N 22°34.6'	265°15.3'	N 24°26.1'	24°47.3'	S 11°39.8'	42°52.8'	S 17°26.2'	240°30.8'	N 22°14.5'
8	13°58.1'		300°22.3'	N 22°34.8'	280°14.4'	N 24°26.1'	39°49.7'	S 11°39.8'	57°55.3'	S 17°26.3'	255°31.6'	N 22°14.2'
9	29°00.6'		315°22.2'	N 22°35.1'	295°13.5'	N 24°26.1'	54°52.0'	S 11°39.7'	72°57.8'	S 17°26.3'	270°32.5'	N 22°13.9'
10	44°03.0'		330°22.1'	N 22°35.4'	310°12.6'	N 24°26.1'	69°54.4'	S 11°39.7'	88°00.3'	S 17°26.3'	285°33.3'	N 22°13.6'
11	59°05.5'		345°22.0'	N 22°35.6'	325°11.7'	N 24°26.1'	84°56.7'	S 11°39.7'	103°02.8'	S 17°26.3'	300°34.2'	N 22°13.3'
12	74°08.0'		0°21.8'	N 22°35.9'	340°10.8'	N 24°26.1'	99°59.0'	S 11°39.6'	118°05.3'	S 17°26.3'	315°35.0'	N 22°13.0'
13	89°10.4'		15°21.7'	N 22°36.2'	355°09.9'	N 24°26.1'	115°01.4'	S 11°39.6'	133°07.9'	S 17°26.4'	330°35.8'	N 22°12.7'
14	104°12.9'		30°21.6'	N 22°36.4'	10°09.1'	N 24°26.1'	130°03.7'	S 11°39.6'	148°10.4'	S 17°26.4'	345°36.7'	N 22°12.4'
15	119°15.4'		45°21.5'	N 22°36.7'	25°08.2'	N 24°26.1'	145°06.1'	S 11°39.5'	163°12.9'	S 17°26.4'	0°37.5'	N 22°12.1'
16	134°17.8'		60°21.4'	N 22°37.0'	40°07.3'	N 24°26.1'	160°08.4'	S 11°39.5'	178°15.4'	S 17°26.4'	15°38.3'	N 22°11.8'
17	149°20.3'		75°21.3'	N 22°37.2'	55°06.4'	N 24°26.1'	175°10.8'	S 11°39.5'	193°17.9'	S 17°26.5'	30°39.2'	N 22°11.5'
18	164°22.7'		90°21.2'	N 22°37.5'	70°05.5'	N 24°26.1'	190°13.1'	S 11°39.4'	208°20.4'	S 17°26.5'	45°40.0'	N 22°11.2'
19	179°25.2'		105°21.1'	N 22°37.8'	85°04.6'	N 24°26.1'	205°15.5'	S 11°39.4'	223°22.9'	S 17°26.5'	60°40.9'	N 22°10.9'
20	194°27.7'		120°20.9'	N 22°38.0'	100°03.7'	N 24°26.0'	220°17.8'	S 11°39.4'	238°25.5'	S 17°26.5'	75°41.7'	N 22°10.6'
21	209°30.1'		135°20.8'	N 22°38.3'	115°02.8'	N 24°26.0'	235°20.2'	S 11°39.3'	253°28.0'	S 17°26.5'	90°42.5'	N 22°10.3'
22	224°32.6'		150°20.7'	N 22°38.5'	130°01.9'	N 24°26.0'	250°22.5'	S 11°39.3'	268°30.5'	S 17°26.6'	105°43.4'	N 22°10.0'
23	239°35.1'		165°20.6'	N 22°38.8'	145°01.0'	N 24°26.0'	265°24.9'	S 11°39.3'	283°33.0'	S 17°26.6'	120°44.2'	N 22°09.7'
			SD 15.8' d 0.3'		v -0.9' d 0.0'		v 2.3' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'	
Mer. pass.			11 h 58 m 34 s		13 h 19 m		5 h 21 m		4 h 9 m		14 h 58 m	

h	Moon					Lunar distance					
	GHA	dec	v	d	HP	-Sun	+Fomalhaut	+Jupiter	+Saturn	+Altair	+Rigil Kent
0	237°57.5'	N 1°57.0'	16.4'	12.9'	54.5'	59°28.0'	43°12.1'	43°29.3'	61°50.5'	77°34.4'	118°07.5'
1	252°32.8'	N 2°10.0'	16.4'	12.9'	54.5'	59°00.4'	43°39.6'	43°59.0'	62°20.5'	77°59.2'	118°26.2'
2	267°08.2'	N 2°22.9'	16.4'	12.9'	54.5'	58°32.8'	44°07.2'	44°28.7'	62°50.4'	78°24.0'	118°44.9'
3	281°43.6'	N 2°35.8'	16.4'	12.9'	54.5'	58°05.2'	44°34.8'	44°58.3'	63°20.4'	78°48.8'	119°03.5'
4	296°19.0'	N 2°48.8'	16.4'	12.9'	54.4'	57°37.6'	45°02.4'	45°28.0'	63°50.3'	79°13.6'	119°22.0'
5	310°54.4'	N 3°01.6'	16.4'	12.9'	54.4'	57°10.1'	45°30.0'	45°57.6'	64°20.2'	79°38.4'	119°40.3'
6	325°29.8'	N 3°14.5'	16.4'	12.9'	54.4'	56°42.5'	45°57.7'	46°27.3'	64°50.1'	80°03.2'	119°58.6'
7	340°05.2'	N 3°27.4'	16.4'	12.8'	54.4'	56°15.0'	46°25.3'	46°56.9'	65°20.0'	80°28.1'	
8	354°40.6'	N 3°40.2'	16.4'	12.8'	54.4'	55°47.5'	46°53.0'	47°26.5'	65°49.8'	80°52.9'	
9	9°16.0'	N 3°53.0'	16.4'	12.8'	54.4'	55°20.0'	47°20.8'	47°56.1'	66°19.7'	81°17.7'	
10	23°51.4'	N 4°05.8'	16.4'	12.8'	54.3'	54°52.5'	47°48.5'	48°25.7'	66°49.5'	81°42.5'	
11	38°26.8'	N 4°18.6'	16.4'	12.8'	54.3'	54°25.0'	48°16.3'	48°55.3'	67°19.3'	82°07.4'	
12	53°02.2'	N 4°31.3'	16.4'	12.7'	54.3'	53°57.6'	48°44.1'	49°24.9'	67°49.1'	82°32.2'	
13	67°37.6'	N 4°44.0'	16.4'	12.7'	54.3'	53°30.1'	49°11.9'	49°54.5'	68°18.9'	82°57.0'	
14	82°13.0'	N 4°56.8'	16.4'	12.7'	54.3'	53°02.7'	49°39.7'	50°24.0'	68°48.7'	83°21.8'	
15	96°48.4'	N 5°09.4'	16.4'	12.7'	54.3'	52°35.3'	50°07.5'	50°53.6'	69°18.5'	83°46.7'	
16	111°23.8'	N 5°22.1'	16.4'	12.6'	54.3'	52°07.8'	50°35.4'	51°23.1'	69°48.3'	84°11.5'	
17	125°59.1'	N 5°34.7'	16.4'	12.6'	54.3'	51°40.4'	51°03.3'	51°52.6'	70°18.0'	84°36.3'	
18	140°34.5'	N 5°47.3'	16.3'	12.6'	54.2'	51°13.0'	51°31.1'	52°22.2'	70°47.8'	85°01.1'	
19	155°09.8'	N 5°59.9'	16.3'	12.6'	54.2'	50°45.7'	51°59.0'	52°51.7'	71°17.5'	85°26.0'	
20	169°45.2'	N 6°12.5'	16.3'	12.5'	54.2'	50°18.3'	52°27.0'	53°21.2'	71°47.2'	85°50.8'	
21	184°20.5'	N 6°25.0'	16.3'	12.5'	54.2'	49°50.9'	52°54.9'	53°50.7'	72°17.0'	86°15.6'	
22	198°55.8'	N 6°37.5'	16.3'	12.5'	54.2'	49°23.6'	53°22.8'	54°20.2'	72°46.7'	86°40.4'	
23	213°31.1'	N 6°50.0'	16.3'	12.4'	54.2'	48°56.2'	53°50.8'	54°49.7'	73°16.4'	87°05.2'	
Mer. pass.			8 h 22 m SD 14.9'		phase 25%						

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°48.0'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	254°37.5'	180°20.5'	N 22°39.1'	160°00.2'	N 24°26.0'	280°27.2'	S 11°39.2'	298°35.5'	S 17°26.6'	135°45.0'	N 22°09.4'			
1	269°40.0'	195°20.4'	N 22°39.3'	174°59.3'	N 24°26.0'	295°29.6'	S 11°39.2'	313°38.0'	S 17°26.6'	150°45.9'	N 22°09.1'			
2	284°42.5'	210°20.3'	N 22°39.6'	189°58.4'	N 24°26.0'	310°31.9'	S 11°39.2'	328°40.6'	S 17°26.6'	165°46.7'	N 22°08.8'			
3	299°44.9'	225°20.1'	N 22°39.8'	204°57.5'	N 24°25.9'	325°34.3'	S 11°39.2'	343°43.1'	S 17°26.7'	180°47.6'	N 22°08.5'			
4	314°47.4'	240°20.0'	N 22°40.1'	219°56.6'	N 24°25.9'	340°36.6'	S 11°39.1'	358°45.6'	S 17°26.7'	195°48.4'	N 22°08.2'			
5	329°49.8'	255°19.9'	N 22°40.3'	234°55.7'	N 24°25.9'	355°39.0'	S 11°39.1'	13°48.1'	S 17°26.7'	210°49.2'	N 22°07.8'			
6	344°52.3'	270°19.8'	N 22°40.6'	249°54.8'	N 24°25.9'	10°41.3'	S 11°39.1'	28°50.6'	S 17°26.7'	225°50.1'	N 22°07.5'			
7	359°54.8'	285°19.7'	N 22°40.8'	264°53.9'	N 24°25.9'	25°43.7'	S 11°39.0'	43°53.2'	S 17°26.7'	240°50.9'	N 22°07.2'			
8	14°57.2'	300°19.6'	N 22°41.1'	279°53.0'	N 24°25.8'	40°46.0'	S 11°39.0'	58°55.7'	S 17°26.8'	255°51.7'	N 22°06.9'			
9	29°59.7'	315°19.5'	N 22°41.4'	294°52.2'	N 24°25.8'	55°48.4'	S 11°39.0'	73°58.2'	S 17°26.8'	270°52.6'	N 22°06.6'			
10	45°02.2'	330°19.3'	N 22°41.6'	309°51.3'	N 24°25.8'	70°50.7'	S 11°38.9'	89°00.7'	S 17°26.8'	285°53.4'	N 22°06.3'			
11	60°04.6'	345°19.2'	N 22°41.9'	324°50.4'	N 24°25.8'	85°53.1'	S 11°38.9'	104°03.2'	S 17°26.8'	300°54.3'	N 22°06.0'			
12	75°07.1'	0°19.1'	N 22°42.1'	339°49.5'	N 24°25.7'	100°55.4'	S 11°38.9'	119°05.7'	S 17°26.9'	315°55.1'	N 22°05.7'			
13	90°09.6'	15°19.0'	N 22°42.4'	354°48.6'	N 24°25.7'	115°57.8'	S 11°38.9'	134°08.3'	S 17°26.9'	330°55.9'	N 22°05.4'			
14	105°12.0'	30°18.9'	N 22°42.6'	9°47.7'	N 24°25.7'	131°00.1'	S 11°38.8'	149°10.8'	S 17°26.9'	345°56.8'	N 22°05.1'			
15	120°14.5'	45°18.8'	N 22°42.8'	24°46.8'	N 24°25.6'	146°02.5'	S 11°38.8'	164°13.3'	S 17°26.9'	0°57.6'	N 22°04.8'			
16	135°17.0'	60°18.6'	N 22°43.1'	39°45.9'	N 24°25.6'	161°04.8'	S 11°38.8'	179°15.8'	S 17°26.9'	15°58.4'	N 22°04.5'			
17	150°19.4'	75°18.5'	N 22°43.3'	54°45.0'	N 24°25.6'	176°07.2'	S 11°38.7'	194°18.3'	S 17°27.0'	30°59.3'	N 22°04.2'			
18	165°21.9'	90°18.4'	N 22°43.6'	69°44.2'	N 24°25.5'	191°09.6'	S 11°38.7'	209°20.9'	S 17°27.0'	46°00.1'	N 22°03.9'			
19	180°24.3'	105°18.3'	N 22°43.8'	84°43.3'	N 24°25.5'	206°11.9'	S 11°38.7'	224°23.4'	S 17°27.0'	61°01.0'	N 22°03.5'			
20	195°26.8'	120°18.2'	N 22°44.1'	99°42.4'	N 24°25.5'	221°14.3'	S 11°38.7'	239°25.9'	S 17°27.0'	76°01.8'	N 22°03.2'			
21	210°29.3'	135°18.1'	N 22°44.3'	114°41.5'	N 24°25.4'	236°16.6'	S 11°38.6'	254°28.4'	S 17°27.1'	91°02.6'	N 22°02.9'			
22	225°31.7'	150°17.9'	N 22°44.6'	129°40.6'	N 24°25.4'	251°19.0'	S 11°38.6'	269°30.9'	S 17°27.1'	106°03.5'	N 22°02.6'			
23	240°34.2'	165°17.8'	N 22°44.8'	144°39.7'	N 24°25.3'	266°21.3'	S 11°38.6'	284°33.5'	S 17°27.1'	121°04.3'	N 22°02.3'			
		SD 15.8'	d 0.2'	v -0.9'	d -0.0'	v 2.4'	d 0.0'	v 2.5'	d -0.0'	v 0.8'	d -0.3'			
Mer. pass.		11 h 58 m 45 s		13 h 21 m		5 h 17 m		4 h 5 m		14 h 56 m				

h	Moon					Lunar distance					
	GHA	dec	v	d	HP	-Sun	+Fomalhaut	+Jupiter	+Saturn	+Altair	
0	228°06.4'	N 7°02.4'	16.3'	12.4'	54.2'	48°28.9'	54°18.8'	55°19.1'	73°46.1'	87°30.0'	
1	242°41.6'	N 7°14.8'	16.2'	12.4'	54.2'	48°01.6'	54°46.8'	55°48.6'	74°15.7'	87°54.8'	
2	257°16.9'	N 7°27.2'	16.2'	12.4'	54.2'	47°34.3'	55°14.7'	56°18.1'	74°45.4'	88°19.6'	
3	271°52.1'	N 7°39.6'	16.2'	12.3'	54.1'	47°07.0'	55°42.8'	56°47.5'	75°15.1'	88°44.4'	
4	286°27.3'	N 7°51.9'	16.2'	12.3'	54.1'	46°39.7'	56°10.8'	57°17.0'	75°44.7'	89°09.2'	
5	301°02.5'	N 8°04.2'	16.2'	12.3'	54.1'	46°12.4'	56°38.8'	57°46.4'	76°14.4'	89°34.0'	
6	315°37.7'	N 8°16.4'	16.1'	12.2'	54.1'	45°45.1'	57°06.8'	58°15.8'	76°44.0'	89°58.7'	
7	330°12.8'	N 8°28.6'	16.1'	12.2'	54.1'	45°17.8'	57°34.9'	58°45.3'	77°13.7'	90°23.5'	
8	344°47.9'	N 8°40.8'	16.1'	12.1'	54.1'	44°50.6'	58°02.9'	59°14.7'	77°43.3'	90°48.3'	
9	359°23.0'	N 8°53.0'	16.1'	12.1'	54.1'	44°23.3'	58°31.0'	59°44.1'	78°12.9'	91°13.0'	
10	13°58.1'	N 9°05.1'	16.1'	12.1'	54.1'	43°56.1'	58°59.1'	60°13.5'	78°42.5'	91°37.8'	
11	28°33.2'	N 9°17.1'	16.0'	12.0'	54.1'	43°28.8'	59°27.2'	60°42.9'	79°12.2'	92°02.5'	
12	43°08.2'	N 9°29.2'	16.0'	12.0'	54.1'	43°01.6'	59°55.3'	61°12.3'	79°41.8'	92°27.2'	
13	57°43.2'	N 9°41.2'	16.0'	12.0'	54.1'	42°34.4'	60°23.4'	61°41.7'	80°11.4'	92°52.0'	
14	72°18.2'	N 9°53.1'	15.9'	11.9'	54.0'	42°07.1'	60°51.5'	62°11.1'	80°41.0'	93°16.7'	
15	86°53.1'	N 10°05.1'	15.9'	11.9'	54.0'	41°39.9'	61°19.6'	62°40.5'	81°10.5'	93°41.4'	
16	101°28.0'	N 10°17.0'	15.9'	11.8'	54.0'	41°12.7'	61°47.8'	63°09.9'	81°40.1'	94°06.1'	
17	116°02.9'	N 10°28.8'	15.9'	11.8'	54.0'	40°45.5'	62°15.9'	63°39.3'	82°09.7'	94°30.8'	
18	130°37.8'	N 10°40.6'	15.8'	11.8'	54.0'	40°18.3'	62°44.1'	64°08.6'	82°39.3'	94°55.4'	
19	145°12.6'	N 10°52.3'	15.8'	11.7'	54.0'		63°12.2'	64°38.0'	83°08.8'	95°20.1'	
20	159°47.4'	N 11°04.1'	15.8'	11.7'	54.0'		63°40.4'	65°07.4'	83°38.4'	95°44.7'	
21	174°22.2'	N 11°15.7'	15.7'	11.6'	54.0'		64°08.6'	65°36.7'	84°08.0'	96°09.4'	
22	188°56.9'	N 11°27.4'	15.7'	11.6'	54.0'		64°36.7'	66°06.1'	84°37.5'	96°34.0'	
23	203°31.6'	N 11°38.9'	15.7'	11.5'	54.0'		65°04.9'	66°35.5'	85°07.1'	96°58.6'	
Mer. pass.		9 h 3 m SD 14.8'	phase 17%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°47.7'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

Monday 07 June 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	255°36.7'	180°17.7'	N 22°45.0'	159°38.8'	N 24°25.3'	281°23.7'	S 11°38.5'	299°36.0'	S 17°27.1'	136°05.2'	N 22°02.0'			
1	270°39.1'	195°17.6'	N 22°45.3'	174°37.9'	N 24°25.2'	296°26.0'	S 11°38.5'	314°38.5'	S 17°27.1'	151°06.0'	N 22°01.7'			
2	285°41.6'	210°17.5'	N 22°45.5'	189°37.0'	N 24°25.2'	311°28.4'	S 11°38.5'	329°41.0'	S 17°27.2'	166°06.8'	N 22°01.4'			
3	300°44.1'	225°17.4'	N 22°45.8'	204°36.2'	N 24°25.1'	326°30.8'	S 11°38.5'	344°43.5'	S 17°27.2'	181°07.7'	N 22°01.1'			
4	315°46.5'	240°17.2'	N 22°46.0'	219°35.3'	N 24°25.1'	341°33.1'	S 11°38.4'	359°46.1'	S 17°27.2'	196°08.5'	N 22°00.8'			
5	330°49.0'	255°17.1'	N 22°46.2'	234°34.4'	N 24°25.0'	356°35.5'	S 11°38.4'	14°48.6'	S 17°27.2'	211°09.4'	N 22°00.4'			
6	345°51.5'	270°17.0'	N 22°46.5'	249°33.5'	N 24°25.0'	11°37.8'	S 11°38.4'	29°51.1'	S 17°27.3'	226°10.2'	N 22°00.1'			
7	0°53.9'	285°16.9'	N 22°46.7'	264°32.6'	N 24°24.9'	26°40.2'	S 11°38.3'	44°53.6'	S 17°27.3'	241°11.0'	N 21°59.8'			
8	15°56.4'	300°16.8'	N 22°47.0'	279°31.7'	N 24°24.9'	41°42.6'	S 11°38.3'	59°56.2'	S 17°27.3'	256°11.9'	N 21°59.5'			
9	30°58.8'	315°16.7'	N 22°47.2'	294°30.8'	N 24°24.8'	56°44.9'	S 11°38.3'	74°58.7'	S 17°27.3'	271°12.7'	N 21°59.2'			
10	46°01.3'	330°16.5'	N 22°47.4'	309°29.9'	N 24°24.8'	71°47.3'	S 11°38.3'	90°01.2'	S 17°27.3'	286°13.6'	N 21°58.9'			
11	61°03.8'	345°16.4'	N 22°47.7'	324°29.1'	N 24°24.7'	86°49.6'	S 11°38.2'	105°03.7'	S 17°27.4'	301°14.4'	N 21°58.6'			
12	76°06.2'	0°16.3'	N 22°47.9'	339°28.2'	N 24°24.7'	101°52.0'	S 11°38.2'	120°06.2'	S 17°27.4'	316°15.2'	N 21°58.3'			
13	91°08.7'	15°16.2'	N 22°48.1'	354°27.3'	N 24°24.6'	116°54.4'	S 11°38.2'	135°08.8'	S 17°27.4'	331°16.1'	N 21°57.9'			
14	106°11.2'	30°16.1'	N 22°48.4'	9°26.4'	N 24°24.5'	131°56.7'	S 11°38.2'	150°11.3'	S 17°27.4'	346°16.9'	N 21°57.6'			
15	121°13.6'	45°15.9'	N 22°48.6'	24°25.5'	N 24°24.5'	146°59.1'	S 11°38.1'	165°13.8'	S 17°27.5'	1°17.8'	N 21°57.3'			
16	136°16.1'	60°15.8'	N 22°48.8'	39°24.6'	N 24°24.4'	162°01.4'	S 11°38.1'	180°16.3'	S 17°27.5'	16°18.6'	N 21°57.0'			
17	151°18.6'	75°15.7'	N 22°49.0'	54°23.7'	N 24°24.3'	177°03.8'	S 11°38.1'	195°18.9'	S 17°27.5'	31°19.5'	N 21°56.7'			
18	166°21.0'	90°15.6'	N 22°49.3'	69°22.9'	N 24°24.3'	192°06.2'	S 11°38.0'	210°21.4'	S 17°27.5'	46°20.3'	N 21°56.4'			
19	181°23.5'	105°15.5'	N 22°49.5'	84°22.0'	N 24°24.2'	207°08.5'	S 11°38.0'	225°23.9'	S 17°27.6'	61°21.1'	N 21°56.1'			
20	196°25.9'	120°15.3'	N 22°49.7'	99°21.1'	N 24°24.1'	222°10.9'	S 11°38.0'	240°26.4'	S 17°27.6'	76°22.0'	N 21°55.7'			
21	211°28.4'	135°15.2'	N 22°50.0'	114°20.2'	N 24°24.1'	237°13.2'	S 11°38.0'	255°29.0'	S 17°27.6'	91°22.8'	N 21°55.4'			
22	226°30.9'	150°15.1'	N 22°50.2'	129°19.3'	N 24°24.0'	252°15.6'	S 11°37.9'	270°31.5'	S 17°27.6'	106°23.7'	N 21°55.1'			
23	241°33.3'	165°15.0'	N 22°50.4'	144°18.4'	N 24°23.9'	267°18.0'	S 11°37.9'	285°34.0'	S 17°27.6'	121°24.5'	N 21°54.8'			
		SD 15.8' d 0.2'		v -0.9' d -0.1'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'				
Mer. pass.		11 h 58 m 56 s		13 h 22 m		5 h 14 m		4 h 1 m		14 h 55 m				

h	Moon					Lunar distance				
	GHA	dec	v	d	HP	+Fomalhaut	+Jupiter	+Achernar	+Saturn	+Altair
0	218°06.2'	N 11°50.5'	15.6'	11.5'	54.0'	65°33.1'	67°04.8'	70°02.2'	85°36.6'	97°23.2'
1	232°40.9'	N 12°02.0'	15.6'	11.4'	54.0'	66°01.3'	67°34.2'	70°02.2'	86°06.2'	97°47.8'
2	247°15.4'	N 12°13.4'	15.5'	11.4'	54.0'	66°29.5'	68°03.5'	70°17.2'	86°35.7'	98°12.4'
3	261°50.0'	N 12°24.8'	15.5'	11.3'	54.0'	66°57.7'	68°32.9'	70°32.3'	87°05.3'	98°37.0'
4	276°24.5'	N 12°36.1'	15.5'	11.3'	54.0'	67°26.0'	69°02.2'	70°47.5'	87°34.8'	99°01.5'
5	290°59.0'	N 12°47.4'	15.4'	11.2'	54.0'	67°54.2'	69°31.6'	71°02.7'	88°04.4'	99°26.1'
6	305°33.4'	N 12°58.7'	15.4'	11.2'	54.0'	68°22.4'	70°00.9'	71°18.0'	88°33.9'	99°50.6'
7	320°07.8'	N 13°09.9'	15.3'	11.1'	54.0'	68°50.7'	70°30.3'	71°33.3'	89°03.4'	100°15.1'
8	334°42.1'	N 13°21.0'	15.3'	11.1'	54.0'	69°18.9'	70°59.6'	71°48.7'	89°33.0'	100°39.6'
9	349°16.4'	N 13°32.1'	15.3'	11.0'	53.9'	69°47.2'	71°29.0'	72°04.2'	90°02.5'	101°04.1'
10	3°50.7'	N 13°43.1'	15.2'	11.0'	53.9'	70°15.5'	71°58.3'	72°19.7'	90°32.0'	101°28.5'
11	18°24.9'	N 13°54.1'	15.2'	10.9'	53.9'	70°43.7'	72°27.7'	72°35.3'	91°01.6'	101°53.0'
12	32°59.1'	N 14°05.0'	15.1'	10.9'	53.9'	71°12.0'	72°57.0'	72°51.0'	91°31.1'	102°17.4'
13	47°33.2'	N 14°15.9'	15.1'	10.8'	53.9'	71°40.3'	73°26.4'	73°06.7'	92°00.6'	102°41.8'
14	62°07.3'	N 14°26.7'	15.0'	10.8'	53.9'	72°08.6'	73°55.7'	73°22.4'	92°30.2'	103°06.2'
15	76°41.4'	N 14°37.5'	15.0'	10.7'	53.9'	72°36.9'	74°25.1'	73°38.2'	92°59.7'	103°30.6'
16	91°15.4'	N 14°48.2'	14.9'	10.6'	53.9'	73°05.2'	74°54.4'	73°54.1'	93°29.2'	103°54.9'
17	105°49.3'	N 14°58.8'	14.9'	10.6'	53.9'	73°33.5'	75°23.8'	74°10.0'	93°58.7'	104°19.2'
18	120°23.2'	N 15°09.4'	14.9'	10.5'	53.9'	74°01.8'	75°53.1'	74°26.0'	94°28.3'	104°43.6'
19	134°57.1'	N 15°20.0'	14.8'	10.5'	53.9'	74°30.1'	76°22.5'	74°42.0'	94°57.8'	105°07.8'
20	149°30.9'	N 15°30.4'	14.8'	10.4'	53.9'	74°58.5'	76°51.8'	74°58.0'	95°27.3'	105°32.1'
21	164°04.6'	N 15°40.8'	14.7'	10.3'	53.9'	75°26.8'	77°21.2'	75°14.1'	95°56.9'	105°56.3'
22	178°38.3'	N 15°51.2'	14.7'	10.3'	53.9'	75°55.2'	77°50.5'	75°30.3'	96°26.4'	106°20.6'
23	193°12.0'	N 16°01.4'	14.6'	10.2'	53.9'	76°23.5'	78°19.9'	75°46.5'	96°55.9'	106°44.8'
Mer. pass.		9 h 44 m SD 14.7'		phase 10%						

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°47.4'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	256°35.8'	180°14.9'	N 22°50.6'	159°17.5'	N 24°23.9'	282°20.3'	S 11°37.9'	300°36.5'	S 17°27.7'	136°25.3'	N 21°54.5'			
1	271°38.3'	195°14.7'	N 22°50.9'	174°16.7'	N 24°23.8'	297°22.7'	S 11°37.9'	315°39.1'	S 17°27.7'	151°26.2'	N 21°54.2'			
2	286°40.7'	210°14.6'	N 22°51.1'	189°15.8'	N 24°23.7'	312°25.1'	S 11°37.8'	330°41.6'	S 17°27.7'	166°27.0'	N 21°53.8'			
3	301°43.2'	225°14.5'	N 22°51.3'	204°14.9'	N 24°23.6'	327°27.4'	S 11°37.8'	345°44.1'	S 17°27.7'	181°27.9'	N 21°53.5'			
4	316°45.7'	240°14.4'	N 22°51.5'	219°14.0'	N 24°23.5'	342°29.8'	S 11°37.8'	0°46.6'	S 17°27.8'	196°28.7'	N 21°53.2'			
5	331°48.1'	255°14.3'	N 22°51.8'	234°13.1'	N 24°23.5'	357°32.2'	S 11°37.8'	15°49.2'	S 17°27.8'	211°29.6'	N 21°52.9'			
6	346°50.6'	270°14.1'	N 22°52.0'	249°12.2'	N 24°23.4'	12°34.5'	S 11°37.7'	30°51.7'	S 17°27.8'	226°30.4'	N 21°52.6'			
7	1°53.1'	285°14.0'	N 22°52.2'	264°11.3'	N 24°23.3'	27°36.9'	S 11°37.7'	45°54.2'	S 17°27.8'	241°31.2'	N 21°52.3'			
8	16°55.5'	300°13.9'	N 22°52.4'	279°10.5'	N 24°23.2'	42°39.3'	S 11°37.7'	60°56.7'	S 17°27.9'	256°32.1'	N 21°51.9'			
9	31°58.0'	315°13.8'	N 22°52.6'	294°09.6'	N 24°23.1'	57°41.6'	S 11°37.7'	75°59.3'	S 17°27.9'	271°32.9'	N 21°51.6'			
10	47°00.4'	330°13.7'	N 22°52.9'	309°08.7'	N 24°23.0'	72°44.0'	S 11°37.6'	91°01.8'	S 17°27.9'	286°33.8'	N 21°51.3'			
11	62°02.9'	345°13.5'	N 22°53.1'	324°07.8'	N 24°23.0'	87°46.4'	S 11°37.6'	106°04.3'	S 17°27.9'	301°34.6'	N 21°51.0'			
12	77°05.4'	0°13.4'	N 22°53.3'	339°06.9'	N 24°22.9'	102°48.7'	S 11°37.6'	121°06.8'	S 17°28.0'	316°35.5'	N 21°50.7'			
13	92°07.8'	15°13.3'	N 22°53.5'	354°06.0'	N 24°22.8'	117°51.1'	S 11°37.6'	136°09.4'	S 17°28.0'	331°36.3'	N 21°50.3'			
14	107°10.3'	30°13.2'	N 22°53.7'	9°05.1'	N 24°22.7'	132°53.5'	S 11°37.5'	151°11.9'	S 17°28.0'	346°37.1'	N 21°50.0'			
15	122°12.8'	45°13.0'	N 22°53.9'	24°04.3'	N 24°22.6'	147°55.8'	S 11°37.5'	166°14.4'	S 17°28.0'	1°38.0'	N 21°49.7'			
16	137°15.2'	60°12.9'	N 22°54.1'	39°03.4'	N 24°22.5'	162°58.2'	S 11°37.5'	181°16.9'	S 17°28.0'	16°38.8'	N 21°49.4'			
17	152°17.7'	75°12.8'	N 22°54.4'	54°02.5'	N 24°22.4'	178°00.6'	S 11°37.5'	196°19.5'	S 17°28.1'	31°39.7'	N 21°49.1'			
18	167°20.2'	90°12.7'	N 22°54.6'	69°01.6'	N 24°22.3'	193°02.9'	S 11°37.5'	211°22.0'	S 17°28.1'	46°40.5'	N 21°48.7'			
19	182°22.6'	105°12.6'	N 22°54.8'	84°00.7'	N 24°22.2'	208°05.3'	S 11°37.4'	226°24.5'	S 17°28.1'	61°41.4'	N 21°48.4'			
20	197°25.1'	120°12.4'	N 22°55.0'	98°59.8'	N 24°22.1'	223°07.7'	S 11°37.4'	241°27.1'	S 17°28.1'	76°42.2'	N 21°48.1'			
21	212°27.6'	135°12.3'	N 22°55.2'	113°59.0'	N 24°22.0'	238°10.1'	S 11°37.4'	256°29.6'	S 17°28.2'	91°43.0'	N 21°47.8'			
22	227°30.0'	150°12.2'	N 22°55.4'	128°58.1'	N 24°21.9'	253°12.4'	S 11°37.4'	271°32.1'	S 17°28.2'	106°43.9'	N 21°47.5'			
23	242°32.5'	165°12.1'	N 22°55.6'	143°57.2'	N 24°21.8'	268°14.8'	S 11°37.3'	286°34.6'	S 17°28.2'	121°44.7'	N 21°47.1'			
		SD 15.8'	d 0.2'	v -0.9'	d -0.1'	v 2.4'	d 0.0'	v 2.5'	d -0.0'	v 0.8'	d -0.3'			
Mer. pass.		11 h 59 m 7 s		13 h 24 m		5 h 10 m		3 h 57 m		14 h 53 m				

h	Moon					Lunar distance				
	GHA	dec	v	d	HP	+Achernar	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	207°45.6'	N 16°11.6'	14.6'	10.1'	53.9'	76°02.8'	76°51.9'	78°49.2'	97°25.5'	107°08.9'
1	222°19.1'	N 16°21.8'	14.5'	10.1'	53.9'	76°19.1'	77°20.2'	79°18.6'	97°55.0'	107°33.1'
2	236°52.6'	N 16°31.9'	14.5'	10.0'	53.9'	76°35.4'	77°48.6'	79°48.0'	98°24.5'	107°57.2'
3	251°26.1'	N 16°41.9'	14.4'	10.0'	53.9'	76°51.8'	78°17.0'	80°17.3'	98°54.1'	108°21.3'
4	265°59.5'	N 16°51.9'	14.3'	9.9'	53.9'	77°08.2'	78°45.3'	80°46.7'	99°23.6'	108°45.4'
5	280°32.8'	N 17°01.7'	14.3'	9.8'	53.9'	77°24.7'	79°13.7'	81°16.1'	99°53.2'	109°09.4'
6	295°06.1'	N 17°11.6'	14.2'	9.7'	53.9'	77°41.2'	79°42.1'	81°45.4'	100°22.7'	109°33.4'
7	309°39.4'	N 17°21.3'	14.2'	9.7'	53.9'	77°57.7'	80°10.5'	82°14.8'	100°52.3'	109°57.4'
8	324°12.6'	N 17°31.0'	14.1'	9.6'	53.9'	78°14.3'	80°38.9'	82°44.2'	101°21.8'	110°21.4'
9	338°45.7'	N 17°40.6'	14.1'	9.5'	53.9'	78°30.9'	81°07.3'	83°13.6'	101°51.4'	110°45.3'
10	353°18.8'	N 17°50.1'	14.0'	9.5'	53.9'	78°47.6'	81°35.7'	83°43.0'	102°20.9'	111°09.2'
11	7°51.8'	N 17°59.6'	14.0'	9.4'	53.9'	79°04.3'	82°04.2'	84°12.4'	102°50.5'	111°33.1'
12	22°24.7'	N 18°09.0'	13.9'	9.3'	53.9'	79°21.0'	82°32.6'	84°41.8'	103°20.0'	111°56.9'
13	36°57.6'	N 18°18.3'	13.8'	9.2'	53.9'	79°37.8'	83°01.0'	85°11.2'	103°49.6'	112°20.7'
14	51°30.5'	N 18°27.5'	13.8'	9.2'	53.9'	79°54.6'	83°29.5'	85°40.6'	104°19.2'	112°44.5'
15	66°03.3'	N 18°36.7'	13.7'	9.1'	53.9'	80°11.4'	83°57.9'	86°10.0'	104°48.8'	113°08.2'
16	80°36.0'	N 18°45.8'	13.7'	9.0'	53.9'	80°28.3'	84°26.3'	86°39.4'	105°18.3'	113°31.9'
17	95°08.7'	N 18°54.8'	13.6'	8.9'	53.9'	80°45.2'	84°54.8'	87°08.8'	105°47.9'	113°55.5'
18	109°41.3'	N 19°03.7'	13.6'	8.9'	53.9'	81°02.1'	85°23.3'	87°38.2'	106°17.5'	114°19.2'
19	124°13.9'	N 19°12.6'	13.5'	8.8'	53.9'	81°19.1'	85°51.7'	88°07.6'	106°47.1'	114°42.7'
20	138°46.4'	N 19°21.3'	13.4'	8.7'	53.9'	81°36.0'	86°20.2'	88°37.1'	107°16.7'	115°06.3'
21	153°18.8'	N 19°30.0'	13.4'	8.6'	53.9'	81°53.1'	86°48.7'	89°06.5'	107°46.3'	115°29.8'
22	167°51.2'	N 19°38.6'	13.3'	8.5'	54.0'	82°10.1'	87°17.2'	89°36.0'	108°15.9'	115°53.3'
23	182°23.5'	N 19°47.2'	13.3'	8.4'	54.0'	82°27.2'	87°45.7'	90°05.4'	108°45.5'	116°16.7'
Mer. pass.		10 h 28 m SD 14.7'		phase 5%						

