

Thursday 01 July 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	279°16.0'	179°02.7'	N 23°06.3'	151°53.2'	N 20°41.1'	304°53.5'	S 11°42.0'	324°12.8'	S 17°46.7'	144°26.0'	N 18°23.0'			
1	294°18.5'	194°02.6'	N 23°06.1'	166°52.5'	N 20°40.4'	319°56.0'	S 11°42.1'	339°15.4'	S 17°46.8'	159°26.9'	N 18°22.6'			
2	309°20.9'	209°02.5'	N 23°05.9'	181°51.8'	N 20°39.7'	334°58.5'	S 11°42.1'	354°18.0'	S 17°46.8'	174°27.8'	N 18°22.1'			
3	324°23.4'	224°02.3'	N 23°05.8'	196°51.1'	N 20°39.0'	350°01.1'	S 11°42.2'	9°20.6'	S 17°46.9'	189°28.7'	N 18°21.7'			
4	339°25.9'	239°02.2'	N 23°05.6'	211°50.4'	N 20°38.3'	5°03.6'	S 11°42.2'	24°23.2'	S 17°46.9'	204°29.6'	N 18°21.2'			
5	354°28.3'	254°02.1'	N 23°05.4'	226°49.8'	N 20°37.6'	20°06.2'	S 11°42.2'	39°25.8'	S 17°47.0'	219°30.5'	N 18°20.8'			
6	9°30.8'	269°02.0'	N 23°05.2'	241°49.1'	N 20°36.9'	35°08.7'	S 11°42.3'	54°28.4'	S 17°47.0'	234°31.4'	N 18°20.3'			
7	24°33.3'	284°01.8'	N 23°05.1'	256°48.4'	N 20°36.2'	50°11.2'	S 11°42.3'	69°31.0'	S 17°47.0'	249°32.3'	N 18°19.9'			
8	39°35.7'	299°01.7'	N 23°04.9'	271°47.7'	N 20°35.4'	65°13.8'	S 11°42.4'	84°33.6'	S 17°47.1'	264°33.2'	N 18°19.4'			
9	54°38.2'	314°01.6'	N 23°04.7'	286°47.0'	N 20°34.7'	80°16.3'	S 11°42.4'	99°36.2'	S 17°47.1'	279°34.1'	N 18°19.0'			
10	69°40.7'	329°01.5'	N 23°04.6'	301°46.4'	N 20°34.0'	95°18.9'	S 11°42.4'	114°38.9'	S 17°47.2'	294°35.0'	N 18°18.5'			
11	84°43.1'	344°01.4'	N 23°04.4'	316°45.7'	N 20°33.3'	110°21.4'	S 11°42.5'	129°41.5'	S 17°47.2'	309°35.9'	N 18°18.1'			
12	99°45.6'	359°01.3'	N 23°04.2'	331°45.0'	N 20°32.6'	125°24.0'	S 11°42.5'	144°44.1'	S 17°47.3'	324°36.8'	N 18°17.6'			
13	114°48.1'	14°01.1'	N 23°04.0'	346°44.3'	N 20°31.9'	140°26.5'	S 11°42.6'	159°46.7'	S 17°47.3'	339°37.7'	N 18°17.2'			
14	129°50.5'	29°01.0'	N 23°03.8'	1°43.7'	N 20°31.1'	155°29.0'	S 11°42.6'	174°49.3'	S 17°47.4'	354°38.6'	N 18°16.7'			
15	144°53.0'	44°00.9'	N 23°03.7'	16°43.0'	N 20°30.4'	170°31.6'	S 11°42.7'	189°51.9'	S 17°47.4'	9°39.5'	N 18°16.3'			
16	159°55.4'	59°00.8'	N 23°03.5'	31°42.3'	N 20°29.7'	185°34.1'	S 11°42.7'	204°54.5'	S 17°47.4'	24°40.4'	N 18°15.8'			
17	174°57.9'	74°00.7'	N 23°03.3'	46°41.6'	N 20°29.0'	200°36.7'	S 11°42.7'	219°57.1'	S 17°47.5'	39°41.3'	N 18°15.4'			
18	190°00.4'	89°00.5'	N 23°03.1'	61°41.0'	N 20°28.2'	215°39.2'	S 11°42.8'	234°59.7'	S 17°47.5'	54°42.2'	N 18°15.0'			
19	205°02.8'	104°00.4'	N 23°02.9'	76°40.3'	N 20°27.5'	230°41.8'	S 11°42.8'	250°02.3'	S 17°47.6'	69°43.1'	N 18°14.5'			
20	220°05.3'	119°00.3'	N 23°02.8'	91°39.6'	N 20°26.8'	245°44.3'	S 11°42.9'	265°04.9'	S 17°47.6'	84°44.0'	N 18°14.1'			
21	235°07.8'	134°00.2'	N 23°02.6'	106°38.9'	N 20°26.1'	260°46.8'	S 11°42.9'	280°07.5'	S 17°47.7'	99°44.9'	N 18°13.6'			
22	250°10.2'	149°00.1'	N 23°02.4'	121°38.3'	N 20°25.3'	275°49.4'	S 11°43.0'	295°10.1'	S 17°47.7'	114°45.8'	N 18°13.2'			
23	265°12.7'	163°59.9'	N 23°02.2'	136°37.6'	N 20°24.6'	290°51.9'	S 11°43.0'	310°12.7'	S 17°47.8'	129°46.7'	N 18°12.7'			
		SD 15.7' d -0.2'		v -0.7' d -0.7'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.4'				
Mer. pass.		12 h 3 m 56 s		13 h 53 m		3 h 40 m		2 h 23 m		14 h 21 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Altair
0	277°56.4'	S 4°49.5'	15.1'	13.3'	55.7'	100°03.8'	85°22.5'	77°01.7'	70°27.2'	27°31.3'	29°15.6'	47°02.1'	64°38.7'
1	292°30.5'	S 4°36.2'	15.2'	13.3'	55.7'	99°34.9'	84°53.5'	76°35.3'	69°56.1'	28°02.2'	29°41.5'	47°33.3'	65°03.5'
2	307°04.7'	S 4°22.8'	15.2'	13.3'	55.6'	99°06.1'	84°24.5'	76°09.0'	69°25.0'	28°33.1'	30°07.6'	48°04.5'	65°28.4'
3	321°38.9'	S 4°09.5'	15.3'	13.3'	55.6'	98°37.4'	83°55.6'	75°42.8'	68°54.0'	29°04.0'	30°33.7'	48°35.7'	65°53.2'
4	336°13.1'	S 3°56.2'	15.3'	13.3'	55.6'	98°08.6'	83°26.7'	75°16.6'	68°23.1'	29°34.9'	31°00.0'	49°06.9'	66°18.1'
5	350°47.4'	S 3°42.9'	15.3'	13.3'	55.5'	97°39.9'	82°57.8'	74°50.5'	67°52.1'	30°05.8'	31°26.4'	49°38.0'	66°43.0'
6	5°21.8'	S 3°29.5'	15.4'	13.3'	55.5'	97°11.3'	82°29.0'	74°24.4'	67°21.2'	30°36.6'	31°52.9'	50°09.1'	67°07.9'
7	19°56.2'	S 3°16.2'	15.4'	13.3'	55.5'	96°42.6'	82°00.2'	73°58.4'	66°50.3'	31°07.4'	32°19.5'	50°40.1'	67°32.8'
8	34°30.6'	S 3°02.9'	15.5'	13.3'	55.5'	96°14.0'	81°31.4'	73°32.4'	66°19.5'	31°38.2'	32°46.1'	51°11.1'	67°57.8'
9	49°05.1'	S 2°49.5'	15.5'	13.3'	55.4'	95°45.5'	81°02.7'	73°06.4'	65°48.7'	32°09.0'	33°12.9'	51°42.1'	68°22.7'
10	63°39.6'	S 2°36.2'	15.5'	13.3'	55.4'	95°16.9'	80°34.0'	72°40.6'	65°17.9'	32°39.7'	33°39.7'	52°13.1'	68°47.7'
11	78°14.1'	S 2°22.9'	15.6'	13.3'	55.4'	94°48.4'	80°05.4'	72°14.7'	64°47.1'	33°10.4'	34°06.6'	52°44.1'	69°12.7'
12	92°48.7'	S 2°09.6'	15.6'	13.3'	55.3'	94°20.0'	79°36.7'	71°48.9'	64°16.4'	33°41.1'	34°33.6'	53°15.0'	69°37.7'
13	107°23.3'	S 1°56.2'	15.6'	13.3'	55.3'	93°51.5'	79°08.1'	71°23.2'	63°45.7'	34°11.8'	35°00.6'	53°45.8'	70°02.7'
14	121°58.0'	S 1°42.9'	15.7'	13.3'	55.3'	93°23.1'	78°39.6'	70°57.6'	63°15.1'	34°42.5'	35°27.8'	54°16.7'	70°27.7'
15	136°32.6'	S 1°29.6'	15.7'	13.3'	55.3'	92°54.7'	78°11.1'	70°31.9'	62°44.5'	35°13.1'	35°54.9'	54°47.5'	70°52.7'
16	151°07.3'	S 1°16.3'	15.7'	13.3'	55.2'	92°26.3'	77°42.6'	70°06.4'	62°13.9'	35°43.7'	36°22.2'	55°18.3'	71°17.8'
17	165°42.1'	S 1°03.0'	15.8'	13.3'	55.2'	91°58.0'	77°14.2'	69°40.9'	61°43.3'	36°14.3'	36°49.4'	55°49.1'	71°42.8'
18	180°16.9'	S 0°49.8'	15.8'	13.3'	55.2'	91°29.7'	76°45.7'	69°15.4'	61°12.8'	36°44.8'	37°16.8'	56°19.8'	72°07.9'
19	194°51.7'	S 0°36.5'	15.8'	13.3'	55.2'	91°01.4'	76°17.4'	68°50.0'	60°42.3'	37°15.4'	37°44.2'	56°50.6'	72°32.9'
20	209°26.5'	S 0°23.2'	15.9'	13.3'	55.1'	90°33.2'	75°49.0'	68°24.7'	60°11.8'	37°45.9'	38°11.6'	57°21.2'	72°58.0'
21	224°01.4'	S 0°10.0'	15.9'	13.2'	55.1'	90°05.0'	75°20.7'	67°59.4'	59°41.4'	38°16.4'	38°39.1'	57°51.9'	73°23.0'
22	238°36.2'	N 0°03.3'	15.9'	13.2'	55.1'	89°36.8'	74°52.5'	67°34.2'	59°11.0'	38°46.9'	39°06.6'	58°22.5'	73°48.1'
23	253°11.2'	N 0°16.5'	15.9'	13.2'	55.1'	89°08.6'	74°24.2'	67°09.0'	58°40.6'	39°17.3'	39°34.1'	58°53.2'	74°13.2'
Mer. pass.		5 h 38 m SD 15.2'		phase 59%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°38.1'	N 89°20.9'
Rigel Kent	-0.0	139°43.8'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.7'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	280°15.2'	178°59.8'	N 23°02.0'	151°36.9'	N 20°23.9'	305°54.5'	S 11°43.0'	325°15.3'	S 17°47.8'	144°47.6'	N 18°12.3'			
1	295°17.6'	193°59.7'	N 23°01.8'	166°36.3'	N 20°23.1'	320°57.0'	S 11°43.1'	340°17.9'	S 17°47.9'	159°48.5'	N 18°11.8'			
2	310°20.1'	208°59.6'	N 23°01.7'	181°35.6'	N 20°22.4'	335°59.6'	S 11°43.1'	355°20.5'	S 17°47.9'	174°49.4'	N 18°11.4'			
3	325°22.5'	223°59.5'	N 23°01.5'	196°34.9'	N 20°21.7'	351°02.1'	S 11°43.2'	10°23.1'	S 17°47.9'	189°50.3'	N 18°10.9'			
4	340°25.0'	238°59.4'	N 23°01.3'	211°34.3'	N 20°20.9'	6°04.7'	S 11°43.2'	25°25.7'	S 17°48.0'	204°51.2'	N 18°10.5'			
5	355°27.5'	253°59.2'	N 23°01.1'	226°33.6'	N 20°20.2'	21°07.2'	S 11°43.3'	40°28.3'	S 17°48.0'	219°52.1'	N 18°10.0'			
6	10°29.9'	268°59.1'	N 23°00.9'	241°32.9'	N 20°19.5'	36°09.8'	S 11°43.3'	55°31.0'	S 17°48.1'	234°53.0'	N 18°09.6'			
7	25°32.4'	283°59.0'	N 23°00.7'	256°32.3'	N 20°18.7'	51°12.3'	S 11°43.3'	70°33.6'	S 17°48.1'	249°53.9'	N 18°09.1'			
8	40°34.9'	298°58.9'	N 23°00.5'	271°31.6'	N 20°18.0'	66°14.9'	S 11°43.4'	85°36.2'	S 17°48.2'	264°54.8'	N 18°08.6'			
9	55°37.3'	313°58.8'	N 23°00.3'	286°30.9'	N 20°17.2'	81°17.4'	S 11°43.4'	100°38.8'	S 17°48.2'	279°55.7'	N 18°08.2'			
10	70°39.8'	328°58.7'	N 23°00.1'	301°30.3'	N 20°16.5'	96°20.0'	S 11°43.5'	115°41.4'	S 17°48.3'	294°56.7'	N 18°07.7'			
11	85°42.3'	343°58.5'	N 22°60.0'	316°29.6'	N 20°15.8'	111°22.5'	S 11°43.5'	130°44.0'	S 17°48.3'	309°57.6'	N 18°07.3'			
12	100°44.7'	358°58.4'	N 22°59.8'	331°28.9'	N 20°15.0'	126°25.1'	S 11°43.6'	145°46.6'	S 17°48.3'	324°58.5'	N 18°06.8'			
13	115°47.2'	13°58.3'	N 22°59.6'	346°28.3'	N 20°14.3'	141°27.6'	S 11°43.6'	160°49.2'	S 17°48.4'	339°59.4'	N 18°06.4'			
14	130°49.7'	28°58.2'	N 22°59.4'	1°27.6'	N 20°13.5'	156°30.2'	S 11°43.7'	175°51.8'	S 17°48.4'	355°00.3'	N 18°05.9'			
15	145°52.1'	43°58.1'	N 22°59.2'	16°27.0'	N 20°12.8'	171°32.7'	S 11°43.7'	190°54.4'	S 17°48.5'	10°01.2'	N 18°05.5'			
16	160°54.6'	58°58.0'	N 22°59.0'	31°26.3'	N 20°12.0'	186°35.3'	S 11°43.7'	205°57.0'	S 17°48.5'	25°02.1'	N 18°05.0'			
17	175°57.0'	73°57.8'	N 22°58.8'	46°25.6'	N 20°11.3'	201°37.8'	S 11°43.8'	220°59.6'	S 17°48.6'	40°03.0'	N 18°04.6'			
18	190°59.5'	88°57.7'	N 22°58.6'	61°25.0'	N 20°10.5'	216°40.4'	S 11°43.8'	236°02.2'	S 17°48.6'	55°03.9'	N 18°04.1'			
19	206°02.0'	103°57.6'	N 22°58.4'	76°24.3'	N 20°09.8'	231°42.9'	S 11°43.9'	251°04.8'	S 17°48.7'	70°04.8'	N 18°03.7'			
20	221°04.4'	118°57.5'	N 22°58.2'	91°23.7'	N 20°09.0'	246°45.5'	S 11°43.9'	266°07.4'	S 17°48.7'	85°05.7'	N 18°03.2'			
21	236°06.9'	133°57.4'	N 22°58.0'	106°23.0'	N 20°08.3'	261°48.0'	S 11°44.0'	281°10.1'	S 17°48.8'	100°06.6'	N 18°02.8'			
22	251°09.4'	148°57.3'	N 22°57.8'	121°22.3'	N 20°07.5'	276°50.6'	S 11°44.0'	296°12.7'	S 17°48.8'	115°07.5'	N 18°02.3'			
23	266°11.8'	163°57.1'	N 22°57.6'	136°21.7'	N 20°06.8'	291°53.1'	S 11°44.1'	311°15.3'	S 17°48.8'	130°08.4'	N 18°01.8'			
		SD 15.7' d -0.2'		v -0.7' d -0.7'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.5'				
Mer. pass.		12 h 4 m 7 s		13 h 54 m		3 h 36 m		2 h 19 m		14 h 20 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Altair
0	267°46.1'	N 0°29.7'	16.0'	13.2'	55.0'	88°40.5'	73°56.0'	66°43.9'	58°10.2'	39°47.8'	40°01.7'	59°23.7'	74°38.3'
1	282°21.0'	N 0°42.9'	16.0'	13.2'	55.0'	88°12.4'	73°27.9'	66°18.8'	57°39.9'	40°18.2'	40°29.3'	59°54.3'	75°03.4'
2	296°56.0'	N 0°56.1'	16.0'	13.2'	55.0'	87°44.3'	72°59.8'	65°53.8'	57°09.6'	40°48.6'	40°57.0'	60°24.8'	75°28.4'
3	311°31.0'	N 1°09.3'	16.0'	13.2'	55.0'	87°16.3'	72°31.7'	65°28.9'	56°39.4'	41°18.9'	41°24.7'	60°55.4'	75°53.5'
4	326°06.0'	N 1°22.5'	16.0'	13.1'	54.9'	86°48.2'	72°03.6'	65°04.0'	56°09.1'	41°49.3'	41°52.4'	61°25.8'	76°18.6'
5	340°41.0'	N 1°35.6'	16.0'	13.1'	54.9'	86°20.2'	71°35.6'	64°39.2'	55°38.9'	42°19.6'	42°20.2'	61°56.3'	76°43.7'
6	355°16.1'	N 1°48.7'	16.1'	13.1'	54.9'	85°52.2'	71°07.6'	64°14.5'	55°08.7'	42°49.9'	42°47.9'	62°26.8'	77°08.8'
7	9°51.1'	N 2°01.8'	16.1'	13.1'	54.9'	85°24.3'	70°39.7'	63°49.8'	54°38.5'	43°20.2'	43°15.7'	62°57.2'	77°33.9'
8	24°26.2'	N 2°14.9'	16.1'	13.1'	54.9'	84°56.3'	70°11.8'	63°25.2'	54°08.4'	43°50.5'	43°43.6'	63°27.6'	77°59.0'
9	39°01.3'	N 2°28.0'	16.1'	13.1'	54.8'	84°28.4'	69°43.9'	63°00.6'	53°38.3'	44°20.7'	44°11.4'	63°57.9'	78°24.0'
10	53°36.4'	N 2°41.1'	16.1'	13.0'	54.8'	84°00.5'	69°16.0'	62°36.2'	53°08.2'	44°50.9'	44°39.3'	64°28.3'	78°49.1'
11	68°11.5'	N 2°54.1'	16.1'	13.0'	54.8'	83°32.7'	68°48.2'	62°11.7'	52°38.1'	45°21.1'	45°07.2'	64°58.6'	79°14.2'
12	82°46.6'	N 3°07.1'	16.1'	13.0'	54.8'	83°04.8'	68°20.5'	61°47.4'	52°08.1'	45°51.3'	45°35.1'	65°28.9'	79°39.3'
13	97°21.7'	N 3°20.1'	16.1'	13.0'	54.8'	82°37.0'	67°52.8'	61°23.1'	51°38.1'	46°21.5'	46°03.0'	65°59.2'	80°04.4'
14	111°56.9'	N 3°33.1'	16.1'	12.9'	54.7'	82°09.2'	67°25.1'	60°58.9'	51°08.1'	46°51.6'	46°31.0'	66°29.5'	80°29.4'
15	126°32.0'	N 3°46.0'	16.1'	12.9'	54.7'	81°41.4'	66°57.4'	60°34.7'	50°38.1'	47°21.8'	46°58.9'	66°59.7'	80°54.5'
16	141°07.1'	N 3°58.9'	16.1'	12.9'	54.7'	81°13.7'	66°29.8'	60°10.7'	50°08.2'	47°51.9'	47°26.9'	67°30.0'	81°19.6'
17	155°42.3'	N 4°11.8'	16.2'	12.9'	54.7'	80°46.0'	66°02.2'	59°46.7'	49°38.3'	48°22.0'	47°54.9'	68°00.2'	81°44.6'
18	170°17.4'	N 4°24.7'	16.2'	12.9'	54.7'	80°18.2'	65°34.7'	59°22.7'	49°08.4'	48°52.1'	48°22.9'	68°30.4'	82°09.7'
19	184°52.6'	N 4°37.6'	16.2'	12.8'	54.6'	79°50.5'	65°07.2'	58°58.9'	48°38.5'	49°22.1'	48°50.9'	69°00.5'	82°34.7'
20	199°27.8'	N 4°50.4'	16.2'	12.8'	54.6'	79°22.9'	64°39.7'	58°35.1'	48°08.7'	49°52.2'	49°18.9'	69°30.7'	82°59.8'
21	214°02.9'	N 5°03.2'	16.2'	12.8'	54.6'	78°55.2'	64°12.3'	58°11.4'	47°38.8'	50°22.2'	49°47.0'	70°00.8'	83°24.8'
22	228°38.1'	N 5°16.0'	16.2'	12.7'	54.6'	78°27.6'	63°44.9'	57°47.8'	47°09.0'	50°52.2'	50°15.0'	70°30.9'	83°49.9'
23	243°13.2'	N 5°28.7'	16.1'	12.7'	54.6'	77°60.0'	63°17.6'	57°24.2'	46°39.3'	51°22.2'	50°43.1'	71°01.0'	84°14.9'
Mer. pass.		6 h 19 m SD 15.0'		phase 49%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.6'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°37.7'	N 89°20.9'
Rigil Kent	-0.0	139°43.8'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	281°14.3'	178°57.0'	N 22°57.4'	151°21.0'	N 20°06.0'	306°55.7'	S 11°44.1'	326°17.9'	S 17°48.9'	145°09.3'	N 18°01.4'			
1	296°16.8'	193°56.9'	N 22°57.2'	166°20.4'	N 20°05.3'	321°58.2'	S 11°44.2'	341°20.5'	S 17°48.9'	160°10.2'	N 18°00.9'			
2	311°19.2'	208°56.8'	N 22°57.0'	181°19.7'	N 20°04.5'	337°00.8'	S 11°44.2'	356°23.1'	S 17°49.0'	175°11.1'	N 18°00.5'			
3	326°21.7'	223°56.7'	N 22°56.8'	196°19.1'	N 20°03.8'	352°03.4'	S 11°44.2'	11°25.7'	S 17°49.0'	190°12.0'	N 18°00.0'			
4	341°24.2'	238°56.6'	N 22°56.6'	211°18.4'	N 20°03.0'	7°05.9'	S 11°44.3'	26°28.3'	S 17°49.1'	205°12.9'	N 17°59.6'			
5	356°26.6'	253°56.5'	N 22°56.4'	226°17.7'	N 20°02.3'	22°08.5'	S 11°44.3'	41°30.9'	S 17°49.1'	220°13.8'	N 17°59.1'			
6	11°29.1'	268°56.3'	N 22°56.2'	241°17.1'	N 20°01.5'	37°11.0'	S 11°44.4'	56°33.5'	S 17°49.2'	235°14.8'	N 17°58.7'			
7	26°31.5'	283°56.2'	N 22°56.0'	256°16.4'	N 20°00.7'	52°13.6'	S 11°44.4'	71°36.1'	S 17°49.2'	250°15.7'	N 17°58.2'			
8	41°34.0'	298°56.1'	N 22°55.8'	271°15.8'	N 19°60.0'	67°16.1'	S 11°44.5'	86°38.8'	S 17°49.3'	265°16.6'	N 17°57.7'			
9	56°36.5'	313°56.0'	N 22°55.5'	286°15.1'	N 19°59.2'	82°18.7'	S 11°44.5'	101°41.4'	S 17°49.3'	280°17.5'	N 17°57.3'			
10	71°38.9'	328°55.9'	N 22°55.3'	301°14.5'	N 19°58.4'	97°21.2'	S 11°44.6'	116°44.0'	S 17°49.4'	295°18.4'	N 17°56.8'			
11	86°41.4'	343°55.8'	N 22°55.1'	316°13.8'	N 19°57.7'	112°23.8'	S 11°44.6'	131°46.6'	S 17°49.4'	310°19.3'	N 17°56.4'			
12	101°43.9'	358°55.7'	N 22°54.9'	331°13.2'	N 19°56.9'	127°26.4'	S 11°44.7'	146°49.2'	S 17°49.4'	325°20.2'	N 17°55.9'			
13	116°46.3'	13°55.5'	N 22°54.7'	346°12.5'	N 19°56.2'	142°28.9'	S 11°44.7'	161°51.8'	S 17°49.5'	340°21.1'	N 17°55.5'			
14	131°48.8'	28°55.4'	N 22°54.5'	1°11.9'	N 19°55.4'	157°31.5'	S 11°44.8'	176°54.4'	S 17°49.5'	355°22.0'	N 17°55.0'			
15	146°51.3'	43°55.3'	N 22°54.3'	16°11.2'	N 19°54.6'	172°34.0'	S 11°44.8'	191°57.0'	S 17°49.6'	10°22.9'	N 17°54.5'			
16	161°53.7'	58°55.2'	N 22°54.1'	31°10.6'	N 19°53.8'	187°36.6'	S 11°44.9'	206°59.6'	S 17°49.6'	25°23.8'	N 17°54.1'			
17	176°56.2'	73°55.1'	N 22°53.9'	46°09.9'	N 19°53.1'	202°39.2'	S 11°44.9'	222°02.2'	S 17°49.7'	40°24.7'	N 17°53.6'			
18	191°58.6'	88°55.0'	N 22°53.6'	61°09.3'	N 19°52.3'	217°41.7'	S 11°44.9'	237°04.8'	S 17°49.7'	55°25.6'	N 17°53.2'			
19	207°01.1'	103°54.9'	N 22°53.4'	76°08.7'	N 19°51.5'	232°44.3'	S 11°45.0'	252°07.5'	S 17°49.8'	70°26.5'	N 17°52.7'			
20	222°03.6'	118°54.7'	N 22°53.2'	91°08.0'	N 19°50.8'	247°46.8'	S 11°45.0'	267°10.1'	S 17°49.8'	85°27.5'	N 17°52.3'			
21	237°06.0'	133°54.6'	N 22°53.0'	106°07.4'	N 19°50.0'	262°49.4'	S 11°45.1'	282°12.7'	S 17°49.9'	100°28.4'	N 17°51.8'			
22	252°08.5'	148°54.5'	N 22°52.8'	121°06.7'	N 19°49.2'	277°52.0'	S 11°45.1'	297°15.3'	S 17°49.9'	115°29.3'	N 17°51.3'			
23	267°11.0'	163°54.4'	N 22°52.6'	136°06.1'	N 19°48.4'	292°54.5'	S 11°45.2'	312°17.9'	S 17°49.9'	130°30.2'	N 17°50.9'			
		SD 15.7' d -0.2'		v -0.6' d -0.8'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.5'				
Mer. pass.		12 h 4 m 18 s		13 h 55 m		3 h 32 m		2 h 14 m		14 h 19 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	257°48.4'	N 5°41.4'	16.1'	12.7'	54.6'	77°32.3'	62°50.2'	57°00.7'	46°09.5'	51°11.2'	51°52.2'	71°31.1'	84°39.9'
1	272°23.5'	N 5°54.1'	16.1'	12.7'	54.5'	77°04.8'	62°23.0'	56°37.3'	45°39.8'	51°39.3'	52°22.2'	72°01.2'	85°04.9'
2	286°58.6'	N 6°06.8'	16.1'	12.6'	54.5'	76°37.2'	61°55.7'	56°14.0'	45°10.1'	52°07.4'	52°52.1'	72°31.2'	85°29.9'
3	301°33.8'	N 6°19.4'	16.1'	12.6'	54.5'	76°09.7'	61°28.6'	55°50.8'	44°40.4'	52°35.5'	53°22.1'	73°01.3'	85°54.9'
4	316°08.9'	N 6°32.0'	16.1'	12.6'	54.5'	75°42.1'	61°01.4'	55°27.6'	44°10.7'	53°03.6'	53°52.0'	73°31.3'	86°19.9'
5	330°44.0'	N 6°44.6'	16.1'	12.5'	54.5'	75°14.6'	60°34.3'	55°04.6'	43°41.0'	53°31.7'	54°21.9'	74°01.3'	86°44.9'
6	345°19.1'	N 6°57.1'	16.1'	12.5'	54.5'	74°47.1'	60°07.2'	54°41.6'	43°11.4'	53°59.8'	54°51.8'	74°31.3'	87°09.9'
7	359°54.2'	N 7°09.6'	16.1'	12.5'	54.4'	74°19.6'	59°40.2'	54°18.7'	42°41.8'	54°28.0'	55°21.7'	75°01.2'	87°34.8'
8	14°29.3'	N 7°22.1'	16.1'	12.4'	54.4'	73°52.1'	59°13.2'	53°55.9'	42°12.2'	54°56.1'	55°51.5'	75°31.2'	87°59.8'
9	29°04.4'	N 7°34.5'	16.1'	12.4'	54.4'	73°24.7'	58°46.3'	53°33.2'	41°42.6'	55°24.3'	56°21.4'	76°01.1'	88°24.7'
10	43°39.4'	N 7°46.9'	16.0'	12.4'	54.4'	72°57.3'	58°19.4'	53°10.6'	41°13.1'	55°52.4'	56°51.2'	76°31.1'	88°49.6'
11	58°14.5'	N 7°59.3'	16.0'	12.3'	54.4'	72°29.8'	57°52.5'	52°48.1'	40°43.6'	56°20.6'	57°21.1'	77°01.0'	89°14.6'
12	72°49.5'	N 8°11.6'	16.0'	12.3'	54.4'	72°02.4'	57°25.7'	52°25.6'	40°14.0'	56°48.7'	57°50.9'	77°30.9'	89°39.5'
13	87°24.5'	N 8°23.9'	16.0'	12.3'	54.4'	71°35.0'	56°58.9'	52°03.3'	39°44.6'	57°16.9'	58°20.7'	78°00.8'	90°04.4'
14	101°59.5'	N 8°36.2'	16.0'	12.2'	54.3'	71°07.6'	56°32.2'	51°41.1'	39°15.1'	57°45.1'	58°50.5'	78°30.6'	90°29.3'
15	116°34.5'	N 8°48.4'	16.0'	12.2'	54.3'	70°40.3'	56°05.5'	51°18.9'	38°45.6'	58°13.3'	59°20.3'	79°00.5'	90°54.2'
16	131°09.5'	N 9°00.6'	15.9'	12.1'	54.3'	70°12.9'	55°38.9'	50°56.9'	38°16.2'	58°41.5'	59°50.1'	79°30.3'	91°19.0'
17	145°44.4'	N 9°12.7'	15.9'	12.1'	54.3'	69°45.6'	55°12.3'	50°35.0'	37°46.8'	59°09.7'	60°19.8'	80°00.2'	91°43.9'
18	160°19.3'	N 9°24.8'	15.9'	12.1'	54.3'	69°18.2'	54°45.7'	50°13.2'	37°17.4'	59°37.9'	60°49.6'	80°30.0'	92°08.7'
19	174°54.2'	N 9°36.9'	15.9'	12.0'	54.3'	68°50.9'	54°19.2'	49°51.4'	36°48.0'	60°06.1'	61°19.3'	80°59.8'	92°33.6'
20	189°29.1'	N 9°48.9'	15.9'	12.0'	54.3'	68°23.6'	53°52.8'	49°29.8'	36°18.7'	60°34.3'	61°49.0'	81°29.6'	92°58.4'
21	204°04.0'	N 10°00.9'	15.8'	11.9'	54.3'	67°56.3'	53°26.4'	49°08.4'	35°49.3'	61°02.5'	62°18.8'	81°59.4'	93°23.2'
22	218°38.8'	N 10°12.8'	15.8'	11.9'	54.3'	67°29.0'	53°00.0'	48°47.0'	35°20.0'	61°30.7'	62°48.5'	82°29.2'	93°48.0'
23	233°13.6'	N 10°24.7'	15.8'	11.8'	54.2'	67°01.7'	52°33.7'	48°25.7'	34°50.7'	61°58.9'	63°18.2'	82°59.0'	94°12.8'
Mer. pass.		7 h 0 m SD 14.9'		phase 39%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.2'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°07.0'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.2'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°37.3'	N 89°20.9'
Rigel Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	282°13.4'	178°54.3'	N 22°52.3'	151°05.4'	N 19°47.7'	307°57.1'	S 11°45.2'	327°20.5'	S 17°50.0'	145°31.1'	N 17°50.4'			
1	297°15.9'	193°54.2'	N 22°52.1'	166°04.8'	N 19°46.9'	322°59.6'	S 11°45.3'	342°23.1'	S 17°50.0'	160°32.0'	N 17°50.0'			
2	312°18.4'	208°54.1'	N 22°51.9'	181°04.1'	N 19°46.1'	338°02.2'	S 11°45.3'	357°25.7'	S 17°50.1'	175°32.9'	N 17°49.5'			
3	327°20.8'	223°54.0'	N 22°51.7'	196°03.5'	N 19°45.3'	353°04.8'	S 11°45.4'	12°28.3'	S 17°50.1'	190°33.8'	N 17°49.0'			
4	342°23.3'	238°53.8'	N 22°51.5'	211°02.9'	N 19°44.5'	8°07.3'	S 11°45.4'	27°31.0'	S 17°50.2'	205°34.7'	N 17°48.6'			
5	357°25.8'	253°53.7'	N 22°51.2'	226°02.2'	N 19°43.8'	23°09.9'	S 11°45.5'	42°33.6'	S 17°50.2'	220°35.6'	N 17°48.1'			
6	12°28.2'	268°53.6'	N 22°51.0'	241°01.6'	N 19°43.0'	38°12.4'	S 11°45.5'	57°36.2'	S 17°50.3'	235°36.5'	N 17°47.7'			
7	27°30.7'	283°53.5'	N 22°50.8'	256°00.9'	N 19°42.2'	53°15.0'	S 11°45.6'	72°38.8'	S 17°50.3'	250°37.4'	N 17°47.2'			
8	42°33.1'	298°53.4'	N 22°50.6'	271°00.3'	N 19°41.4'	68°17.6'	S 11°45.6'	87°41.4'	S 17°50.4'	265°38.4'	N 17°46.7'			
9	57°35.6'	313°53.3'	N 22°50.4'	285°59.7'	N 19°40.6'	83°20.1'	S 11°45.7'	102°44.0'	S 17°50.4'	280°39.3'	N 17°46.3'			
10	72°38.1'	328°53.2'	N 22°50.1'	300°59.0'	N 19°39.8'	98°22.7'	S 11°45.7'	117°46.6'	S 17°50.5'	295°40.2'	N 17°45.8'			
11	87°40.5'	343°53.1'	N 22°49.9'	315°58.4'	N 19°39.1'	113°25.3'	S 11°45.8'	132°49.2'	S 17°50.5'	310°41.1'	N 17°45.3'			
12	102°43.0'	358°53.0'	N 22°49.7'	330°57.8'	N 19°38.3'	128°27.8'	S 11°45.8'	147°51.8'	S 17°50.6'	325°42.0'	N 17°44.9'			
13	117°45.5'	13°52.8'	N 22°49.5'	345°57.1'	N 19°37.5'	143°30.4'	S 11°45.9'	162°54.5'	S 17°50.6'	340°42.9'	N 17°44.4'			
14	132°47.9'	28°52.7'	N 22°49.2'	0°56.5'	N 19°36.7'	158°33.0'	S 11°45.9'	177°57.1'	S 17°50.6'	355°43.8'	N 17°44.0'			
15	147°50.4'	43°52.6'	N 22°49.0'	15°55.9'	N 19°35.9'	173°35.5'	S 11°46.0'	192°59.7'	S 17°50.7'	10°44.7'	N 17°43.5'			
16	162°52.9'	58°52.5'	N 22°48.8'	30°55.2'	N 19°35.1'	188°38.1'	S 11°46.0'	208°02.3'	S 17°50.7'	25°45.6'	N 17°43.0'			
17	177°55.3'	73°52.4'	N 22°48.5'	45°54.6'	N 19°34.3'	203°40.7'	S 11°46.1'	223°04.9'	S 17°50.8'	40°46.5'	N 17°42.6'			
18	192°57.8'	88°52.3'	N 22°48.3'	60°53.9'	N 19°33.5'	218°43.2'	S 11°46.1'	238°07.5'	S 17°50.8'	55°47.4'	N 17°42.1'			
19	208°00.3'	103°52.2'	N 22°48.1'	75°53.3'	N 19°32.7'	233°45.8'	S 11°46.2'	253°10.1'	S 17°50.9'	70°48.4'	N 17°41.6'			
20	223°02.7'	118°52.1'	N 22°47.8'	90°52.7'	N 19°31.9'	248°48.4'	S 11°46.2'	268°12.7'	S 17°50.9'	85°49.3'	N 17°41.2'			
21	238°05.2'	133°52.0'	N 22°47.6'	105°52.1'	N 19°31.1'	263°50.9'	S 11°46.3'	283°15.4'	S 17°51.0'	100°50.2'	N 17°40.7'			
22	253°07.6'	148°51.9'	N 22°47.4'	120°51.4'	N 19°30.3'	278°53.5'	S 11°46.3'	298°18.0'	S 17°51.0'	115°51.1'	N 17°40.2'			
23	268°10.1'	163°51.7'	N 22°47.1'	135°50.8'	N 19°29.5'	293°56.1'	S 11°46.4'	313°20.6'	S 17°51.1'	130°52.0'	N 17°39.8'			
		SD 15.7' d -0.2'		v -0.6' d -0.8'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 0.9' d -0.5'				
Mer. pass.		12 h 4 m 29 s		13 h 56 m		3 h 28 m		2 h 10 m		14 h 17 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Achernar	+Saturn
0	247°48.4'	N 10°36.5'	15.7'	11.8'	54.2'	66°34.5'	52°07.5'	48°04.6'	34°21.4'	62°27.1'	63°47.9'		83°28.8'
1	262°23.1'	N 10°48.3'	15.7'	11.8'	54.2'	66°07.2'	51°41.3'	47°43.5'	33°52.2'	62°55.4'	64°17.6'		83°58.5'
2	276°57.9'	N 11°00.1'	15.7'	11.7'	54.2'	65°40.0'	51°15.1'	47°22.6'	33°23.0'	63°23.6'	64°47.3'		84°28.3'
3	291°32.5'	N 11°11.8'	15.7'	11.7'	54.2'	65°12.7'	50°49.0'	47°01.9'	32°53.7'	63°51.8'	65°16.9'		84°58.0'
4	306°07.2'	N 11°23.5'	15.6'	11.6'	54.2'	64°45.5'	50°23.0'	46°41.2'	32°24.5'	64°20.1'	65°46.6'		85°27.7'
5	320°41.8'	N 11°35.1'	15.6'	11.6'	54.2'	64°18.3'	49°57.0'	46°20.7'	31°55.4'	64°48.3'	66°16.3'		85°57.5'
6	335°16.4'	N 11°46.7'	15.6'	11.5'	54.2'	63°51.0'	49°31.1'	46°00.3'	31°26.2'	65°16.6'	66°45.9'		86°27.2'
7	349°51.0'	N 11°58.2'	15.5'	11.5'	54.2'	63°23.8'	49°05.2'	45°40.1'	30°57.1'	65°44.8'	67°15.6'		86°56.9'
8	4°25.5'	N 12°09.7'	15.5'	11.4'	54.2'	62°56.6'	48°39.4'	45°20.0'	30°27.9'	66°13.1'	67°45.2'	70°10.9'	87°26.6'
9	19°00.1'	N 12°21.1'	15.5'	11.4'	54.1'	62°29.4'	48°13.7'	45°00.0'	29°58.9'	66°41.3'	68°14.8'	70°26.0'	87°56.3'
10	33°34.5'	N 12°32.5'	15.4'	11.3'	54.1'	62°02.2'	47°48.0'	44°40.2'	29°29.8'	67°09.6'	68°44.5'	70°41.1'	88°26.0'
11	48°08.9'	N 12°43.8'	15.4'	11.3'	54.1'	61°35.1'	47°22.3'	44°20.5'	29°00.7'	67°37.9'	69°14.1'	70°56.3'	88°55.7'
12	62°43.3'	N 12°55.1'	15.4'	11.2'	54.1'	61°07.9'	46°56.8'	44°01.0'	28°31.7'	68°06.1'	69°43.7'	71°11.5'	89°25.4'
13	77°17.7'	N 13°06.3'	15.3'	11.2'	54.1'	60°40.7'	46°31.3'	43°41.6'	28°02.7'	68°34.4'	70°13.3'	71°26.8'	89°55.0'
14	91°52.0'	N 13°17.5'	15.3'	11.1'	54.1'	60°13.6'	46°05.9'	43°22.4'	27°33.7'	69°02.7'	70°43.0'	71°42.2'	90°24.7'
15	106°26.3'	N 13°28.6'	15.2'	11.1'	54.1'	59°46.4'	45°40.5'	43°03.3'	27°04.8'	69°31.0'	71°12.6'	71°57.6'	90°54.4'
