Thursday 01 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	10°11.1′	182°35.1′	S 3°16.9′	220°05.0′	N 12°28.2′	80°42.2′	S 22°39.9′	72°49.4′	S 21°22.6′	345°36.8′	N 6°14.3′
1	25°13.5′	197°35.3′	S 3°17.9′	235°04.6′	N 12°27.4′	95°44.5′	S 22°39.9′	87°51.9′	S 21°22.6′	0°39.9′	N 6°14.1′
2	40°16.0′	212°35.5′	S 3°18.8′	250°04.3′	N 12°26.5′	110°46.8′	S 22°39.9′	102°54.3′	S 21°22.6′	15°43.1′	N 6°14.0′
3	55°18.5′	227°35.7′	S 3°19.8′	265°03.9′	N 12°25.7′	125°49.1′	S 22°39.9′	117°56.8′	S 21°22.6′	30°46.2′	N 6°13.8′
4	70°20.9′	242°35.9′	S 3°20.8′	280°03.5′	N 12°24.8′	140°51.4′	S 22°39.8′	132°59.2′	S 21°22.6′	45°49.4′	N 6°13.7′
5	85°23.4′	257°36.1′	S 3°21.7′	295°03.1′	N 12°23.9′	155°53.8′	S 22°39.8′	148°01.7′	S 21°22.6′	60°52.5′	N 6°13.5′
6	100°25.9′	272°36.3′	S 3°22.7′	310°02.7′	N 12°23.1′	170°56.1′	S 22°39.8′	163°04.1′	S 21°22.6′	75°55.7′	N 6°13.4′
7	115°28.3′	287°36.5′	S 3°23.7′	325°02.4′	N 12°22.2′	185°58.4′	S 22°39.8′	178°06.6′	S 21°22.6′	90°58.8′	N 6°13.3′
8	130°30.8′	302°36.7′	S 3°24.6′	340°02.0′	N 12°21.4′	201°00.7′	S 22°39.8′	193°09.1′	S 21°22.6′	106°01.9′	N 6°13.1′
9	145°33.3′	317°36.9′	S 3°25.6′	355°01.6′	N 12°20.5′	216°03.0′	S 22°39.8′	208°11.5′	S 21°22.6′	121°05.1′	N 6°13.0′
10	160°35.7′	332°37.1′	S 3°26.6′	10°01.2′	N 12°19.6′	231°05.3′	S 22°39.7′	223°14.0′	S 21°22.6′	136°08.2′	N 6°12.8′
11	175°38.2′	347°37.3′	S 3°27.5′	25°00.8′	N 12°18.8′	246°07.6′	S 22°39.7′	238°16.4′	S 21°22.6′	151°11.4′	N 6°12.7′
12	190°40.7′	2°37.5′	S 3°28.5′	40°00.5′	N 12°17.9′	261°09.9′	S 22°39.7′	253°18.9′	S 21°22.6′	166°14.5′	N 6°12.5′
13	205°43.1′	17°37.7′	S 3°29.5′	55°00.1′	N 12°17.1′	276°12.2′	S 22°39.7′	268°21.3′	S 21°22.6′	181°17.7′	N 6°12.4′
14	220°45.6′	32°37.9′	S 3°30.4′	69°59.7′	N 12°16.2′	291°14.5′	S 22°39.7′	283°23.8′	S 21°22.6′	196°20.8′	N 6°12.2′
15	235°48.0′	47°38.1′	S 3°31.4′	84°59.3′	N 12°15.3′	306°16.8′	S 22°39.7′	298°26.2′	S 21°22.6′	211°24.0′	N 6°12.1′
16	250°50.5′	62°38.3′	S 3°32.4′	99°58.9′	N 12°14.5′	321°19.1′	S 22°39.6′	313°28.7′	S 21°22.6′	226°27.1′	N 6°12.0′
17	265°53.0′	77°38.5′	S 3°33.3′	114°58.6′	N 12°13.6′	336°21.4′	S 22°39.6′	328°31.1′	S 21°22.6′	241°30.3′	N 6°11.8′
18	280°55.4′	92°38.7′	S 3°34.3′	129°58.2′	N 12°12.7′	351°23.7′	S 22°39.6′	343°33.6′	S 21°22.6′	256°33.4′	N 6°11.7′
19	295°57.9′	107°38.9′	S 3°35.3′	144°57.8′	N 12°11.9′	6°26.0′	S 22°39.6′	358°36.0′	S 21°22.6′	271°36.6′	N 6°11.5′
20	311°00.4′	122°39.1′	S 3°36.2′	159°57.4′	N 12°11.0′	21°28.4′	S 22°39.6′	13°38.5′	S 21°22.6′	286°39.7′	N 6°11.4′
21	326°02.8′	137°39.3′	S 3°37.2′	174°57.0′	N 12°10.1′	36°30.7′	S 22°39.5′	28°41.0′	S 21°22.6′	301°42.9′	N 6°11.2′
22	341°05.3′	152°39.5′	S 3°38.2′	189°56.7′	N 12°09.3′	51°33.0′	S 22°39.5′	43°43.4′	S 21°22.6′	316°46.1′	N 6°11.1′
23	356°07.8′	167°39.7′	S 3°39.1′	204°56.3′	N 12°08.4′	66°35.3′	S 22°39.5′	58°45.9′	S 21°22.6′	331°49.2′	N 6°10.9′
		SD 16.0′ *d* -1.0′		*v* -0.4′ *d* -0.9′		*v* 2.3′ *d* 0.0′		*v* 2.5′ *d* -0.0′		*v* 3.1′ *d* -0.1′	
Mer. pass.		11 h 49 m 31 s		9 h 20 m		18 h 34 m		19 h 6 m		0 h 57 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Capella	−Rigel	−Aldebaran	−Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	9°28.6′	S 5°07.7′	16.0′	12.2′	54.2′	86°00.8′	77°35.9′	71°07.9′	26°23.7′	28°41.8′	63°20.6′	64°07.3′	70°43.1′
1	24°03.6′	S 4°55.5′	16.0′	12.2′	54.2′	85°33.2′	77°10.3′	70°38.0′	25°53.1′	29°06.1′	63°50.6′	64°31.4′	71°12.9′
2	38°38.6′	S 4°43.3′	16.1′	12.2′	54.2′	85°05.7′	76°44.7′	70°08.2′	25°22.5′	29°30.6′	64°20.5′	64°55.5′	71°42.6′
3	53°13.7′	S 4°31.0′	16.1′	12.2′	54.2′	84°38.1′	76°19.2′	69°38.3′	24°51.9′	29°55.2′	64°50.4′	65°19.7′	72°12.4′
4	67°48.7′	S 4°18.8′	16.1′	12.3′	54.2′	84°10.6′	75°53.7′	69°08.5′	24°21.3′	30°19.9′	65°20.2′	65°43.9′	72°42.2′
5	82°23.8′	S 4°06.5′	16.1′	12.3′	54.2′	83°43.0′	75°28.2′	68°38.7′	23°50.7′	30°44.8′	65°50.1′	66°08.1′	73°12.0′
6	96°59.0′	S 3°54.3′	16.1′	12.3′	54.2′	83°15.5′	75°02.7′	68°08.9′	23°20.1′	31°09.8′	66°20.0′	66°32.4′	73°41.7′
7	111°34.1′	S 3°42.0′	16.2′	12.3′	54.2′	82°48.0′	74°37.3′	67°39.1′	22°49.6′	31°34.9′	66°49.9′	66°56.7′	74°11.4′
8	126°09.3′	S 3°29.7′	16.2′	12.3′	54.2′	82°20.5′	74°11.9′	67°09.3′	22°19.0′	32°00.2′	67°19.7′	67°21.0′	74°41.2′
9	140°44.5′	S 3°17.4′	16.2′	12.3′	54.2′	81°53.0′	73°46.5′	66°39.5′	21°48.5′	32°25.5′	67°49.5′	67°45.3′	75°10.9′
10	155°19.7′	S 3°05.1′	16.2′	12.3′	54.1′	81°25.5′	73°21.1′	66°09.8′	21°18.0′	32°51.0′	68°19.4′	68°09.7′	75°40.6′
11	169°54.9′	S 2°52.8′	16.2′	12.3′	54.1′	80°58.0′	72°55.8′	65°40.0′	20°47.4′	33°16.5′	68°49.2′	68°34.1′	76°10.3′
12	184°30.1′	S 2°40.5′	16.3′	12.3′	54.1′	80°30.6′	72°30.5′	65°10.2′	20°16.9′	33°42.2′	69°19.0′	68°58.6′	76°40.0′
13	199°05.4′	S 2°28.2′	16.3′	12.3′	54.1′	80°03.2′	72°05.3′	64°40.5′	19°46.4′	34°07.9′	69°48.8′	69°23.0′	77°09.7′
14	213°40.7′	S 2°15.8′	16.3′	12.3′	54.1′	79°35.8′	71°40.0′	64°10.8′	19°15.9′	34°33.7′	70°18.6′	69°47.5′	77°39.4′
15	228°15.9′	S 2°03.5′	16.3′	12.3′	54.1′	79°08.4′	71°14.8′	63°41.1′	18°45.4′	34°59.7′	70°48.4′	70°12.0′	78°09.0′
16	242°51.3′	S 1°51.1′	16.3′	12.3′	54.1′	78°41.0′	70°49.7′	63°11.3′	18°14.9′	35°25.7′	71°18.2′	70°36.5′	78°38.7′
17	257°26.6′	S 1°38.8′	16.3′	12.4′	54.1′	78°13.6′	70°24.5′	62°41.6′	17°44.5′	35°51.8′	71°48.0′	71°01.1′	79°08.3′
18	272°01.9′	S 1°26.4′	16.3′	12.4′	54.1′	77°46.2′	69°59.4′	62°11.9′	17°14.0′	36°17.9′	72°17.7′	71°25.7′	79°38.0′
19	286°37.2′	S 1°14.1′	16.4′	12.4′	54.1′	77°18.9′	69°34.3′	61°42.3′	16°43.5′	36°44.2′	72°47.5′	71°50.3′	80°07.6′
20	301°12.6′	S 1°01.7′	16.4′	12.4′	54.1′	76°51.6′	69°09.3′	61°12.6′	16°13.1′	37°10.5′	73°17.2′	72°14.9′	80°37.2′
21	315°48.0′	S 0°49.4′	16.4′	12.4′	54.1′	76°24.3′	68°44.3′	60°42.9′	15°42.6′	37°36.8′	73°47.0′	72°39.5′	81°06.9′
22	330°23.3′	S 0°37.0′	16.4′	12.4′	54.1′	75°57.0′	68°19.4′	60°13.3′	15°12.2′	38°03.3′	74°16.7′	73°04.2′	81°36.5′
23	344°58.7′	S 0°24.6′	16.4′	12.4′	54.0′	75°29.7′	67°54.4′	59°43.6′	14°41.8′	38°29.8′	74°46.4′	73°28.8′	82°06.1′
Mer. pass. 0 h 2 m SD 14.8′ phase 99%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.8′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.2′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.7′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.6′	N 5°10.4′	Polaris	+2.0	315°13.8′	N 89°20.8′
Rigil Kent	−0.0	139°45.5′	S 60°55.2′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.8′	Sirius	−1.4	258°29.3′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.3′	Canopus	−0.6	263°53.9′	S 52°42.1′				

Friday 02 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	11°10.2′	182°39.9′	S 3°40.1′	219°55.9′	N 12°07.5′	81°37.6′	S 22°39.5′	73°48.3′	S 21°22.6′	346°52.4′	N 6°10.8′
1	26°12.7′	197°40.1′	S 3°41.1′	234°55.5′	N 12°06.6′	96°39.9′	S 22°39.5′	88°50.8′	S 21°22.6′	1°55.5′	N 6°10.7′
2	41°15.1′	212°40.3′	S 3°42.0′	249°55.2′	N 12°05.8′	111°42.2′	S 22°39.5′	103°53.2′	S 21°22.6′	16°58.7′	N 6°10.5′
3	56°17.6′	227°40.5′	S 3°43.0′	264°54.8′	N 12°04.9′	126°44.5′	S 22°39.4′	118°55.7′	S 21°22.6′	32°01.9′	N 6°10.4′
4	71°20.1′	242°40.7′	S 3°44.0′	279°54.4′	N 12°04.0′	141°46.8′	S 22°39.4′	133°58.1′	S 21°22.6′	47°05.0′	N 6°10.2′
5	86°22.5′	257°40.9′	S 3°44.9′	294°54.0′	N 12°03.2′	156°49.1′	S 22°39.4′	149°00.6′	S 21°22.6′	62°08.2′	N 6°10.1′
6	101°25.0′	272°41.1′	S 3°45.9′	309°53.6′	N 12°02.3′	171°51.4′	S 22°39.4′	164°03.0′	S 21°22.6′	77°11.3′	N 6°09.9′
7	116°27.5′	287°41.3′	S 3°46.9′	324°53.3′	N 12°01.4′	186°53.7′	S 22°39.4′	179°05.5′	S 21°22.6′	92°14.5′	N 6°09.8′
8	131°29.9′	302°41.5′	S 3°47.8′	339°52.9′	N 12°00.5′	201°56.0′	S 22°39.3′	194°07.9′	S 21°22.6′	107°17.7′	N 6°09.6′
9	146°32.4′	317°41.7′	S 3°48.8′	354°52.5′	N 11°59.7′	216°58.3′	S 22°39.3′	209°10.4′	S 21°22.6′	122°20.8′	N 6°09.5′
10	161°34.9′	332°41.9′	S 3°49.8′	9°52.1′	N 11°58.8′	232°00.6′	S 22°39.3′	224°12.8′	S 21°22.6′	137°24.0′	N 6°09.3′
11	176°37.3′	347°42.1′	S 3°50.7′	24°51.8′	N 11°57.9′	247°02.9′	S 22°39.3′	239°15.3′	S 21°22.6′	152°27.2′	N 6°09.2′
12	191°39.8′	2°42.3′	S 3°51.7′	39°51.4′	N 11°57.0′	262°05.2′	S 22°39.3′	254°17.7′	S 21°22.6′	167°30.3′	N 6°09.0′
13	206°42.3′	17°42.5′	S 3°52.7′	54°51.0′	N 11°56.1′	277°07.5′	S 22°39.2′	269°20.2′	S 21°22.6′	182°33.5′	N 6°08.9′
14	221°44.7′	32°42.7′	S 3°53.6′	69°50.6′	N 11°55.3′	292°09.8′	S 22°39.2′	284°22.6′	S 21°22.6′	197°36.7′	N 6°08.7′
15	236°47.2′	47°42.9′	S 3°54.6′	84°50.2′	N 11°54.4′	307°12.1′	S 22°39.2′	299°25.1′	S 21°22.6′	212°39.8′	N 6°08.6′
16	251°49.6′	62°43.1′	S 3°55.6′	99°49.9′	N 11°53.5′	322°14.4′	S 22°39.2′	314°27.5′	S 21°22.6′	227°43.0′	N 6°08.4′
17	266°52.1′	77°43.3′	S 3°56.5′	114°49.5′	N 11°52.6′	337°16.7′	S 22°39.2′	329°30.0′	S 21°22.6′	242°46.2′	N 6°08.3′
18	281°54.6′	92°43.5′	S 3°57.5′	129°49.1′	N 11°51.7′	352°19.0′	S 22°39.1′	344°32.4′	S 21°22.6′	257°49.4′	N 6°08.1′
19	296°57.0′	107°43.7′	S 3°58.5′	144°48.7′	N 11°50.9′	7°21.3′	S 22°39.1′	359°34.9′	S 21°22.6′	272°52.5′	N 6°08.0′
20	311°59.5′	122°43.9′	S 3°59.4′	159°48.4′	N 11°50.0′	22°23.6′	S 22°39.1′	14°37.3′	S 21°22.6′	287°55.7′	N 6°07.9′
21	327°02.0′	137°44.1′	S 4°00.4′	174°48.0′	N 11°49.1′	37°25.9′	S 22°39.1′	29°39.7′	S 21°22.6′	302°58.9′	N 6°07.7′
22	342°04.4′	152°44.3′	S 4°01.4′	189°47.6′	N 11°48.2′	52°28.2′	S 22°39.1′	44°42.2′	S 21°22.6′	318°02.1′	N 6°07.6′
23	357°06.9′	167°44.5′	S 4°02.3′	204°47.2′	N 11°47.3′	67°30.4′	S 22°39.0′	59°44.6′	S 21°22.6′	333°05.2′	N 6°07.4′
		SD 16.0′ *d* -1.0′		*v* -0.4′ *d* -0.9′		*v* 2.3′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.1′	
Mer. pass.		11 h 49 m 11 s		9 h 21 m		18 h 31 m		19 h 2 m		0 h 52 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Capella	−Rigel	−Aldebaran	−Mars	+Fomalhaut	+Altair	+Saturn	+Jupiter
0	359°34.1′	S 0°12.3′	16.4′	12.4′	54.0′	75°02.5′	67°29.5′	59°14.0′	14°11.4′	38°56.3′	73°53.5′	75°16.1′	82°35.7′
1	14°09.5′	N 0°00.1′	16.4′	12.4′	54.0′	74°35.2′	67°04.7′	58°44.3′	13°41.0′	39°22.9′	74°18.2′	75°45.9′	83°05.3′
2	28°44.9′	N 0°12.4′	16.4′	12.3′	54.0′	74°08.0′	66°39.9′	58°14.7′	13°10.6′	39°49.6′	74°43.0′	76°15.6′	83°34.8′
3	43°20.3′	N 0°24.8′	16.4′	12.3′	54.0′	73°40.8′	66°15.1′	57°45.1′	12°40.2′	40°16.3′	75°07.7′	76°45.3′	84°04.4′
4	57°55.8′	N 0°37.1′	16.4′	12.3′	54.0′	73°13.6′	65°50.4′	57°15.5′	12°09.8′	40°43.1′	75°32.5′	77°14.9′	84°34.0′
5	72°31.2′	N 0°49.5′	16.4′	12.3′	54.0′	72°46.4′	65°25.7′	56°45.9′	11°39.4′	41°09.9′	75°57.2′	77°44.6′	85°03.5′
6	87°06.6′	N 1°01.8′	16.4′	12.3′	54.0′	72°19.3′	65°01.1′	56°16.3′	11°09.1′	41°36.8′	76°22.0′	78°14.3′	85°33.1′
7	101°42.0′	N 1°14.1′	16.4′	12.3′	54.0′	71°52.2′	64°36.5′	55°46.7′	10°38.7′	42°03.7′	76°46.8′	78°44.0′	86°02.6′
8	116°17.5′	N 1°26.4′	16.4′	12.3′	54.0′	71°25.1′	64°11.9′	55°17.1′	10°08.4′	42°30.7′	77°11.6′	79°13.6′	86°32.2′
9	130°52.9′	N 1°38.8′	16.4′	12.3′	54.0′	70°58.0′	63°47.4′	54°47.5′	9°38.1′	42°57.7′	77°36.4′	79°43.3′	87°01.7′
10	145°28.3′	N 1°51.1′	16.4′	12.3′	54.0′	70°30.9′	63°22.9′	54°18.0′	9°07.7′	43°24.8′	78°01.3′	80°12.9′	87°31.2′
11	160°03.8′	N 2°03.4′	16.4′	12.3′	54.0′	70°03.9′	62°58.5′	53°48.4′	8°37.4′	43°51.9′	78°26.1′	80°42.6′	88°00.7′
12	174°39.2′	N 2°15.6′	16.4′	12.3′	54.0′	69°36.8′	62°34.1′	53°18.9′	8°07.2′	44°19.0′	78°51.0′	81°12.2′	88°30.3′
13	189°14.6′	N 2°27.9′	16.4′	12.3′	54.0′	69°09.8′	62°09.8′	52°49.3′	7°36.9′	44°46.2′	79°15.8′	81°41.9′	88°59.8′
14	203°50.0′	N 2°40.2′	16.4′	12.3′	54.0′	68°42.8′	61°45.5′	52°19.8′	7°06.6′	45°13.4′	79°40.7′	82°11.5′	89°29.3′
15	218°25.5′	N 2°52.4′	16.4′	12.2′	54.0′	68°15.9′	61°21.3′	51°50.3′	6°36.4′	45°40.6′	80°05.6′	82°41.1′	89°58.8′
16	233°00.9′	N 3°04.7′	16.4′	12.2′	54.0′	67°48.9′	60°57.1′	51°20.8′	6°06.2′	46°07.9′	80°30.5′	83°10.7′	90°28.2′
17	247°36.3′	N 3°16.9′	16.4′	12.2′	54.0′	67°22.0′	60°33.0′	50°51.3′	5°36.1′	46°35.2′	80°55.4′	83°40.3′	90°57.7′
18	262°11.7′	N 3°29.1′	16.4′	12.2′	53.9′	66°55.1′	60°09.0′	50°21.8′	5°05.9′	47°02.5′	81°20.3′	84°09.9′	91°27.2′
19	276°47.1′	N 3°41.3′	16.4′	12.2′	53.9′	66°28.3′	59°44.9′	49°52.3′	4°35.9′	47°29.9′	81°45.2′	84°39.6′	91°56.7′
20	291°22.5′	N 3°53.5′	16.4′	12.2′	53.9′	66°01.4′	59°21.0′	49°22.8′	4°05.9′	47°57.3′	82°10.1′	85°09.1′	92°26.2′
21	305°57.9′	N 4°05.7′	16.4′	12.2′	53.9′	65°34.6′	58°57.1′	48°53.3′	3°36.0′	48°24.8′	82°35.0′	85°38.7′	92°55.6′
22	320°33.2′	N 4°17.8′	16.4′	12.1′	53.9′	65°07.8′	58°33.2′	48°23.8′	3°06.3′	48°52.2′	82°60.0′	86°08.3′	93°25.1′
23	335°08.6′	N 4°30.0′	16.3′	12.1′	53.9′	64°41.0′	58°09.5′	47°54.3′	2°36.8′	49°19.7′	83°24.9′	86°37.9′	93°54.5′
Mer. pass. 0 h 2 m SD 14.7′ phase 100%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.8′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.2′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.7′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°13.5′	N 89°20.8′
Rigil Kent	−0.0	139°45.6′	S 60°55.2′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.8′	Sirius	−1.4	258°29.3′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.3′	Canopus	−0.6	263°53.9′	S 52°42.1′				

Saturday 03 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	12°09.4′	182°44.7′	S 4°03.3′	219°46.9′	N 11°46.4′	82°32.7′	S 22°39.0′	74°47.1′	S 21°22.6′	348°08.4′	N 6°07.3′
1	27°11.8′	197°44.9′	S 4°04.3′	234°46.5′	N 11°45.5′	97°35.0′	S 22°39.0′	89°49.5′	S 21°22.6′	3°11.6′	N 6°07.1′
2	42°14.3′	212°45.1′	S 4°05.2′	249°46.1′	N 11°44.7′	112°37.3′	S 22°39.0′	104°52.0′	S 21°22.6′	18°14.8′	N 6°07.0′
3	57°16.7′	227°45.3′	S 4°06.2′	264°45.7′	N 11°43.8′	127°39.6′	S 22°39.0′	119°54.4′	S 21°22.6′	33°18.0′	N 6°06.8′
4	72°19.2′	242°45.5′	S 4°07.2′	279°45.4′	N 11°42.9′	142°41.9′	S 22°38.9′	134°56.9′	S 21°22.6′	48°21.1′	N 6°06.7′
5	87°21.7′	257°45.7′	S 4°08.1′	294°45.0′	N 11°42.0′	157°44.2′	S 22°38.9′	149°59.3′	S 21°22.6′	63°24.3′	N 6°06.5′
6	102°24.1′	272°45.8′	S 4°09.1′	309°44.6′	N 11°41.1′	172°46.5′	S 22°38.9′	165°01.8′	S 21°22.6′	78°27.5′	N 6°06.4′
7	117°26.6′	287°46.0′	S 4°10.1′	324°44.2′	N 11°40.2′	187°48.8′	S 22°38.9′	180°04.2′	S 21°22.6′	93°30.7′	N 6°06.2′
8	132°29.1′	302°46.2′	S 4°11.0′	339°43.9′	N 11°39.3′	202°51.1′	S 22°38.9′	195°06.7′	S 21°22.6′	108°33.9′	N 6°06.1′
9	147°31.5′	317°46.4′	S 4°12.0′	354°43.5′	N 11°38.4′	217°53.4′	S 22°38.8′	210°09.1′	S 21°22.6′	123°37.0′	N 6°05.9′
10	162°34.0′	332°46.6′	S 4°12.9′	9°43.1′	N 11°37.5′	232°55.7′	S 22°38.8′	225°11.6′	S 21°22.6′	138°40.2′	N 6°05.8′
11	177°36.5′	347°46.8′	S 4°13.9′	24°42.7′	N 11°36.6′	247°58.0′	S 22°38.8′	240°14.0′	S 21°22.6′	153°43.4′	N 6°05.6′
12	192°38.9′	2°47.0′	S 4°14.9′	39°42.4′	N 11°35.7′	263°00.3′	S 22°38.8′	255°16.4′	S 21°22.6′	168°46.6′	N 6°05.5′
13	207°41.4′	17°47.2′	S 4°15.8′	54°42.0′	N 11°34.9′	278°02.5′	S 22°38.8′	270°18.9′	S 21°22.6′	183°49.8′	N 6°05.3′
14	222°43.9′	32°47.4′	S 4°16.8′	69°41.6′	N 11°34.0′	293°04.8′	S 22°38.7′	285°21.3′	S 21°22.6′	198°53.0′	N 6°05.2′
15	237°46.3′	47°47.6′	S 4°17.8′	84°41.2′	N 11°33.1′	308°07.1′	S 22°38.7′	300°23.8′	S 21°22.6′	213°56.2′	N 6°05.0′
16	252°48.8′	62°47.8′	S 4°18.7′	99°40.9′	N 11°32.2′	323°09.4′	S 22°38.7′	315°26.2′	S 21°22.6′	228°59.4′	N 6°04.9′
17	267°51.2′	77°48.0′	S 4°19.7′	114°40.5′	N 11°31.3′	338°11.7′	S 22°38.7′	330°28.7′	S 21°22.6′	244°02.5′	N 6°04.7′
18	282°53.7′	92°48.2′	S 4°20.7′	129°40.1′	N 11°30.4′	353°14.0′	S 22°38.7′	345°31.1′	S 21°22.6′	259°05.7′	N 6°04.6′
19	297°56.2′	107°48.4′	S 4°21.6′	144°39.7′	N 11°29.5′	8°16.3′	S 22°38.6′	0°33.6′	S 21°22.6′	274°08.9′	N 6°04.4′
20	312°58.6′	122°48.6′	S 4°22.6′	159°39.4′	N 11°28.6′	23°18.6′	S 22°38.6′	15°36.0′	S 21°22.6′	289°12.1′	N 6°04.3′
21	328°01.1′	137°48.8′	S 4°23.6′	174°39.0′	N 11°27.7′	38°20.9′	S 22°38.6′	30°38.4′	S 21°22.6′	304°15.3′	N 6°04.1′
22	343°03.6′	152°48.9′	S 4°24.5′	189°38.6′	N 11°26.8′	53°23.1′	S 22°38.6′	45°40.9′	S 21°22.6′	319°18.5′	N 6°04.0′
23	358°06.0′	167°49.1′	S 4°25.5′	204°38.2′	N 11°25.9′	68°25.4′	S 22°38.6′	60°43.3′	S 21°22.6′	334°21.7′	N 6°03.8′
		SD 16.0′ *d* -1.0′		*v* -0.4′ *d* -0.9′		*v* 2.3′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.2′	
Mer. pass.		11 h 48 m 53 s		9 h 21 m		18 h 27 m		18 h 58 m		0 h 47 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Capella	−Rigel	−Aldebaran	−Mars	+Fomalhaut	+Altair	+Saturn	+Jupiter
0	349°43.9′	N 4°42.1′	16.3′	12.1′	53.9′	64°14.3′	57°45.7′	47°24.9′	2°07.7′	49°47.2′	83°49.8′	87°07.5′	94°24.0′
1	4°19.3′	N 4°54.2′	16.3′	12.1′	53.9′	63°47.6′	57°22.1′	46°55.4′		50°14.7′	84°14.8′	87°37.1′	94°53.4′
2	18°54.6′	N 5°06.3′	16.3′	12.1′	53.9′	63°20.9′	56°58.5′	46°26.0′		50°42.3′	84°39.7′	88°06.6′	95°22.9′
3	33°29.9′	N 5°18.3′	16.3′	12.0′	53.9′	62°54.2′	56°35.0′	45°56.5′		51°09.9′	85°04.7′	88°36.2′	95°52.3′
4	48°05.2′	N 5°30.4′	16.3′	12.0′	53.9′	62°27.6′	56°11.5′	45°27.1′		51°37.5′	85°29.7′	89°05.7′	96°21.7′
5	62°40.5′	N 5°42.4′	16.3′	12.0′	53.9′	62°01.0′	55°48.1′	44°57.7′		52°05.1′	85°54.6′	89°35.3′	96°51.2′
6	77°15.8′	N 5°54.4′	16.3′	12.0′	53.9′	61°34.4′	55°24.7′	44°28.2′		52°32.8′	86°19.6′	90°04.9′	97°20.6′
7	91°51.0′	N 6°06.3′	16.2′	11.9′	53.9′	61°07.9′	55°01.5′	43°58.8′		53°00.5′	86°44.5′	90°34.4′	97°50.0′
8	106°26.2′	N 6°18.3′	16.2′	11.9′	53.9′	60°41.3′	54°38.3′	43°29.4′	2°07.5′	53°28.2′	87°09.5′	91°04.0′	98°19.4′
9	121°01.5′	N 6°30.2′	16.2′	11.9′	53.9′	60°14.9′	54°15.2′	43°00.0′	2°36.5′	53°55.9′	87°34.5′	91°33.5′	98°48.8′
10	135°36.7′	N 6°42.1′	16.2′	11.9′	53.9′	59°48.4′	53°52.1′	42°30.6′	3°06.0′	54°23.6′	87°59.4′	92°03.0′	99°18.2′
11	150°11.8′	N 6°54.0′	16.2′	11.8′	53.9′	59°22.0′	53°29.2′	42°01.2′	3°35.7′	54°51.4′	88°24.4′	92°32.6′	99°47.6′
12	164°47.0′	N 7°05.8′	16.1′	11.8′	53.9′	58°55.6′	53°06.3′	41°31.8′	4°05.6′	55°19.2′	88°49.4′	93°02.1′	100°17.0′
13	179°22.1′	N 7°17.6′	16.1′	11.8′	53.9′	58°29.2′	52°43.4′	41°02.5′	4°35.5′	55°47.0′	89°14.3′	93°31.6′	100°46.4′
14	193°57.3′	N 7°29.4′	16.1′	11.8′	53.9′	58°02.9′	52°20.7′	40°33.1′	5°05.5′	56°14.8′	89°39.3′	94°01.2′	101°15.8′
15	208°32.3′	N 7°41.2′	16.1′	11.7′	53.9′	57°36.6′	51°58.1′	40°03.7′	5°35.6′	56°42.6′	90°04.2′	94°30.7′	101°45.2′
16	223°07.4′	N 7°52.9′	16.0′	11.7′	53.9′	57°10.4′	51°35.5′	39°34.4′	6°05.7′	57°10.5′	90°29.2′	95°00.2′	102°14.6′
17	237°42.5′	N 8°04.6′	16.0′	11.7′	53.9′	56°44.2′	51°13.0′	39°05.0′	6°35.8′	57°38.3′	90°54.2′	95°29.7′	102°44.0′
18	252°17.5′	N 8°16.3′	16.0′	11.6′	53.9′	56°18.0′	50°50.6′	38°35.7′	7°05.9′	58°06.2′	91°19.1′	95°59.3′	103°13.4′
19	266°52.5′	N 8°27.9′	16.0′	11.6′	53.9′	55°51.8′	50°28.3′	38°06.3′	7°36.1′	58°34.1′	91°44.1′	96°28.8′	103°42.8′
20	281°27.4′	N 8°39.6′	15.9′	11.6′	53.9′	55°25.7′	50°06.1′	37°37.0′	8°06.3′	59°02.0′	92°09.0′	96°58.3′	104°12.2′
21	296°02.4′	N 8°51.1′	15.9′	11.5′	53.9′	54°59.7′	49°44.0′	37°07.7′	8°36.4′	59°29.9′	92°34.0′	97°27.8′	104°41.6′
22	310°37.3′	N 9°02.7′	15.9′	11.5′	53.9′	54°33.7′	49°22.0′	36°38.3′	9°06.6′	59°57.9′	92°58.9′	97°57.3′	105°10.9′
23	325°12.2′	N 9°14.2′	15.9′	11.5′	53.9′	54°07.7′	49°00.1′	36°09.0′	9°36.9′	60°25.8′	93°23.8′	98°26.8′	105°40.3′
Mer. pass. 0 h 42 m SD 14.7′ phase 99%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.8′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.2′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.7′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°13.2′	N 89°20.8′
Rigil Kent	−0.0	139°45.6′	S 60°55.2′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.8′	Sirius	−1.4	258°29.3′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.3′	Canopus	−0.6	263°53.9′	S 52°42.1′				

Sunday 04 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	13°08.5′	182°49.3′	S 4°26.4′	219°37.9′	N 11°25.0′	83°27.7′	S 22°38.5′	75°45.8′	S 21°22.6′	349°24.9′	N 6°03.6′
1	28°11.0′	197°49.5′	S 4°27.4′	234°37.5′	N 11°24.1′	98°30.0′	S 22°38.5′	90°48.2′	S 21°22.6′	4°28.1′	N 6°03.5′
2	43°13.4′	212°49.7′	S 4°28.4′	249°37.1′	N 11°23.2′	113°32.3′	S 22°38.5′	105°50.7′	S 21°22.6′	19°31.3′	N 6°03.3′
3	58°15.9′	227°49.9′	S 4°29.3′	264°36.7′	N 11°22.3′	128°34.6′	S 22°38.5′	120°53.1′	S 21°22.6′	34°34.5′	N 6°03.2′
4	73°18.3′	242°50.1′	S 4°30.3′	279°36.4′	N 11°21.4′	143°36.9′	S 22°38.5′	135°55.5′	S 21°22.6′	49°37.7′	N 6°03.0′
5	88°20.8′	257°50.3′	S 4°31.3′	294°36.0′	N 11°20.5′	158°39.2′	S 22°38.4′	150°58.0′	S 21°22.5′	64°40.9′	N 6°02.9′
6	103°23.3′	272°50.5′	S 4°32.2′	309°35.6′	N 11°19.6′	173°41.4′	S 22°38.4′	166°00.4′	S 21°22.5′	79°44.1′	N 6°02.7′
7	118°25.7′	287°50.7′	S 4°33.2′	324°35.3′	N 11°18.6′	188°43.7′	S 22°38.4′	181°02.9′	S 21°22.5′	94°47.3′	N 6°02.6′
8	133°28.2′	302°50.9′	S 4°34.1′	339°34.9′	N 11°17.7′	203°46.0′	S 22°38.4′	196°05.3′	S 21°22.5′	109°50.5′	N 6°02.4′
9	148°30.7′	317°51.1′	S 4°35.1′	354°34.5′	N 11°16.8′	218°48.3′	S 22°38.4′	211°07.7′	S 21°22.5′	124°53.7′	N 6°02.3′
10	163°33.1′	332°51.2′	S 4°36.1′	9°34.1′	N 11°15.9′	233°50.6′	S 22°38.3′	226°10.2′	S 21°22.5′	139°56.9′	N 6°02.1′
11	178°35.6′	347°51.4′	S 4°37.0′	24°33.8′	N 11°15.0′	248°52.9′	S 22°38.3′	241°12.6′	S 21°22.5′	155°00.1′	N 6°02.0′
12	193°38.1′	2°51.6′	S 4°38.0′	39°33.4′	N 11°14.1′	263°55.1′	S 22°38.3′	256°15.1′	S 21°22.5′	170°03.3′	N 6°01.8′
13	208°40.5′	17°51.8′	S 4°39.0′	54°33.0′	N 11°13.2′	278°57.4′	S 22°38.3′	271°17.5′	S 21°22.5′	185°06.5′	N 6°01.7′
14	223°43.0′	32°52.0′	S 4°39.9′	69°32.6′	N 11°12.3′	293°59.7′	S 22°38.2′	286°20.0′	S 21°22.5′	200°09.7′	N 6°01.5′
15	238°45.5′	47°52.2′	S 4°40.9′	84°32.3′	N 11°11.4′	309°02.0′	S 22°38.2′	301°22.4′	S 21°22.5′	215°12.9′	N 6°01.4′
16	253°47.9′	62°52.4′	S 4°41.8′	99°31.9′	N 11°10.5′	324°04.3′	S 22°38.2′	316°24.8′	S 21°22.5′	230°16.1′	N 6°01.2′
17	268°50.4′	77°52.6′	S 4°42.8′	114°31.5′	N 11°09.6′	339°06.5′	S 22°38.2′	331°27.3′	S 21°22.5′	245°19.3′	N 6°01.1′
18	283°52.8′	92°52.8′	S 4°43.8′	129°31.2′	N 11°08.6′	354°08.8′	S 22°38.2′	346°29.7′	S 21°22.5′	260°22.5′	N 6°00.9′
19	298°55.3′	107°53.0′	S 4°44.7′	144°30.8′	N 11°07.7′	9°11.1′	S 22°38.1′	1°32.1′	S 21°22.5′	275°25.7′	N 6°00.8′
20	313°57.8′	122°53.1′	S 4°45.7′	159°30.4′	N 11°06.8′	24°13.4′	S 22°38.1′	16°34.6′	S 21°22.5′	290°28.9′	N 6°00.6′
21	329°00.2′	137°53.3′	S 4°46.6′	174°30.0′	N 11°05.9′	39°15.7′	S 22°38.1′	31°37.0′	S 21°22.5′	305°32.1′	N 6°00.4′
22	344°02.7′	152°53.5′	S 4°47.6′	189°29.7′	N 11°05.0′	54°18.0′	S 22°38.1′	46°39.5′	S 21°22.5′	320°35.3′	N 6°00.3′
23	359°05.2′	167°53.7′	S 4°48.6′	204°29.3′	N 11°04.1′	69°20.2′	S 22°38.1′	61°41.9′	S 21°22.5′	335°38.6′	N 6°00.1′
		SD 16.0′ *d* -1.0′		*v* -0.4′ *d* -0.9′		*v* 2.3′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.2′	
Mer. pass.		11 h 48 m 34 s		9 h 22 m		18 h 23 m		18 h 54 m		0 h 42 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Betelgeuse	−Capella	−Rigel	−Aldebaran	+Mars	+Fomalhaut	+Achernar	+Altair
0	339°47.0′	N 9°25.6′	15.8′	11.4′	53.9′	55°05.7′	53°41.7′	48°38.3′	35°39.7′	10°07.1′	60°53.8′		93°48.8′
1	354°21.9′	N 9°37.1′	15.8′	11.4′	53.9′	54°38.0′	53°15.8′	48°16.5′	35°10.4′	10°37.3′	61°21.8′		94°13.7′
2	8°56.7′	N 9°48.5′	15.8′	11.4′	53.9′	54°10.3′	52°50.0′	47°54.9′	34°41.1′	11°07.5′	61°49.8′		94°38.6′
3	23°31.4′	N 9°59.8′	15.7′	11.3′	53.9′	53°42.7′	52°24.2′	47°33.4′	34°11.8′	11°37.7′	62°17.8′		95°03.5′
4	38°06.2′	N 10°11.2′	15.7′	11.3′	53.9′	53°15.0′	51°58.4′	47°12.0′	33°42.6′	12°08.0′	62°45.9′		95°28.4′
5	52°40.9′	N 10°22.5′	15.7′	11.2′	53.9′	52°47.4′	51°32.7′	46°50.8′	33°13.3′	12°38.2′	63°13.9′		95°53.3′
6	67°15.5′	N 10°33.7′	15.6′	11.2′	53.9′	52°19.8′	51°07.1′	46°29.6′	32°44.0′	13°08.5′	63°42.0′		96°18.2′
7	81°50.2′	N 10°44.9′	15.6′	11.2′	53.9′	51°52.2′	50°41.5′	46°08.5′	32°14.8′	13°38.7′	64°10.0′		96°43.1′
8	96°24.8′	N 10°56.1′	15.6′	11.1′	53.9′	51°24.7′	50°15.9′	45°47.6′	31°45.5′	14°09.0′	64°38.1′		97°07.9′
9	110°59.3′	N 11°07.2′	15.5′	11.1′	53.9′	50°57.2′	49°50.4′	45°26.8′	31°16.3′	14°39.2′	65°06.2′		97°32.8′
