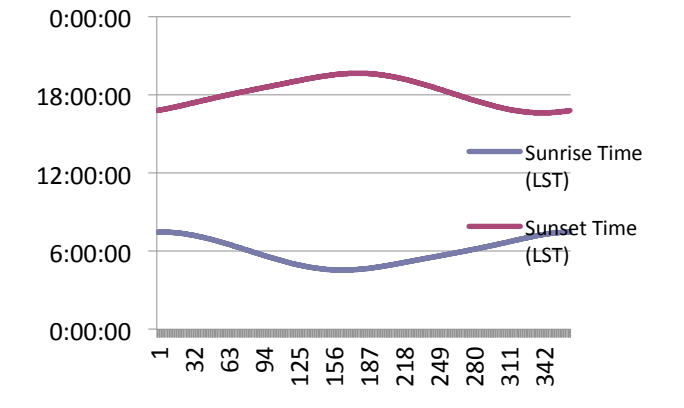
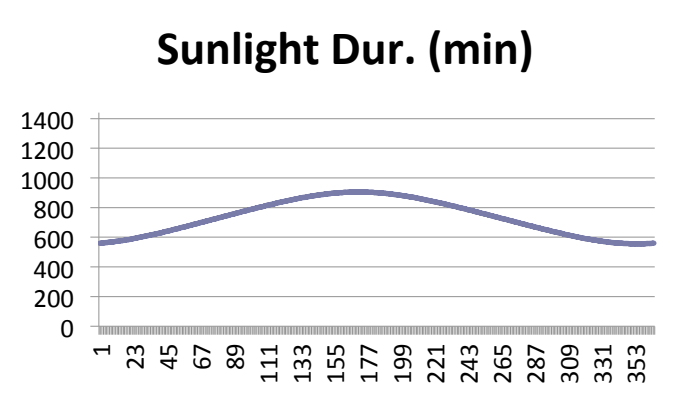
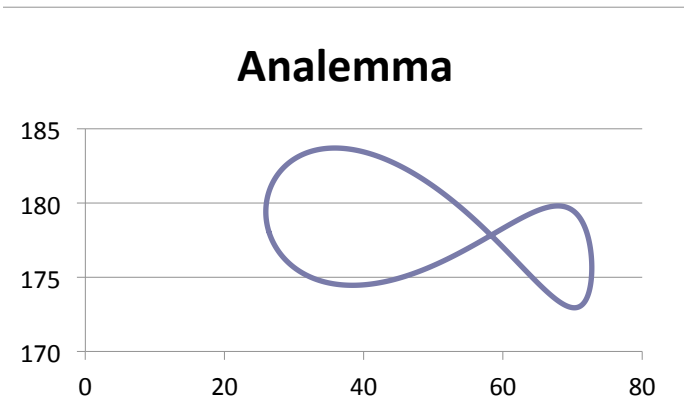


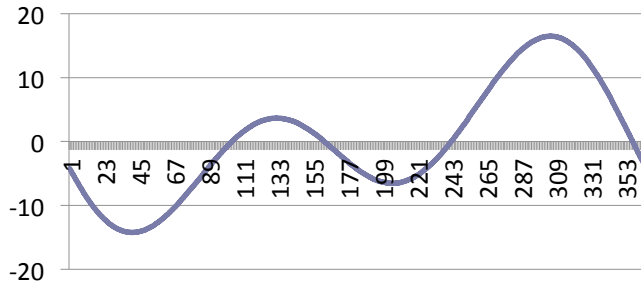
NOAA Solar Calculations - Change any of the highlighted cells to get solar position data for that location and time-of-day for a year.

Latitude (+ to N) 40.635
 Longitude (+ to E) -75.99
 Time Zone (+ to E) -5
 Local Time (hrs) 12:00:00
 Year 2017

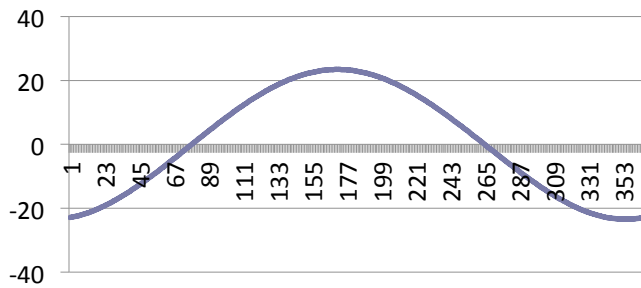
Date	Time (hrs past local midnight)	Julian Day
1/1/17	12:00:00	2457755.21
1/2/17	12:00:00	2457756.21
1/3/17	12:00:00	2457757.21
1/4/17	12:00:00	2457758.21
1/5/17	12:00:00	2457759.21
1/6/17	12:00:00	2457760.21
1/7/17	12:00:00	2457761.21
1/8/17	12:00:00	2457762.21
1/9/17	12:00:00	2457763.21
1/10/17	12:00:00	2457764.21
1/11/17	12:00:00	2457765.21
1/12/17	12:00:00	2457766.21
1/13/17	12:00:00	2457767.21
1/14/17	12:00:00	2457768.21
1/15/17	12:00:00	2457769.21
1/16/17	12:00:00	2457770.21
1/17/17	12:00:00	2457771.21
1/18/17	12:00:00	2457772.21
1/19/17	12:00:00	2457773.21
1/20/17	12:00:00	2457774.21
1/21/17	12:00:00	2457775.21
1/22/17	12:00:00	2457776.21
1/23/17	12:00:00	2457777.21
1/24/17	12:00:00	2457778.21
1/25/17	12:00:00	2457779.21
1/26/17	12:00:00	2457780.21
1/27/17	12:00:00	2457781.21
1/28/17	12:00:00	2457782.21
1/29/17	12:00:00	2457783.21
1/30/17	12:00:00	2457784.21
1/31/17	12:00:00	2457785.21
2/1/17	12:00:00	2457786.21
2/2/17	12:00:00	2457787.21
2/3/17	12:00:00	2457788.21
2/4/17	12:00:00	2457789.21
2/5/17	12:00:00	2457790.21
2/6/17	12:00:00	2457791.21
2/7/17	12:00:00	2457792.21
2/8/17	12:00:00	2457793.21
2/9/17	12:00:00	2457794.21
2/10/17	12:00:00	2457795.21



Eq of Time (minutes)



Sun Declin (deg)



2/11/17	12:00:00	2457796.21
2/12/17	12:00:00	2457797.21
2/13/17	12:00:00	2457798.21
2/14/17	12:00:00	2457799.21
2/15/17	12:00:00	2457800.21
2/16/17	12:00:00	2457801.21
2/17/17	12:00:00	2457802.21
2/18/17	12:00:00	2457803.21
2/19/17	12:00:00	2457804.21
2/20/17	12:00:00	2457805.21
2/21/17	12:00:00	2457806.21
2/22/17	12:00:00	2457807.21
2/23/17	12:00:00	2457808.21
2/24/17	12:00:00	2457809.21
2/25/17	12:00:00	2457810.21
2/26/17	12:00:00	2457811.21
2/27/17	12:00:00	2457812.21
2/28/17	12:00:00	2457813.21
3/1/17	12:00:00	2457814.21
3/2/17	12:00:00	2457815.21
3/3/17	12:00:00	2457816.21
3/4/17	12:00:00	2457817.21
3/5/17	12:00:00	2457818.21
3/6/17	12:00:00	2457819.21
3/7/17	12:00:00	2457820.21
3/8/17	12:00:00	2457821.21
3/9/17	12:00:00	2457822.21
3/10/17	12:00:00	2457823.21
3/11/17	12:00:00	2457824.21
3/12/17	12:00:00	2457825.21
3/13/17	12:00:00	2457826.21
3/14/17	12:00:00	2457827.21
3/15/17	12:00:00	2457828.21
3/16/17	12:00:00	2457829.21
3/17/17	12:00:00	2457830.21
3/18/17	12:00:00	2457831.21
3/19/17	12:00:00	2457832.21
3/20/17	12:00:00	2457833.21
3/21/17	12:00:00	2457834.21
3/22/17	12:00:00	2457835.21
3/23/17	12:00:00	2457836.21
3/24/17	12:00:00	2457837.21
3/25/17	12:00:00	2457838.21
3/26/17	12:00:00	2457839.21
3/27/17	12:00:00	2457840.21
3/28/17	12:00:00	2457841.21
3/29/17	12:00:00	2457842.21
3/30/17	12:00:00	2457843.21

3/31/17	12:00:00	2457844.21
4/1/17	12:00:00	2457845.21
4/2/17	12:00:00	2457846.21
4/3/17	12:00:00	2457847.21
4/4/17	12:00:00	2457848.21
4/5/17	12:00:00	2457849.21
4/6/17	12:00:00	2457850.21
4/7/17	12:00:00	2457851.21
4/8/17	12:00:00	2457852.21
4/9/17	12:00:00	2457853.21
4/10/17	12:00:00	2457854.21
4/11/17	12:00:00	2457855.21
4/12/17	12:00:00	2457856.21
4/13/17	12:00:00	2457857.21
4/14/17	12:00:00	2457858.21
4/15/17	12:00:00	2457859.21
4/16/17	12:00:00	2457860.21
4/17/17	12:00:00	2457861.21
4/18/17	12:00:00	2457862.21
4/19/17	12:00:00	2457863.21
4/20/17	12:00:00	2457864.21
4/21/17	12:00:00	2457865.21
4/22/17	12:00:00	2457866.21
4/23/17	12:00:00	2457867.21
4/24/17	12:00:00	2457868.21
4/25/17	12:00:00	2457869.21
4/26/17	12:00:00	2457870.21
4/27/17	12:00:00	2457871.21
4/28/17	12:00:00	2457872.21
4/29/17	12:00:00	2457873.21
4/30/17	12:00:00	2457874.21
5/1/17	12:00:00	2457875.21
5/2/17	12:00:00	2457876.21
5/3/17	12:00:00	2457877.21
5/4/17	12:00:00	2457878.21
5/5/17	12:00:00	2457879.21
5/6/17	12:00:00	2457880.21
5/7/17	12:00:00	2457881.21
5/8/17	12:00:00	2457882.21
5/9/17	12:00:00	2457883.21
5/10/17	12:00:00	2457884.21
5/11/17	12:00:00	2457885.21
5/12/17	12:00:00	2457886.21
5/13/17	12:00:00	2457887.21
5/14/17	12:00:00	2457888.21
5/15/17	12:00:00	2457889.21
5/16/17	12:00:00	2457890.21
5/17/17	12:00:00	2457891.21

5/18/17	12:00:00	2457892.21
5/19/17	12:00:00	2457893.21
5/20/17	12:00:00	2457894.21
5/21/17	12:00:00	2457895.21
5/22/17	12:00:00	2457896.21
5/23/17	12:00:00	2457897.21
5/24/17	12:00:00	2457898.21
5/25/17	12:00:00	2457899.21
5/26/17	12:00:00	2457900.21
5/27/17	12:00:00	2457901.21
5/28/17	12:00:00	2457902.21
5/29/17	12:00:00	2457903.21
5/30/17	12:00:00	2457904.21
5/31/17	12:00:00	2457905.21
6/1/17	12:00:00	2457906.21
6/2/17	12:00:00	2457907.21
6/3/17	12:00:00	2457908.21
6/4/17	12:00:00	2457909.21
6/5/17	12:00:00	2457910.21
6/6/17	12:00:00	2457911.21
6/7/17	12:00:00	2457912.21
6/8/17	12:00:00	2457913.21
6/9/17	12:00:00	2457914.21
6/10/17	12:00:00	2457915.21
6/11/17	12:00:00	2457916.21
6/12/17	12:00:00	2457917.21
6/13/17	12:00:00	2457918.21
6/14/17	12:00:00	2457919.21
6/15/17	12:00:00	2457920.21
6/16/17	12:00:00	2457921.21
6/17/17	12:00:00	2457922.21
6/18/17	12:00:00	2457923.21
6/19/17	12:00:00	2457924.21
6/20/17	12:00:00	2457925.21
6/21/17	12:00:00	2457926.21
6/22/17	12:00:00	2457927.21
6/23/17	12:00:00	2457928.21
6/24/17	12:00:00	2457929.21
6/25/17	12:00:00	2457930.21
6/26/17	12:00:00	2457931.21
6/27/17	12:00:00	2457932.21
6/28/17	12:00:00	2457933.21
6/29/17	12:00:00	2457934.21
6/30/17	12:00:00	2457935.21
7/1/17	12:00:00	2457936.21
7/2/17	12:00:00	2457937.21
7/3/17	12:00:00	2457938.21
7/4/17	12:00:00	2457939.21

7/5/17	12:00:00	2457940.21
7/6/17	12:00:00	2457941.21
7/7/17	12:00:00	2457942.21
7/8/17	12:00:00	2457943.21
7/9/17	12:00:00	2457944.21
7/10/17	12:00:00	2457945.21
7/11/17	12:00:00	2457946.21
7/12/17	12:00:00	2457947.21
7/13/17	12:00:00	2457948.21
7/14/17	12:00:00	2457949.21
7/15/17	12:00:00	2457950.21
7/16/17	12:00:00	2457951.21
7/17/17	12:00:00	2457952.21
7/18/17	12:00:00	2457953.21
7/19/17	12:00:00	2457954.21
7/20/17	12:00:00	2457955.21
7/21/17	12:00:00	2457956.21
7/22/17	12:00:00	2457957.21
7/23/17	12:00:00	2457958.21
7/24/17	12:00:00	2457959.21
7/25/17	12:00:00	2457960.21
7/26/17	12:00:00	2457961.21
7/27/17	12:00:00	2457962.21
7/28/17	12:00:00	2457963.21
7/29/17	12:00:00	2457964.21
7/30/17	12:00:00	2457965.21
7/31/17	12:00:00	2457966.21
8/1/17	12:00:00	2457967.21
8/2/17	12:00:00	2457968.21
8/3/17	12:00:00	2457969.21
8/4/17	12:00:00	2457970.21
8/5/17	12:00:00	2457971.21
8/6/17	12:00:00	2457972.21
8/7/17	12:00:00	2457973.21
8/8/17	12:00:00	2457974.21
8/9/17	12:00:00	2457975.21
8/10/17	12:00:00	2457976.21
8/11/17	12:00:00	2457977.21
8/12/17	12:00:00	2457978.21
8/13/17	12:00:00	2457979.21
8/14/17	12:00:00	2457980.21
8/15/17	12:00:00	2457981.21
8/16/17	12:00:00	2457982.21
8/17/17	12:00:00	2457983.21
8/18/17	12:00:00	2457984.21
8/19/17	12:00:00	2457985.21
8/20/17	12:00:00	2457986.21
8/21/17	12:00:00	2457987.21

8/22/17	12:00:00	2457988.21
8/23/17	12:00:00	2457989.21
8/24/17	12:00:00	2457990.21
8/25/17	12:00:00	2457991.21
8/26/17	12:00:00	2457992.21
8/27/17	12:00:00	2457993.21
8/28/17	12:00:00	2457994.21
8/29/17	12:00:00	2457995.21
8/30/17	12:00:00	2457996.21
8/31/17	12:00:00	2457997.21
9/1/17	12:00:00	2457998.21
9/2/17	12:00:00	2457999.21
9/3/17	12:00:00	2458000.21
9/4/17	12:00:00	2458001.21
9/5/17	12:00:00	2458002.21
9/6/17	12:00:00	2458003.21
9/7/17	12:00:00	2458004.21
9/8/17	12:00:00	2458005.21
9/9/17	12:00:00	2458006.21
9/10/17	12:00:00	2458007.21
9/11/17	12:00:00	2458008.21
9/12/17	12:00:00	2458009.21
9/13/17	12:00:00	2458010.21
9/14/17	12:00:00	2458011.21
9/15/17	12:00:00	2458012.21
9/16/17	12:00:00	2458013.21
9/17/17	12:00:00	2458014.21
9/18/17	12:00:00	2458015.21
9/19/17	12:00:00	2458016.21
9/20/17	12:00:00	2458017.21
9/21/17	12:00:00	2458018.21
9/22/17	12:00:00	2458019.21
9/23/17	12:00:00	2458020.21
9/24/17	12:00:00	2458021.21
9/25/17	12:00:00	2458022.21
9/26/17	12:00:00	2458023.21
9/27/17	12:00:00	2458024.21
9/28/17	12:00:00	2458025.21
9/29/17	12:00:00	2458026.21
9/30/17	12:00:00	2458027.21
10/1/17	12:00:00	2458028.21
10/2/17	12:00:00	2458029.21
10/3/17	12:00:00	2458030.21
10/4/17	12:00:00	2458031.21
10/5/17	12:00:00	2458032.21
10/6/17	12:00:00	2458033.21
10/7/17	12:00:00	2458034.21
10/8/17	12:00:00	2458035.21