16	121°00.5'	N 13°39.7'	15.2'	11.0'	54.1'	59°19.3'	45°15.2'	42°44.4'	26°35.8'	69°59.2'	71°42.2'	72°13.1'	91°24.0'
17	135°34.7'	N 13°50.7'	15.2'	11.0'	54.1'	58°52.1'	44°50.0'	42°25.7'	26°06.9'	70°27.5'	72°11.8'	72°28.7'	91°53.7'
18	150°08.9'	N 14°01.6'	15.1'	10.9'	54.1'	58°25.0'	44°24.9'	42°07.2'	25°38.1'	70°55.8'	72°41.4'	72°44.3'	92°23.3'
19	164°43.0'	N 14°12.5'	15.1'	10.8'	54.1'	57°57.8'	43°59.8'	41°48.8'	25°09.2'	71°24.1'	73°11.0'	72°59.9'	92°53.0'
20	179°17.1'	N 14°23.4'	15.0'	10.8'	54.1'	57°30.7'	43°34.8'	41°30.6'	24°40.4'	71°52.4'	73°40.6'	73°15.6'	93°22.6'
21	193°51.1'	N 14°34.2'	15.0'	10.7'	54.1'	57°03.6'	43°09.9'	41°12.5'	24°11.6'	72°20.7'	74°10.2'	73°31.4'	93°52.3'
22	208°25.1'	N 14°44.9'	14.9'	10.7'	54.1'	56°36.4'	42°45.1'	40°54.7'	23°42.9'	72°49.0'	74°39.7'	73°47.2'	94°21.9'
23	222°59.1'	N 14°55.5'	14.9'	10.6'	54.1'	56°09.3'	42°20.3'	40°37.0'	23°14.1'	73°17.3'	75°09.3'	74°03.1'	94°51.6'
Mer. pass.		7 h 42 m SD 14.8'		phase 30%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°36.8'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

Monday 05 July 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	283°12.6'	178°51.6'	N 22°46.9'	150°50.2'	N 19°28.7'	308°58.6'	S 11°46.4'	328°23.2'	S 17°51.1'	145°52.9'	N 17°39.3'			
1	298°15.0'	193°51.5'	N 22°46.7'	165°49.5'	N 19°27.9'	324°01.2'	S 11°46.5'	343°25.8'	S 17°51.2'	160°53.8'	N 17°38.9'			
2	313°17.5'	208°51.4'	N 22°46.4'	180°48.9'	N 19°27.1'	339°03.8'	S 11°46.5'	358°28.4'	S 17°51.2'	175°54.7'	N 17°38.4'			
3	328°20.0'	223°51.3'	N 22°46.2'	195°48.3'	N 19°26.3'	354°06.3'	S 11°46.6'	13°31.0'	S 17°51.3'	190°55.6'	N 17°37.9'			
4	343°22.4'	238°51.2'	N 22°46.0'	210°47.7'	N 19°25.5'	9°08.9'	S 11°46.6'	28°33.7'	S 17°51.3'	205°56.5'	N 17°37.5'			
5	358°24.9'	253°51.1'	N 22°45.7'	225°47.0'	N 19°24.7'	24°11.5'	S 11°46.7'	43°36.3'	S 17°51.3'	220°57.5'	N 17°37.0'			
6	13°27.4'	268°51.0'	N 22°45.5'	240°46.4'	N 19°23.9'	39°14.1'	S 11°46.7'	58°38.9'	S 17°51.4'	235°58.4'	N 17°36.5'			
7	28°29.8'	283°50.9'	N 22°45.2'	255°45.8'	N 19°23.1'	54°16.6'	S 11°46.8'	73°41.5'	S 17°51.4'	250°59.3'	N 17°36.1'			
8	43°32.3'	298°50.8'	N 22°45.0'	270°45.1'	N 19°22.3'	69°19.2'	S 11°46.9'	88°44.1'	S 17°51.5'	266°00.2'	N 17°35.6'			
9	58°34.8'	313°50.7'	N 22°44.8'	285°44.5'	N 19°21.5'	84°21.8'	S 11°46.9'	103°46.7'	S 17°51.5'	281°01.1'	N 17°35.1'			
10	73°37.2'	328°50.6'	N 22°44.5'	300°43.9'	N 19°20.7'	99°24.3'	S 11°47.0'	118°49.3'	S 17°51.6'	296°02.0'	N 17°34.7'			
11	88°39.7'	343°50.5'	N 22°44.3'	315°43.3'	N 19°19.9'	114°26.9'	S 11°47.0'	133°52.0'	S 17°51.6'	311°02.9'	N 17°34.2'			
12	103°42.1'	358°50.3'	N 22°44.0'	330°42.7'	N 19°19.1'	129°29.5'	S 11°47.1'	148°54.6'	S 17°51.7'	326°03.8'	N 17°33.7'			
13	118°44.6'	13°50.2'	N 22°43.8'	345°42.0'	N 19°18.3'	144°32.1'	S 11°47.1'	163°57.2'	S 17°51.7'	341°04.7'	N 17°33.3'			
14	133°47.1'	28°50.1'	N 22°43.6'	0°41.4'	N 19°17.5'	159°34.6'	S 11°47.2'	178°59.8'	S 17°51.8'	356°05.7'	N 17°32.8'			
15	148°49.5'	43°50.0'	N 22°43.3'	15°40.8'	N 19°16.7'	174°37.2'	S 11°47.2'	194°02.4'	S 17°51.8'	11°06.6'	N 17°32.3'			
16	163°52.0'	58°49.9'	N 22°43.1'	30°40.2'	N 19°15.8'	189°39.8'	S 11°47.3'	209°05.0'	S 17°51.9'	26°07.5'	N 17°31.9'			
17	178°54.5'	73°49.8'	N 22°42.8'	45°39.5'	N 19°15.0'	204°42.4'	S 11°47.3'	224°07.6'	S 17°51.9'	41°08.4'	N 17°31.4'			
18	193°56.9'	88°49.7'	N 22°42.6'	60°38.9'	N 19°14.2'	219°44.9'	S 11°47.4'	239°10.3'	S 17°52.0'	56°09.3'	N 17°30.9'			
19	208°59.4'	103°49.6'	N 22°42.3'	75°38.3'	N 19°13.4'	234°47.5'	S 11°47.4'	254°12.9'	S 17°52.0'	71°10.2'	N 17°30.5'			
20	224°01.9'	118°49.5'	N 22°42.1'	90°37.7'	N 19°12.6'	249°50.1'	S 11°47.5'	269°15.5'	S 17°52.1'	86°11.1'	N 17°30.0'			
21	239°04.3'	133°49.4'	N 22°41.8'	105°37.1'	N 19°11.8'	264°52.6'	S 11°47.5'	284°18.1'	S 17°52.1'	101°12.0'	N 17°29.5'			
22	254°06.8'	148°49.3'	N 22°41.6'	120°36.5'	N 19°10.9'	279°55.2'	S 11°47.6'	299°20.7'	S 17°52.1'	116°13.0'	N 17°29.0'			
23	269°09.2'	163°49.2'	N 22°41.3'	135°35.8'	N 19°10.1'	294°57.8'	S 11°47.7'	314°23.3'	S 17°52.2'	131°13.9'	N 17°28.6'			
		SD 15.7' d -0.2'		v -0.6' d -0.8'		v 2.6' d -0.1'		v 2.6' d -0.0'		v 0.9' d -0.5'				
Mer. pass.		12 h 4 m 40 s		13 h 57 m		3 h 24 m		2 h 6 m		14 h 16 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Achernar	+Jupiter	+Saturn
0	237°33.0'	N 15°06.2'	14.9'	10.5'	54.1'	55°42.2'	41°55.7'	40°19.6'	22°45.5'	73°45.7'	74°19.0'	75°38.9'	95°21.2'
1	252°06.8'	N 15°16.7'	14.8'	10.5'	54.1'	55°15.1'	41°31.1'	40°02.3'	22°16.8'	74°14.0'	74°35.0'	76°08.5'	95°50.8'
2	266°40.6'	N 15°27.2'	14.8'	10.4'	54.1'	54°47.9'	41°06.6'	39°45.3'	21°48.2'	74°42.3'	74°51.0'	76°38.1'	96°20.5'
3	281°14.4'	N 15°37.6'	14.7'	10.4'	54.1'	54°20.8'	40°42.2'	39°28.4'	21°19.7'	75°10.6'	75°07.0'	77°07.7'	96°50.1'
4	295°48.1'	N 15°48.0'	14.7'	10.3'	54.1'	53°53.7'	40°18.0'	39°11.8'	20°51.1'	75°39.0'	75°23.1'	77°37.3'	97°19.7'
5	310°21.8'	N 15°58.3'	14.6'	10.2'	54.0'	53°26.6'	39°53.8'	38°55.3'	20°22.7'	76°07.3'	75°39.3'	78°06.9'	97°49.4'
6	324°55.4'	N 16°08.5'	14.6'	10.2'	54.0'	52°59.5'	39°29.7'	38°39.1'	19°54.2'	76°35.7'	75°55.5'	78°36.4'	98°19.0'
7	339°29.0'	N 16°18.6'	14.5'	10.1'	54.0'	52°32.4'	39°05.7'	38°23.1'	19°25.9'	77°04.0'	76°11.7'	79°06.0'	98°48.6'
8	354°02.5'	N 16°28.7'	14.5'	10.0'	54.0'	52°05.3'	38°41.8'	38°07.4'	18°57.6'	77°32.4'	76°28.0'	79°35.6'	99°18.3'
9	8°35.9'	N 16°38.8'	14.4'	10.0'	54.0'	51°38.2'	38°18.0'	37°51.8'	18°29.3'	78°00.7'	76°44.4'	80°05.2'	99°47.9'
10	23°09.3'	N 16°48.7'	14.4'	9.9'	54.0'	51°11.0'	37°54.4'	37°36.5'	18°01.1'	78°29.1'	77°00.7'	80°34.8'	100°17.5'
11	37°42.7'	N 16°58.6'	14.3'	9.8'	54.0'	50°43.9'	37°30.9'		17°33.0'	78°57.5'	77°17.2'	81°04.4'	100°47.2'
12	52°16.0'	N 17°08.5'	14.3'	9.8'	54.0'	50°16.8'	37°07.4'		17°05.0'	79°25.9'	77°33.6'	81°34.0'	101°16.8'
13	66°49.3'	N 17°18.2'	14.2'	9.7'	54.0'	49°49.7'	36°44.1'		16°37.0'	79°54.2'	77°50.1'	82°03.6'	101°46.4'
14	81°22.5'	N 17°27.9'	14.1'	9.6'	54.0'	49°22.6'	36°21.0'		16°09.2'	80°22.6'	78°06.6'	82°33.2'	102°16.1'
15	95°55.6'	N 17°37.5'	14.1'	9.5'	54.0'	48°55.5'	35°58.0'		15°41.4'	80°51.0'	78°23.2'	83°02.8'	102°45.7'
16	110°28.7'	N 17°47.1'	14.0'	9.5'	54.0'	48°28.4'	35°35.1'		15°13.8'	81°19.4'	78°39.8'	83°32.4'	103°15.4'
17	125°01.8'	N 17°56.6'	14.0'	9.4'	54.0'	48°01.2'	35°12.3'		14°46.3'	81°47.8'	78°56.5'	84°02.0'	103°45.0'
18	139°34.7'	N 18°06.0'	13.9'	9.3'	54.0'	47°34.1'	34°49.7'		14°18.8'	82°16.2'	79°13.1'	84°31.6'	104°14.7'
19	154°07.7'	N 18°15.3'	13.9'	9.3'	54.0'	47°07.0'	34°27.3'		13°51.5'	82°44.6'	79°29.9'	85°01.2'	104°44.3'
20	168°40.5'	N 18°24.6'	13.8'	9.2'	54.0'	46°39.9'	34°05.0'		13°24.4'	83°13.1'	79°46.6'	85°30.8'	105°14.0'
21	183°13.3'	N 18°33.7'	13.8'	9.1'	54.0'	46°12.8'	33°42.8'		12°57.5'	83°41.5'	80°03.4'	86°00.5'	105°43.6'
22	197°46.1'	N 18°42.8'	13.7'	9.0'	54.0'	45°45.6'	33°20.9'		12°30.8'	84°09.9'	80°20.2'	86°30.1'	106°13.3'
23	212°18.8'	N 18°51.9'	13.6'	8.9'	54.0'	45°18.5'	32°59.1'		12°04.2'	84°38.4'	80°37.0'	86°59.7'	106°43.0'
Mer. pass.		8 h 25 m SD 14.7'		phase 22%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°36.4'	N 89°20.9'
Rigel Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.6'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	284°11.7'	178°49.1' N	22°41.1'	150°35.2' N	19°09.3'	310°00.4' S	11°47.7'	329°26.0' S	17°52.2'	146°14.8' N	17°28.1'	
1	299°14.2'	193°49.0' N	22°40.8'	165°34.6' N	19°08.5'	325°03.0' S	11°47.8'	344°28.6' S	17°52.3'	161°15.7' N	17°27.6'	
2	314°16.6'	208°48.9' N	22°40.6'	180°34.0' N	19°07.7'	340°05.5' S	11°47.8'	359°31.2' S	17°52.3'	176°16.6' N	17°27.2'	
3	329°19.1'	223°48.8' N	22°40.3'	195°33.4' N	19°06.8'	355°08.1' S	11°47.9'	14°33.8' S	17°52.4'	191°17.5' N	17°26.7'	
4	344°21.6'	238°48.6' N	22°40.1'	210°32.8' N	19°06.0'	10°10.7' S	11°47.9'	29°36.4' S	17°52.4'	206°18.4' N	17°26.2'	
5	359°24.0'	253°48.5' N	22°39.8'	225°32.2' N	19°05.2'	25°13.3' S	11°48.0'	44°39.0' S	17°52.5'	221°19.4' N	17°25.8'	
6	14°26.5'	268°48.4' N	22°39.6'	240°31.5' N	19°04.4'	40°15.8' S	11°48.0'	59°41.7' S	17°52.5'	236°20.3' N	17°25.3'	
7	29°29.0'	283°48.3' N	22°39.3'	255°30.9' N	19°03.5'	55°18.4' S	11°48.1'	74°44.3' S	17°52.6'	251°21.2' N	17°24.8'	
8	44°31.4'	298°48.2' N	22°39.0'	270°30.3' N	19°02.7'	70°21.0' S	11°48.1'	89°46.9' S	17°52.6'	266°22.1' N	17°24.3'	
9	59°33.9'	313°48.1' N	22°38.8'	285°29.7' N	19°01.9'	85°23.6' S	11°48.2'	104°49.5' S	17°52.7'	281°23.0' N	17°23.9'	
10	74°36.4'	328°48.0' N	22°38.5'	300°29.1' N	19°01.1'	100°26.2' S	11°48.3'	119°52.1' S	17°52.7'	296°23.9' N	17°23.4'	
11	89°38.8'	343°47.9' N	22°38.3'	315°28.5' N	19°00.2'	115°28.7' S	11°48.3'	134°54.7' S	17°52.8'	311°24.8' N	17°22.9'	
12	104°41.3'	358°47.8' N	22°38.0'	330°27.9' N	18°59.4'	130°31.3' S	11°48.4'	149°57.4' S	17°52.8'	326°25.7' N	17°22.5'	
13	119°43.7'	13°47.7' N	22°37.7'	345°27.3' N	18°58.6'	145°33.9' S	11°48.4'	164°60.0' S	17°52.9'	341°26.7' N	17°22.0'	
14	134°46.2'	28°47.6' N	22°37.5'	0°26.7' N	18°57.7'	160°36.5' S	11°48.5'	180°02.6' S	17°52.9'	356°27.6' N	17°21.5'	
15	149°48.7'	43°47.5' N	22°37.2'	15°26.1' N	18°56.9'	175°39.1' S	11°48.5'	195°05.2' S	17°53.0'	11°28.5' N	17°21.0'	
16	164°51.1'	58°47.4' N	22°37.0'	30°25.4' N	18°56.1'	190°41.6' S	11°48.6'	210°07.8' S	17°53.0'	26°29.4' N	17°20.6'	
17	179°53.6'	73°47.3' N	22°36.7'	45°24.8' N	18°55.2'	205°44.2' S	11°48.6'	225°10.4' S	17°53.1'	41°30.3' N	17°20.1'	
18	194°56.1'	88°47.2' N	22°36.4'	60°24.2' N	18°54.4'	220°46.8' S	11°48.7'	240°13.1' S	17°53.1'	56°31.2' N	17°19.6'	
19	209°58.5'	103°47.1' N	22°36.2'	75°23.6' N	18°53.6'	235°49.4' S	11°48.8'	255°15.7' S	17°53.1'	71°32.1' N	17°19.1'	
20	225°01.0'	118°47.0' N	22°35.9'	90°23.0' N	18°52.7'	250°52.0' S	11°48.8'	270°18.3' S	17°53.2'	86°33.1' N	17°18.7'	
21	240°03.5'	133°46.9' N	22°35.6'	105°22.4' N	18°51.9'	265°54.5' S	11°48.9'	285°20.9' S	17°53.2'	101°34.0' N	17°18.2'	
22	255°05.9'	148°46.8' N	22°35.4'	120°21.8' N	18°51.0'	280°57.1' S	11°48.9'	300°23.5' S	17°53.3'	116°34.9' N	17°17.7'	
23	270°08.4'	163°46.7' N	22°35.1'	135°21.2' N	18°50.2'	295°59.7' S	11°49.0'	315°26.1' S	17°53.3'	131°35.8' N	17°17.3'	
		SD 15.7' d -0.3'		v -0.6' d -0.8'		v 2.6' d -0.1'		v 2.6' d -0.0'		v 0.9' d -0.5'		
Mer. pass.		12 h 4 m 50 s		13 h 58 m		3 h 19 m		2 h 2 m		14 h 14 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn
0	226°51.4' N	19°00.8'	13.6'	8.9'	54.0'	44°51.4'	32°55.5'	32°37.4'	11°37.9'	80°53.9'	85°06.8'	87°29.4'	107°12.6'
1	241°24.0' N	19°09.7'	13.5'	8.8'	54.0'	44°24.2'	32°31.0'	32°16.0'	11°11.9'	81°10.8'	85°35.3'	87°59.0'	107°42.3'
2	255°56.5' N	19°18.5'	13.5'	8.7'	54.1'	43°57.1'	32°06.6'	31°54.8'	10°46.2'	81°27.8'	86°03.7'	88°28.7'	108°12.0'
3	270°29.0' N	19°27.2'	13.4'	8.6'	54.1'	43°29.9'	31°42.3'	31°33.7'	10°20.8'	81°44.7'	86°32.2'	88°58.3'	108°41.7'
4	285°01.4' N	19°35.8'	13.3'	8.5'	54.1'	43°02.8'	31°18.2'	31°12.9'	9°55.8'	82°01.7'	87°00.6'	89°28.0'	109°11.4'
5	299°33.8' N	19°44.4'	13.3'	8.5'	54.1'	42°35.6'	30°54.2'	30°52.2'	9°31.2'	82°18.7'	87°29.1'	89°57.6'	109°41.1'
6	314°06.0' N	19°52.8'	13.2'	8.4'	54.1'	42°08.5'	30°30.3'	30°31.8'	9°07.1'	82°35.8'	87°57.6'	90°27.3'	110°10.8'
7	328°38.3' N	20°01.2'	13.2'	8.3'	54.1'	41°41.3'	30°06.6'	30°11.6'	8°43.6'	82°52.9'	88°26.1'	90°57.0'	110°40.5'
8	343°10.4' N	20°09.5'	13.1'	8.2'	54.1'	41°14.1'	29°43.1'	29°51.7'	8°20.7'	83°09.9'	88°54.6'	91°26.7'	111°10.2'
9	357°42.5' N	20°17.7'	13.0'	8.1'	54.1'	40°47.0'	29°19.7'	29°32.0'		83°27.1'	89°23.1'	91°56.4'	111°39.9'
10	12°14.6' N	20°25.8'	13.0'	8.0'	54.1'	40°19.8'	28°56.5'	29°12.5'		83°44.2'	89°51.6'	92°26.1'	112°09.7'
11	26°46.6' N	20°33.9'	12.9'	8.0'	54.1'		28°33.4'	28°53.3'		84°01.4'	90°20.1'	92°55.8'	112°39.4'
12	41°18.5' N	20°41.8'	12.9'	7.9'	54.1'		28°10.6'	28°34.3'		84°18.6'	90°48.7'	93°25.5'	113°09.1'
13	55°50.4' N	20°49.7'	12.8'	7.8'	54.1'		27°47.9'	28°15.7'		84°35.8'	91°17.2'	93°55.2'	113°38.9'
14	70°22.2' N	20°57.5'	12.7'	7.7'	54.1'		27°25.4'	27°57.3'		84°53.0'	91°45.7'	94°25.0'	114°08.6'
15	84°53.9' N	21°05.2'	12.7'	7.6'	54.1'		27°03.1'	27°39.2'		85°10.3'	92°14.3'	94°54.7'	114°38.4'
16	99°25.6' N	21°12.8'	12.6'	7.5'	54.1'		26°41.1'	27°21.4'		85°27.5'	92°42.8'	95°24.5'	115°08.2'
17	113°57.2' N	21°20.3'	12.6'	7.4'	54.1'		26°19.3'	27°04.0'		85°44.8'	93°11.4'	95°54.2'	115°38.0'
18	128°28.7' N	21°27.7'	12.5'	7.3'	54.1'		25°57.7'	26°46.9'		86°02.1'	93°40.0'	96°24.0'	116°07.8'
19	143°00.2' N	21°35.0'	12.4'	7.2'	54.1'		25°36.3'	26°30.1'		86°19.4'	94°08.5'	96°53.8'	116°37.6'
20	157°31.7' N	21°42.2'	12.4'	7.1'	54.1'		25°15.2'	26°13.6'		86°36.8'	94°37.1'	97°23.5'	117°07.4'
21	172°03.0' N	21°49.4'	12.3'	7.0'	54.1'		24°54.4'	25°57.5'		86°54.1'	95°05.7'	97°53.3'	117°37.2'
22	186°34.3' N	21°56.4'	12.2'	6.9'	54.1'		24°33.9'	25°41.8'		87°11.5'	95°34.3'	98°23.2'	118°07.0'
23	201°05.6' N	22°03.3'	12.2'	6.8'	54.2'		24°13.6'			87°28.9'	96°02.9'	98°53.0'	118°36.8'
Mer. pass.		9 h 9 m SD 14.7' phase 15%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5' S	29°30.4'	Spica	+1.0	158°25.3' S	11°16.3'	Betelgeuse	+0.5	270°55.5' N	7°24.6'
Deneb	+1.2	49°27.3' N	45°21.3'	Acrux	+0.8	173°03.3' S	63°13.3'	Capella	+0.1	280°26.6' N	46°01.0'
Altair	+0.8	62°02.4' N	8°55.5'	Regulus	+1.4	207°37.7' N	11°51.9'	Rigel	+0.2	281°06.9' S	8°10.6'
Vega	+0.0	80°34.7' N	38°48.3'	Pollux	+1.2	243°21.2' N	27°58.5'	Aldebaran	+0.9	290°43.2' N	16°33.0'
Antares	+1.1	112°19.0' S	26°28.7'	Procyon	+0.4	244°54.2' N	5°10.2'	Polaris	+2.0	315°35.9' N	89°20.9'
Rigil Kent	-0.0	139°43.9' S	60°55.6'	Adhara	+1.5	255°08.5' S	29°00.1'	Achernar	+0.5	335°22.5' S	57°07.5'
Arcturus	-0.1	145°50.4' N	19°04.5'	Sirius	-1.4	258°29.1' S	16°44.7'				
Hadar	+0.6	148°39.8' S	60°28.7'	Canopus	-0.6	263°54.2' S	52°42.4'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	285°10.9'	178°46.6'	N 22°34.8'	150°20.6'	N 18°49.4'	311°02.3'	S 11°49.0'	330°28.8'	S 17°53.4'	146°36.7'	N 17°16.8'	
1	300°13.3'	193°46.5'	N 22°34.6'	165°20.0'	N 18°48.5'	326°04.9'	S 11°49.1'	345°31.4'	S 17°53.4'	161°37.6'	N 17°16.3'	
2	315°15.8'	208°46.4'	N 22°34.3'	180°19.4'	N 18°47.7'	341°07.5'	S 11°49.1'	0°34.0'	S 17°53.5'	176°38.6'	N 17°15.8'	
3	330°18.2'	223°46.3'	N 22°34.0'	195°18.8'	N 18°46.8'	356°10.0'	S 11°49.2'	15°36.6'	S 17°53.5'	191°39.5'	N 17°15.4'	
4	345°20.7'	238°46.2'	N 22°33.8'	210°18.2'	N 18°46.0'	11°12.6'	S 11°49.3'	30°39.2'	S 17°53.6'	206°40.4'	N 17°14.9'	
5	0°23.2'	253°46.1'	N 22°33.5'	225°17.6'	N 18°45.1'	26°15.2'	S 11°49.3'	45°41.9'	S 17°53.6'	221°41.3'	N 17°14.4'	
6	15°25.6'	268°46.0'	N 22°33.2'	240°17.0'	N 18°44.3'	41°17.8'	S 11°49.4'	60°44.5'	S 17°53.7'	236°42.2'	N 17°13.9'	
7	30°28.1'	283°45.9'	N 22°33.0'	255°16.4'	N 18°43.4'	56°20.4'	S 11°49.4'	75°47.1'	S 17°53.7'	251°43.1'	N 17°13.5'	
8	45°30.6'	298°45.8'	N 22°32.7'	270°15.8'	N 18°42.6'	71°23.0'	S 11°49.5'	90°49.7'	S 17°53.8'	266°44.0'	N 17°13.0'	
9	60°33.0'	313°45.7'	N 22°32.4'	285°15.2'	N 18°41.7'	86°25.6'	S 11°49.5'	105°52.3'	S 17°53.8'	281°45.0'	N 17°12.5'	
10	75°35.5'	328°45.6'	N 22°32.1'	300°14.6'	N 18°40.9'	101°28.1'	S 11°49.6'	120°55.0'	S 17°53.9'	296°45.9'	N 17°12.0'	
11	90°38.0'	343°45.5'	N 22°31.9'	315°14.0'	N 18°40.0'	116°30.7'	S 11°49.7'	135°57.6'	S 17°53.9'	311°46.8'	N 17°11.6'	
12	105°40.4'	358°45.4'	N 22°31.6'	330°13.4'	N 18°39.2'	131°33.3'	S 11°49.7'	151°00.2'	S 17°54.0'	326°47.7'	N 17°11.1'	
13	120°42.9'	13°45.3'	N 22°31.3'	345°12.8'	N 18°38.3'	146°35.9'	S 11°49.8'	166°02.8'	S 17°54.0'	341°48.6'	N 17°10.6'	
14	135°45.4'	28°45.2'	N 22°31.0'	0°12.2'	N 18°37.5'	161°38.5'	S 11°49.8'	181°05.4'	S 17°54.1'	356°49.5'	N 17°10.1'	
15	150°47.8'	43°45.1'	N 22°30.7'	15°11.6'	N 18°36.6'	176°41.1'	S 11°49.9'	196°08.1'	S 17°54.1'	11°50.5'	N 17°09.6'	
16	165°50.3'	58°45.0'	N 22°30.5'	30°11.1'	N 18°35.8'	191°43.7'	S 11°50.0'	211°10.7'	S 17°54.2'	26°51.4'	N 17°09.2'	
17	180°52.7'	73°44.9'	N 22°30.2'	45°10.5'	N 18°34.9'	206°46.3'	S 11°50.0'	226°13.3'	S 17°54.2'	41°52.3'	N 17°08.7'	
18	195°55.2'	88°44.8'	N 22°29.9'	60°09.9'	N 18°34.1'	221°48.9'	S 11°50.1'	241°15.9'	S 17°54.3'	56°53.2'	N 17°08.2'	
19	210°57.7'	103°44.7'	N 22°29.6'	75°09.3'	N 18°33.2'	236°51.4'	S 11°50.1'	256°18.5'	S 17°54.3'	71°54.1'	N 17°07.7'	
20	226°00.1'	118°44.6'	N 22°29.4'	90°08.7'	N 18°32.3'	251°54.0'	S 11°50.2'	271°21.2'	S 17°54.4'	86°55.1'	N 17°07.3'	
21	241°02.6'	133°44.5'	N 22°29.1'	105°08.1'	N 18°31.5'	266°56.6'	S 11°50.2'	286°23.8'	S 17°54.4'	101°56.0'	N 17°06.8'	
22	256°05.1'	148°44.4'	N 22°28.8'	120°07.5'	N 18°30.6'	281°59.2'	S 11°50.3'	301°26.4'	S 17°54.4'	116°56.9'	N 17°06.3'	
23	271°07.5'	163°44.3'	N 22°28.5'	135°06.9'	N 18°29.8'	297°01.8'	S 11°50.4'	316°29.0'	S 17°54.5'	131°57.8'	N 17°05.8'	
		SD 15.7' d -0.3'		v -0.6' d -0.9'		v 2.6' d -0.1'		v 2.6' d -0.0'		v 0.9' d -0.5'		
Mer. pass.		12 h 5 m 0 s		13 h 59 m		3 h 15 m		1 h 58 m		14 h 13 m		

h	Moon				Lunar distance						
	GHA	dec	v	d	HP	-Betelgeuse	+Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn
0	215°36.8'	N 22°10.2'	12.1'	6.7'	54.2'	23°53.7'		87°46.3'	96°31.5'	99°22.8'	119°06.7'
1	230°07.9'	N 22°16.9'	12.1'	6.6'	54.2'	23°34.0'		88°03.7'	97°00.2'	99°52.6'	119°36.5'
2	244°39.0'	N 22°23.6'	12.0'	6.5'	54.2'	23°14.7'		88°21.1'	97°28.8'	100°22.5'	
3	259°10.0'	N 22°30.1'	11.9'	6.4'	54.2'	22°55.8'		88°38.5'	97°57.4'	100°52.3'	
4	273°40.9'	N 22°36.6'	11.9'	6.3'	54.2'	22°37.2'		88°56.0'	98°26.1'	101°22.2'	
5	288°11.8'	N 22°42.9'	11.8'	6.2'	54.2'	22°19.0'		89°13.4'	98°54.7'	101°52.1'	
6	302°42.6'	N 22°49.2'	11.8'	6.1'	54.2'	22°01.2'		89°30.9'	99°23.4'	102°22.0'	
7	317°13.4'	N 22°55.3'	11.7'	6.0'	54.2'	21°43.8'		89°48.4'	99°52.0'	102°51.9'	
8	331°44.1'	N 23°01.4'	11.6'	5.9'	54.2'	21°26.8'		90°05.8'	100°20.7'	103°21.8'	
9	346°14.7'	N 23°07.3'	11.6'	5.8'	54.2'	21°10.3'		90°23.3'	100°49.4'	103°51.7'	
10	0°45.3'	N 23°13.1'	11.5'	5.7'	54.2'	20°54.2'	8°28.1'	90°40.8'	101°18.1'	104°21.7'	
11	15°15.8'	N 23°18.9'	11.5'	5.6'	54.2'	20°38.6'	8°51.5'	90°58.3'	101°46.8'	104°51.6'	
12	29°46.3'	N 23°24.5'	11.4'	5.5'	54.3'		9°15.4'	91°15.8'	102°15.5'	105°21.6'	
13	44°16.7'	N 23°30.0'	11.3'	5.4'	54.3'		9°39.9'	91°33.3'	102°44.2'	105°51.5'	
14	58°47.0'	N 23°35.4'	11.3'	5.3'	54.3'		10°04.9'	91°50.8'	103°12.9'	106°21.5'	
15	73°17.3'	N 23°40.7'	11.2'	5.2'	54.3'		10°30.4'	92°08.3'	103°41.6'	106°51.5'	
16	87°47.6'	N 23°45.9'	11.2'	5.1'	54.3'		10°56.2'	92°25.8'	104°10.4'	107°21.5'	
17	102°17.7'	N 23°51.0'	11.1'	5.0'	54.3'		11°22.4'	92°43.3'	104°39.1'	107°51.6'	
18	116°47.9'	N 23°56.0'	11.1'	4.9'	54.3'		11°48.9'	93°00.8'	105°07.9'	108°21.6'	
19	131°17.9'	N 24°00.8'	11.0'	4.7'	54.3'		12°15.6'	93°18.3'	105°36.6'	108°51.6'	
20	145°47.9'	N 24°05.6'	11.0'	4.6'	54.3'		12°42.6'	93°35.8'	106°05.4'	109°21.7'	
21	160°17.9'	N 24°10.2'	10.9'	4.5'	54.3'		13°09.9'	93°53.3'	106°34.1'	109°51.8'	
22	174°47.8'	N 24°14.7'	10.8'	4.4'	54.4'		13°37.3'	94°10.8'	107°02.9'	110°21.9'	
23	189°17.6'	N 24°19.1'	10.8'	4.3'	54.4'		14°04.9'	94°28.3'	107°31.7'	110°52.0'	
Mer. pass.		9 h 57 m SD 14.8'		phase 9%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.6'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°35.3'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	286°10.0'		178°44.2'	N 22°28.2'	150°06.3'	N 18°28.9'	312°04.4'	S 11°50.4'	331°31.6'	S 17°54.5'	146°58.7'	N 17°05.3'
1	301°12.5'		193°44.1'	N 22°27.9'	165°05.7'	N 18°28.0'	327°07.0'	S 11°50.5'	346°34.3'	S 17°54.6'	161°59.6'	N 17°04.9'
2	316°14.9'		208°44.0'	N 22°27.7'	180°05.2'	N 18°27.2'	342°09.6'	S 11°50.5'	1°36.9'	S 17°54.6'	177°00.6'	N 17°04.4'
3	331°17.4'		223°43.9'	N 22°27.4'	195°04.6'	N 18°26.3'	357°12.2'	S 11°50.6'	16°39.5'	S 17°54.7'	192°01.5'	N 17°03.9'
4	346°19.8'		238°43.8'	N 22°27.1'	210°04.0'	N 18°25.4'	12°14.8'	S 11°50.7'	31°42.1'	S 17°54.7'	207°02.4'	N 17°03.4'
5	1°22.3'		253°43.7'	N 22°26.8'	225°03.4'	N 18°24.6'	27°17.4'	S 11°50.7'	46°44.7'	S 17°54.8'	222°03.3'	N 17°02.9'
6	16°24.8'		268°43.6'	N 22°26.5'	240°02.8'	N 18°23.7'	42°19.9'	S 11°50.8'	61°47.4'	S 17°54.8'	237°04.2'	N 17°02.5'
7	31°27.2'		283°43.5'	N 22°26.2'	255°02.2'	N 18°22.8'	57°22.5'	S 11°50.8'	76°50.0'	S 17°54.9'	252°05.1'	N 17°02.0'
8	46°29.7'		298°43.4'	N 22°25.9'	270°01.6'	N 18°22.0'	72°25.1'	S 11°50.9'	91°52.6'	S 17°54.9'	267°06.1'	N 17°01.5'
9	61°32.2'		313°43.3'	N 22°25.6'	285°01.1'	N 18°21.1'	87°27.7'	S 11°51.0'	106°55.2'	S 17°55.0'	282°07.0'	N 17°01.0'
10	76°34.6'		328°43.2'	N 22°25.3'	300°00.5'	N 18°20.2'	102°30.3'	S 11°51.0'	121°57.8'	S 17°55.0'	297°07.9'	N 17°00.5'
11	91°37.1'		343°43.1'	N 22°25.1'	314°59.9'	N 18°19.4'	117°32.9'	S 11°51.1'	137°00.5'	S 17°55.1'	312°08.8'	N 17°00.1'
12	106°39.6'		358°43.0'	N 22°24.8'	329°59.3'	N 18°18.5'	132°35.5'	S 11°51.1'	152°03.1'	S 17°55.1'	327°09.7'	N 16°59.6'
13	121°42.0'		13°42.9'	N 22°24.5'	344°58.7'	N 18°17.6'	147°38.1'	S 11°51.2'	167°05.7'	S 17°55.2'	342°10.7'	N 16°59.1'
14	136°44.5'		28°42.8'	N 22°24.2'	359°58.1'	N 18°16.7'	162°40.7'	S 11°51.3'	182°08.3'	S 17°55.2'	357°11.6'	N 16°58.6'
15	151°47.0'		43°42.7'	N 22°23.9'	14°57.6'	N 18°15.9'	177°43.3'	S 11°51.3'	197°11.0'	S 17°55.3'	12°12.5'	N 16°58.1'
16	166°49.4'		58°42.6'	N 22°23.6'	29°57.0'	N 18°15.0'	192°45.9'	S 11°51.4'	212°13.6'	S 17°55.3'	27°13.4'	N 16°57.7'
17	181°51.9'		73°42.5'	N 22°23.3'	44°56.4'	N 18°14.1'	207°48.5'	S 11°51.5'	227°16.2'	S 17°55.4'	42°14.3'	N 16°57.2'
18	196°54.3'		88°42.5'	N 22°23.0'	59°55.8'	N 18°13.2'	222°51.1'	S 11°51.5'	242°18.8'	S 17°55.4'	57°15.3'	N 16°56.7'
19	211°56.8'		103°42.4'	N 22°22.7'	74°55.3'	N 18°12.3'	237°53.7'	S 11°51.6'	257°21.4'	S 17°55.5'	72°16.2'	N 16°56.2'
20	226°59.3'		118°42.3'	N 22°22.4'	89°54.7'	N 18°11.5'	252°56.3'	S 11°51.6'	272°24.1'	S 17°55.5'	87°17.1'	N 16°55.7'
21	242°01.7'		133°42.2'	N 22°22.1'	104°54.1'	N 18°10.6'	267°58.9'	S 11°51.7'	287°26.7'	S 17°55.6'	102°18.0'	N 16°55.2'
22	257°04.2'		148°42.1'	N 22°21.8'	119°53.5'	N 18°09.7'	283°01.5'	S 11°51.8'	302°29.3'	S 17°55.6'	117°18.9'	N 16°54.8'
23	272°06.7'		163°42.0'	N 22°21.5'	134°52.9'	N 18°08.8'	298°04.1'	S 11°51.8'	317°31.9'	S 17°55.7'	132°19.9'	N 16°54.3'
			SD 15.7' d -0.3'		v -0.6' d -0.9'		v 2.6' d -0.1'		v 2.6' d -0.0'		v 0.9' d -0.5'	
Mer. pass.			12 h 5 m 9 s		14 h 0 m		3 h 11 m		1 h 54 m		14 h 11 m	

h	Moon				Lunar distance					
	GHA	dec	v	d	HP	+Aldebaran	+Rigel	+Achernar	+Fomalhaut	+Jupiter
0	203°47.4'	N 24°23.4'	10.7'	4.2'	54.4'	14°32.7'		94°45.8'	108°00.5'	111°22.1'
1	218°17.2'	N 24°27.6'	10.7'	4.1'	54.4'	15°00.7'		95°03.2'	108°29.3'	111°52.2'
2	232°46.9'	N 24°31.7'	10.6'	3.9'	54.4'	15°28.8'		95°20.7'	108°58.1'	112°22.4'
3	247°16.5'	N 24°35.6'	10.6'	3.8'	54.4'	15°57.0'		95°38.2'	109°26.9'	112°52.5'
4	261°46.1'	N 24°39.5'	10.5'	3.7'	54.4'	16°25.4'		95°55.6'	109°55.7'	113°22.7'
5	276°15.6'	N 24°43.2'	10.5'	3.6'	54.4'	16°53.8'		96°13.1'	110°24.5'	113°52.9'
6	290°45.1'	N 24°46.8'	10.4'	3.5'	54.5'	17°22.4'		96°30.5'	110°53.4'	114°23.1'
7	305°14.6'	N 24°50.2'	10.4'	3.4'	54.5'	17°51.1'		96°47.9'	111°22.2'	114°53.3'
8	319°44.0'	N 24°53.6'	10.4'	3.2'	54.5'	18°19.9'		97°05.3'	111°51.0'	115°23.6'
9	334°13.3'	N 24°56.8'	10.3'	3.1'	54.5'	18°48.7'		97°22.7'	112°19.9'	115°53.8'
10	348°42.6'	N 24°59.9'	10.3'	3.0'	54.5'	19°17.6'		97°40.1'	112°48.7'	116°24.1'
11	3°11.9'	N 25°02.9'	10.2'	2.9'	54.5'	19°46.6'		97°57.4'	113°17.6'	116°54.4'
12	17°41.1'	N 25°05.8'	10.2'	2.7'	54.5'	20°15.7'		98°14.8'	113°46.4'	117°24.7'
13	32°10.3'	N 25°08.6'	10.1'	2.6'	54.5'	20°44.9'		98°32.1'	114°15.3'	117°55.0'
14	46°39.4'	N 25°11.2'	10.1'	2.5'	54.6'	21°14.1'		98°49.4'	114°44.1'	118°25.3'
15	61°08.5'	N 25°13.7'	10.0'	2.4'	54.6'	21°43.4'		99°06.7'	115°13.0'	118°55.6'
16	75°37.5'	N 25°16.1'	10.0'	2.3'	54.6'	22°12.7'		99°24.0'	115°41.9'	119°26.0'