10	125°33.9′	N 11°18.3′	15.5′	11.0′	53.9′	50°29.7′	49°24.9′	45°06.2′	30°47.0′	15°09.5′	65°34.3′		97°57.7′
11	140°08.4′	N 11°29.3′	15.5′	11.0′	53.9′	50°02.2′	48°59.5′	44°45.6′	30°17.8′	15°39.8′	66°02.4′		98°22.5′
12	154°42.8′	N 11°40.3′	15.4′	11.0′	53.9′	49°34.8′	48°34.2′	44°25.2′	29°48.6′	16°10.0′	66°30.5′		98°47.3′
13	169°17.2′	N 11°51.3′	15.4′	10.9′	53.9′	49°07.4′	48°08.9′	44°04.9′	29°19.4′	16°40.3′	66°58.7′		99°12.2′
14	183°51.6′	N 12°02.2′	15.3′	10.9′	53.9′	48°40.0′	47°43.7′	43°44.8′	28°50.2′	17°10.6′	67°26.8′		99°37.0′
15	198°25.9′	N 12°13.0′	15.3′	10.8′	53.9′	48°12.7′	47°18.5′	43°24.8′	28°21.0′	17°40.9′	67°55.0′	70°33.3′	100°01.8′
16	213°00.2′	N 12°23.8′	15.3′	10.8′	54.0′	47°45.4′	46°53.5′	43°04.9′	27°51.8′	18°11.1′	68°23.2′	70°48.3′	100°26.6′
17	227°34.5′	N 12°34.6′	15.2′	10.7′	54.0′	47°18.1′	46°28.4′	42°45.2′	27°22.6′	18°41.4′	68°51.4′	71°03.4′	100°51.3′
18	242°08.7′	N 12°45.3′	15.2′	10.7′	54.0′	46°50.8′	46°03.5′	42°25.7′	26°53.5′	19°11.7′	69°19.6′	71°18.6′	101°16.1′
19	256°42.9′	N 12°56.0′	15.1′	10.6′	54.0′	46°23.6′	45°38.6′	42°06.3′	26°24.3′	19°42.0′	69°47.8′	71°33.8′	101°40.9′
20	271°17.0′	N 13°06.6′	15.1′	10.6′	54.0′	45°56.5′	45°13.7′	41°47.1′	25°55.2′	20°12.3′	70°16.0′	71°49.1′	102°05.6′
21	285°51.1′	N 13°17.2′	15.0′	10.5′	54.0′	45°29.3′	44°49.0′	41°28.0′	25°26.1′	20°42.6′	70°44.2′	72°04.4′	102°30.3′
22	300°25.1′	N 13°27.7′	15.0′	10.5′	54.0′	45°02.2′	44°24.3′	41°09.1′	24°57.0′	21°12.9′	71°12.5′	72°19.8′	102°55.0′
23	314°59.1′	N 13°38.2′	15.0′	10.4′	54.0′	44°35.1′	43°59.7′	40°50.4′	24°27.9′	21°43.2′	71°40.7′	72°35.3′	103°19.7′
Mer. pass. 1 h 23 m SD 14.7′ phase 96%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.8′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.2′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.7′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°12.9′	N 89°20.8′
Rigil Kent	−0.0	139°45.6′	S 60°55.2′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.8′	Sirius	−1.4	258°29.3′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.3′	Canopus	−0.6	263°53.9′	S 52°42.1′				

Monday 05 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	14°07.6′	182°53.9′	S 4°49.5′	219°28.9′	N 11°03.2′	84°22.5′	S 22°38.0′	76°44.3′	S 21°22.5′	350°41.8′	N 5°60.0′
1	29°10.1′	197°54.1′	S 4°50.5′	234°28.6′	N 11°02.2′	99°24.8′	S 22°38.0′	91°46.8′	S 21°22.5′	5°45.0′	N 5°59.8′
2	44°12.6′	212°54.3′	S 4°51.4′	249°28.2′	N 11°01.3′	114°27.1′	S 22°38.0′	106°49.2′	S 21°22.5′	20°48.2′	N 5°59.7′
3	59°15.0′	227°54.5′	S 4°52.4′	264°27.8′	N 11°00.4′	129°29.3′	S 22°38.0′	121°51.7′	S 21°22.5′	35°51.4′	N 5°59.5′
4	74°17.5′	242°54.7′	S 4°53.4′	279°27.5′	N 10°59.5′	144°31.6′	S 22°37.9′	136°54.1′	S 21°22.5′	50°54.6′	N 5°59.4′
5	89°20.0′	257°54.8′	S 4°54.3′	294°27.1′	N 10°58.6′	159°33.9′	S 22°37.9′	151°56.5′	S 21°22.5′	65°57.8′	N 5°59.2′
6	104°22.4′	272°55.0′	S 4°55.3′	309°26.7′	N 10°57.6′	174°36.2′	S 22°37.9′	166°59.0′	S 21°22.5′	81°01.0′	N 5°59.1′
7	119°24.9′	287°55.2′	S 4°56.2′	324°26.3′	N 10°56.7′	189°38.5′	S 22°37.9′	182°01.4′	S 21°22.5′	96°04.3′	N 5°58.9′
8	134°27.3′	302°55.4′	S 4°57.2′	339°26.0′	N 10°55.8′	204°40.7′	S 22°37.9′	197°03.8′	S 21°22.5′	111°07.5′	N 5°58.8′
9	149°29.8′	317°55.6′	S 4°58.2′	354°25.6′	N 10°54.9′	219°43.0′	S 22°37.8′	212°06.3′	S 21°22.5′	126°10.7′	N 5°58.6′
10	164°32.3′	332°55.8′	S 4°59.1′	9°25.2′	N 10°54.0′	234°45.3′	S 22°37.8′	227°08.7′	S 21°22.5′	141°13.9′	N 5°58.4′
11	179°34.7′	347°56.0′	S 5°00.1′	24°24.9′	N 10°53.0′	249°47.6′	S 22°37.8′	242°11.2′	S 21°22.5′	156°17.1′	N 5°58.3′
12	194°37.2′	2°56.1′	S 5°01.0′	39°24.5′	N 10°52.1′	264°49.8′	S 22°37.8′	257°13.6′	S 21°22.5′	171°20.3′	N 5°58.1′
13	209°39.7′	17°56.3′	S 5°02.0′	54°24.1′	N 10°51.2′	279°52.1′	S 22°37.7′	272°16.0′	S 21°22.5′	186°23.6′	N 5°58.0′
14	224°42.1′	32°56.5′	S 5°03.0′	69°23.8′	N 10°50.3′	294°54.4′	S 22°37.7′	287°18.5′	S 21°22.5′	201°26.8′	N 5°57.8′
15	239°44.6′	47°56.7′	S 5°03.9′	84°23.4′	N 10°49.3′	309°56.7′	S 22°37.7′	302°20.9′	S 21°22.5′	216°30.0′	N 5°57.7′
16	254°47.1′	62°56.9′	S 5°04.9′	99°23.0′	N 10°48.4′	324°58.9′	S 22°37.7′	317°23.3′	S 21°22.5′	231°33.2′	N 5°57.5′
17	269°49.5′	77°57.1′	S 5°05.8′	114°22.6′	N 10°47.5′	340°01.2′	S 22°37.7′	332°25.8′	S 21°22.5′	246°36.4′	N 5°57.4′
18	284°52.0′	92°57.3′	S 5°06.8′	129°22.3′	N 10°46.6′	355°03.5′	S 22°37.6′	347°28.2′	S 21°22.5′	261°39.7′	N 5°57.2′
19	299°54.4′	107°57.4′	S 5°07.8′	144°21.9′	N 10°45.6′	10°05.7′	S 22°37.6′	2°30.6′	S 21°22.5′	276°42.9′	N 5°57.1′
20	314°56.9′	122°57.6′	S 5°08.7′	159°21.5′	N 10°44.7′	25°08.0′	S 22°37.6′	17°33.1′	S 21°22.5′	291°46.1′	N 5°56.9′
21	329°59.4′	137°57.8′	S 5°09.7′	174°21.2′	N 10°43.8′	40°10.3′	S 22°37.6′	32°35.5′	S 21°22.5′	306°49.3′	N 5°56.7′
22	345°01.8′	152°58.0′	S 5°10.6′	189°20.8′	N 10°42.8′	55°12.6′	S 22°37.5′	47°37.9′	S 21°22.4′	321°52.6′	N 5°56.6′
23	0°04.3′	167°58.2′	S 5°11.6′	204°20.4′	N 10°41.9′	70°14.8′	S 22°37.5′	62°40.4′	S 21°22.4′	336°55.8′	N 5°56.4′
		SD 16.0′	*d* -1.0′	*v* -0.4′	*d* -0.9′	*v* 2.3′	*d* 0.0′	*v* 2.4′	*d* 0.0′	*v* 3.2′	*d* -0.2′
Mer. pass.		11 h 48 m 16 s		9 h 22 m		18 h 20 m		18 h 50 m		0 h 37 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Betelgeuse	−Capella	−Rigel	−Aldebaran	+Mars	+Fomalhaut	+Achernar	+Altair
0	329°33.1′	N 13°48.6′	14.9′	10.4′	54.0′	44°08.1′	43°35.2′	40°31.8′	23°58.8′	22°13.5′	72°09.0′	72°50.8′	103°44.4′
1	344°07.0′	N 13°59.0′	14.9′	10.3′	54.0′	43°41.1′	43°10.7′	40°13.5′	23°29.8′	22°43.9′	72°37.3′	73°06.4′	104°09.1′
2	358°40.8′	N 14°09.3′	14.8′	10.3′	54.0′	43°14.2′	42°46.4′	39°55.3′	23°00.7′	23°14.2′	73°05.6′	73°22.1′	104°33.7′
3	13°14.7′	N 14°19.5′	14.8′	10.2′	54.0′	42°47.3′	42°22.1′	39°37.3′	22°31.7′	23°44.5′	73°33.9′	73°37.8′	104°58.3′
4	27°48.4′	N 14°29.7′	14.7′	10.1′	54.0′	42°20.4′	41°57.9′	39°19.5′	22°02.7′	24°14.9′	74°02.2′	73°53.6′	105°22.9′
5	42°22.1′	N 14°39.8′	14.7′	10.1′	54.0′	41°53.6′	41°33.8′	39°01.9′	21°33.7′	24°45.2′	74°30.5′	74°09.4′	105°47.5′
6	56°55.8′	N 14°49.9′	14.6′	10.0′	54.0′	41°26.9′	41°09.8′	38°44.5′	21°04.7′	25°15.6′	74°58.8′	74°25.2′	106°12.1′
7	71°29.4′	N 14°60.0′	14.6′	10.0′	54.0′	41°00.2′	40°45.9′	38°27.3′	20°35.8′	25°45.9′	75°27.2′	74°41.2′	106°36.7′
8	86°03.0′	N 15°09.9′	14.5′	9.9′	54.0′	40°33.5′	40°22.1′	38°10.3′	20°06.9′	26°16.3′	75°55.5′	74°57.1′	107°01.2′
9	100°36.5′	N 15°19.8′	14.5′	9.8′	54.0′	40°06.9′	39°58.4′	37°53.5′	19°38.0′	26°46.7′	76°23.9′	75°13.2′	107°25.7′
10	115°10.0′	N 15°29.7′	14.4′	9.8′	54.1′	39°40.3′	39°34.9′	37°37.0′	19°09.2′	27°17.0′	76°52.3′	75°29.3′	107°50.2′
11	129°43.4′	N 15°39.5′	14.4′	9.7′	54.1′	39°13.8′	39°11.4′	37°20.6′	18°40.4′	27°47.4′	77°20.6′	75°45.4′	108°14.7′
12	144°16.8′	N 15°49.2′	14.3′	9.7′	54.1′	38°47.4′	38°48.0′	37°04.6′	18°11.6′	28°17.8′	77°49.0′	76°01.6′	108°39.1′
13	158°50.1′	N 15°58.9′	14.3′	9.6′	54.1′	38°21.0′	38°24.7′	36°48.7′	17°42.9′	28°48.2′	78°17.4′	76°17.8′	109°03.6′
14	173°23.3′	N 16°08.5′	14.2′	9.5′	54.1′	37°54.7′	38°01.6′	36°33.1′	17°14.2′	29°18.6′	78°45.9′	76°34.1′	109°28.0′
15	187°56.5′	N 16°18.0′	14.1′	9.5′	54.1′	37°28.4′	37°38.6′	36°17.7′	16°45.5′	29°49.0′	79°14.3′	76°50.4′	109°52.3′
16	202°29.7′	N 16°27.5′	14.1′	9.4′	54.1′	37°02.2′	37°15.7′		16°16.9′	30°19.4′	79°42.7′	77°06.8′	110°16.7′
17	217°02.8′	N 16°36.9′	14.0′	9.3′	54.1′	36°36.1′	36°53.0′		15°48.4′	30°49.9′	80°11.2′	77°23.2′	110°41.0′
18	231°35.8′	N 16°46.2′	14.0′	9.3′	54.1′	36°10.1′	36°30.4′		15°19.9′	31°20.3′	80°39.6′	77°39.6′	111°05.3′
19	246°08.8′	N 16°55.5′	13.9′	9.2′	54.1′	35°44.1′	36°07.9′		14°51.6′	31°50.7′	81°08.1′	77°56.1′	111°29.6′
20	260°41.7′	N 17°04.7′	13.9′	9.1′	54.1′	35°18.2′	35°45.6′		14°23.2′	32°21.2′	81°36.6′	78°12.7′	111°53.9′
21	275°14.6′	N 17°13.8′	13.8′	9.1′	54.2′	34°52.4′	35°23.4′		13°55.0′	32°51.6′	82°05.1′	78°29.3′	112°18.1′
22	289°47.4′	N 17°22.9′	13.8′	9.0′	54.2′	34°26.7′	35°01.4′		13°26.9′	33°22.1′	82°33.6′	78°45.9′	112°42.3′
23	304°20.2′	N 17°31.9′	13.7′	8.9′	54.2′	34°01.1′	34°39.5′		12°58.8′	33°52.6′	83°02.1′	79°02.6′	113°06.4′
Mer. pass. 2 h 5 m SD 14.7′ phase 91%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.8′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°12.5′	N 89°20.8′
Rigil Kent	−0.0	139°45.6′	S 60°55.2′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.3′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.3′	Canopus	−0.6	263°53.9′	S 52°42.1′				

Tuesday 06 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	15°06.8′	182°58.4′	S 5°12.6′	219°20.1′	N 10°41.0′	85°17.1′	S 22°37.5′	77°42.8′	S 21°22.4′	351°59.0′	N 5°56.3′
1	30°09.2′	197°58.6′	S 5°13.5′	234°19.7′	N 10°40.1′	100°19.4′	S 22°37.5′	92°45.2′	S 21°22.4′	7°02.2′	N 5°56.1′
2	45°11.7′	212°58.7′	S 5°14.5′	249°19.3′	N 10°39.1′	115°21.6′	S 22°37.4′	107°47.7′	S 21°22.4′	22°05.4′	N 5°56.0′
3	60°14.2′	227°58.9′	S 5°15.4′	264°19.0′	N 10°38.2′	130°23.9′	S 22°37.4′	122°50.1′	S 21°22.4′	37°08.7′	N 5°55.8′
4	75°16.6′	242°59.1′	S 5°16.4′	279°18.6′	N 10°37.3′	145°26.2′	S 22°37.4′	137°52.5′	S 21°22.4′	52°11.9′	N 5°55.7′
5	90°19.1′	257°59.3′	S 5°17.3′	294°18.2′	N 10°36.3′	160°28.5′	S 22°37.4′	152°55.0′	S 21°22.4′	67°15.1′	N 5°55.5′
6	105°21.6′	272°59.5′	S 5°18.3′	309°17.9′	N 10°35.4′	175°30.7′	S 22°37.4′	167°57.4′	S 21°22.4′	82°18.4′	N 5°55.3′
7	120°24.0′	287°59.7′	S 5°19.3′	324°17.5′	N 10°34.5′	190°33.0′	S 22°37.3′	182°59.8′	S 21°22.4′	97°21.6′	N 5°55.2′
8	135°26.5′	302°59.8′	S 5°20.2′	339°17.1′	N 10°33.5′	205°35.3′	S 22°37.3′	198°02.3′	S 21°22.4′	112°24.8′	N 5°55.0′
9	150°28.9′	318°00.0′	S 5°21.2′	354°16.8′	N 10°32.6′	220°37.5′	S 22°37.3′	213°04.7′	S 21°22.4′	127°28.0′	N 5°54.9′
10	165°31.4′	333°00.2′	S 5°22.1′	9°16.4′	N 10°31.7′	235°39.8′	S 22°37.3′	228°07.1′	S 21°22.4′	142°31.3′	N 5°54.7′
11	180°33.9′	348°00.4′	S 5°23.1′	24°16.0′	N 10°30.7′	250°42.1′	S 22°37.2′	243°09.6′	S 21°22.4′	157°34.5′	N 5°54.6′
12	195°36.3′	3°00.6′	S 5°24.0′	39°15.7′	N 10°29.8′	265°44.3′	S 22°37.2′	258°12.0′	S 21°22.4′	172°37.7′	N 5°54.4′
13	210°38.8′	18°00.7′	S 5°25.0′	54°15.3′	N 10°28.8′	280°46.6′	S 22°37.2′	273°14.4′	S 21°22.4′	187°41.0′	N 5°54.3′
14	225°41.3′	33°00.9′	S 5°26.0′	69°14.9′	N 10°27.9′	295°48.9′	S 22°37.2′	288°16.9′	S 21°22.4′	202°44.2′	N 5°54.1′
15	240°43.7′	48°01.1′	S 5°26.9′	84°14.6′	N 10°27.0′	310°51.1′	S 22°37.1′	303°19.3′	S 21°22.4′	217°47.4′	N 5°53.9′
16	255°46.2′	63°01.3′	S 5°27.9′	99°14.2′	N 10°26.0′	325°53.4′	S 22°37.1′	318°21.7′	S 21°22.4′	232°50.7′	N 5°53.8′
17	270°48.7′	78°01.5′	S 5°28.8′	114°13.8′	N 10°25.1′	340°55.7′	S 22°37.1′	333°24.2′	S 21°22.4′	247°53.9′	N 5°53.6′
18	285°51.1′	93°01.7′	S 5°29.8′	129°13.5′	N 10°24.1′	355°57.9′	S 22°37.1′	348°26.6′	S 21°22.4′	262°57.1′	N 5°53.5′
19	300°53.6′	108°01.8′	S 5°30.7′	144°13.1′	N 10°23.2′	11°00.2′	S 22°37.0′	3°29.0′	S 21°22.4′	278°00.4′	N 5°53.3′
20	315°56.1′	123°02.0′	S 5°31.7′	159°12.7′	N 10°22.3′	26°02.5′	S 22°37.0′	18°31.5′	S 21°22.4′	293°03.6′	N 5°53.2′
21	330°58.5′	138°02.2′	S 5°32.7′	174°12.4′	N 10°21.3′	41°04.7′	S 22°37.0′	33°33.9′	S 21°22.4′	308°06.8′	N 5°53.0′
22	346°01.0′	153°02.4′	S 5°33.6′	189°12.0′	N 10°20.4′	56°07.0′	S 22°37.0′	48°36.3′	S 21°22.4′	323°10.1′	N 5°52.8′
23	1°03.4′	168°02.6′	S 5°34.6′	204°11.6′	N 10°19.4′	71°09.3′	S 22°37.0′	63°38.7′	S 21°22.4′	338°13.3′	N 5°52.7′
		SD 16.0′ *d* -1.0′		*v* -0.4′ *d* -0.9′		*v* 2.3′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.2′	
Mer. pass.		11 h 47 m 58 s		9 h 23 m		18 h 16 m		18 h 46 m		0 h 32 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Pollux	−Capella	−Betelgeuse	−Aldebaran	+Mars	+Achernar	+Fomalhaut	+Altair
0	318°52.9′	N 17°40.8′	13.6′	8.9′	54.2′	56°05.0′	34°17.8′	33°35.5′	12°30.9′	34°23.1′	79°19.3′	83°30.6′	113°30.6′
1	333°25.5′	N 17°49.7′	13.6′	8.8′	54.2′	55°35.3′	33°56.3′	33°10.1′	12°03.2′	34°53.6′	79°36.0′	83°59.2′	113°54.7′
2	347°58.1′	N 17°58.5′	13.5′	8.7′	54.2′	55°05.7′	33°34.9′	32°44.7′	11°35.6′	35°24.1′	79°52.8′	84°27.7′	114°18.7′
3	2°30.6′	N 18°07.2′	13.5′	8.6′	54.2′	54°36.0′	33°13.8′	32°19.5′	11°08.1′	35°54.6′	80°09.6′	84°56.3′	114°42.8′
4	17°03.1′	N 18°15.8′	13.4′	8.6′	54.2′	54°06.4′	32°52.8′	31°54.3′	10°40.9′	36°25.1′	80°26.5′	85°24.8′	115°06.8′
5	31°35.5′	N 18°24.4′	13.3′	8.5′	54.2′	53°36.7′	32°32.0′	31°29.3′	10°13.8′	36°55.7′	80°43.4′	85°53.4′	115°30.8′
6	46°07.8′	N 18°32.8′	13.3′	8.4′	54.3′	53°07.0′	32°11.4′	31°04.4′	9°47.1′	37°26.2′	81°00.3′	86°22.0′	115°54.7′
7	60°40.1′	N 18°41.3′	13.2′	8.3′	54.3′	52°37.3′	31°51.1′	30°39.6′	9°20.6′	37°56.8′	81°17.3′	86°50.6′	116°18.6′
8	75°12.3′	N 18°49.6′	13.2′	8.3′	54.3′	52°07.6′	31°30.9′	30°14.9′	8°54.5′	38°27.4′	81°34.3′	87°19.2′	116°42.4′
9	89°44.5′	N 18°57.8′	13.1′	8.2′	54.3′	51°37.9′	31°11.0′	29°50.4′	8°28.7′	38°57.9′	81°51.3′	87°47.9′	117°06.3′
10	104°16.6′	N 19°06.0′	13.0′	8.1′	54.3′	51°08.2′	30°51.3′	29°26.0′	8°03.4′	39°28.5′	82°08.3′	88°16.5′	117°30.1′
11	118°48.6′	N 19°14.1′	13.0′	8.0′	54.3′	50°38.4′	30°31.8′	29°01.8′	7°38.7′	39°59.2′	82°25.4′	88°45.2′	117°53.8′
12	133°20.6′	N 19°22.1′	12.9′	7.9′	54.3′	50°08.7′	30°12.6′	28°37.7′	7°14.5′	40°29.8′	82°42.5′	89°13.8′	118°17.5′
13	147°52.5′	N 19°30.1′	12.9′	7.9′	54.3′	49°38.9′	29°53.7′	28°13.7′		41°00.4′	82°59.7′	89°42.5′	118°41.2′
14	162°24.4′	N 19°37.9′	12.8′	7.8′	54.4′	49°09.2′	29°35.0′	27°50.0′		41°31.1′	83°16.9′	90°11.2′	119°04.8′
15	176°56.2′	N 19°45.7′	12.7′	7.7′	54.4′	48°39.4′	29°16.6′	27°26.4′		42°01.7′	83°34.1′	90°39.9′	119°28.3′
16	191°27.9′	N 19°53.4′	12.7′	7.6′	54.4′	48°09.6′	28°58.4′	27°03.0′		42°32.4′	83°51.3′	91°08.6′	119°51.9′
17	205°59.5′	N 20°01.0′	12.6′	7.5′	54.4′	47°39.8′	28°40.6′	26°39.7′		43°03.1′	84°08.6′	91°37.3′	
18	220°31.2′	N 20°08.5′	12.5′	7.4′	54.4′	47°10.0′	28°23.1′	26°16.7′		43°33.8′	84°25.9′	92°06.1′	
19	235°02.7′	N 20°15.9′	12.5′	7.3′	54.4′	46°40.2′	28°05.8′	25°53.9′		44°04.5′	84°43.2′	92°34.8′	
20	249°34.2′	N 20°23.2′	12.4′	7.3′	54.4′	46°10.4′	27°48.9′	25°31.3′		44°35.2′	85°00.5′	93°03.6′	
21	264°05.6′	N 20°30.5′	12.3′	7.2′	54.5′	45°40.5′	27°32.4′	25°08.9′		45°06.0′	85°17.9′	93°32.4′	
22	278°36.9′	N 20°37.7′	12.3′	7.1′	54.5′	45°10.7′	27°16.1′	24°46.8′		45°36.7′	85°35.2′	94°01.2′	
23	293°08.2′	N 20°44.7′	12.2′	7.0′	54.5′	44°40.8′	27°00.3′	24°24.9′		46°07.5′	85°52.6′	94°30.0′	
Mer. pass. 2 h 50 m SD 14.8′ phase 85%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.8′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°12.1′	N 89°20.8′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.3′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Wednesday 07 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	16°05.9′	183°02.7′	S 5°35.5′	219°11.3′	N 10°18.5′	86°11.5′	S 22°36.9′	78°41.2′	S 21°22.4′	353°16.5′	N 5°52.5′
1	31°08.4′	198°02.9′	S 5°36.5′	234°10.9′	N 10°17.5′	101°13.8′	S 22°36.9′	93°43.6′	S 21°22.4′	8°19.8′	N 5°52.4′
2	46°10.8′	213°03.1′	S 5°37.4′	249°10.5′	N 10°16.6′	116°16.0′	S 22°36.9′	108°46.0′	S 21°22.3′	23°23.0′	N 5°52.2′
3	61°13.3′	228°03.3′	S 5°38.4′	264°10.2′	N 10°15.6′	131°18.3′	S 22°36.9′	123°48.5′	S 21°22.3′	38°26.3′	N 5°52.1′
4	76°15.8′	243°03.5′	S 5°39.3′	279°09.8′	N 10°14.7′	146°20.6′	S 22°36.8′	138°50.9′	S 21°22.3′	53°29.5′	N 5°51.9′
5	91°18.2′	258°03.6′	S 5°40.3′	294°09.4′	N 10°13.7′	161°22.8′	S 22°36.8′	153°53.3′	S 21°22.3′	68°32.7′	N 5°51.8′
6	106°20.7′	273°03.8′	S 5°41.2′	309°09.1′	N 10°12.8′	176°25.1′	S 22°36.8′	168°55.8′	S 21°22.3′	83°36.0′	N 5°51.6′
7	121°23.2′	288°04.0′	S 5°42.2′	324°08.7′	N 10°11.8′	191°27.4′	S 22°36.8′	183°58.2′	S 21°22.3′	98°39.2′	N 5°51.4′
8	136°25.6′	303°04.2′	S 5°43.2′	339°08.3′	N 10°10.9′	206°29.6′	S 22°36.7′	199°00.6′	S 21°22.3′	113°42.4′	N 5°51.3′
9	151°28.1′	318°04.4′	S 5°44.1′	354°08.0′	N 10°10.0′	221°31.9′	S 22°36.7′	214°03.0′	S 21°22.3′	128°45.7′	N 5°51.1′
10	166°30.5′	333°04.5′	S 5°45.1′	9°07.6′	N 10°09.0′	236°34.1′	S 22°36.7′	229°05.5′	S 21°22.3′	143°48.9′	N 5°51.0′
11	181°33.0′	348°04.7′	S 5°46.0′	24°07.2′	N 10°08.0′	251°36.4′	S 22°36.7′	244°07.9′	S 21°22.3′	158°52.2′	N 5°50.8′
12	196°35.5′	3°04.9′	S 5°47.0′	39°06.9′	N 10°07.1′	266°38.7′	S 22°36.6′	259°10.3′	S 21°22.3′	173°55.4′	N 5°50.7′
13	211°37.9′	18°05.1′	S 5°47.9′	54°06.5′	N 10°06.1′	281°40.9′	S 22°36.6′	274°12.7′	S 21°22.3′	188°58.7′	N 5°50.5′
14	226°40.4′	33°05.2′	S 5°48.9′	69°06.2′	N 10°05.2′	296°43.2′	S 22°36.6′	289°15.2′	S 21°22.3′	204°01.9′	N 5°50.3′
15	241°42.9′	48°05.4′	S 5°49.8′	84°05.8′	N 10°04.2′	311°45.4′	S 22°36.6′	304°17.6′	S 21°22.3′	219°05.1′	N 5°50.2′
16	256°45.3′	63°05.6′	S 5°50.8′	99°05.4′	N 10°03.3′	326°47.7′	S 22°36.5′	319°20.0′	S 21°22.3′	234°08.4′	N 5°50.0′
17	271°47.8′	78°05.8′	S 5°51.7′	114°05.1′	N 10°02.3′	341°49.9′	S 22°36.5′	334°22.5′	S 21°22.3′	249°11.6′	N 5°49.9′
18	286°50.3′	93°05.9′	S 5°52.7′	129°04.7′	N 10°01.4′	356°52.2′	S 22°36.5′	349°24.9′	S 21°22.3′	264°14.9′	N 5°49.7′
19	301°52.7′	108°06.1′	S 5°53.6′	144°04.3′	N 10°00.4′	11°54.5′	S 22°36.5′	4°27.3′	S 21°22.3′	279°18.1′	N 5°49.6′
20	316°55.2′	123°06.3′	S 5°54.6′	159°04.0′	N 9°59.5′	26°56.7′	S 22°36.4′	19°29.7′	S 21°22.3′	294°21.4′	N 5°49.4′
21	331°57.7′	138°06.5′	S 5°55.6′	174°03.6′	N 9°58.5′	41°59.0′	S 22°36.4′	34°32.2′	S 21°22.3′	309°24.6′	N 5°49.2′
22	347°00.1′	153°06.7′	S 5°56.5′	189°03.2′	N 9°57.6′	57°01.2′	S 22°36.4′	49°34.6′	S 21°22.3′	324°27.9′	N 5°49.1′
23	2°02.6′	168°06.8′	S 5°57.5′	204°02.9′	N 9°56.6′	72°03.5′	S 22°36.4′	64°37.0′	S 21°22.3′	339°31.1′	N 5°48.9′
		SD 16.0′ *d* -1.0′		*v* -0.4′ *d* -1.0′		*v* 2.3′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.2′	
Mer. pass.		11 h 47 m 41 s		9 h 23 m		18 h 13 m		18 h 42 m		0 h 27 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Sun	−Pollux	−Capella	−Betelgeuse	+Aldebaran	+Mars	+Achernar	+Fomalhaut
0	307°39.4′	N 20°51.7′	12.2′	6.9′	54.5′		44°10.9′	26°44.8′	24°03.3′		46°38.3′	86°10.1′	94°58.8′
1	322°10.6′	N 20°58.6′	12.1′	6.8′	54.5′		43°41.0′		23°42.0′		47°09.1′	86°27.5′	95°27.6′
2	336°41.7′	N 21°05.4′	12.0′	6.7′	54.5′		43°11.1′		23°20.9′		47°40.0′	86°45.0′	95°56.4′
3	351°12.7′	N 21°12.1′	12.0′	6.6′	54.6′		42°41.2′		23°00.2′		48°10.8′	87°02.5′	96°25.3′
4	5°43.6′	N 21°18.7′	11.9′	6.5′	54.6′		42°11.3′		22°39.8′		48°41.7′	87°20.0′	96°54.2′
5	20°14.5′	N 21°25.3′	11.8′	6.4′	54.6′		41°41.3′		22°19.7′		49°12.5′	87°37.5′	97°23.1′
6	34°45.4′	N 21°31.7′	11.8′	6.3′	54.6′		41°11.4′		21°59.9′		49°43.4′	87°55.0′	97°51.9′
7	49°16.1′	N 21°38.0′	11.7′	6.2′	54.6′		40°41.4′		21°40.6′		50°14.3′	88°12.6′	98°20.9′
8	63°46.8′	N 21°44.3′	11.6′	6.1′	54.6′		40°11.4′		21°21.6′		50°45.3′	88°30.2′	98°49.8′
9	78°17.5′	N 21°50.4′	11.6′	6.0′	54.7′		39°41.4′		21°03.0′		51°16.2′	88°47.8′	99°18.7′
10	92°48.1′	N 21°56.4′	11.5′	5.9′	54.7′	119°40.4′	39°11.4′		20°44.8′		51°47.2′	89°05.4′	99°47.7′
11	107°18.6′	N 22°02.4′	11.4′	5.8′	54.7′	119°12.8′	38°41.3′		20°27.1′	7°12.9′	52°18.2′	89°23.0′	100°16.6′
12	121°49.0′	N 22°08.2′	11.4′	5.7′	54.7′	118°45.1′	38°11.3′		20°09.9′	7°37.3′	52°49.2′	89°40.6′	100°45.6′
13	136°19.4′	N 22°14.0′	11.3′	5.6′	54.7′	118°17.5′	37°41.2′		19°53.1′	8°02.4′	53°20.2′	89°58.2′	101°14.6′
14	150°49.7′	N 22°19.6′	11.3′	5.5′	54.8′	117°49.8′	37°11.2′		19°36.9′	8°28.0′	53°51.2′	90°15.9′	101°43.6′
15	165°20.0′	N 22°25.2′	11.2′	5.4′	54.8′	117°22.1′	36°41.1′		19°21.1′	8°54.1′	54°22.3′	90°33.6′	102°12.6′
16	179°50.1′	N 22°30.6′	11.1′	5.3′	54.8′	116°54.4′	36°11.0′			9°20.7′	54°53.4′	90°51.2′	102°41.7′
17	194°20.3′	N 22°35.9′	11.1′	5.2′	54.8′	116°26.6′	35°40.9′			9°47.7′	55°24.5′	91°08.9′	103°10.7′
18	208°50.3′	N 22°41.2′	11.0′	5.1′	54.8′	115°58.9′	35°10.7′			10°14.9′	55°55.6′	91°26.6′	103°39.8′
19	223°20.3′	N 22°46.3′	10.9′	5.0′	54.9′	115°31.1′	34°40.6′			10°42.5′	56°26.8′	91°44.3′	104°08.9′
20	237°50.3′	N 22°51.3′	10.9′	4.9′	54.9′	115°03.3′	34°10.4′			11°10.3′	56°57.9′	92°02.0′	104°38.0′
21	252°20.1′	N 22°56.2′	10.8′	4.8′	54.9′	114°35.4′	33°40.2′			11°38.4′	57°29.1′	92°19.7′	105°07.1′
22	266°50.0′	N 23°01.0′	10.7′	4.7′	54.9′	114°07.6′	33°10.0′			12°06.7′	58°00.3′	92°37.5′	105°36.2′
23	281°19.7′	N 23°05.7′	10.7′	4.6′	55.0′	113°39.7′	32°39.8′			12°35.1′	58°31.6′	92°55.2′	106°05.3′
Mer. pass. 3 h 36 m SD 14.9′ phase 78%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°11.8′	N 89°20.8′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.3′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Thursday 08 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	17°05.0′	183°07.0′	S 5°58.4′	219°02.5′	N 9°55.6′	87°05.7′	S 22°36.3′	79°39.4′	S 21°22.3′	354°34.3′	N 5°48.8′
1	32°07.5′	198°07.2′	S 5°59.4′	234°02.2′	N 9°54.7′	102°08.0′	S 22°36.3′	94°41.9′	S 21°22.2′	9°37.6′	N 5°48.6′
2	47°10.0′	213°07.4′	S 6°00.3′	249°01.8′	N 9°53.7′	117°10.3′	S 22°36.3′	109°44.3′	S 21°22.2′	24°40.8′	N 5°48.5′
3	62°12.4′	228°07.5′	S 6°01.3′	264°01.4′	N 9°52.8′	132°12.5′	S 22°36.3′	124°46.7′	S 21°22.2′	39°44.1′	N 5°48.3′
4	77°14.9′	243°07.7′	S 6°02.2′	279°01.1′	N 9°51.8′	147°14.8′	S 22°36.2′	139°49.1′	S 21°22.2′	54°47.3′	N 5°48.2′
5	92°17.4′	258°07.9′	S 6°03.2′	294°00.7′	N 9°50.8′	162°17.0′	S 22°36.2′	154°51.6′	S 21°22.2′	69°50.6′	N 5°48.0′
6	107°19.8′	273°08.1′	S 6°04.1′	309°00.3′	N 9°49.9′	177°19.3′	S 22°36.2′	169°54.0′	S 21°22.2′	84°53.8′	N 5°47.8′
7	122°22.3′	288°08.2′	S 6°05.1′	323°60.0′	N 9°48.9′	192°21.5′	S 22°36.2′	184°56.4′	S 21°22.2′	99°57.1′	N 5°47.7′
8	137°24.8′	303°08.4′	S 6°06.0′	338°59.6′	N 9°47.9′	207°23.8′	S 22°36.1′	199°58.8′	S 21°22.2′	115°00.3′	N 5°47.5′
9	152°27.2′	318°08.6′	S 6°07.0′	353°59.3′	N 9°47.0′	222°26.0′	S 22°36.1′	215°01.3′	S 21°22.2′	130°03.6′	N 5°47.4′
10	167°29.7′	333°08.7′	S 6°07.9′	8°58.9′	N 9°46.0′	237°28.3′	S 22°36.1′	230°03.7′	S 21°22.2′	145°06.8′	N 5°47.2′
11	182°32.2′	348°08.9′	S 6°08.9′	23°58.5′	N 9°45.1′	252°30.5′	S 22°36.1′	245°06.1′	S 21°22.2′	160°10.1′	N 5°47.1′
12	197°34.6′	3°09.1′	S 6°09.8′	38°58.2′	N 9°44.1′	267°32.8′	S 22°36.0′	260°08.5′	S 21°22.2′	175°13.3′	N 5°46.9′
13	212°37.1′	18°09.3′	S 6°10.8′	53°57.8′	N 9°43.1′	282°35.0′	S 22°36.0′	275°10.9′	S 21°22.2′	190°16.6′	N 5°46.7′
14	227°39.5′	33°09.4′	S 6°11.7′	68°57.4′	N 9°42.2′	297°37.3′	S 22°36.0′	290°13.4′	S 21°22.2′	205°19.8′	N 5°46.6′
15	242°42.0′	48°09.6′	S 6°12.7′	83°57.1′	N 9°41.2′	312°39.5′	S 22°36.0′	305°15.8′	S 21°22.2′	220°23.1′	N 5°46.4′
16	257°44.5′	63°09.8′	S 6°13.6′	98°56.7′	N 9°40.2′	327°41.8′	S 22°35.9′	320°18.2′	S 21°22.2′	235°26.3′	N 5°46.3′
17	272°46.9′	78°10.0′	S 6°14.6′	113°56.4′	N 9°39.3′	342°44.0′	S 22°35.9′	335°20.6′	S 21°22.2′	250°29.6′	N 5°46.1′
18	287°49.4′	93°10.1′	S 6°15.5′	128°56.0′	N 9°38.3′	357°46.3′	S 22°35.9′	350°23.1′	S 21°22.2′	265°32.8′	N 5°46.0′
19	302°51.9′	108°10.3′	S 6°16.5′	143°55.6′	N 9°37.3′	12°48.5′	S 22°35.9′	5°25.5′	S 21°22.2′	280°36.1′	N 5°45.8′
20	317°54.3′	123°10.5′	S 6°17.4′	158°55.3′	N 9°36.4′	27°50.8′	S 22°35.8′	20°27.9′	S 21°22.2′	295°39.4′	N 5°45.6′
21	332°56.8′	138°10.6′	S 6°18.4′	173°54.9′	N 9°35.4′	42°53.0′	S 22°35.8′	35°30.3′	S 21°22.1′	310°42.6′	N 5°45.5′
22	347°59.3′	153°10.8′	S 6°19.3′	188°54.6′	N 9°34.4′	57°55.3′	S 22°35.8′	50°32.7′	S 21°22.1′	325°45.9′	N 5°45.3′
23	3°01.7′	168°11.0′	S 6°20.3′	203°54.2′	N 9°33.4′	72°57.5′	S 22°35.7′	65°35.2′	S 21°22.1′	340°49.1′	N 5°45.2′
		SD 16.0′ *d* -1.0′		*v* -0.4′ *d* -1.0′		*v* 2.3′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.2′	
Mer. pass.		11 h 47 m 24 s		9 h 24 m		18 h 9 m		18 h 38 m		0 h 22 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Sun	−Regulus	−Procyon	−Pollux	+Aldebaran	+Rigel	+Mars	+Achernar
0	295°49.4′	N 23°10.3′	10.6′	4.5′	55.0′	113°11.8′	68°08.3′	37°14.8′	32°09.6′	13°03.8′		59°02.8′	93°12.9′
1	310°19.0′	N 23°14.8′	10.6′	4.4′	55.0′	112°43.9′	67°37.9′	36°49.0′	31°39.4′	13°32.5′		59°34.1′	93°30.6′