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°47.1'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	257°34.9'	180°11.9' N	22°55.8'	158°56.3' N	24°21.7'	283°17.2' S	11°37.3'	301°37.2' S	17°28.2'	136°45.6' N	21°46.8'	
1	272°37.4'	195°11.8' N	22°56.0'	173°55.4' N	24°21.6'	298°19.5' S	11°37.3'	316°39.7' S	17°28.3'	151°46.4' N	21°46.5'	
2	287°39.9'	210°11.7' N	22°56.2'	188°54.5' N	24°21.5'	313°21.9' S	11°37.3'	331°42.2' S	17°28.3'	166°47.3' N	21°46.2'	
3	302°42.3'	225°11.6' N	22°56.4'	203°53.7' N	24°21.4'	328°24.3' S	11°37.2'	346°44.8' S	17°28.3'	181°48.1' N	21°45.8'	
4	317°44.8'	240°11.4' N	22°56.7'	218°52.8' N	24°21.3'	343°26.7' S	11°37.2'	1°47.3' S	17°28.3'	196°49.0' N	21°45.5'	
5	332°47.3'	255°11.3' N	22°56.9'	233°51.9' N	24°21.2'	358°29.0' S	11°37.2'	16°49.8' S	17°28.4'	211°49.8' N	21°45.2'	
6	347°49.7'	270°11.2' N	22°57.1'	248°51.0' N	24°21.1'	13°31.4' S	11°37.2'	31°52.3' S	17°28.4'	226°50.6' N	21°44.9'	
7	2°52.2'	285°11.1' N	22°57.3'	263°50.1' N	24°20.9'	28°33.8' S	11°37.2'	46°54.9' S	17°28.4'	241°51.5' N	21°44.5'	
8	17°54.7'	300°11.0' N	22°57.5'	278°49.2' N	24°20.8'	43°36.2' S	11°37.1'	61°57.4' S	17°28.4'	256°52.3' N	21°44.2'	
9	32°57.1'	315°10.8' N	22°57.7'	293°48.4' N	24°20.7'	58°38.5' S	11°37.1'	76°59.9' S	17°28.5'	271°53.2' N	21°43.9'	
10	47°59.6'	330°10.7' N	22°57.9'	308°47.5' N	24°20.6'	73°40.9' S	11°37.1'	92°02.5' S	17°28.5'	286°54.0' N	21°43.6'	
11	63°02.1'	345°10.6' N	22°58.1'	323°46.6' N	24°20.5'	88°43.3' S	11°37.1'	107°05.0' S	17°28.5'	301°54.9' N	21°43.2'	
12	78°04.5'	0°10.5' N	22°58.3'	338°45.7' N	24°20.4'	103°45.7' S	11°37.1'	122°07.5' S	17°28.5'	316°55.7' N	21°42.9'	
13	93°07.0'	15°10.3' N	22°58.5'	353°44.8' N	24°20.2'	118°48.0' S	11°37.0'	137°10.1' S	17°28.6'	331°56.6' N	21°42.6'	
14	108°09.4'	30°10.2' N	22°58.7'	8°44.0' N	24°20.1'	133°50.4' S	11°37.0'	152°12.6' S	17°28.6'	346°57.4' N	21°42.3'	
15	123°11.9'	45°10.1' N	22°58.9'	23°43.1' N	24°20.0'	148°52.8' S	11°37.0'	167°15.1' S	17°28.6'	1°58.3' N	21°41.9'	
16	138°14.4'	60°10.0' N	22°59.1'	38°42.2' N	24°19.9'	163°55.2' S	11°37.0'	182°17.6' S	17°28.6'	16°59.1' N	21°41.6'	
17	153°16.8'	75°09.8' N	22°59.3'	53°41.3' N	24°19.7'	178°57.5' S	11°36.9'	197°20.2' S	17°28.7'	31°59.9' N	21°41.3'	
18	168°19.3'	90°09.7' N	22°59.5'	68°40.4' N	24°19.6'	193°59.9' S	11°36.9'	212°22.7' S	17°28.7'	47°00.8' N	21°41.0'	
19	183°21.8'	105°09.6' N	22°59.7'	83°39.6' N	24°19.5'	209°02.3' S	11°36.9'	227°25.2' S	17°28.7'	62°01.6' N	21°40.6'	
20	198°24.2'	120°09.5' N	22°59.8'	98°38.7' N	24°19.4'	224°04.7' S	11°36.9'	242°27.8' S	17°28.7'	77°02.5' N	21°40.3'	
21	213°26.7'	135°09.3' N	23°00.0'	113°37.8' N	24°19.2'	239°07.0' S	11°36.9'	257°30.3' S	17°28.8'	92°03.3' N	21°40.0'	
22	228°29.2'	150°09.2' N	23°00.2'	128°36.9' N	24°19.1'	254°09.4' S	11°36.8'	272°32.8' S	17°28.8'	107°04.2' N	21°39.6'	
23	243°31.6'	165°09.1' N	23°00.4'	143°36.0' N	24°19.0'	269°11.8' S	11°36.8'	287°35.4' S	17°28.8'	122°05.0' N	21°39.3'	
		SD 15.7' d 0.2'		v -0.9' d -0.1'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'		
Mer. pass.		11 h 59 m 19 s		13 h 25 m		5 h 6 m		3 h 53 m		14 h 52 m		

h	Moon				Lunar distance						
	GHA	dec	v	d	HP	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	196°55.8' N	19°55.6'	13.2'	8.4'	54.0'		82°44.2'	88°14.2'	90°34.9'	109°15.1'	116°40.0'
1	211°28.0' N	20°04.0'	13.1'	8.3'	54.0'		83°01.4'	88°42.7'	91°04.3'	109°44.7'	117°03.4'
2	226°00.1' N	20°12.3'	13.1'	8.2'	54.0'	8°05.8'	83°18.5'	89°11.2'	91°33.8'	110°14.4'	117°26.7'
3	240°32.2' N	20°20.4'	13.0'	8.1'	54.0'		83°35.7'	89°39.7'	92°03.3'	110°44.0'	117°49.9'
4	255°04.3' N	20°28.6'	13.0'	8.0'	54.0'		83°52.9'	90°08.2'	92°32.7'	111°13.6'	118°13.1'
5	269°36.2' N	20°36.6'	12.9'	7.9'	54.0'		84°10.1'	90°36.7'	93°02.2'	111°43.3'	118°36.2'
6	284°08.2' N	20°44.5'	12.9'	7.8'	54.0'		84°27.3'	91°05.3'	93°31.7'	112°12.9'	118°59.3'
7	298°40.0' N	20°52.4'	12.8'	7.8'	54.0'		84°44.5'	91°33.8'	94°01.2'	112°42.6'	119°22.4'
8	313°11.8' N	21°00.1'	12.7'	7.7'	54.0'		85°01.8'	92°02.4'	94°30.7'	113°12.2'	119°45.4'
9	327°43.5' N	21°07.8'	12.7'	7.6'	54.0'		85°19.1'	92°30.9'	95°00.2'	113°41.9'	
10	342°15.2' N	21°15.3'	12.6'	7.5'	54.0'		85°36.4'	92°59.5'	95°29.7'	114°11.6'	
11	356°46.8' N	21°22.8'	12.6'	7.4'	54.0'		85°53.7'	93°28.0'	95°59.3'	114°41.2'	
12	11°18.4' N	21°30.2'	12.5'	7.3'	54.0'		86°11.1'	93°56.6'	96°28.8'	115°10.9'	
13	25°49.9' N	21°37.5'	12.4'	7.2'	54.0'						
14	40°21.3' N	21°44.7'	12.4'	7.1'	54.0'						
15	54°52.7' N	21°51.8'	12.3'	7.0'	54.0'						
16	69°24.0' N	21°58.8'	12.3'	6.9'	54.0'						
17	83°55.2' N	22°05.7'	12.2'	6.8'	54.0'						
18	98°26.4' N	22°12.6'	12.1'	6.7'	54.0'						
19	112°57.6' N	22°19.3'	12.1'	6.6'	54.1'						
20	127°28.7' N	22°25.9'	12.0'	6.5'	54.1'						
21	141°59.7' N	22°32.4'	12.0'	6.4'	54.1'						
22	156°30.7' N	22°38.9'	11.9'	6.3'	54.1'						
23	171°01.6' N	22°45.2'	11.9'	6.2'	54.1'						
Mer. pass.		11 h 13 m SD 14.7'		phase 2%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8' S	29°30.5'	Spica	+1.0	158°25.2' S	11°16.4'	Betelgeuse	+0.5	270°55.6' N	7°24.6'
Deneb	+1.2	49°27.5' N	45°21.2'	Acrux	+0.8	173°03.0' S	63°13.3'	Capella	+0.1	280°26.7' N	46°01.1'
Altair	+0.8	62°02.5' N	8°55.4'	Regulus	+1.4	207°37.7' N	11°51.9'	Rigel	+0.2	281°07.0' S	8°10.7'
Vega	+0.0	80°34.8' N	38°48.1'	Pollux	+1.2	243°21.2' N	27°58.5'	Aldebaran	+0.9	290°43.3' N	16°33.0'
Antares	+1.1	112°19.1' S	26°28.7'	Procyon	+0.4	244°54.2' N	5°10.2'	Polaris	+2.0	315°46.7' N	89°21.0'
Rigil Kent	-0.0	139°43.7' S	60°55.5'	Adhara	+1.5	255°08.5' S	29°00.2'	Achernar	+0.5	335°22.8' S	57°07.6'
Arcturus	-0.1	145°50.4' N	19°04.4'	Sirius	-1.4	258°29.2' S	16°44.8'				
Hadar	+0.6	148°39.6' S	60°28.7'	Canopus	-0.6	263°54.2' S	52°42.5'				

Thursday 10 June 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	258°34.1'	180°09.0'	N 23°00.6'	158°35.2'	N 24°18.8'	284°14.2'	S 11°36.8'	302°37.9'	S 17°28.8'	137°05.9'	N 21°39.0'			
1	273°36.5'	195°08.8'	N 23°00.8'	173°34.3'	N 24°18.7'	299°16.6'	S 11°36.8'	317°40.4'	S 17°28.9'	152°06.7'	N 21°38.7'			
2	288°39.0'	210°08.7'	N 23°01.0'	188°33.4'	N 24°18.6'	314°18.9'	S 11°36.8'	332°43.0'	S 17°28.9'	167°07.6'	N 21°38.3'			
3	303°41.5'	225°08.6'	N 23°01.2'	203°32.5'	N 24°18.4'	329°21.3'	S 11°36.7'	347°45.5'	S 17°28.9'	182°08.4'	N 21°38.0'			
4	318°43.9'	240°08.5'	N 23°01.4'	218°31.6'	N 24°18.3'	344°23.7'	S 11°36.7'	2°48.0'	S 17°28.9'	197°09.3'	N 21°37.7'			
5	333°46.4'	255°08.3'	N 23°01.6'	233°30.8'	N 24°18.2'	359°26.1'	S 11°36.7'	17°50.6'	S 17°29.0'	212°10.1'	N 21°37.3'			
6	348°48.9'	270°08.2'	N 23°01.7'	248°29.9'	N 24°18.0'	14°28.5'	S 11°36.7'	32°53.1'	S 17°29.0'	227°10.9'	N 21°37.0'			
7	3°51.3'	285°08.1'	N 23°01.9'	263°29.0'	N 24°17.9'	29°30.8'	S 11°36.7'	47°55.6'	S 17°29.0'	242°11.8'	N 21°36.7'			
8	18°53.8'	300°07.9'	N 23°02.1'	278°28.1'	N 24°17.7'	44°33.2'	S 11°36.7'	62°58.2'	S 17°29.0'	257°12.6'	N 21°36.4'			
9	33°56.3'	315°07.8'	N 23°02.3'	293°27.2'	N 24°17.6'	59°35.6'	S 11°36.6'	78°00.7'	S 17°29.1'	272°13.5'	N 21°36.0'			
10	48°58.7'	330°07.7'	N 23°02.5'	308°26.4'	N 24°17.4'	74°38.0'	S 11°36.6'	93°03.2'	S 17°29.1'	287°14.3'	N 21°35.7'			
11	64°01.2'	345°07.6'	N 23°02.7'	323°25.5'	N 24°17.3'	89°40.4'	S 11°36.6'	108°05.8'	S 17°29.1'	302°15.2'	N 21°35.4'			
12	79°03.7'	0°07.4'	N 23°02.9'	338°24.6'	N 24°17.1'	104°42.8'	S 11°36.6'	123°08.3'	S 17°29.1'	317°16.0'	N 21°35.0'			
13	94°06.1'	15°07.3'	N 23°03.0'	353°23.7'	N 24°17.0'	119°45.1'	S 11°36.6'	138°10.8'	S 17°29.2'	332°16.9'	N 21°34.7'			
14	109°08.6'	30°07.2'	N 23°03.2'	8°22.9'	N 24°16.8'	134°47.5'	S 11°36.5'	153°13.4'	S 17°29.2'	347°17.7'	N 21°34.4'			
15	124°11.0'	45°07.1'	N 23°03.4'	23°22.0'	N 24°16.7'	149°49.9'	S 11°36.5'	168°15.9'	S 17°29.2'	2°18.6'	N 21°34.0'			
16	139°13.5'	60°06.9'	N 23°03.6'	38°21.1'	N 24°16.5'	164°52.3'	S 11°36.5'	183°18.4'	S 17°29.3'	17°19.4'	N 21°33.7'			
17	154°16.0'	75°06.8'	N 23°03.8'	53°20.2'	N 24°16.4'	179°54.7'	S 11°36.5'	198°21.0'	S 17°29.3'	32°20.3'	N 21°33.4'			
18	169°18.4'	90°06.7'	N 23°03.9'	68°19.4'	N 24°16.2'	194°57.1'	S 11°36.5'	213°23.5'	S 17°29.3'	47°21.1'	N 21°33.0'			
19	184°20.9'	105°06.6'	N 23°04.1'	83°18.5'	N 24°16.1'	209°59.4'	S 11°36.5'	228°26.0'	S 17°29.3'	62°22.0'	N 21°32.7'			
20	199°23.4'	120°06.4'	N 23°04.3'	98°17.6'	N 24°15.9'	225°01.8'	S 11°36.4'	243°28.6'	S 17°29.4'	77°22.8'	N 21°32.4'			
21	214°25.8'	135°06.3'	N 23°04.5'	113°16.7'	N 24°15.7'	240°04.2'	S 11°36.4'	258°31.1'	S 17°29.4'	92°23.7'	N 21°32.0'			
22	229°28.3'	150°06.2'	N 23°04.6'	128°15.8'	N 24°15.6'	255°06.6'	S 11°36.4'	273°33.6'	S 17°29.4'	107°24.5'	N 21°31.7'			
23	244°30.8'	165°06.0'	N 23°04.8'	143°15.0'	N 24°15.4'	270°09.0'	S 11°36.4'	288°36.2'	S 17°29.4'	122°25.4'	N 21°31.4'			
		SD 15.7'	d 0.2'	v -0.9'	d -0.1'	v 2.4'	d 0.0'	v 2.5'	d -0.0'	v 0.8'	d -0.3'			
Mer. pass.		11 h 59 m 31 s		13 h 26 m		5 h 2 m		3 h 49 m		14 h 51 m				

h	Moon				
	GHA	dec	v	d	HP
0	185°32.4'	N 22°51.4'	11.8'	6.1'	54.1'
1	200°03.2'	N 22°57.5'	11.7'	6.0'	54.1'
2	214°33.9'	N 23°03.5'	11.7'	5.9'	54.1'
3	229°04.6'	N 23°09.4'	11.6'	5.8'	54.1'
4	243°35.2'	N 23°15.2'	11.6'	5.7'	54.1'
5	258°05.8'	N 23°20.9'	11.5'	5.6'	54.1'
6	272°36.3'	N 23°26.5'	11.5'	5.5'	54.1'
7	287°06.8'	N 23°32.0'	11.4'	5.4'	54.1'
8	301°37.2'	N 23°37.4'	11.4'	5.3'	54.2'
9	316°07.5'	N 23°42.7'	11.3'	5.2'	54.2'
10	330°37.8'	N 23°47.8'	11.2'	5.1'	54.2'
11	345°08.1'	N 23°52.9'	11.2'	4.9'	54.2'
12	359°38.3'	N 23°57.8'	11.1'	4.8'	54.2'
13	14°08.4'	N 24°02.6'	11.1'	4.7'	54.2'
14	28°38.5'	N 24°07.4'	11.0'	4.6'	54.2'
15	43°08.6'	N 24°12.0'	11.0'	4.5'	54.2'
16	57°38.5'	N 24°16.5'	10.9'	4.4'	54.2'
17	72°08.5'	N 24°20.8'	10.9'	4.3'	54.2'
18	86°38.4'	N 24°25.1'	10.8'	4.1'	54.2'
19	101°08.2'	N 24°29.2'	10.8'	4.0'	54.3'
20	115°38.0'	N 24°33.3'	10.8'	3.9'	54.3'
21	130°07.8'	N 24°37.2'	10.7'	3.8'	54.3'
22	144°37.5'	N 24°41.0'	10.7'	3.7'	54.3'
23	159°07.1'	N 24°44.7'	10.6'	3.6'	54.3'
Mer. pass.	12 h 2 m	SD 14.8'	phase 0%		

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°46.3'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

Friday 11 June 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	259°33.2'	180°05.9'	N 23°05.0'	158°14.1'	N 24°15.3'	285°11.4'	S 11°36.4'	303°38.7'	S 17°29.5'	137°26.2'	N 21°31.0'			
1	274°35.7'	195°05.8'	N 23°05.2'	173°13.2'	N 24°15.1'	300°13.8'	S 11°36.3'	318°41.3'	S 17°29.5'	152°27.1'	N 21°30.7'			
2	289°38.2'	210°05.7'	N 23°05.3'	188°12.3'	N 24°14.9'	315°16.1'	S 11°36.3'	333°43.8'	S 17°29.5'	167°27.9'	N 21°30.4'			
3	304°40.6'	225°05.5'	N 23°05.5'	203°11.5'	N 24°14.8'	330°18.5'	S 11°36.3'	348°46.3'	S 17°29.5'	182°28.8'	N 21°30.0'			
4	319°43.1'	240°05.4'	N 23°05.7'	218°10.6'	N 24°14.6'	345°20.9'	S 11°36.3'	3°48.9'	S 17°29.6'	197°29.6'	N 21°29.7'			
5	334°45.5'	255°05.3'	N 23°05.9'	233°09.7'	N 24°14.4'	0°23.3'	S 11°36.3'	18°51.4'	S 17°29.6'	212°30.5'	N 21°29.3'			
6	349°48.0'	270°05.1'	N 23°06.0'	248°08.8'	N 24°14.3'	15°25.7'	S 11°36.3'	33°53.9'	S 17°29.6'	227°31.3'	N 21°29.0'			
7	4°50.5'	285°05.0'	N 23°06.2'	263°08.0'	N 24°14.1'	30°28.1'	S 11°36.3'	48°56.5'	S 17°29.7'	242°32.2'	N 21°28.7'			
8	19°52.9'	300°04.9'	N 23°06.4'	278°07.1'	N 24°13.9'	45°30.5'	S 11°36.2'	63°59.0'	S 17°29.7'	257°33.0'	N 21°28.3'			
9	34°55.4'	315°04.8'	N 23°06.5'	293°06.2'	N 24°13.7'	60°32.9'	S 11°36.2'	79°01.6'	S 17°29.7'	272°33.9'	N 21°28.0'			
10	49°57.9'	330°04.6'	N 23°06.7'	308°05.4'	N 24°13.6'	75°35.3'	S 11°36.2'	94°04.1'	S 17°29.7'	287°34.7'	N 21°27.7'			
11	65°00.3'	345°04.5'	N 23°06.9'	323°04.5'	N 24°13.4'	90°37.6'	S 11°36.2'	109°06.6'	S 17°29.8'	302°35.6'	N 21°27.3'			
12	80°02.8'	0°04.4'	N 23°07.0'	338°03.6'	N 24°13.2'	105°40.0'	S 11°36.2'	124°09.2'	S 17°29.8'	317°36.4'	N 21°27.0'			
13	95°05.3'	15°04.2'	N 23°07.2'	353°02.7'	N 24°13.0'	120°42.4'	S 11°36.2'	139°11.7'	S 17°29.8'	332°37.3'	N 21°26.7'			
14	110°07.7'	30°04.1'	N 23°07.4'	8°01.9'	N 24°12.8'	135°44.8'	S 11°36.1'	154°14.2'	S 17°29.8'	347°38.1'	N 21°26.3'			
15	125°10.2'	45°04.0'	N 23°07.5'	23°01.0'	N 24°12.7'	150°47.2'	S 11°36.1'	169°16.8'	S 17°29.9'	2°39.0'	N 21°26.0'			
16	140°12.7'	60°03.9'	N 23°07.7'	38°00.1'	N 24°12.5'	165°49.6'	S 11°36.1'	184°19.3'	S 17°29.9'	17°39.8'	N 21°25.6'			
17	155°15.1'	75°03.7'	N 23°07.9'	52°59.2'	N 24°12.3'	180°52.0'	S 11°36.1'	199°21.9'	S 17°29.9'	32°40.7'	N 21°25.3'			
18	170°17.6'	90°03.6'	N 23°08.0'	67°58.4'	N 24°12.1'	195°54.4'	S 11°36.1'	214°24.4'	S 17°29.9'	47°41.5'	N 21°25.0'			
19	185°20.0'	105°03.5'	N 23°08.2'	82°57.5'	N 24°11.9'	210°56.8'	S 11°36.1'	229°26.9'	S 17°30.0'	62°42.4'	N 21°24.6'			
20	200°22.5'	120°03.3'	N 23°08.3'	97°56.6'	N 24°11.7'	225°59.2'	S 11°36.1'	244°29.5'	S 17°30.0'	77°43.2'	N 21°24.3'			
21	215°25.0'	135°03.2'	N 23°08.5'	112°55.8'	N 24°11.5'	241°01.6'	S 11°36.0'	259°32.0'	S 17°30.0'	92°44.1'	N 21°23.9'			
22	230°27.4'	150°03.1'	N 23°08.7'	127°54.9'	N 24°11.4'	256°04.0'	S 11°36.0'	274°34.6'	S 17°30.1'	107°44.9'	N 21°23.6'			
23	245°29.9'	165°03.0'	N 23°08.8'	142°54.0'	N 24°11.2'	271°06.3'	S 11°36.0'	289°37.1'	S 17°30.1'	122°45.8'	N 21°23.3'			
		SD 15.7'	d 0.2'		v -0.9' d -0.2'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 0.9' d -0.3'			
Mer. pass.		11 h 59 m 43 s		13 h 28 m		4 h 58 m		3 h 45 m		14 h 49 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Procyon	-Mars	-Pollux	-Betelgeuse	-Venus
0	173°36.8'	N 24°48.3'	10.6'	3.4'	54.3'								
1	188°06.3'	N 24°51.7'	10.5'	3.3'	54.3'								
2	202°35.9'	N 24°55.0'	10.5'	3.2'	54.3'								
3	217°05.4'	N 24°58.2'	10.4'	3.1'	54.3'								
4	231°34.8'	N 25°01.3'	10.4'	3.0'	54.4'								
5	246°04.2'	N 25°04.3'	10.4'	2.8'	54.4'								
6	260°33.6'	N 25°07.1'	10.3'	2.7'	54.4'								
7	275°02.9'	N 25°09.9'	10.3'	2.6'	54.4'								
8	289°32.2'	N 25°12.5'	10.3'	2.5'	54.4'								
9	304°01.5'	N 25°15.0'	10.2'	2.4'	54.4'	113°22.1'	109°14.1'	59°18.5'	30°40.5'	29°03.7'	23°08.2'		9°58.1'
10	318°30.7'	N 25°17.3'	10.2'	2.2'	54.4'	112°52.1'	108°47.6'	58°48.5'	30°18.0'	28°35.3'	22°38.4'		9°31.3'
11	332°59.9'	N 25°19.5'	10.2'	2.1'	54.4'	112°22.1'	108°21.0'	58°18.4'	29°55.7'	28°06.8'	22°08.5'		9°04.5'
12	347°29.0'	N 25°21.7'	10.1'	2.0'	54.4'	111°52.1'	107°54.5'	57°48.4'	29°33.6'	27°38.3'	21°38.6'		8°37.7'
13	1°58.1'	N 25°23.6'	10.1'	1.9'	54.5'	111°22.1'	107°27.9'	57°18.4'	29°11.7'	27°09.8'	21°08.8'		8°11.0'
14	16°27.2'	N 25°25.5'	10.1'	1.7'	54.5'	110°52.1'	107°01.3'	56°48.3'	28°50.0'	26°41.3'	20°38.9'		7°44.3'
15	30°56.3'	N 25°27.2'	10.0'	1.6'	54.5'	110°22.1'	106°34.6'	56°18.2'	28°28.6'	26°12.8'	20°09.1'		7°17.7'
16	45°25.3'	N 25°28.9'	10.0'	1.5'	54.5'	109°52.0'	106°08.0'	55°48.1'	28°07.4'	25°44.2'	19°39.2'		6°51.1'
17	59°54.3'	N 25°30.3'	10.0'	1.4'	54.5'	109°22.0'	105°41.3'	55°18.1'	27°46.4'	25°15.7'	19°09.4'		6°24.6'
18	74°23.3'	N 25°31.7'	9.9'	1.2'	54.5'	108°51.9'	105°14.5'	54°48.0'	27°25.7'	24°47.2'	18°39.5'		5°58.1'
19	88°52.2'	N 25°32.9'	9.9'	1.1'	54.5'	108°21.8'	104°47.8'	54°17.8'	27°05.3'	24°18.7'	18°09.7'		5°31.8'
20	103°21.1'	N 25°34.0'	9.9'	1.0'	54.5'	107°51.7'	104°21.0'	53°47.7'	26°45.1'	23°50.1'	17°39.9'		5°05.6'
21	117°50.0'	N 25°35.0'	9.9'	0.9'	54.6'	107°21.6'	103°54.2'	53°17.6'	26°25.2'	23°21.6'	17°10.1'		4°39.7'
22	132°18.9'	N 25°35.9'	9.8'	0.7'	54.6'	106°51.4'	103°27.3'	52°47.4'	26°05.6'	22°53.0'	16°40.3'		4°13.9'
23	146°47.7'	N 25°36.6'	9.8'	0.6'	54.6'	106°21.3'	103°00.5'	52°17.3'	25°46.4'	22°24.4'	16°10.5'	20°23.1'	3°48.6'
Mer. pass.		12 h 52 m SD 14.8'	phase 0%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.0'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°45.9'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