17	90°06.5'	N 25°18.3'	10.0'	2.1'	54.6'	22°42.1'		99°41.3'	116°10.8'	119°56.4'
18	104°35.5'	N 25°20.5'	9.9'	2.0'	54.6'	23°11.6'		99°58.5'	116°39.6'	
19	119°04.4'	N 25°22.5'	9.9'	1.9'	54.6'	23°41.1'		100°15.7'	117°08.5'	
20	133°33.3'	N 25°24.3'	9.9'	1.8'	54.6'	24°10.6'		100°32.9'	117°37.4'	
21	148°02.2'	N 25°26.1'	9.8'	1.6'	54.7'	24°40.2'		100°50.0'	118°06.3'	
22	162°31.0'	N 25°27.7'	9.8'	1.5'	54.7'	25°09.8'	36°56.0'	101°07.2'	118°35.2'	
23	176°59.8'	N 25°29.2'	9.8'	1.4'	54.7'	25°39.5'	37°11.0'	101°24.3'	119°04.1'	
Mer. pass.			10 h 47 m SD 14.8'		phase 4%					

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°34.8'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.1'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

Friday 09 July 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	287°09.1'	178°41.9'	N 22°21.2'	149°52.4'	N 18°07.9'	313°06.7'	S 11°51.9'	332°34.6'	S 17°55.7'	147°20.8'	N 16°53.8'			
1	302°11.6'	193°41.8'	N 22°20.9'	164°51.8'	N 18°07.1'	328°09.3'	S 11°51.9'	347°37.2'	S 17°55.8'	162°21.7'	N 16°53.3'			
2	317°14.1'	208°41.7'	N 22°20.6'	179°51.2'	N 18°06.2'	343°11.9'	S 11°52.0'	2°39.8'	S 17°55.8'	177°22.6'	N 16°52.8'			
3	332°16.5'	223°41.6'	N 22°20.3'	194°50.7'	N 18°05.3'	358°14.5'	S 11°52.1'	17°42.4'	S 17°55.9'	192°23.5'	N 16°52.3'			
4	347°19.0'	238°41.5'	N 22°20.0'	209°50.1'	N 18°04.4'	13°17.1'	S 11°52.1'	32°45.1'	S 17°55.9'	207°24.5'	N 16°51.9'			
5	2°21.5'	253°41.4'	N 22°19.7'	224°49.5'	N 18°03.5'	28°19.7'	S 11°52.2'	47°47.7'	S 17°56.0'	222°25.4'	N 16°51.4'			
6	17°23.9'	268°41.3'	N 22°19.4'	239°48.9'	N 18°02.6'	43°22.3'	S 11°52.3'	62°50.3'	S 17°56.0'	237°26.3'	N 16°50.9'			
7	32°26.4'	283°41.2'	N 22°19.1'	254°48.4'	N 18°01.7'	58°24.9'	S 11°52.3'	77°52.9'	S 17°56.1'	252°27.2'	N 16°50.4'			
8	47°28.8'	298°41.1'	N 22°18.8'	269°47.8'	N 18°00.9'	73°27.5'	S 11°52.4'	92°55.5'	S 17°56.1'	267°28.1'	N 16°49.9'			
9	62°31.3'	313°41.0'	N 22°18.5'	284°47.2'	N 17°60.0'	88°30.1'	S 11°52.4'	107°58.2'	S 17°56.2'	282°29.1'	N 16°49.4'			
10	77°33.8'	328°41.0'	N 22°18.2'	299°46.7'	N 17°59.1'	103°32.7'	S 11°52.5'	123°00.8'	S 17°56.2'	297°30.0'	N 16°48.9'			
11	92°36.2'	343°40.9'	N 22°17.9'	314°46.1'	N 17°58.2'	118°35.3'	S 11°52.6'	138°03.4'	S 17°56.3'	312°30.9'	N 16°48.5'			
12	107°38.7'	358°40.8'	N 22°17.6'	329°45.5'	N 17°57.3'	133°37.9'	S 11°52.6'	153°06.0'	S 17°56.3'	327°31.8'	N 16°48.0'			
13	122°41.2'	13°40.7'	N 22°17.3'	344°45.0'	N 17°56.4'	148°40.5'	S 11°52.7'	168°08.7'	S 17°56.4'	342°32.7'	N 16°47.5'			
14	137°43.6'	28°40.6'	N 22°16.9'	359°44.4'	N 17°55.5'	163°43.1'	S 11°52.8'	183°11.3'	S 17°56.4'	357°33.7'	N 16°47.0'			
15	152°46.1'	43°40.5'	N 22°16.6'	14°43.8'	N 17°54.6'	178°45.7'	S 11°52.8'	198°13.9'	S 17°56.5'	12°34.6'	N 16°46.5'			
16	167°48.6'	58°40.4'	N 22°16.3'	29°43.3'	N 17°53.7'	193°48.3'	S 11°52.9'	213°16.5'	S 17°56.5'	27°35.5'	N 16°46.0'			
17	182°51.0'	73°40.3'	N 22°16.0'	44°42.7'	N 17°52.8'	208°50.9'	S 11°53.0'	228°19.2'	S 17°56.6'	42°36.4'	N 16°45.5'			
18	197°53.5'	88°40.2'	N 22°15.7'	59°42.1'	N 17°51.9'	223°53.5'	S 11°53.0'	243°21.8'	S 17°56.6'	57°37.4'	N 16°45.1'			
19	212°56.0'	103°40.1'	N 22°15.4'	74°41.6'	N 17°51.0'	238°56.1'	S 11°53.1'	258°24.4'	S 17°56.7'	72°38.3'	N 16°44.6'			
20	227°58.4'	118°40.0'	N 22°15.1'	89°41.0'	N 17°50.1'	253°58.7'	S 11°53.1'	273°27.0'	S 17°56.7'	87°39.2'	N 16°44.1'			
21	243°00.9'	133°40.0'	N 22°14.8'	104°40.4'	N 17°49.2'	269°01.3'	S 11°53.2'	288°29.7'	S 17°56.8'	102°40.1'	N 16°43.6'			
22	258°03.3'	148°39.9'	N 22°14.4'	119°39.9'	N 17°48.3'	284°03.9'	S 11°53.3'	303°32.3'	S 17°56.8'	117°41.0'	N 16°43.1'			
23	273°05.8'	163°39.8'	N 22°14.1'	134°39.3'	N 17°47.4'	299°06.5'	S 11°53.3'	318°34.9'	S 17°56.9'	132°42.0'	N 16°42.6'			
		SD 15.7' d -0.3'		v -0.6' d -0.9'		v 2.6' d -0.1'		v 2.6' d -0.0'		v 0.9' d -0.5'				
Mer. pass.		12 h 5 m 18 s		14 h 1 m		3 h 7 m		1 h 49 m		14 h 10 m				

h	Moon					Lunar distance					
	GHA	dec	v	d	HP	+Capella	+Aldebaran	+Rigel	+Achernar	+Fomalhaut	
0	191°28.6'	N 25°30.6'	9.7'	1.2'	54.7'			26°09.3'	37°26.4'	101°41.4'	119°33.0'
1	205°57.3'	N 25°31.8'	9.7'	1.1'	54.7'			26°39.0'	37°42.0'	101°58.4'	
2	220°26.0'	N 25°32.9'	9.7'	1.0'	54.7'			27°08.9'	37°57.8'	102°15.4'	
3	234°54.7'	N 25°33.9'	9.6'	0.9'	54.7'			27°38.7'	38°14.0'	102°32.4'	
4	249°23.3'	N 25°34.8'	9.6'	0.7'	54.8'	25°09.5'		28°08.6'	38°30.3'	102°49.4'	
5	263°52.0'	N 25°35.5'	9.6'	0.6'	54.8'						
6	278°20.5'	N 25°36.1'	9.6'	0.5'	54.8'						
7	292°49.1'	N 25°36.6'	9.5'	0.3'	54.8'						
8	307°17.6'	N 25°36.9'	9.5'	0.2'	54.8'						
9	321°46.2'	N 25°37.1'	9.5'	0.1'	54.8'						
10	336°14.7'	N 25°37.2'	9.5'	-0.1'	54.8'						
11	350°43.1'	N 25°37.1'	9.5'	-0.2'	54.9'						
12	5°11.6'	N 25°36.9'	9.4'	-0.3'	54.9'						
13	19°40.0'	N 25°36.6'	9.4'	-0.5'	54.9'						
14	34°08.5'	N 25°36.1'	9.4'	-0.6'	54.9'						
15	48°36.9'	N 25°35.6'	9.4'	-0.7'	54.9'						
16	63°05.3'	N 25°34.8'	9.4'	-0.8'	54.9'						
17	77°33.7'	N 25°34.0'	9.4'	-1.0'	55.0'						
18	92°02.0'	N 25°33.0'	9.4'	-1.1'	55.0'						
19	106°30.4'	N 25°31.9'	9.3'	-1.2'	55.0'						
20	120°58.7'	N 25°30.7'	9.3'	-1.4'	55.0'						
21	135°27.1'	N 25°29.3'	9.3'	-1.5'	55.0'						
22	149°55.4'	N 25°27.8'	9.3'	-1.6'	55.0'						
23	164°23.7'	N 25°26.1'	9.3'	-1.8'	55.1'						
Mer. pass.		11 h 38 m SD 14.9'		phase 1%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°34.3'	N 89°20.9'
Rigel Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.5'	S 57°07.5'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

Saturday 10 July 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	288°08.3'	178°39.7'	N 22°13.8'	149°38.8'	N 17°46.5'	314°09.1'	S 11°53.4'	333°37.5'	S 17°56.9'	147°42.9'	N 16°42.1'			
1	303°10.7'	193°39.6'	N 22°13.5'	164°38.2'	N 17°45.6'	329°11.7'	S 11°53.5'	348°40.2'	S 17°57.0'	162°43.8'	N 16°41.6'			
2	318°13.2'	208°39.5'	N 22°13.2'	179°37.6'	N 17°44.7'	344°14.3'	S 11°53.5'	3°42.8'	S 17°57.0'	177°44.7'	N 16°41.2'			
3	333°15.7'	223°39.4'	N 22°12.9'	194°37.1'	N 17°43.8'	359°16.9'	S 11°53.6'	18°45.4'	S 17°57.1'	192°45.7'	N 16°40.7'			
4	348°18.1'	238°39.3'	N 22°12.5'	209°36.5'	N 17°42.9'	14°19.5'	S 11°53.7'	33°48.0'	S 17°57.1'	207°46.6'	N 16°40.2'			
5	3°20.6'	253°39.2'	N 22°12.2'	224°36.0'	N 17°42.0'	29°22.1'	S 11°53.7'	48°50.7'	S 17°57.2'	222°47.5'	N 16°39.7'			
6	18°23.1'	268°39.2'	N 22°11.9'	239°35.4'	N 17°41.1'	44°24.7'	S 11°53.8'	63°53.3'	S 17°57.2'	237°48.4'	N 16°39.2'			
7	33°25.5'	283°39.1'	N 22°11.6'	254°34.8'	N 17°40.2'	59°27.3'	S 11°53.9'	78°55.9'	S 17°57.3'	252°49.3'	N 16°38.7'			
8	48°28.0'	298°39.0'	N 22°11.3'	269°34.3'	N 17°39.3'	74°30.0'	S 11°53.9'	93°58.5'	S 17°57.3'	267°50.3'	N 16°38.2'			
9	63°30.5'	313°38.9'	N 22°10.9'	284°33.7'	N 17°38.4'	89°32.6'	S 11°54.0'	109°01.2'	S 17°57.4'	282°51.2'	N 16°37.7'			
10	78°32.9'	328°38.8'	N 22°10.6'	299°33.2'	N 17°37.4'	104°35.2'	S 11°54.1'	124°03.8'	S 17°57.4'	297°52.1'	N 16°37.2'			
11	93°35.4'	343°38.7'	N 22°10.3'	314°32.6'	N 17°36.5'	119°37.8'	S 11°54.1'	139°06.4'	S 17°57.4'	312°53.0'	N 16°36.8'			
12	108°37.8'	358°38.6'	N 22°10.0'	329°32.1'	N 17°35.6'	134°40.4'	S 11°54.2'	154°09.0'	S 17°57.5'	327°54.0'	N 16°36.3'			
13	123°40.3'	13°38.5'	N 22°09.6'	344°31.5'	N 17°34.7'	149°43.0'	S 11°54.3'	169°11.7'	S 17°57.5'	342°54.9'	N 16°35.8'			
14	138°42.8'	28°38.5'	N 22°09.3'	359°31.0'	N 17°33.8'	164°45.6'	S 11°54.3'	184°14.3'	S 17°57.6'	357°55.8'	N 16°35.3'			
15	153°45.2'	43°38.4'	N 22°09.0'	14°30.4'	N 17°32.9'	179°48.2'	S 11°54.4'	199°16.9'	S 17°57.6'	12°56.7'	N 16°34.8'			
16	168°47.7'	58°38.3'	N 22°08.7'	29°29.9'	N 17°32.0'	194°50.8'	S 11°54.4'	214°19.6'	S 17°57.7'	27°57.7'	N 16°34.3'			
17	183°50.2'	73°38.2'	N 22°08.3'	44°29.3'	N 17°31.1'	209°53.4'	S 11°54.5'	229°22.2'	S 17°57.7'	42°58.6'	N 16°33.8'			
18	198°52.6'	88°38.1'	N 22°08.0'	59°28.8'	N 17°30.1'	224°56.0'	S 11°54.6'	244°24.8'	S 17°57.8'	57°59.5'	N 16°33.3'			
19	213°55.1'	103°38.0'	N 22°07.7'	74°28.2'	N 17°29.2'	239°58.7'	S 11°54.6'	259°27.4'	S 17°57.8'	73°00.4'	N 16°32.8'			
20	228°57.6'	118°37.9'	N 22°07.4'	89°27.7'	N 17°28.3'	255°01.3'	S 11°54.7'	274°30.1'	S 17°57.9'	88°01.4'	N 16°32.3'			
21	244°00.0'	133°37.9'	N 22°07.0'	104°27.1'	N 17°27.4'	270°03.9'	S 11°54.8'	289°32.7'	S 17°57.9'	103°02.3'	N 16°31.8'			
22	259°02.5'	148°37.8'	N 22°06.7'	119°26.6'	N 17°26.5'	285°06.5'	S 11°54.8'	304°35.3'	S 17°58.0'	118°03.2'	N 16°31.4'			
23	274°05.0'	163°37.7'	N 22°06.4'	134°26.0'	N 17°25.5'	300°09.1'	S 11°54.9'	319°37.9'	S 17°58.0'	133°04.1'	N 16°30.9'			
		SD 15.7' d -0.3'		v -0.6' d -0.9'		v 2.6' d -0.1'		v 2.6' d -0.0'		v 0.9' d -0.5'				
Mer. pass.		12 h 5 m 27 s		14 h 2 m		3 h 3 m		1 h 45 m		14 h 8 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigil Kent	-Hadar	-Acrux	-Spica	-Arcturus	-Regulus	-Mars	-Venus
0	178°52.0'	N 25°24.3'	9.3'	-1.9'	55.1'								
1	193°20.4'	N 25°22.4'	9.3'	-2.0'	55.1'								
2	207°48.7'	N 25°20.4'	9.3'	-2.2'	55.1'								
3	222°17.0'	N 25°18.2'	9.3'	-2.3'	55.1'								
4	236°45.3'	N 25°15.9'	9.3'	-2.4'	55.1'								
5	251°13.6'	N 25°13.5'	9.3'	-2.6'	55.2'								
6	265°41.9'	N 25°10.9'	9.3'	-2.7'	55.2'								
7	280°10.3'	N 25°08.2'	9.3'	-2.8'	55.2'								
8	294°38.6'	N 25°05.3'	9.3'	-3.0'	55.2'								
9	309°06.9'	N 25°02.4'	9.3'	-3.1'	55.2'								
10	323°35.3'	N 24°59.3'	9.3'	-3.2'	55.2'								
11	338°03.6'	N 24°56.0'	9.4'	-3.4'	55.3'								
12	352°31.9'	N 24°52.7'	9.4'	-3.5'	55.3'								
13	7°00.3'	N 24°49.2'	9.4'	-3.6'	55.3'								
14	21°28.7'	N 24°45.5'	9.4'	-3.8'	55.3'								
15	35°57.1'	N 24°41.8'	9.4'	-3.9'	55.3'								
16	50°25.5'	N 24°37.9'	9.4'	-4.0'	55.4'								
17	64°53.9'	N 24°33.9'	9.4'	-4.2'	55.4'								
18	79°22.3'	N 24°29.7'	9.4'	-4.3'	55.4'								
19	93°50.8'	N 24°25.4'	9.5'	-4.4'	55.4'								
20	108°19.2'	N 24°21.0'	9.5'	-4.5'	55.4'								
21	122°47.7'	N 24°16.5'	9.5'	-4.7'	55.4'	115°24.6'	111°01.5'	101°26.1'	86°02.1'	84°50.4'	32°01.1'	20°02.6'	18°25.5'
22	137°16.2'	N 24°11.8'	9.5'	-4.8'	55.5'	115°04.2'	110°41.2'	101°08.9'	85°31.0'	84°22.5'	31°30.1'	19°33.3'	17°57.6'
23	151°44.7'	N 24°07.0'	9.5'	-4.9'	55.5'	114°43.7'	110°20.8'	100°51.7'	84°59.8'	83°54.6'	30°59.2'	19°04.1'	17°29.7'
Mer. pass.		12 h 31 m SD 15.0'		phase 0%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'		
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'		
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'		
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'		
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°33.8'	N 89°20.9'		
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.5'	S 57°07.5'		
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'						
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'						

Sunday 11 July 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	289°07.4'	178°37.6'	N 22°06.0'	149°25.5'	N 17°24.6'	315°11.7'	S 11°55.0'	334°40.6'	S 17°58.1'	148°05.1'	N 16°30.4'			
1	304°09.9'	193°37.5'	N 22°05.7'	164°24.9'	N 17°23.7'	330°14.3'	S 11°55.0'	349°43.2'	S 17°58.1'	163°06.0'	N 16°29.9'			
2	319°12.3'	208°37.4'	N 22°05.4'	179°24.4'	N 17°22.8'	345°16.9'	S 11°55.1'	4°45.8'	S 17°58.2'	178°06.9'	N 16°29.4'			
3	334°14.8'	223°37.3'	N 22°05.0'	194°23.8'	N 17°21.8'	0°19.6'	S 11°55.2'	19°48.5'	S 17°58.2'	193°07.8'	N 16°28.9'			
4	349°17.3'	238°37.3'	N 22°04.7'	209°23.3'	N 17°20.9'	15°22.2'	S 11°55.3'	34°51.1'	S 17°58.3'	208°08.8'	N 16°28.4'			
5	4°19.7'	253°37.2'	N 22°04.4'	224°22.7'	N 17°20.0'	30°24.8'	S 11°55.3'	49°53.7'	S 17°58.4'	223°09.7'	N 16°27.9'			
6	19°22.2'	268°37.1'	N 22°04.0'	239°22.2'	N 17°19.1'	45°27.4'	S 11°55.4'	64°56.3'	S 17°58.4'	238°10.6'	N 16°27.4'			
7	34°24.7'	283°37.0'	N 22°03.7'	254°21.7'	N 17°18.1'	60°30.0'	S 11°55.5'	79°59.0'	S 17°58.5'	253°11.5'	N 16°26.9'			
8	49°27.1'	298°36.9'	N 22°03.4'	269°21.1'	N 17°17.2'	75°32.6'	S 11°55.5'	95°01.6'	S 17°58.5'	268°12.5'	N 16°26.4'			
9	64°29.6'	313°36.8'	N 22°03.0'	284°20.6'	N 17°16.3'	90°35.2'	S 11°55.6'	110°04.2'	S 17°58.6'	283°13.4'	N 16°25.9'			
10	79°32.1'	328°36.8'	N 22°02.7'	299°20.0'	N 17°15.4'	105°37.9'	S 11°55.7'	125°06.8'	S 17°58.6'	298°14.3'	N 16°25.4'			
11	94°34.5'	343°36.7'	N 22°02.3'	314°19.5'	N 17°14.4'	120°40.5'	S 11°55.7'	140°09.5'	S 17°58.7'	313°15.2'	N 16°24.9'			
12	109°37.0'	358°36.6'	N 22°02.0'	329°18.9'	N 17°13.5'	135°43.1'	S 11°55.8'	155°12.1'	S 17°58.7'	328°16.2'	N 16°24.4'			
13	124°39.4'	13°36.5'	N 22°01.7'	344°18.4'	N 17°12.6'	150°45.7'	S 11°55.9'	170°14.7'	S 17°58.8'	343°17.1'	N 16°23.9'			
14	139°41.9'	28°36.4'	N 22°01.3'	359°17.9'	N 17°11.6'	165°48.3'	S 11°55.9'	185°17.4'	S 17°58.8'	358°18.0'	N 16°23.5'			
15	154°44.4'	43°36.4'	N 22°01.0'	14°17.3'	N 17°10.7'	180°50.9'	S 11°56.0'	200°20.0'	S 17°58.9'	13°18.9'	N 16°23.0'			
16	169°46.8'	58°36.3'	N 22°00.6'	29°16.8'	N 17°09.8'	195°53.6'	S 11°56.1'	215°22.6'	S 17°58.9'	28°19.9'	N 16°22.5'			
17	184°49.3'	73°36.2'	N 22°00.3'	44°16.3'	N 17°08.8'	210°56.2'	S 11°56.1'	230°25.2'	S 17°59.0'	43°20.8'	N 16°22.0'			
18	199°51.8'	88°36.1'	N 21°00.0'	59°15.7'	N 17°07.9'	225°58.8'	S 11°56.2'	245°27.9'	S 17°59.0'	58°21.7'	N 16°21.5'			
19	214°54.2'	103°36.0'	N 21°59.6'	74°15.2'	N 17°07.0'	241°01.4'	S 11°56.3'	260°30.5'	S 17°59.1'	73°22.7'	N 16°21.0'			
20	229°56.7'	118°35.9'	N 21°59.3'	89°14.6'	N 17°06.0'	256°04.0'	S 11°56.3'	275°33.1'	S 17°59.1'	88°23.6'	N 16°20.5'			
21	244°59.2'	133°35.9'	N 21°58.9'	104°14.1'	N 17°05.1'	271°06.6'	S 11°56.4'	290°35.8'	S 17°59.2'	103°24.5'	N 16°20.0'			
22	260°01.6'	148°35.8'	N 21°58.6'	119°13.6'	N 17°04.1'	286°09.3'	S 11°56.5'	305°38.4'	S 17°59.2'	118°25.4'	N 16°19.5'			
23	275°04.1'	163°35.7'	N 21°58.2'	134°13.0'	N 17°03.2'	301°11.9'	S 11°56.6'	320°41.0'	S 17°59.3'	133°26.4'	N 16°19.0'			
		SD 15.7' d -0.3'		v -0.5' d -0.9'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'				
Mer. pass.		12 h 5 m 35 s		14 h 3 m		2 h 59 m		1 h 41 m		14 h 7 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Antares	-Rigil Kent	-Hadar	-Arcturus	-Regulus	-Mars	-Venus	+Procyon
0	166°13.3'	N 24°02.1'	9.6'	-5.1'	55.5'			114°23.1'	110°00.3'	83°26.7'	30°28.2'	18°34.9'	17°01.9'
1	180°41.8'	N 23°57.0'	9.6'	-5.2'	55.5'			114°02.4'	109°39.8'	82°58.7'	29°57.2'	18°05.6'	16°34.0'
2	195°10.4'	N 23°51.8'	9.6'	-5.3'	55.5'			113°41.7'	109°19.2'	82°30.8'	29°26.2'	17°36.4'	16°06.2'
3	209°39.0'	N 23°46.5'	9.6'	-5.4'	55.6'			113°20.8'	108°58.5'	82°02.9'	28°55.3'	17°07.3'	15°38.4'
4	224°07.6'	N 23°41.1'	9.7'	-5.6'	55.6'			112°59.9'	108°37.8'	81°34.9'	28°24.3'	16°38.1'	15°10.5'
5	238°36.3'	N 23°35.5'	9.7'	-5.7'	55.6'			112°38.9'	108°17.0'	81°07.0'	27°53.3'	16°08.9'	14°42.7'
6	253°05.0'	N 23°29.8'	9.7'	-5.8'	55.6'			112°17.8'	107°56.1'	80°39.0'	27°22.2'	15°39.8'	14°15.0'
7	267°33.7'	N 23°24.0'	9.7'	-5.9'	55.6'			111°56.6'	107°35.2'	80°11.0'	26°51.2'	15°10.7'	13°47.2'
8	282°02.4'	N 23°18.1'	9.8'	-6.1'	55.7'			111°35.4'	107°14.2'	79°43.0'	26°20.2'	14°41.7'	13°19.5'
9	296°31.2'	N 23°12.0'	9.8'	-6.2'	55.7'			111°14.1'	106°53.1'	79°15.0'	25°49.2'	14°12.7'	12°51.8'
10	311°00.0'	N 23°05.8'	9.8'	-6.3'	55.7'			110°52.7'	106°32.0'	78°47.0'	25°18.2'	13°43.7'	12°24.2'
11	325°28.8'	N 22°59.5'	9.9'	-6.4'	55.7'			110°31.2'	106°10.8'	78°19.0'	24°47.2'	13°14.8'	11°56.6'
12	339°57.7'	N 22°53.1'	9.9'	-6.6'	55.7'			110°09.7'	105°49.5'	77°51.0'	24°16.2'	12°46.0'	11°29.1'
13	354°26.6'	N 22°46.5'	9.9'	-6.7'	55.8'			109°48.1'	105°28.2'	77°23.0'	23°45.2'	12°17.2'	11°01.6'
14	8°55.5'	N 22°39.8'	10.0'	-6.8'	55.8'			109°26.4'	105°06.9'	76°55.0'	23°14.2'	11°48.6'	10°34.2'
15	23°24.5'	N 22°33.0'	10.0'	-6.9'	55.8'			109°04.6'	104°45.4'	76°27.0'	22°43.2'	11°20.0'	10°06.9'
16	37°53.5'	N 22°26.1'	10.0'	-7.0'	55.8'			108°42.8'	104°24.0'	75°58.9'	22°12.2'	10°51.5'	9°39.8'
17	52°22.5'	N 22°19.1'	10.1'	-7.2'	55.8'			108°20.9'	104°02.4'	75°30.9'	21°41.2'	10°23.2'	9°12.7'
18	66°51.6'	N 22°11.9'	10.1'	-7.3'	55.9'			107°59.0'	103°40.8'	75°02.9'	21°10.3'	9°55.0'	8°45.8'
19	81°20.6'	N 22°04.6'	10.1'	-7.4'	55.9'			107°37.0'	103°19.2'	74°34.9'	20°39.4'	9°27.1'	8°19.1'
20	95°49.8'	N 21°57.2'	10.2'	-7.5'	55.9'	119°54.6'		107°14.9'	102°57.5'	74°06.8'	20°08.4'	8°59.3'	7°52.6'
21	110°18.9'	N 21°49.7'	10.2'	-7.6'	55.9'	119°22.9'		106°52.8'	102°35.7'	73°38.8'	19°37.5'	8°31.8'	7°26.4'
22	124°48.1'	N 21°42.1'	10.2'	-7.7'	55.9'	118°51.2'		106°30.6'	102°14.0'	73°10.8'	19°06.7'	8°04.6'	7°00.5'
23	139°17.4'	N 21°34.4'	10.3'	-7.9'	56.0'	118°19.5'		106°08.3'	101°52.1'	72°42.7'	18°35.8'	7°37.8'	6°34.9'
Mer. pass.		13 h 23 m SD 15.1'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.3'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°33.3'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.5'	S 57°07.4'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.4'				

Monday 12 July 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	290°06.6'	178°35.6'	N 21°57.9'	149°12.5'	N 17°02.3'		316°14.5'	S 11°56.6'		335°43.7'	S 17°59.3'		148°27.3'	N 16°18.5'				
1	305°09.0'	193°35.5'	N 21°57.5'	164°12.0'	N 17°01.3'		331°17.1'	S 11°56.7'		350°46.3'	S 17°59.4'		163°28.2'	N 16°18.0'				
2	320°11.5'	208°35.5'	N 21°57.2'	179°11.4'	N 17°00.4'		346°19.7'	S 11°56.8'		5°48.9'	S 17°59.4'		178°29.1'	N 16°17.5'				
3	335°13.9'	223°35.4'	N 21°56.8'	194°10.9'	N 16°59.4'		1°22.4'	S 11°56.8'		20°51.5'	S 17°59.5'		193°30.1'	N 16°17.0'				
4	350°16.4'	238°35.3'	N 21°56.5'	209°10.4'	N 16°58.5'		16°25.0'	S 11°56.9'		35°54.2'	S 17°59.5'		208°31.0'	N 16°16.5'				
5	5°18.9'	253°35.2'	N 21°56.1'	224°09.9'	N 16°57.5'		31°27.6'	S 11°57.0'		50°56.8'	S 17°59.6'		223°31.9'	N 16°16.0'				
6	20°21.3'	268°35.1'	N 21°55.8'	239°09.3'	N 16°56.6'		46°30.2'	S 11°57.0'		65°59.4'	S 17°59.6'		238°32.9'	N 16°15.5'				
7	35°23.8'	283°35.1'	N 21°55.4'	254°08.8'	N 16°55.7'		61°32.8'	S 11°57.1'		81°02.1'	S 17°59.7'		253°33.8'	N 16°15.0'				
8	50°26.3'	298°35.0'	N 21°55.1'	269°08.3'	N 16°54.7'		76°35.5'	S 11°57.2'		96°04.7'	S 17°59.7'		268°34.7'	N 16°14.5'				
9	65°28.7'	313°34.9'	N 21°54.7'	284°07.7'	N 16°53.8'		91°38.1'	S 11°57.3'		111°07.3'	S 17°59.8'		283°35.6'	N 16°14.0'				
10	80°31.2'	328°34.8'	N 21°54.4'	299°07.2'	N 16°52.8'		106°40.7'	S 11°57.3'		126°09.9'	S 17°59.8'		298°36.6'	N 16°13.5'				
11	95°33.7'	343°34.8'	N 21°54.0'	314°06.7'	N 16°51.9'		121°43.3'	S 11°57.4'		141°12.6'	S 17°59.9'		313°37.5'	N 16°13.0'				
12	110°36.1'	358°34.7'	N 21°53.7'	329°06.2'	N 16°50.9'		136°46.0'	S 11°57.5'		156°15.2'	S 17°59.9'		328°38.4'	N 16°12.5'				
13	125°38.6'	13°34.6'	N 21°53.3'	344°05.6'	N 16°50.0'		151°48.6'	S 11°57.5'		171°17.8'	S 17°60.0'		343°39.4'	N 16°12.0'				
14	140°41.1'	28°34.5'	N 21°52.9'	359°05.1'	N 16°49.0'		166°51.2'	S 11°57.6'		186°20.5'	S 18°00.0'		358°40.3'	N 16°11.5'				
15	155°43.5'	43°34.5'	N 21°52.6'	14°04.6'	N 16°48.1'		181°53.8'	S 11°57.7'		201°23.1'	S 18°00.1'		13°41.2'	N 16°11.0'				
16	170°46.0'	58°34.4'	N 21°52.2'	29°04.1'	N 16°47.1'		196°56.4'	S 11°57.7'		216°25.7'	S 18°00.1'		28°42.1'	N 16°10.5'				
17	185°48.4'	73°34.3'	N 21°51.9'	44°03.5'	N 16°46.2'		211°59.1'	S 11°57.8'		231°28.4'	S 18°00.2'		43°43.1'	N 16°10.0'				
18	200°50.9'	88°34.2'	N 21°51.5'	59°03.0'	N 16°45.2'		227°01.7'	S 11°57.9'		246°31.0'	S 18°00.2'		58°44.0'	N 16°09.5'				
19	215°53.4'	103°34.1'	N 21°51.2'	74°02.5'	N 16°44.2'		242°04.3'	S 11°58.0'		261°33.6'	S 18°00.3'		73°44.9'	N 16°09.0'				
20	230°55.8'	118°34.1'	N 21°50.8'	89°02.0'	N 16°43.3'		257°06.9'	S 11°58.0'		276°36.3'	S 18°00.3'		88°45.9'	N 16°08.5'				
21	245°58.3'	133°34.0'	N 21°50.4'	104°01.4'	N 16°42.3'		272°09.6'	S 11°58.1'		291°38.9'	S 18°00.4'		103°46.8'	N 16°08.0'				
22	261°00.8'	148°33.9'	N 21°50.1'	119°00.9'	N 16°41.4'		287°12.2'	S 11°58.2'		306°41.5'	S 18°00.4'		118°47.7'	N 16°07.5'				
23	276°03.2'	163°33.8'	N 21°49.7'	134°00.4'	N 16°40.4'		302°14.8'	S 11°58.3'		321°44.1'	S 18°00.5'		133°48.6'	N 16°07.0'				
		SD 15.7' d -0.4'		v -0.5' d -0.9'			v 2.6' d -0.1'			v 2.6' d -0.1'			v 0.9' d -0.5'					
Mer. pass.		12 h 5 m 42 s		14 h 4 m			2 h 55 m			1 h 37 m			14 h 5 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Antares	-Rigel Kent	-Hadar	-Spica	-Regulus	-Mars	-Venus	+Procyon
0	153°46.7'	N 21°26.5'	10.3'	-8.0'	56.0'	117°47.8'	105°46.0'	101°30.2'	71°53.7'	18°05.0'	7°11.4'	6°09.8'	26°13.9'
1	168°16.0'	N 21°18.5'	10.4'	-8.1'	56.0'	117°16.0'	105°23.6'	101°08.3'	71°22.0'	17°34.3'	6°45.5'	5°45.3'	26°34.7'
2	182°45.3'	N 21°10.4'	10.4'	-8.2'	56.0'	116°44.2'	105°01.2'	100°46.3'	70°50.3'	17°03.6'	6°20.3'		26°55.9'
3	197°14.7'	N 21°02.2'	10.4'	-8.3'	56.0'	116°12.4'	104°38.7'	100°24.3'	70°18.6'	16°32.9'			27°17.4'
4	211°44.2'	N 20°53.9'	10.5'	-8.4'	56.1'	115°40.6'	104°16.2'	100°02.2'	69°46.8'	16°02.3'			27°39.2'
5	226°13.6'	N 20°45.5'	10.5'	-8.5'	56.1'	115°08.8'	103°53.6'	99°40.1'	69°15.0'	15°31.8'			28°01.3'
6	240°43.1'	N 20°37.0'	10.6'	-8.6'	56.1'	114°36.9'	103°30.9'	99°17.9'	68°43.2'	15°01.3'			28°23.7'
7	255°12.7'	N 20°28.3'	10.6'	-8.8'	56.1'	114°05.0'	103°08.2'	98°55.7'	68°11.4'	14°31.0'			28°46.4'
8	269°42.3'	N 20°19.6'	10.6'	-8.9'	56.1'	113°33.1'	102°45.5'	98°33.5'	67°39.5'	14°00.7'			29°09.4'
9	284°11.9'	N 20°10.7'	10.7'	-9.0'	56.2'	113°01.2'	102°22.7'	98°11.2'	67°07.7'	13°30.5'			29°32.7'
10	298°41.6'	N 20°01.7'	10.7'	-9.1'	56.2'	112°29.2'	101°59.8'	97°48.9'	66°35.8'	13°00.5'			29°56.2'
11	313°11.3'	N 19°52.7'	10.8'	-9.2'	56.2'	111°57.3'	101°36.9'	97°26.6'	66°03.9'	12°30.6'			30°20.0'
12	327°41.1'	N 19°43.5'	10.8'	-9.3'	56.2'	111°25.3'	101°14.0'	97°04.2'	65°32.0'	12°00.9'			30°44.0'
13	342°10.9'	N 19°34.2'	10.8'	-9.4'	56.2'	110°53.2'	100°51.0'	96°41.8'	65°00.0'	11°31.4'			31°08.3'
14	356°40.7'	N 19°24.8'	10.9'	-9.5'	56.3'	110°21.2'	100°28.0'	96°19.3'	64°28.1'	11°02.0'			31°32.8'
15	11°10.6'	N 19°15.3'	10.9'	-9.6'	56.3'	109°49.1'	100°04.9'	95°56.8'	63°56.1'	10°33.0'			31°57.5'
16	25°40.5'	N 19°05.7'	11.0'	-9.7'	56.3'	109°17.0'	99°41.8'	95°34.3'	63°24.1'	10°04.2'			32°22.4'
17	40°10.5'	N 18°56.0'	11.0'	-9.8'	56.3'	108°44.9'	99°18.7'	95°11.8'	62°52.1'	9°35.8'			32°47.5'
18	54°40.5'	N 18°46.2'	11.0'	-9.9'	56.3'	108°12.8'	98°55.5'	94°49.2'	62°20.0'	9°07.8'			33°12.9'
19	69°10.5'	N 18°36.3'	11.1'	-10.0'	56.4'	107°40.6'	98°32.3'	94°26.6'	61°48.0'	8°40.2'			33°38.4'
20	83°40.6'	N 18°26.3'	11.1'	-10.1'	56.4'	107°08.5'	98°09.0'	94°04.0'	61°15.9'	8°13.2'			34°04.1'
21	98°10.7'	N 18°16.2'	11.2'	-10.2'	56.4'	106°36.3'	97°45.7'	93°41.3'	60°43.8'	7°46.9'		5°47.4'	34°30.0'
22	112°40.9'	N 18°06.0'	11.2'	-10.3'	56.4'	106°04.1'	97°22.3'	93°18.7'	60°11.7'			6°12.4'	34°56.0'
23	127°11.1'	N 17°55.7'	11.3'	-10.4'	56.4'	105°31.8'	96°59.0'	92°56.0'	59°39.6'		6°35.3'	6°37.9'	35°22.3'
Mer. pass.		14 h 14 m SD 15.3'		phase 4%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.2'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°32.9'	N 89°20.9'
Rigel Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.5'	S 57°07.4'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	291°05.7'	178°33.8'	N 21°49.3'	148°59.9'	N 16°39.5'	317°17.4'	S 11°58.3'	336°46.8'	S 18°00.5'	148°49.6'	N 16°06.5'			
1	306°08.2'	193°33.7'	N 21°49.0'	163°59.4'	N 16°38.5'	332°20.1'	S 11°58.4'	351°49.4'	S 18°00.6'	163°50.5'	N 16°06.0'			
2	321°10.6'	208°33.6'	N 21°48.6'	178°58.8'	N 16°37.5'	347°22.7'	S 11°58.5'	6°52.0'	S 18°00.6'	178°51.4'	N 16°05.5'			
3	336°13.1'	223°33.5'	N 21°48.2'	193°58.3'	N 16°36.6'	2°25.3'	S 11°58.5'	21°54.7'	S 18°00.7'	193°52.4'	N 16°05.0'			
4	351°15.6'	238°33.5'	N 21°47.9'	208°57.8'	N 16°35.6'	17°28.0'	S 11°58.6'	36°57.3'	S 18°00.7'	208°53.3'	N 16°04.5'			
5	6°18.0'	253°33.4'	N 21°47.5'	223°57.3'	N 16°34.7'	32°30.6'	S 11°58.7'	51°59.9'	S 18°00.8'	223°54.2'	N 16°04.0'			