10/9/17	12:00:00	2458036.21
10/10/17	12:00:00	2458037.21
10/11/17	12:00:00	2458038.21
10/12/17	12:00:00	2458039.21
10/13/17	12:00:00	2458040.21
10/14/17	12:00:00	2458041.21
10/15/17	12:00:00	2458042.21
10/16/17	12:00:00	2458043.21
10/17/17	12:00:00	2458044.21
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10/22/17	12:00:00	2458049.21
10/23/17	12:00:00	2458050.21
10/24/17	12:00:00	2458051.21
10/25/17	12:00:00	2458052.21
10/26/17	12:00:00	2458053.21
10/27/17	12:00:00	2458054.21
10/28/17	12:00:00	2458055.21
10/29/17	12:00:00	2458056.21
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11/1/17	12:00:00	2458059.21
11/2/17	12:00:00	2458060.21
11/3/17	12:00:00	2458061.21
11/4/17	12:00:00	2458062.21
11/5/17	12:00:00	2458063.21
11/6/17	12:00:00	2458064.21
11/7/17	12:00:00	2458065.21
11/8/17	12:00:00	2458066.21
11/9/17	12:00:00	2458067.21
11/10/17	12:00:00	2458068.21
11/11/17	12:00:00	2458069.21
11/12/17	12:00:00	2458070.21
11/13/17	12:00:00	2458071.21
11/14/17	12:00:00	2458072.21
11/15/17	12:00:00	2458073.21
11/16/17	12:00:00	2458074.21
11/17/17	12:00:00	2458075.21
11/18/17	12:00:00	2458076.21
11/19/17	12:00:00	2458077.21
11/20/17	12:00:00	2458078.21
11/21/17	12:00:00	2458079.21
11/22/17	12:00:00	2458080.21
11/23/17	12:00:00	2458081.21
11/24/17	12:00:00	2458082.21
11/25/17	12:00:00	2458083.21

11/26/17	12:00:00	2458084.21
11/27/17	12:00:00	2458085.21
11/28/17	12:00:00	2458086.21
11/29/17	12:00:00	2458087.21
11/30/17	12:00:00	2458088.21
12/1/17	12:00:00	2458089.21
12/2/17	12:00:00	2458090.21
12/3/17	12:00:00	2458091.21
12/4/17	12:00:00	2458092.21
12/5/17	12:00:00	2458093.21
12/6/17	12:00:00	2458094.21
12/7/17	12:00:00	2458095.21
12/8/17	12:00:00	2458096.21
12/9/17	12:00:00	2458097.21
12/10/17	12:00:00	2458098.21
12/11/17	12:00:00	2458099.21
12/12/17	12:00:00	2458100.21
12/13/17	12:00:00	2458101.21
12/14/17	12:00:00	2458102.21
12/15/17	12:00:00	2458103.21
12/16/17	12:00:00	2458104.21
12/17/17	12:00:00	2458105.21
12/18/17	12:00:00	2458106.21
12/19/17	12:00:00	2458107.21
12/20/17	12:00:00	2458108.21
12/21/17	12:00:00	2458109.21
12/22/17	12:00:00	2458110.21
12/23/17	12:00:00	2458111.21
12/24/17	12:00:00	2458112.21
12/25/17	12:00:00	2458113.21
12/26/17	12:00:00	2458114.21
12/27/17	12:00:00	2458115.21
12/28/17	12:00:00	2458116.21
12/29/17	12:00:00	2458117.21
12/30/17	12:00:00	2458118.21
12/31/17	12:00:00	2458119.21
1/1/18	12:00:00	2458120.21

Julian Century	Geom				Sun True Long (deg)	Sun True Anom (deg)	Sun Rad Vector (AUs)
	Geom Mean	Mean	Eccent	Sun Eq of Ctr			
	Long Sun (deg)	Anom Sun (deg)					
0.17002624	281.541919	6478.3122	0.0167015	-0.05757	281.48435	6478.2546	0.983307
0.17005362	282.527566	6479.2978	0.0167015	-0.023955	282.50361	6479.2738	0.9833008
0.17008099	283.513213	6480.2834	0.0167015	0.0096676	283.52288	6480.2931	0.9832997
0.17010837	284.498861	6481.269	0.0167015	0.0432868	284.54215	6481.3123	0.9833038
0.17013575	285.484508	6482.2546	0.0167015	0.0768924	285.5614	6482.3315	0.9833129
0.17016313	286.470155	6483.2402	0.0167015	0.1104738	286.58063	6483.3507	0.9833271
0.17019051	287.455803	6484.2258	0.0167015	0.1440204	287.59982	6484.3698	0.9833465
0.17021789	288.44145	6485.2114	0.0167015	0.1775216	288.61897	6485.3889	0.9833709
0.17024527	289.427097	6486.197	0.0167015	0.2109668	289.63806	6486.408	0.9834005
0.17027264	290.412745	6487.1826	0.0167015	0.2443457	290.65709	6487.4269	0.9834351
0.17030002	291.398392	6488.1682	0.0167015	0.2776475	291.67604	6488.4458	0.9834747
0.17032740	292.38404	6489.1538	0.0167015	0.3108619	292.6949	6489.4647	0.9835195
0.17035478	293.369687	6490.1394	0.0167015	0.3439785	293.71367	6490.4834	0.9835692
0.17038216	294.355334	6491.125	0.0167015	0.3769868	294.73232	6491.502	0.983624
0.17040954	295.340982	6492.1106	0.0167015	0.4098764	295.75086	6492.5205	0.9836838
0.17043692	296.326629	6493.0962	0.0167015	0.4426371	296.76927	6493.5388	0.9837486
0.17046429	297.312276	6494.0818	0.0167015	0.4752585	297.78753	6494.5571	0.9838183
0.17049167	298.297924	6495.0674	0.0167015	0.5077304	298.80565	6495.5751	0.983893
0.17051905	299.283571	6496.053	0.0167015	0.5400428	299.82361	6496.593	0.9839726
0.17054643	300.269218	6497.0386	0.0167015	0.5721854	300.8414	6497.6108	0.9840571
0.17057381	301.254866	6498.0242	0.0167015	0.6041482	301.85901	6498.6283	0.9841465
0.17060119	302.240513	6499.0098	0.0167015	0.6359212	302.87643	6499.6457	0.9842407
0.17062856	303.226161	6499.9954	0.0167015	0.6674946	303.89366	6500.6629	0.9843397
0.17065594	304.211808	6500.981	0.0167015	0.6988585	304.91067	6501.6799	0.9844435
0.17068332	305.197455	6501.9666	0.0167015	0.7300031	305.92746	6502.6966	0.984552
0.17071070	306.183103	6502.9522	0.0167015	0.7609188	306.94402	6503.7131	0.9846652
0.17073808	307.16875	6503.9378	0.0167015	0.7915959	307.96035	6504.7294	0.9847831
0.17076546	308.154397	6504.9234	0.0167015	0.822025	308.97642	6505.7454	0.9849056
0.17079284	309.140045	6505.909	0.0167015	0.8521967	309.99224	6506.7612	0.9850327
0.17082021	310.125692	6506.8946	0.0167014	0.8821016	311.00779	6507.7767	0.9851644
0.17084759	311.111339	6507.8802	0.0167014	0.9117305	312.02307	6508.7919	0.9853005
0.17087497	312.096987	6508.8658	0.0167014	0.9410742	313.03806	6509.8069	0.9854411
0.17090235	313.082634	6509.8514	0.0167014	0.9701238	314.05276	6510.8215	0.9855862
0.17092973	314.068282	6510.837	0.0167014	0.9988704	315.06715	6511.8359	0.9857356
0.17095711	315.053929	6511.8226	0.0167014	1.0273051	316.08123	6512.8499	0.9858893
0.17098449	316.039576	6512.8082	0.0167014	1.0554192	317.095	6513.8636	0.9860473
0.17101186	317.025224	6513.7938	0.0167014	1.0832042	318.10843	6514.877	0.9862095
0.17103924	318.010871	6514.7794	0.0167014	1.1106517	319.12152	6515.8901	0.9863759
0.17106662	318.996518	6515.765	0.0167014	1.1377532	320.13427	6516.9028	0.9865464
0.17109400	319.982166	6516.7506	0.0167014	1.1645005	321.14667	6517.9151	0.9867209
0.17112138	320.967813	6517.7362	0.0167014	1.1908857	322.1587	6518.9271	0.9868995

0.17114876	321.95346	6518.7218	0.0167014	1.2169006	323.17036	6519.9387	0.987082
0.17117614	322.939108	6519.7074	0.0167014	1.2425376	324.18165	6520.9499	0.9872684
0.17120351	323.924755	6520.693	0.0167014	1.2677889	325.19254	6521.9608	0.9874586
0.17123089	324.910403	6521.6786	0.0167014	1.2926469	326.20305	6522.9712	0.9876526
0.17125827	325.89605	6522.6642	0.0167014	1.3171042	327.21315	6523.9813	0.9878503
0.17128565	326.881697	6523.6498	0.0167014	1.3411536	328.22285	6524.991	0.9880517
0.17131303	327.867345	6524.6354	0.0167014	1.3647879	329.23213	6526.0002	0.9882566
0.17134041	328.852992	6525.621	0.0167014	1.3880002	330.24099	6527.009	0.988465
0.17136778	329.838639	6526.6066	0.0167014	1.4107835	331.24942	6528.0174	0.9886769
0.17139516	330.824287	6527.5922	0.0167014	1.4331312	332.25742	6529.0253	0.9888922
0.17142254	331.809934	6528.5778	0.0167014	1.4550369	333.26497	6530.0328	0.9891108
0.17144992	332.795581	6529.5634	0.0167014	1.4764939	334.27208	6531.0399	0.9893326
0.17147730	333.781229	6530.549	0.0167014	1.4974962	335.27873	6532.0465	0.9895576
0.17150468	334.766876	6531.5346	0.0167014	1.5180377	336.28491	6533.0526	0.9897857
0.17153206	335.752524	6532.5202	0.0167014	1.5381124	337.29064	6534.0583	0.9900169
0.17155943	336.738171	6533.5058	0.0167014	1.5577147	338.29589	6535.0635	0.990251
0.17158681	337.723818	6534.4914	0.0167014	1.5768388	339.30066	6536.0682	0.9904879
0.17161419	338.709466	6535.477	0.0167014	1.5954793	340.30494	6537.0725	0.9907277
0.17164157	339.695113	6536.4626	0.0167014	1.613631	341.30874	6538.0762	0.9909703
0.17166895	340.68076	6537.4482	0.0167014	1.6312888	342.31205	6539.0795	0.9912155
0.17169633	341.666408	6538.4338	0.0167014	1.6484477	343.31486	6540.0823	0.9914633
0.17172371	342.652055	6539.4194	0.0167014	1.665103	344.31716	6541.0845	0.9917135
0.17175108	343.637702	6540.405	0.0167014	1.68125	345.31895	6542.0863	0.9919663
0.17177846	344.62335	6541.3906	0.0167014	1.6968843	346.32023	6543.0875	0.9922213
0.17180584	345.608997	6542.3762	0.0167014	1.7120016	347.321	6544.0882	0.9924787
0.17183322	346.594645	6543.3618	0.0167014	1.7265979	348.32124	6545.0884	0.9927382
0.17186060	347.580292	6544.3474	0.0167014	1.7406691	349.32096	6546.0881	0.9929999
0.17188798	348.565939	6545.333	0.0167014	1.7542117	350.32015	6547.0872	0.9932635
0.17191535	349.551587	6546.3186	0.0167014	1.7672219	351.31881	6548.0858	0.9935292
0.17194273	350.537234	6547.3042	0.0167014	1.7796963	352.31693	6549.0839	0.9937967
0.17197011	351.522881	6548.2898	0.0167014	1.7916318	353.31451	6550.0814	0.9940659
0.17199749	352.508529	6549.2754	0.0167014	1.8030252	354.31155	6551.0784	0.9943369
0.17202487	353.494176	6550.261	0.0167014	1.8138736	355.30805	6552.0749	0.9946095
0.17205225	354.479823	6551.2466	0.0167014	1.8241745	356.304	6553.0708	0.9948837
0.17207963	355.465471	6552.2322	0.0167014	1.8339251	357.2994	6554.0661	0.9951593
0.17210700	356.451118	6553.2178	0.0167014	1.8431232	358.29424	6555.0609	0.9954362
0.17213438	357.436766	6554.2034	0.0167014	1.8517665	359.28853	6556.0552	0.9957145
0.17216176	358.422413	6555.189	0.0167014	1.8598531	360.28227	6557.0489	0.995994
0.17218914	359.40806	6556.1746	0.0167014	1.867381	361.27544	6558.042	0.9962745
0.17221652	0.39370763	6557.1602	0.0167014	1.8743487	2.2680564	6559.0346	0.9965561
0.17224390	1.37935499	6558.1458	0.0167014	1.8807546	3.2601096	6560.0266	0.9968387
0.17227128	2.36500235	6559.1314	0.0167014	1.8865975	4.2515998	6561.018	0.9971221
0.17229865	3.35064971	6560.117	0.0167014	1.8918761	5.2425258	6562.0089	0.9974063
0.17232603	4.33629708	6561.1026	0.0167014	1.8965894	6.2328865	6562.9992	0.9976912
0.17235341	5.32194444	6562.0882	0.0167014	1.9007368	7.2226812	6563.9889	0.9979766
0.17238079	6.3075918	6563.0738	0.0167014	1.9043175	8.2119093	6564.9781	0.9982626
0.17240817	7.29323917	6564.0594	0.0167014	1.9073312	9.2005703	6565.9667	0.9985491
0.17243555	8.27888653	6565.045	0.0167014	1.9097774	10.188664	6566.9548	0.9988359

0.17246292	9.26453389	6566.0306	0.0167014	1.9116562	11.17619	6567.9423	0.9991229
0.17249030	10.2501813	6567.0162	0.0167014	1.9129675	12.163149	6568.9292	0.9994101
0.17251768	11.2358286	6568.0018	0.0167014	1.9137116	13.14954	6569.9155	0.9996975
0.17254506	12.221476	6568.9874	0.0167014	1.9138889	14.135365	6570.9013	0.9999848
0.17257244	13.2071233	6569.973	0.0167014	1.9134999	15.120623	6571.8865	1.000272
0.17259982	14.1927707	6570.9586	0.0167014	1.9125454	16.105316	6572.8712	1.0005591
0.17262720	15.1784181	6571.9442	0.0167014	1.9110262	17.089444	6573.8552	1.000846
0.17265457	16.1640654	6572.9298	0.0167014	1.9089435	18.073009	6574.8388	1.0011325
0.17268195	17.1497128	6573.9154	0.0167014	1.9062983	19.056011	6575.8217	1.0014186
0.17270933	18.1353602	6574.901	0.0167014	1.9030922	20.038452	6576.8041	1.0017042
0.17273671	19.1210075	6575.8866	0.0167014	1.8993267	21.020334	6577.7859	1.0019892
0.17276409	20.1066549	6576.8722	0.0167014	1.8950034	22.001658	6578.7672	1.0022735
0.17279147	21.0923022	6577.8578	0.0167014	1.8901242	22.982426	6579.7479	1.0025571
0.17281885	22.0779496	6578.8434	0.0167014	1.8846911	23.962641	6580.7281	1.0028398
0.17284622	23.063597	6579.829	0.0167014	1.8787064	24.942303	6581.7077	1.0031217
0.17287360	24.0492443	6580.8146	0.0167014	1.8721723	25.921417	6582.6868	1.0034025
0.17290098	25.0348917	6581.8002	0.0167014	1.8650914	26.899983	6583.6653	1.0036823
0.17292836	26.0205391	6582.7858	0.0167014	1.8574662	27.878005	6584.6433	1.0039609
0.17295574	27.0061864	6583.7714	0.0167014	1.8492997	28.855486	6585.6207	1.0042383
0.17298312	27.9918338	6584.757	0.0167014	1.8405946	29.832428	6586.5976	1.0045143
0.17301050	28.9774812	6585.7426	0.0167014	1.8313541	30.808835	6587.574	1.004789
0.17303787	29.9631285	6586.7282	0.0167014	1.8215814	31.78471	6588.5498	1.0050622
0.17306525	30.9487759	6587.7138	0.0167014	1.8112799	32.760056	6589.5251	1.0053338
0.17309263	31.9344232	6588.6994	0.0167014	1.8004532	33.734876	6590.4999	1.0056038
0.17312001	32.9200706	6589.685	0.0167014	1.7891049	34.709175	6591.4741	1.005872
0.17314739	33.905718	6590.6706	0.0167014	1.7772388	35.682957	6592.4479	1.0061385
0.17317477	34.8913653	6591.6562	0.0167014	1.7648588	36.656224	6593.4211	1.0064031
0.17320214	35.8770127	6592.6418	0.0167013	1.751969	37.628982	6594.3938	1.0066658
0.17322952	36.8626601	6593.6274	0.0167013	1.7385737	38.601234	6595.366	1.0069265
0.17325690	37.8483074	6594.613	0.0167013	1.7246772	39.572985	6596.3377	1.0071851
0.17328428	38.8339548	6595.5986	0.0167013	1.710284	40.544239	6597.3089	1.0074415
0.17331166	39.8196021	6596.5842	0.0167013	1.6953987	41.515001	6598.2796	1.0076957
0.17333904	40.8052495	6597.5698	0.0167013	1.6800261	42.485276	6599.2498	1.0079475
0.17336642	41.7908969	6598.5554	0.0167013	1.6641709	43.455068	6600.2196	1.008197
0.17339379	42.7765442	6599.541	0.0167013	1.6478383	44.424383	6601.1889	1.0084441
0.17342117	43.7621916	6600.5266	0.0167013	1.6310333	45.393225	6602.1577	1.0086886
0.17344855	44.747839	6601.5122	0.0167013	1.6137612	46.3616	6603.126	1.0089306
0.17347593	45.7334863	6602.4978	0.0167013	1.5960273	47.329514	6604.0939	1.0091699
0.17350331	46.7191337	6603.4834	0.0167013	1.5778371	48.296971	6605.0613	1.0094064
0.17353069	47.7047811	6604.469	0.0167013	1.5591963	49.263977	6606.0282	1.0096402
0.17355807	48.6904284	6605.4546	0.0167013	1.5401104	50.230539	6606.9947	1.0098712
0.17358544	49.6760758	6606.4402	0.0167013	1.5205854	51.196661	6607.9608	1.0100992
0.17361282	50.6617231	6607.4258	0.0167013	1.5006272	52.16235	6608.9265	1.0103242
0.17364020	51.6473705	6608.4114	0.0167013	1.4802419	53.127612	6609.8917	1.0105462
0.17366758	52.6330179	6609.397	0.0167013	1.4594354	54.092453	6610.8565	1.0107651
0.17369496	53.6186652	6610.3826	0.0167013	1.4382143	55.056879	6611.8208	1.0109809
0.17372234	54.6043126	6611.3682	0.0167013	1.4165846	56.020897	6612.7848	1.0111934
0.17374971	55.58996	6612.3538	0.0167013	1.3945531	56.984513	6613.7484	1.0114026