2	324°48.6′	N 23°19.1′	10.5′	4.3′	55.0′	112°15.9′	67°07.5′	36°23.3′	31°09.1′	14°01.5′		60°05.4′	93°48.4′
3	339°18.1′	N 23°23.4′	10.4′	4.1′	55.0′	111°48.0′	66°37.0′	35°57.7′	30°38.8′	14°30.5′		60°36.7′	94°06.1′
4	353°47.5′	N 23°27.5′	10.4′	4.0′	55.1′	111°20.0′	66°06.6′	35°32.2′	30°08.6′	14°59.7′		61°08.1′	94°23.8′
5	8°16.9′	N 23°31.6′	10.3′	3.9′	55.1′	110°52.0′	65°36.1′	35°06.8′	29°38.3′	15°29.0′		61°39.5′	94°41.6′
6	22°46.2′	N 23°35.5′	10.3′	3.8′	55.1′	110°23.9′	65°05.5′	34°41.5′	29°08.0′	15°58.4′		62°10.9′	94°59.3′
7	37°15.5′	N 23°39.3′	10.2′	3.7′	55.1′	109°55.8′	64°35.0′	34°16.3′	28°37.6′	16°27.9′		62°42.3′	95°17.0′
8	51°44.7′	N 23°43.0′	10.1′	3.6′	55.2′	109°27.7′	64°04.4′	33°51.2′	28°07.3′	16°57.4′		63°13.7′	95°34.8′
9	66°13.9′	N 23°46.5′	10.1′	3.5′	55.2′	108°59.6′	63°33.8′	33°26.2′	27°36.9′	17°27.1′		63°45.2′	95°52.5′
10	80°42.9′	N 23°50.0′	10.0′	3.3′	55.2′	108°31.5′	63°03.2′	33°01.4′	27°06.6′	17°56.8′		64°16.7′	96°10.2′
11	95°12.0′	N 23°53.3′	10.0′	3.2′	55.2′	108°03.3′	62°32.5′	32°36.6′	26°36.2′	18°26.7′		64°48.2′	96°28.0′
12	109°41.0′	N 23°56.6′	9.9′	3.1′	55.3′	107°35.1′	62°01.9′	32°12.1′	26°05.8′	18°56.6′		65°19.8′	96°45.7′
13	124°09.9′	N 23°59.7′	9.9′	3.0′	55.3′	107°06.9′	61°31.2′	31°47.6′	25°35.4′	19°26.5′		65°51.4′	97°03.4′
14	138°38.7′	N 24°02.6′	9.8′	2.9′	55.3′	106°38.6′	61°00.4′	31°23.3′	25°05.0′	19°56.6′		66°23.0′	97°21.1′
15	153°07.5′	N 24°05.5′	9.8′	2.7′	55.3′	106°10.3′	60°29.7′	30°59.1′	24°34.5′	20°26.7′		66°54.6′	97°38.8′
16	167°36.3′	N 24°08.2′	9.7′	2.6′	55.4′	105°42.0′	59°58.9′	30°35.2′	24°04.1′	20°56.8′		67°26.3′	97°56.5′
17	182°05.0′	N 24°10.9′	9.6′	2.5′	55.4′	105°13.7′	59°28.1′	30°11.3′	23°33.7′	21°27.1′		67°58.0′	98°14.1′
18	196°33.6′	N 24°13.4′	9.6′	2.4′	55.4′	104°45.3′	58°57.3′	29°47.7′	23°03.2′	21°57.3′		68°29.7′	98°31.8′
19	211°02.2′	N 24°15.8′	9.5′	2.3′	55.4′	104°16.9′	58°26.4′	29°24.2′	22°32.7′	22°27.7′		69°01.5′	98°49.4′
20	225°30.8′	N 24°18.0′	9.5′	2.1′	55.5′	103°48.5′	57°55.5′	29°00.9′	22°02.3′	22°58.1′		69°33.3′	99°07.1′
21	239°59.3′	N 24°20.1′	9.4′	2.0′	55.5′	103°20.0′	57°24.6′	28°37.9′	21°31.8′	23°28.5′		70°05.1′	99°24.7′
22	254°27.7′	N 24°22.1′	9.4′	1.9′	55.5′	102°51.5′	56°53.7′	28°15.0′	21°01.3′	23°59.0′	35°32.6′	70°36.9′	99°42.3′
23	268°56.1′	N 24°24.0′	9.3′	1.8′	55.6′	102°23.0′	56°22.7′	27°52.3′	20°30.8′	24°29.6′	35°47.9′	71°08.8′	99°59.9′
Mer. pass. 4 h 26 m SD 15.0′ phase 70%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.1′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°11.4′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Friday 09 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	18°04.2′	183°11.2′	S 6°21.2′	218°53.8′	N 9°32.5′	87°59.8′	S 22°35.7′	80°37.6′	S 21°22.1′	355°52.4′	N 5°45.0′
1	33°06.7′	198°11.3′	S 6°22.2′	233°53.5′	N 9°31.5′	103°02.0′	S 22°35.7′	95°40.0′	S 21°22.1′	10°55.6′	N 5°44.9′
2	48°09.1′	213°11.5′	S 6°23.1′	248°53.1′	N 9°30.5′	118°04.3′	S 22°35.7′	110°42.4′	S 21°22.1′	25°58.9′	N 5°44.7′
3	63°11.6′	228°11.7′	S 6°24.1′	263°52.7′	N 9°29.6′	133°06.5′	S 22°35.6′	125°44.9′	S 21°22.1′	41°02.1′	N 5°44.5′
4	78°14.0′	243°11.8′	S 6°25.0′	278°52.4′	N 9°28.6′	148°08.8′	S 22°35.6′	140°47.3′	S 21°22.1′	56°05.4′	N 5°44.4′
5	93°16.5′	258°12.0′	S 6°26.0′	293°52.0′	N 9°27.6′	163°11.0′	S 22°35.6′	155°49.7′	S 21°22.1′	71°08.7′	N 5°44.2′
6	108°19.0′	273°12.2′	S 6°26.9′	308°51.7′	N 9°26.6′	178°13.3′	S 22°35.6′	170°52.1′	S 21°22.1′	86°11.9′	N 5°44.1′
7	123°21.4′	288°12.3′	S 6°27.9′	323°51.3′	N 9°25.7′	193°15.5′	S 22°35.5′	185°54.5′	S 21°22.1′	101°15.2′	N 5°43.9′
8	138°23.9′	303°12.5′	S 6°28.8′	338°50.9′	N 9°24.7′	208°17.8′	S 22°35.5′	200°57.0′	S 21°22.1′	116°18.4′	N 5°43.8′
9	153°26.4′	318°12.7′	S 6°29.8′	353°50.6′	N 9°23.7′	223°20.0′	S 22°35.5′	215°59.4′	S 21°22.1′	131°21.7′	N 5°43.6′
10	168°28.8′	333°12.9′	S 6°30.7′	8°50.2′	N 9°22.7′	238°22.2′	S 22°35.5′	231°01.8′	S 21°22.1′	146°24.9′	N 5°43.5′
11	183°31.3′	348°13.0′	S 6°31.7′	23°49.9′	N 9°21.7′	253°24.5′	S 22°35.4′	246°04.2′	S 21°22.1′	161°28.2′	N 5°43.3′
12	198°33.8′	3°13.2′	S 6°32.6′	38°49.5′	N 9°20.8′	268°26.7′	S 22°35.4′	261°06.6′	S 21°22.1′	176°31.5′	N 5°43.1′
13	213°36.2′	18°13.4′	S 6°33.6′	53°49.1′	N 9°19.8′	283°29.0′	S 22°35.4′	276°09.0′	S 21°22.1′	191°34.7′	N 5°43.0′
14	228°38.7′	33°13.5′	S 6°34.5′	68°48.8′	N 9°18.8′	298°31.2′	S 22°35.3′	291°11.5′	S 21°22.0′	206°38.0′	N 5°42.8′
15	243°41.1′	48°13.7′	S 6°35.4′	83°48.4′	N 9°17.8′	313°33.5′	S 22°35.3′	306°13.9′	S 21°22.0′	221°41.2′	N 5°42.7′
16	258°43.6′	63°13.9′	S 6°36.4′	98°48.1′	N 9°16.9′	328°35.7′	S 22°35.3′	321°16.3′	S 21°22.0′	236°44.5′	N 5°42.5′
17	273°46.1′	78°14.0′	S 6°37.3′	113°47.7′	N 9°15.9′	343°37.9′	S 22°35.3′	336°18.7′	S 21°22.0′	251°47.8′	N 5°42.4′
18	288°48.5′	93°14.2′	S 6°38.3′	128°47.4′	N 9°14.9′	358°40.2′	S 22°35.2′	351°21.1′	S 21°22.0′	266°51.0′	N 5°42.2′
19	303°51.0′	108°14.4′	S 6°39.2′	143°47.0′	N 9°13.9′	13°42.4′	S 22°35.2′	6°23.6′	S 21°22.0′	281°54.3′	N 5°42.0′
20	318°53.5′	123°14.5′	S 6°40.2′	158°46.6′	N 9°12.9′	28°44.7′	S 22°35.2′	21°26.0′	S 21°22.0′	296°57.5′	N 5°41.9′
21	333°55.9′	138°14.7′	S 6°41.1′	173°46.3′	N 9°11.9′	43°46.9′	S 22°35.2′	36°28.4′	S 21°22.0′	312°00.8′	N 5°41.7′
22	348°58.4′	153°14.9′	S 6°42.1′	188°45.9′	N 9°11.0′	58°49.2′	S 22°35.1′	51°30.8′	S 21°22.0′	327°04.1′	N 5°41.6′
23	4°00.9′	168°15.0′	S 6°43.0′	203°45.6′	N 9°10.0′	73°51.4′	S 22°35.1′	66°33.2′	S 21°22.0′	342°07.3′	N 5°41.4′
		SD 16.0′ *d* -0.9′		*v* -0.4′ *d* -1.0′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.2′	
Mer. pass.		11 h 47 m 8 s		9 h 25 m		18 h 5 m		18 h 35 m		0 h 16 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Sun	−Regulus	−Procyon	−Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	283°24.4′	N 24°25.8′	9.3′	1.6′	55.6′	101°54.5′	55°51.7′	27°29.9′	20°00.4′			25°00.2′	36°03.4′
1	297°52.7′	N 24°27.4′	9.2′	1.5′	55.6′	101°25.9′	55°20.7′	27°07.8′	19°29.9′			25°30.8′	36°19.3′
2	312°21.0′	N 24°28.9′	9.2′	1.4′	55.6′	100°57.3′	54°49.6′	26°45.8′	18°59.4′			26°01.5′	36°35.5′
3	326°49.2′	N 24°30.3′	9.1′	1.3′	55.7′	100°28.6′	54°18.5′	26°24.2′	18°29.0′			26°32.3′	36°51.9′
4	341°17.3′	N 24°31.6′	9.1′	1.1′	55.7′	99°60.0′	53°47.4′	26°02.8′	17°58.5′			27°03.1′	37°08.7′
5	355°45.4′	N 24°32.7′	9.1′	1.0′	55.7′	99°31.3′	53°16.3′	25°41.7′	17°28.1′	18°56.6′		27°33.9′	37°25.7′
6	10°13.5′	N 24°33.7′	9.0′	0.9′	55.8′	99°02.5′	52°45.1′	25°21.0′	16°57.7′	19°12.0′	26°06.7′	28°04.8′	37°43.1′
7	24°41.5′	N 24°34.5′	9.0′	0.7′	55.8′	98°33.8′	52°13.9′	25°00.5′	16°27.3′	19°27.9′	26°21.8′	28°35.7′	38°00.7′
8	39°09.4′	N 24°35.3′	8.9′	0.6′	55.8′	98°05.0′	51°42.6′	24°40.4′	15°56.9′	19°44.4′	26°37.4′	29°06.7′	38°18.5′
9	53°37.4′	N 24°35.9′	8.9′	0.5′	55.8′	97°36.1′	51°11.4′	24°20.6′	15°26.6′	20°01.6′	26°53.5′	29°37.7′	38°36.6′
10	68°05.3′	N 24°36.3′	8.8′	0.3′	55.9′	97°07.3′	50°40.1′	24°01.2′	14°56.3′	20°19.3′	27°09.9′	30°08.8′	38°55.0′
11	82°33.1′	N 24°36.7′	8.8′	0.2′	55.9′	96°38.3′	50°08.7′	23°42.2′	14°26.0′	20°37.5′	27°26.8′	30°39.9′	39°13.7′
12	97°00.9′	N 24°36.9′	8.8′	0.1′	55.9′	96°09.4′	49°37.4′	23°23.6′	13°55.9′	20°56.3′	27°44.1′	31°11.1′	39°32.5′
13	111°28.7′	N 24°37.0′	8.7′	-0.1′	56.0′	95°40.4′	49°06.0′	23°05.4′	13°25.7′	21°15.5′	28°01.8′	31°42.3′	39°51.7′
14	125°56.4′	N 24°36.9′	8.7′	-0.2′	56.0′	95°11.4′	48°34.5′	22°47.7′	12°55.7′	21°35.3′	28°19.9′	32°13.5′	40°11.0′
15	140°24.1′	N 24°36.7′	8.7′	-0.3′	56.0′	94°42.4′	48°03.1′	22°30.4′	12°25.7′	21°55.5′	28°38.4′	32°44.8′	40°30.6′
16	154°51.7′	N 24°36.4′	8.6′	-0.5′	56.1′	94°13.3′	47°31.6′	22°13.6′	11°55.9′	22°16.1′	28°57.2′	33°16.2′	40°50.5′
17	169°19.4′	N 24°36.0′	8.6′	-0.6′	56.1′	93°44.2′	47°00.1′	21°57.3′	11°26.2′	22°37.2′	29°16.4′	33°47.6′	41°10.5′
18	183°46.9′	N 24°35.4′	8.5′	-0.7′	56.1′	93°15.0′	46°28.5′	21°41.5′	10°56.6′	22°58.7′	29°35.9′	34°19.0′	41°30.8′
19	198°14.5′	N 24°34.6′	8.5′	-0.9′	56.2′	92°45.9′	45°56.9′		10°27.2′	23°20.6′	29°55.8′	34°50.5′	41°51.3′
20	212°42.0′	N 24°33.8′	8.5′	-1.0′	56.2′	92°16.6′	45°25.3′		9°58.0′	23°42.8′	30°16.0′	35°22.0′	42°12.0′
21	227°09.5′	N 24°32.8′	8.5′	-1.1′	56.2′	91°47.4′	44°53.6′		9°29.1′	24°05.5′	30°36.6′	35°53.5′	42°32.9′
22	241°36.9′	N 24°31.7′	8.4′	-1.3′	56.3′	91°18.1′	44°21.9′		9°00.4′	24°28.4′	30°57.4′	36°25.1′	42°54.0′
23	256°04.4′	N 24°30.4′	8.4′	-1.4′	56.3′	90°48.7′	43°50.2′		8°32.1′	24°51.7′	31°18.6′	36°56.8′	43°15.4′
Mer. pass. 5 h 18 m SD 15.2′ phase 60%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.6′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°11.0′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.6′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Saturday 10 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	19°03.3′	183°15.2′	S 6°44.0′	218°45.2′	N 9°09.0′	88°53.6′	S 22°35.1′	81°35.6′	S 21°22.0′	357°10.6′	N 5°41.3′
1	34°05.8′	198°15.4′	S 6°44.9′	233°44.8′	N 9°08.0′	103°55.9′	S 22°35.1′	96°38.1′	S 21°22.0′	12°13.8′	N 5°41.1′
2	49°08.3′	213°15.5′	S 6°45.9′	248°44.5′	N 9°07.0′	118°58.1′	S 22°35.0′	111°40.5′	S 21°22.0′	27°17.1′	N 5°41.0′
3	64°10.7′	228°15.7′	S 6°46.8′	263°44.1′	N 9°06.0′	134°00.4′	S 22°35.0′	126°42.9′	S 21°22.0′	42°20.4′	N 5°40.8′
4	79°13.2′	243°15.9′	S 6°47.7′	278°43.8′	N 9°05.0′	149°02.6′	S 22°35.0′	141°45.3′	S 21°22.0′	57°23.6′	N 5°40.6′
5	94°15.6′	258°16.0′	S 6°48.7′	293°43.4′	N 9°04.1′	164°04.8′	S 22°34.9′	156°47.7′	S 21°22.0′	72°26.9′	N 5°40.5′
6	109°18.1′	273°16.2′	S 6°49.6′	308°43.1′	N 9°03.1′	179°07.1′	S 22°34.9′	171°50.1′	S 21°22.0′	87°30.1′	N 5°40.3′
7	124°20.6′	288°16.3′	S 6°50.6′	323°42.7′	N 9°02.1′	194°09.3′	S 22°34.9′	186°52.6′	S 21°21.9′	102°33.4′	N 5°40.2′
8	139°23.0′	303°16.5′	S 6°51.5′	338°42.3′	N 9°01.1′	209°11.5′	S 22°34.9′	201°55.0′	S 21°21.9′	117°36.7′	N 5°40.0′
9	154°25.5′	318°16.7′	S 6°52.5′	353°42.0′	N 9°00.1′	224°13.8′	S 22°34.8′	216°57.4′	S 21°21.9′	132°39.9′	N 5°39.9′
10	169°28.0′	333°16.8′	S 6°53.4′	8°41.6′	N 8°59.1′	239°16.0′	S 22°34.8′	231°59.8′	S 21°21.9′	147°43.2′	N 5°39.7′
11	184°30.4′	348°17.0′	S 6°54.4′	23°41.3′	N 8°58.1′	254°18.3′	S 22°34.8′	247°02.2′	S 21°21.9′	162°46.5′	N 5°39.6′
12	199°32.9′	3°17.2′	S 6°55.3′	38°40.9′	N 8°57.1′	269°20.5′	S 22°34.7′	262°04.6′	S 21°21.9′	177°49.7′	N 5°39.4′
13	214°35.4′	18°17.3′	S 6°56.2′	53°40.6′	N 8°56.1′	284°22.7′	S 22°34.7′	277°07.0′	S 21°21.9′	192°53.0′	N 5°39.2′
14	229°37.8′	33°17.5′	S 6°57.2′	68°40.2′	N 8°55.2′	299°25.0′	S 22°34.7′	292°09.5′	S 21°21.9′	207°56.3′	N 5°39.1′
15	244°40.3′	48°17.7′	S 6°58.1′	83°39.8′	N 8°54.2′	314°27.2′	S 22°34.7′	307°11.9′	S 21°21.9′	222°59.5′	N 5°38.9′
16	259°42.8′	63°17.8′	S 6°59.1′	98°39.5′	N 8°53.2′	329°29.4′	S 22°34.6′	322°14.3′	S 21°21.9′	238°02.8′	N 5°38.8′
17	274°45.2′	78°18.0′	S 7°00.0′	113°39.1′	N 8°52.2′	344°31.7′	S 22°34.6′	337°16.7′	S 21°21.9′	253°06.0′	N 5°38.6′
18	289°47.7′	93°18.1′	S 7°01.0′	128°38.8′	N 8°51.2′	359°33.9′	S 22°34.6′	352°19.1′	S 21°21.9′	268°09.3′	N 5°38.5′
19	304°50.1′	108°18.3′	S 7°01.9′	143°38.4′	N 8°50.2′	14°36.1′	S 22°34.6′	7°21.5′	S 21°21.9′	283°12.6′	N 5°38.3′
20	319°52.6′	123°18.5′	S 7°02.8′	158°38.1′	N 8°49.2′	29°38.4′	S 22°34.5′	22°23.9′	S 21°21.9′	298°15.8′	N 5°38.2′
21	334°55.1′	138°18.6′	S 7°03.8′	173°37.7′	N 8°48.2′	44°40.6′	S 22°34.5′	37°26.3′	S 21°21.9′	313°19.1′	N 5°38.0′
22	349°57.5′	153°18.8′	S 7°04.7′	188°37.3′	N 8°47.2′	59°42.8′	S 22°34.5′	52°28.8′	S 21°21.8′	328°22.4′	N 5°37.8′
23	5°00.0′	168°18.9′	S 7°05.7′	203°37.0′	N 8°46.2′	74°45.1′	S 22°34.4′	67°31.2′	S 21°21.8′	343°25.6′	N 5°37.7′
		SD 16.0′ *d* -0.9′		*v* -0.4′ *d* -1.0′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.2′	
Mer. pass.		11 h 46 m 52 s		9 h 25 m		18 h 2 m		18 h 31 m		0 h 11 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Sun	−Venus	−Regulus	−Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	270°31.8′	N 24°29.0′	8.4′	-1.5′	56.3′	90°19.4′	51°33.0′	43°18.5′	8°04.2′	25°15.4′	31°40.0′	37°28.5′	43°36.9′
1	284°59.1′	N 24°27.4′	8.3′	-1.7′	56.4′	89°50.0′	51°04.1′	42°46.7′	7°36.8′	25°39.3′	32°01.7′	38°00.2′	43°58.6′
2	299°26.5′	N 24°25.8′	8.3′	-1.8′	56.4′	89°20.5′	50°35.1′	42°14.8′	7°10.0′	26°03.5′	32°23.7′	38°32.0′	44°20.5′
3	313°53.8′	N 24°23.9′	8.3′	-2.0′	56.4′	88°51.0′	50°06.2′	41°43.0′		26°28.1′	32°46.0′	39°03.8′	44°42.6′
4	328°21.1′	N 24°22.0′	8.3′	-2.1′	56.5′	88°21.5′	49°37.1′	41°11.1′		26°52.9′	33°08.6′	39°35.7′	45°04.9′
5	342°48.3′	N 24°19.9′	8.2′	-2.2′	56.5′	87°51.9′	49°08.1′	40°39.1′		27°17.9′	33°31.4′	40°07.6′	45°27.4′
6	357°15.6′	N 24°17.7′	8.2′	-2.4′	56.5′	87°22.3′	48°39.0′	40°07.2′		27°43.3′	33°54.5′	40°39.5′	45°50.0′
7	11°42.8′	N 24°15.3′	8.2′	-2.5′	56.6′	86°52.7′	48°09.9′	39°35.2′		28°08.8′	34°17.8′	41°11.5′	46°12.8′
8	26°10.0′	N 24°12.8′	8.2′	-2.6′	56.6′	86°23.0′	47°40.7′	39°03.1′		28°34.6′	34°41.3′	41°43.6′	46°35.8′
9	40°37.1′	N 24°10.2′	8.2′	-2.8′	56.6′	85°53.3′	47°11.5′	38°31.1′		29°00.7′	35°05.1′	42°15.7′	46°59.0′
10	55°04.3′	N 24°07.4′	8.1′	-2.9′	56.7′	85°23.5′	46°42.3′	37°59.0′		29°26.9′	35°29.1′	42°47.8′	47°22.3′
11	69°31.4′	N 24°04.5′	8.1′	-3.1′	56.7′	84°53.7′	46°13.0′	37°26.8′		29°53.4′	35°53.3′	43°20.0′	47°45.8′
12	83°58.5′	N 24°01.4′	8.1′	-3.2′	56.7′	84°23.8′	45°43.7′	36°54.6′		30°20.1′	36°17.7′	43°52.2′	48°09.5′
13	98°25.6′	N 23°58.2′	8.1′	-3.3′	56.8′	83°53.9′	45°14.4′	36°22.4′		30°47.0′	36°42.4′	44°24.5′	48°33.3′
14	112°52.7′	N 23°54.8′	8.1′	-3.5′	56.8′	83°24.0′	44°45.0′	35°50.2′		31°14.0′	37°07.2′	44°56.8′	48°57.2′
15	127°19.8′	N 23°51.4′	8.1′	-3.6′	56.9′	82°54.0′	44°15.5′	35°17.9′		31°41.3′	37°32.3′	45°29.2′	49°21.4′
16	141°46.9′	N 23°47.8′	8.0′	-3.8′	56.9′	82°24.0′	43°46.1′	34°45.6′		32°08.7′	37°57.5′	46°01.6′	49°45.6′
17	156°13.9′	N 23°44.0′	8.0′	-3.9′	56.9′	81°54.0′	43°16.5′	34°13.2′		32°36.4′	38°23.0′	46°34.0′	50°10.0′
18	170°40.9′	N 23°40.1′	8.0′	-4.0′	57.0′	81°23.9′	42°47.0′	33°40.8′		33°04.2′	38°48.6′	47°06.5′	50°34.6′
19	185°07.9′	N 23°36.1′	8.0′	-4.2′	57.0′	80°53.7′	42°17.4′	33°08.4′		33°32.1′	39°14.4′	47°39.1′	50°59.3′
20	199°35.0′	N 23°31.9′	8.0′	-4.3′	57.0′	80°23.5′	41°47.8′	32°35.9′		34°00.3′	39°40.4′	48°11.6′	51°24.2′
21	214°02.0′	N 23°27.6′	8.0′	-4.5′	57.1′	79°53.3′	41°18.1′	32°03.4′		34°28.6′	40°06.6′	48°44.3′	51°49.1′
22	228°29.0′	N 23°23.1′	8.0′	-4.6′	57.1′	79°23.0′	40°48.4′	31°30.9′		34°57.0′	40°32.9′	49°17.0′	52°14.3′
23	242°55.9′	N 23°18.5′	8.0′	-4.7′	57.1′	78°52.7′	40°18.6′	30°58.4′		35°25.6′	40°59.4′	49°49.7′	52°39.5′
Mer. pass. 6 h 11 m SD 15.4′ phase 50%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.8′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°10.7′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Sunday 11 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	20°02.5′	183°19.1′	S 7°06.6′	218°36.6′	N 8°45.2′	89°47.3′	S 22°34.4′	82°33.6′	S 21°21.8′	358°28.9′	N 5°37.5′
1	35°04.9′	198°19.3′	S 7°07.6′	233°36.3′	N 8°44.2′	104°49.5′	S 22°34.4′	97°36.0′	S 21°21.8′	13°32.2′	N 5°37.4′
2	50°07.4′	213°19.4′	S 7°08.5′	248°35.9′	N 8°43.2′	119°51.8′	S 22°34.4′	112°38.4′	S 21°21.8′	28°35.4′	N 5°37.2′
3	65°09.9′	228°19.6′	S 7°09.4′	263°35.6′	N 8°42.2′	134°54.0′	S 22°34.3′	127°40.8′	S 21°21.8′	43°38.7′	N 5°37.1′
4	80°12.3′	243°19.7′	S 7°10.4′	278°35.2′	N 8°41.2′	149°56.2′	S 22°34.3′	142°43.2′	S 21°21.8′	58°42.0′	N 5°36.9′
5	95°14.8′	258°19.9′	S 7°11.3′	293°34.9′	N 8°40.2′	164°58.5′	S 22°34.3′	157°45.6′	S 21°21.8′	73°45.2′	N 5°36.8′
6	110°17.3′	273°20.1′	S 7°12.3′	308°34.5′	N 8°39.2′	180°00.7′	S 22°34.2′	172°48.1′	S 21°21.8′	88°48.5′	N 5°36.6′
7	125°19.7′	288°20.2′	S 7°13.2′	323°34.1′	N 8°38.2′	195°02.9′	S 22°34.2′	187°50.5′	S 21°21.8′	103°51.8′	N 5°36.5′
8	140°22.2′	303°20.4′	S 7°14.1′	338°33.8′	N 8°37.2′	210°05.2′	S 22°34.2′	202°52.9′	S 21°21.8′	118°55.0′	N 5°36.3′
9	155°24.6′	318°20.5′	S 7°15.1′	353°33.4′	N 8°36.2′	225°07.4′	S 22°34.2′	217°55.3′	S 21°21.8′	133°58.3′	N 5°36.1′
10	170°27.1′	333°20.7′	S 7°16.0′	8°33.1′	N 8°35.2′	240°09.6′	S 22°34.1′	232°57.7′	S 21°21.8′	149°01.6′	N 5°36.0′
11	185°29.6′	348°20.9′	S 7°17.0′	23°32.7′	N 8°34.2′	255°11.8′	S 22°34.1′	248°00.1′	S 21°21.8′	164°04.8′	N 5°35.8′
12	200°32.0′	3°21.0′	S 7°17.9′	38°32.4′	N 8°33.2′	270°14.1′	S 22°34.1′	263°02.5′	S 21°21.7′	179°08.1′	N 5°35.7′
13	215°34.5′	18°21.2′	S 7°18.8′	53°32.0′	N 8°32.2′	285°16.3′	S 22°34.0′	278°04.9′	S 21°21.7′	194°11.4′	N 5°35.5′
14	230°37.0′	33°21.3′	S 7°19.8′	68°31.7′	N 8°31.2′	300°18.5′	S 22°34.0′	293°07.3′	S 21°21.7′	209°14.6′	N 5°35.4′
15	245°39.4′	48°21.5′	S 7°20.7′	83°31.3′	N 8°30.2′	315°20.8′	S 22°34.0′	308°09.7′	S 21°21.7′	224°17.9′	N 5°35.2′
16	260°41.9′	63°21.6′	S 7°21.7′	98°30.9′	N 8°29.2′	330°23.0′	S 22°33.9′	323°12.2′	S 21°21.7′	239°21.2′	N 5°35.1′
17	275°44.4′	78°21.8′	S 7°22.6′	113°30.6′	N 8°28.2′	345°25.2′	S 22°33.9′	338°14.6′	S 21°21.7′	254°24.4′	N 5°34.9′
18	290°46.8′	93°22.0′	S 7°23.5′	128°30.2′	N 8°27.2′	0°27.4′	S 22°33.9′	353°17.0′	S 21°21.7′	269°27.7′	N 5°34.8′
19	305°49.3′	108°22.1′	S 7°24.5′	143°29.9′	N 8°26.2′	15°29.7′	S 22°33.9′	8°19.4′	S 21°21.7′	284°31.0′	N 5°34.6′
20	320°51.7′	123°22.3′	S 7°25.4′	158°29.5′	N 8°25.2′	30°31.9′	S 22°33.8′	23°21.8′	S 21°21.7′	299°34.2′	N 5°34.5′
21	335°54.2′	138°22.4′	S 7°26.3′	173°29.2′	N 8°24.2′	45°34.1′	S 22°33.8′	38°24.2′	S 21°21.7′	314°37.5′	N 5°34.3′
22	350°56.7′	153°22.6′	S 7°27.3′	188°28.8′	N 8°23.1′	60°36.3′	S 22°33.8′	53°26.6′	S 21°21.7′	329°40.8′	N 5°34.2′
23	5°59.1′	168°22.7′	S 7°28.2′	203°28.5′	N 8°22.1′	75°38.6′	S 22°33.7′	68°29.0′	S 21°21.7′	344°44.0′	N 5°34.0′
		SD 16.0′ *d* -0.9′		*v* -0.4′ *d* -1.0′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.2′	
Mer. pass.		11 h 46 m 37 s		9 h 26 m		17 h 58 m		18 h 27 m		0 h 6 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Acrux	−Sun	−Venus	−Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella
0	257°22.9′	N 23°13.8′	8.0′	-4.9′	57.2′	99°55.1′	78°22.3′	39°48.9′	30°25.8′			35°54.3′	41°26.0′
1	271°49.9′	N 23°08.9′	8.0′	-5.0′	57.2′	99°37.3′	77°51.9′	39°19.0′	29°53.1′	7°40.2′		36°23.2′	41°52.8′
2	286°16.9′	N 23°03.9′	8.0′	-5.2′	57.3′	99°19.3′	77°21.5′	38°49.2′	29°20.5′	8°08.6′		36°52.2′	42°19.8′
3	300°43.8′	N 22°58.7′	8.0′	-5.3′	57.3′	99°01.4′	76°51.0′	38°19.2′	28°47.8′	8°37.5′		37°21.4′	42°46.9′
4	315°10.8′	N 22°53.4′	8.0′	-5.4′	57.3′	98°43.3′	76°20.4′	37°49.3′	28°15.1′	9°07.0′		37°50.6′	43°14.2′
5	329°37.7′	N 22°48.0′	8.0′	-5.6′	57.4′	98°25.2′	75°49.9′	37°19.3′	27°42.3′	9°36.9′		38°20.1′	43°41.6′
6	344°04.7′	N 22°42.4′	8.0′	-5.7′	57.4′	98°07.1′	75°19.2′	36°49.3′	27°09.5′	10°07.2′		38°49.6′	44°09.2′
7	358°31.7′	N 22°36.7′	8.0′	-5.8′	57.5′	97°48.9′	74°48.5′	36°19.2′	26°36.7′	10°37.8′		39°19.3′	44°36.9′
8	12°58.6′	N 22°30.9′	8.0′	-6.0′	57.5′	97°30.6′	74°17.8′	35°49.1′	26°03.9′	11°08.8′		39°49.0′	45°04.7′
9	27°25.6′	N 22°24.9′	8.0′	-6.1′	57.5′	97°12.3′	73°47.0′	35°18.9′	25°31.0′	11°39.9′	21°16.5′	40°19.0′	45°32.7′
10	41°52.5′	N 22°18.8′	8.0′	-6.3′	57.6′	96°53.9′	73°16.2′	34°48.7′	24°58.1′	12°11.3′	21°32.1′	40°49.0′	46°00.8′
11	56°19.5′	N 22°12.5′	8.0′	-6.4′	57.6′	96°35.5′	72°45.4′	34°18.5′	24°25.2′	12°43.0′	21°48.4′	41°19.1′	46°29.0′
12	70°46.5′	N 22°06.1′	8.0′	-6.5′	57.7′	96°17.0′	72°14.5′	33°48.2′	23°52.3′	13°14.8′	22°05.4′	41°49.3′	46°57.4′
13	85°13.4′	N 21°59.6′	8.0′	-6.7′	57.7′	95°58.4′	71°43.5′	33°17.9′	23°19.3′	13°46.8′	22°22.9′	42°19.7′	47°25.9′
14	99°40.4′	N 21°52.9′	8.0′	-6.8′	57.7′	95°39.9′	71°12.5′	32°47.5′	22°46.3′	14°18.9′	22°41.1′	42°50.2′	47°54.5′
15	114°07.4′	N 21°46.1′	8.0′	-6.9′	57.8′	95°21.2′	70°41.5′	32°17.1′	22°13.3′	14°51.2′	22°59.8′	43°20.7′	48°23.3′
16	128°34.4′	N 21°39.2′	8.0′	-7.1′	57.8′	95°02.6′	70°10.4′	31°46.7′	21°40.3′	15°23.7′	23°19.1′	43°51.4′	48°52.1′
17	143°01.4′	N 21°32.1′	8.0′	-7.2′	57.8′	94°43.8′	69°39.2′	31°16.2′	21°07.3′	15°56.2′	23°38.9′	44°22.2′	49°21.1′
18	157°28.4′	N 21°24.9′	8.0′	-7.3′	57.9′	94°25.0′	69°08.0′	30°45.7′	20°34.3′	16°28.9′	23°59.3′	44°53.0′	49°50.2′
19	171°55.4′	N 21°17.5′	8.0′	-7.5′	57.9′	94°06.2′	68°36.8′	30°15.1′	20°01.2′	17°01.7′	24°20.1′	45°24.0′	50°19.4′
20	186°22.4′	N 21°10.0′	8.0′	-7.6′	58.0′	93°47.4′	68°05.5′	29°44.5′	19°28.2′	17°34.6′	24°41.4′	45°55.1′	50°48.7′
21	200°49.4′	N 21°02.4′	8.0′	-7.8′	58.0′	93°28.5′	67°34.2′	29°13.9′	18°55.1′	18°07.7′	25°03.2′	46°26.2′	51°18.1′
22	215°16.5′	N 20°54.7′	8.1′	-7.9′	58.0′	93°09.5′	67°02.8′	28°43.2′	18°22.1′	18°40.8′	25°25.4′	46°57.5′	51°47.6′
23	229°43.5′	N 20°46.8′	8.1′	-8.0′	58.1′	92°50.5′	66°31.4′	28°12.5′	17°49.0′	19°14.0′	25°48.1′	47°28.8′	52°17.3′
Mer. pass. 7 h 6 m SD 15.6′ phase 40%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.4′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°10.4′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Monday 12 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	21°01.6′	183°22.9′	S 7°29.2′	218°28.1′	N 8°21.1′	90°40.8′	S 22°33.7′	83°31.4′	S 21°21.7′	359°47.3′	N 5°33.8′
1	36°04.1′	198°23.0′	S 7°30.1′	233°27.8′	N 8°20.1′	105°43.0′	S 22°33.7′	98°33.8′	S 21°21.6′	14°50.6′	N 5°33.7′
2	51°06.5′	213°23.2′	S 7°31.0′	248°27.4′	N 8°19.1′	120°45.2′	S 22°33.7′	113°36.2′	S 21°21.6′	29°53.8′	N 5°33.5′
3	66°09.0′	228°23.4′	S 7°32.0′	263°27.1′	N 8°18.1′	135°47.5′	S 22°33.6′	128°38.6′	S 21°21.6′	44°57.1′	N 5°33.4′
4	81°11.5′	243°23.5′	S 7°32.9′	278°26.7′	N 8°17.1′	150°49.7′	S 22°33.6′	143°41.1′	S 21°21.6′	60°00.4′	N 5°33.2′
5	96°13.9′	258°23.7′	S 7°33.8′	293°26.3′	N 8°16.1′	165°51.9′	S 22°33.6′	158°43.5′	S 21°21.6′	75°03.7′	N 5°33.1′
6	111°16.4′	273°23.8′	S 7°34.8′	308°26.0′	N 8°15.1′	180°54.1′	S 22°33.5′	173°45.9′	S 21°21.6′	90°06.9′	N 5°32.9′
7	126°18.9′	288°24.0′	S 7°35.7′	323°25.6′	N 8°14.1′	195°56.4′	S 22°33.5′	188°48.3′	S 21°21.6′	105°10.2′	N 5°32.8′
8	141°21.3′	303°24.1′	S 7°36.7′	338°25.3′	N 8°13.0′	210°58.6′	S 22°33.5′	203°50.7′	S 21°21.6′	120°13.5′	N 5°32.6′
9	156°23.8′	318°24.3′	S 7°37.6′	353°24.9′	N 8°12.0′	226°00.8′	S 22°33.4′	218°53.1′	S 21°21.6′	135°16.7′	N 5°32.5′
10	171°26.2′	333°24.4′	S 7°38.5′	8°24.6′	N 8°11.0′	241°03.0′	S 22°33.4′	233°55.5′	S 21°21.6′	150°20.0′	N 5°32.3′
11	186°28.7′	348°24.6′	S 7°39.5′	23°24.2′	N 8°10.0′	256°05.2′	S 22°33.4′	248°57.9′	S 21°21.6′	165°23.3′	N 5°32.2′
12	201°31.2′	3°24.7′	S 7°40.4′	38°23.9′	N 8°09.0′	271°07.5′	S 22°33.4′	264°00.3′	S 21°21.6′	180°26.5′	N 5°32.0′
13	216°33.6′	18°24.9′	S 7°41.3′	53°23.5′	N 8°08.0′	286°09.7′	S 22°33.3′	279°02.7′	S 21°21.5′	195°29.8′	N 5°31.9′
14	231°36.1′	33°25.0′	S 7°42.3′	68°23.2′	N 8°07.0′	301°11.9′	S 22°33.3′	294°05.1′	S 21°21.5′	210°33.1′	N 5°31.7′
15	246°38.6′	48°25.2′	S 7°43.2′	83°22.8′	N 8°05.9′	316°14.1′	S 22°33.3′	309°07.5′	S 21°21.5′	225°36.3′	N 5°31.6′
16	261°41.0′	63°25.3′	S 7°44.1′	98°22.5′	N 8°04.9′	331°16.4′	S 22°33.2′	324°09.9′	S 21°21.5′	240°39.6′	N 5°31.4′
17	276°43.5′	78°25.5′	S 7°45.1′	113°22.1′	N 8°03.9′	346°18.6′	S 22°33.2′	339°12.3′	S 21°21.5′	255°42.9′	N 5°31.3′
18	291°46.0′	93°25.6′	S 7°46.0′	128°21.8′	N 8°02.9′	1°20.8′	S 22°33.2′	354°14.7′	S 21°21.5′	270°46.1′	N 5°31.1′
19	306°48.4′	108°25.8′	S 7°46.9′	143°21.4′	N 8°01.9′	16°23.0′	S 22°33.1′	9°17.1′	S 21°21.5′	285°49.4′	N 5°31.0′
20	321°50.9′	123°25.9′	S 7°47.9′	158°21.1′	N 8°00.9′	31°25.2′	S 22°33.1′	24°19.5′	S 21°21.5′	300°52.7′	N 5°30.8′
21	336°53.4′	138°26.1′	S 7°48.8′	173°20.7′	N 7°59.8′	46°27.4′	S 22°33.1′	39°22.0′	S 21°21.5′	315°55.9′	N 5°30.7′
22	351°55.8′	153°26.2′	S 7°49.7′	188°20.4′	N 7°58.8′	61°29.7′	S 22°33.1′	54°24.4′	S 21°21.5′	330°59.2′	N 5°30.5′
23	6°58.3′	168°26.4′	S 7°50.7′	203°20.0′	N 7°57.8′	76°31.9′	S 22°33.0′	69°26.8′	S 21°21.5′	346°02.5′	N 5°30.4′
		SD 16.0′ *d* -0.9′		*v* -0.4′ *d* -1.0′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.2′	