6	21°20.5'	268°33.3'	N 21°47.1'	238°56.8'	N 16°33.7'	47°33.2'	S 11°58.8'	67°02.6'	S 18°00.8'	238°55.2'	N 16°03.5'			
7	36°22.9'	283°33.2'	N 21°46.8'	253°56.3'	N 16°32.7'	62°35.8'	S 11°58.8'	82°05.2'	S 18°00.9'	253°56.1'	N 16°03.0'			
8	51°25.4'	298°33.2'	N 21°46.4'	268°55.7'	N 16°31.8'	77°38.5'	S 11°58.9'	97°07.8'	S 18°00.9'	268°57.0'	N 16°02.5'			
9	66°27.9'	313°33.1'	N 21°46.0'	283°55.2'	N 16°30.8'	92°41.1'	S 11°59.0'	112°10.5'	S 18°01.0'	283°57.9'	N 16°02.0'			
10	81°30.3'	328°33.0'	N 21°45.7'	298°54.7'	N 16°29.8'	107°43.7'	S 11°59.0'	127°13.1'	S 18°01.0'	298°58.9'	N 16°01.5'			
11	96°32.8'	343°33.0'	N 21°45.3'	313°54.2'	N 16°28.9'	122°46.4'	S 11°59.1'	142°15.7'	S 18°01.1'	313°59.8'	N 16°01.0'			
12	111°35.3'	358°32.9'	N 21°44.9'	328°53.7'	N 16°27.9'	137°49.0'	S 11°59.2'	157°18.4'	S 18°01.1'	329°00.7'	N 16°00.5'			
13	126°37.7'	13°32.8'	N 21°44.6'	343°53.2'	N 16°26.9'	152°51.6'	S 11°59.3'	172°21.0'	S 18°01.2'	344°01.7'	N 15°60.0'			
14	141°40.2'	28°32.7'	N 21°44.2'	358°52.7'	N 16°26.0'	167°54.2'	S 11°59.3'	187°23.6'	S 18°01.2'	359°02.6'	N 15°59.5'			
15	156°42.7'	43°32.7'	N 21°43.8'	13°52.2'	N 16°25.0'	182°56.9'	S 11°59.4'	202°26.3'	S 18°01.3'	14°03.5'	N 15°59.0'			
16	171°45.1'	58°32.6'	N 21°43.4'	28°51.6'	N 16°24.0'	197°59.5'	S 11°59.5'	217°28.9'	S 18°01.3'	29°04.5'	N 15°58.5'			
17	186°47.6'	73°32.5'	N 21°43.1'	43°51.1'	N 16°23.1'	213°02.1'	S 11°59.6'	232°31.5'	S 18°01.4'	44°05.4'	N 15°58.0'			
18	201°50.0'	88°32.5'	N 21°42.7'	58°50.6'	N 16°22.1'	228°04.8'	S 11°59.6'	247°34.2'	S 18°01.4'	59°06.3'	N 15°57.5'			
19	216°52.5'	103°32.4'	N 21°42.3'	73°50.1'	N 16°21.1'	243°07.4'	S 11°59.7'	262°36.8'	S 18°01.5'	74°07.3'	N 15°57.0'			
20	231°55.0'	118°32.3'	N 21°41.9'	88°49.6'	N 16°20.1'	258°10.0'	S 11°59.8'	277°39.4'	S 18°01.5'	89°08.2'	N 15°56.5'			
21	246°57.4'	133°32.2'	N 21°41.6'	103°49.1'	N 16°19.2'	273°12.7'	S 11°59.9'	292°42.1'	S 18°01.6'	104°09.1'	N 15°55.9'			
22	261°59.9'	148°32.2'	N 21°41.2'	118°48.6'	N 16°18.2'	288°15.3'	S 11°59.9'	307°44.7'	S 18°01.7'	119°10.1'	N 15°55.4'			
23	277°02.4'	163°32.1'	N 21°40.8'	133°48.1'	N 16°17.2'	303°17.9'	S 12°00.0'	322°47.3'	S 18°01.7'	134°11.0'	N 15°54.9'			
		SD 15.7' d -0.4'		v -0.5' d -1.0'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'				
Mer. pass.		12 h 5 m 49 s		14 h 5 m		2 h 50 m		1 h 33 m		14 h 4 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Mars	+Venus	+Sun	+Procyon
0	141°41.3'	N 17°45.3'	11.3'	-10.5'	56.5'	86°06.1'	61°04.9'	59°07.4'		7°01.4'	7°04.0'		35°48.7'
1	156°11.6'	N 17°34.9'	11.3'	-10.6'	56.5'	85°47.6'	60°37.2'	58°35.2'		7°28.0'	7°30.5'		36°15.2'
2	170°42.0'	N 17°24.3'	11.4'	-10.7'	56.5'	85°29.2'	60°09.6'	58°03.0'		7°55.2'	7°57.4'		36°41.9'
3	185°12.3'	N 17°13.6'	11.4'	-10.8'	56.5'	85°10.7'	59°42.0'	57°30.8'		8°22.9'	8°24.5'		37°08.8'
4	199°42.8'	N 17°02.8'	11.5'	-10.9'	56.6'	84°52.2'	59°14.4'	56°58.6'		8°50.9'	8°52.0'		37°35.8'
5	214°13.2'	N 16°52.0'	11.5'	-10.9'	56.6'	84°33.8'	58°46.8'	56°26.3'		9°19.2'	9°19.6'		38°02.9'
6	228°43.7'	N 16°41.0'	11.5'	-11.0'	56.6'	84°15.3'	58°19.3'	55°54.1'		9°47.8'	9°47.4'		38°30.2'
7	243°14.2'	N 16°30.0'	11.6'	-11.1'	56.6'	83°56.9'	57°51.8'	55°21.8'		10°16.6'	10°15.4'		38°57.6'
8	257°44.8'	N 16°18.9'	11.6'	-11.2'	56.6'	83°38.5'	57°24.3'	54°49.5'		10°45.7'	10°43.6'		39°25.1'
9	272°15.4'	N 16°07.7'	11.6'	-11.3'	56.7'	83°20.1'	56°56.9'	54°17.1'		11°15.0'	11°11.9'		39°52.8'
10	286°46.1'	N 15°56.4'	11.7'	-11.4'	56.7'	83°01.7'	56°29.5'	53°44.8'		11°44.4'	11°40.3'		40°20.5'
11	301°16.8'	N 15°45.0'	11.7'	-11.5'	56.7'	82°43.3'	56°02.2'	53°12.4'		12°14.0'	12°08.9'	40°21.1'	40°48.4'
12	315°47.5'	N 15°33.5'	11.8'	-11.5'	56.7'	82°24.9'	55°34.9'	52°40.0'		12°43.7'	12°37.5'	40°51.3'	41°16.4'
13	330°18.2'	N 15°22.0'	11.8'	-11.6'	56.7'	82°06.5'	55°07.7'	52°07.6'		13°13.5'	13°06.3'	41°21.4'	41°44.5'
14	344°49.0'	N 15°10.4'	11.8'	-11.7'	56.8'	81°48.2'	54°40.5'	51°35.2'		13°43.5'	13°35.1'	41°51.6'	42°12.8'
15	359°19.9'	N 14°58.6'	11.9'	-11.8'	56.8'	81°29.9'	54°13.3'	51°02.8'		14°13.5'	14°04.0'	42°21.8'	42°41.1'
16	13°50.8'	N 14°46.8'	11.9'	-11.9'	56.8'	81°11.5'	53°46.2'	50°30.3'		14°43.7'	14°33.0'	42°52.1'	43°09.5'
17	28°21.7'	N 14°35.0'	11.9'	-12.0'	56.8'	80°53.3'	53°19.2'	49°57.9'		15°13.9'	15°02.0'	43°22.3'	43°38.1'
18	42°52.6'	N 14°23.0'	12.0'	-12.0'	56.9'	80°35.0'	52°52.2'	49°25.4'		15°44.3'	15°31.1'	43°52.6'	44°06.7'
19	57°23.6'	N 14°11.0'	12.0'	-12.1'	56.9'	80°16.7'	52°25.3'	48°52.9'		16°14.7'	16°00.3'	44°22.9'	44°35.5'
20	71°54.6'	N 13°58.9'	12.0'	-12.2'	56.9'	79°58.5'	51°58.4'	48°20.3'		16°45.1'	16°29.5'	44°53.3'	45°04.3'
21	86°25.6'	N 13°46.7'	12.1'	-12.3'	56.9'	79°40.3'	51°31.6'	47°47.8'	8°10.9'	17°15.7'	16°58.8'	45°23.6'	45°33.2'
22	100°56.7'	N 13°34.4'	12.1'	-12.3'	56.9'	79°22.2'	51°04.8'	47°15.2'	8°38.3'	17°46.3'	17°28.1'	45°54.0'	46°02.2'
23	115°27.8'	N 13°22.1'	12.1'	-12.4'	57.0'	79°04.0'	50°38.2'	46°42.6'	9°06.4'	18°17.0'	17°57.5'	46°24.4'	46°31.3'
Mer. pass.		15 h 3 m SD 15.4'	phase 9%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.0'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°32.4'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.5'	S 57°07.4'
Arcturus	-0.1	145°50.4'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	292°04.8'	178°32.0'	N 21°40.4'	148°47.6'	N 16°16.2'		318°20.6'	S 12°00.1'		337°50.0'	S 18°01.8'		149°11.9'	N 15°54.4'				
1	307°07.3'	193°32.0'	N 21°40.1'	163°47.1'	N 16°15.3'		333°23.2'	S 12°00.2'		352°52.6'	S 18°01.8'		164°12.8'	N 15°53.9'				
2	322°09.8'	208°31.9'	N 21°39.7'	178°46.6'	N 16°14.3'		348°25.8'	S 12°00.2'		7°55.2'	S 18°01.9'		179°13.8'	N 15°53.4'				
3	337°12.2'	223°31.8'	N 21°39.3'	193°46.1'	N 16°13.3'		3°28.5'	S 12°00.3'		22°57.9'	S 18°01.9'		194°14.7'	N 15°52.9'				
4	352°14.7'	238°31.8'	N 21°38.9'	208°45.6'	N 16°12.3'		18°31.1'	S 12°00.4'		38°00.5'	S 18°02.0'		209°15.6'	N 15°52.4'				
5	7°17.2'	253°31.7'	N 21°38.5'	223°45.1'	N 16°11.3'		33°33.7'	S 12°00.5'		53°03.1'	S 18°02.0'		224°16.6'	N 15°51.9'				
6	22°19.6'	268°31.6'	N 21°38.1'	238°44.6'	N 16°10.4'		48°36.4'	S 12°00.5'		68°05.8'	S 18°02.1'		239°17.5'	N 15°51.4'				
7	37°22.1'	283°31.5'	N 21°37.8'	253°44.1'	N 16°09.4'		63°39.0'	S 12°00.6'		83°08.4'	S 18°02.1'		254°18.4'	N 15°50.9'				
8	52°24.5'	298°31.5'	N 21°37.4'	268°43.6'	N 16°08.4'		78°41.6'	S 12°00.7'		98°11.0'	S 18°02.2'		269°19.4'	N 15°50.4'				
9	67°27.0'	313°31.4'	N 21°37.0'	283°43.1'	N 16°07.4'		93°44.3'	S 12°00.8'		113°13.7'	S 18°02.2'		284°20.3'	N 15°49.9'				
10	82°29.5'	328°31.3'	N 21°36.6'	298°42.6'	N 16°06.4'		108°46.9'	S 12°00.8'		128°16.3'	S 18°02.3'		299°21.2'	N 15°49.4'				
11	97°31.9'	343°31.3'	N 21°36.2'	313°42.1'	N 16°05.4'		123°49.5'	S 12°00.9'		143°18.9'	S 18°02.3'		314°22.2'	N 15°48.9'				
12	112°34.4'	358°31.2'	N 21°35.8'	328°41.6'	N 16°04.5'		138°52.2'	S 12°01.0'		158°21.6'	S 18°02.4'		329°23.1'	N 15°48.4'				
13	127°36.9'	13°31.1'	N 21°35.5'	343°41.1'	N 16°03.5'		153°54.8'	S 12°01.1'		173°24.2'	S 18°02.4'		344°24.0'	N 15°47.8'				
14	142°39.3'	28°31.1'	N 21°35.1'	358°40.6'	N 16°02.5'		168°57.5'	S 12°01.1'		188°26.8'	S 18°02.5'		359°25.0'	N 15°47.3'				
15	157°41.8'	43°31.0'	N 21°34.7'	13°40.1'	N 16°01.5'		184°00.1'	S 12°01.2'		203°29.5'	S 18°02.5'		14°25.9'	N 15°46.8'				
16	172°44.3'	58°30.9'	N 21°34.3'	28°39.6'	N 16°00.5'		199°02.7'	S 12°01.3'		218°32.1'	S 18°02.6'		29°26.8'	N 15°46.3'				
17	187°46.7'	73°30.9'	N 21°33.9'	43°39.1'	N 15°59.5'		214°05.4'	S 12°01.4'		233°34.7'	S 18°02.6'		44°27.8'	N 15°45.8'				
18	202°49.2'	88°30.8'	N 21°33.5'	58°38.6'	N 15°58.5'		229°08.0'	S 12°01.4'		248°37.4'	S 18°02.7'		59°28.7'	N 15°45.3'				
19	217°51.7'	103°30.7'	N 21°33.1'	73°38.1'	N 15°57.5'		244°10.6'	S 12°01.5'		263°40.0'	S 18°02.7'		74°29.6'	N 15°44.8'				
20	232°54.1'	118°30.7'	N 21°32.7'	88°37.6'	N 15°56.6'		259°13.3'	S 12°01.6'		278°42.6'	S 18°02.8'		89°30.6'	N 15°44.3'				
21	247°56.6'	133°30.6'	N 21°32.3'	103°37.1'	N 15°55.6'		274°15.9'	S 12°01.7'		293°45.3'	S 18°02.8'		104°31.5'	N 15°43.8'				
22	262°59.0'	148°30.6'	N 21°31.9'	118°36.6'	N 15°54.6'		289°18.6'	S 12°01.7'		308°47.9'	S 18°02.9'		119°32.4'	N 15°43.3'				
23	278°01.5'	163°30.5'	N 21°31.5'	133°36.1'	N 15°53.6'		304°21.2'	S 12°01.8'		323°50.5'	S 18°02.9'		134°33.4'	N 15°42.8'				
		SD 15.7' d -0.4'		v -0.5' d -1.0'			v 2.6' d -0.1'			v 2.6' d -0.1'			v 0.9' d -0.5'					
Mer. pass.		12 h 5 m 56 s		14 h 5 m			2 h 46 m			1 h 28 m			14 h 2 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Venus	+Mars	+Sun
0	129°59.0'	N 13°09.7'	12.2'	-12.5'	57.0'	83°23.3'	78°45.9'	50°11.6'	46°10.0'	9°35.0'	18°26.9'	18°47.7'	46°54.9'
1	144°30.2'	N 12°57.2'	12.2'	-12.5'	57.0'	83°00.4'	78°27.8'	49°45.0'	45°37.4'	10°04.0'	18°56.4'	19°18.5'	47°25.3'
2	159°01.4'	N 12°44.7'	12.2'	-12.6'	57.0'	82°37.4'	78°09.8'	49°18.6'	45°04.8'	10°33.4'	19°25.9'	19°49.3'	47°55.8'
3	173°32.6'	N 12°32.0'	12.3'	-12.7'	57.1'	82°14.4'	77°51.8'	48°52.2'	44°32.1'	11°03.2'	19°55.5'	20°20.2'	48°26.3'
4	188°03.9'	N 12°19.4'	12.3'	-12.8'	57.1'	81°51.4'	77°33.8'	48°25.9'	43°59.5'	11°33.3'	20°25.1'	20°51.1'	48°56.8'
5	202°35.2'	N 12°06.6'	12.3'	-12.8'	57.1'	81°28.5'	77°15.9'	47°59.7'	43°26.8'	12°03.7'	20°54.7'	21°22.1'	49°27.4'
6	217°06.5'	N 11°53.8'	12.3'	-12.9'	57.1'	81°05.5'	76°58.0'	47°33.6'	42°54.1'	12°34.3'	21°24.4'	21°53.1'	49°58.0'
7	231°37.8'	N 11°40.9'	12.4'	-13.0'	57.1'	80°42.6'	76°40.1'	47°07.6'	42°21.4'	13°05.1'	21°54.1'	22°24.2'	50°28.6'
8	246°09.2'	N 11°27.9'	12.4'	-13.0'	57.2'	80°19.7'	76°22.3'	46°41.7'	41°48.7'	13°36.1'	22°23.9'	22°55.3'	50°59.2'
9	260°40.6'	N 11°14.9'	12.4'	-13.1'	57.2'	79°56.7'	76°04.5'	46°15.8'	41°15.9'	14°07.3'	22°53.7'	23°26.4'	51°29.9'
10	275°12.0'	N 11°01.8'	12.5'	-13.1'	57.2'	79°33.8'	75°46.8'	45°50.1'	40°43.2'	14°38.7'	23°23.5'	23°57.6'	52°00.5'
11	289°43.5'	N 10°48.7'	12.5'	-13.2'	57.2'	79°10.9'	75°29.1'	45°24.5'	40°10.4'	15°10.2'	23°53.4'	24°28.8'	52°31.2'
12	304°15.0'	N 10°35.5'	12.5'	-13.3'	57.2'	78°48.1'	75°11.4'	44°59.0'	39°37.6'	15°41.8'	24°23.3'	25°00.1'	53°02.0'
13	318°46.5'	N 10°22.2'	12.5'	-13.3'	57.3'	78°25.2'	74°53.9'	44°33.6'	39°04.8'	16°13.6'	24°53.2'	25°31.4'	53°32.7'
14	333°18.0'	N 10°08.9'	12.5'	-13.4'	57.3'	78°02.4'	74°36.3'	44°08.3'	38°32.0'	16°45.5'	25°23.2'	26°02.7'	54°03.5'
15	347°49.5'	N 9°55.5'	12.6'	-13.4'	57.3'	77°39.5'	74°18.8'	43°43.1'	37°59.2'	17°17.4'	25°53.2'	26°34.1'	54°34.3'
16	2°21.1'	N 9°42.1'	12.6'	-13.5'	57.3'	77°16.7'	74°01.4'	43°18.1'	37°26.4'	17°49.5'	26°23.2'	27°05.5'	55°05.1'
17	16°52.7'	N 9°28.6'	12.6'	-13.5'	57.4'	76°54.0'	73°44.0'	42°53.2'	36°53.5'	18°21.7'	26°53.3'	27°36.9'	55°35.9'
18	31°24.3'	N 9°15.0'	12.6'	-13.6'	57.4'	76°31.2'	73°26.7'	42°28.5'	36°20.7'	18°53.9'	27°23.4'	28°08.4'	56°06.8'
19	45°55.9'	N 9°01.4'	12.6'	-13.7'	57.4'	76°08.5'	73°09.4'	42°03.8'	35°47.8'	19°26.3'	27°53.5'	28°39.9'	56°37.7'
20	60°27.5'	N 8°47.8'	12.7'	-13.7'	57.4'	75°45.8'	72°52.2'	41°39.4'	35°14.9'	19°58.7'	28°23.7'	29°11.5'	57°08.6'
21	74°59.2'	N 8°34.1'	12.7'	-13.8'	57.5'	75°23.1'	72°35.0'	41°15.1'	34°42.0'	20°31.2'	28°53.8'	29°43.0'	57°39.6'
22	89°30.8'	N 8°20.3'	12.7'	-13.8'	57.5'	75°00.5'	72°17.9'	40°50.9'	34°09.1'	21°03.7'	29°24.1'	30°14.6'	58°10.5'
23	104°02.5'	N 8°06.5'	12.7'	-13.9'	57.5'	74°37.8'	72°00.9'	40°26.9'	33°36.2'	21°36.3'	29°54.3'	30°46.3'	58°41.5'
Mer. pass.		15 h 50 m SD 15.5'		phase 16%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.3'	Acrux	+0.8	173°03.3'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.5'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°32.0'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	293°04.0'	178°30.4'	N 21°31.2'	148°35.6'	N 15°52.6'		319°23.8'	S 12°01.9'	338°53.2'	S 18°03.0'	149°34.3'	N 15°42.2'		
1	308°06.4'	193°30.4'	N 21°30.8'	163°35.1'	N 15°51.6'		334°26.5'	S 12°02.0'	353°55.8'	S 18°03.0'	164°35.2'	N 15°41.7'		
2	323°08.9'	208°30.3'	N 21°30.4'	178°34.6'	N 15°50.6'		349°29.1'	S 12°02.1'	8°58.4'	S 18°03.1'	179°36.2'	N 15°41.2'		
3	338°11.4'	223°30.2'	N 21°30.0'	193°34.1'	N 15°49.6'		4°31.8'	S 12°02.1'	24°01.1'	S 18°03.1'	194°37.1'	N 15°40.7'		
4	353°13.8'	238°30.2'	N 21°29.6'	208°33.6'	N 15°48.6'		19°34.4'	S 12°02.2'	39°03.7'	S 18°03.2'	209°38.1'	N 15°40.2'		
5	8°16.3'	253°30.1'	N 21°29.2'	223°33.2'	N 15°47.6'		34°37.0'	S 12°02.3'	54°06.3'	S 18°03.3'	224°39.0'	N 15°39.7'		
6	23°18.8'	268°30.0'	N 21°28.8'	238°32.7'	N 15°46.6'		49°39.7'	S 12°02.4'	69°09.0'	S 18°03.3'	239°39.9'	N 15°39.2'		
7	38°21.2'	283°30.0'	N 21°28.4'	253°32.2'	N 15°45.6'		64°42.3'	S 12°02.4'	84°11.6'	S 18°03.4'	254°40.9'	N 15°38.7'		
8	53°23.7'	298°29.9'	N 21°28.0'	268°31.7'	N 15°44.6'		79°45.0'	S 12°02.5'	99°14.3'	S 18°03.4'	269°41.8'	N 15°38.2'		
9	68°26.1'	313°29.9'	N 21°27.6'	283°31.2'	N 15°43.6'		94°47.6'	S 12°02.6'	114°16.9'	S 18°03.5'	284°42.7'	N 15°37.7'		
10	83°28.6'	328°29.8'	N 21°27.2'	298°30.7'	N 15°42.6'		109°50.2'	S 12°02.7'	129°19.5'	S 18°03.5'	299°43.7'	N 15°37.1'		
11	98°31.1'	343°29.7'	N 21°26.8'	313°30.2'	N 15°41.6'		124°52.9'	S 12°02.8'	144°22.2'	S 18°03.6'	314°44.6'	N 15°36.6'		
12	113°33.5'	358°29.7'	N 21°26.4'	328°29.7'	N 15°40.6'		139°55.5'	S 12°02.8'	159°24.8'	S 18°03.6'	329°45.5'	N 15°36.1'		
13	128°36.0'	13°29.6'	N 21°26.0'	343°29.3'	N 15°39.6'		154°58.2'	S 12°02.9'	174°27.4'	S 18°03.7'	344°46.5'	N 15°35.6'		
14	143°38.5'	28°29.5'	N 21°25.6'	358°28.8'	N 15°38.6'		170°00.8'	S 12°03.0'	189°30.1'	S 18°03.7'	359°47.4'	N 15°35.1'		
15	158°40.9'	43°29.5'	N 21°25.2'	13°28.3'	N 15°37.6'		185°03.5'	S 12°03.1'	204°32.7'	S 18°03.8'	14°48.3'	N 15°34.6'		
16	173°43.4'	58°29.4'	N 21°24.8'	28°27.8'	N 15°36.6'		200°06.1'	S 12°03.1'	219°35.3'	S 18°03.8'	29°49.3'	N 15°34.1'		
17	188°45.9'	73°29.4'	N 21°24.4'	43°27.3'	N 15°35.6'		215°08.8'	S 12°03.2'	234°38.0'	S 18°03.9'	44°50.2'	N 15°33.6'		
18	203°48.3'	88°29.3'	N 21°24.0'	58°26.8'	N 15°34.6'		230°11.4'	S 12°03.3'	249°40.6'	S 18°03.9'	59°51.2'	N 15°33.0'		
19	218°50.8'	103°29.2'	N 21°23.5'	73°26.4'	N 15°33.6'		245°14.0'	S 12°03.4'	264°43.3'	S 18°04.0'	74°52.1'	N 15°32.5'		
20	233°53.3'	118°29.2'	N 21°23.1'	88°25.9'	N 15°32.6'		260°16.7'	S 12°03.5'	279°45.9'	S 18°04.0'	89°53.0'	N 15°32.0'		
21	248°55.7'	133°29.1'	N 21°22.7'	103°25.4'	N 15°31.5'		275°19.3'	S 12°03.5'	294°48.5'	S 18°04.1'	104°54.0'	N 15°31.5'		
22	263°58.2'	148°29.1'	N 21°22.3'	118°24.9'	N 15°30.5'		290°22.0'	S 12°03.6'	309°51.2'	S 18°04.1'	119°54.9'	N 15°31.0'		
23	279°00.6'	163°29.0'	N 21°21.9'	133°24.4'	N 15°29.5'		305°24.6'	S 12°03.7'	324°53.8'	S 18°04.2'	134°55.8'	N 15°30.5'		
		SD 15.7' d -0.4'		v -0.5' d -1.0'			v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'			
Mer. pass.		12 h 6 m 2 s		14 h 6 m			2 h 42 m		1 h 24 m		14 h 1 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Venus	+Mars	+Sun
0	118°34.2'	N 7°52.6'	12.7'	-13.9'	57.5'	74°15.3'	71°44.0'	40°03.1'	33°03.3'	22°09.0'	30°24.6'	31°18.0'	59°12.5'
1	133°05.9'	N 7°38.7'	12.7'	-13.9'	57.5'	73°52.7'	71°27.1'	39°39.4'	32°30.4'	22°41.8'	30°54.9'	31°49.7'	59°43.6'
2	147°37.6'	N 7°24.8'	12.7'	-14.0'	57.6'	73°30.2'	71°10.2'	39°16.0'	31°57.5'	23°14.6'	31°25.2'	32°21.4'	60°14.6'
3	162°09.4'	N 7°10.8'	12.7'	-14.0'	57.6'	73°07.7'	70°53.5'	38°52.7'	31°24.5'	23°47.4'	31°55.6'	32°53.1'	60°45.7'
4	176°41.1'	N 6°56.8'	12.7'	-14.1'	57.6'	72°45.3'	70°36.8'	38°29.6'	30°51.6'	24°20.3'	32°26.0'	33°24.9'	61°16.8'
5	191°12.8'	N 6°42.7'	12.8'	-14.1'	57.6'	72°22.9'	70°20.2'	38°06.7'	30°18.6'	24°53.3'	32°56.4'	33°56.8'	61°48.0'
6	205°44.6'	N 6°28.5'	12.8'	-14.2'	57.7'	72°00.6'	70°03.7'	37°44.1'	29°45.7'	25°26.3'	33°26.8'	34°28.6'	62°19.1'
7	220°16.4'	N 6°14.4'	12.8'	-14.2'	57.7'	71°38.2'	69°47.3'	37°21.6'	29°12.8'	25°59.4'	33°57.3'	35°00.5'	62°50.3'
8	234°48.1'	N 6°00.2'	12.8'	-14.2'	57.7'	71°16.0'	69°30.9'	36°59.4'	28°39.8'	26°32.5'	34°27.8'	35°32.4'	63°21.5'
9	249°19.9'	N 5°45.9'	12.8'	-14.3'	57.7'	70°53.8'	69°14.6'	36°37.4'	28°06.9'	27°05.6'	34°58.3'	36°04.3'	63°52.8'
10	263°51.7'	N 5°31.6'	12.8'	-14.3'	57.7'	70°31.6'	68°58.4'	36°15.7'	27°34.0'	27°38.8'	35°28.9'	36°36.3'	64°24.0'
11	278°23.4'	N 5°17.3'	12.8'	-14.4'	57.8'	70°09.5'	68°42.3'	35°54.2'	27°01.0'	28°12.0'	35°59.5'	37°08.3'	64°55.3'
12	292°55.2'	N 5°03.0'	12.8'	-14.4'	57.8'	69°47.4'	68°26.3'	35°32.9'	26°28.1'	28°45.3'	36°30.1'	37°40.3'	65°26.6'
13	307°27.0'	N 4°48.6'	12.8'	-14.4'	57.8'	69°25.4'	68°10.3'	35°12.0'	25°55.2'	29°18.6'	37°00.7'	38°12.4'	65°58.0'
14	321°58.8'	N 4°34.2'	12.8'	-14.5'	57.8'	69°03.4'	67°54.5'	34°51.3'	25°22.3'	29°52.0'	37°31.4'	38°44.5'	66°29.3'
15	336°30.6'	N 4°19.7'	12.8'	-14.5'	57.9'	68°41.5'	67°38.8'	34°30.9'	24°49.4'	30°25.4'	38°02.1'	39°16.6'	67°00.7'
16	351°02.3'	N 4°05.2'	12.8'	-14.5'	57.9'	68°19.7'	67°23.1'	34°10.7'	24°16.5'	30°58.9'	38°32.8'	39°48.7'	67°32.1'
17	5°34.1'	N 3°50.7'	12.8'	-14.5'	57.9'	67°57.9'	67°07.5'	33°50.9'	23°43.7'	31°32.3'	39°03.6'	40°20.9'	68°03.6'
18	20°05.9'	N 3°36.2'	12.8'	-14.6'	57.9'	67°36.2'	66°52.1'	33°31.5'	23°10.9'	32°05.8'	39°34.4'	40°53.1'	68°35.0'
19	34°37.6'	N 3°21.6'	12.8'	-14.6'	57.9'	67°14.6'	66°36.7'	33°12.3'	22°38.1'	32°39.4'	40°05.2'	41°25.3'	69°06.5'
20	49°09.4'	N 3°07.0'	12.7'	-14.6'	58.0'	66°53.0'	66°21.5'	32°53.5'	22°05.3'	33°13.0'	40°36.0'	41°57.6'	69°38.0'
21	63°41.1'	N 2°52.3'	12.7'	-14.7'	58.0'	66°31.5'	66°06.4'	32°35.0'	21°32.6'	33°46.6'	41°06.9'	42°29.8'	70°09.6'
22	78°12.8'	N 2°37.7'	12.7'	-14.7'	58.0'	66°10.0'		32°16.9'	20°59.9'	34°20.3'	41°37.8'	43°02.1'	70°41.1'
23	92°44.6'	N 2°23.0'	12.7'	-14.7'	58.0'	65°48.7'		31°59.1'	20°27.2'	34°54.0'	42°08.7'	43°34.5'	71°12.7'
Mer. pass.		16 h 37 m SD 15.7' phase 24%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.3'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°31.6'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.8'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

Friday 16 July 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	294°03.1'	178°28.9'	N 21°21.5'	148°24.0'	N 15°28.5'	320°27.3'	S 12°03.8'	339°56.4'	S 18°04.2'	149°56.8'	N 15°30.0'			
1	309°05.6'	193°28.9'	N 21°21.1'	163°23.5'	N 15°27.5'	335°29.9'	S 12°03.9'	354°59.1'	S 18°04.3'	164°57.7'	N 15°29.5'			
2	324°08.0'	208°28.8'	N 21°20.7'	178°23.0'	N 15°26.5'	350°32.6'	S 12°03.9'	10°01.7'	S 18°04.3'	179°58.6'	N 15°28.9'			
3	339°10.5'	223°28.8'	N 21°20.3'	193°22.5'	N 15°25.5'	5°35.2'	S 12°04.0'	25°04.3'	S 18°04.4'	194°59.6'	N 15°28.4'			
4	354°13.0'	238°28.7'	N 21°19.9'	208°22.1'	N 15°24.5'	20°37.9'	S 12°04.1'	40°07.0'	S 18°04.4'	210°00.5'	N 15°27.9'			
5	9°15.4'	253°28.7'	N 21°19.5'	223°21.6'	N 15°23.5'	35°40.5'	S 12°04.2'	55°09.6'	S 18°04.5'	225°01.5'	N 15°27.4'			
6	24°17.9'	268°28.6'	N 21°19.0'	238°21.1'	N 15°22.4'	50°43.2'	S 12°04.2'	70°12.3'	S 18°04.6'	240°02.4'	N 15°26.9'			
7	39°20.4'	283°28.5'	N 21°18.6'	253°20.6'	N 15°21.4'	65°45.8'	S 12°04.3'	85°14.9'	S 18°04.6'	255°03.3'	N 15°26.4'			
8	54°22.8'	298°28.5'	N 21°18.2'	268°20.2'	N 15°20.4'	80°48.5'	S 12°04.4'	100°17.5'	S 18°04.7'	270°04.3'	N 15°25.8'			
9	69°25.3'	313°28.4'	N 21°17.8'	283°19.7'	N 15°19.4'	95°51.1'	S 12°04.5'	115°20.2'	S 18°04.7'	285°05.2'	N 15°25.3'			
10	84°27.7'	328°28.4'	N 21°17.4'	298°19.2'	N 15°18.4'	110°53.8'	S 12°04.6'	130°22.8'	S 18°04.8'	300°06.1'	N 15°24.8'			
11	99°30.2'	343°28.3'	N 21°17.0'	313°18.7'	N 15°17.4'	125°56.4'	S 12°04.6'	145°25.4'	S 18°04.8'	315°07.1'	N 15°24.3'			
12	114°32.7'	358°28.3'	N 21°16.6'	328°18.3'	N 15°16.3'	140°59.1'	S 12°04.7'	160°28.1'	S 18°04.9'	330°08.0'	N 15°23.8'			
13	129°35.1'	13°28.2'	N 21°16.1'	343°17.8'	N 15°15.3'	156°01.7'	S 12°04.8'	175°30.7'	S 18°04.9'	345°09.0'	N 15°23.3'			
14	144°37.6'	28°28.1'	N 21°15.7'	358°17.3'	N 15°14.3'	171°04.4'	S 12°04.9'	190°33.4'	S 18°05.0'	0°09.9'	N 15°22.8'			
15	159°40.1'	43°28.1'	N 21°15.3'	13°16.8'	N 15°13.3'	186°07.0'	S 12°05.0'	205°36.0'	S 18°05.0'	15°10.8'	N 15°22.2'			
16	174°42.5'	58°28.0'	N 21°14.9'	28°16.4'	N 15°12.3'	201°09.7'	S 12°05.1'	220°38.6'	S 18°05.1'	30°11.8'	N 15°21.7'			
17	189°45.0'	73°28.0'	N 21°14.5'	43°15.9'	N 15°11.2'	216°12.3'	S 12°05.1'	235°41.3'	S 18°05.1'	45°12.7'	N 15°21.2'			
18	204°47.5'	88°27.9'	N 21°14.0'	58°15.4'	N 15°10.2'	231°15.0'	S 12°05.2'	250°43.9'	S 18°05.2'	60°13.7'	N 15°20.7'			
19	219°49.9'	103°27.9'	N 21°13.6'	73°15.0'	N 15°09.2'	246°17.6'	S 12°05.3'	265°46.5'	S 18°05.2'	75°14.6'	N 15°20.2'			
20	234°52.4'	118°27.8'	N 21°13.2'	88°14.5'	N 15°08.2'	261°20.3'	S 12°05.4'	280°49.2'	S 18°05.3'	90°15.5'	N 15°19.7'			
21	249°54.9'	133°27.8'	N 21°12.8'	103°14.0'	N 15°07.1'	276°22.9'	S 12°05.5'	295°51.8'	S 18°05.3'	105°16.5'	N 15°19.1'			
22	264°57.3'	148°27.7'	N 21°12.3'	118°13.6'	N 15°06.1'	291°25.6'	S 12°05.5'	310°54.5'	S 18°05.4'	120°17.4'	N 15°18.6'			
23	279°59.8'	163°27.7'	N 21°11.9'	133°13.1'	N 15°05.1'	306°28.2'	S 12°05.6'	325°57.1'	S 18°05.4'	135°18.3'	N 15°18.1'			
		SD 15.7' d -0.4'		v -0.5' d -1.0'		v 2.6' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'				
Mer. pass.		12 h 6 m 8 s		14 h 7 m		2 h 38 m		1 h 20 m		13 h 59 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Hadar	-Antares	-Arcturus	-Spica	+Regulus	+Venus	+Mars	+Sun
0	107°16.3'	N 2°08.3'	12.7'	-14.7'	58.1'	65°27.4'	65°16.2'	31°41.8'	19°54.6'	35°27.7'	42°39.6'	44°06.8'	71°44.3'
1	121°48.0'	N 1°53.6'	12.7'	-14.7'	58.1'	65°06.2'	64°42.2'	31°24.8'	19°22.1'	36°01.4'	43°10.6'	44°39.2'	72°16.0'
2	136°19.7'	N 1°38.9'	12.7'	-14.8'	58.1'	64°45.0'	64°08.3'	31°08.3'	18°49.6'	36°35.2'	43°41.6'	45°11.7'	72°47.6'
3	150°51.3'	N 1°24.1'	12.7'	-14.8'	58.1'	64°24.0'	63°34.2'	30°52.1'	18°17.2'	37°09.1'	44°12.6'	45°44.1'	73°19.3'
4	165°23.0'	N 1°09.3'	12.6'	-14.8'	58.2'	64°03.0'	63°00.2'	30°36.4'	17°44.9'	37°42.9'	44°43.6'	46°16.6'	73°51.0'
5	179°54.6'	N 0°54.5'	12.6'	-14.8'	58.2'	63°42.2'	62°26.2'		17°12.6'	38°16.8'	45°14.7'	46°49.1'	74°22.8'
6	194°26.2'	N 0°39.7'	12.6'	-14.8'	58.2'	63°21.4'	61°52.1'		16°40.5'	38°50.8'	45°45.8'	47°21.6'	74°54.5'
7	208°57.8'	N 0°24.9'	12.6'	-14.8'	58.2'	63°00.7'	61°18.0'		16°08.5'	39°24.7'	46°17.0'	47°54.1'	75°26.3'
8	223°29.4'	N 0°10.1'	12.6'	-14.8'	58.2'	62°40.1'	60°43.9'		15°36.6'	39°58.7'	46°48.1'	48°26.7'	75°58.1'
9	238°01.0'	S 0°04.8'	12.5'	-14.9'	58.3'	62°19.6'	60°09.7'		15°04.8'	40°32.7'	47°19.3'	48°59.3'	76°30.0'
10	252°32.5'	S 0°19.6'	12.5'	-14.9'	58.3'	61°59.2'	59°35.5'		14°33.3'	41°06.8'	47°50.5'	49°32.0'	77°01.9'
11	267°04.0'	S 0°34.5'	12.5'	-14.9'	58.3'	61°38.9'	59°01.4'		14°01.9'	41°40.9'	48°21.7'	50°04.6'	77°33.7'
12	281°35.5'	S 0°49.4'	12.5'	-14.9'	58.3'	61°18.7'	58°27.1'		13°30.7'	42°15.0'	48°53.0'	50°37.3'	78°05.7'
13	296°07.0'	S 1°04.2'	12.4'	-14.9'	58.4'	60°58.6'	57°52.9'		12°59.7'	42°49.1'	49°24.3'	51°10.0'	78°37.6'
14	310°38.4'	S 1°19.1'	12.4'	-14.9'	58.4'	60°38.7'	57°18.6'		12°29.1'	43°23.3'	49°55.6'	51°42.8'	79°09.6'
15	325°09.8'	S 1°34.0'	12.4'	-14.9'	58.4'	60°18.8'	56°44.3'		11°58.7'	43°57.5'	50°27.0'	52°15.6'	79°41.6'
16	339°41.1'	S 1°48.9'	12.3'	-14.9'	58.4'	59°59.1'	56°10.0'		11°28.7'	44°31.7'	50°58.3'	52°48.4'	80°13.6'
17	354°12.5'	S 2°03.8'	12.3'	-14.9'	58.4'	59°39.5'	55°35.7'		10°59.1'	45°06.0'	51°29.7'	53°21.2'	80°45.6'
18	8°43.8'	S 2°18.7'	12.3'	-14.9'	58.5'	59°20.0'	55°01.3'		10°30.0'	45°40.3'	52°01.1'	53°54.0'	81°17.7'
19	23°15.1'	S 2°33.6'	12.2'	-14.9'	58.5'	59°00.6'	54°26.9'		10°01.4'	46°14.6'	52°32.6'	54°26.9'	81°49.8'
20	37°46.3'	S 2°48.5'	12.2'	-14.9'	58.5'	58°41.4'	53°52.5'		9°33.4'	46°49.0'	53°04.1'	54°59.8'	82°21.9'
21	52°17.5'	S 3°03.4'	12.2'	-14.9'	58.5'	58°22.3'	53°18.1'			47°23.4'	53°35.6'	55°32.7'	82°54.0'