0.17377709	56.5756073	6613.3394	0.0167013	1.3721261	57.947733	6614.7116	1.0116085
0.17380447	57.5612547	6614.325	0.0167013	1.3493104	58.910565	6615.6743	1.011811
0.17383185	58.546902	6615.3106	0.0167013	1.3261127	59.873015	6616.6367	1.01201
0.17385923	59.5325494	6616.2962	0.0167013	1.3025398	60.835089	6617.5988	1.0122056
0.17388661	60.5181968	6617.2818	0.0167013	1.2785987	61.796795	6618.5604	1.0123975
0.17391399	61.5038441	6618.2674	0.0167013	1.2542964	62.758141	6619.5217	1.0125859
0.17394136	62.4894915	6619.253	0.0167013	1.22964	63.719132	6620.4827	1.0127706
0.17396874	63.4751389	6620.2386	0.0167013	1.2046367	64.679776	6621.4433	1.0129515
0.17399612	64.4607862	6621.2242	0.0167013	1.1792939	65.64008	6622.4035	1.0131287
0.17402350	65.4464336	6622.2098	0.0167013	1.1536187	66.600052	6623.3634	1.0133021
0.17405088	66.4320809	6623.1954	0.0167013	1.1276188	67.5597	6624.323	1.0134716
0.17407826	67.4177283	6624.181	0.0167013	1.1013016	68.51903	6625.2823	1.0136372
0.17410564	68.4033757	6625.1666	0.0167013	1.0746746	69.47805	6626.2413	1.0137989
0.17413301	69.389023	6626.1522	0.0167013	1.0477457	70.436769	6627.2	1.0139566
0.17416039	70.3746704	6627.1378	0.0167013	1.0205224	71.395193	6628.1584	1.0141102
0.17418777	71.3603178	6628.1234	0.0167013	0.9930127	72.35333	6629.1164	1.0142597
0.17421515	72.3459651	6629.109	0.0167013	0.9652243	73.311189	6630.0743	1.0144052
0.17424253	73.3316125	6630.0946	0.0167013	0.9371653	74.268778	6631.0318	1.0145464
0.17426991	74.3172599	6631.0802	0.0167013	0.9088437	75.226104	6631.9891	1.0146835
0.17429728	75.3029072	6632.0658	0.0167013	0.8802674	76.183175	6632.9461	1.0148163
0.17432466	76.2885546	6633.0514	0.0167013	0.8514447	77.139999	6633.9029	1.0149448
0.17435204	77.2742019	6634.037	0.0167013	0.8223836	78.096586	6634.8594	1.0150691
0.17437942	78.2598493	6635.0226	0.0167013	0.7930926	79.052942	6635.8157	1.015189
0.17440680	79.2454967	6636.0082	0.0167013	0.7635797	80.009076	6636.7718	1.0153045
0.17443418	80.231144	6636.9938	0.0167013	0.7338535	80.964998	6637.7277	1.0154156
0.17446156	81.2167914	6637.9794	0.0167013	0.7039222	81.920714	6638.6834	1.0155223
0.17448893	82.2024388	6638.965	0.0167013	0.6737943	82.876233	6639.6388	1.0156245
0.17451631	83.1880861	6639.9506	0.0167013	0.6434784	83.831564	6640.5941	1.0157222
0.17454369	84.1737335	6640.9362	0.0167013	0.6129828	84.786716	6641.5492	1.0158154
0.17457107	85.1593808	6641.9218	0.0167013	0.5823163	85.741697	6642.5042	1.0159041
0.17459845	86.1450282	6642.9074	0.0167013	0.5514873	86.696516	6643.4589	1.0159882
0.17462583	87.1306756	6643.893	0.0167013	0.5205046	87.65118	6644.4135	1.0160677
0.17465321	88.1163229	6644.8786	0.0167013	0.4893769	88.6057	6645.368	1.0161426
0.17468058	89.1019703	6645.8642	0.0167013	0.4581127	89.560083	6646.3223	1.0162128
0.17470796	90.0876177	6646.8498	0.0167013	0.426721	90.514339	6647.2766	1.0162785
0.17473534	91.073265	6647.8354	0.0167013	0.3952104	91.468475	6648.2306	1.0163394
0.17476272	92.0589124	6648.821	0.0167013	0.3635898	92.422502	6649.1846	1.0163957
0.17479010	93.0445598	6649.8066	0.0167013	0.3318679	93.376428	6650.1385	1.0164472
0.17481748	94.0302071	6650.7922	0.0167013	0.3000537	94.330261	6651.0923	1.0164941
0.17484486	95.0158545	6651.7778	0.0167013	0.268156	95.284011	6652.046	1.0165362
0.17487223	96.0015018	6652.7634	0.0167013	0.2361837	96.237686	6652.9996	1.0165736
0.17489961	96.9871492	6653.749	0.0167013	0.2041457	97.191295	6653.9532	1.0166062
0.17492699	97.9727966	6654.7346	0.0167013	0.1720509	98.144847	6654.9067	1.0166341
0.17495437	98.9584439	6655.7202	0.0167013	0.1399082	99.098352	6655.8601	1.0166573
0.17498175	99.9440913	6656.7058	0.0167013	0.1077267	100.05182	6656.8136	1.0166756
0.17500913	100.929739	6657.6914	0.0167013	0.0755152	101.00525	6657.767	1.0166892
0.17503650	101.915386	6658.677	0.0167013	0.0432826	101.95867	6658.7203	1.016698
0.17506388	102.901033	6659.6626	0.0167013	0.0110381	102.91207	6659.6737	1.016702

0.17509126	103.886681	6660.6482	0.0167013	-0.02121	103.86547	6660.627	1.0167013
0.17511864	104.872328	6661.6338	0.0167013	-0.053451	104.81888	6661.5804	1.0166957
0.17514602	105.857975	6662.6194	0.0167013	-0.085678	105.7723	6662.5338	1.0166854
0.17517340	106.843623	6663.605	0.0167013	-0.117881	106.72574	6663.4872	1.0166703
0.17520078	107.82927	6664.5906	0.0167013	-0.150051	107.67922	6664.4406	1.0166505
0.17522815	108.814918	6665.5762	0.0167013	-0.18218	108.63274	6665.3941	1.0166258
0.17525553	109.800565	6666.5618	0.0167013	-0.214258	109.58631	6666.3476	1.0165964
0.17528291	110.786212	6667.5474	0.0167013	-0.246276	110.53994	6667.3012	1.0165623
0.17531029	111.77186	6668.533	0.0167013	-0.278225	111.49363	6668.2548	1.0165234
0.17533767	112.757507	6669.5186	0.0167013	-0.310098	112.44741	6669.2085	1.0164798
0.17536505	113.743154	6670.5042	0.0167013	-0.341884	113.40127	6670.1624	1.0164315
0.17539243	114.728802	6671.4898	0.0167013	-0.373574	114.35523	6671.1163	1.0163784
0.17541980	115.714449	6672.4754	0.0167013	-0.405161	115.30929	6672.0703	1.0163207
0.17544718	116.700096	6673.461	0.0167013	-0.436635	116.26346	6673.0244	1.0162582
0.17547456	117.685744	6674.4466	0.0167013	-0.467987	117.21776	6673.9787	1.0161911
0.17550194	118.671391	6675.4322	0.0167013	-0.499209	118.17218	6674.933	1.0161194
0.17552932	119.657039	6676.4178	0.0167013	-0.530292	119.12675	6675.8876	1.0160431
0.17555670	120.642686	6677.4034	0.0167013	-0.561227	120.08146	6676.8422	1.0159621
0.17558407	121.628333	6678.389	0.0167012	-0.592006	121.03633	6677.797	1.0158766
0.17561145	122.613981	6679.3746	0.0167012	-0.622619	121.99136	6678.752	1.0157865
0.17563883	123.599628	6680.3602	0.0167012	-0.653059	122.94657	6679.7072	1.0156918
0.17566621	124.585275	6681.3458	0.0167012	-0.683316	123.90196	6680.6625	1.0155927
0.17569359	125.570923	6682.3314	0.0167012	-0.713383	124.85754	6681.6181	1.0154891
0.17572097	126.55657	6683.317	0.0167012	-0.74325	125.81332	6682.5738	1.015381
0.17574835	127.542217	6684.3026	0.0167012	-0.77291	126.76931	6683.5297	1.0152685
0.17577572	128.527865	6685.2882	0.0167012	-0.802353	127.72551	6684.4859	1.0151516
0.17580310	129.513512	6686.2738	0.0167012	-0.831572	128.68194	6685.4423	1.0150303
0.17583048	130.49916	6687.2594	0.0167012	-0.860559	129.6386	6686.3989	1.0149047
0.17585786	131.484807	6688.245	0.0167012	-0.889305	130.5955	6687.3557	1.0147748
0.17588524	132.470454	6689.2306	0.0167012	-0.917801	131.55265	6688.3128	1.0146406
0.17591262	133.456102	6690.2162	0.0167012	-0.946041	132.51006	6689.2702	1.0145022
0.17594000	134.441749	6691.2018	0.0167012	-0.974015	133.46773	6690.2278	1.0143597
0.17596737	135.427396	6692.1874	0.0167012	-1.001716	134.42568	6691.1857	1.0142129
0.17599475	136.413044	6693.173	0.0167012	-1.029136	135.38391	6692.1439	1.0140621
0.17602213	137.398691	6694.1586	0.0167012	-1.056267	136.34242	6693.1024	1.0139072
0.17604951	138.384338	6695.1443	0.0167012	-1.083101	137.30124	6694.0611	1.0137483
0.17607689	139.369986	6696.1299	0.0167012	-1.109631	138.26035	6695.0202	1.0135854
0.17610427	140.355633	6697.1155	0.0167012	-1.135849	139.21978	6695.9796	1.0134185
0.17613164	141.341281	6698.1011	0.0167012	-1.161747	140.17953	6696.9393	1.0132478
0.17615902	142.326928	6699.0867	0.0167012	-1.187317	141.13961	6697.8993	1.0130732
0.17618640	143.312575	6700.0723	0.0167012	-1.212554	142.10002	6698.8597	1.0128948
0.17621378	144.298223	6701.0579	0.0167012	-1.237448	143.06077	6699.8204	1.0127126
0.17624116	145.28387	6702.0435	0.0167012	-1.261993	144.02188	6700.7815	1.0125268
0.17626854	146.269517	6703.0291	0.0167012	-1.286182	144.98334	6701.7429	1.0123373
0.17629592	147.255165	6704.0147	0.0167012	-1.310007	145.94516	6702.7046	1.0121442
0.17632329	148.240812	6705.0003	0.0167012	-1.333462	146.90735	6703.6668	1.0119475
0.17635067	149.226459	6705.9859	0.0167012	-1.35654	147.86992	6704.6293	1.0117474
0.17637805	150.212107	6706.9715	0.0167012	-1.379233	148.83287	6705.5922	1.0115438

0.17640543	151.197754	6707.9571	0.0167012	-1.401536	149.79622	6706.5555	1.0113369
0.17643281	152.183402	6708.9427	0.0167012	-1.423441	150.75996	6707.5192	1.0111266
0.17646019	153.169049	6709.9283	0.0167012	-1.444942	151.72411	6708.4833	1.0109131
0.17648757	154.154696	6710.9139	0.0167012	-1.466033	152.68866	6709.4478	1.0106964
0.17651494	155.140344	6711.8995	0.0167012	-1.486707	153.65364	6710.4127	1.0104765
0.17654232	156.125991	6712.8851	0.0167012	-1.506958	154.61903	6711.3781	1.0102535
0.17656970	157.111638	6713.8707	0.0167012	-1.52678	155.58486	6712.3439	1.0100275
0.17659708	158.097286	6714.8563	0.0167012	-1.546166	156.55112	6713.3101	1.0097986
0.17662446	159.082933	6715.8419	0.0167012	-1.565112	157.51782	6714.2767	1.0095667
0.17665184	160.06858	6716.8275	0.0167012	-1.583611	158.48497	6715.2438	1.009332
0.17667922	161.054228	6717.8131	0.0167012	-1.601658	159.45257	6716.2114	1.0090946
0.17670659	162.039875	6718.7987	0.0167012	-1.619246	160.42063	6717.1794	1.0088545
0.17673397	163.025523	6719.7843	0.0167012	-1.636371	161.38915	6718.1479	1.0086117
0.17676135	164.01117	6720.7699	0.0167012	-1.653027	162.35814	6719.1168	1.0083664
0.17678873	164.996817	6721.7555	0.0167012	-1.669209	163.32761	6720.0862	1.0081185
0.17681611	165.982465	6722.7411	0.0167012	-1.684913	164.29755	6721.0561	1.0078683
0.17684349	166.968112	6723.7267	0.0167012	-1.700132	165.26798	6722.0265	1.0076157
0.17687086	167.953759	6724.7123	0.0167012	-1.714862	166.2389	6722.9974	1.0073608
0.17689824	168.939407	6725.6979	0.0167012	-1.729099	167.21031	6723.9688	1.0071037
0.17692562	169.925054	6726.6835	0.0167012	-1.742837	168.18222	6724.9406	1.0068444
0.17695300	170.910701	6727.6691	0.0167012	-1.756073	169.15463	6725.913	1.0065831
0.17698038	171.896349	6728.6547	0.0167012	-1.768802	170.12755	6726.8859	1.0063198
0.17700776	172.881996	6729.6403	0.0167012	-1.78102	171.10098	6727.8592	1.0060546
0.17703514	173.867644	6730.6259	0.0167012	-1.792723	172.07492	6728.8331	1.0057875
0.17706251	174.853291	6731.6115	0.0167012	-1.803907	173.04938	6729.8076	1.0055187
0.17708989	175.838938	6732.5971	0.0167012	-1.814568	174.02437	6730.7825	1.0052482
0.17711727	176.824586	6733.5827	0.0167012	-1.824702	174.99988	6731.758	1.0049761
0.17714465	177.810233	6734.5683	0.0167012	-1.834307	175.97593	6732.734	1.0047025
0.17717203	178.79588	6735.5539	0.0167012	-1.843379	176.9525	6733.7105	1.0044274
0.17719941	179.781528	6736.5395	0.0167012	-1.851914	177.92961	6734.6875	1.0041509
0.17722679	180.767175	6737.5251	0.0167012	-1.85991	178.90727	6735.6652	1.0038731
0.17725416	181.752822	6738.5107	0.0167012	-1.867363	179.88546	6736.6433	1.0035941
0.17728154	182.73847	6739.4963	0.0167012	-1.874272	180.8642	6737.622	1.003314
0.17730892	183.724117	6740.4819	0.0167012	-1.880632	181.84348	6738.6012	1.0030329
0.17733630	184.709765	6741.4675	0.0167012	-1.886443	182.82332	6739.581	1.0027507
0.17736368	185.695412	6742.4531	0.0167012	-1.891701	183.80371	6740.5614	1.0024677
0.17739106	186.681059	6743.4387	0.0167012	-1.896405	184.78465	6741.5423	1.0021839
0.17741843	187.666707	6744.4243	0.0167012	-1.900552	185.76615	6742.5237	1.0018993
0.17744581	188.652354	6745.4099	0.0167012	-1.904141	186.74821	6743.5057	1.0016141
0.17747319	189.638001	6746.3955	0.0167012	-1.90717	187.73083	6744.4883	1.0013284
0.17750057	190.623649	6747.3811	0.0167012	-1.909638	188.71401	6745.4714	1.0010421
0.17752795	191.609296	6748.3667	0.0167012	-1.911543	189.69775	6746.4551	1.0007555
0.17755533	192.594943	6749.3523	0.0167012	-1.912884	190.68206	6747.4394	1.0004686
0.17758271	193.580591	6750.3379	0.0167012	-1.913659	191.66693	6748.4242	1.0001814
0.17761008	194.566238	6751.3235	0.0167012	-1.91387	192.65237	6749.4096	0.9998942
0.17763746	195.551886	6752.3091	0.0167012	-1.913513	193.63837	6750.3956	0.9996068
0.17766484	196.537533	6753.2947	0.0167012	-1.91259	194.62494	6751.3821	0.9993195
0.17769222	197.52318	6754.2803	0.0167012	-1.9111	195.61208	6752.3692	0.9990324

