

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	249°56.1'	180°32.2'	N 22°05.2'	176°01.3'	N 23°44.9'	311°05.6'	S 21°00.6'	306°02.8'	S 19°56.9'	264°58.0'	S 8°59.3'			
1	264°58.6'	195°32.1'	N 22°05.5'	191°05.4'	N 23°44.1'	326°08.2'	S 21°00.6'	321°05.3'	S 19°56.9'	279°58.8'	S 8°58.7'			
2	280°01.1'	210°32.0'	N 22°05.8'	206°09.5'	N 23°43.4'	341°10.8'	S 21°00.6'	336°07.9'	S 19°57.0'	294°59.7'	S 8°58.1'			
3	295°03.5'	225°31.9'	N 22°06.2'	221°13.5'	N 23°42.6'	356°13.4'	S 21°00.7'	351°10.4'	S 19°57.0'	310°00.6'	S 8°57.5'			
4	310°06.0'	240°31.8'	N 22°06.5'	236°17.6'	N 23°41.9'	11°16.0'	S 21°00.7'	6°13.0'	S 19°57.0'	325°01.5'	S 8°57.0'			
5	325°08.5'	255°31.7'	N 22°06.8'	251°21.7'	N 23°41.1'	26°18.6'	S 21°00.7'	21°15.5'	S 19°57.0'	340°02.4'	S 8°56.4'			
6	340°10.9'	270°31.6'	N 22°07.2'	266°25.7'	N 23°40.4'	41°21.3'	S 21°00.8'	36°18.1'	S 19°57.0'	355°03.3'	S 8°55.8'			
7	355°13.4'	285°31.5'	N 22°07.5'	281°29.8'	N 23°39.7'	56°23.9'	S 21°00.8'	51°20.6'	S 19°57.1'	10°04.2'	S 8°55.2'			
8	10°15.9'	300°31.4'	N 22°07.8'	296°33.9'	N 23°38.9'	71°26.5'	S 21°00.8'	66°23.2'	S 19°57.1'	25°05.1'	S 8°54.6'			
9	25°18.3'	315°31.3'	N 22°08.2'	311°37.9'	N 23°38.2'	86°29.1'	S 21°00.9'	81°25.7'	S 19°57.1'	40°06.0'	S 8°54.1'			
10	40°20.8'	330°31.2'	N 22°08.5'	326°42.0'	N 23°37.4'	101°31.7'	S 21°00.9'	96°28.3'	S 19°57.1'	55°06.9'	S 8°53.5'			
11	55°23.2'	345°31.1'	N 22°08.8'	341°46.1'	N 23°36.7'	116°34.3'	S 21°00.9'	111°30.8'	S 19°57.2'	70°07.8'	S 8°52.9'			
12	70°25.7'	0°31.0'	N 22°09.2'	356°50.1'	N 23°35.9'	131°36.9'	S 21°01.0'	126°33.4'	S 19°57.2'	85°08.7'	S 8°52.3'			
13	85°28.2'	15°30.9'	N 22°09.5'	11°54.2'	N 23°35.2'	146°39.5'	S 21°01.0'	141°35.9'	S 19°57.2'	100°09.5'	S 8°51.7'			
14	100°30.6'	30°30.8'	N 22°09.8'	26°58.3'	N 23°34.4'	161°42.1'	S 21°01.0'	156°38.5'	S 19°57.2'	115°10.4'	S 8°51.2'			
15	115°33.1'	45°30.7'	N 22°10.1'	42°02.4'	N 23°33.7'	176°44.7'	S 21°01.1'	171°41.0'	S 19°57.3'	130°11.3'	S 8°50.6'			
16	130°35.6'	60°30.6'	N 22°10.5'	57°06.4'	N 23°32.9'	191°47.3'	S 21°01.1'	186°43.6'	S 19°57.3'	145°12.2'	S 8°50.0'			
17	145°38.0'	75°30.5'	N 22°10.8'	72°10.5'	N 23°32.1'	206°49.9'	S 21°01.1'	201°46.1'	S 19°57.3'	160°13.1'	S 8°49.4'			
18	160°40.5'	90°30.4'	N 22°11.1'	87°14.6'	N 23°31.4'	221°52.6'	S 21°01.2'	216°48.7'	S 19°57.3'	175°14.0'	S 8°48.8'			
19	175°43.0'	105°30.3'	N 22°11.4'	102°18.7'	N 23°30.6'	236°55.2'	S 21°01.2'	231°51.2'	S 19°57.3'	190°14.9'	S 8°48.3'			
20	190°45.4'	120°30.2'	N 22°11.7'	117°22.7'	N 23°29.9'	251°57.8'	S 21°01.2'	246°53.8'	S 19°57.4'	205°15.8'	S 8°47.7'			
21	205°47.9'	135°30.1'	N 22°12.1'	132°26.8'	N 23°29.1'	267°00.4'	S 21°01.3'	261°56.3'	S 19°57.4'	220°16.7'	S 8°47.1'			
22	220°50.3'	150°30.0'	N 22°12.4'	147°30.9'	N 23°28.4'	282°03.0'	S 21°01.3'	276°58.9'	S 19°57.4'	235°17.6'	S 8°46.5'			
23	235°52.8'	165°29.9'	N 22°12.7'	162°35.0'	N 23°27.6'	297°05.6'	S 21°01.3'	292°01.4'	S 19°57.4'	250°18.5'	S 8°45.9'			
		SD 15.8' d 0.3'		v 4.1' d -0.8'		v 2.6' d -0.0'		v 2.5' d -0.0'		v 0.9' d 0.6'				
Mer. pass.		11 h 57 m 56 s		12 h 13 m		3 h 15 m		3 h 35 m		6 h 20 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Hadar	-Antares	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	62°41.9'	N 2°33.3'	10.5'	-14.6'	59.7'	65°45.1'	65°04.5'	31°04.7'	19°51.3'	35°47.2'	71°42.4'	72°00.3'	114°33.1'
1	77°11.4'	N 2°18.7'	10.5'	-14.6'	59.7'	65°23.7'	64°28.8'	30°45.8'	19°17.6'	36°23.0'	72°18.3'	72°34.3'	115°06.7'
2	91°40.9'	N 2°04.1'	10.5'	-14.7'	59.7'	65°02.3'	63°53.0'	30°27.4'	18°44.0'	36°58.8'	72°54.3'	73°08.4'	115°40.4'
3	106°10.4'	N 1°49.4'	10.5'	-14.7'	59.7'	64°41.0'	63°17.2'	30°09.4'	18°10.6'	37°34.6'	73°30.2'	73°42.4'	116°14.0'
4	120°39.9'	N 1°34.8'	10.5'	-14.7'	59.7'	64°19.9'	62°41.4'	29°52.0'	17°37.3'	38°10.4'	74°06.2'	74°16.5'	116°47.7'
5	135°09.4'	N 1°20.1'	10.5'	-14.7'	59.7'	63°58.8'	62°05.6'	29°35.0'	17°04.2'	38°46.3'	74°42.1'	74°50.6'	117°21.4'
6	149°38.8'	N 1°05.4'	10.5'	-14.7'	59.8'	63°37.9'	61°29.7'	29°18.5'	16°31.3'	39°22.1'	75°18.1'	75°24.8'	117°55.1'
7	164°08.3'	N 0°50.6'	10.4'	-14.7'	59.8'	63°17.1'	60°53.9'	29°02.6'	15°58.5'	39°58.1'	75°54.2'	75°59.0'	118°28.9'
8	178°37.7'	N 0°35.9'	10.4'	-14.7'	59.8'	62°56.4'	60°18.0'		15°26.0'	40°34.0'	76°30.2'	76°33.2'	119°02.6'
9	193°07.1'	N 0°21.2'	10.4'	-14.8'	59.8'	62°35.8'	59°42.1'		14°53.8'	41°09.9'	77°06.3'	77°07.4'	119°36.4'
10	207°36.6'	N 0°06.4'	10.4'	-14.8'	59.8'	62°15.4'	59°06.2'		14°21.8'	41°45.9'	77°42.3'	77°41.7'	
11	222°06.0'	S 0°08.4'	10.4'	-14.8'	59.8'	61°55.0'	58°30.3'		13°50.2'	42°21.9'	78°18.4'	78°16.0'	
12	236°35.3'	S 0°23.1'	10.4'	-14.8'	59.8'	61°34.8'	57°54.3'		13°19.0'	42°58.0'	78°54.6'	78°50.3'	
13	251°04.7'	S 0°37.9'	10.3'	-14.8'	59.9'	61°14.8'	57°18.4'		12°48.1'	43°34.0'	79°30.7'	79°24.6'	
14	265°34.0'	S 0°52.7'	10.3'	-14.8'	59.9'	60°54.9'	56°42.4'		12°17.8'	44°10.1'	80°06.8'	79°59.0'	
15	280°03.4'	S 1°07.5'	10.3'	-14.8'	59.9'	60°35.1'	56°06.5'		11°47.9'	44°46.2'	80°43.0'	80°33.4'	
16	294°32.7'	S 1°22.2'	10.3'	-14.8'	59.9'	60°15.4'	55°30.5'		11°18.7'	45°22.3'	81°19.2'	81°07.8'	
17	309°01.9'	S 1°37.0'	10.3'	-14.8'	59.9'	59°55.9'	54°54.5'		10°50.1'	45°58.4'	81°55.4'	81°42.2'	
18	323°31.2'	S 1°51.8'	10.2'	-14.8'	59.9'	59°36.6'	54°18.5'			46°34.6'	82°31.6'	82°16.7'	
19	338°00.4'	S 2°06.6'	10.2'	-14.8'	59.9'	59°17.4'	53°42.5'			47°10.7'	83°07.8'	82°51.1'	
20	352°29.6'	S 2°21.3'	10.2'	-14.8'	59.9'	58°58.3'	53°06.5'			47°46.9'	83°44.1'	83°25.6'	
21	6°58.8'	S 2°36.1'	10.2'	-14.8'	59.9'	58°39.5'	52°30.4'			48°23.1'	84°20.4'	84°00.1'	
22	21°28.0'	S 2°50.8'	10.1'	-14.7'	60.0'	58°20.8'	51°54.4'			48°59.4'	84°56.6'	84°34.6'	
23	35°57.1'	S 3°05.6'	10.1'	-14.7'	60.0'	58°02.2'	51°18.3'			49°35.6'	85°32.9'	85°09.2'	
Mer. pass.		20 h 31 m SD 16.3'		phase 71%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.7'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°20.9'	Acrux	+0.8	173°03.7'	S 63°12.9'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°07.6'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.2'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.3'	Canopus	-0.6	263°54.5'	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°55.3'	180°29.8'	N 22°13.0'	177°39.0'	N 23°26.8'	312°08.2'	S 21°01.4'	307°04.0'	S 19°57.5'	265°19.4'	S 8°45.4'			
1	265°57.7'	195°29.7'	N 22°13.3'	192°43.1'	N 23°26.1'	327°10.8'	S 21°01.4'	322°06.5'	S 19°57.5'	280°20.3'	S 8°44.8'			
2	281°00.2'	210°29.6'	N 22°13.7'	207°47.2'	N 23°25.3'	342°13.4'	S 21°01.4'	337°09.1'	S 19°57.5'	295°21.2'	S 8°44.2'			
3	296°02.7'	225°29.5'	N 22°14.0'	222°51.3'	N 23°24.6'	357°16.1'	S 21°01.5'	352°11.6'	S 19°57.5'	310°22.1'	S 8°43.6'			
4	311°05.1'	240°29.4'	N 22°14.3'	237°55.4'	N 23°23.8'	12°18.7'	S 21°01.5'	7°14.2'	S 19°57.5'	325°23.0'	S 8°43.0'			
5	326°07.6'	255°29.3'	N 22°14.6'	252°59.4'	N 23°23.0'	27°21.3'	S 21°01.5'	22°16.7'	S 19°57.6'	340°23.9'	S 8°42.5'			
6	341°10.1'	270°29.2'	N 22°14.9'	268°03.5'	N 23°22.3'	42°23.9'	S 21°01.6'	37°19.3'	S 19°57.6'	355°24.8'	S 8°41.9'			
7	356°12.5'	285°29.1'	N 22°15.2'	283°07.6'	N 23°21.5'	57°26.5'	S 21°01.6'	52°21.9'	S 19°57.6'	10°25.7'	S 8°41.3'			
8	11°15.0'	300°29.0'	N 22°15.6'	298°11.7'	N 23°20.8'	72°29.1'	S 21°01.6'	67°24.4'	S 19°57.6'	25°26.5'	S 8°40.7'			
9	26°17.5'	315°28.9'	N 22°15.9'	313°15.8'	N 23°20.0'	87°31.7'	S 21°01.7'	82°27.0'	S 19°57.7'	40°27.4'	S 8°40.1'			
10	41°19.9'	330°28.8'	N 22°16.2'	328°19.9'	N 23°19.2'	102°34.4'	S 21°01.7'	97°29.5'	S 19°57.7'	55°28.3'	S 8°39.6'			
11	56°22.4'	345°28.7'	N 22°16.5'	343°23.9'	N 23°18.5'	117°37.0'	S 21°01.7'	112°32.1'	S 19°57.7'	70°29.2'	S 8°39.0'			
12	71°24.8'	0°28.6'	N 22°16.8'	358°28.0'	N 23°17.7'	132°39.6'	S 21°01.8'	127°34.6'	S 19°57.7'	85°30.1'	S 8°38.4'			
13	86°27.3'	15°28.5'	N 22°17.1'	13°32.1'	N 23°16.9'	147°42.2'	S 21°01.8'	142°37.2'	S 19°57.8'	100°31.0'	S 8°37.8'			
14	101°29.8'	30°28.4'	N 22°17.4'	28°36.2'	N 23°16.2'	162°44.8'	S 21°01.8'	157°39.7'	S 19°57.8'	115°31.9'	S 8°37.2'			
15	116°32.2'	45°28.3'	N 22°17.7'	43°40.3'	N 23°15.4'	177°47.4'	S 21°01.9'	172°42.3'	S 19°57.8'	130°32.8'	S 8°36.7'			
16	131°34.7'	60°28.2'	N 22°18.0'	58°44.3'	N 23°14.6'	192°50.1'	S 21°01.9'	187°44.8'	S 19°57.8'	145°33.7'	S 8°36.1'			
17	146°37.2'	75°28.1'	N 22°18.4'	73°48.4'	N 23°13.9'	207°52.7'	S 21°01.9'	202°47.4'	S 19°57.8'	160°34.6'	S 8°35.5'			
18	161°39.6'	90°28.0'	N 22°18.7'	88°52.5'	N 23°13.1'	222°55.3'	S 21°02.0'	217°49.9'	S 19°57.9'	175°35.5'	S 8°34.9'			
19	176°42.1'	105°27.9'	N 22°19.0'	103°56.6'	N 23°12.3'	237°57.9'	S 21°02.0'	232°52.5'	S 19°57.9'	190°36.4'	S 8°34.3'			
20	191°44.6'	120°27.8'	N 22°19.3'	119°00.7'	N 23°11.6'	253°00.5'	S 21°02.1'	247°55.0'	S 19°57.9'	205°37.3'	S 8°33.8'			
21	206°47.0'	135°27.7'	N 22°19.6'	134°04.8'	N 23°10.8'	268°03.1'	S 21°02.1'	262°57.6'	S 19°57.9'	220°38.2'	S 8°33.2'			
22	221°49.5'	150°27.6'	N 22°19.9'	149°08.9'	N 23°10.0'	283°05.8'	S 21°02.1'	278°00.2'	S 19°58.0'	235°39.1'	S 8°32.6'			
23	236°51.9'	165°27.5'	N 22°20.2'	164°12.9'	N 23°09.2'	298°08.4'	S 21°02.2'	293°02.7'	S 19°58.0'	250°40.0'	S 8°32.0'			
		SD 15.8' d 0.3'		v 4.1' d -0.8'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 0.9' d 0.6'				
Mer. pass.		11 h 58 m 6 s		12 h 6 m		3 h 11 m		3 h 31 m		6 h 18 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigil Kent	-Hadar	-Antares	-Spica	+Regulus	+Procyon	+Pollux	+Adhara
0	50°26.2'	S 3°20.3'	10.1'	-14.7'	60.0'	59°30.2'	57°43.8'	50°42.3'		50°11.9'	85°43.7'	86°09.2'	93°17.8'
1	64°55.3'	S 3°35.0'	10.0'	-14.7'	60.0'	59°09.4'	57°25.6'	50°06.2'		50°48.1'	86°18.3'	86°45.6'	93°39.7'
2	79°24.3'	S 3°49.7'	10.0'	-14.7'	60.0'	58°48.8'	57°07.6'	49°30.2'		51°24.4'	86°52.9'	87°21.9'	94°01.5'
3	93°53.4'	S 4°04.4'	10.0'	-14.7'	60.0'	58°28.4'	56°49.8'	48°54.1'		52°00.7'	87°27.5'	87°58.2'	94°23.3'
4	108°22.3'	S 4°19.1'	9.9'	-14.6'	60.0'	58°08.1'	56°32.1'	48°18.0'		52°37.0'	88°02.1'	88°34.6'	94°45.1'
5	122°51.3'	S 4°33.7'	9.9'	-14.6'	60.0'	57°48.0'	56°14.7'	47°41.9'		53°13.4'	88°36.7'	89°11.0'	95°06.9'
6	137°20.2'	S 4°48.3'	9.9'	-14.6'	60.0'	57°28.0'	55°57.4'	47°05.8'		53°49.7'	89°11.4'	89°47.3'	95°28.7'
7	151°49.1'	S 5°02.9'	9.8'	-14.6'	60.0'	57°08.3'	55°40.4'	46°29.7'		54°26.1'	89°46.0'	90°23.7'	95°50.4'
8	166°17.9'	S 5°17.5'	9.8'	-14.6'	60.0'	56°48.6'	55°23.5'	45°53.6'		55°02.5'	90°20.7'	91°00.1'	96°12.2'
9	180°46.7'	S 5°32.1'	9.8'	-14.5'	60.0'	56°29.2'	55°06.8'	45°17.5'		55°38.9'	90°55.4'	91°36.6'	96°33.9'
10	195°15.5'	S 5°46.6'	9.7'	-14.5'	60.1'	56°09.9'	54°50.4'	44°41.4'		56°15.3'	91°30.1'	92°13.0'	96°55.6'
11	209°44.2'	S 6°01.1'	9.7'	-14.5'	60.1'	55°50.9'	54°34.2'	44°05.3'		56°51.7'	92°04.8'	92°49.4'	97°17.2'
12	224°12.9'	S 6°15.6'	9.7'	-14.4'	60.1'	55°32.0'	54°18.1'	43°29.2'		57°28.1'	92°39.5'	93°25.9'	97°38.9'
13	238°41.6'	S 6°30.0'	9.6'	-14.4'	60.1'	55°13.3'	54°02.4'	42°53.1'		58°04.5'	93°14.2'	94°02.3'	98°00.5'
14	253°10.2'	S 6°44.4'	9.6'	-14.4'	60.1'	54°54.8'	53°46.8'	42°17.0'		58°41.0'	93°48.9'	94°38.8'	98°22.1'
15	267°38.8'	S 6°58.8'	9.5'	-14.3'	60.1'	54°36.5'	53°31.5'	41°40.9'		59°17.4'	94°23.6'	95°15.3'	98°43.6'
16	282°07.3'	S 7°13.1'	9.5'	-14.3'	60.1'	54°18.4'		41°04.8'		59°53.9'	94°58.3'	95°51.7'	99°05.2'
17	296°35.8'	S 7°27.4'	9.4'	-14.2'	60.1'	54°00.5'		40°28.8'		60°30.4'	95°33.0'	96°28.2'	99°26.6'
18	311°04.2'	S 7°41.6'	9.4'	-14.2'	60.1'	53°42.8'		39°52.7'		61°06.9'	96°07.8'	97°04.7'	99°48.1'
19	325°32.6'	S 7°55.8'	9.4'	-14.2'	60.1'	53°25.4'		39°16.6'		61°43.4'	96°42.5'	97°41.2'	100°09.5'
20	340°01.0'	S 8°10.0'	9.3'	-14.1'	60.1'	53°08.1'		38°40.5'		62°19.9'	97°17.2'	98°17.7'	100°30.8'
21	354°29.3'	S 8°24.1'	9.3'	-14.1'	60.1'	52°51.1'		38°04.5'	10°57.0'	62°56.4'	97°52.0'	98°54.2'	100°52.2'
22	8°57.6'	S 8°38.2'	9.2'	-14.0'	60.1'	52°34.3'		37°28.4'	11°26.0'	63°32.9'	98°26.7'	99°30.8'	101°13.4'
23	23°25.8'	S 8°52.2'	9.2'	-14.0'	60.1'	52°17.8'		36°52.4'	11°55.7'	64°09.4'	99°01.4'	100°07.3'	101°34.6'
Mer. pass.		21 h 23 m SD 16.4'		phase 81%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.7'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°20.9'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°07.4'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.2'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.3'	Canopus	-0.6	263°54.5'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	251°54.4'		180°27.4'	N 22°20.5'	179°17.0'	N 23°08.5'	313°11.0'	S 21°02.2'	308°05.3'	S 19°58.0'	265°40.9'	S 8°31.5'
1	266°56.9'		195°27.3'	N 22°20.8'	194°21.1'	N 23°07.7'	328°13.6'	S 21°02.2'	323°07.8'	S 19°58.0'	280°41.8'	S 8°30.9'
2	281°59.3'		210°27.2'	N 22°21.1'	209°25.2'	N 23°06.9'	343°16.2'	S 21°02.3'	338°10.4'	S 19°58.1'	295°42.7'	S 8°30.3'
3	297°01.8'		225°27.1'	N 22°21.4'	224°29.3'	N 23°06.2'	358°18.9'	S 21°02.3'	353°12.9'	S 19°58.1'	310°43.6'	S 8°29.7'
4	312°04.3'		240°27.0'	N 22°21.7'	239°33.4'	N 23°05.4'	13°21.5'	S 21°02.3'	8°15.5'	S 19°58.1'	325°44.5'	S 8°29.1'
5	327°06.7'		255°26.9'	N 22°22.0'	254°37.4'	N 23°04.6'	28°24.1'	S 21°02.4'	23°18.0'	S 19°58.1'	340°45.4'	S 8°28.5'
6	342°09.2'		270°26.8'	N 22°22.3'	269°41.5'	N 23°03.8'	43°26.7'	S 21°02.4'	38°20.6'	S 19°58.2'	355°46.3'	S 8°28.0'
7	357°11.7'		285°26.7'	N 22°22.6'	284°45.6'	N 23°03.1'	58°29.4'	S 21°02.4'	53°23.2'	S 19°58.2'	10°47.2'	S 8°27.4'
8	12°14.1'		300°26.6'	N 22°22.9'	299°49.7'	N 23°02.3'	73°32.0'	S 21°02.5'	68°25.7'	S 19°58.2'	25°48.1'	S 8°26.8'
9	27°16.6'		315°26.5'	N 22°23.2'	314°53.8'	N 23°01.5'	88°34.6'	S 21°02.5'	83°28.3'	S 19°58.2'	40°49.0'	S 8°26.2'
10	42°19.1'		330°26.4'	N 22°23.5'	329°57.9'	N 23°00.7'	103°37.2'	S 21°02.5'	98°30.8'	S 19°58.2'	55°49.9'	S 8°25.6'
11	57°21.5'		345°26.3'	N 22°23.8'	345°02.0'	N 22°60.0'	118°39.8'	S 21°02.6'	113°33.4'	S 19°58.3'	70°50.8'	S 8°25.1'
12	72°24.0'		0°26.2'	N 22°24.1'	0°06.0'	N 22°59.2'	133°42.5'	S 21°02.6'	128°35.9'	S 19°58.3'	85°51.7'	S 8°24.5'
13	87°26.4'		15°26.1'	N 22°24.4'	15°10.1'	N 22°58.4'	148°45.1'	S 21°02.7'	143°38.5'	S 19°58.3'	100°52.6'	S 8°23.9'
14	102°28.9'		30°26.0'	N 22°24.7'	30°14.2'	N 22°57.6'	163°47.7'	S 21°02.7'	158°41.1'	S 19°58.3'	115°53.5'	S 8°23.3'
15	117°31.4'		45°25.9'	N 22°25.0'	45°18.3'	N 22°56.8'	178°50.3'	S 21°02.7'	173°43.6'	S 19°58.4'	130°54.5'	S 8°22.7'
16	132°33.8'		60°25.7'	N 22°25.3'	60°22.4'	N 22°56.1'	193°53.0'	S 21°02.8'	188°46.2'	S 19°58.4'	145°55.4'	S 8°22.2'
17	147°36.3'		75°25.6'	N 22°25.5'	75°26.4'	N 22°55.3'	208°55.6'	S 21°02.8'	203°48.7'	S 19°58.4'	160°56.3'	S 8°21.6'
18	162°38.8'		90°25.5'	N 22°25.8'	90°30.5'	N 22°54.5'	223°58.2'	S 21°02.8'	218°51.3'	S 19°58.4'	175°57.2'	S 8°21.0'
19	177°41.2'		105°25.4'	N 22°26.1'	105°34.6'	N 22°53.7'	239°00.8'	S 21°02.9'	233°53.8'	S 19°58.5'	190°58.1'	S 8°20.4'
20	192°43.7'		120°25.3'	N 22°26.4'	120°38.7'	N 22°53.0'	254°03.5'	S 21°02.9'	248°56.4'	S 19°58.5'	205°59.0'	S 8°19.8'
21	207°46.2'		135°25.2'	N 22°26.7'	135°42.8'	N 22°52.2'	269°06.1'	S 21°02.9'	263°59.0'	S 19°58.5'	220°59.9'	S 8°19.3'
22	222°48.6'		150°25.1'	N 22°27.0'	150°46.9'	N 22°51.4'	284°08.7'	S 21°03.0'	279°01.5'	S 19°58.5'	236°00.8'	S 8°18.7'
23	237°51.1'		165°25.0'	N 22°27.3'	165°50.9'	N 22°50.6'	299°11.3'	S 21°03.0'	294°04.1'	S 19°58.6'	251°01.7'	S 8°18.1'
			SD 15.8'	d 0.3'	v 4.1'	d -0.8'	v 2.6'	d -0.0'	v 2.6'	d -0.0'	v 0.9'	d 0.6'
Mer. pass.			11 h 58 m 16 s		12 h 0 m		3 h 7 m		3 h 27 m		6 h 17 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Jupiter	-Vega	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	37°54.0'	S 9°06.2'	9.1'	-13.9'	60.1'	81°51.4'	77°13.4'	52°01.5'	36°16.4'	12°26.0'		64°45.9'	99°36.1'
1	52°22.1'	S 9°20.1'	9.1'	-13.9'	60.1'	81°14.6'		51°45.4'	35°40.4'	12°56.8'		65°22.5'	100°10.9'
2	66°50.2'	S 9°33.9'	9.0'	-13.8'	60.1'	80°37.8'		51°29.6'	35°04.4'	13°28.1'	28°39.7'	65°59.0'	100°45.6'
3	81°18.2'	S 9°47.8'	9.0'	-13.8'	60.1'	80°01.0'		51°14.0'	34°28.4'	13°59.9'	28°55.0'	66°35.5'	101°20.3'
4	95°46.1'	S 10°01.5'	8.9'	-13.7'	60.1'	79°24.3'		50°58.7'	33°52.5'	14°32.0'	29°10.9'	67°12.1'	101°55.0'
5	110°14.1'	S 10°15.2'	8.9'	-13.6'	60.1'	78°47.5'			33°16.5'	15°04.5'	29°27.3'	67°48.6'	102°29.7'
6	124°41.9'	S 10°28.8'	8.8'	-13.6'	60.1'	78°10.7'			32°40.6'	15°37.2'	29°44.3'	68°25.2'	103°04.4'
7	139°09.8'	S 10°42.4'	8.8'	-13.5'	60.1'	77°33.9'			32°04.7'	16°10.3'	30°01.9'	69°01.7'	103°39.1'
8	153°37.5'	S 10°55.9'	8.7'	-13.4'	60.1'	76°57.1'			31°28.9'	16°43.5'	30°19.9'	69°38.3'	104°13.8'
9	168°05.2'	S 11°09.4'	8.7'	-13.4'	60.1'	76°20.4'			30°53.0'	17°17.0'	30°38.4'	70°14.8'	104°48.5'
10	182°32.9'	S 11°22.7'	8.6'	-13.3'	60.1'	75°43.6'			30°17.2'	17°50.8'	30°57.5'	70°51.4'	105°23.1'
11	197°00.5'	S 11°36.1'	8.6'	-13.2'	60.1'	75°06.8'			29°41.4'	18°24.6'	31°17.0'	71°27.9'	105°57.8'
12	211°28.1'	S 11°49.3'	8.5'	-13.2'	60.1'	74°30.0'			29°05.7'	18°58.7'	31°36.9'	72°04.5'	106°32.4'
13	225°55.5'	S 12°02.5'	8.4'	-13.1'	60.1'	73°53.2'			28°30.0'	19°32.9'	31°57.3'	72°41.0'	107°07.0'
14	240°23.0'	S 12°15.6'	8.4'	-13.0'	60.1'	73°16.4'			27°54.3'	20°07.2'	32°18.2'	73°17.6'	107°41.6'
15	254°50.4'	S 12°28.6'	8.3'	-12.9'	60.1'	72°39.7'			27°18.7'	20°41.7'	32°39.4'	73°54.1'	108°16.2'
16	269°17.7'	S 12°41.5'	8.3'	-12.9'	60.1'	72°02.9'			26°43.1'	21°16.3'	33°01.1'	74°30.7'	108°50.8'
17	283°45.0'	S 12°54.4'	8.2'	-12.8'	60.1'	71°26.1'			26°07.6'	21°51.0'	33°23.1'	75°07.2'	109°25.3'
18	298°12.2'	S 13°07.2'	8.2'	-12.7'	60.1'	70°49.4'			25°32.1'	22°25.7'	33°45.5'	75°43.8'	109°59.9'
19	312°39.4'	S 13°19.9'	8.1'	-12.6'	60.1'	70°12.6'			24°56.7'	23°00.6'	34°08.3'	76°20.3'	110°34.4'
20	327°06.5'	S 13°32.5'	8.0'	-12.5'	60.1'	69°35.8'			24°21.4'	23°35.5'	34°31.4'	76°56.9'	111°08.9'
21	341°33.5'	S 13°45.0'	8.0'	-12.4'	60.1'	68°59.1'			23°46.1'	24°10.6'	34°54.8'	77°33.4'	111°43.4'
22	356°00.5'	S 13°57.5'	7.9'	-12.4'	60.0'	68°22.3'			23°10.9'	24°45.7'	35°18.6'	78°09.9'	112°17.8'
23	10°27.4'	S 14°09.8'	7.9'	-12.3'	60.0'	67°45.6'			22°35.7'	25°20.8'	35°42.6'	78°46.4'	112°52.2'
Mer. pass.			22 h 17 m SD 16.4'	phase 89%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.7'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°20.9'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°07.1'	N 89°20.7'
Rigel Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.2'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.3'	Canopus	-0.6	263°54.5'	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	252°53.6'	180°24.9'	N 22°27.6'	180°55.0'	N 22°49.8'	314°14.0'	S 21°03.1'	309°06.6'	S 19°58.6'	266°02.6'	S 8°17.5'			
1	267°56.0'	195°24.8'	N 22°27.9'	195°59.1'	N 22°49.0'	329°16.6'	S 21°03.1'	324°09.2'	S 19°58.6'	281°03.5'	S 8°16.9'			
2	282°58.5'	210°24.7'	N 22°28.1'	211°03.2'	N 22°48.3'	344°19.2'	S 21°03.1'	339°11.8'	S 19°58.6'	296°04.4'	S 8°16.4'			
3	298°00.9'	225°24.6'	N 22°28.4'	226°07.3'	N 22°47.5'	359°21.9'	S 21°03.2'	354°14.3'	S 19°58.7'	311°05.3'	S 8°15.8'			
4	313°03.4'	240°24.5'	N 22°28.7'	241°11.3'	N 22°46.7'	14°24.5'	S 21°03.2'	9°16.9'	S 19°58.7'	326°06.2'	S 8°15.2'			
5	328°05.9'	255°24.4'	N 22°29.0'	256°15.4'	N 22°45.9'	29°27.1'	S 21°03.2'	24°19.4'	S 19°58.7'	341°07.1'	S 8°14.6'			
6	343°08.3'	270°24.3'	N 22°29.3'	271°19.5'	N 22°45.1'	44°29.7'	S 21°03.3'	39°22.0'	S 19°58.7'	356°08.0'	S 8°14.0'			
7	358°10.8'	285°24.1'	N 22°29.6'	286°23.6'	N 22°44.4'	59°32.4'	S 21°03.3'	54°24.6'	S 19°58.8'	11°08.9'	S 8°13.5'			
8	13°13.3'	300°24.0'	N 22°29.8'	301°27.6'	N 22°43.6'	74°35.0'	S 21°03.4'	69°27.1'	S 19°58.8'	26°09.8'	S 8°12.9'			
9	28°15.7'	315°23.9'	N 22°30.1'	316°31.7'	N 22°42.8'	89°37.6'	S 21°03.4'	84°29.7'	S 19°58.8'	41°10.7'	S 8°12.3'			
10	43°18.2'	330°23.8'	N 22°30.4'	331°35.8'	N 22°42.0'	104°40.3'	S 21°03.4'	99°32.2'	S 19°58.8'	56°11.6'	S 8°11.7'			
11	58°20.7'	345°23.7'	N 22°30.7'	346°39.9'	N 22°41.2'	119°42.9'	S 21°03.5'	114°34.8'	S 19°58.9'	71°12.6'	S 8°11.1'			
12	73°23.1'	0°23.6'	N 22°31.0'	1°43.9'	N 22°40.4'	134°45.5'	S 21°03.5'	129°37.4'	S 19°58.9'	86°13.5'	S 8°10.6'			
13	88°25.6'	15°23.5'	N 22°31.2'	16°48.0'	N 22°39.6'	149°48.1'	S 21°03.5'	144°39.9'	S 19°58.9'	101°14.4'	S 8°10.0'			
14	103°28.1'	30°23.4'	N 22°31.5'	31°52.1'	N 22°38.9'	164°50.8'	S 21°03.6'	159°42.5'	S 19°58.9'	116°15.3'	S 8°09.4'			
15	118°30.5'	45°23.3'	N 22°31.8'	46°56.2'	N 22°38.1'	179°53.4'	S 21°03.6'	174°45.0'	S 19°59.0'	131°16.2'	S 8°08.8'			
16	133°33.0'	60°23.2'	N 22°32.1'	62°00.2'	N 22°37.3'	194°56.0'	S 21°03.6'	189°47.6'	S 19°59.0'	146°17.1'	S 8°08.2'			
17	148°35.4'	75°23.1'	N 22°32.3'	77°04.3'	N 22°36.5'	209°58.7'	S 21°03.7'	204°50.2'	S 19°59.0'	161°18.0'	S 8°07.7'			
18	163°37.9'	90°23.0'	N 22°32.6'	92°08.4'	N 22°35.7'	225°01.3'	S 21°03.7'	219°52.7'	S 19°59.0'	176°18.9'	S 8°07.1'			
19	178°40.4'	105°22.8'	N 22°32.9'	107°12.4'	N 22°34.9'	240°03.9'	S 21°03.8'	234°55.3'	S 19°59.1'	191°19.8'	S 8°06.5'			
20	193°42.8'	120°22.7'	N 22°33.2'	122°16.5'	N 22°34.1'	255°06.6'	S 21°03.8'	249°57.8'	S 19°59.1'	206°20.7'	S 8°05.9'			
21	208°45.3'	135°22.6'	N 22°33.4'	137°20.6'	N 22°33.4'	270°09.2'	S 21°03.8'	265°00.4'	S 19°59.1'	221°21.6'	S 8°05.3'			
22	223°47.8'	150°22.5'	N 22°33.7'	152°24.6'	N 22°32.6'	285°11.8'	S 21°03.9'	280°03.0'	S 19°59.1'	236°22.5'	S 8°04.8'			
23	238°50.2'	165°22.4'	N 22°34.0'	167°28.7'	N 22°31.8'	300°14.5'	S 21°03.9'	295°05.5'	S 19°59.2'	251°23.5'	S 8°04.2'			
		SD 15.8' d 0.3'		v 4.1' d -0.8'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 0.9' d 0.6'				
Mer. pass.		11 h 58 m 26 s		11 h 53 m		3 h 3 m		3 h 23 m		6 h 15 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	24°54.3'	S 14°22.1'	7.8'	-12.2'	60.0'	73°10.3'	72°03.0'	67°08.9'	22°00.7'	25°56.0'	36°07.0'	79°22.9'	110°03.0'
1	39°21.1'	S 14°34.3'	7.8'	-12.1'	60.0'	72°39.9'	71°26.3'	66°32.1'	21°25.7'	26°31.3'	36°31.7'	79°59.4'	110°22.2'
2	53°47.9'	S 14°46.4'	7.7'	-12.0'	60.0'	72°09.5'	70°49.7'	65°55.4'	20°50.8'	27°06.6'	36°56.6'	80°35.9'	110°41.3'
3	68°14.6'	S 14°58.4'	7.6'	-11.9'	60.0'	71°39.1'	70°13.0'	65°18.7'	20°16.1'	27°41.9'	37°21.8'	81°12.4'	111°00.3'
4	82°41.2'	S 15°10.3'	7.6'	-11.8'	60.0'	71°08.8'	69°36.4'	64°42.0'	19°41.4'	28°17.3'	37°47.3'	81°48.9'	111°19.1'
5	97°07.8'	S 15°22.1'	7.5'	-11.7'	60.0'	70°38.6'	68°59.8'	64°05.3'	19°06.9'	28°52.7'	38°13.0'	82°25.4'	111°37.8'
6	111°34.4'	S 15°33.8'	7.5'	-11.6'	60.0'	70°08.4'	68°23.2'	63°28.6'	18°32.5'	29°28.2'	38°39.0'	83°01.8'	111°56.5'
7	126°00.8'	S 15°45.4'	7.4'	-11.5'	60.0'	69°38.2'	67°46.6'	62°52.0'	17°58.2'	30°03.7'	39°05.2'	83°38.3'	112°15.0'
8	140°27.2'	S 15°56.9'	7.4'	-11.4'	60.0'	69°08.1'	67°10.0'	62°15.3'	17°24.1'	30°39.2'	39°31.6'	84°14.7'	112°33.3'
9	154°53.6'	S 16°08.3'	7.3'	-11.3'	59.9'	68°38.1'	66°33.4'	61°38.7'	16°50.2'	31°14.7'	39°58.3'	84°51.2'	112°51.6'
