

Wednesday 01 April 2020 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	189°48.7'		179°01.6'	N 4°38.3'	135°27.3'	N 23°05.9'	253°29.7'	S 21°18.0'	246°54.9'	S 20°03.8'	246°33.2'	S 20°55.2'
1	204°51.1'		194°01.8'	N 4°39.2'	150°27.4'	N 23°06.6'	268°31.8'	S 21°17.9'	261°57.2'	S 20°03.8'	261°33.8'	S 20°54.9'
2	219°53.6'		209°02.0'	N 4°40.2'	165°27.4'	N 23°07.3'	283°33.9'	S 21°17.9'	276°59.5'	S 20°03.7'	276°34.5'	S 20°54.6'
3	234°56.1'		224°02.1'	N 4°41.1'	180°27.5'	N 23°08.0'	298°36.1'	S 21°17.8'	292°01.8'	S 20°03.7'	291°35.1'	S 20°54.2'
4	249°58.5'		239°02.3'	N 4°42.1'	195°27.6'	N 23°08.7'	313°38.2'	S 21°17.8'	307°04.1'	S 20°03.7'	306°35.8'	S 20°53.9'
5	265°01.0'		254°02.5'	N 4°43.1'	210°27.6'	N 23°09.4'	328°40.3'	S 21°17.7'	322°06.4'	S 20°03.7'	321°36.4'	S 20°53.6'
6	280°03.5'		269°02.7'	N 4°44.0'	225°27.7'	N 23°10.1'	343°42.5'	S 21°17.7'	337°08.7'	S 20°03.6'	336°37.0'	S 20°53.2'
7	295°05.9'		284°02.9'	N 4°45.0'	240°27.7'	N 23°10.8'	358°44.6'	S 21°17.6'	352°11.0'	S 20°03.6'	351°37.7'	S 20°52.9'
8	310°08.4'		299°03.1'	N 4°46.0'	255°27.8'	N 23°11.5'	13°46.7'	S 21°17.6'	7°13.3'	S 20°03.6'	6°38.3'	S 20°52.6'
9	325°10.9'		314°03.3'	N 4°46.9'	270°27.9'	N 23°12.2'	28°48.9'	S 21°17.5'	22°15.6'	S 20°03.5'	21°38.9'	S 20°52.2'
10	340°13.3'		329°03.4'	N 4°47.9'	285°27.9'	N 23°12.9'	43°51.0'	S 21°17.5'	37°17.9'	S 20°03.5'	36°39.6'	S 20°51.9'
11	355°15.8'		344°03.6'	N 4°48.8'	300°28.0'	N 23°13.6'	58°53.2'	S 21°17.4'	52°20.2'	S 20°03.5'	51°40.2'	S 20°51.6'
12	10°18.2'		359°03.8'	N 4°49.8'	315°28.1'	N 23°14.3'	73°55.3'	S 21°17.4'	67°22.5'	S 20°03.4'	66°40.9'	S 20°51.2'
13	25°20.7'		14°04.0'	N 4°50.8'	330°28.1'	N 23°15.0'	88°57.4'	S 21°17.3'	82°24.8'	S 20°03.4'	81°41.5'	S 20°50.9'
14	40°23.2'		29°04.2'	N 4°51.7'	345°28.2'	N 23°15.7'	103°59.6'	S 21°17.3'	97°27.1'	S 20°03.4'	96°42.1'	S 20°50.6'
15	55°25.6'		44°04.4'	N 4°52.7'	0°28.3'	N 23°16.4'	119°01.7'	S 21°17.2'	112°29.4'	S 20°03.4'	111°42.8'	S 20°50.2'
16	70°28.1'		59°04.6'	N 4°53.7'	15°28.3'	N 23°17.1'	134°03.9'	S 21°17.2'	127°31.7'	S 20°03.3'	126°43.4'	S 20°49.9'
17	85°30.6'		74°04.7'	N 4°54.6'	30°28.4'	N 23°17.8'	149°06.0'	S 21°17.1'	142°34.0'	S 20°03.3'	141°44.1'	S 20°49.6'
18	100°33.0'		89°04.9'	N 4°55.6'	45°28.5'	N 23°18.5'	164°08.1'	S 21°17.1'	157°36.4'	S 20°03.3'	156°44.7'	S 20°49.2'
19	115°35.5'		104°05.1'	N 4°56.5'	60°28.6'	N 23°19.2'	179°10.3'	S 21°17.1'	172°38.7'	S 20°03.2'	171°45.3'	S 20°48.9'
20	130°38.0'		119°05.3'	N 4°57.5'	75°28.6'	N 23°19.9'	194°12.4'	S 21°17.0'	187°41.0'	S 20°03.2'	186°46.0'	S 20°48.6'
21	145°40.4'		134°05.5'	N 4°58.5'	90°28.7'	N 23°20.6'	209°14.5'	S 21°17.0'	202°43.3'	S 20°03.2'	201°46.6'	S 20°48.2'
22	160°42.9'		149°05.7'	N 4°59.4'	105°28.8'	N 23°21.3'	224°16.7'	S 21°16.9'	217°45.6'	S 20°03.2'	216°47.3'	S 20°47.9'
23	175°45.3'		164°05.8'	N 5°00.4'	120°28.9'	N 23°22.0'	239°18.8'	S 21°16.9'	232°47.9'	S 20°03.1'	231°47.9'	S 20°47.6'
			SD 16.0'	<i>d</i> 1.0'	<i>v</i> 0.1'	<i>d</i> 0.7'	<i>v</i> 2.1'	<i>d</i> 0.0'	<i>v</i> 2.3'	<i>d</i> 0.0'	<i>v</i> 0.6'	<i>d</i> 0.3'
Mer. pass.			12 h 3 m 45 s		14 h 58 m		7 h 5 m		7 h 31 m		7 h 33 m	

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Sun
0	92°39.3'	N 23°36.7'	8.1'	1.2'	56.7'	105°11.8'	53°33.3'	25°16.0'	18°03.0'	17°58.1'		27°04.8'	84°49.5'
1	107°06.5'	N 23°37.8'	8.1'	1.0'	56.7'	104°42.9'	53°01.0'	24°53.8'	17°31.9'	18°14.2'		27°36.9'	85°19.3'
2	121°33.6'	N 23°38.9'	8.0'	0.9'	56.7'	104°14.0'	52°28.7'	24°31.9'	17°00.8'	18°31.1'	27°01.4'	28°09.1'	85°49.2'
3	136°00.6'	N 23°39.8'	8.0'	0.8'	56.8'	103°45.0'	51°56.3'	24°10.4'	16°29.8'	18°48.5'	27°16.8'	28°41.3'	86°19.0'
4	150°27.6'	N 23°40.6'	7.9'	0.6'	56.8'	103°16.0'	51°23.9'	23°49.2'	15°58.8'	19°06.7'	27°32.6'	29°13.5'	86°49.0'
5	164°54.5'	N 23°41.2'	7.9'	0.5'	56.8'	102°47.0'	50°51.5'	23°28.4'	15°27.9'	19°25.5'	27°48.9'	29°45.8'	87°18.9'
6	179°21.4'	N 23°41.7'	7.8'	0.4'	56.9'	102°17.9'	50°19.0'	23°08.0'	14°57.1'	19°44.8'	28°05.7'	30°18.2'	87°48.9'
7	193°48.2'	N 23°42.1'	7.8'	0.2'	56.9'	101°48.7'	49°46.5'	22°48.0'	14°26.4'	20°04.8'	28°22.9'	30°50.6'	88°19.0'
8	208°15.0'	N 23°42.3'	7.7'	0.1'	56.9'	101°19.5'	49°14.0'	22°28.5'	13°55.7'	20°25.3'	28°40.5'	31°23.0'	88°49.0'
9	222°41.7'	N 23°42.4'	7.7'	-0.0'	57.0'	100°50.2'	48°41.4'	22°09.4'	13°25.2'	20°46.3'	28°58.6'	31°55.5'	89°19.2'
10	237°08.4'	N 23°42.4'	7.7'	-0.2'	57.0'	100°20.9'	48°08.8'	21°50.8'	12°54.8'	21°07.8'	29°17.1'	32°28.0'	89°49.3'
11	251°35.1'	N 23°42.2'	7.6'	-0.3'	57.0'	99°51.6'	47°36.1'	21°32.7'	12°24.6'	21°29.8'	29°35.9'	33°00.6'	90°19.5'
12	266°01.7'	N 23°41.9'	7.6'	-0.5'	57.1'	99°22.2'	47°03.4'	21°15.2'	11°54.6'	21°52.2'	29°55.2'	33°33.2'	90°49.8'
13	280°28.3'	N 23°41.4'	7.5'	-0.6'	57.1'	98°52.7'	46°30.7'	20°58.2'	11°24.8'	22°15.1'	30°14.8'	34°05.9'	91°20.0'
14	294°54.8'	N 23°40.8'	7.5'	-0.7'	57.2'	98°23.2'	45°57.9'	20°41.8'	10°55.2'	22°38.4'	30°34.8'	34°38.6'	91°50.4'
15	309°21.3'	N 23°40.1'	7.5'	-0.9'	57.2'	97°53.7'	45°25.1'	20°26.1'	10°25.9'	23°02.2'	30°55.2'	35°11.4'	92°20.7'
16	323°47.7'	N 23°39.2'	7.4'	-1.0'	57.2'	97°24.1'	44°52.2'		9°57.0'	23°26.3'	31°15.9'	35°44.2'	92°51.1'
17	338°14.2'	N 23°38.2'	7.4'	-1.1'	57.3'	96°54.5'	44°19.4'		9°28.5'	23°50.7'	31°37.0'	36°17.0'	93°21.6'
18	352°40.5'	N 23°37.1'	7.3'	-1.3'	57.3'	96°24.8'	43°46.4'		9°00.4'	24°15.5'	31°58.4'	36°49.9'	93°52.1'
19	7°06.9'	N 23°35.8'	7.3'	-1.4'	57.3'	95°55.1'	43°13.4'		8°32.9'	24°40.7'	32°20.1'	37°22.9'	94°22.6'
20	21°33.2'	N 23°34.3'	7.3'	-1.6'	57.4'	95°25.3'	42°40.4'		8°06.1'	25°06.1'	32°42.1'	37°55.9'	94°53.2'
21	35°59.5'	N 23°32.8'	7.2'	-1.7'	57.4'	94°55.5'	42°07.4'			25°31.9'	33°04.4'	38°28.9'	95°23.8'
22	50°25.7'	N 23°31.1'	7.2'	-1.9'	57.4'	94°25.6'	41°34.3'			25°58.0'	33°27.0'	39°02.0'	95°54.5'
23	64°51.9'	N 23°29.2'	7.2'	-2.0'	57.5'	93°55.7'	41°01.2'			26°24.4'	33°49.9'	39°35.2'	96°25.2'
Mer. pass.			18 h 30 m SD 15.5'	phase 45%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.6'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°08.8'	N 89°21.0'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.1'	S 52°42.8'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	190°47.8'	179°06.0'	N 5°01.3'	135°28.9'	N 23°22.7'		254°21.0'	S 21°16.8'		247°50.2'	S 20°03.1'		246°48.5'	S 20°47.2'				
1	205°50.3'	194°06.2'	N 5°02.3'	150°29.0'	N 23°23.4'		269°23.1'	S 21°16.8'		262°52.5'	S 20°03.1'		261°49.2'	S 20°46.9'				
2	220°52.7'	209°06.4'	N 5°03.3'	165°29.1'	N 23°24.1'		284°25.3'	S 21°16.7'		277°54.8'	S 20°03.0'		276°49.8'	S 20°46.5'				
3	235°55.2'	224°06.6'	N 5°04.2'	180°29.2'	N 23°24.8'		299°27.4'	S 21°16.7'		292°57.1'	S 20°03.0'		291°50.5'	S 20°46.2'				
4	250°57.7'	239°06.8'	N 5°05.2'	195°29.2'	N 23°25.5'		314°29.5'	S 21°16.6'		307°59.4'	S 20°03.0'		306°51.1'	S 20°45.9'				
5	266°00.1'	254°06.9'	N 5°06.1'	210°29.3'	N 23°26.1'		329°31.7'	S 21°16.6'		323°01.7'	S 20°02.9'		321°51.7'	S 20°45.5'				
6	281°02.6'	269°07.1'	N 5°07.1'	225°29.4'	N 23°26.8'		344°33.8'	S 21°16.5'		338°04.0'	S 20°02.9'		336°52.4'	S 20°45.2'				
7	296°05.1'	284°07.3'	N 5°08.1'	240°29.5'	N 23°27.5'		359°36.0'	S 21°16.5'		353°06.3'	S 20°02.9'		351°53.0'	S 20°44.8'				
8	311°07.5'	299°07.5'	N 5°09.0'	255°29.5'	N 23°28.2'		14°38.1'	S 21°16.4'		8°08.6'	S 20°02.9'		6°53.7'	S 20°44.5'				
9	326°10.0'	314°07.7'	N 5°10.0'	270°29.6'	N 23°28.9'		29°40.3'	S 21°16.4'		23°10.9'	S 20°02.8'		21°54.3'	S 20°44.2'				
10	341°12.5'	329°07.9'	N 5°10.9'	285°29.7'	N 23°29.6'		44°42.4'	S 21°16.3'		38°13.2'	S 20°02.8'		36°54.9'	S 20°43.8'				
11	356°14.9'	344°08.1'	N 5°11.9'	300°29.8'	N 23°30.3'		59°44.5'	S 21°16.3'		53°15.6'	S 20°02.8'		51°55.6'	S 20°43.5'				
12	11°17.4'	359°08.2'	N 5°12.9'	315°29.9'	N 23°30.9'		74°46.7'	S 21°16.2'		68°17.9'	S 20°02.7'		66°56.2'	S 20°43.1'				
13	26°19.8'	14°08.4'	N 5°13.8'	330°30.0'	N 23°31.6'		89°48.8'	S 21°16.2'		83°20.2'	S 20°02.7'		81°56.9'	S 20°42.8'				
14	41°22.3'	29°08.6'	N 5°14.8'	345°30.0'	N 23°32.3'		104°51.0'	S 21°16.1'		98°22.5'	S 20°02.7'		96°57.5'	S 20°42.5'				
15	56°24.8'	44°08.8'	N 5°15.7'	0°30.1'	N 23°33.0'		119°53.1'	S 21°16.1'		113°24.8'	S 20°02.7'		111°58.2'	S 20°42.1'				
16	71°27.2'	59°09.0'	N 5°16.7'	15°30.2'	N 23°33.7'		134°55.3'	S 21°16.0'		128°27.1'	S 20°02.6'		126°58.8'	S 20°41.8'				
17	86°29.7'	74°09.2'	N 5°17.7'	30°30.3'	N 23°34.3'		149°57.4'	S 21°16.0'		143°29.4'	S 20°02.6'		141°59.4'	S 20°41.4'				
18	101°32.2'	89°09.3'	N 5°18.6'	45°30.4'	N 23°35.0'		164°59.6'	S 21°15.9'		158°31.7'	S 20°02.6'		157°00.1'	S 20°41.1'				
19	116°34.6'	104°09.5'	N 5°19.6'	60°30.5'	N 23°35.7'		180°01.7'	S 21°15.9'		173°34.0'	S 20°02.5'		172°00.7'	S 20°40.8'				
20	131°37.1'	119°09.7'	N 5°20.5'	75°30.6'	N 23°36.4'		195°03.8'	S 21°15.8'		188°36.3'	S 20°02.5'		187°01.4'	S 20°40.4'				
21	146°39.6'	134°09.9'	N 5°21.5'	90°30.7'	N 23°37.0'		210°06.0'	S 21°15.8'		203°38.6'	S 20°02.5'		202°02.0'	S 20°40.1'				
22	161°42.0'	149°10.1'	N 5°22.4'	105°30.7'	N 23°37.7'		225°08.1'	S 21°15.7'		218°40.9'	S 20°02.5'		217°02.7'	S 20°39.7'				
23	176°44.5'	164°10.3'	N 5°23.4'	120°30.8'	N 23°38.4'		240°10.3'	S 21°15.7'		233°43.3'	S 20°02.4'		232°03.3'	S 20°39.4'				
		SD 16.0'	d 1.0'		v 0.1'	d 0.7'		v 2.1'	d 0.0'		v 2.3'	d 0.0'		v 0.6'	d 0.3'			
Mer. pass.		12 h 3 m 27 s			14 h 58 m			7 h 2 m			7 h 28 m			7 h 32 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Sun
0	79°18.1'	N 23°27.2'	7.2'	-2.1'	57.5'	94°31.4'	93°25.8'	40°28.0'		26°51.0'	34°13.1'	40°08.4'	96°55.9'
1	93°44.3'	N 23°25.1'	7.1'	-2.3'	57.6'	93°58.3'	92°55.8'	39°54.8'		27°17.9'	34°36.6'	40°41.6'	97°26.7'
2	108°10.4'	N 23°22.8'	7.1'	-2.4'	57.6'	93°25.1'	92°25.8'	39°21.5'		27°45.0'	35°00.3'	41°14.9'	97°57.5'
3	122°36.5'	N 23°20.3'	7.1'	-2.6'	57.6'	92°51.9'	91°55.7'	38°48.3'		28°12.4'	35°24.3'	41°48.2'	98°28.4'
4	137°02.6'	N 23°17.8'	7.1'	-2.7'	57.7'	92°18.6'	91°25.6'	38°14.9'		28°40.1'	35°48.6'	42°21.6'	98°59.3'
5	151°28.6'	N 23°15.1'	7.0'	-2.9'	57.7'	91°45.2'	90°55.4'	37°41.6'		29°07.9'	36°13.1'	42°55.0'	99°30.3'
6	165°54.6'	N 23°12.2'	7.0'	-3.0'	57.7'	91°11.9'	90°25.2'	37°08.2'		29°36.0'	36°37.8'	43°28.5'	100°01.3'
7	180°20.6'	N 23°09.2'	7.0'	-3.1'	57.8'	90°38.5'	89°55.0'	36°34.7'		30°04.3'	37°02.8'	44°02.0'	100°32.4'
8	194°46.6'	N 23°06.1'	7.0'	-3.3'	57.8'	90°05.0'	89°24.7'	36°01.2'		30°32.8'	37°28.0'	44°35.6'	101°03.5'
9	209°12.6'	N 23°02.8'	6.9'	-3.4'	57.9'	89°31.5'	88°54.4'	35°27.7'		31°01.4'	37°53.4'	45°09.2'	101°34.6'
10	223°38.5'	N 22°59.3'	6.9'	-3.6'	57.9'	88°57.9'	88°24.0'	34°54.1'		31°30.3'	38°19.0'	45°42.8'	102°05.8'
11	238°04.5'	N 22°55.7'	6.9'	-3.7'	57.9'	88°24.3'	87°53.6'	34°20.5'		31°59.4'	38°44.9'	46°16.5'	102°37.0'
12	252°30.4'	N 22°52.0'	6.9'	-3.9'	58.0'	87°50.7'	87°23.2'	33°46.9'		32°28.6'	39°10.9'	46°50.3'	103°08.3'
13	266°56.3'	N 22°48.1'	6.9'	-4.0'	58.0'	87°17.0'	86°52.7'	33°13.2'		32°58.0'	39°37.2'	47°24.1'	103°39.6'
14	281°22.1'	N 22°44.1'	6.9'	-4.2'	58.0'	86°43.3'	86°22.2'	32°39.5'		33°27.6'	40°03.6'	47°58.0'	104°11.0'
15	295°48.0'	N 22°40.0'	6.9'	-4.3'	58.1'	86°09.5'	85°51.6'	32°05.7'		33°57.3'	40°30.3'	48°31.9'	104°42.4'
16	310°13.9'	N 22°35.7'	6.8'	-4.4'	58.1'	85°35.7'	85°21.1'	31°31.9'		34°27.2'	40°57.1'	49°05.8'	105°13.9'
17	324°39.7'	N 22°31.2'	6.8'	-4.6'	58.2'	85°01.8'	84°50.4'	30°58.1'		34°57.2'	41°24.1'	49°39.8'	105°45.4'
18	339°05.6'	N 22°26.6'	6.8'	-4.7'	58.2'	84°27.9'	84°19.8'	30°24.2'		35°27.4'	41°51.3'	50°13.9'	106°17.0'
19	353°31.4'	N 22°21.9'	6.8'	-4.9'	58.2'	83°53.9'	83°49.1'	29°50.3'		35°57.8'	42°18.7'	50°48.0'	106°48.6'
20	7°57.2'	N 22°17.0'	6.8'	-5.0'	58.3'	83°19.9'	83°18.4'	29°16.4'	8°32.2'	36°28.2'	42°46.2'	51°22.1'	107°20.2'
21	22°23.0'	N 22°12.0'	6.8'	-5.2'	58.3'	82°45.9'	82°47.6'	28°42.4'	9°00.6'	36°58.9'	43°13.9'	51°56.3'	107°51.9'
22	36°48.8'	N 22°06.8'	6.8'	-5.3'	58.4'	82°11.8'	82°16.8'	28°08.4'	9°29.8'	37°29.6'	43°41.8'	52°30.5'	108°23.6'
23	51°14.6'	N 22°01.5'	6.8'	-5.5'	58.4'	81°37.6'	81°46.0'	27°34.3'	9°59.5'	38°00.5'	44°09.8'	53°04.8'	108°55.4'
Mer. pass.		19 h 27 m SD 15.7'			phase 56%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°09.0'	N 89°21.0'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.2'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	191°47.0'		179°10.4'	N 5°24.4'	135°30.9'	N 23°39.0'	255°12.4'	S 21°15.6'	248°45.6'	S 20°02.4'	247°03.9'	S 20°39.0'
1	206°49.4'		194°10.6'	N 5°25.3'	150°31.0'	N 23°39.7'	270°14.6'	S 21°15.6'	263°47.9'	S 20°02.4'	262°04.6'	S 20°38.7'
2	221°51.9'		209°10.8'	N 5°26.3'	165°31.1'	N 23°40.4'	285°16.7'	S 21°15.5'	278°50.2'	S 20°02.3'	277°05.2'	S 20°38.3'
3	236°54.3'		224°11.0'	N 5°27.2'	180°31.2'	N 23°41.1'	300°18.9'	S 21°15.5'	293°52.5'	S 20°02.3'	292°05.9'	S 20°38.0'
4	251°56.8'		239°11.2'	N 5°28.2'	195°31.3'	N 23°41.7'	315°21.0'	S 21°15.4'	308°54.8'	S 20°02.3'	307°06.5'	S 20°37.7'
5	266°59.3'		254°11.4'	N 5°29.1'	210°31.4'	N 23°42.4'	330°23.2'	S 21°15.4'	323°57.1'	S 20°02.2'	322°07.2'	S 20°37.3'
6	282°01.7'		269°11.5'	N 5°30.1'	225°31.5'	N 23°43.1'	345°25.3'	S 21°15.4'	338°59.4'	S 20°02.2'	337°07.8'	S 20°37.0'
7	297°04.2'		284°11.7'	N 5°31.0'	240°31.6'	N 23°43.7'	0°27.5'	S 21°15.3'	354°01.7'	S 20°02.2'	352°08.5'	S 20°36.6'
8	312°06.7'		299°11.9'	N 5°32.0'	255°31.7'	N 23°44.4'	15°29.6'	S 21°15.3'	9°04.0'	S 20°02.2'	7°09.1'	S 20°36.3'
9	327°09.1'		314°12.1'	N 5°33.0'	270°31.8'	N 23°45.0'	30°31.8'	S 21°15.2'	24°06.4'	S 20°02.1'	22°09.7'	S 20°35.9'
10	342°11.6'		329°12.3'	N 5°33.9'	285°31.9'	N 23°45.7'	45°33.9'	S 21°15.2'	39°08.7'	S 20°02.1'	37°10.4'	S 20°35.6'
11	357°14.1'		344°12.4'	N 5°34.9'	300°32.0'	N 23°46.4'	60°36.1'	S 21°15.1'	54°11.0'	S 20°02.1'	52°11.0'	S 20°35.2'
12	12°16.5'		359°12.6'	N 5°35.8'	315°32.1'	N 23°47.0'	75°38.2'	S 21°15.1'	69°13.3'	S 20°02.0'	67°11.7'	S 20°34.9'
13	27°19.0'		14°12.8'	N 5°36.8'	330°32.2'	N 23°47.7'	90°40.4'	S 21°15.0'	84°15.6'	S 20°02.0'	82°12.3'	S 20°34.5'
14	42°21.5'		29°13.0'	N 5°37.7'	345°32.3'	N 23°48.3'	105°42.5'	S 21°15.0'	99°17.9'	S 20°02.0'	97°13.0'	S 20°34.2'
15	57°23.9'		44°13.2'	N 5°38.7'	0°32.4'	N 23°49.0'	120°44.7'	S 21°14.9'	114°20.2'	S 20°02.0'	112°13.6'	S 20°33.8'
16	72°26.4'		59°13.4'	N 5°39.6'	15°32.5'	N 23°49.7'	135°46.8'	S 21°14.9'	129°22.5'	S 20°01.9'	127°14.3'	S 20°33.5'
17	87°28.8'		74°13.5'	N 5°40.6'	30°32.6'	N 23°50.3'	150°49.0'	S 21°14.8'	144°24.8'	S 20°01.9'	142°14.9'	S 20°33.1'
18	102°31.3'		89°13.7'	N 5°41.5'	45°32.7'	N 23°51.0'	165°51.1'	S 21°14.8'	159°27.2'	S 20°01.9'	157°15.6'	S 20°32.8'
19	117°33.8'		104°13.9'	N 5°42.5'	60°32.8'	N 23°51.6'	180°53.3'	S 21°14.7'	174°29.5'	S 20°01.9'	172°16.2'	S 20°32.4'
20	132°36.2'		119°14.1'	N 5°43.4'	75°32.9'	N 23°52.3'	195°55.4'	S 21°14.7'	189°31.8'	S 20°01.8'	187°16.8'	S 20°32.1'
21	147°38.7'		134°14.3'	N 5°44.4'	90°33.0'	N 23°52.9'	210°57.6'	S 21°14.6'	204°34.1'	S 20°01.8'	202°17.5'	S 20°31.7'
22	162°41.2'		149°14.5'	N 5°45.4'	105°33.1'	N 23°53.6'	225°59.8'	S 21°14.6'	219°36.4'	S 20°01.8'	217°18.1'	S 20°31.4'
23	177°43.6'		164°14.6'	N 5°46.3'	120°33.2'	N 23°54.2'	241°01.9'	S 21°14.5'	234°38.7'	S 20°01.7'	232°18.8'	S 20°31.0'
			SD 16.0'	d 1.0'	v 0.1'	d 0.7'	v 2.2'	d 0.0'	v 2.3'	d 0.0'	v 0.6'	d 0.3'
Mer. pass.			12 h 3 m 10 s		14 h 58 m		6 h 58 m		7 h 24 m		7 h 31 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sun
0	65°40.4'	N 21°56.1'	6.8'	-5.6'	58.4'	97°27.1'	81°15.1'	81°03.4'	27°00.3'	10°29.8'		38°31.5'	109°27.3'
1	80°06.2'	N 21°50.5'	6.8'	-5.7'	58.5'	97°08.5'	80°44.2'	80°29.2'	26°26.2'	11°00.4'	20°07.1'	39°02.6'	109°59.1'
2	94°32.0'	N 21°44.7'	6.8'	-5.9'	58.5'	96°49.9'	80°13.3'	79°54.9'	25°52.0'	11°31.5'	20°22.8'	39°33.9'	110°31.1'
3	108°57.8'	N 21°38.8'	6.8'	-6.0'	58.6'	96°31.1'	79°42.3'	79°20.6'	25°17.8'	12°03.0'	20°39.2'	40°05.2'	111°03.0'
4	123°23.6'	N 21°32.8'	6.8'	-6.2'	58.6'	96°12.4'	79°11.3'	78°46.2'	24°43.6'	12°34.7'	20°56.4'	40°36.7'	111°35.0'
5	137°49.4'	N 21°26.6'	6.8'	-6.3'	58.6'	95°53.6'	78°40.3'	78°11.8'	24°09.4'	13°06.8'	21°14.2'	41°08.3'	112°07.1'
6	152°15.2'	N 21°20.3'	6.8'	-6.5'	58.7'	95°34.7'	78°09.3'	77°37.3'	23°35.1'	13°39.1'	21°32.7'	41°40.0'	112°39.2'
7	166°41.0'	N 21°13.9'	6.8'	-6.6'	58.7'	95°15.8'	77°38.2'	77°02.8'	23°00.9'	14°11.6'	21°51.9'	42°11.8'	113°11.4'
8	181°06.8'	N 21°07.3'	6.8'	-6.7'	58.7'	94°56.8'	77°07.1'	76°28.2'	22°26.6'	14°44.3'	22°11.7'	42°43.7'	113°43.6'
9	195°32.6'	N 21°00.6'	6.8'	-6.9'	58.8'	94°37.8'	76°36.0'	75°53.6'	21°52.2'	15°17.3'	22°32.1'	43°15.8'	114°15.8'
10	209°58.4'	N 20°53.7'	6.8'	-7.0'	58.8'	94°18.7'	76°04.8'	75°18.9'	21°17.9'	15°50.4'	22°53.1'	43°47.9'	114°48.1'
11	224°24.2'	N 20°46.7'	6.8'	-7.2'	58.9'	93°59.6'	75°33.7'	74°44.2'	20°43.5'	16°23.6'	23°14.7'	44°20.1'	115°20.5'
12	238°50.0'	N 20°39.5'	6.8'	-7.3'	58.9'	93°40.4'	75°02.5'	74°09.5'	20°09.1'	16°57.1'	23°36.8'	44°52.4'	115°52.9'
13	253°15.9'	N 20°32.2'	6.8'	-7.4'	58.9'	93°21.2'	74°31.2'	73°34.7'	19°34.7'	17°30.7'	23°59.4'	45°24.9'	116°25.3'
14	267°41.7'	N 20°24.8'	6.9'	-7.6'	59.0'	93°02.0'	74°00.0'	72°59.9'	19°00.3'	18°04.4'	24°22.5'	45°57.4'	116°57.8'
15	282°07.6'	N 20°17.2'	6.9'	-7.7'	59.0'	92°42.7'	73°28.7'	72°25.0'	18°25.9'	18°38.2'	24°46.0'	46°30.0'	117°30.3'
16	296°33.4'	N 20°09.5'	6.9'	-7.8'	59.1'	92°23.4'	72°57.5'	71°50.0'	17°51.5'	19°12.2'	25°10.0'	47°02.7'	118°02.9'
17	310°59.3'	N 20°01.7'	6.9'	-8.0'	59.1'	92°04.1'	72°26.2'	71°15.1'	17°17.1'	19°46.3'	25°34.5'	47°35.5'	118°35.5'
18	325°25.2'	N 19°53.7'	6.9'	-8.1'	59.1'	91°44.7'	71°54.8'	70°40.1'	16°42.8'	20°20.5'	25°59.4'	48°08.4'	119°08.2'
19	339°51.1'	N 19°45.6'	6.9'	-8.2'	59.2'	91°25.3'	71°23.5'	70°05.0'	16°08.4'	20°54.8'	26°24.7'	48°41.3'	119°40.9'
20	354°17.0'	N 19°37.3'	6.9'	-8.4'	59.2'	91°05.8'	70°52.2'	69°29.9'	15°34.0'	21°29.2'	26°50.3'	49°14.4'	
21	8°42.9'	N 19°29.0'	6.9'	-8.5'	59.2'	90°46.3'	70°20.8'	68°54.7'	14°59.7'	22°03.7'	27°16.4'	49°47.5'	
22	23°08.9'	N 19°20.4'	7.0'	-8.6'	59.3'	90°26.8'	69°49.4'	68°19.5'	14°25.5'	22°38.2'	27°42.8'	50°20.7'	
23	37°34.8'	N 19°11.8'	7.0'	-8.8'	59.3'	90°07.3'	69°18.0'	67°44.3'	13°51.2'	23°12.9'	28°09.5'	50°54.0'	
Mer. pass.			20 h 24 m SD 15.9'	phase 67%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.6'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°09.2'	N 89°21.0'
Rigil Kent	-0.0	139°44.9'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	192°46.1'	179°14.8' N 5°47.3'	135°33.3'	N 23°54.9'	256°04.1'	S 21°14.5'	249°41.0'	S 20°01.7'	247°19.4'	S 20°30.7'		
1	207°48.6'	194°15.0' N 5°48.2'	150°33.5'	N 23°55.5'	271°06.2'	S 21°14.4'	264°43.3'	S 20°01.7'	262°20.1'	S 20°30.3'		
2	222°51.0'	209°15.2' N 5°49.2'	165°33.6'	N 23°56.2'	286°08.4'	S 21°14.4'	279°45.7'	S 20°01.7'	277°20.7'	S 20°30.0'		
3	237°53.5'	224°15.4' N 5°50.1'	180°33.7'	N 23°56.8'	301°10.5'	S 21°14.4'	294°48.0'	S 20°01.6'	292°21.4'	S 20°29.6'		
4	252°55.9'	239°15.5' N 5°51.1'	195°33.8'	N 23°57.5'	316°12.7'	S 21°14.3'	309°50.3'	S 20°01.6'	307°22.0'	S 20°29.3'		
5	267°58.4'	254°15.7' N 5°52.0'	210°33.9'	N 23°58.1'	331°14.8'	S 21°14.3'	324°52.6'	S 20°01.6'	322°22.7'	S 20°28.9'		
6	283°00.9'	269°15.9' N 5°53.0'	225°34.0'	N 23°58.8'	346°17.0'	S 21°14.2'	339°54.9'	S 20°01.5'	337°23.3'	S 20°28.6'		
7	298°03.3'	284°16.1' N 5°53.9'	240°34.1'	N 23°59.4'	1°19.1'	S 21°14.2'	354°57.2'	S 20°01.5'	352°24.0'	S 20°28.2'		
8	313°05.8'	299°16.3' N 5°54.9'	255°34.3'	N 24°00.1'	16°21.3'	S 21°14.1'	9°59.5'	S 20°01.5'	7°24.6'	S 20°27.9'		
9	328°08.3'	314°16.4' N 5°55.8'	270°34.4'	N 24°00.7'	31°23.5'	S 21°14.1'	25°01.8'	S 20°01.5'	22°25.3'	S 20°27.5'		
10	343°10.7'	329°16.6' N 5°56.8'	285°34.5'	N 24°01.3'	46°25.6'	S 21°14.0'	40°04.2'	S 20°01.4'	37°25.9'	S 20°27.2'		
11	358°13.2'	344°16.8' N 5°57.7'	300°34.6'	N 24°02.0'	61°27.8'	S 21°14.0'	55°06.5'	S 20°01.4'	52°26.5'	S 20°26.8'		
12	13°15.7'	359°17.0' N 5°58.7'	315°34.7'	N 24°02.6'	76°29.9'	S 21°13.9'	70°08.8'	S 20°01.4'	67°27.2'	S 20°26.4'		
13	28°18.1'	14°17.2' N 5°59.6'	330°34.8'	N 24°03.3'	91°32.1'	S 21°13.9'	85°11.1'	S 20°01.3'	82°27.8'	S 20°26.1'		
14	43°20.6'	29°17.3' N 6°00.6'	345°35.0'	N 24°03.9'	106°34.2'	S 21°13.8'	100°13.4'	S 20°01.3'	97°28.5'	S 20°25.7'		
15	58°23.1'	44°17.5' N 6°01.5'	0°35.1'	N 24°04.5'	121°36.4'	S 21°13.8'	115°15.7'	S 20°01.3'	112°29.1'	S 20°25.4'		
16	73°25.5'	59°17.7' N 6°02.5'	15°35.2'	N 24°05.2'	136°38.6'	S 21°13.7'	130°18.1'	S 20°01.3'	127°29.8'	S 20°25.0'		
17	88°28.0'	74°17.9' N 6°03.4'	30°35.3'	N 24°05.8'	151°40.7'	S 21°13.7'	145°20.4'	S 20°01.2'	142°30.4'	S 20°24.7'		
18	103°30.4'	89°18.1' N 6°04.4'	45°35.5'	N 24°06.4'	166°42.9'	S 21°13.7'	160°22.7'	S 20°01.2'	157°31.1'	S 20°24.3'		
19	118°32.9'	104°18.3' N 6°05.3'	60°35.6'	N 24°07.1'	181°45.0'	S 21°13.6'	175°25.0'	S 20°01.2'	172°31.7'	S 20°24.0'		
20	133°35.4'	119°18.4' N 6°06.3'	75°35.7'	N 24°07.7'	196°47.2'	S 21°13.6'	190°27.3'	S 20°01.2'	187°32.4'	S 20°23.6'		
21	148°37.8'	134°18.6' N 6°07.2'	90°35.8'	N 24°08.3'	211°49.4'	S 21°13.5'	205°29.6'	S 20°01.1'	202°33.0'	S 20°23.2'		
22	163°40.3'	149°18.8' N 6°08.2'	105°36.0'	N 24°09.0'	226°51.5'	S 21°13.5'	220°31.9'	S 20°01.1'	217°33.7'	S 20°22.9'		
23	178°42.8'	164°19.0' N 6°09.1'	120°36.1'	N 24°09.6'	241°53.7'	S 21°13.4'	235°34.3'	S 20°01.1'	232°34.3'	S 20°22.5'		
		SD 16.0' d 1.0'	v 0.1' d 0.6'		v 2.2' d 0.0'		v 2.3' d 0.0'		v 0.6' d 0.4'			
Mer. pass.		12 h 2 m 52 s	14 h 58 m		6 h 55 m		7 h 20 m		7 h 30 m			