Saturday 12 June 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	260°32.4'	180°02.8'	N 23°09.0'	157°53.1'	N 24°11.0'		286°08.7'	S 11°36.0'	304°39.6'	S 17°30.1'	137°46.6'	N 21°22.9'		
1	275°34.8'	195°02.7'	N 23°09.1'	172°52.3'	N 24°10.8'		301°11.1'	S 11°36.0'	319°42.2'	S 17°30.1'	152°47.5'	N 21°22.6'		
2	290°37.3'	210°02.6'	N 23°09.3'	187°51.4'	N 24°10.6'		316°13.5'	S 11°36.0'	334°44.7'	S 17°30.2'	167°48.3'	N 21°22.2'		
3	305°39.8'	225°02.4'	N 23°09.4'	202°50.5'	N 24°10.4'		331°15.9'	S 11°36.0'	349°47.3'	S 17°30.2'	182°49.2'	N 21°21.9'		
4	320°42.2'	240°02.3'	N 23°09.6'	217°49.7'	N 24°10.2'		346°18.3'	S 11°35.9'	4°49.8'	S 17°30.2'	197°50.0'	N 21°21.6'		
5	335°44.7'	255°02.2'	N 23°09.7'	232°48.8'	N 24°10.0'		1°20.7'	S 11°35.9'	19°52.3'	S 17°30.3'	212°50.9'	N 21°21.2'		
6	350°47.2'	270°02.0'	N 23°09.9'	247°47.9'	N 24°09.8'		16°23.1'	S 11°35.9'	34°54.9'	S 17°30.3'	227°51.7'	N 21°20.9'		
7	5°49.6'	285°01.9'	N 23°10.1'	262°47.1'	N 24°09.6'		31°25.5'	S 11°35.9'	49°57.4'	S 17°30.3'	242°52.6'	N 21°20.5'		
8	20°52.1'	300°01.8'	N 23°10.2'	277°46.2'	N 24°09.4'		46°27.9'	S 11°35.9'	64°60.0'	S 17°30.3'	257°53.4'	N 21°20.2'		
9	35°54.5'	315°01.7'	N 23°10.4'	292°45.3'	N 24°09.2'		61°30.3'	S 11°35.9'	80°02.5'	S 17°30.4'	272°54.3'	N 21°19.8'		
10	50°57.0'	330°01.5'	N 23°10.5'	307°44.4'	N 24°09.0'		76°32.7'	S 11°35.9'	95°05.0'	S 17°30.4'	287°55.1'	N 21°19.5'		
11	65°59.5'	345°01.4'	N 23°10.7'	322°43.6'	N 24°08.8'		91°35.1'	S 11°35.8'	110°07.6'	S 17°30.4'	302°56.0'	N 21°19.2'		
12	81°01.9'	0°01.3'	N 23°10.8'	337°42.7'	N 24°08.6'		106°37.5'	S 11°35.8'	125°10.1'	S 17°30.4'	317°56.8'	N 21°18.8'		
13	96°04.4'	15°01.1'	N 23°11.0'	352°41.8'	N 24°08.3'		121°39.9'	S 11°35.8'	140°12.7'	S 17°30.5'	332°57.7'	N 21°18.5'		
14	111°06.9'	30°01.0'	N 23°11.1'	7°41.0'	N 24°08.1'		136°42.3'	S 11°35.8'	155°15.2'	S 17°30.5'	347°58.5'	N 21°18.1'		
15	126°09.3'	45°00.9'	N 23°11.2'	22°40.1'	N 24°07.9'		151°44.7'	S 11°35.8'	170°17.7'	S 17°30.5'	2°59.4'	N 21°17.8'		
16	141°11.8'	60°00.7'	N 23°11.4'	37°39.2'	N 24°07.7'		166°47.1'	S 11°35.8'	185°20.3'	S 17°30.6'	18°00.2'	N 21°17.4'		
17	156°14.3'	75°00.6'	N 23°11.5'	52°38.4'	N 24°07.5'		181°49.5'	S 11°35.8'	200°22.8'	S 17°30.6'	33°01.1'	N 21°17.1'		
18	171°16.7'	90°00.5'	N 23°11.7'	67°37.5'	N 24°07.3'		196°51.9'	S 11°35.8'	215°25.4'	S 17°30.6'	48°02.0'	N 21°16.7'		
19	186°19.2'	105°00.3'	N 23°11.8'	82°36.6'	N 24°07.1'		211°54.3'	S 11°35.7'	230°27.9'	S 17°30.6'	63°02.8'	N 21°16.4'		
20	201°21.7'	120°00.2'	N 23°12.0'	97°35.8'	N 24°06.8'		226°56.7'	S 11°35.7'	245°30.5'	S 17°30.7'	78°03.7'	N 21°16.1'		
21	216°24.1'	135°00.1'	N 23°12.1'	112°34.9'	N 24°06.6'		241°59.1'	S 11°35.7'	260°33.0'	S 17°30.7'	93°04.5'	N 21°15.7'		
22	231°26.6'	149°60.0'	N 23°12.3'	127°34.0'	N 24°06.4'		257°01.5'	S 11°35.7'	275°35.5'	S 17°30.7'	108°05.4'	N 21°15.4'		
23	246°29.0'	164°59.8'	N 23°12.4'	142°33.2'	N 24°06.2'		272°03.9'	S 11°35.7'	290°38.1'	S 17°30.8'	123°06.2'	N 21°15.0'		
		SD 15.7'	d 0.1'	v -0.9'	d -0.2'		v 2.4'	d 0.0'	v 2.5'	d -0.0'	v 0.9'	d -0.3'		
Mer. pass.		11 h 59 m 56 s		13 h 29 m			4 h 55 m		3 h 41 m		14 h 48 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Spica	-Procyon	-Mars	-Pollux	-Venus	+Betelgeuse
0	161°16.6'	N 25°37.2'	9.8'	0.5'	54.6'			105°51.1'	25°27.4'	21°55.9'	15°40.8'	3°23.6'	20°38.4'
1	175°45.4'	N 25°37.7'	9.8'	0.3'	54.6'			105°20.9'	25°08.8'	21°27.3'	15°11.1'		20°54.2'
2	190°14.1'	N 25°38.0'	9.8'	0.2'	54.6'			104°50.7'	24°50.6'	20°58.7'	14°41.4'		21°10.6'
3	204°42.9'	N 25°38.2'	9.7'	0.1'	54.6'			104°20.5'	24°32.7'	20°30.2'	14°11.7'		21°27.4'
4	219°11.7'	N 25°38.3'	9.7'	-0.0'	54.7'			103°50.3'	24°15.2'	20°01.6'	13°42.1'		21°44.7'
5	233°40.4'	N 25°38.2'	9.7'	-0.2'	54.7'			103°20.1'	23°58.1'	19°33.0'	13°12.5'		22°02.5'
6	248°09.1'	N 25°38.1'	9.7'	-0.3'	54.7'			102°49.8'	23°41.4'	19°04.4'	12°43.0'		22°20.7'
7	262°37.8'	N 25°37.8'	9.7'	-0.4'	54.7'			102°19.5'	23°25.2'	18°35.8'	12°13.5'		22°39.3'
8	277°06.5'	N 25°37.3'	9.7'	-0.6'	54.7'			101°49.2'	23°09.3'	18°07.3'	11°44.1'		22°58.3'
9	291°35.2'	N 25°36.8'	9.7'	-0.7'	54.7'		109°29.9'	101°18.9'		17°38.7'	11°14.7'		23°17.8'
10	306°03.9'	N 25°36.1'	9.7'	-0.8'	54.7'		109°14.9'	100°48.6'		17°10.1'	10°45.5'		23°37.6'
11	320°32.5'	N 25°35.2'	9.6'	-1.0'	54.8'	119°50.1'	108°59.7'	100°18.3'		16°41.6'	10°16.4'		23°57.8'
12	335°01.2'	N 25°34.3'	9.6'	-1.1'	54.8'	119°32.6'	108°44.6'	99°47.9'		16°13.0'	9°47.3'		24°18.3'
13	349°29.8'	N 25°33.2'	9.6'	-1.2'	54.8'	119°15.0'	108°29.3'	99°17.6'		15°44.5'	9°18.5'		24°39.1'
14	3°58.4'	N 25°32.0'	9.6'	-1.3'	54.8'	118°57.3'	108°13.9'	98°47.2'		15°15.9'	8°49.8'	3°38.7'	25°00.3'
15	18°27.1'	N 25°30.6'	9.6'	-1.5'	54.8'	118°39.5'	107°58.5'	98°16.8'		14°47.4'	8°21.3'	4°04.1'	25°21.8'
16	32°55.7'	N 25°29.2'	9.6'	-1.6'	54.8'	118°21.6'	107°43.0'	97°46.4'		14°18.9'	7°53.0'	4°29.9'	25°43.6'
17	47°24.3'	N 25°27.5'	9.6'	-1.7'	54.9'	118°03.6'	107°27.4'	97°15.9'		13°50.5'	7°25.0'	4°56.1'	26°05.6'
18	61°52.9'	N 25°25.8'	9.6'	-1.9'	54.9'	117°45.5'	107°11.8'	96°45.5'		13°22.0'	6°57.4'	5°22.5'	26°28.0'
19	76°21.6'	N 25°23.9'	9.6'	-2.0'	54.9'	117°27.3'	106°56.1'	96°15.0'		12°53.6'	6°30.2'	5°49.1'	26°50.6'
20	90°50.2'	N 25°21.9'	9.6'	-2.1'	54.9'	117°09.0'	106°40.3'	95°44.6'		12°25.2'	6°03.6'	6°15.9'	27°13.4'
21	105°18.8'	N 25°19.8'	9.6'	-2.3'	54.9'	116°50.6'	106°24.5'	95°14.1'		11°56.8'	6°42.8'	7°02.8'	27°36.5'
22	119°47.4'	N 25°17.6'	9.6'	-2.4'	54.9'	116°32.1'	106°08.5'	94°43.6'		11°28.5'	7°09.8'	7°29.9'	27°59.9'
23	134°16.0'	N 25°15.2'	9.6'	-2.5'	55.0'	116°13.5'	105°52.6'	94°13.0'		11°00.3'	7°36.9'	7°36.9'	28°23.5'
Mer. pass.		13 h 44 m SD 14.9'	phase 2%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°45.5'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	261°31.5'	179°59.7'	N 23°12.5'	157°32.3'	N 24°06.0'	287°06.3'	S 11°35.7'	305°40.6'	S 17°30.8'	138°07.1'	N 21°14.7'			
1	276°34.0'	194°59.6'	N 23°12.7'	172°31.4'	N 24°05.7'	302°08.7'	S 11°35.7'	320°43.2'	S 17°30.8'	153°07.9'	N 21°14.3'			
2	291°36.4'	209°59.4'	N 23°12.8'	187°30.6'	N 24°05.5'	317°11.1'	S 11°35.7'	335°45.7'	S 17°30.8'	168°08.8'	N 21°14.0'			
3	306°38.9'	224°59.3'	N 23°13.0'	202°29.7'	N 24°05.3'	332°13.5'	S 11°35.7'	350°48.3'	S 17°30.9'	183°09.6'	N 21°13.6'			
4	321°41.4'	239°59.2'	N 23°13.1'	217°28.9'	N 24°05.1'	347°15.9'	S 11°35.6'	5°50.8'	S 17°30.9'	198°10.5'	N 21°13.3'			
5	336°43.8'	254°59.0'	N 23°13.2'	232°28.0'	N 24°04.8'	2°18.3'	S 11°35.6'	20°53.4'	S 17°30.9'	213°11.3'	N 21°12.9'			
6	351°46.3'	269°58.9'	N 23°13.4'	247°27.1'	N 24°04.6'	17°20.7'	S 11°35.6'	35°55.9'	S 17°31.0'	228°12.2'	N 21°12.6'			
7	6°48.8'	284°58.8'	N 23°13.5'	262°26.3'	N 24°04.4'	32°23.1'	S 11°35.6'	50°58.4'	S 17°31.0'	243°13.1'	N 21°12.2'			
8	21°51.2'	299°58.6'	N 23°13.6'	277°25.4'	N 24°04.1'	47°25.5'	S 11°35.6'	66°01.0'	S 17°31.0'	258°13.9'	N 21°11.9'			
9	36°53.7'	314°58.5'	N 23°13.8'	292°24.5'	N 24°03.9'	62°27.9'	S 11°35.6'	81°03.5'	S 17°31.0'	273°14.8'	N 21°11.5'			
10	51°56.1'	329°58.4'	N 23°13.9'	307°23.7'	N 24°03.7'	77°30.3'	S 11°35.6'	96°06.1'	S 17°31.1'	288°15.6'	N 21°11.2'			
11	66°58.6'	344°58.2'	N 23°14.0'	322°22.8'	N 24°03.4'	92°32.7'	S 11°35.6'	111°08.6'	S 17°31.1'	303°16.5'	N 21°10.8'			
12	82°01.1'	359°58.1'	N 23°14.2'	337°21.9'	N 24°03.2'	107°35.1'	S 11°35.6'	126°11.2'	S 17°31.1'	318°17.3'	N 21°10.5'			
13	97°03.5'	14°58.0'	N 23°14.3'	352°21.1'	N 24°03.0'	122°37.5'	S 11°35.6'	141°13.7'	S 17°31.2'	333°18.2'	N 21°10.1'			
14	112°06.0'	29°57.8'	N 23°14.4'	7°20.2'	N 24°02.7'	137°40.0'	S 11°35.5'	156°16.3'	S 17°31.2'	348°19.0'	N 21°09.8'			
15	127°08.5'	44°57.7'	N 23°14.6'	22°19.4'	N 24°02.5'	152°42.4'	S 11°35.5'	171°18.8'	S 17°31.2'	3°19.9'	N 21°09.4'			
16	142°10.9'	59°57.6'	N 23°14.7'	37°18.5'	N 24°02.2'	167°44.8'	S 11°35.5'	186°21.4'	S 17°31.3'	18°20.7'	N 21°09.1'			
17	157°13.4'	74°57.4'	N 23°14.8'	52°17.6'	N 24°02.0'	182°47.2'	S 11°35.5'	201°23.9'	S 17°31.3'	33°21.6'	N 21°08.7'			
18	172°15.9'	89°57.3'	N 23°14.9'	67°16.8'	N 24°01.8'	197°49.6'	S 11°35.5'	216°26.4'	S 17°31.3'	48°22.5'	N 21°08.4'			
19	187°18.3'	104°57.2'	N 23°15.1'	82°15.9'	N 24°01.5'	212°52.0'	S 11°35.5'	231°29.0'	S 17°31.3'	63°23.3'	N 21°08.0'			
20	202°20.8'	119°57.0'	N 23°15.2'	97°15.1'	N 24°01.3'	227°54.4'	S 11°35.5'	246°31.5'	S 17°31.4'	78°24.2'	N 21°07.7'			
21	217°23.3'	134°56.9'	N 23°15.3'	112°14.2'	N 24°01.0'	242°56.8'	S 11°35.5'	261°34.1'	S 17°31.4'	93°25.0'	N 21°07.3'			
22	232°25.7'	149°56.8'	N 23°15.4'	127°13.3'	N 24°00.8'	257°59.2'	S 11°35.5'	276°36.6'	S 17°31.4'	108°25.9'	N 21°07.0'			
23	247°28.2'	164°56.6'	N 23°15.6'	142°12.5'	N 24°00.5'	273°01.6'	S 11°35.5'	291°39.2'	S 17°31.5'	123°26.7'	N 21°06.6'			
		SD 15.7'	d 0.1'	v -0.9'	d -0.2'	v 2.4'	d 0.0'	v 2.5'	d -0.0'	v 0.9'	d -0.3'			
Mer. pass.		12 h 0 m 9 s		13 h 31 m		4 h 51 m		3 h 37 m		14 h 47 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel Kent	-Hadar	-Arcturus	-Regulus	-Mars	-Pollux	+Venus	+Betelgeuse
0	148°44.7'	N 25°12.7'	9.6'	-2.6'	55.0'		115°54.7'	91°41.5'	39°39.4'	10°32.1'		8°04.1'	28°47.2'
1	163°13.3'	N 25°10.0'	9.6'	-2.8'	55.0'	119°58.9'	115°35.9'	91°14.1'	39°08.9'	10°04.0'		8°31.3'	29°11.2'
2	177°42.0'	N 25°07.2'	9.6'	-2.9'	55.0'	119°40.1'	115°17.1'	90°46.7'	38°38.4'	9°36.0'		8°58.6'	29°35.4'
3	192°10.6'	N 25°04.3'	9.7'	-3.0'	55.0'	119°21.2'	114°58.1'	90°19.2'	38°08.0'	9°08.1'		9°26.0'	29°59.8'
4	206°39.3'	N 25°01.3'	9.7'	-3.2'	55.0'	119°02.2'	114°39.0'	89°51.8'	37°37.5'	8°40.3'		9°53.4'	30°24.4'
5	221°07.9'	N 24°58.1'	9.7'	-3.3'	55.1'	118°43.1'	114°19.8'	89°24.3'	37°06.9'	8°12.7'		10°20.8'	30°49.2'
6	235°36.6'	N 24°54.8'	9.7'	-3.4'	55.1'	118°23.9'	114°00.6'	88°56.8'	36°36.4'	7°45.3'		10°48.3'	31°14.1'
7	250°05.3'	N 24°51.4'	9.7'	-3.6'	55.1'	118°04.6'	113°41.3'	88°29.3'	36°05.9'	7°18.0'		11°15.8'	31°39.2'
8	264°34.0'	N 24°47.8'	9.7'	-3.7'	55.1'	117°45.2'	113°21.8'	88°01.8'	35°35.3'	6°51.1'		11°43.4'	32°04.5'
9	279°02.7'	N 24°44.2'	9.7'	-3.8'	55.1'	117°25.7'	113°02.3'	87°34.2'	35°04.8'	6°24.4'		12°11.0'	32°29.9'
10	293°31.4'	N 24°40.4'	9.7'	-3.9'	55.2'	117°06.1'	112°42.7'	87°06.7'	34°34.2'	5°58.2'		12°38.7'	32°55.5'
11	308°00.2'	N 24°36.4'	9.8'	-4.1'	55.2'	116°46.4'	112°23.1'	86°39.1'	34°03.7'	5°32.5'		13°06.3'	33°21.3'
12	322°28.9'	N 24°32.4'	9.8'	-4.2'	55.2'	116°26.6'	112°03.3'	86°11.6'	33°33.1'			13°34.0'	33°47.1'
13	336°57.7'	N 24°28.2'	9.8'	-4.3'	55.2'	116°06.8'	111°43.5'	85°44.0'	33°02.5'			14°01.8'	34°13.2'
14	351°26.5'	N 24°23.9'	9.8'	-4.4'	55.2'	115°46.8'	111°23.6'	85°16.4'	32°31.9'			14°29.5'	34°39.3'
15	5°55.3'	N 24°19.4'	9.8'	-4.6'	55.2'	115°26.7'	111°03.6'	84°48.8'	32°01.3'			14°57.3'	35°05.6'
16	20°24.2'	N 24°14.8'	9.9'	-4.7'	55.3'	115°06.6'	110°43.6'	84°21.2'	31°30.7'			15°25.1'	35°32.0'
17	34°53.0'	N 24°10.1'	9.9'	-4.8'	55.3'	114°46.3'	110°23.4'	83°53.5'	31°00.1'			15°53.0'	35°58.5'
18	49°21.9'	N 24°05.3'	9.9'	-4.9'	55.3'	114°26.0'	110°03.2'	83°25.9'	30°29.4'			16°20.9'	36°25.2'
19	63°50.8'	N 24°00.4'	9.9'	-5.1'	55.3'	114°05.6'	109°43.0'	82°58.2'	29°58.8'			16°48.8'	36°51.9'
20	78°19.7'	N 23°55.3'	9.9'	-5.2'	55.3'	113°45.1'	109°22.6'	82°30.6'	29°28.1'			17°16.7'	37°18.8'
21	92°48.6'	N 23°50.1'	10.0'	-5.3'	55.4'	113°24.5'	109°02.2'	82°02.9'	28°57.5'			17°44.6'	37°45.8'
22	107°17.6'	N 23°44.8'	10.0'	-5.4'	55.4'	113°03.8'	108°41.7'	81°35.2'	28°26.8'			18°12.6'	38°12.9'
23	121°46.6'	N 23°39.3'	10.0'	-5.6'	55.4'	112°43.1'	108°21.2'	81°07.5'	27°56.2'			18°40.6'	38°40.1'
Mer. pass.		14 h 35 m SD 15.0'		phase 6%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°45.2'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