0.17771960	198.508828	6755.2659	0.0167012	-1.909042	196.59979	6753.3568	0.9987454
0.17774698	199.494475	6756.2515	0.0167012	-1.906416	197.58806	6754.3451	0.9984587
0.17777436	200.480122	6757.2371	0.0167012	-1.903223	198.5769	6755.3338	0.9981724
0.17780173	201.46577	6758.2227	0.0167012	-1.899464	199.56631	6756.3232	0.9978866
0.17782911	202.451417	6759.2083	0.0167012	-1.895137	200.55628	6757.3131	0.9976013
0.17785649	203.437064	6760.1939	0.0167012	-1.890245	201.54682	6758.3036	0.9973166
0.17788387	204.422712	6761.1795	0.0167012	-1.884789	202.53792	6759.2947	0.9970327
0.17791125	205.408359	6762.1651	0.0167012	-1.878768	203.52959	6760.2863	0.9967495
0.17793863	206.394007	6763.1507	0.0167011	-1.872184	204.52182	6761.2785	0.9964673
0.17796601	207.379654	6764.1363	0.0167011	-1.86504	205.51461	6762.2712	0.996186
0.17799338	208.365301	6765.1219	0.0167011	-1.857335	206.50797	6763.2645	0.9959057
0.17802076	209.350949	6766.1075	0.0167011	-1.849073	207.50188	6764.2584	0.9956267
0.17804814	210.336596	6767.0931	0.0167011	-1.840254	208.49634	6765.2528	0.9953488
0.17807552	211.322243	6768.0787	0.0167011	-1.830881	209.49136	6766.2478	0.9950723
0.17810290	212.307891	6769.0643	0.0167011	-1.820957	210.48693	6767.2433	0.9947971
0.17813028	213.293538	6770.0499	0.0167011	-1.810483	211.48306	6768.2394	0.9945235
0.17815765	214.279185	6771.0355	0.0167011	-1.799462	212.47972	6769.236	0.9942514
0.17818503	215.264833	6772.0211	0.0167011	-1.787897	213.47694	6770.2332	0.9939809
0.17821241	216.25048	6773.0067	0.0167011	-1.775791	214.47469	6771.2309	0.9937122
0.17823979	217.236128	6773.9923	0.0167011	-1.763147	215.47298	6772.2291	0.9934453
0.17826717	218.221775	6774.9779	0.0167011	-1.749969	216.47181	6773.2279	0.9931803
0.17829455	219.207422	6775.9635	0.0167011	-1.736259	217.47116	6774.2272	0.9929172
0.17832193	220.19307	6776.9491	0.0167011	-1.722022	218.47105	6775.2271	0.9926562
0.17834930	221.178717	6777.9347	0.0167011	-1.707261	219.47146	6776.2274	0.9923974
0.17837668	222.164364	6778.9203	0.0167011	-1.69198	220.47238	6777.2283	0.9921408
0.17840406	223.150012	6779.9059	0.0167011	-1.676184	221.47383	6778.2297	0.9918864
0.17843144	224.135659	6780.8915	0.0167011	-1.659876	222.47578	6779.2316	0.9916345
0.17845882	225.121306	6781.8771	0.0167011	-1.643061	223.47825	6780.234	0.991385
0.17848620	226.106954	6782.8627	0.0167011	-1.625744	224.48121	6781.2369	0.991138
0.17851358	227.092601	6783.8483	0.0167011	-1.60793	225.48467	6782.2403	0.9908936
0.17854095	228.078248	6784.8339	0.0167011	-1.589624	226.48862	6783.2443	0.990652
0.17856833	229.063896	6785.8195	0.0167011	-1.570831	227.49307	6784.2486	0.9904131
0.17859571	230.049543	6786.8051	0.0167011	-1.551555	228.49799	6785.2535	0.990177
0.17862309	231.035191	6787.7907	0.0167011	-1.531803	229.50339	6786.2589	0.9899438
0.17865047	232.020838	6788.7763	0.0167011	-1.511581	230.50926	6787.2647	0.9897136
0.17867785	233.006485	6789.7619	0.0167011	-1.490894	231.51559	6788.271	0.9894865
0.17870522	233.992133	6790.7475	0.0167011	-1.469747	232.52239	6789.2777	0.9892625
0.17873260	234.97778	6791.7331	0.0167011	-1.448148	233.52963	6790.2849	0.9890417
0.17875998	235.963427	6792.7187	0.0167011	-1.426103	234.53732	6791.2926	0.9888241
0.17878736	236.949075	6793.7043	0.0167011	-1.403617	235.54546	6792.3007	0.9886099
0.17881474	237.934722	6794.6899	0.0167011	-1.380698	236.55402	6793.3092	0.9883991
0.17884212	238.920369	6795.6755	0.0167011	-1.357352	237.56302	6794.3181	0.9881918
0.17886950	239.906017	6796.6611	0.0167011	-1.333586	238.57243	6795.3275	0.987988
0.17889687	240.891664	6797.6467	0.0167011	-1.309408	239.58226	6796.3373	0.9877878
0.17892425	241.877312	6798.6323	0.0167011	-1.284824	240.59249	6797.3475	0.9875912
0.17895163	242.862959	6799.6179	0.0167011	-1.259841	241.60312	6798.358	0.9873984
0.17897901	243.848606	6800.6035	0.0167011	-1.234468	242.61414	6799.369	0.9872094
0.17900639	244.834254	6801.5891	0.0167011	-1.208711	243.62554	6800.3804	0.9870242

0.17903377	245.819901	6802.5747	0.0167011	-1.182579	244.63732	6801.3921	0.986843
0.17906115	246.805548	6803.5603	0.0167011	-1.156079	245.64947	6802.4042	0.9866657
0.17908852	247.791196	6804.5459	0.0167011	-1.129219	246.66198	6803.4167	0.9864924
0.17911590	248.776843	6805.5315	0.0167011	-1.102008	247.67483	6804.4295	0.9863232
0.17914328	249.76249	6806.5171	0.0167011	-1.074454	248.68804	6805.4426	0.9861581
0.17917066	250.748138	6807.5027	0.0167011	-1.046565	249.70157	6806.4561	0.9859973
0.17919804	251.733785	6808.4883	0.0167011	-1.018349	250.71544	6807.4699	0.9858406
0.17922542	252.719433	6809.4739	0.0167011	-0.989815	251.72962	6808.4841	0.9856883
0.17925279	253.70508	6810.4595	0.0167011	-0.960973	252.74411	6809.4985	0.9855402
0.17928017	254.690727	6811.4451	0.0167011	-0.93183	253.7589	6810.5133	0.9853966
0.17930755	255.676375	6812.4307	0.0167011	-0.902396	254.77398	6811.5283	0.9852574
0.17933493	256.662022	6813.4163	0.0167011	-0.872679	255.78934	6812.5436	0.9851227
0.17936231	257.647669	6814.4019	0.0167011	-0.84269	256.80498	6813.5592	0.9849924
0.17938969	258.633317	6815.3875	0.0167011	-0.812436	257.82088	6814.575	0.9848668
0.17941707	259.618964	6816.3731	0.0167011	-0.781929	258.83704	6815.5912	0.9847457
0.17944444	260.604611	6817.3587	0.0167011	-0.751176	259.85344	6816.6075	0.9846293
0.17947182	261.590259	6818.3443	0.0167011	-0.720187	260.87007	6817.6241	0.9845176
0.17949920	262.575906	6819.3299	0.0167011	-0.688973	261.88693	6818.6409	0.9844106
0.17952658	263.561554	6820.3155	0.0167011	-0.657543	262.90401	6819.6579	0.9843083
0.17955396	264.547201	6821.3011	0.0167011	-0.625906	263.92129	6820.6752	0.9842108
0.17958134	265.532848	6822.2867	0.0167011	-0.594073	264.93878	6821.6926	0.9841182
0.17960872	266.518496	6823.2723	0.0167011	-0.562053	265.95644	6822.7102	0.9840303
0.17963609	267.504143	6824.2579	0.0167011	-0.529856	266.97429	6823.728	0.9839474
0.17966347	268.48979	6825.2435	0.0167011	-0.497493	267.9923	6824.746	0.9838693
0.17969085	269.475438	6826.2291	0.0167011	-0.464974	269.01046	6825.7641	0.9837962
0.17971823	270.461085	6827.2147	0.0167011	-0.432308	270.02878	6826.7824	0.983728
0.17974561	271.446732	6828.2003	0.0167011	-0.399506	271.04723	6827.8008	0.9836648
0.17977299	272.43238	6829.1859	0.0167011	-0.366579	272.0658	6828.8193	0.9836066
0.17980037	273.418027	6830.1715	0.0167011	-0.333536	273.08449	6829.838	0.9835534
0.17982774	274.403675	6831.1571	0.0167011	-0.300388	274.10329	6830.8567	0.9835052
0.17985512	275.389322	6832.1427	0.0167011	-0.267146	275.12218	6831.8755	0.9834621
0.17988250	276.374969	6833.1283	0.0167011	-0.233819	276.14115	6832.8945	0.983424
0.17990988	277.360617	6834.1139	0.0167011	-0.200419	277.1602	6833.9135	0.983391
0.17993726	278.346264	6835.0995	0.0167011	-0.166956	278.17931	6834.9325	0.9833631
0.17996464	279.331911	6836.0851	0.0167011	-0.13344	279.19847	6835.9517	0.9833402
0.17999201	280.317559	6837.0707	0.0167011	-0.099882	280.21768	6836.9708	0.9833225
0.18001939	281.303206	6838.0563	0.0167011	-0.066293	281.23691	6837.99	0.9833099

Sun App	Mean Obliq Ecliptic (deg)	Obliq Corr (deg)	Sun Rt Ascen (deg)	Sun Declin (deg)	var y	Eq of Time (minutes)	HA Sunrise (deg)	Solar Noon (LST)
281.47673	23.43708	23.434738	-77.52253	-22.93909	0.0430173	-3.77037029	69.9774295	12:07:44
282.49599	23.43708	23.434739	-76.42057	-22.84771	0.0430173	-4.23473489	70.0748944	12:08:12
283.51525	23.437079	23.434739	-75.32015	-22.74876	0.0430173	-4.69309847	70.1802255	12:08:39
284.53452	23.437079	23.43474	-74.22138	-22.64228	0.0430173	-5.14497645	70.2933228	12:09:06
285.55376	23.437079	23.43474	-73.12439	-22.52832	0.0430173	-5.58989542	70.4140801	12:09:33
286.57299	23.437078	23.434741	-72.0293	-22.40695	0.0430173	-6.02739389	70.542385	12:09:59
287.59218	23.437078	23.434742	-70.9362	-22.27822	0.0430174	-6.45702295	70.6781195	12:10:25
288.61132	23.437078	23.434742	-69.84523	-22.1422	0.0430174	-6.87834698	70.8211602	12:10:50
289.63041	23.437077	23.434743	-68.75647	-21.99894	0.0430174	-7.29094424	70.971379	12:11:15
290.64943	23.437077	23.434743	-67.67004	-21.84853	0.0430174	-7.69440744	71.1286431	12:11:39
291.66838	23.437076	23.434744	-66.58603	-21.69102	0.0430174	-8.08834438	71.2928157	12:12:03
292.68724	23.437076	23.434745	-65.50453	-21.5265	0.0430174	-8.47237838	71.4637564	12:12:26
293.706	23.437076	23.434745	-64.42564	-21.35505	0.0430174	-8.84614883	71.6413212	12:12:48
294.72465	23.437075	23.434746	-63.34943	-21.17675	0.0430174	-9.2093116	71.8253635	12:13:10
295.74318	23.437075	23.434747	-62.27599	-20.99167	0.0430174	-9.56153944	72.0157339	12:13:31
296.76159	23.437075	23.434747	-61.20538	-20.79991	0.0430174	-9.90252239	72.2122811	12:13:52
297.77985	23.437074	23.434748	-60.13769	-20.60155	0.0430174	-10.2319681	72.4148519	12:14:12
298.79797	23.437074	23.434748	-59.07298	-20.39669	0.0430174	-10.5496019	72.6232918	12:14:31
299.81592	23.437074	23.434749	-58.0113	-20.18541	0.0430174	-10.8551676	72.8374453	12:14:49
300.83371	23.437073	23.43475	-56.95272	-19.96782	0.0430174	-11.1484271	73.057156	12:15:07
301.85131	23.437073	23.43475	-55.89728	-19.74401	0.0430174	-11.4291607	73.2822675	12:15:23
302.86873	23.437073	23.434751	-54.84504	-19.51407	0.0430174	-11.6971675	73.5126231	12:15:39
303.88595	23.437072	23.434752	-53.79603	-19.27812	0.0430174	-11.9522652	73.7480664	12:15:55
304.90295	23.437072	23.434752	-52.75029	-19.03625	0.0430174	-12.1942904	73.9884418	12:16:09
305.91974	23.437072	23.434753	-51.70785	-18.78857	0.0430174	-12.4230982	74.2335943	12:16:23
306.9363	23.437071	23.434754	-50.66874	-18.53518	0.0430174	-12.6385626	74.4833701	12:16:36
307.95262	23.437071	23.434754	-49.63299	-18.27618	0.0430174	-12.8405763	74.7376167	12:16:48
308.96869	23.43707	23.434755	-48.60061	-18.0117	0.0430174	-13.0290502	74.9961833	12:16:59
309.98451	23.43707	23.434756	-47.57161	-17.74183	0.0430174	-13.2039142	75.2589206	12:17:10
311.00006	23.43707	23.434756	-46.54601	-17.46668	0.0430174	-13.3651158	75.5256815	12:17:20
312.01533	23.437069	23.434757	-45.52382	-17.18637	0.0430174	-13.5126211	75.7963211	12:17:28
313.03032	23.437069	23.434758	-44.50502	-16.90102	0.0430174	-13.6464136	76.0706964	12:17:36
314.04501	23.437069	23.434758	-43.48963	-16.61072	0.0430174	-13.7664945	76.3486673	12:17:44
315.0594	23.437068	23.434759	-42.47763	-16.31559	0.0430174	-13.8728823	76.630096	12:17:50
316.07348	23.437068	23.43476	-41.46901	-16.01576	0.0430174	-13.9656122	76.9148474	12:17:56
317.08724	23.437068	23.43476	-40.46375	-15.71132	0.0430174	-14.0447362	77.2027892	12:18:00
318.10066	23.437067	23.434761	-39.46185	-15.40241	0.0430174	-14.1103224	77.4937919	12:18:04
319.11375	23.437067	23.434762	-38.46327	-15.08913	0.0430174	-14.1624547	77.787729	12:18:07
320.1265	23.437067	23.434762	-37.46799	-14.77159	0.0430174	-14.2012326	78.084477	12:18:10
321.13889	23.437066	23.434763	-36.47598	-14.44992	0.0430174	-14.2267702	78.3839152	12:18:11
322.15092	23.437066	23.434764	-35.4872	-14.12423	0.0430174	-14.2391964	78.6859261	12:18:12