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius
0	52°00.8'	N 19°03.0'	7.0'	-8.9'	59.4'	89°47.7'	68°46.6'	67°09.0'	13°17.1'	23°47.7'	28°36.6'	51°27.4'	52°38.1'
1	66°26.8'	N 18°54.1'	7.0'	-9.0'	59.4'	89°28.1'	68°15.2'	66°33.7'	12°43.0'	24°22.5'	29°04.0'	52°00.9'	52°58.8'
2	80°52.8'	N 18°45.1'	7.0'	-9.2'	59.4'	89°08.5'	67°43.8'	65°58.3'	12°09.1'	24°57.4'	29°31.7'	52°34.4'	53°19.7'
3	95°18.8'	N 18°35.9'	7.0'	-9.3'	59.5'	88°48.8'	67°12.4'	65°22.9'	11°35.2'	25°32.4'	29°59.6'	53°08.0'	53°40.8'
4	109°44.9'	N 18°26.6'	7.1'	-9.4'	59.5'	88°29.2'	66°40.9'	64°47.4'	11°01.6'	26°07.5'	30°27.9'	53°41.7'	54°02.1'
5	124°10.9'	N 18°17.1'	7.1'	-9.6'	59.5'	88°09.5'	66°09.5'	64°11.9'	10°28.1'	26°42.7'	30°56.4'	54°15.5'	54°23.6'
6	138°37.0'	N 18°07.6'	7.1'	-9.7'	59.6'	87°49.8'	65°38.0'	63°36.3'	9°54.8'	27°17.9'	31°25.2'	54°49.3'	54°45.2'
7	153°03.1'	N 17°57.9'	7.1'	-9.8'	59.6'	87°30.1'	65°06.6'	63°00.7'	9°21.8'	27°53.2'	31°54.3'	55°23.2'	55°07.1'
8	167°29.2'	N 17°48.1'	7.1'	-9.9'	59.6'	87°10.4'	64°35.2'	62°25.1'	8°49.1'	28°28.6'	32°23.6'	55°57.2'	55°29.2'
9	181°55.4'	N 17°38.2'	7.2'	-10.1'	59.7'	86°50.6'	64°03.7'	61°49.4'	8°16.8'	29°04.0'	32°53.1'	56°31.2'	55°51.5'
10	196°21.5'	N 17°28.1'	7.2'	-10.2'	59.7'	86°30.9'	63°32.3'	61°13.7'	7°45.1'	29°39.5'	33°22.8'	57°05.3'	56°13.9'
11	210°47.7'	N 17°17.9'	7.2'	-10.3'	59.8'	86°11.1'	63°00.9'	60°37.9'	7°13.9'	30°15.0'	33°52.8'	57°39.5'	56°36.6'
12	225°13.9'	N 17°07.6'	7.2'	-10.4'	59.8'	85°51.4'	62°29.4'	60°02.1'		30°50.7'	34°23.0'	58°13.8'	56°59.4'
13	239°40.2'	N 16°57.2'	7.3'	-10.5'	59.8'	85°31.6'	61°58.0'	59°26.3'		31°26.3'	34°53.4'	58°48.1'	57°22.4'
14	254°06.4'	N 16°46.7'	7.3'	-10.7'	59.9'	85°11.8'	61°26.6'	58°50.4'		32°02.1'	35°24.0'	59°22.5'	57°45.5'
15	268°32.7'	N 16°36.0'	7.3'	-10.8'	59.9'	84°52.0'	60°55.3'	58°14.5'		32°37.9'	35°54.7'	59°56.9'	58°08.9'
16	282°59.0'	N 16°25.2'	7.3'	-10.9'	59.9'	84°32.3'	60°23.9'	57°38.5'		33°13.8'	36°25.7'	60°31.4'	58°32.3'
17	297°25.3'	N 16°14.3'	7.3'	-11.0'	60.0'	84°12.5'	59°52.5'	57°02.5'		33°49.7'	36°56.8'	61°06.0'	58°56.0'
18	311°51.7'	N 16°03.3'	7.4'	-11.1'	60.0'	83°52.7'	59°21.2'	56°26.5'		34°25.7'	37°28.1'	61°40.7'	59°19.8'
19	326°18.0'	N 15°52.2'	7.4'	-11.2'	60.0'	83°33.0'	58°49.9'	55°50.4'		35°01.7'	37°59.6'	62°15.4'	59°43.8'
20	340°44.4'	N 15°40.9'	7.4'	-11.4'	60.1'	83°13.2'	58°18.6'	55°14.3'		35°37.8'	38°31.2'	62°50.1'	60°08.0'
21	355°10.8'	N 15°29.6'	7.4'	-11.5'	60.1'	82°53.5'	57°47.3'	54°38.2'		36°13.9'	39°03.0'	63°24.9'	60°32.3'
22	9°37.3'	N 15°18.1'	7.5'	-11.6'	60.1'	82°33.7'	57°16.1'	54°02.0'		36°50.1'	39°34.9'	63°59.8'	60°56.7'
23	24°03.8'	N 15°06.6'	7.5'	-11.7'	60.2'	82°14.0'	56°44.9'	53°25.8'		37°26.4'	40°07.0'	64°34.7'	61°21.3'
Mer. pass.		21 h 20 m SD 16.2'	phase 77%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.7'	N 46°01.1'
Altair	+0.8	62°03.8'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°09.5'	N 89°21.0'
Rigil Kent	-0.0	139°44.8'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.6'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	193°45.2'	N 6°10.1'	179°19.2'	N 6°10.1'	135°36.2'	N 24°10.2'	256°55.8'	S 21°13.4'	250°36.6'	S 20°01.0'	247°35.0'	S 20°22.2'
1	208°47.7'	N 6°11.0'	194°19.3'	N 6°11.0'	150°36.3'	N 24°10.9'	271°58.0'	S 21°13.3'	265°38.9'	S 20°01.0'	262°35.6'	S 20°21.8'
2	223°50.2'	N 6°12.0'	209°19.5'	N 6°12.0'	165°36.5'	N 24°11.5'	287°00.2'	S 21°13.3'	280°41.2'	S 20°01.0'	277°36.3'	S 20°21.5'
3	238°52.6'	N 6°12.9'	224°19.7'	N 6°12.9'	180°36.6'	N 24°12.1'	302°02.3'	S 21°13.2'	295°43.5'	S 20°01.0'	292°36.9'	S 20°21.1'
4	253°55.1'	N 6°13.9'	239°19.9'	N 6°13.9'	195°36.7'	N 24°12.7'	317°04.5'	S 21°13.2'	310°45.8'	S 20°00.9'	307°37.6'	S 20°20.7'
5	268°57.6'	N 6°14.8'	254°20.1'	N 6°14.8'	210°36.9'	N 24°13.4'	332°06.6'	S 21°13.1'	325°48.2'	S 20°00.9'	322°38.2'	S 20°20.4'
6	284°00.0'	N 6°15.7'	269°20.2'	N 6°15.7'	225°37.0'	N 24°14.0'	347°08.8'	S 21°13.1'	340°50.5'	S 20°00.9'	337°38.9'	S 20°20.0'
7	299°02.5'	N 6°16.7'	284°20.4'	N 6°16.7'	240°37.1'	N 24°14.6'	2°11.0'	S 21°13.1'	355°52.8'	S 20°00.9'	352°39.5'	S 20°19.7'
8	314°04.9'	N 6°17.6'	299°20.6'	N 6°17.6'	255°37.3'	N 24°15.2'	17°13.1'	S 21°13.0'	10°55.1'	S 20°00.8'	7°40.2'	S 20°19.3'
9	329°07.4'	N 6°18.6'	314°20.8'	N 6°18.6'	270°37.4'	N 24°15.8'	32°15.3'	S 21°13.0'	25°57.4'	S 20°00.8'	22°40.8'	S 20°18.9'
10	344°09.9'	N 6°19.5'	329°20.9'	N 6°19.5'	285°37.5'	N 24°16.5'	47°17.5'	S 21°12.9'	40°59.8'	S 20°00.8'	37°41.5'	S 20°18.6'
11	359°12.3'	N 6°20.5'	344°21.1'	N 6°20.5'	300°37.7'	N 24°17.1'	62°19.6'	S 21°12.9'	56°02.1'	S 20°00.7'	52°42.1'	S 20°18.2'
12	14°14.8'	N 6°21.4'	359°21.3'	N 6°21.4'	315°37.8'	N 24°17.7'	77°21.8'	S 21°12.8'	71°04.4'	S 20°00.7'	67°42.8'	S 20°17.9'
13	29°17.3'	N 6°22.4'	14°21.5'	N 6°22.4'	330°38.0'	N 24°18.3'	92°23.9'	S 21°12.8'	86°06.7'	S 20°00.7'	82°43.4'	S 20°17.5'
14	44°19.7'	N 6°23.3'	29°21.7'	N 6°23.3'	345°38.1'	N 24°18.9'	107°26.1'	S 21°12.7'	101°09.0'	S 20°00.7'	97°44.1'	S 20°17.1'
15	59°22.2'	N 6°24.3'	44°21.8'	N 6°24.3'	0°38.2'	N 24°19.5'	122°28.3'	S 21°12.7'	116°11.3'	S 20°00.6'	112°44.8'	S 20°16.8'
16	74°24.7'	N 6°25.2'	59°22.0'	N 6°25.2'	15°38.4'	N 24°20.2'	137°30.4'	S 21°12.6'	131°13.7'	S 20°00.6'	127°45.4'	S 20°16.4'
17	89°27.1'	N 6°26.1'	74°22.2'	N 6°26.1'	30°38.5'	N 24°20.8'	152°32.6'	S 21°12.6'	146°16.0'	S 20°00.6'	142°46.1'	S 20°16.0'
18	104°29.6'	N 6°27.1'	89°22.4'	N 6°27.1'	45°38.7'	N 24°21.4'	167°34.8'	S 21°12.5'	161°18.3'	S 20°00.6'	157°46.7'	S 20°15.7'
19	119°32.0'	N 6°28.0'	104°22.6'	N 6°28.0'	60°38.8'	N 24°22.0'	182°36.9'	S 21°12.5'	176°20.6'	S 20°00.5'	172°47.4'	S 20°15.3'
20	134°34.5'	N 6°29.0'	119°22.7'	N 6°29.0'	75°39.0'	N 24°22.6'	197°39.1'	S 21°12.5'	191°22.9'	S 20°00.5'	187°48.0'	S 20°15.0'
21	149°37.0'	N 6°29.9'	134°22.9'	N 6°29.9'	90°39.1'	N 24°23.2'	212°41.3'	S 21°12.4'	206°25.3'	S 20°00.5'	202°48.7'	S 20°14.6'
22	164°39.4'	N 6°30.9'	149°23.1'	N 6°30.9'	105°39.3'	N 24°23.8'	227°43.4'	S 21°12.4'	221°27.6'	S 20°00.5'	217°49.3'	S 20°14.2'
23	179°41.9'	N 6°31.8'	164°23.3'	N 6°31.8'	120°39.4'	N 24°24.4'	242°45.6'	S 21°12.3'	236°29.9'	S 20°00.4'	232°50.0'	S 20°13.9'
			SD 16.0' <i>d</i> 0.9'		<i>v</i> 0.1' <i>d</i> 0.6'		<i>v</i> 2.2' <i>d</i> 0.0'		<i>v</i> 2.3' <i>d</i> 0.0'		<i>v</i> 0.7' <i>d</i> 0.4'	
Mer. pass.			12 h 2 m 35 s		14 h 57 m		6 h 51 m		7 h 16 m		7 h 29 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	38°30.2'	N 14°54.9'	7.5'	-11.8'	60.2'	87°35.9'	81°54.3'	56°13.8'	52°49.5'		38°02.7'	40°39.3'	61°46.0'
1	52°56.8'	N 14°43.1'	7.5'	-11.9'	60.2'	87°11.0'	81°34.6'	55°42.6'	52°13.2'		38°39.0'	41°11.6'	62°10.9'
2	67°23.3'	N 14°31.2'	7.6'	-12.0'	60.3'	86°46.0'	81°14.9'	55°11.6'	51°36.9'		39°15.4'	41°44.1'	62°35.9'
3	81°49.9'	N 14°19.2'	7.6'	-12.1'	60.3'	86°21.0'	80°55.3'	54°40.5'	51°00.5'		39°51.9'	42°16.8'	63°01.1'
4	96°16.5'	N 14°07.1'	7.6'	-12.2'	60.3'	85°56.0'	80°35.6'	54°09.5'	50°24.1'		40°28.4'	42°49.5'	63°26.3'
5	110°43.1'	N 13°54.9'	7.6'	-12.3'	60.3'	85°31.0'	80°16.0'	53°38.6'	49°47.7'		41°04.9'	43°22.4'	63°51.8'
6	125°09.7'	N 13°42.6'	7.7'	-12.4'	60.4'	85°06.0'	79°56.4'	53°07.7'	49°11.2'		41°41.5'	43°55.4'	64°17.3'
7	139°36.4'	N 13°30.2'	7.7'	-12.5'	60.4'	84°41.0'	79°36.9'	52°36.9'	48°34.7'		42°18.2'	44°28.5'	64°43.0'
8	154°03.1'	N 13°17.7'	7.7'	-12.6'	60.4'	84°16.0'	79°17.4'	52°06.1'	47°58.2'	7°37.2'	42°54.8'	45°01.8'	65°08.8'
9	168°29.8'	N 13°05.1'	7.7'	-12.7'	60.5'	83°51.0'	78°57.9'	51°35.4'	47°21.7'	8°09.7'	43°31.6'	45°35.1'	65°34.7'
10	182°56.5'	N 12°52.4'	7.8'	-12.8'	60.5'	83°25.9'	78°38.4'	51°04.8'	46°45.1'	8°42.8'	44°08.3'	46°08.6'	66°00.7'
11	197°23.3'	N 12°39.6'	7.8'	-12.9'	60.5'	83°00.9'	78°19.0'	50°34.2'	46°08.5'	9°16.4'	44°45.2'	46°42.1'	66°26.9'
12	211°50.1'	N 12°26.8'	7.8'	-13.0'	60.6'	82°35.9'	77°59.7'	50°03.7'	45°31.9'	9°50.5'	45°22.0'	47°15.8'	66°53.1'
13	226°16.9'	N 12°13.8'	7.8'	-13.1'	60.6'	82°10.8'	77°40.3'	49°33.3'	44°55.2'	10°24.9'	45°58.9'	47°49.5'	67°19.5'
14	240°43.7'	N 12°00.7'	7.9'	-13.1'	60.6'	81°45.8'	77°21.1'	49°03.0'	44°18.5'	10°59.7'	46°35.9'	48°23.4'	67°46.0'
15	255°10.6'	N 11°47.6'	7.9'	-13.2'	60.6'	81°20.8'	77°01.8'	48°32.7'	43°41.8'	11°34.8'	47°12.9'	48°57.3'	68°12.6'
16	269°37.5'	N 11°34.3'	7.9'	-13.3'	60.7'	80°55.8'	76°42.6'	48°02.6'	43°05.1'	12°10.1'	47°49.9'	49°31.4'	68°39.3'
17	284°04.4'	N 11°21.0'	7.9'	-13.4'	60.7'	80°30.8'	76°23.5'	47°32.5'	42°28.4'	12°45.6'	48°26.9'	50°05.5'	69°06.1'
18	298°31.3'	N 11°07.6'	8.0'	-13.5'	60.7'	80°05.8'	76°04.4'	47°02.6'	41°51.6'	13°21.4'	49°04.0'	50°39.7'	69°33.0'
19	312°58.3'	N 10°54.1'	8.0'	-13.6'	60.7'	79°40.9'	75°45.4'	46°32.8'	41°14.8'	13°57.2'	49°41.2'	51°14.0'	69°60.0'
20	327°25.2'	N 10°40.6'	8.0'	-13.6'	60.8'	79°15.9'	75°26.5'	46°03.1'	40°38.0'	14°33.3'	50°18.4'	51°48.4'	70°27.0'
21	341°52.2'	N 10°26.9'	8.0'	-13.7'	60.8'	78°51.0'	75°07.6'	45°33.5'	40°01.2'	15°09.5'	50°55.6'	52°22.8'	70°54.2'
22	356°19.3'	N 10°13.2'	8.0'	-13.8'	60.8'	78°26.1'	74°48.7'	45°04.0'	39°24.3'	15°45.8'	51°32.8'	52°57.4'	71°21.5'
23	10°46.3'	N 9°59.4'	8.1'	-13.9'	60.8'	78°01.2'	74°30.0'	44°34.7'	38°47.5'	16°22.2'	52°10.1'	53°32.0'	71°48.8'
Mer. pass.			22 h 15 m SD 16.4'		phase 86%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.8'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°09.8'	N 89°21.0'
Rigil Kent	-0.0	139°44.8'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

Monday 06 April 2020 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	194°44.4'	179°23.4'	N 6°32.8'	135°39.6'	N 24°25.0'		257°47.8'	S 21°12.3'		251°32.2'	S 20°00.4'		247°50.6'	S 20°13.5'				
1	209°46.8'	194°23.6'	N 6°33.7'	150°39.7'	N 24°25.7'		272°49.9'	S 21°12.2'		266°34.5'	S 20°00.4'		262°51.3'	S 20°13.1'				
2	224°49.3'	209°23.8'	N 6°34.6'	165°39.9'	N 24°26.3'		287°52.1'	S 21°12.2'		281°36.9'	S 20°00.3'		277°51.9'	S 20°12.8'				
3	239°51.8'	224°24.0'	N 6°35.6'	180°40.0'	N 24°26.9'		302°54.3'	S 21°12.1'		296°39.2'	S 20°00.3'		292°52.6'	S 20°12.4'				
4	254°54.2'	239°24.2'	N 6°36.5'	195°40.2'	N 24°27.5'		317°56.4'	S 21°12.1'		311°41.5'	S 20°00.3'		307°53.2'	S 20°12.0'				
5	269°56.7'	254°24.3'	N 6°37.5'	210°40.3'	N 24°28.1'		332°58.6'	S 21°12.0'		326°43.8'	S 20°00.3'		322°53.9'	S 20°11.7'				
6	284°59.2'	269°24.5'	N 6°38.4'	225°40.5'	N 24°28.7'		348°00.8'	S 21°12.0'		341°46.1'	S 20°00.2'		337°54.5'	S 20°11.3'				
7	300°01.6'	284°24.7'	N 6°39.4'	240°40.6'	N 24°29.3'		3°02.9'	S 21°12.0'		356°48.5'	S 20°00.2'		352°55.2'	S 20°10.9'				
8	315°04.1'	299°24.9'	N 6°40.3'	255°40.8'	N 24°29.9'		18°05.1'	S 21°11.9'		11°50.8'	S 20°00.2'		7°55.9'	S 20°10.6'				
9	330°06.5'	314°25.0'	N 6°41.2'	270°40.9'	N 24°30.5'		33°07.3'	S 21°11.9'		26°53.1'	S 20°00.2'		22°56.5'	S 20°10.2'				
10	345°09.0'	329°25.2'	N 6°42.2'	285°41.1'	N 24°31.1'		48°09.5'	S 21°11.8'		41°55.4'	S 20°00.1'		37°57.2'	S 20°09.8'				
11	0°11.5'	344°25.4'	N 6°43.1'	300°41.3'	N 24°31.7'		63°11.6'	S 21°11.8'		56°57.8'	S 20°00.1'		52°57.8'	S 20°09.5'				
12	15°13.9'	359°25.6'	N 6°44.1'	315°41.4'	N 24°32.3'		78°13.8'	S 21°11.7'		72°00.1'	S 20°00.1'		67°58.5'	S 20°09.1'				
13	30°16.4'	14°25.8'	N 6°45.0'	330°41.6'	N 24°32.9'		93°16.0'	S 21°11.7'		87°02.4'	S 20°00.1'		82°59.1'	S 20°08.7'				
14	45°18.9'	29°25.9'	N 6°45.9'	345°41.7'	N 24°33.5'		108°18.1'	S 21°11.6'		102°04.7'	S 20°00.0'		97°59.8'	S 20°08.4'				
15	60°21.3'	44°26.1'	N 6°46.9'	0°41.9'	N 24°34.1'		123°20.3'	S 21°11.6'		117°07.0'	S 20°00.0'		113°00.4'	S 20°08.0'				
16	75°23.8'	59°26.3'	N 6°47.8'	15°42.1'	N 24°34.6'		138°22.5'	S 21°11.6'		132°09.4'	S 19°60.0'		128°01.1'	S 20°07.6'				
17	90°26.3'	74°26.5'	N 6°48.8'	30°42.2'	N 24°35.2'		153°24.7'	S 21°11.5'		147°11.7'	S 19°60.0'		143°01.7'	S 20°07.2'				
18	105°28.7'	89°26.6'	N 6°49.7'	45°42.4'	N 24°35.8'		168°26.8'	S 21°11.5'		162°14.0'	S 19°59.9'		158°02.4'	S 20°06.9'				
19	120°31.2'	104°26.8'	N 6°50.6'	60°42.6'	N 24°36.4'		183°29.0'	S 21°11.4'		177°16.3'	S 19°59.9'		173°03.1'	S 20°06.5'				
20	135°33.6'	119°27.0'	N 6°51.6'	75°42.7'	N 24°37.0'		198°31.2'	S 21°11.4'		192°18.7'	S 19°59.9'		188°03.7'	S 20°06.1'				
21	150°36.1'	134°27.2'	N 6°52.5'	90°42.9'	N 24°37.6'		213°33.3'	S 21°11.3'		207°21.0'	S 19°59.9'		203°04.4'	S 20°05.8'				
22	165°38.6'	149°27.3'	N 6°53.5'	105°43.1'	N 24°38.2'		228°35.5'	S 21°11.3'		222°23.3'	S 19°59.8'		218°05.0'	S 20°05.4'				
23	180°41.0'	164°27.5'	N 6°54.4'	120°43.2'	N 24°38.8'		243°37.7'	S 21°11.2'		237°25.6'	S 19°59.8'		233°05.7'	S 20°05.0'				
		SD 16.0'	<i>d</i> 0.9'		<i>v</i> 0.2'	<i>d</i> 0.6'		<i>v</i> 2.2'	<i>d</i> 0.0'		<i>v</i> 2.3'	<i>d</i> 0.0'		<i>v</i> 0.7'	<i>d</i> 0.4'			
Mer. pass.		12 h 2 m 18 s		14 h 57 m			6 h 48 m			7 h 13 m			7 h 28 m					

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	25°13.4'	N 9°45.5'	8.1'	-13.9'	60.9'	77°36.4'	74°11.3'	44°05.5'	38°10.6'	16°58.7'	52°47.4'	54°06.7'	72°16.3'
1	39°40.4'	N 9°31.6'	8.1'	-14.0'	60.9'	77°11.6'	73°52.6'	43°36.4'	37°33.7'	17°35.4'	53°24.8'	54°41.4'	72°43.8'
2	54°07.5'	N 9°17.6'	8.1'	-14.1'	60.9'	76°46.8'	73°34.1'	43°07.5'	36°56.8'	18°12.1'	54°02.2'	55°16.2'	73°11.4'
3	68°34.7'	N 9°03.5'	8.1'	-14.2'	60.9'	76°22.0'	73°15.6'	42°38.8'	36°19.9'	18°48.9'	54°39.6'	55°51.1'	73°39.1'
4	83°01.8'	N 8°49.4'	8.2'	-14.2'	60.9'	75°57.3'	72°57.2'	42°10.2'	35°43.0'	19°25.8'	55°17.1'	56°26.1'	74°06.9'
5	97°29.0'	N 8°35.1'	8.2'	-14.3'	61.0'	75°32.7'	72°38.9'	41°41.8'	35°06.1'	20°02.7'	55°54.5'	57°01.1'	74°34.7'
6	111°56.1'	N 8°20.9'	8.2'	-14.3'	61.0'	75°08.0'	72°20.7'	41°13.6'	34°29.2'	20°39.8'	56°32.1'	57°36.2'	75°02.6'
7	126°23.3'	N 8°06.5'	8.2'	-14.4'	61.0'	74°43.5'	72°02.5'	40°45.6'	33°52.3'	21°16.9'	57°09.6'	58°11.3'	75°30.6'
8	140°50.5'	N 7°52.1'	8.2'	-14.5'	61.0'	74°18.9'	71°44.5'	40°17.7'	33°15.4'	21°54.0'	57°47.2'	58°46.5'	75°58.6'
9	155°17.8'	N 7°37.6'	8.2'	-14.5'	61.0'	73°54.4'	71°26.5'	39°50.1'	32°38.5'	22°31.2'	58°24.8'	59°21.8'	76°26.7'
10	169°45.0'	N 7°23.1'	8.3'	-14.6'	61.1'	73°30.0'	71°08.7'	39°22.7'	32°01.6'	23°08.5'	59°02.4'	59°57.1'	76°54.9'
11	184°12.3'	N 7°08.5'	8.3'	-14.6'	61.1'	73°05.6'	70°50.9'	38°55.5'	31°24.7'	23°45.8'	59°40.1'	60°32.5'	77°23.1'
12	198°39.6'	N 6°53.9'	8.3'	-14.7'	61.1'	72°41.3'	70°33.3'	38°28.6'	30°47.8'	24°23.2'	60°17.7'	61°07.9'	77°51.4'
13	213°06.9'	N 6°39.2'	8.3'	-14.7'	61.1'	72°17.1'	70°15.7'	38°01.9'	30°11.0'	25°00.6'	60°55.4'	61°43.3'	78°19.8'
14	227°34.2'	N 6°24.5'	8.3'	-14.8'	61.1'	71°52.9'	69°58.2'	37°35.4'	29°34.1'	25°38.0'	61°33.2'	62°18.9'	78°48.2'
15	242°01.5'	N 6°09.7'	8.3'	-14.8'	61.1'	71°28.8'	69°40.9'	37°09.3'	28°57.3'	26°15.5'	62°10.9'	62°54.4'	79°16.6'
16	256°28.8'	N 5°54.9'	8.3'	-14.9'	61.2'	71°04.7'	69°23.7'	36°43.4'	28°20.5'	26°53.1'	62°48.7'	63°30.0'	79°45.1'
17	270°56.2'	N 5°40.0'	8.4'	-14.9'	61.2'	70°40.7'	69°06.6'	36°17.8'	27°43.7'	27°30.7'	63°26.5'	64°05.7'	80°13.7'
18	285°23.5'	N 5°25.1'	8.4'	-15.0'	61.2'	70°16.8'	68°49.6'	35°52.5'	27°07.0'	28°08.3'	64°04.3'	64°41.4'	80°42.3'
19	299°50.9'	N 5°10.1'	8.4'	-15.0'	61.2'	69°53.0'	68°32.7'	35°27.5'	26°30.2'	28°45.9'	64°42.2'	65°17.1'	81°10.9'
20	314°18.3'	N 4°55.1'	8.4'	-15.0'	61.2'	69°29.3'	68°16.0'	35°02.8'	25°53.6'	29°23.6'	65°20.0'	65°52.9'	81°39.6'
21	328°45.7'	N 4°40.1'	8.4'	-15.1'	61.2'	69°05.6'	67°59.4'	34°38.5'	25°16.9'	30°01.3'	65°57.9'	66°28.7'	82°08.3'
22	343°13.1'	N 4°25.0'	8.4'	-15.1'	61.2'	68°42.0'	67°42.9'	34°14.5'	24°40.4'	30°39.0'	66°35.8'	67°04.5'	82°37.1'
23	357°40.5'	N 4°09.9'	8.4'	-15.1'	61.3'	68°18.5'	67°26.5'	33°50.9'	24°03.9'	31°16.8'	67°13.7'	67°40.4'	83°05.9'
Mer. pass.		23 h 10 m SD 16.6'		phase 93%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°10.0'	N 89°21.0'
Rigil Kent	-0.0	139°44.8'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	195°43.5'	179°27.7' N 6°55.3'	135°43.4' N 24°39.4'	258°39.9' S 21°11.2'	252°28.0' S 19°59.8'	248°06.3' S 20°04.7'						
1	210°46.0'	194°27.9' N 6°56.3'	150°43.6' N 24°39.9'	273°42.0' S 21°11.2'	267°30.3' S 19°59.7'	263°07.0' S 20°04.3'						
2	225°48.4'	209°28.0' N 6°57.2'	165°43.8' N 24°40.5'	288°44.2' S 21°11.1'	282°32.6' S 19°59.7'	278°07.6' S 20°03.9'						
3	240°50.9'	224°28.2' N 6°58.2'	180°43.9' N 24°41.1'	303°46.4' S 21°11.1'	297°34.9' S 19°59.7'	293°08.3' S 20°03.5'						
4	255°53.4'	239°28.4' N 6°59.1'	195°44.1' N 24°41.7'	318°48.6' S 21°11.0'	312°37.2' S 19°59.7'	308°09.0' S 20°03.2'						
5	270°55.8'	254°28.6' N 7°00.0'	210°44.3' N 24°42.3'	333°50.7' S 21°11.0'	327°39.6' S 19°59.6'	323°09.6' S 20°02.8'						
6	285°58.3'	269°28.7' N 7°01.0'	225°44.5' N 24°42.9'	348°52.9' S 21°10.9'	342°41.9' S 19°59.6'	338°10.3' S 20°02.4'						
7	301°00.8'	284°28.9' N 7°01.9'	240°44.6' N 24°43.4'	3°55.1' S 21°10.9'	357°44.2' S 19°59.6'	353°10.9' S 20°02.0'						
8	316°03.2'	299°29.1' N 7°02.8'	255°44.8' N 24°44.0'	18°57.3' S 21°10.8'	12°46.5' S 19°59.6'	8°11.6' S 20°01.7'						
9	331°05.7'	314°29.3' N 7°03.8'	270°45.0' N 24°44.6'	33°59.4' S 21°10.8'	27°48.9' S 19°59.5'	23°12.2' S 20°01.3'						
10	346°08.1'	329°29.4' N 7°04.7'	285°45.2' N 24°45.2'	49°01.6' S 21°10.8'	42°51.2' S 19°59.5'	38°12.9' S 20°00.9'						
11	1°10.6'	344°29.6' N 7°05.6'	300°45.4' N 24°45.7'	64°03.8' S 21°10.7'	57°53.5' S 19°59.5'	53°13.6' S 20°00.5'						
12	16°13.1'	359°29.8' N 7°06.6'	315°45.5' N 24°46.3'	79°06.0' S 21°10.7'	72°55.9' S 19°59.5'	68°14.2' S 20°00.2'						
13	31°15.5'	14°30.0' N 7°07.5'	330°45.7' N 24°46.9'	94°08.1' S 21°10.6'	87°58.2' S 19°59.4'	83°14.9' S 19°59.8'						
14	46°18.0'	29°30.1' N 7°08.5'	345°45.9' N 24°47.5'	109°10.3' S 21°10.6'	103°00.5' S 19°59.4'	98°15.5' S 19°59.4'						
15	61°20.5'	44°30.3' N 7°09.4'	0°46.1' N 24°48.0'	124°12.5' S 21°10.5'	118°02.8' S 19°59.4'	113°16.2' S 19°59.0'						
16	76°22.9'	59°30.5' N 7°10.3'	15°46.3' N 24°48.6'	139°14.7' S 21°10.5'	133°05.2' S 19°59.4'	128°16.9' S 19°58.7'						
17	91°25.4'	74°30.7' N 7°11.3'	30°46.5' N 24°49.2'	154°16.9' S 21°10.4'	148°07.5' S 19°59.3'	143°17.5' S 19°58.3'						
18	106°27.9'	89°30.8' N 7°12.2'	45°46.7' N 24°49.7'	169°19.0' S 21°10.4'	163°09.8' S 19°59.3'	158°18.2' S 19°57.9'						
19	121°30.3'	104°31.0' N 7°13.1'	60°46.9' N 24°50.3'	184°21.2' S 21°10.4'	178°12.1' S 19°59.3'	173°18.8' S 19°57.5'						
20	136°32.8'	119°31.2' N 7°14.1'	75°47.0' N 24°50.9'	199°23.4' S 21°10.3'	193°14.5' S 19°59.3'	188°19.5' S 19°57.2'						
21	151°35.2'	134°31.4' N 7°15.0'	90°47.2' N 24°51.5'	214°25.6' S 21°10.3'	208°16.8' S 19°59.2'	203°20.1' S 19°56.8'						
22	166°37.7'	149°31.5' N 7°15.9'	105°47.4' N 24°52.0'	229°27.8' S 21°10.2'	223°19.1' S 19°59.2'	218°20.8' S 19°56.4'						
23	181°40.2'	164°31.7' N 7°16.9'	120°47.6' N 24°52.6'	244°29.9' S 21°10.2'	238°21.4' S 19°59.2'	233°21.5' S 19°56.0'						
		SD 16.0' d 0.9'	v 0.2' d 0.6'	v 2.2' d 0.0'	v 2.3' d 0.0'	v 0.7' d 0.4'						
Mer. pass.		12 h 2 m 1 s	14 h 57 m	6 h 44 m	7 h 9 m	7 h 27 m						

h	Moon				Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon
0	12°07.9' N	3°54.8' N	8.4' -15.2'	61.3'	67°55.2'	67°10.3'	33°27.7'	23°27.4'	31°54.6'	67°51.7'	68°16.3'	82°06.6'
1	26°35.3' N	3°39.6' N	8.4' -15.2'	61.3'	67°31.9'	66°54.2'	33°04.9'	22°51.0'	32°32.4'	68°29.6'	68°52.3'	82°29.3'
2	41°02.8' N	3°24.4' N	8.4' -15.2'	61.3'	67°08.7'	66°38.3'	32°42.4'	22°14.7'	33°10.2'	69°07.6'	69°28.3'	82°52.1'
3	55°30.2' N	3°09.2' N	8.4' -15.3'	61.3'	66°45.6'	66°22.5'	32°20.5'	21°38.5'	33°48.1'	69°45.6'	70°04.3'	83°14.9'
4	69°57.7' N	2°53.9' N	8.5' -15.3'	61.3'	66°22.6'	66°06.9'	31°58.9'	21°02.4'	34°26.0'	70°23.6'	70°40.3'	83°37.7'
5	84°25.1' N	2°38.7' N	8.5' -15.3'	61.3'	65°59.8'	65°51.4'	31°37.8'	20°26.3'	35°03.9'	71°01.6'	71°16.4'	84°00.6'
6	98°52.6' N	2°23.4' N	8.5' -15.3'	61.3'	65°37.0'	65°36.0'	31°17.2'	19°50.4'	35°41.8'	71°39.6'	71°52.5'	84°23.5'
7	113°20.1' N	2°08.1' N	8.5' -15.3'	61.3'	65°14.4'	65°20.9'	30°57.1'	19°14.7'	36°19.7'	72°17.6'	72°28.6'	84°46.5'
8	127°47.5' N	1°52.7' N	8.5' -15.3'	61.3'	64°51.9'		30°37.5'	18°39.0'	36°57.7'	72°55.7'	73°04.7'	85°09.4'
9	142°15.0' N	1°37.4' N	8.5' -15.4'	61.3'	64°29.5'		30°18.5'	18°03.6'	37°35.7'	73°33.7'	73°40.9'	85°32.4'
10	156°42.5' N	1°22.0' N	8.5' -15.4'	61.3'	64°07.3'		29°60.0'	17°28.3'	38°13.6'	74°11.8'	74°17.0'	85°55.5'
11	171°09.9' N	1°06.6' N	8.5' -15.4'	61.3'	63°45.1'		29°42.0'	16°53.2'	38°51.6'	74°49.8'	74°53.2'	86°18.5'
12	185°37.4' N	0°51.3' N	8.5' -15.4'	61.4'	63°23.2'		29°24.6'	16°18.3'	39°29.7'	75°27.9'	75°29.4'	86°41.6'
13	200°04.9' N	0°35.9' N	8.5' -15.4'	61.4'	63°01.3'		29°07.9'	15°43.7'	40°07.7'	76°06.0'	76°05.7'	87°04.7'
14	214°32.4' N	0°20.5' N	8.5' -15.4'	61.4'	62°39.6'		28°51.7'	15°09.3'	40°45.7'	76°44.1'	76°41.9'	87°27.8'
15	228°59.8' N	0°05.1' N	8.5' -15.4'	61.4'	62°18.0'			14°35.3'	41°23.7'	77°22.1'	77°18.2'	87°50.9'
16	243°27.3' S	0°10.3' S	8.5' -15.4'	61.4'	61°56.6'			14°01.6'	42°01.8'	78°00.2'	77°54.4'	88°14.0'
17	257°54.8' S	0°25.7' S	8.5' -15.4'	61.4'	61°35.4'			13°28.3'	42°39.8'	78°38.3'	78°30.7'	88°37.1'
18	272°22.2' S	0°41.1' S	8.5' -15.4'	61.4'	61°14.3'			12°55.5'	43°17.9'	79°16.4'	79°07.0'	89°00.3'
19	286°49.7' S	0°56.5' S	8.5' -15.4'	61.4'	60°53.4'			12°23.1'	43°56.0'	79°54.5'	79°43.3'	89°23.4'
20	301°17.1' S	1°11.9' S	8.4' -15.4'	61.4'	60°32.6'			11°51.3'	44°34.0'	80°32.6'	80°19.6'	89°46.6'
21	315°44.6' S	1°27.3' S	8.4' -15.4'	61.4'	60°12.0'			11°20.2'	45°12.1'	81°10.7'	80°55.9'	90°09.8'
22	330°12.0' S	1°42.7' S	8.4' -15.4'	61.4'	59°51.6'				45°50.2'	81°48.8'	81°32.2'	90°32.9'
23	344°39.5' S	1°58.0' S	8.4' -15.3'	61.4'	59°31.4'				46°28.2'	82°26.9'	82°08.6'	90°56.0'
Mer. pass.					0 h 4 m SD 16.7' phase 98%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.3'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°10.3'	N 89°21.0'
Rigil Kent	-0.0	139°44.8'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	196°42.6'	179°31.9'	N 7°17.8'	135°47.8'	N 24°53.1'	259°32.1'	S 21°10.1'	253°23.8'	S 19°59.2'	248°22.1'	S 19°55.6'			
1	211°45.1'	194°32.1'	N 7°18.7'	150°48.0'	N 24°53.7'	274°34.3'	S 21°10.1'	268°26.1'	S 19°59.1'	263°22.8'	S 19°55.3'			
2	226°47.6'	209°32.2'	N 7°19.7'	165°48.2'	N 24°54.3'	289°36.5'	S 21°10.1'	283°28.4'	S 19°59.1'	278°23.4'	S 19°54.9'			
3	241°50.0'	224°32.4'	N 7°20.6'	180°48.4'	N 24°54.8'	304°38.7'	S 21°10.0'	298°30.8'	S 19°59.1'	293°24.1'	S 19°54.5'			
4	256°52.5'	239°32.6'	N 7°21.5'	195°48.6'	N 24°55.4'	319°40.8'	S 21°10.0'	313°33.1'	S 19°59.1'	308°24.8'	S 19°54.1'			
5	271°55.0'	254°32.7'	N 7°22.5'	210°48.8'	N 24°56.0'	334°43.0'	S 21°09.9'	328°35.4'	S 19°59.0'	323°25.4'	S 19°53.8'			
6	286°57.4'	269°32.9'	N 7°23.4'	225°49.0'	N 24°56.5'	349°45.2'	S 21°09.9'	343°37.7'	S 19°59.0'	338°26.1'	S 19°53.4'			
7	301°59.9'	284°33.1'	N 7°24.3'	240°49.2'	N 24°57.1'	4°47.4'	S 21°09.8'	358°40.1'	S 19°59.0'	353°26.7'	S 19°53.0'			
8	317°02.4'	299°33.3'	N 7°25.3'	255°49.4'	N 24°57.6'	19°49.6'	S 21°09.8'	13°42.4'	S 19°59.0'	8°27.4'	S 19°52.6'			
9	332°04.8'	314°33.4'	N 7°26.2'	270°49.6'	N 24°58.2'	34°51.8'	S 21°09.8'	28°44.7'	S 19°58.9'	23°28.1'	S 19°52.2'			
10	347°07.3'	329°33.6'	N 7°27.1'	285°49.8'	N 24°58.7'	49°53.9'	S 21°09.7'	43°47.1'	S 19°58.9'	38°28.7'	S 19°51.9'			
11	2°09.7'	344°33.8'	N 7°28.1'	300°50.0'	N 24°59.3'	64°56.1'	S 21°09.7'	58°49.4'	S 19°58.9'	53°29.4'	S 19°51.5'			
12	17°12.2'	359°34.0'	N 7°29.0'	315°50.2'	N 24°59.8'	79°58.3'	S 21°09.6'	73°51.7'	S 19°58.9'	68°30.1'	S 19°51.1'			
13	32°14.7'	14°34.1'	N 7°29.9'	330°50.4'	N 25°00.4'	95°00.5'	S 21°09.6'	88°54.0'	S 19°58.8'	83°30.7'	S 19°50.7'			
14	47°17.1'	29°34.3'	N 7°30.8'	345°50.7'	N 25°00.9'	110°02.7'	S 21°09.5'	103°56.4'	S 19°58.8'	98°31.4'	S 19°50.3'			
15	62°19.6'	44°34.5'	N 7°31.8'	0°50.9'	N 25°01.5'	125°04.9'	S 21°09.5'	118°58.7'	S 19°58.8'	113°32.0'	S 19°49.9'			
16	77°22.1'	59°34.6'	N 7°32.7'	15°51.1'	N 25°02.1'	140°07.0'	S 21°09.5'	134°01.0'	S 19°58.8'	128°32.7'	S 19°49.6'			
17	92°24.5'	74°34.8'	N 7°33.6'	30°51.3'	N 25°02.6'	155°09.2'	S 21°09.4'	149°03.4'	S 19°58.7'	143°33.4'	S 19°49.2'			
18	107°27.0'	89°35.0'	N 7°34.6'	45°51.5'	N 25°03.1'	170°11.4'	S 21°09.4'	164°05.7'	S 19°58.7'	158°34.0'	S 19°48.8'			
19	122°29.5'	104°35.2'	N 7°35.5'	60°51.7'	N 25°03.7'	185°13.6'	S 21°09.3'	179°08.0'	S 19°58.7'	173°34.7'	S 19°48.4'			
20	137°31.9'	119°35.3'	N 7°36.4'	75°51.9'	N 25°04.2'	200°15.8'	S 21°09.3'	194°10.4'	S 19°58.7'	188°35.3'	S 19°48.0'			
21	152°34.4'	134°35.5'	N 7°37.4'	90°52.1'	N 25°04.8'	215°18.0'	S 21°09.2'	209°12.7'	S 19°58.6'	203°36.0'	S 19°47.6'			
22	167°36.8'	149°35.7'	N 7°38.3'	105°52.4'	N 25°05.3'	230°20.2'	S 21°09.2'	224°15.0'	S 19°58.6'	218°36.7'	S 19°47.3'			
23	182°39.3'	164°35.8'	N 7°39.2'	120°52.6'	N 25°05.9'	245°22.3'	S 21°09.2'	239°17.4'	S 19°58.6'	233°37.3'	S 19°46.9'			
		SD 16.0'	<i>d</i> 0.9'	<i>v</i> 0.2'	<i>d</i> 0.6'	<i>v</i> 2.2'	<i>d</i> 0.0'	<i>v</i> 2.3'	<i>d</i> 0.0'	<i>v</i> 0.7'	<i>d</i> 0.4'			
Mer. pass.		12 h 1 m 45 s		14 h 57 m		6 h 41 m		7 h 5 m		7 h 26 m				