Monday 14 June 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	262°30.6'	179°56.5'	N 23°15.7'	157°11.6'	N 24°00.3'	288°04.0'	S 11°35.5'	306°41.7'	S 17°31.5'	138°27.6'	N 21°06.3'			
1	277°33.1'	194°56.4'	N 23°15.8'	172°10.8'	N 24°00.0'	303°06.4'	S 11°35.4'	321°44.3'	S 17°31.5'	153°28.4'	N 21°05.9'			
2	292°35.6'	209°56.2'	N 23°15.9'	187°09.9'	N 23°59.8'	318°08.8'	S 11°35.4'	336°46.8'	S 17°31.5'	168°29.3'	N 21°05.6'			
3	307°38.0'	224°56.1'	N 23°16.1'	202°09.0'	N 23°59.5'	333°11.3'	S 11°35.4'	351°49.4'	S 17°31.6'	183°30.2'	N 21°05.2'			
4	322°40.5'	239°56.0'	N 23°16.2'	217°08.2'	N 23°59.2'	348°13.7'	S 11°35.4'	6°51.9'	S 17°31.6'	198°31.0'	N 21°04.9'			
5	337°43.0'	254°55.9'	N 23°16.3'	232°07.3'	N 23°59.0'	3°16.1'	S 11°35.4'	21°54.5'	S 17°31.6'	213°31.9'	N 21°04.5'			
6	352°45.4'	269°55.7'	N 23°16.4'	247°06.5'	N 23°58.7'	18°18.5'	S 11°35.4'	36°57.0'	S 17°31.7'	228°32.7'	N 21°04.2'			
7	7°47.9'	284°55.6'	N 23°16.5'	262°05.6'	N 23°58.5'	33°20.9'	S 11°35.4'	51°59.6'	S 17°31.7'	243°33.6'	N 21°03.8'			
8	22°50.4'	299°55.5'	N 23°16.7'	277°04.8'	N 23°58.2'	48°23.3'	S 11°35.4'	67°02.1'	S 17°31.7'	258°34.4'	N 21°03.4'			
9	37°52.8'	314°55.3'	N 23°16.8'	292°03.9'	N 23°57.9'	63°25.7'	S 11°35.4'	82°04.7'	S 17°31.8'	273°35.3'	N 21°03.1'			
10	52°55.3'	329°55.2'	N 23°16.9'	307°03.0'	N 23°57.7'	78°28.1'	S 11°35.4'	97°07.2'	S 17°31.8'	288°36.2'	N 21°02.7'			
11	67°57.8'	344°55.1'	N 23°17.0'	322°02.2'	N 23°57.4'	93°30.6'	S 11°35.4'	112°09.8'	S 17°31.8'	303°37.0'	N 21°02.4'			
12	83°00.2'	359°54.9'	N 23°17.1'	337°01.3'	N 23°57.1'	108°33.0'	S 11°35.4'	127°12.3'	S 17°31.8'	318°37.9'	N 21°02.0'			
13	98°02.7'	14°54.8'	N 23°17.2'	352°00.5'	N 23°56.9'	123°35.4'	S 11°35.4'	142°14.9'	S 17°31.9'	333°38.7'	N 21°01.7'			
14	113°05.1'	29°54.7'	N 23°17.3'	6°59.6'	N 23°56.6'	138°37.8'	S 11°35.4'	157°17.4'	S 17°31.9'	348°39.6'	N 21°01.3'			
15	128°07.6'	44°54.5'	N 23°17.5'	21°58.8'	N 23°56.3'	153°40.2'	S 11°35.3'	172°20.0'	S 17°31.9'	3°40.4'	N 21°01.0'			
16	143°10.1'	59°54.4'	N 23°17.6'	36°57.9'	N 23°56.1'	168°42.6'	S 11°35.3'	187°22.5'	S 17°32.0'	18°41.3'	N 21°00.6'			
17	158°12.5'	74°54.2'	N 23°17.7'	51°57.1'	N 23°55.8'	183°45.0'	S 11°35.3'	202°25.1'	S 17°32.0'	33°42.2'	N 21°00.2'			
18	173°15.0'	89°54.1'	N 23°17.8'	66°56.2'	N 23°55.5'	198°47.4'	S 11°35.3'	217°27.6'	S 17°32.0'	48°43.0'	N 20°59.9'			
19	188°17.5'	104°54.0'	N 23°17.9'	81°55.3'	N 23°55.2'	213°49.9'	S 11°35.3'	232°30.2'	S 17°32.1'	63°43.9'	N 20°59.5'			
20	203°19.9'	119°53.8'	N 23°18.0'	96°54.5'	N 23°55.0'	228°52.3'	S 11°35.3'	247°32.7'	S 17°32.1'	78°44.7'	N 20°59.2'			
21	218°22.4'	134°53.7'	N 23°18.1'	111°53.6'	N 23°54.7'	243°54.7'	S 11°35.3'	262°35.3'	S 17°32.1'	93°45.6'	N 20°58.8'			
22	233°24.9'	149°53.6'	N 23°18.2'	126°52.8'	N 23°54.4'	258°57.1'	S 11°35.3'	277°37.8'	S 17°32.1'	108°46.5'	N 20°58.5'			
23	248°27.3'	164°53.4'	N 23°18.3'	141°51.9'	N 23°54.1'	273°59.5'	S 11°35.3'	292°40.4'	S 17°32.2'	123°47.3'	N 20°58.1'			
		SD 15.7'	d 0.1'	v -0.9'	d -0.3'	v 2.4'	d 0.0'	v 2.5'	d -0.0'	v 0.9'	d -0.4'			
Mer. pass.		12 h 0 m 21 s		13 h 32 m		4 h 47 m		3 h 33 m		14 h 45 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Mars	+Pollux	+Venus	+Sun
0	136°15.6'	N 23°33.8'	10.0'	-5.7'	55.4'	98°54.2'	81°24.0'	80°39.8'	27°25.5'		9°42.3'	19°08.6'	
1	150°44.6'	N 23°28.1'	10.1'	-5.8'	55.4'	98°36.8'	80°53.0'	80°12.1'	26°54.9'		10°11.9'	19°36.7'	40°24.3'
2	165°13.7'	N 23°22.2'	10.1'	-5.9'	55.5'	98°19.4'	80°22.0'	79°44.4'	26°24.2'		10°41.7'	20°04.7'	40°53.1'
3	179°42.8'	N 23°16.3'	10.1'	-6.1'	55.5'	98°01.9'	79°50.9'	79°16.7'	25°53.5'		11°11.6'	20°32.8'	41°22.0'
4	194°11.9'	N 23°10.3'	10.1'	-6.2'	55.5'	97°44.4'	79°19.9'	78°48.9'	25°22.9'		11°41.7'	21°00.9'	41°50.8'
5	208°41.1'	N 23°04.1'	10.2'	-6.3'	55.5'	97°26.9'	78°48.8'	78°21.2'	24°52.2'		12°11.9'	21°29.1'	42°19.7'
6	223°10.2'	N 22°57.8'	10.2'	-6.4'	55.5'	97°09.3'	78°17.7'	77°53.4'	24°21.5'	5°19.8'	12°42.2'	21°57.2'	42°48.6'
7	237°39.5'	N 22°51.4'	10.2'	-6.5'	55.6'	96°51.7'	77°46.5'	77°25.7'	23°50.9'	5°45.6'	13°12.5'	22°25.4'	43°17.5'
8	252°08.7'	N 22°44.8'	10.3'	-6.7'	55.6'	96°34.1'	77°15.4'	76°57.9'	23°20.2'	6°11.9'	13°43.0'	22°53.6'	43°46.4'
9	266°38.0'	N 22°38.2'	10.3'	-6.8'	55.6'	96°16.4'	76°44.2'	76°30.2'	22°49.6'	6°38.8'	14°13.6'	23°21.9'	44°15.4'
10	281°07.3'	N 22°31.4'	10.3'	-6.9'	55.6'	95°58.7'	76°13.0'	76°02.4'	22°19.0'	7°06.1'	14°44.2'	23°50.1'	44°44.3'
11	295°36.6'	N 22°24.5'	10.4'	-7.0'	55.7'	95°40.9'	75°41.8'	75°34.6'	21°48.3'	7°33.7'	15°14.9'	24°18.4'	45°13.3'
12	310°06.0'	N 22°17.5'	10.4'	-7.1'	55.7'	95°23.1'	75°10.6'	75°06.9'	21°17.7'	8°01.6'	15°45.6'	24°46.7'	45°42.4'
13	324°35.3'	N 22°10.3'	10.4'	-7.2'	55.7'	95°05.3'	74°39.4'	74°39.1'	20°47.1'	8°29.8'	16°16.5'	25°15.1'	46°11.4'
14	339°04.8'	N 22°03.1'	10.5'	-7.4'	55.7'	94°47.5'	74°08.1'	74°11.3'	20°16.6'	8°58.1'	16°47.3'	25°43.4'	46°40.5'
15	353°34.2'	N 21°55.7'	10.5'	-7.5'	55.7'	94°29.6'	73°36.8'	73°43.5'	19°46.0'	9°26.7'	17°18.3'	26°11.8'	47°09.6'
16	8°03.7'	N 21°48.3'	10.5'	-7.6'	55.8'	94°11.7'	73°05.5'	73°15.7'	19°15.5'	9°55.4'	17°49.3'	26°40.2'	47°38.7'
17	22°33.3'	N 21°40.7'	10.6'	-7.7'	55.8'	93°53.8'	72°34.1'	72°48.0'	18°45.0'	10°24.2'	18°20.3'	27°08.6'	48°07.8'
18	37°02.8'	N 21°33.0'	10.6'	-7.8'	55.8'	93°35.8'	72°02.8'	72°20.2'	18°14.5'	10°53.2'	18°51.4'	27°37.1'	48°36.9'
19	51°32.4'	N 21°25.1'	10.6'	-7.9'	55.8'	93°17.9'	71°31.4'	71°52.4'	17°44.1'	11°22.2'	19°22.5'	28°05.6'	49°06.1'
20	66°02.1'	N 21°17.2'	10.7'	-8.0'	55.9'	92°59.9'	70°60.0'	71°24.6'	17°13.7'	11°51.4'	19°53.7'	28°34.1'	49°35.3'
21	80°31.7'	N 21°09.2'	10.7'	-8.2'	55.9'	92°41.8'	70°28.6'	70°56.8'	16°43.4'	12°20.7'	20°24.9'	29°02.6'	50°04.6'
22	95°01.4'	N 21°01.0'	10.7'	-8.3'	55.9'	92°23.8'	69°57.1'	70°29.1'	16°13.1'	12°50.0'	20°56.2'	29°31.2'	50°33.8'
23	109°31.2'	N 20°52.8'	10.8'	-8.4'	55.9'	92°05.7'	69°25.6'	70°01.3'	15°42.9'	13°19.4'	21°27.5'	29°59.7'	51°03.1'
Mer. pass.		15 h 27 m SD 15.1'		phase 12%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°44.8'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	263°29.8'	179°53.3'	N 23°18.4'	156°51.1'	N 23°53.9'	289°01.9'	S 11°35.3'	307°42.9'	S 17°32.2'	138°48.2'	N 20°57.7'			
1	278°32.3'	194°53.2'	N 23°18.5'	171°50.2'	N 23°53.6'	304°04.4'	S 11°35.3'	322°45.5'	S 17°32.2'	153°49.0'	N 20°57.4'			
2	293°34.7'	209°53.0'	N 23°18.7'	186°49.4'	N 23°53.3'	319°06.8'	S 11°35.3'	337°48.0'	S 17°32.3'	168°49.9'	N 20°57.0'			
3	308°37.2'	224°52.9'	N 23°18.8'	201°48.5'	N 23°53.0'	334°09.2'	S 11°35.3'	352°50.6'	S 17°32.3'	183°50.7'	N 20°56.7'			
4	323°39.6'	239°52.8'	N 23°18.9'	216°47.7'	N 23°52.7'	349°11.6'	S 11°35.3'	7°53.1'	S 17°32.3'	198°51.6'	N 20°56.3'			
5	338°42.1'	254°52.6'	N 23°19.0'	231°46.8'	N 23°52.4'	4°14.0'	S 11°35.3'	22°55.7'	S 17°32.4'	213°52.5'	N 20°55.9'			
6	353°44.6'	269°52.5'	N 23°19.1'	246°46.0'	N 23°52.1'	19°16.5'	S 11°35.3'	37°58.2'	S 17°32.4'	228°53.3'	N 20°55.6'			
7	8°47.0'	284°52.4'	N 23°19.2'	261°45.1'	N 23°51.9'	34°18.9'	S 11°35.3'	53°00.8'	S 17°32.4'	243°54.2'	N 20°55.2'			
8	23°49.5'	299°52.2'	N 23°19.3'	276°44.3'	N 23°51.6'	49°21.3'	S 11°35.3'	68°03.3'	S 17°32.5'	258°55.0'	N 20°54.9'			
9	38°52.0'	314°52.1'	N 23°19.4'	291°43.4'	N 23°51.3'	64°23.7'	S 11°35.2'	83°05.9'	S 17°32.5'	273°55.9'	N 20°54.5'			
10	53°54.4'	329°52.0'	N 23°19.5'	306°42.6'	N 23°51.0'	79°26.1'	S 11°35.2'	98°08.4'	S 17°32.5'	288°56.8'	N 20°54.1'			
11	68°56.9'	344°51.8'	N 23°19.6'	321°41.7'	N 23°50.7'	94°28.6'	S 11°35.2'	113°11.0'	S 17°32.6'	303°57.6'	N 20°53.8'			
12	83°59.4'	359°51.7'	N 23°19.7'	336°40.9'	N 23°50.4'	109°31.0'	S 11°35.2'	128°13.5'	S 17°32.6'	318°58.5'	N 20°53.4'			
13	99°01.8'	14°51.6'	N 23°19.8'	351°40.0'	N 23°50.1'	124°33.4'	S 11°35.2'	143°16.1'	S 17°32.6'	333°59.3'	N 20°53.1'			
14	114°04.3'	29°51.4'	N 23°19.9'	6°39.2'	N 23°49.8'	139°35.8'	S 11°35.2'	158°18.6'	S 17°32.6'	349°00.2'	N 20°52.7'			
15	129°06.7'	44°51.3'	N 23°19.9'	21°38.3'	N 23°49.5'	154°38.2'	S 11°35.2'	173°21.2'	S 17°32.7'	4°01.1'	N 20°52.3'			
16	144°09.2'	59°51.2'	N 23°20.0'	36°37.5'	N 23°49.2'	169°40.7'	S 11°35.2'	188°23.7'	S 17°32.7'	19°01.9'	N 20°52.0'			
17	159°11.7'	74°51.0'	N 23°20.1'	51°36.6'	N 23°48.9'	184°43.1'	S 11°35.2'	203°26.3'	S 17°32.7'	34°02.8'	N 20°51.6'			
18	174°14.1'	89°50.9'	N 23°20.2'	66°35.8'	N 23°48.6'	199°45.5'	S 11°35.2'	218°28.9'	S 17°32.8'	49°03.6'	N 20°51.2'			
19	189°16.6'	104°50.8'	N 23°20.3'	81°34.9'	N 23°48.3'	214°47.9'	S 11°35.2'	233°31.4'	S 17°32.8'	64°04.5'	N 20°50.9'			
20	204°19.1'	119°50.6'	N 23°20.4'	96°34.1'	N 23°48.0'	229°50.3'	S 11°35.2'	248°34.0'	S 17°32.8'	79°05.4'	N 20°50.5'			
21	219°21.5'	134°50.5'	N 23°20.5'	111°33.2'	N 23°47.7'	244°52.8'	S 11°35.2'	263°36.5'	S 17°32.9'	94°06.2'	N 20°50.2'			
22	234°24.0'	149°50.4'	N 23°20.6'	126°32.4'	N 23°47.4'	259°55.2'	S 11°35.2'	278°39.1'	S 17°32.9'	109°07.1'	N 20°49.8'			
23	249°26.5'	164°50.2'	N 23°20.7'	141°31.5'	N 23°47.1'	274°57.6'	S 11°35.2'	293°41.6'	S 17°32.9'	124°07.9'	N 20°49.4'			
		SD 15.7' d 0.1'		v -0.8' d -0.3'		v 2.4' d 0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 0 m 34 s		13 h 33 m		4 h 43 m		3 h 29 m		14 h 44 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Mars	+Pollux	+Procyon	+Sun
0	124°00.9'	N 20°44.4'	10.8'	-8.5'	55.9'	91°47.6'	69°33.5'	68°54.1'	15°12.7'	13°48.9'	21°58.9'	28°19.8'	51°32.4'
1	138°30.8'	N 20°35.9'	10.8'	-8.6'	56.0'	91°29.5'	69°05.7'	68°22.6'	14°42.7'	14°18.5'	22°30.2'	28°42.2'	52°01.7'
2	153°00.6'	N 20°27.3'	10.9'	-8.7'	56.0'	91°11.4'	68°38.0'	67°51.1'	14°12.7'	14°48.1'	23°01.7'	29°04.9'	52°31.0'
3	167°30.5'	N 20°18.6'	10.9'	-8.8'	56.0'	90°53.3'	68°10.2'	67°19.5'	13°42.9'	15°17.8'	23°33.1'	29°27.9'	53°00.4'
4	182°00.4'	N 20°09.8'	11.0'	-8.9'	56.0'	90°35.1'	67°42.5'	66°47.9'	13°13.1'	15°47.6'	24°04.6'	29°51.1'	53°29.8'
5	196°30.3'	N 20°00.9'	11.0'	-9.0'	56.1'	90°16.9'	67°14.7'	66°16.3'	12°43.5'	16°17.4'	24°36.2'	30°14.6'	53°59.2'
6	211°00.3'	N 19°51.9'	11.0'	-9.1'	56.1'	89°58.7'	66°47.0'	65°44.7'	12°14.1'	16°47.2'	25°07.7'	30°38.3'	54°28.7'
7	225°30.4'	N 19°42.7'	11.1'	-9.2'	56.1'	89°40.5'	66°19.3'	65°13.0'	11°44.9'	17°17.1'	25°39.3'	31°02.3'	54°58.2'
8	240°00.4'	N 19°33.5'	11.1'	-9.3'	56.1'	89°22.3'	65°51.5'	64°41.4'	11°15.8'	17°47.1'	26°11.0'	31°26.5'	55°27.6'
9	254°30.5'	N 19°24.2'	11.1'	-9.4'	56.2'	89°04.0'	65°23.8'	64°09.7'	10°47.0'	18°17.1'	26°42.6'	31°50.9'	55°57.2'
10	269°00.7'	N 19°14.7'	11.2'	-9.5'	56.2'	88°45.8'	64°56.1'	63°37.9'	10°18.5'	18°47.1'	27°14.4'	32°15.5'	56°26.7'
11	283°30.8'	N 19°05.2'	11.2'	-9.6'	56.2'	88°27.5'	64°28.5'	63°06.2'	9°50.3'	19°17.2'	27°46.1'	32°40.4'	56°56.3'
12	298°01.0'	N 18°55.6'	11.2'	-9.7'	56.2'	88°09.3'	64°00.8'	62°34.4'	9°22.4'	19°47.3'	28°17.9'	33°05.4'	57°25.9'
13	312°31.3'	N 18°45.8'	11.3'	-9.8'	56.3'	87°51.0'	63°33.1'	62°02.6'	8°55.1'	20°17.5'	28°49.7'	33°30.7'	57°55.5'
14	327°01.6'	N 18°36.0'	11.3'	-9.9'	56.3'	87°32.7'	63°05.5'	61°30.8'	8°28.2'	20°47.7'	29°21.5'	33°56.1'	58°25.2'
15	341°31.9'	N 18°26.0'	11.3'	-10.0'	56.3'	87°14.4'	62°37.9'	60°58.9'	8°01.9'	21°17.9'	29°53.4'	34°21.7'	58°54.9'
16	356°02.2'	N 18°16.0'	11.4'	-10.1'	56.3'	86°56.1'	62°10.2'	60°27.1'		21°48.2'	30°25.3'	34°47.5'	59°24.6'
17	10°32.6'	N 18°05.9'	11.4'	-10.2'	56.4'	86°37.8'	61°42.7'	59°55.2'		22°18.5'	30°57.3'	35°13.5'	59°54.3'
18	25°03.0'	N 17°55.6'	11.5'	-10.3'	56.4'	86°19.5'	61°15.1'	59°23.2'		22°48.9'	31°29.2'	35°39.6'	60°24.1'
19	39°33.5'	N 17°45.3'	11.5'	-10.4'	56.4'	86°01.2'	60°47.5'	58°51.3'		23°19.3'	32°01.2'	36°05.9'	60°53.8'
20	54°04.0'	N 17°34.9'	11.5'	-10.5'	56.4'	85°42.9'	60°20.0'	58°19.3'		23°49.7'	32°33.3'	36°32.3'	61°23.7'
21	68°34.5'	N 17°24.3'	11.6'	-10.6'	56.5'	85°24.6'	59°52.5'	57°47.3'		24°20.2'	33°05.3'	36°58.9'	61°53.5'
22	83°05.0'	N 17°13.7'	11.6'	-10.7'	56.5'	85°06.3'	59°25.0'	57°15.3'		24°50.7'	33°37.4'	37°25.7'	62°23.4'
23	97°35.6'	N 17°03.0'	11.6'	-10.8'	56.5'	84°48.0'	58°57.5'	56°43.3'		25°21.3'	34°09.6'	37°52.6'	62°53.3'
Mer. pass.		16 h 16 m SD 15.3'		phase 19%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°44.5'	N 89°21.0'
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.8'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	264°28.9'	179°50.1' N	23°20.8'	156°30.7' N	23°46.8'	290°00.0' S	11°35.2'	308°44.2' S	17°33.0'	139°08.8' N	20°49.1'	
1	279°31.4'	194°50.0' N	23°20.9'	171°29.9' N	23°46.4'	305°02.5' S	11°35.2'	323°46.7' S	17°33.0'	154°09.7' N	20°48.7'	
2	294°33.9'	209°49.8' N	23°21.0'	186°29.0' N	23°46.1'	320°04.9' S	11°35.2'	338°49.3' S	17°33.0'	169°10.5' N	20°48.3'	
3	309°36.3'	224°49.7' N	23°21.0'	201°28.2' N	23°45.8'	335°07.3' S	11°35.2'	353°51.8' S	17°33.1'	184°11.4' N	20°48.0'	
4	324°38.8'	239°49.5' N	23°21.1'	216°27.3' N	23°45.5'	350°09.7' S	11°35.2'	8°54.4' S	17°33.1'	199°12.3' N	20°47.6'	
5	339°41.2'	254°49.4' N	23°21.2'	231°26.5' N	23°45.2'	5°12.2' S	11°35.2'	23°56.9' S	17°33.1'	214°13.1' N	20°47.2'	
6	354°43.7'	269°49.3' N	23°21.3'	246°25.6' N	23°44.9'	20°14.6' S	11°35.2'	38°59.5' S	17°33.1'	229°14.0' N	20°46.9'	
7	9°46.2'	284°49.1' N	23°21.4'	261°24.8' N	23°44.5'	35°17.0' S	11°35.2'	54°02.1' S	17°33.2'	244°14.8' N	20°46.5'	
8	24°48.6'	299°49.0' N	23°21.5'	276°24.0' N	23°44.2'	50°19.5' S	11°35.2'	69°04.6' S	17°33.2'	259°15.7' N	20°46.1'	
9	39°51.1'	314°48.9' N	23°21.5'	291°23.1' N	23°43.9'	65°21.9' S	11°35.2'	84°07.2' S	17°33.2'	274°16.6' N	20°45.8'	
10	54°53.6'	329°48.7' N	23°21.6'	306°22.3' N	23°43.6'	80°24.3' S	11°35.2'	99°09.7' S	17°33.3'	289°17.4' N	20°45.4'	
11	69°56.0'	344°48.6' N	23°21.7'	321°21.4' N	23°43.3'	95°26.7' S	11°35.2'	114°12.3' S	17°33.3'	304°18.3' N	20°45.0'	
12	84°58.5'	359°48.5' N	23°21.8'	336°20.6' N	23°42.9'	110°29.2' S	11°35.2'	129°14.8' S	17°33.3'	319°19.1' N	20°44.7'	
13	100°01.0'	14°48.3' N	23°21.9'	351°19.7' N	23°42.6'	125°31.6' S	11°35.2'	144°17.4' S	17°33.4'	334°20.0' N	20°44.3'	
14	115°03.4'	29°48.2' N	23°21.9'	6°18.9' N	23°42.3'	140°34.0' S	11°35.2'	159°20.0' S	17°33.4'	349°20.9' N	20°43.9'	
15	130°05.9'	44°48.1' N	23°22.0'	21°18.1' N	23°42.0'	155°36.4' S	11°35.2'	174°22.5' S	17°33.4'	4°21.7' N	20°43.6'	
16	145°08.4'	59°47.9' N	23°22.1'	36°17.2' N	23°41.6'	170°38.9' S	11°35.2'	189°25.1' S	17°33.5'	19°22.6' N	20°43.2'	
17	160°10.8'	74°47.8' N	23°22.2'	51°16.4' N	23°41.3'	185°41.3' S	11°35.2'	204°27.6' S	17°33.5'	34°23.5' N	20°42.8'	
18	175°13.3'	89°47.7' N	23°22.3'	66°15.5' N	23°41.0'	200°43.7' S	11°35.2'	219°30.2' S	17°33.5'	49°24.3' N	20°42.5'	
19	190°15.7'	104°47.5' N	23°22.3'	81°14.7' N	23°40.6'	215°46.2' S	11°35.2'	234°32.7' S	17°33.6'	64°25.2' N	20°42.1'	
20	205°18.2'	119°47.4' N	23°22.4'	96°13.9' N	23°40.3'	230°48.6' S	11°35.2'	249°35.3' S	17°33.6'	79°26.1' N	20°41.7'	
21	220°20.7'	134°47.2' N	23°22.5'	111°13.0' N	23°40.0'	245°51.0' S	11°35.2'	264°37.9' S	17°33.6'	94°26.9' N	20°41.4'	
22	235°23.1'	149°47.1' N	23°22.6'	126°12.2' N	23°39.6'	260°53.5' S	11°35.2'	279°40.4' S	17°33.7'	109°27.8' N	20°41.0'	
23	250°25.6'	164°47.0' N	23°22.6'	141°11.3' N	23°39.3'	275°55.9' S	11°35.2'	294°43.0' S	17°33.7'	124°28.6' N	20°40.6'	
		SD 15.7' d 0.1'		v -0.8' d -0.3'		v 2.4' d 0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'		
Mer. pass.		12 h 0 m 47 s		13 h 35 m		4 h 39 m		3 h 24 m		14 h 43 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Mars	+Pollux	+Procyon	+Sun
0	112°06.2' N	16°52.2' N	11.7'	-10.9'	56.6'	84°29.7'	58°30.1'	56°11.2'		25°51.9'	34°41.8'	38°19.6'	63°23.2'
1	126°36.9' N	16°41.3' N	11.7'	-11.0'	56.6'	84°11.3'	58°02.7'	55°39.1'		26°22.5'	35°14.0'	38°46.8'	63°53.2'
2	141°07.6' N	16°30.3' N	11.7'	-11.1'	56.6'	83°53.1'	57°35.3'	55°07.0'		26°53.1'	35°46.2'	39°14.1'	64°23.2'
3	155°38.3' N	16°19.3' N	11.8'	-11.2'	56.6'	83°34.8'	57°08.0'	54°34.8'		27°23.8'	36°18.5'	39°41.6'	64°53.2'
4	170°09.0' N	16°08.1' N	11.8'	-11.2'	56.7'	83°16.5'	56°40.7'	54°02.7'		27°54.5'	36°50.8'	40°09.2'	65°23.2'
5	184°39.8' N	15°56.9' N	11.8'	-11.3'	56.7'	82°58.2'	56°13.4'	53°30.5'		28°25.3'	37°23.1'	40°36.9'	65°53.3'
6	199°10.6' N	15°45.5' N	11.8'	-11.4'	56.7'	82°39.9'	55°46.2'	52°58.2'		28°56.1'	37°55.4'	41°04.7'	66°23.4'
7	213°41.5' N	15°34.1' N	11.9'	-11.5'	56.7'	82°21.7'	55°19.0'	52°26.0'		29°26.9'	38°27.8'	41°32.6'	66°53.5'
8	228°12.4' N	15°22.6' N	11.9'	-11.6'	56.8'	82°03.4'	54°51.8'	51°53.7'		29°57.8'	39°00.3'	42°00.7'	67°23.7'
9	242°43.3' N	15°11.0' N	11.9'	-11.7'	56.8'	81°45.2'	54°24.7'	51°21.4'		30°28.6'	39°32.7'	42°28.8'	67°53.9'
10	257°14.2' N	14°59.3' N	12.0'	-11.8'	56.8'	81°27.0'	53°57.6'	50°49.1'		30°59.6'	40°05.2'	42°57.1'	68°24.1'
11	271°45.1' N	14°47.6' N	12.0'	-11.8'	56.9'	81°08.8'	53°30.6'	50°16.7'		31°30.5'	40°37.8'	43°25.5'	68°54.4'
12	286°16.1' N	14°35.7' N	12.0'	-11.9'	56.9'	80°50.6'	53°03.6'	49°44.4'		32°01.5'	41°10.3'	43°54.0'	69°24.6'
13	300°47.1' N	14°23.8' N	12.0'	-12.0'	56.9'	80°32.4'	52°36.6'	49°11.9'		32°32.6'	41°42.9'	44°22.6'	69°55.0'
14	315°18.2' N	14°11.8' N	12.1'	-12.1'	56.9'	80°14.3'	52°09.7'	48°39.5'		33°03.6'	42°15.5'	44°51.3'	70°25.3'
15	329°49.2' N	13°59.7' N	12.1'	-12.2'	57.0'	79°56.1'	51°42.9'	48°07.1'		33°34.7'	42°48.2'	45°20.1'	70°55.7'
16	344°20.3' N	13°47.5' N	12.1'	-12.2'	57.0'	79°38.0'	51°16.1'	47°34.6'		34°05.9'	43°20.9'	45°49.0'	71°26.1'
17	358°51.4' N	13°35.3' N	12.1'	-12.3'	57.0'	79°19.9'	50°49.4'	47°02.1'	8°26.4'	34°37.0'	43°53.6'	46°18.0'	71°56.5'
18	13°22.6' N	13°23.0' N	12.2'	-12.4'	57.1'	79°01.9'	50°22.8'	46°29.5'	9°22.0'	35°08.2'	44°26.4'	46°47.1'	72°27.0'
19	27°53.7' N	13°10.6' N	12.2'	-12.5'	57.1'	78°43.8'	49°56.2'	45°57.0'	9°50.7'	35°39.5'	44°59.2'	47°16.2'	72°57.5'
20	42°24.9' N	12°58.1' N	12.2'	-12.5'	57.1'	78°25.8'	49°29.6'	45°24.4'	10°19.7'	36°10.7'	45°32.0'	47°45.5'	73°28.0'
21	56°56.1' N	12°45.6' N	12.2'	-12.6'	57.1'	78°07.8'	49°03.2'	44°51.8'	10°49.2'	36°42.1'	46°04.9'	48°14.9'	73°58.6'
22	71°27.4' N	12°33.0' N	12.2'	-12.7'	57.2'	77°49.9'	48°36.8'	44°19.2'	11°19.0'	37°13.4'	46°37.7'	48°44.3'	74°29.2'
23	85°58.6' N	12°20.3' N	12.3'	-12.8'	57.2'	77°32.0'	48°10.5'	43°46.5'	11°49.1'	37°44.8'	47°10.7'	49°13.8'	74°59.8'
Mer. pass.		17 h 5 m SD 15.4'		phase 28%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7' S	29°30.4'	Spica	+1.0	158°25.2' S	11°16.3'	Betelgeuse	+0.5	270°55.6' N	7°24.6'
Deneb	+1.2	49°27.4' N	45°21.2'	Acrux	+0.8	173°03.1' S	63°13.3'	Capella	+0.1	280°26.7' N	46°01.0'
Altair	+0.8	62°02.5' N	8°55.5'	Regulus	+1.4	207°37.7' N	11°51.9'	Rigel	+0.2	281°07.0' S	8°10.7'
Vega	+0.0	80°34.8' N	38°48.2'	Pollux	+1.2	243°21.2' N	27°58.5'	Aldebaran	+0.9	290°43.3' N	16°33.0'
Antares	+1.1	112°19.0' S	26°28.7'	Procyon	+0.4	244°54.2' N	5°10.2'	Polaris	+2.0	315°44.2' N	89°21.0'
Rigil Kent	-0.0	139°43.8' S	60°55.5'	Adhara	+1.5	255°08.5' S	29°00.1'	Achernar	+0.5	335°22.8' S	57°07.5'
Arcturus	-0.1	145°50.4' N	19°04.4'	Sirius	-1.4	258°29.1' S	16°44.8'				
Hadar	+0.6	148°39.7' S	60°28.7'	Canopus	-0.6	263°54.2' S	52°42.5'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	265°28.1'	179°46.8'	N 23°22.7'	156°10.5'	N 23°39.0'	290°58.3'	S 11°35.2'	309°45.5'	S 17°33.7'	139°29.5'	N 20°40.2'			
1	280°30.5'	194°46.7'	N 23°22.8'	171°09.7'	N 23°38.6'	306°00.8'	S 11°35.2'	324°48.1'	S 17°33.8'	154°30.4'	N 20°39.9'			
2	295°33.0'	209°46.6'	N 23°22.8'	186°08.8'	N 23°38.3'	321°03.2'	S 11°35.2'	339°50.6'	S 17°33.8'	169°31.2'	N 20°39.5'			
3	310°35.5'	224°46.4'	N 23°22.9'	201°08.0'	N 23°37.9'	336°05.6'	S 11°35.2'	354°53.2'	S 17°33.8'	184°32.1'	N 20°39.1'			
4	325°37.9'	239°46.3'	N 23°23.0'	216°07.2'	N 23°37.6'	351°08.1'	S 11°35.2'	9°55.8'	S 17°33.9'	199°33.0'	N 20°38.8'			
5	340°40.4'	254°46.2'	N 23°23.0'	231°06.3'	N 23°37.2'	6°10.5'	S 11°35.2'	24°58.3'	S 17°33.9'	214°33.8'	N 20°38.4'			
6	355°42.9'	269°46.0'	N 23°23.1'	246°05.5'	N 23°36.9'	21°12.9'	S 11°35.2'	40°00.9'	S 17°33.9'	229°34.7'	N 20°38.0'			
7	10°45.3'	284°45.9'	N 23°23.2'	261°04.7'	N 23°36.6'	36°15.4'	S 11°35.2'	55°03.4'	S 17°34.0'	244°35.6'	N 20°37.7'			
8	25°47.8'	299°45.8'	N 23°23.2'	276°03.8'	N 23°36.2'	51°17.8'	S 11°35.2'	70°06.0'	S 17°34.0'	259°36.4'	N 20°37.3'			
9	40°50.2'	314°45.6'	N 23°23.3'	291°03.0'	N 23°35.9'	66°20.2'	S 11°35.2'	85°08.6'	S 17°34.0'	274°37.3'	N 20°36.9'			
10	55°52.7'	329°45.5'	N 23°23.4'	306°02.2'	N 23°35.5'	81°22.7'	S 11°35.2'	100°11.1'	S 17°34.1'	289°38.2'	N 20°36.5'			
11	70°55.2'	344°45.3'	N 23°23.4'	321°01.3'	N 23°35.2'	96°25.1'	S 11°35.2'	115°13.7'	S 17°34.1'	304°39.0'	N 20°36.2'			
12	85°57.6'	359°45.2'	N 23°23.5'	336°00.5'	N 23°34.8'	111°27.5'	S 11°35.2'	130°16.2'	S 17°34.1'	319°39.9'	N 20°35.8'			
13	101°00.1'	14°45.1'	N 23°23.6'	350°59.7'	N 23°34.4'	126°30.0'	S 11°35.2'	145°18.8'	S 17°34.2'	334°40.7'	N 20°35.4'			
14	116°02.6'	29°44.9'	N 23°23.6'	5°58.8'	N 23°34.1'	141°32.4'	S 11°35.2'	160°21.4'	S 17°34.2'	349°41.6'	N 20°35.0'			
15	131°05.0'	44°44.8'	N 23°23.7'	20°58.0'	N 23°33.7'	156°34.8'	S 11°35.2'	175°23.9'	S 17°34.2'	4°42.5'	N 20°34.7'			
16	146°07.5'	59°44.7'	N 23°23.7'	35°57.2'	N 23°33.4'	171°37.3'	S 11°35.2'	190°26.5'	S 17°34.3'	19°43.3'	N 20°34.3'			
17	161°10.0'	74°44.5'	N 23°23.8'	50°56.3'	N 23°33.0'	186°39.7'	S 11°35.2'	205°29.0'	S 17°34.3'	34°44.2'	N 20°33.9'			
18	176°12.4'	89°44.4'	N 23°23.9'	65°55.5'	N 23°32.7'	201°42.2'	S 11°35.2'	220°31.6'	S 17°34.3'	49°45.1'	N 20°33.5'			
19	191°14.9'	104°44.3'	N 23°23.9'	80°54.7'	N 23°32.3'	216°44.6'	S 11°35.2'	235°34.2'	S 17°34.4'	64°45.9'	N 20°33.2'			
20	206°17.3'	119°44.1'	N 23°24.0'	95°53.8'	N 23°31.9'	231°47.0'	S 11°35.2'	250°36.7'	S 17°34.4'	79°46.8'	N 20°32.8'			
21	221°19.8'	134°44.0'	N 23°24.0'	110°53.0'	N 23°31.6'	246°49.5'	S 11°35.2'	265°39.3'	S 17°34.4'	94°47.7'	N 20°32.4'			
22	236°22.3'	149°43.9'	N 23°24.1'	125°52.2'	N 23°31.2'	261°51.9'	S 11°35.2'	280°41.8'	S 17°34.5'	109°48.5'	N 20°32.0'			
23	251°24.7'	164°43.7'	N 23°24.1'	140°51.3'	N 23°30.8'	276°54.4'	S 11°35.2'	295°44.4'	S 17°34.5'	124°49.4'	N 20°31.7'			
		SD 15.7'	d 0.1'	v -0.8'	d -0.4'	v 2.4'	d -0.0'	v 2.6'	d -0.0'	v 0.9'	d -0.4'			
Mer. pass.		12 h 1 m 0 s		13 h 36 m		4 h 35 m		3 h 20 m		14 h 41 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Mars	+Pollux	+Sun
0	100°29.9'	N 12°07.5'	12.3'	-12.8'	57.2'	81°23.6'	77°14.1'	47°44.3'	43°13.8'	12°19.5'	38°16.2'	47°43.6'	75°30.5'
1	115°01.2'	N 11°54.7'	12.3'	-12.9'	57.3'	81°00.7'	76°56.2'	47°18.1'	42°41.1'	12°50.1'	38°47.6'	48°16.6'	76°01.2'
2	129°32.5'	N 11°41.8'	12.3'	-13.0'	57.3'	80°37.8'	76°38.4'	46°52.0'	42°08.4'	13°21.0'	39°19.1'	48°49.7'	76°31.9'
3	144°03.8'	N 11°28.8'	12.3'	-13.0'	57.3'	80°14.8'	76°20.6'	46°26.1'	41°35.6'	13°52.0'	39°50.6'	49°22.7'	77°02.7'
4	158°35.1'	N 11°15.8'	12.4'	-13.1'	57.3'	79°51.9'	76°02.8'	46°00.2'	41°02.8'	14°23.3'	40°22.2'	49°55.8'	77°33.5'
5	173°06.5'	N 11°02.6'	12.4'	-13.2'	57.4'	79°29.0'	75°45.1'	45°34.4'	40°30.0'	14°54.7'	40°53.8'	50°29.0'	78°04.3'
6	187°37.9'	N 10°49.5'	12.4'	-13.2'	57.4'	79°06.1'	75°27.4'	45°08.7'	39°57.2'	15°26.3'	41°25.4'	51°02.1'	78°35.2'
7	202°09.2'	N 10°36.2'	12.4'	-13.3'	57.4'	78°43.2'	75°09.8'	44°43.1'	39°24.3'	15°58.0'	41°57.0'	51°35.4'	79°06.1'
8	216°40.6'	N 10°22.9'	12.4'	-13.4'	57.5'	78°20.3'	74°52.2'	44°17.7'	38°51.5'	16°29.8'	42°28.7'	52°08.6'	79°37.0'
9	231°12.0'	N 10°09.6'	12.4'	-13.4'	57.5'	77°57.4'	74°34.7'	43°52.3'	38°18.6'	17°01.8'	43°00.5'	52°41.9'	80°08.0'
10	245°43.5'	N 9°56.1'	12.4'	-13.5'	57.5'	77°34.6'	74°17.2'	43°27.1'	37°45.6'	17°33.9'	43°32.2'	53°15.2'	80°39.0'
11	260°14.9'	N 9°42.6'	12.4'	-13.6'	57.6'	77°11.7'	73°59.7'	43°01.9'	37°12.7'	18°06.1'	44°04.0'	53°48.5'	81°10.0'
12	274°46.3'	N 9°29.1'	12.4'	-13.6'	57.6'	76°48.9'	73°42.3'	42°36.9'	36°39.7'	18°38.4'	44°35.9'	54°21.9'	81°41.1'
13	289°17.8'	N 9°15.5'	12.5'	-13.7'	57.6'	76°26.1'	73°25.0'	42°12.1'	36°06.7'	19°10.7'	45°07.7'	54°55.3'	82°12.2'
14	303°49.2'	N 9°01.8'	12.5'	-13.7'	57.6'	76°03.3'	73°07.7'	41°47.3'	35°33.7'	19°43.2'	45°39.6'	55°28.8'	82°43.3'
15	318°20.7'	N 8°48.1'	12.5'	-13.8'	57.7'	75°40.5'	72°50.5'	41°22.8'	35°00.7'	20°15.8'	46°11.6'	56°02.3'	83°14.5'
16	332°52.2'	N 8°34.3'	12.5'	-13.8'	57.7'	75°17.8'	72°33.3'	40°58.3'	34°27.6'	20°48.5'	46°43.6'	56°35.8'	83°45.7'
17	347°23.6'	N 8°20.5'	12.5'	-13.9'	57.7'	74°55.0'	72°16.2'	40°34.0'	33°54.6'	21°21.2'	47°15.6'	57°09.4'	84°17.0'
18	1°55.1'	N 8°06.6'	12.5'	-13.9'	57.8'	74°32.3'	71°59.1'	40°09.9'	33°21.5'	21°54.0'	47°47.6'	57°43.0'	84°48.2'
19	16°26.6'	N 7°52.6'	12.5'	-14.0'	57.8'	74°09.6'	71°42.1'	39°46.0'	32°48.4'	22°26.9'	48°19.7'	58°16.6'	85°19.6'
20	30°58.1'	N 7°38.6'	12.5'	-14.1'	57.8'	73°47.0'	71°25.2'	39°22.2'	32°15.2'	22°59.9'	48°51.9'	58°50.3'	85°50.9'
21	45°29.6'	N 7°24.6'	12.5'	-14.1'	57.9'	73°24.4'	71°08.3'	38°58.6'	31°42.1'	23°32.9'	49°24.0'	59°24.0'	86°22.3'
22	60°01.1'	N 7°10.5'	12.5'	-14.2'	57.9'	73°01.8'	70°51.5'	38°35.2'	31°08.9'	24°06.0'	49°56.2'	59°57.7'	86°53.7'
23	74°32.5'	N 6°56.3'	12.5'	-14.2'	57.9'	72°39.2'	70°34.8'	38°11.9'	30°35.8'	24°39.2'	50°28.5'	60°31.5'	87°25.2'
Mer. pass.		17 h 52 m SD 15.6'	phase 37%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°43.8'	N 89°21.0'
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.8'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