323.16258	23.437065	23.434764	-34.50163	-13.79463	0.0430174	-14.2386541	78.9903954	12:18:12
324.17386	23.437065	23.434765	-33.51923	-13.46124	0.0430174	-14.2252999	79.2972115	12:18:11
325.18475	23.437065	23.434766	-32.53994	-13.12418	0.0430174	-14.1993033	79.6062662	12:18:10
326.19525	23.437064	23.434766	-31.56373	-12.78356	0.0430174	-14.1608465	79.9174542	12:18:07
327.20535	23.437064	23.434767	-30.59055	-12.4395	0.0430174	-14.110124	80.2306732	12:18:04
328.21505	23.437064	23.434768	-29.62035	-12.09212	0.0430174	-14.0473416	80.5458242	12:18:00
329.22432	23.437063	23.434768	-28.65307	-11.74152	0.0430175	-13.9727164	80.8628107	12:17:56
330.23318	23.437063	23.434769	-27.68867	-11.38782	0.0430175	-13.8864761	81.1815395	12:17:51
331.24161	23.437063	23.43477	-26.72708	-11.03115	0.0430175	-13.7888582	81.5019202	12:17:45
332.2496	23.437062	23.43477	-25.76825	-10.6716	0.0430175	-13.6801102	81.8238651	12:17:38
333.25715	23.437062	23.434771	-24.81211	-10.3093	0.0430175	-13.5604881	82.1472894	12:17:31
334.26425	23.437062	23.434772	-23.8586	-9.944368	0.0430175	-13.4302569	82.4721109	12:17:23
335.27089	23.437061	23.434773	-22.90765	-9.576904	0.0430175	-13.2896894	82.7982502	12:17:15
336.27708	23.437061	23.434773	-21.9592	-9.207026	0.0430175	-13.139066	83.1256303	12:17:06
337.2828	23.43706	23.434774	-21.01318	-8.834847	0.0430175	-12.9786739	83.4541767	12:16:56
338.28804	23.43706	23.434775	-20.06951	-8.46048	0.0430175	-12.8088073	83.7838174	12:16:46
339.29281	23.43706	23.434775	-19.12813	-8.084034	0.0430175	-12.629766	84.1144826	12:16:35
340.29709	23.437059	23.434776	-18.18897	-7.705622	0.0430175	-12.4418558	84.4461047	12:16:24
341.30089	23.437059	23.434777	-17.25194	-7.325353	0.0430175	-12.2453874	84.7786184	12:16:12
342.30419	23.437059	23.434778	-16.31697	-6.943339	0.0430175	-12.0406764	85.1119604	12:16:00
343.30699	23.437058	23.434778	-15.38398	-6.559687	0.0430175	-11.8280425	85.4460693	12:15:47
344.30929	23.437058	23.434779	-14.45291	-6.174509	0.0430175	-11.6078094	85.7808856	12:15:34
345.31108	23.437058	23.43478	-13.52366	-5.787911	0.0430175	-11.3803043	86.1163516	12:15:20
346.31236	23.437057	23.43478	-12.59615	-5.400002	0.0430175	-11.1458574	86.4524112	12:15:06
347.31312	23.437057	23.434781	-11.67032	-5.01089	0.0430175	-10.9048017	86.7890099	12:14:52
348.31336	23.437057	23.434782	-10.74607	-4.620681	0.0430175	-10.6574724	87.1260949	12:14:37
349.31307	23.437056	23.434783	-9.823317	-4.229482	0.0430175	-10.4042069	87.4636145	12:14:22
350.31226	23.437056	23.434783	-8.901988	-3.837399	0.0430175	-10.1453442	87.8015183	12:14:06
351.31091	23.437055	23.434784	-7.981996	-3.444537	0.0430175	-9.88122449	88.1397574	12:13:50
352.30903	23.437055	23.434785	-7.063257	-3.051001	0.0430175	-9.61218931	88.4782838	12:13:34
353.30661	23.437055	23.434786	-6.145687	-2.656896	0.0430175	-9.33858076	88.8170503	12:13:18
354.30365	23.437054	23.434786	-5.2292	-2.262326	0.0430175	-9.06074151	89.1560109	12:13:01
355.30014	23.437054	23.434787	-4.313714	-1.867393	0.0430175	-8.77901441	89.4951203	12:12:44
356.29608	23.437054	23.434788	-3.399141	-1.472202	0.0430175	-8.49374232	89.834334	12:12:27
357.29148	23.437053	23.434789	-2.485398	-1.076855	0.0430175	-8.20526782	90.1736079	12:12:10
358.28632	23.437053	23.434789	-1.572399	-0.681454	0.0430175	-7.913933	90.5128985	12:11:52
359.28061	23.437053	23.43479	-0.660059	-0.2861	0.0430175	-7.62007924	90.8521629	12:11:35
360.27434	23.437052	23.434791	0.2517073	0.1091045	0.0430175	-7.324047	91.1913583	12:11:17
361.26751	23.437052	23.434792	1.1629849	0.5040596	0.0430175	-7.02617562	91.5304421	12:10:59
2.2601186	23.437052	23.434792	2.0738589	0.8986645	0.0430175	-6.72680314	91.8693721	12:10:41
3.252168	23.437051	23.434793	2.984414	1.2928192	0.0430175	-6.42626611	92.2081058	12:10:23
4.2436543	23.437051	23.434794	3.8947346	1.686424	0.0430175	-6.1248994	92.5466009	12:10:05
5.2345763	23.437051	23.434795	4.804905	2.0793795	0.0430176	-5.82303605	92.8848149	12:09:47
6.2249332	23.43705	23.434795	5.7150088	2.4715869	0.0430176	-5.52100708	93.222705	12:09:29
7.214724	23.43705	23.434796	6.6251296	2.8629476	0.0430176	-5.21914136	93.560228	12:09:11
8.2039482	23.437049	23.434797	7.5353502	3.2533632	0.0430176	-4.91776541	93.8973405	12:08:53
9.1926053	23.437049	23.434798	8.4457529	3.6427358	0.0430176	-4.61720325	94.2339984	12:08:35
10.180695	23.437049	23.434798	9.3564197	4.0309678	0.0430176	-4.31777628	94.5701569	12:08:17

11.168217	23.437048	23.434799	10.267432	4.4179618	0.0430176	-4.01980307	94.9057709	12:07:59
12.155172	23.437048	23.4348	11.178869	4.8036209	0.0430176	-3.72359922	95.2407941	12:07:41
13.14156	23.437048	23.434801	12.090812	5.1878481	0.0430176	-3.42947721	95.5751796	12:07:23
14.12738	23.437047	23.434802	13.003339	5.5705471	0.0430176	-3.13774623	95.9088794	12:07:06
15.112635	23.437047	23.434802	13.916528	5.9516216	0.0430176	-2.84871201	96.2418446	12:06:49
16.097324	23.437047	23.434803	14.830457	6.3309756	0.0430176	-2.56267663	96.574025	12:06:31
17.081448	23.437046	23.434804	15.745201	6.7085135	0.0430176	-2.2799384	96.9053694	12:06:14
18.065009	23.437046	23.434805	16.660836	7.0841397	0.0430176	-2.0007916	97.2358251	12:05:58
19.048007	23.437046	23.434805	17.577436	7.457759	0.0430176	-1.72552638	97.5653382	12:05:41
20.030445	23.437045	23.434806	18.495074	7.8292765	0.0430176	-1.45442848	97.8938534	12:05:25
21.012323	23.437045	23.434807	19.413821	8.1985973	0.0430176	-1.18777911	98.2213137	12:05:09
21.993643	23.437044	23.434808	20.333747	8.5656268	0.0430176	-0.9258547	98.5476606	12:04:53
22.974407	23.437044	23.434809	21.254923	8.9302709	0.0430176	-0.66892666	98.872834	12:04:38
23.954618	23.437044	23.434809	22.177416	9.2924354	0.0430176	-0.41726125	99.1967719	12:04:23
24.934276	23.437043	23.43481	23.101291	9.6520264	0.0430176	-0.17111923	99.5194108	12:04:08
25.913386	23.437043	23.434811	24.026614	10.00895	0.0430176	0.06924426	99.840685	12:03:53
26.891948	23.437043	23.434812	24.953448	10.363114	0.0430176	0.30358003	100.160527	12:03:39
27.869967	23.437042	23.434813	25.881855	10.714423	0.0430176	0.53164505	100.478868	12:03:26
28.847444	23.437042	23.434813	26.811894	11.062787	0.0430176	0.75320272	100.795635	12:03:12
29.824382	23.437042	23.434814	27.743624	11.408111	0.0430176	0.96802312	101.110756	12:03:00
30.800785	23.437041	23.434815	28.6771	11.750303	0.0430176	1.17588331	101.424154	12:02:47
31.776656	23.437041	23.434816	29.612377	12.089272	0.0430176	1.37656759	101.735752	12:02:35
32.751998	23.437041	23.434817	30.549508	12.424925	0.0430176	1.56986777	102.045469	12:02:23
33.726815	23.43704	23.434817	31.488543	12.757172	0.0430176	1.75558348	102.353223	12:02:12
34.70111	23.43704	23.434818	32.42953	13.08592	0.0430176	1.93352247	102.65893	12:02:02
35.674888	23.437039	23.434819	33.372515	13.411079	0.0430176	2.10350086	102.962502	12:01:51
36.648151	23.437039	23.43482	34.317542	13.732558	0.0430176	2.26534349	103.26385	12:01:42
37.620905	23.437039	23.434821	35.264652	14.050268	0.0430176	2.41888418	103.562883	12:01:32
38.593153	23.437038	23.434822	36.213885	14.364118	0.0430177	2.56396606	103.859505	12:01:24
39.5649	23.437038	23.434822	37.165277	14.674019	0.0430177	2.70044183	104.153622	12:01:16
40.53615	23.437038	23.434823	38.118863	14.979883	0.0430177	2.8281741	104.445133	12:01:08
41.506909	23.437037	23.434824	39.074673	15.281621	0.0430177	2.94703567	104.733939	12:01:01
42.47718	23.437037	23.434825	40.032738	15.579145	0.0430177	3.05690979	105.019935	12:00:54
43.446968	23.437037	23.434826	40.993083	15.872368	0.0430177	3.1576905	105.303016	12:00:48
44.416279	23.437036	23.434827	41.955731	16.161203	0.0430177	3.24928285	105.583074	12:00:43
45.385117	23.437036	23.434827	42.920704	16.445564	0.0430177	3.33160322	105.859999	12:00:38
46.353489	23.437036	23.434828	43.888019	16.725366	0.0430177	3.40457958	106.133679	12:00:33
47.321399	23.437035	23.434829	44.85769	17.000523	0.0430177	3.46815169	106.404	12:00:30
48.288852	23.437035	23.43483	45.82973	17.270952	0.0430177	3.52227142	106.670844	12:00:26
49.255855	23.437034	23.434831	46.804148	17.53657	0.0430177	3.5669029	106.934095	12:00:24
50.222412	23.437034	23.434832	47.780948	17.797294	0.0430177	3.60202279	107.193632	12:00:21
51.188531	23.437034	23.434833	48.760134	18.053042	0.0430177	3.62762046	107.449334	12:00:20
52.154216	23.437033	23.434833	49.741704	18.303734	0.0430177	3.64369818	107.701077	12:00:19
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54.084312	23.437033	23.434835	51.711198	18.789632	0.0430177	3.64736824	108.192188	12:00:19
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63.710952	23.437029	23.434844	61.701784	20.889798	0.0430177	3.11305635	110.366938	12:00:51
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163.31905	23.436992	23.434945	164.62724	6.5551084	0.0430181	1.4279368	96.7706406	12:02:32
164.28899	23.436992	23.434946	165.52827	6.1823686	0.0430181	1.76534968	96.4438095	12:02:12
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166.23033	23.436991	23.434948	167.32792	5.4318733	0.0430181	2.44981176	95.7878838	12:01:31
167.20173	23.436991	23.434949	168.22671	5.0542986	0.0430181	2.79625766	95.4588828	12:01:10
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169.14605	23.43699	23.434951	170.0226	4.2949489	0.0430181	3.49604729	94.7990303	12:00:28
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172.06633	23.436989	23.434954	172.71342	3.1467904	0.0430182	4.55829281	93.8052754	11:59:24
173.04079	23.436989	23.434955	173.60988	2.7620012	0.0430182	4.91445636	93.4731312	11:59:03
174.01577	23.436988	23.434957	174.50624	2.3763303	0.0430182	5.27112511	93.1406088	11:58:41
174.99128	23.436988	23.434958	175.40259	1.9898701	0.0430182	5.62797413	92.8077482	11:58:20
175.96732	23.436987	23.434959	176.299	1.6027132	0.0430182	5.98467629	92.474589	11:57:59
176.94389	23.436987	23.43496	177.19556	1.2149525	0.0430182	6.3409024	92.1411706	11:57:37
177.921	23.436987	23.434961	178.09236	0.8266813	0.0430182	6.69632129	91.8075321	11:57:16
178.89865	23.436986	23.434962	178.98948	0.4379931	0.0430182	7.05059993	91.4737125	11:56:55
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182.81469	23.436985	23.434966	-177.4172	-1.119046	0.0430182	8.449594	90.1374033	11:55:31
183.79508	23.436985	23.434967	-176.5172	-1.508403	0.0430182	8.79312036	89.8032647	11:55:10
184.77602	23.436984	23.434969	-175.6163	-1.897608	0.0430182	9.13347686	89.4691812	11:54:50
185.75751	23.436984	23.43497	-174.7146	-2.286564	0.0430182	9.47032138	89.1351934	11:54:29
186.73957	23.436984	23.434971	-173.8119	-2.675175	0.0430182	9.80331113	88.8013424	11:54:09
187.72218	23.436983	23.434972	-172.908	-3.063344	0.0430182	10.1321029	88.46767	11:53:50
188.70536	23.436983	23.434973	-172.003	-3.450972	0.0430182	10.4563532	88.134219	11:53:30
189.6891	23.436983	23.434974	-171.0968	-3.837962	0.0430182	10.7757184	87.8010328	11:53:11
190.6734	23.436982	23.434975	-170.1892	-4.224215	0.0430182	11.0898555	87.4681559	11:52:52
191.65827	23.436982	23.434976	-169.2801	-4.609631	0.0430182	11.3984214	87.1356337	11:52:34
192.6437	23.436981	23.434977	-168.3696	-4.994112	0.0430182	11.7010742	86.803513	11:52:16
193.6297	23.436981	23.434979	-167.4575	-5.377556	0.0430182	11.9974728	86.4718416	11:51:58
194.61627	23.436981	23.43498	-166.5437	-5.759862	0.0430182	12.2872775	86.1406688	11:51:40
195.60341	23.43698	23.434981	-165.6281	-6.14093	0.0430183	12.5701501	85.8100453	11:51:23

