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Σ 3062

η Cassiopeae = Σ 60

τ Ophiuchi

λ Ophiuchi

~~ζ Aquarii~~

σ Coronae

ξ Urs Maj

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Heliocentric Coordinates of Uranus referred to the Ecliptic and equinox of 1800.0

	Xu	Yu	Zu		Xu	Yu	Zu
1750	+15.68698	−12.40022	+.25070	1768	+.29269	11.20574	16717
	.90364	.13248	23246		.08304	.45296	16338
	16.11527	−11.86090	25415	1769	15.86833	.75645	15953
	.32185	.58566	25579		.64858	12.02628	15563
1751	.52334	.30691	25736		.42387	.29228	15169
	.71969	.02474	25881		.19425	.55438	14770
	.91083	−10.73924	26015	1770	14.95978	.81248	14365
	17.09670	.45051	26144		.72050	13.86651	13957
1752	.25729	.15864	26256		.47648	.31639	13543
	.45255	−9.86371	26379		.22739	.56203	13125
	.62243	.56585	26487	1771	13.97449	.80334	12702
	.78690	.26514	26584		.73581	14.04022	12276
1753	.94592	8.96164	26674		.45423	.27255	11844
	18.09946	.65547	26753		.18744	.50627	11409
	.24749	.34675	26826	1772	12.91629	.72333	10971
	.38999	.03556	26891		.64083	.94161	10528
1754	.32691	7.72197	26948		.36113	15.15502	10082
	.65820	.40606	26998		.07729	.35349	09633
	.78386	.08794	27040	1773	12.78940	.55690	09181
	.90386	6.76770	27072		.49753	.75518	08725
1755	19.01815	.45542	27094		.20173	.95582	08266
	.12672	.12120	27109		10.90211	16.14601	07804
	.22953	5.79513	27116	1774	.59878	.32835	07340
	.32657	.46730	27116		.29182	.50522	06873
1756	.41780	.13779	27107		9.98134	.67653	06404
	.50317	4.80672	27089		.66742	.84220	05933
	.58268	.47419	27064	1775	.35016	17.00213	05460
	.65628	.14020	27031		.02969	.15625	04985
1757	.72397	3.80493	26985		8.70612	.30447	04508
	.78570	.46845	26937		.37956	.44675	04029
	.84147	.13087	26878	1776	.05011	.58830	03549
	.89122	2.79225	26811		7.71791	.71319	03067
1758	.93495	.45277	26735		.38305	18.83719	02585
	.97263	.11244	26651		.04557	.95498	02102
	20.00424	1.77138	26559	1777	6.70588	18.06651	01624
	.02974	.42971	26460		.36381	.17172	01141
1759	.04911	.08752	26351		.01958	.27056	00657
	.06236	0.74490	26234		5.67330	.36298	+.00173
	.06948	.40198	26110	1778	.32510	.44895	−.00311
	.07042	−.05885	25977		4.97512	.52842	.00794
1760	.06516	+.28435	25838		.62347	.60135	.01277
	.05371	.62759	25689		.27024	.66772	.01760
	.03607	.97069	25532	1779	3.91553	.72749	.02242
	.01221	1.31356	25366		.55959	.78064	.02723
1761	19.98214	.65606	25193		.20258	.82715	.03204
	.94587	.99809	25013		2.84442	.86698	.03683
	.90339	2.33954	24825	1780	.48532	.90010	.04162
	.85469	.68029	24629		.12542	.92652	.04637
1762	.79981	3.02022	24424		1.76484	.94620	.05111
	.73875	.35919	24214		.40370	.95914	.05585
	.67152	.69711	23995	1781	.04213	.96534	.06056
	.59813	4.03385	23769		0.68024	.96477	.06523
1763	.51861	.36929	23536		.31813	.95738	.06992
	.43301	.70333	23296		.04399	.94322	.07455
	.34138	5.03584	23048	1782	.40568	.92225	.07916
	.24368	.36669	22793		.76799	.89452	.08375
1764	19.13995	5.69580	+.22532		1.42980	.85997	.08832
	.03023	6.02306	22262		.49079	.81860	.09285
	18.91460	.34835	21985	1783	.85144	.77042	.09733
	.79308	.67158	21705		2.21142	.71542	.10179
1765	.66569	.99253	21416		.55760	.65362	.10622
	.53248	7.31140	21121		.92887	.58501	.11060
	.39350	.62782	20819	1784	3.28510	.50957	.11493
	.24879	.94175	20510		.64218	.42735	.11923
1766	.09841	8.25313	20196		.99699	.33834	.12349
	17.94240	.56184	19874		4.35036	.24251	.12768
	.78079	.86781	19547	1785	.70218	.13990	.13182
	.61364	9.17094	19214		5.05233	.03052	.13590
1767	.44099	.47113	18876		.40058	17.91438	.14006
	.26289	.76830	18529		.74710	.79151	.14408
	.07943	10.06238	18178	1786	6.09144	.66192	.14804
	16.89065	.33325	17821		.43333	.52562	.15193
1768	.69656	.64082	17459		.77332	.38262	.15576
	.49722	.92501	17090		7.11060	.23296	.15955

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	Xu	Yu	Zu		Xu	Yu	Zu
1787	.44524	.07670	16328	1805	.54710	.56165	20430
	.77711	16.91387	16594		.43831	.91977	20148
	8.10507	.74451	17053		.32259	6.27548	19857
	.43196	.56867	17407		.19997	.62865	19558
1788	.75463	.38635	17732	1806	17.07032	6.97913	19252
	9.07396	.19764	18091		16.93433	7.32577	18937
	.38979	.00263	18423		.79149	.67143	18617
	.70297	15.80136	18741		.64207	8.01296	18288
1789	10.01042	.59390	19064	1807	.48613	.35129	17953
	.31498	.38027	19374		.32379	.58634	17609
	.61549	.16057	19671		.15511	9.01791	17260
	.91178	14.93491	19971		15.98018	.34585	16905
1790	11.20374	.70337	20257	1808	.79909	.67010	16541
	.49132	.46603	20535		.61194	.99055	16172
	.77430	.22297	20805		.41880	10.30767	15798
	12.05259	13.97428	21055		.21977	.61955	15417
1791	.32608	.72005	21320	1809	.01495	.92790	15029
	.59457	.46039	21555		14.80444	11.23204	14637
	.85820	.19542	21802		.58830	.53186	14239
	13.11656	12.92526	22030		.36655	.82724	13835
1792	.36965	.64999	22249	1810	.13957	12.11810	13424
	.61737	.36992	22459		13.90715	.40439	13010
	85964	.08456	22659		.65948	.68504	12591
	14.09637	11.79464	22850		.42588	.96293	12167
1793	.32742	.50008	23033	1811	.17883	13.23491	11738
	.55272	.20099	23208		12.92601	.50192	11304
	.77214	10.89750	23373		.66832	.76392	10866
	.98570	.58971	23528		.40589	14.02083	10424
1794	15.19320	.27777	23674	1812	.13881	.27255	09978
	.39462	9.96179	23811		11.86715	.51899	09529
	.58990	.64189	23938		.59101	.76006	09076
	.78891	.31822	24055		.31050	.99568	08618
1795	.96160	8.99088	24162	1813	.02373	15.22579	08157
	16.13789	.66003	24261		10.73587	.45032	07693
	.30777	.32578	24349		.44396	.66919	07227
	.49114	7.98824	24428		.14711	.88232	06757
1796	.62792	7.64755	24497	1814	9.84564	16.08951	06283
	.77807	.30383	24557		.54208	.29102	05810
	.92153	6.95722	24607		.23415	.48646	05334
	17.05825	.60783	24647		8.92276	.67585	04854
1797	.18817	.25580	24677	1815	.60802	.85915	04375
	.31124	5.90125	24692		.29008	17.03532	03893
	.42744	.54433	24702		7.96905	.20729	03409
	.53668	.18514	24701		.64505	.37198	02924
1798	.63893	4.82384	24691	1816	.31823	.53033	02439
	.73413	.46054	24670		6.98859	.68234	01952
	.82223	.09538	24639		.65659	.82794	01464
	.90319	3.72850	24598		.32203	.96708	00976
1799	.97699	.35206	24547	1817	5.98515	18.09971	− 00490
	18.04360	2.99019	24486		.64612	.22582	+ 00001
	.10297	.61902	24415		.30504	.34536	00489
	.15505	.24870	24334		4.96205	.45821	00977
1800	.19983	1.87338	24242	1818	.61729	.56460	01464
	.23726	.49922	24141		.27090	.66431	01950
	.26734	.12438	24030		3.92303	.75736	02438
	.29005	0.74899	23910		.57379	.84373	02922
1801	.30535	+ .37322	23780	1819	.22394	.92341	03406
	.31322	− .00275	23641		2.87181	.99641	03889
	.31369	.37883	23491		.51934	19.06274	04371
	.30674	.75478	23332		.16605	.12238	04850
1802	.29235	1.13048	23163	1820	1.81210	.17535	+ 05328
	.27057	.50544	22985		.45760	.22163	05804
	.24137	.88050	22801		.10268	.26124	06277
	.20476	2.25449	22605		0.74749	.29424	06749
1803	.16080	.62759	22399	1821	.39215	.32065	07219
	.10948	.99964	22179		.03676	.34044	07686
	.05081	3.37049	21955		.31853	.35363	08150
	17.98485	.73978	21723		.67364	.36023	08610
1804	.91164	4.10795	21480	1822	1.02840	.36032	09061
	.83122	.47425	21230		.38275	.35388	09525
	.74361	.83873	20972		.73655	.34098	09978
	.64589	5.20125	20705		2.08970	.32166	10426