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Vega	-Rigel Kent	-Hadar	-Antares	+Regulus	+Procyon	+Pollux	+Adhara
0	359°06.9'	S 2°13.4'	8.4'	-15.3'	61.4'	85°01.7'	61°10.5'	59°11.3'	53°44.4'	47°06.3'	82°44.9'	83°05.0'	91°19.2'
1	13°34.3'	S 2°28.7'	8.4'	-15.3'	61.4'	84°44.3'	60°48.1'	58°51.4'	53°06.6'	47°44.4'	83°21.2'	83°43.1'	91°42.3'
2	28°01.7'	S 2°44.0'	8.4'	-15.3'	61.3'	84°27.0'	60°25.8'	58°31.7'	52°28.7'	48°22.4'	83°57.5'	84°21.2'	92°05.4'
3	42°29.1'	S 2°59.3'	8.4'	-15.3'	61.3'	84°09.7'	60°03.8'	58°12.2'	51°50.9'	49°00.5'	84°33.9'	84°59.2'	92°28.5'
4	56°56.5'	S 3°14.6'	8.4'	-15.3'	61.3'	83°52.4'	59°41.9'	57°53.0'	51°13.1'	49°38.6'	85°10.2'	85°37.3'	92°51.6'
5	71°23.9'	S 3°29.9'	8.4'	-15.2'	61.3'	83°35.2'	59°20.1'	57°33.9'	50°35.3'	50°16.6'	85°46.5'	86°15.4'	93°14.7'
6	85°51.3'	S 3°45.1'	8.4'	-15.2'	61.3'	83°18.0'	58°58.6'	57°15.0'	49°57.5'	50°54.7'	86°22.8'	86°53.4'	93°37.8'
7	100°18.6'	S 4°00.3'	8.3'	-15.2'	61.3'	83°00.8'	58°37.2'	56°56.3'	49°19.7'	51°32.7'	86°59.1'	87°31.5'	94°00.8'
8	114°46.0'	S 4°15.5'	8.3'	-15.1'	61.3'	82°43.7'	58°16.0'	56°37.9'	48°42.0'	52°10.8'	87°35.4'	88°09.5'	94°23.8'
9	129°13.3'	S 4°30.6'	8.3'	-15.1'	61.3'	82°26.6'	57°55.0'	56°19.6'	48°04.2'	52°48.8'	88°11.7'	88°47.6'	94°46.8'
10	143°40.6'	S 4°45.7'	8.3'	-15.1'	61.3'	82°09.6'	57°34.2'	56°01.6'	47°26.5'	53°26.8'	88°48.0'	89°25.6'	95°09.7'
11	158°07.9'	S 5°00.8'	8.3'	-15.0'	61.3'	81°52.7'	57°13.6'	55°43.8'	46°48.8'	54°04.8'	89°24.2'	90°03.6'	95°32.6'
12	172°35.2'	S 5°15.8'	8.3'	-15.0'	61.3'	81°35.8'	56°53.1'	55°26.3'	46°11.2'	54°42.8'	90°00.5'	90°41.6'	95°55.5'
13	187°02.5'	S 5°30.9'	8.3'	-15.0'	61.3'	81°18.9'	56°32.9'	55°09.0'	45°33.5'	55°20.8'	90°36.7'	91°19.5'	96°18.3'
14	201°29.7'	S 5°45.8'	8.2'	-14.9'	61.2'	81°02.1'	56°12.9'	54°51.9'	44°55.9'	55°58.8'	91°13.0'	91°57.5'	96°41.1'
15	215°57.0'	S 6°00.7'	8.2'	-14.9'	61.2'	80°45.4'	55°53.1'	54°35.1'	44°18.3'	56°36.8'	91°49.2'	92°35.5'	97°03.9'
16	230°24.2'	S 6°15.6'	8.2'	-14.8'	61.2'	80°28.8'	55°33.5'	54°18.5'	43°40.7'	57°14.7'	92°25.4'	93°13.4'	97°26.6'
17	244°51.4'	S 6°30.5'	8.2'	-14.8'	61.2'	80°12.2'	55°14.2'	54°02.1'	43°03.2'	57°52.6'	93°01.6'	93°51.3'	97°49.3'
18	259°18.6'	S 6°45.2'	8.2'	-14.7'	61.2'	79°55.6'	54°55.1'	53°46.1'	42°25.7'	58°30.6'	93°37.7'	94°29.2'	98°11.9'
19	273°45.8'	S 6°60.0'	8.1'	-14.7'	61.2'	79°39.2'	54°36.2'	53°30.3'	41°48.2'	59°08.5'	94°13.9'	95°07.1'	98°34.5'
20	288°12.9'	S 7°14.7'	8.1'	-14.6'	61.2'	79°22.8'	54°17.5'	53°14.7'	41°10.7'	59°46.3'	94°50.0'	95°45.0'	98°57.0'
21	302°40.0'	S 7°29.3'	8.1'	-14.6'	61.2'	79°06.5'	53°59.1'	52°59.4'	40°33.3'	60°24.2'	95°26.1'	96°22.8'	99°19.5'
22	317°07.1'	S 7°43.9'	8.1'	-14.5'	61.1'	78°50.2'	53°40.9'		39°55.9'	61°02.1'	96°02.2'	97°00.6'	99°41.9'
23	331°34.2'	S 7°58.4'	8.1'	-14.5'	61.1'	78°34.0'	53°23.0'		39°18.6'	61°39.9'	96°38.2'	97°38.4'	100°04.2'
Mer. pass.		0 h 4 m SD 16.7'	phase 100%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°10.5'	N 89°21.0'
Rigel Kent	-0.0	139°44.8'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	197°41.8'	179°36.0'	N 7°40.1'	135°52.8'	N 25°06.4'		260°24.5'	S 21°09.1'		254°19.7'	S 19°58.6'		248°38.0'	S 19°46.5'				
1	212°44.2'	194°36.2'	N 7°41.1'	150°53.0'	N 25°07.0'		275°26.7'	S 21°09.1'		269°22.0'	S 19°58.5'		263°38.7'	S 19°46.1'				
2	227°46.7'	209°36.4'	N 7°42.0'	165°53.2'	N 25°07.5'		290°28.9'	S 21°09.0'		284°24.3'	S 19°58.5'		278°39.3'	S 19°45.7'				
3	242°49.2'	224°36.5'	N 7°42.9'	180°53.5'	N 25°08.0'		305°31.1'	S 21°09.0'		299°26.7'	S 19°58.5'		293°40.0'	S 19°45.3'				
4	257°51.6'	239°36.7'	N 7°43.8'	195°53.7'	N 25°08.6'		320°33.3'	S 21°08.9'		314°29.0'	S 19°58.5'		308°40.6'	S 19°44.9'				
5	272°54.1'	254°36.9'	N 7°44.8'	210°53.9'	N 25°09.1'		335°35.5'	S 21°08.9'		329°31.3'	S 19°58.4'		323°41.3'	S 19°44.6'				
6	287°56.6'	269°37.0'	N 7°45.7'	225°54.1'	N 25°09.7'		350°37.7'	S 21°08.9'		344°33.7'	S 19°58.4'		338°42.0'	S 19°44.2'				
7	302°59.0'	284°37.2'	N 7°46.6'	240°54.4'	N 25°10.2'		5°39.8'	S 21°08.8'		359°36.0'	S 19°58.4'		353°42.6'	S 19°43.8'				
8	318°01.5'	299°37.4'	N 7°47.6'	255°54.6'	N 25°10.7'		20°42.0'	S 21°08.8'		14°38.3'	S 19°58.4'		8°43.3'	S 19°43.4'				
9	333°04.0'	314°37.5'	N 7°48.5'	270°54.8'	N 25°11.3'		35°44.2'	S 21°08.7'		29°40.7'	S 19°58.4'		23°44.0'	S 19°43.0'				
10	348°06.4'	329°37.7'	N 7°49.4'	285°55.1'	N 25°11.8'		50°46.4'	S 21°08.7'		44°43.0'	S 19°58.3'		38°44.6'	S 19°42.6'				
11	3°08.9'	344°37.9'	N 7°50.3'	300°55.3'	N 25°12.3'		65°48.6'	S 21°08.6'		59°45.3'	S 19°58.3'		53°45.3'	S 19°42.2'				
12	18°11.3'	359°38.1'	N 7°51.3'	315°55.5'	N 25°12.9'		80°50.8'	S 21°08.6'		74°47.7'	S 19°58.3'		68°46.0'	S 19°41.9'				
13	33°13.8'	14°38.2'	N 7°52.2'	330°55.8'	N 25°13.4'		95°53.0'	S 21°08.6'		89°50.0'	S 19°58.3'		83°46.6'	S 19°41.5'				
14	48°16.3'	29°38.4'	N 7°53.1'	345°56.0'	N 25°13.9'		110°55.2'	S 21°08.5'		104°52.3'	S 19°58.2'		98°47.3'	S 19°41.1'				
15	63°18.7'	44°38.6'	N 7°54.0'	0°56.2'	N 25°14.4'		125°57.4'	S 21°08.5'		119°54.7'	S 19°58.2'		113°48.0'	S 19°40.7'				
16	78°21.2'	59°38.7'	N 7°55.0'	15°56.5'	N 25°15.0'		140°59.6'	S 21°08.4'		134°57.0'	S 19°58.2'		128°48.6'	S 19°40.3'				
17	93°23.7'	74°38.9'	N 7°55.9'	30°56.7'	N 25°15.5'		156°01.8'	S 21°08.4'		149°59.3'	S 19°58.2'		143°49.3'	S 19°39.9'				
18	108°26.1'	89°39.1'	N 7°56.8'	45°56.9'	N 25°16.0'		171°03.9'	S 21°08.4'		165°01.7'	S 19°58.1'		158°50.0'	S 19°39.5'				
19	123°28.6'	104°39.2'	N 7°57.7'	60°57.2'	N 25°16.6'		186°06.1'	S 21°08.3'		180°04.0'	S 19°58.1'		173°50.6'	S 19°39.1'				
20	138°31.1'	119°39.4'	N 7°58.7'	75°57.4'	N 25°17.1'		201°08.3'	S 21°08.3'		195°06.3'	S 19°58.1'		188°51.3'	S 19°38.7'				
21	153°33.5'	134°39.6'	N 7°59.6'	90°57.7'	N 25°17.6'		216°10.5'	S 21°08.2'		210°08.7'	S 19°58.1'		203°51.9'	S 19°38.3'				
22	168°36.0'	149°39.7'	N 8°00.5'	105°57.9'	N 25°18.1'		231°12.7'	S 21°08.2'		225°11.0'	S 19°58.0'		218°52.6'	S 19°38.0'				
23	183°38.5'	164°39.9'	N 8°01.4'	120°58.2'	N 25°18.6'		246°14.9'	S 21°08.1'		240°13.3'	S 19°58.0'		233°53.3'	S 19°37.6'				
		SD 16.0'	<i>d</i> 0.9'		<i>v</i> 0.2'	<i>d</i> 0.5'		<i>v</i> 2.2'	<i>d</i> 0.0'		<i>v</i> 2.3'	<i>d</i> 0.0'		<i>v</i> 0.7'	<i>d</i> 0.4'			
Mer. pass.		12 h 1 m 28 s		14 h 56 m			6 h 37 m			7 h 2 m			7 h 25 m					

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Jupiter	-Vega	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	346°01.3'	S 8°12.9'	8.0'	-14.4'	61.1'	82°59.0'	78°18.0'	53°05.3'	38°41.3'			62°17.7'	97°14.2'
1	0°28.3'	S 8°27.3'	8.0'	-14.3'	61.1'	82°21.3'	78°02.0'	52°47.8'	38°04.0'			62°55.5'	97°50.2'
2	14°55.4'	S 8°41.6'	8.0'	-14.3'	61.1'	81°43.8'	77°46.0'	52°30.7'	37°26.8'	11°24.6'		63°33.2'	98°26.2'
3	29°22.4'	S 8°55.9'	8.0'	-14.2'	61.1'	81°06.2'	77°30.2'	52°13.8'	36°49.6'	11°55.5'		64°11.0'	99°02.2'
4	43°49.3'	S 9°10.1'	8.0'	-14.2'	61.0'	80°28.7'	77°14.4'	51°57.1'	36°12.5'	12°27.0'		64°48.7'	99°38.1'
5	58°16.3'	S 9°24.3'	7.9'	-14.1'	61.0'	79°51.1'	76°58.8'	51°40.8'	35°35.4'	12°59.1'	28°29.1'	65°26.4'	100°13.9'
6	72°43.2'	S 9°38.4'	7.9'	-14.0'	61.0'	79°13.7'	76°43.2'	51°24.7'	34°58.3'	13°31.6'	28°44.1'	66°04.1'	100°49.8'
7	87°10.1'	S 9°52.4'	7.9'	-13.9'	61.0'	78°36.2'	76°27.7'	51°08.9'	34°21.3'	14°04.5'	28°59.8'	66°41.7'	101°25.6'
8	101°37.0'	S 10°06.3'	7.9'	-13.9'	61.0'	77°58.8'	76°12.3'	50°53.4'	33°44.3'	14°37.7'	29°16.0'	67°19.3'	102°01.4'
9	116°03.9'	S 10°20.2'	7.8'	-13.8'	60.9'	77°21.4'	75°57.1'		33°07.4'	15°11.3'	29°32.8'	67°56.9'	102°37.1'
10	130°30.7'	S 10°34.0'	7.8'	-13.7'	60.9'	76°44.0'	75°41.9'		32°30.6'	15°45.2'	29°50.2'	68°34.5'	103°12.8'
11	144°57.5'	S 10°47.7'	7.8'	-13.6'	60.9'	76°06.6'			31°53.8'	16°19.3'	30°08.2'	69°12.0'	103°48.5'
12	159°24.3'	S 11°01.3'	7.8'	-13.6'	60.9'	75°29.3'			31°17.1'	16°53.6'	30°26.6'	69°49.5'	104°24.1'
13	173°51.0'	S 11°14.9'	7.7'	-13.5'	60.8'	74°52.0'			30°40.4'	17°28.1'	30°45.6'	70°27.0'	104°59.7'
14	188°17.7'	S 11°28.3'	7.7'	-13.4'	60.8'	74°14.8'			30°03.8'	18°02.7'	31°05.1'	71°04.4'	105°35.3'
15	202°44.4'	S 11°41.7'	7.7'	-13.3'	60.8'	73°37.5'			29°27.3'	18°37.6'	31°25.0'	71°41.8'	106°10.8'
16	217°11.1'	S 11°55.0'	7.6'	-13.2'	60.8'	73°00.4'			28°50.8'	19°12.5'	31°45.4'	72°19.2'	106°46.3'
17	231°37.8'	S 12°08.3'	7.6'	-13.1'	60.7'	72°23.2'			28°14.4'	19°47.6'	32°06.3'	72°56.6'	107°21.7'
18	246°04.4'	S 12°21.4'	7.6'	-13.0'	60.7'	71°46.1'			27°38.1'	20°22.8'	32°27.5'	73°33.9'	107°57.1'
19	260°31.0'	S 12°34.4'	7.6'	-12.9'	60.7'	71°09.0'			27°01.8'	20°58.0'	32°49.2'	74°11.2'	108°32.4'
20	274°57.6'	S 12°47.4'	7.5'	-12.9'	60.7'	70°31.9'			26°25.6'	21°33.4'	33°11.3'	74°48.4'	109°07.7'
21	289°24.1'	S 13°00.2'	7.5'	-12.8'	60.6'	69°54.9'			25°49.6'	22°08.8'	33°33.7'	75°25.6'	109°42.9'
22	303°50.6'	S 13°13.0'	7.5'	-12.7'	60.6'	69°17.9'			25°13.6'	22°44.3'	33°56.6'	76°02.8'	110°18.1'
23	318°17.1'	S 13°25.7'	7.5'	-12.6'	60.6'	68°40.9'			24°37.7'	23°19.8'	34°19.7'	76°40.0'	110°53.2'
Mer. pass.		0 h 58 m SD 16.7'	phase 99%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°10.7'	N 89°21.0'
Rigel Kent	-0.0	139°44.8'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

Friday 10 April 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	198°40.9'	179°40.1'	N 8°02.3'	135°58.4'	N 25°19.2'	261°17.1'	S 21°08.1'	255°15.7'	S 19°58.0'	248°53.9'	S 19°37.2'			
1	213°43.4'	194°40.2'	N 8°03.3'	150°58.7'	N 25°19.2'	276°19.3'	S 21°08.1'	270°18.0'	S 19°58.0'	263°54.6'	S 19°36.8'			
2	228°45.8'	209°40.4'	N 8°04.2'	165°58.9'	N 25°20.7'	291°21.5'	S 21°08.0'	285°20.4'	S 19°57.9'	278°55.3'	S 19°36.4'			
3	243°48.3'	224°40.6'	N 8°05.1'	180°59.1'	N 25°20.7'	306°23.7'	S 21°08.0'	300°22.7'	S 19°57.9'	293°55.9'	S 19°36.0'			
4	258°50.8'	239°40.7'	N 8°06.0'	195°59.4'	N 25°21.2'	321°25.9'	S 21°07.9'	315°25.0'	S 19°57.9'	308°56.6'	S 19°35.6'			
5	273°53.2'	254°40.9'	N 8°07.0'	210°59.7'	N 25°21.8'	336°28.1'	S 21°07.9'	330°27.4'	S 19°57.9'	323°57.3'	S 19°35.2'			
6	288°55.7'	269°41.1'	N 8°07.9'	225°59.9'	N 25°22.3'	351°30.3'	S 21°07.9'	345°29.7'	S 19°57.9'	338°57.9'	S 19°34.8'			
7	303°58.2'	284°41.3'	N 8°08.8'	241°00.2'	N 25°22.8'	6°32.5'	S 21°07.8'	0°32.0'	S 19°57.8'	353°58.6'	S 19°34.4'			
8	319°00.6'	299°41.4'	N 8°09.7'	256°00.4'	N 25°23.3'	21°34.7'	S 21°07.8'	15°34.4'	S 19°57.8'	8°59.3'	S 19°34.0'			
9	334°03.1'	314°41.6'	N 8°10.6'	271°00.7'	N 25°23.8'	36°36.9'	S 21°07.7'	30°36.7'	S 19°57.8'	23°59.9'	S 19°33.6'			
10	349°05.6'	329°41.8'	N 8°11.6'	286°00.9'	N 25°24.3'	51°39.1'	S 21°07.7'	45°39.0'	S 19°57.8'	39°00.6'	S 19°33.2'			
11	4°08.0'	344°41.9'	N 8°12.5'	301°01.2'	N 25°24.8'	66°41.3'	S 21°07.7'	60°41.4'	S 19°57.7'	54°01.3'	S 19°32.9'			
12	19°10.5'	359°42.1'	N 8°13.4'	316°01.4'	N 25°25.3'	81°43.5'	S 21°07.6'	75°43.7'	S 19°57.7'	69°01.9'	S 19°32.5'			
13	34°12.9'	14°42.3'	N 8°14.3'	331°01.7'	N 25°25.9'	96°45.7'	S 21°07.6'	90°46.1'	S 19°57.7'	84°02.6'	S 19°32.1'			
14	49°15.4'	29°42.4'	N 8°15.2'	346°02.0'	N 25°26.4'	111°47.9'	S 21°07.5'	105°48.4'	S 19°57.7'	99°03.3'	S 19°31.7'			
15	64°17.9'	44°42.6'	N 8°16.2'	1°02.2'	N 25°26.9'	126°50.1'	S 21°07.5'	120°50.7'	S 19°57.6'	114°04.0'	S 19°31.3'			
16	79°20.3'	59°42.7'	N 8°17.1'	16°02.5'	N 25°27.4'	141°52.3'	S 21°07.4'	135°53.1'	S 19°57.6'	129°04.6'	S 19°30.9'			
17	94°22.8'	74°42.9'	N 8°18.0'	31°02.8'	N 25°27.9'	156°54.4'	S 21°07.4'	150°55.4'	S 19°57.6'	144°05.3'	S 19°30.5'			
18	109°25.3'	89°43.1'	N 8°18.9'	46°03.0'	N 25°28.4'	171°56.6'	S 21°07.4'	165°57.7'	S 19°57.6'	159°06.0'	S 19°30.1'			
19	124°27.7'	104°43.2'	N 8°19.8'	61°03.3'	N 25°28.9'	186°58.8'	S 21°07.3'	181°00.1'	S 19°57.6'	174°06.6'	S 19°29.7'			
20	139°30.2'	119°43.4'	N 8°20.8'	76°03.6'	N 25°29.4'	202°01.0'	S 21°07.3'	196°02.4'	S 19°57.5'	189°07.3'	S 19°29.3'			
21	154°32.7'	134°43.6'	N 8°21.7'	91°03.8'	N 25°29.9'	217°03.2'	S 21°07.2'	211°04.8'	S 19°57.5'	204°08.0'	S 19°28.9'			
22	169°35.1'	149°43.7'	N 8°22.6'	106°04.1'	N 25°30.4'	232°05.4'	S 21°07.2'	226°07.1'	S 19°57.5'	219°08.6'	S 19°28.5'			
23	184°37.6'	164°43.9'	N 8°23.5'	121°04.4'	N 25°30.9'	247°07.6'	S 21°07.2'	241°09.4'	S 19°57.5'	234°09.3'	S 19°28.1'			
		SD 16.0'	<i>d</i> 0.9'	<i>v</i> 0.3'	<i>d</i> 0.5'	<i>v</i> 2.2'	<i>d</i> 0.0'	<i>v</i> 2.3'	<i>d</i> 0.0'	<i>v</i> 0.7'	<i>d</i> 0.4'			
Mer. pass.		12 h 1 m 12 s		14 h 56 m		6 h 34 m		6 h 58 m		7 h 24 m				

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	332°43.5'	S 13°38.2'	7.4'	-12.5'	60.6'	74°54.3'	73°48.8'	68°04.0'	24°01.9'	23°55.4'	34°43.2'	77°17.1'	108°57.0'
1	347°10.0'	S 13°50.7'	7.4'	-12.4'	60.5'	74°23.2'	73°11.8'	67°27.2'	23°26.2'	24°31.0'	35°07.0'	77°54.2'	109°17.0'
2	1°36.4'	S 14°03.1'	7.4'	-12.3'	60.5'	73°52.1'	72°34.9'	66°50.3'	22°50.6'	25°06.7'	35°31.2'	78°31.2'	109°36.9'
3	16°02.8'	S 14°15.3'	7.3'	-12.2'	60.5'	73°21.1'	71°57.9'	66°13.5'	22°15.1'	25°42.3'	35°55.6'	79°08.2'	109°56.7'
4	30°29.1'	S 14°27.5'	7.3'	-12.1'	60.4'	72°50.2'	71°21.1'	65°36.7'	21°39.8'	26°18.0'	36°20.3'	79°45.1'	110°16.3'
5	44°55.4'	S 14°39.6'	7.3'	-12.0'	60.4'	72°19.3'	70°44.2'	65°00.0'	21°04.6'	26°53.8'	36°45.3'	80°22.1'	110°35.8'
6	59°21.7'	S 14°51.5'	7.3'	-11.8'	60.4'	71°48.5'	70°07.4'	64°23.3'	20°29.5'	27°29.5'	37°10.5'	80°58.9'	110°55.2'
7	73°48.0'	S 15°03.4'	7.2'	-11.7'	60.3'	71°17.8'	69°30.6'	63°46.7'	19°54.5'	28°05.2'	37°36.0'	81°35.8'	111°14.5'
8	88°14.2'	S 15°15.1'	7.2'	-11.6'	60.3'	70°47.1'	68°53.9'	63°10.1'	19°19.8'	28°41.0'	38°01.7'	82°12.6'	111°33.6'
9	102°40.4'	S 15°26.7'	7.2'	-11.5'	60.3'	70°16.6'	68°17.2'	62°33.5'	18°45.1'	29°16.7'	38°27.7'	82°49.3'	111°52.6'
10	117°06.6'	S 15°38.3'	7.2'	-11.4'	60.2'	69°46.1'	67°40.6'	61°57.0'	18°10.7'	29°52.5'	38°53.9'	83°26.1'	112°11.4'
11	131°32.8'	S 15°49.7'	7.1'	-11.3'	60.2'	69°15.7'	67°04.0'	61°20.5'	17°36.5'	30°28.2'	39°20.3'	84°02.7'	112°30.1'
12	145°58.9'	S 16°01.0'	7.1'	-11.2'	60.2'	68°45.3'	66°27.4'	60°44.1'	17°02.4'	31°04.0'	39°46.9'	84°39.4'	112°48.7'
13	160°25.0'	S 16°12.1'	7.1'	-11.1'	60.1'	68°15.1'	65°50.9'	60°07.7'	16°28.6'	31°39.7'	40°13.6'	85°16.0'	113°07.1'
14	174°51.1'	S 16°23.2'	7.1'	-10.9'	60.1'	67°44.9'	65°14.5'	59°31.3'	15°55.1'	32°15.5'	40°40.6'	85°52.5'	113°25.4'
15	189°17.2'	S 16°34.2'	7.0'	-10.8'	60.1'	67°14.9'	64°38.0'	58°55.0'	15°21.8'	32°51.2'	41°07.7'	86°29.0'	113°43.5'
16	203°43.2'	S 16°45.0'	7.0'	-10.7'	60.0'	66°44.9'	64°01.6'	58°18.8'	14°48.8'	33°26.9'	41°35.0'	87°05.5'	114°01.5'
17	218°09.2'	S 16°55.7'	7.0'	-10.6'	60.0'	66°15.0'	63°25.3'	57°42.6'	14°16.1'	34°02.5'	42°02.5'	87°41.9'	114°19.3'
18	232°35.2'	S 17°06.3'	7.0'	-10.5'	60.0'	65°45.2'	62°49.0'	57°06.4'	13°43.8'	34°38.2'	42°30.1'	88°18.3'	114°36.9'
19	247°01.1'	S 17°16.7'	6.9'	-10.3'	59.9'	65°15.5'	62°12.8'	56°30.2'	13°11.8'	35°13.8'	42°57.8'	88°54.6'	114°54.4'
20	261°27.1'	S 17°27.1'	6.9'	-10.2'	59.9'	64°45.9'	61°36.6'	55°54.2'	12°40.3'	35°49.5'	43°25.7'	89°30.9'	115°11.8'
21	275°53.0'	S 17°37.3'	6.9'	-10.1'	59.9'	64°16.4'	61°00.4'	55°18.1'	12°09.3'	36°25.1'	43°53.8'	90°07.1'	115°29.0'
22	290°18.9'	S 17°47.4'	6.9'	-10.0'	59.8'	63°47.0'	60°24.3'	54°42.1'	11°38.8'	37°00.6'	44°21.9'	90°43.3'	115°46.0'
23	304°44.8'	S 17°57.4'	6.8'	-9.8'	59.8'	63°17.7'	59°48.2'	54°06.2'	11°09.0'	37°36.2'	44°50.2'	91°19.5'	116°02.8'
Mer. pass.		1 h 53 m SD 16.5'	phase 95%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°10.8'	N 89°21.0'
Rigil Kent	-0.0	139°44.8'	S 60°54.9'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.3'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