Friday 18 June 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	266°27.2'	179°43.6'	N 23°24.2'	155°50.5'	N 23°30.5'	291°56.8'	S 11°35.2'	310°47.0'	S 17°34.5'	139°50.3'	N 20°31.3'			
1	281°29.7'	194°43.4'	N 23°24.3'	170°49.7'	N 23°30.1'	306°59.2'	S 11°35.2'	325°49.5'	S 17°34.6'	154°51.1'	N 20°30.9'			
2	296°32.1'	209°43.3'	N 23°24.3'	185°48.9'	N 23°29.7'	322°01.7'	S 11°35.2'	340°52.1'	S 17°34.6'	169°52.0'	N 20°30.5'			
3	311°34.6'	224°43.2'	N 23°24.4'	200°48.0'	N 23°29.4'	337°04.1'	S 11°35.2'	355°54.7'	S 17°34.6'	184°52.9'	N 20°30.2'			
4	326°37.1'	239°43.0'	N 23°24.4'	215°47.2'	N 23°29.0'	352°06.6'	S 11°35.2'	10°57.2'	S 17°34.7'	199°53.7'	N 20°29.8'			
5	341°39.5'	254°42.9'	N 23°24.5'	230°46.4'	N 23°28.6'	7°09.0'	S 11°35.2'	25°59.8'	S 17°34.7'	214°54.6'	N 20°29.4'			
6	356°42.0'	269°42.8'	N 23°24.5'	245°45.5'	N 23°28.3'	22°11.4'	S 11°35.2'	41°02.3'	S 17°34.7'	229°55.5'	N 20°29.0'			
7	11°44.5'	284°42.6'	N 23°24.6'	260°44.7'	N 23°27.9'	37°13.9'	S 11°35.2'	56°04.9'	S 17°34.8'	244°56.3'	N 20°28.7'			
8	26°46.9'	299°42.5'	N 23°24.6'	275°43.9'	N 23°27.5'	52°16.3'	S 11°35.2'	71°07.5'	S 17°34.8'	259°57.2'	N 20°28.3'			
9	41°49.4'	314°42.4'	N 23°24.7'	290°43.1'	N 23°27.1'	67°18.8'	S 11°35.2'	86°10.0'	S 17°34.8'	274°58.1'	N 20°27.9'			
10	56°51.8'	329°42.2'	N 23°24.7'	305°42.2'	N 23°26.7'	82°21.2'	S 11°35.3'	101°12.6'	S 17°34.9'	289°58.9'	N 20°27.5'			
11	71°54.3'	344°42.1'	N 23°24.8'	320°41.4'	N 23°26.4'	97°23.6'	S 11°35.3'	116°15.2'	S 17°34.9'	304°59.8'	N 20°27.1'			
12	86°56.8'	359°42.0'	N 23°24.8'	335°40.6'	N 23°26.0'	112°26.1'	S 11°35.3'	131°17.7'	S 17°34.9'	320°00.7'	N 20°26.8'			
13	101°59.2'	14°41.8'	N 23°24.8'	350°39.8'	N 23°25.6'	127°28.5'	S 11°35.3'	146°20.3'	S 17°35.0'	335°01.5'	N 20°26.4'			
14	117°01.7'	29°41.7'	N 23°24.9'	5°38.9'	N 23°25.2'	142°31.0'	S 11°35.3'	161°22.8'	S 17°35.0'	350°02.4'	N 20°26.0'			
15	132°04.2'	44°41.5'	N 23°24.9'	20°38.1'	N 23°24.8'	157°33.4'	S 11°35.3'	176°25.4'	S 17°35.0'	5°03.3'	N 20°25.6'			
16	147°06.6'	59°41.4'	N 23°25.0'	35°37.3'	N 23°24.4'	172°35.9'	S 11°35.3'	191°28.0'	S 17°35.1'	20°04.1'	N 20°25.3'			
17	162°09.1'	74°41.3'	N 23°25.0'	50°36.5'	N 23°24.1'	187°38.3'	S 11°35.3'	206°30.5'	S 17°35.1'	35°05.0'	N 20°24.9'			
18	177°11.6'	89°41.1'	N 23°25.1'	65°35.6'	N 23°23.7'	202°40.8'	S 11°35.3'	221°33.1'	S 17°35.1'	50°05.9'	N 20°24.5'			
19	192°14.0'	104°41.0'	N 23°25.1'	80°34.8'	N 23°23.3'	217°43.2'	S 11°35.3'	236°35.7'	S 17°35.2'	65°06.8'	N 20°24.1'			
20	207°16.5'	119°40.9'	N 23°25.1'	95°34.0'	N 23°22.9'	232°45.7'	S 11°35.3'	251°38.2'	S 17°35.2'	80°07.6'	N 20°23.7'			
21	222°18.9'	134°40.7'	N 23°25.2'	110°33.2'	N 23°22.5'	247°48.1'	S 11°35.3'	266°40.8'	S 17°35.2'	95°08.5'	N 20°23.4'			
22	237°21.4'	149°40.6'	N 23°25.2'	125°32.4'	N 23°22.1'	262°50.5'	S 11°35.3'	281°43.4'	S 17°35.3'	110°09.4'	N 20°23.0'			
23	252°23.9'	164°40.5'	N 23°25.3'	140°31.5'	N 23°21.7'	277°53.0'	S 11°35.3'	296°45.9'	S 17°35.3'	125°10.2'	N 20°22.6'			
		SD 15.7'	d 0.0'	v -0.8'	d -0.4'	v 2.4'	d -0.0'	v 2.6'	d -0.0'	v 0.9'	d -0.4'			
Mer. pass.		12 h 1 m 13 s		13 h 37 m		4 h 32 m		3 h 16 m		14 h 40 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Mars	+Pollux	+Sun
0	89°04.0'	N 6°42.1'	12.5'	-14.2'	58.0'	72°16.7'	70°18.1'	37°48.9'	30°02.6'	25°12.4'	51°00.7'	61°05.3'	87°56.7'
1	103°35.5'	N 6°27.9'	12.5'	-14.3'	58.0'	71°54.2'	70°01.5'	37°26.1'	29°29.4'	25°45.7'	51°33.0'	61°39.2'	88°28.2'
2	118°07.0'	N 6°13.6'	12.5'	-14.3'	58.0'	71°31.7'	69°45.0'	37°03.5'	28°56.2'	26°19.1'	52°05.4'	62°13.1'	88°59.8'
3	132°38.4'	N 5°59.2'	12.5'	-14.4'	58.1'	71°09.3'	69°28.5'	36°41.1'	28°23.0'	26°52.5'	52°37.8'	62°47.0'	89°31.4'
4	147°09.9'	N 5°44.8'	12.5'	-14.4'	58.1'	70°47.0'	69°12.2'	36°19.0'	27°49.8'	27°26.0'	53°10.2'	63°21.0'	90°03.0'
5	161°41.4'	N 5°30.4'	12.4'	-14.5'	58.1'	70°24.6'	68°55.9'	35°57.1'	27°16.6'	27°59.5'	53°42.7'	63°55.0'	90°34.7'
6	176°12.8'	N 5°15.9'	12.4'	-14.5'	58.1'	70°02.3'	68°39.7'	35°35.5'	26°43.3'	28°33.1'	54°15.2'	64°29.0'	91°06.4'
7	190°44.2'	N 5°01.4'	12.4'	-14.6'	58.2'	69°40.1'	68°23.6'	35°14.1'	26°10.1'	29°06.7'	54°47.7'	65°03.1'	91°38.2'
8	205°15.7'	N 4°46.9'	12.4'	-14.6'	58.2'	69°17.9'	68°07.6'	34°53.0'	25°36.9'	29°40.4'	55°20.3'	65°37.2'	92°10.0'
9	219°47.1'	N 4°32.3'	12.4'	-14.6'	58.2'	68°55.8'	67°51.6'	34°32.2'	25°03.6'	30°14.2'	55°52.9'	66°11.4'	92°41.8'
10	234°18.5'	N 4°17.6'	12.4'	-14.7'	58.3'	68°33.7'	67°35.8'	34°11.7'	24°30.4'	30°48.0'	56°25.5'	66°45.6'	93°13.6'
11	248°49.9'	N 4°03.0'	12.4'	-14.7'	58.3'	68°11.6'	67°20.1'	33°51.4'	23°57.2'	31°21.8'	56°58.2'	67°19.8'	93°45.5'
12	263°21.2'	N 3°48.3'	12.4'	-14.7'	58.3'	67°49.7'	67°04.4'	33°31.5'	23°24.0'	31°55.7'	57°31.0'	67°54.1'	94°17.5'
13	277°52.6'	N 3°33.5'	12.3'	-14.8'	58.4'	67°27.7'	66°48.9'	33°11.9'	22°50.9'	32°29.7'	58°03.7'	68°28.4'	94°49.5'
14	292°23.9'	N 3°18.7'	12.3'	-14.8'	58.4'	67°05.9'	66°33.4'	32°52.7'	22°17.7'	33°03.7'	58°36.5'	69°02.7'	95°21.5'
15	306°55.3'	N 3°03.9'	12.3'	-14.8'	58.4'	66°44.1'	66°18.0'	32°33.8'	21°44.6'	33°37.7'	59°09.4'	69°37.1'	95°53.5'
16	321°26.6'	N 2°49.1'	12.3'	-14.9'	58.5'	66°22.3'	66°02.8'	32°15.2'	21°11.5'	34°11.8'	59°42.3'	70°11.5'	96°25.6'
17	335°57.8'	N 2°34.2'	12.3'	-14.9'	58.5'	66°00.7'	65°47.7'	31°57.1'	20°38.4'	34°46.0'	60°15.2'	70°46.0'	96°57.7'
18	350°29.1'	N 2°19.3'	12.2'	-14.9'	58.5'	65°39.1'		31°39.3'	20°05.4'	35°20.2'	60°48.1'	71°20.5'	97°29.9'
19	5°00.3'	N 2°04.4'	12.2'	-14.9'	58.6'	65°17.6'		31°21.9'	19°32.4'	35°54.4'	61°21.1'	71°55.0'	98°02.1'
20	19°31.5'	N 1°49.5'	12.2'	-15.0'	58.6'	64°56.1'		31°04.9'	18°59.5'	36°28.7'	61°54.2'	72°29.6'	98°34.3'
21	34°02.7'	N 1°34.5'	12.2'	-15.0'	58.6'	64°34.8'		30°48.4'	18°26.6'	37°03.1'	62°27.2'	73°04.2'	99°06.6'
22	48°33.9'	N 1°19.5'	12.1'	-15.0'	58.7'	64°13.5'		30°32.3'	17°53.8'	37°37.4'	63°00.3'	73°38.9'	99°38.9'
23	63°05.0'	N 1°04.5'	12.1'	-15.0'	58.7'	63°52.3'		30°16.6'	17°21.1'	38°11.9'	63°33.5'	74°13.6'	100°11.3'
Mer. pass.		18 h 39 m SD 15.8'		phase 48%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°43.5'	N 89°21.0'
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	267°26.3'	179°40.3'	N 23°25.3'	155°30.7'	N 23°21.3'		292°55.4'	S 11°35.3'		311°48.5'	S 17°35.3'		140°11.1'	N 20°22.2'				
1	282°28.8'	194°40.2'	N 23°25.3'	170°29.9'	N 23°20.9'		307°57.9'	S 11°35.3'		326°51.1'	S 17°35.4'		155°12.0'	N 20°21.8'				
2	297°31.3'	209°40.1'	N 23°25.4'	185°29.1'	N 23°20.5'		323°00.3'	S 11°35.3'		341°53.6'	S 17°35.4'		170°12.8'	N 20°21.4'				
3	312°33.7'	224°39.9'	N 23°25.4'	200°28.3'	N 23°20.1'		338°02.8'	S 11°35.3'		356°56.2'	S 17°35.4'		185°13.7'	N 20°21.1'				
4	327°36.2'	239°39.8'	N 23°25.4'	215°27.4'	N 23°19.7'		353°05.2'	S 11°35.4'		11°58.7'	S 17°35.5'		200°14.6'	N 20°20.7'				
5	342°38.7'	254°39.6'	N 23°25.5'	230°26.6'	N 23°19.3'		8°07.7'	S 11°35.4'		27°01.3'	S 17°35.5'		215°15.4'	N 20°20.3'				
6	357°41.1'	269°39.5'	N 23°25.5'	245°25.8'	N 23°18.9'		23°10.1'	S 11°35.4'		42°03.9'	S 17°35.5'		230°16.3'	N 20°19.9'				
7	12°43.6'	284°39.4'	N 23°25.5'	260°25.0'	N 23°18.5'		38°12.6'	S 11°35.4'		57°06.4'	S 17°35.6'		245°17.2'	N 20°19.5'				
8	27°46.1'	299°39.2'	N 23°25.6'	275°24.2'	N 23°18.1'		53°15.0'	S 11°35.4'		72°09.0'	S 17°35.6'		260°18.1'	N 20°19.2'				
9	42°48.5'	314°39.1'	N 23°25.6'	290°23.4'	N 23°17.7'		68°17.5'	S 11°35.4'		87°11.6'	S 17°35.7'		275°18.9'	N 20°18.8'				
10	57°51.0'	329°39.0'	N 23°25.6'	305°22.5'	N 23°17.3'		83°19.9'	S 11°35.4'		102°14.1'	S 17°35.7'		290°19.8'	N 20°18.4'				
11	72°53.4'	344°38.8'	N 23°25.7'	320°21.7'	N 23°16.9'		98°22.4'	S 11°35.4'		117°16.7'	S 17°35.7'		305°20.7'	N 20°18.0'				
12	87°55.9'	359°38.7'	N 23°25.7'	335°20.9'	N 23°16.5'		113°24.8'	S 11°35.4'		132°19.3'	S 17°35.8'		320°21.5'	N 20°17.6'				
13	102°58.4'	14°38.6'	N 23°25.7'	350°20.1'	N 23°16.1'		128°27.3'	S 11°35.4'		147°21.8'	S 17°35.8'		335°22.4'	N 20°17.2'				
14	118°00.8'	29°38.4'	N 23°25.7'	5°19.3'	N 23°15.7'		143°29.7'	S 11°35.4'		162°24.4'	S 17°35.8'		350°23.3'	N 20°16.8'				
15	133°03.3'	44°38.3'	N 23°25.8'	20°18.5'	N 23°15.3'		158°32.2'	S 11°35.4'		177°27.0'	S 17°35.9'		5°24.1'	N 20°16.5'				
16	148°05.8'	59°38.1'	N 23°25.8'	35°17.6'	N 23°14.8'		173°34.6'	S 11°35.4'		192°29.5'	S 17°35.9'		20°25.0'	N 20°16.1'				
17	163°08.2'	74°38.0'	N 23°25.8'	50°16.8'	N 23°14.4'		188°37.1'	S 11°35.4'		207°32.1'	S 17°35.9'		35°25.9'	N 20°15.7'				
18	178°10.7'	89°37.9'	N 23°25.8'	65°16.0'	N 23°14.0'		203°39.5'	S 11°35.5'		222°34.7'	S 17°36.0'		50°26.8'	N 20°15.3'				
19	193°13.2'	104°37.7'	N 23°25.9'	80°15.2'	N 23°13.6'		218°42.0'	S 11°35.5'		237°37.2'	S 17°36.0'		65°27.6'	N 20°14.9'				
20	208°15.6'	119°37.6'	N 23°25.9'	95°14.4'	N 23°13.2'		233°44.4'	S 11°35.5'		252°39.8'	S 17°36.0'		80°28.5'	N 20°14.5'				
21	223°18.1'	134°37.5'	N 23°25.9'	110°13.6'	N 23°12.8'		248°46.9'	S 11°35.5'		267°42.4'	S 17°36.1'		95°29.4'	N 20°14.1'				
22	238°20.6'	149°37.3'	N 23°25.9'	125°12.8'	N 23°12.3'		263°49.4'	S 11°35.5'		282°45.0'	S 17°36.1'		110°30.2'	N 20°13.8'				
23	253°23.0'	164°37.2'	N 23°26.0'	140°12.0'	N 23°11.9'		278°51.8'	S 11°35.5'		297°47.5'	S 17°36.1'		125°31.1'	N 20°13.4'				
		SD 15.7'	d 0.0'		v -0.8'	d -0.4'		v 2.5'	d -0.0'		v 2.6'	d -0.0'		v 0.9'	d -0.4'			
Mer. pass.		12 h 1 m 26 s		13 h 39 m			4 h 28 m			3 h 12 m			14 h 38 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigil Kent	-Hadar	-Antares	-Spica	+Regulus	+Mars	+Procyon	+Sun
0	77°36.1'	N 0°49.4'	12.1'	-15.1'	58.7'	66°01.3'	63°31.1'	61°58.3'	16°48.5'	38°46.4'	64°06.7'	74°43.7'	100°43.7'
1	92°07.2'	N 0°34.4'	12.0'	-15.1'	58.7'	65°38.4'	63°10.1'	61°23.6'	16°16.0'	39°20.9'	64°39.9'	75°16.3'	101°16.1'
2	106°38.2'	N 0°19.3'	12.0'	-15.1'	58.8'	65°15.6'	62°49.2'	60°48.9'	15°43.7'	39°55.4'	65°13.2'	75°49.0'	101°48.6'
3	121°09.2'	N 0°04.2'	12.0'	-15.1'	58.8'	64°52.8'	62°28.3'	60°14.1'	15°11.5'	40°30.1'	65°46.5'	76°21.7'	102°21.1'
4	135°40.2'	S 0°10.9'	11.9'	-15.1'	58.8'	64°30.1'	62°07.6'	59°39.4'	14°39.4'	41°04.7'	66°19.8'	76°54.5'	102°53.6'
5	150°11.1'	S 0°26.1'	11.9'	-15.1'	58.9'	64°07.4'	61°46.9'	59°04.5'	14°07.5'	41°39.4'	66°53.2'	77°27.3'	103°26.2'
6	164°42.0'	S 0°41.2'	11.9'	-15.2'	58.9'	63°44.9'	61°26.4'	58°29.7'	13°35.9'	42°14.2'	67°26.6'	78°00.1'	103°58.8'
7	179°12.9'	S 0°56.4'	11.8'	-15.2'	58.9'	63°22.4'	61°05.9'	57°54.8'	13°04.5'	42°48.9'	68°00.0'	78°33.0'	104°31.5'
8	193°43.7'	S 1°11.5'	11.8'	-15.2'	59.0'	62°60.0'	60°45.6'	57°19.9'	12°33.3'	43°23.8'	68°33.5'	79°06.0'	105°04.2'
9	208°14.5'	S 1°26.7'	11.7'	-15.2'	59.0'	62°37.7'	60°25.4'	56°44.9'	12°02.5'	43°58.6'	69°07.1'	79°39.0'	105°36.9'
10	222°45.2'	S 1°41.9'	11.7'	-15.2'	59.0'	62°15.4'	60°05.3'	56°09.9'	11°32.1'	44°33.6'	69°40.6'	80°12.0'	106°09.7'
11	237°15.9'	S 1°57.1'	11.7'	-15.2'	59.1'	61°53.3'	59°45.3'	55°34.9'	11°02.1'	45°08.5'	70°14.3'	80°45.1'	106°42.5'
12	251°46.6'	S 2°12.3'	11.6'	-15.2'	59.1'	61°31.2'	59°25.4'	54°59.8'	10°32.6'	45°43.5'	70°47.9'	81°18.2'	107°15.3'
13	266°17.2'	S 2°27.5'	11.6'	-15.2'	59.1'	61°09.3'	59°05.7'	54°24.7'	10°03.7'	46°18.6'	71°21.6'	81°51.3'	107°48.2'
14	280°47.8'	S 2°42.8'	11.5'	-15.2'	59.1'	60°47.4'	58°46.1'	53°49.5'	9°35.4'	46°53.7'	71°55.3'	82°24.5'	108°21.1'
15	295°18.3'	S 2°58.0'	11.5'	-15.2'	59.2'	60°25.7'	58°26.6'	53°14.4'		47°28.8'	72°29.1'	82°57.8'	108°54.1'
16	309°48.7'	S 3°13.2'	11.4'	-15.2'	59.2'	60°04.0'	58°07.2'	52°39.2'		48°04.0'	73°02.9'	83°31.0'	109°27.1'
17	324°19.2'	S 3°28.4'	11.4'	-15.2'	59.2'	59°42.5'	57°48.0'	52°03.9'		48°39.2'	73°36.7'	84°04.4'	110°00.1'
18	338°49.5'	S 3°43.6'	11.3'	-15.2'	59.3'	59°21.1'	57°29.0'	51°28.6'		49°14.4'	74°10.6'	84°37.7'	110°33.2'
19	353°19.8'	S 3°58.8'	11.3'	-15.2'	59.3'	58°59.8'	57°10.0'	50°53.3'		49°49.7'	74°44.5'	85°11.1'	111°06.3'
20	7°50.1'	S 4°14.0'	11.2'	-15.2'	59.3'	58°38.6'	56°51.3'	50°18.0'		50°25.1'	75°18.4'	85°44.6'	111°39.4'
21	22°20.3'	S 4°29.2'	11.1'	-15.2'	59.4'	58°17.5'	56°32.7'	49°42.6'		51°00.4'	75°52.4'	86°18.0'	112°12.6'
22	36°50.5'	S 4°44.4'	11.1'	-15.2'	59.4'	57°56.6'	56°14.2'	49°07.2'		51°35.8'	76°26.4'	86°51.6'	112°45.8'
23	51°20.5'	S 4°59.6'	11.0'	-15.2'	59.4'	57°35.8'	55°55.9'	48°31.7'		52°11.3'	77°00.5'	87°25.1'	113°19.1'
Mer. pass.		19 h 28 m SD 16.0'		phase 59%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°43.2'	N 89°21.0'
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	268°25.5'	179°37.1'	N 23°26.0'	155°11.1'	N 23°11.5'	293°54.3'	S 11°35.5'	312°50.1'	S 17°36.2'	140°32.0'	N 20°13.0'	
1	283°27.4'	194°36.9'	N 23°26.0'	170°10.3'	N 23°11.1'	308°56.7'	S 11°35.5'	327°52.7'	S 17°36.2'	155°32.9'	N 20°12.6'	
2	298°30.9'	209°36.8'	N 23°26.0'	185°09.5'	N 23°10.6'	323°59.2'	S 11°35.5'	342°55.2'	S 17°36.3'	170°33.7'	N 20°12.2'	
3	313°32.9'	224°36.7'	N 23°26.0'	200°08.7'	N 23°10.2'	339°01.6'	S 11°35.5'	357°57.8'	S 17°36.3'	185°34.6'	N 20°11.8'	
4	328°35.3'	239°36.5'	N 23°26.0'	215°07.9'	N 23°09.8'	354°04.1'	S 11°35.5'	13°00.4'	S 17°36.3'	200°35.5'	N 20°11.4'	
5	343°37.8'	254°36.4'	N 23°26.1'	230°07.1'	N 23°09.4'	9°06.5'	S 11°35.6'	28°02.9'	S 17°36.4'	215°36.3'	N 20°11.0'	
6	358°40.3'	269°36.2'	N 23°26.1'	245°06.3'	N 23°08.9'	24°09.0'	S 11°35.6'	43°05.5'	S 17°36.4'	230°37.2'	N 20°10.7'	
7	13°42.7'	284°36.1'	N 23°26.1'	260°05.5'	N 23°08.5'	39°11.5'	S 11°35.6'	58°08.1'	S 17°36.4'	245°38.1'	N 20°10.3'	
8	28°45.2'	299°36.0'	N 23°26.1'	275°04.7'	N 23°08.1'	54°13.9'	S 11°35.6'	73°10.6'	S 17°36.5'	260°39.0'	N 20°09.9'	
9	43°47.7'	314°35.8'	N 23°26.1'	290°03.9'	N 23°07.6'	69°16.4'	S 11°35.6'	88°13.2'	S 17°36.5'	275°39.8'	N 20°09.5'	
10	58°50.1'	329°35.7'	N 23°26.1'	305°03.1'	N 23°07.2'	84°18.8'	S 11°35.6'	103°15.8'	S 17°36.5'	290°40.7'	N 20°09.1'	
11	73°52.6'	344°35.6'	N 23°26.1'	320°02.3'	N 23°06.8'	99°21.3'	S 11°35.6'	118°18.4'	S 17°36.6'	305°41.6'	N 20°08.7'	
12	88°55.0'	359°35.4'	N 23°26.2'	335°01.4'	N 23°06.3'	114°23.8'	S 11°35.6'	133°20.9'	S 17°36.6'	320°42.5'	N 20°08.3'	
13	103°57.5'	14°35.3'	N 23°26.2'	350°00.6'	N 23°05.9'	129°26.2'	S 11°35.6'	148°23.5'	S 17°36.6'	335°43.3'	N 20°07.9'	
14	118°60.0'	29°35.2'	N 23°26.2'	4°59.8'	N 23°05.4'	144°28.7'	S 11°35.6'	163°26.1'	S 17°36.7'	350°44.2'	N 20°07.5'	
15	134°02.4'	44°35.0'	N 23°26.2'	19°59.0'	N 23°05.0'	159°31.1'	S 11°35.7'	178°28.6'	S 17°36.7'	5°45.1'	N 20°07.2'	
16	149°04.9'	59°34.9'	N 23°26.2'	34°58.2'	N 23°04.6'	174°33.6'	S 11°35.7'	193°31.2'	S 17°36.8'	20°45.9'	N 20°06.8'	
17	164°07.4'	74°34.8'	N 23°26.2'	49°57.4'	N 23°04.1'	189°36.0'	S 11°35.7'	208°33.8'	S 17°36.8'	35°46.8'	N 20°06.4'	
18	179°09.8'	89°34.6'	N 23°26.2'	64°56.6'	N 23°03.7'	204°38.5'	S 11°35.7'	223°36.3'	S 17°36.8'	50°47.7'	N 20°06.0'	
19	194°12.3'	104°34.5'	N 23°26.2'	79°55.8'	N 23°03.2'	219°41.0'	S 11°35.7'	238°38.9'	S 17°36.9'	65°48.6'	N 20°05.6'	
20	209°14.8'	119°34.4'	N 23°26.2'	94°55.0'	N 23°02.8'	234°43.4'	S 11°35.7'	253°41.5'	S 17°36.9'	80°49.4'	N 20°05.2'	
21	224°17.2'	134°34.2'	N 23°26.2'	109°54.2'	N 23°02.3'	249°45.9'	S 11°35.7'	268°44.1'	S 17°36.9'	95°50.3'	N 20°04.8'	
22	239°19.7'	149°34.1'	N 23°26.2'	124°53.4'	N 23°01.9'	264°48.4'	S 11°35.7'	283°46.6'	S 17°37.0'	110°51.2'	N 20°04.4'	
23	254°22.2'	164°33.9'	N 23°26.2'	139°52.6'	N 23°01.4'	279°50.8'	S 11°35.7'	298°49.2'	S 17°37.0'	125°52.1'	N 20°04.0'	
		SD 15.7'	d 0.0'		v -0.8' d -0.4'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'	
Mer. pass.		12 h 1 m 39 s			13 h 40 m		4 h 24 m		3 h 8 m		14 h 37 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigil Kent	-Hadar	-Antares	-Spica	+Arcturus	+Regulus	+Mars	+Sun
0	65°50.6'	S 5°14.8'	11.0'	-15.2'	59.4'	57°15.1'	55°37.8'	47°56.3'			52°46.8'	77°34.6'	113°52.4'
1	80°20.6'	S 5°30.0'	10.9'	-15.1'	59.5'	56°54.6'	55°19.8'	47°20.7'			53°22.3'	78°08.7'	114°25.7'
2	94°50.5'	S 5°45.1'	10.8'	-15.1'	59.5'	56°34.2'	55°02.1'	46°45.2'			53°57.9'	78°42.9'	114°59.1'
3	109°20.3'	S 6°00.2'	10.8'	-15.1'	59.5'	56°13.9'	54°44.5'	46°09.6'			54°33.5'	79°17.1'	115°32.5'
4	123°50.1'	S 6°15.3'	10.7'	-15.1'	59.6'	55°53.8'	54°27.0'	45°34.0'			55°09.2'	79°51.3'	116°05.9'
5	138°19.8'	S 6°30.4'	10.7'	-15.1'	59.6'	55°33.9'	54°09.8'	44°58.4'			55°44.9'	80°25.6'	116°39.4'
6	152°49.5'	S 6°45.5'	10.6'	-15.1'	59.6'	55°14.1'	53°52.8'	44°22.7'			56°20.6'	80°59.9'	117°12.9'
7	167°19.1'	S 7°00.6'	10.5'	-15.0'	59.6'	54°54.5'	53°35.9'	43°47.0'			56°56.4'	81°34.3'	117°46.4'
8	181°48.6'	S 7°15.6'	10.5'	-15.0'	59.7'	54°35.0'	53°19.3'	43°11.3'			57°32.2'	82°08.7'	118°20.0'
9	196°18.0'	S 7°30.6'	10.4'	-15.0'	59.7'	54°15.7'	53°02.8'	42°35.5'			58°08.0'	82°43.1'	118°53.6'
10	210°47.4'	S 7°45.6'	10.3'	-15.0'	59.7'	53°56.6'	52°46.6'	41°59.7'			58°43.9'	83°17.6'	119°27.3'
11	225°16.7'	S 8°00.5'	10.2'	-14.9'	59.8'	53°37.7'	52°30.6'	41°23.9'			59°19.8'	83°52.1'	
12	239°46.0'	S 8°15.5'	10.2'	-14.9'	59.8'	53°18.9'	52°14.8'	40°48.0'			59°55.8'	84°26.6'	
13	254°15.1'	S 8°30.4'	10.1'	-14.9'	59.8'	53°00.4'	51°59.2'	40°12.2'			60°31.8'	85°01.1'	
14	268°44.2'	S 8°45.2'	10.0'	-14.8'	59.8'	52°42.0'	51°43.9'	39°36.3'			61°07.8'	85°35.7'	
15	283°13.2'	S 9°00.0'	9.9'	-14.8'	59.9'	52°23.9'		39°00.3'			61°43.9'	86°10.4'	
16	297°42.2'	S 9°14.8'	9.9'	-14.7'	59.9'	52°05.9'		38°24.4'			62°19.9'	86°45.0'	
17	312°11.0'	S 9°29.6'	9.8'	-14.7'	59.9'	51°48.1'		37°48.4'	10°20.6'		62°56.1'	87°19.7'	
18	326°39.8'	S 9°44.3'	9.7'	-14.7'	59.9'	51°30.6'		37°12.4'	10°50.8'		63°32.3'	87°54.5'	
19	341°08.5'	S 9°58.9'	9.6'	-14.6'	60.0'	51°13.3'		36°36.4'	11°21.6'		64°08.5'	88°29.2'	
20	355°37.1'	S 10°13.6'	9.5'	-14.6'	60.0'	50°56.2'		36°00.3'	11°52.9'		64°44.7'	89°04.0'	
21	10°05.6'	S 10°28.1'	9.5'	-14.5'	60.0'	50°39.4'		35°24.2'	12°24.7'		65°21.0'	89°38.9'	
22	24°34.1'	S 10°42.7'	9.4'	-14.5'	60.0'	50°22.7'		34°48.1'	12°57.0'	29°47.4'	65°57.3'	90°13.7'	
23	39°02.5'	S 10°57.1'	9.3'	-14.4'	60.1'	50°06.3'		34°12.0'	13°29.6'	30°02.9'	66°33.6'	90°48.6'	
Mer. pass.		20 h 18 m SD 16.2'			phase 70%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°17.7'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'		
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'		
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'		
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'		
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°42.8'	N 89°21.0'		
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'		
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'						
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'						