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	Xu	Yu	Zu
1823	.442209	.295911	873
	.793682	.253774	1315
	3.144119	.225223	17553
	.493647	.118040	12187
1824	.841941	.129235	12619
	4.189002	.071854	13045
	.534392	.008220	13456
	.878993	18.938335	13886
1825	5.221355	.862233	14399
	.562351	.780119	14769
	.901669	.691944	15113
	6.239001	.597661	15512
1826	.574434	.497226	15906
	.907760	.390911	16295
	7.238668	.278553	16680
	.567750	.160435	17059
1827	.899393	.036337	17432
	8.217887	17.906455	17800
	.539224	.770774	18161
	.857994	.629300	18517
1828	9.173877	.482199	18867
	4.869693	.329411	19211
	.799699	.171044	19549
	10.103955	.009713	19880
1829	.407881	16.833773	20204
	.708337	.562790	20521
	11.005555	.482269	20833
	.299226	.299717	21138
1830	.589941	.106411	21436
	.887589	15.910499	21728
	12.158862	.709465	22013
	.434554	.503340	22289
1831	.712500	.292388	22556
	.983433	.076500	22824
	13.250253	14.855583	23079
	.512877	.630465	23326
1832	.771120	.400443	23556
	14.023514	.165993	23800
	.274653	13.926999	24026
	.519553	.683688	24244
1833	.760099	.436122	24455
	.993383	.184440	24659
	15.226883	12.928615	24855
	.453065	.668855	25042
1834	15.674422	.405244	25222
	.890886	.137885	25393
	16.102377	11.866882	25553
	.308855	.592122	25714
1835	.510299	.313911	25873
	.706557	.032322	26004
	.897779	10.744744	26131
	17.083655	.435935	26251
1836	.264399	.158110	26378
	.439883	9.837380	26485
	.609944	.356555	26585
	.774527	.276442	26679
1837	.934053	8.917355	26764
	18.087997	.667997	26840
	.236453	.359855	26908
	.379941	.049223	26968
1838	.516553	7.736111	27020
	.648688	.420661	27062
	.774991	.102856	27097
	.895551	6.782999	27123
1839	19.010442	.461053	27144
	.119664	.137133	27153
	.223122	5.811131	27153
	.320880	.484669	27149
1840	.412553	.154332	27133
	.498677	4.823399	27110
	.577880	.490992	27078
	.653301	.355702	27039

	Xu	Yu	Zu
1841	.721299	3.821788	27991
	.798360	.485322	27934
	.839992	.147700	27866
	.890293	2.809033	27795
1842	.934423	.469422	27711
	.972556	.128971	27624
	20.004599	1.983775	27526
	.030485	.445933	27419
1843	.050222	.103356	27305
	.063800	0.750477	27182
	.071200	.411558	27051
	.072422	−.074400	25913
1844	.067433	+ .266996	25776
	.056619	.612288	25610
	.038774	.955547	25441
	.015099	1.293317	25271
1845	19.985239	.640888	25079
	.949165	.982899	24912
	.906585	2.324221	24718
	.858336	.654899	24516
1846	.803711	3.004635	24306
	.742900	.343422	24090
	.675994	.681110	23865
	.602886	4.017588	23634
1847	.523700	.352722	23396
	.438447	.685411	23150
	.347222	5.018350	22896
	.249906	.340197	22635
1848	19.143243	+ .567805	22369
	.037334	6.005054	22097
	18.922533	.329855	21823
	.801682	.652665	21530
1849	.674900	.973622	21236
	.542399	7.292199	20935
	.404144	.608433	20639
	.260199	.922226	20317
1850	.110100	8.233555	19999
	17.955539	.542225	19671
	.799461	.848324	19330
	.628229	9.151455	19000
1851	.455649	.451778	18655
	.279227	.749413	18306
	.096677	10.043422	17950
	16.908869	.334355	17589
1852	.715400	.522444	17222
	.516899	.190701	16850
	.313178	11.183116	16471
	.104299	.465799	16089
1853	15.890331	.739882	15700
	.671288	12.010165	15305
	.447222	.276722	14903
	.214822	.539141	14495
1854	14.984332	.798113	14095
	.743556	13.052840	13682
	.502201	.30	13265
	.233733	.549652	12843
1855	.000756	.791557	12417
	13.743175	14.029058	11987
	.481086	.262098	11551
	.214447	.490551	11111
1856	12.943412	.791421	10667
	.668512	.933120	10224
	.388552	15.147111	9777
	.104774	.356112	9325
1857	11.816889	.556005	8870
	.525046	.758884	8412
	.229266	.952333	7952
	10.929665	16.140449	7488
1858	.626635	.323220	7022
	.319443	.500411	6553
	.008899	.672201	6082
	9.695114	.833791	5610

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	x_{11}	y_{11}	z_{11}
1859	.377998	.998035	5135
	.057766	17.152336	4684
	8.734288	.300776	4184
	.407944	.443288	3705
1860	8.078869	17.579971	3225