10	169°19.9'	S 16°19.6'	7.2'	-11.2'	59.9'	68°08.1'	65°56.9'	61°02.0'	16°16.5'	31°50.3'	40°25.1'	85°27.6'	113°09.7'
11	183°46.1'	S 16°30.7'	7.2'	-11.1'	59.9'	67°38.2'	65°20.3'	60°25.4'	15°43.0'	32°25.9'	40°52.1'	86°04.0'	113°27.7'
12	198°12.3'	S 16°41.8'	7.1'	-11.0'	59.9'	67°08.4'	64°43.8'	59°48.8'	15°09.7'	33°01.5'	41°19.4'	86°40.4'	113°45.5'
13	212°38.5'	S 16°52.8'	7.1'	-10.9'	59.9'	66°38.6'	64°07.3'	59°12.2'	14°36.7'	33°37.1'	41°46.8'	87°16.7'	114°03.2'
14	227°04.5'	S 17°03.6'	7.0'	-10.7'	59.9'	66°08.9'	63°30.8'	58°35.6'	14°04.0'	34°12.7'	42°14.3'	87°53.1'	114°20.8'
15	241°30.5'	S 17°14.4'	7.0'	-10.6'	59.9'	65°39.2'	62°54.3'	57°59.0'	13°31.6'	34°48.3'	42°42.1'	88°29.5'	114°38.2'
16	255°56.5'	S 17°25.0'	6.9'	-10.5'	59.9'	65°09.6'	62°17.8'	57°22.5'	12°59.5'	35°24.0'	43°10.0'	89°05.8'	114°55.5'
17	270°22.4'	S 17°35.5'	6.9'	-10.4'	59.8'	64°40.1'	61°41.4'	56°46.0'	12°27.9'	35°59.6'	43°38.1'	89°42.1'	115°12.7'
18	284°48.3'	S 17°45.9'	6.8'	-10.3'	59.8'	64°10.7'	61°04.9'	56°09.4'	11°56.8'	36°35.3'	44°06.3'	90°18.4'	115°29.7'
19	299°14.1'	S 17°56.2'	6.7'	-10.2'	59.8'	63°41.4'	60°28.5'	55°32.9'	11°26.1'	37°10.9'	44°34.7'	90°54.7'	115°46.5'
20	313°39.8'	S 18°06.4'	6.7'	-10.0'	59.8'	63°12.1'	59°52.1'	54°56.4'	10°56.1'	37°46.6'	45°03.2'	91°31.0'	116°03.2'
21	328°05.5'	S 18°16.4'	6.6'	-9.9'	59.8'	62°42.9'	59°15.7'	54°20.0'	10°26.7'	38°22.3'	45°31.8'	92°07.2'	116°19.7'
22	342°31.1'	S 18°26.3'	6.6'	-9.8'	59.8'	62°13.8'	58°39.3'	53°43.5'		38°57.9'	46°00.6'	92°43.5'	116°36.1'
23	356°56.7'	S 18°36.1'	6.5'	-9.7'	59.8'	61°44.8'	58°03.0'	53°07.1'		39°33.6'	46°29.5'	93°19.7'	116°52.3'
Mer. pass.		23 h 13 m SD 16.4'		phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.7'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°20.9'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°06.7'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.2'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.3'	Canopus	-0.6	263°54.5'	S 52°42.6'				

Friday 05 June 2020 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	253°52.7'	180°22.3'	N 22°34.2'	182°32.8'	N 22°31.0'	315°17.1'	S 21°04.0'	310°08.1'	S 19°59.2'	266°24.4'	S 8°03.6'	
1	268°55.2'	195°22.2'	N 22°34.5'	197°36.8'	N 22°30.2'	330°19.7'	S 21°04.0'	325°10.7'	S 19°59.2'	281°25.3'	S 8°03.0'	
2	283°57.6'	210°22.1'	N 22°34.8'	212°40.9'	N 22°29.4'	345°22.4'	S 21°04.0'	340°13.2'	S 19°59.2'	296°26.2'	S 8°02.4'	
3	299°00.1'	225°22.0'	N 22°35.0'	227°45.0'	N 22°28.6'	0°25.0'	S 21°04.1'	355°15.8'	S 19°59.3'	311°27.1'	S 8°01.9'	
4	314°02.5'	240°21.9'	N 22°35.3'	242°49.0'	N 22°27.9'	15°27.7'	S 21°04.1'	10°18.3'	S 19°59.3'	326°28.0'	S 8°01.3'	
5	329°05.0'	255°21.7'	N 22°35.6'	257°53.1'	N 22°27.1'	30°30.3'	S 21°04.1'	25°20.9'	S 19°59.3'	341°28.9'	S 8°00.7'	
6	344°07.5'	270°21.6'	N 22°35.8'	272°57.1'	N 22°26.3'	45°32.9'	S 21°04.2'	40°23.5'	S 19°59.3'	356°29.8'	S 8°00.1'	
7	359°09.9'	285°21.5'	N 22°36.1'	288°01.2'	N 22°25.5'	60°35.6'	S 21°04.2'	55°26.0'	S 19°59.4'	11°30.7'	S 7°59.5'	
8	14°12.4'	300°21.4'	N 22°36.4'	303°05.2'	N 22°24.7'	75°38.2'	S 21°04.3'	70°28.6'	S 19°59.4'	26°31.7'	S 7°59.0'	
9	29°14.9'	315°21.3'	N 22°36.6'	318°09.3'	N 22°23.9'	90°40.8'	S 21°04.3'	85°31.2'	S 19°59.4'	41°32.6'	S 7°58.4'	
10	44°17.3'	330°21.2'	N 22°36.9'	333°13.4'	N 22°23.1'	105°43.5'	S 21°04.3'	100°33.7'	S 19°59.4'	56°33.5'	S 7°57.8'	
11	59°19.8'	345°21.1'	N 22°37.2'	348°17.4'	N 22°22.3'	120°46.1'	S 21°04.4'	115°36.3'	S 19°59.5'	71°34.4'	S 7°57.2'	
12	74°22.3'	0°21.0'	N 22°37.4'	3°21.5'	N 22°21.5'	135°48.7'	S 21°04.4'	130°38.9'	S 19°59.5'	86°35.3'	S 7°56.6'	
13	89°24.7'	15°20.9'	N 22°37.7'	18°25.5'	N 22°20.8'	150°51.4'	S 21°04.4'	145°41.4'	S 19°59.5'	101°36.2'	S 7°56.1'	
14	104°27.2'	30°20.7'	N 22°38.0'	33°29.6'	N 22°20.0'	165°54.0'	S 21°04.5'	160°44.0'	S 19°59.5'	116°37.1'	S 7°55.5'	
15	119°29.7'	45°20.6'	N 22°38.2'	48°33.6'	N 22°19.2'	180°56.7'	S 21°04.5'	175°46.6'	S 19°59.6'	131°38.0'	S 7°54.9'	
16	134°32.1'	60°20.5'	N 22°38.5'	63°37.7'	N 22°18.4'	195°59.3'	S 21°04.6'	190°49.1'	S 19°59.6'	146°39.0'	S 7°54.3'	
17	149°34.6'	75°20.4'	N 22°38.7'	78°41.7'	N 22°17.6'	211°01.9'	S 21°04.6'	205°51.7'	S 19°59.6'	161°39.9'	S 7°53.7'	
18	164°37.0'	90°20.3'	N 22°39.0'	93°45.8'	N 22°16.8'	226°04.6'	S 21°04.6'	220°54.2'	S 19°59.6'	176°40.8'	S 7°53.2'	
19	179°39.5'	105°20.2'	N 22°39.2'	108°49.8'	N 22°16.0'	241°07.2'	S 21°04.7'	235°56.8'	S 19°59.7'	191°41.7'	S 7°52.6'	
20	194°42.0'	120°20.1'	N 22°39.5'	123°53.8'	N 22°15.2'	256°09.9'	S 21°04.7'	250°59.4'	S 19°59.7'	206°42.6'	S 7°52.0'	
21	209°44.4'	135°20.0'	N 22°39.8'	138°57.9'	N 22°14.4'	271°12.5'	S 21°04.8'	266°01.9'	S 19°59.7'	221°43.5'	S 7°51.4'	
22	224°46.9'	150°19.8'	N 22°40.0'	154°01.9'	N 22°13.7'	286°15.1'	S 21°04.8'	281°04.5'	S 19°59.7'	236°44.4'	S 7°50.8'	
23	239°49.4'	165°19.7'	N 22°40.3'	169°06.0'	N 22°12.9'	301°17.8'	S 21°04.8'	296°07.1'	S 19°59.8'	251°45.4'	S 7°50.2'	
		SD 15.8'	d 0.3'	v 4.1'	d -0.8'	v 2.6'	d -0.0'	v 2.6'	d -0.0'	v 0.9'	d 0.6'	
Mer. pass.		11 h 58 m 37 s		11 h 47 m		2 h 58 m		3 h 19 m		6 h 14 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Deneb	-Altair	-Saturn	-Jupiter	+Spica	+Arcturus	+Regulus	+Adhara
0	11°22.3'	S 18°45.8'	6.5'	-9.5'	59.7'	88°50.7'	61°15.9'	57°26.6'	52°30.7'	40°09.3'	46°58.5'	93°55.9'	117°08.3'
1	25°47.8'	S 18°55.3'	6.4'	-9.4'	59.7'	88°35.2'	60°47.0'	56°50.3'	51°54.3'	40°44.9'	47°27.6'	94°32.1'	117°24.2'
2	40°13.2'	S 19°04.7'	6.4'	-9.3'	59.7'	88°19.7'	60°18.3'	56°14.0'	51°17.9'	41°20.6'	47°56.9'	95°08.2'	117°39.9'
3	54°38.6'	S 19°14.0'	6.3'	-9.2'	59.7'	88°04.2'	59°49.6'	55°37.7'	50°41.6'	41°56.2'	48°26.2'	95°44.4'	117°55.4'
4	69°03.9'	S 19°23.2'	6.3'	-9.0'	59.7'	87°48.7'	59°21.1'	55°01.5'	50°05.2'	42°31.9'	48°55.6'	96°20.5'	118°10.8'
5	83°29.2'	S 19°32.2'	6.2'	-8.9'	59.6'	87°33.3'	58°52.7'	54°25.3'	49°28.9'	43°07.5'	49°25.2'	96°56.6'	118°26.0'
6	97°54.5'	S 19°41.1'	6.2'	-8.8'	59.6'	87°17.9'	58°24.3'	53°49.1'	48°52.6'	43°43.1'	49°54.8'	97°32.6'	
7	112°19.7'	S 19°49.9'	6.2'	-8.6'	59.6'	87°02.5'	57°56.1'	53°12.9'	48°16.4'	44°18.8'	50°24.5'	98°08.7'	
8	126°44.8'	S 19°58.5'	6.1'	-8.5'	59.6'	86°47.1'	57°28.0'	52°36.7'	47°40.1'	44°54.4'	50°54.3'	98°44.7'	
9	141°09.9'	S 20°07.0'	6.1'	-8.4'	59.6'	86°31.8'	57°00.0'	52°00.6'	47°03.9'	45°30.0'	51°24.1'	99°20.7'	
10	155°35.0'	S 20°15.4'	6.0'	-8.2'	59.6'	86°16.5'	56°32.1'	51°24.5'	46°27.7'	46°05.5'	51°54.1'	99°56.7'	
11	170°00.0'	S 20°23.6'	6.0'	-8.1'	59.5'	86°01.2'	56°04.4'	50°48.4'	45°51.5'	46°41.1'	52°24.1'	100°32.7'	
12	184°25.0'	S 20°31.6'	5.9'	-7.9'	59.5'	85°45.9'	55°36.7'	50°12.3'	45°15.4'	47°16.7'	52°54.2'	101°08.6'	
13	198°50.0'	S 20°39.6'	5.9'	-7.8'	59.5'	85°30.7'	55°09.2'	49°36.3'	44°39.3'	47°52.2'	53°24.3'	101°44.5'	
14	213°14.9'	S 20°47.4'	5.9'	-7.7'	59.5'	85°15.5'	54°41.8'	49°00.3'	44°03.2'	48°27.7'	53°54.5'	102°20.4'	
15	227°39.8'	S 20°55.0'	5.8'	-7.5'	59.4'	85°00.4'	54°14.6'	48°24.3'	43°27.1'	49°03.2'	54°24.8'	102°56.2'	
16	242°04.6'	S 21°02.6'	5.8'	-7.4'	59.4'	84°45.3'	53°47.5'	47°48.3'	42°51.1'	49°38.7'	54°55.1'	103°32.1'	
17	256°29.4'	S 21°09.9'	5.8'	-7.2'	59.4'	84°30.2'	53°20.5'	47°12.4'	42°15.1'	50°14.2'	55°25.5'	104°07.9'	
18	270°54.2'	S 21°17.2'	5.7'	-7.1'	59.4'		52°53.7'	46°36.5'	41°39.1'	50°49.6'	55°55.9'	104°43.6'	
19	285°18.9'	S 21°24.2'	5.7'	-6.9'	59.4'		52°27.0'	46°00.6'	41°03.1'	51°25.0'	56°26.4'	105°19.4'	
20	299°43.6'	S 21°31.2'	5.7'	-6.8'	59.3'		52°00.4'	45°24.8'	40°27.2'	52°00.4'	56°56.9'	105°55.1'	
21	314°08.3'	S 21°38.0'	5.6'	-6.6'	59.3'		51°34.1'	44°49.0'	39°51.3'	52°35.8'	57°27.5'	106°30.8'	
22	328°32.9'	S 21°44.6'	5.6'	-6.5'	59.3'		51°07.8'	44°13.2'	39°15.4'	53°11.2'	57°58.1'	107°06.5'	
23	342°57.5'	S 21°51.1'	5.6'	-6.3'	59.3'		50°41.8'	43°37.5'	38°39.6'	53°46.5'	58°28.7'	107°42.1'	
Mer. pass.		0 h 11 m SD 16.3'	phase 99%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.7'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°06.4'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.3'	Canopus	-0.6	263°54.6'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	254°51.8'	180°19.6'	N 22°40.5'	184°10.0'	N 22°12.1'	316°20.4'	S 21°04.9'	311°09.6'	S 19°59.8'	266°46.3'	S 7°49.7'	
1	269°54.3'	195°19.5'	N 22°40.8'	199°14.0'	N 22°11.3'	331°23.1'	S 21°04.9'	326°12.2'	S 19°59.8'	281°47.2'	S 7°49.1'	
2	284°56.8'	210°19.4'	N 22°41.0'	214°18.1'	N 22°10.5'	346°25.7'	S 21°05.0'	341°14.8'	S 19°59.8'	296°48.1'	S 7°48.5'	
3	299°59.2'	225°19.3'	N 22°41.3'	229°22.1'	N 22°09.7'	1°28.4'	S 21°05.0'	356°17.3'	S 19°59.9'	311°49.0'	S 7°47.9'	
4	315°01.7'	240°19.2'	N 22°41.5'	244°26.2'	N 22°08.9'	16°31.0'	S 21°05.0'	11°19.9'	S 19°59.9'	326°49.9'	S 7°47.3'	
5	330°04.2'	255°19.1'	N 22°41.8'	259°30.2'	N 22°08.1'	31°33.6'	S 21°05.1'	26°22.5'	S 19°59.9'	341°50.8'	S 7°46.8'	
6	345°06.6'	270°18.9'	N 22°42.0'	274°34.2'	N 22°07.3'	46°36.3'	S 21°05.1'	41°25.0'	S 19°59.9'	356°51.8'	S 7°46.2'	
7	0°09.1'	285°18.8'	N 22°42.3'	289°38.2'	N 22°06.6'	61°38.9'	S 21°05.1'	56°27.6'	S 19°60.0'	11°52.7'	S 7°45.6'	
8	15°11.5'	300°18.7'	N 22°42.5'	304°42.3'	N 22°05.8'	76°41.6'	S 21°05.2'	71°30.2'	S 19°60.0'	26°53.6'	S 7°45.0'	
9	30°14.0'	315°18.6'	N 22°42.8'	319°46.3'	N 22°05.0'	91°44.2'	S 21°05.2'	86°32.7'	S 20°00.0'	41°54.5'	S 7°44.4'	
10	45°16.5'	330°18.5'	N 22°43.0'	334°50.3'	N 22°04.2'	106°46.9'	S 21°05.3'	101°35.3'	S 20°00.1'	56°55.4'	S 7°43.9'	
11	60°18.9'	345°18.4'	N 22°43.3'	349°54.3'	N 22°03.4'	121°49.5'	S 21°05.3'	116°37.9'	S 20°00.1'	71°56.3'	S 7°43.3'	
12	75°21.4'	0°18.3'	N 22°43.5'	4°58.4'	N 22°02.6'	136°52.2'	S 21°05.3'	131°40.4'	S 20°00.1'	86°57.3'	S 7°42.7'	
13	90°23.9'	15°18.1'	N 22°43.8'	20°02.4'	N 22°01.8'	151°54.8'	S 21°05.4'	146°43.0'	S 20°00.1'	101°58.2'	S 7°42.1'	
14	105°26.3'	30°18.0'	N 22°44.0'	35°06.4'	N 22°01.0'	166°57.4'	S 21°05.4'	161°45.6'	S 20°00.2'	116°59.1'	S 7°41.5'	
15	120°28.8'	45°17.9'	N 22°44.2'	50°10.4'	N 22°00.2'	182°00.1'	S 21°05.5'	176°48.1'	S 20°00.2'	132°00.0'	S 7°41.0'	
16	135°31.3'	60°17.8'	N 22°44.5'	65°14.4'	N 21°59.5'	197°02.7'	S 21°05.5'	191°50.7'	S 20°00.2'	147°00.9'	S 7°40.4'	
17	150°33.7'	75°17.7'	N 22°44.7'	80°18.5'	N 21°58.7'	212°05.4'	S 21°05.5'	206°53.3'	S 20°00.2'	162°01.9'	S 7°39.8'	
18	165°36.2'	90°17.6'	N 22°45.0'	95°22.5'	N 21°57.9'	227°08.0'	S 21°05.6'	221°55.9'	S 20°00.3'	177°02.8'	S 7°39.2'	
19	180°38.7'	105°17.4'	N 22°45.2'	110°26.5'	N 21°57.1'	242°10.7'	S 21°05.6'	236°58.4'	S 20°00.3'	192°03.7'	S 7°38.6'	
20	195°41.1'	120°17.3'	N 22°45.5'	125°30.5'	N 21°56.3'	257°13.3'	S 21°05.7'	252°01.0'	S 20°00.3'	207°04.6'	S 7°38.1'	
21	210°43.6'	135°17.2'	N 22°45.7'	140°34.5'	N 21°55.5'	272°16.0'	S 21°05.7'	267°03.6'	S 20°00.3'	222°05.5'	S 7°37.5'	
22	225°46.0'	150°17.1'	N 22°45.9'	155°38.5'	N 21°54.7'	287°18.6'	S 21°05.7'	282°06.1'	S 20°00.4'	237°06.4'	S 7°36.9'	
23	240°48.5'	165°17.0'	N 22°46.2'	170°42.5'	N 21°53.9'	302°21.3'	S 21°05.8'	297°08.7'	S 20°00.4'	252°07.4'	S 7°36.3'	
		SD 15.8' d 0.2'		v 4.0' d -0.8'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 0.9' d 0.6'		
Mer. pass.		11 h 58 m 47 s		11 h 40 m		2 h 54 m		3 h 15 m		6 h 13 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	+Antares	+Hadar	+Spica	+Arcturus
0	357°22.1'	S 21°57.4'	5.6'	-6.2'	59.2'	77°04.4'	50°15.9'	43°01.7'	38°03.8'			54°21.8'	58°59.4'
1	11°46.7'	S 22°03.6'	5.5'	-6.0'	59.2'	76°30.2'	49°50.1'	42°26.0'	37°28.0'	10°30.2'		54°57.1'	59°30.1'
2	26°11.3'	S 22°09.7'	5.5'	-5.9'	59.2'	75°56.1'	49°24.6'	41°50.4'	36°52.3'	10°59.0'		55°32.4'	60°00.8'
3	40°35.8'	S 22°15.6'	5.5'	-5.7'	59.2'	75°22.1'	48°59.2'	41°14.8'	36°16.6'	11°28.5'		56°07.6'	60°31.6'
4	55°00.3'	S 22°21.3'	5.5'	-5.6'	59.1'	74°48.0'	48°34.0'	40°39.2'	35°40.9'	11°58.5'		56°42.9'	61°02.4'
5	69°24.8'	S 22°26.9'	5.5'	-5.4'	59.1'	74°14.0'	48°09.0'	40°03.6'	35°05.3'	12°29.0'		57°18.0'	61°33.2'
6	83°49.3'	S 22°32.3'	5.5'	-5.3'	59.1'	73°40.1'	47°44.1'	39°28.1'	34°29.7'	12°59.8'		57°53.2'	62°04.0'
7	98°13.7'	S 22°37.6'	5.4'	-5.1'	59.1'	73°06.1'	47°19.5'	38°52.6'	33°54.1'	13°31.0'		58°28.3'	62°34.8'
8	112°38.2'	S 22°42.7'	5.4'	-5.0'	59.0'	72°32.3'	46°55.1'	38°17.1'	33°18.5'	14°02.5'		59°03.5'	63°05.7'
9	127°02.6'	S 22°47.7'	5.4'	-4.8'	59.0'	71°58.4'	46°30.8'	37°41.7'	32°43.0'	14°34.3'		59°38.5'	63°36.6'
10	141°27.0'	S 22°52.5'	5.4'	-4.7'	59.0'	71°24.6'	46°06.8'	37°06.3'	32°07.6'	15°06.3'		60°13.6'	64°07.5'
11	155°51.5'	S 22°57.2'	5.4'	-4.5'	59.0'	70°50.9'	45°43.0'	36°31.0'	31°32.1'	15°38.5'		60°48.6'	64°38.4'
12	170°15.9'	S 23°01.7'	5.4'	-4.4'	58.9'	70°17.2'	45°19.4'	35°55.7'	30°56.7'	16°10.9'		61°23.6'	65°09.3'
13	184°40.3'	S 23°06.0'	5.4'	-4.2'	58.9'	69°43.5'	44°56.0'	35°20.4'	30°21.4'	16°43.5'		61°58.6'	65°40.3'
14	199°04.7'	S 23°10.2'	5.4'	-4.0'	58.9'	69°09.9'	44°32.9'	34°45.2'	29°46.1'	17°16.2'		62°33.5'	66°11.2'
15	213°29.1'	S 23°14.3'	5.4'	-3.9'	58.8'	68°36.3'	44°10.0'	34°10.0'	29°10.8'	17°49.0'		63°08.4'	66°42.2'
16	227°53.5'	S 23°18.1'	5.4'	-3.7'	58.8'	68°02.8'	43°47.3'	33°34.8'	28°35.5'	18°21.9'		63°43.3'	67°13.1'
17	242°17.9'	S 23°21.9'	5.4'	-3.6'	58.8'	67°29.3'	43°24.9'	32°59.7'	28°00.3'	18°54.9'		64°18.1'	67°44.1'
18	256°42.3'	S 23°25.4'	5.4'	-3.4'	58.8'	66°55.9'	43°02.7'	32°24.6'	27°25.2'	19°28.0'	53°57.5'	64°52.9'	68°15.0'
19	271°06.7'	S 23°28.8'	5.4'	-3.3'	58.7'	66°22.5'	42°40.7'	31°49.6'	26°50.0'	20°01.2'	54°12.6'	65°27.7'	68°46.0'
20	285°31.1'	S 23°32.1'	5.4'	-3.1'	58.7'	65°49.1'	42°19.1'	31°14.6'	26°14.9'	20°34.5'	54°27.8'	66°02.4'	69°16.9'
21	299°55.5'	S 23°35.2'	5.4'	-2.9'	58.7'	65°15.8'	41°57.7'	30°39.6'	25°39.9'	21°07.8'	54°43.3'	66°37.1'	69°47.9'
22	314°20.0'	S 23°38.1'	5.5'	-2.8'	58.6'	64°42.6'	41°36.5'	30°04.7'	25°04.9'	21°41.2'	54°58.9'	67°11.8'	70°18.8'
23	328°44.4'	S 23°40.9'	5.5'	-2.6'	58.6'	64°09.4'	41°15.7'	29°29.8'	24°29.9'	22°14.6'	55°14.8'	67°46.4'	70°49.8'
Mer. pass.		0 h 11 m SD 16.2' phase 100%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.7'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°01.0'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°06.0'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.3'	Canopus	-0.6	263°54.6'	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	255°51.0'	180°16.9'	N 22°46.4'	185°46.5'	N 21°53.2'	317°23.9'	S 21°05.8'	312°11.3'	S 20°00.4'	267°08.3'	S 7°35.7'			
1	270°53.4'	195°16.8'	N 22°46.6'	200°50.5'	N 21°52.4'	332°26.6'	S 21°05.9'	327°13.8'	S 20°00.4'	282°09.2'	S 7°35.2'			
2	285°55.9'	210°16.6'	N 22°46.9'	215°54.5'	N 21°51.6'	347°29.2'	S 21°05.9'	342°16.4'	S 20°00.5'	297°10.1'	S 7°34.6'			
3	300°58.4'	225°16.5'	N 22°47.1'	230°58.5'	N 21°50.8'	2°31.9'	S 21°06.0'	357°19.0'	S 20°00.5'	312°11.0'	S 7°34.0'			
4	316°00.8'	240°16.4'	N 22°47.4'	246°02.5'	N 21°50.0'	17°34.5'	S 21°06.0'	12°21.5'	S 20°00.5'	327°12.0'	S 7°33.4'			
5	331°03.3'	255°16.3'	N 22°47.6'	261°06.5'	N 21°49.2'	32°37.2'	S 21°06.0'	27°24.1'	S 20°00.6'	342°12.9'	S 7°32.8'			
6	346°05.8'	270°16.2'	N 22°47.8'	276°10.5'	N 21°48.4'	47°39.8'	S 21°06.1'	42°26.7'	S 20°00.6'	357°13.8'	S 7°32.3'			
7	1°08.2'	285°16.1'	N 22°48.1'	291°14.5'	N 21°47.7'	62°42.5'	S 21°06.1'	57°29.3'	S 20°00.6'	12°14.7'	S 7°31.7'			
8	16°10.7'	300°15.9'	N 22°48.3'	306°18.5'	N 21°46.9'	77°45.1'	S 21°06.2'	72°31.8'	S 20°00.6'	27°15.7'	S 7°31.1'			
9	31°13.2'	315°15.8'	N 22°48.5'	321°22.4'	N 21°46.1'	92°47.8'	S 21°06.2'	87°34.4'	S 20°00.7'	42°16.6'	S 7°30.5'			
10	46°15.6'	330°15.7'	N 22°48.7'	336°26.4'	N 21°45.3'	107°50.4'	S 21°06.2'	102°37.0'	S 20°00.7'	57°17.5'	S 7°29.9'			
11	61°18.1'	345°15.6'	N 22°49.0'	351°30.4'	N 21°44.5'	122°53.1'	S 21°06.3'	117°39.5'	S 20°00.7'	72°18.4'	S 7°29.4'			
12	76°20.5'	0°15.5'	N 22°49.2'	6°34.4'	N 21°43.7'	137°55.7'	S 21°06.3'	132°42.1'	S 20°00.7'	87°19.3'	S 7°28.8'			
13	91°23.0'	15°15.3'	N 22°49.4'	21°38.4'	N 21°42.9'	152°58.4'	S 21°06.4'	147°44.7'	S 20°00.8'	102°20.3'	S 7°28.2'			
14	106°25.5'	30°15.2'	N 22°49.7'	36°42.3'	N 21°42.2'	168°01.0'	S 21°06.4'	162°47.3'	S 20°00.8'	117°21.2'	S 7°27.6'			
15	121°27.9'	45°15.1'	N 22°49.9'	51°46.3'	N 21°41.4'	183°03.7'	S 21°06.4'	177°49.8'	S 20°00.8'	132°22.1'	S 7°27.0'			
16	136°30.4'	60°15.0'	N 22°50.1'	66°50.3'	N 21°40.6'	198°06.3'	S 21°06.5'	192°52.4'	S 20°00.8'	147°23.0'	S 7°26.5'			
17	151°32.9'	75°14.9'	N 22°50.3'	81°54.3'	N 21°39.8'	213°09.0'	S 21°06.5'	207°55.0'	S 20°00.9'	162°24.0'	S 7°25.9'			
18	166°35.3'	90°14.8'	N 22°50.6'	96°58.2'	N 21°39.0'	228°11.7'	S 21°06.6'	222°57.5'	S 20°00.9'	177°24.9'	S 7°25.3'			
19	181°37.8'	105°14.6'	N 22°50.8'	112°02.2'	N 21°38.2'	243°14.3'	S 21°06.6'	238°00.1'	S 20°00.9'	192°25.8'	S 7°24.7'			
20	196°40.3'	120°14.5'	N 22°51.0'	127°06.2'	N 21°37.5'	258°17.0'	S 21°06.6'	253°02.7'	S 20°01.0'	207°26.7'	S 7°24.1'			
21	211°42.7'	135°14.4'	N 22°51.2'	142°10.1'	N 21°36.7'	273°19.6'	S 21°06.7'	268°05.3'	S 20°01.0'	222°27.6'	S 7°23.6'			
22	226°45.2'	150°14.3'	N 22°51.5'	157°14.1'	N 21°35.9'	288°22.3'	S 21°06.7'	283°07.8'	S 20°01.0'	237°28.6'	S 7°23.0'			
23	241°47.7'	165°14.2'	N 22°51.7'	172°18.0'	N 21°35.1'	303°24.9'	S 21°06.8'	298°10.4'	S 20°01.0'	252°29.5'	S 7°22.4'			
		SD 15.8' d 0.2'		v 4.0' d -0.8'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 0.9' d 0.6'				
Mer. pass.		11 h 58 m 59 s		11 h 34 m		2 h 50 m		3 h 11 m		6 h 11 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Acrux
0	343°08.9'	S 23°43.5'	5.5'	-2.5'	58.6'	63°36.3'	40°55.1'	28°55.0'	23°55.0'	22°48.0'	51°28.6'	55°30.8'	
1	357°33.4'	S 23°46.0'	5.5'	-2.3'	58.5'	63°03.2'	40°34.9'	28°20.2'	23°20.1'	23°21.5'	51°43.6'	55°46.9'	
2	11°57.9'	S 23°48.3'	5.5'	-2.2'	58.5'	62°30.2'	40°14.9'	27°45.4'	22°45.3'	23°55.0'	51°58.8'	56°03.3'	67°33.7'
3	26°22.4'	S 23°50.5'	5.5'	-2.0'	58.5'	61°57.2'	39°55.2'	27°10.7'	22°10.5'	24°28.5'	52°14.3'	56°19.8'	67°48.7'
4	40°47.0'	S 23°52.5'	5.6'	-1.8'	58.5'	61°24.3'	39°35.8'	26°36.1'	21°35.8'	25°02.0'	52°29.9'	56°36.5'	68°03.8'
5	55°11.5'	S 23°54.3'	5.6'	-1.7'	58.4'	60°51.4'	39°16.8'	26°01.4'	21°01.1'	25°35.6'	52°45.7'	56°53.3'	68°19.1'
6	69°36.1'	S 23°56.0'	5.6'	-1.5'	58.4'	60°18.6'	38°58.1'	25°26.9'	20°26.5'	26°09.1'	53°01.8'	57°10.3'	68°34.4'
7	84°00.7'	S 23°57.5'	5.6'	-1.4'	58.4'	59°45.9'	38°39.7'	24°52.4'	19°51.9'	26°42.7'	53°18.0'	57°27.4'	68°49.7'
8	98°25.4'	S 23°58.9'	5.7'	-1.2'	58.3'	59°13.2'	38°21.6'	24°17.9'	19°17.4'	27°16.3'	53°34.4'	57°44.7'	69°05.2'
9	112°50.1'	S 24°00.1'	5.7'	-1.1'	58.3'	58°40.6'	38°03.9'	23°43.5'	18°42.9'	27°49.8'	53°50.9'	58°02.1'	69°20.8'
10	127°14.8'	S 24°01.1'	5.7'	-0.9'	58.3'	58°08.0'	37°46.5'	23°09.1'	18°08.4'	28°23.4'	54°07.7'	58°19.7'	69°36.5'
11	141°39.5'	S 24°02.0'	5.8'	-0.7'	58.2'	57°35.5'	37°29.5'	22°34.8'	17°34.1'	28°57.0'	54°24.6'	58°37.4'	69°52.2'
12	156°04.3'	S 24°02.8'	5.8'	-0.6'	58.2'	57°03.1'	37°12.8'	22°00.5'	16°59.7'	29°30.5'	54°41.7'	58°55.2'	70°08.0'
13	170°29.1'	S 24°03.4'	5.9'	-0.4'	58.2'	56°30.7'	36°56.5'	21°26.3'	16°25.5'	30°04.1'	54°59.0'	59°13.2'	70°23.9'
14	184°54.0'	S 24°03.8'	5.9'	-0.3'	58.1'	55°58.4'	36°40.6'	20°52.1'	15°51.3'	30°37.6'	55°16.4'	59°31.3'	70°39.9'
15	199°18.9'	S 24°04.1'	5.9'	-0.1'	58.1'	55°26.1'	36°25.1'	20°18.0'	15°17.1'	31°11.1'	55°33.9'	59°49.5'	70°56.0'
16	213°43.8'	S 24°04.2'	6.0'	0.0'	58.1'	54°53.9'		19°43.9'	14°43.1'	31°44.6'	55°51.6'	60°07.9'	71°12.1'
17	228°08.8'	S 24°04.2'	6.0'	0.2'	58.0'	54°21.8'		19°09.9'	14°09.1'	32°18.1'	56°09.5'	60°26.3'	71°28.3'
18	242°33.8'	S 24°04.1'	6.1'	0.3'	58.0'	53°49.8'		18°36.0'	13°35.1'	32°51.6'	56°27.5'	60°44.9'	71°44.6'
19	256°58.9'	S 24°03.7'	6.1'	0.5'	58.0'	53°17.8'		18°02.1'	13°01.3'	33°25.0'	56°45.7'	61°03.6'	72°00.9'
20	271°24.0'	S 24°03.3'	6.2'	0.6'	57.9'	52°45.9'		17°28.3'	12°27.5'	33°58.5'	57°03.9'	61°22.4'	72°17.3'
21	285°49.2'	S 24°02.6'	6.2'	0.8'	57.9'	52°14.0'		16°54.6'	11°53.8'	34°31.9'	57°22.4'	61°41.3'	72°33.8'
22	300°14.4'	S 24°01.9'	6.3'	0.9'	57.9'	51°42.2'		16°20.9'	11°20.2'	35°05.3'	57°40.9'	62°00.3'	72°50.3'
23	314°39.7'	S 24°01.0'	6.3'	1.1'	57.8'	51°10.5'		15°47.3'	10°46.7'	35°38.6'	57°59.6'	62°19.4'	73°06.9'
Mer. pass.		1 h 10 m SD 16.0'		phase 98%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°01.0'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°05.6'	N 89°20.7'
Rigel Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	256°50.1'	180°14.0'	N 22°51.9'	187°22.0'	N 21°34.3'	318°27.6'	S 21°06.8'	313°13.0'	S 20°01.1'	267°30.4'	S 7°21.8'			
1	271°52.6'	195°13.9'	N 22°52.1'	202°26.0'	N 21°33.6'	333°30.2'	S 21°06.9'	328°15.6'	S 20°01.1'	282°31.3'	S 7°21.2'			
2	286°55.0'	210°13.8'	N 22°52.3'	217°29.9'	N 21°32.8'	348°32.9'	S 21°06.9'	343°18.1'	S 20°01.1'	297°32.3'	S 7°20.7'			
3	301°57.5'	225°13.7'	N 22°52.6'	232°33.9'	N 21°32.0'	3°35.6'	S 21°06.9'	358°20.7'	S 20°01.1'	312°33.2'	S 7°20.1'			
4	316°60.0'	240°13.6'	N 22°52.8'	247°37.8'	N 21°31.2'	18°38.2'	S 21°07.0'	13°23.3'	S 20°01.2'	327°34.1'	S 7°19.5'			
5	332°02.4'	255°13.4'	N 22°53.0'	262°41.8'	N 21°30.4'	33°40.9'	S 21°07.0'	28°25.9'	S 20°01.2'	342°35.1'	S 7°18.9'			
6	347°04.9'	270°13.3'	N 22°53.2'	277°45.7'	N 21°29.7'	48°43.5'	S 21°07.1'	43°28.4'	S 20°01.2'	357°36.0'	S 7°18.3'			
7	2°07.4'	285°13.2'	N 22°53.4'	292°49.6'	N 21°28.9'	63°46.2'	S 21°07.1'	58°31.0'	S 20°01.3'	12°36.9'	S 7°17.8'			
8	17°09.8'	300°13.1'	N 22°53.6'	307°53.6'	N 21°28.1'	78°48.9'	S 21°07.1'	73°33.6'	S 20°01.3'	27°37.8'	S 7°17.2'			
9	32°12.3'	315°13.0'	N 22°53.8'	322°57.5'	N 21°27.3'	93°51.5'	S 21°07.2'	88°36.1'	S 20°01.3'	42°38.8'	S 7°16.6'			
10	47°14.8'	330°12.8'	N 22°54.1'	338°01.4'	N 21°26.6'	108°54.2'	S 21°07.2'	103°38.7'	S 20°01.3'	57°39.7'	S 7°16.0'			
11	62°17.2'	345°12.7'	N 22°54.3'	353°05.4'	N 21°25.8'	123°56.8'	S 21°07.3'	118°41.3'	S 20°01.4'	72°40.6'	S 7°15.4'			
12	77°19.7'	0°12.6'	N 22°54.5'	8°09.3'	N 21°25.0'	138°59.5'	S 21°07.3'	133°43.9'	S 20°01.4'	87°41.5'	S 7°14.9'			
13	92°22.2'	15°12.5'	N 22°54.7'	23°13.2'	N 21°24.2'	154°02.1'	S 21°07.4'	148°46.4'	S 20°01.4'	102°42.5'	S 7°14.3'			
14	107°24.6'	30°12.4'	N 22°54.9'	38°17.2'	N 21°23.4'	169°04.8'	S 21°07.4'	163°49.0'	S 20°01.5'	117°43.4'	S 7°13.7'			
15	122°27.1'	45°12.2'	N 22°55.1'	53°21.1'	N 21°22.7'	184°07.5'	S 21°07.4'	178°51.6'	S 20°01.5'	132°44.3'	S 7°13.1'			
16	137°29.5'	60°12.1'	N 22°55.3'	68°25.0'	N 21°21.9'	199°10.1'	S 21°07.5'	193°54.2'	S 20°01.5'	147°45.3'	S 7°12.5'			
17	152°32.0'	75°12.0'	N 22°55.5'	83°28.9'	N 21°21.1'	214°12.8'	S 21°07.5'	208°56.7'	S 20°01.5'	162°46.2'	S 7°12.0'			
18	167°34.5'	90°11.9'	N 22°55.7'	98°32.8'	N 21°20.4'	229°15.5'	S 21°07.6'	223°59.3'	S 20°01.6'	177°47.1'	S 7°11.4'			
19	182°36.9'	105°11.8'	N 22°56.0'	113°36.8'	N 21°19.6'	244°18.1'	S 21°07.6'	239°01.9'	S 20°01.6'	192°48.0'	S 7°10.8'			