Mer. pass.		11 h 46 m 22 s		9 h 26 m		17 h 55 m		18 h 23 m		0 h 1 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Acrux	−Sun	−Venus	−Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius
0	244°10.6′	N 20°38.8′	8.1′	-8.1′	58.1′	92°31.5′	65°59.9′	27°41.8′	17°16.0′	19°47.3′	26°11.2′	48°00.3′	50°59.4′
1	258°37.7′	N 20°30.6′	8.1′	-8.3′	58.2′	92°12.4′	65°28.4′	27°11.0′	16°43.0′	20°20.7′	26°34.7′	48°31.8′	51°17.5′
2	273°04.8′	N 20°22.3′	8.1′	-8.4′	58.2′	91°53.3′	64°56.8′	26°40.2′	16°10.0′	20°54.2′	26°58.5′	49°03.4′	51°35.7′
3	287°31.9′	N 20°13.9′	8.1′	-8.5′	58.2′	91°34.2′	64°25.2′	26°09.3′	15°37.1′	21°27.7′	27°22.8′	49°35.1′	51°54.2′
4	301°59.0′	N 20°05.4′	8.1′	-8.7′	58.3′	91°15.0′	63°53.5′	25°38.4′	15°04.2′	22°01.4′	27°47.4′	50°06.9′	52°12.9′
5	316°26.1′	N 19°56.7′	8.1′	-8.8′	58.3′	90°55.8′	63°21.8′	25°07.5′	14°31.3′	22°35.1′	28°12.3′	50°38.8′	52°31.9′
6	330°53.2′	N 19°47.9′	8.2′	-8.9′	58.4′	90°36.6′	62°50.0′	24°36.6′	13°58.5′	23°08.9′	28°37.6′	51°10.8′	52°51.0′
7	345°20.4′	N 19°39.0′	8.2′	-9.1′	58.4′	90°17.3′	62°18.2′	24°05.6′	13°25.8′	23°42.8′	29°03.2′	51°42.8′	53°10.3′
8	359°47.6′	N 19°29.9′	8.2′	-9.2′	58.4′	89°58.0′	61°46.3′	23°34.6′	12°53.2′	24°16.7′	29°29.1′	52°15.0′	53°29.9′
9	14°14.8′	N 19°20.7′	8.2′	-9.3′	58.5′	89°38.7′	61°14.4′	23°03.6′	12°20.8′	24°50.8′	29°55.3′	52°47.2′	53°49.6′
10	28°42.0′	N 19°11.4′	8.2′	-9.4′	58.5′	89°19.4′	60°42.5′	22°32.5′	11°48.4′	25°24.8′	30°21.8′	53°19.5′	54°09.5′
11	43°09.2′	N 19°02.0′	8.2′	-9.6′	58.6′	89°00.0′	60°10.5′	22°01.4′	11°16.3′	25°59.0′	30°48.6′	53°51.8′	54°29.7′
12	57°36.4′	N 18°52.4′	8.3′	-9.7′	58.6′	88°40.6′	59°38.4′	21°30.3′	10°44.3′	26°33.2′	31°15.6′	54°24.3′	54°50.0′
13	72°03.7′	N 18°42.7′	8.3′	-9.8′	58.7′	88°21.2′	59°06.3′	20°59.2′	10°12.6′	27°07.5′	31°42.9′	54°56.8′	55°10.5′
14	86°30.9′	N 18°32.9′	8.3′	-9.9′	58.7′	88°01.7′	58°34.2′	20°28.0′	9°41.2′	27°41.9′	32°10.5′	55°29.4′	55°31.2′
15	100°58.2′	N 18°23.0′	8.3′	-10.1′	58.7′	87°42.3′	58°02.0′	19°56.8′	9°10.2′	28°16.3′	32°38.3′	56°02.1′	55°52.1′
16	115°25.5′	N 18°12.9′	8.3′	-10.2′	58.8′	87°22.8′	57°29.7′	19°25.7′	8°39.5′	28°50.8′	33°06.3′	56°34.8′	56°13.2′
17	129°52.8′	N 18°02.7′	8.3′	-10.3′	58.8′	87°03.3′	56°57.4′	18°54.5′	8°09.4′	29°25.3′	33°34.6′	57°07.6′	56°34.4′
18	144°20.2′	N 17°52.4′	8.4′	-10.4′	58.8′	86°43.8′	56°25.1′	18°23.3′	7°39.9′	29°59.9′	34°03.1′	57°40.5′	56°55.9′
19	158°47.5′	N 17°42.0′	8.4′	-10.5′	58.9′	86°24.3′	55°52.7′	17°52.1′		30°34.6′	34°31.8′	58°13.5′	57°17.5′
20	173°14.9′	N 17°31.5′	8.4′	-10.7′	58.9′	86°04.7′	55°20.2′	17°20.8′		31°09.3′	35°00.7′	58°46.6′	57°39.2′
21	187°42.3′	N 17°20.8′	8.4′	-10.8′	59.0′	85°45.2′	54°47.7′	16°49.6′		31°44.1′	35°29.9′	59°19.7′	58°01.2′
22	202°09.7′	N 17°10.1′	8.4′	-10.9′	59.0′	85°25.6′	54°15.2′	16°18.5′		32°19.0′	35°59.2′	59°52.9′	58°23.3′
23	216°37.2′	N 16°59.2′	8.5′	-11.0′	59.0′	85°06.1′	53°42.6′	15°47.3′		32°53.9′	36°28.7′	60°26.1′	58°45.6′
Mer. pass. 8 h 1 m SD 15.9′ phase 30%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.4′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°10.1′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Tuesday 13 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	22°00.7′	183°26.5′	S 7°51.6′	218°19.7′	N 7°56.8′	91°34.1′	S 22°33.0′	84°29.2′	S 21°21.5′	1°05.7′	N 5°30.2′
1	37°03.2′	198°26.7′	S 7°52.5′	233°19.3′	N 7°55.8′	106°36.3′	S 22°33.0′	99°31.6′	S 21°21.4′	16°09.0′	N 5°30.1′
2	52°05.7′	213°26.8′	S 7°53.5′	248°18.9′	N 7°54.7′	121°38.5′	S 22°32.9′	114°34.0′	S 21°21.4′	31°12.3′	N 5°29.9′
3	67°08.1′	228°27.0′	S 7°54.4′	263°18.6′	N 7°53.7′	136°40.8′	S 22°32.9′	129°36.4′	S 21°21.4′	46°15.5′	N 5°29.8′
4	82°10.6′	243°27.1′	S 7°55.3′	278°18.2′	N 7°52.7′	151°43.0′	S 22°32.9′	144°38.8′	S 21°21.4′	61°18.8′	N 5°29.6′
5	97°13.1′	258°27.3′	S 7°56.3′	293°17.9′	N 7°51.7′	166°45.2′	S 22°32.8′	159°41.2′	S 21°21.4′	76°22.1′	N 5°29.5′
6	112°15.5′	273°27.4′	S 7°57.2′	308°17.5′	N 7°50.6′	181°47.4′	S 22°32.8′	174°43.6′	S 21°21.4′	91°25.4′	N 5°29.3′
7	127°18.0′	288°27.6′	S 7°58.1′	323°17.2′	N 7°49.6′	196°49.6′	S 22°32.8′	189°46.0′	S 21°21.4′	106°28.6′	N 5°29.2′
8	142°20.5′	303°27.7′	S 7°59.1′	338°16.8′	N 7°48.6′	211°51.8′	S 22°32.7′	204°48.4′	S 21°21.4′	121°31.9′	N 5°29.0′
9	157°22.9′	318°27.9′	S 8°00.0′	353°16.5′	N 7°47.6′	226°54.0′	S 22°32.7′	219°50.8′	S 21°21.4′	136°35.2′	N 5°28.9′
10	172°25.4′	333°28.0′	S 8°00.9′	8°16.1′	N 7°46.5′	241°56.3′	S 22°32.7′	234°53.2′	S 21°21.4′	151°38.4′	N 5°28.7′
11	187°27.8′	348°28.2′	S 8°01.9′	23°15.8′	N 7°45.5′	256°58.5′	S 22°32.6′	249°55.6′	S 21°21.4′	166°41.7′	N 5°28.6′
12	202°30.3′	3°28.3′	S 8°02.8′	38°15.4′	N 7°44.5′	272°00.7′	S 22°32.6′	264°58.0′	S 21°21.4′	181°45.0′	N 5°28.4′
13	217°32.8′	18°28.5′	S 8°03.7′	53°15.1′	N 7°43.5′	287°02.9′	S 22°32.6′	280°00.4′	S 21°21.3′	196°48.2′	N 5°28.3′
14	232°35.2′	33°28.6′	S 8°04.7′	68°14.7′	N 7°42.4′	302°05.1′	S 22°32.6′	295°02.8′	S 21°21.3′	211°51.5′	N 5°28.1′
15	247°37.7′	48°28.8′	S 8°05.6′	83°14.4′	N 7°41.4′	317°07.3′	S 22°32.5′	310°05.2′	S 21°21.3′	226°54.8′	N 5°28.0′
16	262°40.2′	63°28.9′	S 8°06.5′	98°14.0′	N 7°40.4′	332°09.5′	S 22°32.5′	325°07.6′	S 21°21.3′	241°58.0′	N 5°27.8′
17	277°42.6′	78°29.1′	S 8°07.5′	113°13.7′	N 7°39.4′	347°11.8′	S 22°32.5′	340°10.0′	S 21°21.3′	257°01.3′	N 5°27.7′
18	292°45.1′	93°29.2′	S 8°08.4′	128°13.3′	N 7°38.3′	2°14.0′	S 22°32.4′	355°12.4′	S 21°21.3′	272°04.6′	N 5°27.5′
19	307°47.6′	108°29.3′	S 8°09.3′	143°13.0′	N 7°37.3′	17°16.2′	S 22°32.4′	10°14.8′	S 21°21.3′	287°07.8′	N 5°27.4′
20	322°50.0′	123°29.5′	S 8°10.2′	158°12.6′	N 7°36.3′	32°18.4′	S 22°32.4′	25°17.2′	S 21°21.3′	302°11.1′	N 5°27.2′
21	337°52.5′	138°29.6′	S 8°11.2′	173°12.3′	N 7°35.2′	47°20.6′	S 22°32.3′	40°19.6′	S 21°21.3′	317°14.4′	N 5°27.1′
22	352°55.0′	153°29.8′	S 8°12.1′	188°11.9′	N 7°34.2′	62°22.8′	S 22°32.3′	55°22.0′	S 21°21.3′	332°17.6′	N 5°26.9′
23	7°57.4′	168°29.9′	S 8°13.0′	203°11.6′	N 7°33.2′	77°25.0′	S 22°32.3′	70°24.4′	S 21°21.3′	347°20.9′	N 5°26.8′
		SD 16.0′ *d* -0.9′		*v* -0.4′ *d* -1.0′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.1′	
Mer. pass.		11 h 46 m 7 s		9 h 27 m		17 h 51 m		18 h 19 m		23 h 50 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Acrux	−Sun	−Venus	−Regulus	+Pollux	+Procyon	+Sirius	+Betelgeuse
0	231°04.6′	N 16°48.2′	8.5′	-11.1′	59.1′	84°46.5′	53°10.0′	15°16.1′		33°28.9′	36°58.4′	59°08.0′	60°59.4′
1	245°32.1′	N 16°37.1′	8.5′	-11.2′	59.1′	84°26.9′	52°37.3′	14°45.0′		34°03.9′	37°28.3′	59°30.6′	61°32.8′
2	259°59.6′	N 16°25.8′	8.5′	-11.3′	59.2′	84°07.3′	52°04.6′	14°14.0′		34°39.0′	37°58.3′	59°53.4′	62°06.3′
3	274°27.1′	N 16°14.5′	8.5′	-11.5′	59.2′	83°47.8′	51°31.8′	13°42.9′		35°14.1′	38°28.5′	60°16.3′	62°39.8′
4	288°54.6′	N 16°03.0′	8.5′	-11.6′	59.2′	83°28.2′	50°59.0′	13°12.0′		35°49.3′	38°58.9′	60°39.3′	63°13.4′
5	303°22.2′	N 15°51.5′	8.6′	-11.7′	59.3′	83°08.6′	50°26.1′	12°41.1′		36°24.6′	39°29.5′	61°02.5′	63°47.0′
6	317°49.7′	N 15°39.8′	8.6′	-11.8′	59.3′	82°49.0′	49°53.2′	12°10.3′		36°59.9′	40°00.2′	61°25.9′	64°20.8′
7	332°17.3′	N 15°28.0′	8.6′	-11.9′	59.4′	82°29.5′	49°20.3′	11°39.6′		37°35.3′	40°31.0′	61°49.4′	64°54.5′
8	346°44.9′	N 15°16.1′	8.6′	-12.0′	59.4′	82°09.9′	48°47.3′	11°09.1′		38°10.7′	41°02.0′	62°13.1′	65°28.4′
9	1°12.6′	N 15°04.1′	8.6′	-12.1′	59.4′	81°50.3′	48°14.2′	10°38.7′		38°46.1′	41°33.2′	62°36.8′	66°02.3′
10	15°40.2′	N 14°52.0′	8.7′	-12.2′	59.5′	81°30.8′	47°41.1′	10°08.6′		39°21.7′	42°04.5′	63°00.8′	66°36.3′
11	30°07.9′	N 14°39.8′	8.7′	-12.3′	59.5′	81°11.3′	47°08.0′	9°38.6′		39°57.3′	42°35.9′	63°24.8′	67°10.3′
12	44°35.5′	N 14°27.5′	8.7′	-12.4′	59.5′	80°51.8′	46°34.8′	9°09.0′		40°32.9′	43°07.4′	63°49.0′	67°44.4′
13	59°03.2′	N 14°15.1′	8.7′	-12.5′	59.6′	80°32.3′	46°01.6′	8°39.6′		41°08.6′	43°39.1′	64°13.4′	68°18.6′
14	73°31.0′	N 14°02.6′	8.7′	-12.6′	59.6′	80°12.8′	45°28.3′	8°10.7′		41°44.3′	44°11.0′	64°37.8′	68°52.8′
15	87°58.7′	N 13°50.0′	8.8′	-12.7′	59.7′	79°53.3′	44°55.0′	7°42.3′		42°20.1′	44°42.9′	65°02.4′	69°27.0′
16	102°26.4′	N 13°37.3′	8.8′	-12.8′	59.7′	79°33.9′	44°21.6′	7°14.6′		42°56.0′	45°15.0′	65°27.1′	70°01.4′
17	116°54.2′	N 13°24.5′	8.8′	-12.9′	59.7′	79°14.5′	43°48.2′		8°23.0′	43°31.8′	45°47.2′	65°52.0′	70°35.8′
18	131°22.0′	N 13°11.6′	8.8′	-13.0′	59.8′	78°55.1′	43°14.8′		8°54.4′	44°07.8′	46°19.5′	66°16.9′	71°10.2′
19	145°49.8′	N 12°58.6′	8.8′	-13.1′	59.8′	78°35.7′	42°41.3′		9°26.5′	44°43.8′	46°51.9′	66°42.0′	71°44.7′
20	160°17.6′	N 12°45.5′	8.8′	-13.2′	59.8′	78°16.4′	42°07.8′		9°59.0′	45°19.8′	47°24.4′	67°07.2′	72°19.2′
21	174°45.5′	N 12°32.3′	8.9′	-13.3′	59.9′	77°57.1′	41°34.2′		10°32.0′	45°55.9′	47°57.0′	67°32.5′	72°53.9′
22	189°13.3′	N 12°19.0′	8.9′	-13.4′	59.9′	77°37.8′	41°00.6′		11°05.4′	46°32.1′	48°29.8′	67°57.9′	73°28.5′
23	203°41.2′	N 12°05.7′	8.9′	-13.5′	59.9′	77°18.6′	40°27.0′		11°39.1′	47°08.3′	49°02.6′	68°23.5′	74°03.2′
Mer. pass. 8 h 55 m SD 16.1′ phase 20%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°27.9′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°09.9′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Wednesday 14 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	22°59.9′	183°30.1′	S 8°14.0′	218°11.2′	N 7°32.1′	92°27.2′	S 22°32.2′	85°26.8′	S 21°21.2′	2°24.2′	N 5°26.6′
1	38°02.3′	198°30.2′	S 8°14.9′	233°10.9′	N 7°31.1′	107°29.4′	S 22°32.2′	100°29.2′	S 21°21.2′	17°27.4′	N 5°26.5′
2	53°04.8′	213°30.4′	S 8°15.8′	248°10.5′	N 7°30.1′	122°31.6′	S 22°32.2′	115°31.6′	S 21°21.2′	32°30.7′	N 5°26.3′
3	68°07.3′	228°30.5′	S 8°16.7′	263°10.2′	N 7°29.0′	137°33.9′	S 22°32.1′	130°34.0′	S 21°21.2′	47°34.0′	N 5°26.2′
4	83°09.7′	243°30.6′	S 8°17.7′	278°09.8′	N 7°28.0′	152°36.1′	S 22°32.1′	145°36.4′	S 21°21.2′	62°37.2′	N 5°26.0′
5	98°12.2′	258°30.8′	S 8°18.6′	293°09.5′	N 7°27.0′	167°38.3′	S 22°32.1′	160°38.8′	S 21°21.2′	77°40.5′	N 5°25.9′
6	113°14.7′	273°30.9′	S 8°19.5′	308°09.1′	N 7°25.9′	182°40.5′	S 22°32.0′	175°41.2′	S 21°21.2′	92°43.7′	N 5°25.8′
7	128°17.1′	288°31.1′	S 8°20.5′	323°08.8′	N 7°24.9′	197°42.7′	S 22°32.0′	190°43.6′	S 21°21.2′	107°47.0′	N 5°25.6′
8	143°19.6′	303°31.2′	S 8°21.4′	338°08.4′	N 7°23.9′	212°44.9′	S 22°32.0′	205°46.0′	S 21°21.2′	122°50.3′	N 5°25.5′
9	158°22.1′	318°31.3′	S 8°22.3′	353°08.1′	N 7°22.8′	227°47.1′	S 22°32.0′	220°48.4′	S 21°21.2′	137°53.5′	N 5°25.3′
10	173°24.5′	333°31.5′	S 8°23.2′	8°07.7′	N 7°21.8′	242°49.3′	S 22°31.9′	235°50.8′	S 21°21.1′	152°56.8′	N 5°25.2′
11	188°27.0′	348°31.6′	S 8°24.2′	23°07.4′	N 7°20.8′	257°51.5′	S 22°31.9′	250°53.2′	S 21°21.1′	168°00.1′	N 5°25.0′
12	203°29.4′	3°31.8′	S 8°25.1′	38°07.1′	N 7°19.7′	272°53.7′	S 22°31.9′	265°55.6′	S 21°21.1′	183°03.3′	N 5°24.9′
13	218°31.9′	18°31.9′	S 8°26.0′	53°06.7′	N 7°18.7′	287°55.9′	S 22°31.8′	280°58.0′	S 21°21.1′	198°06.6′	N 5°24.7′
14	233°34.4′	33°32.1′	S 8°26.9′	68°06.4′	N 7°17.7′	302°58.1′	S 22°31.8′	296°00.4′	S 21°21.1′	213°09.9′	N 5°24.6′
15	248°36.8′	48°32.2′	S 8°27.9′	83°06.0′	N 7°16.6′	318°00.3′	S 22°31.8′	311°02.8′	S 21°21.1′	228°13.1′	N 5°24.4′
16	263°39.3′	63°32.3′	S 8°28.8′	98°05.7′	N 7°15.6′	333°02.6′	S 22°31.7′	326°05.2′	S 21°21.1′	243°16.4′	N 5°24.3′
17	278°41.8′	78°32.5′	S 8°29.7′	113°05.3′	N 7°14.5′	348°04.8′	S 22°31.7′	341°07.6′	S 21°21.1′	258°19.7′	N 5°24.2′
18	293°44.2′	93°32.6′	S 8°30.6′	128°05.0′	N 7°13.5′	3°07.0′	S 22°31.7′	356°10.0′	S 21°21.1′	273°22.9′	N 5°24.0′
19	308°46.7′	108°32.8′	S 8°31.6′	143°04.6′	N 7°12.5′	18°09.2′	S 22°31.6′	11°12.3′	S 21°21.1′	288°26.2′	N 5°23.9′
20	323°49.2′	123°32.9′	S 8°32.5′	158°04.3′	N 7°11.4′	33°11.4′	S 22°31.6′	26°14.7′	S 21°21.1′	303°29.4′	N 5°23.7′
21	338°51.6′	138°33.0′	S 8°33.4′	173°03.9′	N 7°10.4′	48°13.6′	S 22°31.6′	41°17.1′	S 21°21.0′	318°32.7′	N 5°23.6′
22	353°54.1′	153°33.2′	S 8°34.3′	188°03.6′	N 7°09.3′	63°15.8′	S 22°31.5′	56°19.5′	S 21°21.0′	333°36.0′	N 5°23.4′
23	8°56.6′	168°33.3′	S 8°35.3′	203°03.2′	N 7°08.3′	78°18.0′	S 22°31.5′	71°21.9′	S 21°21.0′	348°39.2′	N 5°23.3′
		SD 16.0′ *d* -0.9′		*v* -0.3′ *d* -1.0′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.1′	
Mer. pass.		11 h 45 m 54 s		9 h 27 m		17 h 48 m		18 h 15 m		23 h 45 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Acrux	−Venus	+Regulus	+Pollux	+Procyon	+Sirius	+Adhara	+Betelgeuse
0	218°09.1′	N 11°52.2′	8.9′	-13.5′	60.0′	76°59.4′		12°13.1′	47°44.5′	49°35.6′	68°49.1′	70°49.7′	74°38.0′
1	232°36.9′	N 11°38.7′	8.9′	-13.6′	60.0′	76°40.2′		12°47.3′	48°20.8′	50°08.6′	69°14.8′	71°08.8′	75°12.8′
2	247°04.9′	N 11°25.0′	8.9′	-13.7′	60.0′	76°21.1′		13°21.8′	48°57.1′	50°41.8′	69°40.7′	71°28.1′	75°47.7′
3	261°32.8′	N 11°11.3′	8.9′	-13.8′	60.1′	76°02.1′		13°56.5′	49°33.5′	51°15.0′	70°06.6′	71°47.4′	76°22.6′
4	276°00.7′	N 10°57.6′	9.0′	-13.9′	60.1′	75°43.0′		14°31.4′	50°09.9′	51°48.3′	70°32.7′	72°06.9′	76°57.6′
5	290°28.7′	N 10°43.7′	9.0′	-14.0′	60.2′	75°24.1′		15°06.5′	50°46.4′	52°21.7′	70°58.9′	72°26.5′	77°32.6′
6	304°56.6′	N 10°29.7′	9.0′	-14.0′	60.2′	75°05.2′		15°41.7′	51°22.9′	52°55.3′	71°25.1′	72°46.2′	78°07.7′
7	319°24.6′	N 10°15.7′	9.0′	-14.1′	60.2′	74°46.3′		16°17.0′	51°59.5′	53°28.9′	71°51.4′	73°06.0′	78°42.8′
8	333°52.6′	N 10°01.6′	9.0′	-14.2′	60.2′	74°27.5′		16°52.5′	52°36.1′	54°02.5′	72°17.9′	73°25.9′	79°18.0′
9	348°20.6′	N 9°47.4′	9.0′	-14.3′	60.3′	74°08.8′		17°28.1′	53°12.7′	54°36.3′	72°44.4′	73°45.9′	79°53.2′
10	2°48.6′	N 9°33.2′	9.0′	-14.3′	60.3′	73°50.1′		18°03.9′	53°49.4′	55°10.2′	73°11.0′	74°06.1′	80°28.4′
11	17°16.6′	N 9°18.8′	9.0′	-14.4′	60.3′	73°31.5′		18°39.7′	54°26.2′	55°44.1′	73°37.7′	74°26.3′	81°03.7′
12	31°44.7′	N 9°04.4′	9.0′	-14.5′	60.4′	73°12.9′		19°15.7′	55°03.0′	56°18.1′	74°04.5′	74°46.6′	81°39.1′
13	46°12.7′	N 8°50.0′	9.0′	-14.5′	60.4′	72°54.4′		19°51.7′	55°39.8′	56°52.2′	74°31.4′	75°07.0′	82°14.5′
14	60°40.7′	N 8°35.4′	9.1′	-14.6′	60.4′	72°36.0′	7°28.1′	20°27.8′	56°16.6′	57°26.3′	74°58.3′	75°27.6′	82°49.9′
15	75°08.8′	N 8°20.8′	9.1′	-14.7′	60.5′	72°17.7′	7°57.1′	21°04.1′	56°53.5′	58°00.6′	75°25.3′	75°48.2′	83°25.4′
16	89°36.9′	N 8°06.1′	9.1′	-14.7′	60.5′	71°59.4′	8°26.8′	21°40.4′	57°30.5′	58°34.9′	75°52.4′	76°08.9′	84°00.9′
17	104°04.9′	N 7°51.4′	9.1′	-14.8′	60.5′	71°41.2′	8°57.0′	22°16.7′	58°07.5′	59°09.2′	76°19.6′	76°29.7′	84°36.4′
18	118°33.0′	N 7°36.6′	9.1′	-14.9′	60.6′	71°23.1′	9°27.6′	22°53.2′	58°44.5′	59°43.7′	76°46.9′	76°50.5′	85°12.0′
19	133°01.1′	N 7°21.8′	9.1′	-14.9′	60.6′	71°05.1′	9°58.7′	23°29.7′	59°21.6′	60°18.2′	77°14.2′	77°11.5′	85°47.6′
20	147°29.2′	N 7°06.8′	9.1′	-15.0′	60.6′	70°47.2′	10°30.2′	24°06.3′	59°58.7′	60°52.8′	77°41.6′	77°32.5′	86°23.3′
21	161°57.2′	N 6°51.9′	9.1′	-15.0′	60.6′	70°29.4′	11°01.9′	24°43.0′	60°35.8′	61°27.4′	78°09.0′	77°53.7′	86°59.0′
22	176°25.3′	N 6°36.8′	9.1′	-15.1′	60.7′	70°11.6′	11°33.9′	25°19.7′	61°13.0′	62°02.1′	78°36.6′	78°14.9′	87°34.8′
23	190°53.4′	N 6°21.8′	9.1′	-15.1′	60.7′	69°54.0′	12°06.2′	25°56.5′	61°50.2′	62°36.9′	79°04.1′	78°36.2′	88°10.5′
Mer. pass. 9 h 48 m SD 16.4′ phase 12%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.6′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.5′	N 5°10.4′	Polaris	+2.0	315°09.7′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.8′	S 52°42.1′				

Thursday 15 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	23°59.0′	183°33.4′	S 8°36.2′	218°02.9′	N 7°07.2′	93°20.2′	S 22°31.5′	86°24.3′	S 21°21.0′	3°42.5′	N 5°23.1′
1	39°01.5′	198°33.6′	S 8°37.1′	233°02.5′	N 7°06.2′	108°22.4′	S 22°31.4′	101°26.7′	S 21°21.0′	18°45.8′	N 5°23.0′
2	54°03.9′	213°33.7′	S 8°38.0′	248°02.2′	N 7°05.2′	123°24.6′	S 22°31.4′	116°29.1′	S 21°21.0′	33°49.0′	N 5°22.9′
3	69°06.4′	228°33.9′	S 8°39.0′	263°01.8′	N 7°04.1′	138°26.8′	S 22°31.4′	131°31.5′	S 21°21.0′	48°52.3′	N 5°22.7′
4	84°08.9′	243°34.0′	S 8°39.9′	278°01.5′	N 7°03.1′	153°29.0′	S 22°31.3′	146°33.9′	S 21°21.0′	63°55.5′	N 5°22.6′
5	99°11.3′	258°34.1′	S 8°40.8′	293°01.1′	N 7°02.0′	168°31.2′	S 22°31.3′	161°36.3′	S 21°21.0′	78°58.8′	N 5°22.4′
6	114°13.8′	273°34.3′	S 8°41.7′	308°00.8′	N 7°01.0′	183°33.4′	S 22°31.3′	176°38.7′	S 21°20.9′	94°02.1′	N 5°22.3′
7	129°16.3′	288°34.4′	S 8°42.7′	323°00.4′	N 6°59.9′	198°35.6′	S 22°31.2′	191°41.1′	S 21°20.9′	109°05.3′	N 5°22.1′
8	144°18.7′	303°34.5′	S 8°43.6′	338°00.1′	N 6°58.9′	213°37.8′	S 22°31.2′	206°43.5′	S 21°20.9′	124°08.6′	N 5°22.0′
9	159°21.2′	318°34.7′	S 8°44.5′	352°59.7′	N 6°57.8′	228°40.0′	S 22°31.2′	221°45.9′	S 21°20.9′	139°11.8′	N 5°21.9′
10	174°23.7′	333°34.8′	S 8°45.4′	7°59.4′	N 6°56.8′	243°42.2′	S 22°31.1′	236°48.3′	S 21°20.9′	154°15.1′	N 5°21.7′
11	189°26.1′	348°34.9′	S 8°46.3′	22°59.1′	N 6°55.8′	258°44.4′	S 22°31.1′	251°50.7′	S 21°20.9′	169°18.4′	N 5°21.6′
12	204°28.6′	3°35.1′	S 8°47.3′	37°58.7′	N 6°54.7′	273°46.6′	S 22°31.1′	266°53.0′	S 21°20.9′	184°21.6′	N 5°21.4′
13	219°31.1′	18°35.2′	S 8°48.2′	52°58.4′	N 6°53.7′	288°48.8′	S 22°31.0′	281°55.4′	S 21°20.9′	199°24.9′	N 5°21.3′
14	234°33.5′	33°35.3′	S 8°49.1′	67°58.0′	N 6°52.6′	303°51.0′	S 22°31.0′	296°57.8′	S 21°20.9′	214°28.1′	N 5°21.2′
15	249°36.0′	48°35.5′	S 8°50.0′	82°57.7′	N 6°51.6′	318°53.2′	S 22°31.0′	312°00.2′	S 21°20.9′	229°31.4′	N 5°21.0′
16	264°38.4′	63°35.6′	S 8°50.9′	97°57.3′	N 6°50.5′	333°55.4′	S 22°30.9′	327°02.6′	S 21°20.8′	244°34.7′	N 5°20.9′
17	279°40.9′	78°35.8′	S 8°51.9′	112°57.0′	N 6°49.5′	348°57.6′	S 22°30.9′	342°05.0′	S 21°20.8′	259°37.9′	N 5°20.7′
18	294°43.4′	93°35.9′	S 8°52.8′	127°56.6′	N 6°48.4′	3°59.8′	S 22°30.9′	357°07.4′	S 21°20.8′	274°41.2′	N 5°20.6′
19	309°45.8′	108°36.0′	S 8°53.7′	142°56.3′	N 6°47.4′	19°02.0′	S 22°30.8′	12°09.8′	S 21°20.8′	289°44.4′	N 5°20.5′
20	324°48.3′	123°36.2′	S 8°54.6′	157°55.9′	N 6°46.3′	34°04.2′	S 22°30.8′	27°12.2′	S 21°20.8′	304°47.7′	N 5°20.3′
21	339°50.8′	138°36.3′	S 8°55.5′	172°55.6′	N 6°45.3′	49°06.4′	S 22°30.8′	42°14.6′	S 21°20.8′	319°50.9′	N 5°20.2′
22	354°53.2′	153°36.4′	S 8°56.5′	187°55.2′	N 6°44.2′	64°08.6′	S 22°30.7′	57°17.0′	S 21°20.8′	334°54.2′	N 5°20.0′
23	9°55.7′	168°36.5′	S 8°57.4′	202°54.9′	N 6°43.2′	79°10.8′	S 22°30.7′	72°19.4′	S 21°20.8′	349°57.4′	N 5°19.9′
		SD 16.0′ *d* -0.9′		*v* -0.3′ *d* -1.0′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.1′	
Mer. pass.		11 h 45 m 40 s		9 h 28 m		17 h 44 m		18 h 11 m		23 h 40 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Acrux	+Venus	+Regulus	+Pollux	+Procyon	+Adhara	+Sirius	+Polaris
0	205°21.5′	N 6°06.6′	9.1′	-15.2′	60.7′	69°36.5′	12°38.7′	26°33.3′	62°27.5′	63°11.7′	78°57.5′	79°31.8′	84°20.4′
1	219°49.6′	N 5°51.4′	9.1′	-15.2′	60.7′	69°19.0′	13°11.3′	27°10.2′	63°04.7′	63°46.6′	79°18.9′	79°59.5′	84°35.9′
2	234°17.7′	N 5°36.2′	9.1′	-15.3′	60.8′	69°01.7′	13°44.2′	27°47.2′	63°42.1′	64°21.5′	79°40.4′	80°27.3′	84°51.4′
3	248°45.8′	N 5°20.9′	9.1′	-15.3′	60.8′	68°44.4′	14°17.2′	28°24.2′	64°19.4′	64°56.5′	80°02.0′	80°55.1′	85°07.0′
4	263°13.9′	N 5°05.6′	9.1′	-15.4′	60.8′	68°27.3′	14°50.3′	29°01.2′	64°56.8′	65°31.6′	80°23.6′	81°22.9′	85°22.6′
5	277°42.0′	N 4°50.2′	9.1′	-15.4′	60.8′	68°10.3′	15°23.6′	29°38.3′	65°34.2′	66°06.7′	80°45.3′	81°50.9′	85°38.2′
6	292°10.1′	N 4°34.8′	9.1′	-15.5′	60.9′	67°53.4′	15°57.0′	30°15.5′	66°11.7′	66°41.8′	81°07.1′	82°18.8′	85°53.9′
7	306°38.2′	N 4°19.4′	9.1′	-15.5′	60.9′	67°36.6′	16°30.4′	30°52.7′	66°49.2′	67°17.0′	81°28.9′	82°46.8′	86°09.6′
8	321°06.3′	N 4°03.9′	9.1′	-15.5′	60.9′	67°20.0′	17°04.0′	31°29.9′	67°26.7′	67°52.3′	81°50.8′	83°14.9′	86°25.3′
9	335°34.3′	N 3°48.4′	9.1′	-15.6′	60.9′	67°03.5′	17°37.7′	32°07.2′	68°04.2′	68°27.6′	82°12.7′	83°43.0′	86°41.1′
10	350°02.4′	N 3°32.8′	9.1′	-15.6′	61.0′	66°47.1′	18°11.5′	32°44.5′	68°41.8′	69°03.0′	82°34.7′	84°11.2′	86°56.9′
11	4°30.5′	N 3°17.2′	9.1′	-15.6′	61.0′	66°30.8′	18°45.4′	33°21.9′	69°19.4′	69°38.3′	82°56.8′	84°39.3′	87°12.8′
12	18°58.6′	N 3°01.6′	9.1′	-15.7′	61.0′	66°14.7′	19°19.3′	33°59.2′	69°57.0′	70°13.8′	83°18.8′	85°07.6′	87°28.7′
13	33°26.6′	N 2°45.9′	9.0′	-15.7′	61.0′	65°58.7′	19°53.3′	34°36.7′	70°34.7′	70°49.3′	83°41.0′	85°35.8′	87°44.6′
14	47°54.7′	N 2°30.2′	9.0′	-15.7′	61.0′	65°42.8′	20°27.4′	35°14.2′	71°12.4′	71°24.8′	84°03.2′	86°04.1′	88°00.5′
15	62°22.7′	N 2°14.5′	9.0′	-15.7′	61.1′	65°27.1′	21°01.5′	35°51.7′	71°50.1′	72°00.4′	84°25.4′	86°32.4′	88°16.4′
16	76°50.7′	N 1°58.8′	9.0′	-15.8′	61.1′	65°11.6′	21°35.7′	36°29.2′	72°27.8′	72°36.0′	84°47.7′	87°00.8′	88°32.4′
17	91°18.7′	N 1°43.0′	9.0′	-15.8′	61.1′	64°56.2′	22°09.9′	37°06.8′	73°05.6′	73°11.6′	85°10.0′	87°29.2′	88°48.4′
18	105°46.7′	N 1°27.3′	9.0′	-15.8′	61.1′	64°40.9′	22°44.2′	37°44.4′	73°43.4′	73°47.3′	85°32.3′	87°57.6′	89°04.4′
19	120°14.7′	N 1°11.5′	9.0′	-15.8′	61.1′		23°18.6′	38°22.0′	74°21.2′	74°23.0′	85°54.7′	88°26.0′	89°20.4′
20	134°42.7′	N 0°55.7′	9.0′	-15.8′	61.1′		23°53.0′	38°59.7′	74°59.0′	74°58.7′	86°17.1′	88°54.4′	89°36.5′
21	149°10.7′	N 0°39.8′	8.9′	-15.8′	61.2′		24°27.4′	39°37.4′	75°36.9′	75°34.5′	86°39.5′	89°22.9′	89°52.5′
22	163°38.6′	N 0°24.0′	8.9′	-15.9′	61.2′		25°01.9′	40°15.1′	76°14.8′	76°10.3′	87°02.0′	89°51.4′	90°08.6′
23	178°06.5′	N 0°08.1′	8.9′	-15.9′	61.2′		25°36.5′	40°52.8′	76°52.7′	76°46.1′	87°24.5′	90°19.9′	90°24.6′
Mer. pass. 10 h 41 m SD 16.6′ phase 5%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°09.5′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Friday 16 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	24°58.2′	183°36.7′	S 8°58.3′	217°54.6′	N 6°42.1′	94°13.0′	S 22°30.7′	87°21.7′	S 21°20.8′	5°00.7′	N 5°19.8′
1	40°00.6′	198°36.8′	S 8°59.2′	232°54.2′	N 6°41.1′	109°15.2′	S 22°30.6′	102°24.1′	S 21°20.7′	20°04.0′	N 5°19.6′
2	55°03.1′	213°36.9′	S 9°00.1′	247°53.9′	N 6°40.0′	124°17.3′	S 22°30.6′	117°26.5′	S 21°20.7′	35°07.2′	N 5°19.5′
3	70°05.5′	228°37.1′	S 9°01.1′	262°53.5′	N 6°38.9′	139°19.5′	S 22°30.6′	132°28.9′	S 21°20.7′	50°10.5′	N 5°19.3′
4	85°08.0′	243°37.2′	S 9°02.0′	277°53.2′	N 6°37.9′	154°21.7′	S 22°30.5′	147°31.3′	S 21°20.7′	65°13.7′	N 5°19.2′
5	100°10.5′	258°37.3′	S 9°02.9′	292°52.8′	N 6°36.8′	169°23.9′	S 22°30.5′	162°33.7′	S 21°20.7′	80°17.0′	N 5°19.1′
6	115°12.9′	273°37.5′	S 9°03.8′	307°52.5′	N 6°35.8′	184°26.1′	S 22°30.5′	177°36.1′	S 21°20.7′	95°20.2′	N 5°18.9′
7	130°15.4′	288°37.6′	S 9°04.7′	322°52.1′	N 6°34.7′	199°28.3′	S 22°30.4′	192°38.5′	S 21°20.7′	110°23.5′	N 5°18.8′
8	145°17.9′	303°37.7′	S 9°05.6′	337°51.8′	N 6°33.7′	214°30.5′	S 22°30.4′	207°40.9′	S 21°20.7′	125°26.7′	N 5°18.7′
9	160°20.3′	318°37.9′	S 9°06.6′	352°51.4′	N 6°32.6′	229°32.7′	S 22°30.3′	222°43.3′	S 21°20.7′	140°30.0′	N 5°18.5′
10	175°22.8′	333°38.0′	S 9°07.5′	7°51.1′	N 6°31.6′	244°34.9′	S 22°30.3′	237°45.6′	S 21°20.6′	155°33.2′	N 5°18.4′
11	190°25.3′	348°38.1′	S 9°08.4′	22°50.8′	N 6°30.5′	259°37.1′	S 22°30.3′	252°48.0′	S 21°20.6′	170°36.5′	N 5°18.2′
12	205°27.7′	3°38.2′	S 9°09.3′	37°50.4′	N 6°29.4′	274°39.3′	S 22°30.2′	267°50.4′	S 21°20.6′	185°39.7′	N 5°18.1′
13	220°30.2′	18°38.4′	S 9°10.2′	52°50.1′	N 6°28.4′	289°41.5′	S 22°30.2′	282°52.8′	S 21°20.6′	200°43.0′	N 5°18.0′
14	235°32.7′	33°38.5′	S 9°11.1′	67°49.7′	N 6°27.3′	304°43.7′	S 22°30.2′	297°55.2′	S 21°20.6′	215°46.2′	N 5°17.8′
15	250°35.1′	48°38.6′	S 9°12.1′	82°49.4′	N 6°26.3′	319°45.9′	S 22°30.1′	312°57.6′	S 21°20.6′	230°49.5′	N 5°17.7′
16	265°37.6′	63°38.8′	S 9°13.0′	97°49.0′	N 6°25.2′	334°48.0′	S 22°30.1′	327°60.0′	S 21°20.6′	245°52.8′	N 5°17.6′
17	280°40.0′	78°38.9′	S 9°13.9′	112°48.7′	N 6°24.1′	349°50.2′	S 22°30.1′	343°02.4′	S 21°20.6′	260°56.0′	N 5°17.4′
18	295°42.5′	93°39.0′	S 9°14.8′	127°48.3′	N 6°23.1′	4°52.4′	S 22°30.0′	358°04.7′	S 21°20.6′	275°59.2′	N 5°17.3′
19	310°45.0′	108°39.1′	S 9°15.7′	142°48.0′	N 6°22.0′	19°54.6′	S 22°30.0′	13°07.1′	S 21°20.5′	291°02.5′	N 5°17.2′
20	325°47.4′	123°39.3′	S 9°16.6′	157°47.7′	N 6°21.0′	34°56.8′	S 22°30.0′	28°09.5′	S 21°20.5′	306°05.7′	N 5°17.0′