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Saturn 5 on Neptune

Saturn on Neptune

10th Dec

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1750 +	4 17 14	+ 5 29 30	− 2 5 06
	3 8 17 18	5 4 17 54	2 4 18
	3 5 7 8 8	5 6 4 2 9	2 3 2 6
	3 2 7 3 6	5 7 9 5 7	2 2 2 9
1751	2 9 6 4 7	5 9 3 3 6	2 1 2 7
	2 6 5 4 9	6 0 5 7 4	2 0 2 3
	2 3 3 9 7	6 1 6 6 2	1 9 1 5
	2 0 2 1 8	6 2 6 0 7	1 8 0 2
1752	1 7 0 1 4	6 3 4 0 6	1 6 8 7
	1 3 7 0 3	6 4 0 6 1	1 5 6 7
	1 0 5 5 4	6 4 5 7 4	1 4 4 5
	7 3 0 8	6 4 9 4 3	1 3 2 1
1753	4 0 5 4	6 5 1 7 0	1 1 9 3
+	7 9 9	6 5 2 5 4	1 0 6 3
−	2 4 5 4	6 5 1 9 7	9 3 0
	5 7 0 0	6 4 9 9 8	7 9 7
1754	8 9 3 3	6 4 8 6 0	6 6 0
	1 2 1 5 8	6 4 1 7 3	5 2 2
	1 5 3 6 1	6 3 5 4 9	3 8 2
	1 8 5 4 0	6 2 7 8 2	2 4 1
1755	2 1 6 9 1	6 1 8 7 3	− 9 9
	2 4 8 1 0	6 0 8 2 2	+ 4 5
	2 7 8 9 2	5 9 6 2 7	1 8 9
	3 0 9 3 2	5 8 2 8 9	3 3 4
1756	3 3 9 2 4	5 6 8 0 9	4 7 9
	3 6 8 6 4	5 5 1 8 5	6 2 5
	3 9 7 4 3	5 3 4 1 8	7 4 1
	4 2 5 6 0	5 1 5 0 7	9 1 7
1757	4 5 3 0 4	4 9 4 5 2	1 0 6 2
	4 7 9 7 0	4 7 2 5 4	1 2 0 6
	5 0 5 5 1	4 4 9 1 3	1 3 4 9
	5 3 0 4 1	4 2 4 3 1	1 4 9 2
1758	5 5 4 3 2	3 9 8 0 9	1 6 3 4
	5 7 7 1 5	3 7 0 4 7	1 7 7 0
	5 9 8 8 1	3 4 1 4 7	1 9 0 6
	6 1 9 2 7	3 1 1 1 5	2 0 3 9
1759	6 3 8 3 8	2 7 9 4 6	2 1 7 0
	6 5 6 0 2	2 4 6 5 2	2 2 9 5
	6 7 2 2 0	2 1 2 3 1	2 3 1 9
	6 8 6 7 5	1 7 6 9 2	2 5 3 6
1760	6 9 9 6 1	1 4 0 3 7	2 6 4 9
	7 1 0 6 7	1 0 2 7 5	2 7 5 7
	7 1 9 8 4	6 4 1 1	2 8 5 8
	7 2 7 0 2	+ 2 4 5 4	2 9 5 3
1761	7 3 2 1 3	− 1 5 8 8	3 0 4 1
	7 3 5 0 3	5 7 0 4	3 1 2 2
	7 3 8 7 1	9 8 8 6	3 1 9 4
	7 3 4 0 4	1 4 1 1 9	3 2 5 8
1762	7 2 9 9 2	1 8 3 9 3	3 3 1 3
	7 2 3 3 0	2 2 6 9 4	3 3 5 7
	7 1 4 1 0	2 7 0 0 6	3 3 9 1
	7 0 2 2 7	3 1 3 1 6	3 4 1 5
1763	6 8 7 7 6	3 5 6 0 6	3 4 2 8
	6 7 0 3 1	3 9 8 5 8	3 4 2 9
	6 5 0 4 8	4 4 0 5 5	3 4 1 8
	6 2 7 6 9	4 8 1 7 6	3 3 9 4
1764	6 0 2 1 3	5 2 2 0 4	3 3 5 7
	5 7 3 8 0	5 6 1 1 6	3 3 0 7
	5 4 2 7 4	5 9 8 9 0	3 2 4 3
	5 0 9 0 1	6 3 5 0 8	3 1 6 9
1765	4 7 2 7 0	6 6 9 4 6	3 0 7 9
	4 3 3 8 3	7 0 1 8 7	2 9 7 6
	3 9 2 6 0	7 3 2 0 8	2 8 6 0
	3 4 9 1 2	7 5 9 9 0	2 7 3 0
1766	3 0 3 5 4	7 8 5 1 6	2 5 4 8
	2 5 6 0 4	8 0 4 6 7	2 4 3 4
	2 0 6 8 0	8 2 7 3 0	2 2 5 8
	1 5 6 0 2	8 4 3 9 0	2 0 9 2
1767	1 0 3 9 9	8 5 7 3 6	1 9 0 5
−	5 0 8 8	8 6 7 5 8	1 7 0 8
+	3 0 4	8 7 4 5 0	1 5 0 3
	5 5 5 2	8 7 3 0 6	1 2 9 1

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1768	1 1 2 2 9	8 7 8 2 4	1 0 7 1
	1 6 7 0 9	8 7 5 0 3	8 4 7
	2 2 1 6 5	8 6 8 5 2	6 1 8
	2 7 5 7 2	8 5 8 6 8	3 8 0
1769	3 2 9 0 2	− 8 4 5 6 5	1 5 1
	3 8 1 3 2	8 2 9 4 8	− 8 5
	4 3 2 3 5	8 1 0 3 3	3 2 0
	4 8 1 8 9	7 8 8 3 5	5 5 1
1770	5 2 9 7 3	7 6 3 5 6	7 8 4
	5 7 5 6 4	7 3 6 4 6	1 0 1 2
	6 1 9 4 0	7 0 6 9 5	1 2 3 5
	6 6 0 9 5	6 7 5 3 0	1 4 5 2
1771	7 0 0 0 0	6 4 1 7 5	1 6 6 2
	7 3 6 4 6	6 0 6 4 9	1 8 6 5
	7 7 0 1 9	5 9 9 7 3	2 0 5 9
	8 0 1 0 8	5 3 1 6 6	2 2 4 5
1772	8 2 9 0 4	4 9 2 5 0	2 4 2 1
	8 5 4 0 0	4 5 2 4 4	2 5 8 2
	8 7 5 9 1	4 1 1 6 6	2 4 4 1
	8 9 4 6 9	3 7 0 3 5	2 8 8 5
1773	9 1 0 4 2	3 2 5 6 6	3 0 1 8
	9 2 3 0 3	2 8 6 7 5	3 1 3 9
	9 3 2 5 6	2 4 4 7 7	3 2 4 8
	9 3 9 0 5	2 0 2 8 3	3 3 4 5
1774	9 4 2 5 9	1 6 1 0 7	3 4 3 1
	9 4 3 1 8	1 1 9 4 8	3 5 0 5
	9 4 0 9 6	7 8 1 6	3 5 6 8
	9 3 6 1 0	3 7 4 4	3 6 1 9
1775	9 2 8 7 8	+ 2 3 0	3 6 5 9
	9 1 8 9 1	4 1 5 6	3 6 8 9
	9 0 6 6 8	8 0 2 1	3 7 0 7
	8 9 2 3 0	1 1 8 0 5	3 7 1 8
1776	8 7 6 0 1	1 5 5 0 3	3 7 1 7
	8 5 7 7 4	1 9 1 0 5	3 7 0 8
	8 3 7 7 1	2 2 6 1 2	3 6 9 0
	8 1 6 0 6	2 6 0 0 5	3 6 6 2
1777	7 9 2 9 1	2 9 2 9 3	3 6 2 6
	7 6 8 3 9	3 2 4 6 2	3 5 8 5
	7 4 2 6 2	3 5 5 1 0	3 5 3 6
	7 1 5 6 6	3 8 4 3 0	3 4 7 9
1778	6 8 7 7 5	4 1 2 2 3	3 4 1 6
	6 5 8 8 6	4 3 8 8 9	3 3 4 2
	6 2 9 1 2	4 6 4 1 9	3 2 7 2
	5 9 3 6 1	4 8 8 1 1	3 1 9 2
1779	5 6 7 4 0	5 1 0 6 4	3 1 0 5
	5 3 5 5 9	5 3 1 7 9	3 0 1 4
	5 0 3 2 5	5 5 1 5 2	2 9 1 8
	4 7 0 4 3	5 6 9 8 4	2 8 1 8
1780	4 3 7 1 5	5 8 6 7 3	2 7 1 4
	4 0 3 5 3	6 0 2 2 2	2 6 0 5
	3 6 9 6 0	6 1 6 2 5	2 4 9 2
	3 3 5 4 1	6 2 5 8 8	2 3 7 7
1781	3 0 1 0 1	6 4 0 0 7	2 2 5 8
	2 6 6 4 3	6 4 9 7 9	2 1 3 4
	2 3 1 7 3	6 5 8 1 8	2 0 0 9
	1 9 6 9 4	6 6 5 1 3	1 8 8 1
1782	1 6 2 1 0	6 7 0 5 5	1 7 5 0
	1 2 7 2 4	6 7 4 7 8	1 6 1 7
	9 2 4 0	6 7 7 4 9	1 4 8 1
	5 7 6 5	6 7 8 7 8	1 3 4 3
1783 +	2 2 9 2	6 7 8 5 4	1 2 0 2
−	1 1 6 7	6 7 7 1 6	1 0 6 2
	4 6 0 9	6 7 4 2 3	9 1 7
	8 0 3 1	6 6 9 3 8	7 7 3
1784	1 1 4 3 2	6 6 4 1 0	6 2 6
	1 4 8 0 4	6 5 5 9 0	4 7 7
	1 8 1 4 5	6 4 8 2 7	3 2 9
	2 1 4 5 0	6 3 8 1 9	1 7 9
1785	2 4 7 1 6	6 2 6 6 8	− 2 4
	2 7 9 3 5	6 1 3 7 1	+ 1 2 4
	3 1 1 0 4	5 9 9 2 9	2 7 5
	3 4 2 1 8	5 8 3 4 1	4 2 7