20	197°39.4'	120°11.6'	N 22°56.2'	128°40.7'	N 21°18.8'	259°20.8'	S 21°07.7'	254°04.5'	S 20°01.6'	207°49.0'	S 7°10.2'			
21	212°41.9'	135°11.5'	N 22°56.4'	143°44.6'	N 21°18.0'	274°23.4'	S 21°07.7'	269°07.1'	S 20°01.6'	222°49.9'	S 7°09.6'			
22	227°44.3'	150°11.4'	N 22°56.6'	158°48.5'	N 21°17.3'	289°26.1'	S 21°07.7'	284°09.6'	S 20°01.7'	237°50.8'	S 7°09.1'			
23	242°46.8'	165°11.3'	N 22°56.8'	173°52.4'	N 21°16.5'	304°28.8'	S 21°07.8'	299°12.2'	S 20°01.7'	252°51.8'	S 7°08.5'			
		SD 15.8' d 0.2'		v 3.9' d -0.8'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 0.9' d 0.6'				
Mer. pass.		11 h 59 m 10 s		11 h 28 m		2 h 46 m		3 h 7 m		6 h 10 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Mars	-Fomalhaut	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Acrux
0	329°05.0'	S 23°59.9'	6.4'	1.2'	57.8'	61°05.6'	50°38.9'	15°13.7'	10°13.4'	36°12.0'	58°18.4'	62°38.6'	73°23.5'
1	343°30.4'	S 23°58.7'	6.4'	1.4'	57.8'	60°33.4'	50°07.4'	14°40.3'	9°40.1'	36°45.3'	58°37.3'	62°57.9'	73°40.2'
2	357°55.8'	S 23°57.3'	6.5'	1.5'	57.7'	60°01.2'	49°35.9'	14°06.9'	9°07.0'	37°18.6'	58°56.3'	63°17.3'	73°57.0'
3	12°21.3'	S 23°55.8'	6.6'	1.7'	57.7'	59°29.1'	49°04.5'	13°33.6'	8°34.1'	37°51.8'	59°15.5'	63°36.7'	74°13.8'
4	26°46.9'	S 23°54.1'	6.6'	1.8'	57.7'	58°57.0'	48°33.2'	13°00.5'	8°01.3'	38°25.1'	59°34.7'	63°56.3'	74°30.6'
5	41°12.5'	S 23°52.4'	6.7'	1.9'	57.6'	58°24.9'	48°01.9'	12°27.4'	7°28.8'	38°58.3'	59°54.1'	64°15.9'	74°47.5'
6	55°38.2'	S 23°50.4'	6.8'	2.1'	57.6'	57°52.9'	47°30.8'	11°54.4'	6°56.5'	39°31.5'	60°13.6'	64°35.7'	75°04.5'
7	70°04.0'	S 23°48.3'	6.8'	2.2'	57.6'	57°21.0'	46°59.7'	11°21.5'	6°24.5'	40°04.6'	60°33.1'	64°55.5'	75°21.5'
8	84°29.8'	S 23°46.1'	6.9'	2.4'	57.5'	56°49.0'	46°28.7'	10°48.8'	5°52.9'	40°37.7'	60°52.8'	65°15.3'	75°38.5'
9	98°55.7'	S 23°43.7'	7.0'	2.5'	57.5'	56°17.2'	45°57.8'	10°16.2'	5°21.8'	41°10.8'	61°12.6'	65°35.3'	75°55.6'
10	113°21.7'	S 23°41.2'	7.0'	2.6'	57.5'	55°45.3'	45°27.0'	9°43.8'		41°43.9'	61°32.4'	65°55.3'	76°12.7'
11	127°47.7'	S 23°38.6'	7.1'	2.8'	57.4'	55°13.5'	44°56.2'	9°11.6'		42°16.9'	61°52.4'	66°15.4'	76°29.8'
12	142°13.8'	S 23°35.8'	7.2'	2.9'	57.4'	54°41.8'	44°25.6'	8°39.5'		42°49.9'	62°12.4'	66°35.5'	76°47.0'
13	156°40.0'	S 23°32.9'	7.2'	3.1'	57.4'	54°10.1'	43°55.0'	8°07.8'		43°22.9'	62°32.5'	66°55.8'	77°04.2'
14	171°06.2'	S 23°29.8'	7.3'	3.2'	57.3'	53°38.4'	43°24.6'	7°36.3'		43°55.8'	62°52.7'	67°16.0'	77°21.5'
15	185°32.5'	S 23°26.6'	7.4'	3.3'	57.3'	53°06.8'	42°54.2'	7°05.1'		44°28.7'	63°13.0'	67°36.4'	77°38.8'
16	199°58.9'	S 23°23.3'	7.5'	3.5'	57.3'	52°35.2'	42°23.9'	6°34.3'		45°01.6'	63°33.3'	67°56.8'	77°56.1'
17	214°25.4'	S 23°19.9'	7.5'	3.6'	57.2'	52°03.6'	41°53.8'	6°04.1'		45°34.4'	63°53.8'	68°17.2'	78°13.4'
18	228°51.9'	S 23°16.3'	7.6'	3.7'	57.2'	51°32.1'	41°23.7'	5°34.4'		46°07.2'	64°14.3'	68°37.7'	78°30.8'
19	243°18.5'	S 23°12.5'	7.7'	3.9'	57.2'	51°00.7'	40°53.8'			46°40.0'	64°34.8'	68°58.3'	78°48.2'
20	257°45.2'	S 23°08.7'	7.8'	4.0'	57.1'	50°29.2'	40°23.9'			47°12.7'	64°55.5'	69°18.9'	79°05.6'
21	272°12.0'	S 23°04.7'	7.9'	4.1'	57.1'	49°57.9'	39°54.2'			47°45.4'	65°16.2'	69°39.5'	79°23.1'
22	286°38.9'	S 23°00.6'	7.9'	4.2'	57.1'	49°26.5'	39°24.5'			48°18.0'	65°36.9'	70°00.2'	79°40.5'
23	301°05.8'	S 22°56.4'	8.0'	4.4'	57.0'	48°55.3'	38°55.0'			48°50.7'	65°57.7'	70°21.0'	79°58.0'
Mer. pass.		2 h 9 m SD 15.8'		phase 94%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°05.2'	N 89°20.7'
Rigel Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	257°49.3'	180°11.1'	N 22°57.0'	188°56.3'	N 21°15.7'	319°31.4'	S 21°07.8'	314°14.8'	S 20°01.7'	267°52.7'	S 7°07.9'			
1	272°51.7'	195°11.0'	N 22°57.2'	204°00.2'	N 21°14.9'	334°34.1'	S 21°07.9'	329°17.4'	S 20°01.8'	282°53.6'	S 7°07.3'			
2	287°54.2'	210°10.9'	N 22°57.4'	219°04.1'	N 21°14.2'	349°36.8'	S 21°07.9'	344°19.9'	S 20°01.8'	297°54.5'	S 7°06.7'			
3	302°56.6'	225°10.8'	N 22°57.6'	234°08.0'	N 21°13.4'	4°39.4'	S 21°08.0'	359°22.5'	S 20°01.8'	312°55.5'	S 7°06.2'			
4	317°59.1'	240°10.7'	N 22°57.8'	249°11.9'	N 21°12.6'	19°42.1'	S 21°08.0'	14°25.1'	S 20°01.8'	327°56.4'	S 7°05.6'			
5	333°01.6'	255°10.5'	N 22°58.0'	264°15.8'	N 21°11.9'	34°44.7'	S 21°08.0'	29°27.7'	S 20°01.9'	342°57.3'	S 7°05.0'			
6	348°04.0'	270°10.4'	N 22°58.2'	279°19.6'	N 21°11.1'	49°47.4'	S 21°08.1'	44°30.2'	S 20°01.9'	357°58.3'	S 7°04.4'			
7	3°06.5'	285°10.3'	N 22°58.4'	294°23.5'	N 21°10.3'	64°50.1'	S 21°08.1'	59°32.8'	S 20°01.9'	12°59.2'	S 7°03.8'			
8	18°09.0'	300°10.2'	N 22°58.6'	309°27.4'	N 21°09.6'	79°52.7'	S 21°08.2'	74°35.4'	S 20°02.0'	28°00.1'	S 7°03.3'			
9	33°11.4'	315°10.0'	N 22°58.8'	324°31.3'	N 21°08.8'	94°55.4'	S 21°08.2'	89°38.0'	S 20°02.0'	43°01.1'	S 7°02.7'			
10	48°13.9'	330°09.9'	N 22°59.0'	339°35.2'	N 21°08.0'	109°58.1'	S 21°08.3'	104°40.6'	S 20°02.0'	58°02.0'	S 7°02.1'			
11	63°16.4'	345°09.8'	N 22°59.2'	354°39.0'	N 21°07.3'	125°00.7'	S 21°08.3'	119°43.1'	S 20°02.0'	73°02.9'	S 7°01.5'			
12	78°18.8'	0°09.7'	N 22°59.4'	9°42.9'	N 21°06.5'	140°03.4'	S 21°08.3'	134°45.7'	S 20°02.1'	88°03.9'	S 7°00.9'			
13	93°21.3'	15°09.6'	N 22°59.6'	24°46.8'	N 21°05.7'	155°06.1'	S 21°08.4'	149°48.3'	S 20°02.1'	103°04.8'	S 7°00.4'			
14	108°23.8'	30°09.4'	N 22°59.8'	39°50.6'	N 21°05.0'	170°08.7'	S 21°08.4'	164°50.9'	S 20°02.1'	118°05.7'	S 6°59.8'			
15	123°26.2'	45°09.3'	N 22°60.0'	54°54.5'	N 21°04.2'	185°11.4'	S 21°08.5'	179°53.4'	S 20°02.2'	133°06.7'	S 6°59.2'			
16	138°28.7'	60°09.1'	N 23°00.1'	69°58.4'	N 21°03.5'	200°14.1'	S 21°08.5'	194°56.0'	S 20°02.2'	148°07.6'	S 6°58.6'			
17	153°31.1'	75°09.1'	N 23°00.3'	85°02.2'	N 21°02.7'	215°16.7'	S 21°08.6'	209°58.6'	S 20°02.2'	163°08.5'	S 6°58.0'			
18	168°33.6'	90°08.9'	N 23°00.5'	100°06.1'	N 21°01.9'	230°19.4'	S 21°08.6'	225°01.2'	S 20°02.2'	178°09.5'	S 6°57.5'			
19	183°36.1'	105°08.8'	N 23°00.7'	115°09.9'	N 21°01.2'	245°22.1'	S 21°08.6'	240°03.8'	S 20°02.3'	193°10.4'	S 6°56.9'			
20	198°38.5'	120°08.7'	N 23°00.9'	130°13.8'	N 21°00.4'	260°24.8'	S 21°08.7'	255°06.3'	S 20°02.3'	208°11.3'	S 6°56.3'			
21	213°41.0'	135°08.6'	N 23°01.1'	145°17.6'	N 20°59.7'	275°27.4'	S 21°08.7'	270°08.9'	S 20°02.3'	223°12.3'	S 6°55.7'			
22	228°43.5'	150°08.4'	N 23°01.3'	160°21.5'	N 20°58.9'	290°30.1'	S 21°08.8'	285°11.5'	S 20°02.4'	238°13.2'	S 6°55.1'			
23	243°45.9'	165°08.3'	N 23°01.5'	175°25.3'	N 20°58.1'	305°32.8'	S 21°08.8'	300°14.1'	S 20°02.4'	253°14.1'	S 6°54.6'			
		SD 15.7'	d 0.2'	v 3.9'	d -0.8'	v 2.7'	d -0.0'	v 2.6'	d -0.0'	v 0.9'	d 0.6'			
Mer. pass.		11 h 59 m 22 s		11 h 21 m		2 h 41 m		3 h 3 m		6 h 8 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Mars	-Fomalhaut	-Saturn	+Jupiter	+Antares	+Rigil Kent	+Hadar
0	315°32.9'	S 22°52.0'	8.1'	4.5'	57.0'	66°51.2'	48°24.0'	38°25.6'			49°23.2'	66°18.6'	70°41.8'
1	329°60.0'	S 22°47.5'	8.2'	4.6'	57.0'	66°35.8'	47°52.8'	37°56.3'			49°55.8'	66°39.5'	71°02.6'
2	344°27.2'	S 22°42.9'	8.3'	4.7'	56.9'	66°20.5'	47°21.6'	37°27.1'		5°02.5'	50°28.3'	67°00.5'	71°23.4'
3	358°54.4'	S 22°38.2'	8.4'	4.9'	56.9'	66°05.3'	46°50.5'	36°58.1'		5°32.6'	51°00.8'	67°21.6'	71°44.3'
4	13°21.8'	S 22°33.3'	8.4'	5.0'	56.9'		46°19.4'	36°29.2'		6°03.1'	51°33.2'	67°42.7'	72°05.3'
5	27°49.3'	S 22°28.3'	8.5'	5.1'	56.8'		45°48.4'	36°00.4'		6°34.0'	52°05.6'	68°03.8'	72°26.2'
6	42°16.8'	S 22°23.2'	8.6'	5.2'	56.8'		45°17.4'	35°31.7'		7°05.2'	52°38.0'	68°25.0'	72°47.2'
7	56°44.4'	S 22°18.0'	8.7'	5.3'	56.8'		44°46.4'	35°03.2'		7°36.5'	53°10.4'	68°46.2'	73°08.3'
8	71°12.1'	S 22°12.7'	8.8'	5.4'	56.7'		44°15.5'	34°34.9'		8°08.0'	53°42.7'	69°07.5'	73°29.3'
9	85°39.9'	S 22°07.2'	8.9'	5.6'	56.7'		43°44.7'	34°06.6'		8°39.7'	54°14.9'	69°28.8'	73°50.4'
10	100°07.8'	S 22°01.7'	9.0'	5.7'	56.7'		43°13.8'	33°38.6'		9°11.4'	54°47.2'	69°50.2'	74°11.5'
11	114°35.8'	S 21°56.0'	9.1'	5.8'	56.6'		42°43.0'	33°10.6'		9°43.2'	55°19.3'	70°11.5'	74°32.6'
12	129°03.8'	S 21°50.2'	9.2'	5.9'	56.6'		42°12.3'	32°42.9'	5°37.1'	10°15.0'	55°51.5'	70°33.0'	74°53.8'
13	143°32.0'	S 21°44.3'	9.2'	6.0'	56.6'		41°41.6'	32°15.3'	6°06.1'	10°46.9'	56°23.6'	70°54.4'	75°15.0'
14	158°00.2'	S 21°38.3'	9.3'	6.1'	56.5'		41°10.9'	31°47.8'	6°35.6'	11°18.8'	56°55.7'	71°15.9'	75°36.2'
15	172°28.6'	S 21°32.2'	9.4'	6.2'	56.5'		40°40.3'	31°20.6'	7°05.5'	11°50.8'	57°27.8'	71°37.4'	75°57.4'
16	186°57.0'	S 21°26.0'	9.5'	6.3'	56.5'		40°09.7'	30°53.5'	7°35.7'	12°22.7'	57°59.8'	71°59.0'	76°18.6'
17	201°25.5'	S 21°19.6'	9.6'	6.4'	56.4'		39°39.2'	30°26.6'	8°06.2'	12°54.6'	58°31.7'	72°20.6'	76°39.8'
18	215°54.1'	S 21°13.2'	9.7'	6.5'	56.4'		39°08.7'	29°59.9'	8°36.8'	13°26.6'	59°03.7'	72°42.2'	77°01.1'
19	230°22.8'	S 21°06.7'	9.8'	6.6'	56.4'		38°38.2'	29°33.4'	9°07.6'	13°58.5'	59°35.6'	73°03.8'	77°22.4'
20	244°51.6'	S 21°00.0'	9.9'	6.7'	56.3'		38°07.8'	29°07.1'	9°38.5'	14°30.5'	60°07.4'	73°25.5'	77°43.7'
21	259°20.5'	S 20°53.3'	10.0'	6.8'	56.3'		37°37.4'	28°41.0'	10°09.6'	15°02.4'	60°39.3'	73°47.2'	78°05.0'
22	273°49.4'	S 20°46.4'	10.1'	6.9'	56.3'		37°07.1'	28°15.1'	10°40.7'	15°34.3'	61°11.1'	74°08.9'	78°26.3'
23	288°18.5'	S 20°39.5'	10.1'	7.0'	56.2'		36°36.8'	27°49.5'	11°11.8'	16°06.2'	61°42.8'	74°30.6'	78°47.6'
Mer. pass.		3 h 5 m SD 15.5'	phase 88%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°04.9'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.6'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	258°48.4'	180°08.2'	N 23°01.7'	190°29.1'	N 20°57.4'		320°35.4'	S 21°08.9'		315°16.7'	S 20°02.4'		268°15.1'	S 6°54.0'				
1	273°50.9'	195°08.1'	N 23°01.8'	205°33.0'	N 20°56.6'		335°38.1'	S 21°08.9'		330°19.2'	S 20°02.4'		283°16.0'	S 6°53.4'				
2	288°53.3'	210°07.9'	N 23°02.0'	220°36.8'	N 20°55.9'		350°40.8'	S 21°09.0'		345°21.8'	S 20°02.5'		298°16.9'	S 6°52.8'				
3	303°55.8'	225°07.8'	N 23°02.2'	235°40.6'	N 20°55.1'		5°43.4'	S 21°09.0'		0°24.4'	S 20°02.5'		313°17.9'	S 6°52.2'				
4	318°58.3'	240°07.7'	N 23°02.4'	250°44.5'	N 20°54.4'		20°46.1'	S 21°09.0'		15°27.0'	S 20°02.5'		328°18.8'	S 6°51.7'				
5	334°00.7'	255°07.6'	N 23°02.6'	265°48.3'	N 20°53.6'		35°48.8'	S 21°09.1'		30°29.6'	S 20°02.6'		343°19.7'	S 6°51.1'				
6	349°03.2'	270°07.4'	N 23°02.8'	280°52.1'	N 20°52.9'		50°51.5'	S 21°09.1'		45°32.1'	S 20°02.6'		358°20.7'	S 6°50.5'				
7	4°05.6'	285°07.3'	N 23°03.0'	295°55.9'	N 20°52.1'		65°54.1'	S 21°09.2'		60°34.7'	S 20°02.6'		13°21.6'	S 6°49.9'				
8	19°08.1'	300°07.2'	N 23°03.1'	310°59.8'	N 20°51.3'		80°56.8'	S 21°09.2'		75°37.3'	S 20°02.6'		28°22.6'	S 6°49.4'				
9	34°10.6'	315°07.1'	N 23°03.3'	326°03.6'	N 20°50.6'		95°59.5'	S 21°09.3'		90°39.9'	S 20°02.7'		43°23.5'	S 6°48.8'				
10	49°13.0'	330°06.9'	N 23°03.5'	341°07.4'	N 20°49.8'		111°02.2'	S 21°09.3'		105°42.5'	S 20°02.7'		58°24.4'	S 6°48.2'				
11	64°15.5'	345°06.8'	N 23°03.7'	356°11.2'	N 20°49.1'		126°04.8'	S 21°09.4'		120°45.0'	S 20°02.7'		73°25.4'	S 6°47.6'				
12	79°18.0'	0°06.7'	N 23°03.9'	11°15.0'	N 20°48.3'		141°07.5'	S 21°09.4'		135°47.6'	S 20°02.8'		88°26.3'	S 6°47.0'				
13	94°20.4'	15°06.6'	N 23°04.0'	26°18.8'	N 20°47.6'		156°10.2'	S 21°09.4'		150°50.2'	S 20°02.8'		103°27.2'	S 6°46.5'				
14	109°22.9'	30°06.4'	N 23°04.2'	41°22.6'	N 20°46.9'		171°12.9'	S 21°09.5'		165°52.8'	S 20°02.8'		118°28.2'	S 6°45.9'				
15	124°25.4'	45°06.3'	N 23°04.4'	56°26.4'	N 20°46.1'		186°15.5'	S 21°09.5'		180°55.4'	S 20°02.8'		133°29.1'	S 6°45.3'				
16	139°27.8'	60°06.2'	N 23°04.6'	71°30.2'	N 20°45.4'		201°18.2'	S 21°09.6'		195°58.0'	S 20°02.9'		148°30.1'	S 6°44.7'				
17	154°30.3'	75°06.1'	N 23°04.7'	86°34.0'	N 20°44.6'		216°20.9'	S 21°09.6'		211°00.5'	S 20°02.9'		163°31.0'	S 6°44.1'				
18	169°32.8'	90°05.9'	N 23°04.9'	101°37.8'	N 20°43.9'		231°23.6'	S 21°09.7'		226°03.1'	S 20°02.9'		178°31.9'	S 6°43.6'				
19	184°35.2'	105°05.8'	N 23°05.1'	116°41.5'	N 20°43.1'		246°26.2'	S 21°09.7'		241°05.7'	S 20°03.0'		193°32.9'	S 6°43.0'				
20	199°37.7'	120°05.7'	N 23°05.3'	131°45.3'	N 20°42.4'		261°28.9'	S 21°09.8'		256°08.3'	S 20°03.0'		208°33.8'	S 6°42.4'				
21	214°40.1'	135°05.6'	N 23°05.4'	146°49.1'	N 20°41.6'		276°31.6'	S 21°09.8'		271°10.9'	S 20°03.0'		223°34.8'	S 6°41.8'				
22	229°42.6'	150°05.4'	N 23°05.6'	161°52.9'	N 20°40.9'		291°34.3'	S 21°09.8'		286°13.5'	S 20°03.0'		238°35.7'	S 6°41.3'				
23	244°45.1'	165°05.3'	N 23°05.8'	176°56.6'	N 20°40.2'		306°36.9'	S 21°09.9'		301°16.0'	S 20°03.1'		253°36.6'	S 6°40.7'				
		SD 15.7'	d 0.2'		v 3.8' d -0.7'			v 2.7' d -0.0'			v 2.6' d -0.0'			v 0.9' d 0.6'				
Mer. pass.		11 h 59 m 34 s			11 h 15 m			2 h 37 m			2 h 58 m			6 h 7 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Altair	+Antares
0	302°47.6'	S 20°32.4'	10.2'	7.1'	56.2'			36°06.5'	27°24.1'	11°43.0'	16°38.1'		62°14.6'
1	317°16.9'	S 20°25.3'	10.3'	7.2'	56.2'			35°36.3'	26°58.9'	12°14.3'	17°09.9'		62°46.2'
2	331°46.2'	S 20°18.1'	10.4'	7.3'	56.1'			35°06.1'	26°34.0'	12°45.5'	17°41.7'		63°17.9'
3	346°15.6'	S 20°10.7'	10.5'	7.4'	56.1'			34°36.0'	26°09.4'	13°16.8'	18°13.6'		63°49.5'
4	0°45.1'	S 20°03.3'	10.6'	7.5'	56.1'			34°05.9'	25°45.0'	13°48.1'	18°45.3'		64°21.1'
5	15°14.7'	S 19°55.8'	10.7'	7.6'	56.1'		114°43.4'	33°35.8'	25°20.9'	14°19.4'	19°17.1'		64°52.6'
6	29°44.4'	S 19°48.2'	10.8'	7.7'	56.0'		114°16.8'	33°05.8'	24°57.1'	14°50.8'	19°48.8'		65°24.2'
7	44°14.2'	S 19°40.5'	10.9'	7.8'	56.0'		113°50.3'	32°35.8'	24°33.6'	15°22.1'	20°20.6'		65°55.6'
8	58°44.1'	S 19°32.7'	11.0'	7.9'	56.0'		113°23.7'	32°05.9'	24°10.4'	15°53.4'	20°52.2'		66°27.1'
9	73°14.1'	S 19°24.8'	11.1'	8.0'	55.9'		112°57.1'	31°36.0'	23°47.6'	16°24.7'	21°23.9'		66°58.5'
10	87°44.1'	S 19°16.8'	11.1'	8.1'	55.9'		112°30.5'	31°06.1'	23°25.1'	16°56.0'	21°55.5'		67°29.9'
11	102°14.3'	S 19°08.8'	11.2'	8.1'	55.9'		112°03.9'	30°36.3'	23°03.0'	17°27.3'	22°27.1'		68°01.2'
12	116°44.5'	S 19°00.6'	11.3'	8.2'	55.8'		111°37.3'	30°06.5'	22°41.2'	17°58.6'	22°58.7'		68°32.5'
13	131°14.8'	S 18°52.4'	11.4'	8.3'	55.8'		111°10.7'	29°36.7'	22°19.9'	18°29.8'	23°30.2'	37°14.9'	69°03.8'
14	145°45.2'	S 18°44.1'	11.5'	8.4'	55.8'		110°44.1'	29°07.0'	21°58.9'	19°01.1'	24°01.8'	37°30.2'	69°35.0'
15	160°15.8'	S 18°35.7'	11.6'	8.5'	55.8'	119°42.8'	110°17.5'	28°37.4'	21°38.4'	19°32.3'	24°33.2'	37°45.7'	70°06.2'
16	174°46.3'	S 18°27.3'	11.7'	8.5'	55.7'	119°13.8'	109°50.9'	28°07.7'	21°18.3'	20°03.5'	25°04.7'	38°01.5'	70°37.4'
17	189°17.0'	S 18°18.7'	11.8'	8.6'	55.7'	118°44.8'	109°24.3'	27°38.1'	20°58.7'	20°34.7'	25°36.1'	38°17.5'	71°08.5'
18	203°47.8'	S 18°10.1'	11.9'	8.7'	55.7'	118°15.9'	108°57.7'	27°08.6'	20°39.6'	21°05.9'	26°07.5'	38°33.8'	71°39.7'
19	218°18.6'	S 18°01.4'	11.9'	8.8'	55.6'	117°47.0'	108°31.1'	26°39.1'	20°20.9'	21°37.0'	26°38.9'	38°50.3'	72°10.7'
20	232°49.6'	S 17°52.6'	12.0'	8.8'	55.6'	117°18.1'	108°04.5'	26°09.6'	20°02.8'	22°08.1'	27°10.2'	39°07.1'	72°41.8'
21	247°20.6'	S 17°43.8'	12.1'	8.9'	55.6'	116°49.3'	107°37.9'	25°40.1'	19°45.2'	22°39.2'	27°41.6'	39°24.1'	73°12.8'
22	261°51.7'	S 17°34.9'	12.2'	9.0'	55.6'	116°20.5'	107°11.3'	25°10.7'	19°28.2'	23°10.3'	28°12.8'	39°41.3'	73°43.8'
23	276°22.9'	S 17°25.9'	12.3'	9.1'	55.5'	115°51.7'	106°44.7'	24°41.4'	19°11.8'	23°41.4'	28°44.1'	39°58.7'	74°14.7'
Mer. pass.		3 h 57 m SD 15.3'			phase 80%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°04.6'	N 89°20.7'
Rigel Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	259°47.5'	180°05.2'	N 23°05.9'	192°00.4'	N 20°39.4'	321°39.6'	S 21°09.9'	316°18.6'	S 20°03.1'	268°37.6'	S 6°40.1'			
1	274°50.0'	195°05.1'	N 23°06.1'	207°04.2'	N 20°38.7'	336°42.3'	S 21°10.0'	331°21.2'	S 20°03.1'	283°38.5'	S 6°39.5'			
2	289°52.5'	210°04.9'	N 23°06.3'	222°07.9'	N 20°37.9'	351°45.0'	S 21°10.0'	346°23.8'	S 20°03.2'	298°39.5'	S 6°38.9'			
3	304°54.9'	225°04.8'	N 23°06.4'	237°11.7'	N 20°37.2'	6°47.6'	S 21°10.1'	1°26.4'	S 20°03.2'	313°40.4'	S 6°38.4'			
4	319°57.4'	240°04.7'	N 23°06.6'	252°15.4'	N 20°36.5'	21°50.3'	S 21°10.1'	16°29.0'	S 20°03.2'	328°41.3'	S 6°37.8'			
5	334°59.9'	255°04.5'	N 23°06.8'	267°19.2'	N 20°35.7'	36°53.0'	S 21°10.2'	31°31.5'	S 20°03.3'	343°42.3'	S 6°37.2'			
6	350°02.3'	270°04.4'	N 23°06.9'	282°22.9'	N 20°35.0'	51°55.7'	S 21°10.2'	46°34.1'	S 20°03.3'	358°43.2'	S 6°36.6'			
7	5°04.8'	285°04.3'	N 23°07.1'	297°26.7'	N 20°34.3'	66°58.4'	S 21°10.3'	61°36.7'	S 20°03.3'	13°44.2'	S 6°36.0'			
8	20°07.2'	300°04.2'	N 23°07.3'	312°30.4'	N 20°33.5'	82°01.0'	S 21°10.3'	76°39.3'	S 20°03.3'	28°45.1'	S 6°35.5'			
9	35°09.7'	315°04.0'	N 23°07.4'	327°34.2'	N 20°32.8'	97°03.7'	S 21°10.3'	91°41.9'	S 20°03.4'	43°46.1'	S 6°34.9'			
10	50°12.2'	330°03.9'	N 23°07.6'	342°37.9'	N 20°32.1'	112°06.4'	S 21°10.4'	106°44.5'	S 20°03.4'	58°47.0'	S 6°34.3'			
11	65°14.6'	345°03.8'	N 23°07.8'	357°41.6'	N 20°31.3'	127°09.1'	S 21°10.4'	121°47.0'	S 20°03.4'	73°47.9'	S 6°33.7'			
12	80°17.1'	0°03.6'	N 23°07.9'	12°45.4'	N 20°30.6'	142°11.8'	S 21°10.5'	136°49.6'	S 20°03.5'	88°48.9'	S 6°33.2'			
13	95°19.6'	15°03.5'	N 23°08.1'	27°49.1'	N 20°29.9'	157°14.4'	S 21°10.5'	151°52.2'	S 20°03.5'	103°49.8'	S 6°32.6'			
14	110°22.0'	30°03.4'	N 23°08.2'	42°52.8'	N 20°29.2'	172°17.1'	S 21°10.6'	166°54.8'	S 20°03.5'	118°50.8'	S 6°32.0'			
15	125°24.5'	45°03.3'	N 23°08.4'	57°56.5'	N 20°28.4'	187°19.8'	S 21°10.6'	181°57.4'	S 20°03.6'	133°51.7'	S 6°31.4'			
16	140°27.0'	60°03.1'	N 23°08.6'	73°00.3'	N 20°27.7'	202°22.5'	S 21°10.7'	196°60.0'	S 20°03.6'	148°52.7'	S 6°30.8'			
17	155°29.4'	75°03.0'	N 23°08.7'	88°04.0'	N 20°27.0'	217°25.2'	S 21°10.7'	212°02.6'	S 20°03.6'	163°53.6'	S 6°30.3'			
18	170°31.9'	90°02.9'	N 23°08.9'	103°07.7'	N 20°26.2'	232°27.8'	S 21°10.8'	227°05.1'	S 20°03.6'	178°54.6'	S 6°29.7'			
19	185°34.4'	105°02.8'	N 23°09.0'	118°11.4'	N 20°25.5'	247°30.5'	S 21°10.8'	242°07.7'	S 20°03.7'	193°55.5'	S 6°29.1'			
20	200°36.8'	120°02.6'	N 23°09.2'	133°15.1'	N 20°24.8'	262°33.2'	S 21°10.8'	257°10.3'	S 20°03.7'	208°56.4'	S 6°28.5'			
21	215°39.3'	135°02.5'	N 23°09.3'	148°18.8'	N 20°24.1'	277°35.9'	S 21°10.9'	272°12.9'	S 20°03.7'	223°57.4'	S 6°28.0'			
22	230°41.7'	150°02.4'	N 23°09.5'	163°22.5'	N 20°23.4'	292°38.6'	S 21°10.9'	287°15.5'	S 20°03.8'	238°58.3'	S 6°27.4'			
23	245°44.2'	165°02.2'	N 23°09.7'	178°26.2'	N 20°22.6'	307°41.3'	S 21°11.0'	302°18.1'	S 20°03.8'	253°59.3'	S 6°26.8'			
		SD 15.7'	d 0.2'	v 3.7'	d -0.7'	v 2.7'	d -0.0'	v 2.6'	d -0.0'	v 0.9'	d 0.6'			
Mer. pass.		11 h 59 m 46 s		11 h 9 m		2 h 33 m		2 h 54 m		6 h 5 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Venus	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Altair	+Antares
0	290°54.2'	S 17°16.8'	12.4'	9.1'	55.5'	115°23.0'	104°03.7'	24°12.0'	18°56.0'	24°12.4'	29°15.3'	40°16.3'	74°45.6'
1	305°25.5'	S 17°07.7'	12.4'	9.2'	55.5'	114°54.3'	103°31.2'	23°42.8'		24°43.4'	29°46.5'	40°34.2'	75°16.5'
2	319°57.0'	S 16°58.5'	12.5'	9.3'	55.4'	114°25.6'	102°58.8'	23°13.5'		25°14.4'	30°17.7'	40°52.2'	75°47.4'
3	334°28.5'	S 16°49.2'	12.6'	9.3'	55.4'	113°57.0'	102°26.5'	22°44.3'		25°45.3'	30°48.8'	41°10.5'	76°18.2'
4	349°00.1'	S 16°39.8'	12.7'	9.4'	55.4'	113°28.4'	101°54.1'	22°15.1'		26°16.3'	31°19.9'	41°28.9'	76°49.0'
5	3°31.8'	S 16°30.4'	12.8'	9.5'	55.4'	112°59.8'	101°21.8'	21°46.0'		26°47.2'	31°51.0'	41°47.5'	77°19.8'
6	18°03.6'	S 16°21.0'	12.8'	9.5'	55.3'	112°31.2'	100°49.5'	21°16.9'		27°18.1'	32°22.1'	42°06.3'	77°50.5'
7	32°35.4'	S 16°11.4'	12.9'	9.6'	55.3'	112°02.7'	100°17.3'	20°47.8'		27°48.9'	32°53.1'	42°25.3'	78°21.2'
8	47°07.3'	S 16°01.8'	13.0'	9.7'	55.3'	111°34.2'	99°45.1'	20°18.8'		28°19.8'	33°24.1'	42°44.4'	78°51.9'
9	61°39.3'	S 15°52.1'	13.1'	9.7'	55.3'	111°05.8'	99°12.9'	19°49.9'		28°50.6'	33°55.1'	43°03.7'	79°22.5'
10	76°11.4'	S 15°42.4'	13.2'	9.8'	55.2'	110°37.4'	98°40.8'	19°20.9'		29°21.4'	34°26.0'	43°23.1'	79°53.1'
11	90°43.6'	S 15°32.6'	13.2'	9.8'	55.2'	110°09.0'	98°08.7'	18°52.0'		29°52.1'	34°56.9'	43°42.8'	80°23.7'
12	105°15.8'	S 15°22.8'	13.3'	9.9'	55.2'	109°40.6'	97°36.6'	18°23.2'		30°22.9'	35°27.8'	44°02.5'	80°54.3'
13	119°48.2'	S 15°12.9'	13.4'	10.0'	55.2'	109°12.3'	97°04.6'	17°54.4'		30°53.6'	35°58.7'	44°22.4'	81°24.8'
14	134°20.5'	S 15°02.9'	13.5'	10.0'	55.1'	108°44.0'	96°32.6'	17°25.6'		31°24.3'	36°29.5'	44°42.5'	81°55.3'
15	148°53.0'	S 14°52.9'	13.5'	10.1'	55.1'	108°15.7'	96°00.6'	16°56.9'		31°54.9'	37°00.3'	45°02.7'	82°25.8'
16	163°25.5'	S 14°42.8'	13.6'	10.1'	55.1'	107°47.4'	95°28.6'	16°28.2'		32°25.6'	37°31.1'	45°23.0'	82°56.2'
17	177°58.2'	S 14°32.7'	13.7'	10.2'	55.1'	107°19.2'	94°56.7'	15°59.6'		32°56.2'	38°01.9'	45°43.5'	83°26.7'
18	192°30.8'	S 14°22.5'	13.8'	10.2'	55.1'	106°51.0'	94°24.8'	15°31.0'		33°26.8'	38°32.6'	46°04.1'	83°57.1'
19	207°03.6'	S 14°12.3'	13.8'	10.3'	55.0'	106°22.8'	93°53.0'	15°02.5'		33°57.3'	39°03.3'	46°24.8'	84°27.4'
20	221°36.4'	S 14°02.0'	13.9'	10.3'	55.0'	105°54.7'	93°21.2'	14°34.0'		34°27.9'	39°34.0'	46°45.6'	84°57.8'
21	236°09.3'	S 13°51.7'	14.0'	10.4'	55.0'	105°26.5'	92°49.4'	14°05.6'		34°58.4'	40°04.6'	47°06.6'	85°28.1'
22	250°42.3'	S 13°41.3'	14.0'	10.4'	55.0'	104°58.5'	92°17.6'	13°37.2'		35°28.9'	40°35.3'	47°27.7'	85°58.4'
23	265°15.3'	S 13°30.8'	14.1'	10.5'	54.9'	104°30.4'	91°45.8'	13°08.9'		35°59.4'	41°05.9'	47°48.8'	86°28.7'
Mer. pass.		4 h 45 m SD 15.1'	phase 71%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°04.3'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.5'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.5'				

Friday 12 June 2020 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	260°46.7'	180°02.1'	N 23°09.8'	193°29.9'	N 20°21.9'		322°43.9'	S 21°11.0'		317°20.7'	S 20°03.8'	269°00.2'	S 6°26.2'					
1	275°49.1'	195°02.0'	N 23°10.0'	208°33.6'	N 20°21.2'		337°46.6'	S 21°11.1'		332°23.2'	S 20°03.9'	284°01.2'	S 6°25.6'					
2	290°51.6'	210°01.9'	N 23°10.1'	223°37.3'	N 20°20.5'		352°49.3'	S 21°11.1'		347°25.8'	S 20°03.9'	299°02.1'	S 6°25.1'					
3	305°54.1'	225°01.7'	N 23°10.3'	238°40.9'	N 20°19.8'		7°52.0'	S 21°11.2'		2°28.4'	S 20°03.9'	314°03.1'	S 6°24.5'					
4	320°56.5'	240°01.6'	N 23°10.4'	253°44.6'	N 20°19.1'		22°54.7'	S 21°11.2'		17°31.0'	S 20°03.9'	329°04.0'	S 6°23.9'					
5	335°59.0'	255°01.5'	N 23°10.6'	268°48.3'	N 20°18.3'		37°57.4'	S 21°11.3'		32°33.6'	S 20°04.0'	344°05.0'	S 6°23.3'					
6	351°01.5'	270°01.3'	N 23°10.7'	283°52.0'	N 20°17.6'		53°00.1'	S 21°11.3'		47°36.2'	S 20°04.0'	359°05.9'	S 6°22.8'					
7	6°03.9'	285°01.2'	N 23°10.9'	298°55.6'	N 20°16.9'		68°02.7'	S 21°11.4'		62°38.8'	S 20°04.0'	14°06.9'	S 6°22.2'					
8	21°06.4'	300°01.1'	N 23°11.0'	313°59.3'	N 20°16.2'		83°05.4'	S 21°11.4'		77°41.4'	S 20°04.1'	29°07.8'	S 6°21.6'					