22	66°48.7'	S 3°18.3'	12.1'	-14.9'	58.6'	58°03.3'	52°43.7'			47°57.8'	54°07.1'	56°05.7'	83°26.2'
23	81°19.8'	S 3°33.2'	12.1'	-14.9'	58.6'	57°44.5'	52°09.2'			48°32.2'	54°38.7'	56°38.7'	83°58.4'
Mer. pass.		17 h 24 m SD 15.8'		phase 34%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.6'
Deneb	+1.2	49°27.2'	N 45°21.3'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°31.2'	N 89°20.9'
Rigil Kent	-0.0	139°43.9'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	295°02.2'	178°27.6'	N 21°11.5'	148°12.6'	N 15°04.1'	321°30.9'	S 12°05.7'	340°59.7'	S 18°05.5'	150°19.3'	N 15°17.6'			
1	310°04.7'	193°27.5'	N 21°11.1'	163°12.2'	N 15°03.0'	336°33.5'	S 12°05.8'	356°02.4'	S 18°05.5'	165°20.2'	N 15°17.1'			
2	325°07.2'	208°27.5'	N 21°10.7'	178°11.7'	N 15°02.0'	351°36.2'	S 12°05.9'	11°05.0'	S 18°05.6'	180°21.2'	N 15°16.5'			
3	340°09.6'	223°27.4'	N 21°10.2'	193°11.2'	N 15°01.0'	6°38.8'	S 12°05.9'	26°07.6'	S 18°05.6'	195°22.1'	N 15°16.0'			
4	355°12.1'	238°27.4'	N 21°09.8'	208°10.8'	N 14°60.0'	21°41.5'	S 12°06.0'	41°10.3'	S 18°05.7'	210°23.0'	N 15°15.5'			
5	10°14.6'	253°27.3'	N 21°09.4'	223°10.3'	N 14°58.9'	36°44.1'	S 12°06.1'	56°12.9'	S 18°05.8'	225°24.0'	N 15°15.0'			
6	25°17.0'	268°27.3'	N 21°08.9'	238°09.9'	N 14°57.9'	51°46.8'	S 12°06.2'	71°15.6'	S 18°05.8'	240°24.9'	N 15°14.5'			
7	40°19.5'	283°27.2'	N 21°08.5'	253°09.4'	N 14°56.9'	66°49.4'	S 12°06.3'	86°18.2'	S 18°05.9'	255°25.9'	N 15°13.9'			
8	55°22.0'	298°27.2'	N 21°08.1'	268°08.9'	N 14°55.8'	81°52.1'	S 12°06.4'	101°20.8'	S 18°05.9'	270°26.8'	N 15°13.4'			
9	70°24.4'	313°27.1'	N 21°07.7'	283°08.5'	N 14°54.8'	96°54.8'	S 12°06.4'	116°23.5'	S 18°06.0'	285°27.7'	N 15°12.9'			
10	85°26.9'	328°27.1'	N 21°07.2'	298°08.0'	N 14°53.8'	111°57.4'	S 12°06.5'	131°26.1'	S 18°06.0'	300°28.7'	N 15°12.4'			
11	100°29.4'	343°27.0'	N 21°06.8'	313°07.6'	N 14°52.7'	127°00.1'	S 12°06.6'	146°28.8'	S 18°06.1'	315°29.6'	N 15°11.9'			
12	115°31.8'	358°27.0'	N 21°06.4'	328°07.1'	N 14°51.7'	142°02.7'	S 12°06.7'	161°31.4'	S 18°06.1'	330°30.6'	N 15°11.4'			
13	130°34.3'	13°26.9'	N 21°05.9'	343°06.6'	N 14°50.7'	157°05.4'	S 12°06.8'	176°34.0'	S 18°06.2'	345°31.5'	N 15°10.8'			
14	145°36.7'	28°26.9'	N 21°05.5'	358°06.2'	N 14°49.6'	172°08.0'	S 12°06.8'	191°36.7'	S 18°06.2'	0°32.4'	N 15°10.3'			
15	160°39.2'	43°26.8'	N 21°05.1'	13°05.7'	N 14°48.6'	187°10.7'	S 12°06.9'	206°39.3'	S 18°06.3'	15°33.4'	N 15°09.8'			
16	175°41.7'	58°26.8'	N 21°04.6'	28°05.3'	N 14°47.5'	202°13.3'	S 12°07.0'	221°42.0'	S 18°06.3'	30°34.3'	N 15°09.3'			
17	190°44.1'	73°26.7'	N 21°04.2'	43°04.8'	N 14°46.5'	217°16.0'	S 12°07.1'	236°44.6'	S 18°06.4'	45°35.3'	N 15°08.7'			
18	205°46.6'	88°26.7'	N 21°03.8'	58°04.4'	N 14°45.5'	232°18.7'	S 12°07.2'	251°47.2'	S 18°06.4'	60°36.2'	N 15°08.2'			
19	220°49.1'	103°26.6'	N 21°03.3'	73°03.9'	N 14°44.4'	247°21.3'	S 12°07.3'	266°49.9'	S 18°06.5'	75°37.1'	N 15°07.7'			
20	235°51.5'	118°26.6'	N 21°02.9'	88°03.4'	N 14°43.4'	262°24.0'	S 12°07.3'	281°52.5'	S 18°06.5'	90°38.1'	N 15°07.2'			
21	250°54.0'	133°26.5'	N 21°02.4'	103°03.0'	N 14°42.3'	277°26.6'	S 12°07.4'	296°55.2'	S 18°06.6'	105°39.0'	N 15°06.7'			
22	265°56.5'	148°26.5'	N 21°02.0'	118°02.5'	N 14°41.3'	292°29.3'	S 12°07.5'	311°57.8'	S 18°06.6'	120°40.0'	N 15°06.1'			
23	280°58.9'	163°26.4'	N 21°01.6'	133°02.1'	N 14°40.3'	307°32.0'	S 12°07.6'	327°00.4'	S 18°06.7'	135°40.9'	N 15°05.6'			
		SD 15.7' d -0.4'		v -0.5' d -1.0'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'				
Mer. pass.		12 h 6 m 13 s		14 h 8 m		2 h 34 m		1 h 16 m		13 h 58 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigil Kent	-Hadar	-Antares	-Spica	+Regulus	+Venus	+Mars	+Sun
0	95°50.9'	S 3°48.0'	12.0'	-14.9'	58.6'	59°18.7'	57°25.8'	51°34.7'		49°06.7'	55°10.2'	57°11.7'	84°30.6'
1	110°21.9'	S 4°02.9'	12.0'	-14.9'	58.6'	58°57.9'	57°07.2'	51°00.2'		49°41.2'	55°41.9'	57°44.7'	85°02.9'
2	124°52.9'	S 4°17.8'	12.0'	-14.8'	58.6'	58°37.1'	56°48.9'	50°25.6'		50°15.7'	56°13.5'	58°17.8'	85°35.2'
3	139°23.9'	S 4°32.6'	11.9'	-14.8'	58.7'	58°16.5'	56°30.6'	49°51.1'		50°50.3'	56°45.1'	58°50.9'	86°07.5'
4	153°54.8'	S 4°47.5'	11.9'	-14.8'	58.7'	57°56.0'	56°12.5'	49°16.5'		51°24.9'	57°16.8'	59°24.0'	86°39.8'
5	168°25.6'	S 5°02.3'	11.8'	-14.8'	58.7'	57°35.6'	55°54.6'	48°41.9'		51°59.5'	57°48.5'	59°57.1'	87°12.1'
6	182°56.4'	S 5°17.1'	11.8'	-14.8'	58.7'	57°15.4'	55°36.8'	48°07.3'		52°34.1'	58°20.3'	60°30.3'	87°44.5'
7	197°27.2'	S 5°31.9'	11.7'	-14.8'	58.7'	56°55.3'	55°19.2'	47°32.6'		53°08.8'	58°52.1'	61°03.5'	88°16.9'
8	211°57.9'	S 5°46.7'	11.7'	-14.8'	58.8'	56°35.3'	55°01.8'	46°57.9'		53°43.5'	59°23.8'	61°36.7'	88°49.3'
9	226°28.6'	S 6°01.4'	11.6'	-14.7'	58.8'	56°15.5'	54°44.6'	46°23.2'		54°18.2'	59°55.7'	62°10.0'	89°21.8'
10	240°59.2'	S 6°16.2'	11.6'	-14.7'	58.8'	55°55.8'	54°27.5'	45°48.5'		54°53.0'	60°27.5'	62°43.3'	89°54.2'
11	255°29.8'	S 6°30.9'	11.5'	-14.7'	58.8'	55°36.3'	54°10.6'	45°13.8'		55°27.8'	60°59.4'	63°16.6'	90°26.7'
12	270°00.3'	S 6°45.6'	11.5'	-14.7'	58.9'	55°16.9'	53°53.9'	44°39.0'		56°02.6'	61°31.3'	63°49.9'	90°59.3'
13	284°30.8'	S 7°00.2'	11.4'	-14.6'	58.9'	54°57.7'	53°37.4'	44°04.2'		56°37.4'	62°03.2'	64°23.2'	91°31.8'
14	299°01.1'	S 7°14.9'	11.3'	-14.6'	58.9'	54°38.6'	53°21.0'	43°29.4'		57°12.3'	62°35.1'	64°56.6'	92°04.4'
15	313°31.5'	S 7°29.5'	11.3'	-14.6'	58.9'	54°19.8'	53°04.9'	42°54.6'		57°47.2'	63°07.1'	65°30.0'	92°37.0'
16	328°01.8'	S 7°44.1'	11.2'	-14.6'	58.9'	54°01.0'	52°49.0'	42°19.8'		58°22.1'	63°39.1'	66°03.4'	93°09.6'
17	342°32.0'	S 7°58.6'	11.2'	-14.5'	59.0'	53°42.5'	52°33.3'	41°44.9'		58°57.0'	64°11.1'	66°36.9'	93°42.3'
18	357°02.1'	S 8°13.2'	11.1'	-14.5'	59.0'	53°24.1'	52°17.8'	41°10.1'		59°32.0'	64°43.2'	67°10.4'	94°14.9'
19	11°32.2'	S 8°27.7'	11.0'	-14.5'	59.0'	53°06.0'	52°02.5'	40°35.2'		60°07.0'	65°15.3'	67°43.9'	94°47.6'
20	26°02.3'	S 8°42.1'	11.0'	-14.4'	59.0'	52°48.0'		40°00.2'		60°42.0'	65°47.4'	68°17.4'	95°20.4'
21	40°32.2'	S 8°56.5'	10.9'	-14.4'	59.0'	52°30.1'		39°25.3'		61°17.1'	66°19.5'	68°51.0'	95°53.1'
22	55°02.1'	S 9°10.9'	10.8'	-14.3'	59.1'	52°12.5'		38°50.4'		61°52.2'	66°51.6'	69°24.6'	96°25.9'
23	69°32.0'	S 9°25.3'	10.8'	-14.3'	59.1'	51°55.1'		38°15.4'	9°53.0'	62°27.3'	67°23.8'	69°58.2'	96°58.7'
Mer. pass.		18 h 12 m SD 16.0'		phase 45%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.0'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°30.7'	N 89°20.9'
Rigil Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	296°01.4'	178°26.4'	N 21°01.1'	148°01.6'	N 14°39.2'	322°34.6'	S 12°07.7'	342°03.1'	S 18°06.8'	150°41.9'	N 15°05.1'			
1	311°03.8'	193°26.3'	N 21°00.7'	163°01.2'	N 14°38.2'	337°37.3'	S 12°07.8'	357°05.7'	S 18°06.8'	165°42.8'	N 15°04.6'			
2	326°06.3'	208°26.3'	N 21°00.3'	178°00.7'	N 14°37.1'	352°39.9'	S 12°07.8'	12°08.3'	S 18°06.9'	180°43.7'	N 15°04.1'			
3	341°08.8'	223°26.3'	N 20°59.8'	193°00.3'	N 14°36.1'	7°42.6'	S 12°07.9'	27°11.0'	S 18°06.9'	195°44.7'	N 15°03.5'			
4	356°11.2'	238°26.2'	N 20°59.4'	207°59.8'	N 14°35.0'	22°45.3'	S 12°08.0'	42°13.6'	S 18°07.0'	210°45.6'	N 15°03.0'			
5	11°13.7'	253°26.2'	N 20°58.9'	222°59.4'	N 14°34.0'	37°47.9'	S 12°08.1'	57°16.3'	S 18°07.0'	225°46.6'	N 15°02.5'			
6	26°16.2'	268°26.1'	N 20°58.5'	237°58.9'	N 14°33.0'	52°50.6'	S 12°08.2'	72°18.9'	S 18°07.1'	240°47.5'	N 15°02.0'			
7	41°18.6'	283°26.1'	N 20°58.0'	252°58.5'	N 14°31.9'	67°53.2'	S 12°08.3'	87°21.5'	S 18°07.1'	255°48.4'	N 15°01.4'			
8	56°21.1'	298°26.0'	N 20°57.6'	267°58.0'	N 14°30.9'	82°55.9'	S 12°08.4'	102°24.2'	S 18°07.2'	270°49.4'	N 15°00.9'			
9	71°23.6'	313°26.0'	N 20°57.2'	282°57.6'	N 14°29.8'	97°58.6'	S 12°08.4'	117°26.8'	S 18°07.2'	285°50.3'	N 15°00.4'			
10	86°26.0'	328°25.9'	N 20°56.7'	297°57.1'	N 14°28.8'	113°01.2'	S 12°08.5'	132°29.5'	S 18°07.3'	300°51.3'	N 14°59.9'			
11	101°28.5'	343°25.9'	N 20°56.3'	312°56.7'	N 14°27.7'	128°03.9'	S 12°08.6'	147°32.1'	S 18°07.3'	315°52.2'	N 14°59.3'			
12	116°31.0'	358°25.8'	N 20°55.8'	327°56.2'	N 14°26.7'	143°06.5'	S 12°08.7'	162°34.8'	S 18°07.4'	330°53.2'	N 14°58.8'			
13	131°33.4'	13°25.8'	N 20°55.4'	342°55.8'	N 14°25.6'	158°09.2'	S 12°08.8'	177°37.4'	S 18°07.4'	345°54.1'	N 14°58.3'			
14	146°35.9'	28°25.8'	N 20°54.9'	357°55.4'	N 14°24.6'	173°11.9'	S 12°08.9'	192°40.0'	S 18°07.5'	0°55.0'	N 14°57.8'			
15	161°38.3'	43°25.7'	N 20°54.5'	12°54.9'	N 14°23.5'	188°14.5'	S 12°08.9'	207°42.7'	S 18°07.5'	15°56.0'	N 14°57.2'			
16	176°40.8'	58°25.7'	N 20°54.0'	27°54.5'	N 14°22.5'	203°17.2'	S 12°09.0'	222°45.3'	S 18°07.6'	30°56.9'	N 14°56.7'			
17	191°43.3'	73°25.6'	N 20°53.6'	42°54.0'	N 14°21.4'	218°19.9'	S 12°09.1'	237°48.0'	S 18°07.6'	45°57.9'	N 14°56.2'			
18	206°45.7'	88°25.6'	N 20°53.1'	57°53.6'	N 14°20.3'	233°22.5'	S 12°09.2'	252°50.6'	S 18°07.7'	60°58.8'	N 14°55.7'			
19	221°48.2'	103°25.5'	N 20°52.7'	72°53.1'	N 14°19.3'	248°25.2'	S 12°09.3'	267°53.2'	S 18°07.8'	75°59.8'	N 14°55.1'			
20	236°50.7'	118°25.5'	N 20°52.2'	87°52.7'	N 14°18.2'	263°27.9'	S 12°09.4'	282°55.9'	S 18°07.8'	91°00.7'	N 14°54.6'			
21	251°53.1'	133°25.5'	N 20°51.8'	102°52.3'	N 14°17.2'	278°30.5'	S 12°09.5'	297°58.5'	S 18°07.9'	106°01.6'	N 14°54.1'			
22	266°55.6'	148°25.4'	N 20°51.3'	117°51.8'	N 14°16.1'	293°33.2'	S 12°09.5'	313°01.2'	S 18°07.9'	121°02.6'	N 14°53.6'			
23	281°58.1'	163°25.4'	N 20°50.9'	132°51.4'	N 14°15.1'	308°35.8'	S 12°09.6'	328°03.8'	S 18°08.0'	136°03.5'	N 14°53.0'			
		SD 15.7' d -0.4'		v -0.4' d -1.1'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'				
Mer. pass.		12 h 6 m 18 s		14 h 8 m		2 h 29 m		1 h 12 m		13 h 56 m				

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Saturn	-Altair	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Sun	
0	84°01.8'	S 9°39.6'	10.7'	-14.3'	59.1'	98°10.8'	87°34.0'	51°37.9'	37°40.4'	10°22.1'			63°02.4'	97°31.5'
1	98°31.5'	S 9°53.9'	10.6'	-14.2'	59.1'	97°35.4'	87°04.5'	51°20.9'	37°05.4'	10°51.7'			63°37.6'	98°04.3'
2	113°01.1'	S 10°08.1'	10.6'	-14.2'	59.1'	97°00.0'	86°35.0'	51°04.1'	36°30.4'	11°21.9'			64°12.7'	98°37.2'
3	127°30.6'	S 10°22.3'	10.5'	-14.1'	59.2'	96°24.6'	86°05.5'	50°47.5'	35°55.4'	11°52.6'			64°47.9'	99°10.1'
4	142°00.1'	S 10°36.4'	10.4'	-14.1'	59.2'	95°49.1'	85°36.0'	50°31.2'	35°20.3'	12°23.7'			65°23.2'	99°43.0'
5	156°29.5'	S 10°50.5'	10.3'	-14.0'	59.2'	95°13.6'	85°06.4'	50°15.1'	34°45.3'	12°55.2'			65°58.4'	100°15.9'
6	170°58.9'	S 11°04.5'	10.3'	-14.0'	59.2'	94°38.1'	84°36.9'	49°59.2'	34°10.2'	13°27.0'	30°10.2'		66°33.7'	100°48.9'
7	185°28.1'	S 11°18.5'	10.2'	-13.9'	59.2'	94°02.5'	84°07.3'	49°43.5'	33°35.1'	13°59.2'	30°25.7'		67°09.0'	101°21.9'
8	199°57.3'	S 11°32.4'	10.1'	-13.9'	59.3'	93°27.0'	83°37.8'	49°28.1'	32°60.0'	14°31.6'	30°41.7'		67°44.4'	101°54.9'
9	214°26.4'	S 11°46.3'	10.0'	-13.8'	59.3'	92°51.4'	83°08.2'		32°24.9'	15°04.2'	30°58.1'		68°19.7'	102°27.9'
10	228°55.4'	S 12°00.1'	9.9'	-13.8'	59.3'	92°15.8'	82°38.6'		31°49.7'	15°37.1'	31°15.1'		68°55.1'	103°01.0'
11	243°24.4'	S 12°13.9'	9.9'	-13.7'	59.3'	91°40.1'	82°09.0'		31°14.6'	16°10.2'	31°32.5'		69°30.5'	103°34.1'
12	257°53.3'	S 12°27.6'	9.8'	-13.6'	59.3'	91°04.4'	81°39.5'		30°39.5'	16°43.5'	31°50.4'		70°06.0'	104°07.2'
13	272°22.1'	S 12°41.2'	9.7'	-13.6'	59.4'	90°28.8'	81°09.9'		30°04.3'	17°16.9'	32°08.8'		70°41.4'	104°40.3'
14	286°50.8'	S 12°54.8'	9.6'	-13.5'	59.4'	89°53.1'	80°40.3'		29°29.2'	17°50.5'	32°27.6'		71°16.9'	105°13.5'
15	301°19.4'	S 13°08.4'	9.5'	-13.5'	59.4'	89°17.3'	80°10.7'		28°54.0'	18°24.3'	32°46.8'		71°52.4'	105°46.6'
16	315°47.9'	S 13°21.8'	9.5'	-13.4'	59.4'	88°41.6'	79°41.1'		28°18.8'	18°58.1'	33°06.4'		72°27.9'	106°19.8'
17	330°16.4'	S 13°35.2'	9.4'	-13.3'	59.4'	88°05.8'	79°11.5'		27°43.6'	19°32.1'	33°26.5'		73°03.5'	106°53.0'
18	344°44.7'	S 13°48.5'	9.3'	-13.2'	59.4'	87°30.0'	78°41.9'		27°08.5'	20°06.3'	33°46.9'		73°39.1'	107°26.3'
19	359°13.0'	S 14°01.8'	9.2'	-13.2'	59.5'	86°54.2'	78°12.4'		26°33.3'	20°40.5'	34°07.7'		74°14.7'	107°59.5'
20	13°41.2'	S 14°14.9'	9.1'	-13.1'	59.5'	86°18.3'	77°42.8'		25°58.1'	21°14.8'	34°28.9'		74°50.3'	108°32.8'
21	28°09.3'	S 14°28.0'	9.0'	-13.0'	59.5'	85°42.4'	77°13.2'		25°22.9'	21°49.2'	34°50.5'		75°25.9'	109°06.1'
22	42°37.3'	S 14°41.1'	8.9'	-13.0'	59.5'	85°06.5'	76°43.7'		24°47.8'	22°23.7'	35°12.4'		76°01.6'	109°39.4'
23	57°05.3'	S 14°54.0'	8.8'	-12.9'	59.5'	84°30.6'	76°14.1'		24°12.6'	22°58.3'	35°34.6'		76°37.3'	110°12.8'
Mer. pass.		19 h 3 m SD 16.1'		phase 57%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°30.2'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 29°00.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

Monday 19 July 2021 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	297°00.5'	178°25.3' N	20°50.4'	147°50.9' N	14°14.0'	323°38.5' S	12°09.7'	343°06.4' S	18°08.0'	151°04.5' N	14°52.5'	
1	312°03.0'	193°25.3' N	20°50.0'	162°50.5' N	14°13.0'	338°41.2' S	12°09.8'	358°09.1' S	18°08.1'	166°05.4' N	14°52.0'	
2	327°05.5'	208°25.2' N	20°49.5'	177°50.1' N	14°11.9'	353°43.8' S	12°09.9'	13°11.7' S	18°08.1'	181°06.4' N	14°51.5'	
3	342°07.9'	223°25.2' N	20°49.0'	192°49.6' N	14°10.8'	8°46.5' S	12°10.0'	28°14.4' S	18°08.2'	196°07.3' N	14°50.9'	
4	357°10.4'	238°25.2' N	20°48.6'	207°49.2' N	14°09.8'	23°49.2' S	12°10.1'	43°17.0' S	18°08.2'	211°08.3' N	14°50.4'	
5	12°12.8'	253°25.1' N	20°48.1'	222°48.8' N	14°08.7'	38°51.8' S	12°10.1'	58°19.6' S	18°08.3'	226°09.2' N	14°49.9'	
6	27°15.3'	268°25.1' N	20°47.7'	237°48.3' N	14°07.7'	53°54.5' S	12°10.2'	73°22.3' S	18°08.3'	241°10.1' N	14°49.4'	
7	42°17.8'	283°25.0' N	20°47.2'	252°47.9' N	14°06.6'	68°57.2' S	12°10.3'	88°24.9' S	18°08.4'	256°11.1' N	14°48.8'	
8	57°20.2'	298°25.0' N	20°46.8'	267°47.4' N	14°05.5'	83°59.8' S	12°10.4'	103°27.6' S	18°08.4'	271°12.0' N	14°48.3'	
9	72°22.7'	313°25.0' N	20°46.3'	282°47.0' N	14°04.5'	99°02.5' S	12°10.5'	118°30.2' S	18°08.5'	286°13.0' N	14°47.8'	
10	87°25.2'	328°24.9' N	20°45.8'	297°46.6' N	14°03.4'	114°05.2' S	12°10.6'	133°32.9' S	18°08.5'	301°13.9' N	14°47.2'	
11	102°27.6'	343°24.9' N	20°45.4'	312°46.1' N	14°02.3'	129°07.8' S	12°10.7'	148°35.5' S	18°08.6'	316°14.9' N	14°46.7'	
12	117°30.1'	358°24.8' N	20°44.9'	327°45.7' N	14°01.3'	144°10.5' S	12°10.7'	163°38.1' S	18°08.7'	331°15.8' N	14°46.2'	
13	132°32.6'	13°24.8' N	20°44.5'	342°45.3' N	14°00.2'	159°13.2' S	12°10.8'	178°40.8' S	18°08.7'	346°16.8' N	14°45.7'	
14	147°35.0'	28°24.8' N	20°44.0'	357°44.8' N	13°59.1'	174°15.9' S	12°10.9'	193°43.4' S	18°08.8'	1°17.7' N	14°45.1'	
15	162°37.5'	43°24.7' N	20°43.5'	12°44.4' N	13°58.1'	189°18.5' S	12°11.0'	208°46.1' S	18°08.8'	16°18.6' N	14°44.6'	
16	177°39.9'	58°24.7' N	20°43.1'	27°44.0' N	13°57.0'	204°21.2' S	12°11.1'	223°48.7' S	18°08.9'	31°19.6' N	14°44.1'	
17	192°42.4'	73°24.7' N	20°42.6'	42°43.6' N	13°55.9'	219°23.9' S	12°11.2'	238°51.4' S	18°08.9'	46°20.5' N	14°43.6'	
18	207°44.9'	88°24.6' N	20°42.1'	57°43.1' N	13°54.9'	234°26.5' S	12°11.3'	253°54.0' S	18°09.0'	61°21.5' N	14°43.0'	
19	222°47.3'	103°24.6' N	20°41.7'	72°42.7' N	13°53.8'	249°29.2' S	12°11.4'	268°56.6' S	18°09.0'	76°22.4' N	14°42.5'	
20	237°49.8'	118°24.5' N	20°41.2'	87°42.3' N	13°52.7'	264°31.9' S	12°11.4'	283°59.3' S	18°09.1'	91°23.4' N	14°42.0'	
21	252°52.3'	133°24.5' N	20°40.7'	102°41.8' N	13°51.7'	279°34.5' S	12°11.5'	299°01.9' S	18°09.1'	106°24.3' N	14°41.4'	
22	267°54.7'	148°24.4' N	20°40.3'	117°41.4' N	13°50.6'	294°37.2' S	12°11.6'	314°04.6' S	18°09.2'	121°25.3' N	14°40.9'	
23	282°57.2'	163°24.4' N	20°39.8'	132°41.0' N	13°49.5'	309°39.9' S	12°11.7'	329°07.2' S	18°09.2'	136°26.2' N	14°40.4'	
		SD 15.7' d -0.5'		v -0.4' d -1.1'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'		
Mer. pass.		12 h 6 m 22 s		14 h 9 m		2 h 25 m		1 h 7 m		13 h 55 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Sun
0	71°33.1' S	15°06.9'	8.7'	-12.8'	59.5'		83°54.7'	75°44.6'	23°37.5'	23°33.0'	35°57.2'	77°13.0'	110°46.1'
1	86°00.9' S	15°19.7'	8.7'	-12.7'	59.6'		83°18.7'	75°15.1'	23°02.3'	24°07.7'	36°20.1'	77°48.8'	111°19.5'
2	100°28.5' S	15°32.4'	8.6'	-12.6'	59.6'		82°42.8'	74°45.5'	22°27.2'	24°42.6'	36°43.3'	78°24.5'	111°52.9'
3	114°56.1' S	15°45.0'	8.5'	-12.5'	59.6'		82°06.8'	74°16.1'	21°52.1'	25°17.4'	37°06.8'	79°00.3'	112°26.4'
4	129°23.6' S	15°57.6'	8.4'	-12.5'	59.6'		81°30.8'	73°46.6'	21°17.0'	25°52.4'	37°30.6'	79°36.1'	112°59.8'
5	143°50.9' S	16°10.0'	8.3'	-12.4'	59.6'		80°54.7'	73°17.1'	20°42.0'	26°27.4'	37°54.7'	80°11.9'	113°33.3'
6	158°18.2' S	16°22.4'	8.2'	-12.3'	59.6'		80°18.7'	72°47.7'	20°06.9'	27°02.5'	38°19.0'	80°47.8'	114°06.8'
7	172°45.4' S	16°34.7'	8.1'	-12.2'	59.7'		79°42.6'	72°18.3'	19°31.9'	27°37.6'	38°43.7'	81°23.6'	114°40.3'
8	187°12.5' S	16°46.8'	8.0'	-12.1'	59.7'		79°06.5'	71°48.9'	18°57.0'	28°12.7'	39°08.6'	81°59.5'	115°13.8'
9	201°39.5' S	16°58.9'	7.9'	-12.0'	59.7'		78°30.4'	71°19.5'	18°22.1'	28°48.0'	39°33.7'	82°35.4'	115°47.3'
10	216°06.4' S	17°10.9'	7.8'	-11.9'	59.7'		77°54.2'	70°50.2'	17°47.2'	29°23.2'	39°59.1'	83°11.3'	116°20.9'
11	230°33.2' S	17°22.8'	7.7'	-11.8'	59.7'	94°36.8'	77°18.1'	70°20.9'	17°12.4'	29°58.6'	40°24.7'	83°47.3'	116°54.5'
12	244°59.9' S	17°34.6'	7.6'	-11.7'	59.7'	94°21.8'	76°41.9'	69°51.6'	16°37.7'	30°33.9'	40°50.6'	84°23.2'	117°28.1'
13	259°26.5' S	17°46.3'	7.5'	-11.6'	59.7'	94°06.7'	76°05.7'	69°22.3'	16°03.1'	31°09.3'	41°16.7'	84°59.2'	118°01.7'
14	273°53.1' S	17°57.9'	7.4'	-11.5'	59.8'	93°51.7'	75°29.5'	68°53.1'	15°28.5'	31°44.8'	41°43.0'	85°35.2'	118°35.3'
15	288°19.5' S	18°09.4'	7.3'	-11.4'	59.8'	93°36.6'	74°53.2'	68°23.9'	14°54.0'	32°20.3'	42°09.5'	86°11.2'	119°09.0'
16	302°45.8' S	18°20.7'	7.2'	-11.3'	59.8'	93°21.5'	74°17.0'	67°54.8'	14°19.7'	32°55.8'	42°36.3'	86°47.3'	119°42.6'
17	317°12.0' S	18°32.0'	7.1'	-11.2'	59.8'	93°06.3'	73°40.7'	67°25.7'	13°45.5'	33°31.4'	43°03.2'	87°23.3'	
18	331°38.2' S	18°43.2'	7.0'	-11.0'	59.8'	92°51.1'	73°04.4'	66°56.6'	13°11.5'	34°07.0'	43°30.3'	87°59.4'	
19	346°04.2' S	18°54.2'	6.9'	-10.9'	59.8'	92°35.9'	72°28.1'	66°27.6'	12°37.6'	34°42.6'	43°57.6'	88°35.5'	
20	0°30.2' S	19°05.2'	6.8'	-10.8'	59.8'	92°20.7'	71°51.8'	65°58.6'	12°03.9'	35°18.3'	44°25.1'	89°11.6'	
21	14°56.0' S	19°16.0'	6.7'	-10.7'	59.8'	92°05.5'	71°15.5'	65°29.7'	11°30.5'	35°54.0'	44°52.8'	89°47.7'	
22	29°21.7' S	19°26.7'	6.6'	-10.6'	59.9'	91°50.2'	70°39.1'	65°00.9'	10°57.4'	36°29.7'	45°20.6'	90°23.9'	
23	43°47.4' S	19°37.3'	6.6'	-10.5'	59.9'	91°34.9'	70°02.8'	64°32.0'	10°24.5'	37°05.5'	45°48.6'	91°00.0'	
Mer. pass.		19 h 58 m SD 16.2'		phase 68%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.7'
Deneb	+1.2	49°27.2' N	45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.5' N	46°01.0'
Altair	+0.8	62°02.4' N	8°55.6'	Regulus	+1.4	207°37.7' N	11°51.9'	Rigel	+0.2	281°06.9' S	8°10.6'
Vega	+0.0	80°34.7' N	38°48.3'	Pollux	+1.2	243°21.2' N	27°58.5'	Aldebaran	+0.9	290°43.1' N	16°33.1'
Antares	+1.1	112°19.1' S	26°28.7'	Procyon	+0.4	244°54.1' N	5°10.2'	Polaris	+2.0	315°29.7' N	89°20.9'
Rigil Kent	-0.0	139°44.0' S	60°55.6'	Adhara	+1.5	255°08.5' S	29°00.0'	Achernar	+0.5	335°22.4' S	57°07.4'
Arcturus	-0.1	145°50.5' N	19°04.5'	Sirius	-1.4	258°29.1' S	16°44.7'				
Hadar	+0.6	148°39.9' S	60°28.7'	Canopus	-0.6	263°54.2' S	52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	297°59.7'	178°24.4'	N 20°39.3'	147°40.6'	N 13°48.4'	324°42.6'	S 12°11.8'	344°09.8'	S 18°09.3'	151°27.2'	N 14°39.8'			
1	313°02.1'	193°24.4'	N 20°38.9'	162°40.1'	N 13°47.4'	339°45.2'	S 12°11.9'	359°12.5'	S 18°09.3'	166°28.1'	N 14°39.3'			
2	328°04.6'	208°24.3'	N 20°38.4'	177°39.7'	N 13°46.3'	354°47.9'	S 12°12.0'	14°15.1'	S 18°09.4'	181°29.1'	N 14°38.8'			
3	343°07.1'	223°24.3'	N 20°37.9'	192°39.3'	N 13°45.2'	9°50.6'	S 12°12.1'	29°17.8'	S 18°09.4'	196°30.0'	N 14°38.3'			
4	358°09.5'	238°24.3'	N 20°37.5'	207°38.9'	N 13°44.1'	24°53.2'	S 12°12.1'	44°20.4'	S 18°09.5'	211°30.9'	N 14°37.7'			
5	13°12.0'	253°24.2'	N 20°37.0'	222°38.4'	N 13°43.1'	39°55.9'	S 12°12.2'	59°23.1'	S 18°09.6'	226°31.9'	N 14°37.2'			
6	28°14.4'	268°24.2'	N 20°36.5'	237°38.0'	N 13°42.0'	54°58.6'	S 12°12.3'	74°25.7'	S 18°09.6'	241°32.8'	N 14°36.7'			
7	43°16.9'	283°24.2'	N 20°36.0'	252°37.6'	N 13°40.9'	70°01.3'	S 12°12.4'	89°28.3'	S 18°09.7'	256°33.8'	N 14°36.1'			
8	58°19.4'	298°24.1'	N 20°35.6'	267°37.2'	N 13°39.8'	85°03.9'	S 12°12.5'	104°31.0'	S 18°09.7'	271°34.7'	N 14°35.6'			
9	73°21.8'	313°24.1'	N 20°35.1'	282°36.7'	N 13°38.8'	100°06.6'	S 12°12.6'	119°33.6'	S 18°09.8'	286°35.7'	N 14°35.1'			
10	88°24.3'	328°24.1'	N 20°34.6'	297°36.3'	N 13°37.7'	115°09.3'	S 12°12.7'	134°36.3'	S 18°09.8'	301°36.6'	N 14°34.5'			
11	103°26.8'	343°24.0'	N 20°34.1'	312°35.9'	N 13°36.6'	130°12.0'	S 12°12.8'	149°38.9'	S 18°09.9'	316°37.6'	N 14°34.0'			
12	118°29.2'	358°24.0'	N 20°33.7'	327°35.5'	N 13°35.5'	145°14.6'	S 12°12.9'	164°41.6'	S 18°09.9'	331°38.5'	N 14°33.5'			
13	133°31.7'	13°24.0'	N 20°33.2'	342°35.1'	N 13°34.4'	160°17.3'	S 12°12.9'	179°44.2'	S 18°10.0'	346°39.5'	N 14°32.9'			
14	148°34.2'	28°23.9'	N 20°32.7'	357°34.6'	N 13°33.4'	175°20.0'	S 12°13.0'	194°46.8'	S 18°10.0'	1°40.4'	N 14°32.4'			
15	163°36.6'	43°23.9'	N 20°32.2'	12°34.2'	N 13°32.3'	190°22.7'	S 12°13.1'	209°49.5'	S 18°10.1'	16°41.4'	N 14°31.9'			
16	178°39.1'	58°23.9'	N 20°31.8'	27°33.8'	N 13°31.2'	205°25.3'	S 12°13.2'	224°52.1'	S 18°10.1'	31°42.3'	N 14°31.3'			
17	193°41.6'	73°23.8'	N 20°31.3'	42°33.4'	N 13°30.1'	220°28.0'	S 12°13.3'	239°54.8'	S 18°10.2'	46°43.3'	N 14°30.8'			
18	208°44.0'	88°23.8'	N 20°30.8'	57°33.0'	N 13°29.0'	235°30.7'	S 12°13.4'	254°57.4'	S 18°10.2'	61°44.2'	N 14°30.3'			
19	223°46.5'	103°23.8'	N 20°30.3'	72°32.6'	N 13°27.9'	250°33.4'	S 12°13.5'	270°00.1'	S 18°10.3'	76°45.2'	N 14°29.7'			
20	238°48.9'	118°23.7'	N 20°29.8'	87°32.1'	N 13°26.9'	265°36.0'	S 12°13.6'	285°02.7'	S 18°10.4'	91°46.1'	N 14°29.2'			
21	253°51.4'	133°23.7'	N 20°29.4'	102°31.7'	N 13°25.8'	280°38.7'	S 12°13.7'	300°05.4'	S 18°10.4'	106°47.0'	N 14°28.7'			
22	268°53.9'	148°23.7'	N 20°28.9'	117°31.3'	N 13°24.7'	295°41.4'	S 12°13.7'	315°08.0'	S 18°10.5'	121°48.0'	N 14°28.1'			
23	283°56.3'	163°23.7'	N 20°28.4'	132°30.9'	N 13°23.6'	310°44.1'	S 12°13.8'	330°10.6'	S 18°10.5'	136°48.9'	N 14°27.6'			
		SD 15.7' d -0.5'		v -0.4' d -1.1'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'				
Mer. pass.		12 h 6 m 25 s		14 h 10 m		2 h 21 m		1 h 3 m		13 h 53 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Venus
0	58°12.9'	S 19°47.7'	6.5'	-10.3'	59.9'	89°07.4'	69°26.4'	64°03.3'	9°52.1'	37°41.3'	46°16.8'	91°36.2'	94°08.5'
1	72°38.4'	S 19°58.1'	6.4'	-10.2'	59.9'	88°31.0'	68°50.0'	63°34.6'	9°20.1'	38°17.1'	46°45.1'	92°12.4'	94°41.7'
2	87°03.8'	S 20°08.3'	6.3'	-10.1'	59.9'	87°54.5'	68°13.6'	63°05.9'	8°48.7'	38°53.0'	47°13.6'	92°48.6'	95°15.0'
3	101°29.0'	S 20°18.4'	6.2'	-10.0'	59.9'	87°18.0'	67°37.2'	62°37.3'	8°17.9'	39°28.9'	47°42.2'	93°24.8'	95°48.2'
4	115°54.2'	S 20°28.3'	6.1'	-9.8'	59.9'	86°41.5'	67°00.7'	62°08.8'		40°04.8'	48°10.9'	94°01.1'	96°21.5'
5	130°19.3'	S 20°38.2'	6.0'	-9.7'	59.9'	86°05.0'	66°24.3'	61°40.3'		40°40.7'	48°39.8'	94°37.3'	96°54.8'
6	144°44.2'	S 20°47.9'	5.9'	-9.6'	59.9'	85°28.5'	65°47.8'	61°12.0'		41°16.7'	49°08.9'	95°13.6'	97°28.1'
7	159°09.1'	S 20°57.4'	5.8'	-9.4'	60.0'	84°52.0'	65°11.3'	60°43.7'		41°52.6'	49°38.1'	95°49.8'	98°01.5'
8	173°33.9'	S 21°06.9'	5.7'	-9.3'	60.0'	84°15.5'	64°34.8'	60°15.4'		42°28.6'	50°07.4'	96°26.1'	98°34.8'
9	187°58.6'	S 21°16.2'	5.6'	-9.2'	60.0'	83°38.9'	63°58.3'	59°47.3'		43°04.7'	50°36.8'	97°02.4'	99°08.1'
10	202°23.2'	S 21°25.3'	5.5'	-9.0'	60.0'	83°02.3'	63°21.8'	59°19.2'		43°40.7'	51°06.3'	97°38.8'	99°41.5'
11	216°47.7'	S 21°34.4'	5.4'	-8.9'	60.0'	82°25.8'	62°45.3'	58°51.2'		44°16.8'	51°36.0'	98°15.1'	100°14.9'