21	340°49.9′	138°39.4′	S 9°17.5′	172°47.3′	N 6°19.9′	49°59.0′	S 22°29.9′	43°11.9′	S 21°20.5′	321°09.0′	N 5°16.9′
22	355°52.4′	153°39.5′	S 9°18.5′	187°47.0′	N 6°18.8′	65°01.2′	S 22°29.9′	58°14.3′	S 21°20.5′	336°12.2′	N 5°16.7′
23	10°54.8′	168°39.6′	S 9°19.4′	202°46.6′	N 6°17.8′	80°03.4′	S 22°29.9′	73°16.7′	S 21°20.5′	351°15.5′	N 5°16.6′
		SD 16.0′ *d* -0.9′		*v* -0.3′ *d* -1.1′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.3′ *d* -0.1′	
Mer. pass.		11 h 45 m 28 s		9 h 29 m		17 h 41 m		18 h 8 m		23 h 35 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	+Venus	+Regulus	+Procyon	+Pollux	+Adhara	+Polaris	+Sirius	+Betelgeuse
0	192°34.5′	S 0°07.7′	8.9′	-15.9′	61.2′	26°11.0′	41°30.6′	77°22.0′	77°30.6′	87°47.0′	90°40.7′	90°48.4′	103°13.6′
1	207°02.4′	S 0°23.6′	8.9′	-15.9′	61.2′	26°45.6′	42°08.4′	77°57.9′	78°08.5′	88°09.5′	90°56.8′	91°16.9′	103°49.9′
2	221°30.2′	S 0°39.5′	8.9′	-15.9′	61.2′	27°20.3′	42°46.2′	78°33.8′	78°46.5′	88°32.1′	91°12.9′	91°45.5′	104°26.3′
3	235°58.1′	S 0°55.3′	8.8′	-15.9′	61.2′	27°54.9′	43°24.1′	79°09.8′	79°24.4′	88°54.6′	91°28.9′	92°14.0′	105°02.7′
4	250°26.0′	S 1°11.2′	8.8′	-15.9′	61.2′	28°29.6′	44°01.9′	79°45.7′	80°02.4′	89°17.2′	91°45.0′	92°42.6′	105°39.0′
5	264°53.8′	S 1°27.1′	8.8′	-15.9′	61.3′								
6	279°21.6′	S 1°43.0′	8.8′	-15.9′	61.3′								
7	293°49.4′	S 1°58.8′	8.8′	-15.9′	61.3′								
8	308°17.1′	S 2°14.7′	8.7′	-15.9′	61.3′								
9	322°44.8′	S 2°30.5′	8.7′	-15.8′	61.3′								
10	337°12.6′	S 2°46.4′	8.7′	-15.8′	61.3′								
11	351°40.2′	S 3°02.2′	8.7′	-15.8′	61.3′								
12	6°07.9′	S 3°18.0′	8.6′	-15.8′	61.3′								
13	20°35.5′	S 3°33.8′	8.6′	-15.8′	61.3′								
14	35°03.1′	S 3°49.6′	8.6′	-15.8′	61.3′								
15	49°30.7′	S 4°05.4′	8.5′	-15.7′	61.3′								
16	63°58.3′	S 4°21.1′	8.5′	-15.7′	61.3′								
17	78°25.8′	S 4°36.9′	8.5′	-15.7′	61.4′								
18	92°53.3′	S 4°52.5′	8.5′	-15.7′	61.4′								
19	107°20.7′	S 5°08.2′	8.4′	-15.6′	61.4′								
20	121°48.1′	S 5°23.8′	8.4′	-15.6′	61.4′								
21	136°15.5′	S 5°39.4′	8.4′	-15.6′	61.4′								
22	150°42.9′	S 5°55.0′	8.3′	-15.5′	61.4′								
23	165°10.2′	S 6°10.5′	8.3′	-15.5′	61.4′								
Mer. pass. 11 h 35 m SD 16.7′ phase 1%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.6′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°09.3′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Saturday 17 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	25°57.3′	183°39.8′	S 9°20.3′	217°46.3′	N 6°16.7′	95°05.6′	S 22°29.8′	88°19.1′	S 21°20.5′	6°18.7′	N 5°16.5′
1	40°59.8′	198°39.9′	S 9°21.2′	232°45.9′	N 6°15.7′	110°07.7′	S 22°29.8′	103°21.5′	S 21°20.5′	21°22.0′	N 5°16.3′
2	56°02.2′	213°40.0′	S 9°22.1′	247°45.6′	N 6°14.6′	125°09.9′	S 22°29.8′	118°23.8′	S 21°20.5′	36°25.2′	N 5°16.2′
3	71°04.7′	228°40.1′	S 9°23.0′	262°45.2′	N 6°13.5′	140°12.1′	S 22°29.7′	133°26.2′	S 21°20.5′	51°28.5′	N 5°16.1′
4	86°07.1′	243°40.3′	S 9°23.9′	277°44.9′	N 6°12.5′	155°14.3′	S 22°29.7′	148°28.6′	S 21°20.4′	66°31.7′	N 5°15.9′
5	101°09.6′	258°40.4′	S 9°24.9′	292°44.6′	N 6°11.4′	170°16.5′	S 22°29.6′	163°31.0′	S 21°20.4′	81°35.0′	N 5°15.8′
6	116°12.1′	273°40.5′	S 9°25.8′	307°44.2′	N 6°10.3′	185°18.7′	S 22°29.6′	178°33.4′	S 21°20.4′	96°38.2′	N 5°15.7′
7	131°14.5′	288°40.6′	S 9°26.7′	322°43.9′	N 6°09.3′	200°20.9′	S 22°29.6′	193°35.8′	S 21°20.4′	111°41.5′	N 5°15.5′
8	146°17.0′	303°40.8′	S 9°27.6′	337°43.5′	N 6°08.2′	215°23.1′	S 22°29.5′	208°38.2′	S 21°20.4′	126°44.7′	N 5°15.4′
9	161°19.5′	318°40.9′	S 9°28.5′	352°43.2′	N 6°07.1′	230°25.2′	S 22°29.5′	223°40.5′	S 21°20.4′	141°47.9′	N 5°15.3′
10	176°21.9′	333°41.0′	S 9°29.4′	7°42.8′	N 6°06.1′	245°27.4′	S 22°29.5′	238°42.9′	S 21°20.4′	156°51.2′	N 5°15.2′
11	191°24.4′	348°41.1′	S 9°30.3′	22°42.5′	N 6°05.0′	260°29.6′	S 22°29.4′	253°45.3′	S 21°20.4′	171°54.4′	N 5°15.0′
12	206°26.9′	3°41.3′	S 9°31.2′	37°42.2′	N 6°03.9′	275°31.8′	S 22°29.4′	268°47.7′	S 21°20.3′	186°57.7′	N 5°14.9′
13	221°29.3′	18°41.4′	S 9°32.1′	52°41.8′	N 6°02.9′	290°34.0′	S 22°29.4′	283°50.1′	S 21°20.3′	202°00.9′	N 5°14.8′
14	236°31.8′	33°41.5′	S 9°33.1′	67°41.5′	N 6°01.8′	305°36.2′	S 22°29.3′	298°52.5′	S 21°20.3′	217°04.2′	N 5°14.6′
15	251°34.3′	48°41.6′	S 9°34.0′	82°41.1′	N 6°00.7′	320°38.3′	S 22°29.3′	313°54.8′	S 21°20.3′	232°07.4′	N 5°14.5′
16	266°36.7′	63°41.7′	S 9°34.9′	97°40.8′	N 5°59.7′	335°40.5′	S 22°29.3′	328°57.2′	S 21°20.3′	247°10.6′	N 5°14.4′
17	281°39.2′	78°41.9′	S 9°35.8′	112°40.4′	N 5°58.6′	350°42.7′	S 22°29.2′	343°59.6′	S 21°20.3′	262°13.9′	N 5°14.2′
18	296°41.6′	93°42.0′	S 9°36.7′	127°40.1′	N 5°57.5′	5°44.9′	S 22°29.2′	359°02.0′	S 21°20.3′	277°17.1′	N 5°14.1′
19	311°44.1′	108°42.1′	S 9°37.6′	142°39.7′	N 5°56.5′	20°47.1′	S 22°29.1′	14°04.4′	S 21°20.3′	292°20.4′	N 5°14.0′
20	326°46.6′	123°42.2′	S 9°38.5′	157°39.4′	N 5°55.4′	35°49.3′	S 22°29.1′	29°06.8′	S 21°20.2′	307°23.6′	N 5°13.8′
21	341°49.0′	138°42.4′	S 9°39.4′	172°39.1′	N 5°54.3′	50°51.4′	S 22°29.1′	44°09.1′	S 21°20.2′	322°26.8′	N 5°13.7′
22	356°51.5′	153°42.5′	S 9°40.3′	187°38.7′	N 5°53.2′	65°53.6′	S 22°29.0′	59°11.5′	S 21°20.2′	337°30.1′	N 5°13.6′
23	11°54.0′	168°42.6′	S 9°41.2′	202°38.4′	N 5°52.2′	80°55.8′	S 22°29.0′	74°13.9′	S 21°20.2′	352°33.3′	N 5°13.5′
		SD 16.0′ *d* -0.9′		*v* -0.3′ *d* -1.1′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.1′	
Mer. pass.		11 h 45 m 16 s		9 h 29 m		17 h 37 m		18 h 4 m		23 h 30 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Fomalhaut	−Achernar	−Deneb	−Jupiter	−Vega	−Rigil Kent	−Antares	+Arcturus
0	179°37.5′	S 6°26.0′	8.3′	-15.5′	61.4′								
1	194°04.8′	S 6°41.5′	8.2′	-15.4′	61.4′								
2	208°32.0′	S 6°56.9′	8.2′	-15.4′	61.4′								
3	222°59.2′	S 7°12.3′	8.1′	-15.3′	61.4′								
4	237°26.3′	S 7°27.6′	8.1′	-15.3′	61.4′								
5	251°53.4′	S 7°42.9′	8.1′	-15.2′	61.4′								
6	266°20.5′	S 7°58.1′	8.0′	-15.2′	61.4′								
7	280°47.5′	S 8°13.3′	8.0′	-15.1′	61.3′								
8	295°14.5′	S 8°28.4′	8.0′	-15.1′	61.3′								
9	309°41.4′	S 8°43.5′	7.9′	-15.0′	61.3′								
10	324°08.4′	S 8°58.5′	7.9′	-14.9′	61.3′								
11	338°35.2′	S 9°13.4′	7.8′	-14.9′	61.3′								
12	353°02.0′	S 9°28.3′	7.8′	-14.8′	61.3′	119°01.9′	113°00.3′		74°55.3′	77°54.1′	51°41.7′	36°33.8′	
13	7°28.8′	S 9°43.1′	7.7′	-14.8′	61.3′	118°25.7′	112°42.2′		74°17.4′	77°38.7′	51°24.5′	35°56.2′	
14	21°55.6′	S 9°57.9′	7.7′	-14.7′	61.3′	117°49.5′	112°24.1′		73°39.5′	77°23.4′	51°07.5′	35°18.5′	29°02.8′
15	36°22.3′	S 10°12.6′	7.7′	-14.6′	61.3′	117°13.3′	112°05.8′		73°01.7′	77°08.2′	50°50.7′	34°40.9′	29°18.4′
16	50°48.9′	S 10°27.2′	7.6′	-14.5′	61.3′	116°37.1′	111°47.4′		72°23.8′	76°53.1′	50°34.3′	34°03.3′	29°34.6′
17	65°15.5′	S 10°41.7′	7.6′	-14.5′	61.3′	116°00.9′	111°28.8′		71°46.0′		50°18.2′	33°25.8′	29°51.4′
18	79°42.1′	S 10°56.2′	7.5′	-14.4′	61.3′	115°24.7′	111°10.2′	100°13.8′	71°08.2′		50°02.3′	32°48.3′	30°08.8′
19	94°08.6′	S 11°10.6′	7.5′	-14.3′	61.3′	114°48.5′	110°51.4′	99°58.8′	70°30.3′		49°46.8′	32°10.8′	30°26.7′
20	108°35.1′	S 11°24.9′	7.4′	-14.2′	61.2′	114°12.2′	110°32.5′	99°43.7′	69°52.6′			31°33.4′	30°45.2′
21	123°01.6′	S 11°39.2′	7.4′	-14.2′	61.2′	113°36.0′	110°13.5′	99°28.6′	69°14.8′			30°56.0′	31°04.3′
22	137°27.9′	S 11°53.3′	7.3′	-14.1′	61.2′	112°59.8′	109°54.4′	99°13.4′	68°37.0′			30°18.6′	31°23.8′
23	151°54.3′	S 12°07.4′	7.3′	-14.0′	61.2′	112°23.5′	109°35.2′	98°58.1′	67°59.3′			29°41.3′	31°43.8′
Mer. pass. 12 h 29 m SD 16.7′ phase 0%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°09.1′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Sunday 18 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	26°56.4′	183°42.7′	S 9°42.1′	217°38.0′	N 5°51.1′	95°58.0′	S 22°29.0′	89°16.3′	S 21°20.2′	7°36.5′	N 5°13.3′
1	41°58.9′	198°42.8′	S 9°43.0′	232°37.7′	N 5°50.0′	111°00.2′	S 22°28.9′	104°18.7′	S 21°20.2′	22°39.8′	N 5°13.2′
2	57°01.4′	213°43.0′	S 9°44.0′	247°37.4′	N 5°49.0′	126°02.3′	S 22°28.9′	119°21.1′	S 21°20.2′	37°43.0′	N 5°13.1′
3	72°03.8′	228°43.1′	S 9°44.9′	262°37.0′	N 5°47.9′	141°04.5′	S 22°28.9′	134°23.4′	S 21°20.2′	52°46.3′	N 5°12.9′
4	87°06.3′	243°43.2′	S 9°45.8′	277°36.7′	N 5°46.8′	156°06.7′	S 22°28.8′	149°25.8′	S 21°20.1′	67°49.5′	N 5°12.8′
5	102°08.8′	258°43.3′	S 9°46.7′	292°36.3′	N 5°45.7′	171°08.9′	S 22°28.8′	164°28.2′	S 21°20.1′	82°52.7′	N 5°12.7′
6	117°11.2′	273°43.4′	S 9°47.6′	307°36.0′	N 5°44.7′	186°11.1′	S 22°28.7′	179°30.6′	S 21°20.1′	97°56.0′	N 5°12.6′
7	132°13.7′	288°43.5′	S 9°48.5′	322°35.6′	N 5°43.6′	201°13.2′	S 22°28.7′	194°33.0′	S 21°20.1′	112°59.2′	N 5°12.4′
8	147°16.1′	303°43.7′	S 9°49.4′	337°35.3′	N 5°42.5′	216°15.4′	S 22°28.7′	209°35.3′	S 21°20.1′	128°02.4′	N 5°12.3′
9	162°18.6′	318°43.8′	S 9°50.3′	352°35.0′	N 5°41.4′	231°17.6′	S 22°28.6′	224°37.7′	S 21°20.1′	143°05.7′	N 5°12.2′
10	177°21.1′	333°43.9′	S 9°51.2′	7°34.6′	N 5°40.4′	246°19.8′	S 22°28.6′	239°40.1′	S 21°20.1′	158°08.9′	N 5°12.1′
11	192°23.5′	348°44.0′	S 9°52.1′	22°34.3′	N 5°39.3′	261°22.0′	S 22°28.6′	254°42.5′	S 21°20.1′	173°12.1′	N 5°11.9′
12	207°26.0′	3°44.1′	S 9°53.0′	37°33.9′	N 5°38.2′	276°24.1′	S 22°28.5′	269°44.9′	S 21°20.0′	188°15.4′	N 5°11.8′
13	222°28.5′	18°44.2′	S 9°53.9′	52°33.6′	N 5°37.1′	291°26.3′	S 22°28.5′	284°47.2′	S 21°20.0′	203°18.6′	N 5°11.7′
14	237°30.9′	33°44.4′	S 9°54.8′	67°33.2′	N 5°36.1′	306°28.5′	S 22°28.4′	299°49.6′	S 21°20.0′	218°21.8′	N 5°11.6′
15	252°33.4′	48°44.5′	S 9°55.7′	82°32.9′	N 5°35.0′	321°30.7′	S 22°28.4′	314°52.0′	S 21°20.0′	233°25.0′	N 5°11.4′
16	267°35.9′	63°44.6′	S 9°56.6′	97°32.6′	N 5°33.9′	336°32.8′	S 22°28.4′	329°54.4′	S 21°20.0′	248°28.3′	N 5°11.3′
17	282°38.3′	78°44.7′	S 9°57.5′	112°32.2′	N 5°32.8′	351°35.0′	S 22°28.3′	344°56.8′	S 21°20.0′	263°31.5′	N 5°11.2′
18	297°40.8′	93°44.8′	S 9°58.4′	127°31.9′	N 5°31.8′	6°37.2′	S 22°28.3′	359°59.1′	S 21°20.0′	278°34.7′	N 5°11.1′
19	312°43.2′	108°44.9′	S 9°59.3′	142°31.5′	N 5°30.7′	21°39.4′	S 22°28.3′	15°01.5′	S 21°20.0′	293°38.0′	N 5°10.9′
20	327°45.7′	123°45.0′	S 10°00.2′	157°31.2′	N 5°29.6′	36°41.5′	S 22°28.2′	30°03.9′	S 21°19.9′	308°41.2′	N 5°10.8′
21	342°48.2′	138°45.2′	S 10°01.1′	172°30.9′	N 5°28.5′	51°43.7′	S 22°28.2′	45°06.3′	S 21°19.9′	323°44.4′	N 5°10.7′
22	357°50.6′	153°45.3′	S 10°02.0′	187°30.5′	N 5°27.4′	66°45.9′	S 22°28.2′	60°08.6′	S 21°19.9′	338°47.6′	N 5°10.6′
23	12°53.1′	168°45.4′	S 10°02.9′	202°30.2′	N 5°26.4′	81°48.1′	S 22°28.1′	75°11.0′	S 21°19.9′	353°50.9′	N 5°10.4′
		SD 16.0′ *d* -0.9′		*v* -0.3′ *d* -1.1′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.1′	
Mer. pass.		11 h 45 m 4 s		9 h 30 m		17 h 34 m		18 h 0 m		23 h 25 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Fomalhaut	−Achernar	−Deneb	−Altair	−Saturn	−Jupiter	−Antares	+Arcturus
0	166°20.6′	S 12°21.4′	7.3′	-13.9′	61.2′	111°47.3′	109°15.8′	98°42.8′	79°44.2′	73°39.3′	67°21.5′	29°04.1′	32°04.4′
1	180°46.8′	S 12°35.3′	7.2′	-13.8′	61.2′	111°11.1′	108°56.4′	98°27.5′	79°12.4′	73°01.4′	66°43.8′	28°26.8′	32°25.3′
2	195°13.0′	S 12°49.2′	7.2′	-13.7′	61.2′	110°34.8′	108°36.9′	98°12.1′	78°40.7′	72°23.5′	66°06.1′	27°49.7′	32°46.7′
3	209°39.2′	S 13°02.9′	7.1′	-13.6′	61.1′	109°58.6′	108°17.3′	97°56.7′	78°08.9′	71°45.7′	65°28.5′	27°12.6′	33°08.6′
4	224°05.3′	S 13°16.5′	7.1′	-13.5′	61.1′	109°22.4′	107°57.6′	97°41.2′	77°37.3′	71°07.9′	64°50.8′	26°35.5′	33°30.8′
5	238°31.4′	S 13°30.1′	7.0′	-13.5′	61.1′	108°46.2′	107°37.8′	97°25.7′	77°05.6′	70°30.1′	64°13.2′	25°58.5′	33°53.5′
6	252°57.4′	S 13°43.5′	7.0′	-13.4′	61.1′	108°10.0′	107°17.9′	97°10.2′	76°34.0′	69°52.3′	63°35.6′	25°21.6′	34°16.5′
7	267°23.4′	S 13°56.9′	6.9′	-13.3′	61.1′	107°33.8′	106°58.0′	96°54.6′	76°02.5′	69°14.6′	62°58.0′	24°44.7′	34°39.9′
8	281°49.3′	S 14°10.1′	6.9′	-13.2′	61.1′	106°57.6′	106°38.0′	96°39.0′	75°31.0′	68°36.8′	62°20.5′	24°07.9′	35°03.7′
9	296°15.2′	S 14°23.3′	6.8′	-13.1′	61.0′	106°21.4′	106°17.8′	96°23.4′	74°59.6′	67°59.1′	61°43.0′	23°31.2′	35°27.8′
10	310°41.0′	S 14°36.3′	6.8′	-12.9′	61.0′	105°45.3′	105°57.7′	96°07.7′	74°28.2′	67°21.5′	61°05.5′	22°54.6′	35°52.2′
11	325°06.8′	S 14°49.3′	6.7′	-12.8′	61.0′	105°09.2′	105°37.4′	95°52.0′	73°56.9′	66°43.8′	60°28.0′	22°18.0′	36°17.0′
12	339°32.5′	S 15°02.1′	6.7′	-12.7′	61.0′	104°33.0′	105°17.1′	95°36.3′	73°25.7′	66°06.2′	59°50.6′	21°41.6′	36°42.0′
13	353°58.2′	S 15°14.9′	6.6′	-12.6′	61.0′	103°56.9′	104°56.7′	95°20.6′	72°54.5′	65°28.6′	59°13.1′	21°05.2′	37°07.4′
14	8°23.9′	S 15°27.5′	6.6′	-12.5′	60.9′	103°20.8′	104°36.2′	95°04.8′	72°23.4′	64°51.1′	58°35.7′	20°29.0′	37°33.0′
15	22°49.4′	S 15°40.0′	6.5′	-12.4′	60.9′	102°44.8′	104°15.7′	94°49.1′	71°52.3′	64°13.5′	57°58.4′	19°52.8′	37°58.9′
16	37°15.0′	S 15°52.4′	6.5′	-12.3′	60.9′	102°08.7′	103°55.2′	94°33.3′	71°21.3′	63°36.0′	57°21.1′	19°16.8′	38°25.0′
17	51°40.5′	S 16°04.7′	6.5′	-12.2′	60.9′	101°32.7′	103°34.5′	94°17.5′	70°50.4′	62°58.5′	56°43.8′	18°40.9′	38°51.4′
18	66°06.0′	S 16°16.9′	6.4′	-12.1′	60.9′	100°56.7′	103°13.8′	94°01.7′	70°19.5′	62°21.1′	56°06.5′	18°05.1′	39°18.0′
19	80°31.4′	S 16°28.9′	6.4′	-11.9′	60.8′	100°20.7′	102°53.1′	93°45.8′	69°48.7′	61°43.7′	55°29.3′	17°29.5′	39°44.8′
20	94°56.7′	S 16°40.9′	6.3′	-11.8′	60.8′	99°44.7′	102°32.3′	93°30.0′	69°18.0′	61°06.3′	54°52.0′	16°54.1′	40°11.9′
21	109°22.1′	S 16°52.7′	6.3′	-11.7′	60.8′	99°08.8′	102°11.5′	93°14.2′	68°47.4′	60°29.0′	54°14.9′	16°18.8′	40°39.2′
22	123°47.3′	S 17°04.4′	6.2′	-11.6′	60.8′	98°32.9′	101°50.6′	92°58.3′	68°16.9′	59°51.7′	53°37.7′	15°43.8′	41°06.6′
23	138°12.6′	S 17°16.0′	6.2′	-11.5′	60.7′	97°57.0′	101°29.7′	92°42.5′	67°46.4′	59°14.4′	53°00.6′	15°08.9′	41°34.3′
Mer. pass. 13 h 25 m SD 16.7′ phase 2%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°08.8′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°07.9′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Monday 19 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	27°55.6′	183°45.5′	S 10°03.8′	217°29.8′	N 5°25.3′	96°50.2′	S 22°28.1′	90°13.4′	S 21°19.9′	8°54.1′	N 5°10.3′
1	42°58.0′	198°45.6′	S 10°04.8′	232°29.5′	N 5°24.2′	111°52.4′	S 22°28.0′	105°15.8′	S 21°19.9′	23°57.3′	N 5°10.2′
2	58°00.5′	213°45.7′	S 10°05.7′	247°29.1′	N 5°23.1′	126°54.6′	S 22°28.0′	120°18.2′	S 21°19.9′	39°00.5′	N 5°10.1′
3	73°03.0′	228°45.8′	S 10°06.6′	262°28.8′	N 5°22.0′	141°56.8′	S 22°28.0′	135°20.5′	S 21°19.9′	54°03.7′	N 5°10.0′
4	88°05.4′	243°46.0′	S 10°07.5′	277°28.5′	N 5°20.9′	156°58.9′	S 22°27.9′	150°22.9′	S 21°19.8′	69°07.0′	N 5°09.8′
5	103°07.9′	258°46.1′	S 10°08.4′	292°28.1′	N 5°19.9′	172°01.1′	S 22°27.9′	165°25.3′	S 21°19.8′	84°10.2′	N 5°09.7′
6	118°10.4′	273°46.2′	S 10°09.3′	307°27.8′	N 5°18.8′	187°03.3′	S 22°27.8′	180°27.7′	S 21°19.8′	99°13.4′	N 5°09.6′
7	133°12.8′	288°46.3′	S 10°10.2′	322°27.4′	N 5°17.7′	202°05.5′	S 22°27.8′	195°30.0′	S 21°19.8′	114°16.6′	N 5°09.5′
8	148°15.3′	303°46.4′	S 10°11.1′	337°27.1′	N 5°16.6′	217°07.6′	S 22°27.8′	210°32.4′	S 21°19.8′	129°19.9′	N 5°09.4′
9	163°17.7′	318°46.5′	S 10°12.0′	352°26.8′	N 5°15.5′	232°09.8′	S 22°27.7′	225°34.8′	S 21°19.8′	144°23.1′	N 5°09.2′
10	178°20.2′	333°46.6′	S 10°12.9′	7°26.4′	N 5°14.4′	247°12.0′	S 22°27.7′	240°37.2′	S 21°19.8′	159°26.3′	N 5°09.1′
11	193°22.7′	348°46.7′	S 10°13.8′	22°26.1′	N 5°13.4′	262°14.1′	S 22°27.7′	255°39.5′	S 21°19.7′	174°29.5′	N 5°09.0′
12	208°25.1′	3°46.8′	S 10°14.7′	37°25.7′	N 5°12.3′	277°16.3′	S 22°27.6′	270°41.9′	S 21°19.7′	189°32.7′	N 5°08.9′
13	223°27.6′	18°46.9′	S 10°15.5′	52°25.4′	N 5°11.2′	292°18.5′	S 22°27.6′	285°44.3′	S 21°19.7′	204°35.9′	N 5°08.8′
14	238°30.1′	33°47.1′	S 10°16.4′	67°25.1′	N 5°10.1′	307°20.6′	S 22°27.5′	300°46.7′	S 21°19.7′	219°39.2′	N 5°08.6′
15	253°32.5′	48°47.2′	S 10°17.3′	82°24.7′	N 5°09.0′	322°22.8′	S 22°27.5′	315°49.0′	S 21°19.7′	234°42.4′	N 5°08.5′
16	268°35.0′	63°47.3′	S 10°18.2′	97°24.4′	N 5°07.9′	337°25.0′	S 22°27.5′	330°51.4′	S 21°19.7′	249°45.6′	N 5°08.4′
17	283°37.5′	78°47.4′	S 10°19.1′	112°24.0′	N 5°06.9′	352°27.2′	S 22°27.4′	345°53.8′	S 21°19.7′	264°48.8′	N 5°08.3′
18	298°39.9′	93°47.5′	S 10°20.0′	127°23.7′	N 5°05.8′	7°29.3′	S 22°27.4′	0°56.2′	S 21°19.6′	279°52.0′	N 5°08.2′
19	313°42.4′	108°47.6′	S 10°20.9′	142°23.4′	N 5°04.7′	22°31.5′	S 22°27.4′	15°58.5′	S 21°19.6′	294°55.2′	N 5°08.1′
20	328°44.9′	123°47.7′	S 10°21.8′	157°23.0′	N 5°03.6′	37°33.7′	S 22°27.3′	31°00.9′	S 21°19.6′	309°58.4′	N 5°07.9′
21	343°47.3′	138°47.8′	S 10°22.7′	172°22.7′	N 5°02.5′	52°35.8′	S 22°27.3′	46°03.3′	S 21°19.6′	325°01.7′	N 5°07.8′
22	358°49.8′	153°47.9′	S 10°23.6′	187°22.3′	N 5°01.4′	67°38.0′	S 22°27.2′	61°05.7′	S 21°19.6′	340°04.9′	N 5°07.7′
23	13°52.2′	168°48.0′	S 10°24.5′	202°22.0′	N 5°00.3′	82°40.2′	S 22°27.2′	76°08.0′	S 21°19.6′	355°08.1′	N 5°07.6′
		SD 16.1′ *d* -0.9′		*v* -0.3′ *d* -1.1′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.1′	
Mer. pass.		11 h 44 m 53 s		9 h 30 m		17 h 30 m		17 h 56 m		23 h 19 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Achernar	−Fomalhaut	−Altair	−Saturn	−Jupiter	−Antares	+Sun	+Arcturus
0	152°37.8′	S 17°27.4′	6.1′	-11.3′	60.7′	101°08.8′	97°21.2′	67°16.0′	58°37.1′	52°23.6′	14°34.3′		42°02.1′
1	167°02.9′	S 17°38.8′	6.1′	-11.2′	60.7′	100°47.8′	96°45.3′	66°45.7′	57°59.9′	51°46.5′	13°60.0′		42°30.1′
2	181°28.0′	S 17°50.0′	6.1′	-11.1′	60.7′	100°26.8′	96°09.5′	66°15.5′	57°22.8′	51°09.5′	13°25.9′		42°58.3′
3	195°53.1′	S 18°01.0′	6.0′	-10.9′	60.6′	100°05.7′	95°33.8′	65°45.4′	56°45.6′	50°32.6′	12°52.2′		43°26.6′
4	210°18.1′	S 18°12.0′	6.0′	-10.8′	60.6′	99°44.7′	94°58.1′	65°15.4′	56°08.5′	49°55.6′	12°18.8′		43°55.1′
5	224°43.1′	S 18°22.8′	5.9′	-10.7′	60.6′	99°23.6′	94°22.3′	64°45.4′	55°31.5′	49°18.7′	11°45.9′		44°23.7′
6	239°08.0′	S 18°33.4′	5.9′	-10.5′	60.5′	99°02.4′	93°46.7′	64°15.6′	54°54.4′	48°41.9′	11°13.4′		44°52.5′
7	253°32.9′	S 18°44.0′	5.9′	-10.4′	60.5′	98°41.3′	93°11.0′	63°45.9′	54°17.4′	48°05.1′	10°41.4′		45°21.4′
8	267°57.7′	S 18°54.4′	5.8′	-10.3′	60.5′	98°20.1′	92°35.4′	63°16.2′	53°40.5′	47°28.3′	10°10.1′		45°50.4′
9	282°22.6′	S 19°04.7′	5.8′	-10.1′	60.5′	97°58.9′	91°59.9′	62°46.7′	53°03.6′	46°51.6′			46°19.6′
10	296°47.3′	S 19°14.8′	5.7′	-10.0′	60.4′	97°37.7′	91°24.3′	62°17.3′	52°26.7′	46°14.9′			46°48.8′
11	311°12.1′	S 19°24.8′	5.7′	-9.9′	60.4′	97°16.5′	90°48.9′	61°47.9′	51°49.9′	45°38.2′			47°18.2′
12	325°36.8′	S 19°34.6′	5.7′	-9.7′	60.4′	96°55.3′	90°13.4′	61°18.7′	51°13.1′	45°01.6′			47°47.7′
13	340°01.5′	S 19°44.3′	5.6′	-9.6′	60.3′	96°34.1′	89°38.0′	60°49.7′	50°36.4′	44°25.0′			48°17.2′
14	354°26.1′	S 19°53.9′	5.6′	-9.4′	60.3′	96°12.8′	89°02.6′	60°20.7′	49°59.7′	43°48.5′			48°46.9′
15	8°50.7′	S 20°03.3′	5.6′	-9.3′	60.3′	95°51.6′	88°27.3′	59°51.8′	49°23.0′	43°12.0′			49°16.6′
16	23°15.3′	S 20°12.6′	5.5′	-9.1′	60.2′	95°30.3′	87°52.0′	59°23.1′	48°46.4′	42°35.6′		40°13.5′	49°46.5′
17	37°39.8′	S 20°21.8′	5.5′	-9.0′	60.2′	95°09.0′	87°16.7′	58°54.5′	48°09.8′	41°59.2′		40°47.5′	50°16.4′
18	52°04.3′	S 20°30.7′	5.5′	-8.8′	60.2′	94°47.8′	86°41.5′	58°26.0′	47°33.3′	41°22.8′		41°21.5′	50°46.3′
19	66°28.8′	S 20°39.6′	5.4′	-8.7′	60.1′	94°26.5′	86°06.3′	57°57.6′	46°56.8′	40°46.5′		41°55.4′	51°16.4′
20	80°53.2′	S 20°48.3′	5.4′	-8.5′	60.1′	94°05.3′	85°31.2′	57°29.4′	46°20.3′	40°10.2′		42°29.3′	51°46.5′
21	95°17.6′	S 20°56.8′	5.4′	-8.4′	60.1′	93°44.1′	84°56.1′	57°01.3′	45°43.9′	39°34.0′		43°03.2′	52°16.7′
22	109°42.0′	S 21°05.2′	5.4′	-8.2′	60.0′	93°22.8′	84°21.0′	56°33.3′	45°07.5′	38°57.8′		43°37.0′	52°47.0′
23	124°06.4′	S 21°13.4′	5.3′	-8.1′	60.0′	93°01.6′	83°46.0′	56°05.5′	44°31.2′	38°21.6′		44°10.8′	53°17.3′
Mer. pass. 14 h 23 m SD 16.6′ phase 7%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.3′	S 11°15.9′	Betelgeuse	+0.5	270°55.7′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°08.5′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Tuesday 20 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	28°54.7′	183°48.1′	S 10°25.4′	217°21.7′	N 4°59.2′	97°42.3′	S 22°27.2′	91°10.4′	S 21°19.6′	10°11.3′	N 5°07.5′
1	43°57.2′	198°48.2′	S 10°26.3′	232°21.3′	N 4°58.1′	112°44.5′	S 22°27.1′	106°12.8′	S 21°19.5′	25°14.5′	N 5°07.4′
2	58°59.6′	213°48.3′	S 10°27.2′	247°21.0′	N 4°57.1′	127°46.7′	S 22°27.1′	121°15.2′	S 21°19.5′	40°17.7′	N 5°07.3′
3	74°02.1′	228°48.5′	S 10°28.1′	262°20.6′	N 4°56.0′	142°48.8′	S 22°27.0′	136°17.5′	S 21°19.5′	55°20.9′	N 5°07.1′
4	89°04.6′	243°48.6′	S 10°29.0′	277°20.3′	N 4°54.9′	157°51.0′	S 22°27.0′	151°19.9′	S 21°19.5′	70°24.1′	N 5°07.0′
5	104°07.0′	258°48.7′	S 10°29.9′	292°20.0′	N 4°53.8′	172°53.2′	S 22°27.0′	166°22.3′	S 21°19.5′	85°27.3′	N 5°06.9′
6	119°09.5′	273°48.8′	S 10°30.8′	307°19.6′	N 4°52.7′	187°55.3′	S 22°26.9′	181°24.7′	S 21°19.5′	100°30.5′	N 5°06.8′
7	134°12.0′	288°48.9′	S 10°31.7′	322°19.3′	N 4°51.6′	202°57.5′	S 22°26.9′	196°27.0′	S 21°19.5′	115°33.7′	N 5°06.7′
8	149°14.4′	303°49.0′	S 10°32.6′	337°18.9′	N 4°50.5′	217°59.7′	S 22°26.8′	211°29.4′	S 21°19.5′	130°36.9′	N 5°06.6′
9	164°16.9′	318°49.1′	S 10°33.5′	352°18.6′	N 4°49.4′	233°01.8′	S 22°26.8′	226°31.8′	S 21°19.4′	145°40.2′	N 5°06.5′
10	179°19.4′	333°49.2′	S 10°34.4′	7°18.3′	N 4°48.3′	248°04.0′	S 22°26.8′	241°34.1′	S 21°19.4′	160°43.4′	N 5°06.3′
11	194°21.8′	348°49.3′	S 10°35.2′	22°17.9′	N 4°47.2′	263°06.2′	S 22°26.7′	256°36.5′	S 21°19.4′	175°46.6′	N 5°06.2′
12	209°24.3′	3°49.4′	S 10°36.1′	37°17.6′	N 4°46.1′	278°08.3′	S 22°26.7′	271°38.9′	S 21°19.4′	190°49.8′	N 5°06.1′
13	224°26.7′	18°49.5′	S 10°37.0′	52°17.2′	N 4°45.0′	293°10.5′	S 22°26.7′	286°41.3′	S 21°19.4′	205°53.0′	N 5°06.0′
14	239°29.2′	33°49.6′	S 10°37.9′	67°16.9′	N 4°44.0′	308°12.6′	S 22°26.6′	301°43.6′	S 21°19.4′	220°56.2′	N 5°05.9′
15	254°31.7′	48°49.7′	S 10°38.8′	82°16.6′	N 4°42.9′	323°14.8′	S 22°26.6′	316°46.0′	S 21°19.3′	235°59.4′	N 5°05.8′
16	269°34.1′	63°49.8′	S 10°39.7′	97°16.2′	N 4°41.8′	338°17.0′	S 22°26.5′	331°48.4′	S 21°19.3′	251°02.6′	N 5°05.7′
17	284°36.6′	78°49.9′	S 10°40.6′	112°15.9′	N 4°40.7′	353°19.1′	S 22°26.5′	346°50.7′	S 21°19.3′	266°05.8′	N 5°05.6′
18	299°39.1′	93°50.0′	S 10°41.5′	127°15.5′	N 4°39.6′	8°21.3′	S 22°26.5′	1°53.1′	S 21°19.3′	281°09.0′	N 5°05.5′
19	314°41.5′	108°50.1′	S 10°42.4′	142°15.2′	N 4°38.5′	23°23.5′	S 22°26.4′	16°55.5′	S 21°19.3′	296°12.2′	N 5°05.3′
20	329°44.0′	123°50.2′	S 10°43.3′	157°14.9′	N 4°37.4′	38°25.6′	S 22°26.4′	31°57.9′	S 21°19.3′	311°15.4′	N 5°05.2′
21	344°46.5′	138°50.3′	S 10°44.2′	172°14.5′	N 4°36.3′	53°27.8′	S 22°26.3′	47°00.2′	S 21°19.3′	326°18.5′	N 5°05.1′
22	359°48.9′	153°50.4′	S 10°45.0′	187°14.2′	N 4°35.2′	68°29.9′	S 22°26.3′	62°02.6′	S 21°19.2′	341°21.7′	N 5°05.0′
23	14°51.4′	168°50.5′	S 10°45.9′	202°13.8′	N 4°34.1′	83°32.1′	S 22°26.3′	77°05.0′	S 21°19.2′	356°24.9′	N 5°04.9′
		SD 16.1′	*d* -0.9′	*v* -0.3′	*d* -1.1′	*v* 2.2′	*d* 0.0′	*v* 2.4′	*d* 0.0′	*v* 3.2′	*d* -0.1′
Mer. pass.		11 h 44 m 43 s		9 h 31 m		17 h 27 m		17 h 52 m		23 h 14 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Mars	−Fomalhaut	−Altair	−Saturn	−Jupiter	+Antares	+Sun	+Arcturus
0	138°30.7′	S 21°21.5′	5.3′	-7.9′	60.0′		83°11.1′	55°37.9′	43°55.0′	37°45.6′		44°44.5′	53°47.6′
1	152°55.1′	S 21°29.5′	5.3′	-7.8′	59.9′		82°36.2′	55°10.3′	43°18.7′	37°09.5′		45°18.2′	54°18.0′
2	167°19.4′	S 21°37.3′	5.3′	-7.6′	59.9′		82°01.3′	54°43.0′	42°42.6′	36°33.5′		45°51.9′	54°48.5′
3	181°43.6′	S 21°44.9′	5.3′	-7.5′	59.9′		81°26.5′	54°15.7′	42°06.4′	35°57.6′		46°25.5′	55°18.9′
4	196°07.9′	S 21°52.4′	5.2′	-7.3′	59.8′		80°51.7′	53°48.7′	41°30.4′	35°21.6′		46°59.1′	55°49.5′
5	210°32.1′	S 21°59.7′	5.2′	-7.2′	59.8′		80°17.0′	53°21.7′	40°54.3′	34°45.8′		47°32.7′	56°20.0′
6	224°56.4′	S 22°06.8′	5.2′	-7.0′	59.8′		79°42.4′	52°55.0′	40°18.3′	34°10.0′		48°06.2′	56°50.6′