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	269°24.6'	179°33.8'	N 23°26.2'	154°51.8'	N 23°01.0'	294°53.3'	S 11°35.8'	313°51.8'	S 17°37.0'	140°52.9'	N 20°03.6'			
1	284°27.1'	194°33.7'	N 23°26.2'	169°51.0'	N 23°00.5'	309°55.7'	S 11°35.8'	328°54.3'	S 17°37.1'	155°53.8'	N 20°03.2'			
2	299°29.5'	209°33.5'	N 23°26.2'	184°50.2'	N 23°00.1'	324°58.2'	S 11°35.8'	343°56.9'	S 17°37.1'	170°54.7'	N 20°02.8'			
3	314°32.0'	224°33.4'	N 23°26.2'	199°49.4'	N 22°59.6'	340°00.7'	S 11°35.8'	358°59.5'	S 17°37.1'	185°55.6'	N 20°02.5'			
4	329°34.5'	239°33.3'	N 23°26.2'	214°48.6'	N 22°59.2'	355°03.1'	S 11°35.8'	14°02.1'	S 17°37.2'	200°56.4'	N 20°02.1'			
5	344°36.9'	254°33.1'	N 23°26.2'	229°47.8'	N 22°58.7'	10°05.6'	S 11°35.8'	29°04.6'	S 17°37.2'	215°57.3'	N 20°01.7'			
6	359°39.4'	269°33.0'	N 23°26.2'	244°47.0'	N 22°58.3'	25°08.1'	S 11°35.8'	44°07.2'	S 17°37.3'	230°58.2'	N 20°01.3'			
7	14°41.9'	284°32.9'	N 23°26.2'	259°46.2'	N 22°57.8'	40°10.5'	S 11°35.8'	59°09.8'	S 17°37.3'	245°59.1'	N 20°00.9'			
8	29°44.3'	299°32.7'	N 23°26.2'	274°45.4'	N 22°57.3'	55°13.0'	S 11°35.9'	74°12.4'	S 17°37.3'	260°59.9'	N 20°00.5'			
9	44°46.8'	314°32.6'	N 23°26.2'	289°44.6'	N 22°56.9'	70°15.5'	S 11°35.9'	89°14.9'	S 17°37.4'	276°00.8'	N 20°00.1'			
10	59°49.3'	329°32.5'	N 23°26.2'	304°43.8'	N 22°56.4'	85°17.9'	S 11°35.9'	104°17.5'	S 17°37.4'	291°01.7'	N 19°59.7'			
11	74°51.7'	344°32.3'	N 23°26.2'	319°43.0'	N 22°56.0'	100°20.4'	S 11°35.9'	119°20.1'	S 17°37.4'	306°02.6'	N 19°59.3'			
12	89°54.2'	359°32.2'	N 23°26.2'	334°42.2'	N 22°55.5'	115°22.9'	S 11°35.9'	134°22.6'	S 17°37.5'	321°03.4'	N 19°58.9'			
13	104°56.7'	14°32.1'	N 23°26.2'	349°41.4'	N 22°55.0'	130°25.3'	S 11°35.9'	149°25.2'	S 17°37.5'	336°04.3'	N 19°58.5'			
14	119°59.1'	29°31.9'	N 23°26.2'	4°40.6'	N 22°54.6'	145°27.8'	S 11°35.9'	164°27.8'	S 17°37.6'	351°05.2'	N 19°58.1'			
15	135°01.6'	44°31.8'	N 23°26.2'	19°39.8'	N 22°54.1'	160°30.3'	S 11°36.0'	179°30.4'	S 17°37.6'	6°06.1'	N 19°57.7'			
16	150°04.0'	59°31.6'	N 23°26.2'	34°39.0'	N 22°53.6'	175°32.7'	S 11°36.0'	194°32.9'	S 17°37.6'	21°06.9'	N 19°57.3'			
17	165°06.5'	74°31.5'	N 23°26.2'	49°38.3'	N 22°53.1'	190°35.2'	S 11°36.0'	209°35.5'	S 17°37.7'	36°07.8'	N 19°56.9'			
18	180°09.0'	89°31.4'	N 23°26.2'	64°37.5'	N 22°52.7'	205°37.7'	S 11°36.0'	224°38.1'	S 17°37.7'	51°08.7'	N 19°56.5'			
19	195°11.4'	104°31.2'	N 23°26.2'	79°36.7'	N 22°52.2'	220°40.1'	S 11°36.0'	239°40.7'	S 17°37.7'	66°09.6'	N 19°56.1'			
20	210°13.9'	119°31.1'	N 23°26.1'	94°35.9'	N 22°51.7'	235°42.6'	S 11°36.0'	254°43.2'	S 17°37.8'	81°10.4'	N 19°55.7'			
21	225°16.4'	134°31.0'	N 23°26.1'	109°35.1'	N 22°51.3'	250°45.1'	S 11°36.0'	269°45.8'	S 17°37.8'	96°11.3'	N 19°55.3'			
22	240°18.8'	149°30.8'	N 23°26.1'	124°34.3'	N 22°50.8'	265°47.5'	S 11°36.0'	284°48.4'	S 17°37.8'	111°12.2'	N 19°54.9'			
23	255°21.3'	164°30.7'	N 23°26.1'	139°33.5'	N 22°50.3'	280°50.0'	S 11°36.1'	299°51.0'	S 17°37.9'	126°13.1'	N 19°54.5'			
		SD 15.7' d -0.0'		v -0.8' d -0.5'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 1 m 52 s		13 h 41 m		4 h 20 m		3 h 4 m		14 h 36 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Saturn	-Altair	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Mars
0	53°30.7'	S 11°11.6'	9.2'	-14.4'	60.1'	95°37.3'	84°02.7'	49°50.2'	33°35.9'	14°02.6'	30°18.9'	67°10.0'	91°23.5'
1	67°58.9'	S 11°25.9'	9.1'	-14.3'	60.1'	95°00.8'	83°32.3'	49°34.3'	32°59.7'	14°35.9'	30°35.5'	67°46.4'	91°58.5'
2	82°27.0'	S 11°40.3'	9.0'	-14.3'	60.1'	94°24.2'	83°01.8'	49°18.7'	32°23.6'	15°09.4'	30°52.6'	68°22.8'	92°33.5'
3	96°55.1'	S 11°54.5'	8.9'	-14.2'	60.2'	93°47.5'	82°31.3'	49°03.3'	31°47.4'	15°43.2'	31°10.2'	68°59.3'	93°08.5'
4	111°23.0'	S 12°08.7'	8.8'	-14.1'	60.2'	93°10.9'	82°00.9'		31°11.2'	16°17.2'	31°28.3'	69°35.8'	93°43.6'
5	125°50.8'	S 12°22.9'	8.7'	-14.1'	60.2'	92°34.2'	81°30.4'		30°34.9'	16°51.5'	31°46.9'	70°12.3'	94°18.6'
6	140°18.6'	S 12°37.0'	8.7'	-14.0'	60.2'	91°57.5'	80°59.9'		29°58.7'	17°25.9'	32°06.0'	70°48.9'	94°53.7'
7	154°46.2'	S 12°51.0'	8.6'	-14.0'	60.2'	91°20.7'	80°29.4'		29°22.5'	18°00.5'	32°25.5'	71°25.5'	95°28.9'
8	169°13.8'	S 13°04.9'	8.5'	-13.9'	60.3'	90°43.9'	79°58.9'		28°46.2'	18°35.2'	32°45.6'	72°02.1'	96°04.0'
9	183°41.3'	S 13°18.8'	8.4'	-13.8'	60.3'	90°07.1'	79°28.4'		28°09.9'	19°10.1'	33°06.0'	72°38.8'	96°39.2'
10	198°08.7'	S 13°32.7'	8.3'	-13.7'	60.3'	89°30.3'	78°57.8'		27°33.7'	19°45.2'	33°26.9'	73°15.4'	97°14.5'
11	212°35.9'	S 13°46.4'	8.2'	-13.7'	60.3'	88°53.4'	78°27.3'		26°57.4'	20°20.3'	33°48.2'	73°52.2'	97°49.7'
12	227°03.1'	S 14°00.1'	8.1'	-13.6'	60.4'	88°16.5'	77°56.8'		26°21.1'	20°55.6'	34°09.9'	74°28.9'	98°25.0'
13	241°30.2'	S 14°13.7'	8.0'	-13.5'	60.4'	87°39.6'	77°26.3'		25°44.8'	21°31.0'	34°32.0'	75°05.7'	99°00.3'
14	255°57.2'	S 14°27.2'	7.9'	-13.4'	60.4'	87°02.6'	76°55.8'		25°08.6'	22°06.5'	34°54.5'	75°42.5'	99°35.6'
15	270°24.1'	S 14°40.6'	7.8'	-13.4'	60.4'	86°25.7'	76°25.4'		24°32.3'	22°42.1'	35°17.3'	76°19.3'	100°11.0'
16	284°50.9'	S 14°54.0'	7.7'	-13.3'	60.4'	85°48.7'	75°54.9'		23°56.0'	23°17.8'	35°40.5'	76°56.1'	100°46.4'
17	299°17.6'	S 15°07.3'	7.6'	-13.2'	60.4'	85°11.6'	75°24.4'		23°19.8'	23°53.6'	36°04.1'	77°33.0'	101°21.8'
18	313°44.2'	S 15°20.5'	7.5'	-13.1'	60.5'	84°34.6'	74°54.0'		22°43.5'	24°29.4'	36°28.0'	78°09.9'	101°57.2'
19	328°10.7'	S 15°33.6'	7.4'	-13.0'	60.5'	83°57.5'	74°23.5'		22°07.3'	25°05.4'	36°52.2'	78°46.8'	102°32.7'
20	342°37.2'	S 15°46.6'	7.3'	-12.9'	60.5'	83°20.4'	73°53.1'		21°31.1'	25°41.4'	37°16.8'	79°23.8'	103°08.1'
21	357°03.5'	S 15°59.5'	7.2'	-12.8'	60.5'	82°43.3'	73°22.7'		20°55.0'	26°17.4'	37°41.6'	80°00.7'	103°43.6'
22	11°29.7'	S 16°12.4'	7.1'	-12.7'	60.5'	82°06.1'	72°52.3'		20°18.8'	26°53.6'	38°06.8'	80°37.7'	104°19.2'
23	25°55.8'	S 16°25.1'	7.0'	-12.6'	60.6'	81°29.0'	72°21.9'		19°42.7'	27°29.8'	38°32.2'	81°14.8'	104°54.7'
Mer. pass.		21 h 12 m SD 16.4'		phase 80%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.7'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°42.4'	N 89°20.9'
Rigel Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	270°23.8'	179°30.6'	N 23°26.1'	154°32.7'	N 22°49.8'	295°52.5'	S 11°36.1'	314°53.5'	S 17°37.9'	141°14.0'	N 19°54.1'			
1	285°26.2'	194°30.4'	N 23°26.1'	169°31.9'	N 22°49.3'	310°54.9'	S 11°36.1'	329°56.1'	S 17°38.0'	156°14.8'	N 19°53.7'			
2	300°28.7'	209°30.3'	N 23°26.1'	184°31.1'	N 22°48.9'	325°57.4'	S 11°36.1'	344°58.7'	S 17°38.0'	171°15.7'	N 19°53.3'			
3	315°31.2'	224°30.2'	N 23°26.0'	199°30.3'	N 22°48.4'	340°59.9'	S 11°36.1'	0°01.3'	S 17°38.0'	186°16.6'	N 19°52.9'			
4	330°33.6'	239°30.0'	N 23°26.0'	214°29.5'	N 22°47.9'	356°02.4'	S 11°36.1'	15°03.8'	S 17°38.1'	201°17.5'	N 19°52.5'			
5	345°36.1'	254°29.9'	N 23°26.0'	229°28.8'	N 22°47.4'	11°04.8'	S 11°36.2'	30°06.4'	S 17°38.1'	216°18.3'	N 19°52.1'			
6	0°38.5'	269°29.8'	N 23°26.0'	244°28.0'	N 22°46.9'	26°07.3'	S 11°36.2'	45°09.0'	S 17°38.1'	231°19.2'	N 19°51.7'			
7	15°41.0'	284°29.6'	N 23°26.0'	259°27.2'	N 22°46.5'	41°09.8'	S 11°36.2'	60°11.6'	S 17°38.2'	246°20.1'	N 19°51.3'			
8	30°43.5'	299°29.5'	N 23°26.0'	274°26.4'	N 22°46.0'	56°12.2'	S 11°36.2'	75°14.1'	S 17°38.2'	261°21.0'	N 19°50.9'			
9	45°45.9'	314°29.4'	N 23°25.9'	289°25.6'	N 22°45.5'	71°14.7'	S 11°36.2'	90°16.7'	S 17°38.3'	276°21.9'	N 19°50.5'			
10	60°48.4'	329°29.2'	N 23°25.9'	304°24.8'	N 22°45.0'	86°17.2'	S 11°36.2'	105°19.3'	S 17°38.3'	291°22.7'	N 19°50.1'			
11	75°50.9'	344°29.1'	N 23°25.9'	319°24.0'	N 22°44.5'	101°19.7'	S 11°36.2'	120°21.9'	S 17°38.3'	306°23.6'	N 19°49.7'			
12	90°53.3'	359°29.0'	N 23°25.9'	334°23.3'	N 22°44.0'	116°22.1'	S 11°36.3'	135°24.5'	S 17°38.4'	321°24.5'	N 19°49.3'			
13	105°55.8'	14°28.8'	N 23°25.8'	349°22.5'	N 22°43.5'	131°24.6'	S 11°36.3'	150°27.0'	S 17°38.4'	336°25.4'	N 19°48.9'			
14	120°58.3'	29°28.7'	N 23°25.8'	4°21.7'	N 22°43.0'	146°27.1'	S 11°36.3'	165°29.6'	S 17°38.4'	351°26.2'	N 19°48.5'			
15	136°00.7'	44°28.5'	N 23°25.8'	19°20.9'	N 22°42.5'	161°29.6'	S 11°36.3'	180°32.2'	S 17°38.5'	6°27.1'	N 19°48.1'			
16	151°03.2'	59°28.4'	N 23°25.8'	34°20.1'	N 22°42.0'	176°32.0'	S 11°36.3'	195°34.8'	S 17°38.5'	21°28.0'	N 19°47.7'			
17	166°05.6'	74°28.3'	N 23°25.7'	49°19.3'	N 22°41.5'	191°34.5'	S 11°36.3'	210°37.3'	S 17°38.6'	36°28.9'	N 19°47.3'			
18	181°08.1'	89°28.1'	N 23°25.7'	64°18.5'	N 22°41.0'	206°37.0'	S 11°36.4'	225°39.9'	S 17°38.6'	51°29.8'	N 19°46.9'			
19	196°10.6'	104°28.0'	N 23°25.7'	79°17.8'	N 22°40.5'	221°39.5'	S 11°36.4'	240°42.5'	S 17°38.6'	66°30.6'	N 19°46.5'			
20	211°13.0'	119°27.9'	N 23°25.7'	94°17.0'	N 22°40.0'	236°41.9'	S 11°36.4'	255°45.1'	S 17°38.7'	81°31.5'	N 19°46.1'			
21	226°15.5'	134°27.7'	N 23°25.6'	109°16.2'	N 22°39.5'	251°44.4'	S 11°36.4'	270°47.6'	S 17°38.7'	96°32.4'	N 19°45.7'			
22	241°18.0'	149°27.6'	N 23°25.6'	124°15.4'	N 22°39.0'	266°46.9'	S 11°36.4'	285°50.2'	S 17°38.7'	111°33.3'	N 19°45.3'			
23	256°20.4'	164°27.5'	N 23°25.6'	139°14.6'	N 22°38.5'	281°49.4'	S 11°36.4'	300°52.8'	S 17°38.8'	126°34.2'	N 19°44.9'			
		SD 15.7' d -0.0'		v -0.8' d -0.5'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 2 m 5 s		13 h 43 m		4 h 16 m		3 h 0 m		14 h 34 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Mars
0	40°21.8'	S 16°37.7'	6.9'	-12.5'	60.6'	95°18.8'	80°51.8'	71°51.6'	19°06.6'	28°06.0'	38°57.9'	81°51.8'	105°30.3'
1	54°47.7'	S 16°50.3'	6.8'	-12.4'	60.6'	95°03.4'	80°14.6'	71°21.3'	18°30.6'	28°42.4'	39°23.9'	82°28.9'	106°05.9'
2	69°13.5'	S 17°02.7'	6.7'	-12.3'	60.6'	94°48.1'	79°37.3'	70°51.0'	17°54.7'	29°18.7'	39°50.2'	83°05.9'	106°41.5'
3	83°39.2'	S 17°15.1'	6.6'	-12.2'	60.6'	94°32.7'	79°00.1'	70°20.8'	17°18.8'	29°55.2'	40°16.7'	83°43.0'	107°17.1'
4	98°04.8'	S 17°27.3'	6.5'	-12.1'	60.6'	94°17.2'	78°22.8'	69°50.5'	16°42.9'	30°31.6'	40°43.5'	84°20.2'	107°52.8'
5	112°30.3'	S 17°39.4'	6.4'	-12.0'	60.6'	94°01.7'	77°45.5'	69°20.4'	16°07.2'	31°08.2'	41°10.5'	84°57.3'	108°28.4'
6	126°55.7'	S 17°51.4'	6.3'	-11.9'	60.7'	93°46.2'	77°08.2'	68°50.2'	15°31.6'	31°44.7'	41°37.7'	85°34.5'	109°04.1'
7	141°21.0'	S 18°03.3'	6.2'	-11.8'	60.7'	93°30.7'	76°30.9'	68°20.1'	14°56.1'	32°21.3'	42°05.1'	86°11.7'	109°39.8'
8	155°46.2'	S 18°15.1'	6.1'	-11.7'	60.7'	93°15.1'	75°53.5'	67°50.0'	14°20.7'	32°58.0'	42°32.8'	86°48.9'	110°15.6'
9	170°11.2'	S 18°26.8'	6.0'	-11.6'	60.7'	92°59.5'	75°16.2'	67°20.0'	13°45.4'	33°34.7'	43°00.7'	87°26.1'	110°51.3'
10	184°36.2'	S 18°38.4'	5.9'	-11.4'	60.7'	92°43.9'	74°38.8'	66°50.0'	13°10.4'	34°11.4'	43°28.8'	88°03.3'	111°27.1'
11	199°01.1'	S 18°49.8'	5.8'	-11.3'	60.7'	92°28.3'	74°01.4'	66°20.1'	12°35.5'	34°48.2'	43°57.1'	88°40.6'	112°02.8'
12	213°25.9'	S 19°01.1'	5.7'	-11.2'	60.7'	92°12.6'	73°24.0'	65°50.2'	12°00.9'	35°25.0'	44°25.5'	89°17.8'	112°38.6'
13	227°50.6'	S 19°12.3'	5.6'	-11.1'	60.7'	91°57.0'	72°46.5'	65°20.4'	11°26.5'	36°01.8'	44°54.2'	89°55.1'	113°14.4'
14	242°15.2'	S 19°23.4'	5.5'	-10.9'	60.7'	91°41.3'	72°09.1'	64°50.7'	10°52.5'	36°38.7'	45°23.0'	90°32.4'	113°50.2'
15	256°39.7'	S 19°34.3'	5.4'	-10.8'	60.8'	91°25.5'	71°31.6'	64°21.0'	10°18.8'	37°15.6'	45°52.0'	91°09.7'	114°26.1'
16	271°04.1'	S 19°45.2'	5.3'	-10.7'	60.8'	91°09.8'	70°54.2'	63°51.3'	9°45.6'	37°52.5'	46°21.2'	91°47.1'	115°01.9'
17	285°28.3'	S 19°55.8'	5.2'	-10.6'	60.8'	90°54.1'	70°16.7'	63°21.7'	9°12.9'	38°29.4'	46°50.5'	92°24.4'	115°37.8'
18	299°52.5'	S 20°06.4'	5.1'	-10.4'	60.8'	90°38.3'	69°39.2'	62°52.2'	8°40.8'	39°06.4'	47°20.0'	93°01.8'	116°13.6'
19	314°16.6'	S 20°16.8'	5.0'	-10.3'	60.8'	90°22.6'	69°01.7'	62°22.8'		39°43.4'	47°49.7'	93°39.1'	116°49.5'
20	328°40.6'	S 20°27.1'	4.9'	-10.1'	60.8'	90°06.8'	68°24.2'	61°53.4'		40°20.4'	48°19.5'	94°16.5'	117°25.4'
21	343°04.5'	S 20°37.2'	4.8'	-10.0'	60.8'	89°51.0'	67°46.7'	61°24.1'		40°57.5'	48°49.4'	94°53.9'	118°01.3'
22	357°28.3'	S 20°47.2'	4.7'	-9.9'	60.8'	89°35.3'	67°09.1'	60°54.9'		41°34.6'	49°19.5'	95°31.3'	118°37.2'
23	11°52.0'	S 20°57.1'	4.6'	-9.7'	60.8'	89°19.5'	66°31.6'	60°25.8'		42°11.6'	49°49.7'	96°08.7'	119°13.1'
Mer. pass.		22 h 11 m SD 16.5'		phase 89%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.1'	S 63°13.3'	Capella	+0.1	280°26.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°42.0'	N 89°20.9'
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	271°22.9'	179°27.3' N 23°25.5'	154°13.9' N 22°38.0'	296°51.9' S 11°36.5'	315°55.4' S 17°38.8'	141°35.0' N 19°44.5'						
1	286°25.4'	194°27.2' N 23°25.5'	169°13.1' N 22°37.5'	311°54.3' S 11°36.5'	330°58.0' S 17°38.9'	156°35.9' N 19°44.1'						
2	301°27.8'	209°27.1' N 23°25.5'	184°12.3' N 22°37.0'	326°56.8' S 11°36.5'	346°00.5' S 17°38.9'	171°36.8' N 19°43.7'						
3	316°30.3'	224°26.9' N 23°25.4'	199°11.5' N 22°36.5'	341°59.3' S 11°36.5'	1°03.1' S 17°38.9'	186°37.7' N 19°43.3'						
4	331°32.8'	239°26.8' N 23°25.4'	214°10.7' N 22°36.0'	357°01.8' S 11°36.5'	16°05.7' S 17°39.0'	201°38.6' N 19°42.9'						
5	346°35.2'	254°26.7' N 23°25.4'	229°10.0' N 22°35.5'	12°04.2' S 11°36.6'	31°08.3' S 17°39.0'	216°39.4' N 19°42.5'						
6	1°37.7'	269°26.5' N 23°25.3'	244°09.2' N 22°35.0'	27°06.7' S 11°36.6'	46°10.9' S 17°39.0'	231°40.3' N 19°42.1'						
7	16°40.1'	284°26.4' N 23°25.3'	259°08.4' N 22°34.5'	42°09.2' S 11°36.6'	61°13.4' S 17°39.1'	246°41.2' N 19°41.7'						
8	31°42.6'	299°26.3' N 23°25.3'	274°07.6' N 22°33.9'	57°11.7' S 11°36.6'	76°16.0' S 17°39.1'	261°42.1' N 19°41.3'						
9	46°45.1'	314°26.1' N 23°25.2'	289°06.9' N 22°33.4'	72°14.2' S 11°36.6'	91°18.6' S 17°39.2'	276°43.0' N 19°40.9'						
10	61°47.5'	329°26.0' N 23°25.2'	304°06.1' N 22°32.9'	87°16.7' S 11°36.6'	106°21.2' S 17°39.2'	291°43.8' N 19°40.5'						
11	76°50.0'	344°25.9' N 23°25.1'	319°05.3' N 22°32.4'	102°19.1' S 11°36.7'	121°23.8' S 17°39.2'	306°44.7' N 19°40.1'						
12	91°52.5'	359°25.7' N 23°25.1'	334°04.5' N 22°31.9'	117°21.6' S 11°36.7'	136°26.3' S 17°39.3'	321°45.6' N 19°39.7'						
13	106°54.9'	14°25.6' N 23°25.1'	349°03.8' N 22°31.4'	132°24.1' S 11°36.7'	151°28.9' S 17°39.3'	336°46.5' N 19°39.3'						
14	121°57.4'	29°25.5' N 23°25.0'	4°03.0' N 22°30.8'	147°26.6' S 11°36.7'	166°31.5' S 17°39.4'	351°47.4' N 19°38.8'						
15	136°59.9'	44°25.3' N 23°25.0'	19°02.2' N 22°30.3'	162°29.1' S 11°36.7'	181°34.1' S 17°39.4'	6°48.2' N 19°38.4'						
16	152°02.3'	59°25.2' N 23°24.9'	34°01.4' N 22°29.8'	177°31.5' S 11°36.8'	196°36.7' S 17°39.4'	21°49.1' N 19°38.0'						
17	167°04.8'	74°25.1' N 23°24.9'	49°00.7' N 22°29.3'	192°34.0' S 11°36.8'	211°39.2' S 17°39.5'	36°50.0' N 19°37.6'						
18	182°07.3'	89°24.9' N 23°24.8'	63°59.9' N 22°28.7'	207°36.5' S 11°36.8'	226°41.8' S 17°39.5'	51°50.9' N 19°37.2'						
19	197°09.7'	104°24.8' N 23°24.8'	78°59.1' N 22°28.2'	222°39.0' S 11°36.8'	241°44.4' S 17°39.5'	66°51.8' N 19°36.8'						
20	212°12.2'	119°24.7' N 23°24.7'	93°58.4' N 22°27.7'	237°41.5' S 11°36.8'	256°47.0' S 17°39.6'	81°52.7' N 19°36.4'						
21	227°14.6'	134°24.5' N 23°24.7'	108°57.6' N 22°27.2'	252°44.0' S 11°36.9'	271°49.6' S 17°39.6'	96°53.5' N 19°36.0'						
22	242°17.1'	149°24.4' N 23°24.7'	123°56.8' N 22°26.6'	267°46.4' S 11°36.9'	286°52.1' S 17°39.7'	111°54.4' N 19°35.6'						
23	257°19.6'	164°24.3' N 23°24.6'	138°56.0' N 22°26.1'	282°48.9' S 11°36.9'	301°54.7' S 17°39.7'	126°55.3' N 19°35.2'						
		SD 15.7' d -0.0'	v -0.8' d -0.5'	v 2.5' d -0.0'	v 2.6' d -0.0'	v 0.9' d -0.4'						
Mer. pass.		12 h 2 m 18 s	13 h 44 m	4 h 12 m	2 h 56 m	14 h 33 m						