Saturday 11 April 2020 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	199°40.1'	179°44.1' N 8°24.4'	136°04.7' N 25°31.4'	262°09.8' S 21°07.1'	256°11.8' S 19°57.4'	249°10.0' S 19°27.7'						
1	214°42.5'	194°44.2' N 8°25.3'	151°04.9' N 25°31.9'	277°12.1' S 21°07.1'	271°14.1' S 19°57.4'	264°10.6' S 19°27.3'						
2	229°45.0'	209°44.4' N 8°26.3'	166°05.2' N 25°32.4'	292°14.3' S 21°07.0'	286°16.5' S 19°57.4'	279°11.3' S 19°26.9'						
3	244°47.4'	224°44.6' N 8°27.2'	181°05.5' N 25°32.9'	307°16.5' S 21°07.0'	301°18.8' S 19°57.4'	294°12.0' S 19°26.5'						
4	259°49.9'	239°44.7' N 8°28.1'	196°05.8' N 25°33.4'	322°18.7' S 21°07.0'	316°21.1' S 19°57.3'	309°12.7' S 19°26.1'						
5	274°52.4'	254°44.9' N 8°29.0'	211°06.0' N 25°33.9'	337°20.9' S 21°06.9'	331°23.5' S 19°57.3'	324°13.3' S 19°25.7'						
6	289°54.8'	269°45.1' N 8°29.9'	226°06.3' N 25°34.4'	352°23.1' S 21°06.9'	346°25.8' S 19°57.3'	339°14.0' S 19°25.3'						
7	304°57.3'	284°45.2' N 8°30.8'	241°06.6' N 25°34.9'	7°25.3' S 21°06.8'	1°28.2' S 19°57.3'	354°14.7' S 19°24.9'						
8	319°59.8'	299°45.4' N 8°31.7'	256°06.9' N 25°35.4'	22°27.5' S 21°06.8'	16°30.5' S 19°57.3'	9°15.3' S 19°24.5'						
9	335°02.2'	314°45.6' N 8°32.7'	271°07.2' N 25°35.8'	37°29.7' S 21°06.8'	31°32.8' S 19°57.2'	24°16.0' S 19°24.1'						
10	350°04.7'	329°45.7' N 8°33.6'	286°07.5' N 25°36.3'	52°31.9' S 21°06.7'	46°35.2' S 19°57.2'	39°16.7' S 19°23.7'						
11	5°07.2'	344°45.9' N 8°34.5'	301°07.7' N 25°36.8'	67°34.1' S 21°06.7'	61°37.5' S 19°57.2'	54°17.3' S 19°23.3'						
12	20°09.6'	359°46.0' N 8°35.4'	316°08.0' N 25°37.3'	82°36.3' S 21°06.6'	76°39.9' S 19°57.2'	69°18.0' S 19°22.9'						
13	35°12.1'	14°46.2' N 8°36.3'	331°08.3' N 25°37.8'	7°25.3' S 21°06.6'	91°42.2' S 19°57.1'	84°18.7' S 19°22.5'						
14	50°14.6'	29°46.4' N 8°37.2'	346°08.6' N 25°38.3'	112°40.7' S 21°06.6'	106°44.5' S 19°57.1'	99°19.4' S 19°22.1'						
15	65°17.0'	44°46.5' N 8°38.1'	1°08.9' N 25°38.8'	127°42.9' S 21°06.5'	121°46.9' S 19°57.1'	114°20.0' S 19°21.7'						
16	80°19.5'	59°46.7' N 8°39.1'	16°09.2' N 25°39.3'	142°45.1' S 21°06.5'	136°49.2' S 19°57.1'	129°20.7' S 19°21.3'						
17	95°21.9'	74°46.9' N 8°40.0'	31°09.5' N 25°39.7'	157°47.3' S 21°06.4'	151°51.6' S 19°57.1'	144°21.4' S 19°20.9'						
18	110°24.4'	89°47.0' N 8°40.9'	46°09.8' N 25°40.2'	172°49.5' S 21°06.4'	166°53.9' S 19°57.0'	159°22.0' S 19°20.5'						
19	125°26.9'	104°47.2' N 8°41.8'	61°10.1' N 25°40.7'	187°51.7' S 21°06.4'	181°56.2' S 19°57.0'	174°22.7' S 19°20.1'						
20	140°29.3'	119°47.3' N 8°42.7'	76°10.4' N 25°41.2'	202°53.9' S 21°06.3'	196°58.6' S 19°57.0'	189°23.4' S 19°19.7'						
21	155°31.8'	134°47.5' N 8°43.6'	91°10.7' N 25°41.7'	217°56.1' S 21°06.3'	212°00.9' S 19°57.0'	204°24.1' S 19°19.3'						
22	170°34.3'	149°47.7' N 8°44.5'	106°11.0' N 25°42.1'	232°58.3' S 21°06.2'	227°03.3' S 19°56.9'	219°24.7' S 19°18.9'						
23	185°36.7'	164°47.8' N 8°45.4'	121°11.3' N 25°42.6'	248°00.5' S 21°06.2'	242°05.6' S 19°56.9'	234°25.4' S 19°18.5'						
		SD 16.0' d 0.9'	v 0.3' d 0.5'	v 2.2' d 0.0'	v 2.3' d 0.0'	v 0.7' d 0.4'						
Mer. pass.		12 h 0 m 56 s	14 h 55 m	6 h 30 m	6 h 54 m	7 h 23 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	319°10.6'	S 18°07.2'	6.8'	-9.7'	59.8'	62°48.5'	59°12.2'	53°30.3'	10°39.8'	38°11.7'	45°18.5'	91°55.6'	116°19.5'
1	333°36.4'	S 18°16.9'	6.8'	-9.6'	59.7'	62°19.4'	58°36.2'	52°54.4'		38°47.2'	45°47.0'	92°31.6'	116°36.0'
2	348°02.2'	S 18°26.5'	6.8'	-9.5'	59.7'	61°50.4'	58°00.3'	52°18.6'		39°22.7'	46°15.6'	93°07.6'	116°52.4'
3	2°28.0'	S 18°36.0'	6.8'	-9.3'	59.7'	61°21.5'	57°24.4'	51°42.9'		39°58.1'	46°44.3'	93°43.6'	117°08.5'
4	16°53.8'	S 18°45.3'	6.8'	-9.2'	59.6'	60°52.7'	56°48.6'	51°07.2'		40°33.5'	47°13.1'	94°19.5'	117°24.5'
5	31°19.6'	S 18°54.5'	6.7'	-9.1'	59.6'	60°24.1'	56°12.8'	50°31.5'		41°08.8'	47°41.9'	94°55.3'	117°40.3'
6	45°45.3'	S 19°03.6'	6.7'	-8.9'	59.5'	59°55.5'	55°37.1'	49°55.9'		41°44.2'	48°10.9'	95°31.2'	117°56.0'
7	60°11.0'	S 19°12.5'	6.7'	-8.8'	59.5'	59°27.1'	55°01.4'	49°20.3'		42°19.5'	48°39.9'	96°06.9'	118°11.4'
8	74°36.7'	S 19°21.3'	6.7'	-8.7'	59.5'	58°58.8'	54°25.8'	48°44.8'		42°54.7'	49°09.0'	96°42.6'	118°26.7'
9	89°02.4'	S 19°30.0'	6.7'	-8.5'	59.4'	58°30.7'	53°50.2'	48°09.3'		43°30.0'	49°38.1'	97°18.3'	
10	103°28.1'	S 19°38.5'	6.7'	-8.4'	59.4'	58°02.6'	53°14.7'	47°33.9'		44°05.1'	50°07.4'	97°53.9'	
11	117°53.7'	S 19°46.9'	6.6'	-8.3'	59.3'	57°34.7'	52°39.2'	46°58.5'		44°40.3'	50°36.7'	98°29.5'	
12	132°19.4'	S 19°55.1'	6.6'	-8.1'	59.3'	57°06.9'	52°03.8'	46°23.2'		45°15.4'	51°06.0'	99°05.0'	
13	146°45.0'	S 20°03.3'	6.6'	-8.0'	59.3'	56°39.2'	51°28.4'	45°48.0'		45°50.5'	51°35.4'	99°40.5'	
14	161°10.6'	S 20°11.2'	6.6'	-7.8'	59.2'	56°11.7'	50°53.0'	45°12.7'		46°25.5'	52°04.9'	100°15.9'	
15	175°36.2'	S 20°19.1'	6.6'	-7.7'	59.2'	55°44.3'	50°17.7'	44°37.6'		47°00.5'	52°34.4'	100°51.3'	
16	190°01.8'	S 20°26.8'	6.6'	-7.6'	59.2'	55°17.1'	49°42.5'	44°02.4'		47°35.5'	53°03.9'	101°26.6'	
17	204°27.4'	S 20°34.4'	6.6'	-7.4'	59.1'	54°50.0'	49°07.3'	43°27.4'		48°10.4'	53°33.5'	102°01.9'	
18	218°53.0'	S 20°41.8'	6.6'	-7.3'	59.1'	54°23.0'	48°32.2'	42°52.4'		48°45.3'	54°03.1'	102°37.1'	
19	233°18.5'	S 20°49.1'	6.6'	-7.1'	59.0'	53°56.2'	47°57.1'	42°17.4'		49°20.1'	54°32.8'	103°12.3'	
20	247°44.1'	S 20°56.2'	6.6'	-7.0'	59.0'	53°29.6'	47°22.1'	41°42.5'		49°54.9'	55°02.5'	103°47.4'	
21	262°09.7'	S 21°03.2'	6.6'	-6.9'	59.0'	53°03.0'	46°47.1'	41°07.6'		50°29.6'	55°32.2'	104°22.5'	
22	276°35.2'	S 21°10.0'	6.6'	-6.7'	58.9'	52°36.7'	46°12.2'	40°32.8'		51°04.3'	56°01.9'	104°57.5'	
23	291°00.8'	S 21°16.8'	6.5'	-6.6'	58.9'	52°10.5'	45°37.3'	39°58.0'		51°39.0'	56°31.7'	105°32.5'	
Mer. pass.		2 h 50 m SD 16.3'	phase 88%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°10.9'	N 89°21.0'
Rigil Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.8'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	200°39.2'	179°48.0'	N 8°46.4'	136°11.6'	N 25°43.1'	263°02.8'	S 21°06.2'	257°08.0'	S 19°56.9'	249°26.1'	S 19°18.1'							
1	215°41.7'	194°48.2'	N 8°47.3'	151°11.9'	N 25°43.6'	278°05.0'	S 21°06.1'	272°10.3'	S 19°56.9'	264°26.8'	S 19°17.7'							
2	230°44.1'	209°48.3'	N 8°48.2'	166°12.2'	N 25°44.0'	293°07.2'	S 21°06.1'	287°12.6'	S 19°56.9'	279°27.4'	S 19°17.3'							
3	245°46.6'	224°48.5'	N 8°49.1'	181°12.5'	N 25°44.5'	308°09.4'	S 21°06.0'	302°15.0'	S 19°56.8'	294°28.1'	S 19°16.9'							
4	260°49.1'	239°48.6'	N 8°50.0'	196°12.8'	N 25°45.0'	323°11.6'	S 21°06.0'	317°17.3'	S 19°56.8'	309°28.8'	S 19°16.5'							
5	275°51.5'	254°48.8'	N 8°50.9'	211°13.1'	N 25°45.5'	338°13.8'	S 21°06.0'	332°19.7'	S 19°56.8'	324°29.5'	S 19°16.1'							
6	290°54.0'	269°49.0'	N 8°51.8'	226°13.4'	N 25°45.9'	353°16.0'	S 21°05.9'	347°22.0'	S 19°56.8'	339°30.1'	S 19°15.6'							
7	305°56.4'	284°49.1'	N 8°52.7'	241°13.8'	N 25°46.4'	8°18.2'	S 21°05.9'	2°24.4'	S 19°56.7'	354°30.8'	S 19°15.2'							
8	320°58.9'	299°49.3'	N 8°53.6'	256°14.1'	N 25°46.9'	23°20.4'	S 21°05.9'	17°26.7'	S 19°56.7'	9°31.5'	S 19°14.8'							
9	336°01.4'	314°49.4'	N 8°54.5'	271°14.4'	N 25°47.4'	38°22.6'	S 21°05.8'	32°29.1'	S 19°56.7'	24°32.1'	S 19°14.4'							
10	351°03.8'	329°49.6'	N 8°55.5'	286°14.7'	N 25°47.8'	53°24.9'	S 21°05.8'	47°31.4'	S 19°56.7'	39°32.8'	S 19°14.0'							
11	6°06.3'	344°49.8'	N 8°56.4'	301°15.0'	N 25°48.3'	68°27.1'	S 21°05.7'	62°33.7'	S 19°56.7'	54°33.5'	S 19°13.6'							
12	21°08.8'	359°49.9'	N 8°57.3'	316°15.3'	N 25°48.8'	83°29.3'	S 21°05.7'	77°36.1'	S 19°56.6'	69°34.2'	S 19°13.2'							
13	36°11.2'	14°50.1'	N 8°58.2'	331°15.7'	N 25°49.2'	98°31.5'	S 21°05.7'	92°38.4'	S 19°56.6'	84°34.8'	S 19°12.8'							
14	51°13.7'	29°50.2'	N 8°59.1'	346°16.0'	N 25°49.7'	113°33.7'	S 21°05.6'	107°40.8'	S 19°56.6'	99°35.5'	S 19°12.4'							
15	66°16.2'	44°50.4'	N 8°60.0'	1°16.3'	N 25°50.1'	128°35.9'	S 21°05.6'	122°43.1'	S 19°56.6'	114°36.2'	S 19°12.0'							
16	81°18.6'	59°50.6'	N 9°00.9'	16°16.6'	N 25°50.6'	143°38.1'	S 21°05.5'	137°45.5'	S 19°56.6'	129°36.9'	S 19°11.6'							
17	96°21.1'	74°50.7'	N 9°01.8'	31°17.0'	N 25°51.1'	158°40.3'	S 21°05.5'	152°47.8'	S 19°56.5'	144°37.5'	S 19°11.2'							
18	111°23.5'	89°50.9'	N 9°02.7'	46°17.3'	N 25°51.5'	173°42.5'	S 21°05.5'	167°50.2'	S 19°56.5'	159°38.2'	S 19°10.8'							
19	126°26.0'	104°51.0'	N 9°03.6'	61°17.6'	N 25°52.0'	188°44.8'	S 21°05.4'	182°52.5'	S 19°56.5'	174°38.9'	S 19°10.4'							
20	141°28.5'	119°51.2'	N 9°04.5'	76°17.9'	N 25°52.5'	203°47.0'	S 21°05.4'	197°54.9'	S 19°56.5'	189°39.6'	S 19°09.9'							
21	156°30.9'	134°51.3'	N 9°05.4'	91°18.3'	N 25°52.9'	218°49.2'	S 21°05.4'	212°57.2'	S 19°56.4'	204°40.2'	S 19°09.5'							
22	171°33.4'	149°51.5'	N 9°06.3'	106°18.6'	N 25°53.4'	233°51.4'	S 21°05.3'	227°59.5'	S 19°56.4'	219°40.9'	S 19°09.1'							
23	186°35.9'	164°51.7'	N 9°07.2'	121°18.9'	N 25°53.8'	248°53.6'	S 21°05.3'	243°01.9'	S 19°56.4'	234°41.6'	S 19°08.7'							
		SD 15.9' d 0.9'		v 0.3' d 0.5'		v 2.2' d 0.0'		v 2.3' d 0.0'		v 0.7' d 0.4'								
Mer. pass.		12 h 0 m 41 s		14 h 55 m		6 h 27 m		6 h 50 m		7 h 22 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Altair	-Saturn	-Jupiter	+Antares	+Spica	+Arcturus	+Regulus
0	305°26.3'	S 21°23.3'	6.5'	-6.4'	58.8'		51°44.4'	45°02.4'	39°23.3'		52°13.6'	57°01.5'	106°07.4'
1	319°51.9'	S 21°29.7'	6.5'	-6.3'	58.8'		51°18.6'	44°27.7'	38°48.6'		52°48.2'	57°31.3'	106°42.3'
2	334°17.4'	S 21°36.0'	6.5'	-6.1'	58.8'		50°52.9'	43°52.9'	38°14.0'		53°22.7'	58°01.2'	107°17.1'
3	348°43.0'	S 21°42.2'	6.5'	-6.0'	58.7'		50°27.3'	43°18.3'	37°39.5'		53°57.2'	58°31.0'	107°51.9'
4	3°08.5'	S 21°48.2'	6.6'	-5.8'	58.7'		50°02.0'	42°43.6'	37°05.0'	10°15.4'	54°31.6'	59°00.9'	108°26.6'
5	17°34.1'	S 21°54.0'	6.6'	-5.7'	58.6'		49°36.8'	42°09.1'	36°30.5'	10°42.9'	55°06.0'	59°30.8'	109°01.3'
6	31°59.6'	S 21°59.7'	6.6'	-5.6'	58.6'		49°11.8'	41°34.6'	35°56.1'	11°10.9'	55°40.4'	60°00.6'	109°35.9'
7	46°25.2'	S 22°05.3'	6.6'	-5.4'	58.6'		48°46.9'	41°00.1'	35°21.8'	11°39.5'	56°14.7'	60°30.5'	110°10.4'
8	60°50.8'	S 22°10.7'	6.6'	-5.3'	58.5'		48°22.3'	40°25.7'	34°47.5'	12°08.6'	56°48.9'	61°00.4'	110°45.0'
9	75°16.3'	S 22°15.9'	6.6'	-5.1'	58.5'		47°57.8'	39°51.3'	34°13.2'	12°38.1'	57°23.2'	61°30.4'	111°19.4'
10	89°41.9'	S 22°21.1'	6.6'	-5.0'	58.4'		47°33.6'	39°17.0'	33°39.0'	13°08.0'	57°57.3'	62°00.3'	111°53.8'
11	104°07.5'	S 22°26.0'	6.6'	-4.8'	58.4'		47°09.5'	38°42.7'	33°04.9'	13°38.1'	58°31.4'	62°30.2'	112°28.2'
12	118°33.1'	S 22°30.8'	6.6'	-4.7'	58.3'	119°52.4'	46°45.7'	38°08.5'	32°30.8'	14°08.6'	59°05.5'	63°00.1'	113°02.5'
13	132°58.7'	S 22°35.5'	6.6'	-4.5'	58.3'	119°20.7'	46°22.0'	37°34.4'	31°56.7'	14°39.3'	59°39.6'	63°30.0'	113°36.8'
14	147°24.4'	S 22°40.1'	6.6'	-4.4'	58.3'	118°49.0'	45°58.5'	37°00.3'	31°22.7'	15°10.2'	60°13.5'	63°59.9'	114°11.0'
15	161°50.0'	S 22°44.4'	6.7'	-4.2'	58.2'	118°17.3'	45°35.3'	36°26.2'	30°48.8'	15°41.2'	60°47.5'	64°29.8'	114°45.1'
16	176°15.7'	S 22°48.7'	6.7'	-4.1'	58.2'	117°45.7'	45°12.3'	35°52.2'	30°14.9'	16°12.5'	61°21.4'	64°59.7'	115°19.2'
17	190°41.3'	S 22°52.8'	6.7'	-3.9'	58.1'	117°14.2'	44°49.5'	35°18.3'	29°41.1'	16°43.9'	61°55.2'	65°29.6'	115°53.3'
18	205°07.0'	S 22°56.7'	6.7'	-3.8'	58.1'	116°42.7'	44°26.9'	34°44.4'	29°07.3'	17°15.4'	62°29.0'	65°59.5'	116°27.3'
19	219°32.7'	S 23°00.5'	6.7'	-3.7'	58.1'	116°11.2'	44°04.5'	34°10.5'	28°33.6'	17°47.0'	63°02.8'	66°29.4'	117°01.3'
20	233°58.4'	S 23°04.2'	6.7'	-3.5'	58.0'	115°39.8'	43°42.4'	33°36.7'	27°59.9'	18°18.7'	63°36.5'	66°59.3'	117°35.2'
21	248°24.2'	S 23°07.7'	6.8'	-3.4'	58.0'	115°08.4'	43°20.5'	33°03.0'	27°26.3'	18°50.5'	64°10.1'	67°29.1'	118°09.0'
22	262°50.0'	S 23°11.0'	6.8'	-3.2'	57.9'	114°37.1'	42°58.9'	32°29.3'	26°52.7'	19°22.4'	64°43.8'	67°59.0'	118°42.8'
23	277°15.8'	S 23°14.2'	6.8'	-3.1'	57.9'	114°05.9'	42°37.5'	31°55.7'	26°19.2'	19°54.3'	65°17.3'	68°28.8'	119°16.6'
Mer. pass.		3 h 47 m SD 16.0'		phase 80%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°11.0'	N 89°21.0'
Rigil Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	201°38.3'		179°51.8'	N 9°08.1'	136°19.3'	N 25°54.3'	263°55.8'	S 21°05.2'	258°04.2'	S 19°56.4'	249°42.3'	S 19°08.3'
1	216°40.8'		194°52.0'	N 9°09.1'	151°19.6'	N 25°54.7'	278°58.0'	S 21°05.2'	273°06.6'	S 19°56.4'	264°43.0'	S 19°07.9'
2	231°43.3'		209°52.1'	N 9°10.0'	166°19.9'	N 25°55.2'	294°00.3'	S 21°05.2'	288°08.9'	S 19°56.3'	279°43.6'	S 19°07.5'
3	246°45.7'		224°52.3'	N 9°10.9'	181°20.3'	N 25°55.6'	309°02.5'	S 21°05.1'	303°11.3'	S 19°56.3'	294°44.3'	S 19°07.1'
4	261°48.2'		239°52.5'	N 9°11.8'	196°20.6'	N 25°56.1'	324°04.7'	S 21°05.1'	318°13.6'	S 19°56.3'	309°45.0'	S 19°06.7'
5	276°50.7'		254°52.6'	N 9°12.7'	211°21.0'	N 25°56.5'	339°06.9'	S 21°05.0'	333°16.0'	S 19°56.3'	324°45.7'	S 19°06.2'
6	291°53.1'		269°52.8'	N 9°13.6'	226°21.3'	N 25°57.0'	354°09.1'	S 21°05.0'	348°18.3'	S 19°56.3'	339°46.3'	S 19°05.8'
7	306°55.6'		284°52.9'	N 9°14.5'	241°21.6'	N 25°57.4'	9°11.3'	S 21°05.0'	3°20.7'	S 19°56.2'	354°47.0'	S 19°05.4'
8	321°58.0'		299°53.1'	N 9°15.4'	256°22.0'	N 25°57.9'	24°13.6'	S 21°04.9'	18°23.0'	S 19°56.2'	9°47.7'	S 19°05.0'
9	337°00.5'		314°53.2'	N 9°16.3'	271°22.3'	N 25°58.3'	39°15.8'	S 21°04.9'	33°25.4'	S 19°56.2'	24°48.4'	S 19°04.6'
10	352°03.0'		329°53.4'	N 9°17.2'	286°22.7'	N 25°58.8'	54°18.0'	S 21°04.9'	48°27.7'	S 19°56.2'	39°49.1'	S 19°04.2'
11	7°05.4'		344°53.6'	N 9°18.1'	301°23.0'	N 25°59.2'	69°20.2'	S 21°04.8'	63°30.1'	S 19°56.1'	54°49.7'	S 19°03.8'
12	22°07.9'		359°53.7'	N 9°19.0'	316°23.4'	N 25°59.7'	84°22.4'	S 21°04.8'	78°32.4'	S 19°56.1'	69°50.4'	S 19°03.4'
13	37°10.4'		14°53.9'	N 9°19.9'	331°23.7'	N 26°00.1'	99°24.7'	S 21°04.7'	93°34.8'	S 19°56.1'	84°51.1'	S 19°02.9'
14	52°12.8'		29°54.0'	N 9°20.8'	346°24.1'	N 26°00.6'	114°26.9'	S 21°04.7'	108°37.1'	S 19°56.1'	99°51.8'	S 19°02.5'
15	67°15.3'		44°54.2'	N 9°21.7'	1°24.5'	N 26°01.0'	129°29.1'	S 21°04.7'	123°39.5'	S 19°56.1'	114°52.4'	S 19°02.1'
16	82°17.8'		59°54.3'	N 9°22.6'	16°24.8'	N 26°01.4'	144°31.3'	S 21°04.6'	138°41.8'	S 19°56.0'	129°53.1'	S 19°01.7'
17	97°20.2'		74°54.5'	N 9°23.5'	31°25.2'	N 26°01.9'	159°33.5'	S 21°04.6'	153°44.2'	S 19°56.0'	144°53.8'	S 19°01.3'
18	112°22.7'		89°54.6'	N 9°24.4'	46°25.5'	N 26°02.3'	174°35.7'	S 21°04.6'	168°46.5'	S 19°56.0'	159°54.5'	S 19°00.9'
19	127°25.2'		104°54.8'	N 9°25.3'	61°25.9'	N 26°02.8'	189°38.0'	S 21°04.5'	183°48.9'	S 19°56.0'	174°55.2'	S 19°00.5'
20	142°27.6'		119°55.0'	N 9°26.2'	76°26.2'	N 26°03.2'	204°40.2'	S 21°04.5'	198°51.2'	S 19°56.0'	189°55.8'	S 19°00.0'
21	157°30.1'		134°55.1'	N 9°27.1'	91°26.6'	N 26°03.6'	219°42.4'	S 21°04.4'	213°53.6'	S 19°55.9'	204°56.5'	S 18°59.6'
22	172°32.5'		149°55.3'	N 9°28.0'	106°27.0'	N 26°04.1'	234°44.6'	S 21°04.4'	228°55.9'	S 19°55.9'	219°57.2'	S 18°59.2'
23	187°35.0'		164°55.4'	N 9°28.9'	121°27.3'	N 26°04.5'	249°46.9'	S 21°04.4'	243°58.3'	S 19°55.9'	234°57.9'	S 18°58.8'
			SD 15.9' d 0.9'		v 0.4' d 0.4'		v 2.2' d 0.0'		v 2.3' d 0.0'		v 0.7' d 0.4'	
Mer. pass.			12 h 0 m 26 s		14 h 54 m		6 h 23 m		6 h 47 m		7 h 21 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Mars	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Spica
0	291°41.6'	S 23°17.3'	6.8'	-2.9'	57.9'	113°34.6'	39°13.8'	31°22.1'	25°45.7'	20°26.3'			65°50.9'
1	306°07.4'	S 23°20.2'	6.9'	-2.8'	57.8'	113°03.5'	38°41.9'	30°48.6'	25°12.3'	20°58.3'		54°49.0'	66°24.3'
2	320°33.3'	S 23°23.0'	6.9'	-2.6'	57.8'	112°32.4'	38°09.9'	30°15.1'	24°38.9'	21°30.4'		55°04.1'	66°57.8'
3	334°59.2'	S 23°25.6'	6.9'	-2.5'	57.7'	112°01.3'	37°38.1'	29°41.7'	24°05.6'	22°02.4'		55°19.3'	67°31.1'
4	349°25.1'	S 23°28.1'	7.0'	-2.3'	57.7'	111°30.2'	37°06.2'	29°08.3'	23°32.4'	22°34.6'		55°34.7'	68°04.5'
5	3°51.1'	S 23°30.5'	7.0'	-2.2'	57.7'	110°59.3'	36°34.5'	28°35.0'	22°59.2'	23°06.7'		55°50.2'	68°37.8'
6	18°17.1'	S 23°32.7'	7.0'	-2.1'	57.6'	110°28.3'	36°02.7'	28°01.7'	22°26.0'	23°38.9'		56°05.9'	69°11.0'
7	32°43.1'	S 23°34.7'	7.1'	-1.9'	57.6'	109°57.4'	35°31.1'	27°28.5'	21°53.0'	24°11.0'		56°21.8'	69°44.2'
8	47°09.2'	S 23°36.6'	7.1'	-1.8'	57.5'	109°26.6'	34°59.4'	26°55.3'	21°19.9'	24°43.2'	52°32.1'	56°37.7'	70°17.4'
9	61°35.3'	S 23°38.4'	7.1'	-1.6'	57.5'	108°55.8'	34°27.9'	26°22.2'	20°46.9'	25°15.4'	52°47.3'	56°53.9'	70°50.5'
10	76°01.4'	S 23°40.0'	7.2'	-1.5'	57.5'	108°25.1'	33°56.3'	25°49.2'	20°14.0'	25°47.6'	53°02.6'	57°10.1'	71°23.6'
11	90°27.6'	S 23°41.5'	7.2'	-1.3'	57.4'	107°54.4'	33°24.9'	25°16.2'	19°41.1'	26°19.7'	53°18.0'	57°26.5'	71°56.6'
12	104°53.8'	S 23°42.8'	7.2'	-1.2'	57.4'	107°23.7'	32°53.4'	24°43.2'	19°08.3'	26°51.9'	53°33.7'	57°43.1'	72°29.6'
13	119°20.0'	S 23°44.0'	7.3'	-1.0'	57.3'	106°53.1'	32°22.1'	24°10.3'	18°35.6'	27°24.1'	53°49.5'	57°59.7'	73°02.5'
14	133°46.3'	S 23°45.0'	7.3'	-0.9'	57.3'	106°22.5'	31°50.7'	23°37.5'	18°02.9'	27°56.2'	54°05.4'	58°16.5'	73°35.4'
15	148°12.6'	S 23°46.0'	7.4'	-0.8'	57.3'	105°52.0'	31°19.4'	23°04.7'	17°30.2'	28°28.4'	54°21.6'	58°33.4'	74°08.2'
16	162°39.0'	S 23°46.7'	7.4'	-0.6'	57.2'	105°21.5'	30°48.2'	22°32.0'	16°57.6'	29°00.5'	54°37.8'	58°50.4'	74°41.0'
17	177°05.4'	S 23°47.3'	7.5'	-0.5'	57.2'	104°51.1'	30°17.0'	21°59.3'	16°25.1'	29°32.6'	54°54.2'	59°07.6'	75°13.8'
18	191°31.9'	S 23°47.8'	7.5'	-0.3'	57.2'	104°20.7'	29°45.9'	21°26.7'	15°52.7'	30°04.8'	55°10.8'	59°24.8'	75°46.5'
19	205°58.4'	S 23°48.2'	7.6'	-0.2'	57.1'	103°50.4'	29°14.8'	20°54.1'	15°20.3'	30°36.8'	55°27.5'	59°42.2'	76°19.1'
20	220°24.9'	S 23°48.4'	7.6'	-0.1'	57.1'	103°20.1'	28°43.7'	20°21.6'	14°47.9'	31°08.9'	55°44.3'	59°59.6'	76°51.7'
21	234°51.5'	S 23°48.5'	7.6'	0.1'	57.0'	102°49.8'	28°12.7'	19°49.1'	14°15.6'	31°41.0'	56°01.3'	60°17.2'	77°24.3'
22	249°18.2'	S 23°48.4'	7.7'	0.2'	57.0'	102°19.6'	27°41.8'	19°16.7'	13°43.4'	32°13.0'	56°18.4'	60°34.9'	77°56.8'
23	263°44.9'	S 23°48.2'	7.7'	0.3'	57.0'	101°49.5'	27°10.9'	18°44.4'	13°11.3'	32°45.0'	56°35.6'	60°52.7'	78°29.3'
Mer. pass.			4 h 44 m SD 15.8' phase 70%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.5'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.3'	S 26°28.5'	Procyon	+0.4	244°54.8'	N 5°10.2'	Polaris	+2.0	316°11.1'	N 89°21.0'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.7'	S 60°28.1'	Canopus	-0.6	263°54.2'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	202°37.5'	179°55.6'	N 9°29.8'	136°27.7'	N 26°04.9'		264°49.1'	S 21°04.3'		259°00.6'	S 19°55.9'		249°58.6'	S 18°58.4'				
1	217°39.9'	194°55.7'	N 9°30.7'	151°28.1'	N 26°05.4'		279°51.3'	S 21°04.3'		274°03.0'	S 19°55.9'		264°59.2'	S 18°58.0'				
2	232°42.4'	209°55.9'	N 9°31.6'	166°28.4'	N 26°05.8'		294°53.5'	S 21°04.3'		289°05.3'	S 19°55.8'		279°59.9'	S 18°57.6'				
3	247°44.9'	224°56.0'	N 9°32.5'	181°28.8'	N 26°06.2'		309°55.7'	S 21°04.2'		304°07.7'	S 19°55.8'		295°00.6'	S 18°57.1'				
4	262°47.3'	239°56.2'	N 9°33.4'	196°29.2'	N 26°06.7'		324°58.0'	S 21°04.2'		319°10.0'	S 19°55.8'		310°01.3'	S 18°56.7'				
5	277°49.8'	254°56.3'	N 9°34.3'	211°29.6'	N 26°07.1'		340°00.2'	S 21°04.1'		334°12.4'	S 19°55.8'		325°02.0'	S 18°56.3'				
6	292°52.3'	269°56.5'	N 9°35.2'	226°29.9'	N 26°07.5'		355°02.4'	S 21°04.1'		349°14.7'	S 19°55.8'		340°02.6'	S 18°55.9'				
7	307°54.7'	284°56.7'	N 9°36.1'	241°30.3'	N 26°07.9'		10°04.6'	S 21°04.1'		4°17.1'	S 19°55.7'		355°03.3'	S 18°55.5'				
8	322°57.2'	299°56.8'	N 9°37.0'	256°30.7'	N 26°08.4'		25°06.9'	S 21°04.0'		19°19.4'	S 19°55.7'		10°04.0'	S 18°55.0'				
9	337°59.7'	314°57.0'	N 9°37.9'	271°31.1'	N 26°08.8'		40°09.1'	S 21°04.0'		34°21.8'	S 19°55.7'		25°04.7'	S 18°54.6'				
10	353°02.1'	329°57.1'	N 9°38.8'	286°31.5'	N 26°09.2'		55°11.3'	S 21°04.0'		49°24.1'	S 19°55.7'		40°05.4'	S 18°54.2'				
11	8°04.6'	344°57.3'	N 9°39.7'	301°31.8'	N 26°09.6'		70°13.5'	S 21°03.9'		64°26.5'	S 19°55.7'		55°06.0'	S 18°53.8'				
12	23°07.0'	359°57.4'	N 9°40.5'	316°32.2'	N 26°10.1'		85°15.8'	S 21°03.9'		79°28.8'	S 19°55.6'		70°06.7'	S 18°53.4'				
13	38°09.5'	14°57.6'	N 9°41.4'	331°32.6'	N 26°10.5'		100°18.0'	S 21°03.9'		94°31.2'	S 19°55.6'		85°07.4'	S 18°52.9'				
14	53°12.0'	29°57.7'	N 9°42.3'	346°33.0'	N 26°10.9'		115°20.2'	S 21°03.8'		109°33.5'	S 19°55.6'		100°08.1'	S 18°52.5'				
15	68°14.4'	44°57.9'	N 9°43.2'	1°33.4'	N 26°11.3'		130°22.4'	S 21°03.8'		124°35.9'	S 19°55.6'		115°08.8'	S 18°52.1'				
16	83°16.9'	59°58.0'	N 9°44.1'	16°33.8'	N 26°11.8'		145°24.9'	S 21°03.7'		139°38.2'	S 19°55.6'		130°09.5'	S 18°51.7'				
17	98°19.4'	74°58.2'	N 9°45.0'	31°34.2'	N 26°12.2'		160°26.9'	S 21°03.7'		154°40.6'	S 19°55.5'		145°10.1'	S 18°51.3'				
18	113°21.8'	89°58.3'	N 9°45.9'	46°34.6'	N 26°12.6'		175°29.1'	S 21°03.7'		169°43.0'	S 19°55.5'		160°10.8'	S 18°50.8'				
19	128°24.3'	104°58.5'	N 9°46.8'	61°35.0'	N 26°13.0'		190°31.3'	S 21°03.6'		184°45.3'	S 19°55.5'		175°11.5'	S 18°50.4'				
20	143°26.8'	119°58.6'	N 9°47.7'	76°35.4'	N 26°13.4'		205°33.6'	S 21°03.6'		199°47.7'	S 19°55.5'		190°12.2'	S 18°50.0'				
21	158°29.2'	134°58.8'	N 9°48.6'	91°35.8'	N 26°13.8'		220°35.8'	S 21°03.6'		214°50.0'	S 19°55.5'		205°12.9'	S 18°49.6'				
22	173°31.7'	149°58.9'	N 9°49.5'	106°36.2'	N 26°14.2'		235°38.0'	S 21°03.5'		229°52.4'	S 19°55.4'		220°13.6'	S 18°49.2'				
23	188°34.1'	164°59.1'	N 9°50.4'	121°36.6'	N 26°14.7'		250°40.3'	S 21°03.5'		244°54.7'	S 19°55.4'		235°14.2'	S 18°48.7'				
		SD 15.9' d 0.9'		v 0.4' d 0.4'			v 2.2' d 0.0'			v 2.4' d 0.0'			v 0.7' d 0.4'					
Mer. pass.		12 h 0 m 11 s		14 h 54 m			6 h 20 m			6 h 43 m			7 h 20 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Mars	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Acrux
0	278°11.6'	S 23°47.8'	7.8'	0.5'	56.9'	101°19.4'	26°40.0'	18°12.1'	12°39.3'	33°17.0'	56°53.0'	61°10.6'	72°09.3'
1	292°38.4'	S 23°47.4'	7.9'	0.6'	56.9'	100°49.3'	26°09.2'	17°39.9'	12°07.3'	33°48.9'	57°10.4'	61°28.5'	72°25.0'
2	307°05.3'	S 23°46.7'	7.9'	0.7'	56.8'	100°19.3'	25°38.5'	17°07.8'	11°35.4'	34°20.9'	57°28.0'	61°46.6'	72°40.8'
3	321°32.2'	S 23°46.0'	8.0'	0.9'	56.8'	99°49.3'	25°07.8'	16°35.7'	11°03.6'	34°52.8'	57°45.7'	62°04.8'	72°56.6'
4	335°59.1'	S 23°45.1'	8.0'	1.0'	56.8'	99°19.3'	24°37.1'	16°03.6'	10°31.8'	35°24.7'	58°03.5'	62°23.0'	73°12.5'
5	350°26.2'	S 23°44.1'	8.1'	1.2'	56.7'	98°49.4'	24°06.5'	15°31.7'	10°00.2'	35°56.5'	58°21.5'	62°41.3'	73°28.4'
6	4°53.2'	S 23°42.9'	8.1'	1.3'	56.7'	98°19.6'	23°35.9'	14°59.8'	9°28.7'	36°28.4'	58°39.5'	62°59.7'	73°44.4'
7	19°20.4'	S 23°41.7'	8.2'	1.4'	56.7'	97°49.7'	23°05.4'	14°28.0'	8°57.3'	37°00.2'	58°57.6'	63°18.2'	74°00.4'
8	33°47.6'	S 23°40.2'	8.2'	1.5'	56.6'	97°20.0'	22°34.9'	13°56.2'	8°26.1'	37°31.9'	59°15.9'	63°36.8'	74°16.5'
9	48°14.8'	S 23°38.7'	8.3'	1.7'	56.6'	96°50.2'	22°04.5'	13°24.6'	7°55.0'	38°03.7'	59°34.2'	63°55.4'	74°32.6'
10	62°42.1'	S 23°37.0'	8.4'	1.8'	56.6'	96°20.5'	21°34.1'	12°53.0'	7°24.1'	38°35.4'	59°52.6'	64°14.2'	74°48.7'
11	77°09.5'	S 23°35.2'	8.4'	1.9'	56.5'	95°50.9'	21°03.7'	12°21.5'	6°53.4'	39°07.1'	60°11.2'	64°33.0'	75°04.9'
12	91°36.9'	S 23°33.3'	8.5'	2.1'	56.5'	95°21.3'	20°33.4'	11°50.1'	6°22.9'	39°38.8'	60°29.8'	64°51.8'	75°21.2'
13	106°04.4'	S 23°31.2'	8.6'	2.2'	56.4'	94°51.7'	20°03.2'	11°18.8'	5°52.7'	40°10.4'	60°48.5'	65°10.8'	75°37.4'
14	120°32.0'	S 23°29.0'	8.6'	2.3'	56.4'	94°22.2'	19°33.0'	10°47.6'	5°22.9'	40°42.0'	61°07.3'	65°29.8'	75°53.7'
15	134°59.6'	S 23°26.7'	8.7'	2.4'	56.4'	93°52.7'	19°02.9'	10°16.6'	4°53.6'	41°13.6'	61°26.2'	65°48.8'	76°10.1'
16	149°27.3'	S 23°24.3'	8.7'	2.6'	56.3'	93°23.2'	18°32.8'	9°45.7'		41°45.1'	61°45.1'	66°07.9'	76°26.4'
17	163°55.0'	S 23°21.7'	8.8'	2.7'	56.3'	92°53.8'	18°02.7'	9°14.9'		42°16.6'	62°04.2'	66°27.1'	76°42.8'
18	178°22.8'	S 23°19.0'	8.9'	2.8'	56.3'	92°24.4'	17°32.7'	8°44.2'		42°48.1'	62°23.3'	66°46.4'	76°59.3'
19	192°50.7'	S 23°16.2'	8.9'	2.9'	56.2'	91°55.1'	17°02.8'	8°13.8'		43°19.6'	62°42.5'	67°05.7'	77°15.8'
20	207°18.7'	S 23°13.3'	9.0'	3.1'	56.2'	91°25.8'	16°32.9'	7°43.6'		43°51.0'	63°01.8'	67°25.0'	77°32.2'
21	221°46.7'	S 23°10.2'	9.1'	3.2'	56.2'	90°56.5'	16°03.0'	7°13.6'		44°22.4'	63°21.1'	67°44.5'	77°48.8'
22	236°14.8'	S 23°07.0'	9.2'	3.3'	56.1'	90°27.3'	15°33.2'	6°44.0'		44°53.8'	63°40.5'	68°03.9'	78°05.3'
23	250°42.9'	S 23°03.7'	9.2'	3.4'	56.1'	89°58.1'	15°03.5'	6°14.7'		45°25.1'	63°60.0'	68°23.4'	78°21.9'
Mer. pass.		5 h 40 m SD 15.5'		phase 60%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.2'	Polaris	+2.0	316°11.2'	N 89°21.0'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.1'	Canopus	-0.6	263°54.3'	S 52°42.7'				