7	239°20.6′	S 22°13.8′	5.2′	-6.8′	59.7′		79°07.7′	52°28.4′	39°42.4′	33°34.2′		48°39.6′	57°21.3′
8	253°44.8′	S 22°20.7′	5.2′	-6.7′	59.7′		78°33.2′	52°02.0′	39°06.5′	32°58.5′		49°13.0′	57°51.9′
9	268°08.9′	S 22°27.4′	5.2′	-6.5′	59.7′		77°58.6′	51°35.7′	38°30.7′	32°22.8′		49°46.4′	58°22.6′
10	282°33.1′	S 22°33.9′	5.2′	-6.4′	59.6′		77°24.2′	51°09.7′	37°54.9′	31°47.2′		50°19.7′	58°53.3′
11	296°57.3′	S 22°40.3′	5.1′	-6.2′	59.6′		76°49.8′	50°43.8′	37°19.1′	31°11.6′	9°38.6′	50°53.0′	59°24.1′
12	311°21.4′	S 22°46.5′	5.1′	-6.0′	59.5′		76°15.4′	50°18.1′	36°43.4′	30°36.1′	10°08.2′	51°26.3′	59°54.8′
13	325°45.6′	S 22°52.5′	5.1′	-5.9′	59.5′	119°27.1′	75°41.1′	49°52.5′	36°07.8′	30°00.6′	10°38.4′	51°59.5′	60°25.6′
14	340°09.7′	S 22°58.4′	5.1′	-5.7′	59.5′	118°50.7′	75°06.8′	49°27.2′	35°32.2′	29°25.2′	11°09.2′	52°32.6′	60°56.4′
15	354°33.8′	S 23°04.1′	5.1′	-5.6′	59.4′	118°14.2′	74°32.6′	49°02.1′	34°56.6′	28°49.9′	11°40.3′	53°05.7′	61°27.2′
16	8°58.0′	S 23°09.7′	5.1′	-5.4′	59.4′	117°37.8′	73°58.4′	48°37.1′	34°21.1′	28°14.5′	12°11.9′	53°38.8′	61°58.0′
17	23°22.1′	S 23°15.1′	5.1′	-5.2′	59.4′	117°01.5′	73°24.4′	48°12.4′	33°45.7′	27°39.3′	12°43.7′	54°11.8′	62°28.8′
18	37°46.2′	S 23°20.3′	5.1′	-5.1′	59.3′	116°25.2′	72°50.3′	47°47.8′	33°10.3′	27°04.1′	13°15.9′	54°44.8′	62°59.6′
19	52°10.4′	S 23°25.4′	5.1′	-4.9′	59.3′	115°49.0′	72°16.3′	47°23.5′	32°35.0′	26°28.9′	13°48.2′	55°17.7′	63°30.5′
20	66°34.5′	S 23°30.3′	5.1′	-4.8′	59.2′	115°12.8′	71°42.4′	46°59.4′	31°59.7′	25°53.8′	14°20.8′	55°50.6′	64°01.3′
21	80°58.6′	S 23°35.1′	5.1′	-4.6′	59.2′	114°36.7′	71°08.5′	46°35.5′	31°24.4′	25°18.7′	14°53.6′	56°23.4′	64°32.1′
22	95°22.8′	S 23°39.7′	5.2′	-4.4′	59.2′	114°00.6′	70°34.7′	46°11.8′	30°49.3′	24°43.7′	15°26.4′	56°56.2′	65°03.0′
23	109°46.9′	S 23°44.1′	5.2′	-4.3′	59.1′	113°24.5′	70°00.9′	45°48.3′	30°14.1′	24°08.8′	15°59.5′	57°29.0′	65°33.8′
Mer. pass. 15 h 23 m SD 16.4′ phase 14%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.5′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°08.1′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.2′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Wednesday 21 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	29°53.8′	183°50.6′	S 10°46.8′	217°13.5′	N 4°33.0′	98°34.3′	S 22°26.2′	92°07.3′	S 21°19.2′	11°28.1′	N 5°04.8′
1	44°56.3′	198°50.7′	S 10°47.7′	232°13.2′	N 4°31.9′	113°36.4′	S 22°26.2′	107°09.7′	S 21°19.2′	26°31.3′	N 5°04.7′
2	59°58.8′	213°50.8′	S 10°48.6′	247°12.8′	N 4°30.8′	128°38.6′	S 22°26.1′	122°12.1′	S 21°19.2′	41°34.5′	N 5°04.6′
3	75°01.2′	228°50.9′	S 10°49.5′	262°12.5′	N 4°29.7′	143°40.7′	S 22°26.1′	137°14.4′	S 21°19.2′	56°37.7′	N 5°04.5′
4	90°03.7′	243°51.0′	S 10°50.4′	277°12.1′	N 4°28.6′	158°42.9′	S 22°26.1′	152°16.8′	S 21°19.2′	71°40.9′	N 5°04.4′
5	105°06.2′	258°51.1′	S 10°51.3′	292°11.8′	N 4°27.5′	173°45.1′	S 22°26.0′	167°19.2′	S 21°19.1′	86°44.1′	N 5°04.3′
6	120°08.6′	273°51.2′	S 10°52.1′	307°11.5′	N 4°26.4′	188°47.2′	S 22°26.0′	182°21.5′	S 21°19.1′	101°47.3′	N 5°04.2′
7	135°11.1′	288°51.3′	S 10°53.0′	322°11.1′	N 4°25.3′	203°49.4′	S 22°25.9′	197°23.9′	S 21°19.1′	116°50.5′	N 5°04.1′
8	150°13.6′	303°51.4′	S 10°53.9′	337°10.8′	N 4°24.2′	218°51.5′	S 22°25.9′	212°26.3′	S 21°19.1′	131°53.7′	N 5°04.0′
9	165°16.0′	318°51.5′	S 10°54.8′	352°10.4′	N 4°23.1′	233°53.7′	S 22°25.9′	227°28.6′	S 21°19.1′	146°56.8′	N 5°03.8′
10	180°18.5′	333°51.6′	S 10°55.7′	7°10.1′	N 4°22.0′	248°55.8′	S 22°25.8′	242°31.0′	S 21°19.1′	162°00.0′	N 5°03.7′
11	195°21.0′	348°51.7′	S 10°56.6′	22°09.8′	N 4°20.9′	263°58.0′	S 22°25.8′	257°33.4′	S 21°19.1′	177°03.2′	N 5°03.6′
12	210°23.4′	3°51.8′	S 10°57.5′	37°09.4′	N 4°19.8′	279°00.2′	S 22°25.7′	272°35.7′	S 21°19.0′	192°06.4′	N 5°03.5′
13	225°25.9′	18°51.9′	S 10°58.3′	52°09.1′	N 4°18.7′	294°02.3′	S 22°25.7′	287°38.1′	S 21°19.0′	207°09.6′	N 5°03.4′
14	240°28.3′	33°52.0′	S 10°59.2′	67°08.8′	N 4°17.6′	309°04.5′	S 22°25.7′	302°40.5′	S 21°19.0′	222°12.8′	N 5°03.3′
15	255°30.8′	48°52.1′	S 11°00.1′	82°08.4′	N 4°16.5′	324°06.6′	S 22°25.6′	317°42.8′	S 21°19.0′	237°16.0′	N 5°03.2′
16	270°33.3′	63°52.2′	S 11°01.0′	97°08.1′	N 4°15.4′	339°08.8′	S 22°25.6′	332°45.2′	S 21°19.0′	252°19.1′	N 5°03.1′
17	285°35.7′	78°52.3′	S 11°01.9′	112°07.7′	N 4°14.3′	354°10.9′	S 22°25.5′	347°47.6′	S 21°19.0′	267°22.3′	N 5°03.0′
18	300°38.2′	93°52.4′	S 11°02.8′	127°07.4′	N 4°13.2′	9°13.1′	S 22°25.5′	2°49.9′	S 21°18.9′	282°25.5′	N 5°02.9′
19	315°40.7′	108°52.5′	S 11°03.7′	142°07.1′	N 4°12.1′	24°15.2′	S 22°25.4′	17°52.3′	S 21°18.9′	297°28.7′	N 5°02.8′
20	330°43.1′	123°52.6′	S 11°04.5′	157°06.7′	N 4°11.0′	39°17.4′	S 22°25.4′	32°54.7′	S 21°18.9′	312°31.9′	N 5°02.7′
21	345°45.6′	138°52.6′	S 11°05.4′	172°06.4′	N 4°09.9′	54°19.6′	S 22°25.4′	47°57.0′	S 21°18.9′	327°35.0′	N 5°02.6′
22	0°48.1′	153°52.7′	S 11°06.3′	187°06.0′	N 4°08.8′	69°21.7′	S 22°25.3′	62°59.4′	S 21°18.9′	342°38.2′	N 5°02.5′
23	15°50.5′	168°52.8′	S 11°07.2′	202°05.7′	N 4°07.7′	84°23.9′	S 22°25.3′	78°01.8′	S 21°18.9′	357°41.4′	N 5°02.4′
		SD 16.1′ *d* -0.9′		*v* -0.3′ *d* -1.1′		*v* 2.2′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.1′	
Mer. pass.		11 h 44 m 34 s		9 h 31 m		17 h 23 m		17 h 49 m		23 h 9 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Fomalhaut	−Altair	−Saturn	−Jupiter	+Antares	+Rigil Kent	+Hadar	+Sun
0	124°11.1′	S 23°48.4′	5.2′	-4.1′	59.1′	69°27.2′	45°25.1′	29°39.1′	23°33.9′	16°32.6′			58°01.6′
1	138°35.3′	S 23°52.5′	5.2′	-3.9′	59.1′	68°53.6′	45°02.1′	29°04.0′	22°59.0′	17°05.8′			58°34.3′
2	152°59.5′	S 23°56.4′	5.2′	-3.8′	59.0′	68°20.0′	44°39.4′	28°29.1′	22°24.3′	17°39.1′			59°06.9′
3	167°23.7′	S 24°00.2′	5.2′	-3.6′	59.0′	67°46.5′	44°16.9′	27°54.1′	21°49.5′	18°12.5′			59°39.5′
4	181°47.9′	S 24°03.8′	5.2′	-3.5′	58.9′	67°13.0′	43°54.7′	27°19.3′	21°14.9′	18°46.0′		53°07.0′	60°12.0′
5	196°12.1′	S 24°07.3′	5.3′	-3.3′	58.9′	66°39.6′	43°32.7′	26°44.5′	20°40.2′	19°19.5′		53°22.1′	60°44.4′
6	210°36.4′	S 24°10.5′	5.3′	-3.1′	58.9′	66°06.2′	43°10.9′	26°09.7′	20°05.7′	19°53.0′		53°37.4′	61°16.8′
7	225°00.6′	S 24°13.7′	5.3′	-3.0′	58.8′	65°32.9′	42°49.5′	25°35.0′	19°31.2′	20°26.5′		53°52.9′	61°49.2′
8	239°24.9′	S 24°16.6′	5.3′	-2.8′	58.8′	64°59.7′	42°28.3′	25°00.4′	18°56.7′	21°00.1′		54°08.6′	62°21.5′
9	253°49.3′	S 24°19.4′	5.4′	-2.6′	58.7′	64°26.6′	42°07.3′	24°25.8′	18°22.4′	21°33.7′		54°24.4′	62°53.8′
10	268°13.6′	S 24°22.1′	5.4′	-2.5′	58.7′	63°53.5′	41°46.7′	23°51.3′	17°48.0′	22°07.4′	50°38.7′	54°40.4′	63°26.0′
11	282°38.0′	S 24°24.5′	5.4′	-2.3′	58.7′	63°20.4′	41°26.3′	23°16.8′	17°13.8′	22°41.0′	50°53.7′	54°56.7′	63°58.2′
12	297°02.4′	S 24°26.9′	5.4′	-2.2′	58.6′	62°47.4′	41°06.3′	22°42.4′	16°39.6′	23°14.6′	51°08.9′	55°13.0′	64°30.3′
13	311°26.8′	S 24°29.0′	5.5′	-2.0′	58.6′	62°14.5′	40°46.5′	22°08.1′	16°05.5′	23°48.3′	51°24.4′	55°29.6′	65°02.4′
14	325°51.3′	S 24°31.0′	5.5′	-1.8′	58.5′	61°41.7′	40°27.0′	21°33.8′	15°31.4′	24°21.9′	51°40.1′	55°46.3′	65°34.5′
15	340°15.8′	S 24°32.8′	5.5′	-1.7′	58.5′	61°08.9′	40°07.9′	20°59.6′	14°57.4′	24°55.6′	51°55.9′	56°03.2′	66°06.5′
16	354°40.4′	S 24°34.5′	5.6′	-1.5′	58.5′	60°36.2′	39°49.0′	20°25.4′	14°23.5′	25°29.2′	52°12.0′	56°20.2′	66°38.4′
17	9°04.9′	S 24°36.0′	5.6′	-1.3′	58.4′	60°03.5′	39°30.5′	19°51.3′	13°49.7′	26°02.8′	52°28.2′	56°37.3′	67°10.3′
18	23°29.6′	S 24°37.4′	5.7′	-1.2′	58.4′	59°30.9′	39°12.3′	19°17.3′	13°15.9′	26°36.4′	52°44.6′	56°54.7′	67°42.1′
19	37°54.2′	S 24°38.5′	5.7′	-1.0′	58.4′	58°58.4′	38°54.5′	18°43.3′	12°42.2′	27°10.0′	53°01.2′	57°12.1′	68°13.9′
20	52°18.9′	S 24°39.6′	5.7′	-0.9′	58.3′	58°26.0′	38°36.9′	18°09.4′	12°08.6′	27°43.6′	53°18.0′	57°29.7′	68°45.7′
21	66°43.6′	S 24°40.4′	5.8′	-0.7′	58.3′	57°53.6′	38°19.8′	17°35.6′	11°35.1′	28°17.1′	53°34.9′	57°47.4′	69°17.4′
22	81°08.4′	S 24°41.2′	5.8′	-0.6′	58.2′	57°21.3′	38°02.9′	17°01.8′	11°01.7′	28°50.7′	53°52.0′	58°05.3′	69°49.1′
23	95°33.3′	S 24°41.7′	5.9′	-0.4′	58.2′	56°49.0′	37°46.4′	16°28.1′	10°28.4′	29°24.2′	54°09.3′	58°23.3′	70°20.7′
Mer. pass. 16 h 22 m SD 16.1′ phase 24%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.6′	Capella	+0.1	280°26.7′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°07.8′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.5′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Thursday 22 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	30°53.0′	183°52.9′	S 11°08.1′	217°05.4′	N 4°06.6′	99°26.0′	S 22°25.2′	93°04.1′	S 21°18.9′	12°44.6′	N 5°02.3′
1	45°55.5′	198°53.0′	S 11°08.9′	232°05.0′	N 4°05.5′	114°28.2′	S 22°25.2′	108°06.5′	S 21°18.8′	27°47.7′	N 5°02.2′
2	60°57.9′	213°53.1′	S 11°09.8′	247°04.7′	N 4°04.4′	129°30.3′	S 22°25.2′	123°08.9′	S 21°18.8′	42°50.9′	N 5°02.1′
3	76°00.4′	228°53.2′	S 11°10.7′	262°04.4′	N 4°03.3′	144°32.5′	S 22°25.1′	138°11.2′	S 21°18.8′	57°54.1′	N 5°02.0′
4	91°02.8′	243°53.3′	S 11°11.6′	277°04.0′	N 4°02.2′	159°34.6′	S 22°25.1′	153°13.6′	S 21°18.8′	72°57.3′	N 5°01.9′
5	106°05.3′	258°53.4′	S 11°12.5′	292°03.7′	N 4°01.1′	174°36.8′	S 22°25.0′	168°16.0′	S 21°18.8′	88°00.4′	N 5°01.8′
6	121°07.8′	273°53.5′	S 11°13.4′	307°03.3′	N 3°60.0′	189°38.9′	S 22°25.0′	183°18.3′	S 21°18.8′	103°03.6′	N 5°01.7′
7	136°10.2′	288°53.6′	S 11°14.2′	322°03.0′	N 3°58.8′	204°41.1′	S 22°25.0′	198°20.7′	S 21°18.7′	118°06.8′	N 5°01.6′
8	151°12.7′	303°53.7′	S 11°15.1′	337°02.7′	N 3°57.7′	219°43.2′	S 22°24.9′	213°23.1′	S 21°18.7′	133°09.9′	N 5°01.5′
9	166°15.2′	318°53.8′	S 11°16.0′	352°02.3′	N 3°56.6′	234°45.4′	S 22°24.9′	228°25.4′	S 21°18.7′	148°13.1′	N 5°01.4′
10	181°17.6′	333°53.8′	S 11°16.9′	7°02.0′	N 3°55.5′	249°47.5′	S 22°24.8′	243°27.8′	S 21°18.7′	163°16.3′	N 5°01.3′
11	196°20.1′	348°53.9′	S 11°17.7′	22°01.6′	N 3°54.4′	264°49.7′	S 22°24.8′	258°30.1′	S 21°18.7′	178°19.5′	N 5°01.2′
12	211°22.6′	3°54.0′	S 11°18.6′	37°01.3′	N 3°53.3′	279°51.8′	S 22°24.7′	273°32.5′	S 21°18.7′	193°22.6′	N 5°01.1′
13	226°25.0′	18°54.1′	S 11°19.5′	52°01.0′	N 3°52.2′	294°54.0′	S 22°24.7′	288°34.9′	S 21°18.7′	208°25.8′	N 5°01.0′
14	241°27.5′	33°54.2′	S 11°20.4′	67°00.6′	N 3°51.1′	309°56.1′	S 22°24.7′	303°37.2′	S 21°18.6′	223°29.0′	N 5°00.9′
15	256°30.0′	48°54.3′	S 11°21.3′	82°00.3′	N 3°50.0′	324°58.3′	S 22°24.6′	318°39.6′	S 21°18.6′	238°32.1′	N 5°00.8′
16	271°32.4′	63°54.4′	S 11°22.1′	96°60.0′	N 3°48.9′	340°00.4′	S 22°24.6′	333°42.0′	S 21°18.6′	253°35.3′	N 5°00.8′
17	286°34.9′	78°54.5′	S 11°23.0′	111°59.6′	N 3°47.8′	355°02.6′	S 22°24.5′	348°44.3′	S 21°18.6′	268°38.4′	N 5°00.7′
18	301°37.3′	93°54.6′	S 11°23.9′	126°59.3′	N 3°46.7′	10°04.7′	S 22°24.5′	3°46.7′	S 21°18.6′	283°41.6′	N 5°00.6′
19	316°39.8′	108°54.6′	S 11°24.8′	141°58.9′	N 3°45.5′	25°06.9′	S 22°24.5′	18°49.0′	S 21°18.6′	298°44.8′	N 5°00.5′
20	331°42.3′	123°54.7′	S 11°25.6′	156°58.6′	N 3°44.4′	40°09.0′	S 22°24.4′	33°51.4′	S 21°18.5′	313°47.9′	N 5°00.4′
21	346°44.7′	138°54.8′	S 11°26.5′	171°58.3′	N 3°43.3′	55°11.2′	S 22°24.4′	48°53.8′	S 21°18.5′	328°51.1′	N 5°00.3′
22	1°47.2′	153°54.9′	S 11°27.4′	186°57.9′	N 3°42.2′	70°13.3′	S 22°24.3′	63°56.1′	S 21°18.5′	343°54.2′	N 5°00.2′
23	16°49.7′	168°55.0′	S 11°28.3′	201°57.6′	N 3°41.1′	85°15.5′	S 22°24.3′	78°58.5′	S 21°18.5′	358°57.4′	N 5°00.1′
		SD 16.1′ *d* -0.9′		*v* -0.3′ *d* -1.1′		*v* 2.1′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.2′ *d* -0.1′	
Mer. pass.		11 h 44 m 25 s		9 h 32 m		17 h 20 m		17 h 45 m		23 h 4 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Fomalhaut	−Altair	−Saturn	−Jupiter	+Antares	+Rigil Kent	+Hadar	+Sun
0	109°58.1′	S 24°42.1′	5.9′	-0.2′	58.2′	56°16.8′	37°30.3′	15°54.5′	9°55.2′	29°57.7′	54°26.7′	58°41.4′	70°52.2′
1	124°23.1′	S 24°42.4′	6.0′	-0.1′	58.1′	55°44.7′	37°14.6′	15°21.0′	9°22.1′	30°31.1′	54°44.3′	58°59.7′	71°23.8′
2	138°48.0′	S 24°42.5′	6.0′	0.1′	58.1′	55°12.7′		14°47.5′	8°49.2′	31°04.6′	55°02.0′	59°18.0′	71°55.2′
3	153°13.1′	S 24°42.4′	6.1′	0.2′	58.0′	54°40.7′		14°14.1′	8°16.4′	31°38.0′	55°19.8′	59°36.5′	72°26.7′
4	167°38.2′	S 24°42.2′	6.1′	0.4′	58.0′	54°08.9′		13°40.9′	7°43.8′	32°11.4′	55°37.9′	59°55.1′	72°58.0′
5	182°03.3′	S 24°41.8′	6.2′	0.5′	58.0′	53°37.0′		13°07.7′	7°11.5′	32°44.7′	55°56.0′	60°13.8′	73°29.4′
6	196°28.5′	S 24°41.3′	6.3′	0.7′	57.9′	53°05.3′		12°34.6′	6°39.3′	33°18.1′	56°14.3′	60°32.6′	74°00.7′
7	210°53.7′	S 24°40.6′	6.3′	0.8′	57.9′	52°33.6′		12°01.7′	6°07.5′	33°51.4′	56°32.7′	60°51.5′	74°31.9′
8	225°19.1′	S 24°39.8′	6.4′	1.0′	57.8′	52°02.0′		11°28.8′	5°36.1′	34°24.6′	56°51.3′	61°10.5′	75°03.1′
9	239°44.4′	S 24°38.8′	6.4′	1.1′	57.8′	51°30.5′		10°56.1′	5°05.1′	34°57.9′	57°09.9′	61°29.6′	75°34.3′
10	254°09.9′	S 24°37.6′	6.5′	1.3′	57.8′	50°59.1′		10°23.5′		35°31.1′	57°28.7′	61°48.8′	76°05.4′
11	268°35.4′	S 24°36.4′	6.6′	1.4′	57.7′	50°27.7′		9°51.1′		36°04.2′	57°47.7′	62°08.1′	76°36.4′
12	283°00.9′	S 24°34.9′	6.6′	1.6′	57.7′	49°56.4′		9°18.8′		36°37.4′	58°06.7′	62°27.5′	77°07.4′
13	297°26.5′	S 24°33.4′	6.7′	1.7′	57.7′	49°25.2′		8°46.8′		37°10.5′	58°25.8′	62°47.0′	77°38.4′
14	311°52.2′	S 24°31.6′	6.8′	1.9′	57.6′	48°54.1′		8°14.9′		37°43.5′	58°45.1′	63°06.5′	78°09.3′
15	326°18.0′	S 24°29.8′	6.8′	2.0′	57.6′	48°23.0′		7°43.4′		38°16.6′	59°04.4′	63°26.2′	78°40.2′
16	340°43.8′	S 24°27.8′	6.9′	2.2′	57.5′	47°52.1′		7°12.1′		38°49.6′	59°23.9′	63°45.9′	79°11.0′
17	355°09.7′	S 24°25.6′	7.0′	2.3′	57.5′	47°21.2′		6°41.2′		39°22.5′	59°43.4′	64°05.7′	79°41.8′
18	9°35.7′	S 24°23.3′	7.0′	2.4′	57.5′	46°50.4′		6°10.8′		39°55.5′	60°03.1′	64°25.5′	80°12.6′
19	24°01.7′	S 24°20.9′	7.1′	2.6′	57.4′	46°19.7′		5°40.9′		40°28.4′	60°22.8′	64°45.5′	80°43.3′
20	38°27.8′	S 24°18.3′	7.2′	2.7′	57.4′	45°49.1′				41°01.2′	60°42.7′	65°05.5′	81°13.9′
21	52°54.0′	S 24°15.6′	7.3′	2.9′	57.3′	45°18.5′				41°34.0′	61°02.6′	65°25.6′	81°44.5′
22	67°20.3′	S 24°12.7′	7.3′	3.0′	57.3′	44°48.1′				42°06.8′	61°22.6′	65°45.7′	82°15.1′
23	81°46.6′	S 24°09.7′	7.4′	3.1′	57.3′	44°17.7′				42°39.6′	61°42.7′	66°05.9′	82°45.6′
Mer. pass. 17 h 20 m SD 15.9′ phase 34%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.6′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°07.0′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°07.6′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Friday 23 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	31°52.1′	183°55.1′	S 11°29.1′	216°57.2′	N 3°40.0′	100°17.6′	S 22°24.2′	94°00.9′	S 21°18.5′	14°00.6′	N 5°00.0′
1	46°54.6′	198°55.2′	S 11°30.0′	231°56.9′	N 3°38.9′	115°19.8′	S 22°24.2′	109°03.2′	S 21°18.5′	29°03.7′	N 4°59.9′
2	61°57.1′	213°55.2′	S 11°30.9′	246°56.6′	N 3°37.8′	130°21.9′	S 22°24.2′	124°05.6′	S 21°18.4′	44°06.9′	N 4°59.8′
3	76°59.5′	228°55.3′	S 11°31.8′	261°56.2′	N 3°36.7′	145°24.0′	S 22°24.1′	139°07.9′	S 21°18.4′	59°10.0′	N 4°59.7′
4	92°02.0′	243°55.4′	S 11°32.6′	276°55.9′	N 3°35.5′	160°26.2′	S 22°24.1′	154°10.3′	S 21°18.4′	74°13.2′	N 4°59.6′
5	107°04.5′	258°55.5′	S 11°33.5′	291°55.6′	N 3°34.4′	175°28.3′	S 22°24.0′	169°12.7′	S 21°18.4′	89°16.3′	N 4°59.6′
6	122°06.9′	273°55.6′	S 11°34.4′	306°55.2′	N 3°33.3′	190°30.5′	S 22°24.0′	184°15.0′	S 21°18.4′	104°19.5′	N 4°59.5′
7	137°09.4′	288°55.7′	S 11°35.3′	321°54.9′	N 3°32.2′	205°32.6′	S 22°23.9′	199°17.4′	S 21°18.4′	119°22.6′	N 4°59.4′
8	152°11.8′	303°55.8′	S 11°36.1′	336°54.5′	N 3°31.1′	220°34.8′	S 22°23.9′	214°19.7′	S 21°18.3′	134°25.8′	N 4°59.3′
9	167°14.3′	318°55.8′	S 11°37.0′	351°54.2′	N 3°30.0′	235°36.9′	S 22°23.9′	229°22.1′	S 21°18.3′	149°28.9′	N 4°59.2′
10	182°16.8′	333°55.9′	S 11°37.9′	6°53.9′	N 3°28.9′	250°39.1′	S 22°23.8′	244°24.5′	S 21°18.3′	164°32.1′	N 4°59.1′
11	197°19.2′	348°56.0′	S 11°38.7′	21°53.5′	N 3°27.7′	265°41.2′	S 22°23.8′	259°26.8′	S 21°18.3′	179°35.2′	N 4°59.0′
12	212°21.7′	3°56.1′	S 11°39.6′	36°53.2′	N 3°26.6′	280°43.3′	S 22°23.7′	274°29.2′	S 21°18.3′	194°38.4′	N 4°58.9′
13	227°24.2′	18°56.2′	S 11°40.5′	51°52.9′	N 3°25.5′	295°45.5′	S 22°23.7′	289°31.5′	S 21°18.3′	209°41.5′	N 4°58.8′
14	242°26.6′	33°56.3′	S 11°41.4′	66°52.5′	N 3°24.4′	310°47.6′	S 22°23.6′	304°33.9′	S 21°18.2′	224°44.7′	N 4°58.8′
15	257°29.1′	48°56.3′	S 11°42.2′	81°52.2′	N 3°23.3′	325°49.8′	S 22°23.6′	319°36.2′	S 21°18.2′	239°47.8′	N 4°58.7′
16	272°31.6′	63°56.4′	S 11°43.1′	96°51.8′	N 3°22.2′	340°51.9′	S 22°23.6′	334°38.6′	S 21°18.2′	254°50.9′	N 4°58.6′
17	287°34.0′	78°56.5′	S 11°44.0′	111°51.5′	N 3°21.1′	355°54.1′	S 22°23.5′	349°41.0′	S 21°18.2′	269°54.1′	N 4°58.5′
18	302°36.5′	93°56.6′	S 11°44.8′	126°51.2′	N 3°19.9′	10°56.2′	S 22°23.5′	4°43.3′	S 21°18.2′	284°57.2′	N 4°58.4′
19	317°38.9′	108°56.7′	S 11°45.7′	141°50.8′	N 3°18.8′	25°58.3′	S 22°23.4′	19°45.7′	S 21°18.2′	300°00.4′	N 4°58.3′
20	332°41.4′	123°56.7′	S 11°46.6′	156°50.5′	N 3°17.7′	41°00.5′	S 22°23.4′	34°48.0′	S 21°18.1′	315°03.5′	N 4°58.2′
21	347°43.9′	138°56.8′	S 11°47.4′	171°50.1′	N 3°16.6′	56°02.6′	S 22°23.3′	49°50.4′	S 21°18.1′	330°06.6′	N 4°58.2′
22	2°46.3′	153°56.9′	S 11°48.3′	186°49.8′	N 3°15.5′	71°04.8′	S 22°23.3′	64°52.7′	S 21°18.1′	345°09.8′	N 4°58.1′
23	17°48.8′	168°57.0′	S 11°49.2′	201°49.5′	N 3°14.4′	86°06.9′	S 22°23.3′	79°55.1′	S 21°18.1′	0°12.9′	N 4°58.0′
		SD 16.1′	*d* -0.9′	*v* -0.3′	*d* -1.1′	*v* 2.1′	*d* 0.0′	*v* 2.4′	*d* 0.0′	*v* 3.1′	*d* -0.1′
Mer. pass.		11 h 44 m 16 s		9 h 32 m		17 h 16 m		17 h 41 m		22 h 59 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Mars	−Achernar	−Fomalhaut	−Saturn	+Jupiter	+Antares	+Rigil Kent	+Sun
0	96°13.0′	S 24°06.5′	7.5′	3.3′	57.2′	84°58.2′	69°23.6′	43°47.5′			43°12.3′	62°02.9′	83°16.1′
1	110°39.5′	S 24°03.3′	7.6′	3.4′	57.2′	84°24.5′	69°07.3′	43°17.3′		4°35.9′	43°45.0′	62°23.2′	83°46.6′
2	125°06.1′	S 23°59.9′	7.6′	3.5′	57.2′	83°50.9′	68°51.0′	42°47.2′		5°05.6′	44°17.6′	62°43.5′	84°16.9′
3	139°32.7′	S 23°56.3′	7.7′	3.7′	57.1′	83°17.4′	68°34.8′	42°17.2′		5°35.9′	44°50.2′	63°03.9′	84°47.3′
4	153°59.4′	S 23°52.6′	7.8′	3.8′	57.1′	82°43.8′	68°18.8′	41°47.4′		6°06.5′	45°22.8′	63°24.4′	85°17.6′
5	168°26.2′	S 23°48.8′	7.9′	3.9′	57.1′	82°10.4′	68°02.8′	41°17.6′		6°37.3′	45°55.3′	63°45.0′	85°47.9′
6	182°53.1′	S 23°44.9′	8.0′	4.1′	57.0′	81°36.9′	67°47.0′	40°47.9′		7°08.4′	46°27.8′	64°05.6′	86°18.1′
7	197°20.1′	S 23°40.8′	8.1′	4.2′	57.0′	81°03.6′	67°31.3′	40°18.3′		7°39.6′	47°00.3′	64°26.3′	86°48.3′
8	211°47.1′	S 23°36.6′	8.1′	4.3′	56.9′	80°30.2′	67°15.8′	39°48.9′		8°11.0′	47°32.7′	64°47.0′	87°18.5′
9	226°14.3′	S 23°32.3′	8.2′	4.5′	56.9′	79°56.9′	67°00.3′	39°19.5′		8°42.4′	48°05.1′	65°07.8′	87°48.6′
10	240°41.5′	S 23°27.8′	8.3′	4.6′	56.9′	79°23.7′	66°45.0′	38°50.3′		9°13.9′	48°37.5′	65°28.7′	88°18.6′
11	255°08.8′	S 23°23.2′	8.4′	4.7′	56.8′	78°50.4′	66°29.8′	38°21.1′		9°45.5′	49°09.8′	65°49.6′	88°48.6′
12	269°36.2′	S 23°18.5′	8.5′	4.8′	56.8′	78°17.3′		37°52.1′		10°17.1′	49°42.1′	66°10.6′	89°18.6′
13	284°03.6′	S 23°13.7′	8.6′	5.0′	56.8′	77°44.1′		37°23.2′	5°24.6′	10°48.7′	50°14.3′	66°31.6′	89°48.6′
14	298°31.2′	S 23°08.7′	8.6′	5.1′	56.7′	77°11.0′		36°54.4′	5°53.4′	11°20.3′	50°46.5′	66°52.7′	90°18.5′
15	312°58.8′	S 23°03.7′	8.7′	5.2′	56.7′	76°38.0′		36°25.8′	6°22.7′	11°52.0′	51°18.7′	67°13.8′	90°48.3′
16	327°26.6′	S 22°58.5′	8.8′	5.3′	56.7′	76°05.0′		35°57.2′	6°52.5′	12°23.6′	51°50.8′	67°35.0′	91°18.2′
17	341°54.4′	S 22°53.2′	8.9′	5.4′	56.6′	75°32.0′		35°28.8′	7°22.5′	12°55.2′	52°22.9′	67°56.2′	91°48.0′
18	356°22.3′	S 22°47.7′	9.0′	5.6′	56.6′	74°59.1′		35°00.6′	7°52.9′	13°26.9′	52°55.0′	68°17.5′	92°17.7′
19	10°50.3′	S 22°42.2′	9.1′	5.7′	56.6′	74°26.2′		34°32.4′	8°23.4′	13°58.5′	53°27.0′	68°38.8′	92°47.4′
20	25°18.4′	S 22°36.5′	9.2′	5.8′	56.5′	73°53.3′		34°04.4′	8°54.0′	14°30.1′	53°59.0′	69°00.2′	93°17.1′
21	39°46.5′	S 22°30.7′	9.3′	5.9′	56.5′	73°20.5′		33°36.6′	9°24.8′	15°01.7′	54°31.0′	69°21.6′	93°46.7′
22	54°14.8′	S 22°24.8′	9.3′	6.0′	56.5′	72°47.7′		33°08.9′	9°55.7′	15°33.3′	55°02.9′	69°43.0′	94°16.3′
23	68°43.1′	S 22°18.8′	9.4′	6.1′	56.4′	72°15.0′		32°41.3′	10°26.7′	16°04.8′	55°34.8′	70°04.5′	94°45.9′
Mer. pass. 18 h 15 m SD 15.6′ phase 44%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.6′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°07.3′	N 89°20.9′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Saturday 24 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	32°51.3′	183°57.1′	S 11°50.0′	216°49.1′	N 3°13.2′	101°09.0′	S 22°23.2′	94°57.5′	S 21°18.1′	15°16.1′	N 4°57.9′
1	47°53.7′	198°57.1′	S 11°50.9′	231°48.8′	N 3°12.1′	116°11.2′	S 22°23.2′	109°59.8′	S 21°18.1′	30°19.2′	N 4°57.8′
2	62°56.2′	213°57.2′	S 11°51.8′	246°48.5′	N 3°11.0′	131°13.3′	S 22°23.1′	125°02.2′	S 21°18.0′	45°22.3′	N 4°57.7′
3	77°58.7′	228°57.3′	S 11°52.6′	261°48.1′	N 3°09.9′	146°15.5′	S 22°23.1′	140°04.5′	S 21°18.0′	60°25.5′	N 4°57.7′
4	93°01.1′	243°57.4′	S 11°53.5′	276°47.8′	N 3°08.8′	161°17.6′	S 22°23.0′	155°06.9′	S 21°18.0′	75°28.6′	N 4°57.6′
5	108°03.6′	258°57.5′	S 11°54.4′	291°47.4′	N 3°07.6′	176°19.7′	S 22°23.0′	170°09.2′	S 21°18.0′	90°31.7′	N 4°57.5′
6	123°06.1′	273°57.5′	S 11°55.2′	306°47.1′	N 3°06.5′	191°21.9′	S 22°23.0′	185°11.6′	S 21°18.0′	105°34.9′	N 4°57.4′
7	138°08.5′	288°57.6′	S 11°56.1′	321°46.8′	N 3°05.4′	206°24.0′	S 22°22.9′	200°14.0′	S 21°18.0′	120°38.0′	N 4°57.3′
8	153°11.0′	303°57.7′	S 11°57.0′	336°46.4′	N 3°04.3′	221°26.2′	S 22°22.9′	215°16.3′	S 21°17.9′	135°41.1′	N 4°57.3′
9	168°13.4′	318°57.8′	S 11°57.8′	351°46.1′	N 3°03.2′	236°28.3′	S 22°22.8′	230°18.7′	S 21°17.9′	150°44.2′	N 4°57.2′
10	183°15.9′	333°57.8′	S 11°58.7′	6°45.8′	N 3°02.0′	251°30.4′	S 22°22.8′	245°21.0′	S 21°17.9′	165°47.4′	N 4°57.1′
11	198°18.4′	348°57.9′	S 11°59.6′	21°45.4′	N 3°00.9′	266°32.6′	S 22°22.7′	260°23.4′	S 21°17.9′	180°50.5′	N 4°57.0′
12	213°20.8′	3°58.0′	S 12°00.4′	36°45.1′	N 2°59.8′	281°34.7′	S 22°22.7′	275°25.7′	S 21°17.9′	195°53.6′	N 4°56.9′
13	228°23.3′	18°58.1′	S 12°01.3′	51°44.7′	N 2°58.7′	296°36.8′	S 22°22.7′	290°28.1′	S 21°17.9′	210°56.7′	N 4°56.9′
14	243°25.8′	33°58.1′	S 12°02.2′	66°44.4′	N 2°57.6′	311°39.0′	S 22°22.6′	305°30.4′	S 21°17.8′	225°59.9′	N 4°56.8′
15	258°28.2′	48°58.2′	S 12°03.0′	81°44.1′	N 2°56.4′	326°41.1′	S 22°22.6′	320°32.8′	S 21°17.8′	241°03.0′	N 4°56.7′
16	273°30.7′	63°58.3′	S 12°03.9′	96°43.7′	N 2°55.3′	341°43.2′	S 22°22.5′	335°35.1′	S 21°17.8′	256°06.1′	N 4°56.6′
17	288°33.2′	78°58.4′	S 12°04.7′	111°43.4′	N 2°54.2′	356°45.4′	S 22°22.5′	350°37.5′	S 21°17.8′	271°09.2′	N 4°56.5′
18	303°35.6′	93°58.4′	S 12°05.6′	126°43.0′	N 2°53.1′	11°47.5′	S 22°22.4′	5°39.9′	S 21°17.8′	286°12.4′	N 4°56.5′
19	318°38.1′	108°58.5′	S 12°06.5′	141°42.7′	N 2°52.0′	26°49.6′	S 22°22.4′	20°42.2′	S 21°17.7′	301°15.5′	N 4°56.4′
20	333°40.6′	123°58.6′	S 12°07.3′	156°42.4′	N 2°50.8′	41°51.8′	S 22°22.3′	35°44.6′	S 21°17.7′	316°18.6′	N 4°56.3′
21	348°43.0′	138°58.7′	S 12°08.2′	171°42.0′	N 2°49.7′	56°53.9′	S 22°22.3′	50°46.9′	S 21°17.7′	331°21.7′	N 4°56.2′
22	3°45.5′	153°58.7′	S 12°09.0′	186°41.7′	N 2°48.6′	71°56.1′	S 22°22.3′	65°49.3′	S 21°17.7′	346°24.8′	N 4°56.2′
23	18°47.9′	168°58.8′	S 12°09.9′	201°41.4′	N 2°47.5′	86°58.2′	S 22°22.2′	80°51.6′	S 21°17.7′	1°27.9′	N 4°56.1′
		SD 16.1′	*d* -0.9′	*v* -0.3′	*d* -1.1′	*v* 2.1′	*d* 0.0′	*v* 2.4′	*d* 0.0′	*v* 3.1′	*d* -0.1′
Mer. pass.		11 h 44 m 9 s		9 h 33 m		17 h 13 m		17 h 37 m		22 h 54 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Aldebaran	−Rigel	−Mars	−Fomalhaut	+Saturn	+Jupiter	+Antares	+Sun
0	83°11.6′	S 22°12.7′	9.5′	6.2′	56.4′			71°42.3′	32°14.0′	10°57.7′	16°36.4′	56°06.7′	95°15.4′
1	97°40.1′	S 22°06.5′	9.6′	6.3′	56.4′			71°09.7′	31°46.7′	11°28.8′	17°07.9′	56°38.5′	95°44.9′
2	112°08.7′	S 22°00.1′	9.7′	6.4′	56.3′			70°37.0′	31°19.7′	11°59.9′	17°39.4′	57°10.3′	96°14.3′
3	126°37.4′	S 21°53.7′	9.8′	6.6′	56.3′			70°04.5′	30°52.8′	12°31.1′	18°10.8′	57°42.1′	96°43.7′