9	36°08.9'	315°00.9'	N 23°11.2'	329°03.0'	N 20°15.5'		98°08.1'	S 21°11.4'		92°43.9'	S 20°04.1'	44°08.7'	S 6°21.0'					
10	51°11.3'	330°00.8'	N 23°11.3'	344°06.6'	N 20°14.8'		113°10.8'	S 21°11.5'		107°46.5'	S 20°04.1'	59°09.7'	S 6°20.4'					
11	66°13.8'	345°00.7'	N 23°11.4'	359°10.3'	N 20°14.1'		128°13.5'	S 21°11.5'		122°49.1'	S 20°04.2'	74°10.6'	S 6°19.9'					
12	81°16.2'	0°00.6'	N 23°11.6'	14°13.9'	N 20°13.4'		143°16.2'	S 21°11.6'		137°51.7'	S 20°04.2'	89°11.6'	S 6°19.3'					
13	96°18.7'	15°00.4'	N 23°11.7'	29°17.6'	N 20°12.7'		158°18.9'	S 21°11.6'		152°54.3'	S 20°04.2'	104°12.5'	S 6°18.7'					
14	111°21.2'	30°00.3'	N 23°11.9'	44°21.2'	N 20°12.0'		173°21.6'	S 21°11.7'		167°56.9'	S 20°04.2'	119°13.5'	S 6°18.1'					
15	126°23.6'	45°00.2'	N 23°12.0'	59°24.8'	N 20°11.3'		188°24.2'	S 21°11.7'		182°59.5'	S 20°04.3'	134°14.4'	S 6°17.6'					
16	141°26.1'	60°00.0'	N 23°12.2'	74°28.5'	N 20°10.6'		203°26.9'	S 21°11.8'		198°02.1'	S 20°04.3'	149°15.4'	S 6°17.0'					
17	156°28.6'	74°59.9'	N 23°12.3'	89°32.1'	N 20°09.9'		218°29.6'	S 21°11.8'		213°04.7'	S 20°04.3'	164°16.3'	S 6°16.4'					
18	171°31.0'	89°59.8'	N 23°12.4'	104°35.7'	N 20°09.1'		233°32.3'	S 21°11.9'		228°07.2'	S 20°04.4'	179°17.3'	S 6°15.8'					
19	186°33.5'	104°59.6'	N 23°12.6'	119°39.4'	N 20°08.4'		248°35.0'	S 21°11.9'		243°09.8'	S 20°04.4'	194°18.2'	S 6°15.2'					
20	201°36.0'	119°59.5'	N 23°12.7'	134°43.0'	N 20°07.7'		263°37.7'	S 21°12.0'		258°12.4'	S 20°04.4'	209°19.2'	S 6°14.7'					
21	216°38.4'	134°59.4'	N 23°12.9'	149°46.6'	N 20°07.1'		278°40.4'	S 21°12.0'		273°15.0'	S 20°04.5'	224°20.1'	S 6°14.1'					
22	231°40.9'	149°59.3'	N 23°13.0'	164°50.2'	N 20°06.4'		293°43.1'	S 21°12.1'		288°17.6'	S 20°04.5'	239°21.1'	S 6°13.5'					
23	246°43.3'	164°59.1'	N 23°13.1'	179°53.8'	N 20°05.7'		308°45.8'	S 21°12.1'		303°20.2'	S 20°04.5'	254°22.0'	S 6°12.9'					
		SD 15.7' d 0.1'		v 3.6' d -0.7'			v 2.7' d -0.0'			v 2.6' d -0.0'		v 0.9' d 0.6'						
Mer. pass.		11 h 59 m 58 s		11 h 3 m			2 h 29 m			2 h 50 m		6 h 4 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Aldebaran	-Venus	-Mars	+Fomalhaut	+Saturn	+Jupiter	+Altair
0	279°48.4'	S 13°20.3'	14.2'	10.5'	54.9'	104°02.3'	92°10.4'	91°14.1'	12°40.7'		36°29.8'	41°36.5'	48°10.1'
1	294°21.6'	S 13°09.8'	14.2'	10.6'	54.9'	103°34.3'	91°40.0'	90°42.4'	12°12.5'		37°00.3'	42°07.0'	48°31.5'
2	308°54.8'	S 12°59.2'	14.3'	10.6'	54.9'	103°06.3'	91°09.7'	90°10.8'	11°44.4'		37°30.7'	42°37.6'	48°53.0'
3	323°28.1'	S 12°48.6'	14.4'	10.7'	54.9'	102°38.3'	90°39.4'	89°39.1'	11°16.4'		38°01.1'	43°08.1'	49°14.6'
4	338°01.5'	S 12°37.9'	14.4'	10.7'	54.8'	102°10.4'	90°09.1'	89°07.5'	10°48.5'		38°31.4'	43°38.6'	49°36.3'
5	352°34.9'	S 12°27.2'	14.5'	10.8'	54.8'	101°42.5'	89°38.9'	88°36.0'	10°20.6'		39°01.8'	44°09.1'	49°58.1'
6	7°08.4'	S 12°16.4'	14.5'	10.8'	54.8'	101°14.6'	89°08.7'	88°04.4'	9°52.9'		39°32.1'	44°39.5'	50°20.0'
7	21°41.9'	S 12°05.6'	14.6'	10.8'	54.8'	100°46.7'	88°38.5'	87°32.9'	9°25.3'		40°02.4'	45°09.9'	50°41.9'
8	36°15.5'	S 11°54.8'	14.7'	10.9'	54.8'	100°18.8'	88°08.3'	87°01.4'	8°57.8'		40°32.7'	45°40.3'	51°04.0'
9	50°49.2'	S 11°43.9'	14.7'	10.9'	54.7'	99°51.0'	87°38.2'	86°29.9'	8°30.4'		41°02.9'	46°10.7'	51°26.1'
10	65°22.9'	S 11°33.0'	14.8'	11.0'	54.7'	99°23.2'	87°08.0'	85°58.4'	8°03.2'		41°33.2'	46°41.1'	51°48.3'
11	79°56.7'	S 11°22.0'	14.8'	11.0'	54.7'	98°55.4'	86°37.9'	85°27.0'	7°36.2'		42°03.4'	47°11.4'	52°10.6'
12	94°30.5'	S 11°11.0'	14.9'	11.0'	54.7'	98°27.6'	86°07.8'	84°55.6'	7°09.4'		42°33.6'	47°41.8'	52°33.0'
13	109°04.4'	S 10°60.0'	14.9'	11.1'	54.7'	97°59.9'	85°37.7'	84°24.2'	6°42.9'		43°03.8'	48°12.1'	52°55.4'
14	123°38.3'	S 10°48.9'	15.0'	11.1'	54.6'	97°32.1'	85°07.7'	83°52.9'	6°16.6'	18°54.6'	43°34.0'	48°42.4'	53°18.0'
15	138°12.3'	S 10°37.8'	15.1'	11.2'	54.6'	97°04.4'	84°37.7'	83°21.5'	5°50.8'	19°09.8'	44°04.1'	49°12.6'	53°40.6'
16	152°46.4'	S 10°26.6'	15.1'	11.2'	54.6'	96°36.7'	84°07.7'	82°50.2'	5°25.4'	19°25.6'	44°34.2'	49°42.9'	54°03.2'
17	167°20.5'	S 10°15.4'	15.2'	11.2'	54.6'	96°09.0'	83°37.7'	82°18.9'	5°00.6'	19°41.9'	45°04.4'	50°13.1'	54°25.9'
18	181°54.7'	S 10°04.2'	15.2'	11.3'	54.6'	95°41.4'	83°07.7'	81°47.7'		19°58.7'	45°34.4'	50°43.3'	54°48.7'
19	196°28.9'	S 9°53.0'	15.3'	11.3'	54.6'	95°13.7'	82°37.7'	81°16.4'		20°16.0'	46°04.5'	51°13.5'	55°11.6'
20	211°03.1'	S 9°41.7'	15.3'	11.3'	54.6'	94°46.1'	82°07.8'	80°45.2'		20°33.7'	46°34.6'	51°43.7'	55°34.5'
21	225°37.4'	S 9°30.4'	15.4'	11.3'	54.5'	94°18.5'	81°37.9'	80°14.0'		20°51.9'	47°04.6'	52°13.9'	55°57.5'
22	240°11.8'	S 9°19.0'	15.4'	11.4'	54.5'	93°50.9'	81°08.0'	79°42.8'		21°10.5'	47°34.7'	52°44.0'	56°20.6'
23	254°46.2'	S 9°07.6'	15.4'	11.4'	54.5'	93°23.4'	80°38.1'	79°11.6'		21°29.4'	48°04.7'	53°14.2'	56°43.7'
Mer. pass.		5 h 31 m SD 15.0'		phase 62%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°04.0'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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°45.8'	179°59.0'	N 23°13.3'	194°57.4'	N 20°05.0'		323°48.4'	S 21°12.2'		318°22.8'	S 20°04.6'		269°23.0'	S 6°12.4'				
1	276°48.3'	194°58.9'	N 23°13.4'	210°01.0'	N 20°04.3'		338°51.1'	S 21°12.2'		333°25.4'	S 20°04.6'		284°24.0'	S 6°11.8'				
2	291°50.7'	209°58.7'	N 23°13.5'	225°04.7'	N 20°03.6'		353°53.8'	S 21°12.2'		348°28.0'	S 20°04.6'		299°24.9'	S 6°11.2'				
3	306°53.2'	224°58.6'	N 23°13.7'	240°08.2'	N 20°02.9'		8°56.5'	S 21°12.3'		3°30.5'	S 20°04.6'		314°25.9'	S 6°10.6'				
4	321°55.7'	239°58.5'	N 23°13.8'	255°11.8'	N 20°02.2'		23°59.2'	S 21°12.3'		18°33.1'	S 20°04.7'		329°26.8'	S 6°10.1'				
5	336°58.1'	254°58.3'	N 23°13.9'	270°15.4'	N 20°01.5'		39°01.9'	S 21°12.4'		33°35.7'	S 20°04.7'		344°27.8'	S 6°09.5'				
6	352°00.6'	269°58.2'	N 23°14.1'	285°19.0'	N 20°00.8'		54°04.6'	S 21°12.4'		48°38.3'	S 20°04.7'		359°28.7'	S 6°08.9'				
7	7°03.1'	284°58.1'	N 23°14.2'	300°22.6'	N 20°00.1'		69°07.3'	S 21°12.5'		63°40.9'	S 20°04.8'		14°29.7'	S 6°08.3'				
8	22°05.5'	299°57.9'	N 23°14.3'	315°26.2'	N 19°59.4'		84°10.0'	S 21°12.5'		78°43.5'	S 20°04.8'		29°30.6'	S 6°07.8'				
9	37°08.0'	314°57.8'	N 23°14.5'	330°29.8'	N 19°58.8'		99°12.7'	S 21°12.6'		93°46.1'	S 20°04.8'		44°31.6'	S 6°07.2'				
10	52°10.5'	329°57.7'	N 23°14.6'	345°33.3'	N 19°58.1'		114°15.4'	S 21°12.6'		108°48.7'	S 20°04.9'		59°32.5'	S 6°06.6'				
11	67°12.9'	344°57.5'	N 23°14.7'	0°36.9'	N 19°57.4'		129°18.1'	S 21°12.7'		123°51.3'	S 20°04.9'		74°33.5'	S 6°06.0'				
12	82°15.4'	359°57.4'	N 23°14.9'	15°40.5'	N 19°56.7'		144°20.8'	S 21°12.7'		138°53.9'	S 20°04.9'		89°34.4'	S 6°05.4'				
13	97°17.8'	14°57.3'	N 23°15.0'	30°44.0'	N 19°56.0'		159°23.4'	S 21°12.8'		153°56.5'	S 20°05.0'		104°35.4'	S 6°04.9'				
14	112°20.3'	29°57.2'	N 23°15.1'	45°47.6'	N 19°55.3'		174°26.1'	S 21°12.8'		168°59.1'	S 20°05.0'		119°36.3'	S 6°04.3'				
15	127°22.8'	44°57.0'	N 23°15.2'	60°51.1'	N 19°54.7'		189°28.8'	S 21°12.9'		184°01.6'	S 20°05.0'		134°37.3'	S 6°03.7'				
16	142°25.2'	59°56.9'	N 23°15.4'	75°54.7'	N 19°54.0'		204°31.5'	S 21°12.9'		199°04.2'	S 20°05.0'		149°38.3'	S 6°03.1'				
17	157°27.7'	74°56.8'	N 23°15.5'	90°58.2'	N 19°53.3'		219°34.2'	S 21°13.0'		214°06.8'	S 20°05.1'		164°39.2'	S 6°02.6'				
18	172°30.2'	89°56.6'	N 23°15.6'	106°01.8'	N 19°52.6'		234°36.9'	S 21°13.0'		229°09.4'	S 20°05.1'		179°40.2'	S 6°02.0'				
19	187°32.6'	104°56.5'	N 23°15.7'	121°05.3'	N 19°52.0'		249°39.6'	S 21°13.1'		244°12.0'	S 20°05.1'		194°41.1'	S 6°01.4'				
20	202°35.1'	119°56.4'	N 23°15.8'	136°08.9'	N 19°51.3'		264°42.3'	S 21°13.1'		259°14.6'	S 20°05.2'		209°42.1'	S 6°00.8'				
21	217°37.6'	134°56.2'	N 23°16.0'	151°12.4'	N 19°50.6'		279°45.0'	S 21°13.2'		274°17.2'	S 20°05.2'		224°43.0'	S 6°00.3'				
22	232°40.0'	149°56.1'	N 23°16.1'	166°15.9'	N 19°50.0'		294°47.7'	S 21°13.2'		289°19.8'	S 20°05.2'		239°44.0'	S 5°59.7'				
23	247°42.5'	164°56.0'	N 23°16.2'	181°19.4'	N 19°49.3'		309°50.4'	S 21°13.2'		304°22.4'	S 20°05.3'		254°45.0'	S 5°59.1'				
		SD 15.7' d 0.1'		v 3.6' d -0.7'			v 2.7' d -0.0'			v 2.6' d -0.0'			v 1.0' d 0.6'					
Mer. pass.		12 h 0 m 11 s		10 h 58 m			2 h 24 m			2 h 46 m			6 h 2 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Aldebaran	-Venus	-Mars	+Fomalhaut	+Saturn	+Jupiter	+Altair
0	269°20.6'	S 8°56.2'	15.5'	11.4'	54.5'	92°55.8'	80°08.2'	78°40.5'		21°48.8'	48°34.7'	53°44.3'	57°06.8'
1	283°55.1'	S 8°44.8'	15.5'	11.5'	54.5'	92°28.3'	79°38.4'	78°09.4'		22°08.5'	49°04.6'	54°14.4'	57°30.0'
2	298°29.6'	S 8°33.3'	15.6'	11.5'	54.5'	92°00.8'	79°08.5'	77°38.3'		22°28.6'	49°34.6'	54°44.5'	57°53.3'
3	313°04.2'	S 8°21.8'	15.6'	11.5'	54.4'	91°33.3'	78°38.7'	77°07.2'		22°49.0'	50°04.6'	55°14.5'	58°16.6'
4	327°38.8'	S 8°10.3'	15.7'	11.5'	54.4'	91°05.8'	78°08.9'	76°36.1'		23°09.8'	50°34.5'	55°44.6'	58°40.0'
5	342°13.5'	S 7°58.8'	15.7'	11.6'	54.4'	90°38.3'	77°39.1'	76°05.1'		23°30.8'	51°04.4'	56°14.6'	59°03.4'
6	356°48.2'	S 7°47.2'	15.7'	11.6'	54.4'	90°10.8'	77°09.4'	75°34.0'		23°52.1'	51°34.3'	56°44.6'	59°26.9'
7	11°22.9'	S 7°35.6'	15.8'	11.6'	54.4'	89°43.4'	76°39.6'	75°03.0'		24°13.7'	52°04.2'	57°14.7'	59°50.4'
8	25°57.7'	S 7°24.0'	15.8'	11.6'	54.4'	89°15.9'	76°09.9'	74°32.0'		24°35.5'	52°34.1'	57°44.7'	60°13.9'
9	40°32.5'	S 7°12.3'	15.8'	11.7'	54.4'	88°48.5'	75°40.1'	74°01.1'		24°57.6'	53°04.0'	58°14.6'	60°37.5'
10	55°07.3'	S 7°00.7'	15.9'	11.7'	54.4'	88°21.1'	75°10.4'	73°30.1'		25°19.9'	53°33.9'	58°44.6'	61°01.2'
11	69°42.2'	S 6°49.0'	15.9'	11.7'	54.3'	87°53.7'	74°40.7'	72°59.1'	4°52.6'	25°42.5'	54°03.7'	59°14.6'	61°24.9'
12	84°17.1'	S 6°37.3'	15.9'	11.7'	54.3'	87°26.3'	74°11.0'	72°28.2'	5°17.0'	26°05.2'	54°33.6'	59°44.5'	61°48.6'
13	98°52.1'	S 6°25.6'	16.0'	11.7'	54.3'	86°59.0'	73°41.3'	71°57.3'	5°41.9'	26°28.2'	55°03.4'	60°14.5'	62°12.4'
14	113°27.0'	S 6°13.8'	16.0'	11.8'	54.3'	86°31.6'	73°11.6'	71°26.4'	6°07.3'	26°51.4'	55°33.2'	60°44.4'	62°36.2'
15	128°02.0'	S 6°02.0'	16.0'	11.8'	54.3'	86°04.3'	72°42.0'	70°55.5'	6°33.1'	27°14.7'	56°03.0'	61°14.3'	63°00.0'
16	142°37.1'	S 5°50.3'	16.1'	11.8'	54.3'	85°36.9'	72°12.3'	70°24.6'	6°59.1'	27°38.3'	56°32.8'	61°44.2'	63°23.9'
17	157°12.1'	S 5°38.5'	16.1'	11.8'	54.3'	85°09.6'	71°42.7'	69°53.8'	7°25.4'	28°02.0'	57°02.6'	62°14.1'	63°47.9'
18	171°47.2'	S 5°26.6'	16.1'	11.8'	54.3'	84°42.3'	71°13.1'	69°22.9'	7°51.9'	28°25.9'	57°32.4'	62°44.0'	64°11.8'
19	186°22.4'	S 5°14.8'	16.1'	11.9'	54.3'	84°15.0'	70°43.4'	68°52.1'	8°18.5'	28°49.9'	58°02.1'	63°13.9'	64°35.8'
20	200°57.5'	S 5°02.9'	16.2'	11.9'	54.3'	83°47.7'	70°13.8'	68°21.3'	8°45.3'	29°14.1'	58°31.9'	63°43.8'	64°59.8'
21	215°32.7'	S 4°51.1'	16.2'	11.9'	54.3'	83°20.4'	69°44.2'	67°50.5'	9°12.2'	29°38.4'	59°01.6'	64°13.7'	65°23.9'
22	230°07.9'	S 4°39.2'	16.2'	11.9'	54.2'	82°53.1'	69°14.6'	67°19.7'	9°39.2'	30°02.9'	59°31.4'	64°43.5'	65°48.0'
23	244°43.1'	S 4°27.3'	16.2'	11.9'	54.2'	82°25.8'	68°45.1'	66°48.9'	10°06.3'	30°27.5'	60°01.1'	65°13.4'	66°12.1'
Mer. pass.		6 h 13 m SD 14.9'		phase 53%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°03.7'	N 89°20.7'
Rigil Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	262°45.0'	179°55.8'	N 23°16.3'	196°23.0'	N 19°48.6'	324°53.1'	S 21°13.3'	319°25.0'	S 20°05.3'	269°45.9'	S 5°58.5'			
1	277°47.4'	194°55.7'	N 23°16.4'	211°26.5'	N 19°47.9'	339°55.8'	S 21°13.3'	334°27.6'	S 20°05.3'	284°46.9'	S 5°58.0'			
2	292°49.9'	209°55.6'	N 23°16.6'	226°30.0'	N 19°47.3'	354°58.5'	S 21°13.4'	349°30.2'	S 20°05.4'	299°47.8'	S 5°57.4'			
3	307°52.3'	224°55.4'	N 23°16.7'	241°33.5'	N 19°46.6'	10°01.2'	S 21°13.4'	4°32.8'	S 20°05.4'	314°48.8'	S 5°56.8'			
4	322°54.8'	239°55.3'	N 23°16.8'	256°37.0'	N 19°46.0'	25°03.9'	S 21°13.5'	19°35.3'	S 20°05.4'	329°49.7'	S 5°56.2'			
5	337°57.3'	254°55.2'	N 23°16.9'	271°40.5'	N 19°45.3'	40°06.6'	S 21°13.5'	34°37.9'	S 20°05.5'	344°50.7'	S 5°55.7'			
6	352°59.7'	269°55.0'	N 23°17.0'	286°44.0'	N 19°44.6'	55°09.3'	S 21°13.6'	49°40.5'	S 20°05.5'	359°51.7'	S 5°55.1'			
7	8°02.2'	284°54.9'	N 23°17.1'	301°47.5'	N 19°44.0'	70°12.0'	S 21°13.6'	64°43.1'	S 20°05.5'	14°52.6'	S 5°54.5'			
8	23°04.7'	299°54.8'	N 23°17.3'	316°51.0'	N 19°43.3'	85°14.7'	S 21°13.7'	79°45.7'	S 20°05.5'	29°53.6'	S 5°53.9'			
9	38°07.1'	314°54.6'	N 23°17.4'	331°54.5'	N 19°42.7'	100°17.4'	S 21°13.7'	94°48.3'	S 20°05.6'	44°54.5'	S 5°53.4'			
10	53°09.6'	329°54.5'	N 23°17.5'	346°58.0'	N 19°42.0'	115°20.1'	S 21°13.8'	109°50.9'	S 20°05.6'	59°55.5'	S 5°52.8'			
11	68°12.1'	344°54.4'	N 23°17.6'	2°01.4'	N 19°41.3'	130°22.8'	S 21°13.8'	124°53.5'	S 20°05.6'	74°56.5'	S 5°52.2'			
12	83°14.5'	359°54.2'	N 23°17.7'	17°04.9'	N 19°40.7'	145°25.5'	S 21°13.9'	139°56.1'	S 20°05.7'	89°57.4'	S 5°51.6'			
13	98°17.0'	14°54.1'	N 23°17.8'	32°08.4'	N 19°40.0'	160°28.2'	S 21°13.9'	154°58.7'	S 20°05.7'	104°58.4'	S 5°51.1'			
14	113°19.4'	29°54.0'	N 23°17.9'	47°11.9'	N 19°39.4'	175°30.9'	S 21°14.0'	170°01.3'	S 20°05.7'	119°59.3'	S 5°50.5'			
15	128°21.9'	44°53.8'	N 23°18.0'	62°15.3'	N 19°38.7'	190°33.6'	S 21°14.0'	185°03.9'	S 20°05.8'	135°00.3'	S 5°49.9'			
16	143°24.4'	59°53.7'	N 23°18.1'	77°18.8'	N 19°38.1'	205°36.3'	S 21°14.1'	200°06.5'	S 20°05.8'	150°01.3'	S 5°49.3'			
17	158°26.8'	74°53.6'	N 23°18.2'	92°22.2'	N 19°37.4'	220°39.0'	S 21°14.1'	215°09.1'	S 20°05.8'	165°02.2'	S 5°48.8'			
18	173°29.3'	89°53.4'	N 23°18.4'	107°25.7'	N 19°36.8'	235°41.7'	S 21°14.2'	230°11.7'	S 20°05.9'	180°03.2'	S 5°48.2'			
19	188°31.8'	104°53.3'	N 23°18.5'	122°29.1'	N 19°36.1'	250°44.4'	S 21°14.2'	245°14.3'	S 20°05.9'	195°04.1'	S 5°47.6'			
20	203°34.2'	119°53.2'	N 23°18.6'	137°32.6'	N 19°35.5'	265°47.1'	S 21°14.3'	260°16.9'	S 20°05.9'	210°05.1'	S 5°47.0'			
21	218°36.7'	134°53.0'	N 23°18.7'	152°36.0'	N 19°34.9'	280°49.8'	S 21°14.3'	275°19.5'	S 20°06.0'	225°06.1'	S 5°46.5'			
22	233°39.2'	149°52.9'	N 23°18.8'	167°39.5'	N 19°34.2'	295°52.5'	S 21°14.4'	290°22.1'	S 20°06.0'	240°07.0'	S 5°45.9'			
23	248°41.6'	164°52.8'	N 23°18.9'	182°42.9'	N 19°33.6'	310°55.2'	S 21°14.4'	305°24.7'	S 20°06.0'	255°08.0'	S 5°45.3'			
		SD 15.7' d 0.1'		v 3.5' d -0.7'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.0' d 0.6'				
Mer. pass.		12 h 0 m 24 s		10 h 52 m		2 h 20 m		2 h 42 m		6 h 1 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Venus	+Mars	+Fomalhaut	+Saturn	+Jupiter
0	259°18.3'	S 4°15.4'	16.3'	11.9'	54.2'	81°58.5'	74°59.6'	68°15.5'	66°18.1'	10°33.5'	30°52.2'	60°30.9'	65°43.2'
1	273°53.6'	S 4°03.4'	16.3'	11.9'	54.2'	81°31.3'	74°34.2'	67°45.9'	65°47.3'	11°00.7'	31°17.1'	61°00.6'	66°13.0'
2	288°28.9'	S 3°51.5'	16.3'	12.0'	54.2'	81°04.0'	74°08.9'	67°16.4'	65°16.6'	11°28.0'	31°42.0'	61°30.3'	66°42.9'
3	303°04.2'	S 3°39.6'	16.3'	12.0'	54.2'	80°36.8'	73°43.5'	66°46.8'	64°45.8'	11°55.4'	32°07.1'	62°00.0'	67°12.7'
4	317°39.5'	S 3°27.6'	16.3'	12.0'	54.2'	80°09.5'	73°18.2'	66°17.3'	64°15.1'	12°22.8'	32°32.3'	62°29.7'	67°42.5'
5	332°14.8'	S 3°15.6'	16.3'	12.0'	54.2'	79°42.3'	72°52.9'	65°47.7'	63°44.4'	12°50.2'	32°57.6'	62°59.4'	68°12.3'
6	346°50.1'	S 3°03.6'	16.4'	12.0'	54.2'	79°15.1'	72°27.7'	65°18.2'	63°13.7'	13°17.7'	33°23.0'	63°29.1'	68°42.1'
7	1°25.5'	S 2°51.6'	16.4'	12.0'	54.2'	78°47.9'	72°02.5'	64°48.7'	62°43.0'	13°45.2'	33°48.5'	63°58.8'	69°11.9'
8	16°00.9'	S 2°39.6'	16.4'	12.0'	54.2'	78°20.6'	71°37.3'	64°19.1'	62°12.3'	14°12.7'	34°14.1'	64°28.5'	69°41.7'
9	30°36.3'	S 2°27.6'	16.4'	12.0'	54.2'	77°53.4'	71°12.1'	63°49.6'	61°41.6'	14°40.2'	34°39.7'	64°58.2'	70°11.5'
10	45°11.7'	S 2°15.6'	16.4'	12.0'	54.2'	77°26.2'	70°46.9'	63°20.1'	61°10.9'	15°07.8'	35°05.5'	65°27.8'	70°41.3'
11	59°47.1'	S 2°03.6'	16.4'	12.0'	54.2'	76°59.0'	70°21.8'	62°50.6'	60°40.2'	15°35.4'	35°31.4'	65°57.5'	71°11.1'
12	74°22.5'	S 1°51.6'	16.4'	12.0'	54.2'	76°31.8'	69°56.7'	62°21.1'	60°09.6'	16°03.0'	35°57.3'	66°27.2'	71°40.9'
13	88°57.9'	S 1°39.5'	16.4'	12.0'	54.2'	76°04.6'	69°31.7'	61°51.6'	59°38.9'	16°30.6'	36°23.3'	66°56.9'	72°10.7'
14	103°33.4'	S 1°27.5'	16.4'	12.0'	54.2'	75°37.4'	69°06.6'	61°22.1'	59°08.3'	16°58.2'	36°49.4'	67°26.5'	72°40.5'
15	118°08.8'	S 1°15.5'	16.5'	12.0'	54.2'	75°10.2'	68°41.6'	60°52.6'	58°37.6'	17°25.9'	37°15.5'	67°56.2'	73°10.2'
16	132°44.3'	S 1°03.4'	16.5'	12.1'	54.1'	74°43.0'	68°16.6'	60°23.1'	58°07.0'	17°53.6'	37°41.7'	68°25.8'	73°40.0'
17	147°19.7'	S 0°51.4'	16.5'	12.1'	54.1'	74°15.8'	67°51.7'	59°53.6'	57°36.3'	18°21.3'	38°08.0'	68°55.5'	74°09.8'
18	161°55.2'	S 0°39.3'	16.5'	12.1'	54.1'	73°48.6'	67°26.8'	59°24.1'	57°05.7'	18°49.0'	38°34.4'	69°25.2'	74°39.6'
19	176°30.7'	S 0°27.2'	16.5'	12.1'	54.1'	73°21.4'	67°01.9'	58°54.7'	56°35.1'	19°16.7'	39°00.8'	69°54.8'	75°09.3'
20	191°06.1'	S 0°15.2'	16.5'	12.1'	54.1'	72°54.2'	66°37.0'	58°25.2'	56°04.5'	19°44.4'	39°27.3'	70°24.5'	75°39.1'
21	205°41.6'	S 0°03.1'	16.5'	12.1'	54.1'	72°27.1'	66°12.2'	57°55.7'	55°33.8'	20°12.1'	39°53.8'	70°54.2'	76°08.9'
22	220°17.0'	N 0°08.9'	16.5'	12.1'	54.1'	71°59.9'	65°47.4'	57°26.2'	55°03.2'	20°39.9'	40°20.4'	71°23.8'	76°38.6'
23	234°52.5'	N 0°21.0'	16.5'	12.1'	54.1'	71°32.7'	65°22.7'	56°56.7'	54°32.6'	21°07.6'	40°47.1'	71°53.5'	77°08.4'
Mer. pass.		6 h 54 m SD 14.8' phase 43%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.8'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°03.4'	N 89°20.7'
Rigel Kent	-0.0	139°44.7'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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°44.1'	179°52.6'	N 23°19.0'	197°46.3'	N 19°32.9'	325°57.9'	S 21°14.5'	320°27.2'	S 20°06.1'	270°09.0'	S 5°44.7'			
1	278°46.6'	194°52.5'	N 23°19.1'	212°49.7'	N 19°32.3'	341°00.6'	S 21°14.5'	335°29.8'	S 20°06.1'	285°09.9'	S 5°44.2'			
2	293°49.0'	209°52.4'	N 23°19.2'	227°53.2'	N 19°31.7'	356°03.3'	S 21°14.6'	350°32.4'	S 20°06.1'	300°10.9'	S 5°43.6'			
3	308°51.5'	224°52.2'	N 23°19.3'	242°56.6'	N 19°31.0'	11°06.0'	S 21°14.6'	5°35.0'	S 20°06.1'	315°11.8'	S 5°43.0'			
4	323°53.9'	239°52.1'	N 23°19.4'	257°60.0'	N 19°30.4'	26°08.7'	S 21°14.7'	20°37.6'	S 20°06.2'	330°12.8'	S 5°42.4'			
5	338°56.4'	254°52.0'	N 23°19.5'	273°03.4'	N 19°29.8'	41°11.4'	S 21°14.7'	35°40.2'	S 20°06.2'	345°13.8'	S 5°41.9'			
6	353°58.9'	269°51.8'	N 23°19.6'	288°06.8'	N 19°29.1'	56°14.1'	S 21°14.8'	50°42.8'	S 20°06.2'	0°14.7'	S 5°41.3'			
7	9°01.3'	284°51.7'	N 23°19.7'	303°10.2'	N 19°28.5'	71°16.8'	S 21°14.8'	65°45.4'	S 20°06.3'	15°15.7'	S 5°40.7'			
8	24°03.8'	299°51.6'	N 23°19.8'	318°13.6'	N 19°27.9'	86°19.6'	S 21°14.9'	80°48.0'	S 20°06.3'	30°16.7'	S 5°40.1'			
9	39°06.3'	314°51.4'	N 23°19.9'	333°17.0'	N 19°27.2'	101°22.3'	S 21°14.9'	95°50.6'	S 20°06.3'	45°17.6'	S 5°39.6'			
10	54°08.7'	329°51.3'	N 23°20.0'	348°20.4'	N 19°26.6'	116°25.0'	S 21°15.0'	110°53.2'	S 20°06.4'	60°18.6'	S 5°39.0'			
11	69°11.2'	344°51.2'	N 23°20.0'	3°23.8'	N 19°26.0'	131°27.7'	S 21°15.0'	125°55.8'	S 20°06.4'	75°19.6'	S 5°38.4'			
12	84°13.7'	359°51.0'	N 23°20.1'	18°27.2'	N 19°25.4'	146°30.4'	S 21°15.1'	140°58.4'	S 20°06.4'	90°20.5'	S 5°37.8'			
13	99°16.1'	14°50.9'	N 23°20.2'	33°30.5'	N 19°24.8'	161°33.1'	S 21°15.1'	156°01.0'	S 20°06.5'	105°21.5'	S 5°37.3'			
14	114°18.6'	29°50.8'	N 23°20.3'	48°33.9'	N 19°24.1'	176°35.8'	S 21°15.2'	171°03.6'	S 20°06.5'	120°22.5'	S 5°36.7'			
15	129°21.1'	44°50.6'	N 23°20.4'	63°37.3'	N 19°23.5'	191°38.5'	S 21°15.2'	186°06.2'	S 20°06.5'	135°23.4'	S 5°36.1'			
16	144°23.5'	59°50.5'	N 23°20.5'	78°40.6'	N 19°22.9'	206°41.2'	S 21°15.3'	201°08.8'	S 20°06.6'	150°24.4'	S 5°35.5'			
17	159°26.0'	74°50.3'	N 23°20.6'	93°44.0'	N 19°22.3'	221°43.9'	S 21°15.3'	216°11.4'	S 20°06.6'	165°25.4'	S 5°35.0'			
18	174°28.4'	89°50.2'	N 23°20.7'	108°47.4'	N 19°21.7'	236°46.6'	S 21°15.4'	231°14.0'	S 20°06.6'	180°26.3'	S 5°34.4'			
19	189°30.9'	104°50.1'	N 23°20.8'	123°50.7'	N 19°21.0'	251°49.3'	S 21°15.4'	246°16.6'	S 20°06.7'	195°27.3'	S 5°33.8'			
20	204°33.4'	119°49.9'	N 23°20.9'	138°54.1'	N 19°20.4'	266°52.0'	S 21°15.5'	261°19.2'	S 20°06.7'	210°28.3'	S 5°33.3'			
21	219°35.8'	134°49.8'	N 23°21.0'	153°57.4'	N 19°19.8'	281°54.7'	S 21°15.5'	276°21.8'	S 20°06.7'	225°29.2'	S 5°32.7'			
22	234°38.3'	149°49.7'	N 23°21.0'	169°00.8'	N 19°19.2'	296°57.5'	S 21°15.6'	291°24.4'	S 20°06.8'	240°30.2'	S 5°32.1'			
23	249°40.8'	164°49.5'	N 23°21.1'	184°04.1'	N 19°18.6'	312°00.2'	S 21°15.6'	306°27.0'	S 20°06.8'	255°31.2'	S 5°31.5'			
		SD 15.7' d 0.1'		v 3.4' d -0.6'		v 2.7' d -0.0'		v 2.6' d -0.0'		v 1.0' d 0.6'				
Mer. pass.		12 h 0 m 36 s		10 h 46 m		2 h 16 m		2 h 38 m		5 h 59 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Venus	+Mars	+Fomalhaut	+Saturn	+Altair
0	249°28.0'	N 0°33.0'	16.5'	12.1'	54.1'	71°05.5'	64°58.0'	56°27.3'	54°02.0'	21°35.4'	41°13.8'	72°23.1'	76°24.3'
1	264°03.4'	N 0°45.1'	16.5'	12.1'	54.1'	70°38.3'	64°33.3'	55°57.8'	53°31.4'	22°03.1'	41°40.6'	72°52.8'	76°49.0'
2	278°38.9'	N 0°57.2'	16.5'	12.1'	54.1'	70°11.1'	64°08.7'	55°28.3'	53°00.8'	22°30.9'	42°07.4'	73°22.5'	77°13.8'
3	293°14.3'	N 1°09.2'	16.4'	12.0'	54.1'	69°43.9'	63°44.0'	54°58.8'	52°30.2'	22°58.7'	42°34.3'	73°52.1'	77°38.6'
4	307°49.8'	N 1°21.3'	16.4'	12.0'	54.1'	69°16.7'	63°19.5'	54°29.3'	51°59.6'	23°26.5'	43°01.2'	74°21.8'	78°03.5'
5	322°25.2'	N 1°33.3'	16.4'	12.0'	54.1'	68°49.5'	62°54.9'	53°59.8'	51°29.0'	23°54.3'	43°28.2'	74°51.5'	78°28.3'
6	337°00.7'	N 1°45.3'	16.4'	12.0'	54.1'	68°22.3'	62°30.4'	53°30.4'	50°58.4'	24°22.1'	43°55.2'	75°21.2'	78°53.2'
7	351°36.1'	N 1°57.4'	16.4'	12.0'	54.1'	67°55.1'	62°06.0'	53°00.9'	50°27.8'	24°50.0'	44°22.3'	75°50.9'	79°18.1'
8	6°11.5'	N 2°09.4'	16.4'	12.0'	54.1'	67°27.9'	61°41.6'	52°31.4'	49°57.2'	25°17.8'	44°49.4'	76°20.5'	79°43.0'
9	20°46.9'	N 2°21.4'	16.4'	12.0'	54.1'	67°00.7'	61°17.2'	52°01.9'	49°26.6'	25°45.7'	45°16.5'	76°50.2'	80°07.9'
10	35°22.7'	N 2°33.4'	16.4'	12.0'	54.1'	66°33.4'	60°52.8'	51°32.4'	48°56.0'	26°13.5'	45°43.7'	77°19.9'	80°32.9'
11	49°57.7'	N 2°45.4'	16.4'	12.0'	54.2'	66°06.2'	60°28.6'	51°02.9'	48°25.4'	26°41.4'	46°11.0'	77°49.6'	80°57.8'
12	64°33.0'	N 2°57.4'	16.3'	12.0'	54.2'	65°39.0'	60°04.3'	50°33.4'	47°54.8'	27°09.3'	46°38.2'	78°19.3'	81°22.8'
13	79°08.4'	N 3°09.4'	16.3'	12.0'	54.2'	65°11.7'	59°40.1'	50°03.9'	47°24.2'	27°37.1'	47°05.6'	78°49.0'	81°47.8'
14	93°43.7'	N 3°21.4'	16.3'	12.0'	54.2'	64°44.5'	59°15.9'	49°34.4'	46°53.6'	28°05.0'	47°32.9'	79°18.8'	82°12.8'
15	108°19.0'	N 3°33.4'	16.3'	12.0'	54.2'	64°17.3'	58°51.8'	49°04.8'	46°23.0'	28°32.9'	48°00.3'	79°48.5'	82°37.8'
16	122°54.3'	N 3°45.3'	16.3'	11.9'	54.2'	63°50.0'	58°27.8'	48°35.3'	45°52.4'	29°00.9'	48°27.8'	80°18.2'	83°02.8'
17	137°29.6'	N 3°57.3'	16.3'	11.9'	54.2'	63°22.7'	58°03.7'	48°05.8'	45°21.8'	29°28.8'	48°55.3'	80°47.9'	83°27.9'
18	152°04.9'	N 4°09.2'	16.2'	11.9'	54.2'	62°55.5'	57°39.8'	47°36.3'	44°51.2'	29°56.7'	49°22.8'	81°17.7'	83°52.9'