Wednesday 15 April 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	203°36.6'	179°59.2'	N 9°51.3'	136°37.0'	N 26°15.1'	265°42.5'	S 21°03.5'	259°57.1'	S 19°55.4'	250°14.9'	S 18°48.3'			
1	218°39.1'	194°59.4'	N 9°52.2'	151°37.4'	N 26°15.5'	280°44.7'	S 21°03.4'	274°59.4'	S 19°55.4'	265°15.6'	S 18°47.9'			
2	233°41.5'	209°59.5'	N 9°53.1'	166°37.8'	N 26°15.9'	295°46.9'	S 21°03.4'	290°01.8'	S 19°55.4'	280°16.3'	S 18°47.5'			
3	248°44.0'	224°59.7'	N 9°53.9'	181°38.2'	N 26°16.3'	310°49.2'	S 21°03.4'	305°04.1'	S 19°55.3'	295°17.0'	S 18°47.0'			
4	263°46.5'	239°59.8'	N 9°54.8'	196°38.6'	N 26°16.7'	325°51.4'	S 21°03.3'	320°06.5'	S 19°55.3'	310°17.7'	S 18°46.6'			
5	278°48.9'	254°60.0'	N 9°55.7'	211°39.0'	N 26°17.1'	340°53.6'	S 21°03.3'	335°08.9'	S 19°55.3'	325°18.3'	S 18°46.2'			
6	293°51.4'	270°00.1'	N 9°56.6'	226°39.4'	N 26°17.5'	355°55.9'	S 21°03.2'	350°11.2'	S 19°55.3'	340°19.0'	S 18°45.8'			
7	308°53.9'	285°00.3'	N 9°57.5'	241°39.8'	N 26°17.9'	10°58.1'	S 21°03.2'	5°13.6'	S 19°55.3'	355°19.7'	S 18°45.4'			
8	323°56.3'	300°00.4'	N 9°58.4'	256°40.2'	N 26°18.3'	26°00.3'	S 21°03.2'	20°15.9'	S 19°55.2'	10°20.4'	S 18°44.9'			
9	338°58.8'	315°00.6'	N 9°59.3'	271°40.7'	N 26°18.7'	41°02.6'	S 21°03.1'	35°18.3'	S 19°55.2'	25°21.1'	S 18°44.5'			
10	354°01.3'	330°00.7'	N 10°00.2'	286°41.1'	N 26°19.1'	56°04.8'	S 21°03.1'	50°20.6'	S 19°55.2'	40°21.8'	S 18°44.1'			
11	9°03.7'	345°00.9'	N 10°01.1'	301°41.5'	N 26°19.5'	71°07.0'	S 21°03.1'	65°23.0'	S 19°55.2'	55°22.5'	S 18°43.7'			
12	24°06.2'	0°01.0'	N 10°02.0'	316°41.9'	N 26°19.9'	86°09.3'	S 21°03.0'	80°25.3'	S 19°55.2'	70°23.1'	S 18°43.2'			
13	39°08.6'	15°01.2'	N 10°02.8'	331°42.3'	N 26°20.3'	101°11.5'	S 21°03.0'	95°27.7'	S 19°55.2'	85°23.8'	S 18°42.8'			
14	54°11.1'	30°01.3'	N 10°03.7'	346°42.8'	N 26°20.7'	116°13.7'	S 21°03.0'	110°30.1'	S 19°55.1'	100°24.5'	S 18°42.4'			
15	69°13.6'	45°01.5'	N 10°04.6'	1°43.2'	N 26°21.1'	131°16.0'	S 21°02.9'	125°32.4'	S 19°55.1'	115°25.2'	S 18°42.0'			
16	84°16.0'	60°01.6'	N 10°05.5'	16°43.6'	N 26°21.5'	146°18.2'	S 21°02.9'	140°34.8'	S 19°55.1'	130°25.9'	S 18°41.5'			
17	99°18.5'	75°01.8'	N 10°06.4'	31°44.0'	N 26°21.9'	161°20.4'	S 21°02.9'	155°37.1'	S 19°55.1'	145°26.6'	S 18°41.1'			
18	114°21.0'	90°01.9'	N 10°07.3'	46°44.5'	N 26°22.3'	176°22.7'	S 21°02.8'	170°39.5'	S 19°55.1'	160°27.3'	S 18°40.7'			
19	129°23.4'	105°02.1'	N 10°08.2'	61°44.9'	N 26°22.7'	191°24.9'	S 21°02.8'	185°41.8'	S 19°55.0'	175°27.9'	S 18°40.2'			
20	144°25.9'	120°02.2'	N 10°09.1'	76°45.3'	N 26°23.1'	206°27.1'	S 21°02.8'	200°44.2'	S 19°55.0'	190°28.6'	S 18°39.8'			
21	159°28.4'	135°02.4'	N 10°09.9'	91°45.8'	N 26°23.5'	221°29.4'	S 21°02.7'	215°46.6'	S 19°55.0'	205°29.3'	S 18°39.4'			
22	174°30.8'	150°02.5'	N 10°10.8'	106°46.2'	N 26°23.9'	236°31.6'	S 21°02.7'	230°48.9'	S 19°55.0'	220°30.0'	S 18°39.0'			
23	189°33.3'	165°02.7'	N 10°11.7'	121°46.6'	N 26°24.3'	251°33.8'	S 21°02.6'	245°51.3'	S 19°55.0'	235°30.7'	S 18°38.5'			
		SD 15.9' d 0.9'		v 0.4' d 0.4'		v 2.2' d 0.0'		v 2.4' d 0.0'		v 0.7' d 0.4'				
Mer. pass.		11 h 59 m 56 s		14 h 53 m		6 h 16 m		6 h 39 m		7 h 19 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Mars	-Saturn	+Jupiter	+Antares	+Rigel Kent	+Hadar
0	265°11.1'	S 23°00.3'	9.3'	3.5'	56.1'	89°29.0'	41°43.4'	14°33.8'	5°45.8'		45°56.4'	64°19.5'	68°43.0'
1	279°39.4'	S 22°56.8'	9.4'	3.7'	56.0'	88°59.9'	41°14.8'	14°04.1'	5°17.5'		46°27.7'	64°39.1'	69°02.6'
2	294°07.8'	S 22°53.1'	9.4'	3.8'	56.0'	88°30.8'	40°46.4'	13°34.5'			46°59.0'	64°58.8'	69°22.3'
3	308°36.2'	S 22°49.4'	9.5'	3.9'	56.0'	88°01.7'	40°18.0'	13°05.0'			47°30.2'	65°18.5'	69°42.0'
4	323°04.7'	S 22°45.5'	9.6'	4.0'	55.9'	87°32.7'	39°49.7'	12°35.6'			48°01.4'	65°38.3'	70°01.7'
5	337°33.3'	S 22°41.5'	9.6'	4.1'	55.9'	87°03.8'	39°21.6'	12°06.2'			48°32.5'	65°58.2'	70°21.5'
6	352°01.9'	S 22°37.4'	9.7'	4.2'	55.9'	86°34.8'	38°53.5'	11°36.8'			49°03.7'	66°18.1'	70°41.3'
7	6°30.6'	S 22°33.1'	9.8'	4.3'	55.8'	86°05.9'	38°25.5'	11°07.6'		4°24.1'	49°34.8'	66°38.0'	71°01.2'
8	20°59.4'	S 22°28.8'	9.9'	4.5'	55.8'	85°37.1'	37°57.7'	10°38.4'		4°52.2'	50°05.8'	66°58.0'	71°21.1'
9	35°28.3'	S 22°24.3'	9.9'	4.6'	55.8'	85°08.3'	37°30.0'	10°09.3'		5°20.9'	50°36.9'	67°18.1'	71°41.0'
10	49°57.2'	S 22°19.8'	10.0'	4.7'	55.8'	84°39.5'	37°02.3'	9°40.3'		5°50.0'	51°07.9'	67°38.2'	72°01.0'
11	64°26.2'	S 22°15.1'	10.1'	4.8'	55.7'	84°10.7'	36°34.8'	9°11.4'		6°19.4'	51°38.9'	67°58.3'	72°21.0'
12	78°55.3'	S 22°10.3'	10.2'	4.9'	55.7'	83°42.0'	36°07.4'	8°42.5'		6°49.0'	52°09.8'	68°18.5'	72°41.0'
13	93°24.5'	S 22°05.4'	10.2'	5.0'	55.7'	83°13.3'	35°40.2'	8°13.8'		7°18.7'	52°40.8'	68°38.8'	73°01.1'
14	107°53.7'	S 22°00.4'	10.3'	5.1'	55.6'	82°44.6'	35°13.0'	7°45.3'		7°48.6'	53°11.7'	68°59.1'	73°21.2'
15	122°23.0'	S 21°55.3'	10.4'	5.2'	55.6'	82°16.0'	34°46.0'	7°16.8'		8°18.6'	53°42.5'	69°19.4'	73°41.3'
16	136°52.4'	S 21°50.1'	10.4'	5.3'	55.6'	81°47.4'	34°19.1'	6°48.6'		8°48.7'	54°13.4'	69°39.7'	74°01.5'
17	151°21.8'	S 21°44.8'	10.5'	5.4'	55.5'	81°18.8'	33°52.3'	6°20.6'		9°18.8'	54°44.2'	70°00.2'	74°21.7'
18	165°51.3'	S 21°39.4'	10.6'	5.5'	55.5'	80°50.3'	33°25.7'	5°52.8'		9°49.0'	55°15.0'	70°20.6'	74°41.9'
19	180°20.9'	S 21°33.9'	10.7'	5.6'	55.5'	80°21.8'	32°59.3'	5°25.3'	5°15.9'	10°19.2'	55°45.7'	70°41.1'	75°02.1'
20	194°50.6'	S 21°28.2'	10.7'	5.7'	55.5'	79°53.3'	32°32.9'	4°58.2'	5°43.6'	10°49.5'	56°16.5'	71°01.6'	75°22.3'
21	209°20.4'	S 21°22.5'	10.8'	5.8'	55.4'	79°24.9'	32°06.7'	4°31.5'	6°11.8'	11°19.7'	56°47.2'	71°22.1'	75°42.6'
22	223°50.2'	S 21°16.7'	10.9'	5.9'	55.4'	78°56.5'	31°40.7'		6°40.4'	11°50.0'	57°17.9'	71°42.7'	76°02.9'
23	238°20.1'	S 21°10.8'	11.0'	6.0'	55.4'	78°28.1'	31°14.8'		7°09.2'	12°20.3'	57°48.5'	72°03.3'	76°23.2'
Mer. pass.		6 h 33 m SD 15.3' phase 50%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.1'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.2'	Polaris	+2.0	316°11.3'	N 89°21.0'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.1'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	204°35.8'	180°02.8'	N 10°12.6'	136°47.1'	N 26°24.7'	266°36.1'	S 21°02.6'	260°53.6'	S 19°54.9'	250°31.4'	S 18°38.1'	
1	219°38.2'	195°02.9'	N 10°13.5'	151°47.5'	N 26°25.1'	281°38.3'	S 21°02.6'	275°56.0'	S 19°54.9'	265°32.1'	S 18°37.7'	
2	234°40.7'	210°03.1'	N 10°14.4'	166°48.0'	N 26°25.5'	296°40.6'	S 21°02.5'	290°58.4'	S 19°54.9'	280°32.8'	S 18°37.3'	
3	249°43.1'	225°03.2'	N 10°15.2'	181°48.4'	N 26°25.9'	311°42.8'	S 21°02.5'	306°00.7'	S 19°54.9'	295°33.4'	S 18°36.8'	
4	264°45.6'	240°03.4'	N 10°16.1'	196°48.9'	N 26°26.2'	326°45.0'	S 21°02.5'	321°03.1'	S 19°54.9'	310°34.1'	S 18°36.4'	
5	279°48.1'	255°03.5'	N 10°17.0'	211°49.3'	N 26°26.6'	341°47.3'	S 21°02.4'	336°05.4'	S 19°54.8'	325°34.8'	S 18°36.0'	
6	294°50.5'	270°03.7'	N 10°17.9'	226°49.8'	N 26°27.0'	356°49.5'	S 21°02.4'	351°07.8'	S 19°54.8'	340°35.5'	S 18°35.5'	
7	309°53.0'	285°03.8'	N 10°18.8'	241°50.2'	N 26°27.4'	11°51.7'	S 21°02.4'	6°10.2'	S 19°54.8'	355°36.2'	S 18°35.1'	
8	324°55.5'	300°04.0'	N 10°19.7'	256°50.7'	N 26°27.8'	26°54.0'	S 21°02.3'	21°12.5'	S 19°54.8'	10°36.9'	S 18°34.7'	
9	339°57.9'	315°04.1'	N 10°20.5'	271°51.1'	N 26°28.2'	41°56.2'	S 21°02.3'	36°14.9'	S 19°54.8'	25°37.6'	S 18°34.2'	
10	355°00.4'	330°04.3'	N 10°21.4'	286°51.6'	N 26°28.5'	56°58.5'	S 21°02.3'	51°17.2'	S 19°54.8'	40°38.3'	S 18°33.8'	
11	10°02.9'	345°04.4'	N 10°22.3'	301°52.0'	N 26°28.9'	72°00.7'	S 21°02.2'	66°19.6'	S 19°54.7'	55°39.0'	S 18°33.4'	
12	25°05.3'	0°04.6'	N 10°23.2'	316°52.5'	N 26°29.3'	87°02.9'	S 21°02.2'	81°22.0'	S 19°54.7'	70°39.6'	S 18°33.0'	
13	40°07.8'	15°04.7'	N 10°24.1'	331°52.9'	N 26°29.7'	102°05.2'	S 21°02.2'	96°24.3'	S 19°54.7'	85°40.3'	S 18°32.5'	
14	55°10.3'	30°04.8'	N 10°25.0'	346°53.4'	N 26°30.1'	117°07.4'	S 21°02.1'	111°26.7'	S 19°54.7'	100°41.0'	S 18°32.1'	
15	70°12.7'	45°05.0'	N 10°25.8'	1°53.9'	N 26°30.4'	132°09.7'	S 21°02.1'	126°29.0'	S 19°54.7'	115°41.7'	S 18°31.7'	
16	85°15.2'	60°05.1'	N 10°26.7'	16°54.3'	N 26°30.8'	147°11.9'	S 21°02.1'	141°31.4'	S 19°54.6'	130°42.4'	S 18°31.2'	
17	100°17.6'	75°05.3'	N 10°27.6'	31°54.8'	N 26°31.2'	162°14.1'	S 21°02.0'	156°33.8'	S 19°54.6'	145°43.1'	S 18°30.8'	
18	115°20.1'	90°05.4'	N 10°28.5'	46°55.3'	N 26°31.6'	177°16.4'	S 21°02.0'	171°36.1'	S 19°54.6'	160°43.8'	S 18°30.4'	
19	130°22.6'	105°05.6'	N 10°29.4'	61°55.7'	N 26°31.9'	192°18.6'	S 21°02.0'	186°38.5'	S 19°54.6'	175°44.5'	S 18°29.9'	
20	145°25.0'	120°05.7'	N 10°30.2'	76°56.2'	N 26°32.3'	207°20.9'	S 21°01.9'	201°40.8'	S 19°54.6'	190°45.2'	S 18°29.5'	
21	160°27.5'	135°05.8'	N 10°31.1'	91°56.7'	N 26°32.7'	222°23.1'	S 21°01.9'	216°43.2'	S 19°54.6'	205°45.9'	S 18°29.1'	
22	175°30.0'	150°06.0'	N 10°32.0'	106°57.2'	N 26°33.0'	237°25.4'	S 21°01.9'	231°45.6'	S 19°54.5'	220°46.5'	S 18°28.6'	
23	190°32.4'	165°06.1'	N 10°32.9'	121°57.6'	N 26°33.4'	252°27.6'	S 21°01.8'	246°47.9'	S 19°54.5'	235°47.2'	S 18°28.2'	
		SD 15.9' d 0.9'		v 0.5' d 0.4'		v 2.2' d 0.0'		v 2.4' d 0.0'		v 0.7' d 0.4'		
Mer. pass.		11 h 59 m 42 s		14 h 52 m		6 h 13 m		6 h 35 m		7 h 18 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Mars	+Saturn	+Jupiter	+Altair	+Antares	+Rigel Kent
0	252°50.1'	S 21°04.8'	11.0'	6.1'	55.4'	77°59.7'	30°49.1'		7°38.3'	12°50.6'		58°19.2'	72°24.0'
1	267°20.1'	S 20°58.7'	11.1'	6.2'	55.3'	77°31.4'	30°23.6'		8°07.5'	13°20.9'		58°49.8'	72°44.6'
2	281°50.2'	S 20°52.4'	11.2'	6.3'	55.3'	77°03.1'	29°58.2'		8°36.9'	13°51.2'		59°20.3'	73°05.3'
3	296°20.4'	S 20°46.1'	11.3'	6.4'	55.3'	76°34.8'	29°33.1'		9°06.4'	14°21.5'		59°50.9'	73°26.1'
4	310°50.7'	S 20°39.7'	11.3'	6.5'	55.2'	76°06.6'	29°08.1'		9°36.0'	14°51.8'		60°21.4'	73°46.8'
5	325°21.0'	S 20°33.2'	11.4'	6.6'	55.2'	75°38.4'	28°43.3'		10°05.7'	15°22.0'		60°51.9'	74°07.6'
6	339°51.5'	S 20°26.6'	11.5'	6.7'	55.2'	75°10.2'	28°18.7'		10°35.5'	15°52.3'		61°22.4'	74°28.4'
7	354°21.9'	S 20°20.0'	11.6'	6.8'	55.2'	74°42.1'	27°54.3'		11°05.3'	16°22.5'		61°52.9'	74°49.2'
8	8°52.5'	S 20°13.2'	11.6'	6.9'	55.1'	74°13.9'	27°30.1'		11°35.2'	16°52.8'		62°23.3'	75°10.1'
9	23°23.2'	S 20°06.3'	11.7'	6.9'	55.1'	73°45.8'	27°06.1'		12°05.0'	17°23.0'		62°53.7'	75°30.9'
10	37°53.9'	S 19°59.4'	11.8'	7.0'	55.1'	73°17.8'	26°42.4'		12°35.0'	17°53.2'		63°24.1'	75°51.8'
11	52°24.7'	S 19°52.4'	11.9'	7.1'	55.1'	72°49.7'	26°18.9'		13°04.9'	18°23.4'		63°54.4'	76°12.7'
12	66°55.5'	S 19°45.2'	11.9'	7.2'	55.0'	72°21.7'	25°55.7'		13°34.8'	18°53.6'		64°24.8'	76°33.7'
13	81°26.5'	S 19°38.0'	12.0'	7.3'	55.0'	71°53.7'	25°32.7'	4°08.7'	14°04.8'	19°23.7'		64°55.1'	76°54.6'
14	95°57.5'	S 19°30.7'	12.1'	7.4'	55.0'	71°25.7'	25°10.0'	4°34.4'	14°34.8'	19°53.9'		65°25.4'	77°15.6'
15	110°28.6'	S 19°23.3'	12.2'	7.5'	55.0'	70°57.8'	24°47.5'	5°00.6'	15°04.7'	20°24.0'		65°55.6'	77°36.5'
16	124°59.7'	S 19°15.9'	12.2'	7.5'	55.0'	70°29.8'	24°25.4'	5°27.3'	15°34.7'	20°54.1'		66°25.9'	77°57.5'
17	139°30.9'	S 19°08.3'	12.3'	7.6'	54.9'	70°01.9'	24°03.6'	5°54.2'	16°04.7'	21°24.2'		66°56.1'	78°18.5'
18	154°02.2'	S 19°00.7'	12.4'	7.7'	54.9'	69°34.1'	23°42.0'	6°21.4'	16°34.7'	21°54.3'		67°26.3'	78°39.5'
19	168°33.6'	S 18°53.0'	12.4'	7.8'	54.9'	69°06.2'	23°20.8'	6°48.8'	17°04.7'	22°24.4'		67°56.5'	79°00.6'
20	183°05.0'	S 18°45.2'	12.5'	7.9'	54.9'	68°38.4'	22°60.0'	7°16.3'	17°34.6'	22°54.4'		68°26.6'	79°21.6'
21	197°36.6'	S 18°37.3'	12.6'	7.9'	54.8'	68°10.6'	22°39.5'	7°43.9'	18°04.6'	23°24.5'		68°56.8'	79°42.7'
22	212°08.1'	S 18°29.4'	12.7'	8.0'	54.8'	67°42.8'	22°19.3'	8°11.6'	18°34.6'	23°54.5'		69°26.9'	80°03.7'
23	226°39.8'	S 18°21.3'	12.7'	8.1'	54.8'	67°15.0'	21°59.6'	8°39.4'	19°04.5'	24°24.5'	37°24.3'	69°57.0'	80°24.8'
Mer. pass.		7 h 23 m SD 15.1' phase 40%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.7'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.2'	Polaris	+2.0	316°11.4'	N 89°21.0'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.1'	Canopus	-0.6	263°54.3'	S 52°42.7'				

Friday 17 April 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	205°34.9'	180°06.3'	N 10°33.8'	136°58.1'	N 26°33.8'	267°29.8'	S 21°01.8'	261°50.3'	S 19°54.5'	250°47.9'	S 18°27.8'			
1	220°37.4'	195°06.4'	N 10°34.6'	151°58.6'	N 26°34.1'	282°32.1'	S 21°01.8'	276°52.7'	S 19°54.5'	265°48.6'	S 18°27.3'			
2	235°39.8'	210°06.6'	N 10°35.5'	166°59.1'	N 26°34.5'	297°34.3'	S 21°01.7'	291°55.0'	S 19°54.5'	280°49.3'	S 18°26.9'			
3	250°42.3'	225°06.7'	N 10°36.4'	181°59.6'	N 26°34.9'	312°36.6'	S 21°01.7'	306°57.4'	S 19°54.5'	295°50.0'	S 18°26.5'			
4	265°44.7'	240°06.8'	N 10°37.3'	197°00.0'	N 26°35.2'	327°38.8'	S 21°01.7'	321°59.7'	S 19°54.4'	310°50.7'	S 18°26.0'			
5	280°47.2'	255°07.0'	N 10°38.1'	212°00.5'	N 26°35.6'	342°41.1'	S 21°01.6'	337°02.1'	S 19°54.4'	325°51.4'	S 18°25.6'			
6	295°49.7'	270°07.1'	N 10°39.0'	227°01.0'	N 26°36.0'	357°43.3'	S 21°01.6'	352°04.5'	S 19°54.4'	340°52.1'	S 18°25.2'			
7	310°52.1'	285°07.3'	N 10°39.9'	242°01.5'	N 26°36.3'	12°45.6'	S 21°01.6'	7°06.8'	S 19°54.4'	355°52.8'	S 18°24.7'			
8	325°54.6'	300°07.4'	N 10°40.8'	257°02.0'	N 26°36.7'	27°47.8'	S 21°01.5'	22°09.2'	S 19°54.4'	10°53.5'	S 18°24.3'			
9	340°57.1'	315°07.5'	N 10°41.6'	272°02.5'	N 26°37.1'	42°50.0'	S 21°01.5'	37°11.6'	S 19°54.3'	25°54.2'	S 18°23.8'			
10	355°59.5'	330°07.7'	N 10°42.5'	287°03.0'	N 26°37.4'	57°52.3'	S 21°01.5'	52°13.9'	S 19°54.3'	40°54.8'	S 18°23.4'			
11	11°02.0'	345°07.8'	N 10°43.4'	302°03.5'	N 26°37.8'	72°54.5'	S 21°01.4'	67°16.3'	S 19°54.3'	55°55.5'	S 18°23.0'			
12	26°04.5'	0°08.0'	N 10°44.3'	317°04.0'	N 26°38.1'	87°56.8'	S 21°01.4'	82°18.7'	S 19°54.3'	70°56.2'	S 18°22.5'			
13	41°06.9'	15°08.1'	N 10°45.1'	332°04.5'	N 26°38.5'	102°59.0'	S 21°01.4'	97°21.0'	S 19°54.3'	85°56.9'	S 18°22.1'			
14	56°09.4'	30°08.3'	N 10°46.0'	347°05.0'	N 26°38.8'	118°01.3'	S 21°01.3'	112°23.4'	S 19°54.3'	100°57.6'	S 18°21.7'			
15	71°11.9'	45°08.4'	N 10°46.9'	2°05.5'	N 26°39.2'	133°03.5'	S 21°01.3'	127°25.7'	S 19°54.2'	115°58.3'	S 18°21.2'			
16	86°14.3'	60°08.5'	N 10°47.8'	17°06.0'	N 26°39.5'	148°05.8'	S 21°01.3'	142°28.1'	S 19°54.2'	130°59.0'	S 18°20.8'			
17	101°16.8'	75°08.7'	N 10°48.6'	32°06.5'	N 26°39.9'	163°08.0'	S 21°01.2'	157°30.5'	S 19°54.2'	145°59.7'	S 18°20.3'			
18	116°19.2'	90°08.8'	N 10°49.5'	47°07.0'	N 26°40.3'	178°10.3'	S 21°01.2'	172°32.8'	S 19°54.2'	161°00.4'	S 18°19.9'			
19	131°21.7'	105°09.0'	N 10°50.4'	62°07.5'	N 26°40.6'	193°12.5'	S 21°01.2'	187°35.2'	S 19°54.2'	176°01.1'	S 18°19.5'			
20	146°24.2'	120°09.1'	N 10°51.2'	77°08.0'	N 26°41.0'	208°14.8'	S 21°01.1'	202°37.6'	S 19°54.2'	191°01.8'	S 18°19.0'			
21	161°26.6'	135°09.2'	N 10°52.1'	92°08.5'	N 26°41.3'	223°17.0'	S 21°01.1'	217°39.9'	S 19°54.1'	206°02.5'	S 18°18.6'			
22	176°29.1'	150°09.1'	N 10°53.0'	107°09.1'	N 26°41.7'	238°19.3'	S 21°01.1'	232°42.3'	S 19°54.1'	221°03.2'	S 18°18.2'			
23	191°31.6'	165°09.5'	N 10°53.9'	122°09.6'	N 26°42.0'	253°21.5'	S 21°01.0'	247°44.7'	S 19°54.1'	236°03.9'	S 18°17.7'			
		SD 15.9' d 0.9'		v 0.5' d 0.4'		v 2.2' d 0.0'		v 2.4' d 0.0'		v 0.7' d 0.4'				
Mer. pass.		11 h 59 m 28 s		14 h 52 m		6 h 9 m		6 h 32 m		7 h 16 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	+Mars	+Saturn	+Jupiter	+Altair	+Antares	+Rigel Kent
0	241°11.5'	S 18°13.2'	12.8'	8.2'	54.8'	66°47.3'	21°40.2'	9°07.3'	19°34.5'	24°54.5'	37°39.5'	70°27.1'	80°45.9'
1	255°43.3'	S 18°05.1'	12.9'	8.3'	54.8'	66°19.6'	21°21.3'	9°35.2'	20°04.4'	25°24.4'	37°55.0'	70°57.1'	81°07.0'
2	270°15.2'	S 17°56.8'	12.9'	8.3'	54.7'	65°51.9'	21°02.8'	10°03.1'	20°34.3'	25°54.4'	38°10.7'	71°27.2'	81°28.0'
3	284°47.1'	S 17°48.5'	13.0'	8.4'	54.7'	65°24.2'	20°44.7'	10°31.1'	21°04.2'	26°24.3'	38°26.7'	71°57.2'	81°49.1'
4	299°19.1'	S 17°40.1'	13.1'	8.5'	54.7'	64°56.5'	20°27.1'	10°59.0'	21°34.1'	26°54.2'	38°42.9'	72°27.2'	82°10.3'
5	313°51.2'	S 17°31.6'	13.1'	8.5'	54.7'	64°28.9'	20°10.0'	11°27.1'	22°04.0'	27°24.1'	38°59.3'	72°57.2'	82°31.4'
6	328°23.3'	S 17°23.0'	13.2'	8.6'	54.7'	64°01.3'	19°53.5'	11°55.1'	22°33.9'	27°54.0'	39°15.9'	73°27.1'	82°52.5'
7	342°55.5'	S 17°14.4'	13.3'	8.7'	54.6'	63°33.7'	19°37.4'	12°23.1'	23°03.8'	28°23.9'	39°32.7'	73°57.1'	83°13.6'
8	357°27.8'	S 17°05.7'	13.3'	8.8'	54.6'	63°06.1'		12°51.2'	23°33.7'	28°53.7'	39°49.8'	74°27.0'	83°34.7'
9	12°00.1'	S 16°57.0'	13.4'	8.8'	54.6'	62°38.5'		13°19.2'	24°03.5'	29°23.5'	40°07.0'	74°56.9'	83°55.8'
10	26°32.5'	S 16°48.2'	13.5'	8.9'	54.6'	62°11.0'		13°47.3'	24°33.4'	29°53.4'	40°24.5'	75°26.8'	84°17.0'
11	41°04.9'	S 16°39.3'	13.5'	9.0'	54.6'	61°43.5'		14°15.3'	25°03.2'	30°23.2'	40°42.1'	75°56.7'	84°38.1'
12	55°37.5'	S 16°30.3'	13.6'	9.0'	54.5'	61°16.0'		14°43.4'	25°33.0'	30°52.9'	40°60.0'	76°26.6'	84°59.2'
13	70°10.1'	S 16°21.3'	13.7'	9.1'	54.5'	60°48.5'		15°11.5'	26°02.8'	31°22.7'	41°18.0'	76°56.4'	85°20.3'
14	84°42.7'	S 16°12.2'	13.7'	9.2'	54.5'	60°21.0'		15°39.5'	26°32.6'	31°52.5'	41°36.2'	77°26.2'	85°41.5'
15	99°15.4'	S 16°03.0'	13.8'	9.2'	54.5'	59°53.6'		16°07.6'	27°02.4'	32°22.2'	41°54.5'	77°56.1'	86°02.6'
16	113°48.2'	S 15°53.8'	13.8'	9.3'	54.5'	59°26.1'		16°35.6'	27°32.2'	32°51.9'	42°13.1'	78°25.9'	86°23.7'
17	128°21.0'	S 15°44.5'	13.9'	9.3'	54.5'	58°58.7'		17°03.7'	28°01.9'	33°21.7'	42°31.8'	78°55.6'	86°44.8'
18	142°53.9'	S 15°35.2'	14.0'	9.4'	54.4'	58°31.3'		17°31.7'	28°31.7'	33°51.4'	42°50.7'	79°25.4'	87°05.9'
19	157°26.9'	S 15°25.8'	14.0'	9.5'	54.4'	58°03.9'		17°59.7'	29°01.4'	34°21.0'	43°09.7'	79°55.2'	87°27.1'
20	171°59.9'	S 15°16.3'	14.1'	9.5'	54.4'	57°36.6'		18°27.8'	29°31.1'	34°50.7'	43°28.9'	80°24.9'	87°48.2'
21	186°33.0'	S 15°06.8'	14.1'	9.6'	54.4'	57°09.2'		18°55.8'	30°00.8'	35°20.4'	43°48.2'	80°54.6'	88°09.3'
22	201°06.1'	S 14°57.2'	14.2'	9.6'	54.4'	56°41.9'		19°23.8'	30°30.5'	35°50.0'	44°07.7'	81°24.3'	88°30.4'
23	215°39.3'	S 14°47.6'	14.3'	9.7'	54.4'	56°14.6'		19°51.8'	31°00.2'	36°19.6'	44°27.3'	81°54.0'	88°51.4'
Mer. pass.		8 h 10 m SD 14.9' phase 30%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.7'	N 8°55.2'	Regulus	+1.4	207°38.3'	N 11°52.1'	Rigel	+0.2	281°07.7'	S 8°11.0'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.2'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.2'	Polaris	+2.0	316°11.6'	N 89°21.0'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.1'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	206°34.0'	180°09.6'	N 10°54.7'	137°10.1'	N 26°42.3'	268°23.8'	S 21°01.0'	262°47.0'	S 19°54.1'	251°04.6'	S 18°17.3'			
1	221°36.5'	195°09.8'	N 10°55.6'	152°10.6'	N 26°42.7'	283°26.0'	S 21°01.0'	277°49.4'	S 19°54.1'	266°05.3'	S 18°16.8'			
2	236°39.0'	210°09.9'	N 10°56.5'	167°11.1'	N 26°43.0'	298°28.3'	S 21°00.9'	292°51.8'	S 19°54.1'	281°06.0'	S 18°16.4'			
3	251°41.4'	225°10.1'	N 10°57.3'	182°11.7'	N 26°43.4'	313°30.5'	S 21°00.9'	307°54.1'	S 19°54.0'	296°06.7'	S 18°16.0'			
4	266°43.9'	240°10.2'	N 10°58.2'	197°12.2'	N 26°43.7'	328°32.8'	S 21°00.9'	322°56.5'	S 19°54.0'	311°07.3'	S 18°15.5'			
5	281°46.3'	255°10.3'	N 10°59.1'	212°12.7'	N 26°44.1'	343°35.0'	S 21°00.8'	337°58.9'	S 19°54.0'	326°08.0'	S 18°15.1'			
6	296°48.8'	270°10.5'	N 10°60.0'	227°13.3'	N 26°44.4'	358°37.3'	S 21°00.8'	353°01.2'	S 19°54.0'	341°08.7'	S 18°14.6'			
7	311°51.3'	285°10.6'	N 11°00.8'	242°13.8'	N 26°44.7'	13°39.5'	S 21°00.8'	8°03.6'	S 19°54.0'	356°09.4'	S 18°14.2'			
8	326°53.7'	300°10.7'	N 11°01.7'	257°14.3'	N 26°45.1'	28°41.8'	S 21°00.8'	23°06.0'	S 19°54.0'	11°10.1'	S 18°13.8'			
9	341°56.2'	315°10.9'	N 11°02.6'	272°14.9'	N 26°45.4'	43°44.1'	S 21°00.7'	38°08.3'	S 19°53.9'	26°10.8'	S 18°13.3'			
10	356°58.7'	330°11.0'	N 11°03.4'	287°15.4'	N 26°45.8'	58°46.3'	S 21°00.7'	53°10.7'	S 19°53.9'	41°11.5'	S 18°12.9'			
11	12°01.1'	345°11.2'	N 11°04.3'	302°15.9'	N 26°46.1'	73°48.6'	S 21°00.7'	68°13.1'	S 19°53.9'	56°12.2'	S 18°12.4'			
12	27°03.6'	0°11.3'	N 11°05.2'	317°16.5'	N 26°46.4'	88°50.8'	S 21°00.6'	83°15.5'	S 19°53.9'	71°12.9'	S 18°12.0'			
13	42°06.1'	15°11.4'	N 11°06.0'	332°17.0'	N 26°46.8'	103°53.1'	S 21°00.6'	98°17.8'	S 19°53.9'	86°13.6'	S 18°11.5'			
14	57°08.5'	30°11.6'	N 11°06.9'	347°17.6'	N 26°47.1'	118°55.3'	S 21°00.6'	113°20.2'	S 19°53.9'	101°14.3'	S 18°11.1'			
15	72°11.0'	45°11.7'	N 11°07.8'	2°18.1'	N 26°47.4'	133°57.6'	S 21°00.5'	128°22.6'	S 19°53.8'	116°15.0'	S 18°10.7'			
16	87°13.5'	60°11.8'	N 11°08.6'	17°18.6'	N 26°47.8'	148°59.8'	S 21°00.5'	143°24.9'	S 19°53.8'	131°15.7'	S 18°10.2'			
17	102°15.9'	75°12.0'	N 11°09.5'	32°19.2'	N 26°48.1'	164°02.1'	S 21°00.5'	158°27.3'	S 19°53.8'	146°16.4'	S 18°09.8'			
18	117°18.4'	90°12.1'	N 11°10.4'	47°19.7'	N 26°48.4'	179°04.3'	S 21°00.4'	173°29.7'	S 19°53.8'	161°17.1'	S 18°09.3'			
19	132°20.8'	105°12.2'	N 11°11.2'	62°20.3'	N 26°48.8'	194°06.6'	S 21°00.4'	188°32.0'	S 19°53.8'	176°17.8'	S 18°08.9'			
20	147°23.3'	120°12.4'	N 11°12.1'	77°20.9'	N 26°49.1'	209°08.9'	S 21°00.4'	203°34.4'	S 19°53.8'	191°18.5'	S 18°08.4'			
21	162°25.8'	135°12.5'	N 11°12.9'	92°21.4'	N 26°49.4'	224°11.1'	S 21°00.3'	218°36.8'	S 19°53.7'	206°19.2'	S 18°08.0'			
22	177°28.2'	150°12.6'	N 11°13.8'	107°22.0'	N 26°49.7'	239°13.4'	S 21°00.3'	233°39.2'	S 19°53.7'	221°19.9'	S 18°07.5'			
23	192°30.7'	165°12.8'	N 11°14.7'	122°22.5'	N 26°50.1'	254°15.6'	S 21°00.3'	248°41.5'	S 19°53.7'	236°20.6'	S 18°07.1'			
		SD 15.9' d 0.9'		v 0.5' d 0.3'		v 2.3' d 0.0'		v 2.4' d 0.0'		v 0.7' d 0.4'				
Mer. pass.		11 h 59 m 15 s		14 h 51 m		6 h 6 m		6 h 28 m		7 h 15 m				