12	231°12.1'	S 21°43.2'	5.3'	-8.7'	60.0'	81°49.2'	62°08.8'	58°23.3'		44°52.9'	52°05.7'	98°51.4'	100°48.3'
13	245°36.5'	S 21°52.0'	5.2'	-8.6'	60.0'	81°12.6'	61°32.2'	57°55.5'		45°29.0'	52°35.6'	99°27.8'	101°21.7'
14	260°00.7'	S 22°00.6'	5.2'	-8.4'	60.0'	80°35.9'	60°55.7'	57°27.7'		46°05.1'	53°05.6'	100°04.1'	101°55.1'
15	274°24.9'	S 22°09.0'	5.1'	-8.3'	60.0'	79°59.3'	60°19.1'	57°00.1'		46°41.2'	53°35.7'	100°40.5'	102°28.5'
16	288°48.9'	S 22°17.3'	5.0'	-8.2'	60.0'	79°22.7'	59°42.5'	56°32.6'		47°17.4'	54°05.9'	101°16.9'	103°01.9'
17	303°12.9'	S 22°25.5'	4.9'	-8.0'	60.0'	78°46.0'	59°05.9'	56°05.1'		47°53.6'	54°36.1'	101°53.3'	103°35.4'
18	317°36.8'	S 22°33.5'	4.8'	-7.9'	60.0'	78°09.4'	58°29.3'	55°37.8'		48°29.8'	55°06.5'	102°29.7'	104°08.8'
19	332°00.6'	S 22°41.3'	4.7'	-7.7'	60.0'	77°32.7'	57°52.7'	55°10.6'		49°06.0'	55°37.0'	103°06.1'	104°42.3'
20	346°24.3'	S 22°49.0'	4.6'	-7.5'	60.0'	76°56.0'	57°16.1'	54°43.5'		49°42.2'	56°07.5'	103°42.5'	105°15.7'
21	0°48.0'	S 22°56.6'	4.6'	-7.4'	60.0'	76°19.4'	56°39.5'	54°16.6'		50°18.4'	56°38.2'	104°18.9'	105°49.2'
22	15°11.6'	S 23°04.0'	4.5'	-7.2'	60.1'	75°42.7'	56°02.9'	53°49.7'		50°54.7'	57°08.9'	104°55.3'	106°22.7'
23	29°35.0'	S 23°11.2'	4.4'	-7.1'	60.1'	75°06.0'	55°26.3'	53°23.0'		51°31.0'	57°39.7'	105°31.8'	106°56.2'
Mer. pass.		20 h 57 m SD 16.3'		phase 78%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.5'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°29.1'	N 89°20.9'
Rigil Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 28°60.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	298°58.8'	178°23.6'	N 20°27.9'	147°30.5'	N 13°22.5'	325°46.8'	S 12°13.9'	345°13.3'	S 18°10.6'	151°49.9'	N 14°27.1'			
1	314°01.3'	193°23.6'	N 20°27.4'	162°30.1'	N 13°21.4'	340°49.4'	S 12°14.0'	0°15.9'	S 18°10.6'	166°50.8'	N 14°26.5'			
2	329°03.7'	208°23.6'	N 20°27.0'	177°29.7'	N 13°20.3'	355°52.1'	S 12°14.1'	15°18.6'	S 18°10.7'	181°51.8'	N 14°26.0'			
3	344°06.2'	223°23.5'	N 20°26.5'	192°29.2'	N 13°19.3'	10°54.8'	S 12°14.2'	30°21.2'	S 18°10.7'	196°52.7'	N 14°25.5'			
4	359°08.7'	238°23.5'	N 20°26.0'	207°28.8'	N 13°18.2'	25°57.5'	S 12°14.3'	45°23.9'	S 18°10.8'	211°53.7'	N 14°24.9'			
5	14°11.1'	253°23.5'	N 20°25.5'	222°28.4'	N 13°17.1'	41°00.1'	S 12°14.4'	60°26.5'	S 18°10.8'	226°54.6'	N 14°24.4'			
6	29°13.6'	268°23.5'	N 20°25.0'	237°28.0'	N 13°16.0'	56°02.8'	S 12°14.5'	75°29.1'	S 18°10.9'	241°55.6'	N 14°23.9'			
7	44°16.1'	283°23.4'	N 20°24.5'	252°27.6'	N 13°14.9'	71°05.5'	S 12°14.6'	90°31.8'	S 18°10.9'	256°56.5'	N 14°23.3'			
8	59°18.5'	298°23.4'	N 20°24.0'	267°27.2'	N 13°13.8'	86°08.2'	S 12°14.6'	105°34.4'	S 18°11.0'	271°57.5'	N 14°22.8'			
9	74°21.0'	313°23.4'	N 20°23.6'	282°26.8'	N 13°12.7'	101°10.9'	S 12°14.7'	120°37.1'	S 18°11.0'	286°58.4'	N 14°22.3'			
10	89°23.4'	328°23.3'	N 20°23.1'	297°26.4'	N 13°11.6'	116°13.5'	S 12°14.8'	135°39.7'	S 18°11.1'	301°59.4'	N 14°21.7'			
11	104°25.9'	343°23.3'	N 20°22.6'	312°26.0'	N 13°10.5'	131°16.2'	S 12°14.9'	150°42.4'	S 18°11.2'	317°00.3'	N 14°21.2'			
12	119°28.4'	358°23.3'	N 20°22.1'	327°25.6'	N 13°09.4'	146°18.9'	S 12°15.0'	165°45.0'	S 18°11.2'	332°01.3'	N 14°20.7'			
13	134°30.8'	13°23.3'	N 20°21.6'	342°25.1'	N 13°08.3'	161°21.6'	S 12°15.1'	180°47.7'	S 18°11.3'	347°02.2'	N 14°20.1'			
14	149°33.3'	28°23.2'	N 20°21.1'	357°24.7'	N 13°07.2'	176°24.3'	S 12°15.2'	195°50.3'	S 18°11.3'	2°03.2'	N 14°19.6'			
15	164°35.8'	43°23.2'	N 20°20.6'	12°24.3'	N 13°06.2'	191°26.9'	S 12°15.3'	210°52.9'	S 18°11.4'	17°04.1'	N 14°19.0'			
16	179°38.2'	58°23.2'	N 20°20.1'	27°23.9'	N 13°05.1'	206°29.6'	S 12°15.4'	225°55.6'	S 18°11.4'	32°05.1'	N 14°18.5'			
17	194°40.7'	73°23.2'	N 20°19.6'	42°23.5'	N 13°04.0'	221°32.3'	S 12°15.5'	240°58.2'	S 18°11.5'	47°06.0'	N 14°18.0'			
18	209°43.2'	88°23.1'	N 20°19.1'	57°23.1'	N 13°02.9'	236°35.0'	S 12°15.6'	256°00.9'	S 18°11.5'	62°07.0'	N 14°17.4'			
19	224°45.6'	103°23.1'	N 20°18.6'	72°22.7'	N 13°01.8'	251°37.7'	S 12°15.6'	271°03.5'	S 18°11.6'	77°07.9'	N 14°16.9'			
20	239°48.1'	118°23.1'	N 20°18.1'	87°22.3'	N 13°00.7'	266°40.4'	S 12°15.7'	286°06.2'	S 18°11.6'	92°08.9'	N 14°16.4'			
21	254°50.6'	133°23.1'	N 20°17.6'	102°21.9'	N 12°59.6'	281°43.0'	S 12°15.8'	301°08.8'	S 18°11.7'	107°09.8'	N 14°15.8'			
22	269°53.0'	148°23.0'	N 20°17.2'	117°21.5'	N 12°58.5'	296°45.7'	S 12°15.9'	316°11.5'	S 18°11.7'	122°10.8'	N 14°15.3'			
23	284°55.5'	163°23.0'	N 20°16.7'	132°21.1'	N 12°57.4'	311°48.4'	S 12°16.0'	331°14.1'	S 18°11.8'	137°11.7'	N 14°14.8'			
		SD 15.7' d -0.5'		v -0.4' d -1.1'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 0.9' d -0.5'				
Mer. pass.		12 h 6 m 28 s		14 h 10 m		2 h 17 m		0 h 59 m		13 h 52 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Saturn	-Altair	+Antares	+Rigel Kent	+Hadar	+Spica
0	43°58.5'	S 23°18.3'	4.3'	-6.9'	60.1'	78°31.4'	74°29.3'	54°49.6'	52°56.4'				52°07.2'
1	58°21.8'	S 23°25.2'	4.3'	-6.7'	60.1'	77°56.3'	73°52.6'	54°13.0'	52°29.9'				52°43.5'
2	72°45.1'	S 23°31.9'	4.2'	-6.6'	60.1'	77°21.2'	73°15.8'	53°36.3'	52°03.6'	8°21.3'			53°19.8'
3	87°08.2'	S 23°38.5'	4.1'	-6.4'	60.1'	76°46.1'	72°39.1'	52°59.7'	51°37.4'	8°52.3'			53°56.1'
4	101°31.4'	S 23°44.9'	4.0'	-6.3'	60.1'	76°11.0'	72°02.4'	52°23.0'	51°11.4'	9°24.1'			54°32.5'
5	115°54.4'	S 23°51.2'	4.0'	-6.1'	60.1'	75°35.9'	71°25.7'	51°46.4'	50°45.5'	9°56.4'			55°08.8'
6	130°17.4'	S 23°57.3'	3.9'	-5.9'	60.1'	75°00.8'	70°48.9'	51°09.7'	50°19.8'	10°29.2'			55°45.1'
7	144°40.3'	S 24°03.2'	3.8'	-5.8'	60.1'	74°25.7'	70°12.2'	50°33.1'	49°54.2'	11°02.3'			56°21.5'
8	159°03.1'	S 24°08.9'	3.8'	-5.6'	60.1'	73°50.7'	69°35.4'	49°56.4'	49°28.8'	11°35.8'			56°57.8'
9	173°25.9'	S 24°14.5'	3.7'	-5.4'	60.1'	73°15.6'	68°58.7'	49°19.7'	49°03.6'	12°09.7'			57°34.2'
10	187°48.7'	S 24°19.9'	3.7'	-5.2'	60.1'	72°40.5'	68°21.9'	48°43.1'	48°38.5'	12°43.7'			58°10.6'
11	202°11.3'	S 24°25.2'	3.6'	-5.1'	60.1'	72°05.5'	67°45.2'	48°06.4'	48°13.6'	13°18.0'			58°46.9'
12	216°33.9'	S 24°30.2'	3.6'	-4.9'	60.1'	71°30.4'	67°08.4'	47°29.7'	47°49.0'	13°52.5'			59°23.3'
13	230°56.5'	S 24°35.1'	3.5'	-4.7'	60.1'	70°55.4'	66°31.7'	46°53.1'	47°24.5'	14°27.2'			59°59.7'
14	245°19.0'	S 24°39.8'	3.5'	-4.5'	60.1'	70°20.4'	65°54.9'	46°16.4'	47°00.2'	15°02.0'			60°36.1'
15	259°41.5'	S 24°44.4'	3.4'	-4.4'	60.1'	69°45.3'	65°18.2'	45°39.8'	46°36.1'	15°37.0'			61°12.5'
16	274°03.9'	S 24°48.7'	3.4'	-4.2'	60.1'	69°10.3'	64°41.4'	45°03.1'	46°12.2'	16°12.0'		51°12.2'	61°48.9'
17	288°26.2'	S 24°52.9'	3.3'	-4.0'	60.1'	68°35.3'	64°04.6'	44°26.4'	45°48.6'	16°47.2'		51°27.4'	62°25.3'
18	302°48.5'	S 24°56.9'	3.3'	-3.8'	60.1'	68°00.4'	63°27.9'	43°49.8'	45°25.1'	17°22.5'		51°42.8'	63°01.7'
19	317°10.8'	S 25°00.7'	3.2'	-3.6'	60.1'	67°25.4'	62°51.1'	43°13.2'	45°01.9'	17°57.9'		51°58.4'	63°38.1'
20	331°33.0'	S 25°04.4'	3.2'	-3.5'	60.1'	66°50.5'	62°14.4'	42°36.5'	44°38.9'	18°33.3'		52°14.3'	64°14.5'
21	345°55.2'	S 25°07.8'	3.2'	-3.3'	60.1'	66°15.5'	61°37.6'	41°59.9'	44°16.2'	19°08.8'		52°30.4'	64°50.9'
22	0°17.4'	S 25°11.1'	3.1'	-3.1'	60.1'	65°40.6'	61°00.9'	41°23.3'	43°53.7'	19°44.4'	48°48.8'	52°46.8'	65°27.3'
23	14°39.5'	S 25°14.2'	3.1'	-2.9'	60.1'	65°05.7'	60°24.2'	40°46.6'	43°31.5'	20°20.0'	49°04.0'	53°03.4'	66°03.7'
Mer. pass.		21 h 59 m SD 16.4'		phase 87%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.9'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°28.5'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.5'	S 28°60.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.7'	Canopus	-0.6	263°54.2'	S 52°42.3'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	299°57.9'	178°23.0' N 20°16.2'	147°20.7' N 12°56.3'	326°51.1' S 12°16.1'	346°16.7' S 18°11.8'	152°12.7' N 14°14.2'						
1	315°00.4'	193°23.0' N 20°15.7'	162°20.3' N 12°55.2'	341°53.8' S 12°16.2'	1°19.4' S 18°11.9'	167°13.6' N 14°13.7'						
2	330°02.9'	208°22.9' N 20°15.2'	177°19.9' N 12°54.1'	356°56.5' S 12°16.3'	16°22.0' S 18°12.0'	182°14.6' N 14°13.1'						
3	345°05.3'	223°22.9' N 20°14.7'	192°19.5' N 12°53.0'	11°59.1' S 12°16.4'	31°24.7' S 18°12.0'	197°15.5' N 14°12.6'						
4	0°07.8'	238°22.9' N 20°14.2'	207°19.1' N 12°51.9'	27°01.8' S 12°16.5'	46°27.3' S 18°12.1'	212°16.5' N 14°12.1'						
5	15°10.3'	253°22.9' N 20°13.7'	222°18.7' N 12°50.8'	42°04.5' S 12°16.6'	61°30.0' S 18°12.1'	227°17.4' N 14°11.5'						
6	30°12.7'	268°22.9' N 20°13.2'	237°18.3' N 12°49.7'	57°07.2' S 12°16.7'	76°32.6' S 18°12.2'	242°18.4' N 14°11.0'						
7	45°15.2'	283°22.8' N 20°12.7'	252°17.9' N 12°48.5'	72°09.9' S 12°16.7'	91°35.3' S 18°12.2'	257°19.3' N 14°10.4'						
8	60°17.7'	298°22.8' N 20°12.2'	267°17.5' N 12°47.4'	87°12.6' S 12°16.8'	106°37.9' S 18°12.3'	272°20.3' N 14°09.9'						
9	75°20.1'	313°22.8' N 20°11.7'	282°17.1' N 12°46.3'	102°15.3' S 12°16.9'	121°40.6' S 18°12.3'	287°21.2' N 14°09.4'						
10	90°22.6'	328°22.8' N 20°11.2'	297°16.7' N 12°45.2'	117°17.9' S 12°17.0'	136°43.2' S 18°12.4'	302°22.2' N 14°08.8'						
11	105°25.1'	343°22.7' N 20°10.7'	312°16.3' N 12°44.1'	132°20.6' S 12°17.1'	151°45.8' S 18°12.4'	317°23.1' N 14°08.3'						
12	120°27.5'	358°22.7' N 20°10.2'	327°15.9' N 12°43.0'	147°23.3' S 12°17.2'	166°48.5' S 18°12.5'	332°24.1' N 14°07.8'						
13	135°30.0'	13°22.7' N 20°09.6'	342°15.5' N 12°41.9'	162°26.0' S 12°17.3'	181°51.1' S 18°12.5'	347°25.0' N 14°07.2'						
14	150°32.4'	28°22.7' N 20°09.1'	357°15.1' N 12°40.8'	177°28.7' S 12°17.4'	196°53.8' S 18°12.6'	2°26.0' N 14°06.7'						
15	165°34.9'	43°22.7' N 20°08.6'	12°14.7' N 12°39.7'	192°31.4' S 12°17.5'	211°56.4' S 18°12.7'	17°26.9' N 14°06.1'						
16	180°37.4'	58°22.6' N 20°08.1'	27°14.3' N 12°38.6'	207°34.1' S 12°17.6'	226°59.1' S 18°12.7'	32°27.9' N 14°05.6'						
17	195°39.8'	73°22.6' N 20°07.6'	42°14.0' N 12°37.5'	222°36.7' S 12°17.7'	242°01.7' S 18°12.8'	47°28.9' N 14°05.1'						
18	210°42.3'	88°22.6' N 20°07.1'	57°13.6' N 12°36.4'	237°39.4' S 12°17.8'	257°04.4' S 18°12.8'	62°29.8' N 14°04.5'						
19	225°44.8'	103°22.6' N 20°06.6'	72°13.2' N 12°35.3'	252°42.1' S 12°17.9'	272°07.0' S 18°12.9'	77°30.8' N 14°04.0'						
20	240°47.2'	118°22.6' N 20°06.1'	87°12.8' N 12°34.1'	267°44.8' S 12°18.0'	287°09.7' S 18°12.9'	92°31.7' N 14°03.4'						
21	255°49.7'	133°22.6' N 20°05.6'	102°12.4' N 12°33.0'	282°47.5' S 12°18.0'	302°12.3' S 18°13.0'	107°32.7' N 14°02.9'						
22	270°52.2'	148°22.5' N 20°05.1'	117°12.0' N 12°31.9'	297°50.2' S 12°18.1'	317°14.9' S 18°13.0'	122°33.6' N 14°02.3'						
23	285°54.6'	163°22.5' N 20°04.6'	132°11.6' N 12°30.8'	312°52.9' S 12°18.2'	332°17.6' S 18°13.1'	137°34.6' N 14°01.8'						
		SD 15.7' d -0.5'	v -0.4' d -1.1'	v 2.7' d -0.1'	v 2.6' d -0.1'	v 1.0' d -0.5'						
Mer. pass.		12 h 6 m 30 s	14 h 11 m	2 h 12 m	0 h 55 m	13 h 50 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Altair	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	29°01.6'	S 25°17.1'	3.1'	-2.7'	60.0'	64°30.9'	59°47.4'	43°09.6'	40°10.0'	20°55.7'	49°19.5'	53°20.2'	64°55.0'
1	43°23.7'	S 25°19.8'	3.1'	-2.5'	60.0'	63°56.0'	59°10.7'	42°47.9'	39°33.4'	21°31.5'	49°35.3'	53°37.3'	65°10.7'
2	57°45.8'	S 25°22.4'	3.0'	-2.4'	60.0'	63°21.2'	58°34.0'	42°26.5'	38°56.8'	22°07.2'	49°51.3'	53°54.6'	65°26.5'
3	72°07.8'	S 25°24.7'	3.0'	-2.2'	60.0'	62°46.4'	57°57.3'	42°05.3'	38°20.2'	22°43.0'	50°07.6'	54°12.1'	65°42.5'
4	86°29.8'	S 25°26.9'	3.0'	-2.0'	60.0'	62°11.6'	57°20.6'	41°44.5'	37°43.7'	23°18.9'	50°24.2'	54°29.8'	65°58.6'
5	100°51.8'	S 25°28.9'	3.0'	-1.8'	60.0'	61°36.9'	56°43.9'	41°24.0'	37°07.1'	23°54.8'	50°41.0'	54°47.7'	66°14.9'
6	115°13.8'	S 25°30.7'	3.0'	-1.6'	60.0'	61°02.1'	56°07.2'	41°03.7'	36°30.6'	24°30.7'	50°58.1'	55°05.9'	66°31.3'
7	129°35.8'	S 25°32.3'	3.0'	-1.4'	60.0'	60°27.4'	55°30.5'	40°43.8'	35°54.0'	25°06.6'	51°15.4'	55°24.2'	66°47.8'
8	143°57.7'	S 25°33.7'	3.0'	-1.2'	60.0'	59°52.8'	54°53.8'	40°24.2'	35°17.5'	25°42.5'	51°33.0'	55°42.7'	67°04.4'
9	158°19.7'	S 25°35.0'	3.0'	-1.1'	60.0'	59°18.1'	54°17.1'	40°05.0'	34°41.0'	26°18.5'	51°50.7'	56°01.4'	67°21.2'
10	172°41.6'	S 25°36.0'	2.9'	-0.9'	60.0'	58°43.5'	53°40.5'	39°46.1'	34°04.5'	26°54.5'	52°08.8'	56°20.4'	67°38.1'
11	187°03.6'	S 25°36.9'	3.0'	-0.7'	60.0'	58°09.0'	53°03.8'	39°27.5'	33°28.0'	27°30.5'	52°27.0'	56°39.4'	67°55.1'
12	201°25.5'	S 25°37.6'	3.0'	-0.5'	60.0'	57°34.4'	52°27.2'	39°09.3'	32°51.6'	28°06.5'	52°45.4'	56°58.7'	68°12.2'
13	215°47.5'	S 25°38.1'	3.0'	-0.3'	60.0'	56°59.9'	51°50.6'	38°51.4'	32°15.2'	28°42.5'	53°04.1'	57°18.2'	68°29.5'
14	230°09.5'	S 25°38.4'	3.0'	-0.1'	59.9'	56°25.5'	51°14.0'	38°34.0'	31°38.7'	29°18.5'	53°23.0'	57°37.8'	68°46.9'
15	244°31.4'	S 25°38.5'	3.0'	0.1'	59.9'	55°51.0'	50°37.4'	38°16.9'	31°02.3'	29°54.6'	53°42.1'	57°57.6'	69°04.3'
16	258°53.4'	S 25°38.5'	3.0'	0.2'	59.9'	55°16.6'	50°00.8'	38°00.2'	30°26.0'	30°30.6'	54°01.3'	58°17.5'	69°21.9'
17	273°15.4'	S 25°38.2'	3.0'	0.4'	59.9'	54°42.3'	49°24.2'	37°43.9'	29°49.6'	31°06.7'	54°20.8'	58°37.7'	69°39.6'
18	287°37.4'	S 25°37.8'	3.0'	0.6'	59.9'	54°08.0'	48°47.7'	37°28.0'	29°13.3'	31°42.7'	54°40.5'	58°57.9'	69°57.4'
19	301°59.5'	S 25°37.2'	3.1'	0.8'	59.9'	53°33.7'	48°11.1'	37°12.5'	28°37.0'	32°18.8'	55°00.3'	59°18.4'	70°15.3'
20	316°21.5'	S 25°36.4'	3.1'	1.0'	59.9'	52°59.5'	47°34.6'		28°00.7'	32°54.8'	55°20.4'	59°38.9'	70°33.3'
21	330°43.6'	S 25°35.4'	3.1'	1.2'	59.9'	52°25.4'	46°58.1'		27°24.4'	33°30.9'	55°40.6'	59°59.7'	70°51.4'
22	345°05.7'	S 25°34.2'	3.1'	1.4'	59.8'	51°51.3'	46°21.6'		26°48.2'	34°06.9'	56°01.0'	60°20.5'	71°09.6'
23	359°27.9'	S 25°32.8'	3.2'	1.5'	59.8'	51°17.2'	45°45.2'		26°12.0'	34°42.9'	56°21.5'	60°41.5'	71°27.9'
Mer. pass.					23 h 2 m SD 16.4' phase 94%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°27.9'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.4'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.7'	Canopus	-0.6	263°54.1'	S 52°42.3'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	300°57.1'	178°22.5' N 20°04.1'	147°11.2' N 12°29.7'	327°55.6' S 12°18.3'	347°20.2' S 18°13.1'	152°35.5' N 14°01.3'						
1	315°59.6'	193°22.5' N 20°03.6'	162°10.8' N 12°28.6'	342°58.3' S 12°18.4'	2°22.9' S 18°13.2'	167°36.5' N 14°00.7'						
2	331°02.0'	208°22.5' N 20°03.0'	177°10.4' N 12°27.5'	358°00.9' S 12°18.5'	17°25.5' S 18°13.2'	182°37.4' N 14°00.2'						
3	346°04.5'	223°22.4' N 20°02.5'	192°10.1' N 12°26.3'	13°03.6' S 12°18.6'	32°28.2' S 18°13.3'	197°38.4' N 13°59.6'						
4	1°06.9'	238°22.4' N 20°02.0'	207°09.7' N 12°25.2'	28°06.3' S 12°18.7'	47°30.8' S 18°13.3'	212°39.3' N 13°59.1'						
5	16°09.4'	253°22.4' N 20°01.5'	222°09.3' N 12°24.1'	43°09.0' S 12°18.8'	62°33.5' S 18°13.4'	227°40.3' N 13°58.6'						
6	31°11.9'	268°22.4' N 20°01.0'	237°08.9' N 12°23.0'	58°11.7' S 12°18.9'	77°36.1' S 18°13.5'	242°41.2' N 13°58.0'						
7	46°14.3'	283°22.4' N 20°00.5'	252°08.5' N 12°21.9'	73°14.4' S 12°19.0'	92°38.8' S 18°13.5'	257°42.2' N 13°57.5'						
8	61°16.8'	298°22.4' N 19°60.0'	267°08.1' N 12°20.8'	88°17.1' S 12°19.1'	107°41.4' S 18°13.6'	272°43.1' N 13°56.9'						
9	76°19.3'	313°22.4' N 19°59.4'	282°07.7' N 12°19.6'	103°19.8' S 12°19.2'	122°44.1' S 18°13.6'	287°44.1' N 13°56.4'						
10	91°21.7'	328°22.3' N 19°58.9'	297°07.4' N 12°18.5'	118°22.5' S 12°19.3'	137°46.7' S 18°13.7'	302°45.0' N 13°55.8'						
11	106°24.2'	343°22.3' N 19°58.4'	312°07.0' N 12°17.4'	133°25.2' S 12°19.4'	152°49.3' S 18°13.7'	317°46.0' N 13°55.3'						
12	121°26.7'	358°22.3' N 19°57.9'	327°06.6' N 12°16.3'	148°27.9' S 12°19.5'	167°52.0' S 18°13.8'	332°47.0' N 13°54.8'						
13	136°29.1'	13°22.3' N 19°57.4'	342°06.2' N 12°15.2'	163°30.5' S 12°19.6'	182°54.6' S 18°13.8'	347°47.9' N 13°54.2'						
14	151°31.6'	28°22.3' N 19°56.9'	357°05.8' N 12°14.0'	178°33.2' S 12°19.6'	197°57.3' S 18°13.9'	2°48.9' N 13°53.7'						
15	166°34.0'	43°22.3' N 19°56.3'	12°05.4' N 12°12.9'	193°35.9' S 12°19.7'	212°59.9' S 18°13.9'	17°49.8' N 13°53.1'						
16	181°36.5'	58°22.3' N 19°55.8'	27°05.1' N 12°11.8'	208°38.6' S 12°19.8'	228°02.6' S 18°14.0'	32°50.8' N 13°52.6'						
17	196°39.0'	73°22.2' N 19°55.3'	42°04.7' N 12°10.7'	223°41.3' S 12°19.9'	243°05.2' S 18°14.0'	47°51.7' N 13°52.0'						
18	211°41.4'	88°22.2' N 19°54.8'	57°04.3' N 12°09.6'	238°44.0' S 12°20.0'	258°07.9' S 18°14.1'	62°52.7' N 13°51.5'						
19	226°43.9'	103°22.2' N 19°54.2'	72°03.9' N 12°08.4'	253°46.7' S 12°20.1'	273°10.5' S 18°14.2'	77°53.6' N 13°50.9'						
20	241°46.4'	118°22.2' N 19°53.7'	87°03.5' N 12°07.3'	268°49.4' S 12°20.2'	288°13.2' S 18°14.2'	92°54.6' N 13°50.4'						
21	256°48.8'	133°22.2' N 19°53.2'	102°03.2' N 12°06.2'	283°52.1' S 12°20.3'	303°15.8' S 18°14.3'	107°55.5' N 13°49.9'						
22	271°51.3'	148°22.2' N 19°52.7'	117°02.8' N 12°05.1'	298°54.8' S 12°20.4'	318°18.5' S 18°14.3'	122°56.5' N 13°49.3'						
23	286°53.8'	163°22.2' N 19°52.2'	132°02.4' N 12°03.9'	313°57.5' S 12°20.5'	333°21.1' S 18°14.4'	137°57.5' N 13°48.8'						
		SD 15.7' d -0.5'	v -0.4' d -1.1'	v 2.7' d -0.1'	v 2.6' d -0.1'	v 1.0' d -0.5'						
Mer. pass.		12 h 6 m 32 s	14 h 12 m	2 h 8 m	0 h 51 m	13 h 49 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	13°50.1' S	25°31.3'	3.2'	1.7'	59.8'	72°40.4'	50°43.2'	45°08.7'	25°35.9'	35°19.0'	56°42.3'	61°02.7'	71°46.2'
1	28°12.3' S	25°29.6'	3.3'	1.9'	59.8'	72°21.3'	50°09.2'	44°32.3'	24°59.7'	35°55.0'	57°03.2'	61°23.9'	72°04.7'
2	42°34.5' S	25°27.7'	3.3'	2.1'	59.8'	72°02.3'	49°35.3'	43°55.9'	24°23.7'	36°31.0'	57°24.2'	61°45.3'	72°23.2'
3	56°56.8' S	25°25.6'	3.3'	2.3'	59.8'	71°43.4'	49°01.5'	43°19.5'	23°47.6'	37°07.1'	57°45.4'	62°06.9'	72°41.9'
4	71°19.2' S	25°23.3'	3.4'	2.5'	59.8'	71°24.6'	48°27.7'	42°43.1'	23°11.6'	37°43.1'	58°06.7'	62°28.5'	73°00.6'
5	85°41.5' S	25°20.8'	3.4'	2.6'	59.7'	71°06.0'	47°54.0'	42°06.7'	22°35.6'	38°19.1'	58°28.2'	62°50.3'	73°19.3'
6	100°04.0' S	25°18.2'	3.5'	2.8'	59.7'	70°47.4'	47°20.4'	41°30.4'	21°59.7'	38°55.1'	58°49.9'	63°12.2'	73°38.2'
7	114°26.5' S	25°15.4'	3.5'	3.0'	59.7'	70°28.9'	46°46.8'	40°54.1'	21°23.8'	39°31.0'	59°11.6'	63°34.1'	73°57.1'
8	128°49.0' S	25°12.4'	3.6'	3.2'	59.7'	70°10.6'	46°13.3'	40°17.8'	20°48.0'	40°07.0'	59°33.5'	63°56.2'	74°16.1'
9	143°11.6' S	25°09.3'	3.6'	3.3'	59.7'	69°52.3'	45°39.9'	39°41.6'	20°12.2'	40°43.0'	59°55.6'	64°18.4'	74°35.2'
10	157°34.2' S	25°05.9'	3.7'	3.5'	59.7'	69°34.2'	45°06.5'	39°05.4'	19°36.5'	41°18.9'	60°17.7'	64°40.8'	74°54.3'
11	171°56.9' S	25°02.4'	3.8'	3.7'	59.6'	69°16.2'	44°33.2'	38°29.1'	19°00.8'	41°54.8'	60°40.0'	65°03.2'	75°13.5'
12	186°19.7' S	24°58.7'	3.8'	3.9'	59.6'	68°58.3'	43°60.0'	37°53.0'	18°25.3'	42°30.7'	61°02.4'	65°25.7'	75°32.7'
13	200°42.5' S	24°54.8'	3.9'	4.0'	59.6'	68°40.5'	43°26.9'	37°16.8'	17°49.7'	43°06.6'	61°24.9'	65°48.3'	75°52.0'
14	215°05.4' S	24°50.8'	4.0'	4.2'	59.6'	68°22.8'	42°53.8'	36°40.7'	17°14.3'	43°42.5'	61°47.6'	66°10.9'	76°11.4'
15	229°28.4' S	24°46.6'	4.0'	4.4'	59.6'	68°05.3'	42°20.9'	36°04.6'	16°38.9'	44°18.4'	62°10.3'	66°33.7'	76°30.8'
16	243°51.5' S	24°42.2'	4.1'	4.5'	59.5'	67°47.9'	41°48.0'	35°28.5'	16°03.6'	44°54.2'	62°33.2'	66°56.6'	76°50.3'
17	258°14.6' S	24°37.7'	4.2'	4.7'	59.5'	67°30.7'	41°15.3'	34°52.5'	15°28.5'	45°30.0'	62°56.1'	67°19.5'	77°09.8'
18	272°37.8' S	24°33.0'	4.3'	4.9'	59.5'	67°13.5'	40°42.6'	34°16.5'	14°53.4'	46°05.8'	63°19.2'	67°42.5'	77°29.4'
19	287°01.0' S	24°28.1'	4.3'	5.0'	59.5'	66°56.5'	40°10.0'	33°40.5'	14°18.4'	46°41.6'	63°42.3'	68°05.6'	77°49.0'
20	301°24.4' S	24°23.0'	4.4'	5.2'	59.5'	66°39.7'	39°37.6'	33°04.6'	13°43.6'	47°17.4'	64°05.5'	68°28.8'	78°08.7'
21	315°47.8' S	24°17.8'	4.5'	5.4'	59.4'	66°22.9'	39°05.2'	32°28.7'	13°08.9'	47°53.1'	64°28.9'	68°52.0'	78°28.4'
22	330°11.3' S	24°12.5'	4.6'	5.5'	59.4'	66°06.4'	38°33.0'	31°52.8'	12°34.3'	48°28.9'	64°52.3'	69°15.3'	78°48.1'
23	344°34.9' S	24°06.9'	4.7'	5.7'	59.4'	65°49.9'	38°00.8'	31°17.0'	11°60.0'	49°04.6'	65°15.8'	69°38.7'	79°07.9'
Mer. pass.		0 h 4 m SD 16.3'	phase 98%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.3'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°27.4'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.1'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.7'	Canopus	-0.6	263°54.1'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	301°56.2'	178°22.2'	N 19°51.6'	147°02.0'	N 12°02.8'		329°00.2'	S 12°20.6'	348°23.8'	S 18°14.4'	152°58.4'	N 13°48.2'		
1	316°58.7'	193°22.1'	N 19°51.1'	162°01.6'	N 12°01.7'		344°02.9'	S 12°20.7'	3°26.4'	S 18°14.5'	167°59.4'	N 13°47.7'		
2	332°01.2'	208°22.1'	N 19°50.6'	177°01.3'	N 12°00.5'		359°05.6'	S 12°20.8'	18°29.0'	S 18°14.5'	183°00.3'	N 13°47.1'		
3	347°03.6'	223°22.1'	N 19°50.1'	192°00.9'	N 11°59.4'		14°08.3'	S 12°20.9'	33°31.7'	S 18°14.6'	198°01.3'	N 13°46.6'		
4	2°06.1'	238°22.1'	N 19°49.5'	207°00.5'	N 11°58.3'		29°11.0'	S 12°21.0'	48°34.3'	S 18°14.6'	213°02.2'	N 13°46.0'		
5	17°08.5'	253°22.1'	N 19°49.0'	222°00.1'	N 11°57.2'		44°13.7'	S 12°21.1'	63°37.0'	S 18°14.7'	228°03.2'	N 13°45.5'		
6	32°11.0'	268°22.1'	N 19°48.5'	236°59.8'	N 11°56.0'		59°16.4'	S 12°21.2'	78°39.6'	S 18°14.7'	243°04.1'	N 13°45.0'		
7	47°13.5'	283°22.1'	N 19°47.9'	251°59.4'	N 11°54.9'		74°19.0'	S 12°21.3'	93°42.3'	S 18°14.8'	258°05.1'	N 13°44.4'		
8	62°15.9'	298°22.1'	N 19°47.4'	266°59.0'	N 11°53.8'		89°21.7'	S 12°21.4'	108°44.9'	S 18°14.9'	273°06.0'	N 13°43.9'		
9	77°18.4'	313°22.1'	N 19°46.9'	281°58.6'	N 11°52.6'		104°24.4'	S 12°21.5'	123°47.6'	S 18°14.9'	288°07.0'	N 13°43.3'		
10	92°20.9'	328°22.1'	N 19°46.4'	296°58.3'	N 11°51.5'		119°27.1'	S 12°21.6'	138°50.2'	S 18°15.0'	303°08.0'	N 13°42.8'		
11	107°23.3'	343°22.0'	N 19°45.8'	311°57.9'	N 11°50.4'		134°29.8'	S 12°21.7'	153°52.9'	S 18°15.0'	318°08.9'	N 13°42.2'		
12	122°25.8'	358°22.0'	N 19°45.3'	326°57.5'	N 11°49.2'		149°32.5'	S 12°21.7'	168°55.5'	S 18°15.1'	333°09.9'	N 13°41.7'		
13	137°28.3'	13°22.0'	N 19°44.8'	341°57.2'	N 11°48.1'		164°35.2'	S 12°21.8'	183°58.2'	S 18°15.1'	348°10.8'	N 13°41.1'		
14	152°30.7'	28°22.0'	N 19°44.2'	356°56.8'	N 11°47.0'		179°37.9'	S 12°21.9'	199°00.8'	S 18°15.2'	3°11.8'	N 13°40.6'		
15	167°33.2'	43°22.0'	N 19°43.7'	11°56.4'	N 11°45.8'		194°40.6'	S 12°22.0'	214°03.5'	S 18°15.2'	18°12.7'	N 13°40.0'		
16	182°35.7'	58°22.0'	N 19°43.2'	26°56.0'	N 11°44.7'		209°43.3'	S 12°22.1'	229°06.1'	S 18°15.3'	33°13.7'	N 13°39.5'		
17	197°38.1'	73°22.0'	N 19°42.6'	41°55.7'	N 11°43.6'		224°46.0'	S 12°22.2'	244°08.8'	S 18°15.3'	48°14.6'	N 13°38.9'		
18	212°40.6'	88°22.0'	N 19°42.1'	56°55.3'	N 11°42.4'		239°48.7'	S 12°22.3'	259°11.4'	S 18°15.4'	63°15.6'	N 13°38.4'		
19	227°43.0'	103°22.0'	N 19°41.6'	71°54.9'	N 11°41.3'		254°51.4'	S 12°22.4'	274°14.1'	S 18°15.4'	78°16.6'	N 13°37.8'		
20	242°45.5'	118°22.0'	N 19°41.0'	86°54.6'	N 11°40.2'		269°54.1'	S 12°22.5'	289°16.7'	S 18°15.5'	93°17.5'	N 13°37.3'		
21	257°48.0'	133°22.0'	N 19°40.5'	101°54.2'	N 11°39.0'		284°56.8'	S 12°22.6'	304°19.3'	S 18°15.6'	108°18.5'	N 13°36.7'		
22	272°50.4'	148°22.0'	N 19°39.9'	116°53.8'	N 11°37.9'		299°59.5'	S 12°22.7'	319°22.0'	S 18°15.6'	123°19.4'	N 13°36.2'		
23	287°52.9'	163°22.0'	N 19°39.4'	131°53.5'	N 11°36.8'		315°02.2'	S 12°22.8'	334°24.6'	S 18°15.7'	138°20.4'	N 13°35.6'		
		SD 15.7' d -0.5'		v -0.4' d -1.1'			v 2.7' d -0.1'		v 2.6' d -0.1'		v 1.0' d -0.5'			
Mer. pass.		12 h 6 m 33 s		14 h 12 m			2 h 4 m		0 h 46 m		13 h 47 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	358°58.6'	S 24°01.2'	4.8'	5.9'	59.4'	65°33.6'	37°28.8'	30°41.2'	11°25.8'	49°40.2'	65°39.4'	70°02.1'	79°27.7'
1	13°22.3'	S 23°55.4'	4.9'	6.0'	59.4'	65°17.5'	36°56.9'	30°05.5'	10°51.9'	50°15.9'	66°03.0'	70°25.6'	79°47.6'