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	d^2x	d^2y	d^2z
1786	37270	56608	579
	40255	54329	731
	43167	52704	881
	45998	50532	1032
1787	48743	48217	1180
	51394	45755	1328
	53943	43155	1474
	56382	40410	1618
1788	58705	+37525	+1759
	60902	34504	1897
	62964	31349	2032
	64883	28062	2163
1789	66649	24648	2291
	68252	21112	2413
	69684	17460	2531
	70933	13697	2643
1790	71993	9832	2749
	72853	5872	2848
	73498	+1826	2941
	73925	2295	3025
1791	74123	6482	3102
	74086	10721	3169
	73803	14998	3226
	73265	19301	3274
1792	72468	23612	3312
	71407	27913	3340
	70074	32200	3354
	68470	36436	3358
1793	66589	40612	3349
	64432	44706	3328
	62001	48699	3294
	59293	52569	3246
1794	56327	56294	3186
	53095	59855	3112
	49611	63229	3024
	45884	66395	2925
1795	41929	69332	2811
	37761	72028	2685
	33393	74456	2546
	28847	76602	2395
1796	24141	78451	2233
	19297	79988	2060
	14339	81200	1878
	9291	82087	1686
1797	−4178	82630	1486
	+9774	82829	1279
	15139	82679	1065
	20289	82183	846
1798	25399	81340	623
	30441	80158	394
	35394	78643	+170
	40230	76807	−58
1799	44928	74656	285
	49466	72208	512
	53823	69477	736
	57977	66478	956
1800	61928	63234	1170
	65644	59760	1382
	69121	56079	1587
	72343	52207	1784
1801	75316	48166	1974
	78021	43980	2155
	80459	39667	2328
	82625	35248	2493
1802	84523	30742	2648
	86152	26170	2793
	87516	21548	2928
	88619	16895	3054
1803	89465	12226	3170
	90060	7558	3276
	90410	−2906	3371
	90526	+1717	3458

	d^2x	d^2y	d^2z
1804	90413	6297	3535
	90082	10823	3602
	89541	15279	3660
	88800	19660	3709
1805	87868	23951	3749
	86757	28145	3781
	85476	32233	3804
	84035	36207	3819
1806	82445	40059	3826
	80715	43781	3827
	78856	47368	3819
	76872	50811	3804
1807	+74777	+54107	−3783
	72576	57248	3754
	70276	60231	3719
	67887	63050	3677
1808	65411	65700	3628
	62855	68176	3573
	60227	70478	3512
	57528	72602	3444
1809	54760	74542	3369
	51929	76301	3289
	49037	77875	3202
	46088	79265	3108
1810	43088	80477	3011
	40027	81498	2902
	36914	82342	2790
	33754	83008	2673
1811	30556	83501	2549
	27326	83820	2419
	24072	83972	2284
	20796	83959	2145
1812	17507	83784	2002
	14207	83453	1853
	+10901	82969	1701
	−7594	82333	1546
1813	4291	81552	1388
	985	80625	1226
	−2321	79555	1062
	5623	78347	897
1814	8911	76998	730
	12183	75514	561
	15438	73893	391
	18672	72136	222
1815	21885	70244	−51
	25077	68225	+119
	28247	66080	289
	31394	63808	458
1816	34516	61412	626
	37613	58893	793
	40683	56252	958
	43725	53492	1121
1817	46738	50618	1282
	49720	47623	1440
	52670	44510	1594
	55587	41286	1746
1818	58469	37943	1893
	61314	34487	2036
	64121	30918	2175
	66888	27241	2307
1819	69611	23458	2433
	72288	19575	2553
	74917	15595	2670
	77494	11521	2777
1820	80017	7362	2877
	82483	3123	2969
	+84889	−1190	3051
	87233	5503	3125
1821	89510	9752	3189
	91716	13921	3242
	93849	18006	3285
	95903	22003	3317

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	$d_t^2 x$	$d_t^2 y$	$d_t^2 z$
1822	7210 6	29500	3337
	70526	33857	3346
	68673	38144	3341
	66548	42350	3325
1823	64152	46449	3295
	61487	50422	3252
	58538	54248	3196
	55373	57902	3128
1824	51937	61378	3045
	48263	64641	2949
	44364	67676	2850
	40254	70464	2719
1825	35948	72987	2586
	31467	75230	2439
	26831	77135	2283
	22059	78812	2116
1826	− 17148	− 80129	+ 1939
	12210	81116	1753
	7181	81767	1559
	− 2117	82077	1359
1827	+ 2956	82043	1151
	8013	81667	940
	13025	80952	725
	17967	79902	507
1828	22815	78525	287
	27546	76831	+ 67
	32134	74832	− 151
	36559	72539	368
1829	40804	69975	583
	44847	67150	794
	48673	64085	1000
	52268	60798	1199
1830	55620	57309	1393
	58717	53640	1578
	61553	49810	1756
	64121	45842	1925
1831	66417	41756	2086
	68437	37573	2237
	70180	33311	2378
	71650	28993	2508
1832	72846	24635	2628
	73772	20255	2739
	74434	15870	2838
	74835	11498	2926
1833	74991	7152	3004
	74886	− 2847	3071
	74552	+ 1405	3127
	73988	5591	3174
1834	73205	9702	3210
	72210	13725	3237
	71015	17655	3254
	69621	21482	3261
1835	68060	25201	3259
	66319	28802	3249
	64413	32286	3230
	62354	35643	3204
1836	60144	38871	3169
	57809	41965	3126
	55338	44930	3077
	52749	47755	3020
1837	50048	50442	2957
	47244	52989	2887
	44344	55396	2811
	41352	57665	2730
1838	38279	59789	2643
	35128	61775	2551
	31907	63619	2454
	28622	65323	2352
1839	25279	66889	2245
	21885	68315	2136
	18439	69605	2022
	14954	70757	1904