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Sun	+Mars	+Saturn	+Jupiter	+Altair	+Antares	+Rigel Kent	+Hadar	
0	230°12.6'	S 14°37.9'	14.3'	9.8'	54.4'	55°47.3'	20°19.8'	31°29.9'	36°49.3'	44°47.1'	82°23.7'	89°12.5'	93°05.7'	
1	244°45.9'	S 14°28.1'	14.4'	9.8'	54.3'	55°20.0'	20°47.8'	31°59.6'	37°18.9'	45°07.0'	82°53.4'	89°33.6'	93°26.0'	
2	259°19.2'	S 14°18.3'	14.4'	9.9'	54.3'	54°52.7'	21°15.8'	32°29.2'	37°48.5'	45°27.1'	83°23.0'	89°54.7'	93°46.3'	
3	273°52.7'	S 14°08.5'	14.5'	9.9'	54.3'	54°25.4'	21°43.7'	32°58.9'	38°18.1'	45°47.2'	83°52.7'	90°15.7'	94°06.6'	
4	288°26.1'	S 13°58.5'	14.5'	10.0'	54.3'	53°58.2'	22°11.7'	33°28.5'	38°47.6'	46°07.5'	84°22.3'	90°36.8'	94°26.8'	
5	302°59.7'	S 13°48.6'	14.6'	10.0'	54.3'	53°31.0'	22°39.7'	33°58.1'	39°17.2'	46°27.9'	84°51.9'	90°57.8'	94°47.0'	
6	317°33.2'	S 13°38.5'	14.6'	10.1'	54.3'	53°03.7'	23°07.6'	34°27.8'	39°46.7'	46°48.5'	85°21.5'	91°18.8'	95°07.3'	
7	332°06.9'	S 13°28.5'	14.7'	10.1'	54.3'	52°36.5'	23°35.5'	34°57.4'	40°16.3'	47°09.1'	85°51.1'	91°39.8'	95°27.4'	
8	346°40.6'	S 13°18.3'	14.7'	10.2'	54.2'	52°09.3'	24°03.5'	35°27.0'	40°45.8'	47°29.9'	86°20.7'	92°00.8'	95°47.6'	
9	1°14.3'	S 13°08.2'	14.8'	10.2'	54.2'	51°42.2'	24°31.4'	35°56.6'	41°15.3'	47°50.8'	86°50.3'	92°21.8'	96°07.8'	
10	15°48.1'	S 12°57.9'	14.8'	10.3'	54.2'	51°15.0'	24°59.3'	36°26.1'	41°44.8'	48°11.8'	87°19.9'	92°42.8'	96°27.8'	
11	30°21.9'	S 12°47.7'	14.9'	10.3'	54.2'	50°47.8'	25°27.2'	36°55.7'	42°14.3'	48°32.9'	87°49.4'	93°03.8'	96°48.0'	
12	44°55.8'	S 12°37.3'	14.9'	10.4'	54.2'	50°20.7'	25°55.1'	37°25.3'	42°43.8'	48°54.1'	88°19.0'	93°24.7'	97°08.1'	
13	59°29.7'	S 12°27.0'	15.0'	10.4'	54.2'	49°53.5'	26°23.0'	37°54.8'	43°13.3'	49°15.4'	88°48.5'	93°45.7'	97°28.1'	
14	74°03.7'	S 12°16.6'	15.0'	10.5'	54.2'	49°26.4'	26°50.9'	38°24.4'	43°42.8'	49°36.8'	89°18.0'	94°06.6'	97°48.1'	
15	88°37.7'	S 12°06.1'	15.1'	10.5'	54.2'	48°59.3'	27°18.8'	38°53.9'	44°12.3'	49°58.3'	89°47.5'	94°27.5'	98°08.1'	
16	103°11.8'	S 11°55.6'	15.1'	10.6'	54.2'	48°32.2'	27°46.7'	39°23.4'	44°41.7'	50°19.9'	90°17.0'	94°48.4'	98°28.1'	
17	117°45.9'	S 11°45.0'	15.2'	10.6'	54.1'	48°05.1'	28°14.6'	39°53.0'	45°11.2'	50°41.6'	90°46.5'	95°09.2'	98°48.1'	
18	132°20.1'	S 11°34.4'	15.2'	10.6'	54.1'	47°38.0'	28°42.4'	40°22.5'	45°40.6'	51°03.4'	91°16.0'	95°30.1'	99°08.0'	
19	146°54.3'	S 11°23.8'	15.3'	10.7'	54.1'	47°11.0'	29°10.3'	40°52.0'	46°10.0'	51°25.3'	91°45.5'	95°50.9'	99°27.9'	
20	161°28.6'	S 11°13.1'	15.3'	10.7'	54.1'	46°43.9'	29°38.1'	41°21.5'	46°39.5'	51°47.2'	92°15.0'	96°11.7'	99°47.7'	
21	176°02.9'	S 11°02.4'	15.3'	10.8'	54.1'	46°16.9'	30°06.0'	41°51.0'	47°08.9'	52°09.3'	92°44.4'	96°32.5'	100°07.6'	
22	190°37.2'	S 10°51.6'	15.4'	10.8'	54.1'	45°49.8'	30°33.8'	42°20.5'	47°38.3'	52°31.4'	93°13.9'	96°53.3'	100°27.4'	
23	205°11.6'	S 10°40.8'	15.4'	10.8'	54.1'	45°22.8'	31°01.6'	42°49.9'	48°07.7'	52°53.6'	93°43.3'	97°14.1'	100°47.1'	
Mer. pass.		8 h 55 m SD 14.8'		phase 22%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°11.0'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°11.7'	N 89°20.9'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°08.9'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.1'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	207°33.2'	180°12.9' N 11°15.5'	137°23.1' N 26°50.4'	269°17.9' S 21°00.2'	263°43.9' S 19°53.7'	251°21.3' S 18°06.7'						
1	222°35.6'	195°13.0' N 11°16.4'	152°23.7' N 26°50.7'	284°20.2' S 21°00.2'	278°46.3' S 19°53.7'	266°22.0' S 18°06.2'						
2	237°38.1'	210°13.2' N 11°17.3'	167°24.2' N 26°51.0'	299°22.4' S 21°00.2'	293°48.6' S 19°53.7'	281°22.7' S 18°05.8'						
3	252°40.6'	225°13.3' N 11°18.1'	182°24.8' N 26°51.4'	314°24.7' S 21°00.2'	308°51.0' S 19°53.6'	296°23.4' S 18°05.3'						
4	267°43.0'	240°13.4' N 11°19.0'	197°25.4' N 26°51.7'	329°26.9' S 21°00.1'	323°53.4' S 19°53.6'	311°24.1' S 18°04.9'						
5	282°45.5'	255°13.6' N 11°19.8'	212°25.9' N 26°52.0'	344°29.2' S 21°00.1'	338°55.7' S 19°53.6'	326°24.8' S 18°04.4'						
6	297°48.0'	270°13.7' N 11°20.7'	227°26.5' N 26°52.3'	359°31.5' S 21°00.1'	353°58.1' S 19°53.6'	341°25.5' S 18°04.0'						
7	312°50.4'	285°13.8' N 11°21.6'	242°27.1' N 26°52.6'	14°33.7' S 21°00.0'	9°00.5' S 19°53.6'	356°26.2' S 18°03.5'						
8	327°52.9'	300°14.0' N 11°22.4'	257°27.7' N 26°53.0'	29°36.0' S 21°00.0'	24°02.9' S 19°53.6'	11°26.9' S 18°03.1'						
9	342°55.3'	315°14.1' N 11°23.3'	272°28.2' N 26°53.3'	44°38.2' S 20°60.0'	39°05.2' S 19°53.5'	26°27.6' S 18°02.6'						
10	357°57.8'	330°14.2' N 11°24.2'	287°28.8' N 26°53.6'	59°40.5' S 20°59.9'	54°07.6' S 19°53.5'	41°28.3' S 18°02.2'						
11	13°00.3'	345°14.4' N 11°25.0'	302°29.4' N 26°53.9'	74°42.8' S 20°59.9'	69°10.0' S 19°53.5'	56°29.0' S 18°01.7'						
12	28°02.7'	0°14.5' N 11°25.9'	317°30.0' N 26°54.2'	89°45.0' S 20°59.9'	84°12.4' S 19°53.5'	71°29.7' S 18°01.3'						
13	43°05.2'	15°14.6' N 11°26.7'	332°30.6' N 26°54.5'	104°47.3' S 20°59.8'	99°14.7' S 19°53.5'	86°30.4' S 18°00.8'						
14	58°07.7'	30°14.8' N 11°27.6'	347°31.2' N 26°54.8'	119°49.5' S 20°59.8'	114°17.1' S 19°53.5'	101°31.1' S 18°00.4'						
15	73°10.1'	45°14.9' N 11°28.4'	2°31.8' N 26°55.2'	134°51.8' S 20°59.8'	129°19.5' S 19°53.4'	116°31.8' S 17°59.9'						
16	88°12.6'	60°15.0' N 11°29.3'	17°32.3' N 26°55.5'	149°54.1' S 20°59.8'	144°21.8' S 19°53.4'	131°32.5' S 17°59.5'						
17	103°15.1'	75°15.2' N 11°30.2'	32°32.9' N 26°55.8'	164°56.3' S 20°59.7'	159°24.2' S 19°53.4'	146°33.2' S 17°59.1'						
18	118°17.5'	90°15.3' N 11°31.0'	47°33.5' N 26°56.1'	179°58.6' S 20°59.7'	174°26.6' S 19°53.4'	161°33.9' S 17°58.6'						
19	133°20.0'	105°15.4' N 11°31.9'	62°34.1' N 26°56.4'	195°00.9' S 20°59.7'	189°29.0' S 19°53.4'	176°34.6' S 17°58.2'						
20	148°22.4'	120°15.6' N 11°32.7'	77°34.7' N 26°56.7'	210°03.1' S 20°59.6'	204°31.3' S 19°53.4'	191°35.3' S 17°57.7'						
21	163°24.9'	135°15.7' N 11°33.6'	92°35.3' N 26°57.0'	225°05.4' S 20°59.6'	219°33.7' S 19°53.4'	206°36.0' S 17°57.3'						
22	178°27.4'	150°15.8' N 11°34.4'	107°35.9' N 26°57.3'	240°07.7' S 20°59.6'	234°36.1' S 19°53.3'	221°36.7' S 17°56.8'						
23	193°29.8'	165°15.9' N 11°35.3'	122°36.5' N 26°57.6'	255°09.9' S 20°59.5'	249°38.5' S 19°53.3'	236°37.4' S 17°56.4'						
		SD 15.9' d 0.9'	v 0.6' d 0.3'	v 2.3' d 0.0'	v 2.4' d 0.0'	v 0.7' d 0.4'						
Mer. pass.		11 h 59 m 2 s	14 h 50 m	6 h 2 m	6 h 24 m	7 h 14 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	+Fomalhaut	+Mars	+Saturn	+Jupiter	+Altair	+Antares	+Rigel Kent
0	219°46.0'	S 10°30.0'	15.5'	10.9'	54.1'	44°55.8'			43°19.4'	48°37.1'	53°15.9'	94°12.7'	97°34.8'
1	234°20.5'	S 10°19.1'	15.5'	10.9'	54.1'	44°28.8'	19°29.1'	31°57.3'	43°48.9'	49°06.5'	53°38.3'	94°42.2'	97°55.5'
2	248°55.0'	S 10°08.2'	15.5'	11.0'	54.1'	44°01.8'	19°44.6'	32°25.1'	44°18.4'	49°35.8'	54°00.7'	95°11.6'	98°16.2'
3	263°29.5'	S 9°57.2'	15.6'	11.0'	54.0'	43°34.8'	20°00.6'	32°52.9'	44°47.8'	50°05.2'	54°23.2'	95°41.0'	98°36.9'
4	278°04.1'	S 9°46.2'	15.6'	11.0'	54.0'	43°07.8'	20°17.1'	33°20.7'	45°17.3'	50°34.6'	54°45.8'	96°10.4'	98°57.5'
5	292°38.7'	S 9°35.2'	15.6'	11.1'	54.0'	42°40.8'	20°34.0'	33°48.5'	45°46.7'	51°04.0'	55°08.4'	96°39.8'	99°18.1'
6	307°13.3'	S 9°24.2'	15.7'	11.1'	54.0'	42°13.9'	20°51.4'	34°16.3'	46°16.2'	51°33.3'	55°31.2'	97°09.2'	99°38.7'
7	321°48.0'	S 9°13.1'	15.7'	11.1'	54.0'	41°46.9'	21°09.2'	34°44.1'	46°45.6'	52°02.7'	55°53.9'	97°38.6'	99°59.3'
8	336°22.7'	S 9°01.9'	15.7'	11.2'	54.0'	41°20.0'	21°27.4'	35°11.9'	47°15.0'	52°32.0'	56°16.8'	98°08.0'	100°19.8'
9	350°57.5'	S 8°50.8'	15.8'	11.2'	54.0'	40°53.0'	21°46.1'	35°39.7'	47°44.5'	53°01.4'	56°39.7'	98°37.4'	100°40.3'
10	5°32.2'	S 8°39.6'	15.8'	11.2'	54.0'	40°26.1'	22°05.1'	36°07.4'	48°13.9'	53°30.7'	57°02.7'	99°06.8'	101°00.8'
11	20°07.1'	S 8°28.3'	15.8'	11.3'	54.0'		22°24.4'	36°35.2'	48°43.3'	54°00.1'	57°25.7'	99°36.1'	101°21.3'
12	34°41.9'	S 8°17.1'	15.9'	11.3'	54.0'		22°44.1'	37°03.0'	49°12.7'	54°29.4'	57°48.8'	100°05.5'	101°41.7'
13	49°16.8'	S 8°05.8'	15.9'	11.3'	54.0'		23°04.2'	37°30.7'	49°42.1'	54°58.7'	58°12.0'	100°34.8'	102°02.1'
14	63°51.7'	S 7°54.5'	15.9'	11.3'	54.0'		23°24.5'	37°58.5'	50°11.5'	55°28.1'	58°35.2'	101°04.2'	102°22.4'
15	78°26.6'	S 7°43.1'	16.0'	11.4'	54.0'		23°45.2'	38°26.3'	50°41.0'	55°57.4'	58°58.5'	101°33.6'	102°42.8'
16	93°01.6'	S 7°31.7'	16.0'	11.4'	54.0'		24°06.1'	38°54.0'	51°10.4'	56°26.7'	59°21.8'	102°02.9'	103°03.1'
17	107°36.6'	S 7°20.3'	16.0'	11.4'	54.0'		24°27.3'	39°21.8'	51°39.8'	56°56.0'	59°45.2'	102°32.2'	103°23.3'
18	122°11.6'	S 7°08.9'	16.0'	11.5'	53.9'		24°48.8'	39°49.5'	52°09.2'	57°25.3'	60°08.6'	103°01.6'	103°43.6'
19	136°46.6'	S 6°57.5'	16.1'	11.5'	53.9'		25°10.5'	40°17.3'	52°38.6'	57°54.7'	60°32.1'	103°30.9'	104°03.8'
20	151°21.7'	S 6°46.0'	16.1'	11.5'	53.9'		25°32.5'	40°45.0'	53°08.0'	58°24.0'	60°55.6'	104°00.2'	104°23.9'
21	165°56.8'	S 6°34.5'	16.1'	11.5'	53.9'		25°54.7'	41°12.8'	53°37.4'	58°53.3'	61°19.2'	104°29.6'	104°44.0'
22	180°31.9'	S 6°22.9'	16.1'	11.6'	53.9'		26°17.1'	41°40.5'	54°06.8'	59°22.6'	61°42.8'	104°58.9'	105°04.1'
23	195°07.0'	S 6°11.4'	16.2'	11.6'	53.9'		26°39.8'	42°08.3'	54°36.1'	59°51.9'	62°06.5'	105°28.2'	105°24.2'
Mer. pass.		9 h 37 m SD 14.7'	phase 15%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°11.0'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°11.9'	N 89°20.9'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.1'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	208°32.3'	180°16.1'	N 11°36.2'	137°37.2'	N 26°57.9'	270°12.2'	S 20°59.5'	264°40.8'	S 19°53.3'	251°38.1'	S 17°55.9'			
1	223°34.8'	195°16.2'	N 11°37.0'	152°37.8'	N 26°58.2'	285°14.5'	S 20°59.5'	279°43.2'	S 19°53.3'	266°38.8'	S 17°55.4'			
2	238°37.2'	210°16.3'	N 11°37.9'	167°38.4'	N 26°58.5'	300°16.7'	S 20°59.5'	294°45.6'	S 19°53.3'	281°39.5'	S 17°55.0'			
3	253°39.7'	225°16.5'	N 11°38.7'	182°39.0'	N 26°58.8'	315°19.0'	S 20°59.4'	309°48.0'	S 19°53.3'	296°40.2'	S 17°54.5'			
4	268°42.2'	240°16.6'	N 11°39.6'	197°39.6'	N 26°59.1'	330°21.3'	S 20°59.4'	324°50.3'	S 19°53.2'	311°40.9'	S 17°54.1'			
5	283°44.6'	255°16.7'	N 11°40.4'	212°40.2'	N 26°59.4'	345°23.5'	S 20°59.4'	339°52.7'	S 19°53.2'	326°41.6'	S 17°53.6'			
6	298°47.1'	270°16.8'	N 11°41.3'	227°40.8'	N 26°59.7'	0°25.8'	S 20°59.3'	354°55.1'	S 19°53.2'	341°42.3'	S 17°53.2'			
7	313°49.6'	285°17.0'	N 11°42.1'	242°41.5'	N 27°00.0'	15°28.1'	S 20°59.3'	9°57.5'	S 19°53.2'	356°43.1'	S 17°52.7'			
8	328°52.0'	300°17.1'	N 11°43.0'	257°42.1'	N 27°00.3'	30°30.3'	S 20°59.3'	24°59.8'	S 19°53.2'	11°43.8'	S 17°52.3'			
9	343°54.5'	315°17.2'	N 11°43.8'	272°42.7'	N 27°00.6'	45°32.6'	S 20°59.3'	40°02.2'	S 19°53.2'	26°44.5'	S 17°51.8'			
10	358°56.9'	330°17.4'	N 11°44.7'	287°43.3'	N 27°00.9'	60°34.9'	S 20°59.2'	55°04.6'	S 19°53.2'	41°45.2'	S 17°51.4'			
11	13°59.4'	345°17.5'	N 11°45.5'	302°44.0'	N 27°01.2'	75°37.1'	S 20°59.2'	70°07.0'	S 19°53.1'	56°45.9'	S 17°50.9'			
12	29°01.9'	0°17.6'	N 11°46.4'	317°44.6'	N 27°01.5'	90°39.4'	S 20°59.2'	85°09.3'	S 19°53.1'	71°46.6'	S 17°50.5'			
13	44°04.3'	15°17.7'	N 11°47.2'	332°45.2'	N 27°01.8'	105°41.7'	S 20°59.1'	100°11.7'	S 19°53.1'	86°47.3'	S 17°50.0'			
14	59°06.8'	30°17.9'	N 11°48.1'	347°45.9'	N 27°02.1'	120°43.9'	S 20°59.1'	115°14.1'	S 19°53.1'	101°48.0'	S 17°49.6'			
15	74°09.3'	45°18.0'	N 11°48.9'	2°46.5'	N 27°02.4'	135°46.2'	S 20°59.1'	130°16.5'	S 19°53.1'	116°48.7'	S 17°49.1'			
16	89°11.7'	60°18.1'	N 11°49.8'	17°47.1'	N 27°02.7'	150°48.5'	S 20°59.1'	145°18.9'	S 19°53.1'	131°49.4'	S 17°48.7'			
17	104°14.2'	75°18.2'	N 11°50.6'	32°47.8'	N 27°02.9'	165°50.8'	S 20°59.0'	160°21.2'	S 19°53.1'	146°50.1'	S 17°48.2'			
18	119°16.7'	90°18.4'	N 11°51.5'	47°48.4'	N 27°03.2'	180°53.0'	S 20°59.0'	175°23.6'	S 19°53.0'	161°50.8'	S 17°47.7'			
19	134°19.1'	105°18.5'	N 11°52.3'	62°49.1'	N 27°03.5'	195°55.3'	S 20°59.0'	190°26.0'	S 19°53.0'	176°51.5'	S 17°47.3'			
20	149°21.6'	120°18.6'	N 11°53.2'	77°49.7'	N 27°03.8'	210°57.6'	S 20°58.9'	205°28.4'	S 19°53.0'	191°52.2'	S 17°46.8'			
21	164°24.0'	135°18.7'	N 11°54.0'	92°50.4'	N 27°04.1'	225°59.8'	S 20°58.9'	220°30.7'	S 19°53.0'	206°52.9'	S 17°46.4'			
22	179°26.5'	150°18.9'	N 11°54.9'	107°51.0'	N 27°04.4'	241°02.1'	S 20°58.9'	235°33.1'	S 19°53.0'	221°53.6'	S 17°45.9'			
23	194°29.0'	165°19.0'	N 11°55.7'	122°51.7'	N 27°04.7'	256°04.4'	S 20°58.9'	250°35.5'	S 19°53.0'	236°54.3'	S 17°45.5'			
		SD 15.9' d 0.9'		v 0.6' d 0.3'		v 2.3' d 0.0'		v 2.4' d 0.0'		v 0.7' d 0.5'				
Mer. pass.		11 h 58 m 50 s		14 h 49 m		5 h 58 m		6 h 20 m		7 h 13 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	+Fomalhaut	+Mars	+Saturn	+Jupiter	+Altair	+Rigel Kent	+Antares	+Hadar
0	209°42.2'	S 5°59.8'	16.2'	11.6'	53.9'	27°02.6'	42°36.0'	55°05.5'	60°21.2'	62°30.2'	105°44.2'	105°57.5'	108°49.2'
1	224°17.4'	S 5°48.2'	16.2'	11.6'	53.9'	27°25.7'	43°03.8'	55°34.9'	60°50.5'	62°54.0'	106°04.2'	106°26.9'	109°07.8'
2	238°52.6'	S 5°36.6'	16.2'	11.6'	53.9'	27°48.9'	43°31.5'	56°04.3'	61°19.8'	63°17.8'	106°24.1'	106°56.2'	109°26.5'
3	253°27.8'	S 5°24.9'	16.2'	11.7'	53.9'	28°12.3'	43°59.3'	56°33.7'	61°49.1'	63°41.7'	106°44.0'	107°25.5'	109°45.1'
4	268°03.0'	S 5°13.3'	16.3'	11.7'	53.9'	28°35.9'	44°27.0'	57°03.1'	62°18.4'	64°05.6'	107°03.8'	107°54.8'	110°03.6'
5	282°38.3'	S 5°01.6'	16.3'	11.7'	53.9'	28°59.6'	44°54.7'	57°32.5'	62°47.7'	64°29.5'	107°23.6'	108°24.1'	110°22.1'
6	297°13.6'	S 4°49.9'	16.3'	11.7'	53.9'	29°23.5'	45°22.5'	58°01.9'	63°17.0'	64°53.5'	107°43.4'	108°53.4'	110°40.5'
7	311°48.8'	S 4°38.2'	16.3'	11.7'	53.9'	29°47.6'	45°50.2'	58°31.3'	63°46.3'	65°17.5'	108°03.1'	109°22.7'	110°58.8'
8	326°24.1'	S 4°26.4'	16.3'	11.8'	53.9'	30°11.8'	46°18.0'	59°00.6'	64°15.6'	65°41.6'	108°22.8'	109°52.0'	111°17.1'
9	340°59.5'	S 4°14.7'	16.3'	11.8'	53.9'	30°36.1'	46°45.7'	59°30.0'	64°44.9'	66°05.6'	108°42.4'	110°21.3'	111°35.4'
10	355°34.8'	S 4°02.9'	16.3'	11.8'	53.9'	31°00.6'	47°13.5'	59°59.4'	65°14.2'	66°29.8'	109°02.0'	110°50.6'	111°53.6'
11	10°10.1'	S 3°51.1'	16.4'	11.8'	53.9'	31°25.2'	47°41.2'	60°28.8'	65°43.5'	66°53.9'	109°21.5'	111°19.9'	112°11.7'
12	24°45.5'	S 3°39.3'	16.4'	11.8'	53.9'	31°50.0'	48°08.9'	60°58.2'	66°12.8'	67°18.2'	109°41.0'	111°49.2'	112°29.7'
13	39°20.9'	S 3°27.5'	16.4'	11.8'	53.9'	32°14.8'	48°36.7'	61°27.6'	66°42.1'	67°42.4'	110°00.4'	112°18.5'	112°47.7'
14	53°56.2'	S 3°15.7'	16.4'	11.8'	53.9'	32°39.8'	49°04.4'	61°57.0'	67°11.4'	68°06.7'	110°19.8'	112°47.8'	113°05.6'
15	68°31.6'	S 3°03.8'	16.4'	11.9'	53.9'	33°04.9'	49°32.2'	62°26.4'	67°40.8'	68°31.0'	110°39.1'	113°17.1'	113°23.5'
16	83°07.0'	S 2°52.0'	16.4'	11.9'	53.9'	33°30.1'	49°59.9'	62°55.8'	68°10.1'	68°55.3'	110°58.4'	113°46.4'	113°41.2'
17	97°42.4'	S 2°40.1'	16.4'	11.9'	53.9'	33°55.4'	50°27.7'	63°25.2'	68°39.4'	69°19.7'	111°17.6'	114°15.7'	113°59.0'
18	112°17.8'	S 2°28.3'	16.4'	11.9'	53.9'	34°20.8'	50°55.4'	63°54.6'	69°08.7'	69°44.1'	111°36.8'	114°45.0'	114°16.6'
19	126°53.3'	S 2°16.4'	16.4'	11.9'	53.9'	34°46.3'	51°23.2'	64°24.0'	69°38.0'	70°08.5'	111°55.9'	115°14.3'	114°34.2'
20	141°28.7'	S 2°04.5'	16.4'	11.9'	53.9'	35°11.9'	51°51.0'	64°53.4'	70°07.3'	70°33.0'	112°14.9'	115°43.6'	114°51.7'
21	156°04.1'	S 1°52.6'	16.4'	11.9'	53.9'	35°37.5'	52°18.7'	65°22.8'	70°36.6'	70°57.5'	112°33.9'	116°12.9'	115°09.1'
22	170°39.6'	S 1°40.7'	16.4'	11.9'	53.9'	36°03.3'	52°46.5'	65°52.2'	71°06.0'	71°22.0'	112°52.9'	116°42.2'	115°26.4'
23	185°15.0'	S 1°28.7'	16.4'	11.9'	53.9'	36°29.2'	53°14.3'	66°21.6'	71°35.3'	71°46.6'	113°11.7'	117°11.5'	115°43.7'
Mer. pass.		10 h 18 m SD 14.7'		phase 9%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.0'	N 89°20.9'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	209°31.4'	180°19.1'	N 11°56.6'	137°52.3'	N 27°04.9'	271°06.7'	S 20°58.8'	265°37.9'	S 19°53.0'	251°55.0'	S 17°45.0'			
1	224°33.9'	195°19.2'	N 11°57.4'	152°53.0'	N 27°05.2'	286°08.9'	S 20°58.8'	280°40.3'	S 19°52.9'	266°55.8'	S 17°44.6'			
2	239°36.4'	210°19.4'	N 11°58.3'	167°53.6'	N 27°05.5'	301°11.2'	S 20°58.8'	295°42.6'	S 19°52.9'	281°56.5'	S 17°44.1'			
3	254°38.8'	225°19.5'	N 11°59.1'	182°54.3'	N 27°05.8'	316°13.5'	S 20°58.7'	310°45.0'	S 19°52.9'	296°57.2'	S 17°43.6'			
4	269°41.3'	240°19.6'	N 11°60.0'	197°55.0'	N 27°06.1'	331°15.8'	S 20°58.7'	325°47.4'	S 19°52.9'	311°57.9'	S 17°43.2'			
5	284°43.8'	255°19.7'	N 12°00.8'	212°55.6'	N 27°06.3'	346°18.0'	S 20°58.7'	340°49.8'	S 19°52.9'	326°58.6'	S 17°42.7'			
6	299°46.2'	270°19.9'	N 12°01.7'	227°56.3'	N 27°06.6'	1°20.3'	S 20°58.7'	355°52.2'	S 19°52.9'	341°59.3'	S 17°42.3'			
7	314°48.7'	285°20.0'	N 12°02.5'	242°57.0'	N 27°06.9'	16°22.6'	S 20°58.6'	10°54.5'	S 19°52.9'	357°00.0'	S 17°41.8'			
8	329°51.2'	300°20.1'	N 12°03.4'	257°57.6'	N 27°07.2'	31°24.9'	S 20°58.6'	25°56.9'	S 19°52.8'	12°00.7'	S 17°41.4'			
9	344°53.6'	315°20.2'	N 12°04.2'	272°58.3'	N 27°07.4'	46°27.1'	S 20°58.6'	40°59.3'	S 19°52.8'	27°01.4'	S 17°40.9'			
10	359°56.1'	330°20.4'	N 12°05.0'	287°59.0'	N 27°07.7'	61°29.4'	S 20°58.5'	56°01.7'	S 19°52.8'	42°02.1'	S 17°40.4'			
11	14°58.5'	345°20.5'	N 12°05.9'	302°59.7'	N 27°08.0'	76°31.7'	S 20°58.5'	71°04.1'	S 19°52.8'	57°02.8'	S 17°40.0'			
12	30°01.0'	0°20.6'	N 12°06.7'	318°00.4'	N 27°08.2'	91°34.0'	S 20°58.5'	86°06.4'	S 19°52.8'	72°03.5'	S 17°39.5'			
13	45°03.5'	15°20.7'	N 12°07.6'	333°01.0'	N 27°08.5'	106°36.2'	S 20°58.5'	101°08.8'	S 19°52.8'	87°04.3'	S 17°39.1'			
14	60°05.9'	30°20.9'	N 12°08.4'	348°01.7'	N 27°08.8'	121°38.5'	S 20°58.4'	116°11.2'	S 19°52.8'	102°05.0'	S 17°38.6'			
15	75°08.4'	45°21.0'	N 12°09.3'	3°02.4'	N 27°09.1'	136°40.8'	S 20°58.4'	131°13.6'	S 19°52.7'	117°05.7'	S 17°38.1'			
16	90°10.9'	60°21.1'	N 12°10.1'	18°03.1'	N 27°09.3'	151°43.1'	S 20°58.4'	146°16.0'	S 19°52.7'	132°06.4'	S 17°37.7'			
17	105°13.3'	75°21.2'	N 12°10.9'	33°03.8'	N 27°09.6'	166°45.4'	S 20°58.3'	161°18.3'	S 19°52.7'	147°07.1'	S 17°37.2'			
18	120°15.8'	90°21.3'	N 12°11.8'	48°04.5'	N 27°09.8'	181°47.6'	S 20°58.3'	176°20.7'	S 19°52.7'	162°07.8'	S 17°36.8'			
19	135°18.3'	105°21.5'	N 12°12.6'	63°05.2'	N 27°10.1'	196°49.9'	S 20°58.3'	191°23.1'	S 19°52.7'	177°08.5'	S 17°36.3'			
20	150°20.7'	120°21.6'	N 12°13.5'	78°05.9'	N 27°10.4'	211°52.2'	S 20°58.3'	206°25.5'	S 19°52.7'	192°09.2'	S 17°35.8'			
21	165°23.2'	135°21.7'	N 12°14.3'	93°06.6'	N 27°10.6'	226°54.5'	S 20°58.2'	221°27.9'	S 19°52.7'	207°09.9'	S 17°35.4'			
22	180°25.6'	150°21.8'	N 12°15.1'	108°07.3'	N 27°10.9'	241°56.8'	S 20°58.2'	236°30.3'	S 19°52.6'	222°10.6'	S 17°34.9'			
23	195°28.1'	165°21.9'	N 12°16.0'	123°08.0'	N 27°11.2'	256°59.0'	S 20°58.2'	251°32.6'	S 19°52.6'	237°11.4'	S 17°34.5'			
		SD 15.9'	d 0.8'	v 0.7'	d 0.3'	v 2.3'	d 0.0'	v 3.2'	d 0.0'	v 0.7'	d 0.5'			
Mer. pass.		11 h 58 m 38 s		14 h 48 m		5 h 55 m		6 h 16 m		7 h 12 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	+Fomalhaut	+Mars	+Saturn	+Jupiter	+Altair	+Rigel Kent	+Hadar	+Antares
0	199°50.4'	S 1°16.8'	16.4'	11.9'	53.9'	36°55.1'	53°42.0'	66°51.0'	72°04.6'	72°11.1'	113°30.5'	116°00.9'	117°40.8'
1	214°25.9'	S 1°04.9'	16.4'	11.9'	53.9'	37°21.1'	54°09.8'	67°20.5'	72°34.0'	72°35.8'	113°49.3'	116°18.0'	118°10.1'
2	229°01.3'	S 0°52.9'	16.4'	11.9'	53.9'	37°47.2'	54°37.6'	67°49.9'	73°03.3'	73°00.4'	114°07.9'	116°35.0'	118°39.4'
3	243°36.8'	S 0°41.0'	16.4'	11.9'	53.9'	38°13.4'	55°05.4'	68°19.3'	73°32.6'	73°25.0'	114°26.5'	116°51.9'	119°08.7'
4	258°12.2'	S 0°29.1'	16.4'	12.0'	53.9'	38°39.6'	55°33.1'	68°48.8'	74°02.0'	73°49.7'	114°45.1'	117°08.8'	119°38.0'
5	272°47.6'	S 0°17.1'	16.4'	12.0'	53.9'	39°05.9'	56°00.9'	69°18.2'	74°31.3'	74°14.4'	115°03.6'	117°25.6'	
6	287°23.1'	S 0°05.1'	16.4'	12.0'	53.9'	39°32.3'	56°28.7'	69°47.6'	75°00.7'	74°39.2'	115°22.0'	117°42.3'	
7	301°58.5'	N 0°06.8'	16.4'	12.0'	53.9'	39°58.7'	56°56.5'	70°17.1'	75°30.0'	75°03.9'	115°40.3'	117°58.9'	
8	316°33.9'	N 0°18.8'	16.4'	12.0'	53.9'	40°25.2'	57°24.3'	70°46.5'	75°59.4'	75°28.7'	115°58.5'	118°15.4'	
9	331°09.4'	N 0°30.7'	16.4'	12.0'	53.9'	40°51.8'	57°52.1'	71°16.0'	76°28.8'	75°53.5'	116°16.7'	118°31.8'	
10	345°44.8'	N 0°42.7'	16.4'	12.0'	53.9'	41°18.4'	58°19.9'	71°45.4'	76°58.1'	76°18.3'	116°34.8'	118°48.1'	
11	0°20.2'	N 0°54.6'	16.4'	12.0'	53.9'	41°45.1'	58°47.7'	72°14.9'	77°27.5'	76°43.2'	116°52.9'	119°04.3'	
12	14°55.6'	N 1°06.6'	16.4'	12.0'	53.9'	42°11.8'	59°15.6'	72°44.4'	77°56.9'	77°08.1'	117°10.8'	119°20.5'	
13	29°31.0'	N 1°18.6'	16.4'	12.0'	53.9'	42°38.6'	59°43.4'	73°13.8'	78°26.3'	77°33.0'	117°28.7'	119°36.5'	
14	44°06.4'	N 1°30.5'	16.4'	11.9'	53.9'	43°05.5'	60°11.2'	73°43.3'	78°55.7'	77°57.9'	117°46.5'	119°52.4'	
15	58°41.8'	N 1°42.5'	16.4'	11.9'	53.9'	43°32.4'	60°39.0'	74°12.8'	79°25.1'	78°22.8'	118°04.2'		
16	73°17.2'	N 1°54.4'	16.4'	11.9'	53.9'	43°59.3'	61°06.9'	74°42.3'	79°54.5'	78°47.7'	118°21.8'		
17	87°52.5'	N 2°06.3'	16.3'	11.9'	53.9'	44°26.3'	61°34.7'	75°11.8'	80°23.9'	79°12.7'	118°39.4'		
18	102°27.9'	N 2°18.3'	16.3'	11.9'	53.9'	44°53.4'	62°02.6'	75°41.3'	80°53.3'	79°37.7'	118°56.8'		
19	117°03.2'	N 2°30.2'	16.3'	11.9'	53.9'	45°20.5'	62°30.4'	76°10.8'	81°22.7'	80°02.7'	119°14.2'		
20	131°38.5'	N 2°42.1'	16.3'	11.9'	53.9'	45°47.6'	62°58.3'	76°40.3'	81°52.1'	80°27.7'	119°31.5'		
21	146°13.8'	N 2°54.1'	16.3'	11.9'	53.9'	46°14.8'	63°26.2'	77°09.8'	82°21.6'	80°52.8'	119°48.7'		
22	160°49.1'	N 3°06.0'	16.3'	11.9'	53.9'	46°42.0'	63°54.0'	77°39.3'	82°51.0'	81°17.8'			
23	175°24.4'	N 3°17.9'	16.3'	11.9'	54.0'	47°09.3'	64°21.9'	78°08.9'	83°20.5'	81°42.9'			
Mer. pass.		10 h 59 m SD 14.7'	phase 4%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.1'	N 89°20.9'
Rigel Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	210°30.6'	180°22.1'	N 12°16.8'	138°08.7'	N 27°11.4'	272°01.3'	S 20°58.2'	266°35.0'	S 19°52.6'	252°12.1'	S 17°34.0'			
1	225°33.0'	195°22.2'	N 12°17.7'	153°09.4'	N 27°11.7'	287°03.6'	S 20°58.1'	281°37.4'	S 19°52.6'	267°12.8'	S 17°33.5'			
2	240°35.5'	210°22.3'	N 12°18.5'	168°10.1'	N 27°11.9'	302°05.9'	S 20°58.1'	296°39.8'	S 19°52.6'	282°13.5'	S 17°33.1'			
3	255°38.0'	225°22.4'	N 12°19.3'	183°10.8'	N 27°12.2'	317°08.2'	S 20°58.1'	311°42.2'	S 19°52.6'	297°14.2'	S 17°32.6'			
4	270°40.4'	240°22.5'	N 12°20.2'	198°11.5'	N 27°12.5'	332°10.5'	S 20°58.0'	326°44.6'	S 19°52.6'	312°14.9'	S 17°32.2'			
5	285°42.9'	255°22.7'	N 12°21.0'	213°12.2'	N 27°12.7'	347°12.7'	S 20°58.0'	341°46.9'	S 19°52.5'	327°15.6'	S 17°31.7'			
6	300°45.4'	270°22.8'	N 12°21.9'	228°13.0'	N 27°13.0'	2°15.0'	S 20°58.0'	356°49.3'	S 19°52.5'	342°16.3'	S 17°31.2'			
7	315°47.8'	285°22.9'	N 12°22.7'	243°13.7'	N 27°13.2'	17°17.3'	S 20°58.0'	11°51.7'	S 19°52.5'	357°17.1'	S 17°30.8'			
8	330°50.3'	300°23.0'	N 12°23.5'	258°14.4'	N 27°13.5'	32°19.6'	S 20°57.9'	26°54.1'	S 19°52.5'	12°17.8'	S 17°30.3'			
9	345°52.8'	315°23.1'	N 12°24.4'	273°15.1'	N 27°13.7'	47°21.9'	S 20°57.9'	41°56.5'	S 19°52.5'	27°18.5'	S 17°29.8'			
10	0°55.2'	330°23.3'	N 12°25.2'	288°15.9'	N 27°14.0'	62°24.2'	S 20°57.9'	56°58.9'	S 19°52.5'	42°19.2'	S 17°29.4'			
11	15°57.7'	345°23.4'	N 12°26.0'	303°16.6'	N 27°14.2'	77°26.4'	S 20°57.9'	72°01.2'	S 19°52.5'	57°19.9'	S 17°28.9'			
12	31°00.1'	0°23.5'	N 12°26.9'	318°17.3'	N 27°14.5'	92°28.7'	S 20°57.8'	87°03.6'	S 19°52.5'	72°20.6'	S 17°28.5'			
13	46°02.6'	15°23.6'	N 12°27.7'	333°18.0'	N 27°14.7'	107°31.0'	S 20°57.8'	102°06.0'	S 19°52.4'	87°21.3'	S 17°28.0'			
14	61°05.1'	30°23.7'	N 12°28.5'	348°18.8'	N 27°15.0'	122°33.3'	S 20°57.8'	117°08.4'	S 19°52.4'	102°22.0'	S 17°27.5'			
15	76°07.5'	45°23.8'	N 12°29.4'	3°19.5'	N 27°15.2'	137°35.6'	S 20°57.8'	132°10.8'	S 19°52.4'	117°22.8'	S 17°27.1'			
16	91°10.0'	60°24.0'	N 12°30.2'	18°20.3'	N 27°15.5'	152°37.9'	S 20°57.7'	147°13.2'	S 19°52.4'	132°23.5'	S 17°26.6'			
17	106°12.5'	75°24.1'	N 12°31.0'	33°21.0'	N 27°15.7'	167°40.2'	S 20°57.7'	162°15.6'	S 19°52.4'	147°24.2'	S 17°26.1'			
18	121°14.9'	90°24.2'	N 12°31.9'	48°21.8'	N 27°16.0'	182°42.4'	S 20°57.7'	177°17.9'	S 19°52.4'	162°24.9'	S 17°25.7'			
19	136°17.4'	105°24.3'	N 12°32.7'	63°22.5'	N 27°16.2'	197°44.7'	S 20°57.6'	192°20.3'	S 19°52.4'	177°25.6'	S 17°25.2'			
20	151°19.9'	120°24.4'	N 12°33.5'	78°23.2'	N 27°16.4'	212°47.0'	S 20°57.6'	207°22.7'	S 19°52.4'	192°26.3'	S 17°24.7'			
21	166°22.3'	135°24.5'	N 12°34.4'	93°24.0'	N 27°16.7'	227°49.3'	S 20°57.6'	222°25.1'	S 19°52.3'	207°27.0'	S 17°24.3'			
22	181°24.8'	150°24.7'	N 12°35.2'	108°24.8'	N 27°16.9'	242°51.6'	S 20°57.6'	237°27.5'	S 19°52.3'	222°27.8'	S 17°23.8'			
23	196°27.3'	165°24.8'	N 12°36.0'	123°25.5'	N 27°17.2'	257°53.9'	S 20°57.5'	252°29.9'	S 19°52.3'	237°28.5'	S 17°23.3'			
		SD 15.9'	d 0.8'	v 0.7'	d 0.2'	v 2.3'	d 0.0'	v 2.4'	d 0.0'	v 0.7'	d 0.5'			
Mer. pass.		11 h 58 m 26 s		14 h 47 m		5 h 51 m		6 h 13 m		7 h 11 m				

h	Moon					Lunar distance				
	GHA	dec	v	d	HP	+Fomalhaut	+Mars	+Saturn	+Altair	+Jupiter
0	189°59.7'	N 3°29.7'	16.2'	11.9'	54.0'	47°36.6'	64°49.8'	78°38.4'	82°08.0'	83°49.9'
1	204°34.9'	N 3°41.6'	16.2'	11.9'	54.0'	48°04.0'	65°17.7'	79°07.9'	82°33.1'	84°19.4'
2	219°10.1'	N 3°53.5'	16.2'	11.9'	54.0'	48°31.4'	65°45.6'	79°37.5'	82°58.2'	84°48.8'
3	233°45.3'	N 4°05.4'	16.2'	11.8'	54.0'	48°58.8'	66°13.5'	80°07.1'	83°23.3'	85°18.3'
4	248°20.5'	N 4°17.2'	16.2'	11.8'	54.0'	49°26.3'	66°41.4'	80°36.6'	83°48.5'	85°47.8'
5	262°55.7'	N 4°29.0'	16.1'	11.8'	54.0'	49°53.8'	67°09.3'	81°06.2'	84°13.7'	86°17.3'
6	277°30.8'	N 4°40.8'	16.1'	11.8'	54.0'	50°21.4'	67°37.3'	81°35.8'	84°38.8'	86°46.8'
7	292°06.0'	N 4°52.7'	16.1'	11.8'	54.0'	50°49.0'	68°05.2'	82°05.4'	85°04.0'	87°16.3'
8	306°41.1'	N 5°04.4'	16.1'	11.8'	54.0'					
9	321°16.1'	N 5°16.2'	16.1'	11.8'	54.0'					
10	335°51.2'	N 5°28.0'	16.0'	11.7'	54.0'					
11	350°26.2'	N 5°39.7'	16.0'	11.7'	54.0'					
12	5°01.2'	N 5°51.4'	16.0'	11.7'	54.0'					
13	19°36.2'	N 6°03.1'	15.9'	11.7'	54.0'					
14	34°11.2'	N 6°14.8'	15.9'	11.7'	54.0'					
15	48°46.1'	N 6°26.5'	15.9'	11.6'	54.0'					
16	63°21.0'	N 6°38.1'	15.9'	11.6'	54.1'					
17	77°55.8'	N 6°49.7'	15.8'	11.6'	54.1'					
18	92°30.7'	N 7°01.3'	15.8'	11.6'	54.1'					
19	107°05.5'	N 7°12.9'	15.8'	11.5'	54.1'					
20	121°40.2'	N 7°24.5'	15.7'	11.5'	54.1'					
21	136°15.0'	N 7°36.0'	15.7'	11.5'	54.1'					
22	150°49.7'	N 7°47.5'	15.7'	11.5'	54.1'					
23	165°24.4'	N 7°59.0'	15.6'	11.4'	54.1'					
Mer. pass.	11 h 39 m	SD 14.7'	phase 1%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°31.0'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.1'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.0'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.2'	N 89°20.9'
Rigil Kent	-0.0	139°44.8'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	211°29.7'	180°24.9'	N 12°36.9'	138°26.3'	N 27°17.4'		272°56.2'	S 20°57.5'		267°32.3'	S 19°52.3'		252°29.2'	S 17°22.9'		226°32.2'	195°25.0'	N 12°37.7'
1	226°32.2'	195°25.0'	N 12°37.7'	153°27.0'	N 27°17.6'		287°58.5'	S 20°57.5'		282°34.7'	S 19°52.3'		267°29.9'	S 17°22.4'		241°34.6'	210°25.1'	N 12°38.5'
2	241°34.6'	210°25.1'	N 12°38.5'	168°27.8'	N 27°17.9'		303°00.7'	S 20°57.5'		297°37.0'	S 19°52.3'		282°30.6'	S 17°21.9'		256°37.1'	225°25.2'	N 12°39.3'
3	256°37.1'	225°25.2'	N 12°39.3'	183°28.6'	N 27°18.1'		318°03.0'	S 20°57.4'		312°39.4'	S 19°52.3'		297°31.3'	S 17°21.5'		271°39.6'	240°25.4'	N 12°40.2'
4	271°39.6'	240°25.4'	N 12°40.2'	198°29.3'	N 27°18.3'		333°05.3'	S 20°57.4'		327°41.8'	S 19°52.2'		312°32.1'	S 17°21.0'		286°42.0'	255°25.5'	N 12°41.0'
5	286°42.0'	255°25.5'	N 12°41.0'	213°30.1'	N 27°18.6'		348°07.6'	S 20°57.4'		342°44.2'	S 19°52.2'		327°32.8'	S 17°20.5'		301°44.5'	270°25.6'	N 12°41.8'
6	301°44.5'	270°25.6'	N 12°41.8'	228°30.9'	N 27°18.8'		3°09.9'	S 20°57.4'		357°46.6'	S 19°52.2'		342°33.5'	S 17°20.1'		316°47.0'	285°25.7'	N 12°42.7'
7	316°47.0'	285°25.7'	N 12°42.7'	243°31.6'	N 27°19.0'		18°12.2'	S 20°57.3'		12°49.0'	S 19°52.2'		357°34.2'	S 17°19.6'		331°49.4'	300°25.8'	N 12°43.5'
8	331°49.4'	300°25.8'	N 12°43.5'	258°32.4'	N 27°19.3'		33°14.5'	S 20°57.3'		27°51.4'	S 19°52.2'		12°34.9'	S 17°19.1'		346°51.9'	315°25.9'	N 12°44.3'
9	346°51.9'	315°25.9'	N 12°44.3'	273°33.2'	N 27°19.5'		48°16.8'	S 20°57.3'		42°53.8'	S 19°52.2'		27°35.6'	S 17°18.7'		1°54.4'	330°26.0'	N 12°45.1'
10	1°54.4'	330°26.0'	N 12°45.1'	288°34.0'	N 27°19.7'		63°19.1'	S 20°57.3'		57°56.1'	S 19°52.2'		42°36.4'	S 17°18.2'		16°56.8'	345°26.2'	N 12°46.0'
11	16°56.8'	345°26.2'	N 12°46.0'	303°34.8'	N 27°20.0'		78°21.4'	S 20°57.2'		72°58.5'	S 19°52.2'		57°37.1'	S 17°17.7'		31°59.3'	0°26.3'	N 12°46.8'
12	31°59.3'	0°26.3'	N 12°46.8'	318°35.5'	N 27°20.2'		93°23.7'	S 20°57.2'		88°00.9'	S 19°52.1'		72°37.8'	S 17°17.3'		47°01.7'	15°26.4'	N 12°47.6'
13	47°01.7'	15°26.4'	N 12°47.6'	333°36.3'	N 27°20.4'		108°25.9'	S 20°57.2'		103°03.3'	S 19°52.1'		87°38.5'	S 17°16.8'		62°04.2'	30°26.5'	N 12°48.4'
14	62°04.2'	30°26.5'	N 12°48.4'	348°37.1'	N 27°20.6'		123°28.2'	S 20°57.2'		118°05.7'	S 19°52.1'		102°39.2'	S 17°16.3'		77°06.7'	45°26.6'	N 12°49.3'
15	77°06.7'	45°26.6'	N 12°49.3'	3°37.9'	N 27°20.9'		138°30.5'	S 20°57.1'		133°08.1'	S 19°52.1'		117°39.9'	S 17°15.8'		92°09.1'	60°26.7'	N 12°50.1'
16	92°09.1'	60°26.7'	N 12°50.1'	18°38.7'	N 27°21.1'		153°32.8'	S 20°57.1'		148°10.5'	S 19°52.1'		132°40.7'	S 17°15.4'		107°11.6'	75°26.8'	N 12°50.9'
17	107°11.6'	75°26.8'	N 12°50.9'	33°39.5'	N 27°21.3'		168°35.1'	S 20°57.1'		163°12.9'	S 19°52.1'		147°41.4'	S 17°14.9'		122°14.1'	90°26.9'	N 12°51.7'
18	122°14.1'	90°26.9'	N 12°51.7'	48°40.3'	N 27°21.5'		183°37.4'	S 20°57.1'		178°15.3'	S 19°52.1'		162°42.1'	S 17°14.4'		137°16.5'	105°27.0'	N 12°52.6'
19	137°16.5'	105°27.0'	N 12°52.6'	63°41.1'	N 27°21.8'		198°39.7'	S 20°57.0'		193°17.7'	S 19°52.1'		177°42.8'	S 17°14.0'		152°19.0'	120°27.2'	N 12°53.4'
20	152°19.0'	120°27.2'	N 12°53.4'	78°41.9'	N 27°22.0'		213°42.0'	S 20°57.0'		208°20.0'	S 19°52.1'		192°43.5'	S 17°13.5'		167°21.5'	135°27.3'	N 12°54.2'
21	167°21.5'	135°27.3'	N 12°54.2'	93°42.7'	N 27°22.2'		228°44.3'	S 20°57.0'		223°22.4'	S 19°52.0'		207°44.3'	S 17°13.0'		182°23.9'	150°27.4'	N 12°55.0'
22	182°23.9'	150°27.4'	N 12°55.0'	108°43.5'	N 27°22.4'		243°46.6'	S 20°57.0'		238°24.8'	S 19°52.0'		222°45.0'	S 17°12.6'		197°26.4'	165°27.5'	N 12°55.9'
23	197°26.4'	165°27.5'	N 12°55.9'	123°44.3'	N 27°22.6'		258°48.9'	S 20°56.9'		253°27.2'	S 19°52.0'		237°45.7'	S 17°12.1'		SD 15.9' d 0.8'		
			v 0.8' d 0.2'			v 2.3' d 0.0'			v 2.4' d 0.0'			v 0.7' d 0.5'						
Mer. pass.			11 h 58 m 15 s			14 h 45 m			5 h 47 m			6 h 9 m			7 h 10 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Adhara	-Capella	-Rigel	-Venus	-Aldebaran
0	179°59.0'	N 8°10.4'	15.6'	11.4'	54.1'								
1	194°33.6'	N 8°21.8'	15.6'	11.4'	54.1'								
2	209°08.2'	N 8°33.2'	15.5'	11.4'	54.1'								
3	223°42.7'	N 8°44.6'	15.5'	11.3'	54.1'								
4	238°17.2'	N 8°55.9'	15.5'	11.3'	54.2'								
5	252°51.6'	N 9°07.2'	15.4'	11.3'	54.2'								
6	267°26.0'	N 9°18.5'	15.4'	11.2'	54.2'								
7	282°00.4'	N 9°29.7'	15.3'	11.2'	54.2'								
8	296°34.8'	N 9°40.9'	15.3'	11.2'	54.2'								
9	311°09.0'	N 9°52.1'	15.3'	11.1'	54.2'								
10	325°43.3'	N 10°03.2'	15.2'	11.1'	54.2'								
11	340°17.5'	N 10°14.3'	15.2'	11.1'	54.2'								
12	354°51.7'	N 10°25.4'	15.1'	11.0'	54.2'								
13	9°25.8'	N 10°36.4'	15.1'	11.0'	54.2'								
14	23°59.9'	N 10°47.4'	15.0'	10.9'	54.2'								
15	38°33.9'	N 10°58.3'	15.0'	10.9'	54.3'								
16	53°07.9'	N 11°09.2'	14.9'	10.9'	54.3'								
17	67°41.9'	N 11°20.1'	14.9'	10.8'	54.3'								
18	82°15.7'	N 11°30.9'	14.8'	10.8'	54.3'								
19	96°49.6'	N 11°41.7'	14.8'	10.7'	54.3'								
20	111°23.4'	N 11°52.5'	14.8'	10.7'	54.3'								
21	125°57.2'	N 12°03.2'	14.7'	10.7'	54.3'								
22	140°30.9'	N 12°13.8'	14.7'	10.6'	54.3'								
23	155°04.5'	N 12°24.4'	14.6'	10.6'	54.3'	106°25.1'	72°02.7'	70°26.9'	73°07.0'	45°58.2'	41°42.9'	32°54.4'	26°20.9'
Mer. pass. 12 h 21 m SD 14.8' phase 0%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.7'	Capella	+0.1	280°27.8'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.3'	N 89°20.9'
Rigel Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.3'	S 52°42.7'				