2	27°46.2'	S 23°49.4'	4.9'	6.2'	59.3'	65°01.5'	36°25.2'	29°29.7'	10°18.2'	50°51.5'	66°26.8'	70°49.1'	80°07.5'
3	42°10.1'	S 23°43.2'	5.0'	6.3'	59.3'	64°45.6'	35°53.6'	28°54.1'	9°44.8'	51°27.1'	66°50.6'	71°12.7'	80°27.4'
4	56°34.1'	S 23°36.9'	5.1'	6.5'	59.3'	64°30.0'	35°22.1'	28°18.4'	9°11.8'	52°02.7'	67°14.4'	71°36.4'	80°47.3'
5	70°58.3'	S 23°30.4'	5.2'	6.6'	59.3'	64°14.4'	34°50.8'	27°42.8'	8°39.1'	52°38.3'	67°38.4'	72°00.1'	81°07.3'
6	85°22.5'	S 23°23.8'	5.3'	6.8'	59.2'	63°59.1'	34°19.6'	27°07.3'	8°07.0'	53°13.8'	68°02.4'	72°23.9'	81°27.3'
7	99°46.8'	S 23°17.0'	5.4'	6.9'	59.2'	63°43.8'	33°48.5'	26°31.8'	7°35.4'	53°49.3'	68°26.5'	72°47.7'	81°47.3'
8	114°11.2'	S 23°10.1'	5.5'	7.1'	59.2'		33°17.7'	25°56.3'		54°24.8'	68°50.6'	73°11.5'	82°07.3'
9	128°35.7'	S 23°03.1'	5.6'	7.2'	59.2'		32°47.0'	25°20.9'		55°00.2'	69°14.8'	73°35.4'	82°27.4'
10	143°00.3'	S 22°55.9'	5.7'	7.4'	59.1'		32°16.5'	24°45.5'		55°35.7'	69°39.0'	73°59.3'	82°47.4'
11	157°25.0'	S 22°48.5'	5.8'	7.5'	59.1'		31°46.1'	24°10.2'		56°11.0'	70°03.3'	74°23.3'	83°07.5'
12	171°49.9'	S 22°41.0'	5.9'	7.6'	59.1'		31°16.0'	23°35.0'		56°46.4'	70°27.7'	74°47.3'	83°27.6'
13	186°14.8'	S 22°33.4'	6.0'	7.8'	59.1'		30°46.0'	22°59.8'		57°21.7'	70°52.1'	75°11.3'	83°47.7'
14	200°39.8'	S 22°25.6'	6.1'	7.9'	59.0'		30°16.3'	22°24.6'		57°57.0'	71°16.5'	75°35.4'	84°07.8'
15	215°04.9'	S 22°17.7'	6.2'	8.0'	59.0'		29°46.8'	21°49.6'		58°32.3'	71°41.0'	75°59.5'	84°28.0'
16	229°30.1'	S 22°09.6'	6.3'	8.2'	59.0'		29°17.5'	21°14.5'		59°07.6'	72°05.5'	76°23.6'	84°48.1'
17	243°55.5'	S 22°01.5'	6.4'	8.3'	59.0'		28°48.4'	20°39.6'		59°42.8'	72°30.1'	76°47.8'	85°08.2'
18	258°20.9'	S 21°53.2'	6.5'	8.4'	58.9'		28°19.6'	20°04.7'		60°18.0'	72°54.7'	77°11.9'	85°28.3'
19	272°46.5'	S 21°44.7'	6.7'	8.6'	58.9'		27°51.0'	19°29.9'		60°53.1'	73°19.3'	77°36.1'	85°48.5'
20	287°12.1'	S 21°36.2'	6.8'	8.7'	58.9'		27°22.7'	18°55.2'		61°28.2'	73°43.9'	78°00.3'	86°08.6'
21	301°37.9'	S 21°27.5'	6.9'	8.8'	58.8'		26°54.7'	18°20.5'		62°03.3'	74°08.6'	78°24.5'	86°28.7'
22	316°03.8'	S 21°18.6'	7.0'	8.9'	58.8'		26°27.0'	17°46.0'		62°38.4'	74°33.4'	78°48.8'	86°48.9'
23	330°29.8'	S 21°09.7'	7.1'	9.1'	58.8'		25°59.5'	17°11.5'		63°13.4'	74°58.1'	79°13.0'	87°09.0'
Mer. pass.		0 h 4 m SD 16.2'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	82°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°26.9'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.8'	Canopus	-0.6	263°54.1'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	302°55.4'	178°22.0'	N 19°38.9'	146°53.1'	N 11°35.6'	330°04.9'	S 12°22.9'	349°27.3'	S 18°15.7'	153°21.3'	N 13°35.1'			
1	317°57.8'	193°22.0'	N 19°38.3'	161°52.7'	N 11°34.5'	345°07.6'	S 12°23.0'	4°29.9'	S 18°15.8'	168°22.3'	N 13°34.5'			
2	333°00.3'	208°22.0'	N 19°37.8'	176°52.4'	N 11°33.3'	0°10.3'	S 12°23.1'	19°32.6'	S 18°15.8'	183°23.3'	N 13°34.0'			
3	348°02.8'	223°21.9'	N 19°37.3'	191°52.0'	N 11°32.2'	15°13.0'	S 12°23.2'	34°35.2'	S 18°15.9'	198°24.2'	N 13°33.5'			
4	3°05.2'	238°21.9'	N 19°36.7'	206°51.6'	N 11°31.1'	30°15.7'	S 12°23.3'	49°37.9'	S 18°15.9'	213°25.2'	N 13°32.9'			
5	18°07.7'	253°21.9'	N 19°36.2'	221°51.3'	N 11°29.9'	45°18.4'	S 12°23.4'	64°40.5'	S 18°16.0'	228°26.1'	N 13°32.4'			
6	33°10.2'	268°21.9'	N 19°35.6'	236°50.9'	N 11°28.8'	60°21.1'	S 12°23.5'	79°43.2'	S 18°16.0'	243°27.1'	N 13°31.8'			
7	48°12.6'	283°21.9'	N 19°35.1'	251°50.6'	N 11°27.6'	75°23.8'	S 12°23.6'	94°45.8'	S 18°16.1'	258°28.0'	N 13°31.3'			
8	63°15.1'	298°21.9'	N 19°34.5'	266°50.2'	N 11°26.5'	90°26.5'	S 12°23.7'	109°48.5'	S 18°16.1'	273°29.0'	N 13°30.7'			
9	78°17.5'	313°21.9'	N 19°34.0'	281°49.8'	N 11°25.3'	105°29.2'	S 12°23.8'	124°51.1'	S 18°16.2'	288°30.0'	N 13°30.2'			
10	93°20.0'	328°21.9'	N 19°33.5'	296°49.5'	N 11°24.2'	120°31.9'	S 12°23.9'	139°53.8'	S 18°16.3'	303°30.9'	N 13°29.6'			
11	108°22.5'	343°21.9'	N 19°32.9'	311°49.1'	N 11°23.1'	135°34.6'	S 12°24.0'	154°56.4'	S 18°16.3'	318°31.9'	N 13°29.1'			
12	123°24.9'	358°21.9'	N 19°32.4'	326°48.7'	N 11°21.9'	150°37.3'	S 12°24.1'	169°59.1'	S 18°16.4'	333°32.8'	N 13°28.5'			
13	138°27.4'	13°21.9'	N 19°31.8'	341°48.4'	N 11°20.8'	165°40.0'	S 12°24.2'	185°01.7'	S 18°16.4'	348°33.8'	N 13°28.0'			
14	153°29.9'	28°21.9'	N 19°31.3'	356°48.0'	N 11°19.6'	180°42.8'	S 12°24.3'	200°04.4'	S 18°16.5'	3°34.7'	N 13°27.4'			
15	168°32.3'	43°21.9'	N 19°30.7'	11°47.7'	N 11°18.5'	195°45.5'	S 12°24.4'	215°07.0'	S 18°16.5'	18°35.7'	N 13°26.8'			
16	183°34.8'	58°21.9'	N 19°30.2'	26°47.3'	N 11°17.3'	210°48.2'	S 12°24.5'	230°09.7'	S 18°16.6'	33°36.7'	N 13°26.3'			
17	198°37.3'	73°21.9'	N 19°29.6'	41°47.0'	N 11°16.2'	225°50.9'	S 12°24.6'	245°12.3'	S 18°16.6'	48°37.6'	N 13°25.7'			
18	213°39.7'	88°21.9'	N 19°29.1'	56°46.6'	N 11°15.0'	240°53.6'	S 12°24.7'	260°15.0'	S 18°16.7'	63°38.6'	N 13°25.2'			
19	228°42.2'	103°21.9'	N 19°28.5'	71°46.2'	N 11°13.9'	255°56.3'	S 12°24.8'	275°17.6'	S 18°16.7'	78°39.5'	N 13°24.6'			
20	243°44.7'	118°21.9'	N 19°28.0'	86°45.9'	N 11°12.7'	270°59.0'	S 12°24.9'	290°20.3'	S 18°16.8'	93°40.5'	N 13°24.1'			
21	258°47.1'	133°21.9'	N 19°27.4'	101°45.5'	N 11°11.6'	286°01.7'	S 12°25.0'	305°22.9'	S 18°16.8'	108°41.5'	N 13°23.5'			
22	273°49.6'	148°21.9'	N 19°26.9'	116°45.2'	N 11°10.4'	301°04.4'	S 12°25.1'	320°25.6'	S 18°16.9'	123°42.4'	N 13°23.0'			
23	288°52.0'	163°21.9'	N 19°26.3'	131°44.8'	N 11°09.3'	316°07.1'	S 12°25.2'	335°28.2'	S 18°17.0'	138°43.4'	N 13°22.4'			
		SD 15.7' d -0.5'		v -0.4' d -1.1'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 1.0' d -0.6'				
Mer. pass.		12 h 6 m 33 s		14 h 13 m		1 h 59 m		0 h 42 m		13 h 46 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Aldebaran	-Rigel	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent
0	344°55.9'	S 21°00.6'	7.2'	9.2'	58.8'	115°16.8'	115°03.2'	25°32.4'	16°37.1'			63°48.4'	75°22.9'
1	359°22.1'	S 20°51.5'	7.3'	9.3'	58.7'	114°41.9'	114°34.6'	25°05.7'	16°02.8'			64°23.3'	75°47.7'
2	13°48.4'	S 20°42.2'	7.4'	9.4'	58.7'	114°07.1'	114°05.9'	24°39.3'	15°28.7'			64°58.3'	76°12.5'
3	28°14.8'	S 20°32.7'	7.5'	9.5'	58.7'	113°32.3'	113°37.2'	24°13.2'	14°54.6'			65°33.1'	76°37.3'
4	42°41.4'	S 20°23.2'	7.7'	9.6'	58.6'	112°57.5'	113°08.5'	23°47.6'	14°20.7'			66°08.0'	77°02.2'
5	57°08.0'	S 20°13.6'	7.8'	9.8'	58.6'	112°22.7'	112°39.8'	23°22.3'	13°46.9'	7°23.1'		66°42.8'	77°27.0'
6	71°34.8'	S 20°03.8'	7.9'	9.9'	58.6'	111°48.0'	112°11.1'	22°57.5'	13°13.3'	7°53.7'		67°17.6'	77°51.9'
7	86°01.6'	S 19°54.0'	8.0'	10.0'	58.6'	111°13.3'	111°42.4'	22°33.1'	12°39.9'	8°24.9'	37°24.6'	67°52.3'	78°16.8'
8	100°28.6'	S 19°44.0'	8.1'	10.1'	58.5'	110°38.7'	111°13.6'	22°09.2'	12°06.6'	8°56.5'	37°39.7'	68°27.0'	78°41.7'
9	114°55.7'	S 19°33.9'	8.2'	10.2'	58.5'	110°04.1'	110°44.8'	21°45.8'	11°33.6'	9°28.5'	37°55.1'	69°01.7'	79°06.6'
10	129°23.0'	S 19°23.7'	8.3'	10.3'	58.5'	109°29.5'	110°16.0'	21°22.9'	11°00.8'	10°00.7'	38°10.9'	69°36.3'	79°31.5'
11	143°50.3'	S 19°13.5'	8.4'	10.4'	58.4'	108°55.0'	109°47.2'	21°00.5'	10°28.3'	10°33.3'	38°27.0'	70°10.9'	79°56.4'
12	158°17.7'	S 19°03.1'	8.6'	10.5'	58.4'	108°20.5'	109°18.4'	20°38.7'	9°56.1'	11°06.0'	38°43.4'	70°45.5'	80°21.3'
13	172°45.3'	S 18°52.6'	8.7'	10.6'	58.4'	107°46.0'	108°49.6'	20°17.5'	9°24.2'	11°38.9'	39°00.2'	71°20.0'	80°46.2'
14	187°12.9'	S 18°42.0'	8.8'	10.7'	58.3'	107°11.6'	108°20.8'	19°57.0'	8°52.7'	12°11.9'	39°17.2'	71°54.5'	81°11.2'
15	201°40.7'	S 18°31.4'	8.9'	10.8'	58.3'	106°37.2'	107°52.0'	19°37.0'	8°21.8'	12°45.1'	39°34.6'	72°28.9'	81°36.1'
16	216°08.6'	S 18°20.6'	9.0'	10.9'	58.3'	106°02.8'	107°23.2'	19°17.8'	7°51.3'	13°18.3'	39°52.3'	73°03.3'	82°01.0'
17	230°36.6'	S 18°09.7'	9.1'	10.9'	58.2'	105°28.5'	106°54.4'	18°59.3'		13°51.6'	40°10.2'	73°37.7'	82°25.9'
18	245°04.7'	S 17°58.8'	9.2'	11.0'	58.2'	104°54.2'	106°25.6'	18°41.5'		14°25.0'	40°28.4'	74°12.0'	82°50.8'
19	259°32.9'	S 17°47.8'	9.3'	11.1'	58.2'	104°20.0'	105°56.8'			14°58.4'	40°46.9'	74°46.3'	83°15.7'
20	274°01.3'	S 17°36.6'	9.4'	11.2'	58.2'	103°45.8'	105°28.0'			15°31.9'	41°05.6'	75°20.6'	83°40.6'
21	288°29.7'	S 17°25.4'	9.5'	11.3'	58.1'	103°11.6'	104°59.2'			16°05.5'	41°24.6'	75°54.8'	84°05.4'
22	302°58.2'	S 17°14.1'	9.7'	11.4'	58.1'	102°37.5'	104°30.4'			16°39.0'	41°43.9'	76°29.0'	84°30.3'
23	317°26.9'	S 17°02.8'	9.8'	11.4'	58.1'	102°03.4'	104°01.6'			17°12.6'	42°03.4'	77°03.1'	84°55.2'
Mer. pass.		1 h 3 m SD 16.0'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.3'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°26.4'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.8'	Canopus	-0.6	263°54.1'	S 52°42.3'				

Monday 26 July 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	303°54.5'	178°21.9'	N 19°25.8'	146°44.5'	N 11°08.1'	331°09.8'	S 12°25.3'	350°30.8'	S 18°17.0'	153°44.3'	N 13°21.9'			
1	318°57.0'	193°21.9'	N 19°25.2'	161°44.1'	N 11°07.0'	346°12.5'	S 12°25.4'	5°33.5'	S 18°17.1'	168°45.3'	N 13°21.3'			
2	333°59.4'	208°21.9'	N 19°24.7'	176°43.8'	N 11°05.8'	1°15.2'	S 12°25.5'	20°36.1'	S 18°17.1'	183°46.2'	N 13°20.8'			
3	349°01.9'	223°21.9'	N 19°24.1'	191°43.4'	N 11°04.7'	16°17.9'	S 12°25.6'	35°38.8'	S 18°17.2'	198°47.2'	N 13°20.2'			
4	4°04.4'	238°21.9'	N 19°23.6'	206°43.0'	N 11°03.5'	31°20.6'	S 12°25.7'	50°41.4'	S 18°17.2'	213°48.2'	N 13°19.7'			
5	19°06.8'	253°21.9'	N 19°23.0'	221°42.7'	N 11°02.4'	46°23.3'	S 12°25.8'	65°44.1'	S 18°17.3'	228°49.1'	N 13°19.1'			
6	34°09.3'	268°21.9'	N 19°22.5'	236°42.3'	N 11°01.2'	61°26.0'	S 12°25.9'	80°46.7'	S 18°17.3'	243°50.1'	N 13°18.6'			
7	49°11.8'	283°21.9'	N 19°21.9'	251°42.0'	N 11°00.1'	76°28.7'	S 12°26.0'	95°49.4'	S 18°17.4'	258°51.0'	N 13°18.0'			
8	64°14.2'	298°21.9'	N 19°21.3'	266°41.6'	N 10°58.9'	91°31.5'	S 12°26.1'	110°52.0'	S 18°17.4'	273°52.0'	N 13°17.5'			
9	79°16.7'	313°21.9'	N 19°20.8'	281°41.3'	N 10°57.8'	106°34.2'	S 12°26.2'	125°54.7'	S 18°17.5'	288°53.0'	N 13°16.9'			
10	94°19.1'	328°21.9'	N 19°20.2'	296°40.9'	N 10°56.6'	121°36.9'	S 12°26.3'	140°57.3'	S 18°17.6'	303°53.9'	N 13°16.4'			
11	109°21.6'	343°21.9'	N 19°19.7'	311°40.6'	N 10°55.5'	136°39.6'	S 12°26.4'	155°60.0'	S 18°17.6'	318°54.9'	N 13°15.8'			
12	124°24.1'	358°21.9'	N 19°19.1'	326°40.2'	N 10°54.3'	151°42.3'	S 12°26.5'	171°02.6'	S 18°17.7'	333°55.8'	N 13°15.2'			
13	139°26.5'	13°21.9'	N 19°18.6'	341°39.9'	N 10°53.1'	166°45.0'	S 12°26.6'	186°05.3'	S 18°17.7'	348°56.8'	N 13°14.7'			
14	154°29.0'	28°22.0'	N 19°18.0'	356°39.5'	N 10°52.0'	181°47.7'	S 12°26.7'	201°07.9'	S 18°17.8'	3°57.8'	N 13°14.1'			
15	169°31.5'	43°22.0'	N 19°17.4'	11°39.2'	N 10°50.8'	196°50.4'	S 12°26.8'	216°10.6'	S 18°17.8'	18°58.7'	N 13°13.6'			
16	184°33.9'	58°22.0'	N 19°16.9'	26°38.8'	N 10°49.7'	211°53.1'	S 12°26.9'	231°13.2'	S 18°17.9'	33°59.7'	N 13°13.0'			
17	199°36.4'	73°22.0'	N 19°16.3'	41°38.5'	N 10°48.5'	226°55.8'	S 12°27.0'	246°15.9'	S 18°17.9'	49°00.6'	N 13°12.5'			
18	214°38.9'	88°22.0'	N 19°15.8'	56°38.1'	N 10°47.4'	241°58.5'	S 12°27.1'	261°18.5'	S 18°18.0'	64°01.6'	N 13°11.9'			
19	229°41.3'	103°22.0'	N 19°15.2'	71°37.8'	N 10°46.2'	257°01.2'	S 12°27.2'	276°21.2'	S 18°18.0'	79°02.6'	N 13°11.4'			
20	244°43.8'	118°22.0'	N 19°14.6'	86°37.5'	N 10°45.0'	272°04.0'	S 12°27.3'	291°23.8'	S 18°18.1'	94°03.5'	N 13°10.8'			
21	259°46.3'	133°22.0'	N 19°14.1'	101°37.1'	N 10°43.9'	287°06.7'	S 12°27.4'	306°26.5'	S 18°18.1'	109°04.5'	N 13°10.3'			
22	274°48.7'	148°22.0'	N 19°13.5'	116°36.8'	N 10°42.7'	302°09.4'	S 12°27.5'	321°29.1'	S 18°18.2'	124°05.4'	N 13°09.7'			
23	289°51.2'	163°22.0'	N 19°12.9'	131°36.4'	N 10°41.6'	317°12.1'	S 12°27.6'	336°31.8'	S 18°18.3'	139°06.4'	N 13°09.1'			
		SD 15.7' d -0.6'		v -0.3' d -1.2'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 1.0' d -0.6'				
Mer. pass.		12 h 6 m 33 s		14 h 13 m		1 h 55 m		0 h 38 m		13 h 44 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent
0	331°55.7'	S 16°51.3'	9.9'	11.5'	58.0'	114°09.9'	103°32.8'	101°29.4'		17°46.1'	42°23.1'	77°37.2'	85°20.0'
1	346°24.5'	S 16°39.8'	10.0'	11.6'	58.0'	113°38.6'	103°04.0'	100°55.4'		18°19.7'	42°43.0'	78°11.3'	85°44.8'
2	0°53.5'	S 16°28.2'	10.1'	11.7'	58.0'	113°07.4'	102°35.3'	100°21.4'		18°53.3'	43°03.2'	78°45.3'	86°09.6'
3	15°22.6'	S 16°16.5'	10.2'	11.8'	57.9'	112°36.2'	102°06.5'	99°47.5'		19°26.9'	43°23.5'	79°19.3'	86°34.4'
4	29°51.8'	S 16°04.8'	10.3'	11.8'	57.9'	112°04.9'	101°37.8'	99°13.6'		20°00.5'	43°44.1'	79°53.2'	86°59.2'
5	44°21.1'	S 15°52.9'	10.4'	11.9'	57.9'	111°33.7'	101°09.1'	98°39.8'		20°34.1'	44°04.8'	80°27.1'	87°23.9'
6	58°50.5'	S 15°41.0'	10.5'	12.0'	57.8'	111°02.5'	100°40.4'	98°06.0'		21°07.7'	44°25.8'	81°01.0'	87°48.6'
7	73°20.0'	S 15°29.1'	10.6'	12.0'	57.8'	110°31.4'	100°11.7'	97°32.2'		21°41.2'	44°46.9'	81°34.8'	88°13.3'
8	87°49.6'	S 15°17.0'	10.7'	12.1'	57.8'	110°00.2'	99°43.1'	96°58.5'		22°14.8'	45°08.2'	82°08.5'	88°38.0'
9	102°19.3'	S 15°05.0'	10.8'	12.2'	57.7'	109°29.1'	99°14.4'	96°24.8'		22°48.3'	45°29.7'	82°42.3'	89°02.6'
10	116°49.2'	S 14°52.8'	10.9'	12.2'	57.7'	108°58.0'	98°45.8'	95°51.2'		23°21.8'	45°51.4'	83°16.0'	89°27.3'
11	131°19.1'	S 14°40.6'	11.0'	12.3'	57.7'	108°26.9'	98°17.2'	95°17.6'		23°55.3'	46°13.2'	83°49.6'	89°51.8'
12	145°49.1'	S 14°28.3'	11.1'	12.3'	57.6'	107°55.8'	97°48.6'	94°44.0'		24°28.8'	46°35.2'	84°23.2'	90°16.4'
13	160°19.2'	S 14°16.0'	11.2'	12.4'	57.6'	107°24.8'	97°20.0'	94°10.5'		25°02.3'	46°57.3'	84°56.8'	90°40.9'
14	174°49.4'	S 14°03.6'	11.3'	12.5'	57.6'	106°53.7'	96°51.5'	93°37.0'		25°35.7'	47°19.6'	85°30.3'	91°05.4'
15	189°19.8'	S 13°51.1'	11.4'	12.5'	57.5'	106°22.7'	96°23.0'	93°03.6'	7°26.8'	26°09.1'	47°42.0'	86°03.8'	91°29.9'
16	203°50.2'	S 13°38.6'	11.5'	12.6'	57.5'	105°51.7'	95°54.5'	92°30.2'	7°55.9'	26°42.4'	48°04.5'	86°37.3'	91°54.3'
17	218°20.7'	S 13°26.0'	11.6'	12.6'	57.5'	105°20.8'	95°26.0'	91°56.8'	8°25.5'	27°15.8'	48°27.2'	87°10.7'	92°18.7'
18	232°51.3'	S 13°13.4'	11.7'	12.7'	57.4'	104°49.9'	94°57.6'	91°23.5'	8°55.5'	27°49.1'	48°50.0'	87°44.0'	92°43.1'
19	247°22.0'	S 13°00.8'	11.8'	12.7'	57.4'	104°19.0'	94°29.2'	90°50.3'	9°26.0'	28°22.4'	49°13.0'	88°17.4'	93°07.4'
20	261°52.8'	S 12°48.1'	11.9'	12.8'	57.4'	103°48.1'	94°00.8'	90°17.0'	9°56.7'	28°55.7'	49°36.0'	88°50.6'	93°31.7'
21	276°23.7'	S 12°35.3'	12.0'	12.8'	57.3'	103°17.2'	93°32.5'	89°43.9'	10°27.7'	29°28.9'	49°59.2'	89°23.9'	93°55.9'
22	290°54.7'	S 12°22.5'	12.1'	12.8'	57.3'	102°46.4'	93°04.2'	89°10.7'	10°58.9'	30°02.1'	50°22.4'	89°57.1'	94°20.1'
23	305°25.7'	S 12°09.6'	12.2'	12.9'	57.3'	102°15.6'	92°35.9'	88°37.6'	11°30.3'	30°35.3'	50°45.8'	90°30.2'	94°44.3'
Mer. pass.		1 h 56 m SD 15.8'	phase 95%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.4'	S 63°13.2'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.1'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°25.9'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.7'				
Hadar	+0.6	148°39.9'	S 60°28.8'	Canopus	-0.6	263°54.1'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	304°53.6'	178°22.0'	N 19°12.4'	146°36.1'	N 10°40.4'	332°14.8'	S 12°27.7'	351°34.4'	S 18°18.3'	154°07.4'	N 13°08.6'			
1	319°56.1'	193°22.0'	N 19°11.8'	161°35.7'	N 10°39.2'	347°17.5'	S 12°27.8'	6°37.1'	S 18°18.4'	169°08.3'	N 13°08.0'			
2	334°58.6'	208°22.0'	N 19°11.2'	176°35.4'	N 10°38.1'	2°20.2'	S 12°27.9'	21°39.7'	S 18°18.4'	184°09.3'	N 13°07.5'			
3	350°01.0'	223°22.0'	N 19°10.7'	191°35.0'	N 10°36.9'	17°22.9'	S 12°28.0'	36°42.4'	S 18°18.5'	199°10.2'	N 13°06.9'			
4	5°03.5'	238°22.0'	N 19°10.1'	206°34.7'	N 10°35.7'	32°25.6'	S 12°28.1'	51°45.0'	S 18°18.5'	214°11.2'	N 13°06.4'			
5	20°06.0'	253°22.1'	N 19°09.5'	221°34.4'	N 10°34.6'	47°28.4'	S 12°28.2'	66°47.7'	S 18°18.6'	229°12.2'	N 13°05.8'			
6	35°08.4'	268°22.1'	N 19°09.0'	236°34.0'	N 10°33.4'	62°31.1'	S 12°28.3'	81°50.3'	S 18°18.6'	244°13.1'	N 13°05.2'			
7	50°10.9'	283°22.1'	N 19°08.4'	251°33.7'	N 10°32.2'	77°33.8'	S 12°28.4'	96°53.0'	S 18°18.7'	259°14.1'	N 13°04.7'			
8	65°13.4'	298°22.1'	N 19°07.8'	266°33.3'	N 10°31.1'	92°36.5'	S 12°28.5'	111°55.6'	S 18°18.7'	274°15.1'	N 13°04.1'			
9	80°15.8'	313°22.1'	N 19°07.3'	281°33.0'	N 10°29.9'	107°39.2'	S 12°28.6'	126°58.3'	S 18°18.8'	289°16.0'	N 13°03.6'			
10	95°18.3'	328°22.1'	N 19°06.7'	296°32.7'	N 10°28.7'	122°41.9'	S 12°28.7'	142°00.9'	S 18°18.8'	304°17.0'	N 13°03.0'			
11	110°20.7'	343°22.1'	N 19°06.1'	311°32.3'	N 10°27.6'	137°44.6'	S 12°28.8'	157°03.6'	S 18°18.9'	319°17.9'	N 13°02.5'			
12	125°23.2'	358°22.1'	N 19°05.6'	326°32.0'	N 10°26.4'	152°47.3'	S 12°28.9'	172°06.2'	S 18°19.0'	334°18.9'	N 13°01.9'			
13	140°25.7'	13°22.1'	N 19°05.0'	341°31.6'	N 10°25.2'	167°50.1'	S 12°29.0'	187°08.9'	S 18°19.0'	349°19.9'	N 13°01.3'			
14	155°28.1'	28°22.1'	N 19°04.4'	356°31.3'	N 10°24.1'	182°52.8'	S 12°29.1'	202°11.5'	S 18°19.1'	4°20.8'	N 13°00.8'			
15	170°30.6'	43°22.1'	N 19°03.8'	11°31.0'	N 10°22.9'	197°55.5'	S 12°29.2'	217°14.2'	S 18°19.1'	19°21.8'	N 13°00.2'			
16	185°33.1'	58°22.2'	N 19°03.3'	26°30.6'	N 10°21.7'	212°58.2'	S 12°29.3'	232°16.8'	S 18°19.2'	34°22.7'	N 12°59.7'			
17	200°35.5'	73°22.2'	N 19°02.7'	41°30.3'	N 10°20.6'	228°00.9'	S 12°29.4'	247°19.5'	S 18°19.2'	49°23.7'	N 12°59.1'			
18	215°38.0'	88°22.2'	N 19°02.1'	56°30.0'	N 10°19.4'	243°03.6'	S 12°29.5'	262°22.1'	S 18°19.3'	64°24.7'	N 12°58.6'			
19	230°40.5'	103°22.2'	N 19°01.5'	71°29.6'	N 10°18.2'	258°06.4'	S 12°29.6'	277°24.8'	S 18°19.3'	79°25.6'	N 12°58.0'			
20	245°42.9'	118°22.2'	N 19°01.0'	86°29.3'	N 10°17.1'	273°09.1'	S 12°29.7'	292°27.4'	S 18°19.4'	94°26.6'	N 12°57.4'			
21	260°45.4'	133°22.2'	N 19°00.4'	101°29.0'	N 10°15.9'	288°11.8'	S 12°29.8'	307°30.1'	S 18°19.4'	109°27.6'	N 12°56.9'			
22	275°47.9'	148°22.2'	N 18°59.8'	116°28.6'	N 10°14.7'	303°14.5'	S 12°29.9'	322°32.7'	S 18°19.5'	124°28.5'	N 12°56.3'			
23	290°50.3'	163°22.2'	N 18°59.2'	131°28.3'	N 10°13.5'	318°17.2'	S 12°30.0'	337°35.4'	S 18°19.6'	139°29.5'	N 12°55.8'			
		SD 15.7' d -0.6'		v -0.3' d -1.2'		v 2.7' d -0.1'		v 2.6' d -0.1'		v 1.0' d -0.6'				
Mer. pass.		12 h 6 m 33 s		14 h 14 m		1 h 51 m		0 h 34 m		13 h 43 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Altair
0	319°56.9'	S 11°56.8'	12.2'	12.9'	57.2'	105°16.9'	101°44.8'	92°07.6'	88°04.5'	12°01.8'		31°08.4'	51°09.3'
1	334°28.1'	S 11°43.8'	12.3'	13.0'	57.2'	104°45.4'	101°14.1'	91°39.4'	87°31.5'	12°33.5'		31°41.5'	51°32.9'
2	348°59.5'	S 11°30.8'	12.4'	13.0'	57.2'	104°13.9'	100°43.4'	91°11.2'	86°58.5'	13°05.3'	18°01.9'	32°14.6'	51°56.6'
3	3°30.9'	S 11°17.8'	12.5'	13.0'	57.1'	103°42.5'	100°12.7'	90°43.0'	86°25.6'	13°37.1'	18°17.1'	32°47.6'	52°20.3'
4	18°02.4'	S 11°04.8'	12.6'	13.1'	57.1'	103°11.1'	99°42.1'	90°14.9'	85°52.7'	14°09.0'	18°33.1'	33°20.6'	52°44.2'
5	32°34.0'	S 10°51.7'	12.7'	13.1'	57.1'	102°39.7'	99°11.4'	89°46.8'	85°19.8'	14°41.0'	18°49.8'	33°53.5'	53°08.1'
6	47°05.7'	S 10°38.6'	12.8'	13.2'	57.0'	102°08.4'	98°40.9'	89°18.8'	84°47.0'	15°13.1'	19°07.1'	34°26.5'	53°32.2'
7	61°37.4'	S 10°25.4'	12.8'	13.2'	57.0'	101°37.1'	98°10.3'	88°50.8'	84°14.3'	15°45.2'	19°25.1'	34°59.4'	53°56.3'
8	76°09.3'	S 10°12.2'	12.9'	13.2'	57.0'	101°05.8'	97°39.8'	88°22.8'	83°41.5'	16°17.3'	19°43.6'	35°32.2'	54°20.4'
9	90°41.2'	S 9°59.0'	13.0'	13.2'	56.9'	100°34.6'	97°09.3'	87°54.8'	83°08.8'	16°49.4'	20°02.7'	36°05.1'	54°44.7'
10	105°13.2'	S 9°45.8'	13.1'	13.3'	56.9'	100°03.4'	96°38.8'	87°26.9'	82°36.2'	17°21.6'	20°22.4'	36°37.9'	55°09.0'
11	119°45.3'	S 9°32.5'	13.2'	13.3'	56.9'	99°32.2'	96°08.4'	86°59.1'	82°03.6'	17°53.7'	20°42.6'	37°10.6'	55°33.4'
12	134°17.5'	S 9°19.2'	13.2'	13.3'	56.8'	99°01.1'	95°38.0'	86°31.2'	81°31.0'	18°25.9'	21°03.2'	37°43.3'	55°57.8'
13	148°49.7'	S 9°05.9'	13.3'	13.4'	56.8'	98°30.0'	95°07.6'	86°03.5'	80°58.5'	18°58.1'	21°24.3'	38°16.0'	56°22.4'
14	163°22.0'	S 8°52.5'	13.4'	13.4'	56.8'	97°58.9'	94°37.3'	85°35.7'	80°26.0'	19°30.3'	21°45.8'	38°48.7'	56°46.9'
15	177°54.4'	S 8°39.1'	13.5'	13.4'	56.7'	97°27.9'	94°07.0'	85°08.0'	79°53.6'	20°02.5'	22°07.7'	39°21.3'	57°11.6'
16	192°26.8'	S 8°25.7'	13.5'	13.4'	56.7'	96°56.9'	93°36.8'	84°40.3'	79°21.2'	20°34.7'	22°30.1'	39°53.8'	57°36.2'
17	206°59.4'	S 8°12.3'	13.6'	13.4'	56.7'	96°26.0'	93°06.5'	84°12.7'	78°48.8'	21°06.8'	22°52.7'	40°26.4'	58°01.0'
18	221°32.0'	S 7°58.9'	13.7'	13.5'	56.6'	95°55.0'	92°36.4'	83°45.1'	78°16.5'	21°39.0'	23°15.7'	40°58.9'	58°25.8'
19	236°04.6'	S 7°45.4'	13.7'	13.5'	56.6'	95°24.2'	92°06.2'	83°17.6'	77°44.2'	22°11.2'	23°39.1'	41°31.3'	58°50.6'
20	250°37.4'	S 7°31.9'	13.8'	13.5'	56.6'	94°53.3'	91°36.1'	82°50.1'	77°11.9'	22°43.3'	24°02.7'	42°03.8'	59°15.5'
21	265°10.2'	S 7°18.4'	13.9'	13.5'	56.5'	94°22.5'	91°06.0'	82°22.7'	76°39.7'	23°15.4'	24°26.6'	42°36.2'	59°40.4'
22	279°43.1'	S 7°04.9'	13.9'	13.5'	56.5'	93°51.7'	90°36.0'	81°55.3'	76°07.6'	23°47.5'	24°50.8'	43°08.5'	60°05.4'
23	294°16.0'	S 6°51.4'	14.0'	13.5'	56.5'	93°21.0'	90°05.9'	81°27.9'	75°35.5'	24°19.6'	25°15.3'	43°40.8'	60°30.4'
Mer. pass.		2 h 46 m SD 15.6'		phase 90%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.5'	S 63°13.2'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.6'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.0'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.8'	Procyon	+0.4	244°54.1'	N 5°10.3'	Polaris	+2.0	315°25.5'	N 89°20.9'
Rigil Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.6'				
Hadar	+0.6	148°39.9'	S 60°28.8'	Canopus	-0.6	263°54.1'	S 52°42.3'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	305°52.8'	178°22.3'	N 18°58.6'	146°28.0'	N 10°12.4'	333°19.9'	S 12°30.1'	352°38.0'	S 18°19.6'	154°30.4'	N 12°55.2'	
1	330°55.2'	193°22.3'	N 18°58.1'	161°27.6'	N 10°11.2'	348°22.6'	S 12°30.2'	7°40.7'	S 18°19.7'	169°31.4'	N 12°54.6'	
2	335°57.7'	208°22.3'	N 18°57.5'	176°27.3'	N 10°10.0'	3°25.4'	S 12°30.3'	22°43.3'	S 18°19.7'	184°32.4'	N 12°54.1'	
3	351°00.2'	223°22.3'	N 18°56.9'	191°27.0'	N 10°08.9'	18°28.1'	S 12°30.4'	37°46.0'	S 18°19.8'	199°33.3'	N 12°53.5'	
4	6°02.6'	238°22.3'	N 18°56.3'	206°26.6'	N 10°07.7'	33°30.8'	S 12°30.5'	52°48.6'	S 18°19.8'	214°34.3'	N 12°53.0'	
5	21°05.1'	253°22.3'	N 18°55.7'	221°26.3'	N 10°06.5'	48°33.5'	S 12°30.6'	67°51.3'	S 18°19.9'	229°35.3'	N 12°52.4'	
6	36°07.6'	268°22.3'	N 18°55.2'	236°26.0'	N 10°05.3'	63°36.2'	S 12°30.7'	82°53.9'	S 18°19.9'	244°36.2'	N 12°51.8'	
7	51°10.0'	283°22.4'	N 18°54.6'	251°25.6'	N 10°04.2'	78°38.9'	S 12°30.8'	97°56.6'	S 18°20.0'	259°37.2'	N 12°51.3'	
8	66°12.5'	298°22.4'	N 18°54.0'	266°25.3'	N 10°03.0'	93°41.7'	S 12°30.9'	112°59.2'	S 18°20.0'	274°38.1'	N 12°50.7'	
9	81°15.0'	313°22.4'	N 18°53.4'	281°25.0'	N 10°01.8'	108°44.4'	S 12°31.0'	128°01.9'	S 18°20.1'	289°39.1'	N 12°50.2'	
10	96°17.4'	328°22.4'	N 18°52.8'	296°24.6'	N 10°00.6'	123°47.1'	S 12°31.1'	143°04.5'	S 18°20.1'	304°40.1'	N 12°49.6'	
11	111°19.9'	343°22.4'	N 18°52.3'	311°24.3'	N 9°59.5'	138°49.8'	S 12°31.2'	158°07.2'	S 18°20.2'	319°41.0'	N 12°49.0'	
12	126°22.4'	358°22.4'	N 18°51.7'	326°24.0'	N 9°58.3'	153°52.5'	S 12°31.3'	173°09.8'	S 18°20.3'	334°42.0'	N 12°48.5'	
13	141°24.8'	13°22.5'	N 18°51.1'	341°23.7'	N 9°57.1'	168°55.3'	S 12°31.4'	188°12.5'	S 18°20.3'	349°43.0'	N 12°47.9'	
14	156°27.3'	28°22.5'	N 18°50.5'	356°23.3'	N 9°55.9'	183°58.0'	S 12°31.5'	203°15.1'	S 18°20.4'	4°43.9'	N 12°47.4'	
15	171°29.7'	43°22.5'	N 18°49.9'	11°23.0'	N 9°54.7'	199°00.7'	S 12°31.6'	218°17.8'	S 18°20.4'	19°44.9'	N 12°46.8'	
16	186°32.2'	58°22.5'	N 18°49.3'	26°22.7'	N 9°53.6'	214°03.4'	S 12°31.7'	233°20.4'	S 18°20.5'	34°45.9'	N 12°46.2'	
17	201°34.7'	73°22.5'	N 18°48.7'	41°22.4'	N 9°52.4'	229°06.1'	S 12°31.9'	248°23.1'	S 18°20.5'	49°46.8'	N 12°45.7'	
18	216°37.1'	88°22.5'	N 18°48.1'	56°22.0'	N 9°51.2'	244°08.9'	S 12°32.0'	263°25.7'	S 18°20.6'	64°47.8'	N 12°45.1'	