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Jupiter	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus
0	26°15.6' S	21°06.8'	4.5'	-9.6'	60.8'	85°17.4'	65°54.1'	59°56.8'	42°48.7'	50°20.0'	96°46.1'	116°55.3'
1	40°39.2' S	21°16.4'	4.4'	-9.4'	60.8'	84°40.0'	65°16.5'	59°27.8'	43°25.9'	50°50.5'	97°23.5'	
2	55°02.6' S	21°25.8'	4.3'	-9.3'	60.8'	84°02.5'	64°38.9'	58°59.0'	44°03.0'	51°21.0'	98°00.9'	
3	69°25.9' S	21°35.1'	4.3'	-9.1'	60.8'	83°25.0'	64°01.4'	58°30.2'	44°40.2'	51°51.7'	98°38.4'	
4	83°49.2' S	21°44.2'	4.2'	-9.0'	60.8'	82°47.5'	63°23.8'	58°01.5'	45°17.3'	52°22.5'	99°15.8'	
5	98°12.4' S	21°53.1'	4.1'	-8.8'	60.8'	82°10.1'	62°46.2'	57°33.0'	45°54.5'	52°53.4'	99°53.2'	
6	112°35.4' S	22°02.0'	4.0'	-8.7'	60.8'	81°32.6'	62°08.6'	57°04.5'	46°31.7'	53°24.4'	100°30.7'	
7	126°58.4' S	22°10.6'	3.9'	-8.5'	60.8'	80°55.1'	61°31.1'	56°36.2'	47°08.9'	53°55.5'	101°08.1'	
8	141°21.3' S	22°19.1'	3.8'	-8.3'	60.8'	80°17.6'	60°53.5'	56°08.0'	47°46.2'	54°26.8'	101°45.6'	
9	155°44.2' S	22°27.4'	3.7'	-8.2'	60.8'	79°40.1'	60°15.9'	55°39.9'	48°23.4'	54°58.1'	102°23.0'	
10	170°06.9' S	22°35.6'	3.7'	-8.0'	60.8'	79°02.6'	59°38.3'	55°11.9'	49°00.6'	55°29.4'	103°00.5'	
11	184°29.6' S	22°43.6'	3.6'	-7.8'	60.8'	78°25.0'	59°00.7'	54°44.0'	49°37.9'	56°00.9'	103°38.0'	
12	198°52.2' S	22°51.5'	3.5'	-7.7'	60.8'	77°47.5'	58°23.1'	54°16.3'	50°15.1'	56°32.5'	104°15.4'	
13	213°14.7' S	22°59.2'	3.4'	-7.5'	60.8'	77°10.0'	57°45.6'	53°48.7'	50°52.4'	57°04.1'	104°52.9'	
14	227°37.1' S	23°06.7'	3.4'	-7.3'	60.8'	76°32.5'	57°08.0'	53°21.3'	51°29.7'	57°35.8'	105°30.3'	
15	241°59.5' S	23°14.0'	3.3'	-7.2'	60.8'	75°55.0'	56°30.4'	52°53.9'	52°06.9'	58°07.6'	106°07.8'	
16	256°21.8' S	23°21.2'	3.2'	-7.0'	60.8'	75°17.5'	55°52.8'	52°26.8'	52°44.2'	58°39.5'	106°45.2'	
17	270°44.0' S	23°28.2'	3.2'	-6.8'	60.8'	74°40.0'	55°15.2'	51°59.8'	53°21.5'	59°11.4'	107°22.7'	
18	285°06.2' S	23°35.0'	3.1'	-6.7'	60.8'	74°02.5'	54°37.7'	51°32.9'	8°56.2'	53°58.8'	59°43.4'	108°00.1'
19	299°28.2' S	23°41.7'	3.0'	-6.5'	60.8'	73°25.0'	54°00.1'	51°06.3'	9°28.7'	54°36.0'	60°15.4'	108°37.6'
20	313°50.3' S	23°48.2'	3.0'	-6.3'	60.8'	72°47.5'	53°22.6'	50°39.7'	10°01.8'	55°13.3'	60°47.6'	109°15.0'
21	328°12.2' S	23°54.5'	2.9'	-6.1'	60.8'	72°10.1'	52°45.0'	50°13.4'	10°35.4'	55°50.6'	61°19.7'	109°52.4'
22	342°34.1' S	24°00.6'	2.9'	-5.9'	60.8'	71°32.6'	52°07.5'	49°47.2'	11°09.3'	56°27.9'	61°52.0'	110°29.8'
23	356°56.0' S	24°06.6'	2.8'	-5.8'	60.8'	70°55.1'	51°29.9'	49°21.3'	11°43.7'	57°05.1'	62°24.2'	111°07.2'
Mer. pass.		23 h 13 m SD 16.6'	phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.4'	N 45°21.2'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°41.5'	N 89°20.9'
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	272°22.0'	179°24.1' N	23°24.6'	153°55.3' N	22°25.6'	297°51.4' S	11°36.9'	316°57.3' S	17°39.7'	141°56.2' N	19°34.8'	
1	287°24.5'	194°24.0' N	23°24.5'	168°54.5' N	22°25.0'	312°53.9' S	11°36.9'	331°59.9' S	17°39.8'	156°57.1' N	19°34.4'	
2	302°27.0'	209°23.9' N	23°24.5'	183°53.7' N	22°24.5'	327°56.4' S	11°37.0'	347°02.5' S	17°39.8'	171°58.0' N	19°34.0'	
3	317°29.4'	224°23.7' N	23°24.4'	198°53.0' N	22°24.0'	342°58.9' S	11°37.0'	2°05.0' S	17°39.9'	186°58.8' N	19°33.5'	
4	332°31.9'	239°23.6' N	23°24.4'	213°52.2' N	22°23.4'	358°01.4' S	11°37.0'	17°07.6' S	17°39.9'	201°59.7' N	19°33.1'	
5	347°34.4'	254°23.5' N	23°24.3'	228°51.4' N	22°22.9'	13°03.8' S	11°37.0'	32°10.2' S	17°39.9'	217°00.6' N	19°32.7'	
6	2°36.8'	269°23.3' N	23°24.2'	243°50.7' N	22°22.4'	28°06.3' S	11°37.0'	47°12.8' S	17°40.0'	232°01.5' N	19°32.3'	
7	17°39.3'	284°23.2' N	23°24.2'	258°49.9' N	22°21.8'	43°08.8' S	11°37.1'	62°15.4' S	17°40.0'	247°02.4' N	19°31.9'	
8	32°41.8'	299°23.1' N	23°24.1'	273°49.1' N	22°21.3'	58°11.3' S	11°37.1'	77°18.0' S	17°40.1'	262°03.2' N	19°31.5'	
9	47°44.2'	314°22.9' N	23°24.1'	288°48.4' N	22°20.7'	73°13.8' S	11°37.1'	92°20.5' S	17°40.1'	277°04.1' N	19°31.1'	
10	62°46.7'	329°22.8' N	23°24.0'	303°47.6' N	22°20.2'	88°16.3' S	11°37.1'	107°23.1' S	17°40.1'	292°05.0' N	19°30.7'	
11	77°49.1'	344°22.7' N	23°24.0'	318°46.9' N	22°19.6'	103°18.8' S	11°37.2'	122°25.7' S	17°40.2'	307°05.9' N	19°30.3'	
12	92°51.6'	359°22.5' N	23°23.9'	333°46.1' N	22°19.1'	118°21.3' S	11°37.2'	137°28.3' S	17°40.2'	322°06.8' N	19°29.8'	
13	107°54.1'	14°22.4' N	23°23.9'	348°45.3' N	22°18.6'	133°23.8' S	11°37.2'	152°30.9' S	17°40.2'	337°07.7' N	19°29.4'	
14	122°56.5'	29°22.3' N	23°23.8'	3°44.6' N	22°18.0'	148°26.2' S	11°37.2'	167°33.5' S	17°40.3'	352°08.6' N	19°29.0'	
15	137°59.0'	44°22.1' N	23°23.7'	18°43.8' N	22°17.5'	163°28.7' S	11°37.2'	182°36.0' S	17°40.3'	7°09.4' N	19°28.6'	
16	153°01.5'	59°22.0' N	23°23.7'	33°43.0' N	22°16.9'	178°31.2' S	11°37.3'	197°38.6' S	17°40.4'	22°10.3' N	19°28.2'	
17	168°03.9'	74°21.9' N	23°23.6'	48°42.3' N	22°16.4'	193°33.7' S	11°37.3'	212°41.2' S	17°40.4'	37°11.2' N	19°27.8'	
18	183°06.4'	89°21.8' N	23°23.6'	63°41.5' N	22°15.8'	208°36.2' S	11°37.3'	227°43.8' S	17°40.4'	52°12.1' N	19°27.4'	
19	198°08.9'	104°21.6' N	23°23.5'	78°40.8' N	22°15.3'	223°38.7' S	11°37.3'	242°46.4' S	17°40.5'	67°13.0' N	19°27.0'	
20	213°11.3'	119°21.5' N	23°23.4'	93°40.0' N	22°14.7'	238°41.2' S	11°37.4'	257°49.0' S	17°40.5'	82°13.9' N	19°26.5'	
21	228°13.8'	134°21.4' N	23°23.4'	108°39.2' N	22°14.1'	253°43.7' S	11°37.4'	272°51.5' S	17°40.6'	97°14.7' N	19°26.1'	
22	243°16.3'	149°21.2' N	23°23.3'	123°38.5' N	22°13.6'	268°46.2' S	11°37.4'	287°54.1' S	17°40.6'	112°15.6' N	19°25.7'	
23	258°18.7'	164°21.1' N	23°23.2'	138°37.7' N	22°13.0'	283°48.7' S	11°37.4'	302°56.7' S	17°40.6'	127°16.5' N	19°25.3'	
		SD 15.7' d -0.1'		v -0.8' d -0.5'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'		
Mer. pass.		12 h 2 m 31 s		13 h 45 m		4 h 8 m		2 h 52 m		14 h 31 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Saturn	-Altair	+Antares	+Rigel Kent	+Hadar	+Spica
0	11°17.8' S	24°12.3'	2.7'	-5.6'	60.8'	73°08.8'	70°17.6'	50°52.4'	48°55.5'	12°18.3'			57°42.4'
1	25°39.5' S	24°17.9'	2.7'	-5.4'	60.8'	72°32.8'	69°40.2'	50°14.9'	48°29.9'	12°53.2'			58°19.7'
2	40°01.2' S	24°23.3'	2.7'	-5.2'	60.8'	71°56.9'	69°02.7'	49°37.4'	48°04.5'	13°28.3'			58°56.9'
3	54°22.9' S	24°28.5'	2.6'	-5.0'	60.8'	71°20.9'	68°25.3'	48°59.9'	47°39.3'	14°03.6'			59°34.2'
4	68°44.5' S	24°33.6'	2.6'	-4.8'	60.8'	70°45.0'	67°47.9'	48°22.4'	47°14.3'	14°39.1'			60°11.5'
5	83°06.1' S	24°38.4'	2.5'	-4.7'	60.8'	70°09.2'	67°10.5'	47°45.0'	46°49.6'	15°14.8'			60°48.7'
6	97°27.6' S	24°43.1'	2.5'	-4.5'	60.7'	69°33.3'	66°33.1'	47°07.5'	46°25.1'	15°50.5'		51°05.3'	61°25.9'
7	111°49.1' S	24°47.5'	2.5'	-4.3'	60.7'	68°57.5'	65°55.7'	46°30.1'	46°00.8'	16°26.4'		51°20.5'	62°03.2'
8	126°10.5' S	24°51.8'	2.4'	-4.1'	60.7'	68°21.7'	65°18.3'	45°52.7'	45°36.7'	17°02.4'		51°36.0'	62°40.4'
9	140°31.9' S	24°55.9'	2.4'	-3.9'	60.7'	67°45.9'	64°41.0'	45°15.3'	45°12.9'	17°38.4'		51°51.8'	63°17.6'
10	154°53.3' S	24°59.8'	2.4'	-3.7'	60.7'	67°10.1'	64°03.6'	44°30.5'	44°49.3'	18°14.6'		52°07.8'	63°54.8'
11	169°14.7' S	25°03.6'	2.3'	-3.5'	60.7'	66°34.4'	63°26.3'	44°07.5'	44°26.0'	18°50.8'	48°28.3'	52°24.0'	64°32.0'
12	183°36.0' S	25°07.1'	2.3'	-3.3'	60.7'	65°58.7'	62°49.0'	43°23.2'	44°03.0'	19°27.1'	48°43.3'	52°40.6'	65°09.1'
13	197°57.4' S	25°10.4'	2.3'	-3.1'	60.7'	65°23.1'	62°11.7'	42°45.9'	43°40.2'	20°03.4'	48°58.6'	52°57.3'	65°46.3'
14	212°18.7' S	25°13.6'	2.3'	-3.0'	60.6'	64°47.4'	61°34.4'	42°08.5'	43°17.8'	20°39.7'	49°14.2'	53°14.3'	66°23.4'
15	226°40.0' S	25°16.5'	2.3'	-2.8'	60.6'	64°11.8'	60°57.1'	41°31.3'	42°55.6'	21°16.2'	49°30.1'	53°31.5'	67°00.6'
16	241°01.2' S	25°19.3'	2.3'	-2.6'	60.6'	63°36.3'	60°19.9'	40°54.0'	42°33.7'	21°52.6'	49°46.3'	53°49.0'	67°37.7'
17	255°22.5' S	25°21.9'	2.3'	-2.4'	60.6'	63°00.8'	59°42.7'	40°16.8'	42°12.1'	22°29.1'	50°02.7'	54°06.6'	68°14.8'
18	269°43.7' S	25°24.3'	2.3'	-2.2'	60.6'	62°25.3'	59°05.5'	39°39.6'	41°50.8'	23°05.6'	50°19.4'	54°24.5'	68°51.9'
19	284°05.0' S	25°26.4'	2.3'	-2.0'	60.6'	61°49.8'	58°28.3'	39°02.4'	41°29.8'	23°42.1'	50°36.3'	54°42.6'	69°28.9'
20	298°26.2' S	25°28.4'	2.3'	-1.8'	60.6'	61°14.4'	57°51.1'	38°25.2'	41°09.2'	24°18.6'	50°53.6'	55°00.9'	70°06.0'
21	312°47.5' S	25°30.2'	2.3'	-1.6'	60.5'	60°39.1'	57°14.0'	37°48.1'	40°48.8'	24°55.1'	51°11.0'	55°19.4'	70°43.0'
22	327°08.8' S	25°31.8'	2.3'	-1.4'	60.5'	60°03.7'	56°36.9'	37°11.0'	40°28.9'	25°31.7'	51°28.7'	55°38.2'	71°20.0'
23	341°30.0' S	25°33.3'	2.3'	-1.2'	60.5'	59°28.5'	55°59.8'	36°33.9'	40°09.3'	26°08.3'	51°46.6'	55°57.1'	71°57.0'
Mer. pass.		0 h 17 m SD 16.6'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°41.0'	N 89°20.9'
Rigel Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	273°21.2'	179°21.0'	N 23°23.2'	153°37.0'	N 22°12.5'	298°51.2'	S 11°37.4'	317°59.3'	S 17°40.7'	142°17.4'	N 19°24.9'			
1	288°23.6'	194°20.8'	N 23°23.1'	168°36.2'	N 22°11.9'	313°53.7'	S 11°37.5'	333°01.9'	S 17°40.7'	157°18.3'	N 19°24.5'			
2	303°26.1'	209°20.7'	N 23°23.0'	183°35.5'	N 22°11.4'	328°56.1'	S 11°37.5'	348°04.5'	S 17°40.8'	172°19.2'	N 19°24.1'			
3	318°28.6'	224°20.6'	N 23°23.0'	198°34.7'	N 22°10.8'	343°58.6'	S 11°37.5'	3°07.1'	S 17°40.8'	187°20.1'	N 19°23.6'			
4	333°31.0'	239°20.4'	N 23°22.9'	213°33.9'	N 22°10.2'	359°01.1'	S 11°37.5'	18°09.6'	S 17°40.8'	202°20.9'	N 19°23.2'			
5	348°33.5'	254°20.3'	N 23°22.8'	228°33.2'	N 22°09.7'	14°03.6'	S 11°37.6'	33°12.2'	S 17°40.9'	217°21.8'	N 19°22.8'			
6	3°36.0'	269°20.2'	N 23°22.8'	243°32.4'	N 22°09.1'	29°06.1'	S 11°37.6'	48°14.8'	S 17°40.9'	232°22.7'	N 19°22.4'			
7	18°38.4'	284°20.0'	N 23°22.7'	258°31.7'	N 22°08.5'	44°08.6'	S 11°37.6'	63°17.4'	S 17°41.0'	247°23.6'	N 19°22.0'			
8	33°40.9'	299°19.9'	N 23°22.6'	273°30.9'	N 22°08.0'	59°11.1'	S 11°37.6'	78°20.0'	S 17°41.0'	262°24.5'	N 19°21.6'			
9	48°43.4'	314°19.8'	N 23°22.5'	288°30.2'	N 22°07.4'	74°13.6'	S 11°37.7'	93°22.6'	S 17°41.0'	277°25.4'	N 19°21.2'			
10	63°45.8'	329°19.6'	N 23°22.5'	303°29.4'	N 22°06.8'	89°16.1'	S 11°37.7'	108°25.2'	S 17°41.1'	292°26.3'	N 19°20.7'			
11	78°48.3'	344°19.5'	N 23°22.4'	318°28.7'	N 22°06.3'	104°18.6'	S 11°37.7'	123°27.7'	S 17°41.1'	307°27.1'	N 19°20.3'			
12	93°50.8'	359°19.4'	N 23°22.3'	333°27.9'	N 22°05.7'	119°21.1'	S 11°37.7'	138°30.3'	S 17°41.2'	322°28.0'	N 19°19.9'			
13	108°53.2'	14°19.3'	N 23°22.2'	348°27.2'	N 22°05.1'	134°23.6'	S 11°37.8'	153°32.9'	S 17°41.2'	337°28.9'	N 19°19.5'			
14	123°55.7'	29°19.1'	N 23°22.2'	3°26.4'	N 22°04.6'	149°26.1'	S 11°37.8'	168°35.5'	S 17°41.2'	352°29.8'	N 19°19.1'			
15	138°58.1'	44°19.0'	N 23°22.1'	18°25.7'	N 22°04.0'	164°28.6'	S 11°37.8'	183°38.1'	S 17°41.3'	7°30.7'	N 19°18.7'			
16	154°00.6'	59°18.9'	N 23°22.0'	33°24.9'	N 22°03.4'	179°31.1'	S 11°37.8'	198°40.7'	S 17°41.3'	22°31.6'	N 19°18.2'			
17	169°03.1'	74°18.7'	N 23°21.9'	48°24.2'	N 22°02.8'	194°33.6'	S 11°37.9'	213°43.3'	S 17°41.4'	37°32.5'	N 19°17.8'			
18	184°05.5'	89°18.6'	N 23°21.9'	63°23.4'	N 22°02.3'	209°36.1'	S 11°37.9'	228°45.8'	S 17°41.4'	52°33.3'	N 19°17.4'			
19	199°08.0'	104°18.5'	N 23°21.8'	78°22.7'	N 22°01.7'	224°38.6'	S 11°37.9'	243°48.4'	S 17°41.4'	67°34.2'	N 19°17.0'			
20	214°10.5'	119°18.3'	N 23°21.7'	93°21.9'	N 22°01.1'	239°41.1'	S 11°37.9'	258°51.0'	S 17°41.5'	82°35.1'	N 19°16.6'			
21	229°12.9'	134°18.2'	N 23°21.6'	108°21.2'	N 22°00.5'	254°43.6'	S 11°38.0'	273°53.6'	S 17°41.5'	97°36.0'	N 19°16.1'			
22	244°15.4'	149°18.1'	N 23°21.5'	123°20.4'	N 21°59.9'	269°46.1'	S 11°38.0'	288°56.2'	S 17°41.6'	112°36.9'	N 19°15.7'			
23	259°17.9'	164°17.9'	N 23°21.5'	138°19.7'	N 21°59.3'	284°48.6'	S 11°38.0'	303°58.8'	S 17°41.6'	127°37.8'	N 19°15.3'			
		SD 15.7' d -0.1'		v -0.8' d -0.6'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 2 m 43 s		13 h 46 m		4 h 4 m		2 h 48 m		14 h 30 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Altair	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	355°51.3'	S 25°34.5'	2.3'	-1.0'	60.5'	58°53.2'	55°22.7'	39°50.0'	35°56.8'	26°44.8'	52°04.8'	56°16.2'	67°34.5'
1	10°12.6'	S 25°35.5'	2.3'	-0.8'	60.5'	58°18.0'	54°45.7'	39°31.1'	35°19.8'	27°21.4'	52°23.2'	56°35.4'	67°51.7'
2	24°33.9'	S 25°36.3'	2.3'	-0.6'	60.4'	57°42.9'	54°08.6'	39°12.6'	34°42.8'	27°58.0'	52°41.8'	56°54.9'	68°09.0'
3	38°55.2'	S 25°37.0'	2.3'	-0.5'	60.4'	57°07.8'	53°31.7'	38°54.4'	34°05.9'	28°34.5'	53°00.6'	57°14.5'	68°26.4'
4	53°16.5'	S 25°37.4'	2.4'	-0.3'	60.4'	56°32.8'	52°54.7'	38°36.7'	33°28.9'	29°11.1'	53°19.7'	57°34.3'	68°43.9'
5	67°37.9'	S 25°37.7'	2.4'	-0.1'	60.4'	55°57.8'	52°17.8'	38°19.3'	32°52.1'	29°47.7'	53°38.9'	57°54.3'	69°01.5'
6	81°59.3'	S 25°37.8'	2.4'	0.1'	60.4'	55°22.9'	51°40.9'	38°02.4'	32°15.2'	30°24.2'	53°58.4'	58°14.4'	69°19.3'
7	96°20.7'	S 25°37.6'	2.5'	0.3'	60.3'	54°48.0'	51°04.0'	37°45.9'	31°38.4'	31°00.8'	54°18.0'	58°34.7'	69°37.1'
8	110°42.2'	S 25°37.3'	2.5'	0.5'	60.3'	54°13.2'	50°27.1'	37°29.8'	31°01.6'	31°37.3'	54°37.8'	58°55.2'	69°55.1'
9	125°03.7'	S 25°36.8'	2.5'	0.7'	60.3'	53°38.5'	49°50.3'	37°14.1'	30°24.9'	32°13.8'	54°57.8'	59°15.8'	70°13.1'
10	139°25.2'	S 25°36.1'	2.6'	0.9'	60.3'	53°03.8'	49°13.5'	29°48.2'	32°50.3'	32°50.3'	55°18.0'	59°36.5'	70°31.2'
11	153°46.8'	S 25°35.2'	2.6'	1.1'	60.2'	52°29.1'	48°36.8'	29°11.5'	33°26.8'	29°11.5'	55°38.4'	59°57.4'	70°49.5'
12	168°08.4'	S 25°34.2'	2.7'	1.3'	60.2'	51°54.6'	48°00.1'	28°34.9'	34°03.3'	34°03.3'	55°59.0'	60°18.5'	71°07.8'
13	182°30.1'	S 25°32.9'	2.7'	1.4'	60.2'	51°20.1'	47°23.4'	27°58.4'	34°39.7'	34°39.7'	56°19.7'	60°39.6'	71°26.2'
14	196°51.8'	S 25°31.5'	2.8'	1.6'	60.2'	50°45.6'	46°46.7'	27°21.8'	35°16.2'	35°16.2'	56°40.5'	61°00.9'	71°44.7'
15	211°13.5'	S 25°29.8'	2.8'	1.8'	60.2'	50°11.3'	46°10.1'	26°45.4'	35°52.6'	35°52.6'	57°01.6'	61°22.3'	72°03.2'
16	225°35.4'	S 25°28.0'	2.9'	2.0'	60.1'	49°37.0'	45°33.5'	26°08.9'	36°29.0'	36°29.0'	57°22.7'	61°43.9'	72°21.9'
17	239°57.2'	S 25°26.0'	2.9'	2.2'	60.1'	49°02.8'	44°57.0'	25°32.6'	37°05.3'	37°05.3'	57°44.1'	62°05.5'	72°40.6'
18	254°19.2'	S 25°23.8'	3.0'	2.4'	60.1'	48°28.6'	44°20.5'	24°56.3'	37°41.7'	37°41.7'	58°05.5'	62°27.3'	72°59.4'
19	268°41.2'	S 25°21.4'	3.1'	2.6'	60.0'	47°54.6'	43°44.0'	24°20.0'	38°18.0'	38°18.0'	58°27.1'	62°49.2'	73°18.3'
20	283°03.3'	S 25°18.9'	3.1'	2.7'	60.0'	47°20.6'	43°07.5'	23°43.8'	38°54.3'	38°54.3'	58°48.9'	63°11.2'	73°37.2'
21	297°25.4'	S 25°16.1'	3.2'	2.9'	60.0'	46°46.7'	42°31.2'	23°07.6'	39°30.6'	39°30.6'	59°10.8'	63°33.3'	73°56.2'
22	311°47.6'	S 25°13.2'	3.3'	3.1'	60.0'	46°12.9'	41°54.8'	22°31.5'	40°06.8'	40°06.8'	59°32.8'	63°55.5'	74°15.3'
23	326°09.9'	S 25°10.1'	3.3'	3.3'	59.9'	45°39.1'	41°18.5'	21°55.5'	40°43.0'	40°43.0'	59°54.9'	64°17.8'	74°34.4'
Mer. pass.		0 h 17 m SD 16.5'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°40.5'	N 89°20.9'
Rigel Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	274°20.3'	179°17.8'	N 23°21.4'	153°18.9'	N 21°58.8'	299°51.1'	S 11°38.0'	319°01.4'	S 17°41.6'	142°38.7'	N 19°14.9'	
1	289°22.8'	194°17.7'	N 23°21.3'	168°18.2'	N 21°58.2'	314°53.6'	S 11°38.1'	334°04.0'	S 17°41.7'	157°39.6'	N 19°14.5'	
2	304°25.3'	209°17.6'	N 23°21.2'	183°17.4'	N 21°57.6'	329°56.1'	S 11°38.1'	349°06.5'	S 17°41.7'	172°40.4'	N 19°14.0'	
3	319°27.7'	224°17.4'	N 23°21.1'	198°16.7'	N 21°57.0'	344°58.6'	S 11°38.1'	4°09.1'	S 17°41.8'	187°41.3'	N 19°13.6'	
4	334°30.2'	239°17.3'	N 23°21.0'	213°16.0'	N 21°56.4'	0°01.1'	S 11°38.1'	19°11.7'	S 17°41.8'	202°42.2'	N 19°13.2'	
5	349°32.6'	254°17.2'	N 23°20.9'	228°15.2'	N 21°55.8'	15°03.6'	S 11°38.2'	34°14.3'	S 17°41.8'	217°43.1'	N 19°12.8'	
6	4°35.1'	269°17.0'	N 23°20.9'	243°14.5'	N 21°55.2'	30°06.1'	S 11°38.2'	49°16.9'	S 17°41.9'	232°44.0'	N 19°12.4'	
7	19°37.6'	284°16.9'	N 23°20.8'	258°13.7'	N 21°54.6'	45°08.6'	S 11°38.2'	64°19.5'	S 17°41.9'	247°44.9'	N 19°11.9'	
8	34°40.0'	299°16.8'	N 23°20.7'	273°13.0'	N 21°54.1'	60°11.1'	S 11°38.3'	79°22.1'	S 17°42.0'	262°45.8'	N 19°11.5'	
9	49°42.5'	314°16.6'	N 23°20.6'	288°12.2'	N 21°53.5'	75°13.6'	S 11°38.3'	94°24.7'	S 17°42.0'	277°46.7'	N 19°11.1'	
10	64°45.0'	329°16.5'	N 23°20.5'	303°11.5'	N 21°52.9'	90°16.1'	S 11°38.3'	109°27.3'	S 17°42.1'	292°47.6'	N 19°10.7'	
11	79°47.4'	344°16.4'	N 23°20.4'	318°10.8'	N 21°52.3'	105°18.6'	S 11°38.3'	124°29.8'	S 17°42.1'	307°48.4'	N 19°10.3'	
12	94°49.9'	359°16.3'	N 23°20.3'	333°10.0'	N 21°51.7'	120°21.1'	S 11°38.4'	139°32.4'	S 17°42.1'	322°49.3'	N 19°09.8'	
13	109°52.4'	14°16.1'	N 23°20.2'	348°09.3'	N 21°51.1'	135°23.6'	S 11°38.4'	154°35.0'	S 17°42.2'	337°50.2'	N 19°09.4'	
14	124°54.8'	29°16.0'	N 23°20.1'	3°08.5'	N 21°50.5'	150°26.1'	S 11°38.4'	169°37.6'	S 17°42.2'	352°51.1'	N 19°09.0'	
15	139°57.3'	44°15.9'	N 23°20.0'	18°07.8'	N 21°49.9'	165°28.6'	S 11°38.4'	184°40.2'	S 17°42.3'	7°52.0'	N 19°08.6'	
16	154°59.8'	59°15.7'	N 23°19.9'	33°07.1'	N 21°49.3'	180°31.1'	S 11°38.5'	199°42.8'	S 17°42.3'	22°52.9'	N 19°08.1'	
17	170°02.2'	74°15.6'	N 23°19.9'	48°06.3'	N 21°48.7'	195°33.6'	S 11°38.5'	214°45.4'	S 17°42.3'	37°53.8'	N 19°07.7'	
18	185°04.7'	89°15.5'	N 23°19.8'	63°05.6'	N 21°48.1'	210°36.2'	S 11°38.5'	229°48.0'	S 17°42.4'	52°54.7'	N 19°07.3'	
19	200°07.1'	104°15.3'	N 23°19.7'	78°04.9'	N 21°47.5'	225°38.7'	S 11°38.6'	244°50.6'	S 17°42.4'	67°55.6'	N 19°06.9'	
20	215°09.6'	119°15.2'	N 23°19.6'	93°04.1'	N 21°46.9'	240°41.2'	S 11°38.6'	259°53.2'	S 17°42.5'	82°56.4'	N 19°06.5'	
21	230°12.1'	134°15.1'	N 23°19.5'	108°03.4'	N 21°46.3'	255°43.7'	S 11°38.6'	274°55.7'	S 17°42.5'	97°57.3'	N 19°06.0'	
22	245°14.5'	149°15.0'	N 23°19.4'	123°02.6'	N 21°45.7'	270°46.2'	S 11°38.6'	289°58.3'	S 17°42.5'	112°58.2'	N 19°05.6'	
23	260°17.0'	164°14.8'	N 23°19.3'	138°01.9'	N 21°45.0'	285°48.7'	S 11°38.7'	305°00.9'	S 17°42.6'	127°59.1'	N 19°05.2'	
		SD 15.7' d -0.1'		v -0.7' d -0.6'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'		
Mer. pass.		12 h 2 m 56 s		13 h 47 m		4 h 0 m		2 h 43 m		14 h 29 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	340°32.2'	S 25°06.9'	3.4'	3.4'	59.9'	69°32.9'	45°05.5'	40°42.2'	21°19.6'	41°19.2'	60°17.1'	64°40.2'	74°53.6'
1	354°54.6'	S 25°03.4'	3.5'	3.6'	59.9'	69°14.7'	44°31.9'	40°06.0'	20°43.7'	41°55.4'	60°39.5'	65°02.7'	75°12.8'
2	9°17.1'	S 24°59.8'	3.6'	3.8'	59.9'	68°56.6'	43°58.5'	39°29.8'	20°07.9'	42°31.5'	61°02.0'	65°25.2'	75°32.1'
3	23°39.7'	S 24°56.0'	3.7'	4.0'	59.8'	68°38.6'	43°25.1'	38°53.6'	19°32.1'	43°07.6'	61°24.6'	65°47.9'	75°51.5'
4	38°02.4'	S 24°52.0'	3.8'	4.1'	59.8'	68°20.8'	42°51.8'	38°17.5'	18°56.5'	43°43.7'	61°47.3'	66°10.6'	76°10.9'
5	52°25.1'	S 24°47.9'	3.8'	4.3'	59.8'	68°03.1'	42°18.7'	37°41.4'	18°20.9'	44°19.7'	62°10.1'	66°33.4'	76°30.3'
6	66°48.0'	S 24°43.6'	3.9'	4.5'	59.7'	67°45.5'	41°45.6'	37°05.4'	17°45.5'	44°55.7'	62°32.9'	66°56.3'	76°49.8'
7	81°10.9'	S 24°39.1'	4.0'	4.6'	59.7'	67°28.1'	41°12.7'	36°29.4'	17°10.1'	45°31.7'	62°55.9'	67°19.3'	77°09.3'
8	95°33.9'	S 24°34.4'	4.1'	4.8'	59.7'	67°10.8'	40°39.8'	35°53.5'	16°34.8'	46°07.6'	63°19.0'	67°42.4'	77°28.9'
9	109°57.0'	S 24°29.6'	4.2'	5.0'	59.6'	66°53.7'	40°07.1'	35°17.6'	15°59.7'	46°43.5'	63°42.2'	68°05.5'	77°48.5'
10	124°20.2'	S 24°24.6'	4.3'	5.1'	59.6'	66°36.7'	39°34.5'	34°41.8'	15°24.6'	47°19.4'	64°05.4'	68°28.6'	78°08.2'
11	138°43.5'	S 24°19.5'	4.4'	5.3'	59.6'	66°19.9'	39°02.0'	34°06.0'	14°49.7'	47°55.2'	64°28.7'	68°51.9'	78°27.8'
12	153°06.9'	S 24°14.2'	4.5'	5.5'	59.5'	66°03.2'	38°29.7'	33°30.3'	14°14.9'	48°31.0'	64°52.1'	69°15.2'	78°47.6'
13	167°30.4'	S 24°08.7'	4.6'	5.6'	59.5'	65°46.6'	37°57.4'	32°54.6'	13°40.3'	49°06.8'	65°15.6'	69°38.5'	79°07.3'
14	181°54.0'	S 24°03.1'	4.7'	5.8'	59.5'	65°30.2'	37°25.3'	32°18.9'	13°05.9'	49°42.5'	65°39.2'	70°01.9'	79°27.1'
15	196°17.7'	S 23°57.3'	4.8'	5.9'	59.4'	65°14.0'	36°53.4'	31°43.4'	12°31.6'	50°18.2'	66°02.8'	70°25.4'	79°46.9'
16	210°41.5'	S 23°51.4'	4.9'	6.1'	59.4'	64°57.9'	36°21.6'	31°07.8'	11°57.6'	50°53.8'	66°26.5'	70°48.9'	80°06.7'
17	225°05.4'	S 23°45.3'	5.0'	6.2'	59.4'	64°42.0'	35°49.9'	30°32.3'	11°23.7'	51°29.4'	66°50.2'	71°12.4'	80°26.5'
18	239°29.5'	S 23°39.1'	5.1'	6.4'	59.3'	64°26.2'	35°18.4'	29°56.9'	10°50.2'	52°05.0'	67°14.1'	71°36.0'	80°46.4'
19	253°53.6'	S 23°32.7'	5.2'	6.5'	59.3'	64°10.6'	34°47.0'	29°21.6'	10°16.9'	52°40.5'	67°37.9'	71°59.6'	81°06.3'
20	268°17.8'	S 23°26.2'	5.3'	6.7'	59.3'	63°55.2'	34°15.8'	28°46.2'	9°44.0'	53°16.0'	68°01.9'	72°23.3'	81°26.2'
21	282°42.2'	S 23°19.5'	5.5'	6.8'	59.2'	63°39.9'	33°44.8'	28°11.0'	9°11.5'	53°51.4'	68°25.8'	72°47.0'	81°46.1'
22	297°06.6'	S 23°12.7'	5.6'	7.0'	59.2'		33°13.9'	27°35.8'	8°39.4'	54°26.8'	68°49.9'	73°10.8'	82°06.0'
23	311°31.2'	S 23°05.7'	5.7'	7.1'	59.2'		32°43.2'	27°00.7'	8°07.9'	55°02.2'	69°14.0'	73°34.5'	82°26.0'
Mer. pass.		1 h 21 m SD 16.3'		phase 98%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°40.0'	N 89°20.9'
Rigel Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.7'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	275°19.5'	179°14.7'	N 23°19.2'	153°01.2'	N 21°44.4'	300°51.2'	S 11°38.7'	320°03.5'	S 17°42.6'	143°00.0'	N 19°04.8'			
1	290°21.9'	194°14.6'	N 23°19.1'	168°00.4'	N 21°43.8'	315°53.7'	S 11°38.7'	335°06.1'	S 17°42.7'	158°00.9'	N 19°04.3'			
2	305°24.4'	209°14.4'	N 23°19.0'	182°59.7'	N 21°43.2'	330°56.2'	S 11°38.8'	350°08.7'	S 17°42.7'	173°01.8'	N 19°03.9'			
3	320°26.9'	224°14.3'	N 23°18.9'	197°59.0'	N 21°42.6'	345°58.7'	S 11°38.8'	5°11.3'	S 17°42.8'	188°02.7'	N 19°03.5'			
4	335°29.3'	239°14.2'	N 23°18.8'	212°58.3'	N 21°42.0'	1°01.2'	S 11°38.8'	20°13.9'	S 17°42.8'	203°03.6'	N 19°03.1'			
5	350°31.8'	254°14.1'	N 23°18.7'	227°57.5'	N 21°41.4'	16°03.7'	S 11°38.8'	35°16.5'	S 17°42.8'	218°04.5'	N 19°02.6'			
6	5°34.2'	269°13.9'	N 23°18.6'	242°56.8'	N 21°40.8'	31°06.3'	S 11°38.9'	50°19.1'	S 17°42.9'	233°05.4'	N 19°02.2'			
7	20°36.7'	284°13.8'	N 23°18.4'	257°56.1'	N 21°40.1'	46°08.8'	S 11°38.9'	65°21.7'	S 17°42.9'	248°06.2'	N 19°01.8'			
8	35°39.2'	299°13.7'	N 23°18.3'	272°55.3'	N 21°39.5'	61°11.3'	S 11°38.9'	80°24.2'	S 17°43.0'	263°07.1'	N 19°01.4'			
9	50°41.6'	314°13.5'	N 23°18.2'	287°54.6'	N 21°38.9'	76°13.8'	S 11°39.0'	95°26.8'	S 17°43.0'	278°08.0'	N 19°00.9'			
10	65°44.1'	329°13.4'	N 23°18.1'	302°53.9'	N 21°38.3'	91°16.3'	S 11°39.0'	110°29.4'	S 17°43.0'	293°08.9'	N 19°00.5'			
11	80°46.6'	344°13.3'	N 23°18.0'	317°53.1'	N 21°37.7'	106°18.8'	S 11°39.0'	125°32.0'	S 17°43.1'	308°09.8'	N 19°00.1'			
12	95°49.0'	359°13.2'	N 23°17.9'	332°52.4'	N 21°37.0'	121°21.3'	S 11°39.1'	140°34.6'	S 17°43.1'	323°10.7'	N 18°59.6'			
13	110°51.5'	14°13.0'	N 23°17.8'	347°51.7'	N 21°36.4'	136°23.8'	S 11°39.1'	155°37.2'	S 17°43.2'	338°11.6'	N 18°59.2'			
14	125°54.0'	29°12.9'	N 23°17.7'	2°51.0'	N 21°35.8'	151°26.3'	S 11°39.1'	170°39.8'	S 17°43.2'	353°12.5'	N 18°58.8'			
15	140°56.4'	44°12.8'	N 23°17.6'	17°50.2'	N 21°35.2'	166°28.9'	S 11°39.2'	185°42.4'	S 17°43.2'	8°13.4'	N 18°58.4'			
16	155°58.9'	59°12.6'	N 23°17.5'	32°49.5'	N 21°34.5'	181°31.4'	S 11°39.2'	200°45.0'	S 17°43.3'	23°14.3'	N 18°57.9'			
17	171°01.4'	74°12.5'	N 23°17.4'	47°48.8'	N 21°33.9'	196°33.9'	S 11°39.2'	215°47.6'	S 17°43.3'	38°15.2'	N 18°57.5'			
18	186°03.8'	89°12.4'	N 23°17.2'	62°48.1'	N 21°33.3'	211°36.4'	S 11°39.2'	230°50.2'	S 17°43.4'	53°16.1'	N 18°57.1'			
19	201°06.3'	104°12.3'	N 23°17.1'	77°47.3'	N 21°32.7'	226°38.9'	S 11°39.3'	245°52.8'	S 17°43.4'	68°16.9'	N 18°56.6'			
20	216°08.7'	119°12.1'	N 23°17.0'	92°46.6'	N 21°32.0'	241°41.4'	S 11°39.3'	260°55.4'	S 17°43.5'	83°17.8'	N 18°56.2'			
21	231°11.2'	134°12.0'	N 23°16.9'	107°45.9'	N 21°31.4'	256°43.9'	S 11°39.3'	275°58.0'	S 17°43.5'	98°18.7'	N 18°55.8'			
22	246°13.7'	149°11.9'	N 23°16.8'	122°45.2'	N 21°30.8'	271°46.5'	S 11°39.4'	291°00.5'	S 17°43.5'	113°19.6'	N 18°55.4'			
23	261°16.1'	164°11.8'	N 23°16.7'	137°44.4'	N 21°30.1'	286°49.0'	S 11°39.4'	306°03.1'	S 17°43.6'	128°20.5'	N 18°54.9'			
		SD 15.7' d -0.1'		v -0.7' d -0.6'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 3 m 8 s		13 h 49 m		3 h 56 m		2 h 39 m		14 h 27 m				

h	Moon					Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Fomalhaut	-Jupiter	-Saturn	+Altair	+Antares	+Rigil Kent	+Hadar	
0	325°55.9'	S 22°58.6'	5.8'	7.3'	59.1'			32°12.7'	26°25.6'	7°37.0'		55°37.5'	69°38.1'	73°58.3'
1	340°20.7'	S 22°51.3'	5.9'	7.4'	59.1'			31°42.4'	25°50.6'			56°12.8'	70°02.2'	74°22.2'
2	354°45.6'	S 22°43.9'	6.0'	7.5'	59.1'			31°12.3'	25°15.6'			56°48.0'	70°26.4'	74°46.0'
3	9°10.6'	S 22°36.4'	6.1'	7.7'	59.0'			30°42.4'	24°40.8'			57°23.2'	70°50.7'	75°09.9'
4	23°35.7'	S 22°28.7'	6.3'	7.8'	59.0'	119°43.9'		30°12.7'	24°05.9'			57°58.4'	71°15.0'	75°33.8'
5	38°01.0'	S 22°21.0'	6.4'	7.9'	59.0'	119°15.7'		29°43.2'	23°31.2'			58°33.5'	71°39.3'	75°57.7'
6	52°26.4'	S 22°13.0'	6.5'	8.1'	58.9'	118°47.5'		29°14.0'	22°56.5'			59°08.6'	72°03.6'	76°21.7'
7	66°51.8'	S 22°05.0'	6.6'	8.2'	58.9'	118°19.2'		28°45.0'	22°21.9'			59°43.6'	72°28.0'	76°45.7'
8	81°17.5'	S 21°56.8'	6.7'	8.3'	58.9'	117°51.0'		28°16.3'	21°47.4'			60°18.6'	72°52.4'	77°09.6'
9	95°43.2'	S 21°48.5'	6.9'	8.4'	58.8'	117°22.7'		27°47.8'	21°13.0'			60°53.5'	73°16.8'	77°33.6'
10	110°09.0'	S 21°40.0'	7.0'	8.6'	58.8'	116°54.3'		27°19.6'	20°38.6'			61°28.4'	73°41.3'	77°57.6'
11	124°35.0'	S 21°31.5'	7.1'	8.7'	58.7'	116°26.0'		26°51.7'	20°04.4'			62°03.3'	74°05.8'	78°21.6'
12	139°01.1'	S 21°22.8'	7.2'	8.8'	58.7'	115°57.6'		26°24.0'	19°30.2'			62°38.1'	74°30.3'	78°45.6'
13	153°27.3'	S 21°14.0'	7.3'	8.9'	58.7'	115°29.2'		25°56.7'	18°56.1'			63°12.8'	74°54.8'	79°09.7'
14	167°53.7'	S 21°05.1'	7.5'	9.0'	58.6'	115°00.8'		25°29.7'	18°22.1'			63°47.5'	75°19.3'	79°33.7'
15	182°20.1'	S 20°56.1'	7.6'	9.1'	58.6'	114°32.3'		25°03.1'	17°48.2'			64°22.2'	75°43.8'	79°57.7'
16	196°46.7'	S 20°46.9'	7.7'	9.3'	58.6'	114°03.9'		24°36.8'	17°14.4'			64°56.8'	76°08.4'	80°21.7'
17	211°13.4'	S 20°37.7'	7.8'	9.4'	58.5'	113°35.4'		24°10.8'	16°40.8'			65°31.4'	76°32.9'	80°45.7'
18	225°40.2'	S 20°28.3'	7.9'	9.5'	58.5'	113°06.9'		23°45.3'	16°07.2'			66°05.9'	76°57.5'	81°09.8'
19	240°07.1'	S 20°18.9'	8.1'	9.6'	58.4'	112°38.5'		23°20.1'	15°33.8'			66°40.4'	77°22.1'	81°33.8'
20	254°34.2'	S 20°09.3'	8.2'	9.7'	58.4'	112°10.0'		22°55.4'	15°00.5'			67°14.9'	77°46.7'	81°57.8'
21	269°01.4'	S 19°59.6'	8.3'	9.8'	58.4'	111°41.5'		22°31.1'	14°27.4'			67°49.3'	78°11.3'	82°21.8'
22	283°28.7'	S 19°49.8'	8.4'	9.9'	58.3'	111°13.0'		22°07.3'	13°54.4'	7°26.0'	37°43.0'	68°23.6'	78°35.8'	82°45.8'
23	297°56.1'	S 19°39.9'	8.5'	10.0'	58.3'	110°44.5'		21°43.9'	13°21.6'	7°55.7'	37°58.3'	68°57.9'	79°00.4'	83°09.8'
Mer. pass.		2 h 22 m SD 16.1'		phase 93%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.2'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.7'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°39.6'	N 89°20.9'
Rigil Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