	$d_t^2 x$	$d_t^2 y$	$d_t^2 z$
1840	11432	71772	1782
	7857	72654	1659
	4292	73403	1531
	+ 688	74018	1401
1841	− 2933	74503	1267
	6566	74857	1132
	10207	75081	994
	13850	75174	855
1842	17485	75137	713
	21116	74972	570
	24731	74679	426
	28322	74259	280
1843	31886	73723	− 134
	35415	73042	+ 14
	38902	72232	163
	42336	71285	311
1844	45714	70203	456
	49023	68992	600
	52256	67651	743
	55405	66181	883
1845	− 58461	+ 64455	+ 1054
	61415	62654	1200
	64259	60688	1346
	66984	58557	1491
1846	69583	56293	1634
	72052	53857	1775
	74378	51254	1911
	76555	48486	2052
1847	78585	45553	2187
	80453	42453	2319
	82155	39193	2447
	83687	35773	2572
1848	85042	32194	2693
	86215	28454	2809
	87203	24560	2921
	87995	20603	3024
1849	88589	15488	3121
	88977	12241	3211
	89152	7900	3308
	89107	+ 3470	3388
1850	88838	− 1036	3459
	88337	5600	3520
	87599	10208	3577
	86614	14844	3618
1851	85380	19487	3651
	83594	24122	3677
	82148	28727	3683
	80143	33282	3683
1852	77577	37779	3668
	74453	42165	3643
	70772	46445	3605
	66536	50599	3553
1853	61743	54590	3487
	56396	58406	3410
	50495	62025	3319
	44040	65423	3215
1854	37031	68558	3098
	29469	71494	2965
	21354	74121	2828
	12690	76465	2674
1855	3479	78502	2510
	− 5736	80220	2334
	14952	81608	2153
	24618	82657	1961
1856	34708	83365	1761
	45142	83727	1555
	− 55880	83744	1343
	+ 66853	83410	1127
1857	78031	82734	907
	89371	81714	685
	100827	80350	462
	112362	78722	235

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	$d^2_t x$	$d^2_t y$	$d^2_t z$
1858	29198	76759	+ 016
	33739	74506	− 204
	38089	71978	420
	42233	69194	633
1859	46153	66172	839
	49835	62932	1040
	53270	59495	1235
	56449	55882	1422
1860	+59363	−52116	−1600

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10th Dec Place

	$a^2_t x$
1750	−82899
	80115
	75113
	68021
1751	59080
	48523
	36747
	24098
1752	10949
	+ 2334
	15415
	27996
1753	39828
	50716
	60516
	69133
1754	76526
	82689
	87638
	91413
1755	94059
	95625
	96159
	95695
1756	94269
	91901
	88613
	84420
1757	79333
	73367
	66539
	58871
1758	50399
	41167
	31245
	20725
1759	9723
	− 1607
	13081
	24477
1760	35539
	45981
	55501
	63784
1761	70528
	75455
	78335
	79006
1762	77383
	73466
	67356
	59225
1763	49328
	37970
	25493
	12248
1764	+ 1411
	15153
	28672
	41700
1765	54005
	65392
	75708
	84826
1766	92662
	99161
	104294
	108071
1767	110509
	111656
	111567
	110306
1768	107932
	104503
	100069
	94679

Jupiter

	$a^2_t y$	$a^2_t z$
	− 25301	+ 2218
	39673	2222
	53637	2175
	66827	2079
	78899	1936
	89565	1753
	98611	1535
	105891	1292
	111334	1029
	114914	754
	116696	475
	116726	197
	115115	74
	111981	331
	107452	575
	101652	799
	94757	1004
	86880	1187
	78180	1343
	68816	1453
	58928	1596
	48665	1685
	38166	1749
	27561	1790
	16969	1807
	6503	1800
	+ 3734	1771
	13640	1713
	23116	1640
	32063	1540
	40378	1416
	47954	1270
	54672	1102
	60415	911
	65054	701
	68460	471
	70497	225
	71042	+ 34
	69982	303
	67227	577
	62718	849
	56444	1115
	48446	1367
	38830	1598
	27769	1799
	15508	1963
	+ 2355	2085
	− 16331	2161
	25154	2185
	38707	2158
	51593	2080
	63448	1955
	73966	1785
	82904	1579
	90104	1342
	95479	1082
	99018	807
	100770	525
	100837	242
	99353	− 36
	96476	304
	92369	558
	87193	794
	81100	1010
	74222	1204
	66680	1374
	58574	1521
	50001	1644
	41038	1741
	31765	1816
	22271	1864
	12638	1889
	2958	1889
	+ 6674	1867
	16154	1820
	25376	1750

9 Jupiter on Neptune

	$a^2_t x$
1769	88367
	81167
	73113
	64249
1770	54621
	44292
	33345
	21892
	10068
1771	− 1958
	13974
	~~25741~~
1772	36987
	47414
	56718
	64592
1773	70750
	74945
	76990
	76858
	74251
1774	69496
	62645
	53920
	43598
	32001
1775	19452
	6348
1776	+ 7063
	20436
	33523
	46101
1777	57987
	69035
	79127
	88171
1778	96095
	102839
	108357
	112611
1779	115576
	117231
	117569
	116604
1780	114337
	110863
	106171
	100331
1781	93406
	85457
	76555
	66781
1782	56211
	44946
	33103
	20828
1783	8278
	4348
	1681
	28851
1784	40189
	50523
	59542
	66963
1785	72523
	76011
	77285
	76279
1786	+ 73013
	67596
	60215
	51123
1787	40627
	29060
	16755
	4054

Neptune

	$a^2_t y$	$a^2_t z$
	34226	1656
	42592	1539
	50353	1400
	57376	1238
	63532	1053
	68580	848
	72684	623
	75399	381
	76690	124
	76437	+ 143
	74530	411
	70905	694
	65522	965
	58406	1225
	49537	1466
	39364	1682
	27800	1864
	15237	2005
	2015	2101
	11482	2148
	24849	2143
	37676	2088
	49586	1981
	60242	1830
	69372	1639
	76777	1414
	82331	1163
	85992	894
	87783	614
	87784	329
	86120	46
	82952	− 228
	78459	491
	72817	738
	66247	967
	58901	1174
	50956	1360
	42567	1523
	33866	1660
	24969	1773
	15962	1863
	6924	1926
	+ 2080	1965
	11004	1978
	19801	1966
	28416	1930
	36785	1869
	44855	1783
	52538	1673
	59722	1544
	66304	1383
	72157	1203
	77137	1003
	81106	781
	83916	542
	85423	287
	85493	20
	83999	+ 255
	80869	535
	76033	811
	69489	1079
	61289	1331
	51549	1560
	40454	1758
	28256	1919
	15259	2037
	1860	2108
	+ 15778	2127
	24539	2096
	36927	2012
	48084	1884
	57822	1711
	65885	1503
	72125	1264
	76453	1005
	78857	730