19	166°40.1'	N 4°21.2'	16.2'	11.9'	54.2'	62°28.2'	57°15.8'	47°06.7'	44°20.5'	30°24.7'	49°50.3'	81°47.4'	84°18.0'
20	181°15.3'	N 4°33.1'	16.2'	11.9'	54.2'	62°00.9'	56°52.0'	46°37.2'	43°49.9'	30°52.6'	50°17.9'	82°17.2'	84°43.1'
21	195°50.5'	N 4°45.0'	16.2'	11.9'	54.2'	61°33.6'	56°28.2'	46°07.6'	43°19.3'	31°20.6'	50°45.6'	82°47.0'	85°08.2'
22	210°25.7'	N 4°56.8'	16.1'	11.9'	54.2'	61°06.3'	56°04.4'	45°38.1'	42°48.7'	31°48.6'	51°13.2'	83°16.7'	85°33.3'
23	225°00.8'	N 5°08.7'	16.1'	11.9'	54.2'	60°39.0'	55°40.7'	45°08.5'	42°18.0'	32°16.6'	51°40.9'	83°46.5'	85°58.4'
Mer. pass.													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.3'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.1'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°03.1'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	264°43.2'	179°49.4'	N 23°21.2'	199°07.4'	N 19°18.0'	327°02.9'	S 21°15.7'	321°29.6'	S 20°06.8'	270°32.1'	S 5°31.0'			
1	279°45.7'	194°49.3'	N 23°21.3'	214°10.8'	N 19°17.4'	342°05.6'	S 21°15.7'	336°32.2'	S 20°06.9'	285°33.1'	S 5°30.4'			
2	294°48.2'	209°49.1'	N 23°21.4'	229°14.1'	N 19°16.8'	357°08.3'	S 21°15.8'	351°34.8'	S 20°06.9'	300°34.1'	S 5°29.8'			
3	309°50.6'	224°49.0'	N 23°21.5'	244°17.4'	N 19°16.2'	12°11.0'	S 21°15.8'	6°37.4'	S 20°06.9'	315°35.0'	S 5°29.2'			
4	324°53.1'	239°48.9'	N 23°21.5'	259°20.7'	N 19°15.6'	27°13.7'	S 21°15.9'	21°40.0'	S 20°07.0'	330°36.0'	S 5°28.7'			
5	339°55.5'	254°48.7'	N 23°21.6'	274°24.0'	N 19°15.0'	42°16.4'	S 21°15.9'	36°42.6'	S 20°07.0'	345°37.0'	S 5°28.1'			
6	354°58.0'	269°48.6'	N 23°21.7'	289°27.4'	N 19°14.4'	57°19.1'	S 21°16.0'	51°45.2'	S 20°07.0'	0°38.0'	S 5°27.5'			
7	10°00.5'	284°48.5'	N 23°21.8'	304°30.7'	N 19°13.8'	72°21.9'	S 21°16.0'	66°47.8'	S 20°07.1'	15°38.9'	S 5°27.0'			
8	25°02.9'	299°48.3'	N 23°21.9'	319°34.0'	N 19°13.2'	87°24.6'	S 21°16.1'	81°50.4'	S 20°07.1'	30°39.9'	S 5°26.4'			
9	40°05.4'	314°48.2'	N 23°21.9'	334°37.3'	N 19°12.6'	102°27.3'	S 21°16.1'	96°53.0'	S 20°07.1'	45°40.9'	S 5°25.8'			
10	55°07.9'	329°48.1'	N 23°22.0'	349°40.6'	N 19°12.0'	117°30.0'	S 21°16.2'	111°55.6'	S 20°07.2'	60°41.8'	S 5°25.2'			
11	70°10.3'	344°47.9'	N 23°22.1'	4°43.8'	N 19°11.4'	132°32.7'	S 21°16.2'	126°58.2'	S 20°07.2'	75°42.8'	S 5°24.7'			
12	85°12.8'	359°47.8'	N 23°22.2'	19°47.1'	N 19°10.8'	147°35.4'	S 21°16.3'	142°00.8'	S 20°07.2'	90°43.8'	S 5°24.1'			
13	100°15.3'	14°47.6'	N 23°22.2'	34°50.4'	N 19°10.2'	162°38.1'	S 21°16.3'	157°03.4'	S 20°07.3'	105°44.8'	S 5°23.5'			
14	115°17.7'	29°47.5'	N 23°22.3'	49°53.7'	N 19°09.6'	177°40.8'	S 21°16.4'	172°06.0'	S 20°07.3'	120°45.7'	S 5°22.9'			
15	130°20.2'	44°47.4'	N 23°22.4'	64°57.0'	N 19°09.0'	192°43.6'	S 21°16.4'	187°08.6'	S 20°07.3'	135°46.7'	S 5°22.4'			
16	145°22.7'	59°47.2'	N 23°22.5'	80°00.2'	N 19°08.5'	207°46.3'	S 21°16.5'	202°11.2'	S 20°07.3'	150°47.7'	S 5°21.8'			
17	160°25.1'	74°47.1'	N 23°22.5'	95°03.5'	N 19°07.9'	222°49.0'	S 21°16.5'	217°13.8'	S 20°07.4'	165°48.7'	S 5°21.2'			
18	175°27.6'	89°47.0'	N 23°22.6'	110°06.8'	N 19°07.3'	237°51.7'	S 21°16.6'	232°16.4'	S 20°07.4'	180°49.6'	S 5°20.7'			
19	190°30.0'	104°46.8'	N 23°22.7'	125°10.0'	N 19°06.7'	252°54.4'	S 21°16.6'	247°19.0'	S 20°07.4'	195°50.6'	S 5°20.1'			
20	205°32.5'	119°46.7'	N 23°22.8'	140°13.3'	N 19°06.1'	267°57.1'	S 21°16.7'	262°21.6'	S 20°07.5'	210°51.6'	S 5°19.5'			
21	220°35.0'	134°46.6'	N 23°22.8'	155°16.5'	N 19°05.6'	282°59.8'	S 21°16.7'	277°24.2'	S 20°07.5'	225°52.5'	S 5°18.9'			
22	235°37.4'	149°46.4'	N 23°22.9'	170°19.8'	N 19°05.0'	298°02.6'	S 21°16.8'	292°26.8'	S 20°07.5'	240°53.5'	S 5°18.4'			
23	250°39.9'	164°46.3'	N 23°23.0'	185°23.0'	N 19°04.4'	313°05.3'	S 21°16.8'	307°29.4'	S 20°07.6'	255°54.5'	S 5°17.8'			
		SD 15.7' d 0.1'		v 3.3' d -0.6'		v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'				
Mer. pass.		12 h 0 m 49 s		10 h 41 m		2 h 11 m		2 h 34 m		5 h 57 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Venus	+Mars	+Fomalhaut	+Saturn	+Altair
0	239°36.0'	N 5°20.6'	16.1'	11.8'	54.2'	60°11.7'	55°17.0'	44°39.0'	41°47.4'	32°44.6'	52°08.6'	84°16.3'	86°23.6'
1	254°11.1'	N 5°32.4'	16.1'	11.8'	54.2'	59°44.4'	54°53.5'	44°09.4'	41°16.8'	33°12.6'	52°36.4'	84°46.1'	86°48.7'
2	268°46.1'	N 5°44.2'	16.0'	11.8'	54.2'	59°17.1'	54°29.9'	43°39.8'	40°46.1'	33°40.6'	53°04.2'	85°15.9'	87°13.9'
3	283°21.2'	N 5°56.0'	16.0'	11.8'	54.2'	58°49.7'	54°06.4'	43°10.2'	40°15.5'	34°08.6'	53°32.0'	85°45.7'	87°39.1'
4	297°56.2'	N 6°07.8'	16.0'	11.8'	54.2'	58°22.4'	53°43.0'	42°40.6'	39°44.8'	34°36.7'	53°59.9'	86°15.6'	88°04.3'
5	312°31.2'	N 6°19.6'	16.0'	11.7'	54.2'	57°55.0'	53°19.7'	42°11.0'	39°14.1'	35°04.8'	54°27.8'	86°45.4'	88°29.5'
6	327°06.1'	N 6°31.3'	15.9'	11.7'	54.3'	57°27.6'	52°56.4'	41°41.4'	38°43.5'	35°32.8'	54°55.7'	87°15.3'	88°54.7'
7	341°41.0'	N 6°43.0'	15.9'	11.7'	54.3'	57°00.2'	52°33.2'	41°11.8'	38°12.8'	36°00.9'	55°23.7'	87°45.1'	89°19.9'
8	356°15.9'	N 6°54.7'	15.9'	11.7'	54.3'	56°32.8'	52°10.1'	40°42.2'	37°42.1'	36°29.0'	55°51.7'	88°15.0'	89°45.1'
9	10°50.8'	N 7°06.4'	15.8'	11.7'	54.3'	56°05.4'	51°47.0'	40°12.5'	37°11.4'	36°57.1'	56°19.7'	88°44.9'	90°10.4'
10	25°25.6'	N 7°18.1'	15.8'	11.6'	54.3'	55°38.0'	51°24.0'	39°42.9'	36°40.7'	37°25.3'	56°47.8'	89°14.8'	90°35.6'
11	40°00.4'	N 7°29.7'	15.8'	11.6'	54.3'	55°10.6'	51°01.1'	39°13.2'	36°10.0'	37°53.4'	57°15.8'	89°44.7'	91°00.9'
12	54°35.2'	N 7°41.3'	15.7'	11.6'	54.3'	54°43.1'	50°38.2'	38°43.6'	35°39.3'	38°21.6'	57°44.0'	90°14.6'	91°26.1'
13	69°09.9'	N 7°52.9'	15.7'	11.6'	54.3'	54°15.7'	50°15.5'	38°13.9'	35°08.6'	38°49.7'	58°12.1'	90°44.6'	91°51.4'
14	83°44.5'	N 8°04.4'	15.6'	11.5'	54.3'	53°48.2'	49°52.8'	37°44.2'	34°37.8'	39°17.9'	58°40.3'	91°14.5'	92°16.7'
15	98°19.2'	N 8°16.0'	15.6'	11.5'	54.3'	53°20.7'	49°30.2'	37°14.5'	34°07.1'	39°46.1'	59°08.5'	91°44.5'	92°42.0'
16	112°53.8'	N 8°27.5'	15.6'	11.5'	54.3'	52°53.2'	49°07.6'	36°44.8'	33°36.3'	40°14.3'	59°36.7'	92°14.4'	93°07.3'
17	127°28.3'	N 8°39.0'	15.5'	11.4'	54.4'	52°25.7'	48°45.2'	36°15.1'	33°05.6'	40°42.6'	60°05.0'	92°44.4'	93°32.6'
18	142°02.9'	N 8°50.4'	15.5'	11.4'	54.4'	51°58.2'	48°22.9'	35°45.4'	32°34.8'	41°10.8'	60°33.3'	93°14.4'	93°57.9'
19	156°37.3'	N 9°01.8'	15.4'	11.4'	54.4'	51°30.6'	48°00.6'	35°15.7'	32°04.0'	41°39.1'	61°01.6'	93°44.5'	94°23.2'
20	171°11.8'	N 9°13.2'	15.4'	11.4'	54.4'	51°03.1'	47°38.4'	34°45.9'	31°33.2'	42°07.4'	61°29.9'	94°14.5'	94°48.6'
21	185°46.1'	N 9°24.6'	15.3'	11.3'	54.4'	50°35.5'	47°16.4'	34°16.2'	31°02.4'	42°35.7'	61°58.3'	94°44.5'	95°13.9'
22	200°20.5'	N 9°35.9'	15.3'	11.3'	54.4'	50°07.9'	46°54.4'	33°46.4'	30°31.6'	43°04.0'	62°26.7'	95°14.6'	95°39.3'
23	214°54.8'	N 9°47.2'	15.2'	11.3'	54.4'	49°40.3'	46°32.6'	33°16.6'	30°00.8'	43°32.3'	62°55.2'	95°44.7'	96°04.6'
Mer. pass.		8 h 15 m SD 14.8' phase 25%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°02.8'	N 89°20.7'
Rigel Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.8'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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°42.4'	179°46.2'	N 23°23.0'	200°26.2'	N 19°03.8'	328°08.0'	S 21°16.9'	322°32.0'	S 20°07.6'	270°55.5'	S 5°17.2'			
1	280°44.8'	194°46.0'	N 23°23.1'	215°29.5'	N 19°03.3'	343°10.7'	S 21°16.9'	337°34.6'	S 20°07.6'	285°56.4'	S 5°16.7'			
2	295°47.3'	209°45.9'	N 23°23.2'	230°32.7'	N 19°02.7'	358°13.4'	S 21°17.0'	352°37.2'	S 20°07.7'	300°57.4'	S 5°16.1'			
3	310°49.8'	224°45.7'	N 23°23.2'	245°35.9'	N 19°02.1'	13°16.1'	S 21°17.0'	7°39.8'	S 20°07.7'	315°58.4'	S 5°15.5'			
4	325°52.2'	239°45.6'	N 23°23.3'	260°39.2'	N 19°01.5'	28°18.9'	S 21°17.1'	22°42.4'	S 20°07.7'	330°59.4'	S 5°14.9'			
5	340°54.7'	254°45.5'	N 23°23.4'	275°42.4'	N 19°01.0'	43°21.6'	S 21°17.1'	37°45.0'	S 20°07.8'	346°00.3'	S 5°14.4'			
6	355°57.2'	269°45.3'	N 23°23.4'	290°45.6'	N 19°00.4'	58°24.3'	S 21°17.2'	52°47.6'	S 20°07.8'	1°01.3'	S 5°13.8'			
7	10°59.6'	284°45.2'	N 23°23.5'	305°48.8'	N 18°59.8'	73°27.0'	S 21°17.2'	67°50.2'	S 20°07.8'	16°02.3'	S 5°13.2'			
8	26°02.1'	299°45.1'	N 23°23.5'	320°52.0'	N 18°59.3'	88°29.7'	S 21°17.3'	82°52.8'	S 20°07.9'	31°03.3'	S 5°12.7'			
9	41°04.5'	314°44.9'	N 23°23.6'	335°55.2'	N 18°58.7'	103°32.4'	S 21°17.3'	97°55.4'	S 20°07.9'	46°04.3'	S 5°12.1'			
10	56°07.0'	329°44.8'	N 23°23.7'	350°58.4'	N 18°58.2'	118°35.2'	S 21°17.4'	112°58.0'	S 20°07.9'	61°05.2'	S 5°11.5'			
11	71°09.5'	344°44.7'	N 23°23.7'	6°01.6'	N 18°57.6'	133°37.9'	S 21°17.4'	128°00.6'	S 20°08.0'	76°06.2'	S 5°10.9'			
12	86°11.9'	359°44.5'	N 23°23.8'	21°04.8'	N 18°57.0'	148°40.6'	S 21°17.5'	143°03.3'	S 20°08.0'	91°07.2'	S 5°10.4'			
13	101°14.4'	14°44.4'	N 23°23.8'	36°08.0'	N 18°56.5'	163°43.3'	S 21°17.5'	158°05.9'	S 20°08.0'	106°08.2'	S 5°09.8'			
14	116°16.9'	29°44.2'	N 23°23.9'	51°11.1'	N 18°55.9'	178°46.0'	S 21°17.6'	173°08.5'	S 20°08.1'	121°09.1'	S 5°09.2'			
15	131°19.3'	44°44.1'	N 23°24.0'	66°14.3'	N 18°55.4'	193°48.8'	S 21°17.6'	188°11.1'	S 20°08.1'	136°10.1'	S 5°08.7'			
16	146°21.8'	59°44.0'	N 23°24.0'	81°17.5'	N 18°54.8'	208°51.5'	S 21°17.7'	203°13.7'	S 20°08.1'	151°11.1'	S 5°08.1'			
17	161°24.3'	74°43.8'	N 23°24.1'	96°20.7'	N 18°54.3'	223°54.2'	S 21°17.7'	218°16.3'	S 20°08.2'	166°12.1'	S 5°07.5'			
18	176°26.7'	89°43.7'	N 23°24.1'	111°23.8'	N 18°53.7'	238°56.9'	S 21°17.8'	233°18.9'	S 20°08.2'	181°13.1'	S 5°06.9'			
19	191°29.2'	104°43.6'	N 23°24.2'	126°27.0'	N 18°53.2'	253°59.6'	S 21°17.8'	248°21.5'	S 20°08.2'	196°14.0'	S 5°06.4'			
20	206°31.6'	119°43.4'	N 23°24.2'	141°30.1'	N 18°52.6'	269°02.4'	S 21°17.9'	263°24.1'	S 20°08.3'	211°15.0'	S 5°05.8'			
21	221°34.1'	134°43.3'	N 23°24.3'	156°33.3'	N 18°52.1'	284°05.1'	S 21°17.9'	278°26.7'	S 20°08.3'	226°16.0'	S 5°05.2'			
22	236°36.6'	149°43.2'	N 23°24.3'	171°36.4'	N 18°51.5'	299°07.8'	S 21°18.0'	293°29.3'	S 20°08.3'	241°17.0'	S 5°04.7'			
23	251°39.0'	164°43.0'	N 23°24.4'	186°39.6'	N 18°51.0'	314°10.5'	S 21°18.0'	308°31.9'	S 20°08.4'	256°18.0'	S 5°04.1'			
		SD 15.7' d 0.1'		v 3.2' d -0.6'		v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'				
Mer. pass.		12 h 1 m 2 s		10 h 36 m		2 h 7 m		2 h 29 m		5 h 56 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Rigel	-Aldebaran	-Venus	+Mars	+Fomalhaut	+Achernar	+Saturn
0	229°29.0'	N 9°58.5'	15.2'	11.2'	54.4'	49°12.7'	46°10.8'	32°46.9'	29°29.9'	44°00.6'	63°23.6'		96°14.8'
1	244°03.2'	N 10°09.7'	15.2'	11.2'	54.4'	48°45.1'	45°49.2'	32°17.1'	28°59.1'	44°29.0'	63°52.1'		96°44.9'
2	258°37.4'	N 10°20.9'	15.1'	11.2'	54.5'	48°17.4'	45°27.6'	31°47.3'	28°28.2'	44°57.4'	64°20.6'		97°15.0'
3	273°11.5'	N 10°32.0'	15.1'	11.1'	54.5'	47°49.8'	45°06.2'	31°17.5'	27°57.4'	45°25.8'	64°49.2'		97°45.1'
4	287°45.5'	N 10°43.2'	15.0'	11.1'	54.5'	47°22.1'	44°44.9'	30°47.7'	27°26.5'	45°54.2'	65°17.7'		98°15.3'
5	302°19.5'	N 10°54.3'	15.0'	11.1'	54.5'	46°54.4'	44°23.7'	30°17.8'	26°55.6'	46°22.6'	65°46.3'		98°45.5'
6	316°53.5'	N 11°05.3'	14.9'	11.0'	54.5'	46°26.7'	44°02.7'	29°48.0'	26°24.7'	46°51.1'	66°15.0'	69°15.3'	99°15.7'
7	331°27.4'	N 11°16.3'	14.8'	11.0'	54.5'	45°59.0'	43°41.7'	29°18.1'	25°53.7'	47°19.6'	66°43.6'	69°30.3'	99°45.9'
8	346°01.2'	N 11°27.3'	14.8'	10.9'	54.5'	45°31.2'	43°21.0'	28°48.3'	25°22.8'	47°48.0'	67°12.3'	69°45.4'	100°16.1'
9	0°35.0'	N 11°38.2'	14.7'	10.9'	54.6'	45°03.4'	43°00.3'	28°18.4'	24°51.9'	48°16.5'	67°41.0'	70°00.6'	100°46.4'
10	15°08.8'	N 11°49.1'	14.7'	10.9'	54.6'	44°35.7'	42°39.8'	27°48.6'	24°20.9'	48°45.1'	68°09.8'	70°15.9'	101°16.6'
11	29°42.5'	N 11°60.0'	14.6'	10.8'	54.6'	44°07.9'	42°19.4'	27°18.7'	23°49.9'	49°13.6'	68°38.5'	70°31.2'	101°46.9'
12	44°16.1'	N 12°10.8'	14.6'	10.8'	54.6'	43°40.0'	41°59.2'	26°48.8'	23°18.9'	49°42.2'	69°07.3'	70°46.2'	102°17.2'
13	58°49.6'	N 12°21.5'	14.5'	10.7'	54.6'	43°12.2'	41°39.1'	26°18.9'	22°47.9'	50°10.8'	69°36.2'	71°02.1'	102°47.5'
14	73°23.2'	N 12°32.3'	14.5'	10.7'	54.6'	42°44.3'	41°19.1'	25°49.0'	22°16.9'	50°39.4'	70°05.0'	71°17.7'	103°17.9'
15	87°56.6'	N 12°42.9'	14.4'	10.6'	54.6'	42°16.4'	40°59.4'	25°19.1'	21°45.9'	51°08.0'	70°33.9'	71°33.3'	103°48.2'
16	102°30.0'	N 12°53.6'	14.3'	10.6'	54.7'	41°48.5'	40°39.8'	24°49.1'	21°14.8'	51°36.6'	71°02.8'	71°49.1'	104°18.6'
17	117°03.3'	N 13°04.2'	14.3'	10.5'	54.7'	41°20.6'	40°20.3'	24°19.2'	20°43.8'	52°05.3'	71°31.7'	72°04.9'	104°49.0'
18	131°36.6'	N 13°14.7'	14.2'	10.5'	54.7'	40°52.7'	40°01.1'	23°49.3'	20°12.7'	52°34.0'	72°00.7'	72°20.7'	105°19.4'
19	146°09.8'	N 13°25.2'	14.1'	10.4'	54.7'	40°24.7'	39°42.0'	23°19.4'	19°41.6'	53°02.7'	72°29.6'	72°36.7'	105°49.9'
20	160°43.0'	N 13°35.6'	14.1'	10.4'	54.7'		39°23.1'	22°49.4'	19°10.5'	53°31.4'	72°58.6'	72°52.7'	106°20.3'
21	175°16.1'	N 13°46.0'	14.0'	10.3'	54.7'		39°04.4'	22°19.5'	18°39.4'	54°00.2'	73°27.7'	73°08.8'	106°50.8'
22	189°49.1'	N 13°56.3'	14.0'	10.3'	54.8'		38°45.9'	21°49.6'	18°08.2'	54°28.9'	73°56.7'	73°24.9'	107°21.3'
23	204°22.0'	N 14°06.6'	13.9'	10.2'	54.8'		38°27.6'	21°19.6'	17°37.1'	54°57.7'	74°25.8'	73°41.2'	107°51.8'
Mer. pass.		8 h 58 m SD 14.8'			phase 17%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.6'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°02.4'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	266°41.5'	179°42.9'	N 23°24.4'	201°42.7'	N 18°50.5'	329°13.2'	S 21°18.1'	323°34.5'	S 20°08.4'	271°18.9'	S 5°03.5'	
1	281°44.0'	194°42.7'	N 23°24.5'	216°45.8'	N 18°49.9'	344°16.0'	S 21°18.2'	338°37.1'	S 20°08.4'	286°19.9'	S 5°03.0'	
2	296°46.4'	209°42.6'	N 23°24.5'	231°49.0'	N 18°49.4'	359°18.7'	S 21°18.2'	353°39.7'	S 20°08.5'	301°20.9'	S 5°02.4'	
3	311°48.9'	224°42.5'	N 23°24.6'	246°52.1'	N 18°48.9'	14°21.4'	S 21°18.3'	8°42.3'	S 20°08.5'	316°21.9'	S 5°01.8'	
4	326°51.4'	239°42.3'	N 23°24.6'	261°55.2'	N 18°48.3'	29°24.1'	S 21°18.3'	23°44.9'	S 20°08.5'	331°22.9'	S 5°01.2'	
5	341°53.8'	254°42.2'	N 23°24.7'	276°58.3'	N 18°47.8'	44°26.9'	S 21°18.4'	38°47.5'	S 20°08.6'	346°23.9'	S 5°00.7'	
6	356°56.3'	269°42.1'	N 23°24.7'	292°01.4'	N 18°47.3'	59°29.6'	S 21°18.4'	53°50.1'	S 20°08.6'	1°24.8'	S 5°00.1'	
7	11°58.8'	284°41.9'	N 23°24.8'	307°04.6'	N 18°46.7'	74°32.3'	S 21°18.5'	68°52.7'	S 20°08.6'	16°25.8'	S 4°59.5'	
8	27°01.2'	299°41.8'	N 23°24.8'	322°07.7'	N 18°46.2'	89°35.0'	S 21°18.5'	83°55.4'	S 20°08.7'	31°26.8'	S 4°59.0'	
9	42°03.7'	314°41.6'	N 23°24.9'	337°10.8'	N 18°45.7'	104°37.8'	S 21°18.6'	98°58.0'	S 20°08.7'	46°27.8'	S 4°58.4'	
10	57°06.1'	329°41.5'	N 23°24.9'	352°13.9'	N 18°45.1'	119°40.5'	S 21°18.6'	114°00.6'	S 20°08.8'	61°28.8'	S 4°57.8'	
11	72°08.6'	344°41.4'	N 23°24.9'	7°16.9'	N 18°44.6'	134°43.2'	S 21°18.7'	129°03.2'	S 20°08.8'	76°29.8'	S 4°57.3'	
12	87°11.1'	359°41.2'	N 23°25.0'	22°20.0'	N 18°44.1'	149°45.9'	S 21°18.7'	144°05.8'	S 20°08.8'	91°30.7'	S 4°56.7'	
13	102°13.5'	14°41.1'	N 23°25.0'	37°23.1'	N 18°43.6'	164°48.6'	S 21°18.8'	159°08.4'	S 20°08.9'	106°31.7'	S 4°56.1'	
14	117°16.0'	29°41.0'	N 23°25.1'	52°26.2'	N 18°43.1'	179°51.4'	S 21°18.8'	174°11.0'	S 20°08.9'	121°32.7'	S 4°55.6'	
15	132°18.5'	44°40.8'	N 23°25.1'	67°29.3'	N 18°42.5'	194°54.1'	S 21°18.9'	189°13.6'	S 20°08.9'	136°33.7'	S 4°55.0'	
16	147°20.9'	59°40.7'	N 23°25.1'	82°32.3'	N 18°42.0'	209°56.8'	S 21°18.9'	204°16.2'	S 20°09.0'	151°34.7'	S 4°54.4'	
17	162°23.4'	74°40.6'	N 23°25.2'	97°35.4'	N 18°41.5'	224°59.6'	S 21°19.0'	219°18.8'	S 20°09.0'	166°35.7'	S 4°53.8'	
18	177°25.9'	89°40.4'	N 23°25.2'	112°38.5'	N 18°41.0'	240°02.3'	S 21°19.0'	234°21.4'	S 20°09.0'	181°36.6'	S 4°53.3'	
19	192°28.3'	104°40.3'	N 23°25.3'	127°41.5'	N 18°40.5'	255°05.0'	S 21°19.1'	249°24.0'	S 20°09.1'	196°37.6'	S 4°52.7'	
20	207°30.8'	119°40.1'	N 23°25.3'	142°44.6'	N 18°40.0'	270°07.7'	S 21°19.1'	264°26.6'	S 20°09.1'	211°38.6'	S 4°52.1'	
21	222°33.3'	134°40.0'	N 23°25.3'	157°47.6'	N 18°39.5'	285°10.5'	S 21°19.2'	279°29.2'	S 20°09.1'	226°39.6'	S 4°51.6'	
22	237°35.7'	149°39.9'	N 23°25.4'	172°50.7'	N 18°39.0'	300°13.2'	S 21°19.2'	294°31.9'	S 20°09.2'	241°40.6'	S 4°51.0'	
23	252°38.2'	164°39.7'	N 23°25.4'	187°53.7'	N 18°38.5'	315°15.9'	S 21°19.3'	309°34.5'	S 20°09.2'	256°41.6'	S 4°50.4'	
		SD 15.7' d 0.0'		v 3.1' d -0.5'		v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'		
Mer. pass.		12 h 1 m 16 s		10 h 31 m		2 h 3 m		2 h 25 m		5 h 54 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Venus	+Mars	+Achernar	+Fomalhaut	+Altair
0	218°54.9'	N 14°16.9'	13.8'	10.2'	54.8'	41°26.1'	38°09.5'	20°49.7'	17°05.9'	55°26.5'	73°57.4'	74°54.9'	106°39.0'
1	233°27.8'	N 14°27.0'	13.8'	10.1'	54.8'	41°01.7'	37°51.6'	20°19.7'	16°34.7'	55°55.4'	74°13.8'	75°24.1'	107°04.3'
2	248°00.5'	N 14°37.2'	13.7'	10.1'	54.8'	40°37.5'	37°33.9'	19°49.8'	16°03.6'	56°24.2'	74°30.2'	75°53.3'	107°29.6'
3	262°33.2'	N 14°47.2'	13.6'	10.0'	54.8'	40°13.4'	37°16.4'	19°19.9'	15°32.3'	56°53.1'	74°46.7'	76°22.5'	107°55.0'
4	277°05.8'	N 14°57.2'	13.6'	10.0'	54.9'	39°49.4'	36°59.2'	18°50.0'	15°01.1'	57°22.0'	75°03.3'	76°51.7'	108°20.3'
5	291°38.4'	N 15°07.2'	13.5'	9.9'	54.9'	39°25.5'	36°42.2'	18°20.1'	14°29.9'	57°51.0'	75°19.9'	77°20.9'	108°45.6'
6	306°10.9'	N 15°17.1'	13.4'	9.8'	54.9'	39°01.7'	36°25.4'	17°50.2'	13°58.6'	58°19.9'	75°36.5'	77°50.2'	109°10.9'
7	320°43.3'	N 15°26.9'	13.4'	9.8'	54.9'	38°38.1'	36°08.9'	17°20.3'	13°27.3'	58°48.9'	75°53.3'	78°19.5'	109°36.2'
8	335°15.7'	N 15°36.7'	13.3'	9.7'	54.9'	38°14.5'	35°52.7'	16°50.4'	12°56.0'	59°17.9'	76°10.1'	78°48.8'	110°01.4'
9	349°48.0'	N 15°46.4'	13.2'	9.7'	54.9'	37°51.1'	35°36.7'	16°20.6'	12°24.7'	59°46.9'	76°26.9'	79°18.2'	110°26.7'
10	4°20.2'	N 15°56.1'	13.1'	9.6'	55.0'	37°27.8'	35°20.9'	15°50.8'	11°53.4'	60°15.9'	76°43.8'	79°47.5'	110°51.9'
11	18°52.3'	N 16°05.7'	13.1'	9.5'	55.0'	37°04.6'	35°05.5'	15°21.0'	11°22.1'	60°45.0'	77°00.8'	80°17.0'	111°17.2'
12	33°24.4'	N 16°15.2'	13.0'	9.5'	55.0'	36°41.6'		14°51.3'	10°50.7'	61°14.1'	77°17.9'	80°46.4'	111°42.4'
13	47°56.4'	N 16°24.6'	12.9'	9.4'	55.0'	36°18.8'		14°21.6'	10°19.4'	61°43.2'	77°34.9'	81°15.8'	112°07.6'
14	62°28.3'	N 16°34.0'	12.9'	9.3'	55.0'	35°56.0'		13°52.0'	9°48.0'	62°12.3'	77°52.1'	81°45.3'	112°32.8'
15	77°00.2'	N 16°43.4'	12.8'	9.3'	55.1'	35°33.5'		13°22.4'	9°16.6'	62°41.5'	78°09.3'	82°14.8'	112°57.9'
16	91°31.9'	N 16°52.6'	12.7'	9.2'	55.1'	35°11.1'		12°52.9'	8°45.2'	63°10.7'	78°26.5'	82°44.4'	113°23.1'
17	106°03.7'	N 17°01.8'	12.6'	9.1'	55.1'	34°48.8'		12°23.4'	8°13.9'	63°39.9'	78°43.8'	83°13.9'	113°48.2'
18	120°35.3'	N 17°10.9'	12.6'	9.0'	55.1'	34°26.8'		11°54.1'	7°42.4'	64°09.1'	79°01.2'	83°43.5'	114°13.3'
19	135°06.8'	N 17°20.0'	12.5'	9.0'	55.1'	34°04.9'		11°24.9'	7°11.0'	64°38.4'	79°18.6'	84°13.1'	114°38.4'
20	149°38.3'	N 17°28.9'	12.4'	8.9'	55.2'	33°43.2'		10°55.8'	6°39.6'	65°07.7'	79°36.0'	84°42.8'	115°03.4'
21	164°09.7'	N 17°37.8'	12.3'	8.8'	55.2'	33°21.7'		10°26.8'	6°08.3'	65°37.0'	79°53.5'	85°12.4'	115°28.4'
22	178°41.1'	N 17°46.7'	12.3'	8.8'	55.2'	33°00.4'		9°58.0'	5°36.9'	66°06.3'	80°11.1'	85°42.1'	115°53.5'
23	193°12.3'	N 17°55.4'	12.2'	8.7'	55.2'	32°39.3'		9°29.4'	5°05.5'	66°35.7'	80°28.7'	86°11.8'	116°18.4'
Mer. pass.		9 h 42 m SD 14.9'		phase 11%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°02.0'	N 89°20.7'
Rigel Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.5'				

Friday 19 June 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	267°40.6'	179°39.6'	N 23°25.4'	202°56.8'	N 18°38.0'	330°18.6'	S 21°19.4'	324°37.1'	S 20°09.2'	271°42.6'	S 4°49.9'			
1	282°43.1'	194°39.5'	N 23°25.5'	217°59.8'	N 18°37.5'	345°21.4'	S 21°19.4'	339°39.7'	S 20°09.3'	286°43.6'	S 4°49.3'			
2	297°45.6'	209°39.3'	N 23°25.5'	233°02.8'	N 18°37.0'	0°24.1'	S 21°19.5'	354°42.3'	S 20°09.3'	301°44.5'	S 4°48.7'			
3	312°48.0'	224°39.2'	N 23°25.5'	248°05.9'	N 18°36.5'	15°26.8'	S 21°19.5'	9°44.9'	S 20°09.3'	316°45.5'	S 4°48.2'			
4	327°50.5'	239°39.0'	N 23°25.6'	263°08.9'	N 18°36.0'	30°29.6'	S 21°19.6'	24°47.5'	S 20°09.4'	331°46.5'	S 4°47.6'			
5	342°53.0'	254°38.9'	N 23°25.6'	278°11.9'	N 18°35.5'	45°32.3'	S 21°19.6'	39°50.1'	S 20°09.4'	346°47.5'	S 4°47.0'			
6	357°55.4'	269°38.8'	N 23°25.6'	293°14.9'	N 18°35.0'	60°35.0'	S 21°19.7'	54°52.7'	S 20°09.4'	1°48.5'	S 4°46.5'			
7	12°57.9'	284°38.6'	N 23°25.6'	308°17.9'	N 18°34.5'	75°37.7'	S 21°19.7'	69°55.3'	S 20°09.5'	16°49.5'	S 4°45.9'			
8	28°00.4'	299°38.5'	N 23°25.7'	323°20.9'	N 18°34.0'	90°40.5'	S 21°19.8'	84°57.9'	S 20°09.5'	31°50.5'	S 4°45.3'			
9	43°02.8'	314°38.4'	N 23°25.7'	338°23.9'	N 18°33.5'	105°43.2'	S 21°19.8'	100°00.5'	S 20°09.5'	46°51.5'	S 4°44.8'			
10	58°05.3'	329°38.2'	N 23°25.7'	353°26.9'	N 18°33.0'	120°45.9'	S 21°19.9'	115°03.2'	S 20°09.6'	61°52.5'	S 4°44.2'			
11	73°07.8'	344°38.1'	N 23°25.8'	8°29.9'	N 18°32.5'	135°48.7'	S 21°19.9'	130°05.8'	S 20°09.6'	76°53.4'	S 4°43.6'			
12	88°10.2'	359°37.9'	N 23°25.8'	23°32.9'	N 18°32.0'	150°51.4'	S 21°20.0'	145°08.4'	S 20°09.6'	91°54.4'	S 4°43.1'			
13	103°12.7'	14°37.8'	N 23°25.8'	38°35.9'	N 18°31.5'	165°54.1'	S 21°20.0'	160°11.0'	S 20°09.7'	106°55.4'	S 4°42.5'			
14	118°15.1'	29°37.7'	N 23°25.8'	53°38.9'	N 18°31.1'	180°56.9'	S 21°20.1'	175°13.6'	S 20°09.7'	121°56.4'	S 4°41.9'			
15	133°17.6'	44°37.5'	N 23°25.8'	68°41.8'	N 18°30.6'	195°59.6'	S 21°20.1'	190°16.2'	S 20°09.7'	136°57.4'	S 4°41.4'			
16	148°20.1'	59°37.4'	N 23°25.9'	83°44.8'	N 18°30.1'	211°02.3'	S 21°20.2'	205°18.8'	S 20°09.8'	151°58.4'	S 4°40.8'			
17	163°22.5'	74°37.3'	N 23°25.9'	98°47.8'	N 18°29.6'	226°05.0'	S 21°20.3'	220°21.4'	S 20°09.8'	166°59.4'	S 4°40.2'			
18	178°25.0'	89°37.1'	N 23°25.9'	113°50.7'	N 18°29.1'	241°07.8'	S 21°20.3'	235°24.0'	S 20°09.8'	182°00.4'	S 4°39.7'			
19	193°27.5'	104°37.0'	N 23°25.9'	128°53.7'	N 18°28.7'	256°10.5'	S 21°20.4'	250°26.6'	S 20°09.9'	197°01.4'	S 4°39.1'			
20	208°29.9'	119°36.9'	N 23°26.0'	143°56.7'	N 18°28.2'	271°13.2'	S 21°20.4'	265°29.3'	S 20°09.9'	212°02.4'	S 4°38.5'			
21	223°32.4'	134°36.7'	N 23°26.0'	158°59.6'	N 18°27.7'	286°16.0'	S 21°20.5'	280°31.9'	S 20°09.9'	227°03.4'	S 4°38.0'			
22	238°34.9'	149°36.6'	N 23°26.0'	174°02.5'	N 18°27.2'	301°18.7'	S 21°20.5'	295°34.5'	S 20°10.0'	242°04.4'	S 4°37.4'			
23	253°37.3'	164°36.4'	N 23°26.0'	189°05.5'	N 18°26.8'	316°21.4'	S 21°20.6'	310°37.1'	S 20°10.0'	257°05.4'	S 4°36.8'			
		SD 15.7' d 0.0'		v 3.0' d -0.5'		v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'				
Mer. pass.		12 h 1 m 29 s		10 h 26 m		1 h 58 m		2 h 21 m		5 h 53 m				

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	-Capella	-Aldebaran	-Venus	+Mars	+Achernar	+Fomalhaut	+Altair
0	207°43.5'	N 18°04.1'	12.1'	8.6'	55.2'	32°18.5'	9°01.1'	4°34.2'	67°05.0'	80°46.3'	86°41.5'	116°43.4'
1	222°14.6'	N 18°12.7'	12.0'	8.5'	55.3'	31°57.9'	8°33.0'	4°03.0'	67°34.4'	81°04.0'	87°11.3'	117°08.3'