Friday 24 April 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	212°28.9'	180°27.6'	N 12°56.7'	138°45.2'	N 27°22.9'	273°51.2'	S 20°56.9'	268°29.6'	S 19°52.0'	252°46.4'	S 17°11.6'			
1	227°31.3'	195°27.7'	N 12°57.5'	153°46.0'	N 27°23.1'	288°53.5'	S 20°56.9'	283°32.0'	S 19°52.0'	267°47.1'	S 17°11.1'			
2	242°33.8'	210°27.8'	N 12°58.3'	168°46.8'	N 27°23.3'	303°55.8'	S 20°56.9'	298°34.4'	S 19°52.0'	282°47.9'	S 17°10.7'			
3	257°36.2'	225°27.9'	N 12°59.1'	183°47.6'	N 27°23.5'	318°58.1'	S 20°56.8'	313°36.8'	S 19°52.0'	297°48.6'	S 17°10.2'			
4	272°38.7'	240°28.0'	N 12°60.0'	198°48.4'	N 27°23.7'	334°00.4'	S 20°56.8'	328°39.2'	S 19°52.0'	312°49.3'	S 17°09.7'			
5	287°41.2'	255°28.2'	N 13°00.8'	213°49.3'	N 27°23.9'	349°02.7'	S 20°56.8'	343°41.6'	S 19°51.9'	327°50.0'	S 17°09.2'			
6	302°43.6'	270°28.3'	N 13°01.6'	228°50.1'	N 27°24.1'	4°05.0'	S 20°56.8'	358°44.0'	S 19°51.9'	342°50.7'	S 17°08.8'			
7	317°46.1'	285°28.4'	N 13°02.4'	243°50.9'	N 27°24.4'	19°07.3'	S 20°56.7'	13°46.3'	S 19°51.9'	357°51.5'	S 17°08.3'			
8	332°48.6'	300°28.5'	N 13°03.2'	258°51.8'	N 27°24.6'	34°09.6'	S 20°56.7'	28°48.7'	S 19°51.9'	12°52.2'	S 17°07.8'			
9	347°51.0'	315°28.6'	N 13°04.1'	273°52.6'	N 27°24.8'	49°11.9'	S 20°56.7'	43°51.1'	S 19°51.9'	27°52.9'	S 17°07.4'			
10	2°53.5'	330°28.7'	N 13°04.9'	288°53.4'	N 27°25.0'	64°14.2'	S 20°56.7'	58°53.5'	S 19°51.9'	42°53.6'	S 17°06.9'			
11	17°56.0'	345°28.8'	N 13°05.7'	303°54.3'	N 27°25.2'	79°16.5'	S 20°56.7'	73°55.9'	S 19°51.9'	57°54.3'	S 17°06.4'			
12	32°58.4'	0°28.9'	N 13°06.5'	318°55.1'	N 27°25.4'	94°18.8'	S 20°56.6'	88°58.3'	S 19°51.9'	72°55.1'	S 17°05.9'			
13	48°00.9'	15°29.0'	N 13°07.3'	333°56.0'	N 27°25.6'	109°21.1'	S 20°56.6'	104°00.7'	S 19°51.9'	87°55.8'	S 17°05.5'			
14	63°03.4'	30°29.1'	N 13°08.1'	348°56.8'	N 27°25.8'	124°23.4'	S 20°56.6'	119°03.1'	S 19°51.8'	102°56.5'	S 17°05.0'			
15	78°05.8'	45°29.2'	N 13°09.0'	3°57.6'	N 27°26.0'	139°25.7'	S 20°56.6'	134°05.5'	S 19°51.8'	117°57.2'	S 17°04.5'			
16	93°08.3'	60°29.3'	N 13°09.8'	18°58.5'	N 27°26.2'	154°28.0'	S 20°56.5'	149°07.9'	S 19°51.8'	132°58.0'	S 17°04.0'			
17	108°10.7'	75°29.5'	N 13°10.6'	33°59.4'	N 27°26.4'	169°30.3'	S 20°56.5'	164°10.3'	S 19°51.8'	147°58.7'	S 17°03.6'			
18	123°13.2'	90°29.6'	N 13°11.4'	49°00.2'	N 27°26.6'	184°32.6'	S 20°56.5'	179°12.7'	S 19°51.8'	162°59.4'	S 17°03.1'			
19	138°15.7'	105°29.7'	N 13°12.2'	64°01.1'	N 27°26.8'	199°34.9'	S 20°56.5'	194°15.1'	S 19°51.8'	178°00.1'	S 17°02.6'			
20	153°18.1'	120°29.8'	N 13°13.0'	79°01.9'	N 27°27.0'	214°37.2'	S 20°56.4'	209°17.5'	S 19°51.8'	193°00.8'	S 17°02.1'			
21	168°20.6'	135°29.9'	N 13°13.9'	94°02.8'	N 27°27.2'	229°39.5'	S 20°56.4'	224°19.9'	S 19°51.8'	208°01.6'	S 17°01.7'			
22	183°23.1'	150°30.0'	N 13°14.7'	109°03.7'	N 27°27.4'	244°41.8'	S 20°56.4'	239°22.3'	S 19°51.8'	223°02.3'	S 17°01.2'			
23	198°25.5'	165°30.1'	N 13°15.5'	124°04.5'	N 27°27.6'	259°44.1'	S 20°56.4'	254°24.7'	S 19°51.7'	238°03.0'	S 17°00.7'			
		SD 15.9' d 0.8'		v 0.8' d 0.2'		v 2.3' d 0.0'		v 2.4' d 0.0'		v 0.7' d 0.5'				
Mer. pass.		11 h 58 m 5 s		14 h 44 m		5 h 44 m		6 h 5 m		7 h 9 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Adhara	-Procyon	-Pollux	-Capella	-Rigel	-Venus	-Aldebaran
0	169°38.1'	N 12°35.0'	14.6'	10.5'	54.4'	105°55.0'	72°50.4'	71°34.2'	69°56.9'	45°33.2'	41°23.0'	32°26.4'	25°51.1'
1	184°11.7'	N 12°45.5'	14.5'	10.5'	54.4'	105°25.0'	72°33.9'	71°05.8'	69°26.9'	45°08.3'	41°03.3'	31°58.3'	25°21.4'
2	198°45.2'	N 12°56.0'	14.4'	10.4'	54.4'	104°55.0'	72°17.4'	70°37.4'	68°56.9'	44°43.5'	40°43.7'	31°30.2'	24°51.6'
3	213°18.6'	N 13°06.4'	14.4'	10.4'	54.4'	104°24.9'	72°00.9'	70°08.9'	68°26.9'	44°18.7'	40°24.3'	31°02.2'	24°21.8'
4	227°52.0'	N 13°16.7'	14.3'	10.3'	54.4'	103°54.9'	71°44.5'	69°40.5'	67°56.9'	43°54.0'	40°05.0'	30°34.1'	23°52.1'
5	242°25.4'	N 13°27.1'	14.3'	10.3'	54.4'	103°24.8'	71°28.2'	69°12.1'	67°26.9'	43°29.4'	39°46.0'	30°06.0'	23°22.3'
6	256°58.6'	N 13°37.3'	14.2'	10.2'	54.4'	102°54.7'	71°11.9'	68°43.6'	66°56.8'	43°04.8'	39°27.1'	29°38.0'	22°52.5'
7	271°31.9'	N 13°47.5'	14.2'	10.2'	54.4'	102°24.6'	70°55.7'	68°15.2'	66°26.8'	42°40.4'	39°08.4'	29°09.9'	22°22.8'
8	286°05.1'	N 13°57.7'	14.1'	10.1'	54.5'	101°54.5'	70°39.5'	67°46.8'	65°56.7'	42°16.0'	38°49.9'	28°41.9'	21°53.0'
9	300°38.2'	N 14°07.8'	14.1'	10.1'	54.5'	101°24.3'	70°23.4'	67°18.3'	65°26.6'	41°51.7'	38°31.6'	28°13.8'	21°23.3'
10	315°11.2'	N 14°17.9'	14.0'	10.0'	54.5'	100°54.2'	70°07.3'	66°49.9'	64°56.5'	41°27.6'	38°13.6'	27°45.8'	20°53.6'
11	329°44.3'	N 14°27.9'	14.0'	9.9'	54.5'	100°24.0'	69°51.3'	66°21.5'	64°26.4'	41°03.5'	37°55.7'	27°17.7'	20°23.8'
12	344°17.2'	N 14°37.8'	13.9'	9.9'	54.5'	99°53.9'	69°35.4'	65°53.0'	63°56.3'	40°39.5'	37°38.0'	26°49.7'	19°54.1'
13	358°50.1'	N 14°47.7'	13.8'	9.8'	54.5'	99°23.7'	69°19.6'	65°24.6'	63°26.1'	40°15.7'	37°20.6'	26°21.7'	19°24.4'
14	13°22.9'	N 14°57.5'	13.8'	9.8'	54.5'	98°53.5'	69°03.8'	64°56.2'	62°56.0'	39°51.9'	37°03.4'	25°53.7'	18°54.7'
15	27°55.7'	N 15°07.3'	13.7'	9.7'	54.5'	98°23.3'	68°48.0'	64°27.8'	62°25.8'	39°28.2'	36°46.4'	25°25.7'	18°25.1'
16	42°28.4'	N 15°17.0'	13.7'	9.6'	54.6'	97°53.0'	68°32.4'	63°59.3'	61°55.7'	39°04.7'	36°29.7'	24°57.7'	17°55.4'
17	57°01.1'	N 15°26.6'	13.6'	9.6'	54.6'	97°22.8'	68°16.8'	63°30.9'	61°25.5'	38°41.3'	36°13.2'	24°29.8'	17°25.8'
18	71°33.7'	N 15°36.2'	13.5'	9.5'	54.6'	96°52.5'	68°01.3'	63°02.5'	60°55.3'	38°18.0'	35°56.9'	24°01.8'	16°56.2'
19	86°06.3'	N 15°45.8'	13.5'	9.5'	54.6'	96°22.3'	67°45.9'	62°34.1'	60°25.1'	37°54.9'	35°41.0'	23°33.9'	16°26.6'
20	100°38.7'	N 15°55.2'	13.4'	9.4'	54.6'	95°52.0'	67°30.5'	62°05.7'	59°54.9'	37°31.8'	35°25.2'	23°06.0'	15°57.1'
21	115°11.2'	N 16°04.6'	13.4'	9.3'	54.6'	95°21.7'	67°15.2'	61°37.3'	59°24.6'	37°09.0'	35°09.8'	22°38.1'	15°27.6'
22	129°43.5'	N 16°13.9'	13.3'	9.3'	54.6'	94°51.4'	66°60.0'	61°08.9'	58°54.4'	36°46.2'		22°10.3'	14°58.1'
23	144°15.8'	N 16°23.2'	13.2'	9.2'	54.7'	94°21.1'	66°44.9'	60°40.5'	58°24.1'	36°23.6'		21°42.5'	14°28.7'
Mer. pass.		13 h 5 m SD 14.8'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.4'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.8'	Capella	+0.1	280°27.8'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.3'	N 89°20.9'
Rigel Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	213°28.0'	180°30.2'	N 13°16.3'	139°05.4'	N 27°27.8'	274°46.4'	S 20°56.3'	269°27.0'	S 19°51.7'	253°03.7'	S 17°00.2'			
1	228°30.5'	195°30.3'	N 13°17.1'	154°06.3'	N 27°28.0'	289°48.7'	S 20°56.3'	284°29.4'	S 19°51.7'	268°04.5'	S 16°59.8'			
2	243°32.9'	210°30.4'	N 13°17.9'	169°07.2'	N 27°28.2'	304°51.0'	S 20°56.3'	299°31.8'	S 19°51.7'	283°05.2'	S 16°59.3'			
3	258°35.4'	225°30.5'	N 13°18.7'	184°08.0'	N 27°28.4'	319°53.3'	S 20°56.3'	314°34.2'	S 19°51.7'	298°05.9'	S 16°58.8'			
4	273°37.8'	240°30.6'	N 13°19.5'	199°08.9'	N 27°28.6'	334°55.6'	S 20°56.3'	329°36.6'	S 19°51.7'	313°06.6'	S 16°58.3'			
5	288°40.3'	255°30.7'	N 13°20.4'	214°09.8'	N 27°28.8'	349°57.9'	S 20°56.2'	344°39.0'	S 19°51.7'	328°07.4'	S 16°57.8'			
6	303°42.8'	270°30.8'	N 13°21.2'	229°10.7'	N 27°29.0'	5°00.2'	S 20°56.2'	359°41.4'	S 19°51.7'	343°08.1'	S 16°57.4'			
7	318°45.2'	285°30.9'	N 13°22.0'	244°11.6'	N 27°29.1'	20°02.5'	S 20°56.2'	14°43.8'	S 19°51.7'	358°08.8'	S 16°56.9'			
8	333°47.7'	300°31.0'	N 13°22.8'	259°12.5'	N 27°29.3'	35°04.8'	S 20°56.2'	29°46.2'	S 19°51.6'	13°09.5'	S 16°56.4'			
9	348°50.2'	315°31.1'	N 13°23.6'	274°13.4'	N 27°29.5'	50°07.2'	S 20°56.1'	44°48.6'	S 19°51.6'	28°10.3'	S 16°55.9'			
10	3°52.6'	330°31.2'	N 13°24.4'	289°14.3'	N 27°29.7'	65°09.5'	S 20°56.1'	59°51.0'	S 19°51.6'	43°11.0'	S 16°55.5'			
11	18°55.1'	345°31.3'	N 13°25.2'	304°15.2'	N 27°29.9'	80°11.8'	S 20°56.1'	74°53.4'	S 19°51.6'	58°11.7'	S 16°55.0'			
12	33°57.6'	0°31.4'	N 13°26.0'	319°16.1'	N 27°30.1'	95°14.1'	S 20°56.1'	89°55.8'	S 19°51.6'	73°12.4'	S 16°54.5'			
13	49°00.0'	15°31.6'	N 13°26.8'	334°17.0'	N 27°30.3'	110°16.4'	S 20°56.1'	104°58.2'	S 19°51.6'	88°13.2'	S 16°54.0'			
14	64°02.5'	30°31.7'	N 13°27.6'	349°17.9'	N 27°30.4'	125°18.7'	S 20°56.0'	120°00.6'	S 19°51.6'	103°13.9'	S 16°53.5'			
15	79°05.0'	45°31.8'	N 13°28.4'	4°18.8'	N 27°30.6'	140°21.0'	S 20°56.0'	135°03.0'	S 19°51.6'	118°14.6'	S 16°53.1'			
16	94°07.4'	60°31.9'	N 13°29.2'	19°19.7'	N 27°30.8'	155°23.3'	S 20°56.0'	150°05.4'	S 19°51.6'	133°15.3'	S 16°52.6'			
17	109°09.9'	75°32.0'	N 13°30.1'	34°20.6'	N 27°31.0'	170°25.6'	S 20°56.0'	165°07.8'	S 19°51.6'	148°16.1'	S 16°52.1'			
18	124°12.3'	90°32.1'	N 13°30.9'	49°21.5'	N 27°31.2'	185°27.9'	S 20°55.9'	180°10.2'	S 19°51.5'	163°16.8'	S 16°51.6'			
19	139°14.8'	105°32.2'	N 13°31.7'	64°22.4'	N 27°31.3'	200°30.2'	S 20°55.9'	195°12.6'	S 19°51.5'	178°17.5'	S 16°51.1'			
20	154°17.3'	120°32.3'	N 13°32.5'	79°23.4'	N 27°31.5'	215°32.6'	S 20°55.9'	210°15.0'	S 19°51.5'	193°18.3'	S 16°50.7'			
21	169°19.7'	135°32.4'	N 13°33.3'	94°24.3'	N 27°31.7'	230°34.9'	S 20°55.9'	225°17.4'	S 19°51.5'	208°19.0'	S 16°50.2'			
22	184°22.2'	150°32.5'	N 13°34.1'	109°25.2'	N 27°31.9'	245°37.2'	S 20°55.9'	240°19.8'	S 19°51.5'	223°19.7'	S 16°49.7'			
23	199°24.7'	165°32.6'	N 13°34.9'	124°26.2'	N 27°32.1'	260°39.5'	S 20°55.8'	255°22.2'	S 19°51.5'	238°20.4'	S 16°49.2'			
		SD 15.9' d 0.8'		v 0.9' d 0.2'		v 2.3' d 0.0'		v 2.4' d 0.0'		v 0.7' d 0.5'				
Mer. pass.		11 h 57 m 55 s		14 h 43 m		5 h 40 m		6 h 1 m		7 h 7 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Sirius	-Capella	-Betelgeuse	-Venus	-Aldebaran
0	158°48.0'	N 16°32.4'	13.2'	9.1'	54.7'	93°50.7'	60°12.1'	57°53.8'	56°54.8'	36°01.2'	34°48.1'	21°14.7'	13°59.3'
1	173°20.2'	N 16°41.5'	13.1'	9.1'	54.7'	93°20.4'	59°43.7'	57°23.6'	56°35.8'	35°38.9'	34°21.4'	20°46.9'	13°30.1'
2	187°52.3'	N 16°50.6'	13.0'	9.0'	54.7'	92°50.0'	59°15.3'	56°53.3'	56°16.8'	35°16.8'	33°54.8'	20°19.2'	13°00.8'
3	202°24.4'	N 16°59.6'	13.0'	8.9'	54.7'	92°19.6'	58°46.9'	56°22.9'	55°57.9'	34°54.8'	33°28.3'	19°51.5'	12°31.7'
4	216°56.4'	N 17°08.5'	12.9'	8.8'	54.7'	91°49.2'	58°18.6'	55°52.6'	55°39.1'	34°33.1'	33°01.9'	19°23.9'	12°02.6'
5	231°28.3'	N 17°17.3'	12.9'	8.8'	54.8'	91°18.8'	57°50.2'	55°22.3'	55°20.5'	34°11.5'	32°35.6'	18°56.3'	11°33.7'
6	246°00.1'	N 17°26.1'	12.8'	8.7'	54.8'	90°48.3'	57°21.9'	54°51.9'	55°01.9'	33°50.1'	32°09.3'	18°28.8'	11°04.9'
7	260°31.9'	N 17°34.8'	12.7'	8.6'	54.8'	90°17.9'	56°53.5'	54°21.6'	54°43.5'	33°28.9'	31°43.2'	18°01.3'	10°36.2'
8	275°03.7'	N 17°43.4'	12.7'	8.6'	54.8'	89°47.4'	56°25.2'	53°51.2'	54°25.1'	33°07.9'	31°17.1'	17°33.9'	10°07.7'
9	289°35.3'	N 17°52.0'	12.6'	8.5'	54.8'	89°17.0'	55°56.9'	53°20.8'	54°06.9'	32°47.1'	30°51.2'	17°06.6'	9°39.3'
10	304°06.9'	N 18°00.5'	12.5'	8.4'	54.8'	88°46.5'	55°28.6'	52°50.4'	53°48.8'	32°26.6'	30°25.4'	16°39.4'	9°11.2'
11	318°38.4'	N 18°08.9'	12.5'	8.3'	54.8'	88°16.0'	55°00.3'	52°19.9'	53°30.9'	32°06.2'	29°59.7'	16°12.2'	8°43.4'
12	333°09.9'	N 18°17.2'	12.4'	8.2'	54.9'	87°45.4'	54°32.0'	51°49.5'	53°13.0'	31°46.1'	29°34.2'	15°45.2'	8°15.8'
13	347°41.3'	N 18°25.4'	12.3'	8.2'	54.9'	87°14.9'	54°03.8'	51°19.1'	52°55.3'	31°26.2'	29°08.7'	15°18.2'	7°48.6'
14	2°12.6'	N 18°33.6'	12.3'	8.1'	54.9'	86°44.3'	53°35.5'	50°48.6'	52°37.7'	31°06.6'	28°43.5'	14°51.4'	7°21.9'
15	16°43.9'	N 18°41.7'	12.2'	8.0'	54.9'	86°13.7'	53°07.3'	50°18.1'	52°20.2'	30°47.3'	28°18.3'	14°24.7'	6°55.7'
16	31°15.1'	N 18°49.7'	12.1'	7.9'	54.9'	85°43.2'	52°39.1'	49°47.6'	52°02.9'	30°28.2'	27°53.3'	13°58.2'	6°30.0'
17	45°46.2'	N 18°57.6'	12.1'	7.8'	54.9'	85°12.5'	52°10.9'	49°17.1'	51°45.7'	30°09.4'	27°28.5'	13°31.9'	
18	60°17.3'	N 19°05.4'	12.0'	7.8'	55.0'	84°41.9'	51°42.7'	48°46.6'	51°28.6'	29°50.8'	27°03.9'	13°05.7'	
19	74°48.3'	N 19°13.2'	11.9'	7.7'	55.0'	84°11.3'	51°14.5'	48°16.1'	51°11.7'	29°32.6'	26°39.4'	12°39.7'	
20	89°19.2'	N 19°20.9'	11.9'	7.6'	55.0'	83°40.6'	50°46.4'	47°45.5'	50°54.9'	29°14.7'	26°15.1'	12°14.0'	
21	103°50.1'	N 19°28.5'	11.8'	7.5'	55.0'	83°09.9'	50°18.2'	47°14.9'	50°38.3'	28°57.1'	25°51.0'	11°48.5'	
22	118°20.9'	N 19°35.9'	11.7'	7.4'	55.0'	82°39.2'	49°50.1'	46°44.4'	50°21.8'	28°39.8'	25°27.2'	11°23.3'	
23	132°51.6'	N 19°43.4'	11.7'	7.3'	55.1'	82°08.5'	49°22.1'	46°13.8'	50°05.5'	28°22.8'	25°03.5'	10°58.5'	
Mer. pass.		13 h 51 m SD 14.9'		phase 3%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.8'	Capella	+0.1	280°27.8'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.3'	N 89°20.9'
Rigil Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.6'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.3'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	214°27.1'	180°32.7'	N 13°35.7'	139°27.1'	N 27°32.2'	275°41.8'	S 20°55.8'	270°24.6'	S 19°51.5'	253°21.2'	S 16°48.7'			
1	229°29.6'	195°32.8'	N 13°36.5'	154°28.0'	N 27°32.4'	290°44.1'	S 20°55.8'	285°27.0'	S 19°51.5'	268°21.9'	S 16°48.2'			
2	244°32.1'	210°32.9'	N 13°37.3'	169°29.0'	N 27°32.6'	305°46.4'	S 20°55.8'	300°29.4'	S 19°51.5'	283°22.6'	S 16°47.8'			
3	259°34.5'	225°33.0'	N 13°38.1'	184°29.9'	N 27°32.7'	320°48.7'	S 20°55.7'	315°31.8'	S 19°51.4'	298°23.3'	S 16°47.3'			
4	274°37.0'	240°33.1'	N 13°38.9'	199°30.8'	N 27°32.9'	335°51.1'	S 20°55.7'	330°34.2'	S 19°51.4'	313°24.1'	S 16°46.8'			
5	289°39.5'	255°33.2'	N 13°39.7'	214°31.8'	N 27°33.1'	350°53.4'	S 20°55.7'	345°36.6'	S 19°51.4'	328°24.8'	S 16°46.3'			
6	304°41.9'	270°33.3'	N 13°40.5'	229°32.7'	N 27°33.3'	5°55.7'	S 20°55.7'	0°39.0'	S 19°51.4'	343°25.5'	S 16°45.8'			
7	319°44.4'	285°33.4'	N 13°41.3'	244°33.7'	N 27°33.4'	20°58.0'	S 20°55.7'	15°41.4'	S 19°51.4'	358°26.3'	S 16°45.4'			
8	334°46.8'	300°33.5'	N 13°42.1'	259°34.6'	N 27°33.6'	36°00.3'	S 20°55.6'	30°43.8'	S 19°51.4'	13°27.0'	S 16°44.9'			
9	349°49.3'	315°33.6'	N 13°42.9'	274°35.6'	N 27°33.8'	51°02.6'	S 20°55.6'	45°46.2'	S 19°51.4'	28°27.7'	S 16°44.4'			
10	4°51.8'	330°33.7'	N 13°43.7'	289°36.6'	N 27°33.9'	66°04.9'	S 20°55.6'	60°48.6'	S 19°51.4'	43°28.5'	S 16°43.9'			
11	19°54.2'	345°33.8'	N 13°44.5'	304°37.5'	N 27°34.1'	81°07.3'	S 20°55.6'	75°51.0'	S 19°51.4'	58°29.2'	S 16°43.4'			
12	34°56.7'	0°33.9'	N 13°45.3'	319°38.5'	N 27°34.2'	96°09.6'	S 20°55.6'	90°53.4'	S 19°51.4'	73°29.9'	S 16°42.9'			
13	49°59.2'	15°34.0'	N 13°46.1'	334°39.4'	N 27°34.4'	111°11.9'	S 20°55.5'	105°55.8'	S 19°51.4'	88°30.6'	S 16°42.5'			
14	65°01.6'	30°34.1'	N 13°46.9'	349°40.4'	N 27°34.6'	126°14.2'	S 20°55.5'	120°58.2'	S 19°51.3'	103°31.4'	S 16°42.0'			
15	80°04.1'	45°34.2'	N 13°47.7'	4°41.4'	N 27°34.7'	141°16.5'	S 20°55.5'	136°00.6'	S 19°51.3'	118°32.1'	S 16°41.5'			
16	95°06.6'	60°34.3'	N 13°48.5'	19°42.4'	N 27°34.9'	156°18.8'	S 20°55.5'	151°03.0'	S 19°51.3'	133°32.8'	S 16°41.0'			
17	110°09.0'	75°34.3'	N 13°49.3'	34°43.3'	N 27°35.1'	171°21.2'	S 20°55.5'	166°05.4'	S 19°51.3'	148°33.6'	S 16°40.5'			
18	125°11.5'	90°34.4'	N 13°50.1'	49°44.3'	N 27°35.2'	186°23.5'	S 20°55.4'	181°07.8'	S 19°51.3'	163°34.3'	S 16°40.0'			
19	140°13.9'	105°34.5'	N 13°50.9'	64°45.3'	N 27°35.4'	201°25.8'	S 20°55.4'	196°10.2'	S 19°51.3'	178°35.0'	S 16°39.5'			
20	155°16.4'	120°34.6'	N 13°51.7'	79°46.3'	N 27°35.5'	216°28.1'	S 20°55.4'	211°12.6'	S 19°51.3'	193°35.8'	S 16°39.1'			
21	170°18.9'	135°34.7'	N 13°52.5'	94°47.3'	N 27°35.7'	231°30.4'	S 20°55.4'	226°15.0'	S 19°51.3'	208°36.5'	S 16°38.6'			
22	185°21.3'	150°34.8'	N 13°53.3'	109°48.3'	N 27°35.8'	246°32.7'	S 20°55.3'	241°17.4'	S 19°51.3'	223°37.2'	S 16°38.1'			
23	200°23.8'	165°34.9'	N 13°54.1'	124°49.3'	N 27°36.0'	261°35.1'	S 20°55.3'	256°19.8'	S 19°51.3'	238°38.0'	S 16°37.6'			
		SD 15.9'	<i>d</i> 0.8'	<i>v</i> 1.0'	<i>d</i> 0.2'	<i>v</i> 2.3'	<i>d</i> 0.0'	<i>v</i> 2.4'	<i>d</i> 0.0'	<i>v</i> 0.7'	<i>d</i> 0.5'			
Mer. pass.		11 h 57 m 45 s		14 h 41 m		5 h 36 m		5 h 57 m		7 h 6 m				