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	$d^2_t x$	$d^2_t y$	$d^2_t z$		$d^2_t x$	$d^2_t y$	$d^2_t z$
1788	+ .87445	.79389	.449	1807	− .93662	1.08695	+ 2.15
	21367	78131	166		21683	1.03988	498
	33581	75237	− 111		33728	97633	779
	45197	70862	379		45179	89642	1.050
1789	56087	65182	633	1808	55715	80076	1.306
	66080	58382	870		65012	69054	1.538
	75158	50644	1.088		72754	56766	1.739
	83247	42141	1.285		78671	43461	1.903
1790	90313	33045	1.459	1809	82540	29455	2.023
	96334	23516	1.610		84211	15107	2.093
	1.01297	13700	1.738		83614	813	2.115
	1.05187	3737	1.842		80772	1.30225	2.082
1791	+ 1.07989	62455	1.920	1810	75795	2.60117	2.000
	1.09688	61733	1.976		68881	3.78077	1.872
	1.10257	25820	2.006		60290	4.81101	1.699
	1.09672	35210	2.011		50328	5.66664	1.491
1792	1.07907	44226	1.992	1811	39346	6.33446	1.253
	1.04940	52793	1.947		27686	6.80067	995
	1.00751	60847	1.875		15695	7.08119	721
	95369	68336	1.780		3679	7.16553	442
1793	88785	75177	1.659	1812	+ .80779	7.06778	163
	81049	81323	1.503		19344	6.80227	− 111
	72221	86689	1.344		29923	6.38663	373
	62385	91190	1.150		39664	5.83661	620
1794	51645	94718	0.936	1813	47453	5.16999	850
	40131	97158	702		56232	4.40447	1.061
	27995	98391	451		62934	3.55771	1.249
	15407	98290	186		68543	2.64223	1.415
1795	2580	97642	+ 88	1814	73053	1.67435	1.556
	− 10246	93647	0.371		76473	66658	1.675
	22813	88932	652		78820	+ 37225	1.770
	34841	82568	928		80114	1.42977	1.841
1796	46022	74573	1.192	1815	80388	2.44661	1.888
	56045	65029	1.434		79667	3.56624	1.913
	64609	54083	1.684		77982	4.61935	1.913
	71431	42951	1.830		75356	5.65577	1.892
1797	76277	28916	1.971	1816	71833	6.66770	1.847
	78967	15321	2.066		67424	7.63688	1.779
	79401	1539	2.111		62159	8.55549	1.687
	77556	− 12026	2.104		56065	9.40935	1.574
1798	73506	24974	2.047	1817	49165	1.01798	1.436
	67405	36973	1.940		41483	1.08579	1.275
	59480	47660	1.789		33049	1.14253	1.093
	50616	56689	1.598		23903	1.18648	886
1799	39339	63904	1.374	1818	14095	1.21616	662
	27790	69278	1.125		3706	1.23021	419
	15712	72707	868		− 7160	1.22745	160
	3426	74209	580		18352	1.20687	+ 110
1800	+ 8775	73858	299	1819	29682	1.16802	388
	20637	71772	20		40917	1.11067	668
	31949	68096	250		51781	1.03505	944
	42541	63000	508		61973	94192	1.207
1801	52290	56648	751	1820	71166	83257	1.450
	61100	49225	975		79079	70890	1.666
	68913	40895	1.178		85344	57345	1.848
	75694	31822	1.360		89674	42937	1.988
1802	81413	22156	1.519	1821	91982	28021	2.082
	86116	12040	1.655		92100	13000	2.126
	89780	1605	1.767		90004	1.77228	2.117
	92419	+ 9024	1.856		85758	1.62451	2.058
1803	94061	19725	1.921	1822	79815	2.86682	1.950
	94721	30383	1.982		71507	40214	1.799
	94413	40882	1.977		62023	50079	1.604
	93145	51008	1.935		51398	58095	1.379
1804	90915	60940	1.944	1823	39973	64156	1.130
	87715	70265	1.890		28095	68230	864
	83532	78963	1.811		16089	70348	588
	78354	86921	1.708		4247	70008	310
1805	72160	94029	1.580	1824	+ 71755	69115	36
	64952	1.00181	1.428		59969	66053	− 230
	56736	1.05281	1.251		27967	61589	482
	47548	1.09230	1.053		37044	55888	717
1806	37455	1.11941	831	1825	45108	49145	933
	26557	1.13327	592		52100	41518	1.129
	14996	1.13300	334		57988	33167	1.303
	2949	1.11781	64		62751	24237	1.453

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	$d^2_t x$	$d^2_t y$	$d^2_t z$
1826	66390	14852	1579
	68914	5133	1681
	70336 +	4817	1759
	70675	14909	1814
1827	69952	23055	1846
	68188	35177	1853
	65406	45196	1838
	61627	55036	1800
1828	56876	64614	17338
	51182	73843	16553
	44379	82624	15477
	37107	90848	14117
1829	28321	98388	12654
	19788	105105	10899
	10091	110830	8994
	01881	115391	6788
1830	10899	118610	4433
	21928	120335	1903
	33108	120341 +	669
	44261	118499	3400
1831	53182	114700	6177
	60643	108889	8900
	65398	101081	11553
	68176	91369	14033
1832	67110	79918	16225
	59730	66978	18188
	101993	52866	19744
	104415	37960	20835
1833	104350	22671	21499
	102641	7440	21661
	98624 −	7304	21222
	92615	21154	20333
1834	84806	33744	18988
	75435	44785	17211
	64882	54056	15099
	53409	61407	12700
1835	41377	66778	10111
	29116	70174	7399
	16926	71657	4662
	5076	71355	1886
1836 +	6213	69393 −	883
	16757	65554	3400
	26414	61216	5822
	35082	55355	8070
1837	42688	48547	10110
	49190	40958	11922
	54559	32737	13352
	58793	24025	14486
1838	61890	14942	15398
	63861	5600	16086
	64320 +	3899	17550
	64484	13470	17889
1839	63166	23024	18055
	60780	32488	17988
	57341	41780	17667
	52864	50829	17112
1840	47359	59552	16355
	40847	67863	15334
	33355	75674	14102
	24913	82885	12622
1841	15552	89384	10933
	5514	95051	9022
	5511 −	99761	6900
	17026	103372	4599
1842	29021	105772	2122
	41273	106712 +	488
	53566	106154	3188
	65638	103931	5922
1843	76205	99940	8666
	85796	94110	11333
	97619	86436	13866
	105872	76992	16188
1844	112460	65859	18211
	117159	53326	19900
	119794	39676	21156
	120259	25290	21897

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1845	118508	10588	2227
	114358 −	3986	2206
	108398	17991	2135
	100741	31023	2017
1846	91262	42737	1855
	80470	52842	1656
	68663	61178	1427
	56190	68593	1174
1847	43398	72062	905
	30586	74616	629
	18033	75341	350
	5983	74358	77
1848 +	5376	71830 −	188
	15883	67923	438
	25423	62820	671
	33910	56696	835
1849	41291	49721	1078
	47536	42052	1247
	52630	33838	1393
	56575	25209	1516
1850	59376	16284	1615
	61047	7172	1689
	61603 +	2028	1740
	61060	11228	1766
1851	59432	20342	1769
	56733	29286	1744
	52976	37980	1702
	48172	46339	1634
1852	42331	54282	1542
	35470	61711	1426
	28214	68527	1287
	18789	74629	1125
1853	9045	79903	940
	1560	84228	733
	12937	87493	508
	24971	89565	265
1854	35510	90328	007
	43688	89676 +	262
	50331	87520	538
	56064	83780	817
1855	60313	78433	1091
	63145	71483	1357
	64907	62984	1603
	64553	53040	1822
1856	63252	41822	2009
	60982	29550	2156
	57320	16517	2257
	52906	3026	2309
1857	47289	10524	2309
	41237	23759	2258
	34652	36295	2156
	27300	47784	2012
1858	19489	57921	1822
	10447	66488	1601
	1547	73264	1353
	8154	78219	1084
1859	16054	81324	808
	23208	82621	525
	30234	82211	245
	36999	80224 −	27
1860	43620	76817	287