Monday 28 June 2021 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	276°18.6'	179°11.6' N	23°16.6'	152°43.7' N	21°29.5'	301°51.5' S	11°39.4'	321°05.7' S	17°43.6'	143°21.4' N	18°54.5'	
1	291°21.1'	194°11.5' N	23°16.4'	167°43.0' N	21°28.9'	316°54.0' S	11°39.5'	336°08.3' S	17°43.7'	158°22.3' N	18°54.1'	
2	306°23.5'	209°11.4' N	23°16.3'	182°42.3' N	21°28.2'	331°56.5' S	11°39.5'	351°10.9' S	17°43.7'	173°23.2' N	18°53.6'	
3	321°26.0'	224°11.2' N	23°16.2'	197°41.6' N	21°27.6'	346°59.0' S	11°39.5'	6°13.5' S	17°43.8'	188°24.1' N	18°53.2'	
4	336°28.5'	239°11.1' N	23°16.1'	212°40.8' N	21°27.0'	2°01.6' S	11°39.6'	21°16.1' S	17°43.8'	203°25.0' N	18°52.8'	
5	351°30.9'	254°11.0' N	23°16.0'	227°40.1' N	21°26.3'	17°04.1' S	11°39.6'	36°18.7' S	17°43.8'	218°25.9' N	18°52.3'	
6	6°33.4'	269°10.9' N	23°15.8'	242°39.4' N	21°25.7'	32°06.6' S	11°39.6'	51°21.3' S	17°43.9'	233°26.8' N	18°51.9'	
7	21°35.9'	284°10.7' N	23°15.7'	257°38.7' N	21°25.0'	47°09.1' S	11°39.7'	66°23.9' S	17°43.9'	248°27.7' N	18°51.5'	
8	36°38.3'	299°10.6' N	23°15.6'	272°38.0' N	21°24.4'	62°11.6' S	11°39.7'	81°26.5' S	17°44.0'	263°28.6' N	18°51.1'	
9	51°40.8'	314°10.5' N	23°15.5'	287°37.3' N	21°23.7'	77°14.1' S	11°39.7'	96°29.1' S	17°44.0'	278°29.4' N	18°50.6'	
10	66°43.2'	329°10.4' N	23°15.3'	302°36.5' N	21°23.1'	92°16.7' S	11°39.8'	111°31.7' S	17°44.0'	293°30.3' N	18°50.2'	
11	81°45.7'	344°10.2' N	23°15.2'	317°35.8' N	21°22.5'	107°19.2' S	11°39.8'	126°34.3' S	17°44.1'	308°31.2' N	18°49.8'	
12	96°48.2'	359°10.1' N	23°15.1'	332°35.1' N	21°21.8'	122°21.7' S	11°39.8'	141°36.9' S	17°44.1'	323°32.1' N	18°49.3'	
13	111°50.6'	14°10.0' N	23°15.0'	347°34.4' N	21°21.2'	137°24.2' S	11°39.9'	156°39.5' S	17°44.2'	338°33.0' N	18°48.9'	
14	126°53.1'	29°09.9' N	23°14.8'	2°33.7' N	21°20.5'	152°26.7' S	11°39.9'	171°42.1' S	17°44.2'	353°33.9' N	18°48.5'	
15	141°55.6'	44°09.7' N	23°14.7'	17°33.0' N	21°19.9'	167°29.3' S	11°39.9'	186°44.7' S	17°44.3'	8°34.8' N	18°48.0'	
16	156°58.0'	59°09.6' N	23°14.6'	32°32.3' N	21°19.2'	182°31.8' S	11°40.0'	201°47.3' S	17°44.3'	23°35.7' N	18°47.6'	
17	172°00.5'	74°09.5' N	23°14.5'	47°31.5' N	21°18.6'	197°34.3' S	11°40.0'	216°49.9' S	17°44.3'	38°36.6' N	18°47.2'	
18	187°03.0'	89°09.3' N	23°14.3'	62°30.8' N	21°17.9'	212°36.8' S	11°40.0'	231°52.4' S	17°44.4'	53°37.5' N	18°46.7'	
19	202°05.4'	104°09.2' N	23°14.2'	77°30.1' N	21°17.3'	227°39.4' S	11°40.1'	246°55.0' S	17°44.4'	68°38.4' N	18°46.3'	
20	217°07.9'	119°09.1' N	23°14.1'	92°29.4' N	21°16.6'	242°41.9' S	11°40.1'	261°57.6' S	17°44.5'	83°39.3' N	18°45.9'	
21	232°10.4'	134°09.0' N	23°13.9'	107°28.7' N	21°15.9'	257°44.4' S	11°40.1'	277°00.2' S	17°44.5'	98°40.2' N	18°45.4'	
22	247°12.8'	149°08.8' N	23°13.8'	122°28.0' N	21°15.3'	272°46.9' S	11°40.2'	292°02.8' S	17°44.6'	113°41.1' N	18°45.0'	
23	262°15.3'	164°08.7' N	23°13.7'	137°27.3' N	21°14.6'	287°49.4' S	11°40.2'	307°05.4' S	17°44.6'	128°42.0' N	18°44.6'	
		SD 15.7' d -0.1'		v -0.7' d -0.6'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'		
Mer. pass.		12 h 3 m 21 s		13 h 50 m		3 h 52 m		2 h 35 m		14 h 26 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent
0	312°23.6'	S 19°29.9'	8.7'	10.1'	58.3'	110°15.9'	109°32.5'	21°21.1'	12°49.0'	8°26.0'	38°13.9'	69°32.2'	79°25.0'
1	326°51.3'	S 19°19.9'	8.8'	10.2'	58.2'	109°47.4'	108°58.3'	20°58.8'	12°16.6'	8°56.8'	38°29.9'	70°06.4'	79°49.6'
2	341°19.1'	S 19°09.7'	8.9'	10.3'	58.2'	109°18.9'	108°24.2'	20°37.1'	11°44.4'	9°27.9'	38°46.1'	70°40.5'	80°14.2'
3	355°47.0'	S 18°59.4'	9.0'	10.4'	58.1'	108°50.4'	107°50.1'	20°15.9'	11°12.5'	9°59.3'	39°02.7'	71°14.7'	80°38.8'
4	10°15.0'	S 18°49.1'	9.1'	10.5'	58.1'	108°21.9'	107°16.1'	19°55.3'	10°40.9'	10°31.0'	39°19.5'	71°48.7'	81°03.3'
5	24°43.2'	S 18°38.6'	9.3'	10.5'	58.1'	107°53.4'	106°42.1'	19°35.4'	10°09.6'	11°02.9'	39°36.7'	72°22.7'	81°27.9'
6	39°11.4'	S 18°28.1'	9.4'	10.6'	58.0'	107°25.0'	106°08.2'	19°16.2'	9°38.7'	11°35.0'	39°54.1'	72°56.7'	81°52.4'
7	53°39.8'	S 18°17.4'	9.5'	10.7'	58.0'	106°56.5'	105°34.3'	18°57.6'	9°08.1'	12°07.3'	40°11.8'	73°30.7'	82°17.0'
8	68°08.3'	S 18°06.7'	9.6'	10.8'	58.0'	106°28.0'	105°00.4'	18°39.8'	8°38.1'	12°39.6'	40°29.8'	74°04.5'	82°41.5'
9	82°36.9'	S 17°55.9'	9.7'	10.9'	57.9'	105°59.5'	104°26.7'	18°22.7'	8°08.6'	13°12.1'	40°48.0'	74°38.4'	83°06.0'
10	97°05.6'	S 17°45.0'	9.8'	11.0'	57.9'	105°31.1'	103°52.9'		7°39.8'	13°44.7'	41°06.4'	75°12.2'	83°30.5'
11	111°34.5'	S 17°34.1'	10.0'	11.0'	57.8'	105°02.7'	103°19.2'			14°17.3'	41°25.2'	75°45.9'	83°55.0'
12	126°03.4'	S 17°23.0'	10.1'	11.1'	57.8'	104°34.2'	102°45.6'			14°49.9'	41°44.1'	76°19.6'	84°19.5'
13	140°32.5'	S 17°11.9'	10.2'	11.2'	57.8'	104°05.8'	102°11.9'			15°22.7'	42°03.3'	76°53.3'	84°43.9'
14	155°01.7'	S 17°00.7'	10.3'	11.3'	57.7'	103°37.4'	101°38.4'			15°55.4'	42°22.7'	77°26.9'	85°08.3'
15	169°31.0'	S 16°49.4'	10.4'	11.3'	57.7'	103°09.1'	101°04.9'			16°28.2'	42°42.3'	78°00.4'	85°32.7'
16	184°00.4'	S 16°38.1'	10.5'	11.4'	57.6'	102°40.7'	100°31.4'			17°01.0'	43°02.1'	78°33.9'	85°57.1'
17	198°29.9'	S 16°26.7'	10.6'	11.5'	57.6'	102°12.4'	99°58.0'			17°33.8'	43°22.1'	79°07.4'	86°21.5'
18	212°59.6'	S 16°15.2'	10.7'	11.5'	57.6'	101°44.1'	99°24.6'			18°06.6'	43°42.3'	79°40.8'	86°45.8'
19	227°29.3'	S 16°03.7'	10.9'	11.6'	57.5'	101°15.8'	98°51.3'			18°39.4'	44°02.7'	80°14.2'	87°10.1'
20	241°59.2'	S 15°52.0'	11.0'	11.7'	57.5'	100°47.5'	98°18.0'			19°12.2'	44°23.2'	80°47.5'	87°34.4'
21	256°29.1'	S 15°40.4'	11.1'	11.7'	57.5'	100°19.2'	97°44.8'			19°45.0'	44°44.0'	81°20.8'	87°58.7'
22	270°59.2'	S 15°28.6'	11.2'	11.8'	57.4'	99°51.0'	97°11.6'			20°17.9'	45°04.9'	81°54.0'	88°22.9'
23	285°29.4'	S 15°16.8'	11.3'	11.9'	57.4'	99°22.8'	96°38.4'			20°50.6'	45°26.0'	82°27.2'	88°47.1'
Mer. pass.		3 h 18 m SD 15.9'		phase 86%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°39.2'	N 89°20.9'
Rigel Kent	-0.0	139°43.8'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	277°17.7'	179°08.6'	N 23°13.5'	152°26.6'	N 21°14.0'	302°52.0'	S 11°40.2'	322°08.0'	S 17°44.6'	143°42.9'	N 18°44.1'			
1	292°20.2'	194°08.5'	N 23°13.4'	167°25.9'	N 21°13.3'	317°54.5'	S 11°40.3'	337°10.6'	S 17°44.7'	158°43.8'	N 18°43.7'			
2	307°22.7'	209°08.3'	N 23°13.3'	182°25.2'	N 21°12.6'	332°57.0'	S 11°40.3'	352°13.2'	S 17°44.7'	173°44.7'	N 18°43.3'			
3	322°25.1'	224°08.2'	N 23°13.1'	197°24.4'	N 21°12.0'	347°59.5'	S 11°40.3'	7°15.8'	S 17°44.8'	188°45.6'	N 18°42.8'			
4	337°27.6'	239°08.1'	N 23°13.0'	212°23.7'	N 21°11.3'	3°02.1'	S 11°40.4'	22°18.4'	S 17°44.8'	203°46.5'	N 18°42.4'			
5	352°30.1'	254°08.0'	N 23°12.9'	227°23.0'	N 21°10.7'	18°04.6'	S 11°40.4'	37°21.0'	S 17°44.9'	218°47.3'	N 18°41.9'			
6	7°32.5'	269°07.8'	N 23°12.7'	242°22.3'	N 21°10.0'	33°07.1'	S 11°40.4'	52°23.6'	S 17°44.9'	233°48.2'	N 18°41.5'			
7	22°35.0'	284°07.7'	N 23°12.6'	257°21.6'	N 21°09.3'	48°09.6'	S 11°40.5'	67°26.2'	S 17°44.9'	248°49.1'	N 18°41.1'			
8	37°37.5'	299°07.6'	N 23°12.4'	272°20.9'	N 21°08.7'	63°12.2'	S 11°40.5'	82°28.8'	S 17°45.0'	263°50.0'	N 18°40.6'			
9	52°39.9'	314°07.5'	N 23°12.3'	287°20.2'	N 21°08.0'	78°14.7'	S 11°40.5'	97°31.4'	S 17°45.0'	278°50.9'	N 18°40.2'			
10	67°42.4'	329°07.3'	N 23°12.2'	302°19.5'	N 21°07.3'	93°17.2'	S 11°40.6'	112°34.0'	S 17°45.1'	293°51.8'	N 18°39.8'			
11	82°44.8'	344°07.2'	N 23°12.0'	317°18.8'	N 21°06.6'	108°19.7'	S 11°40.6'	127°36.6'	S 17°45.1'	308°52.7'	N 18°39.3'			
12	97°47.3'	359°07.1'	N 23°11.9'	332°18.1'	N 21°06.0'	123°22.3'	S 11°40.7'	142°39.2'	S 17°45.2'	323°53.6'	N 18°38.9'			
13	112°49.8'	14°07.0'	N 23°11.7'	347°17.4'	N 21°05.3'	138°24.8'	S 11°40.7'	157°41.8'	S 17°45.2'	338°54.5'	N 18°38.4'			
14	127°52.2'	29°06.9'	N 23°11.6'	2°16.7'	N 21°04.6'	153°27.3'	S 11°40.7'	172°44.4'	S 17°45.2'	353°55.4'	N 18°38.0'			
15	142°54.7'	44°06.7'	N 23°11.4'	17°16.0'	N 21°04.0'	168°29.9'	S 11°40.8'	187°47.0'	S 17°45.3'	8°56.3'	N 18°37.6'			
16	157°57.2'	59°06.6'	N 23°11.3'	32°15.3'	N 21°03.3'	183°32.4'	S 11°40.8'	202°49.6'	S 17°45.3'	23°57.2'	N 18°37.1'			
17	172°59.6'	74°06.5'	N 23°11.1'	47°14.6'	N 21°02.6'	198°34.9'	S 11°40.8'	217°52.2'	S 17°45.4'	38°58.1'	N 18°36.7'			
18	188°02.1'	89°06.4'	N 23°11.0'	62°13.9'	N 21°01.9'	213°37.4'	S 11°40.9'	232°54.8'	S 17°45.4'	53°59.0'	N 18°36.3'			
19	203°04.6'	104°06.2'	N 23°10.9'	77°13.2'	N 21°01.2'	228°40.0'	S 11°40.9'	247°57.4'	S 17°45.5'	68°59.9'	N 18°35.8'			
20	218°07.0'	119°06.1'	N 23°10.7'	92°12.5'	N 21°00.6'	243°42.5'	S 11°41.0'	262°60.0'	S 17°45.5'	84°00.8'	N 18°35.4'			
21	233°09.5'	134°06.0'	N 23°10.6'	107°11.8'	N 20°59.9'	258°45.0'	S 11°41.0'	278°02.6'	S 17°45.6'	99°01.7'	N 18°34.9'			
22	248°12.0'	149°05.9'	N 23°10.4'	122°11.1'	N 20°59.2'	273°47.6'	S 11°41.0'	293°05.2'	S 17°45.6'	114°02.6'	N 18°34.5'			
23	263°14.4'	164°05.7'	N 23°10.3'	137°10.4'	N 20°58.5'	288°50.1'	S 11°41.1'	308°07.8'	S 17°45.6'	129°03.5'	N 18°34.1'			
		SD 15.7' d -0.1'		v -0.7' d -0.7'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 3 m 33 s		13 h 51 m		3 h 48 m		2 h 31 m		14 h 24 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Fomalhaut	+Jupiter	+Saturn	+Altair	+Antares
0	299°59.7'	S 15°04.9'	11.4'	11.9'	57.3'		98°54.6'	96°05.3'			21°23.4'	45°47.2'	83°00.3'
1	314°30.0'	S 14°53.0'	11.5'	12.0'	57.3'		98°26.4'	95°32.3'			21°56.2'	46°08.6'	83°33.4'
2	329°00.5'	S 14°41.0'	11.6'	12.0'	57.3'		97°58.3'	94°59.3'			22°28.9'	46°30.2'	84°06.5'
3	343°31.1'	S 14°29.0'	11.7'	12.1'	57.2'		97°30.2'	94°26.3'			23°01.7'	46°51.9'	84°39.5'
4	358°01.8'	S 14°16.9'	11.8'	12.1'	57.2'		97°02.1'	93°53.4'			23°34.4'	47°13.7'	85°12.4'
5	12°32.6'	S 14°04.8'	11.9'	12.2'	57.2'		96°34.1'	93°20.5'			24°07.0'	47°35.7'	85°45.4'
6	27°03.5'	S 13°52.6'	12.0'	12.3'	57.1'		96°06.0'	92°47.7'			24°39.7'	47°57.8'	86°18.2'
7	41°34.5'	S 13°40.3'	12.1'	12.3'	57.1'		95°38.0'	92°14.9'			25°12.3'	48°20.0'	86°51.0'
8	56°05.6'	S 13°28.0'	12.2'	12.3'	57.0'	119°48.5'	95°10.1'	91°42.2'			25°44.9'	48°42.3'	87°23.8'
9	70°36.8'	S 13°15.7'	12.3'	12.4'	57.0'	119°18.0'	94°42.1'	91°09.5'		7°37.1'	26°17.5'	49°04.8'	87°56.6'
10	85°08.1'	S 13°03.3'	12.4'	12.4'	57.0'	118°47.6'	94°14.2'	90°36.8'		8°04.9'	26°50.0'	49°27.3'	88°29.2'
11	99°39.4'	S 12°50.8'	12.5'	12.5'	56.9'	118°17.3'	93°46.4'	90°04.2'		8°33.2'	27°22.5'	49°50.0'	89°01.9'
12	114°10.9'	S 12°38.3'	12.6'	12.5'	56.9'	117°47.0'	93°18.5'	89°31.7'		9°02.0'	27°55.0'	50°12.8'	89°34.5'
13	128°42.5'	S 12°25.8'	12.7'	12.6'	56.9'	117°16.7'	92°50.7'	88°59.2'		9°31.2'	28°27.5'	50°35.7'	90°07.0'
14	143°14.1'	S 12°13.2'	12.7'	12.6'	56.8'	116°46.5'	92°22.9'	88°26.7'		10°00.7'	28°59.9'	50°58.7'	90°39.6'
15	157°45.9'	S 12°00.6'	12.8'	12.6'	56.8'	116°16.4'	91°55.2'	87°54.3'		10°30.5'	29°32.3'	51°21.7'	91°12.0'
16	172°17.7'	S 11°48.0'	12.9'	12.7'	56.7'	115°46.2'	91°27.5'	87°21.9'		11°00.5'	30°04.6'	51°44.9'	91°44.5'
17	186°49.6'	S 11°35.3'	13.0'	12.7'	56.7'	115°16.2'	90°59.8'	86°49.5'	17°58.2'	11°30.8'	30°37.0'	52°08.2'	92°16.8'
18	201°21.7'	S 11°22.6'	13.1'	12.8'	56.7'	114°46.1'	90°32.2'	86°17.2'	18°13.4'	12°01.1'	31°09.3'	52°31.5'	92°49.2'
19	215°53.7'	S 11°09.8'	13.2'	12.8'	56.6'	114°16.1'	90°04.6'	85°45.0'	18°29.2'	12°31.6'	31°41.5'	52°54.9'	93°21.5'
20	230°25.9'	S 10°57.0'	13.3'	12.8'	56.6'	113°46.2'	89°37.0'	85°12.8'	18°45.8'	13°02.2'	32°13.7'	53°18.4'	93°53.7'
21	244°58.2'	S 10°44.2'	13.3'	12.9'	56.6'	113°16.3'	89°09.5'	84°40.6'	19°02.9'	13°33.0'	32°45.9'	53°42.0'	94°25.9'
22	259°30.5'	S 10°31.4'	13.4'	12.9'	56.5'	112°46.4'	88°42.0'	84°08.5'	19°20.7'	14°03.8'	33°18.1'	54°05.7'	94°58.1'
23	274°03.0'	S 10°18.5'	13.5'	12.9'	56.5'	112°16.6'	88°14.5'	83°36.4'	19°39.0'	14°34.6'	33°50.2'	54°29.4'	95°30.2'
Mer. pass.		4 h 8 m SD 15.6'	phase 78%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°38.9'	N 89°20.9'
Rigel Kent	-0.0	139°43.8'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	278°16.9'	179°05.6'	N 23°10.1'	152°09.7'	N 20°57.8'	303°52.6'	S 11°41.1'	323°10.4'	S 17°45.7'	144°04.4'	N 18°33.6'			
1	293°19.3'	194°05.5'	N 23°10.0'	167°09.0'	N 20°57.2'	318°55.2'	S 11°41.1'	338°13.0'	S 17°45.7'	159°05.3'	N 18°33.2'			
2	308°21.8'	209°05.4'	N 23°09.8'	182°08.3'	N 20°56.5'	333°57.7'	S 11°41.2'	353°15.6'	S 17°45.8'	174°06.2'	N 18°32.7'			
3	323°24.3'	224°05.2'	N 23°09.6'	197°07.6'	N 20°55.8'	349°00.2'	S 11°41.2'	8°18.2'	S 17°45.8'	189°07.1'	N 18°32.3'			
4	338°26.7'	239°05.1'	N 23°09.5'	212°06.9'	N 20°55.1'	4°02.8'	S 11°41.3'	23°20.8'	S 17°45.9'	204°08.0'	N 18°31.9'			
5	353°29.2'	254°05.0'	N 23°09.3'	227°06.2'	N 20°54.4'	19°05.3'	S 11°41.3'	38°23.4'	S 17°45.9'	219°08.9'	N 18°31.4'			
6	8°31.7'	269°04.9'	N 23°09.2'	242°05.5'	N 20°53.7'	34°07.8'	S 11°41.3'	53°26.0'	S 17°45.9'	234°09.8'	N 18°31.0'			
7	23°34.1'	284°04.8'	N 23°09.0'	257°04.9'	N 20°53.0'	49°10.3'	S 11°41.4'	68°28.6'	S 17°46.0'	249°10.7'	N 18°30.5'			
8	38°36.6'	299°04.6'	N 23°08.9'	272°04.2'	N 20°52.3'	64°12.9'	S 11°41.4'	83°31.2'	S 17°46.0'	264°11.6'	N 18°30.1'			
9	53°39.1'	314°04.5'	N 23°08.7'	287°03.5'	N 20°51.6'	79°15.4'	S 11°41.4'	98°33.8'	S 17°46.1'	279°12.5'	N 18°29.7'			
10	68°41.5'	329°04.4'	N 23°08.6'	302°02.8'	N 20°51.0'	94°18.0'	S 11°41.5'	113°36.4'	S 17°46.1'	294°13.4'	N 18°29.2'			
11	83°44.0'	344°04.3'	N 23°08.4'	317°02.1'	N 20°50.3'	109°20.5'	S 11°41.5'	128°39.0'	S 17°46.2'	309°14.3'	N 18°28.8'			
12	98°46.5'	359°04.1'	N 23°08.2'	332°01.4'	N 20°49.6'	124°23.0'	S 11°41.6'	143°41.6'	S 17°46.2'	324°15.2'	N 18°28.3'			
13	113°48.9'	14°04.0'	N 23°08.1'	347°00.7'	N 20°48.9'	139°25.6'	S 11°41.6'	158°44.2'	S 17°46.3'	339°16.1'	N 18°27.9'			
14	128°51.4'	29°03.9'	N 23°07.9'	2°00.0'	N 20°48.2'	154°28.1'	S 11°41.6'	173°46.8'	S 17°46.3'	354°17.0'	N 18°27.4'			
15	143°53.8'	44°03.8'	N 23°07.8'	16°59.3'	N 20°47.5'	169°30.6'	S 11°41.7'	188°49.4'	S 17°46.3'	9°17.9'	N 18°27.0'			
16	158°56.3'	59°03.7'	N 23°07.6'	31°58.6'	N 20°46.8'	184°33.2'	S 11°41.7'	203°52.0'	S 17°46.4'	24°18.8'	N 18°26.6'			
17	173°58.8'	74°03.5'	N 23°07.4'	46°58.0'	N 20°46.1'	199°35.7'	S 11°41.8'	218°54.6'	S 17°46.4'	39°19.7'	N 18°26.1'			
18	189°01.2'	89°03.4'	N 23°07.3'	61°57.3'	N 20°45.4'	214°38.2'	S 11°41.8'	233°57.2'	S 17°46.5'	54°20.6'	N 18°25.7'			
19	204°03.7'	104°03.3'	N 23°07.1'	76°56.6'	N 20°44.7'	229°40.8'	S 11°41.8'	248°59.8'	S 17°46.5'	69°21.5'	N 18°25.2'			
20	219°06.2'	119°03.2'	N 23°06.9'	91°55.9'	N 20°44.0'	244°43.3'	S 11°41.9'	264°02.4'	S 17°46.6'	84°22.4'	N 18°24.8'			
21	234°08.6'	134°03.1'	N 23°06.8'	106°55.2'	N 20°43.3'	259°45.8'	S 11°41.9'	279°05.0'	S 17°46.6'	99°23.3'	N 18°24.3'			
22	249°11.1'	149°02.8'	N 23°06.6'	121°54.5'	N 20°42.6'	274°48.4'	S 11°42.0'	294°07.6'	S 17°46.6'	114°24.2'	N 18°23.9'			
23	264°13.6'	164°02.8'	N 23°06.4'	136°53.9'	N 20°41.8'	289°50.9'	S 11°42.0'	309°10.2'	S 17°46.7'	129°25.1'	N 18°23.4'			
		SD 15.7' d -0.2'		v -0.7' d -0.7'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 3 m 44 s		13 h 52 m		3 h 44 m		2 h 27 m		14 h 23 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Altair
0	288°35.5'	S 10°05.6'	13.6'	12.9'	56.5'	111°46.8'	97°09.1'	87°47.1'	83°04.3'	15°05.6'	19°57.9'	34°22.3'	54°53.2'
1	303°08.0'	S 9°52.6'	13.7'	13.0'	56.4'	111°17.1'	96°39.3'	87°19.8'	82°32.3'	15°36.6'	20°17.3'	34°54.3'	55°17.0'
2	317°40.7'	S 9°39.6'	13.7'	13.0'	56.4'	110°47.4'	96°09.5'	86°52.4'	82°00.4'	16°07.6'	20°37.1'	35°26.4'	55°40.9'
3	332°13.4'	S 9°26.7'	13.8'	13.0'	56.4'	110°17.7'	95°39.7'	86°25.1'	81°28.4'	16°38.6'	20°57.5'	35°58.3'	56°04.9'
4	346°46.3'	S 9°13.6'	13.9'	13.0'	56.3'	109°48.1'	95°10.0'	85°57.9'	80°56.6'	17°09.7'	21°18.2'	36°30.3'	56°28.9'
5	1°19.1'	S 9°00.6'	14.0'	13.1'	56.3'	109°18.5'	94°40.3'	85°30.6'	80°24.7'	17°40.8'	21°39.4'	37°02.2'	56°53.0'
6	15°52.1'	S 8°47.5'	14.0'	13.1'	56.3'	108°49.0'	94°10.6'	85°03.5'	79°52.9'	18°11.9'	22°00.9'	37°34.1'	57°17.2'
7	30°25.1'	S 8°34.4'	14.1'	13.1'	56.2'	108°19.5'	93°41.0'	84°36.3'	79°21.2'	18°43.0'	22°22.9'	38°05.9'	57°41.4'
8	44°58.2'	S 8°21.3'	14.2'	13.1'	56.2'	107°50.0'	93°11.4'	84°09.2'	78°49.5'	19°14.2'	22°45.1'	38°37.7'	58°05.6'
9	59°31.4'	S 8°08.2'	14.2'	13.2'	56.2'	107°20.6'	92°41.8'	83°42.2'	78°17.8'	19°45.3'	23°07.7'	39°09.5'	58°29.9'
10	74°04.6'	S 7°55.0'	14.3'	13.2'	56.1'	106°51.2'	92°12.3'	83°15.2'	77°46.1'	20°16.4'	23°30.6'	39°41.2'	58°54.2'
11	88°37.9'	S 7°41.9'	14.4'	13.2'	56.1'	106°21.9'	91°42.8'	82°48.2'	77°14.5'	20°47.6'	23°53.8'	40°12.9'	59°18.6'
12	103°11.3'	S 7°28.7'	14.4'	13.2'	56.1'	105°52.5'	91°13.3'	82°21.3'	76°43.0'	21°18.7'	24°17.3'	40°44.6'	59°43.0'
13	117°44.7'	S 7°15.5'	14.5'	13.2'	56.0'	105°23.3'	90°43.9'	81°54.4'	76°11.5'	21°49.8'	24°41.0'	41°16.3'	60°07.5'
14	132°18.2'	S 7°02.3'	14.6'	13.2'	56.0'	104°54.1'	90°14.5'	81°27.6'	75°40.0'	22°20.9'	25°05.0'	41°47.9'	60°32.0'
15	146°51.8'	S 6°49.0'	14.6'	13.2'	56.0'	104°24.9'	89°45.2'	81°00.8'	75°08.5'	22°52.0'	25°29.2'	42°19.4'	60°56.5'
16	161°25.4'	S 6°35.8'	14.7'	13.3'	55.9'	103°55.7'	89°15.8'	80°34.0'	74°37.1'	23°23.1'	25°53.6'	42°51.0'	61°21.1'
17	175°59.1'	S 6°22.5'	14.7'	13.3'	55.9'	103°26.6'	88°46.5'	80°07.3'	74°05.7'	23°54.2'	26°18.3'	43°22.5'	61°45.7'
18	190°32.8'	S 6°09.3'	14.8'	13.3'	55.9'	102°57.5'	88°17.3'	79°40.6'	73°34.4'	24°25.3'	26°43.1'	43°53.9'	62°10.3'
19	205°06.6'	S 5°56.0'	14.8'	13.3'	55.8'	102°28.5'	87°48.1'	79°14.0'	73°03.1'	24°56.3'	27°08.1'	44°25.4'	62°35.0'
20	219°40.5'	S 5°42.7'	14.9'	13.3'	55.8'	101°59.5'	87°18.9'	78°47.5'	72°31.9'	25°27.3'	27°33.3'	44°56.8'	62°59.7'
21	234°14.4'	S 5°29.4'	15.0'	13.3'	55.8'	101°30.5'	86°49.7'	78°20.9'	72°00.6'	25°58.4'	27°58.6'	45°28.2'	63°24.4'
22	248°48.3'	S 5°16.1'	15.0'	13.3'	55.7'	101°01.5'	86°20.6'	77°54.5'	71°29.4'	26°29.4'	28°24.1'	45°59.5'	63°49.1'
23	263°22.4'	S 5°02.8'	15.1'	13.3'	55.7'	100°32.6'	85°51.6'	77°28.0'	70°58.3'	27°00.3'	28°49.8'	46°30.8'	64°13.9'
Mer. pass.		4 h 55 m SD 15.4'		phase 69%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°38.5'	N 89°20.9'
Rigil Kent	-0.0	139°43.8'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				