4	141°06.2′	S 21°47.1′	9.9′	6.7′	56.3′		119°59.9′	69°31.9′	30°26.1′	13°02.2′	18°42.3′	58°13.8′	97°13.1′
5	155°35.1′	S 21°40.4′	10.0′	6.8′	56.2′		119°34.1′	68°59.4′	29°59.5′	13°33.4′	19°13.7′	58°45.5′	97°42.4′
6	170°04.0′	S 21°33.7′	10.1′	6.9′	56.2′	119°55.7′	119°08.2′	68°26.9′	29°33.2′	14°04.6′	19°45.1′	59°17.2′	98°11.8′
7	184°33.1′	S 21°26.8′	10.1′	7.0′	56.2′	119°24.0′	118°42.3′	67°54.5′	29°07.0′	14°35.8′	20°16.4′	59°48.8′	98°41.0′
8	199°02.3′	S 21°19.8′	10.2′	7.1′	56.1′	118°52.3′	118°16.4′	67°22.1′	28°41.1′	15°07.0′	20°47.8′	60°20.4′	99°10.3′
9	213°31.5′	S 21°12.8′	10.3′	7.2′	56.1′	118°20.7′	117°50.4′	66°49.7′	28°15.4′	15°38.2′	21°19.1′	60°52.0′	99°39.5′
10	228°00.8′	S 21°05.6′	10.4′	7.3′	56.1′	117°49.1′	117°24.5′	66°17.4′	27°49.9′	16°09.4′	21°50.3′	61°23.5′	100°08.6′
11	242°30.2′	S 20°58.3′	10.5′	7.4′	56.0′	117°17.5′	116°58.5′	65°45.1′	27°24.6′	16°40.6′	22°21.6′	61°55.0′	100°37.8′
12	256°59.7′	S 20°50.9′	10.6′	7.5′	56.0′	116°46.0′	116°32.5′	65°12.9′	26°59.5′	17°11.8′	22°52.8′	62°26.5′	101°06.9′
13	271°29.3′	S 20°43.5′	10.7′	7.6′	56.0′	116°14.5′	116°06.4′	64°40.6′	26°34.7′	17°43.0′	23°24.0′	62°57.9′	101°35.9′
14	285°59.0′	S 20°35.9′	10.8′	7.7′	56.0′	115°43.0′	115°40.4′	64°08.5′	26°10.2′	18°14.1′	23°55.2′	63°29.3′	102°04.9′
15	300°28.8′	S 20°28.2′	10.9′	7.8′	55.9′	115°11.5′	115°14.3′	63°36.3′	25°45.9′	18°45.3′	24°26.3′	64°00.7′	102°33.9′
16	314°58.6′	S 20°20.5′	10.9′	7.8′	55.9′	114°40.1′	114°48.2′	63°04.2′	25°21.8′	19°16.4′	24°57.4′	64°32.0′	103°02.9′
17	329°28.6′	S 20°12.6′	11.0′	7.9′	55.9′	114°08.7′	114°22.2′	62°32.1′	24°58.1′	19°47.5′	25°28.5′	65°03.3′	103°31.9′
18	343°58.6′	S 20°04.7′	11.1′	8.0′	55.8′	113°37.4′	113°56.0′	62°00.0′	24°34.7′	20°18.6′	25°59.6′	65°34.6′	104°00.8′
19	358°28.7′	S 19°56.7′	11.2′	8.1′	55.8′	113°06.1′	113°29.9′	61°28.0′	24°11.5′	20°49.7′	26°30.6′	66°05.9′	104°29.6′
20	12°58.9′	S 19°48.5′	11.3′	8.2′	55.8′	112°34.8′	113°03.8′	60°56.0′	23°48.7′	21°20.7′	27°01.6′	66°37.1′	104°58.5′
21	27°29.2′	S 19°40.3′	11.4′	8.3′	55.8′	112°03.5′	112°37.6′	60°24.1′	23°26.2′	21°51.7′	27°32.6′	67°08.3′	105°27.3′
22	41°59.6′	S 19°32.0′	11.5′	8.4′	55.7′	111°32.3′	112°11.5′	59°52.2′	23°04.1′	22°22.7′	28°03.5′	67°39.5′	105°56.1′
23	56°30.1′	S 19°23.7′	11.6′	8.5′	55.7′	111°01.1′	111°45.3′	59°20.3′	22°42.3′	22°53.7′	28°34.4′	68°10.6′	106°24.8′
Mer. pass. 19 h 6 m SD 15.4′ phase 55%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.6′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°07.1′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.7′	S 52°42.1′				

Sunday 25 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	33°50.4′	183°58.9′	S 12°10.8′	216°41.0′	N 2°46.3′	102°00.3′	S 22°22.2′	95°54.0′	S 21°17.7′	16°31.0′	N 4°56.0′
1	48°52.9′	198°58.9′	S 12°11.6′	231°40.7′	N 2°45.2′	117°02.5′	S 22°22.1′	110°56.3′	S 21°17.6′	31°34.2′	N 4°55.9′
2	63°55.3′	213°59.0′	S 12°12.5′	246°40.3′	N 2°44.1′	132°04.6′	S 22°22.1′	125°58.7′	S 21°17.6′	46°37.3′	N 4°55.9′
3	78°57.8′	228°59.1′	S 12°13.3′	261°40.0′	N 2°43.0′	147°06.7′	S 22°22.0′	141°01.0′	S 21°17.6′	61°40.4′	N 4°55.8′
4	94°00.3′	243°59.2′	S 12°14.2′	276°39.7′	N 2°41.8′	162°08.8′	S 22°22.0′	156°03.4′	S 21°17.6′	76°43.5′	N 4°55.7′
5	109°02.7′	258°59.2′	S 12°15.1′	291°39.3′	N 2°40.7′	177°11.0′	S 22°21.9′	171°05.7′	S 21°17.6′	91°46.6′	N 4°55.7′
6	124°05.2′	273°59.3′	S 12°15.9′	306°39.0′	N 2°39.6′	192°13.1′	S 22°21.9′	186°08.1′	S 21°17.5′	106°49.7′	N 4°55.6′
7	139°07.7′	288°59.4′	S 12°16.8′	321°38.6′	N 2°38.5′	207°15.2′	S 22°21.9′	201°10.4′	S 21°17.5′	121°52.8′	N 4°55.5′
8	154°10.1′	303°59.4′	S 12°17.6′	336°38.3′	N 2°37.3′	222°17.4′	S 22°21.8′	216°12.8′	S 21°17.5′	136°55.9′	N 4°55.4′
9	169°12.6′	318°59.5′	S 12°18.5′	351°38.0′	N 2°36.2′	237°19.5′	S 22°21.8′	231°15.1′	S 21°17.5′	151°59.0′	N 4°55.4′
10	184°15.0′	333°59.6′	S 12°19.3′	6°37.6′	N 2°35.1′	252°21.6′	S 22°21.7′	246°17.5′	S 21°17.5′	167°02.1′	N 4°55.3′
11	199°17.5′	348°59.6′	S 12°20.2′	21°37.3′	N 2°34.0′	267°23.8′	S 22°21.7′	261°19.8′	S 21°17.5′	182°05.2′	N 4°55.2′
12	214°20.0′	3°59.7′	S 12°21.1′	36°37.0′	N 2°32.8′	282°25.9′	S 22°21.6′	276°22.2′	S 21°17.4′	197°08.3′	N 4°55.2′
13	229°22.4′	18°59.8′	S 12°21.9′	51°36.6′	N 2°31.7′	297°28.0′	S 22°21.6′	291°24.5′	S 21°17.4′	212°11.4′	N 4°55.1′
14	244°24.9′	33°59.8′	S 12°22.8′	66°36.3′	N 2°30.6′	312°30.2′	S 22°21.5′	306°26.9′	S 21°17.4′	227°14.5′	N 4°55.0′
15	259°27.4′	48°59.9′	S 12°23.6′	81°35.9′	N 2°29.4′	327°32.3′	S 22°21.5′	321°29.2′	S 21°17.4′	242°17.6′	N 4°55.0′
16	274°29.8′	63°60.0′	S 12°24.5′	96°35.6′	N 2°28.3′	342°34.4′	S 22°21.4′	336°31.6′	S 21°17.4′	257°20.7′	N 4°54.9′
17	289°32.3′	79°00.0′	S 12°25.3′	111°35.3′	N 2°27.2′	357°36.5′	S 22°21.4′	351°33.9′	S 21°17.4′	272°23.8′	N 4°54.8′
18	304°34.8′	94°00.1′	S 12°26.2′	126°34.9′	N 2°26.1′	12°38.7′	S 22°21.4′	6°36.3′	S 21°17.3′	287°26.9′	N 4°54.7′
19	319°37.2′	109°00.2′	S 12°27.0′	141°34.6′	N 2°24.9′	27°40.8′	S 22°21.3′	21°38.6′	S 21°17.3′	302°30.0′	N 4°54.7′
20	334°39.7′	124°00.2′	S 12°27.9′	156°34.2′	N 2°23.8′	42°42.9′	S 22°21.3′	36°41.0′	S 21°17.3′	317°33.1′	N 4°54.6′
21	349°42.2′	139°00.3′	S 12°28.7′	171°33.9′	N 2°22.7′	57°45.1′	S 22°21.2′	51°43.3′	S 21°17.3′	332°36.2′	N 4°54.5′
22	4°44.6′	154°00.4′	S 12°29.6′	186°33.6′	N 2°21.5′	72°47.2′	S 22°21.2′	66°45.7′	S 21°17.3′	347°39.3′	N 4°54.5′
23	19°47.1′	169°00.4′	S 12°30.4′	201°33.2′	N 2°20.4′	87°49.3′	S 22°21.1′	81°48.0′	S 21°17.2′	2°42.4′	N 4°54.4′
		SD 16.1′ *d* -0.9′		*v* -0.3′ *d* -1.1′		*v* 2.1′ *d* 0.0′		*v* 2.4′ *d* 0.0′		*v* 3.1′ *d* -0.1′	
Mer. pass.		11 h 44 m 2 s		9 h 33 m		17 h 10 m		17 h 34 m		22 h 49 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Rigel	−Aldebaran	−Mars	−Fomalhaut	+Saturn	+Jupiter	+Altair	+Sun
0	71°00.6′	S 19°15.2′	11.6′	8.5′	55.7′	111°19.1′	110°29.9′	58°48.4′	22°20.9′	23°24.7′	29°05.3′		106°53.5′
1	85°31.3′	S 19°06.6′	11.7′	8.6′	55.6′	110°52.9′	109°58.8′	58°16.6′	21°59.9′	23°55.7′	29°36.2′		107°22.2′
2	100°02.0′	S 18°58.0′	11.8′	8.7′	55.6′	110°26.7′	109°27.7′	57°44.8′	21°39.3′	24°26.6′	30°07.0′	37°50.7′	107°50.9′
3	114°32.8′	S 18°49.3′	11.9′	8.8′	55.6′	110°00.5′	108°56.6′	57°13.0′	21°19.2′	24°57.5′	30°37.8′	38°05.8′	108°19.5′
4	129°03.7′	S 18°40.5′	12.0′	8.9′	55.6′	109°34.3′	108°25.5′	56°41.3′	20°59.5′	25°28.4′	31°08.6′	38°21.2′	108°48.1′
5	143°34.7′	S 18°31.6′	12.1′	9.0′	55.5′	109°08.1′	107°54.5′	56°09.6′	20°40.2′	25°59.2′	31°39.4′	38°36.8′	109°16.7′
6	158°05.7′	S 18°22.7′	12.1′	9.0′	55.5′	108°41.9′	107°23.5′	55°37.9′	20°21.5′	26°30.1′	32°10.1′	38°52.6′	109°45.2′
7	172°36.9′	S 18°13.6′	12.2′	9.1′	55.5′	108°15.7′	106°52.5′	55°06.3′	20°03.2′	27°00.9′	32°40.8′	39°08.7′	110°13.7′
8	187°08.1′	S 18°04.5′	12.3′	9.2′	55.5′	107°49.5′	106°21.6′	54°34.7′	19°45.5′	27°31.7′	33°11.5′	39°25.1′	110°42.2′
9	201°39.4′	S 17°55.4′	12.4′	9.3′	55.4′	107°23.2′	105°50.6′	54°03.1′	19°28.3′	28°02.5′	33°42.1′	39°41.6′	111°10.7′
10	216°10.8′	S 17°46.1′	12.5′	9.3′	55.4′	106°57.0′	105°19.7′	53°31.5′	19°11.7′	28°33.2′	34°12.8′	39°58.4′	111°39.1′
11	230°42.3′	S 17°36.8′	12.5′	9.4′	55.4′	106°30.8′	104°48.9′	52°60.0′	18°55.7′	29°03.9′	34°43.4′	40°15.4′	112°07.5′
12	245°13.8′	S 17°27.4′	12.6′	9.5′	55.4′	106°04.6′	104°18.0′	52°28.5′		29°34.7′	35°13.9′	40°32.7′	112°35.9′
13	259°45.4′	S 17°17.9′	12.7′	9.5′	55.3′	105°38.3′	103°47.2′	51°57.0′		30°05.3′	35°44.5′	40°50.1′	113°04.2′
14	274°17.2′	S 17°08.3′	12.8′	9.6′	55.3′	105°12.1′	103°16.4′	51°25.6′		30°36.0′	36°15.0′	41°07.7′	113°32.6′
15	288°48.9′	S 16°58.7′	12.9′	9.7′	55.3′	104°45.9′	102°45.6′	50°54.1′		31°06.6′	36°45.5′	41°25.6′	114°00.9′
16	303°20.8′	S 16°49.0′	12.9′	9.8′	55.3′	104°19.6′	102°14.9′	50°22.7′		31°37.3′	37°16.0′	41°43.6′	114°29.1′
17	317°52.7′	S 16°39.3′	13.0′	9.8′	55.2′	103°53.4′	101°44.2′	49°51.4′		32°07.9′	37°46.4′	42°01.8′	114°57.4′
18	332°24.8′	S 16°29.5′	13.1′	9.9′	55.2′	103°27.2′	101°13.5′	49°20.0′		32°38.4′	38°16.9′	42°20.2′	115°25.6′
19	346°56.8′	S 16°19.6′	13.2′	9.9′	55.2′	103°01.0′	100°42.8′	48°48.7′		33°09.0′	38°47.3′	42°38.8′	115°53.8′
20	1°29.0′	S 16°09.6′	13.2′	10.0′	55.2′	102°34.7′	100°12.2′	48°17.4′		33°39.5′	39°17.7′	42°57.5′	116°22.0′
21	16°01.2′	S 15°59.6′	13.3′	10.1′	55.1′	102°08.5′	99°41.5′	47°46.2′		34°10.0′	39°48.0′	43°16.4′	116°50.2′
22	30°33.6′	S 15°49.5′	13.4′	10.1′	55.1′	101°42.3′	99°10.9′	47°14.9′		34°40.5′	40°18.3′	43°35.5′	117°18.3′
23	45°05.9′	S 15°39.4′	13.5′	10.2′	55.1′	101°16.1′	98°40.4′	46°43.7′		35°11.0′	40°48.7′	43°54.8′	117°46.4′
Mer. pass. 19 h 54 m SD 15.2′ phase 65%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.5′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°07.0′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.6′	S 52°42.1′				

Monday 26 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	34°49.5′	184°00.5′	S 12°31.3′	216°32.9′	N 2°19.3′	102°51.4′	S 22°21.1′	96°50.4′	S 21°17.2′	17°45.5′	N 4°54.4′
1	49°52.0′	199°00.6′	S 12°32.2′	231°32.6′	N 2°18.2′	117°53.6′	S 22°21.0′	111°52.7′	S 21°17.2′	32°48.6′	N 4°54.3′
2	64°54.5′	214°00.6′	S 12°33.0′	246°32.2′	N 2°17.0′	132°55.7′	S 22°21.0′	126°55.1′	S 21°17.2′	47°51.7′	N 4°54.2′
3	79°56.9′	229°00.7′	S 12°33.9′	261°31.9′	N 2°15.9′	147°57.8′	S 22°20.9′	141°57.4′	S 21°17.2′	62°54.8′	N 4°54.2′
4	94°59.4′	244°00.8′	S 12°34.7′	276°31.5′	N 2°14.8′	162°59.9′	S 22°20.9′	156°59.8′	S 21°17.1′	77°57.8′	N 4°54.1′
5	110°01.9′	259°00.8′	S 12°35.6′	291°31.2′	N 2°13.6′	178°02.1′	S 22°20.9′	172°02.1′	S 21°17.1′	93°00.9′	N 4°54.0′
6	125°04.3′	274°00.9′	S 12°36.4′	306°30.9′	N 2°12.5′	193°04.2′	S 22°20.8′	187°04.5′	S 21°17.1′	108°04.0′	N 4°54.0′
7	140°06.8′	289°00.9′	S 12°37.3′	321°30.5′	N 2°11.4′	208°06.3′	S 22°20.8′	202°06.8′	S 21°17.1′	123°07.1′	N 4°53.9′
8	155°09.3′	304°01.0′	S 12°38.1′	336°30.2′	N 2°10.2′	223°08.4′	S 22°20.7′	217°09.2′	S 21°17.1′	138°10.2′	N 4°53.8′
9	170°11.7′	319°01.1′	S 12°38.9′	351°29.8′	N 2°09.1′	238°10.6′	S 22°20.7′	232°11.5′	S 21°17.1′	153°13.3′	N 4°53.8′
10	185°14.2′	334°01.1′	S 12°39.8′	6°29.5′	N 2°08.0′	253°12.7′	S 22°20.6′	247°13.9′	S 21°17.0′	168°16.3′	N 4°53.7′
11	200°16.7′	349°01.2′	S 12°40.6′	21°29.2′	N 2°06.9′	268°14.8′	S 22°20.6′	262°16.2′	S 21°17.0′	183°19.4′	N 4°53.7′
12	215°19.1′	4°01.3′	S 12°41.5′	36°28.8′	N 2°05.7′	283°16.9′	S 22°20.5′	277°18.6′	S 21°17.0′	198°22.5′	N 4°53.6′
13	230°21.6′	19°01.3′	S 12°42.3′	51°28.5′	N 2°04.6′	298°19.1′	S 22°20.5′	292°20.9′	S 21°17.0′	213°25.6′	N 4°53.5′
14	245°24.0′	34°01.4′	S 12°43.2′	66°28.1′	N 2°03.5′	313°21.2′	S 22°20.4′	307°23.3′	S 21°17.0′	228°28.6′	N 4°53.5′
15	260°26.5′	49°01.4′	S 12°44.0′	81°27.8′	N 2°02.3′	328°23.3′	S 22°20.4′	322°25.6′	S 21°16.9′	243°31.7′	N 4°53.4′
16	275°29.0′	64°01.5′	S 12°44.9′	96°27.5′	N 2°01.2′	343°25.4′	S 22°20.3′	337°27.9′	S 21°16.9′	258°34.8′	N 4°53.4′
17	290°31.4′	79°01.6′	S 12°45.7′	111°27.1′	N 2°00.1′	358°27.6′	S 22°20.3′	352°30.3′	S 21°16.9′	273°37.9′	N 4°53.3′
18	305°33.9′	94°01.6′	S 12°46.6′	126°26.8′	N 1°58.9′	13°29.7′	S 22°20.3′	7°32.6′	S 21°16.9′	288°40.9′	N 4°53.2′
19	320°36.4′	109°01.7′	S 12°47.4′	141°26.5′	N 1°57.8′	28°31.8′	S 22°20.2′	22°35.0′	S 21°16.9′	303°44.0′	N 4°53.2′
20	335°38.8′	124°01.7′	S 12°48.3′	156°26.1′	N 1°56.7′	43°33.9′	S 22°20.2′	37°37.3′	S 21°16.8′	318°47.1′	N 4°53.1′
21	350°41.3′	139°01.8′	S 12°49.1′	171°25.8′	N 1°55.5′	58°36.0′	S 22°20.1′	52°39.7′	S 21°16.8′	333°50.2′	N 4°53.1′
22	5°43.8′	154°01.8′	S 12°49.9′	186°25.4′	N 1°54.4′	73°38.2′	S 22°20.1′	67°42.0′	S 21°16.8′	348°53.2′	N 4°53.0′
23	20°46.2′	169°01.9′	S 12°50.8′	201°25.1′	N 1°53.3′	88°40.3′	S 22°20.0′	82°44.4′	S 21°16.8′	3°56.3′	N 4°53.0′
		SD 16.1′ *d* -0.8′		*v* -0.3′ *d* -1.1′		*v* 2.1′ *d* 0.0′		*v* 2.3′ *d* 0.0′		*v* 3.1′ *d* -0.1′	
Mer. pass.		11 h 43 m 56 s		9 h 34 m		17 h 6 m		17 h 30 m		22 h 44 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Capella	−Rigel	−Aldebaran	−Mars	+Saturn	+Jupiter	+Altair	+Sun
0	59°38.4′	S 15°29.2′	13.5′	10.3′	55.1′	110°59.5′	100°49.9′	98°09.8′	46°12.6′	35°41.4′	41°19.0′	44°14.2′	118°14.5′
1	74°10.9′	S 15°18.9′	13.6′	10.3′	55.0′	110°31.6′	100°23.7′	97°39.3′	45°41.4′	36°11.9′	41°49.2′	44°33.7′	118°42.5′
2	88°43.5′	S 15°08.6′	13.7′	10.4′	55.0′	110°03.7′	99°57.5′	97°08.8′	45°10.3′	36°42.3′	42°19.5′	44°53.4′	119°10.6′
3	103°16.2′	S 14°58.3′	13.7′	10.4′	55.0′	109°35.8′	99°31.3′	96°38.3′	44°39.1′	37°12.7′	42°49.7′	45°13.3′	119°38.6′
4	117°48.9′	S 14°47.8′	13.8′	10.5′	55.0′	109°07.9′	99°05.1′	96°07.8′	44°08.1′	37°43.0′	43°19.9′	45°33.3′	
5	132°21.8′	S 14°37.3′	13.9′	10.5′	55.0′	108°40.0′	98°39.0′	95°37.4′	43°37.0′	38°13.4′	43°50.1′	45°53.4′	
6	146°54.6′	S 14°26.8′	13.9′	10.6′	54.9′	108°12.1′	98°12.8′	95°06.9′	43°06.0′	38°43.7′	44°20.3′	46°13.7′	
7	161°27.6′	S 14°16.2′	14.0′	10.7′	54.9′	107°44.3′	97°46.7′	94°36.5′	42°34.9′	39°14.0′	44°50.4′	46°34.1′	
8	176°00.6′	S 14°05.5′	14.1′	10.7′	54.9′	107°16.4′	97°20.5′	94°06.1′	42°03.9′	39°44.3′	45°20.5′	46°54.6′	
9	190°33.7′	S 13°54.8′	14.1′	10.8′	54.9′	106°48.5′	96°54.4′	93°35.8′	41°33.0′	40°14.6′	45°50.6′	47°15.2′	
10	205°06.8′	S 13°44.1′	14.2′	10.8′	54.9′	106°20.6′	96°28.2′	93°05.4′	41°02.0′	40°44.9′	46°20.7′	47°36.0′	
11	219°40.0′	S 13°33.3′	14.3′	10.9′	54.8′	105°52.8′	96°02.1′	92°35.1′	40°31.1′	41°15.1′	46°50.8′	47°56.9′	
12	234°13.3′	S 13°22.4′	14.3′	10.9′	54.8′	105°24.9′	95°36.0′	92°04.8′	40°00.2′	41°45.3′	47°20.8′	48°17.9′	
13	248°46.6′	S 13°11.5′	14.4′	11.0′	54.8′	104°57.1′	95°09.9′	91°34.5′	39°29.3′	42°15.5′	47°50.9′	48°39.0′	
14	263°20.0′	S 13°00.6′	14.5′	11.0′	54.8′	104°29.2′	94°43.8′	91°04.2′	38°58.5′	42°45.7′	48°20.9′	49°00.2′	
15	277°53.4′	S 12°49.6′	14.5′	11.0′	54.8′	104°01.4′	94°17.7′	90°34.0′	38°27.6′	43°15.9′	48°50.9′	49°21.5′	
16	292°26.9′	S 12°38.5′	14.6′	11.1′	54.7′	103°33.6′	93°51.6′	90°03.7′	37°56.8′	43°46.0′	49°20.8′	49°42.9′	
17	307°00.5′	S 12°27.4′	14.6′	11.1′	54.7′	103°05.7′	93°25.6′	89°33.5′	37°26.0′	44°16.1′	49°50.8′	50°04.4′	
18	321°34.1′	S 12°16.3′	14.7′	11.2′	54.7′	102°37.9′	92°59.5′	89°03.3′	36°55.2′	44°46.3′	50°20.7′	50°26.1′	
19	336°07.8′	S 12°05.1′	14.7′	11.2′	54.7′	102°10.1′	92°33.5′	88°33.2′	36°24.5′	45°16.4′	50°50.7′	50°47.8′	
20	350°41.6′	S 11°53.9′	14.8′	11.3′	54.7′	101°42.3′	92°07.5′	88°03.0′	35°53.8′	45°46.4′	51°20.6′	51°09.6′	
21	5°15.4′	S 11°42.6′	14.9′	11.3′	54.7′	101°14.5′	91°41.4′	87°32.8′	35°23.0′	46°16.5′	51°50.5′	51°31.5′	
22	19°49.2′	S 11°31.3′	14.9′	11.3′	54.6′	100°46.7′	91°15.4′	87°02.7′	34°52.4′	46°46.6′	52°20.3′	51°53.5′	
23	34°23.1′	S 11°20.0′	15.0′	11.4′	54.6′	100°18.9′	90°49.4′	86°32.6′	34°21.7′	47°16.6′	52°50.2′	52°15.5′	
Mer. pass. 20 h 38 m SD 15.0′ phase 74%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.5′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.3′	N 11°52.1′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°06.8′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.6′	S 52°42.1′				

Tuesday 27 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	35°48.7′	184°02.0′	S 12°51.6′	216°24.8′	N 1°52.1′	103°42.4′	S 22°20.0′	97°46.7′	S 21°16.8′	18°59.4′	N 4°52.9′
1	50°51.1′	199°02.0′	S 12°52.5′	231°24.4′	N 1°51.0′	118°44.5′	S 22°19.9′	112°49.1′	S 21°16.7′	34°02.4′	N 4°52.9′
2	65°53.6′	214°02.1′	S 12°53.3′	246°24.1′	N 1°49.8′	133°46.6′	S 22°19.9′	127°51.4′	S 21°16.7′	49°05.5′	N 4°52.8′
3	80°56.1′	229°02.1′	S 12°54.2′	261°23.7′	N 1°48.7′	148°48.8′	S 22°19.8′	142°53.7′	S 21°16.7′	64°08.5′	N 4°52.7′
4	95°58.5′	244°02.2′	S 12°55.0′	276°23.4′	N 1°47.6′	163°50.9′	S 22°19.8′	157°56.1′	S 21°16.7′	79°11.6′	N 4°52.7′
5	111°01.0′	259°02.2′	S 12°55.8′	291°23.1′	N 1°46.4′	178°53.0′	S 22°19.7′	172°58.4′	S 21°16.7′	94°14.7′	N 4°52.6′
6	126°03.5′	274°02.3′	S 12°56.7′	306°22.7′	N 1°45.3′	193°55.1′	S 22°19.7′	188°00.8′	S 21°16.7′	109°17.7′	N 4°52.6′
7	141°05.9′	289°02.3′	S 12°57.5′	321°22.4′	N 1°44.2′	208°57.2′	S 22°19.6′	203°03.1′	S 21°16.6′	124°20.8′	N 4°52.5′
8	156°08.4′	304°02.4′	S 12°58.4′	336°22.0′	N 1°43.0′	223°59.4′	S 22°19.6′	218°05.5′	S 21°16.6′	139°23.8′	N 4°52.5′
9	171°10.9′	319°02.5′	S 12°59.2′	351°21.7′	N 1°41.9′	239°01.5′	S 22°19.5′	233°07.8′	S 21°16.6′	154°26.9′	N 4°52.4′
10	186°13.3′	334°02.5′	S 13°00.0′	6°21.4′	N 1°40.8′	254°03.6′	S 22°19.5′	248°10.1′	S 21°16.6′	169°30.0′	N 4°52.4′
11	201°15.8′	349°02.6′	S 13°00.9′	21°21.0′	N 1°39.6′	269°05.7′	S 22°19.5′	263°12.5′	S 21°16.6′	184°33.0′	N 4°52.3′
12	216°18.3′	4°02.6′	S 13°01.7′	36°20.7′	N 1°38.5′	284°07.8′	S 22°19.4′	278°14.8′	S 21°16.5′	199°36.1′	N 4°52.3′
13	231°20.7′	19°02.7′	S 13°02.6′	51°20.3′	N 1°37.4′	299°09.9′	S 22°19.4′	293°17.2′	S 21°16.5′	214°39.1′	N 4°52.2′
14	246°23.2′	34°02.7′	S 13°03.4′	66°20.0′	N 1°36.2′	314°12.1′	S 22°19.3′	308°19.5′	S 21°16.5′	229°42.2′	N 4°52.2′
15	261°25.6′	49°02.8′	S 13°04.2′	81°19.7′	N 1°35.1′	329°14.2′	S 22°19.3′	323°21.9′	S 21°16.5′	244°45.2′	N 4°52.1′
16	276°28.1′	64°02.8′	S 13°05.1′	96°19.3′	N 1°33.9′	344°16.3′	S 22°19.2′	338°24.2′	S 21°16.5′	259°48.3′	N 4°52.1′
17	291°30.6′	79°02.9′	S 13°05.9′	111°19.0′	N 1°32.8′	359°18.4′	S 22°19.2′	353°26.5′	S 21°16.4′	274°51.3′	N 4°52.0′
18	306°33.0′	94°02.9′	S 13°06.8′	126°18.6′	N 1°31.7′	14°20.5′	S 22°19.1′	8°28.9′	S 21°16.4′	289°54.4′	N 4°52.0′
19	321°35.5′	109°03.0′	S 13°07.6′	141°18.3′	N 1°30.5′	29°22.6′	S 22°19.1′	23°31.2′	S 21°16.4′	304°57.4′	N 4°51.9′
20	336°38.0′	124°03.0′	S 13°08.4′	156°18.0′	N 1°29.4′	44°24.8′	S 22°19.0′	38°33.6′	S 21°16.4′	320°00.4′	N 4°51.9′
21	351°40.4′	139°03.1′	S 13°09.3′	171°17.6′	N 1°28.2′	59°26.9′	S 22°19.0′	53°35.9′	S 21°16.4′	335°03.5′	N 4°51.8′
22	6°42.9′	154°03.1′	S 13°10.1′	186°17.3′	N 1°27.1′	74°29.0′	S 22°18.9′	68°38.2′	S 21°16.3′	350°06.5′	N 4°51.8′
23	21°45.4′	169°03.2′	S 13°10.9′	201°16.9′	N 1°26.0′	89°31.1′	S 22°18.9′	83°40.6′	S 21°16.3′	5°09.6′	N 4°51.7′
		SD 16.1′ *d* -0.8′		*v* -0.3′ *d* -1.1′		*v* 2.1′ *d* 0.0′		*v* 2.3′ *d* 0.0′		*v* 3.1′ *d* -0.1′	
Mer. pass.		11 h 43 m 50 s		9 h 35 m		17 h 3 m		17 h 26 m		22 h 39 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Capella	−Rigel	−Aldebaran	−Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	48°57.1′	S 11°08.6′	15.0′	11.4′	54.6′	99°51.1′	90°23.5′	86°02.5′	33°51.0′		47°46.6′	52°37.7′	53°20.0′
1	63°31.1′	S 10°57.1′	15.1′	11.5′	54.6′	99°23.4′	89°57.5′	85°32.4′	33°20.4′	18°43.4′	48°16.6′	52°59.9′	53°49.8′
2	78°05.2′	S 10°45.7′	15.1′	11.5′	54.6′	98°55.6′	89°31.5′	85°02.4′	32°49.8′	18°58.6′	48°46.6′	53°22.2′	54°19.6′
3	92°39.3′	S 10°34.2′	15.2′	11.5′	54.6′	98°27.9′	89°05.6′	84°32.3′	32°19.2′	19°14.2′	49°16.6′	53°44.6′	54°49.4′
4	107°13.4′	S 10°22.6′	15.2′	11.6′	54.5′	98°00.1′	88°39.7′	84°02.3′	31°48.6′	19°30.5′	49°46.5′	54°07.1′	55°19.2′
5	121°47.6′	S 10°11.1′	15.3′	11.6′	54.5′	97°32.4′	88°13.8′	83°32.3′	31°18.1′	19°47.2′	50°16.5′	54°29.6′	55°49.0′
6	136°21.9′	S 9°59.4′	15.3′	11.6′	54.5′	97°04.6′	87°47.9′	83°02.3′	30°47.5′	20°04.4′	50°46.4′	54°52.2′	56°18.7′
7	150°56.2′	S 9°47.8′	15.4′	11.7′	54.5′	96°36.9′	87°22.0′	82°32.3′	30°17.0′	20°22.1′	51°16.3′	55°14.9′	56°48.5′
8	165°30.6′	S 9°36.1′	15.4′	11.7′	54.5′	96°09.2′	86°56.1′	82°02.3′	29°46.5′	20°40.3′	51°46.2′	55°37.7′	57°18.2′
9	180°05.0′	S 9°24.4′	15.4′	11.7′	54.5′	95°41.5′	86°30.3′	81°32.3′	29°16.1′	20°58.8′	52°16.1′	56°00.5′	57°47.9′
10	194°39.4′	S 9°12.7′	15.5′	11.8′	54.4′	95°13.8′	86°04.5′	81°02.4′	28°45.6′	21°17.8′	52°46.0′	56°23.3′	58°17.6′
11	209°13.9′	S 9°00.9′	15.5′	11.8′	54.4′	94°46.1′	85°38.6′	80°32.4′	28°15.2′	21°37.2′	53°15.9′	56°46.3′	58°47.2′
12	223°48.4′	S 8°49.1′	15.6′	11.8′	54.4′	94°18.4′	85°12.9′	80°02.5′	27°44.8′	21°56.9′	53°45.7′	57°09.3′	59°16.9′
13	238°23.0′	S 8°37.3′	15.6′	11.9′	54.4′	93°50.8′	84°47.1′	79°32.6′	27°14.4′	22°17.0′	54°15.6′	57°32.3′	59°46.6′
14	252°57.6′	S 8°25.4′	15.7′	11.9′	54.4′	93°23.1′	84°21.3′	79°02.7′	26°44.0′	22°37.5′	54°45.4′	57°55.5′	60°16.2′
15	267°32.3′	S 8°13.5′	15.7′	11.9′	54.4′	92°55.4′	83°55.6′	78°32.8′	26°13.6′	22°58.3′	55°15.2′	58°18.6′	60°45.8′
16	282°07.0′	S 8°01.6′	15.7′	11.9′	54.4′	92°27.8′	83°29.8′	78°03.0′	25°43.3′	23°19.3′	55°45.0′	58°41.9′	61°15.4′
17	296°41.7′	S 7°49.7′	15.8′	12.0′	54.3′	92°00.2′	83°04.1′	77°33.1′	25°13.0′	23°40.7′	56°14.8′	59°05.1′	61°45.0′
18	311°16.5′	S 7°37.7′	15.8′	12.0′	54.3′	91°32.5′	82°38.4′	77°03.3′	24°42.7′	24°02.3′	56°44.6′	59°28.5′	62°14.6′
19	325°51.3′	S 7°25.7′	15.8′	12.0′	54.3′	91°04.9′	82°12.8′	76°33.4′	24°12.4′	24°24.2′	57°14.3′	59°51.9′	62°44.2′
20	340°26.1′	S 7°13.7′	15.9′	12.0′	54.3′	90°37.3′	81°47.1′	76°03.6′	23°42.1′	24°46.4′	57°44.1′	60°15.3′	63°13.8′
21	355°01.0′	S 7°01.6′	15.9′	12.1′	54.3′	90°09.7′	81°21.5′	75°33.8′	23°11.9′	25°08.8′	58°13.9′	60°38.8′	63°43.3′
22	9°35.9′	S 6°49.6′	15.9′	12.1′	54.3′	89°42.1′	80°55.9′	75°04.0′	22°41.7′	25°31.5′	58°43.6′	61°02.3′	64°12.9′
23	24°10.8′	S 6°37.5′	16.0′	12.1′	54.3′	89°14.6′	80°30.3′	74°34.2′	22°11.5′	25°54.3′	59°13.3′	61°25.9′	64°42.4′
Mer. pass. 21 h 21 m SD 14.9′ phase 82%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.0′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.5′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.2′	N 11°52.0′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.5′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.4′	N 5°10.4′	Polaris	+2.0	315°06.7′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.6′	S 52°42.1′				

Wednesday 28 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	36°47.8′	184°03.2′	S 13°11.8′	216°16.6′	N 1°24.8′	104°33.2′	S 22°18.8′	98°42.9′	S 21°16.3′	20°12.6′	N 4°51.7′
1	51°50.3′	199°03.3′	S 13°12.6′	231°16.3′	N 1°23.7′	119°35.3′	S 22°18.8′	113°45.3′	S 21°16.3′	35°15.7′	N 4°51.7′
2	66°52.7′	214°03.3′	S 13°13.4′	246°15.9′	N 1°22.6′	134°37.4′	S 22°18.7′	128°47.6′	S 21°16.3′	50°18.7′	N 4°51.6′
3	81°55.2′	229°03.4′	S 13°14.3′	261°15.6′	N 1°21.4′	149°39.6′	S 22°18.7′	143°50.0′	S 21°16.2′	65°21.7′	N 4°51.6′
4	96°57.7′	244°03.4′	S 13°15.1′	276°15.2′	N 1°20.3′	164°41.7′	S 22°18.6′	158°52.3′	S 21°16.2′	80°24.8′	N 4°51.5′
5	112°00.1′	259°03.5′	S 13°15.9′	291°14.9′	N 1°19.1′	179°43.8′	S 22°18.6′	173°54.6′	S 21°16.2′	95°27.8′	N 4°51.5′
6	127°02.6′	274°03.5′	S 13°16.8′	306°14.6′	N 1°18.0′	194°45.9′	S 22°18.5′	188°57.0′	S 21°16.2′	110°30.8′	N 4°51.4′
7	142°05.1′	289°03.6′	S 13°17.6′	321°14.2′	N 1°16.8′	209°48.0′	S 22°18.5′	203°59.3′	S 21°16.2′	125°33.9′	N 4°51.4′
8	157°07.5′	304°03.6′	S 13°18.4′	336°13.9′	N 1°15.7′	224°50.1′	S 22°18.4′	219°01.6′	S 21°16.1′	140°36.9′	N 4°51.3′
9	172°10.0′	319°03.7′	S 13°19.3′	351°13.5′	N 1°14.6′	239°52.2′	S 22°18.4′	234°04.0′	S 21°16.1′	155°39.9′	N 4°51.3′
10	187°12.5′	334°03.7′	S 13°20.1′	6°13.2′	N 1°13.4′	254°54.3′	S 22°18.3′	249°06.3′	S 21°16.1′	170°43.0′	N 4°51.3′
11	202°14.9′	349°03.7′	S 13°20.9′	21°12.8′	N 1°12.3′	269°56.5′	S 22°18.3′	264°08.7′	S 21°16.1′	185°46.0′	N 4°51.2′
12	217°17.4′	4°03.8′	S 13°21.8′	36°12.5′	N 1°11.1′	284°58.6′	S 22°18.3′	279°11.0′	S 21°16.1′	200°49.0′	N 4°51.2′
13	232°19.9′	19°03.8′	S 13°22.6′	51°12.2′	N 1°10.0′	300°00.7′	S 22°18.2′	294°13.3′	S 21°16.0′	215°52.0′	N 4°51.1′
14	247°22.3′	34°03.9′	S 13°23.4′	66°11.8′	N 1°08.9′	315°02.8′	S 22°18.2′	309°15.7′	S 21°16.0′	230°55.1′	N 4°51.1′
15	262°24.8′	49°03.9′	S 13°24.2′	81°11.5′	N 1°07.7′	330°04.9′	S 22°18.1′	324°18.0′	S 21°16.0′	245°58.1′	N 4°51.1′
16	277°27.2′	64°04.0′	S 13°25.1′	96°11.1′	N 1°06.6′	345°07.0′	S 22°18.1′	339°20.4′	S 21°16.0′	261°01.1′	N 4°51.0′
17	292°29.7′	79°04.0′	S 13°25.9′	111°10.8′	N 1°05.4′	0°09.1′	S 22°18.0′	354°22.7′	S 21°16.0′	276°04.1′	N 4°51.0′
18	307°32.2′	94°04.1′	S 13°26.7′	126°10.5′	N 1°04.3′	15°11.2′	S 22°18.0′	9°25.0′	S 21°15.9′	291°07.1′	N 4°50.9′