2	236°45.6'	N 18°21.2'	11.9'	8.4'	55.3'	31°37.5'	8°05.3'	3°31.9'	68°03.9'	81°21.7'	87°41.1'	117°33.2'
3	251°16.6'	N 18°29.7'	11.9'	8.4'	55.3'	31°17.3'	7°37.9'	3°00.9'	68°33.3'	81°39.5'	88°10.9'	117°58.0'
4	265°47.4'	N 18°38.0'	11.8'	8.3'	55.3'	30°57.4'	7°11.1'	2°30.3'	69°02.8'	81°57.3'	88°40.8'	118°22.9'
5	280°18.2'	N 18°46.3'	11.7'	8.2'	55.3'	30°37.8'	6°44.8'		69°32.3'	82°15.1'	89°10.6'	118°47.6'
6	294°49.0'	N 18°54.5'	11.6'	8.1'	55.4'	30°18.4'			70°01.9'	82°33.0'	89°40.5'	119°12.4'
7	309°19.6'	N 19°02.6'	11.6'	8.0'	55.4'	29°59.4'			70°31.4'	82°51.0'	90°10.4'	119°37.1'
8	323°50.2'	N 19°10.6'	11.5'	7.9'	55.4'	29°40.6'			71°01.0'	83°08.9'	90°40.3'	
9	338°20.6'	N 19°18.6'	11.4'	7.9'	55.4'	29°22.1'			71°30.6'	83°26.9'	91°10.3'	
10	352°51.0'	N 19°26.5'	11.3'	7.8'	55.4'	29°03.9'			72°00.3'	83°45.0'	91°40.3'	
11	7°21.4'	N 19°34.2'	11.2'	7.7'	55.5'	28°46.1'			72°30.0'	84°03.1'	92°10.3'	
12	21°51.6'	N 19°41.9'	11.2'	7.6'	55.5'	28°28.6'			72°59.7'	84°21.2'	92°40.3'	
13	36°21.8'	N 19°49.5'	11.1'	7.5'	55.5'	28°11.5'		2°28.7'	73°29.4'	84°39.3'	93°10.4'	
14	50°51.9'	N 19°57.0'	11.0'	7.4'	55.5'	27°54.7'		2°59.6'	73°59.1'	84°57.5'	93°40.5'	
15	65°21.9'	N 20°04.4'	10.9'	7.3'	55.6'	27°38.3'		3°30.7'	74°28.9'	85°15.7'	94°10.6'	
16	79°51.8'	N 20°11.7'	10.9'	7.2'	55.6'	27°22.3'		4°02.2'	74°58.7'	85°34.0'	94°40.7'	
17	94°21.7'	N 20°18.9'	10.8'	7.1'	55.6'	27°06.6'		4°33.7'	75°28.5'	85°52.3'	95°10.9'	
18	108°51.5'	N 20°26.1'	10.7'	7.0'	55.6'			5°05.4'	75°58.4'	86°10.6'	95°41.0'	
19	123°21.2'	N 20°33.1'	10.6'	6.9'	55.6'			5°37.2'	76°28.3'	86°28.9'	96°11.2'	
20	137°50.8'	N 20°40.0'	10.5'	6.8'	55.7'			6°09.0'	76°58.2'	86°47.3'	96°41.5'	
21	152°20.3'	N 20°46.9'	10.5'	6.7'	55.7'			6°40.9'	77°28.1'	87°05.6'	97°11.7'	
22	166°49.8'	N 20°53.6'	10.4'	6.6'	55.7'			7°12.9'	77°58.1'	87°24.1'	97°42.0'	
23	181°19.2'	N 21°00.3'	10.3'	6.5'	55.7'			7°44.9'	78°28.1'	87°42.5'	98°12.3'	
Mer. pass.		10 h 30 m SD 15.1'		phase 5%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°01.6'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.5'				

Saturday 20 June 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	268°39.8'	179°36.3'	N 23°26.0'	204°08.4'	N 18°26.3'	331°24.2'	S 21°20.6'	325°39.7'	S 20°10.1'	272°06.3'	S 4°36.3'			
1	283°42.2'	194°36.2'	N 23°26.0'	219°11.4'	N 18°25.8'	346°26.9'	S 21°20.7'	340°42.3'	S 20°10.1'	287°07.3'	S 4°35.7'			
2	298°44.7'	209°36.0'	N 23°26.0'	234°14.3'	N 18°25.4'	1°29.6'	S 21°20.7'	355°44.9'	S 20°10.1'	302°08.3'	S 4°35.1'			
3	313°47.2'	224°35.9'	N 23°26.1'	249°17.2'	N 18°24.9'	16°32.4'	S 21°20.8'	10°47.5'	S 20°10.2'	317°09.3'	S 4°34.6'			
4	328°49.6'	239°35.8'	N 23°26.1'	264°20.1'	N 18°24.5'	31°35.1'	S 21°20.8'	25°50.1'	S 20°10.2'	332°10.3'	S 4°34.0'			
5	343°52.1'	254°35.6'	N 23°26.1'	279°23.1'	N 18°24.0'	46°37.8'	S 21°20.9'	40°52.8'	S 20°10.2'	347°11.3'	S 4°33.4'			
6	358°54.6'	269°35.5'	N 23°26.1'	294°26.0'	N 18°23.5'	61°40.6'	S 21°20.9'	55°55.4'	S 20°10.3'	2°12.3'	S 4°32.9'			
7	13°57.0'	284°35.3'	N 23°26.1'	309°28.9'	N 18°23.1'	76°43.3'	S 21°21.0'	70°58.0'	S 20°10.3'	17°13.3'	S 4°32.3'			
8	28°59.5'	299°35.2'	N 23°26.1'	324°31.8'	N 18°22.6'	91°46.0'	S 21°21.1'	86°00.6'	S 20°10.3'	32°14.3'	S 4°31.7'			
9	44°02.0'	314°35.1'	N 23°26.1'	339°34.7'	N 18°22.2'	106°48.8'	S 21°21.1'	101°03.2'	S 20°10.4'	47°15.3'	S 4°31.2'			
10	59°04.4'	329°34.9'	N 23°26.1'	354°37.6'	N 18°21.7'	121°51.5'	S 21°21.2'	116°05.8'	S 20°10.4'	62°16.3'	S 4°30.6'			
11	74°06.9'	344°34.8'	N 23°26.1'	9°40.5'	N 18°21.3'	136°54.3'	S 21°21.2'	131°08.4'	S 20°10.4'	77°17.3'	S 4°30.0'			
12	89°09.4'	359°34.7'	N 23°26.2'	24°43.3'	N 18°20.8'	151°57.0'	S 21°21.3'	146°11.0'	S 20°10.5'	92°18.3'	S 4°29.5'			
13	104°11.8'	14°34.5'	N 23°26.2'	39°46.2'	N 18°20.4'	166°59.7'	S 21°21.3'	161°13.7'	S 20°10.5'	107°19.3'	S 4°28.9'			
14	119°14.3'	29°34.4'	N 23°26.2'	54°49.1'	N 18°19.9'	182°02.5'	S 21°21.4'	176°16.3'	S 20°10.5'	122°20.3'	S 4°28.3'			
15	134°16.7'	44°34.2'	N 23°26.2'	69°52.0'	N 18°19.5'	197°05.2'	S 21°21.4'	191°18.9'	S 20°10.6'	137°21.3'	S 4°27.8'			
16	149°19.2'	59°34.1'	N 23°26.2'	84°54.9'	N 18°19.0'	212°07.9'	S 21°21.5'	206°21.5'	S 20°10.6'	152°22.3'	S 4°27.2'			
17	164°21.7'	74°34.0'	N 23°26.2'	99°57.7'	N 18°18.6'	227°10.7'	S 21°21.5'	221°24.1'	S 20°10.6'	167°23.3'	S 4°26.6'			
18	179°24.1'	89°33.8'	N 23°26.2'	115°00.6'	N 18°18.2'	242°13.4'	S 21°21.6'	236°26.7'	S 20°10.7'	182°24.3'	S 4°26.1'			
19	194°26.6'	104°33.7'	N 23°26.2'	130°03.4'	N 18°17.7'	257°16.1'	S 21°21.6'	251°29.3'	S 20°10.7'	197°25.3'	S 4°25.5'			
20	209°29.1'	119°33.6'	N 23°26.2'	145°06.3'	N 18°17.3'	272°18.9'	S 21°21.7'	266°31.9'	S 20°10.8'	212°26.3'	S 4°25.0'			
21	224°31.5'	134°33.4'	N 23°26.2'	160°09.1'	N 18°16.8'	287°21.6'	S 21°21.8'	281°34.6'	S 20°10.8'	227°27.3'	S 4°24.4'			
22	239°34.0'	149°33.3'	N 23°26.2'	175°12.0'	N 18°16.4'	302°24.4'	S 21°21.8'	296°37.2'	S 20°10.8'	242°28.3'	S 4°23.8'			
23	254°36.5'	164°33.2'	N 23°26.2'	190°14.8'	N 18°16.0'	317°27.1'	S 21°21.9'	311°39.8'	S 20°10.9'	257°29.3'	S 4°23.3'			
		SD 15.7'	d 0.0'	v 2.9'	d -0.4'	v 2.7'	d -0.1'	v 2.6'	d -0.0'	v 1.0'	d 0.6'			
Mer. pass.		12 h 1 m 42 s		10 h 21 m		1 h 54 m		2 h 17 m		5 h 51 m				

h	Moon					Lunar distance					
	GHA	dec	v	d	HP	-Betelgeuse	+Aldebaran	+Venus	+Mars	+Achernar	+Fomalhaut
0	195°48.5'	N 21°06.8'	10.2'	6.4'	55.7'			8°16.9'	78°58.1'	88°01.0'	98°42.6'
1	210°17.8'	N 21°13.2'	10.2'	6.3'	55.8'	20°28.7'		8°49.0'	79°28.1'	88°19.4'	99°12.9'
2	224°46.9'	N 21°19.6'	10.1'	6.2'	55.8'	20°09.3'		9°21.1'	79°58.2'	88°37.9'	99°43.3'
3	239°16.0'	N 21°25.8'	10.0'	6.1'	55.8'	19°50.4'	6°57.9'	9°53.3'	80°28.3'	88°56.5'	100°13.6'
4	253°45.0'	N 21°31.9'	9.9'	6.0'	55.8'	19°32.1'	7°25.0'	10°25.5'	80°58.4'	89°15.0'	100°44.0'
5	268°14.0'	N 21°37.9'	9.9'	5.9'	55.9'	19°14.2'	7°52.7'	10°57.7'	81°28.6'	89°33.6'	101°14.5'
6	282°42.8'	N 21°43.8'	9.8'	5.8'	55.9'	18°57.0'	8°20.9'	11°29.9'	81°58.8'	89°52.1'	101°44.9'
7	297°11.6'	N 21°49.6'	9.7'	5.7'	55.9'	18°40.4'	8°49.6'	12°02.2'	82°29.0'	90°10.7'	102°15.4'
8	311°40.3'	N 21°55.3'	9.6'	5.6'	55.9'	18°24.3'	9°18.6'	12°34.5'	82°59.2'	90°29.3'	102°45.8'
9	326°09.0'	N 22°00.9'	9.6'	5.5'	56.0'		9°47.9'	13°06.8'	83°29.5'	90°48.0'	103°16.3'
10	340°37.5'	N 22°06.4'	9.5'	5.4'	56.0'		10°17.5'	13°39.2'	83°59.7'	91°06.6'	103°46.9'
11	355°06.0'	N 22°11.7'	9.4'	5.2'	56.0'						
12	9°34.5'	N 22°17.0'	9.4'	5.1'	56.0'						
13	24°02.8'	N 22°22.1'	9.3'	5.0'	56.0'						
14	38°31.1'	N 22°27.1'	9.2'	4.9'	56.1'						
15	52°59.3'	N 22°32.0'	9.1'	4.8'	56.1'						
16	67°27.5'	N 22°36.8'	9.1'	4.7'	56.1'						
17	81°55.5'	N 22°41.5'	9.0'	4.5'	56.1'						
18	96°23.6'	N 22°46.0'	8.9'	4.4'	56.2'						
19	110°51.5'	N 22°50.4'	8.9'	4.3'	56.2'						
20	125°19.4'	N 22°54.7'	8.8'	4.2'	56.2'						
21	139°47.2'	N 22°58.9'	8.7'	4.1'	56.2'						
22	154°14.9'	N 23°03.0'	8.7'	3.9'	56.3'						
23	168°42.6'	N 23°06.9'	8.6'	3.8'	56.3'						
Mer. pass.		11 h 20 m SD 15.2'	phase 2%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.8'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.3'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°01.1'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.9'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.5'				

Sunday 21 June 2020 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	269°38.9'	179°33.0' N 23°26.2'	205°17.7' N 18°15.5'	332°29.8' S 21°21.9'	326°42.4' S 20°10.9'	272°30.3' S 4°22.7'						
1	284°41.4'	194°32.9' N 23°26.2'	220°20.5' N 18°15.1'	347°32.6' S 21°22.0'	341°45.0' S 20°10.9'	287°31.3' S 4°22.1'						
2	299°43.9'	209°32.7' N 23°26.2'	235°23.3' N 18°14.7'	2°35.3' S 21°22.0'	356°47.6' S 20°11.0'	302°32.3' S 4°21.6'						
3	314°46.3'	224°32.6' N 23°26.2'	250°26.2' N 18°14.3'	17°38.1' S 21°22.1'	11°50.2' S 20°11.0'	317°33.3' S 4°21.0'						
4	329°48.8'	239°32.5' N 23°26.2'	265°29.0' N 18°13.8'	32°40.8' S 21°22.1'	26°52.9' S 20°11.0'	332°34.3' S 4°20.4'						
5	344°51.2'	254°32.3' N 23°26.2'	280°31.8' N 18°13.4'	47°43.5' S 21°22.2'	41°55.5' S 20°11.1'	347°35.3' S 4°19.9'						
6	359°53.7'	269°32.2' N 23°26.2'	295°34.6' N 18°13.0'	62°46.3' S 21°22.2'	56°58.1' S 20°11.1'	2°36.3' S 4°19.3'						
7	14°56.2'	284°32.1' N 23°26.2'	310°37.4' N 18°12.6'	77°49.0' S 21°22.3'	72°00.7' S 20°11.1'	17°37.3' S 4°18.7'						
8	29°58.6'	299°31.9' N 23°26.2'	325°40.2' N 18°12.2'	92°51.8' S 21°22.3'	87°03.3' S 20°11.2'	32°38.3' S 4°18.2'						
9	45°01.1'	314°31.8' N 23°26.1'	340°43.0' N 18°11.7'	107°54.5' S 21°22.4'	102°05.9' S 20°11.2'	47°39.3' S 4°17.6'						
10	60°03.6'	329°31.6' N 23°26.1'	355°45.8' N 18°11.3'	122°57.2' S 21°22.5'	117°08.5' S 20°11.2'	62°40.3' S 4°17.1'						
11	75°06.0'	344°31.5' N 23°26.1'	10°48.6' N 18°10.9'	137°60.0' S 21°22.5'	132°11.2' S 20°11.3'	77°41.3' S 4°16.5'						
12	90°08.5'	359°31.4' N 23°26.1'	25°51.4' N 18°10.5'	153°02.7' S 21°22.6'	147°13.8' S 20°11.3'	92°42.3' S 4°15.9'						
13	105°11.0'	14°31.2' N 23°26.1'	40°54.2' N 18°10.1'	168°05.5' S 21°22.6'	162°16.4' S 20°11.4'	107°43.3' S 4°15.4'						
14	120°13.4'	29°31.1' N 23°26.1'	55°56.9' N 18°09.7'	183°08.2' S 21°22.7'	177°19.0' S 20°11.4'	122°44.3' S 4°14.8'						
15	135°15.9'	44°31.0' N 23°26.1'	70°59.7' N 18°09.3'	198°10.9' S 21°22.7'	192°21.6' S 20°11.4'	137°45.3' S 4°14.2'						
16	150°18.4'	59°30.8' N 23°26.1'	86°02.5' N 18°08.9'	213°13.7' S 21°22.8'	207°24.2' S 20°11.5'	152°46.3' S 4°13.7'						
17	165°20.8'	74°30.7' N 23°26.1'	101°05.3' N 18°08.5'	228°16.4' S 21°22.8'	222°26.8' S 20°11.5'	167°47.3' S 4°13.1'						
18	180°23.3'	89°30.6' N 23°26.0'	116°08.0' N 18°08.1'	243°19.2' S 21°22.9'	237°29.5' S 20°11.5'	182°48.3' S 4°12.6'						
19	195°25.7'	104°30.4' N 23°26.0'	131°10.8' N 18°07.7'	258°21.9' S 21°22.9'	252°32.1' S 20°11.6'	197°49.3' S 4°12.0'						
20	210°28.2'	119°30.3' N 23°26.0'	146°13.5' N 18°07.3'	273°24.7' S 21°23.0'	267°34.7' S 20°11.6'	212°50.3' S 4°11.4'						
21	225°30.7'	134°30.1' N 23°26.0'	161°16.3' N 18°06.9'	288°27.4' S 21°23.1'	282°37.3' S 20°11.6'	227°51.3' S 4°10.9'						
22	240°33.1'	149°30.0' N 23°26.0'	176°19.0' N 18°06.5'	303°30.1' S 21°23.1'	297°39.9' S 20°11.7'	242°52.3' S 4°10.3'						
23	255°35.6'	164°29.9' N 23°26.0'	191°21.8' N 18°06.1'	318°32.9' S 21°23.2'	312°42.5' S 20°11.7'	257°53.4' S 4°09.7'						
		SD 15.7' d -0.0'	v 2.8' d -0.4'	v 2.7' d -0.1'	v 2.6' d -0.0'	v 1.0' d 0.6'						
Mer. pass.		12 h 1 m 55 s	10 h 17 m	1 h 50 m	2 h 13 m	5 h 50 m						

h	Moon				
	GHA	dec	v	d	HP
0	183°10.2'	N 23°10.7'	8.6'	3.7'	56.3'
1	197°37.8'	N 23°14.4'	8.5'	3.6'	56.3'
2	212°05.3'	N 23°18.0'	8.4'	3.4'	56.3'
3	226°32.7'	N 23°21.4'	8.4'	3.3'	56.4'
4	241°00.1'	N 23°24.7'	8.3'	3.2'	56.4'
5	255°27.5'	N 23°27.9'	8.3'	3.1'	56.4'
6	269°54.7'	N 23°31.0'	8.2'	2.9'	56.4'
7	284°21.9'	N 23°33.9'	8.2'	2.8'	56.5'
8	298°49.1'	N 23°36.7'	8.1'	2.7'	56.5'
9	313°16.2'	N 23°39.4'	8.1'	2.5'	56.5'
10	327°43.2'	N 23°41.9'	8.0'	2.4'	56.5'
11	342°10.2'	N 23°44.3'	8.0'	2.3'	56.6'
12	356°37.2'	N 23°46.5'	7.9'	2.1'	56.6'
13	11°04.1'	N 23°48.7'	7.9'	2.0'	56.6'
14	25°31.0'	N 23°50.7'	7.8'	1.9'	56.6'
15	39°57.8'	N 23°52.5'	7.8'	1.7'	56.6'
16	54°24.5'	N 23°54.3'	7.7'	1.6'	56.7'
17	68°51.2'	N 23°55.9'	7.7'	1.5'	56.7'
18	83°17.9'	N 23°57.3'	7.6'	1.3'	56.7'
19	97°44.6'	N 23°58.6'	7.6'	1.2'	56.7'
20	112°11.2'	N 23°59.8'	7.6'	1.0'	56.8'
21	126°37.7'	N 24°00.8'	7.5'	0.9'	56.8'
22	141°04.2'	N 24°01.7'	7.5'	0.8'	56.8'
23	155°30.7'	N 24°02.5'	7.5'	0.6'	56.8'
Mer. pass.	12 h 14 m SD 15.4'	phase 0%			

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.5'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°00.7'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.4'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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°38.1'	179°29.7'	N 23°25.9'	206°24.5'	N 18°05.7'	333°35.6'	S 21°23.2'	327°45.2'	S 20°11.7'	272°54.4'	S 4°09.2'			
1	285°40.5'	194°29.6'	N 23°25.9'	221°27.2'	N 18°05.3'	348°38.4'	S 21°23.3'	342°47.8'	S 20°11.8'	287°55.4'	S 4°08.6'			
2	300°43.0'	209°29.5'	N 23°25.9'	236°30.0'	N 18°04.9'	3°41.1'	S 21°23.3'	357°50.4'	S 20°11.8'	302°56.4'	S 4°08.1'			
3	315°45.5'	224°29.3'	N 23°25.9'	251°32.7'	N 18°04.5'	18°43.9'	S 21°23.4'	12°53.0'	S 20°11.8'	317°57.4'	S 4°07.5'			
4	330°47.9'	239°29.2'	N 23°25.9'	266°35.4'	N 18°04.1'	33°46.6'	S 21°23.4'	27°55.6'	S 20°11.9'	332°58.4'	S 4°06.9'			
5	345°50.4'	254°29.1'	N 23°25.8'	281°38.1'	N 18°03.7'	48°49.4'	S 21°23.5'	42°58.2'	S 20°11.9'	347°59.4'	S 4°06.4'			
6	0°52.9'	269°28.9'	N 23°25.8'	296°40.8'	N 18°03.3'	63°52.1'	S 21°23.5'	58°00.9'	S 20°12.0'	3°00.4'	S 4°05.8'			
7	15°55.3'	284°28.8'	N 23°25.8'	311°43.5'	N 18°03.0'	78°54.8'	S 21°23.6'	73°03.5'	S 20°12.0'	18°01.4'	S 4°05.3'			
8	30°57.8'	299°28.6'	N 23°25.8'	326°46.2'	N 18°02.6'	93°57.6'	S 21°23.7'	88°06.1'	S 20°12.0'	33°02.4'	S 4°04.7'			
9	46°00.2'	314°28.5'	N 23°25.7'	341°48.9'	N 18°02.2'	109°00.3'	S 21°23.7'	103°08.7'	S 20°12.1'	48°03.4'	S 4°04.1'			
10	61°02.7'	329°28.4'	N 23°25.7'	356°51.6'	N 18°01.8'	124°03.1'	S 21°23.8'	118°11.3'	S 20°12.1'	63°04.4'	S 4°03.6'			
11	76°05.2'	344°28.2'	N 23°25.7'	11°54.3'	N 18°01.4'	139°05.8'	S 21°23.8'	133°13.9'	S 20°12.1'	78°05.5'	S 4°03.0'			
12	91°07.6'	359°28.1'	N 23°25.7'	26°57.0'	N 18°01.1'	154°08.6'	S 21°23.9'	148°16.6'	S 20°12.2'	93°06.5'	S 4°02.4'			
13	106°10.1'	14°28.0'	N 23°25.6'	41°59.7'	N 18°00.7'	169°11.3'	S 21°23.9'	163°19.2'	S 20°12.2'	108°07.5'	S 4°01.9'			
14	121°12.6'	29°27.8'	N 23°25.6'	57°02.4'	N 18°00.3'	184°14.1'	S 21°24.0'	178°21.8'	S 20°12.2'	123°08.5'	S 4°01.3'			
15	136°15.0'	44°27.7'	N 23°25.6'	72°05.1'	N 17°60.0'	199°16.8'	S 21°24.0'	193°24.4'	S 20°12.3'	138°09.5'	S 4°00.8'			
16	151°17.5'	59°27.6'	N 23°25.6'	87°07.7'	N 17°59.6'	214°19.6'	S 21°24.1'	208°27.0'	S 20°12.3'	153°10.5'	S 4°00.2'			
17	166°20.0'	74°27.4'	N 23°25.5'	102°10.4'	N 17°59.2'	229°22.3'	S 21°24.2'	223°29.7'	S 20°12.4'	168°11.5'	S 3°59.6'			
18	181°22.4'	89°27.3'	N 23°25.5'	117°13.0'	N 17°58.9'	244°25.1'	S 21°24.2'	238°32.3'	S 20°12.4'	183°12.5'	S 3°59.1'			
19	196°24.9'	104°27.1'	N 23°25.5'	132°15.7'	N 17°58.5'	259°27.8'	S 21°24.3'	253°34.9'	S 20°12.4'	198°13.5'	S 3°58.5'			
20	211°27.4'	119°27.0'	N 23°25.4'	147°18.4'	N 17°58.1'	274°30.6'	S 21°24.3'	268°37.5'	S 20°12.5'	213°14.6'	S 3°58.0'			
21	226°29.8'	134°26.9'	N 23°25.4'	162°21.0'	N 17°57.8'	289°33.3'	S 21°24.4'	283°40.1'	S 20°12.5'	228°15.6'	S 3°57.4'			
22	241°32.3'	149°26.7'	N 23°25.4'	177°23.7'	N 17°57.4'	304°36.0'	S 21°24.4'	298°42.7'	S 20°12.5'	243°16.6'	S 3°56.8'			
23	256°34.7'	164°26.6'	N 23°25.3'	192°26.3'	N 17°57.0'	319°38.8'	S 21°24.5'	313°45.4'	S 20°12.6'	258°17.6'	S 3°56.3'			
		SD 15.7' d -0.0'		v 2.7' d -0.4'		v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'				
Mer. pass.		12 h 2 m 8 s		10 h 13 m		1 h 45 m		2 h 9 m		5 h 48 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigil Kent	-Hadar	-Acrux	-Spica	-Arcturus	-Regulus	-Procyon	-Pollux
0	169°57.2'	N 24°03.1'	7.4'	0.5'	56.8'								
1	184°23.6'	N 24°03.6'	7.4'	0.3'	56.9'								
2	198°50.0'	N 24°03.9'	7.4'	0.2'	56.9'								
3	213°16.3'	N 24°04.1'	7.3'	0.1'	56.9'								
4	227°42.7'	N 24°04.2'	7.3'	-0.1'	56.9'								
5	242°09.0'	N 24°04.1'	7.3'	-0.2'	57.0'		119°42.9'	108°39.7'	102°13.3'	100°10.9'	48°10.3'	22°08.6'	12°46.3'
6	256°35.2'	N 24°03.9'	7.3'	-0.4'	57.0'		119°25.0'	108°24.1'	101°40.6'	99°41.3'	47°37.4'	21°50.8'	12°15.6'
7	271°01.5'	N 24°03.5'	7.2'	-0.5'	57.0'		119°07.0'	108°08.3'	101°07.8'	99°11.7'	47°04.5'	21°33.5'	11°44.9'
8	285°27.7'	N 24°03.0'	7.2'	-0.7'	57.0'		118°48.8'	107°52.5'	100°35.0'	98°42.0'	46°31.6'	21°16.7'	11°14.5'
9	299°53.9'	N 24°02.4'	7.2'	-0.8'	57.0'		118°30.6'	107°36.5'	100°02.1'	98°12.3'	45°58.7'	21°00.6'	10°44.4'
10	314°20.1'	N 24°01.6'	7.2'	-0.9'	57.1'		118°12.1'	107°20.5'	99°29.2'	97°42.6'	45°25.7'		10°14.4'
11	328°46.3'	N 24°00.6'	7.2'	-1.1'	57.1'		117°53.6'	107°04.4'	98°56.3'	97°12.9'	44°52.8'		9°44.9'
12	343°12.4'	N 23°59.5'	7.1'	-1.2'	57.1'		117°34.9'	106°48.2'	98°23.4'	96°43.1'	44°19.8'		9°15.7'
13	357°38.6'	N 23°58.3'	7.1'	-1.4'	57.1'		117°16.1'	106°31.9'	97°50.4'	96°13.3'	43°46.8'		8°46.9'
14	12°04.7'	N 23°57.0'	7.1'	-1.5'	57.2'		116°57.2'	106°15.5'	97°17.5'	95°43.5'	43°13.7'		8°18.7'
15	26°30.8'	N 23°55.4'	7.1'	-1.7'	57.2'		116°38.1'	105°59.0'	96°44.5'	95°13.6'	42°40.7'		7°51.1'
16	40°56.9'	N 23°53.8'	7.1'	-1.8'	57.2'		116°18.9'	105°42.5'	96°11.4'	94°43.7'	42°07.6'		
17	55°23.0'	N 23°52.0'	7.1'	-1.9'	57.2'		115°59.7'	105°25.9'	95°38.4'	94°13.8'	41°34.5'		
18	69°49.0'	N 23°50.0'	7.1'	-2.1'	57.2'		115°40.2'	105°09.2'	95°05.3'	93°43.8'	41°01.4'		
19	84°15.1'	N 23°48.0'	7.1'	-2.2'	57.3'	119°42.8'	115°20.7'	104°52.4'	94°32.2'	93°13.9'	40°28.3'		
20	98°41.2'	N 23°45.7'	7.1'	-2.4'	57.3'	119°23.4'	115°01.1'	104°35.5'	93°59.1'	92°43.9'	39°55.1'		
21	113°07.2'	N 23°43.4'	7.1'	-2.5'	57.3'	119°03.9'	114°41.3'	104°18.6'	93°26.0'	92°13.9'	39°22.0'		
22	127°33.3'	N 23°40.8'	7.1'	-2.7'	57.3'	118°44.2'	114°21.4'	104°01.6'	92°52.8'	91°43.8'	38°48.8'		
23	141°59.4'	N 23°38.2'	7.1'	-2.8'	57.4'	118°24.4'	114°01.5'	103°44.5'	92°19.6'	91°13.8'	38°15.6'		
						118°04.4'	113°41.4'	103°27.4'	91°46.4'	90°43.7'	37°42.4'		
Mer. pass.		13 h 10 m SD 15.5'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°27.8'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	316°00.2'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	271°37.2'	179°26.5'	N 23°25.3'	207°28.9'	N 17°56.7'	334°41.5'	S 21°24.5'	328°48.0'	S 20°12.6'	273°18.6'	S 3°55.7'	
1	286°39.7'	194°26.3'	N 23°25.3'	222°31.6'	N 17°56.3'	349°44.3'	S 21°24.6'	343°50.6'	S 20°12.6'	288°19.6'	S 3°55.2'	
2	301°42.1'	209°26.2'	N 23°25.2'	237°34.2'	N 17°56.0'	4°47.0'	S 21°24.7'	358°53.2'	S 20°12.7'	303°20.6'	S 3°54.6'	
3	316°44.6'	224°26.1'	N 23°25.2'	252°36.8'	N 17°55.6'	19°49.8'	S 21°24.7'	13°55.8'	S 20°12.7'	318°21.6'	S 3°54.0'	
4	331°47.1'	239°25.9'	N 23°25.1'	267°39.4'	N 17°55.3'	34°52.5'	S 21°24.8'	28°58.5'	S 20°12.8'	333°22.7'	S 3°53.5'	
5	346°49.5'	254°25.8'	N 23°25.1'	282°42.1'	N 17°54.9'	49°55.3'	S 21°24.8'	44°01.1'	S 20°12.8'	348°23.7'	S 3°52.9'	
6	1°52.0'	269°25.7'	N 23°25.1'	297°44.7'	N 17°54.6'	64°58.0'	S 21°24.9'	59°03.7'	S 20°12.8'	3°24.7'	S 3°52.4'	
7	16°54.5'	284°25.5'	N 23°25.0'	312°47.3'	N 17°54.2'	80°00.8'	S 21°24.9'	74°06.3'	S 20°12.9'	18°25.7'	S 3°51.8'	
8	31°56.9'	299°25.4'	N 23°25.0'	327°49.9'	N 17°53.9'	95°03.5'	S 21°25.0'	89°08.9'	S 20°12.9'	33°26.7'	S 3°51.3'	
9	46°59.4'	314°25.2'	N 23°24.9'	342°52.5'	N 17°53.5'	110°06.3'	S 21°25.0'	104°11.6'	S 20°12.9'	48°27.7'	S 3°50.7'	
10	62°01.8'	329°25.1'	N 23°24.9'	357°55.1'	N 17°53.2'	125°09.0'	S 21°25.1'	119°14.2'	S 20°13.0'	63°28.8'	S 3°50.1'	
11	77°04.3'	344°25.0'	N 23°24.8'	12°57.7'	N 17°52.9'	140°11.8'	S 21°25.2'	134°16.8'	S 20°13.0'	78°29.8'	S 3°49.6'	
12	92°06.8'	359°24.8'	N 23°24.8'	28°00.3'	N 17°52.5'	155°14.5'	S 21°25.2'	149°19.4'	S 20°13.0'	93°30.8'	S 3°49.0'	
13	107°09.2'	14°24.7'	N 23°24.8'	43°02.8'	N 17°52.2'	170°17.3'	S 21°25.3'	164°22.0'	S 20°13.1'	108°31.8'	S 3°48.5'	
14	122°11.7'	29°24.6'	N 23°24.7'	58°05.4'	N 17°51.9'	185°20.1'	S 21°25.3'	179°24.7'	S 20°13.1'	123°32.8'	S 3°47.9'	
15	137°14.2'	44°24.4'	N 23°24.7'	73°08.0'	N 17°51.5'	200°22.8'	S 21°25.4'	194°27.3'	S 20°13.2'	138°33.8'	S 3°47.3'	
16	152°16.6'	59°24.3'	N 23°24.6'	88°10.6'	N 17°51.2'	215°25.6'	S 21°25.4'	209°29.9'	S 20°13.2'	153°34.9'	S 3°46.8'	
17	167°19.1'	74°24.2'	N 23°24.6'	103°13.1'	N 17°50.9'	230°28.3'	S 21°25.5'	224°32.5'	S 20°13.2'	168°35.9'	S 3°46.2'	
18	182°21.6'	89°24.0'	N 23°24.5'	118°15.7'	N 17°50.5'	245°31.1'	S 21°25.5'	239°35.1'	S 20°13.3'	183°36.9'	S 3°45.7'	
19	197°24.0'	104°23.9'	N 23°24.5'	133°18.3'	N 17°50.2'	260°33.8'	S 21°25.6'	254°37.8'	S 20°13.3'	198°37.9'	S 3°45.1'	
20	212°26.5'	119°23.8'	N 23°24.4'	148°20.8'	N 17°49.9'	275°36.6'	S 21°25.7'	269°40.4'	S 20°13.3'	213°38.9'	S 3°44.6'	
21	227°29.0'	134°23.6'	N 23°24.4'	163°23.4'	N 17°49.6'	290°39.3'	S 21°25.7'	284°43.0'	S 20°13.4'	228°40.0'	S 3°44.0'	
22	242°31.4'	149°23.5'	N 23°24.3'	178°25.9'	N 17°49.2'	305°42.1'	S 21°25.8'	299°45.6'	S 20°13.4'	243°41.0'	S 3°43.4'	
23	257°33.9'	164°23.4'	N 23°24.3'	193°28.5'	N 17°48.9'	320°44.8'	S 21°25.8'	314°48.2'	S 20°13.4'	258°42.0'	S 3°42.9'	
		SD 15.7' d -0.0'		v 2.6' d -0.3'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'		
Mer. pass.		12 h 2 m 21 s		10 h 8 m		1 h 41 m		2 h 4 m		5 h 46 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigel Kent	-Hadar	-Acrux	-Arcturus	-Regulus	-Procyon	-Pollux	+Sirius
0	156°25.4'	N 23°35.4'	7.1'	-2.9'	57.4'	117°44.3'	113°21.2'	103°10.2'	90°13.6'	37°09.1'			
1	170°51.5'	N 23°32.4'	7.1'	-3.1'	57.4'	117°24.2'	113°00.9'	102°52.9'	89°43.5'	36°35.9'			
2	185°17.5'	N 23°29.3'	7.1'	-3.2'	57.4'	117°03.8'	112°40.5'	102°35.5'	89°13.3'	36°02.6'			
3	199°43.6'	N 23°26.1'	7.1'	-3.4'	57.4'	116°43.4'	112°20.0'	102°18.1'	88°43.2'	35°29.3'			
4	214°09.7'	N 23°22.7'	7.1'	-3.5'	57.5'	116°22.9'	111°59.4'	102°00.6'	88°13.0'	34°56.0'			
5	228°35.8'	N 23°19.2'	7.1'	-3.7'	57.5'	116°02.2'	111°38.7'	101°43.1'	87°42.8'	34°22.7'			
6	243°01.9'	N 23°15.5'	7.1'	-3.8'	57.5'	115°41.4'	111°17.9'	101°25.5'	87°12.5'	33°49.4'			
7	257°28.0'	N 23°11.7'	7.1'	-3.9'	57.5'	115°20.5'	110°57.1'	101°07.8'	86°42.3'	33°16.0'			
8	271°54.1'	N 23°07.8'	7.1'	-4.1'	57.5'	114°59.5'	110°36.1'	100°50.1'	86°12.1'	32°42.7'			
9	286°20.2'	N 23°03.7'	7.1'	-4.2'	57.6'	114°38.4'	110°15.1'	100°32.4'	85°41.8'	32°09.3'			
10	300°46.3'	N 22°59.5'	7.2'	-4.4'	57.6'	114°17.2'	109°53.9'	100°14.5'	85°11.5'	31°35.9'			
11	315°12.5'	N 22°55.1'	7.2'	-4.5'	57.6'	113°55.9'	109°32.7'	99°56.6'	84°41.2'	31°02.5'			
12	329°38.7'	N 22°50.6'	7.2'	-4.7'	57.6'	113°34.5'	109°11.4'	99°38.7'	84°10.9'	30°29.1'			
13	344°04.8'	N 22°45.9'	7.2'	-4.8'	57.6'	113°13.0'	108°50.0'	99°20.7'	83°40.6'	29°55.7'			
14	358°31.0'	N 22°41.1'	7.2'	-4.9'	57.7'	112°51.3'	108°28.5'	99°02.7'	83°10.2'	29°22.3'		8°16.6'	
15	12°57.3'	N 22°36.2'	7.2'	-5.1'	57.7'	112°29.6'	108°06.9'	98°44.6'	82°39.9'	28°48.9'		8°45.3'	
16	27°23.5'	N 22°31.1'	7.3'	-5.2'	57.7'	112°07.8'	107°45.3'	98°26.4'	82°09.5'	28°15.4'		9°14.6'	
17	41°49.8'	N 22°25.9'	7.3'	-5.3'	57.7'	111°45.9'	107°23.6'	98°08.3'	81°39.2'	27°42.0'		9°44.4'	
18	56°16.1'	N 22°20.6'	7.3'	-5.5'	57.7'	111°23.9'	107°01.8'	97°50.0'	81°08.8'	27°08.5'		10°14.6'	
19	70°42.4'	N 22°15.1'	7.3'	-5.6'	57.8'	111°01.9'	106°40.0'	97°31.7'	80°38.4'	26°35.1'	20°26.4'	10°45.2'	
20	85°08.8'	N 22°09.5'	7.4'	-5.8'	57.8'	110°39.7'	106°18.0'	97°13.4'	80°08.0'	26°01.6'	20°41.4'	11°16.2'	