196.59111	23.43698	23.434982	-164.7108	-6.520658	0.0430183	12.8457545	85.4800232	11:51:07
197.57938	23.43698	23.434983	-163.7915	-6.898943	0.0430183	13.113757	85.1506563	11:50:51
198.56821	23.436979	23.434984	-162.8702	-7.275681	0.0430183	13.3738263	84.8220002	11:50:35
199.55762	23.436979	23.434985	-161.9468	-7.65077	0.0430183	13.6256345	84.4941122	11:50:20
200.54759	23.436979	23.434986	-161.0213	-8.024105	0.0430183	13.868857	84.1670515	11:50:05
201.53812	23.436978	23.434988	-160.0935	-8.395582	0.0430183	14.1031729	83.8408793	11:49:51
202.52922	23.436978	23.434989	-159.1635	-8.765094	0.0430183	14.328266	83.5156589	11:49:38
203.52089	23.436978	23.43499	-158.231	-9.132537	0.0430183	14.5438245	83.1914556	11:49:25
204.51312	23.436977	23.434991	-157.2962	-9.497803	0.0430183	14.749542	82.8683372	11:49:13
205.50591	23.436977	23.434992	-156.3588	-9.860786	0.0430183	14.9451176	82.5463736	11:49:01
206.49925	23.436976	23.434993	-155.4188	-10.22138	0.0430183	15.1302568	82.2256372	11:48:50
207.49316	23.436976	23.434994	-154.4761	-10.57947	0.0430183	15.3046715	81.906203	11:48:39
208.48762	23.436976	23.434996	-153.5307	-10.93496	0.0430183	15.4680809	81.5881483	11:48:30
209.48264	23.436975	23.434997	-152.5826	-11.28773	0.0430183	15.6202118	81.2715533	11:48:20
210.47821	23.436975	23.434998	-151.6316	-11.63767	0.0430183	15.7607992	80.9565008	11:48:12
211.47433	23.436975	23.434999	-150.6777	-11.98468	0.0430183	15.8895866	80.6430763	11:48:04
212.47099	23.436974	23.435	-149.7208	-12.32864	0.0430183	16.0063271	80.3313682	11:47:57
213.4682	23.436974	23.435001	-148.7609	-12.66944	0.0430183	16.1107832	80.0214678	11:47:51
214.46595	23.436974	23.435002	-147.7979	-13.00698	0.0430183	16.202728	79.7134692	11:47:45
215.46424	23.436973	23.435004	-146.8317	-13.34113	0.0430183	16.2819451	79.4074698	11:47:41
216.46306	23.436973	23.435005	-145.8624	-13.6718	0.0430183	16.3482297	79.1035697	11:47:37
217.46241	23.436973	23.435006	-144.8899	-13.99886	0.0430183	16.4013887	78.8018721	11:47:34
218.46229	23.436972	23.435007	-143.9141	-14.3222	0.0430184	16.4412416	78.5024833	11:47:31
219.4627	23.436972	23.435008	-142.9349	-14.64172	0.0430184	16.4676206	78.2055128	11:47:30
220.46362	23.436971	23.435009	-141.9525	-14.95729	0.0430184	16.4803715	77.9110731	11:47:29
221.46506	23.436971	23.435011	-140.9666	-15.26882	0.0430184	16.4793539	77.6192796	11:47:29
222.46702	23.436971	23.435012	-139.9774	-15.57617	0.0430184	16.4644418	77.3302509	11:47:30
223.46947	23.43697	23.435013	-138.9846	-15.87925	0.0430184	16.4355242	77.0441089	11:47:31
224.47244	23.43697	23.435014	-137.9885	-16.17793	0.0430184	16.3925052	76.7609781	11:47:34
225.47589	23.43697	23.435015	-136.9888	-16.47211	0.0430184	16.3353048	76.480986	11:47:37
226.47984	23.436969	23.435016	-135.9856	-16.76167	0.0430184	16.2638592	76.2042633	11:47:42
227.48428	23.436969	23.435018	-134.9789	-17.04651	0.0430184	16.1781209	75.9309433	11:47:47
228.4892	23.436969	23.435019	-133.9687	-17.32651	0.0430184	16.0780597	75.6611619	11:47:53
229.4946	23.436968	23.43502	-132.9549	-17.60155	0.0430184	15.9636623	75.3950578	11:48:00
230.50046	23.436968	23.435021	-131.9376	-17.87154	0.0430184	15.8349332	75.1327723	11:48:08
231.50679	23.436968	23.435022	-130.9167	-18.13636	0.0430184	15.6918946	74.8744487	11:48:16
232.51358	23.436967	23.435023	-129.8923	-18.39589	0.0430184	15.534587	74.620233	11:48:26
233.52083	23.436967	23.435025	-128.8644	-18.65004	0.0430184	15.3630692	74.3702728	11:48:36
234.52852	23.436966	23.435026	-127.833	-18.89869	0.0430184	15.1774183	74.1247178	11:48:47
235.53665	23.436966	23.435027	-126.7981	-19.14175	0.0430184	14.9777304	73.8837195	11:48:59
236.54521	23.436966	23.435028	-125.7598	-19.37909	0.0430184	14.7641202	73.6474305	11:49:12
237.5542	23.436965	23.435029	-124.718	-19.61063	0.0430184	14.5367214	73.416005	11:49:25
238.56361	23.436965	23.435031	-123.6728	-19.83625	0.0430184	14.2956866	73.1895979	11:49:40
239.57343	23.436965	23.435032	-122.6242	-20.05586	0.0430184	14.0411873	72.9683649	11:49:55
240.58366	23.436964	23.435033	-121.5724	-20.26935	0.0430185	13.773414	72.7524622	11:50:11
241.59429	23.436964	23.435034	-120.5172	-20.47663	0.0430185	13.492576	72.5420461	11:50:28
242.6053	23.436964	23.435035	-119.4588	-20.6776	0.0430185	13.1989014	72.3372726	11:50:46
243.61671	23.436963	23.435037	-118.3973	-20.87217	0.0430185	12.8926368	72.1382973	11:51:04

244.62848	23.436963	23.435038	-117.3327	-21.06024	0.0430185	12.5740471	71.945275	11:51:23
245.64063	23.436963	23.435039	-116.265	-21.24173	0.0430185	12.2434157	71.7583593	11:51:43
246.65313	23.436962	23.43504	-115.1944	-21.41655	0.0430185	11.9010435	71.577702	11:52:04
247.66598	23.436962	23.435041	-114.1209	-21.5846	0.0430185	11.5472491	71.4034533	11:52:25
248.67918	23.436961	23.435043	-113.0445	-21.74581	0.0430185	11.1823684	71.2357609	11:52:47
249.69272	23.436961	23.435044	-111.9655	-21.9001	0.0430185	10.806754	71.0747698	11:53:09
250.70658	23.436961	23.435045	-110.8838	-22.04739	0.0430185	10.4207749	70.9206219	11:53:32
251.72075	23.43696	23.435046	-109.7996	-22.1876	0.0430185	10.0248159	70.7734556	11:53:56
252.73524	23.43696	23.435047	-108.7129	-22.32066	0.0430185	9.61927741	70.6334055	11:54:20
253.75003	23.43696	23.435049	-107.6239	-22.44651	0.0430185	9.20457446	70.5006019	11:54:45
254.76511	23.436959	23.43505	-106.5326	-22.56507	0.0430185	8.78113641	70.3751701	11:55:11
255.78047	23.436959	23.435051	-105.4393	-22.67628	0.0430185	8.34940621	70.2572307	11:55:37
256.7961	23.436959	23.435052	-104.3439	-22.78009	0.0430185	7.90983978	70.1468987	11:56:03
257.812	23.436958	23.435054	-103.2466	-22.87643	0.0430185	7.46290533	70.0442833	11:56:30
258.82815	23.436958	23.435055	-102.1476	-22.96526	0.0430185	7.0090826	69.9494873	11:56:57
259.84455	23.436958	23.435056	-101.0469	-23.04652	0.0430185	6.54886214	69.8626072	11:57:25
260.86118	23.436957	23.435057	-99.9447	-23.12018	0.0430185	6.08274454	69.7837324	11:57:53
261.87804	23.436957	23.435058	-98.8411	-23.18618	0.0430185	5.61123963	69.7129454	11:58:21
262.89511	23.436957	23.43506	-97.73623	-23.24449	0.0430186	5.13486562	69.650321	11:58:50
263.91239	23.436956	23.435061	-96.63024	-23.29508	0.0430186	4.6541483	69.5959263	11:59:18
264.92987	23.436956	23.435062	-95.52326	-23.33792	0.0430186	4.16962017	69.5498204	11:59:47
265.94753	23.436955	23.435063	-94.41542	-23.37298	0.0430186	3.68181953	69.5120541	12:00:17
266.96537	23.436955	23.435065	-93.30687	-23.40024	0.0430186	3.19128962	69.4826701	12:00:46
267.98338	23.436955	23.435066	-92.19775	-23.41969	0.0430186	2.69857768	69.4617022	12:01:16
269.00154	23.436954	23.435067	-91.0882	-23.4313	0.0430186	2.20423405	69.4491757	12:01:45
270.01985	23.436954	23.435068	-89.97836	-23.43507	0.0430186	1.70881126	69.4451072	12:02:15
271.0383	23.436954	23.43507	-88.86838	-23.43099	0.0430186	1.21286305	69.4495043	12:02:45
272.05687	23.436953	23.435071	-87.75839	-23.41907	0.0430186	0.71694351	69.4623657	12:03:15
273.07556	23.436953	23.435072	-86.64854	-23.3993	0.0430186	0.22160607	69.4836814	12:03:44
274.09435	23.436953	23.435073	-85.53897	-23.3717	0.0430186	-0.27259738	69.5134325	12:04:14
275.11324	23.436952	23.435075	-84.42983	-23.33628	0.0430186	-0.76511744	69.5515913	12:04:44
276.13221	23.436952	23.435076	-83.32126	-23.29304	0.0430186	-1.25540812	69.5981215	12:05:13
277.15125	23.436952	23.435077	-82.21338	-23.24202	0.0430186	-1.74292773	69.6529783	12:05:42
278.17036	23.436951	23.435078	-81.10636	-23.18323	0.0430186	-2.22713982	69.7161085	12:06:11
279.18952	23.436951	23.43508	-80.00031	-23.11671	0.0430186	-2.70751401	69.7874507	12:06:40
280.20872	23.43695	23.435081	-78.89537	-23.04248	0.0430186	-3.18352693	69.8669356	12:07:09
281.22795	23.43695	23.435082	-77.79168	-22.96058	0.0430186	-3.654663	69.9544863	12:07:37

Sunrise Time (LST)	Sunset Time (LST)	Sunlight Duration (minutes)	True Solar Time (min)	Hour Angle (deg)	Solar Zenith Angle (deg)	Solar Elevation Angle (deg)	Approx Atmospher ic Refraction (deg)
7:27:49	16:47:38	559.819436	712.26963	-1.932593	63.599524	26.400476	0.0323527
7:27:54	16:48:30	560.599155	711.80527	-2.048684	63.511133	26.48867	0.0322293
7:27:56	16:49:22	561.441804	711.3469	-2.163275	63.415716	26.584284	0.0320963
7:27:56	16:50:17	562.346582	710.89502	-2.276244	63.31272	26.68728	0.031954
7:27:54	16:51:12	563.312641	710.4501	-2.387474	63.202385	26.797615	0.0318027
7:27:49	16:52:09	564.33908	710.01261	-2.496848	63.084757	26.915243	0.0316426
7:27:42	16:53:08	565.424956	709.58298	-2.604256	62.959885	27.040115	0.0314741
7:27:33	16:54:07	566.569282	709.16165	-2.709587	62.82782	27.17218	0.0312973
7:27:22	16:55:08	567.771032	708.74906	-2.812736	62.688617	27.311383	0.0311127
7:27:08	16:56:10	569.029145	708.34559	-2.913602	62.542333	27.457667	0.0309206
7:26:53	16:57:13	570.342526	707.95166	-3.012086	62.389029	27.610971	0.0307212
7:26:35	16:58:17	571.710051	707.56762	-3.108095	62.228768	27.771232	0.0305149
7:26:14	16:59:22	573.13057	707.19385	-3.201537	62.061616	27.938384	0.0303019
7:25:52	17:00:28	574.602908	706.83069	-3.292328	61.887641	28.112359	0.0300828
7:25:28	17:01:35	576.125871	706.47846	-3.380385	61.706914	28.293086	0.0298577
7:25:01	17:02:43	577.698249	706.13748	-3.465631	61.519508	28.480492	0.029627
7:24:32	17:03:51	579.318815	705.80803	-3.547992	61.3255	28.6745	0.0293911
7:24:01	17:05:00	580.986335	705.4904	-3.6274	61.124967	28.875033	0.0291502
7:23:28	17:06:10	582.699562	705.18483	-3.703792	60.917991	29.082009	0.0289047
7:22:53	17:07:20	584.457248	704.89157	-3.777107	60.704654	29.295346	0.028655
7:22:16	17:08:31	586.25814	704.61084	-3.84729	60.485041	29.514959	0.0284013
7:21:36	17:09:42	588.100984	704.34283	-3.914292	60.259239	29.740761	0.0281439
7:20:55	17:10:54	589.984531	704.08773	-3.978066	60.027338	29.972662	0.0278832
7:20:12	17:12:06	591.907534	703.84571	-4.038573	59.789427	30.210573	0.0276195
7:19:27	17:13:19	593.868754	703.6169	-4.095775	59.5456	30.4544	0.027353
7:18:40	17:14:32	595.866961	703.40144	-4.149641	59.295952	30.704048	0.0270841
7:17:51	17:15:45	597.900934	703.19942	-4.200144	59.040579	30.959421	0.026813
7:17:00	17:16:58	599.969466	703.01095	-4.247263	58.779579	31.220421	0.02654
7:16:08	17:18:12	602.071365	702.83609	-4.290979	58.513052	31.486948	0.0262654
7:15:13	17:19:26	604.205452	702.67488	-4.331279	58.241098	31.758902	0.0259894
7:14:17	17:20:39	606.370569	702.52738	-4.368155	57.963822	32.036178	0.0257123
7:13:19	17:21:53	608.565571	702.39359	-4.401603	57.681326	32.318674	0.0254342
7:12:20	17:23:07	610.789339	702.27351	-4.431624	57.393716	32.606284	0.0251555
7:11:19	17:24:21	613.040768	702.16712	-4.458221	57.101098	32.898902	0.0248764
7:10:16	17:25:35	615.318779	702.07439	-4.481403	56.803581	33.196419	0.024597
7:09:12	17:26:49	617.622313	701.99526	-4.501184	56.501273	33.498727	0.0243175
7:08:06	17:28:03	619.950335	701.92968	-4.517581	56.194284	33.805716	0.0240382
7:06:58	17:29:16	622.301832	701.87755	-4.530614	55.882726	34.117274	0.0237592
7:05:49	17:30:30	624.675816	701.83877	-4.540308	55.566709	34.433291	0.0234807
7:04:39	17:31:43	627.071321	701.81323	-4.546693	55.246348	34.753652	0.0232029
7:03:27	17:32:57	629.487409	701.8008	-4.549799	54.921754	35.078246	0.0229259

7:02:14	17:34:10	631.923163	701.80135	-4.549664	54.593044	35.406956	0.0226498
7:01:00	17:35:22	634.377692	701.8147	-4.546325	54.26033	35.73967	0.0223748
6:59:44	17:36:35	636.850129	701.8407	-4.539826	53.92373	36.07627	0.022101
6:58:27	17:37:47	639.339633	701.87915	-4.530212	53.583359	36.416641	0.0218286
6:57:09	17:39:00	641.845386	701.92988	-4.517531	53.239333	36.760667	0.0215577
6:55:49	17:40:11	644.366593	701.99266	-4.501835	52.891771	37.108229	0.0212883
6:54:29	17:41:23	646.902485	702.06728	-4.483179	52.540788	37.459212	0.0210205
6:53:07	17:42:34	649.452316	702.15352	-4.461619	52.186504	37.813496	0.0207545
6:51:44	17:43:45	652.015361	702.25114	-4.437215	51.829036	38.170964	0.0204903
6:50:21	17:44:56	654.59092	702.35989	-4.410028	51.468501	38.531499	0.0202281
6:48:56	17:46:07	657.178315	702.47951	-4.380122	51.10502	38.89498	0.0199678
6:47:30	17:47:17	659.776887	702.60974	-4.347564	50.738709	39.261291	0.0197095
6:46:03	17:48:27	662.386002	702.75031	-4.312422	50.369689	39.630311	0.0194534
6:44:36	17:49:36	665.005043	702.90093	-4.274766	49.998076	40.001924	0.0191994
6:43:07	17:50:45	667.633414	703.06133	-4.234668	49.623991	40.376009	0.0189477
6:41:38	17:51:54	670.270539	703.23119	-4.192202	49.247551	40.752449	0.0186981
6:40:08	17:53:03	672.915861	703.41023	-4.147442	48.868876	41.131124	0.0184509
6:38:37	17:54:11	675.568838	703.59814	-4.100464	48.488083	41.511917	0.0182061
6:37:05	17:55:19	678.228947	703.79461	-4.051347	48.10529	41.89471	0.0179635
6:35:33	17:56:27	680.895683	703.99932	-4.000169	47.720615	42.279385	0.0177234
6:34:00	17:57:34	683.568554	704.21196	-3.947011	47.334177	42.665823	0.0174857
6:32:27	17:58:41	686.247085	704.43219	-3.891952	46.946092	43.053908	0.0172504
6:30:52	17:59:48	688.930813	704.6597	-3.835076	46.556477	43.443523	0.0170176
6:29:18	18:00:55	691.619289	704.89414	-3.776464	46.165449	43.834551	0.0167872
6:27:43	18:02:01	694.312079	705.1352	-3.7162	45.773124	44.226876	0.0165594
6:26:07	18:03:07	697.008759	705.38253	-3.654368	45.379618	44.620382	0.0163334
6:24:31	18:04:13	699.708916	705.63579	-3.591052	44.985046	45.014954	0.0161111
6:22:54	18:05:19	702.412147	705.89466	-3.526336	44.589524	45.410476	0.0158907
6:21:17	18:06:24	705.11806	706.15878	-3.460306	44.193166	45.806834	0.0156728
6:19:40	18:07:29	707.82627	706.42781	-3.393047	43.796085	46.203915	0.0154574
6:18:02	18:08:34	710.536402	706.70142	-3.324645	43.398395	46.601605	0.0152445
6:16:24	18:09:39	713.248087	706.97926	-3.255185	43.000209	46.999791	0.0150341
6:14:46	18:10:43	715.960963	707.26099	-3.184754	42.601639	47.398361	0.0148262
6:13:07	18:11:47	718.674672	707.54626	-3.113436	42.202797	47.797203	0.0146208
6:11:28	18:12:52	721.388863	707.83473	-3.041317	41.803794	48.196206	0.0144179
6:09:49	18:13:56	724.103188	708.12607	-2.968483	41.40474	48.59526	0.0142174
6:08:10	18:14:59	726.817303	708.41992	-2.89502	41.005745	48.994255	0.0140194
6:06:31	18:16:03	729.530866	708.71595	-2.821012	40.606918	49.393082	0.0138238
6:04:52	18:17:06	732.243537	709.01382	-2.746544	40.208368	49.791632	0.0136307
6:03:13	18:18:10	734.954977	709.3132	-2.671701	39.810202	50.189798	0.01344
6:01:33	18:19:13	737.664846	709.61373	-2.596567	39.412529	50.587471	0.0132518
5:59:54	18:20:16	740.372808	709.9151	-2.521225	39.015453	50.984547	0.0130659
5:58:15	18:21:19	743.07852	710.21696	-2.445759	38.619082	51.380918	0.0128824
5:56:35	18:22:22	745.78164	710.51899	-2.370252	38.22352	51.77648	0.0127013
5:54:56	18:23:25	748.481824	710.82086	-2.294785	37.828872	52.171128	0.0125225
5:53:17	18:24:28	751.178724	711.12223	-2.219441	37.435242	52.564758	0.0123461
5:51:38	18:25:31	753.871987	711.4228	-2.144301	37.042733	52.957267	0.0121721
5:50:00	18:26:34	756.561255	711.72222	-2.069444	36.651446	53.348554	0.0120003