19	322°34.6′	109°04.1′	S 13°27.6′	141°10.1′	N 1°03.1′	30°13.3′	S 22°17.9′	24°27.4′	S 21°15.9′	306°10.2′	N 4°50.9′
20	337°37.1′	124°04.1′	S 13°28.4′	156°09.8′	N 1°02.0′	45°15.5′	S 22°17.9′	39°29.7′	S 21°15.9′	321°13.2′	N 4°50.9′
21	352°39.6′	139°04.2′	S 13°29.2′	171°09.4′	N 1°00.9′	60°17.6′	S 22°17.8′	54°32.0′	S 21°15.9′	336°16.2′	N 4°50.8′
22	7°42.0′	154°04.2′	S 13°30.0′	186°09.1′	N 0°59.7′	75°19.7′	S 22°17.8′	69°34.4′	S 21°15.8′	351°19.2′	N 4°50.8′
23	22°44.5′	169°04.3′	S 13°30.9′	201°08.7′	N 0°58.6′	90°21.8′	S 22°17.7′	84°36.7′	S 21°15.8′	6°22.2′	N 4°50.8′
		SD 16.1′ *d* -0.8′		*v* -0.3′ *d* -1.1′		*v* 2.1′ *d* 0.0′		*v* 2.3′ *d* 0.0′		*v* 3.0′ *d* -0.0′	
Mer. pass.		11 h 43 m 45 s		9 h 35 m		16 h 59 m		17 h 22 m		22 h 35 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Capella	−Rigel	−Aldebaran	−Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	38°45.8′	S 6°25.4′	16.0′	12.1′	54.3′	88°47.0′	80°04.7′	74°04.5′	21°41.3′	26°17.4′	59°43.0′	61°49.5′	65°11.9′
1	53°20.8′	S 6°13.3′	16.0′	12.1′	54.2′	88°19.5′	79°39.1′	73°34.7′	21°11.2′	26°40.7′	60°12.7′	62°13.2′	65°41.5′
2	67°55.9′	S 6°01.1′	16.1′	12.2′	54.2′	87°51.9′	79°13.6′	73°04.9′	20°41.0′	27°04.1′	60°42.4′	62°36.9′	66°11.0′
3	82°30.9′	S 5°48.9′	16.1′	12.2′	54.2′	87°24.4′	78°48.1′	72°35.2′	20°10.9′	27°27.8′	61°12.1′	63°00.6′	66°40.5′
4	97°06.0′	S 5°36.8′	16.1′	12.2′	54.2′	86°56.8′	78°22.6′	72°05.5′	19°40.9′	27°51.6′	61°41.8′	63°24.4′	67°09.9′
5	111°41.1′	S 5°24.6′	16.2′	12.2′	54.2′	86°29.3′	77°57.2′	71°35.7′	19°10.8′	28°15.6′	62°11.5′	63°48.2′	67°39.4′
6	126°16.3′	S 5°12.3′	16.2′	12.2′	54.2′	86°01.8′	77°31.7′	71°06.0′	18°40.8′	28°39.7′	62°41.1′	64°12.1′	68°08.9′
7	140°51.5′	S 5°00.1′	16.2′	12.3′	54.2′	85°34.3′	77°06.3′	70°36.3′	18°10.8′	29°04.0′	63°10.8′	64°36.0′	68°38.3′
8	155°26.7′	S 4°47.9′	16.2′	12.3′	54.2′	85°06.9′	76°40.9′	70°06.6′	17°40.8′	29°28.5′	63°40.4′	64°60.0′	69°07.8′
9	170°01.9′	S 4°35.6′	16.2′	12.3′	54.2′	84°39.4′	76°15.5′	69°36.9′	17°10.9′	29°53.1′	64°10.0′	65°23.9′	69°37.2′
10	184°37.1′	S 4°23.3′	16.3′	12.3′	54.2′	84°11.9′	75°50.2′	69°07.3′	16°41.0′	30°17.8′	64°39.7′	65°47.9′	70°06.7′
11	199°12.4′	S 4°11.0′	16.3′	12.3′	54.1′	83°44.5′	75°24.9′	68°37.6′	16°11.1′	30°42.7′	65°09.3′	66°12.0′	70°36.1′
12	213°47.7′	S 3°58.7′	16.3′	12.3′	54.1′	83°17.0′	74°59.6′	68°07.9′	15°41.2′	31°07.7′	65°38.9′	66°36.1′	71°05.5′
13	228°23.0′	S 3°46.4′	16.3′	12.3′	54.1′	82°49.6′	74°34.3′	67°38.3′	15°11.4′	31°32.7′	66°08.5′	67°00.2′	71°34.9′
14	242°58.4′	S 3°34.1′	16.4′	12.3′	54.1′	82°22.2′	74°09.1′	67°08.6′	14°41.7′	31°58.0′	66°38.1′	67°24.3′	72°04.3′
15	257°33.7′	S 3°21.7′	16.4′	12.3′	54.1′	81°54.8′	73°43.8′	66°39.0′	14°12.0′	32°23.3′	67°07.7′	67°48.5′	72°33.7′
16	272°09.1′	S 3°09.4′	16.4′	12.4′	54.1′	81°27.4′	73°18.7′	66°09.4′	13°42.3′	32°48.7′	67°37.3′	68°12.7′	73°03.1′
17	286°44.5′	S 2°57.0′	16.4′	12.4′	54.1′	81°00.0′	72°53.5′	65°39.8′	13°12.7′	33°14.2′	68°06.8′	68°36.9′	73°32.4′
18	301°19.9′	S 2°44.7′	16.4′	12.4′	54.1′	80°32.7′	72°28.4′	65°10.1′	12°43.1′	33°39.9′	68°36.4′	69°01.2′	74°01.8′
19	315°55.3′	S 2°32.3′	16.4′	12.4′	54.1′	80°05.3′	72°03.3′	64°40.5′	12°13.6′	34°05.6′	69°06.0′	69°25.5′	74°31.2′
20	330°30.7′	S 2°19.9′	16.4′	12.4′	54.1′	79°38.0′	71°38.2′	64°10.9′	11°44.2′	34°31.4′	69°35.5′	69°49.8′	75°00.5′
21	345°06.2′	S 2°07.5′	16.5′	12.4′	54.1′	79°10.7′	71°13.2′	63°41.4′	11°14.8′	34°57.3′	70°05.1′	70°14.1′	75°29.9′
22	359°41.6′	S 1°55.1′	16.5′	12.4′	54.1′	78°43.3′	70°48.1′	63°11.8′	10°45.6′	35°23.2′	70°34.6′	70°38.5′	75°59.2′
23	14°17.1′	S 1°42.7′	16.5′	12.4′	54.0′	78°16.0′	70°23.2′	62°42.2′	10°16.4′	35°49.3′	71°04.1′	71°02.9′	76°28.6′
Mer. pass. 22 h 1 m SD 14.8′ phase 88%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.1′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.5′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.2′	N 11°52.0′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.4′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.3′	N 5°10.4′	Polaris	+2.0	315°06.6′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.6′	S 52°42.1′				

Thursday 29 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	37°47.0′	184°04.3′	S 13°31.7′	216°08.4′	N 0°57.4′	105°23.9′	S 22°17.7′	99°39.1′	S 21°15.8′	21°25.2′	N 4°50.7′
1	52°49.4′	199°04.4′	S 13°32.5′	231°08.1′	N 0°56.3′	120°26.0′	S 22°17.6′	114°41.4′	S 21°15.8′	36°28.3′	N 4°50.7′
2	67°51.9′	214°04.4′	S 13°33.3′	246°07.7′	N 0°55.1′	135°28.1′	S 22°17.6′	129°43.7′	S 21°15.8′	51°31.3′	N 4°50.7′
3	82°54.3′	229°04.4′	S 13°34.2′	261°07.4′	N 0°54.0′	150°30.2′	S 22°17.5′	144°46.1′	S 21°15.7′	66°34.3′	N 4°50.6′
4	97°56.8′	244°04.5′	S 13°35.0′	276°07.0′	N 0°52.9′	165°32.3′	S 22°17.5′	159°48.4′	S 21°15.7′	81°37.3′	N 4°50.6′
5	112°59.3′	259°04.5′	S 13°35.8′	291°06.7′	N 0°51.7′	180°34.4′	S 22°17.4′	174°50.7′	S 21°15.7′	96°40.3′	N 4°50.6′
6	128°01.7′	274°04.6′	S 13°36.6′	306°06.4′	N 0°50.6′	195°36.5′	S 22°17.4′	189°53.1′	S 21°15.7′	111°43.3′	N 4°50.5′
7	143°04.2′	289°04.6′	S 13°37.5′	321°06.0′	N 0°49.4′	210°38.6′	S 22°17.3′	204°55.4′	S 21°15.7′	126°46.3′	N 4°50.5′
8	158°06.7′	304°04.6′	S 13°38.3′	336°05.7′	N 0°48.3′	225°40.7′	S 22°17.3′	219°57.7′	S 21°15.6′	141°49.3′	N 4°50.5′
9	173°09.1′	319°04.7′	S 13°39.1′	351°05.3′	N 0°47.1′	240°42.8′	S 22°17.2′	235°00.1′	S 21°15.6′	156°52.3′	N 4°50.4′
10	188°11.6′	334°04.7′	S 13°39.9′	6°05.0′	N 0°46.0′	255°45.0′	S 22°17.2′	250°02.4′	S 21°15.6′	171°55.3′	N 4°50.4′
11	203°14.1′	349°04.7′	S 13°40.8′	21°04.6′	N 0°44.8′	270°47.1′	S 22°17.1′	265°04.7′	S 21°15.6′	186°58.3′	N 4°50.4′
12	218°16.5′	4°04.8′	S 13°41.6′	36°04.3′	N 0°43.7′	285°49.2′	S 22°17.1′	280°07.1′	S 21°15.6′	202°01.3′	N 4°50.3′
13	233°19.0′	19°04.8′	S 13°42.4′	51°04.0′	N 0°42.6′	300°51.3′	S 22°17.0′	295°09.4′	S 21°15.5′	217°04.3′	N 4°50.3′
14	248°21.5′	34°04.9′	S 13°43.2′	66°03.6′	N 0°41.4′	315°53.4′	S 22°17.0′	310°11.8′	S 21°15.5′	232°07.3′	N 4°50.3′
15	263°23.9′	49°04.9′	S 13°44.0′	81°03.3′	N 0°40.3′	330°55.5′	S 22°16.9′	325°14.1′	S 21°15.5′	247°10.3′	N 4°50.2′
16	278°26.4′	64°04.9′	S 13°44.9′	96°02.9′	N 0°39.1′	345°57.6′	S 22°16.9′	340°16.4′	S 21°15.5′	262°13.3′	N 4°50.2′
17	293°28.8′	79°05.0′	S 13°45.7′	111°02.6′	N 0°38.0′	0°59.7′	S 22°16.8′	355°18.8′	S 21°15.4′	277°16.3′	N 4°50.2′
18	308°31.3′	94°05.0′	S 13°46.5′	126°02.2′	N 0°36.8′	16°01.8′	S 22°16.8′	10°21.1′	S 21°15.4′	292°19.3′	N 4°50.2′
19	323°33.8′	109°05.0′	S 13°47.3′	141°01.9′	N 0°35.7′	31°03.9′	S 22°16.7′	25°23.4′	S 21°15.4′	307°22.3′	N 4°50.1′
20	338°36.2′	124°05.1′	S 13°48.1′	156°01.6′	N 0°34.5′	46°06.0′	S 22°16.7′	40°25.8′	S 21°15.4′	322°25.3′	N 4°50.1′
21	353°38.7′	139°05.1′	S 13°49.0′	171°01.2′	N 0°33.4′	61°08.1′	S 22°16.6′	55°28.1′	S 21°15.4′	337°28.3′	N 4°50.1′
22	8°41.2′	154°05.1′	S 13°49.8′	186°00.9′	N 0°32.2′	76°10.2′	S 22°16.6′	70°30.4′	S 21°15.3′	352°31.3′	N 4°50.1′
23	23°43.6′	169°05.2′	S 13°50.6′	201°00.5′	N 0°31.1′	91°12.3′	S 22°16.5′	85°32.8′	S 21°15.3′	7°34.2′	N 4°50.0′
		SD 16.1′ *d* -0.8′		*v* -0.3′ *d* -1.1′		*v* 2.1′ *d* 0.0′		*v* 2.3′ *d* 0.0′		*v* 3.0′ *d* -0.0′	
Mer. pass.		11 h 43 m 42 s		9 h 36 m		16 h 56 m		17 h 19 m		22 h 30 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Capella	−Rigel	−Aldebaran	−Mars	+Fomalhaut	+Altair	+Saturn	+Jupiter
0	28°52.6′	S 1°30.3′	16.5′	12.4′	54.0′	77°48.8′	69°58.2′	62°12.6′	9°47.3′	36°15.4′	71°27.3′	71°33.7′	76°57.9′
1	43°28.1′	S 1°17.9′	16.5′	12.4′	54.0′	77°21.5′	69°33.3′	61°43.1′	9°18.4′	36°41.6′	71°51.7′	72°03.2′	77°27.2′
2	58°03.6′	S 1°05.5′	16.5′	12.4′	54.0′	76°54.2′	69°08.4′	61°13.5′	8°49.6′	37°07.9′	72°16.2′	72°32.7′	77°56.5′
3	72°39.1′	S 0°53.1′	16.5′	12.4′	54.0′	76°27.0′	68°43.6′	60°44.0′	8°21.0′	37°34.2′	72°40.6′	73°02.2′	78°25.9′
4	87°14.6′	S 0°40.7′	16.5′	12.4′	54.0′	75°59.7′	68°18.7′	60°14.4′	7°52.5′	38°00.6′	73°05.1′	73°31.7′	78°55.2′
5	101°50.1′	S 0°28.3′	16.5′	12.4′	54.0′	75°32.5′	67°54.0′	59°44.9′	7°24.4′	38°27.1′	73°29.7′	74°01.2′	79°24.5′
6	116°25.7′	S 0°15.9′	16.5′	12.4′	54.0′	75°05.3′	67°29.2′	59°15.4′	6°56.4′	38°53.6′	73°54.2′	74°30.7′	79°53.8′
7	131°01.2′	S 0°03.5′	16.5′	12.4′	54.0′	74°38.1′	67°04.5′	58°45.8′	6°28.9′	39°20.2′	74°18.7′	75°00.2′	80°23.1′
8	145°36.8′	N 0°09.0′	16.5′	12.4′	54.0′	74°11.0′	66°39.8′	58°16.3′	6°01.7′	39°46.8′	74°43.3′	75°29.7′	80°52.4′
9	160°12.3′	N 0°21.4′	16.5′	12.4′	54.0′	73°43.8′	66°15.2′	57°46.8′	5°35.1′	40°13.5′	75°07.9′	75°59.2′	81°21.6′
10	174°47.9′	N 0°33.8′	16.5′	12.4′	54.0′	73°16.7′	65°50.6′	57°17.3′		40°40.3′	75°32.5′	76°28.7′	81°50.9′
11	189°23.4′	N 0°46.2′	16.6′	12.4′	54.0′	72°49.5′	65°26.0′	56°47.8′		41°07.1′	75°57.2′	76°58.2′	82°20.2′
12	203°59.0′	N 0°58.6′	16.6′	12.4′	54.0′	72°22.4′	65°01.5′	56°18.3′		41°33.9′	76°21.8′	77°27.6′	82°49.5′
13	218°34.5′	N 1°11.0′	16.5′	12.4′	54.0′	71°55.3′	64°37.0′	55°48.8′		42°00.8′	76°46.5′	77°57.1′	83°18.7′
14	233°10.1′	N 1°23.4′	16.5′	12.4′	54.0′	71°28.3′	64°12.6′	55°19.3′		42°27.8′	77°11.1′	78°26.6′	83°48.0′
15	247°45.6′	N 1°35.7′	16.5′	12.4′	54.0′	71°01.2′	63°48.2′	54°49.8′		42°54.8′	77°35.8′	78°56.0′	84°17.3′
16	262°21.1′	N 1°48.1′	16.5′	12.4′	53.9′	70°34.2′	63°23.9′	54°20.3′		43°21.8′	78°00.5′	79°25.5′	84°46.5′
17	276°56.7′	N 2°00.5′	16.5′	12.4′	53.9′	70°07.1′	62°59.6′	53°50.9′		43°48.9′	78°25.3′	79°55.0′	85°15.8′
18	291°32.2′	N 2°12.8′	16.5′	12.4′	53.9′	69°40.1′	62°35.3′	53°21.4′		44°16.0′	78°50.0′	80°24.4′	85°45.0′
19	306°07.8′	N 2°25.2′	16.5′	12.3′	53.9′	69°13.1′	62°11.1′	52°51.9′		44°43.1′	79°14.7′	80°53.9′	86°14.3′
20	320°43.3′	N 2°37.5′	16.5′	12.3′	53.9′	68°46.2′	61°46.9′	52°22.5′		45°10.3′	79°39.5′	81°23.3′	86°43.5′
21	335°18.8′	N 2°49.9′	16.5′	12.3′	53.9′	68°19.2′	61°22.8′	51°53.0′		45°37.6′	80°04.3′	81°52.8′	87°12.8′
22	349°54.3′	N 3°02.2′	16.5′	12.3′	53.9′	67°52.3′	60°58.7′	51°23.6′		46°04.8′	80°29.1′	82°22.2′	87°42.0′
23	4°29.8′	N 3°14.5′	16.5′	12.3′	53.9′	67°25.4′	60°34.7′	50°54.1′		46°32.1′	80°53.9′	82°51.7′	88°11.3′
Mer. pass. 22 h 42 m SD 14.7′ phase 94%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.8′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.1′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.5′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.3′	N 8°55.6′	Regulus	+1.4	207°38.2′	N 11°52.0′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.4′	N 27°58.5′	Aldebaran	+0.9	290°43.3′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.3′	N 5°10.4′	Polaris	+2.0	315°06.5′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.6′	S 52°42.1′				

Friday 30 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	38°46.1′	184°05.2′	S 13°51.4′	216°00.2′	N 0°29.9′	106°14.4′	S 22°16.5′	100°35.1′	S 21°15.3′	22°37.2′	N 4°50.0′
1	53°48.6′	199°05.2′	S 13°52.2′	230°59.8′	N 0°28.8′	121°16.5′	S 22°16.4′	115°37.4′	S 21°15.3′	37°40.2′	N 4°50.0′
2	68°51.0′	214°05.3′	S 13°53.0′	245°59.5′	N 0°27.6′	136°18.6′	S 22°16.4′	130°39.8′	S 21°15.3′	52°43.2′	N 4°50.0′
3	83°53.5′	229°05.3′	S 13°53.9′	260°59.1′	N 0°26.5′	151°20.7′	S 22°16.3′	145°42.1′	S 21°15.2′	67°46.2′	N 4°49.9′
4	98°56.0′	244°05.3′	S 13°54.7′	275°58.8′	N 0°25.4′	166°22.8′	S 22°16.3′	160°44.4′	S 21°15.2′	82°49.2′	N 4°49.9′
5	113°58.4′	259°05.4′	S 13°55.5′	290°58.5′	N 0°24.2′	181°24.9′	S 22°16.2′	175°46.7′	S 21°15.2′	97°52.1′	N 4°49.9′
6	129°00.9′	274°05.4′	S 13°56.3′	305°58.1′	N 0°23.1′	196°27.0′	S 22°16.2′	190°49.1′	S 21°15.2′	112°55.1′	N 4°49.9′
7	144°03.3′	289°05.4′	S 13°57.1′	320°57.8′	N 0°21.9′	211°29.1′	S 22°16.1′	205°51.4′	S 21°15.1′	127°58.1′	N 4°49.8′
8	159°05.8′	304°05.5′	S 13°57.9′	335°57.4′	N 0°20.8′	226°31.2′	S 22°16.1′	220°53.7′	S 21°15.1′	143°01.1′	N 4°49.8′
9	174°08.3′	319°05.5′	S 13°58.7′	350°57.1′	N 0°19.6′	241°33.3′	S 22°16.0′	235°56.1′	S 21°15.1′	158°04.1′	N 4°49.8′
10	189°10.7′	334°05.5′	S 13°59.6′	5°56.7′	N 0°18.5′	256°35.4′	S 22°16.0′	250°58.4′	S 21°15.1′	173°07.0′	N 4°49.8′
11	204°13.2′	349°05.5′	S 14°00.4′	20°56.4′	N 0°17.3′	271°37.5′	S 22°15.9′	266°00.7′	S 21°15.1′	188°10.0′	N 4°49.8′
12	219°15.7′	4°05.6′	S 14°01.2′	35°56.0′	N 0°16.2′	286°39.6′	S 22°15.9′	281°03.1′	S 21°15.0′	203°13.0′	N 4°49.7′
13	234°18.1′	19°05.6′	S 14°02.0′	50°55.7′	N 0°15.0′	301°41.7′	S 22°15.8′	296°05.4′	S 21°15.0′	218°16.0′	N 4°49.7′
14	249°20.6′	34°05.6′	S 14°02.8′	65°55.4′	N 0°13.9′	316°43.8′	S 22°15.8′	311°07.7′	S 21°15.0′	233°18.9′	N 4°49.7′
15	264°23.1′	49°05.7′	S 14°03.6′	80°55.0′	N 0°12.7′	331°45.9′	S 22°15.7′	326°10.1′	S 21°15.0′	248°21.9′	N 4°49.7′
16	279°25.5′	64°05.7′	S 14°04.4′	95°54.7′	N 0°11.6′	346°48.0′	S 22°15.7′	341°12.4′	S 21°15.0′	263°24.9′	N 4°49.7′
17	294°28.0′	79°05.7′	S 14°05.2′	110°54.3′	N 0°10.4′	1°50.1′	S 22°15.6′	356°14.7′	S 21°14.9′	278°27.8′	N 4°49.6′
18	309°30.4′	94°05.7′	S 14°06.0′	125°54.0′	N 0°09.3′	16°52.2′	S 22°15.5′	11°17.0′	S 21°14.9′	293°30.8′	N 4°49.6′
19	324°32.9′	109°05.8′	S 14°06.9′	140°53.6′	N 0°08.1′	31°54.3′	S 22°15.5′	26°19.4′	S 21°14.9′	308°33.8′	N 4°49.6′
20	339°35.4′	124°05.8′	S 14°07.7′	155°53.3′	N 0°07.0′	46°56.4′	S 22°15.4′	41°21.7′	S 21°14.9′	323°36.7′	N 4°49.6′
21	354°37.8′	139°05.8′	S 14°08.5′	170°52.9′	N 0°05.8′	61°58.5′	S 22°15.4′	56°24.0′	S 21°14.8′	338°39.7′	N 4°49.6′
22	9°40.3′	154°05.9′	S 14°09.3′	185°52.6′	N 0°04.7′	77°00.6′	S 22°15.3′	71°26.4′	S 21°14.8′	353°42.6′	N 4°49.6′
23	24°42.8′	169°05.9′	S 14°10.1′	200°52.3′	N 0°03.5′	92°02.7′	S 22°15.3′	86°28.7′	S 21°14.8′	8°45.6′	N 4°49.5′
		SD 16.1′ *d* -0.8′		*v* -0.3′ *d* -1.1′		*v* 2.1′ *d* 0.1′		*v* 2.3′ *d* 0.0′		*v* 3.0′ *d* -0.0′	
Mer. pass.		11 h 43 m 38 s		9 h 36 m		16 h 53 m		17 h 15 m		22 h 25 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Betelgeuse	−Capella	−Rigel	−Aldebaran	+Mars	+Fomalhaut	+Altair	+Saturn
0	19°05.3′	N 3°26.8′	16.5′	12.3′	53.9′	69°08.3′	66°58.5′	60°10.7′	50°24.7′		46°59.5′	81°18.7′	83°21.1′
1	33°40.8′	N 3°39.1′	16.5′	12.3′	53.9′	68°40.1′	66°31.6′	59°46.8′	49°55.2′		47°26.8′	81°43.5′	83°50.5′
2	48°16.3′	N 3°51.3′	16.5′	12.3′	53.9′	68°12.0′	66°04.8′	59°22.9′	49°25.8′		47°54.3′	82°08.3′	84°20.0′
3	62°51.7′	N 4°03.6′	16.5′	12.2′	53.9′	67°43.8′	65°37.9′	58°59.1′	48°56.4′		48°21.7′	82°33.1′	84°49.4′
4	77°27.2′	N 4°15.8′	16.4′	12.2′	53.9′	67°15.7′	65°11.1′	58°35.4′	48°26.9′	5°22.8′	48°49.2′	82°58.0′	85°18.9′
5	92°02.6′	N 4°28.0′	16.4′	12.2′	53.9′	66°47.6′	64°44.3′	58°11.7′	47°57.5′	5°49.1′	49°16.6′	83°22.8′	85°48.3′
6	106°38.1′	N 4°40.2′	16.4′	12.2′	53.9′	66°19.5′	64°17.6′	57°48.0′	47°28.1′	6°15.9′	49°44.2′	83°47.7′	86°17.7′
7	121°13.5′	N 4°52.4′	16.4′	12.2′	53.9′	65°51.4′	63°50.8′	57°24.5′	46°58.7′	6°43.2′	50°11.7′	84°12.5′	86°47.1′
8	135°48.9′	N 5°04.6′	16.4′	12.2′	53.9′	65°23.3′	63°24.1′	57°00.9′	46°29.2′	7°10.9′	50°39.3′	84°37.4′	87°16.6′
9	150°24.2′	N 5°16.8′	16.4′	12.1′	53.9′	64°55.3′	62°57.4′	56°37.5′	45°59.8′	7°38.8′	51°06.9′	85°02.3′	87°46.0′
10	164°59.6′	N 5°28.9′	16.3′	12.1′	53.9′	64°27.2′	62°30.7′	56°14.1′	45°30.4′	8°07.0′	51°34.5′	85°27.2′	88°15.4′
11	179°34.9′	N 5°41.0′	16.3′	12.1′	53.9′	63°59.2′	62°04.1′	55°50.7′	45°01.0′	8°35.5′	52°02.2′	85°52.1′	88°44.9′
12	194°10.3′	N 5°53.1′	16.3′	12.1′	53.9′	63°31.2′	61°37.5′	55°27.5′	44°31.6′	9°04.0′	52°29.9′	86°17.0′	89°14.3′
13	208°45.6′	N 6°05.2′	16.3′	12.0′	53.9′	63°03.1′	61°10.9′	55°04.3′	44°02.2′	9°32.8′	52°57.6′	86°41.9′	89°43.7′
14	223°20.8′	N 6°17.2′	16.3′	12.0′	53.9′	62°35.1′	60°44.3′	54°41.1′	43°32.8′	10°01.6′	53°25.3′	87°06.8′	90°13.2′
15	237°56.1′	N 6°29.2′	16.2′	12.0′	53.9′	62°07.2′	60°17.8′	54°18.1′	43°03.4′	10°30.6′	53°53.1′	87°31.7′	90°42.6′
16	252°31.3′	N 6°41.2′	16.2′	12.0′	53.9′	61°39.2′	59°51.3′	53°55.1′	42°34.0′	10°59.7′	54°20.9′	87°56.6′	91°12.0′
17	267°06.6′	N 6°53.2′	16.2′	12.0′	53.9′	61°11.2′	59°24.8′	53°32.2′	42°04.7′	11°28.8′	54°48.6′	88°21.5′	91°41.4′
18	281°41.8′	N 7°05.2′	16.2′	11.9′	53.9′	60°43.3′	58°58.3′	53°09.3′	41°35.3′	11°58.1′	55°16.5′	88°46.4′	92°10.9′
19	296°16.9′	N 7°17.1′	16.1′	11.9′	53.9′	60°15.4′	58°31.9′	52°46.6′	41°05.9′	12°27.3′	55°44.3′	89°11.3′	92°40.3′
20	310°52.1′	N 7°29.0′	16.1′	11.9′	53.9′	59°47.4′	58°05.5′	52°23.9′	40°36.5′	12°56.7′	56°12.2′	89°36.2′	93°09.7′
21	325°27.2′	N 7°40.9′	16.1′	11.8′	53.9′	59°19.6′	57°39.1′	52°01.3′	40°07.1′	13°26.1′	56°40.1′	90°01.2′	93°39.2′
22	340°02.3′	N 7°52.7′	16.1′	11.8′	53.9′	58°51.7′	57°12.8′	51°38.8′	39°37.8′	13°55.5′	57°08.0′	90°26.1′	94°08.6′
23	354°37.3′	N 8°04.5′	16.0′	11.8′	53.9′	58°23.8′	56°46.5′	51°16.3′	39°08.4′	14°25.0′	57°35.9′	90°51.0′	94°38.0′
Mer. pass. 23 h 22 m SD 14.7′ phase 98%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.9′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.1′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.5′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.4′	N 8°55.6′	Regulus	+1.4	207°38.2′	N 11°52.0′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.4′	N 27°58.5′	Aldebaran	+0.9	290°43.2′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.3′	N 5°10.4′	Polaris	+2.0	315°06.4′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.6′	S 52°42.1′				

Saturday 31 October 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	39°45.2′	184°05.9′	S 14°10.9′	215°51.9′	N 0°02.4′	107°04.8′	S 22°15.2′	101°31.0′	S 21°14.8′	23°48.6′	N 4°49.5′
1	54°47.7′	199°05.9′	S 14°11.7′	230°51.6′	N 0°01.2′	122°06.9′	S 22°15.2′	116°33.4′	S 21°14.8′	38°51.5′	N 4°49.5′
2	69°50.2′	214°06.0′	S 14°12.5′	245°51.2′	N 0°00.1′	137°09.0′	S 22°15.1′	131°35.7′	S 21°14.7′	53°54.5′	N 4°49.5′
3	84°52.6′	229°06.0′	S 14°13.3′	260°50.9′	S 0°01.1′	152°11.1′	S 22°15.1′	146°38.0′	S 21°14.7′	68°57.4′	N 4°49.5′
4	99°55.1′	244°06.0′	S 14°14.1′	275°50.5′	S 0°02.2′	167°13.2′	S 22°15.0′	161°40.3′	S 21°14.7′	84°00.4′	N 4°49.5′
5	114°57.6′	259°06.0′	S 14°14.9′	290°50.2′	S 0°03.4′	182°15.3′	S 22°15.0′	176°42.7′	S 21°14.7′	99°03.3′	N 4°49.5′
6	130°00.0′	274°06.0′	S 14°15.7′	305°49.8′	S 0°04.5′	197°17.3′	S 22°14.9′	191°45.0′	S 21°14.6′	114°06.3′	N 4°49.4′
7	145°02.5′	289°06.1′	S 14°16.5′	320°49.5′	S 0°05.7′	212°19.4′	S 22°14.9′	206°47.3′	S 21°14.6′	129°09.2′	N 4°49.4′
8	160°04.9′	304°06.1′	S 14°17.3′	335°49.1′	S 0°06.8′	227°21.5′	S 22°14.8′	221°49.6′	S 21°14.6′	144°12.2′	N 4°49.4′
9	175°07.4′	319°06.1′	S 14°18.2′	350°48.8′	S 0°08.0′	242°23.6′	S 22°14.8′	236°52.0′	S 21°14.6′	159°15.1′	N 4°49.4′
10	190°09.9′	334°06.1′	S 14°19.0′	5°48.4′	S 0°09.1′	257°25.7′	S 22°14.7′	251°54.3′	S 21°14.5′	174°18.1′	N 4°49.4′
11	205°12.3′	349°06.2′	S 14°19.8′	20°48.1′	S 0°10.3′	272°27.8′	S 22°14.7′	266°56.6′	S 21°14.5′	189°21.0′	N 4°49.4′
12	220°14.8′	4°06.2′	S 14°20.6′	35°47.8′	S 0°11.4′	287°29.9′	S 22°14.6′	281°59.0′	S 21°14.5′	204°24.0′	N 4°49.4′
13	235°17.3′	19°06.2′	S 14°21.4′	50°47.4′	S 0°12.6′	302°32.0′	S 22°14.6′	297°01.3′	S 21°14.5′	219°26.9′	N 4°49.4′
14	250°19.7′	34°06.2′	S 14°22.2′	65°47.1′	S 0°13.7′	317°34.1′	S 22°14.5′	312°03.6′	S 21°14.5′	234°29.8′	N 4°49.4′
15	265°22.2′	49°06.2′	S 14°23.0′	80°46.7′	S 0°14.9′	332°36.2′	S 22°14.5′	327°05.9′	S 21°14.4′	249°32.8′	N 4°49.4′
16	280°24.7′	64°06.3′	S 14°23.8′	95°46.4′	S 0°16.1′	347°38.3′	S 22°14.4′	342°08.3′	S 21°14.4′	264°35.7′	N 4°49.3′
17	295°27.1′	79°06.3′	S 14°24.6′	110°46.0′	S 0°17.2′	2°40.4′	S 22°14.4′	357°10.6′	S 21°14.4′	279°38.7′	N 4°49.3′
18	310°29.6′	94°06.3′	S 14°25.4′	125°45.7′	S 0°18.4′	17°42.5′	S 22°14.3′	12°12.9′	S 21°14.4′	294°41.6′	N 4°49.3′
19	325°32.0′	109°06.3′	S 14°26.2′	140°45.3′	S 0°19.5′	32°44.5′	S 22°14.2′	27°15.2′	S 21°14.3′	309°44.5′	N 4°49.3′
20	340°34.5′	124°06.3′	S 14°27.0′	155°45.0′	S 0°20.7′	47°46.6′	S 22°14.2′	42°17.6′	S 21°14.3′	324°47.5′	N 4°49.3′
21	355°37.0′	139°06.4′	S 14°27.8′	170°44.6′	S 0°21.8′	62°48.7′	S 22°14.1′	57°19.9′	S 21°14.3′	339°50.4′	N 4°49.3′
22	10°39.4′	154°06.4′	S 14°28.6′	185°44.3′	S 0°23.0′	77°50.8′	S 22°14.1′	72°22.2′	S 21°14.3′	354°53.3′	N 4°49.3′
23	25°41.9′	169°06.4′	S 14°29.4′	200°43.9′	S 0°24.1′	92°52.9′	S 22°14.0′	87°24.5′	S 21°14.3′	9°56.3′	N 4°49.3′
		SD 16.1′ *d* -0.8′		*v* -0.3′ *d* -1.2′		*v* 2.1′ *d* 0.1′		*v* 2.3′ *d* 0.0′		*v* 2.9′ *d* -0.0′	
Mer. pass.		11 h 43 m 36 s		9 h 37 m		16 h 49 m		17 h 11 m		22 h 20 m	

h	Moon					Lunar distance							
	GHA	dec	*v*	*d*	HP	−Betelgeuse	−Capella	−Rigel	−Aldebaran	+Mars	+Fomalhaut	+Achernar	+Altair
0	9°12.4′	N 8°16.3′	16.0′	11.8′	53.9′	57°56.0′	56°20.3′	50°54.0′	38°39.0′	14°54.5′	58°03.8′		91°15.9′
1	23°47.4′	N 8°28.1′	16.0′	11.7′	53.9′	57°28.1′	55°54.0′	50°31.7′	38°09.7′	15°24.1′	58°31.8′		91°40.8′
2	38°22.4′	N 8°39.8′	16.0′	11.7′	53.9′	57°00.3′	55°27.8′	50°09.6′	37°40.3′	15°53.6′	58°59.8′		92°05.8′
3	52°57.3′	N 8°51.5′	15.9′	11.7′	53.9′	56°32.5′	55°01.7′	49°47.5′	37°11.0′	16°23.3′	59°27.8′		92°30.7′
4	67°32.2′	N 9°03.1′	15.9′	11.6′	53.9′	56°04.7′	54°35.6′	49°25.5′	36°41.6′	16°52.9′	59°55.8′		92°55.6′
5	82°07.1′	N 9°14.8′	15.9′	11.6′	53.9′	55°37.0′	54°09.5′	49°03.6′	36°12.3′	17°22.5′	60°23.8′		93°20.5′
6	96°42.0′	N 9°26.3′	15.8′	11.6′	53.9′	55°09.2′	53°43.5′	48°41.8′	35°43.0′	17°52.2′	60°51.9′		93°45.4′
7	111°16.8′	N 9°37.9′	15.8′	11.5′	53.9′	54°41.5′	53°17.5′	48°20.2′	35°13.6′	18°21.9′	61°19.9′		94°10.3′
8	125°51.6′	N 9°49.4′	15.8′	11.5′	53.9′	54°13.8′	52°51.5′	47°58.6′	34°44.3′	18°51.6′	61°48.0′		94°35.2′
9	140°26.4′	N 10°00.9′	15.7′	11.4′	53.9′	53°46.2′	52°25.6′	47°37.1′	34°15.0′	19°21.4′	62°16.1′		95°00.1′
10	155°01.1′	N 10°12.4′	15.7′	11.4′	53.9′	53°18.5′	51°59.7′	47°15.7′	33°45.6′	19°51.1′	62°44.2′		95°25.0′
11	169°35.8′	N 10°23.8′	15.6′	11.4′	53.9′	52°50.9′	51°33.9′	46°54.5′	33°16.3′	20°20.9′	63°12.3′		95°49.9′
12	184°10.4′	N 10°35.1′	15.6′	11.3′	53.9′	52°23.2′	51°08.1′	46°33.4′	32°47.0′	20°50.7′	63°40.5′		96°14.8′
13	198°45.0′	N 10°46.5′	15.6′	11.3′	53.9′	51°55.7′	50°42.4′	46°12.3′	32°17.7′	21°20.5′	64°08.6′		96°39.7′
14	213°19.6′	N 10°57.8′	15.5′	11.3′	53.9′	51°28.1′	50°16.7′	45°51.4′	31°48.4′	21°50.3′	64°36.8′		97°04.6′
15	227°54.1′	N 11°09.0′	15.5′	11.2′	53.9′	51°00.6′	49°51.1′	45°30.7′	31°19.1′	22°20.1′	65°05.0′		97°29.4′
16	242°28.6′	N 11°20.2′	15.5′	11.2′	53.9′	50°33.0′	49°25.5′	45°10.0′	30°49.8′	22°50.0′	65°33.2′		97°54.3′
17	257°03.1′	N 11°31.4′	15.4′	11.1′	53.9′	50°05.6′	48°60.0′	44°49.5′	30°20.5′	23°19.8′	66°01.4′		98°19.1′
18	271°37.5′	N 11°42.5′	15.4′	11.1′	53.9′	49°38.1′	48°34.5′	44°29.1′	29°51.3′	23°49.7′	66°29.7′		98°44.0′
19	286°11.9′	N 11°53.6′	15.3′	11.0′	53.9′	49°10.7′	48°09.1′	44°08.9′	29°22.0′	24°19.5′	66°57.9′	70°05.5′	99°08.8′
20	300°46.2′	N 12°04.6′	15.3′	11.0′	53.9′	48°43.3′	47°43.7′	43°48.7′	28°52.8′	24°49.4′	67°26.2′	70°20.5′	99°33.6′
21	315°20.5′	N 12°15.6′	15.2′	10.9′	53.9′	48°15.9′	47°18.4′	43°28.8′	28°23.5′	25°19.3′	67°54.4′	70°35.5′	99°58.5′
22	329°54.7′	N 12°26.6′	15.2′	10.9′	53.9′	47°48.5′	46°53.2′	43°09.0′	27°54.3′	25°49.2′	68°22.7′	70°50.7′	100°23.3′
23	344°29.0′	N 12°37.5′	15.2′	10.9′	54.0′	47°21.2′	46°28.0′	42°49.3′	27°25.0′	26°19.1′	68°51.0′	71°05.9′	100°48.1′
Mer. pass. 0 h 4 m SD 14.7′ phase 100%													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1′	S 29°30.9′	Spica	+1.0	158°26.2′	S 11°15.9′	Betelgeuse	+0.5	270°55.6′	N 7°24.7′
Deneb	+1.2	49°28.1′	N 45°21.5′	Acrux	+0.8	173°04.4′	S 63°12.5′	Capella	+0.1	280°26.6′	N 46°00.9′
Altair	+0.8	62°03.4′	N 8°55.6′	Regulus	+1.4	207°38.2′	N 11°52.0′	Rigel	+0.2	281°06.9′	S 8°10.6′
Vega	+0.0	80°35.7′	N 38°48.5′	Pollux	+1.2	243°21.4′	N 27°58.5′	Aldebaran	+0.9	290°43.2′	N 16°33.0′
Antares	+1.1	112°20.3′	S 26°28.5′	Procyon	+0.4	244°54.3′	N 5°10.4′	Polaris	+2.0	315°06.2′	N 89°21.0′
Rigil Kent	−0.0	139°45.6′	S 60°55.1′	Adhara	+1.5	255°08.4′	S 28°59.8′	Achernar	+0.5	335°22.3′	S 57°08.0′
Arcturus	−0.1	145°51.4′	N 19°04.7′	Sirius	−1.4	258°29.1′	S 16°44.5′				
Hadar	+0.6	148°41.4′	S 60°28.2′	Canopus	−0.6	263°53.6′	S 52°42.1′				