21	99°35.1'	N 22°03.7'	7.4'	-5.9'	57.8'	110°17.5'	105°56.0'	96°55.1'	79°37.6'	25°28.2'	20°57.2'	11°47.4'	
22	114°01.5'	N 21°57.9'	7.4'	-6.0'	57.8'	109°55.1'	105°34.0'	96°36.7'	79°07.2'	24°54.7'	21°13.6'	12°18.9'	46°52.6'
23	128°28.0'	N 21°51.8'	7.5'	-6.2'	57.8'	109°32.7'	105°11.8'	96°18.2'	78°36.8'	24°21.3'	21°30.6'	12°50.6'	47°07.9'
Mer. pass.		14 h 6 m SD 15.6'		phase 3%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'		
Deneb	+1.2	49°27.8'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'		
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	N 8°10.8'		
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'		
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°59.8'	N 89°20.7'		
Rigel Kent	-0.0	139°44.8'	S 60°55.2'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.3'	S 57°07.8'		
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'						
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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°36.3'	179°23.2' N	23°24.2'	208°31.0' N	17°48.6'	335°47.6' S	21°25.9'	329°50.9' S	20°13.5'	273°43.0' S	3°42.3'	
1	287°38.8'	194°23.1' N	23°24.2'	223°33.5' N	17°48.3'	350°50.3' S	21°25.9'	344°53.5' S	20°13.5'	288°44.0' S	3°41.8'	
2	302°41.3'	209°23.0' N	23°24.1'	238°36.1' N	17°48.0'	5°53.1' S	21°26.0'	359°56.1' S	20°13.6'	303°45.1' S	3°41.2'	
3	317°43.7'	224°22.8' N	23°24.1'	253°38.6' N	17°47.6'	20°55.8' S	21°26.0'	14°58.7' S	20°13.6'	318°46.1' S	3°40.7'	
4	332°46.2'	239°22.7' N	23°24.0'	268°41.1' N	17°47.3'	35°58.6' S	21°26.1'	30°01.4' S	20°13.6'	333°47.1' S	3°40.1'	
5	347°48.7'	254°22.6' N	23°23.9'	283°43.6' N	17°47.0'	51°01.4' S	21°26.2'	45°04.0' S	20°13.7'	348°48.1' S	3°39.5'	
6	2°51.1'	269°22.4' N	23°23.9'	298°46.2' N	17°46.7'	66°04.1' S	21°26.2'	60°06.6' S	20°13.7'	3°49.1' S	3°39.0'	
7	17°53.6'	284°22.3' N	23°23.8'	313°48.7' N	17°46.4'	81°06.9' S	21°26.3'	75°09.2' S	20°13.7'	18°50.2' S	3°38.4'	
8	32°56.1'	299°22.2' N	23°23.8'	328°51.2' N	17°46.1'	96°09.6' S	21°26.3'	90°11.8' S	20°13.8'	33°51.2' S	3°37.9'	
9	47°58.5'	314°22.0' N	23°23.7'	343°53.7' N	17°45.8'	111°12.4' S	21°26.4'	105°14.5' S	20°13.8'	48°52.2' S	3°37.3'	
10	63°01.0'	329°21.9' N	23°23.7'	358°56.2' N	17°45.5'	126°15.1' S	21°26.4'	120°17.1' S	20°13.8'	63°53.2' S	3°36.8'	
11	78°03.5'	344°21.7' N	23°23.6'	13°58.7' N	17°45.2'	141°17.9' S	21°26.5'	135°19.7' S	20°13.9'	78°54.3' S	3°36.2'	
12	93°05.9'	359°21.6' N	23°23.5'	29°01.2' N	17°44.9'	156°20.6' S	21°26.6'	150°22.3' S	20°13.9'	93°55.3' S	3°35.7'	
13	108°08.4'	14°21.5' N	23°23.5'	44°03.6' N	17°44.6'	171°23.4' S	21°26.6'	165°25.0' S	20°14.0'	108°56.3' S	3°35.1'	
14	123°10.8'	29°21.3' N	23°23.4'	59°06.1' N	17°44.3'	186°26.2' S	21°26.7'	180°27.6' S	20°14.0'	123°57.3' S	3°34.5'	
15	138°13.3'	44°21.2' N	23°23.3'	74°08.6' N	17°44.0'	201°28.9' S	21°26.7'	195°30.2' S	20°14.0'	138°58.4' S	3°34.0'	
16	153°15.8'	59°21.1' N	23°23.3'	89°11.1' N	17°43.7'	216°31.7' S	21°26.8'	210°32.8' S	20°14.1'	153°59.4' S	3°33.4'	
17	168°18.2'	74°20.9' N	23°23.2'	104°13.6' N	17°43.4'	231°34.4' S	21°26.8'	225°35.4' S	20°14.1'	169°00.4' S	3°32.9'	
18	183°20.7'	89°20.8' N	23°23.1'	119°16.0' N	17°43.1'	246°37.2' S	21°26.9'	240°38.1' S	20°14.1'	184°01.4' S	3°32.3'	
19	198°23.2'	104°20.7' N	23°23.1'	134°18.5' N	17°42.8'	261°39.9' S	21°27.0'	255°40.7' S	20°14.2'	199°02.5' S	3°31.8'	
20	213°25.6'	119°20.5' N	23°23.0'	149°20.9' N	17°42.5'	276°42.7' S	21°27.0'	270°43.3' S	20°14.2'	214°03.5' S	3°31.2'	
21	228°28.1'	134°20.4' N	23°22.9'	164°23.4' N	17°42.2'	291°45.5' S	21°27.1'	285°45.9' S	20°14.3'	229°04.5' S	3°30.7'	
22	243°30.6'	149°20.3' N	23°22.9'	179°25.8' N	17°41.9'	306°48.2' S	21°27.1'	300°48.6' S	20°14.3'	244°05.5' S	3°30.1'	
23	258°33.0'	164°20.1' N	23°22.8'	194°28.3' N	17°41.7'	321°51.0' S	21°27.2'	315°51.2' S	20°14.3'	259°06.6' S	3°29.5'	
		SD 15.7' d -0.1'		v 2.5' d -0.3'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'		
Mer. pass.		12 h 2 m 34 s		10 h 4 m		1 h 37 m		2 h 0 m		5 h 45 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Sun	+Sirius
0	142°54.4'	N 21°45.7'	7.5'	-6.3'	57.9'	95°59.8'	78°06.4'	77°49.0'	23°47.8'	13°22.5'	21°48.4'		47°23.4'
1	157°20.9'	N 21°39.4'	7.5'	-6.4'	57.9'	95°41.3'	77°36.0'	77°15.2'	23°14.4'	13°54.6'	22°06.7'		47°39.2'
2	171°47.4'	N 21°33.0'	7.6'	-6.6'	57.9'	95°22.7'	77°05.6'	76°41.5'	22°40.9'	14°26.8'	22°25.6'		47°55.2'
3	186°14.0'	N 21°26.4'	7.6'	-6.7'	57.9'	95°04.1'	76°35.1'	76°07.7'	22°07.5'	14°59.2'	22°45.1'		48°11.4'
4	200°40.6'	N 21°19.7'	7.6'	-6.8'	57.9'	94°45.5'	76°04.7'	75°33.9'	21°34.1'	15°31.7'	23°05.2'		48°27.9'
5	215°07.2'	N 21°12.9'	7.7'	-6.9'	57.9'	94°26.9'	75°34.3'	75°00.0'	21°00.7'	16°04.4'	23°25.7'		48°44.7'
6	229°33.8'	N 21°06.0'	7.7'	-7.1'	58.0'	94°08.2'	75°03.9'	74°26.2'	20°27.3'	16°37.1'	23°46.8'		49°01.7'
7	244°00.5'	N 20°58.9'	7.7'	-7.2'	58.0'	93°49.5'	74°33.5'	73°52.3'	19°53.9'	17°10.0'	24°08.3'		49°18.9'
8	258°27.3'	N 20°51.7'	7.8'	-7.3'	58.0'	93°30.8'	74°03.0'	73°18.5'	19°20.6'	17°43.0'	24°30.3'		49°36.3'
9	272°54.0'	N 20°44.3'	7.8'	-7.5'	58.0'	93°12.1'	73°32.6'	72°44.6'	18°47.3'	18°16.0'	24°52.8'		49°53.9'
10	287°20.9'	N 20°36.9'	7.8'	-7.6'	58.0'	92°53.3'	73°02.2'	72°10.6'	18°14.0'	18°49.1'	25°15.6'		50°11.8'
11	301°47.7'	N 20°29.3'	7.9'	-7.7'	58.1'	92°34.5'	72°31.8'	71°36.7'	17°40.7'	19°22.4'	25°38.9'		50°29.9'
12	316°14.6'	N 20°21.6'	7.9'	-7.8'	58.1'	92°15.7'	72°01.4'	71°02.8'	17°07.5'	19°55.6'	26°02.6'		50°48.2'
13	330°41.5'	N 20°13.8'	8.0'	-8.0'	58.1'	91°56.9'	71°31.0'	70°28.8'	16°34.4'	20°29.0'	26°26.6'	40°30.8'	51°06.7'
14	345°08.5'	N 20°05.8'	8.0'	-8.1'	58.1'	91°38.0'	71°00.6'	69°54.8'	16°01.3'	21°02.4'	26°51.0'	41°02.7'	51°25.4'
15	359°35.5'	N 19°57.7'	8.1'	-8.2'	58.1'	91°19.2'	70°30.3'	69°20.8'	15°28.3'	21°35.9'	27°15.7'	41°34.6'	51°44.3'
16	14°02.6'	N 19°49.5'	8.1'	-8.3'	58.1'	91°00.3'	69°59.9'	68°46.8'	14°55.3'	22°09.4'	27°40.7'	42°06.5'	52°03.4'
17	28°29.7'	N 19°41.2'	8.1'	-8.4'	58.2'	90°41.4'	69°29.5'	68°12.8'	14°22.4'	22°43.0'	28°06.1'	42°38.5'	52°22.7'
18	42°56.8'	N 19°32.8'	8.2'	-8.6'	58.2'	90°22.5'	68°59.2'	67°38.7'	13°49.6'	23°16.6'	28°31.8'	43°10.4'	52°42.2'
19	57°24.0'	N 19°24.2'	8.2'	-8.7'	58.2'	90°03.6'	68°28.9'	67°04.7'	13°17.0'	23°50.3'	28°57.7'	43°42.4'	53°01.8'
20	71°51.2'	N 19°15.5'	8.3'	-8.8'	58.2'	89°44.6'	67°58.6'	66°30.6'	12°44.4'	24°24.0'	29°24.0'	44°14.4'	53°21.7'
21	86°18.5'	N 19°06.7'	8.3'	-8.9'	58.2'	89°25.7'	67°28.3'	65°56.5'	12°12.0'	24°57.8'	29°50.5'	44°46.4'	53°41.7'
22	100°45.8'	N 18°57.8'	8.4'	-9.0'	58.2'	89°06.8'	66°58.0'	65°22.4'	11°39.8'	25°31.6'	30°17.2'	45°18.4'	54°01.9'
23	115°13.2'	N 18°48.8'	8.4'	-9.1'	58.3'	88°47.8'	66°27.7'	64°48.3'	11°07.8'	26°05.4'	30°44.2'	45°50.4'	54°22.3'
Mer. pass.		15 h 2 m SD 15.8' phase 8%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.0'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.3'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°59.4'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.3'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.5'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	273°35.5'		179°20.0'	N 23°22.7'	209°30.7'	N 17°41.4'	336°53.7'	S 21°27.2'	330°53.8'	S 20°14.4'	274°07.6'	S 3°29.0'
1	288°38.0'		194°19.9'	N 23°22.7'	224°33.2'	N 17°41.1'	351°56.5'	S 21°27.3'	345°56.4'	S 20°14.4'	289°08.6'	S 3°28.4'
2	303°40.4'		209°19.7'	N 23°22.6'	239°35.6'	N 17°40.8'	6°59.2'	S 21°27.3'	0°59.1'	S 20°14.4'	304°09.6'	S 3°27.9'
3	318°42.9'		224°19.6'	N 23°22.5'	254°38.0'	N 17°40.5'	22°02.0'	S 21°27.4'	16°01.7'	S 20°14.5'	319°10.7'	S 3°27.3'
4	333°45.3'		239°19.5'	N 23°22.4'	269°40.5'	N 17°40.3'	37°04.8'	S 21°27.5'	31°04.3'	S 20°14.5'	334°11.7'	S 3°26.8'
5	348°47.8'		254°19.3'	N 23°22.4'	284°42.9'	N 17°40.0'	52°07.5'	S 21°27.5'	46°06.9'	S 20°14.6'	349°12.7'	S 3°26.2'
6	3°50.3'		269°19.2'	N 23°22.3'	299°45.3'	N 17°39.7'	67°10.3'	S 21°27.6'	61°09.6'	S 20°14.6'	4°13.8'	S 3°25.7'
7	18°52.7'		284°19.1'	N 23°22.2'	314°47.7'	N 17°39.4'	82°13.0'	S 21°27.6'	76°12.2'	S 20°14.6'	19°14.8'	S 3°25.1'
8	33°55.2'		299°18.9'	N 23°22.1'	329°50.1'	N 17°39.2'	97°15.8'	S 21°27.7'	91°14.8'	S 20°14.7'	34°15.8'	S 3°24.6'
9	48°57.7'		314°18.8'	N 23°22.1'	344°52.5'	N 17°38.9'	112°18.6'	S 21°27.7'	106°17.4'	S 20°14.7'	49°16.8'	S 3°24.0'
10	64°00.1'		329°18.7'	N 23°22.0'	359°54.9'	N 17°38.6'	127°21.3'	S 21°27.8'	121°20.1'	S 20°14.7'	64°17.9'	S 3°23.5'
11	79°02.6'		344°18.5'	N 23°21.9'	14°57.3'	N 17°38.4'	142°24.1'	S 21°27.9'	136°22.7'	S 20°14.8'	79°18.9'	S 3°22.9'
12	94°05.1'		359°18.4'	N 23°21.8'	29°59.7'	N 17°38.1'	157°26.8'	S 21°27.9'	151°25.3'	S 20°14.8'	94°19.9'	S 3°22.3'
13	109°07.5'		14°18.3'	N 23°21.8'	45°02.1'	N 17°37.8'	172°29.6'	S 21°28.0'	166°27.9'	S 20°14.8'	109°21.0'	S 3°21.8'
14	124°10.0'		29°18.2'	N 23°21.7'	60°04.5'	N 17°37.6'	187°32.4'	S 21°28.0'	181°30.6'	S 20°14.9'	124°22.0'	S 3°21.2'
15	139°12.5'		44°18.0'	N 23°21.6'	75°06.9'	N 17°37.3'	202°35.1'	S 21°28.1'	196°33.2'	S 20°14.9'	139°23.0'	S 3°20.7'
16	154°14.9'		59°17.9'	N 23°21.5'	90°09.3'	N 17°37.0'	217°37.9'	S 21°28.1'	211°35.8'	S 20°15.0'	154°24.1'	S 3°20.1'
17	169°17.4'		74°17.8'	N 23°21.4'	105°11.7'	N 17°36.8'	232°40.7'	S 21°28.2'	226°38.4'	S 20°15.0'	169°25.1'	S 3°19.6'
18	184°19.8'		89°17.6'	N 23°21.4'	120°14.0'	N 17°36.5'	247°43.4'	S 21°28.3'	241°41.1'	S 20°15.0'	184°26.1'	S 3°19.0'
19	199°22.3'		104°17.5'	N 23°21.3'	135°16.4'	N 17°36.3'	262°46.2'	S 21°28.3'	256°43.7'	S 20°15.1'	199°27.2'	S 3°18.5'
20	214°24.8'		119°17.4'	N 23°21.2'	150°18.8'	N 17°36.0'	277°48.9'	S 21°28.4'	271°46.3'	S 20°15.1'	214°28.2'	S 3°17.9'
21	229°27.2'		134°17.2'	N 23°21.1'	165°21.1'	N 17°35.8'	292°51.7'	S 21°28.4'	286°48.9'	S 20°15.1'	229°29.2'	S 3°17.4'
22	244°29.7'		149°17.1'	N 23°21.0'	180°23.5'	N 17°35.5'	307°54.5'	S 21°28.5'	301°51.6'	S 20°15.2'	244°30.3'	S 3°16.8'
23	259°32.2'		164°17.0'	N 23°20.9'	195°25.8'	N 17°35.3'	322°57.2'	S 21°28.5'	316°54.2'	S 20°15.2'	259°31.3'	S 3°16.3'
			SD 15.7' d -0.1'		v 2.4' d -0.3'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'	
Mer. pass.			12 h 2 m 47 s		10 h 0 m		1 h 32 m		1 h 56 m		5 h 43 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Sun	+Sirius
0	129°40.6'	N 18°39.7'	8.5'	-9.3'	58.3'	88°28.9'	65°57.5'	64°14.2'	10°36.0'	26°39.3'	31°11.4'	46°22.5'	54°42.9'
1	144°08.0'	N 18°30.4'	8.5'	-9.4'	58.3'	88°09.9'	65°27.3'	63°40.0'	10°04.5'	27°13.3'	31°38.9'	46°54.5'	55°03.6'
2	158°35.5'	N 18°21.1'	8.6'	-9.5'	58.3'	87°50.9'	64°57.1'	63°05.9'	9°33.3'	27°47.2'	32°06.5'	47°26.6'	55°24.5'
3	173°03.1'	N 18°11.6'	8.6'	-9.6'	58.3'	87°32.0'	64°26.9'	62°31.7'	9°02.5'	28°21.2'	32°34.4'	47°58.7'	55°45.5'
4	187°30.7'	N 18°02.0'	8.6'	-9.7'	58.3'	87°13.0'	63°56.7'	61°57.5'	8°32.1'	28°55.3'	33°02.5'	48°30.9'	56°06.7'
5	201°58.3'	N 17°52.3'	8.7'	-9.8'	58.4'	86°54.1'	63°26.6'	61°23.3'	8°02.2'	29°29.3'	33°30.7'	49°03.0'	56°28.1'
6	216°26.0'	N 17°42.5'	8.7'	-9.9'	58.4'	86°35.1'	62°56.5'	60°49.1'	7°33.0'	30°03.4'	33°59.2'	49°35.1'	56°49.6'
7	230°53.8'	N 17°32.6'	8.8'	-10.0'	58.4'	86°16.2'	62°26.4'	60°14.9'		30°37.6'	34°27.8'	50°07.3'	57°11.2'
8	245°21.6'	N 17°22.6'	8.8'	-10.1'	58.4'	85°57.2'	61°56.4'	59°40.7'		31°11.7'	34°56.6'	50°39.5'	57°33.0'
9	259°49.4'	N 17°12.5'	8.9'	-10.2'	58.4'	85°38.3'	61°26.4'	59°06.4'		31°45.9'	35°25.5'	51°11.7'	57°55.0'
10	274°17.3'	N 17°02.3'	8.9'	-10.3'	58.4'	85°19.4'	60°56.4'	58°32.2'		32°20.1'	35°54.7'	51°43.9'	58°17.1'
11	288°45.2'	N 16°51.9'	9.0'	-10.4'	58.4'	85°00.5'	60°26.5'	57°57.9'		32°54.3'	36°23.9'	52°16.2'	58°39.3'
12	303°13.2'	N 16°41.5'	9.0'	-10.5'	58.5'	84°41.6'	59°56.6'	57°23.6'		33°28.6'	36°53.3'	52°48.4'	59°01.6'
13	317°41.2'	N 16°31.0'	9.1'	-10.6'	58.5'	84°22.7'	59°26.7'	56°49.3'		34°02.9'	37°22.9'	53°20.7'	59°24.1'
14	332°09.3'	N 16°20.4'	9.1'	-10.7'	58.5'	84°03.8'	58°56.9'	56°15.0'		34°37.2'	37°52.6'	53°52.9'	59°46.7'
15	346°37.4'	N 16°09.7'	9.2'	-10.8'	58.5'	83°45.0'	58°27.1'	55°40.7'		35°11.6'	38°22.4'	54°25.2'	60°09.5'
16	1°05.6'	N 15°58.9'	9.2'	-10.9'	58.5'	83°26.2'	57°57.4'	55°06.4'		35°45.9'	38°52.3'	54°57.5'	60°32.3'
17	15°33.8'	N 15°48.0'	9.3'	-11.0'	58.5'	83°07.4'	57°27.7'	54°32.1'		36°20.3'	39°22.4'	55°29.9'	60°55.3'
18	30°02.1'	N 15°37.0'	9.3'	-11.1'	58.5'	82°48.6'	56°58.0'	53°57.7'		36°54.7'	39°52.6'	56°02.2'	61°18.4'
19	44°30.4'	N 15°25.9'	9.4'	-11.2'	58.6'	82°29.8'	56°28.4'	53°23.4'		37°29.2'	40°22.9'	56°34.5'	61°41.6'
20	58°58.7'	N 15°14.7'	9.4'	-11.3'	58.6'	82°11.1'	55°58.9'	52°49.0'		38°03.6'	40°53.3'	57°06.9'	62°05.0'
21	73°27.1'	N 15°03.4'	9.5'	-11.4'	58.6'	81°52.4'	55°29.4'	52°14.7'		38°38.1'	41°23.8'	57°39.3'	62°28.4'
22	87°55.6'	N 14°52.0'	9.5'	-11.5'	58.6'	81°33.7'	54°59.9'	51°40.3'		39°12.6'	41°54.4'	58°11.7'	62°52.0'
23	102°24.1'	N 14°40.6'	9.5'	-11.5'	58.6'	81°15.0'	54°30.6'	51°05.9'		39°47.1'	42°25.1'	58°44.1'	63°15.6'
Mer. pass.			15 h 55 m SD 15.9'		phase 16%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.1'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.8'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°59.0'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.3'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	274°34.6'	179°16.8'	N 23°20.8'	210°28.2'	N 17°35.0'	337°60.0'	S 21°28.6'	331°56.8'	S 20°15.3'	274°32.3'	S 3°15.7'			
1	289°37.1'	194°16.7'	N 23°20.8'	225°30.5'	N 17°34.8'	353°02.8'	S 21°28.7'	346°59.4'	S 20°15.3'	289°33.4'	S 3°15.2'			
2	304°39.6'	209°16.6'	N 23°20.7'	240°32.9'	N 17°34.5'	8°05.5'	S 21°28.7'	2°02.1'	S 20°15.3'	304°34.4'	S 3°14.6'			
3	319°42.0'	224°16.4'	N 23°20.6'	255°35.2'	N 17°34.3'	23°08.3'	S 21°28.8'	17°04.7'	S 20°15.4'	319°35.4'	S 3°14.1'			
4	334°44.5'	239°16.3'	N 23°20.5'	270°37.5'	N 17°34.0'	38°11.0'	S 21°28.8'	32°07.3'	S 20°15.4'	334°36.5'	S 3°13.5'			
5	349°46.9'	254°16.2'	N 23°20.4'	285°39.8'	N 17°33.8'	53°13.8'	S 21°28.9'	47°09.9'	S 20°15.4'	349°37.5'	S 3°13.0'			
6	4°49.4'	269°16.0'	N 23°20.3'	300°42.2'	N 17°33.6'	68°16.6'	S 21°28.9'	62°12.6'	S 20°15.5'	4°38.5'	S 3°12.4'			
7	19°51.9'	284°15.9'	N 23°20.2'	315°44.5'	N 17°33.3'	83°19.3'	S 21°29.0'	77°15.2'	S 20°15.5'	19°39.6'	S 3°11.9'			
8	34°54.3'	299°15.8'	N 23°20.1'	330°46.8'	N 17°33.1'	98°22.1'	S 21°29.1'	92°17.8'	S 20°15.6'	34°40.6'	S 3°11.3'			
9	49°56.8'	314°15.7'	N 23°20.0'	345°49.1'	N 17°32.9'	113°24.9'	S 21°29.1'	107°20.5'	S 20°15.6'	49°41.6'	S 3°10.8'			
10	64°59.3'	329°15.5'	N 23°19.9'	0°51.4'	N 17°32.6'	128°27.6'	S 21°29.2'	122°23.1'	S 20°15.6'	64°42.7'	S 3°10.2'			
11	80°01.7'	344°15.4'	N 23°19.8'	15°53.7'	N 17°32.4'	143°30.4'	S 21°29.2'	137°25.7'	S 20°15.7'	79°43.7'	S 3°09.7'			
12	95°04.2'	359°15.3'	N 23°19.7'	30°56.0'	N 17°32.2'	158°33.2'	S 21°29.3'	152°28.3'	S 20°15.7'	94°44.8'	S 3°09.1'			
13	110°06.7'	14°15.1'	N 23°19.6'	45°58.3'	N 17°31.9'	173°35.9'	S 21°29.3'	167°31.0'	S 20°15.8'	109°45.8'	S 3°08.6'			
14	125°09.1'	29°15.0'	N 23°19.5'	61°00.6'	N 17°31.7'	188°38.7'	S 21°29.4'	182°33.6'	S 20°15.8'	124°46.8'	S 3°08.0'			
15	140°11.6'	44°14.9'	N 23°19.4'	76°02.9'	N 17°31.5'	203°41.5'	S 21°29.5'	197°36.2'	S 20°15.8'	139°47.9'	S 3°07.5'			
16	155°14.1'	59°14.7'	N 23°19.4'	91°05.2'	N 17°31.2'	218°44.2'	S 21°29.5'	212°38.8'	S 20°15.9'	154°48.9'	S 3°06.9'			
17	170°16.5'	74°14.6'	N 23°19.3'	106°07.5'	N 17°31.0'	233°47.0'	S 21°29.6'	227°41.5'	S 20°15.9'	169°50.0'	S 3°06.4'			
18	185°19.0'	89°14.5'	N 23°19.2'	121°09.8'	N 17°30.8'	248°49.8'	S 21°29.6'	242°44.1'	S 20°15.9'	184°51.0'	S 3°05.8'			
19	200°21.4'	104°14.3'	N 23°19.1'	136°12.0'	N 17°30.6'	263°52.5'	S 21°29.7'	257°46.7'	S 20°16.0'	199°52.0'	S 3°05.3'			
20	215°23.9'	119°14.2'	N 23°18.9'	151°14.3'	N 17°30.4'	278°55.3'	S 21°29.7'	272°49.4'	S 20°16.0'	214°53.1'	S 3°04.7'			
21	230°26.4'	134°14.1'	N 23°18.8'	166°16.6'	N 17°30.1'	293°58.0'	S 21°29.8'	287°52.0'	S 20°16.1'	229°54.1'	S 3°04.2'			
22	245°28.8'	149°14.0'	N 23°18.7'	181°18.8'	N 17°29.9'	309°00.8'	S 21°29.9'	302°54.6'	S 20°16.1'	244°55.2'	S 3°03.6'			
23	260°31.3'	164°13.8'	N 23°18.6'	196°21.1'	N 17°29.7'	324°03.6'	S 21°29.9'	317°57.2'	S 20°16.1'	259°56.2'	S 3°03.1'			
		SD 15.7' d -0.1'		v 2.3' d -0.2'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.6'				
Mer. pass.		12 h 2 m 59 s		9 h 57 m		1 h 28 m		1 h 52 m		5 h 41 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	116°52.6'	N 14°29.0'	9.6'	-11.6'	58.6'	86°15.0'	80°56.4'	54°01.3'	50°31.5'		40°21.7'	42°55.9'	59°16.5'
1	131°21.2'	N 14°17.4'	9.6'	-11.7'	58.6'	85°51.4'	80°37.8'	53°32.0'	49°57.2'		40°56.2'	43°26.9'	59°49.0'
2	145°49.8'	N 14°05.7'	9.7'	-11.8'	58.7'	85°27.7'	80°19.3'	53°02.8'	49°22.8'		41°30.8'	43°57.9'	60°21.4'
3	160°18.5'	N 13°53.9'	9.7'	-11.9'	58.7'	85°04.0'	80°00.7'	52°33.7'	48°48.3'		42°05.4'	44°28.9'	60°53.9'
4	174°47.2'	N 13°42.0'	9.8'	-12.0'	58.7'	84°40.4'	79°42.3'	52°04.6'	48°13.9'	7°37.8'	42°40.0'	45°00.1'	61°26.4'
5	189°16.0'	N 13°30.1'	9.8'	-12.0'	58.7'	84°16.7'	79°23.8'	51°35.7'	47°39.5'	8°07.4'	43°14.7'	45°31.4'	61°58.8'
6	203°44.8'	N 13°18.1'	9.9'	-12.1'	58.7'	83°53.1'	79°05.4'	51°06.8'	47°05.1'	8°37.7'	43°49.3'	46°02.7'	62°31.3'
7	218°13.7'	N 13°05.9'	9.9'	-12.2'	58.7'	83°29.5'	78°47.1'	50°38.0'	46°30.7'	9°08.5'	44°24.0'	46°34.1'	63°03.9'
8	232°42.6'	N 12°53.8'	9.9'	-12.3'	58.7'	83°05.8'	78°28.7'	50°09.2'	45°56.2'	9°39.8'	44°58.7'	47°05.6'	63°36.4'
9	247°11.5'	N 12°41.5'	10.0'	-12.3'	58.7'	82°42.2'	78°10.5'	49°40.6'	45°21.8'	10°11.5'	45°33.4'	47°37.1'	64°08.9'
10	261°40.5'	N 12°29.1'	10.0'	-12.4'	58.8'	82°18.6'	77°52.3'	49°12.0'	44°47.4'	10°43.6'	46°08.1'	48°08.8'	64°41.5'
11	276°09.5'	N 12°16.7'	10.1'	-12.5'	58.8'	81°55.1'	77°34.1'	48°43.5'	44°12.9'	11°15.9'	46°42.9'	48°40.5'	65°14.1'
12	290°38.6'	N 12°04.2'	10.1'	-12.6'	58.8'	81°31.5'	77°16.0'	48°15.2'	43°38.5'	11°48.5'	47°17.6'	49°12.2'	65°46.7'
13	305°07.7'	N 11°51.7'	10.1'	-12.6'	58.8'	81°08.0'	76°57.9'	47°46.9'	43°04.1'	12°21.3'	47°52.4'	49°44.1'	66°19.3'
14	319°36.8'	N 11°39.1'	10.2'	-12.7'	58.8'	80°44.5'	76°39.9'	47°18.7'	42°29.6'	12°54.3'	48°27.2'	50°15.9'	66°51.9'
15	334°06.0'	N 11°26.4'	10.2'	-12.8'	58.8'	80°21.0'	76°21.9'	46°50.6'	41°55.2'	13°27.5'	49°02.0'	50°47.9'	67°24.5'
16	348°35.2'	N 11°13.6'	10.3'	-12.8'	58.8'	79°57.6'	76°04.0'	46°22.7'	41°20.7'	14°00.8'	49°36.8'	51°19.9'	67°57.1'
17	3°04.4'	N 11°00.8'	10.3'	-12.9'	58.8'	79°34.1'	75°46.2'	45°54.8'	40°46.3'	14°34.3'	50°11.6'	51°52.0'	68°29.8'
18	17°33.7'	N 10°47.9'	10.3'	-13.0'	58.9'	79°10.7'	75°28.4'	45°27.1'	40°11.8'	15°07.9'	50°46.5'	52°24.1'	69°02.4'
19	32°03.1'	N 10°34.9'	10.4'	-13.0'	58.9'	78°47.3'	75°10.7'	44°59.5'	39°37.4'	15°41.7'	51°21.4'	52°56.3'	69°35.1'
20	46°32.4'	N 10°21.9'	10.4'	-13.1'	58.9'	78°24.0'	74°53.0'	44°32.0'	39°03.0'	16°15.5'	51°56.2'	53°28.5'	70°07.8'
21	61°01.8'	N 10°08.8'	10.4'	-13.1'	58.9'	78°00.7'	74°35.4'	44°04.7'	38°28.5'	16°49.4'	52°31.1'	54°00.8'	70°40.5'
22	75°31.2'	N 9°55.7'	10.5'	-13.2'	58.9'	77°37.4'	74°17.9'	43°37.5'	37°54.1'	17°23.4'	53°06.1'	54°33.1'	71°13.2'
23	90°00.7'	N 9°42.5'	10.5'	-13.3'	58.9'	77°14.2'	74°00.4'	43°10.4'	37°19.7'	17°57.5'	53°41.0'	55°05.5'	71°45.9'
Mer. pass.		16 h 47 m SD 16.0'		phase 24%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.1'	Acrux	+0.8	173°03.9'	S 63°12.9'	Capella	+0.1	280°27.7'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°58.7'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.3'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.4'				

Saturday 27 June 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	275°33.8'	179°13.7'	N 23°18.5'	211°23.3'	N 17°29.5'	339°06.3'	S 21°30.0'	332°59.9'	S 20°16.2'	274°57.2'	S 3°02.5'			
1	290°36.2'	194°13.6'	N 23°18.4'	226°25.6'	N 17°29.3'	354°09.1'	S 21°30.0'	348°02.5'	S 20°16.2'	289°58.3'	S 3°02.0'			
2	305°38.7'	209°13.4'	N 23°18.3'	241°27.8'	N 17°29.1'	9°11.9'	S 21°30.1'	3°05.1'	S 20°16.2'	304°59.3'	S 3°01.4'			
3	320°41.2'	224°13.3'	N 23°18.2'	256°30.1'	N 17°28.9'	24°14.7'	S 21°30.1'	18°07.8'	S 20°16.3'	320°00.4'	S 3°00.9'			
4	335°43.6'	239°13.2'	N 23°18.1'	271°32.3'	N 17°28.7'	39°17.4'	S 21°30.2'	33°10.4'	S 20°16.3'	335°01.4'	S 3°00.3'			
5	350°46.1'	254°13.1'	N 23°18.0'	286°34.6'	N 17°28.5'	54°20.2'	S 21°30.3'	48°13.0'	S 20°16.4'	350°02.4'	S 2°59.8'			
6	5°48.6'	269°12.9'	N 23°17.9'	301°36.8'	N 17°28.3'	69°23.0'	S 21°30.3'	63°15.6'	S 20°16.4'	5°03.5'	S 2°59.2'			
7	20°51.0'	284°12.8'	N 23°17.8'	316°39.0'	N 17°28.1'	84°25.7'	S 21°30.4'	78°18.3'	S 20°16.4'	20°04.5'	S 2°58.7'			
8	35°53.5'	299°12.7'	N 23°17.7'	331°41.2'	N 17°27.9'	99°28.5'	S 21°30.4'	93°20.9'	S 20°16.5'	35°05.6'	S 2°58.1'			
9	50°55.9'	314°12.5'	N 23°17.6'	346°43.5'	N 17°27.7'	114°31.3'	S 21°30.5'	108°23.5'	S 20°16.5'	50°06.6'	S 2°57.6'			
10	65°58.4'	329°12.4'	N 23°17.5'	1°45.7'	N 17°27.5'	129°34.0'	S 21°30.6'	123°26.2'	S 20°16.5'	65°07.7'	S 2°57.0'			
11	81°00.9'	344°12.3'	N 23°17.3'	16°47.9'	N 17°27.3'	144°36.8'	S 21°30.6'	138°28.8'	S 20°16.6'	80°08.7'	S 2°56.5'			
12	96°03.3'	359°12.1'	N 23°17.2'	31°50.1'	N 17°27.1'	159°39.6'	S 21°30.7'	153°31.4'	S 20°16.6'	95°09.7'	S 2°55.9'			
13	111°05.8'	14°12.0'	N 23°17.1'	46°52.3'	N 17°26.9'	174°42.3'	S 21°30.7'	168°34.1'	S 20°16.7'	110°10.8'	S 2°55.4'			
14	126°08.3'	29°11.9'	N 23°17.0'	61°54.5'	N 17°26.7'	189°45.1'	S 21°30.8'	183°36.7'	S 20°16.7'	125°11.8'	S 2°54.8'			
15	141°10.7'	44°11.8'	N 23°16.9'	76°56.7'	N 17°26.5'	204°47.9'	S 21°30.8'	198°39.3'	S 20°16.7'	140°12.9'	S 2°54.3'			
16	156°13.2'	59°11.6'	N 23°16.8'	91°58.9'	N 17°26.3'	219°50.6'	S 21°30.9'	213°41.9'	S 20°16.8'	155°13.9'	S 2°53.7'			
17	171°15.7'	74°11.5'	N 23°16.7'	107°01.1'	N 17°26.1'	234°53.4'	S 21°31.0'	228°44.6'	S 20°16.8'	170°15.0'	S 2°53.2'			
18	186°18.1'	89°11.4'	N 23°16.5'	122°03.3'	N 17°25.9'	249°56.2'	S 21°31.0'	243°47.2'	S 20°16.9'	185°16.0'	S 2°52.7'			
19	201°20.6'	104°11.3'	N 23°16.4'	137°05.5'	N 17°25.7'	264°59.0'	S 21°31.1'	258°49.8'	S 20°16.9'	200°17.1'	S 2°52.1'			
20	216°23.0'	119°11.1'	N 23°16.3'	152°07.6'	N 17°25.5'	280°01.7'	S 21°31.1'	273°52.5'	S 20°16.9'	215°18.1'	S 2°51.6'			
21	231°25.5'	134°11.0'	N 23°16.2'	167°09.8'	N 17°25.4'	295°04.5'	S 21°31.2'	288°55.1'	S 20°17.0'	230°19.2'	S 2°51.0'			
22	246°28.0'	149°10.9'	N 23°16.1'	182°12.0'	N 17°25.2'	310°07.3'	S 21°31.2'	303°57.7'	S 20°17.0'	245°20.2'	S 2°50.5'			
23	261°30.4'	164°10.7'	N 23°15.9'	197°14.1'	N 17°25.0'	325°10.0'	S 21°31.3'	319°00.4'	S 20°17.0'	260°21.3'	S 2°49.9'			
		SD 15.7' d -0.1'		v 2.2' d -0.2'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.0' d 0.5'				