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Arcturus	-Regulus	-Sirius	-Capella	-Betelgeuse	-Venus	-Aldebaran	+Sun
0	147°22.3'	N 19°50.7'	11.6'	7.2'	55.1'		81°37.8'	49°49.3'	28°06.2'	24°40.1'	10°34.0'		
1	161°52.9'	N 19°57.9'	11.5'	7.1'	55.1'		81°07.1'	49°33.3'	27°50.0'	24°16.9'	10°09.9'		
2	176°23.4'	N 20°05.0'	11.5'	7.0'	55.1'		80°36.3'	49°17.5'	27°34.1'	23°54.0'	9°46.3'		
3	190°53.9'	N 20°12.1'	11.4'	7.0'	55.1'		80°05.5'	49°01.8'	27°18.7'	23°31.3'	9°23.2'		
4	205°24.3'	N 20°19.0'	11.3'	6.9'	55.1'		79°34.7'	48°46.3'		23°09.0'	9°00.7'		
5	219°54.6'	N 20°25.9'	11.3'	6.8'	55.2'		79°03.9'	48°31.0'		22°46.9'	8°38.9'		
6	234°24.9'	N 20°32.7'	11.2'	6.7'	55.2'		78°33.1'			22°25.2'			
7	248°55.1'	N 20°39.3'	11.1'	6.6'	55.2'		78°02.2'			22°03.8'			
8	263°25.2'	N 20°45.9'	11.1'	6.5'	55.2'		77°31.3'			21°42.7'			
9	277°55.3'	N 20°52.4'	11.0'	6.4'	55.2'		77°00.4'			21°22.0'			
10	292°25.3'	N 20°58.8'	10.9'	6.3'	55.3'		76°29.5'			21°01.7'			
11	306°55.2'	N 21°05.1'	10.9'	6.2'	55.3'		75°58.6'			20°41.8'			
12	321°25.1'	N 21°11.2'	10.8'	6.1'	55.3'		75°27.7'			20°22.3'			
13	335°54.9'	N 21°17.3'	10.7'	6.0'	55.3'		74°56.7'			20°03.3'		6°34.2'	
14	350°24.6'	N 21°23.3'	10.7'	5.9'	55.3'		74°25.7'			19°44.8'		7°00.3'	
15	4°54.3'	N 21°29.2'	10.6'	5.8'	55.4'		73°54.7'			19°26.8'		7°27.0'	
16	19°23.9'	N 21°35.0'	10.5'	5.7'	55.4'		73°23.7'			19°09.2'		7°54.2'	
17	33°53.4'	N 21°40.6'	10.5'	5.6'	55.4'		72°52.6'			18°52.3'		8°22.0'	40°20.6'
18	48°22.9'	N 21°46.2'	10.4'	5.5'	55.4'		72°21.6'			18°35.9'		8°50.1'	40°49.1'
19	62°52.3'	N 21°51.7'	10.3'	5.4'	55.4'		71°50.5'			18°20.1'		9°18.5'	41°17.7'
20	77°21.7'	N 21°57.0'	10.3'	5.3'	55.5'		71°19.4'					9°47.3'	41°46.3'
21	91°51.0'	N 22°02.3'	10.2'	5.1'	55.5'		70°48.2'					10°16.3'	42°14.8'
22	106°20.2'	N 22°07.4'	10.2'	5.0'	55.5'	119°49.6'	70°17.1'					10°45.5'	42°43.5'
23	120°49.3'	N 22°12.5'	10.1'	4.9'	55.5'	119°22.6'	69°45.9'					11°15.0'	43°12.1'
Mer. pass.		14 h 40 m SD 15.0'	phase 8%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.8'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.3'	N 89°20.9'
Rigil Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.4'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	215°26.3'	180°35.0'	N 13°54.9'	139°50.3'	N 27°36.1'	276°37.4'	S 20°55.3'	271°22.2'	S 19°51.2'	253°38.7'	S 16°37.1'			
1	230°28.7'	195°35.1'	N 13°55.7'	154°51.3'	N 27°36.3'	291°39.7'	S 20°55.3'	286°24.6'	S 19°51.2'	268°39.4'	S 16°36.6'			
2	245°31.2'	210°35.2'	N 13°56.4'	169°52.3'	N 27°36.4'	306°42.0'	S 20°55.3'	301°27.0'	S 19°51.2'	283°40.2'	S 16°36.1'			
3	260°33.7'	225°35.3'	N 13°57.2'	184°53.3'	N 27°36.6'	321°44.4'	S 20°55.2'	316°29.4'	S 19°51.2'	298°40.9'	S 16°35.7'			
4	275°36.1'	240°35.4'	N 13°58.0'	199°54.3'	N 27°36.7'	336°46.7'	S 20°55.2'	331°31.8'	S 19°51.2'	313°41.6'	S 16°35.2'			
5	290°38.6'	255°35.5'	N 13°58.8'	214°55.3'	N 27°36.9'	351°49.0'	S 20°55.2'	346°34.2'	S 19°51.2'	328°42.4'	S 16°34.7'			
6	305°41.1'	270°35.6'	N 13°59.6'	229°56.3'	N 27°37.0'	6°51.3'	S 20°55.2'	1°36.7'	S 19°51.2'	343°43.1'	S 16°34.2'			
7	320°43.5'	285°35.7'	N 14°00.4'	244°57.3'	N 27°37.2'	21°53.6'	S 20°55.2'	16°39.1'	S 19°51.2'	358°43.8'	S 16°33.7'			
8	335°46.0'	300°35.8'	N 14°01.2'	259°58.3'	N 27°37.3'	36°56.0'	S 20°55.1'	31°41.5'	S 19°51.2'	13°44.6'	S 16°33.2'			
9	350°48.4'	315°35.9'	N 14°02.0'	274°59.3'	N 27°37.5'	51°58.3'	S 20°55.1'	46°43.9'	S 19°51.2'	28°45.3'	S 16°32.7'			
10	5°50.9'	330°36.0'	N 14°02.8'	290°00.4'	N 27°37.6'	67°00.6'	S 20°55.1'	61°46.3'	S 19°51.2'	43°46.0'	S 16°32.2'			
11	20°53.4'	345°36.1'	N 14°03.6'	305°01.4'	N 27°37.8'	82°02.9'	S 20°55.1'	76°48.7'	S 19°51.1'	58°46.8'	S 16°31.8'			
12	35°55.8'	0°36.2'	N 14°04.4'	320°02.4'	N 27°37.9'	97°05.3'	S 20°55.1'	91°51.1'	S 19°51.1'	73°47.5'	S 16°31.3'			
13	50°58.3'	15°36.2'	N 14°05.1'	335°03.5'	N 27°38.0'	112°07.6'	S 20°55.0'	106°53.5'	S 19°51.1'	88°48.2'	S 16°30.8'			
14	66°00.8'	30°36.3'	N 14°05.9'	350°04.5'	N 27°38.2'	127°09.9'	S 20°55.0'	121°55.9'	S 19°51.1'	103°49.0'	S 16°30.3'			
15	81°03.2'	45°36.4'	N 14°06.7'	5°05.5'	N 27°38.3'	142°12.2'	S 20°55.0'	136°58.3'	S 19°51.1'	118°49.7'	S 16°29.8'			
16	96°05.7'	60°36.5'	N 14°07.5'	20°06.6'	N 27°38.5'	157°14.6'	S 20°55.0'	152°00.7'	S 19°51.1'	133°50.4'	S 16°29.3'			
17	111°08.2'	75°36.6'	N 14°08.3'	35°07.6'	N 27°38.6'	172°16.9'	S 20°55.0'	167°03.1'	S 19°51.1'	148°51.2'	S 16°28.8'			
18	126°10.6'	90°36.7'	N 14°09.1'	50°08.7'	N 27°38.7'	187°19.2'	S 20°55.0'	182°05.5'	S 19°51.1'	163°51.9'	S 16°28.3'			
19	141°13.1'	105°36.8'	N 14°09.9'	65°09.7'	N 27°38.9'	202°21.5'	S 20°54.9'	197°07.9'	S 19°51.1'	178°52.6'	S 16°27.8'			
20	156°15.6'	120°36.9'	N 14°10.7'	80°10.8'	N 27°39.0'	217°23.9'	S 20°54.9'	212°10.3'	S 19°51.1'	193°53.4'	S 16°27.4'			
21	171°18.0'	135°37.0'	N 14°11.4'	95°11.8'	N 27°39.1'	232°26.2'	S 20°54.9'	227°12.7'	S 19°51.1'	208°54.1'	S 16°26.9'			
22	186°20.5'	150°37.1'	N 14°12.2'	110°12.9'	N 27°39.3'	247°28.5'	S 20°54.9'	242°15.2'	S 19°51.1'	223°54.8'	S 16°26.4'			
23	201°22.9'	165°37.2'	N 14°13.0'	125°13.9'	N 27°39.4'	262°30.8'	S 20°54.9'	257°17.6'	S 19°51.0'	238°55.6'	S 16°25.9'			
		SD 15.9'	d 0.8'	v 1.0'	d 0.1'	v 2.3'	d 0.0'	v 2.4'	d 0.0'	v 0.7'	d 0.5'			
Mer. pass.		11 h 57 m 36 s		14 h 40 m		5 h 33 m		5 h 54 m		7 h 5 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Venus	+Aldebaran	+Rigel	+Sun
0	135°18.4'	N 22°17.4'	10.0'	4.8'	55.5'	118°55.6'	69°14.7'	37°51.9'	33°24.4'		11°44.6'		43°40.8'
1	149°47.5'	N 22°22.2'	10.0'	4.7'	55.6'	118°28.5'	68°43.5'	37°25.0'	32°53.4'		12°14.3'		44°09.5'
2	164°16.5'	N 22°26.9'	9.9'	4.6'	55.6'	118°01.3'	68°12.3'	36°58.2'	32°22.5'		12°44.2'		44°38.2'
3	178°45.4'	N 22°31.5'	9.9'	4.5'	55.6'	117°34.1'	67°41.0'	36°31.4'	31°51.5'		13°14.2'		45°07.0'
4	193°14.2'	N 22°36.0'	9.8'	4.4'	55.6'	117°06.8'	67°09.8'	36°04.8'	31°20.5'		13°44.4'		45°35.7'
5	207°43.0'	N 22°40.3'	9.7'	4.3'	55.7'	116°39.5'	66°38.5'	35°38.3'	30°49.5'		14°14.6'		46°04.5'
6	222°11.8'	N 22°44.6'	9.7'	4.1'	55.7'	116°12.1'	66°07.2'	35°11.8'	30°18.5'		14°45.0'		46°33.3'
7	236°40.4'	N 22°48.7'	9.6'	4.0'	55.7'	115°44.7'	65°35.8'	34°45.4'	29°47.5'	8°53.9'	15°15.4'		47°02.2'
8	251°09.0'	N 22°52.8'	9.6'	3.9'	55.7'	115°17.2'	65°04.5'	34°19.2'	29°16.5'	9°16.6'	15°46.0'		47°31.1'
9	265°37.6'	N 22°56.7'	9.5'	3.8'	55.7'	114°49.7'	64°33.1'	33°53.1'	28°45.5'	9°40.1'	16°16.6'		47°60.0'
10	280°06.1'	N 23°00.4'	9.4'	3.7'	55.8'	114°22.1'	64°01.7'	33°27.0'	28°14.4'	10°04.1'	16°47.3'		48°28.9'
11	294°34.6'	N 23°04.1'	9.4'	3.6'	55.8'	113°54.5'	63°30.3'	33°01.1'	27°43.4'	10°28.8'	17°18.0'		48°57.8'
12	309°03.0'	N 23°07.7'	9.3'	3.4'	55.8'	113°26.8'	62°58.8'	32°35.4'	27°12.3'	10°53.9'	17°48.8'		49°26.8'
13	323°31.3'	N 23°11.1'	9.3'	3.3'	55.8'	112°59.1'	62°27.4'	32°09.7'	26°41.3'	11°19.4'	18°19.7'		49°55.8'
14	337°59.6'	N 23°14.4'	9.2'	3.2'	55.9'	112°31.3'	61°55.9'	31°44.2'	26°10.2'	11°45.3'	18°50.6'		50°24.8'
15	352°27.8'	N 23°17.6'	9.2'	3.1'	55.9'	112°03.5'	61°24.3'	31°18.9'	25°39.1'	12°11.6'	19°21.6'		50°53.9'
16	6°56.0'	N 23°20.7'	9.1'	2.9'	55.9'	111°35.6'	60°52.8'	30°53.7'	25°08.1'	12°38.2'	19°52.7'		51°22.9'
17	21°24.1'	N 23°23.6'	9.1'	2.8'	55.9'	111°07.7'	60°21.2'	30°28.6'	24°37.0'	13°05.1'	20°23.8'		51°52.0'
18	35°52.2'	N 23°26.4'	9.0'	2.7'	56.0'	110°39.7'	59°49.7'	30°03.8'	24°05.9'	13°32.3'	20°55.0'		52°21.2'
19	50°20.2'	N 23°29.1'	9.0'	2.6'	56.0'	110°11.7'	59°18.1'	29°39.1'	23°34.9'	13°59.7'	21°26.2'		52°50.3'
20	64°48.2'	N 23°31.7'	8.9'	2.5'	56.0'	109°43.6'	58°46.4'	29°14.6'	23°03.8'	14°27.3'	21°57.4'		53°19.5'
21	79°16.1'	N 23°34.2'	8.9'	2.3'	56.0'	109°15.5'	58°14.8'	28°50.3'	22°32.8'	14°55.2'	22°28.7'	34°15.5'	53°48.7'
22	93°44.0'	N 23°36.5'	8.8'	2.2'	56.0'	108°47.4'	57°43.1'	28°26.2'	22°01.7'	15°23.2'	23°00.0'	34°30.6'	54°17.9'
23	108°11.8'	N 23°38.7'	8.8'	2.1'	56.1'	108°19.2'	57°11.4'	28°02.3'	21°30.7'	15°51.4'	23°31.4'	34°46.0'	54°47.2'
Mer. pass.		15 h 31 m SD 15.1'		phase 14%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.8'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.2'	N 89°20.9'
Rigel Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.2'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.7'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.4'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	216°25.4'		180°37.3'	N 14°13.8'	140°15.0'	N 27°39.5'	277°33.2'	S 20°54.8'	272°20.0'	S 19°51.0'	253°56.3'	S 16°25.4'
1	231°27.9'		195°37.3'	N 14°14.6'	155°16.1'	N 27°39.7'	292°35.5'	S 20°54.8'	287°22.4'	S 19°51.0'	268°57.1'	S 16°24.9'
2	246°30.3'		210°37.4'	N 14°15.4'	170°17.1'	N 27°39.8'	307°37.8'	S 20°54.8'	302°24.8'	S 19°51.0'	283°57.8'	S 16°24.4'
3	261°32.8'		225°37.5'	N 14°16.1'	185°18.2'	N 27°39.9'	322°40.1'	S 20°54.8'	317°27.2'	S 19°51.0'	298°58.5'	S 16°23.9'
4	276°35.3'		240°37.6'	N 14°16.9'	200°19.3'	N 27°40.1'	337°42.5'	S 20°54.8'	332°29.6'	S 19°51.0'	313°59.3'	S 16°23.4'
5	291°37.7'		255°37.7'	N 14°17.7'	215°20.4'	N 27°40.2'	352°44.8'	S 20°54.7'	347°32.0'	S 19°51.0'	329°00.0'	S 16°22.9'
6	306°40.2'		270°37.8'	N 14°18.5'	230°21.4'	N 27°40.3'	7°47.1'	S 20°54.7'	2°34.4'	S 19°51.0'	344°00.7'	S 16°22.4'
7	321°42.7'		285°37.9'	N 14°19.3'	245°22.5'	N 27°40.4'	22°49.5'	S 20°54.7'	17°36.8'	S 19°51.0'	359°01.5'	S 16°22.0'
8	336°45.1'		300°38.0'	N 14°20.1'	260°23.6'	N 27°40.6'	37°51.8'	S 20°54.7'	32°39.2'	S 19°51.0'	14°02.2'	S 16°21.5'
9	351°47.6'		315°38.1'	N 14°20.8'	275°24.7'	N 27°40.7'	52°54.1'	S 20°54.7'	47°41.6'	S 19°51.0'	29°03.0'	S 16°21.0'
10	6°50.1'		330°38.1'	N 14°21.6'	290°25.8'	N 27°40.8'	67°56.5'	S 20°54.7'	62°44.1'	S 19°51.0'	44°03.7'	S 16°20.5'
11	21°52.5'		345°38.2'	N 14°22.4'	305°26.9'	N 27°40.9'	82°58.8'	S 20°54.6'	77°46.5'	S 19°51.0'	59°04.4'	S 16°20.0'
12	36°55.0'		0°38.3'	N 14°23.2'	320°28.0'	N 27°41.0'	98°01.1'	S 20°54.6'	92°48.9'	S 19°50.9'	74°05.2'	S 16°19.5'
13	51°57.4'		15°38.4'	N 14°24.0'	335°29.1'	N 27°41.2'	113°03.5'	S 20°54.6'	107°51.3'	S 19°50.9'	89°05.9'	S 16°19.0'
14	66°59.9'		30°38.5'	N 14°24.7'	350°30.2'	N 27°41.3'	128°05.8'	S 20°54.6'	122°53.7'	S 19°50.9'	104°06.6'	S 16°18.5'
15	82°02.4'		45°38.6'	N 14°25.5'	5°31.3'	N 27°41.4'	143°08.1'	S 20°54.6'	137°56.1'	S 19°50.9'	119°07.4'	S 16°18.0'
16	97°04.8'		60°38.7'	N 14°26.3'	20°32.4'	N 27°41.5'	158°10.5'	S 20°54.5'	152°58.5'	S 19°50.9'	134°08.1'	S 16°17.5'
17	112°07.3'		75°38.8'	N 14°27.1'	35°33.5'	N 27°41.6'	173°12.8'	S 20°54.5'	168°00.9'	S 19°50.9'	149°08.9'	S 16°17.0'
18	127°09.8'		90°38.8'	N 14°27.8'	50°34.6'	N 27°41.7'	188°15.1'	S 20°54.5'	183°03.3'	S 19°50.9'	164°09.6'	S 16°16.5'
19	142°12.2'		105°38.9'	N 14°28.6'	65°35.7'	N 27°41.9'	203°17.5'	S 20°54.5'	198°05.8'	S 19°50.9'	179°10.3'	S 16°16.0'
20	157°14.7'		120°39.0'	N 14°29.4'	80°36.9'	N 27°42.0'	218°19.8'	S 20°54.5'	213°08.2'	S 19°50.9'	194°11.1'	S 16°15.5'
21	172°17.2'		135°39.1'	N 14°30.2'	95°38.0'	N 27°42.1'	233°22.1'	S 20°54.5'	228°10.6'	S 19°50.9'	209°11.8'	S 16°15.0'
22	187°19.6'		150°39.2'	N 14°31.0'	110°39.1'	N 27°42.2'	248°24.5'	S 20°54.4'	243°13.0'	S 19°50.9'	224°12.6'	S 16°14.6'
23	202°22.1'		165°39.3'	N 14°31.7'	125°40.2'	N 27°42.3'	263°26.8'	S 20°54.4'	258°15.4'	S 19°50.9'	239°13.3'	S 16°14.1'
			SD 15.9'	d 0.8'	v 1.1'	d 0.1'	v 2.3'	d 0.0'	v 2.4'	d 0.0'	v 0.7'	d 0.5'
Mer. pass.			11 h 57 m 27 s		14 h 38 m		5 h 29 m		5 h 50 m		7 h 4 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Venus	+Betelgeuse	+Aldebaran	+Sun
0	122°39.6'	N 23°40.8'	8.7'	1.9'	56.1'	107°50.9'	56°39.7'	27°38.6'	20°59.6'	16°19.8'		24°02.9'	55°16.5'
1	137°07.3'	N 23°42.7'	8.7'	1.8'	56.1'	107°22.6'	56°07.9'	27°15.2'	20°28.6'	16°48.3'		24°34.3'	55°45.8'
2	151°35.0'	N 23°44.6'	8.6'	1.7'	56.1'	106°54.3'	55°36.1'	26°52.0'	19°57.6'	17°17.0'		25°05.8'	56°15.1'
3	166°02.6'	N 23°46.2'	8.6'	1.6'	56.2'	106°25.9'	55°04.3'	26°29.1'	19°26.6'	17°45.8'		25°37.4'	56°44.5'
4	180°30.3'	N 23°47.8'	8.6'	1.4'	56.2'	105°57.5'	54°32.5'	26°06.4'	18°55.7'	18°14.7'		26°09.0'	57°13.9'
5	194°57.8'	N 23°49.2'	8.5'	1.3'	56.2'	105°29.1'	54°00.7'	25°44.1'	18°24.7'	18°43.7'	17°57.6'	26°40.6'	57°43.3'
6	209°25.3'	N 23°50.5'	8.5'	1.2'	56.2'	105°00.6'	53°28.8'	25°22.0'	17°53.9'	19°12.9'	18°12.8'	27°12.3'	58°12.8'
7	223°52.8'	N 23°51.7'	8.4'	1.0'	56.3'	104°32.1'	52°56.9'	25°00.3'	17°23.0'	19°42.1'	18°28.7'	27°44.0'	58°42.2'
8	238°20.3'	N 23°52.8'	8.4'	0.9'	56.3'	104°03.5'	52°25.0'	24°38.9'	16°52.2'	20°11.5'	18°45.3'	28°15.7'	59°11.7'
9	252°47.7'	N 23°53.7'	8.4'	0.8'	56.3'	103°34.9'	51°53.0'	24°17.8'	16°21.4'	20°41.0'	19°02.5'	28°47.5'	59°41.3'
10	267°15.0'	N 23°54.5'	8.3'	0.6'	56.4'	103°06.2'	51°21.0'	23°57.1'	15°50.7'	21°10.5'	19°20.4'	29°19.3'	60°10.8'
11	281°42.3'	N 23°55.1'	8.3'	0.5'	56.4'	102°37.5'	50°49.0'	23°36.8'	15°20.1'	21°40.1'	19°38.8'	29°51.2'	60°40.4'
12	296°09.6'	N 23°55.6'	8.3'	0.4'	56.4'	102°08.8'	50°17.0'	23°16.9'	14°49.5'	22°09.9'	19°57.9'	30°23.1'	61°10.1'
13	310°36.9'	N 23°56.0'	8.2'	0.2'	56.4'	101°40.0'	49°45.0'	22°57.4'	14°19.1'	22°39.7'	20°17.4'	30°55.0'	61°39.7'
14	325°04.1'	N 23°56.3'	8.2'	0.1'	56.5'	101°11.2'	49°12.9'	22°38.3'	13°48.7'	23°09.5'	20°37.5'	31°27.0'	62°09.4'
15	339°31.3'	N 23°56.4'	8.2'	-0.0'	56.5'	100°42.4'	48°40.8'	22°19.7'	13°18.4'	23°39.5'	20°58.1'	31°59.0'	62°39.1'
16	353°58.5'	N 23°56.4'	8.1'	-0.2'	56.5'	100°13.5'	48°08.7'	22°01.6'	12°48.3'	24°09.5'	21°19.2'	32°31.0'	63°08.8'
17	8°25.6'	N 23°56.2'	8.1'	-0.3'	56.5'	99°44.6'	47°36.5'	21°44.0'	12°18.3'	24°39.6'	21°40.7'	33°03.1'	63°38.6'
18	22°52.7'	N 23°55.9'	8.1'	-0.4'	56.6'	99°15.7'	47°04.3'	21°26.9'	11°48.5'	25°09.8'	22°02.7'	33°35.2'	64°08.4'
19	37°19.8'	N 23°55.5'	8.0'	-0.6'	56.6'	98°46.7'	46°32.1'	21°10.4'	11°18.9'	25°40.0'	22°25.1'	34°07.3'	64°38.2'
20	51°46.8'	N 23°54.9'	8.0'	-0.7'	56.6'	98°17.7'	45°59.9'	20°54.5'	10°49.6'	26°10.3'	22°47.9'	34°39.5'	65°08.1'
21	66°13.8'	N 23°54.2'	8.0'	-0.8'	56.6'	97°48.6'	45°27.6'		10°20.5'	26°40.7'	23°11.0'	35°11.7'	65°38.0'
22	80°40.8'	N 23°53.4'	8.0'	-1.0'	56.7'	97°19.5'	44°55.3'		9°51.7'	27°11.1'	23°34.6'	35°43.9'	66°07.9'
23	95°07.8'	N 23°52.4'	7.9'	-1.1'	56.7'	96°50.4'	44°23.0'		9°23.3'	27°41.6'	23°58.5'	36°16.2'	66°37.8'
Mer. pass.			16 h 25 m SD 15.3'	phase 22%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.8'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.2'	N 89°20.9'
Rigil Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.1'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.8'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.4'	S 52°42.7'				

Wednesday 29 April 2020 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	217°24.6'	180°39.4' N 14°32.5'	140°41.4' N 27°42.4'	278°29.1' S 20°54.4'	273°17.8' S 19°50.9'	254°14.0' S 16°13.6'						
1	232°27.0'	195°39.4' N 14°33.3'	155°42.5' N 27°42.5'	293°31.5' S 20°54.4'	288°20.2' S 19°50.8'	269°14.8' S 16°13.1'						
2	247°29.5'	210°39.5' N 14°34.0'	170°43.7' N 27°42.6'	308°33.8' S 20°54.4'	303°22.6' S 19°50.8'	284°15.5' S 16°12.6'						
3	262°31.9'	225°39.6' N 14°34.8'	185°44.8' N 27°42.7'	323°36.1' S 20°54.4'	318°25.0' S 19°50.8'	299°16.3' S 16°12.1'						
4	277°34.4'	240°39.7' N 14°35.6'	200°45.9' N 27°42.8'	338°38.5' S 20°54.3'	333°27.5' S 19°50.8'	314°17.0' S 16°11.6'						
5	292°36.9'	255°39.8' N 14°36.4'	215°47.1' N 27°43.0'	353°40.8' S 20°54.3'	348°29.9' S 19°50.8'	329°17.8' S 16°11.1'						
6	307°39.3'	270°39.9' N 14°37.1'	230°48.2' N 27°43.1'	8°43.1' S 20°54.3'	3°32.3' S 19°50.8'	344°18.5' S 16°10.6'						
7	322°41.8'	285°39.9' N 14°37.9'	245°49.4' N 27°43.2'	23°45.5' S 20°54.3'	18°34.7' S 19°50.8'	359°19.2' S 16°10.1'						
8	337°44.3'	300°40.0' N 14°38.7'	260°50.5' N 27°43.3'	38°47.8' S 20°54.3'	33°37.1' S 19°50.8'	14°20.0' S 16°09.6'						
9	352°46.7'	315°40.1' N 14°39.5'	275°51.7' N 27°43.4'	53°50.2' S 20°54.2'	48°39.5' S 19°50.8'	29°20.7' S 16°09.1'						
10	7°49.2'	330°40.2' N 14°40.2'	290°52.9' N 27°43.5'	68°52.5' S 20°54.2'	63°41.9' S 19°50.8'	44°21.5' S 16°08.6'						
11	22°51.7'	345°40.3' N 14°41.0'	305°54.0' N 27°43.6'	83°54.8' S 20°54.2'	78°44.4' S 19°50.8'	59°22.2' S 16°08.1'						
12	37°54.1'	0°40.4' N 14°41.8'	320°55.2' N 27°43.7'	98°57.2' S 20°54.2'	93°46.8' S 19°50.8'	74°23.0' S 16°07.6'						
13	52°56.6'	15°40.4' N 14°42.5'	335°56.4' N 27°43.8'	113°59.5' S 20°54.2'	108°49.2' S 19°50.8'	89°23.7' S 16°07.1'						
14	67°59.0'	30°40.5' N 14°43.3'	350°57.6' N 27°43.9'	129°01.9' S 20°54.2'	123°51.6' S 19°50.8'	104°24.4' S 16°06.6'						
15	83°01.5'	45°40.6' N 14°44.1'	5°58.7' N 27°44.0'	144°04.2' S 20°54.1'	138°54.0' S 19°50.7'	119°25.2' S 16°06.1'						
16	98°04.0'	60°40.7' N 14°44.8'	20°59.9' N 27°44.1'	159°06.5' S 20°54.1'	153°56.4' S 19°50.7'	134°25.9' S 16°05.6'						
17	113°06.4'	75°40.8' N 14°45.6'	36°01.1' N 27°44.1'	174°08.9' S 20°54.1'	168°58.8' S 19°50.7'	149°26.7' S 16°05.1'						
18	128°08.9'	90°40.8' N 14°46.4'	51°02.3' N 27°44.2'	189°11.2' S 20°54.1'	184°01.3' S 19°50.7'	164°27.4' S 16°04.6'						
19	143°11.4'	105°40.9' N 14°47.1'	66°03.5' N 27°44.3'	204°13.6' S 20°54.1'	199°03.7' S 19°50.7'	179°28.2' S 16°04.1'						
20	158°13.8'	120°41.0' N 14°47.9'	81°04.7' N 27°44.4'	219°15.9' S 20°54.1'	214°06.1' S 19°50.7'	194°28.9' S 16°03.6'						
21	173°16.3'	135°41.1' N 14°48.7'	96°05.9' N 27°44.5'	234°18.3' S 20°54.1'	229°08.5' S 19°50.7'	209°29.6' S 16°03.1'						
22	188°18.8'	150°41.2' N 14°49.4'	111°07.1' N 27°44.6'	249°20.6' S 20°54.0'	244°10.9' S 19°50.7'	224°30.4' S 16°02.6'						
23	203°21.2'	165°41.3' N 14°50.2'	126°08.3' N 27°44.7'	264°22.9' S 20°54.0'	259°13.3' S 19°50.7'	239°31.1' S 16°02.1'						
		SD 15.9' d 0.8'	v 1.2' d 0.1'	v 2.3' d 0.0'	v 2.4' d 0.0'	v 0.7' d 0.5'						
Mer. pass.		11 h 57 m 19 s	14 h 36 m	5 h 25 m	5 h 46 m	7 h 3 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Pollux	+Betelgeuse	+Venus	+Capella	+Sun
0	109°34.7'	N 23°51.3'	7.9'	-1.2'	56.7'	97°54.1'	96°21.2'	43°50.7'	8°55.3'	24°22.7'	28°12.2'	31°45.7'	67°07.8'
1	124°01.7'	N 23°50.1'	7.9'	-1.4'	56.8'	97°21.8'	95°52.0'	43°18.3'	8°27.8'	24°47.2'	28°42.8'	32°07.1'	67°37.8'
2	138°28.6'	N 23°48.7'	7.9'	-1.5'	56.8'	96°49.5'	95°22.8'	42°45.9'	8°00.9'	25°12.1'	29°13.4'	32°28.8'	68°07.9'
3	152°55.4'	N 23°47.2'	7.9'	-1.7'	56.8'	96°17.1'	94°53.5'	42°13.5'		25°37.2'	29°44.1'	32°50.8'	68°37.9'
4	167°22.3'	N 23°45.6'	7.8'	-1.8'	56.8'	95°44.7'	94°24.2'	41°41.1'		26°02.6'	30°14.9'	33°13.0'	69°08.0'
5	181°49.1'	N 23°43.8'	7.8'	-1.9'	56.9'	95°12.3'	93°54.9'	41°08.6'		26°28.3'	30°45.7'	33°35.5'	69°38.2'
6	196°16.0'	N 23°41.8'	7.8'	-2.1'	56.9'	94°39.8'	93°25.6'	40°36.1'		26°54.3'	31°16.6'	33°58.3'	70°08.4'
7	210°42.8'	N 23°39.8'	7.8'	-2.2'	56.9'	94°07.3'	92°56.2'	40°03.5'		27°20.4'	31°47.5'	34°21.3'	70°38.6'
8	225°09.6'	N 23°37.6'	7.8'	-2.3'	57.0'	93°34.8'	92°26.8'	39°31.0'		27°46.9'	32°18.5'	34°44.6'	71°08.8'
9	239°36.4'	N 23°35.2'	7.8'	-2.5'	57.0'	93°02.3'	91°57.3'	38°58.4'		28°13.5'	32°49.5'	35°08.2'	71°39.0'
10	254°03.1'	N 23°32.8'	7.8'	-2.6'	57.0'	92°29.7'	91°27.8'	38°25.8'		28°40.4'	33°20.6'	35°31.9'	72°09.3'
11	268°29.9'	N 23°30.1'	7.7'	-2.8'	57.0'	91°57.1'	90°58.3'	37°53.2'		29°07.5'	33°51.7'	35°55.9'	72°39.7'
12	282°56.6'	N 23°27.4'	7.7'	-2.9'	57.1'	91°24.4'	90°28.8'	37°20.5'		29°34.8'	34°22.9'	36°20.2'	73°10.0'
13	297°23.4'	N 23°24.5'	7.7'	-3.0'	57.1'	90°51.7'	89°59.2'	36°47.8'		30°02.3'	34°54.2'	36°44.6'	73°40.4'
14	311°50.1'	N 23°21.5'	7.7'	-3.2'	57.1'	90°19.0'	89°29.6'	36°15.1'		30°30.0'	35°25.4'	37°09.3'	74°10.9'
15	326°16.8'	N 23°18.3'	7.7'	-3.3'	57.2'	89°46.3'	88°60.0'	35°42.3'		30°57.9'	35°56.8'	37°34.1'	74°41.3'
16	340°43.5'	N 23°15.0'	7.7'	-3.4'	57.2'	89°13.5'	88°30.3'	35°09.6'		31°25.9'	36°28.1'	37°59.2'	75°11.8'
17	355°10.2'	N 23°11.5'	7.7'	-3.6'	57.2'	88°40.7'	88°00.6'	34°36.8'		31°54.1'	36°59.6'	38°24.4'	75°42.3'
18	9°36.9'	N 23°08.0'	7.7'	-3.7'	57.2'	88°07.8'	87°30.9'	34°04.0'		32°22.5'	37°31.0'	38°49.9'	76°12.9'
19	24°03.6'	N 23°04.2'	7.7'	-3.9'	57.3'	87°35.0'	87°01.2'	33°31.1'		32°51.1'	38°02.5'	39°15.5'	76°43.5'
20	38°30.3'	N 23°00.4'	7.7'	-4.0'	57.3'	87°02.1'	86°31.4'	32°58.2'		33°19.7'	38°34.1'	39°41.3'	77°14.1'
21	52°57.0'	N 22°56.4'	7.7'	-4.1'	57.3'	86°29.1'	86°01.6'	32°25.3'		33°48.6'	39°05.7'	40°07.3'	77°44.8'
22	67°23.7'	N 22°52.3'	7.7'	-4.3'	57.4'	85°56.1'	85°31.8'	31°52.4'		34°17.6'	39°37.4'	40°33.5'	78°15.5'
23	81°50.4'	N 22°48.0'	7.7'	-4.4'	57.4'	85°23.1'	85°01.9'	31°19.5'		34°46.7'	40°09.1'	40°59.8'	78°46.2'
Mer. pass.					17 h 20 m SD 15.5' phase 31%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°20.8'	Acrux	+0.8	173°03.5'	S 63°12.8'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.6'	N 38°47.9'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.2'	N 89°20.9'
Rigil Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.1'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.8'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.4'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	218°23.7'	180°41.3'	N 14°51.0'	141°09.5'	N 27°44.8'	279°25.3'	S 20°54.0'	274°15.8'	S 19°50.7'	254°31.9'	S 16°01.6'			
1	233°26.2'	195°41.4'	N 14°51.7'	156°10.7'	N 27°44.9'	294°27.6'	S 20°54.0'	289°18.2'	S 19°50.7'	269°32.6'	S 16°01.1'			
2	248°28.6'	210°41.5'	N 14°52.5'	171°11.9'	N 27°45.0'	309°30.0'	S 20°54.0'	304°20.6'	S 19°50.7'	284°33.4'	S 16°00.6'			
3	263°31.1'	225°41.6'	N 14°53.3'	186°13.1'	N 27°45.0'	324°32.3'	S 20°54.0'	319°23.0'	S 19°50.7'	299°34.1'	S 16°00.1'			
4	278°33.5'	240°41.6'	N 14°54.0'	201°14.3'	N 27°45.1'	339°34.7'	S 20°53.9'	334°25.4'	S 19°50.7'	314°34.9'	S 15°59.6'			
5	293°36.0'	255°41.7'	N 14°54.8'	216°15.5'	N 27°45.2'	354°37.0'	S 20°53.9'	349°27.8'	S 19°50.7'	329°35.6'	S 15°59.1'			
6	308°38.5'	270°41.8'	N 14°55.5'	231°16.8'	N 27°45.3'	9°39.4'	S 20°53.9'	4°30.3'	S 19°50.6'	344°36.4'	S 15°58.6'			
7	323°40.9'	285°41.9'	N 14°56.3'	246°18.0'	N 27°45.4'	24°41.7'	S 20°53.9'	19°32.7'	S 19°50.6'	359°37.1'	S 15°58.1'			
8	338°43.4'	300°42.0'	N 14°57.1'	261°19.2'	N 27°45.5'	39°44.0'	S 20°53.9'	34°35.1'	S 19°50.6'	14°37.8'	S 15°57.6'			
9	353°45.9'	315°42.0'	N 14°57.8'	276°20.5'	N 27°45.5'	54°46.4'	S 20°53.9'	49°37.5'	S 19°50.6'	29°38.6'	S 15°57.1'			
10	8°48.3'	330°42.1'	N 14°58.6'	291°21.7'	N 27°45.6'	69°48.7'	S 20°53.8'	64°39.9'	S 19°50.6'	44°39.3'	S 15°56.6'			
11	23°50.8'	345°42.2'	N 14°59.3'	306°22.9'	N 27°45.7'	84°51.1'	S 20°53.8'	79°42.3'	S 19°50.6'	59°40.1'	S 15°56.1'			
12	38°53.3'	0°42.3'	N 15°00.1'	321°24.2'	N 27°45.8'	99°53.4'	S 20°53.8'	94°44.8'	S 19°50.6'	74°40.8'	S 15°55.6'			
13	53°55.7'	15°42.3'	N 15°00.9'	336°25.4'	N 27°45.8'	114°55.8'	S 20°53.8'	109°47.2'	S 19°50.6'	89°41.6'	S 15°55.1'			
14	68°58.2'	30°42.4'	N 15°01.6'	351°26.7'	N 27°45.9'	129°58.1'	S 20°53.8'	124°49.6'	S 19°50.6'	104°42.3'	S 15°54.6'			
15	84°00.7'	45°42.5'	N 15°02.4'	6°27.9'	N 27°46.0'	145°00.5'	S 20°53.8'	139°52.0'	S 19°50.6'	119°43.1'	S 15°54.1'			
16	99°03.1'	60°42.6'	N 15°03.1'	21°29.2'	N 27°46.1'	160°02.8'	S 20°53.8'	154°54.4'	S 19°50.6'	134°43.8'	S 15°53.6'			
17	114°05.6'	75°42.7'	N 15°03.9'	36°30.4'	N 27°46.1'	175°05.2'	S 20°53.7'	169°56.9'	S 19°50.6'	149°44.6'	S 15°53.1'			
18	129°08.0'	90°42.7'	N 15°04.6'	51°31.7'	N 27°46.2'	190°07.5'	S 20°53.7'	184°59.3'	S 19°50.6'	164°45.3'	S 15°52.6'			
19	144°10.5'	105°42.8'	N 15°05.4'	66°33.0'	N 27°46.3'	205°09.9'	S 20°53.7'	200°01.7'	S 19°50.6'	179°46.1'	S 15°52.1'			
20	159°13.0'	120°42.9'	N 15°06.2'	81°34.2'	N 27°46.4'	220°12.2'	S 20°53.7'	215°04.1'	S 19°50.6'	194°46.8'	S 15°51.6'			
21	174°15.4'	135°43.0'	N 15°06.9'	96°35.5'	N 27°46.4'	235°14.6'	S 20°53.7'	230°06.5'	S 19°50.6'	209°47.6'	S 15°51.1'			
22	189°17.9'	150°43.0'	N 15°07.7'	111°36.8'	N 27°46.5'	250°16.9'	S 20°53.7'	245°09.0'	S 19°50.6'	224°48.3'	S 15°50.6'			
23	204°20.4'	165°43.1'	N 15°08.4'	126°38.1'	N 27°46.6'	265°19.3'	S 20°53.7'	260°11.4'	S 19°50.5'	239°49.1'	S 15°50.1'			
		SD 15.9'	d 0.8'	v 1.2'	d 0.1'	v 2.3'	d 0.0'	v 2.4'	d 0.0'	v 0.7'	d 0.5'			
Mer. pass.		11 h 57 m 11 s		14 h 34 m		5 h 21 m		5 h 42 m		7 h 2 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sun
0	96°17.1'	N 22°43.6'	7.7'	-4.5'	57.4'	99°40.6'	84°50.1'	84°32.0'	30°46.5'			35°16.0'	79°17.0'
1	110°43.8'	N 22°39.0'	7.7'	-4.7'	57.5'	99°22.8'	84°17.0'	84°02.1'	30°13.5'			35°45.4'	79°47.8'
2	125°10.5'	N 22°34.3'	7.7'	-4.8'	57.5'	99°05.0'	83°43.9'	83°32.2'	29°40.5'	8°05.7'		36°14.9'	80°18.6'
3	139°37.2'	N 22°29.5'	7.7'	-5.0'	57.5'	98°47.2'	83°10.8'	83°02.3'	29°07.4'	8°33.4'		36°44.6'	80°49.5'
4	154°03.9'	N 22°24.6'	7.7'	-5.1'	57.6'	98°29.2'	82°37.6'	82°32.3'	28°34.4'	9°01.7'		37°14.3'	81°20.4'
5	168°30.6'	N 22°19.5'	7.7'	-5.2'	57.6'	98°11.3'	82°04.4'	82°02.3'	28°01.3'	9°30.7'		37°44.2'	81°51.4'
6	182°57.4'	N 22°14.2'	7.7'	-5.4'	57.6'	97°53.2'	81°31.1'	81°32.3'	27°28.2'	10°00.1'		38°14.2'	82°22.3'
7	197°24.1'	N 22°08.9'	7.7'	-5.5'	57.6'	97°35.2'	80°57.8'	81°02.3'	26°55.0'	10°29.9'		38°44.3'	82°53.4'
8	211°50.8'	N 22°03.4'	7.7'	-5.6'	57.7'	97°17.0'	80°24.5'	80°32.2'	26°21.9'	11°00.2'	20°22.7'	39°14.6'	83°24.4'
9	226°17.6'	N 21°57.7'	7.8'	-5.8'	57.7'	96°58.8'	79°51.2'	80°02.1'	25°48.7'	11°30.7'	20°37.9'	39°44.9'	83°55.5'
10	240°44.3'	N 21°52.0'	7.8'	-5.9'	57.7'	96°40.6'	79°17.8'	79°32.0'	25°15.5'	12°01.6'	20°53.8'	40°15.4'	84°26.6'
11	255°11.1'	N 21°46.1'	7.8'	-6.0'	57.8'	96°22.3'	78°44.4'	79°01.9'	24°42.3'	12°32.7'	21°10.4'	40°45.9'	84°57.8'
12	269°37.9'	N 21°40.0'	7.8'	-6.2'	57.8'	96°04.0'	78°10.9'	78°31.7'	24°09.1'	13°04.1'	21°27.6'	41°16.5'	85°29.0'
13	284°04.7'	N 21°33.9'	7.8'	-6.3'	57.8'	95°45.7'	77°37.4'	78°01.6'	23°35.9'	13°35.7'	21°45.5'	41°47.3'	86°00.2'
14	298°31.5'	N 21°27.5'	7.8'	-6.4'	57.9'	95°27.3'	77°03.9'	77°31.4'	23°02.6'	14°07.5'	22°03.9'	42°18.1'	86°31.5'
15	312°58.3'	N 21°21.1'	7.8'	-6.6'	57.9'	95°08.8'	76°30.3'	77°01.2'	22°29.3'	14°39.5'	22°23.0'	42°49.0'	87°02.8'
16	327°25.1'	N 21°14.5'	7.8'	-6.7'	57.9'	94°50.3'	75°56.7'	76°31.0'	21°56.1'	15°11.6'	22°42.6'	43°20.1'	87°34.1'
17	341°52.0'	N 21°07.8'	7.9'	-6.8'	58.0'	94°31.8'	75°23.1'	76°00.8'	21°22.8'	15°43.9'	23°02.8'	43°51.2'	88°05.5'
18	356°18.8'	N 21°01.0'	7.9'	-7.0'	58.0'	94°13.2'	74°49.4'	75°30.5'	20°49.5'	16°16.3'	23°23.5'	44°22.4'	88°36.9'
19	10°45.7'	N 20°54.0'	7.9'	-7.1'	58.0'	93°54.6'	74°15.7'	75°00.3'	20°16.2'	16°48.9'	23°44.7'	44°53.7'	89°08.4'
20	25°12.6'	N 20°46.9'	7.9'	-7.2'	58.1'	93°36.0'	73°42.0'	74°30.0'	19°42.9'	17°21.5'	24°06.3'	45°25.0'	89°39.9'
21	39°39.5'	N 20°39.7'	7.9'	-7.4'	58.1'	93°17.3'	73°08.2'	73°59.7'	19°09.7'	17°54.3'	24°28.5'	45°56.5'	90°11.4'
22	54°06.4'	N 20°32.4'	7.9'	-7.5'	58.1'	92°58.6'	72°34.4'	73°29.4'	18°36.4'	18°27.2'	24°51.1'	46°28.0'	90°43.0'
23	68°33.4'	N 20°24.9'	8.0'	-7.6'	58.2'	92°39.8'	72°00.6'	72°59.1'	18°03.1'	19°00.2'	25°14.1'	46°59.6'	91°14.6'
Mer. pass.		18 h 15 m SD 15.7'		phase 41%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°19.0'	S 29°30.9'	Spica	+1.0	158°26.0'	S 11°16.0'	Betelgeuse	+0.5	270°56.4'	N 7°24.5'
Deneb	+1.2	49°28.3'	N 45°20.8'	Acrux	+0.8	173°03.6'	S 63°12.8'	Capella	+0.1	280°27.9'	N 46°01.0'
Altair	+0.8	62°03.6'	N 8°55.2'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.8'	S 8°10.9'
Vega	+0.0	80°35.5'	N 38°48.0'	Pollux	+1.2	243°22.1'	N 27°58.6'	Aldebaran	+0.9	290°44.3'	N 16°32.8'
Antares	+1.1	112°20.2'	S 26°28.5'	Procyon	+0.4	244°54.9'	N 5°10.3'	Polaris	+2.0	316°12.1'	N 89°20.9'
Rigil Kent	-0.0	139°44.7'	S 60°55.0'	Adhara	+1.5	255°09.0'	S 29°00.3'	Achernar	+0.5	335°23.8'	S 57°08.1'
Arcturus	-0.1	145°51.1'	N 19°04.7'	Sirius	-1.4	258°29.8'	S 16°44.9'				
Hadar	+0.6	148°40.6'	S 60°28.2'	Canopus	-0.6	263°54.4'	S 52°42.7'				