19	231°39.6'	103°22.6'	N 18°47.6'	71°21.7'	N 9°50.0'	259°11.6'	S 12°32.1'	278°28.4'	S 18°20.6'	79°48.7'	N 12°44.5'	
20	246°42.1'	118°22.6'	N 18°47.0'	86°21.4'	N 9°48.8'	274°14.3'	S 12°32.2'	293°31.0'	S 18°20.7'	94°49.7'	N 12°44.0'	
21	261°44.5'	133°22.6'	N 18°46.4'	101°21.1'	N 9°47.7'	289°17.0'	S 12°32.3'	308°33.7'	S 18°20.7'	109°50.7'	N 12°43.4'	
22	276°47.0'	148°22.6'	N 18°45.8'	116°20.7'	N 9°46.5'	304°19.7'	S 12°32.4'	323°36.3'	S 18°20.8'	124°51.6'	N 12°42.9'	
23	291°49.5'	163°22.6'	N 18°45.2'	131°20.4'	N 9°45.3'	319°22.5'	S 12°32.5'	338°39.0'	S 18°20.8'	139°52.6'	N 12°42.3'	
		SD 15.7' d -0.6'		v -0.3' d -1.2'		v 2.7' d -0.1'		v 2.7' d -0.1'		v 1.0' d -0.6'		
Mer. pass.		12 h 6 m 31 s		14 h 14 m		1 h 46 m		0 h 29 m		13 h 41 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Saturn	+Altair
0	308°49.0'	S 6°37.8'	14.1'	13.6'	56.4'		89°36.0'	81°00.6'	75°03.4'	24°51.7'	25°39.9'	44°13.1'	60°55.4'
1	323°22.1'	S 6°24.3'	14.1'	13.6'	56.4'		89°06.0'	80°33.4'	74°31.3'	25°23.7'	26°04.9'	44°45.4'	61°20.5'
2	337°55.2'	S 6°10.7'	14.2'	13.6'	56.4'		88°36.1'	80°06.1'	73°59.3'	25°55.7'	26°30.0'	45°17.6'	61°45.6'
3	352°28.4'	S 5°57.1'	14.2'	13.6'	56.3'		88°06.3'	79°39.0'	73°27.4'	26°27.7'	26°55.3'	45°49.8'	62°10.7'
4	7°01.6'	S 5°43.5'	14.3'	13.6'	56.3'		87°36.4'	79°11.9'	72°55.5'	26°59.7'	27°20.8'	46°21.9'	62°35.9'
5	21°34.9'	S 5°29.9'	14.4'	13.6'	56.3'		87°06.7'	78°44.8'	72°23.6'	27°31.7'	27°46.5'	46°54.0'	63°01.1'
6	36°08.3'	S 5°16.3'	14.4'	13.6'	56.2'		86°36.9'	78°17.8'	71°51.7'	28°03.6'	28°12.4'	47°26.1'	63°26.3'
7	50°41.7'	S 5°02.7'	14.5'	13.6'	56.2'		86°07.2'	77°50.8'	71°19.9'	28°35.5'	28°38.4'	47°58.1'	63°51.6'
8	65°15.2'	S 4°49.1'	14.5'	13.6'	56.2'		85°37.5'	77°23.9'	70°48.2'	29°07.4'	29°04.6'	48°30.1'	64°16.9'
9	79°48.7'	S 4°35.5'	14.6'	13.6'	56.1'		85°07.9'	76°57.0'	70°16.4'	29°39.2'	29°30.9'	49°02.1'	64°42.2'
10	94°22.3'	S 4°21.9'	14.6'	13.6'	56.1'		84°38.3'	76°30.2'	69°44.7'	30°11.1'	29°57.3'	49°34.0'	65°07.5'
11	108°55.9'	S 4°08.2'	14.7'	13.6'	56.1'		84°08.7'	76°03.4'	69°13.1'	30°42.9'	30°23.9'	50°05.9'	65°32.9'
12	123°29.6'	S 3°54.6'	14.7'	13.6'	56.1'		83°39.2'	75°36.7'	68°41.5'	31°14.6'	30°50.6'	50°37.7'	65°58.2'
13	138°03.3'	S 3°41.0'	14.8'	13.6'	56.0'		83°09.7'	75°10.1'	68°09.9'	31°46.4'	31°17.4'	51°09.6'	66°23.6'
14	152°37.1'	S 3°27.3'	14.8'	13.6'	56.0'		82°40.3'	74°43.5'	67°38.4'	32°18.1'	31°44.3'	51°41.4'	66°49.0'
15	167°10.9'	S 3°13.7'	14.9'	13.6'	56.0'		82°10.9'	74°16.9'	67°06.9'	32°49.8'	32°11.3'	52°13.1'	67°14.4'
16	181°44.8'	S 3°00.1'	14.9'	13.6'	55.9'		81°41.5'	73°50.4'	66°35.4'	33°21.4'	32°38.5'	52°44.8'	67°39.8'
17	196°18.7'	S 2°46.5'	15.0'	13.6'	55.9'		81°12.2'	73°24.0'	66°04.0'	33°53.0'	33°05.6'	53°16.5'	68°05.3'
18	210°52.6'	S 2°32.8'	15.0'	13.6'	55.9'		80°42.9'	72°57.6'	65°32.6'	34°24.6'	33°32.9'	53°48.2'	68°30.7'
19	225°26.6'	S 2°19.2'	15.0'	13.6'	55.8'		80°13.6'	72°31.3'	65°01.2'	34°56.2'	34°00.3'	54°19.8'	68°56.2'
20	240°00.7'	S 2°05.6'	15.1'	13.6'	55.8'		79°44.4'	72°05.0'	64°29.9'	35°27.8'	34°27.7'	54°51.3'	69°21.7'
21	254°34.7'	S 1°52.0'	15.1'	13.6'	55.8'		79°15.2'	71°38.8'	63°58.6'	35°59.3'	34°55.2'	55°22.9'	69°47.2'
22	269°08.9'	S 1°38.4'	15.2'	13.6'	55.8'	119°34.0'	78°46.1'	71°12.6'	63°27.4'	36°30.8'	35°22.8'	55°54.4'	70°12.7'
23	283°43.0'	S 1°24.8'	15.2'	13.6'	55.7'	119°05.1'	78°17.0'	70°46.5'	62°56.2'	37°02.2'	35°50.4'	56°25.9'	70°38.2'
Mer. pass.		3 h 31 m SD 15.4' phase 82%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.4'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.5'	S 63°13.2'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.5'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.0'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.8'	Procyon	+0.4	244°54.1'	N 5°10.3'	Polaris	+2.0	315°25.1'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.6'				
Hadar	+0.6	148°39.9'	S 60°28.8'	Canopus	-0.6	263°54.1'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	306°51.9'	178°22.7'	N 18°44.6'	146°20.1'	N 9°44.1'	334°25.2'	S 12°32.6'	353°41.6'	S 18°20.9'	154°53.6'	N 12°41.7'			
1	321°54.4'	193°22.7'	N 18°44.0'	161°19.8'	N 9°42.9'	349°27.9'	S 12°32.7'	8°44.3'	S 18°21.0'	169°54.5'	N 12°41.2'			
2	336°56.8'	208°22.7'	N 18°43.4'	176°19.4'	N 9°41.7'	4°30.6'	S 12°32.8'	23°46.9'	S 18°21.0'	184°55.5'	N 12°40.6'			
3	351°59.3'	223°22.7'	N 18°42.8'	191°19.1'	N 9°40.6'	19°33.3'	S 12°32.9'	38°49.6'	S 18°21.1'	199°56.5'	N 12°40.0'			
4	7°01.8'	238°22.7'	N 18°42.2'	206°18.8'	N 9°39.4'	34°36.1'	S 12°33.0'	53°52.2'	S 18°21.1'	214°57.4'	N 12°39.5'			
5	22°04.2'	253°22.8'	N 18°41.6'	221°18.5'	N 9°38.2'	49°38.8'	S 12°33.1'	68°54.9'	S 18°21.2'	229°58.4'	N 12°38.9'			
6	37°06.7'	268°22.8'	N 18°41.1'	236°18.2'	N 9°37.0'	64°41.5'	S 12°33.2'	83°57.5'	S 18°21.2'	244°59.4'	N 12°38.4'			
7	52°09.2'	283°22.8'	N 18°40.5'	251°17.8'	N 9°35.8'	79°44.2'	S 12°33.3'	99°00.2'	S 18°21.3'	260°00.3'	N 12°37.8'			
8	67°11.6'	298°22.8'	N 18°39.9'	266°17.5'	N 9°34.6'	94°47.0'	S 12°33.4'	114°02.8'	S 18°21.3'	275°01.3'	N 12°37.2'			
9	82°14.1'	313°22.8'	N 18°39.3'	281°17.2'	N 9°33.4'	109°49.7'	S 12°33.5'	129°05.5'	S 18°21.4'	290°02.2'	N 12°36.7'			
10	97°16.6'	328°22.9'	N 18°38.7'	296°16.9'	N 9°32.3'	124°52.4'	S 12°33.6'	144°08.1'	S 18°21.4'	305°03.2'	N 12°36.1'			
11	112°19.0'	343°22.9'	N 18°38.1'	311°16.6'	N 9°31.1'	139°55.1'	S 12°33.7'	159°10.8'	S 18°21.5'	320°04.2'	N 12°35.5'			
12	127°21.5'	358°22.9'	N 18°37.5'	326°16.2'	N 9°29.9'	154°57.8'	S 12°33.8'	174°13.4'	S 18°21.6'	335°05.1'	N 12°35.0'			
13	142°24.0'	13°22.9'	N 18°36.9'	341°15.9'	N 9°28.7'	170°00.6'	S 12°33.9'	189°16.1'	S 18°21.6'	350°06.1'	N 12°34.4'			
14	157°26.4'	28°23.0'	N 18°36.3'	356°15.6'	N 9°27.5'	185°03.3'	S 12°34.0'	204°18.7'	S 18°21.7'	5°07.1'	N 12°33.8'			
15	172°28.9'	43°23.0'	N 18°35.7'	11°15.3'	N 9°26.3'	200°06.0'	S 12°34.1'	219°21.4'	S 18°21.7'	20°08.0'	N 12°33.3'			
16	187°31.3'	58°23.0'	N 18°35.1'	26°15.0'	N 9°25.1'	215°08.7'	S 12°34.2'	234°24.0'	S 18°21.8'	35°09.0'	N 12°32.7'			
17	202°33.8'	73°23.0'	N 18°34.5'	41°14.6'	N 9°23.9'	230°11.5'	S 12°34.4'	249°26.7'	S 18°21.8'	50°10.0'	N 12°32.1'			
18	217°36.3'	88°23.0'	N 18°33.9'	56°14.3'	N 9°22.7'	245°14.2'	S 12°34.5'	264°29.3'	S 18°21.9'	65°10.9'	N 12°31.6'			
19	232°38.7'	103°23.1'	N 18°33.3'	71°14.0'	N 9°21.6'	260°16.9'	S 12°34.6'	279°32.0'	S 18°21.9'	80°11.9'	N 12°31.0'			
20	247°41.2'	118°23.1'	N 18°32.7'	86°13.7'	N 9°20.4'	275°19.6'	S 12°34.7'	294°34.6'	S 18°22.0'	95°12.9'	N 12°30.4'			
21	262°43.7'	133°23.1'	N 18°32.1'	101°13.4'	N 9°19.2'	290°22.4'	S 12°34.8'	309°37.3'	S 18°22.0'	110°13.8'	N 12°29.9'			
22	277°46.1'	148°23.1'	N 18°31.5'	116°13.1'	N 9°18.0'	305°25.1'	S 12°34.9'	324°39.9'	S 18°22.1'	125°14.8'	N 12°29.3'			
23	292°48.6'	163°23.2'	N 18°30.9'	131°12.8'	N 9°16.8'	320°27.8'	S 12°35.0'	339°42.6'	S 18°22.1'	140°15.8'	N 12°28.8'			
		SD 15.7' d -0.6'		v -0.3' d -1.2'		v 2.7' d -0.1'		v 2.7' d -0.1'		v 1.0' d -0.6'				
Mer. pass.		12 h 6 m 29 s		14 h 15 m		1 h 42 m		0 h 25 m		13 h 40 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	298°17.2'	S 1°11.3'	15.2'	13.6'	55.7'	118°36.2'	77°48.0'	70°20.5'	62°25.0'	36°18.1'	37°33.6'	56°57.3'	71°03.7'
1	312°51.4'	S 0°57.7'	15.3'	13.6'	55.7'	118°07.4'	77°18.9'	69°54.5'	61°53.9'	36°45.8'	38°05.0'	57°28.8'	71°29.2'
2	327°25.7'	S 0°44.1'	15.3'	13.5'	55.6'	117°38.6'	76°50.0'	69°28.6'	61°22.8'	37°13.6'	38°36.4'	58°00.1'	71°54.7'
3	341°60.0'	S 0°30.6'	15.3'	13.5'	55.6'	117°09.8'	76°21.0'	69°02.7'	60°51.7'	37°41.5'	39°07.8'	58°31.5'	72°20.2'
4	356°34.3'	S 0°17.1'	15.4'	13.5'	55.6'	116°41.1'	75°52.2'	68°36.9'	60°20.7'	38°09.4'	39°39.1'	59°02.8'	72°45.7'
5	11°08.7'	S 0°03.5'	15.4'	13.5'	55.6'	116°12.4'	75°23.3'	68°11.2'	59°49.7'	38°37.3'	40°10.4'	59°34.1'	73°11.3'
6	25°43.0'	N 0°10.0'	15.4'	13.5'	55.5'	115°43.7'	74°54.5'	67°45.5'	59°18.7'	39°05.3'	40°41.6'	60°05.4'	73°36.8'
7	40°17.5'	N 0°23.5'	15.4'	13.5'	55.5'	115°15.1'	74°25.7'	67°19.9'	58°47.8'	39°33.3'	41°12.8'	60°36.6'	74°02.3'
8	54°51.9'	N 0°37.0'	15.5'	13.5'	55.5'	114°46.4'	73°57.0'	66°54.4'	58°16.9'	40°01.3'	41°44.0'	61°07.8'	74°27.8'
9	69°26.4'	N 0°50.4'	15.5'	13.4'	55.5'	114°17.9'	73°28.3'	66°28.9'	57°46.0'	40°29.4'	42°15.2'	61°38.9'	74°53.4'
10	84°00.9'	N 1°03.9'	15.5'	13.4'	55.4'	113°49.3'	72°59.7'	66°03.5'	57°15.2'	40°57.5'	42°46.4'	62°10.1'	75°18.9'
11	98°35.4'	N 1°17.3'	15.5'	13.4'	55.4'	113°20.8'	72°31.1'	65°38.2'	56°44.4'	41°25.6'	43°17.5'	62°41.2'	75°44.4'
12	113°09.9'	N 1°30.7'	15.6'	13.4'	55.4'	112°52.3'	72°02.5'	65°12.9'	56°13.6'	41°53.8'	43°48.6'	63°12.2'	76°09.9'
13	127°44.5'	N 1°44.1'	15.6'	13.4'	55.4'	112°23.9'	71°34.0'	64°47.7'	55°42.9'	42°22.0'	44°19.6'	63°43.3'	76°35.4'
14	142°19.1'	N 1°57.5'	15.6'	13.4'	55.3'	111°55.5'	71°05.5'	64°22.6'	55°12.2'	42°50.2'	44°50.7'	64°14.3'	77°01.0'
15	156°53.7'	N 2°10.8'	15.6'	13.3'	55.3'	111°27.1'	70°37.1'	63°57.5'	54°41.5'	43°18.4'	45°21.7'	64°45.3'	77°26.5'
16	171°28.3'	N 2°24.1'	15.6'	13.3'	55.3'	110°58.7'	70°08.7'	63°32.5'	54°10.9'	43°46.7'	45°52.6'	65°16.2'	77°52.0'
17	186°02.9'	N 2°37.4'	15.7'	13.3'	55.3'	110°30.4'	69°40.3'	63°07.6'	53°40.3'	44°15.0'	46°23.6'	65°47.2'	78°17.5'
18	200°37.6'	N 2°50.7'	15.7'	13.3'	55.2'	110°02.0'	69°12.0'	62°42.7'	53°09.8'	44°43.3'	46°54.5'	66°18.1'	78°43.0'
19	215°12.2'	N 3°04.0'	15.7'	13.2'	55.2'	109°33.8'	68°43.7'	62°17.9'	52°39.2'	45°11.6'	47°25.4'	66°48.9'	79°08.4'
20	229°46.9'	N 3°17.2'	15.7'	13.2'	55.2'	109°05.5'	68°15.5'	61°53.2'	52°08.7'	45°39.9'	47°56.3'	67°19.8'	79°33.9'
21	244°21.6'	N 3°30.4'	15.7'	13.2'	55.2'	108°37.3'	67°47.3'	61°28.6'	51°38.2'	46°08.2'	48°27.2'	67°50.6'	79°59.4'
22	258°56.3'	N 3°43.6'	15.7'	13.2'	55.1'	108°09.1'	67°19.2'	61°04.1'	51°07.8'	46°36.6'	48°58.0'	68°21.4'	80°24.9'
23	273°31.1'	N 3°56.8'	15.7'	13.1'	55.1'	107°40.9'	66°51.1'	60°39.6'	50°37.4'	47°05.0'	49°28.8'	68°52.1'	80°50.3'
Mer. pass.		4 h 14 m SD 15.2' phase 74%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.5'	S 63°13.2'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.5'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.0'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.8'	Procyon	+0.4	244°54.1'	N 5°10.3'	Polaris	+2.0	315°24.6'	N 89°20.9'
Rigel Kent	-0.0	139°44.0'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.6'				
Hadar	+0.6	148°40.0'	S 60°28.8'	Canopus	-0.6	263°54.1'	S 52°42.3'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	307°51.1'	178°23.2'	N 18°30.3'	146°12.4'	N 9°15.6'	335°30.5'	S 12°35.1'	354°45.2'	S 18°22.2'	155°16.7'	N 12°28.2'			
1	322°53.5'	193°23.2'	N 18°29.7'	161°12.1'	N 9°14.4'	350°33.3'	S 12°35.2'	9°47.9'	S 18°22.3'	170°17.7'	N 12°27.6'			
2	337°56.0'	208°23.2'	N 18°29.1'	176°11.8'	N 9°13.2'	5°36.0'	S 12°35.3'	24°50.5'	S 18°22.3'	185°18.7'	N 12°27.1'			
3	352°58.4'	223°23.3'	N 18°28.4'	191°11.5'	N 9°12.0'	20°38.7'	S 12°35.4'	39°53.2'	S 18°22.4'	200°19.6'	N 12°26.5'			
4	8°00.9'	238°23.3'	N 18°27.8'	206°11.2'	N 9°10.8'	35°41.4'	S 12°35.5'	54°55.9'	S 18°22.4'	215°20.6'	N 12°25.9'			
5	23°03.4'	253°23.3'	N 18°27.2'	221°10.9'	N 9°09.6'	50°44.2'	S 12°35.6'	69°58.5'	S 18°22.5'	230°21.6'	N 12°25.4'			
6	38°05.8'	268°23.4'	N 18°26.6'	236°10.6'	N 9°08.4'	65°46.9'	S 12°35.7'	85°01.2'	S 18°22.5'	245°22.5'	N 12°24.8'			
7	53°08.3'	283°23.4'	N 18°26.0'	251°10.3'	N 9°07.2'	80°49.6'	S 12°35.8'	100°03.8'	S 18°22.6'	260°23.5'	N 12°24.2'			
8	68°10.8'	298°23.4'	N 18°25.4'	266°10.0'	N 9°06.0'	95°52.4'	S 12°35.9'	115°06.5'	S 18°22.6'	275°24.5'	N 12°23.7'			
9	83°13.2'	313°23.4'	N 18°24.8'	281°09.6'	N 9°04.8'	110°55.1'	S 12°36.0'	130°09.1'	S 18°22.7'	290°25.4'	N 12°23.1'			
10	98°15.7'	328°23.5'	N 18°24.2'	296°09.3'	N 9°03.7'	125°57.8'	S 12°36.1'	145°11.8'	S 18°22.7'	305°26.4'	N 12°22.5'			
11	113°18.2'	343°23.5'	N 18°23.6'	311°09.0'	N 9°02.5'	141°00.5'	S 12°36.2'	160°14.4'	S 18°22.8'	320°27.4'	N 12°21.9'			
12	128°20.6'	358°23.5'	N 18°23.0'	326°08.7'	N 9°01.3'	156°03.3'	S 12°36.4'	175°17.1'	S 18°22.8'	335°28.3'	N 12°21.4'			
13	143°23.1'	13°23.5'	N 18°22.4'	341°08.4'	N 9°00.1'	171°06.0'	S 12°36.5'	190°19.7'	S 18°22.9'	350°29.3'	N 12°20.8'			
14	158°25.6'	28°23.6'	N 18°21.8'	356°08.1'	N 8°58.9'	186°08.7'	S 12°36.6'	205°22.4'	S 18°23.0'	5°30.3'	N 12°20.2'			
15	173°28.0'	43°23.6'	N 18°21.1'	11°07.8'	N 8°57.7'	201°11.5'	S 12°36.7'	220°25.0'	S 18°23.0'	20°31.2'	N 12°19.7'			
16	188°30.5'	58°23.6'	N 18°20.5'	26°07.5'	N 8°56.5'	216°14.2'	S 12°36.8'	235°27.7'	S 18°23.1'	35°32.2'	N 12°19.1'			
17	203°32.9'	73°23.7'	N 18°19.9'	41°07.2'	N 8°55.3'	231°16.9'	S 12°36.9'	250°30.3'	S 18°23.1'	50°33.2'	N 12°18.5'			
18	218°35.4'	88°23.7'	N 18°19.3'	56°06.9'	N 8°54.1'	246°19.6'	S 12°37.0'	265°33.0'	S 18°23.2'	65°34.1'	N 12°18.0'			
19	233°37.9'	103°23.7'	N 18°18.7'	71°06.6'	N 8°52.9'	261°22.4'	S 12°37.1'	280°35.6'	S 18°23.2'	80°35.1'	N 12°17.4'			
20	248°40.3'	118°23.8'	N 18°18.1'	86°06.3'	N 8°51.7'	276°25.1'	S 12°37.2'	295°38.3'	S 18°23.3'	95°36.1'	N 12°16.8'			
21	263°42.8'	133°23.8'	N 18°17.5'	101°06.0'	N 8°50.5'	291°27.8'	S 12°37.3'	310°40.9'	S 18°23.3'	110°37.0'	N 12°16.3'			
22	278°45.3'	148°23.8'	N 18°16.8'	116°05.7'	N 8°49.3'	306°30.6'	S 12°37.4'	325°43.6'	S 18°23.4'	125°38.0'	N 12°15.7'			
23	293°47.7'	163°23.8'	N 18°16.2'	131°05.3'	N 8°48.1'	321°33.3'	S 12°37.5'	340°46.2'	S 18°23.4'	140°39.0'	N 12°15.1'			
		SD 15.7' d -0.6'		v -0.3' d -1.2'		v 2.7' d -0.1'		v 2.7' d -0.1'		v 1.0' d -0.6'				
Mer. pass.		12 h 6 m 27 s		14 h 15 m		1 h 38 m		0 h 21 m		13 h 38 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	288°05.8'	N 4°09.9'	15.7'	13.1'	55.1'	107°12.8'	66°23.1'	60°15.2'	50°07.0'	47°33.3'	49°59.6'	69°22.9'	81°15.8'
1	302°40.5'	N 4°23.0'	15.7'	13.1'	55.1'	106°44.7'	65°55.0'	59°50.8'	49°36.7'	48°01.7'	50°30.3'	69°53.6'	81°41.2'
2	317°15.3'	N 4°36.1'	15.8'	13.0'	55.0'	106°16.6'	65°27.1'	59°26.6'	49°06.3'	48°30.1'	51°01.0'	70°24.3'	82°06.6'
3	331°50.0'	N 4°49.2'	15.8'	13.0'	55.0'	105°48.5'	64°59.2'	59°02.4'	48°36.0'	48°58.5'	51°31.7'	70°54.9'	82°32.0'
4	346°24.8'	N 5°02.2'	15.8'	13.0'	55.0'	105°20.5'	64°31.3'	58°38.4'	48°05.8'	49°26.9'	52°02.4'	71°25.6'	82°57.4'
5	0°59.6'	N 5°15.2'	15.8'	13.0'	55.0'	104°52.5'	64°03.5'	58°14.4'	47°35.5'	49°55.4'	52°33.1'	71°56.2'	83°22.8'
6	15°34.3'	N 5°28.1'	15.8'	12.9'	55.0'	104°24.5'	63°35.7'	57°50.4'	47°05.3'	50°23.8'	53°03.7'	72°26.7'	83°48.2'
7	30°09.1'	N 5°41.0'	15.8'	12.9'	54.9'	103°56.5'	63°07.9'	57°26.6'	46°35.2'	50°52.2'	53°34.3'	72°57.3'	84°13.6'
8	44°43.9'	N 5°53.9'	15.8'	12.9'	54.9'	103°28.6'	62°40.2'	57°02.9'	46°05.0'	51°20.7'	54°04.9'	73°27.8'	84°38.9'
9	59°18.6'	N 6°06.8'	15.8'	12.8'	54.9'	103°00.6'	62°12.6'	56°39.2'	45°34.9'	51°49.1'	54°35.5'	73°58.3'	85°04.3'
10	73°53.4'	N 6°19.6'	15.8'	12.8'	54.9'	102°32.7'	61°45.0'	56°15.6'	45°04.8'	52°17.5'	55°06.0'	74°28.8'	85°29.6'
11	88°28.2'	N 6°32.4'	15.8'	12.8'	54.9'	102°04.9'	61°17.4'	55°52.2'	44°34.8'	52°46.0'	55°36.5'	74°59.3'	85°54.9'
12	103°02.9'	N 6°45.2'	15.8'	12.7'	54.8'	101°37.0'	60°49.9'	55°28.8'	44°04.7'	53°14.4'	56°07.0'	75°29.7'	86°20.3'
13	117°37.7'	N 6°57.9'	15.8'	12.7'	54.8'	101°09.2'	60°22.5'	55°05.5'	43°34.7'	53°42.9'	56°37.5'	76°00.2'	86°45.5'
14	132°12.5'	N 7°10.6'	15.8'	12.6'	54.8'	100°41.4'	59°55.0'	54°42.3'	43°04.7'	54°11.4'	57°08.0'	76°30.6'	87°10.8'
15	146°47.2'	N 7°23.2'	15.7'	12.6'	54.8'	100°13.6'	59°27.7'	54°19.2'	42°34.8'	54°39.8'	57°38.4'	77°00.9'	87°36.1'
16	161°22.0'	N 7°35.9'	15.7'	12.6'	54.8'	99°45.9'	59°00.3'	53°56.2'	42°04.9'	55°08.3'	58°08.8'	77°31.3'	88°01.3'
17	175°56.7'	N 7°48.4'	15.7'	12.5'	54.7'	99°18.1'	58°33.1'	53°33.2'	41°35.0'	55°36.7'	58°39.2'	78°01.6'	88°26.6'
18	190°31.4'	N 8°01.0'	15.7'	12.5'	54.7'	98°50.4'	58°05.9'	53°10.4'	41°05.1'	56°05.2'	59°09.6'	78°31.9'	88°51.8'
19	205°06.2'	N 8°13.5'	15.7'	12.5'	54.7'	98°22.7'	57°38.7'	52°47.7'	40°35.3'	56°33.7'	59°39.9'	79°02.2'	89°17.0'
20	219°40.9'	N 8°25.9'	15.7'	12.4'	54.7'	97°55.0'	57°11.6'	52°25.1'	40°05.4'	57°02.1'	60°10.3'	79°32.5'	89°42.2'
21	234°15.6'	N 8°38.3'	15.7'	12.4'	54.7'	97°27.4'	56°44.5'	52°02.6'	39°35.7'	57°30.6'	60°40.6'	80°02.7'	90°07.4'
22	248°50.3'	N 8°50.7'	15.7'	12.3'	54.6'	96°59.7'	56°17.5'	51°40.2'	39°05.9'	57°59.0'	61°10.9'	80°33.0'	90°32.5'
23	263°24.9'	N 9°03.0'	15.7'	12.3'	54.6'	96°32.1'	55°50.5'	51°17.9'	38°36.2'	58°27.5'	61°41.2'	81°03.2'	90°57.7'
Mer. pass.		4 h 56 m SD 15.0'		phase 65%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.5'	S 63°13.2'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.5'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.0'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.8'	Procyon	+0.4	244°54.1'	N 5°10.3'	Polaris	+2.0	315°24.1'	N 89°20.9'
Rigel Kent	-0.0	139°44.1'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°60.0'	Achernar	+0.5	335°22.3'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.6'				
Hadar	+0.6	148°40.0'	S 60°28.7'	Canopus	-0.6	263°54.1'	S 52°42.2'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	308°50.2'	178°23.9'	N 18°15.6'	146°05.0'	N 8°46.9'	336°36.0'	S 12°37.6'	355°48.9'	S 18°23.5'	155°39.9'	N 12°14.6'			
1	323°52.7'	193°23.9'	N 18°15.0'	161°04.7'	N 8°45.7'	351°38.7'	S 12°37.7'	10°51.5'	S 18°23.5'	170°40.9'	N 12°14.0'			
2	338°55.1'	208°23.9'	N 18°14.4'	176°04.4'	N 8°44.5'	6°41.5'	S 12°37.8'	25°54.2'	S 18°23.6'	185°41.9'	N 12°13.4'			
3	353°57.6'	223°24.0'	N 18°13.8'	191°04.1'	N 8°43.3'	21°44.2'	S 12°37.9'	40°56.8'	S 18°23.7'	200°42.8'	N 12°12.8'			
4	9°00.1'	238°24.0'	N 18°13.1'	206°03.8'	N 8°42.0'	36°46.9'	S 12°38.1'	55°59.5'	S 18°23.7'	215°43.8'	N 12°12.3'			
5	24°02.5'	253°24.0'	N 18°12.5'	221°03.5'	N 8°40.8'	51°49.7'	S 12°38.2'	71°02.1'	S 18°23.8'	230°44.8'	N 12°11.7'			
6	39°05.0'	268°24.1'	N 18°11.9'	236°03.2'	N 8°39.6'	66°52.4'	S 12°38.3'	86°04.8'	S 18°23.8'	245°45.7'	N 12°11.1'			
7	54°07.4'	283°24.1'	N 18°11.3'	251°02.9'	N 8°38.4'	81°55.1'	S 12°38.4'	101°07.4'	S 18°23.9'	260°46.7'	N 12°10.6'			
8	69°09.9'	298°24.1'	N 18°10.7'	266°02.6'	N 8°37.2'	96°57.9'	S 12°38.5'	116°10.1'	S 18°23.9'	275°47.7'	N 12°10.0'			
9	84°12.4'	313°24.2'	N 18°10.0'	281°02.3'	N 8°36.0'	112°00.6'	S 12°38.6'	131°12.7'	S 18°24.0'	290°48.6'	N 12°09.4'			
10	99°14.8'	328°24.2'	N 18°09.4'	296°02.0'	N 8°34.8'	127°03.3'	S 12°38.7'	146°15.4'	S 18°24.0'	305°49.6'	N 12°08.9'			
11	114°17.3'	343°24.2'	N 18°08.8'	311°01.7'	N 8°33.6'	142°06.1'	S 12°38.8'	161°18.0'	S 18°24.1'	320°50.6'	N 12°08.3'			
12	129°19.8'	358°24.3'	N 18°08.2'	326°01.4'	N 8°32.4'	157°08.8'	S 12°38.9'	176°20.7'	S 18°24.1'	335°51.6'	N 12°07.7'			
13	144°22.2'	13°24.3'	N 18°07.5'	341°01.1'	N 8°31.2'	172°11.5'	S 12°39.0'	191°23.3'	S 18°24.2'	350°52.5'	N 12°07.1'			
14	159°24.7'	28°24.4'	N 18°06.9'	356°00.8'	N 8°30.0'	187°14.3'	S 12°39.1'	206°26.0'	S 18°24.3'	5°53.5'	N 12°06.6'			
15	174°27.2'	43°24.4'	N 18°06.3'	11°00.5'	N 8°28.8'	202°17.0'	S 12°39.2'	221°28.6'	S 18°24.3'	20°54.5'	N 12°06.0'			
16	189°29.6'	58°24.4'	N 18°05.7'	26°00.2'	N 8°27.6'	217°19.7'	S 12°39.3'	236°31.3'	S 18°24.4'	35°55.4'	N 12°05.4'			
17	204°32.1'	73°24.5'	N 18°05.1'	40°59.9'	N 8°26.4'	232°22.5'	S 12°39.5'	251°34.0'	S 18°24.4'	50°56.4'	N 12°04.9'			
18	219°34.5'	88°24.5'	N 18°04.4'	55°59.6'	N 8°25.2'	247°25.2'	S 12°39.6'	266°36.6'	S 18°24.5'	65°57.4'	N 12°04.3'			
19	234°37.0'	103°24.5'	N 18°03.8'	70°59.3'	N 8°24.0'	262°27.9'	S 12°39.7'	281°39.3'	S 18°24.5'	80°58.3'	N 12°03.7'			
20	249°39.5'	118°24.6'	N 18°03.2'	85°59.0'	N 8°22.7'	277°30.7'	S 12°39.8'	296°41.9'	S 18°24.6'	95°59.3'	N 12°03.1'			
21	264°41.9'	133°24.6'	N 18°02.5'	100°58.8'	N 8°21.5'	292°33.4'	S 12°39.9'	311°44.6'	S 18°24.6'	111°00.3'	N 12°02.6'			
22	279°44.4'	148°24.6'	N 18°01.9'	115°58.5'	N 8°20.3'	307°36.1'	S 12°40.0'	326°47.2'	S 18°24.7'	126°01.2'	N 12°02.0'			
23	294°46.9'	163°24.7'	N 18°01.3'	130°58.2'	N 8°19.1'	322°38.9'	S 12°40.1'	341°49.9'	S 18°24.7'	141°02.2'	N 12°01.4'			
		SD 15.7' d -0.6'		v -0.3' d -1.2'		v 2.7' d -0.1'		v 2.7' d -0.1'		v 1.0' d -0.6'				
Mer. pass.		12 h 6 m 24 s		14 h 16 m		1 h 33 m		0 h 17 m		13 h 36 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Achernar	+Saturn
0	277°59.6'	N 9°15.3'	15.6'	12.2'	54.6'	96°04.5'	55°23.6'	50°55.7'	38°06.5'	58°56.0'	62°11.4'		81°33.4'
1	292°34.2'	N 9°27.6'	15.6'	12.2'	54.6'	95°36.9'	54°56.7'	50°33.7'	37°36.8'	59°24.4'	62°41.7'		82°03.6'
2	307°08.9'	N 9°39.8'	15.6'	12.2'	54.6'	95°09.4'	54°29.9'	50°11.7'	37°07.1'	59°52.9'	63°11.9'		82°33.7'
3	321°43.5'	N 9°51.9'	15.6'	12.1'	54.6'	94°41.8'	54°03.1'	49°49.9'	36°37.5'	60°21.3'	63°42.1'		83°03.9'
4	336°18.1'	N 10°04.0'	15.6'	12.1'	54.6'	94°14.3'	53°36.4'	49°28.1'	36°07.9'	60°49.8'	64°12.3'		83°34.0'
5	350°52.7'	N 10°16.1'	15.6'	12.0'	54.5'	93°46.8'	53°09.8'	49°06.5'	35°38.3'	61°18.2'	64°42.5'		84°04.1'
6	5°27.2'	N 10°28.1'	15.5'	12.0'	54.5'	93°19.3'	52°43.2'	48°45.1'	35°08.8'	61°46.7'	65°12.7'		84°34.2'
7	20°01.7'	N 10°40.1'	15.5'	11.9'	54.5'	92°51.8'	52°16.7'	48°23.7'	34°39.2'	62°15.1'	65°42.8'		85°04.3'
8	34°36.3'	N 10°52.0'	15.5'	11.9'	54.5'	92°24.4'	51°50.2'	48°02.5'	34°09.8'	62°43.6'	66°13.0'		85°34.3'
9	49°10.7'	N 11°03.9'	15.5'	11.8'	54.5'	91°56.9'	51°23.8'	47°41.4'	33°40.3'	63°12.0'	66°43.1'		86°04.4'
10	63°45.2'	N 11°15.7'	15.4'	11.8'	54.5'	91°29.5'	50°57.4'	47°20.4'	33°10.8'	63°40.5'	67°13.2'		86°34.4'
11	78°19.7'	N 11°27.5'	15.4'	11.7'	54.5'	91°02.1'	50°31.1'	46°59.5'	32°41.4'	64°08.9'	67°43.3'		87°04.4'
12	92°54.1'	N 11°39.3'	15.4'	11.7'	54.4'	90°34.7'	50°04.9'	46°38.8'	32°12.0'	64°37.3'	68°13.4'		87°34.4'
13	107°28.5'	N 11°50.9'	15.4'	11.6'	54.4'	90°07.3'	49°38.7'	46°18.3'	31°42.7'	65°05.8'	68°43.4'		88°04.4'
14	122°02.8'	N 12°02.6'	15.3'	11.6'	54.4'	89°39.9'	49°12.6'	45°57.8'	31°13.3'	65°34.2'	69°13.5'	69°57.9'	88°34.4'
15	136°37.2'	N 12°14.1'	15.3'	11.5'	54.4'	89°12.6'	48°46.6'	45°37.6'	30°44.0'	66°02.7'	69°43.5'	70°12.9'	89°04.3'
16	151°11.5'	N 12°25.7'	15.3'	11.5'	54.4'	88°45.2'	48°20.6'	45°17.4'	30°14.8'	66°31.1'	70°13.6'	70°28.0'	89°34.3'
17	165°45.7'	N 12°37.1'	15.2'	11.4'	54.4'	88°17.9'	47°54.7'	44°57.4'	29°45.5'	66°59.5'	70°43.6'	70°43.2'	90°04.2'
18	180°20.0'	N 12°48.5'	15.2'	11.4'	54.4'	87°50.6'	47°28.8'	44°37.6'	29°16.3'	67°27.9'	71°13.6'	70°58.4'	90°34.1'
19	194°54.2'	N 12°59.9'	15.2'	11.3'	54.4'	87°23.3'	47°03.1'	44°17.9'	28°47.1'	67°56.4'	71°43.6'	71°13.7'	91°04.0'
20	209°28.4'	N 13°11.2'	15.2'	11.2'	54.3'	86°56.0'	46°37.4'	43°58.4'	28°18.0'	68°24.8'	72°13.6'	71°29.0'	91°33.9'
21	224°02.5'	N 13°22.5'	15.1'	11.2'	54.3'	86°28.7'	46°11.7'	43°39.0'	27°48.8'	68°53.2'	72°43.5'	71°44.4'	92°03.8'
22	238°36.7'	N 13°33.6'	15.1'	11.1'	54.3'	86°01.4'	45°46.2'	43°19.8'	27°19.7'	69°21.6'	73°13.5'	71°59.9'	92°33.7'
23	253°10.7'	N 13°44.8'	15.0'	11.1'	54.3'	85°34.1'	45°20.7'	43°00.8'	26°50.7'	69°50.1'	73°43.4'	72°15.4'	93°03.6'
Mer. pass.		5 h 38 m SD 14.9'		phase 55%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.3'	S 29°30.4'	Spica	+1.0	158°25.3'	S 11°16.3'	Betelgeuse	+0.5	270°55.4'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.4'	Acrux	+0.8	173°03.5'	S 63°13.2'	Capella	+0.1	280°26.4'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.6'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.8'	S 8°10.5'
Vega	+0.0	80°34.7'	N 38°48.4'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.0'	N 16°33.1'
Antares	+1.1	112°19.1'	S 26°28.8'	Procyon	+0.4	244°54.1'	N 5°10.3'	Polaris	+2.0	315°23.6'	N 89°20.9'
Rigel Kent	-0.0	139°44.1'	S 60°55.6'	Adhara	+1.5	255°08.4'	S 28°59.9'	Achernar	+0.5	335°22.2'	S 57°07.4'
Arcturus	-0.1	145°50.5'	N 19°04.5'	Sirius	-1.4	258°29.0'	S 16°44.6'				
Hadar	+0.6	148°40.0'	S 60°28.7'	Canopus	-0.6	263°54.1'	S 52°42.2'				