Mer. pass.		12 h 3 m 12 s		9 h 53 m		1 h 23 m		1 h 48 m		5 h 40 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	104°30.2'	N 9°29.3'	10.5'	-13.3'	58.9'	76°51.0'	73°43.0'	42°43.5'	36°45.3'	18°31.6'	54°15.9'	55°37.9'	72°18.6'
1	118°59.7'	N 9°15.9'	10.6'	-13.4'	58.9'	76°27.8'	73°25.7'	42°16.7'	36°10.9'	19°05.9'	54°50.9'	56°10.4'	72°51.3'
2	133°29.3'	N 9°02.6'	10.6'	-13.4'	58.9'	76°04.7'	73°08.5'	41°50.1'	35°36.5'	19°40.1'	55°25.8'	56°42.9'	73°24.1'
3	147°58.9'	N 8°49.2'	10.6'	-13.5'	59.0'	75°41.6'	72°51.4'	41°23.7'	35°02.1'	20°14.5'	56°00.8'	57°15.5'	73°56.9'
4	162°28.5'	N 8°35.7'	10.6'	-13.5'	59.0'	75°18.6'	72°34.3'	40°57.4'	34°27.7'	20°48.9'	56°35.8'	57°48.1'	74°29.6'
5	176°58.1'	N 8°22.2'	10.7'	-13.6'	59.0'	74°55.6'	72°17.3'	40°31.3'	33°53.4'	21°23.3'	57°10.8'	58°20.8'	75°02.4'
6	191°27.8'	N 8°08.6'	10.7'	-13.6'	59.0'	74°32.7'	72°00.4'	40°05.4'	33°19.0'	21°57.8'	57°45.8'	58°53.4'	75°35.2'
7	205°57.5'	N 7°55.0'	10.7'	-13.7'	59.0'	74°09.8'	71°43.5'	39°39.7'	32°44.7'	22°32.3'	58°20.9'	59°26.2'	76°08.0'
8	220°27.3'	N 7°41.3'	10.8'	-13.7'	59.0'	73°46.9'	71°26.8'	39°14.2'	32°10.4'	23°06.9'	58°55.9'	59°58.9'	76°40.8'
9	234°57.0'	N 7°27.6'	10.8'	-13.8'	59.0'	73°24.2'	71°10.2'	38°48.8'	31°36.1'	23°41.5'	59°31.0'	60°31.7'	77°13.7'
10	249°26.8'	N 7°13.9'	10.8'	-13.8'	59.0'	73°01.4'	70°53.6'	38°23.7'	31°01.8'	24°16.2'	60°06.0'	61°04.6'	77°46.5'
11	263°56.6'	N 7°00.1'	10.8'	-13.8'	59.0'	72°38.8'	70°37.1'	37°58.8'	30°27.5'	24°50.9'	60°41.1'	61°37.5'	78°19.3'
12	278°26.4'	N 6°46.2'	10.8'	-13.9'	59.0'	72°16.2'	70°20.7'	37°34.2'	29°53.3'	25°25.6'	61°16.2'	62°10.4'	78°52.2'
13	292°56.3'	N 6°32.4'	10.9'	-13.9'	59.1'	71°53.6'	70°04.5'	37°09.7'	29°19.1'	26°00.3'	61°51.3'	62°43.3'	79°25.1'
14	307°26.1'	N 6°18.4'	10.9'	-14.0'	59.1'	71°31.1'	69°48.3'	36°45.5'	28°44.9'	26°35.1'	62°26.4'	63°16.3'	79°57.9'
15	321°56.0'	N 6°04.5'	10.9'	-14.0'	59.1'	71°08.7'	69°32.2'	36°21.6'	28°10.8'	27°09.9'	63°01.6'	63°49.3'	80°30.8'
16	336°25.9'	N 5°50.5'	10.9'	-14.0'	59.1'	70°46.4'	69°16.2'	35°57.9'	27°36.6'	27°44.8'	63°36.7'	64°22.4'	81°03.7'
17	350°55.9'	N 5°36.5'	10.9'	-14.1'	59.1'	70°24.1'	69°00.4'	35°34.5'	27°02.6'	28°19.6'	64°11.9'	64°55.4'	81°36.6'
18	5°25.8'	N 5°22.4'	11.0'	-14.1'	59.1'	70°01.9'	68°44.6'	35°11.4'	26°28.5'	28°54.5'	64°47.0'	65°28.5'	82°09.6'
19	19°55.8'	N 5°08.3'	11.0'	-14.1'	59.1'	69°39.8'	68°28.9'	34°48.5'	25°54.5'	29°29.4'	65°22.2'	66°01.7'	82°42.5'
20	34°25.7'	N 4°54.2'	11.0'	-14.2'	59.1'	69°17.7'	68°13.4'	34°26.0'	25°20.6'	30°04.4'	65°57.4'	66°34.8'	83°15.4'
21	48°55.7'	N 4°40.0'	11.0'	-14.2'	59.1'	68°55.7'	67°58.0'	34°03.8'	24°46.7'	30°39.3'	66°32.6'	67°08.0'	83°48.4'
22	63°25.7'	N 4°25.9'	11.0'	-14.2'	59.1'	68°33.8'	67°42.7'	33°41.9'	24°12.8'	31°14.3'	67°07.8'	67°41.2'	84°21.3'
23	77°55.7'	N 4°11.7'	11.0'	-14.2'	59.1'	68°12.0'	67°27.5'	33°20.3'	23°39.0'	31°49.3'	67°43.0'	68°14.5'	84°54.3'
Mer. pass.		17 h 38 m SD 16.1'		phase 35%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.1'	Acrux	+0.8	173°04.0'	S 63°12.9'	Capella	+0.1	280°27.7'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°58.3'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.3'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.7'	S 60°28.4'	Canopus	-0.6	263°54.6'	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	276°32.9'	179°10.6'	N 23°15.8'	212°16.3'	N 17°24.8'	340°12.8'	S 21°31.4'	334°03.0'	S 20°17.1'	275°22.3'	S 2°49.4'			
1	291°35.4'	194°10.5'	N 23°15.7'	227°18.5'	N 17°24.6'	355°15.6'	S 21°31.4'	349°05.6'	S 20°17.1'	290°23.4'	S 2°48.8'			
2	306°37.8'	209°10.4'	N 23°15.6'	242°20.6'	N 17°24.5'	10°18.4'	S 21°31.5'	4°08.2'	S 20°17.2'	305°24.4'	S 2°48.3'			
3	321°40.3'	224°10.2'	N 23°15.5'	257°22.8'	N 17°24.3'	25°21.1'	S 21°31.5'	19°10.9'	S 20°17.2'	320°25.5'	S 2°47.7'			
4	336°42.8'	239°10.1'	N 23°15.3'	272°24.9'	N 17°24.1'	40°23.9'	S 21°31.6'	34°13.5'	S 20°17.2'	335°26.5'	S 2°47.2'			
5	351°45.2'	254°10.0'	N 23°15.2'	287°27.1'	N 17°23.9'	55°26.7'	S 21°31.7'	49°16.1'	S 20°17.3'	350°27.6'	S 2°46.6'			
6	6°47.7'	269°09.8'	N 23°15.1'	302°29.2'	N 17°23.8'	70°29.4'	S 21°31.7'	64°18.8'	S 20°17.3'	5°28.6'	S 2°46.1'			
7	21°50.2'	284°09.7'	N 23°15.0'	317°31.3'	N 17°23.6'	85°32.2'	S 21°31.8'	79°21.4'	S 20°17.4'	20°29.7'	S 2°45.6'			
8	36°52.6'	299°09.6'	N 23°14.8'	332°33.5'	N 17°23.4'	100°35.0'	S 21°31.8'	94°24.0'	S 20°17.4'	35°30.7'	S 2°45.0'			
9	51°55.1'	314°09.5'	N 23°14.7'	347°35.6'	N 17°23.3'	115°37.8'	S 21°31.9'	109°26.7'	S 20°17.4'	50°31.8'	S 2°44.5'			
10	66°57.5'	329°09.3'	N 23°14.6'	2°37.7'	N 17°23.1'	130°40.5'	S 21°31.9'	124°29.3'	S 20°17.5'	65°32.8'	S 2°43.9'			
11	82°00.0'	344°09.2'	N 23°14.4'	17°39.9'	N 17°22.9'	145°43.3'	S 21°32.0'	139°31.9'	S 20°17.5'	80°33.9'	S 2°43.4'			
12	97°02.5'	359°09.1'	N 23°14.3'	32°42.0'	N 17°22.8'	160°46.1'	S 21°32.1'	154°34.6'	S 20°17.5'	95°34.9'	S 2°42.8'			
13	112°04.9'	14°09.0'	N 23°14.2'	47°44.1'	N 17°22.6'	175°48.9'	S 21°32.1'	169°37.2'	S 20°17.6'	110°36.0'	S 2°42.3'			
14	127°07.4'	29°08.8'	N 23°14.0'	62°46.2'	N 17°22.5'	190°51.6'	S 21°32.2'	184°39.8'	S 20°17.6'	125°37.0'	S 2°41.7'			
15	142°09.9'	44°08.7'	N 23°13.9'	77°48.3'	N 17°22.3'	205°54.4'	S 21°32.2'	199°42.5'	S 20°17.7'	140°38.1'	S 2°41.2'			
16	157°12.3'	59°08.6'	N 23°13.8'	92°50.4'	N 17°22.1'	220°57.2'	S 21°32.3'	214°45.1'	S 20°17.7'	155°39.1'	S 2°40.7'			
17	172°14.8'	74°08.5'	N 23°13.7'	107°52.5'	N 17°22.0'	235°59.9'	S 21°32.3'	229°47.7'	S 20°17.7'	170°40.2'	S 2°40.1'			
18	187°17.3'	89°08.3'	N 23°13.5'	122°54.6'	N 17°21.8'	251°02.7'	S 21°32.4'	244°50.4'	S 20°17.8'	185°41.2'	S 2°39.6'			
19	202°19.7'	104°08.2'	N 23°13.4'	137°56.7'	N 17°21.7'	266°05.5'	S 21°32.5'	259°53.0'	S 20°17.8'	200°42.3'	S 2°39.0'			
20	217°22.2'	119°08.1'	N 23°13.2'	152°58.8'	N 17°21.5'	281°08.3'	S 21°32.5'	274°55.6'	S 20°17.9'	215°43.3'	S 2°38.5'			
21	232°24.6'	134°08.0'	N 23°13.1'	168°00.9'	N 17°21.4'	296°11.0'	S 21°32.6'	289°58.3'	S 20°17.9'	230°44.4'	S 2°37.9'			
22	247°27.1'	149°07.8'	N 23°13.0'	183°02.9'	N 17°21.2'	311°13.8'	S 21°32.6'	305°00.9'	S 20°17.9'	245°45.4'	S 2°37.4'			
23	262°29.6'	164°07.7'	N 23°12.8'	198°05.0'	N 17°21.1'	326°16.6'	S 21°32.7'	320°03.5'	S 20°18.0'	260°46.5'	S 2°36.9'			
		SD 15.7' d -0.1'		v 2.1' d -0.2'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.1' d 0.5'				
Mer. pass.		12 h 3 m 24 s		9 h 50 m		1 h 19 m		1 h 44 m		5 h 38 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Antares	-Hadar	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	92°25.7'	N 3°57.4'	11.0'	-14.3'	59.1'	68°28.1'	67°50.3'	32°59.1'	23°05.3'	32°24.3'	68°18.2'	68°47.7'	85°27.3'
1	106°55.8'	N 3°43.2'	11.0'	-14.3'	59.2'	67°53.0'	67°28.6'	32°38.2'	22°31.7'	32°59.4'	68°53.4'	69°21.0'	86°00.2'
2	121°25.8'	N 3°28.9'	11.1'	-14.3'	59.2'	67°17.9'	67°07.1'	32°17.7'	21°58.1'	33°34.4'	69°28.7'	69°54.3'	86°33.2'
3	135°55.9'	N 3°14.6'	11.1'	-14.3'	59.2'	66°42.7'	66°45.6'	31°57.6'	21°24.6'	34°09.5'	70°03.9'	70°27.7'	87°06.2'
4	150°25.9'	N 3°00.3'	11.1'	-14.3'	59.2'	66°07.6'	66°24.2'	31°37.8'	20°51.2'	34°44.6'	70°39.2'	71°01.0'	87°39.2'
5	164°56.0'	N 2°45.9'	11.1'	-14.4'	59.2'	65°32.5'	66°03.0'	31°18.5'	20°17.9'	35°19.7'	71°14.5'	71°34.4'	88°12.3'
6	179°26.1'	N 2°31.5'	11.1'	-14.4'	59.2'	64°57.3'	65°41.8'	30°59.6'	19°44.7'	35°54.8'	71°49.8'	72°07.8'	88°45.3'
7	193°56.2'	N 2°17.2'	11.1'	-14.4'	59.2'	64°22.2'	65°20.7'	30°41.1'	19°11.6'	36°30.0'	72°25.0'	72°41.2'	89°18.3'
8	208°26.2'	N 2°02.8'	11.1'	-14.4'	59.2'	63°47.0'	64°59.7'	30°23.1'	18°38.7'	37°05.1'	73°00.3'	73°14.7'	89°51.4'
9	222°56.3'	N 1°48.4'	11.1'	-14.4'	59.2'	63°11.9'	64°38.9'	30°05.5'	18°05.9'	37°40.3'	73°35.7'	73°48.1'	90°24.4'
10	237°26.4'	N 1°33.9'	11.1'	-14.4'	59.2'	62°36.7'	64°18.1'	29°48.5'	17°33.2'	38°15.5'	74°11.0'	74°21.6'	90°57.5'
11	251°56.5'	N 1°19.5'	11.1'	-14.4'	59.2'	62°01.5'	63°57.5'	29°31.9'	17°00.8'	38°50.7'	74°46.3'	74°55.1'	91°30.5'
12	266°26.6'	N 1°05.1'	11.1'	-14.5'	59.2'	61°26.3'	63°36.9'	29°15.8'	16°28.5'	39°25.9'	75°21.6'	75°28.6'	92°03.6'
13	280°56.6'	N 0°50.6'	11.1'	-14.5'	59.2'	60°51.2'	63°16.5'	29°00.2'	15°56.4'	40°01.2'	75°57.0'	76°02.1'	92°36.7'
14	295°26.7'	N 0°36.1'	11.1'	-14.5'	59.2'	60°16.0'	62°56.2'		15°24.6'	40°36.4'	76°32.3'	76°35.7'	93°09.8'
15	309°56.8'	N 0°21.7'	11.1'	-14.5'	59.2'	59°40.8'	62°36.0'		14°53.0'	41°11.7'	77°07.7'	77°09.3'	93°42.9'
16	324°26.9'	N 0°07.2'	11.1'	-14.5'	59.3'	59°05.6'	62°16.0'		14°21.7'	41°46.9'	77°43.0'	77°42.8'	94°16.0'
17	338°56.9'	S 0°07.3'	11.1'	-14.5'	59.3'	58°30.4'	61°56.1'		13°50.7'	42°22.2'	78°18.4'	78°16.4'	94°49.1'
18	353°27.0'	S 0°21.7'	11.0'	-14.5'	59.3'	57°55.2'	61°36.3'		13°20.1'	42°57.5'	78°53.8'	78°50.1'	95°22.2'
19	7°57.0'	S 0°36.2'	11.0'	-14.5'	59.3'	57°20.0'	61°16.6'		12°49.9'	43°32.8'	79°29.2'	79°23.7'	95°55.3'
20	22°27.1'	S 0°50.7'	11.0'	-14.5'	59.3'	56°44.8'	60°57.1'		12°20.2'	44°08.1'	80°04.6'	79°57.3'	96°28.5'
21	36°57.1'	S 1°05.2'	11.0'	-14.5'	59.3'	56°09.6'	60°37.7'		11°50.9'	44°43.4'	80°40.0'	80°31.0'	97°01.6'
22	51°27.1'	S 1°19.6'	11.0'	-14.5'	59.3'	55°34.4'	60°18.5'		11°22.3'	45°18.8'	81°15.4'	81°04.6'	97°34.7'
23	65°57.1'	S 1°34.1'	11.0'	-14.5'	59.3'	54°59.2'	59°59.4'		10°54.3'	45°54.1'	81°50.8'	81°38.3'	98°07.9'
Mer. pass.		18 h 27 m SD 16.1'		phase 46%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.1'	Acrux	+0.8	173°04.0'	S 63°12.9'	Capella	+0.1	280°27.7'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°57.9'	N 89°20.7'
Rigil Kent	-0.0	139°44.8'	S 60°55.3'	Adhara	+1.5	255°09.1'	S 29°00.1'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.8'	S 60°28.4'	Canopus	-0.6	263°54.6'	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°32.0'	179°07.6'	N 23°12.7'	213°07.1'	N 17°20.9'	341°19.4'	S 21°32.8'	335°06.1'	S 20°18.0'	275°47.6'	S 2°36.3'			
1	292°34.5'	194°07.5'	N 23°12.6'	228°09.2'	N 17°20.8'	356°22.1'	S 21°32.8'	350°08.8'	S 20°18.0'	290°48.6'	S 2°35.8'			
2	307°37.0'	209°07.3'	N 23°12.4'	243°11.2'	N 17°20.6'	11°24.9'	S 21°32.9'	5°11.4'	S 20°18.1'	305°49.7'	S 2°35.2'			
3	322°39.4'	224°07.2'	N 23°12.3'	258°13.3'	N 17°20.5'	26°27.7'	S 21°32.9'	20°14.0'	S 20°18.1'	320°50.7'	S 2°34.7'			
4	337°41.9'	239°07.1'	N 23°12.1'	273°15.4'	N 17°20.4'	41°30.5'	S 21°33.0'	35°16.7'	S 20°18.2'	335°51.8'	S 2°34.1'			
5	352°44.4'	254°07.0'	N 23°12.0'	288°17.4'	N 17°20.2'	56°33.2'	S 21°33.0'	50°19.3'	S 20°18.2'	350°52.8'	S 2°33.6'			
6	7°46.8'	269°06.8'	N 23°11.9'	303°19.5'	N 17°20.1'	71°36.0'	S 21°33.1'	65°21.9'	S 20°18.2'	5°53.9'	S 2°33.1'			
7	22°49.3'	284°06.7'	N 23°11.7'	318°21.5'	N 17°19.9'	86°38.8'	S 21°33.2'	80°24.6'	S 20°18.3'	20°55.0'	S 2°32.5'			
8	37°51.8'	299°06.6'	N 23°11.6'	333°23.6'	N 17°19.8'	101°41.6'	S 21°33.2'	95°27.2'	S 20°18.3'	35°56.0'	S 2°32.0'			
9	52°54.2'	314°06.5'	N 23°11.4'	348°25.6'	N 17°19.7'	116°44.3'	S 21°33.3'	110°29.8'	S 20°18.4'	50°57.1'	S 2°31.4'			
10	67°56.7'	329°06.3'	N 23°11.3'	3°27.6'	N 17°19.5'	131°47.1'	S 21°33.3'	125°32.5'	S 20°18.4'	65°58.1'	S 2°30.9'			
11	82°59.1'	344°06.2'	N 23°11.1'	18°29.7'	N 17°19.4'	146°49.9'	S 21°33.4'	140°35.1'	S 20°18.4'	80°59.2'	S 2°30.4'			
12	98°01.6'	359°06.1'	N 23°11.0'	33°31.7'	N 17°19.3'	161°52.7'	S 21°33.5'	155°37.8'	S 20°18.5'	96°00.3'	S 2°29.8'			
13	113°04.1'	14°06.0'	N 23°10.8'	48°33.7'	N 17°19.2'	176°55.5'	S 21°33.5'	170°40.4'	S 20°18.5'	111°01.3'	S 2°29.3'			
14	128°06.5'	29°05.8'	N 23°10.7'	63°35.7'	N 17°19.0'	191°58.2'	S 21°33.6'	185°43.0'	S 20°18.5'	126°02.4'	S 2°28.7'			
15	143°09.0'	44°05.7'	N 23°10.5'	78°37.8'	N 17°18.9'	207°01.0'	S 21°33.6'	200°45.7'	S 20°18.6'	141°03.4'	S 2°28.2'			
16	158°11.5'	59°05.6'	N 23°10.4'	93°39.8'	N 17°18.8'	222°03.8'	S 21°33.7'	215°48.3'	S 20°18.6'	156°04.5'	S 2°27.6'			
17	173°13.9'	74°05.5'	N 23°10.2'	108°41.8'	N 17°18.7'	237°06.6'	S 21°33.8'	230°50.9'	S 20°18.7'	171°05.6'	S 2°27.1'			
18	188°16.4'	89°05.3'	N 23°10.1'	123°43.8'	N 17°18.5'	252°09.3'	S 21°33.8'	245°53.6'	S 20°18.7'	186°06.6'	S 2°26.6'			
19	203°18.9'	104°05.2'	N 23°09.9'	138°45.8'	N 17°18.4'	267°12.1'	S 21°33.9'	260°56.2'	S 20°18.7'	201°07.7'	S 2°26.0'			
20	218°21.3'	119°05.1'	N 23°09.8'	153°47.8'	N 17°18.3'	282°14.9'	S 21°33.9'	275°58.8'	S 20°18.8'	216°08.7'	S 2°25.5'			
21	233°23.8'	134°05.0'	N 23°09.6'	168°49.8'	N 17°18.2'	297°17.7'	S 21°34.0'	291°01.5'	S 20°18.8'	231°09.8'	S 2°24.9'			
22	248°26.3'	149°04.9'	N 23°09.5'	183°51.8'	N 17°18.1'	312°20.5'	S 21°34.0'	306°04.1'	S 20°18.9'	246°10.9'	S 2°24.4'			
23	263°28.7'	164°04.7'	N 23°09.3'	198°53.8'	N 17°17.9'	327°23.2'	S 21°34.1'	321°06.7'	S 20°18.9'	261°11.9'	S 2°23.9'			
		SD 15.7' <i>d</i> -0.1'		<i>v</i> 2.0' <i>d</i> -0.1'		<i>v</i> 2.8' <i>d</i> -0.1'		<i>v</i> 2.6' <i>d</i> -0.0'		<i>v</i> 1.1' <i>d</i> 0.5'				
Mer. pass.		12 h 3 m 36 s		9 h 46 m		1 h 14 m		1 h 39 m		5 h 36 m				

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Vega	-Rigel Kent	-Hadar	-Antares	+Regulus	+Procyon	+Pollux	+Sun
0	80°27.1'	S 1°48.6'	11.0'	-14.5'	59.3'	85°10.3'	61°41.6'	59°40.4'	54°23.9'	46°29.5'	82°12.0'	82°26.2'	98°41.0'
1	94°57.1'	S 2°03.0'	11.0'	-14.4'	59.3'	84°54.3'	61°20.5'	59°21.6'	53°48.7'	47°04.8'	82°45.7'	83°01.7'	99°14.2'
2	109°27.1'	S 2°17.5'	10.9'	-14.4'	59.3'	84°38.3'	60°59.5'	59°03.0'	53°13.5'	47°40.2'	83°19.4'	83°37.1'	99°47.4'
3	123°57.0'	S 2°31.9'	10.9'	-14.4'	59.3'	84°22.4'	60°38.7'	58°44.5'	52°38.3'	48°15.6'	83°53.1'	84°12.5'	100°20.5'
4	138°26.9'	S 2°46.3'	10.9'	-14.4'	59.3'	84°06.4'	60°18.0'	58°26.2'	52°03.1'	48°51.0'	84°26.8'	84°48.0'	100°53.7'
5	152°56.9'	S 3°00.8'	10.9'	-14.4'	59.3'	83°50.5'	59°57.4'	58°08.0'	51°27.9'	49°26.4'	85°00.6'	85°23.4'	101°26.9'
6	167°26.7'	S 3°15.2'	10.9'	-14.4'	59.3'	83°34.6'	59°37.0'	57°50.0'	50°52.7'	50°01.8'	85°34.3'	85°58.9'	102°00.1'
7	181°56.6'	S 3°29.5'	10.9'	-14.4'	59.3'	83°18.8'	59°16.7'	57°32.2'	50°17.4'	50°37.2'	86°08.1'	86°34.4'	102°33.3'
8	196°26.5'	S 3°43.9'	10.8'	-14.3'	59.3'	83°03.0'	58°56.5'	57°14.5'	49°42.2'	51°12.6'	86°41.8'	87°09.8'	103°06.5'
9	210°56.3'	S 3°58.2'	10.8'	-14.3'	59.3'	82°47.2'	58°36.5'	56°57.0'	49°07.0'	51°48.1'	87°15.6'	87°45.3'	103°39.7'
10	225°26.1'	S 4°12.6'	10.8'	-14.3'	59.3'	82°31.4'	58°16.7'	56°39.8'	48°31.8'	52°23.5'	87°49.4'	88°20.8'	104°12.9'
11	239°55.9'	S 4°26.9'	10.8'	-14.3'	59.3'	82°15.7'	57°57.0'	56°22.6'	47°56.6'	52°58.9'	88°23.2'	88°56.3'	104°46.1'
12	254°25.6'	S 4°41.2'	10.7'	-14.3'	59.3'	82°00.0'	57°37.4'	56°05.7'	47°21.4'	53°34.4'	88°56.9'	89°31.8'	105°19.3'
13	268°55.4'	S 4°55.4'	10.7'	-14.2'	59.3'	81°44.4'	57°18.1'	55°49.0'	46°46.2'	54°09.8'	89°30.7'	90°07.2'	105°52.6'
14	283°25.1'	S 5°09.7'	10.7'	-14.2'	59.3'	81°28.8'	56°58.9'	55°32.4'	46°11.0'	54°45.3'	90°04.5'	90°42.7'	106°25.8'
15	297°54.7'	S 5°23.9'	10.6'	-14.2'	59.3'	81°13.3'	56°39.8'	55°16.1'	45°35.8'	55°20.8'	90°38.3'	91°18.2'	106°59.0'
16	312°24.4'	S 5°38.1'	10.6'	-14.2'	59.3'	80°57.8'	56°20.9'	54°60.0'	45°00.6'	55°56.3'	91°12.1'	91°53.7'	107°32.3'
17	326°54.0'	S 5°52.2'	10.6'	-14.1'	59.3'	80°42.3'	56°02.3'	54°44.0'	44°25.4'	56°31.7'	91°45.9'	92°29.3'	108°05.5'
18	341°23.6'	S 6°06.3'	10.6'	-14.1'	59.3'	80°26.9'	55°43.7'	54°28.3'	43°50.2'	57°07.2'	92°19.7'	93°04.8'	108°38.7'
19	355°53.1'	S 6°20.4'	10.5'	-14.1'	59.4'	80°11.5'	55°25.4'	54°12.8'	43°15.1'	57°42.7'	92°53.5'	93°40.3'	109°12.0'
20	10°22.7'	S 6°34.5'	10.5'	-14.0'	59.4'	79°56.2'	55°07.3'	53°57.5'	42°39.9'	58°18.2'	93°27.3'	94°15.8'	109°45.2'
21	24°52.2'	S 6°48.5'	10.5'	-14.0'	59.4'	79°41.0'	54°49.3'		42°04.7'	58°53.7'	94°01.1'	94°51.3'	110°18.5'
22	39°21.6'	S 7°02.5'	10.4'	-13.9'	59.4'	79°25.8'	54°31.5'		41°29.6'	59°29.2'	94°35.0'	95°26.8'	110°51.7'
23	53°51.0'	S 7°16.4'	10.4'	-13.9'	59.4'	79°10.6'	54°14.0'		40°54.5'	60°04.7'	95°08.8'	96°02.4'	111°25.0'
Mer. pass.		19 h 17 m SD 16.2'		phase 58%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.5'	S 29°30.7'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.1'	Acrux	+0.8	173°04.0'	S 63°12.9'	Capella	+0.1	280°27.7'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.5'	N 11°52.2'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°57.6'	N 89°20.6'
Rigel Kent	-0.0	139°44.8'	S 60°55.3'	Adhara	+1.5	255°09.1'	S 29°00.0'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.8'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.4'				

Tuesday 30 June 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	278°31.2'	179°04.6'	N 23°09.2'	213°55.8'	N 17°17.8'	342°26.0'	S 21°34.2'	336°09.4'	S 20°18.9'	276°13.0'	S 2°23.3'			
1	293°33.6'	194°04.5'	N 23°09.0'	228°57.8'	N 17°17.7'	357°28.8'	S 21°34.2'	351°12.0'	S 20°19.0'	291°14.0'	S 2°22.8'			
2	308°36.1'	209°04.4'	N 23°08.9'	243°59.7'	N 17°17.6'	12°31.6'	S 21°34.3'	6°14.6'	S 20°19.0'	306°15.1'	S 2°22.2'			
3	323°38.6'	224°04.2'	N 23°08.7'	259°01.7'	N 17°17.5'	27°34.3'	S 21°34.3'	21°17.3'	S 20°19.1'	321°16.2'	S 2°21.7'			
4	338°41.0'	239°04.1'	N 23°08.5'	274°03.7'	N 17°17.4'	42°37.1'	S 21°34.4'	36°19.9'	S 20°19.1'	336°17.2'	S 2°21.2'			
5	353°43.5'	254°04.0'	N 23°08.4'	289°05.7'	N 17°17.3'	57°39.9'	S 21°34.5'	51°22.5'	S 20°19.1'	351°18.3'	S 2°20.6'			
6	8°46.0'	269°03.9'	N 23°08.2'	304°07.6'	N 17°17.2'	72°42.7'	S 21°34.5'	66°25.2'	S 20°19.2'	6°19.4'	S 2°20.1'			
7	23°48.4'	284°03.8'	N 23°08.1'	319°09.6'	N 17°17.1'	87°45.5'	S 21°34.6'	81°27.8'	S 20°19.2'	21°20.4'	S 2°19.5'			
8	38°50.9'	299°03.6'	N 23°07.9'	334°11.5'	N 17°17.0'	102°48.2'	S 21°34.6'	96°30.4'	S 20°19.2'	36°21.5'	S 2°19.0'			
9	53°53.4'	314°03.5'	N 23°07.7'	349°13.5'	N 17°16.8'	117°51.0'	S 21°34.7'	111°33.1'	S 20°19.3'	51°22.6'	S 2°18.5'			
10	68°55.8'	329°03.4'	N 23°07.6'	4°15.4'	N 17°16.7'	132°53.8'	S 21°34.7'	126°35.7'	S 20°19.3'	66°23.6'	S 2°17.9'			
11	83°58.3'	344°03.3'	N 23°07.4'	19°17.4'	N 17°16.6'	147°56.6'	S 21°34.8'	141°38.4'	S 20°19.4'	81°24.7'	S 2°17.4'			
12	99°00.7'	359°03.2'	N 23°07.2'	34°19.3'	N 17°16.5'	162°59.4'	S 21°34.9'	156°41.0'	S 20°19.4'	96°25.8'	S 2°16.9'			
13	114°03.2'	14°03.0'	N 23°07.1'	49°21.3'	N 17°16.4'	178°02.1'	S 21°34.9'	171°43.6'	S 20°19.4'	111°26.8'	S 2°16.3'			
14	129°05.7'	29°02.9'	N 23°06.9'	64°23.2'	N 17°16.4'	193°04.9'	S 21°35.0'	186°46.3'	S 20°19.5'	126°27.9'	S 2°15.8'			
15	144°08.1'	44°02.8'	N 23°06.8'	79°25.1'	N 17°16.3'	208°07.7'	S 21°35.0'	201°48.9'	S 20°19.5'	141°29.0'	S 2°15.2'			
16	159°10.6'	59°02.7'	N 23°06.6'	94°27.1'	N 17°16.2'	223°10.5'	S 21°35.1'	216°51.5'	S 20°19.6'	156°30.0'	S 2°14.7'			
17	174°13.1'	74°02.5'	N 23°06.4'	109°29.0'	N 17°16.1'	238°13.3'	S 21°35.2'	231°54.2'	S 20°19.6'	171°31.1'	S 2°14.2'			
18	189°15.5'	89°02.4'	N 23°06.3'	124°30.9'	N 17°16.0'	253°16.0'	S 21°35.2'	246°56.8'	S 20°19.6'	186°32.2'	S 2°13.6'			
19	204°18.0'	104°02.3'	N 23°06.1'	139°32.8'	N 17°15.9'	268°18.8'	S 21°35.3'	261°59.4'	S 20°19.7'	201°33.2'	S 2°13.1'			
20	219°20.5'	119°02.2'	N 23°05.9'	154°34.8'	N 17°15.8'	283°21.6'	S 21°35.3'	277°02.1'	S 20°19.7'	216°34.3'	S 2°12.6'			
21	234°22.9'	134°02.1'	N 23°05.7'	169°36.7'	N 17°15.7'	298°24.4'	S 21°35.4'	292°04.7'	S 20°19.8'	231°35.4'	S 2°12.0'			
22	249°25.4'	149°01.8'	N 23°05.6'	184°38.6'	N 17°15.6'	313°27.2'	S 21°35.5'	307°07.3'	S 20°19.8'	246°36.4'	S 2°11.5'			
23	264°27.9'	164°01.8'	N 23°05.4'	199°40.5'	N 17°15.5'	328°30.0'	S 21°35.5'	322°10.0'	S 20°19.8'	261°37.5'	S 2°10.9'			
		SD 15.7' d -0.2'		v 1.9' d -0.1'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.1' d 0.5'				
Mer. pass.		12 h 3 m 48 s		9 h 43 m		1 h 10 m		1 h 35 m		5 h 35 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Jupiter	-Vega	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Sun
0	68°20.4'	S 7°30.4'	10.3'	-13.9'	59.4'	83°27.8'	78°55.5'	53°56.6'	40°19.3'			60°40.2'	111°58.2'
1	82°49.7'	S 7°44.2'	10.3'	-13.8'	59.4'	82°51.9'		53°39.4'	39°44.2'			61°15.8'	112°31.5'
2	97°19.0'	S 7°58.0'	10.3'	-13.8'	59.4'	82°16.0'		53°22.5'	39°09.1'			61°51.3'	113°04.8'
3	111°48.3'	S 8°11.8'	10.2'	-13.7'	59.4'	81°40.0'		53°05.8'	38°34.0'			62°26.8'	113°38.0'
4	126°17.5'	S 8°25.6'	10.2'	-13.7'	59.4'	81°04.1'		52°49.2'	37°58.9'	11°02.2'		63°02.3'	114°11.3'
5	140°46.7'	S 8°39.3'	10.1'	-13.6'	59.4'	80°28.2'		52°32.9'	37°23.8'	11°30.5'		63°37.9'	114°44.6'
6	155°15.9'	S 8°52.9'	10.1'	-13.6'	59.4'	79°52.3'		52°16.8'	36°48.8'	11°59.4'		64°13.4'	115°17.8'
7	169°45.0'	S 9°06.5'	10.1'	-13.5'	59.4'	79°16.3'		52°01.0'	36°13.7'	12°28.9'		64°48.9'	115°51.1'
8	184°14.0'	S 9°20.1'	10.0'	-13.5'	59.4'	78°40.4'		51°45.4'	35°38.7'	12°58.9'		65°24.5'	116°24.4'
9	198°43.0'	S 9°33.5'	10.0'	-13.4'	59.4'	78°04.5'		51°30.0'	35°03.7'	13°29.4'		65°60.0'	116°57.6'
10	213°12.0'	S 9°47.0'	9.9'	-13.4'	59.4'	77°28.6'			34°28.7'	14°00.2'	28°54.3'	66°35.5'	117°30.9'
11	227°40.9'	S 10°00.4'	9.9'	-13.3'	59.3'	76°52.6'			33°53.7'	14°31.4'	29°09.8'	67°11.1'	118°04.2'
12	242°09.8'	S 10°13.7'	9.8'	-13.3'	59.3'	76°16.7'			33°18.8'	15°03.0'	29°25.8'	67°46.6'	118°37.4'
13	256°38.6'	S 10°27.0'	9.8'	-13.2'	59.3'	75°40.8'			32°43.9'	15°34.8'	29°42.3'	68°22.2'	119°10.7'
14	271°07.4'	S 10°40.2'	9.7'	-13.2'	59.3'	75°04.9'			32°09.0'	16°06.9'	29°59.3'	68°57.7'	119°44.0'
15	285°36.1'	S 10°53.3'	9.7'	-13.1'	59.3'	74°28.9'			31°34.1'	16°39.2'	30°16.8'	69°33.3'	
16	300°04.8'	S 11°06.4'	9.6'	-13.0'	59.3'	73°53.0'			30°59.2'	17°11.7'	30°34.7'	70°08.8'	
17	314°33.5'	S 11°19.5'	9.6'	-13.0'	59.3'	73°17.1'			30°24.4'	17°44.5'	30°53.2'	70°44.3'	
18	329°02.0'	S 11°32.4'	9.5'	-12.9'	59.3'	72°41.2'			29°49.6'	18°17.4'	31°12.1'	71°19.9'	
19	343°30.6'	S 11°45.3'	9.5'	-12.8'	59.3'	72°05.2'			29°14.9'	18°50.4'	31°31.4'	71°55.4'	
20	357°59.1'	S 11°58.2'	9.4'	-12.8'	59.3'	71°29.3'			28°40.1'	19°23.6'	31°51.1'	72°31.0'	
21	12°27.5'	S 12°10.9'	9.4'	-12.7'	59.3'	70°53.4'			28°05.5'	19°57.0'	32°11.3'	73°06.5'	
22	26°55.9'	S 12°23.6'	9.3'	-12.6'	59.3'	70°17.5'			27°30.8'	20°30.5'	32°31.8'	73°42.0'	
23	41°24.2'	S 12°36.2'	9.3'	-12.5'	59.3'	69°41.6'			26°56.2'	21°04.0'	32°52.7'	74°17.6'	
Mer. pass.		20 h 8 m SD 16.2'		phase 69%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.4'	S 29°30.7'	Spica	+1.0	158°26.1'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.1'	Acrux	+0.8	173°04.0'	S 63°12.9'	Capella	+0.1	280°27.7'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.4'	Regulus	+1.4	207°38.6'	N 11°52.2'	Rigel	+0.2	281°07.7'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°48.2'	Pollux	+1.2	243°22.2'	N 27°58.6'	Aldebaran	+0.9	290°44.1'	N 16°32.9'
Antares	+1.1	112°20.0'	S 26°28.6'	Procyon	+0.4	244°55.0'	N 5°10.3'	Polaris	+2.0	315°57.1'	N 89°20.6'
Rigel Kent	-0.0	139°44.8'	S 60°55.3'	Adhara	+1.5	255°09.1'	S 29°00.0'	Achernar	+0.5	335°23.3'	S 57°07.8'
Arcturus	-0.1	145°51.1'	N 19°04.8'	Sirius	-1.4	258°29.8'	S 16°44.7'				
Hadar	+0.6	148°40.8'	S 60°28.4'	Canopus	-0.6	263°54.6'	S 52°42.4'				