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10th Dec place — Jupiter & Uranus

		d 2/t x		d 2/t y	d 2/t z		d 2/t x	d 2/t y	d 2/t z
1750	−	1504888	+	.580667	2018	1769	32831	277704	1599
		1449999		402220	2039		27392	340178	1484
		1377227		227209	2009		20944	396117	1347
		1288119	+	060777	1928		13643	443778	1189
1751		1184471	−	92177	1799	1770	5358	481667	1008
		1069923		228222	1630	−	3730	508440	806
		944554		344880	1424		13565	522447	584
		813664		440336	1190		24038	522333	346
1752		679633		351437	936	1771	35011	505433	93
		545543		566990	668		46918	473334	+ 170
		413888		598996	395		57755	421669	441
		287213		611887	123		69091	350447	712
1753		167448		607115	− 144	1772	80073	259220	977
	−	56448		586775	398		90426	147558	1231
	+	44635		552555	638		99864	16119	1466
		134996		506662	859		108116	− 133668	1674
1754		213887		450884	1061	1773	114953	299999	1849
		281044		386988	1240		120183	479699	1982
		336288		316688	1397		123677	668996	2070
		379577		241455	1530		123383	863901	2110
1755		411101		162663	1640	1774	125323	1056300	2099
		430770	−	81488	1726		123582	1242611	2640
		438482	+	0993	1787		120275	1415300	1932
		435553		83577	1826		115525	1567773	1783
1756		420999		165488	1841	1775	109439	1694112	1598
		395391		245788	1833		102072	1789669	1384
		358557		323577	1802		93460	1851600	1148
		310835		397796	1747		83662	1879499	898
1757		252220		468035	1670	1776	72773	1875306	639
		182664		532855	1571		60984	1842733	376
		102255		591333	1448		48553	1786177	116
	+	11110		642400	1304		35804	1710577	− 138
1758	−	90666		684855	1139	1777	23078	1620433	382
		202799		717442	952		10700	1519599	611
		324788		738892	747	+	10062	1411333	824
		456605		747998	524		11977	1297998	1018
1759		595771		743400	286	1778	21886	1181143	1192
		742552		724111	36		30579	1063222	1345
		894883		689931	+ 221		38300	944550	1475
		1055656		638559	481		44707	826111	1582
1760		1207055		572088	739	1779	49901	708844	1667
		1361101		490558	987		53880	593333	1727
		1508552		395562	1221		56668	480177	1765
		1644491		289950	1433		58287	369995	1779
1761		1764493		175115	1615	1780	58760	263220	1770
		1862995		55583	1763		58112	160550	1738
		1933340	−	65513	1875		56374	62552	1681
		1971449		184885	1944		53578	+ 30039	1602
1762		1993997		300995	1968	1781	49722	116337	1499
		1939552		411161	1947		44834	195660	1373
		1869961		515554	1882		39038	266668	1224
		1767887		611330	1775		32366	328554	1052
1763		1639559		697330	1627	1782	24829	379906	859
		1491104		772088	1443		16522	419655	645
		1328662		833997	1231		7590	446235	413
		1158332		881654	994	−	1833	458445	1655
1764		985444		914177	741	1783	11570	454999	+ 97
		814411		931177	480		21423	434669	3866
		648770		932877	2135		31138	396658	6400
		491111		919990	− 46		40437	340440	9122
1765		343655		893355	300	1784	49017	265771	11776
		207744		854556	5422		56559	173071	14240
		84432		803500	7677		62733	63447	16500
	+	26006		746188	9773		67226	− 61338	18466
1766		1231767		679773	11359	1785	69749	199166	20055
		2069699		606999	13233		70060	346697	21222
		2776588		529411	14655		68013	501466	21933
		3355500		448222	15833		63494	650905	22144
1767		3807733		364660	16788	1786	56523	815988	21855
		4137755		279959	17351		47185	966883	21066
		4349491		194188	17998		35674	1114351	19844
		4444444		109226	18233		22252	1250445	18200
1768		4427755		23572	18243	1787	7282	1374471	16233
		4300055	+	55556	18033	+	8808	1486605	14000
		4066588		133733	17588		25567	1583735	11660
		3726161		207888	16900		42506	1667235	9077

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	$d^2_t x$	$d^2_t y$	$d^2_t z$
1788	590938	173609	651
	748118	178976	399
	891772	182710	154
	1017447	184644 −	81
1789	1122448	184578	299
	1205331	182309	508
	1266331	177739	699
	1307332	174076	875
1790	1331103	170616	1035
	1340056	150499	1178
	1338855	137780	1305
	1328119	123870	1411
1791	1310222	109174	1496
	1285884	94063	1560
	1255422	78850	1601
	1218988	63797	1619
1792	1176332	49107	1613
	1127110	34941	1582
	1071100	21426	1526
	1007776	8677	1446
1793	937116 +	32077	1341
	859188	141373	1213
	773990	24000	1060
	681557	32714	884
1794	582735	40163	685
	478112	46243	467
	368881	50842	232
	256135	53850 +	19
1795	141993	55172	281
	28244	54730	550
−	8253	52478	820
	1873553	48403	1085
1796	2838877	42548	1340
	3684400	35018	1574
	4380335	25976	1782
	4899988	15658	1958
1797	5216969	4367	2094
	5313434 −	7542	2185
	5177744	19674	2227
	4805151	31614	2219
1798	4202454	42944	2161
	3382626	53280	2056
	2356161	62276	1906
	1179977	69656	1720
1799 +	1477111	75211	1501
	1582626	78811	1258
	3095774	80404	1000
	4657744	80006	733
1800	6241338	77695	465
	7826565	73596	202
	9393737	67879	50
	10929393	60741	287
1801	12420858	52412	505
	13859090	43138	701
	15234252	33183	874
	16535252	22832	1022
1802	17746353	12373	1145
	18847272	2088	1245
	19813447 +	7755	1322
	20611252	16951	1377
1803	21203555	25361	1415
	21563151	32951	1436
	21657070	39788	1440
	21469898	46015	1432
1804	21003939	51836	1409
	20274848	57441	1369
	19308959	62968	1311
	18142727	68478	1234
1805	16816060	73948	1135
	15364141	79272	1014
	13811889	84291	869
	12207474	88806	701
1806	10555188	92606	508
	8871484	95477	296
	7184141	97214	65
	5507373	97637 +	180

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1807	385999	965844	436
	226331	939337	699
	73398	896223	961
−	16840	836119	1217
1808	198112	759688	1458
	312435	667822	1677
	408858	552466	1865
	484477	446099	2021
	537955	321999	2132
	567886	193844	2196
	573776	65567	2212
	556007 −	58335	2174
1810	516077	177421	2088
	458586	278225	1956
	378119	367742	1782
	286223	439188	1572
1811	183555	491995	1334
	73771	532482	1076
	+ 39885	553756	803
	153889	553057	525
1812	265562	504778	249
	377262	461355 −	22
	477289	401811	280
	566493	327800	524
1813	647767	240922	748
	720334	142558	959
	782455	34226	1134
	833990 +	82677	1293
1814	874771	207076	1426
	905110	337883	1536
	925543	477400	1621
	936622	614662	1682
1815	938810	758772	1719
	931172	905221	1733
	917996	1052778	1723
	897555	1199778	1692
1816	871137	1344078	1637
	840009	1482296	1553
	800409	1613226	1457
	756335	1731144	1352
1817	717229	1832355	1218
	669470	1413599	1065
	603886	1970922	893
	532990	2000233	703
1818	450221	2006935	494
	354993	1985526	269
	247337	1938990	28
	129105	1870106 +	225
1819	2952	1781266	487
−	127400	1674775	453
	255765	1535254	1017
	383229	1411651	1268
1820	499779	1268511	1503
	603022	1110352	1711
	688928	945077	1887
	755566	774499	2023
	799889	602411	2113
	820773	432088	2154
	817999	267665	2143
	792377	112477	2083
1822	744555	30200	1973
	677996	155776	1811
	598655	267888	1626
	509510	354440	1400
1823	402888	423422	1151
	295600	471288	885
	186555	498735	609
	78886	506866	331
1824 +	24885	497002	57
	122442	470991 −	208
	212033	430277	460
	292288	376974	694
	362277	312773	910
	421288	239455	1104
	468844	158555	1277
	504669	71352	1426