5:48:21	18:27:36	759.246167	712.0202	-1.994951	36.261485	53.738515	0.0118308
5:46:43	18:28:39	761.926353	712.3164	-1.9209	35.87295	54.12705	0.0116637
5:45:05	18:29:41	764.601437	712.61052	-1.847369	35.485941	54.514059	0.0114987
5:43:28	18:30:44	767.271035	712.90225	-1.774437	35.100558	54.899442	0.0113361
5:41:50	18:31:47	769.934757	713.19129	-1.702178	34.7169	55.2831	0.0111757
5:40:14	18:32:49	772.5922	713.47732	-1.630669	34.335065	55.664935	0.0110175
5:38:37	18:33:52	775.242955	713.76006	-1.559985	33.955151	56.044849	0.0108615
5:37:01	18:34:54	777.886601	714.03921	-1.490198	33.577256	56.422744	0.0107077
5:35:25	18:35:57	780.522706	714.31447	-1.421382	33.201474	56.798526	0.0105561
5:33:50	18:36:59	783.150827	714.58557	-1.353607	32.827903	57.172097	0.0104067
5:32:16	18:38:02	785.770509	714.85222	-1.286945	32.456637	57.543363	0.0102594
5:30:42	18:39:05	788.381285	715.11415	-1.221464	32.087769	57.912231	0.0101143
5:29:08	18:40:07	790.982672	715.37107	-1.157232	31.721395	58.278605	0.0099713
5:27:35	18:41:10	793.574175	715.62274	-1.094315	31.357607	58.642393	0.0098304
5:26:03	18:42:13	796.155286	715.86888	-1.03278	30.996498	59.003502	0.0096917
5:24:32	18:43:15	798.72548	716.10924	-0.972689	30.638159	59.361841	0.009555
5:23:01	18:44:18	801.284217	716.34358	-0.914105	30.282682	59.717318	0.0094204
5:21:31	18:45:21	803.830941	716.57165	-0.857089	29.930158	60.069842	0.0092879
5:20:01	18:46:23	806.36508	716.7932	-0.801699	29.580676	60.419324	0.0091574
5:18:33	18:47:26	808.886045	717.00802	-0.747994	29.234327	60.765673	0.009029
5:17:05	18:48:29	811.393231	717.21588	-0.696029	28.891198	61.108802	0.0089026
5:15:38	18:49:32	813.886013	717.41657	-0.645858	28.55138	61.44862	0.0087783
5:14:12	18:50:34	816.363752	717.60987	-0.597533	28.214959	61.785041	0.008656
5:12:47	18:51:37	818.825787	717.79558	-0.551104	27.882023	62.117977	0.0085357
5:11:23	18:52:40	821.271441	717.97352	-0.506619	27.55266	62.44734	0.0084175
5:10:00	18:53:42	823.700018	718.1435	-0.464125	27.226954	62.773046	0.0083012
5:08:38	18:54:45	826.110802	718.30534	-0.423664	26.904994	63.095006	0.008187
5:07:17	18:55:48	828.503061	718.45888	-0.385279	26.586863	63.413137	0.0080747
5:05:57	18:56:50	830.876042	718.60397	-0.349008	26.272647	63.727353	0.0079644
5:04:39	18:57:52	833.228973	718.74044	-0.31489	25.962432	64.037568	0.0078561
5:03:21	18:58:55	835.561065	718.86817	-0.282956	25.6563	64.3437	0.0077498
5:02:05	18:59:57	837.87151	718.98704	-0.253241	25.354336	64.645664	0.0076455
5:00:49	19:00:59	840.159479	719.09691	-0.225773	25.056623	64.943377	0.0075431
4:59:35	19:02:01	842.424127	719.19769	-0.200577	24.763244	65.236756	0.0074427
4:58:23	19:03:03	844.664593	719.28928	-0.177679	24.474282	65.525718	0.0073443
4:57:11	19:04:04	846.879994	719.3716	-0.157099	24.189818	65.810182	0.0072479
4:56:01	19:05:05	849.069433	719.44458	-0.138855	23.909936	66.090064	0.0071534
4:54:53	19:06:06	851.231997	719.50815	-0.122962	23.634716	66.365284	0.0070609
4:53:45	19:07:07	853.366754	719.56227	-0.109432	23.364239	66.635761	0.0069704
4:52:39	19:08:08	855.472761	719.6069	-0.098274	23.098586	66.901414	0.0068818
4:51:35	19:09:08	857.549058	719.64202	-0.089494	22.837837	67.162163	0.0067953
4:50:32	19:10:08	859.594671	719.66762	-0.083095	22.582071	67.417929	0.0067106
4:49:31	19:11:07	861.608617	719.6837	-0.079075	22.33137	67.66863	0.006628
4:48:31	19:12:06	863.589897	719.69027	-0.077432	22.08581	67.91419	0.0065474
4:47:33	19:13:05	865.537505	719.68737	-0.078158	21.845471	68.154529	0.0064687
4:46:36	19:14:03	867.450425	719.67503	-0.081242	21.61043	68.38957	0.006392
4:45:41	19:15:01	869.327633	719.65331	-0.086671	21.380765	68.619235	0.0063173
4:44:48	19:15:58	871.1681	719.62229	-0.094428	21.156553	68.843447	0.0062447

4:43:56	19:16:54	872.97079	719.58203	-0.104491	20.937869	69.062131	0.006174
4:43:06	19:17:50	874.734666	719.53265	-0.116838	20.724789	69.275211	0.0061053
4:42:18	19:18:45	876.458689	719.47424	-0.13144	20.517387	69.482613	0.0060386
4:41:31	19:19:40	878.141818	719.40693	-0.148267	20.315737	69.684263	0.005974
4:40:47	19:20:34	879.783018	719.33087	-0.167284	20.119912	69.880088	0.0059114
4:40:04	19:21:27	881.381255	719.24618	-0.188454	19.929984	70.070016	0.0058508
4:39:23	19:22:19	882.935502	719.15306	-0.211736	19.746023	70.253977	0.0057923
4:38:44	19:23:10	884.444741	719.05166	-0.237086	19.568098	70.431902	0.0057358
4:38:06	19:24:01	885.907962	718.94218	-0.264456	19.396278	70.603722	0.0056814
4:37:31	19:24:50	887.32417	718.82482	-0.293795	19.230629	70.769371	0.005629
4:36:57	19:25:39	888.692383	718.6998	-0.32505	19.071217	70.928783	0.0055787
4:36:26	19:26:26	890.011635	718.56735	-0.358163	18.918104	71.081896	0.0055305
4:35:56	19:27:13	891.280981	718.4277	-0.393074	18.771353	71.228647	0.0054844
4:35:28	19:27:58	892.499497	718.28112	-0.429721	18.631022	71.368978	0.0054403
4:35:02	19:28:42	893.666281	718.12786	-0.468036	18.49717	71.50283	0.0053984
4:34:38	19:29:25	894.780458	717.96819	-0.507952	18.369852	71.630148	0.0053586
4:34:17	19:30:07	895.841181	717.80242	-0.549395	18.249121	71.750879	0.0053208
4:33:57	19:30:48	896.847635	717.63083	-0.592294	18.135027	71.864973	0.0052852
4:33:39	19:31:27	897.799036	717.45372	-0.636569	18.027618	71.972382	0.0052518
4:33:23	19:32:05	898.694634	717.27143	-0.682143	17.92694	72.07306	0.0052204
4:33:09	19:32:41	899.53372	717.08426	-0.728934	17.833033	72.166967	0.0051912
4:32:57	19:33:16	900.315619	716.89257	-0.776858	17.745938	72.254062	0.0051642
4:32:47	19:33:49	901.0397	716.69668	-0.82583	17.665689	72.334311	0.0051393
4:32:39	19:34:21	901.705374	716.49696	-0.875761	17.59232	72.40768	0.0051166
4:32:33	19:34:52	902.312098	716.29375	-0.926564	17.525859	72.474141	0.005096
4:32:29	19:35:21	902.859375	716.08742	-0.978146	17.466331	72.533669	0.0050775
4:32:27	19:35:48	903.346753	715.87834	-1.030415	17.41376	72.58624	0.0050613
4:32:27	19:36:13	903.773832	715.66689	-1.083279	17.368161	72.631839	0.0050472
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4:32:32	19:36:59	904.445748	715.23838	-1.190406	17.297939	72.702061	0.0050255
4:32:38	19:37:19	904.69004	715.02209	-1.244478	17.273333	72.726667	0.0050179
4:32:46	19:37:38	904.872947	714.80497	-1.298758	17.255734	72.744266	0.0050124
4:32:55	19:37:55	904.99433	714.5874	-1.35315	17.245142	72.754858	0.0050092
4:33:06	19:38:09	905.054107	714.36978	-1.407555	17.241551	72.758449	0.0050081
4:33:19	19:38:22	905.052246	714.1525	-1.461874	17.244953	72.755047	0.0050091
4:33:34	19:38:34	904.988775	713.93596	-1.51601	17.255335	72.744665	0.0050123
4:33:51	19:38:43	904.863774	713.72054	-1.569864	17.272681	72.727319	0.0050177
4:34:09	19:38:50	904.677376	713.50665	-1.623339	17.29697	72.70303	0.0050252
4:34:29	19:38:55	904.429771	713.29465	-1.676336	17.328179	72.671821	0.0050348
4:34:51	19:38:59	904.121202	713.08496	-1.72876	17.36628	72.63372	0.0050466
4:35:15	19:39:00	903.751962	712.87794	-1.780515	17.411244	72.588756	0.0050605
4:35:40	19:38:59	903.322398	712.67398	-1.831506	17.463036	72.536964	0.0050765
4:36:07	19:38:57	902.832907	712.47344	-1.881639	17.521619	72.478381	0.0050947
4:36:35	19:38:52	902.283935	712.27671	-1.930823	17.586953	72.413047	0.0051149
4:37:05	19:38:45	901.675977	712.08414	-1.978966	17.658997	72.341003	0.0051372
4:37:36	19:38:37	901.009573	711.89608	-2.025979	17.737704	72.262296	0.0051616
4:38:09	19:38:26	900.285308	711.7129	-2.071775	17.823027	72.176973	0.0051881
4:38:43	19:38:13	899.503811	711.53493	-2.116268	17.914915	72.085085	0.0052167

4:39:18	19:37:58	898.66575	711.3625	-2.159375	18.013317	71.986683	0.0052473
4:39:55	19:37:41	897.771834	711.19594	-2.201016	18.118177	71.881823	0.00528
4:40:33	19:37:23	896.822809	711.03556	-2.24111	18.229441	71.770559	0.0053147
4:41:13	19:37:02	895.819455	710.88168	-2.279581	18.347049	71.652951	0.0053514
4:41:53	19:36:39	894.762585	710.73458	-2.316356	18.470944	71.529056	0.0053902
4:42:35	19:36:14	893.653042	710.59455	-2.351364	18.601062	71.398938	0.0054309
4:43:18	19:35:47	892.491699	710.46186	-2.384535	18.737344	71.262656	0.0054737
4:44:01	19:35:18	891.279453	710.33678	-2.415804	18.879725	71.120275	0.0055184
4:44:46	19:34:47	890.017227	710.21957	-2.445108	19.028142	70.971858	0.0055651
4:45:32	19:34:15	888.705963	710.11045	-2.472389	19.182529	70.817471	0.0056138
4:46:19	19:33:40	887.346624	710.00965	-2.497588	19.342822	70.657178	0.0056645
4:47:07	19:33:03	885.940188	709.91739	-2.520653	19.508952	70.491048	0.0057171
4:47:55	19:32:25	884.48765	709.83387	-2.541533	19.680853	70.319147	0.0057716
4:48:45	19:31:44	882.990015	709.75927	-2.560182	19.858459	70.141541	0.005828
4:49:35	19:31:02	881.448301	709.69378	-2.576555	20.0417	69.9583	0.0058864
4:50:26	19:30:18	879.86353	709.63755	-2.590613	20.230509	69.769491	0.0059467
4:51:17	19:29:32	878.236735	709.59073	-2.602319	20.424818	69.575182	0.006009
4:52:10	19:28:44	876.568949	709.55345	-2.611638	20.624557	69.375443	0.0060731
4:53:03	19:27:54	874.86121	709.52583	-2.618542	20.829657	69.170343	0.0061391
4:53:56	19:27:03	873.114555	709.50799	-2.623002	21.04005	68.95995	0.006207
4:54:50	19:26:10	871.33002	709.50001	-2.624997	21.255666	68.744334	0.0062768
4:55:45	19:25:15	869.508638	709.50198	-2.624506	21.476436	68.523564	0.0063484
4:56:40	19:24:19	867.651436	709.51395	-2.621513	21.702291	68.297709	0.006422
4:57:35	19:23:21	865.759436	709.53598	-2.616004	21.933161	68.066839	0.0064974
4:58:31	19:22:21	863.833653	709.56812	-2.607971	22.168976	67.831024	0.0065747
4:59:27	19:21:20	861.875092	709.61037	-2.597407	22.409667	67.590333	0.0066538
5:00:24	19:20:17	859.884748	709.66277	-2.584308	22.655164	67.344836	0.0067348
5:01:21	19:19:12	857.863604	709.7253	-2.568676	22.905398	67.094602	0.0068177
5:02:18	19:18:07	855.812632	709.79795	-2.550513	23.160297	66.839703	0.0069024
5:03:15	19:16:59	853.732789	709.88069	-2.529827	23.419793	66.580207	0.006989
5:04:13	19:15:50	851.625018	709.97349	-2.506627	23.683814	66.316186	0.0070774
5:05:11	19:14:40	849.490249	710.0763	-2.480926	23.952292	66.047708	0.0071677
5:06:09	19:13:29	847.329393	710.18904	-2.45274	24.225153	65.774847	0.0072599
5:07:07	19:12:16	845.143346	710.31165	-2.422088	24.502329	65.497671	0.0073539
5:08:05	19:11:01	842.932988	710.44404	-2.388991	24.783748	65.216252	0.0074497
5:09:04	19:09:46	840.699179	710.5861	-2.353474	25.069338	64.930662	0.0075475
5:10:02	19:08:29	838.442763	710.73774	-2.315564	25.359029	64.640971	0.0076471
5:11:01	19:07:11	836.164566	710.89883	-2.275292	25.652747	64.347253	0.0077486
5:12:00	19:05:52	833.865394	711.06925	-2.232688	25.950421	64.049579	0.0078519
5:12:59	19:04:31	831.546034	711.24884	-2.187789	26.251978	63.748022	0.0079572
5:13:58	19:03:10	829.207257	711.43747	-2.140632	26.557344	63.442656	0.0080643
5:14:56	19:01:47	826.849811	711.63497	-2.091257	26.866447	63.133553	0.0081733
5:15:55	19:00:24	824.474429	711.84118	-2.039705	27.179212	62.820788	0.0082842
5:16:54	18:58:59	822.081822	712.05592	-1.98602	27.495564	62.504436	0.008397
5:17:53	18:57:33	819.672683	712.279	-1.930249	27.815429	62.184571	0.0085118
5:18:52	18:56:07	817.247688	712.51024	-1.87244	28.138732	61.861268	0.0086284
5:19:51	18:54:39	814.807491	712.74942	-1.812644	28.465395	61.534605	0.008747
5:20:50	18:53:11	812.352732	712.99635	-1.750912	28.795343	61.204657	0.0088675

5:21:48	18:51:41	809.884029	713.2508	-1.687299	29.128498	60.871502	0.0089899
5:22:47	18:50:11	807.401984	713.51256	-1.621859	29.464783	60.535217	0.0091143
5:23:46	18:48:40	804.907181	713.7814	-1.554651	29.804118	60.195882	0.0092407
5:24:45	18:47:09	802.400189	714.05707	-1.485733	30.146424	59.853576	0.0093691
5:25:43	18:45:36	799.881556	714.33934	-1.415166	30.491623	59.508377	0.0094994
5:26:42	18:44:03	797.351818	714.62796	-1.343011	30.839632	59.160368	0.0096317
5:27:40	18:42:29	794.811493	714.92268	-1.269331	31.190372	58.809628	0.009766
5:28:39	18:40:54	792.261084	715.22323	-1.194192	31.54376	58.45624	0.0099024
5:29:37	18:39:19	789.701079	715.52937	-1.117658	31.899714	58.100286	0.0100408
5:30:36	18:37:44	787.131952	715.84081	-1.039798	32.25815	57.74185	0.0101812
5:31:34	18:36:07	784.554162	716.15728	-0.960679	32.618984	57.381016	0.0103237
5:32:32	18:34:30	781.968157	716.47852	-0.88037	32.982132	57.017868	0.0104683
5:33:31	18:32:53	779.37437	716.80423	-0.798942	33.347507	56.652493	0.0106149
5:34:29	18:31:15	776.773222	717.13413	-0.716467	33.715024	56.284976	0.0107636
5:35:27	18:29:37	774.165125	717.46794	-0.633016	34.084596	55.915404	0.0109145
5:36:25	18:27:58	771.550476	717.80535	-0.548663	34.456135	55.543865	0.0110675
5:37:23	18:26:19	768.929665	718.14607	-0.463481	34.829551	55.170449	0.0112226
5:38:22	18:24:40	766.30307	718.48981	-0.377547	35.204757	54.795243	0.0113799
5:39:20	18:23:00	763.671062	718.83626	-0.290936	35.581661	54.418339	0.0115394
5:40:18	18:21:20	761.034002	719.18511	-0.203724	35.960173	54.039827	0.011701
5:41:16	18:19:40	758.392243	719.53605	-0.115988	36.340201	53.659799	0.0118649
5:42:14	18:17:59	755.746131	719.88877	-0.027808	36.721653	53.278347	0.012031
5:43:13	18:16:18	753.096007	720.24296	0.0607393	37.104434	52.895566	0.0121993
5:44:11	18:14:37	750.442203	720.59829	0.1495732	37.488453	52.511547	0.0123699
5:45:09	18:12:56	747.78505	720.95446	0.2386141	37.873612	52.126388	0.0125427
5:46:08	18:11:15	745.124871	721.31113	0.3277813	38.259818	51.740182	0.0127178
5:47:06	18:09:34	742.461985	721.66797	0.4169935	38.646973	51.353027	0.0128952
5:48:05	18:07:52	739.796712	722.02468	0.5061691	39.03498	50.96502	0.013075
5:49:03	18:06:11	737.129365	722.3809	0.5952256	39.423741	50.576259	0.013257
5:50:02	18:04:30	734.460257	722.73632	0.6840803	39.813159	50.186841	0.0134414
5:51:01	18:02:48	731.7897	723.0906	0.77265	40.203132	49.796868	0.0136282
5:52:00	18:01:07	729.118006	723.4434	0.8608509	40.593561	49.406439	0.0138173
5:52:59	17:59:26	726.445487	723.7944	0.948599	40.984345	49.015655	0.0140088
5:53:58	17:57:45	723.772455	724.14324	1.0358098	41.375382	48.624618	0.0142027
5:54:58	17:56:04	721.099226	724.48959	1.1223985	41.76657	48.23343	0.0143991
5:55:57	17:54:23	718.426118	724.83312	1.2082801	42.157805	47.842195	0.0145978
5:56:57	17:52:42	715.75345	725.17348	1.2933692	42.548983	47.451017	0.0147989
5:57:57	17:51:02	713.081547	725.51032	1.3775803	42.94	47.06	0.0150025
5:58:57	17:49:22	710.410739	725.84331	1.4608278	43.330751	46.669249	0.0152086
5:59:57	17:47:42	707.74136	726.1721	1.5430257	43.721128	46.278872	0.0154171
6:00:58	17:46:02	705.073752	726.49635	1.6240883	44.111026	45.888974	0.015628
6:01:59	17:44:23	702.408263	726.81572	1.7039296	44.500337	45.499663	0.0158414
6:03:00	17:42:45	699.745247	727.12986	1.7824639	44.888953	45.111047	0.0160573
6:04:01	17:41:06	697.08507	727.43842	1.8596054	45.276765	44.723235	0.0162756
6:05:03	17:39:28	694.428104	727.74107	1.9352686	45.663664	44.336336	0.0164963
6:06:05	17:37:51	691.774733	728.03747	2.0093682	46.04954	43.95046	0.0167196
6:07:07	17:36:14	689.125351	728.32728	2.0818194	46.434282	43.565718	0.0169453
6:08:09	17:34:38	686.480362	728.61015	2.1525375	46.817779	43.182221	0.0171734

6:09:12	17:33:02	683.840185	728.88575	2.2214386	47.19992	42.80008	0.0174039
6:10:15	17:31:27	681.20525	729.15376	2.2884392	47.580593	42.419407	0.0176369
6:11:18	17:29:52	678.576002	729.41383	2.3534566	47.959685	42.040315	0.0178722
6:12:21	17:28:19	675.952898	729.66563	2.4164086	48.337083	41.662917	0.01811
6:13:25	17:26:46	673.336412	729.90886	2.4772142	48.712673	41.287327	0.01835
6:14:30	17:25:13	670.727035	730.14317	2.5357932	49.086343	40.913657	0.0185924
6:15:34	17:23:42	668.125271	730.36827	2.5920665	49.457977	40.542023	0.0188372
6:16:39	17:22:11	665.531645	730.58382	2.6459561	49.827461	40.172539	0.0190841
6:17:44	17:20:41	662.946698	730.78954	2.6973855	50.194681	39.805319	0.0193333
6:18:50	17:19:12	660.370989	730.98512	2.7462794	50.559521	39.440479	0.0195847
6:19:56	17:17:44	657.805098	731.17026	2.7925642	50.921867	39.078133	0.0198381
6:21:02	17:16:17	655.249624	731.34467	2.8361679	51.281603	38.718397	0.0200937
6:22:08	17:14:51	652.705187	731.50808	2.8770202	51.638614	38.361386	0.0203513
6:23:15	17:13:26	650.172427	731.66021	2.915053	51.992784	38.007216	0.0206108
6:24:22	17:12:02	647.652006	731.8008	2.9501998	52.343998	37.656002	0.0208722
6:25:30	17:10:39	645.14461	731.92959	2.9823967	52.69214	37.30786	0.0211354
6:26:38	17:09:17	642.650945	732.04633	3.0115818	53.037094	36.962906	0.0214004
6:27:46	17:07:56	640.171742	732.15078	3.0376958	53.378747	36.621253	0.0216669
6:28:54	17:06:37	637.707754	732.24273	3.060682	53.716982	36.283018	0.0219351
6:30:03	17:05:18	635.259758	732.32195	3.0804863	54.051685	35.948315	0.0222046
6:31:12	17:04:02	632.828557	732.38823	3.0970574	54.382741	35.617259	0.0224755
6:32:21	17:02:46	630.414977	732.44139	3.1103472	54.710036	35.289964	0.0227475
6:33:31	17:01:32	628.019867	732.48124	3.1203104	55.033456	34.966544	0.0230207
6:34:40	17:00:19	625.644103	732.50762	3.1269052	55.352888	34.647112	0.0232948
6:35:50	16:59:07	623.288584	732.52037	3.1300929	55.668219	34.331781	0.0235697
6:37:00	16:57:57	620.954236	732.51935	3.1298385	55.979337	34.020663	0.0238452
6:38:10	16:56:49	618.642008	732.50444	3.1261105	56.28613	33.71387	0.0241213
6:39:21	16:55:42	616.352871	732.47552	3.118881	56.588487	33.411513	0.0243977
6:40:31	16:54:37	614.087824	732.43251	3.1081263	56.886299	33.113701	0.0246742
6:41:42	16:53:33	611.847888	732.3753	3.0938262	57.179455	32.820545	0.0249507
6:42:53	16:52:31	609.634107	732.30386	3.0759648	57.467848	32.532152	0.0252269
6:44:03	16:51:30	607.447546	732.21812	3.0545302	57.75137	32.24863	0.0255028
6:45:14	16:50:32	605.289295	732.11806	3.0295149	58.029914	31.970086	0.0257779
6:46:25	16:49:35	603.160463	732.00366	3.0009156	58.303375	31.696625	0.0260522
6:47:36	16:48:39	601.062178	731.87493	2.9687333	58.571649	31.428351	0.0263254
6:48:46	16:47:46	598.99559	731.73189	2.9329737	58.834633	31.165367	0.0265973
6:49:57	16:46:54	596.961864	731.57459	2.8936468	59.092225	30.907775	0.0268675
6:51:07	16:46:05	594.962182	731.40307	2.8507673	59.344325	30.655675	0.0271359
6:52:17	16:45:17	592.997743	731.21742	2.8043546	59.590833	30.409167	0.0274022
6:53:27	16:44:31	591.069756	731.01773	2.7544326	59.831653	30.168347	0.027666
6:54:36	16:43:47	589.179444	730.80412	2.70103	60.066688	29.933312	0.0279272
6:55:46	16:43:05	587.32804	730.57672	2.6441803	60.295845	29.704155	0.0281854
6:56:54	16:42:25	585.516783	730.33569	2.5839216	60.51903	29.48097	0.0284403
6:58:03	16:41:48	583.746919	730.08119	2.5202968	60.736153	29.263847	0.0286916
6:59:11	16:41:12	582.019698	729.81341	2.4533535	60.947124	29.052876	0.0289391
7:00:18	16:40:38	580.336368	729.53258	2.383144	61.151858	28.848142	0.0291823
7:01:25	16:40:07	578.698181	729.2389	2.3097253	61.350268	28.649732	0.029421
7:02:31	16:39:37	577.106378	728.93264	2.2331592	61.542272	28.457728	0.0296549

7:03:36	16:39:10	575.5622	728.61405	2.1535118	61.727788	28.272212	0.0298836
7:04:41	16:38:45	574.066874	728.28342	2.0708539	61.906739	28.093261	0.0301067
7:05:45	16:38:22	572.621616	727.94104	1.9852609	62.079047	27.920953	0.030324
7:06:48	16:38:02	571.227627	727.58725	1.8968123	62.244639	27.755361	0.0305352
7:07:50	16:37:43	569.886087	727.22237	1.8055921	62.403443	27.596557	0.0307398
7:08:51	16:37:27	568.598158	726.84675	1.7116885	62.55539	27.44461	0.0309376
7:09:51	16:37:13	567.364975	726.46077	1.6151937	62.700412	27.299588	0.0311283
7:10:50	16:37:02	566.187645	726.06482	1.516204	62.838447	27.161553	0.0313115
7:11:48	16:36:52	565.067244	725.65928	1.4148194	62.969431	27.030569	0.0314869
7:12:45	16:36:45	564.004815	725.24457	1.3111436	63.093308	26.906692	0.0316542
7:13:41	16:36:41	563.001361	724.82114	1.2052841	63.210021	26.789979	0.0318131
7:14:35	16:36:38	562.057846	724.38941	1.0973516	63.319516	26.680484	0.0319634
7:15:28	16:36:38	561.17519	723.94984	0.9874599	63.421745	26.578255	0.0321047
7:16:19	16:36:40	560.354266	723.50291	0.8757263	63.516659	26.483341	0.0322367
7:17:09	16:36:45	559.595898	723.04908	0.7622706	63.604214	26.395786	0.0323593
7:17:58	16:36:52	558.900857	722.58886	0.6472155	63.68437	26.31563	0.0324722
7:18:45	16:37:01	558.26986	722.12274	0.5306861	63.757089	26.242911	0.0325752
7:19:30	16:37:12	557.703564	721.65124	0.4128099	63.822335	26.177665	0.032668
7:20:13	16:37:26	557.202568	721.17487	0.2937164	63.880077	26.119923	0.0327505
7:20:55	16:37:41	556.76741	720.69415	0.1735371	63.930288	26.069712	0.0328225
7:21:35	16:37:59	556.398563	720.20962	0.052405	63.972941	26.027059	0.0328839
7:22:14	16:38:20	556.096433	719.72182	-0.069545	64.008015	25.991985	0.0329345
7:22:50	16:38:42	555.861361	719.23129	-0.192178	64.035492	25.964508	0.0329742
7:23:25	16:39:06	555.693618	718.73858	-0.315356	64.055357	25.944643	0.033003
7:23:58	16:39:33	555.593406	718.24423	-0.438941	64.067598	25.932402	0.0330207
7:24:28	16:40:02	555.560858	717.74881	-0.562797	64.072207	25.927793	0.0330274
7:24:57	16:40:33	555.596034	717.25286	-0.686784	64.069179	25.930821	0.033023
7:25:24	16:41:06	555.698925	716.75694	-0.810764	64.058512	25.941488	0.0330075
7:25:48	16:41:40	555.869451	716.26161	-0.934598	64.040209	25.959791	0.032981
7:26:11	16:42:17	556.10746	715.7674	-1.058149	64.014276	25.985724	0.0329435
7:26:31	16:42:56	556.41273	715.27488	-1.181279	63.98072	26.01928	0.0328951
7:26:49	16:43:36	556.784972	714.78459	-1.303852	63.939554	26.060446	0.0328358
7:27:05	16:44:19	557.223826	714.29707	-1.425732	63.890795	26.109205	0.0327658
7:27:19	16:45:03	557.728868	713.81286	-1.546785	63.83446	26.16554	0.0326853
7:27:31	16:45:49	558.299605	713.33249	-1.666879	63.770572	26.229428	0.0325943
7:27:41	16:46:37	558.935485	712.85647	-1.785882	63.699158	26.300842	0.0324931
7:27:48	16:47:26	559.63589	712.38534	-1.903666	63.620246	26.379754	0.0323819

Solar

Elevation

corrected for Solar

atm Azimuth
refraction Angle (deg
(deg) cw from N)

26.4328289	178.01299
26.520899	177.89059
26.6163806	177.76912
26.7192342	177.64867
26.8294177	177.52933
26.9468855	177.41118
27.0715893	177.29431
27.2034776	177.17881
27.3424961	177.06476
27.4885876	176.95225
27.6416921	176.84135
27.8017467	176.73214
27.9686861	176.62472
28.1424421	176.51915
28.3229442	176.41551
28.5101191	176.31388
28.7038912	176.21433
28.9041828	176.11694
29.1109134	176.02176
29.3240006	175.92888
29.5433599	175.83836
29.7689045	175.75025
30.0005456	175.66463
30.2381926	175.58156
30.4817529	175.50109
30.7311321	175.42328
30.9862341	175.34818
31.2469611	175.27585
31.5132137	175.20633
31.784891	175.13967
32.0618906	175.07592
32.3441086	175.01512
32.63144	174.9573
32.9237783	174.90251
33.2210161	174.85077
33.5230445	174.80212
33.8297539	174.7566
34.1410334	174.71422
34.4567713	174.675
34.7768551	174.63898
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