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	$a^2_t x$		$a^2_t y$	$a^2_t z$
1826	52955	+	.2036	1552
	54084		11588	1654
	54109		21409	17392
	52950		31417	17886
1827	50614		41524	18188
	47102		51668	18268
	42417		61780	18111
	36561		71805	17774
1828	29540		81684	17114
	21368		91358	16322
	12064		100766	15229
	01667		109844	14033
1829	− 97661		118513	12557
	22112		126683	10911
	35246		134247	9006
	48957		141063	7033
1830	62984		146951	4844
	76995		151690	2552
	90609		154986	9
	103434		156522	+ 2243
1831	115083		155935	5006
	125228		152893	7556
	133641		147147	10006
	140187		138582	12477
1832	144816		127278	14688
	147523		113505	16633
	148346		97736	18244
	147254		80471	19455
1833	144306		62401	20188
	139522		44139	20422
	132962		26278	20155
	124744		9319	19366
1834	115038		6249	18111
	104075		20070	16444
	92124		31944	14411
	79486		41721	12099
1835	66467		49331	9556
	53367		54794	6900
	40467		58188	4188
	28014		59649	1466
1836	16215		59345	− 120
	5241		57456	3774
	+ 47779		54167	6144
	137446		49687	8336
1837	21599		44205	10399
	28371		37900	12199
	33820		30927	13788
	38160		23443	15122
1838	41323		15581	16244
	43323		7462	17112
	44165	+	804	17776
	43868		9113	18188
1839	42439		17377	18355
	39890		25500	18299
	36226		33398	18006
	31451		40977	17499
1840	25563		48154	16775
	18560		54827	15778
	10459		60889	14558
	1248		66235	13166
1841	− 9050		70745	11553
	20414		74298	9669
	32799		76767	7636
	46141		78028	5435
1842	60349		77961	3099
	75294		76467	662
	90808		73476	+ 1944
	106664		68951	4511
1843	122583		62914	7088
	138211		55446	9544
	153131		46693	11877
	166836		36865	14011
1844	178778		26227	15833
	188361		15020	17334
	195040		3543	18488
	198365	−	8003	19211

	$a^2_t x$		$a^2_t y$	$a^2_t z$
1845	198057		194235	19512
	194079		30573	19377
	188632		41292	18778
	176127		51403	17477
1846	163118		60702	16035
	148217		68960	14557
	132040		75964	12848
	115152		81536	10915
1847	98036		85557	7635
	81116		87974	5044
	64722		88795	2400
	49117		88085	− 222
1848	34494		85950	2776
	20999		82524	5178
	8724		77959	7444
	+ 2274		72418	9552
1849	11960		66054	11411
	20334		59020	13077
	27406		51459	14500
	33198		43501	15571
1850	37734		35266	16267
	41046		26866	17422
	43169		18400	17992
	44131		9966	18119
1851	43981		1654	18223
	42683	+	8449	18022
	40323		14252	17559
	36802		21662	16933
1852	32439		28581	16033
	26960		34905	14911
	20495		40512	13566
	12977		45291	11999
1853	4752		49127	10200
	− 4416		51850	8200
	14346		53309	6001
	24935		53366	3666
1854	36052		51866	1116
	47537		48662	+ 1444
	59201		43625	4112
	70816		36656	6800
1855	82145		27685	9444
	92919		16700	11997
	102871		3743	14311
	111939	−	11046	16399
1856	119285		27470	18144
	125316		43233	19511
	129690		63926	20422
	132331		83054	20866
1857	133220		102046	20399
	132382		120254	20225
	129876		137000	19233
	125743		151636	17800
1858	120017		163618	16001
	112712		172416	13911
	103860		177983	11599
	93543		180300	9111
1859	81934		179627	6544
	69302		176320	3922
	55995		170851	1322
	42406		163562	123
1860	28900		155139	367

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10th Dec place Saturn on Uranus

		$d^2_t x$	$d^2_t y$	$d^2_t z$
1750	+	25949	+ 61182	−2532
		22502	62622	2445
		18987	63906	2354
		15411	65035	2260
1751		11776	66009	2163
		8086	66826	2064
		4349	67488	1964
	±	565	67994	1860
1752		3265	68344	1756
		7135	68537	1651
		11043	68575	1546
		14986	68456	1441
1753		18962	68182	1335
		22969	67750	1230
		27006	67162	1126
		31070	66416	1024
1754		35160	65512	925
		39275	64451	828
		43412	63234	734
		47570	61859	645
1755		51748	60323	560
		55943	58640	479
		60155	56797	405
		64381	54801	337
1756		68619	52655	277
		72865	50361	224
		77115	47923	180
		81366	45346	145
1757		85611	42636	121
		89843	39800	107
		94054	36848	103
		98232	33789	111
1758		102376	30636	129
		106438	27402	158
		110427	24100	196
		114313	20746	244
1759		118067	17357	300
		121657	13948	356
		125049	10534	415
		128203	7130	475
1760		131077	3745	529
		133629	+ 389	574
		135815	− 2937	606
		137591	6231	621
1761		138920	9500	617
		139765	12754	590
		140103	16005	540
		139918	19268	464
1762		139198	22559	365
		137949	25889	244
		136179	29286	− 104
		133910	32739	+ 52
1763		131166	36253	219
		127977	39834	392
		124375	43462	565
		120396	47124	735
1764		116075	50802	+ 896
		111443	54468	1044
		106531	58095	1180
		101369	61654	1295
1765		95984	65113	1390
		90400	68441	1462
		84644	71608	1516
		78736	74585	1545
1766		72698	77345	1550
		66552	79859	1535
		60318	82109	1497
		54019	84071	1440
1767		47676	85731	1363
		41311	87072	1267
		34929	88082	1156
		28506	88756	1029
1768		22038	89085	889
		15096	89069	738
		9956	88706	576
	−	3937	− 88001	+ 406

		$d^2_t x$	$d^2_t y$	$d^2_t z$
1769	+	9943	− 86960	+ 228
		7656	85591	+ 145
		13210	83905	− 141
		18558	81916	324
1770		23692	79636	518
		28594	77084	707
		33253	74277	894
		37654	71235	1079
1771		41787	67979	1259
		45645	64528	1434
		49219	60904	1603
		52503	57127	1766
1772		55496	53220	1922
		58197	49202	2068
		60604	45096	2207
		62719	40920	2337
1773		64546	36694	2458
		66090	32437	2569
		67355	28166	2670
		68350	23903	2766
1774		69078	19664	2844
		69551	15432	2916
		69776	11262	2978
		69763	7151	3030
1775		69522	− 3110	3072
		69064	+ 850	3106
		68397	4721	3129
		67535	8493	3145
1776		66484	12161	3150
		65255	15715	3148
		63860	19154	3138
		62308	22468	3118
1777		60610	25658	3092
		58772	28716	3058
		56807	31642	3018
		54724	34432	2971
1778		52528	37084	2916
		50231	39598	2856
		47839	41972	2791
		45360	44206	2719
1779		42801	46297	2642
		40169	48248	2560
		37462	50053	2472
		34715	51725	2382
1780		31905	53252	2286
		29047	54638	2186
		26151	55890	2082
		23210	56991	1974
1781		20241	57960	1864
		17245	58790	1749
		14227	59484	1632
		11191	60040	1512
1782		8141	60460	1389
		5083	60744	1263
	+	2017	60893	1135
	−	1050	60910	1005
1783	−	4115	+ 60788	872
		7174	60533	739
		10223	60142	602
		13257	59615	465
1784		16274	58952	325
		19267	58152	184
		22233	57214	43
		25167	56138	+ 100
1785		28065	54926	243
		30919	53577	388
		33726	52082	533
		36479	50451	678
1786		39174	48682	823
		41802	46771	967
		44359	44722	1111
		46836	42539	1256
1787		49227	40204	1397
		51524	37719	1539
		53720	35138	1678
	−	55807	+ 32402	+ 1815

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	$d^2_t x$	$d^2_t y$	$d^2_t z$		$d^2_t x$	$d^2_t y$	$d^2_t z$
1788	− 57775	+ 29532	+1950	1807	+1435920	+ 70559	+2970
	59617	26531	2083		1422658	71885	2812
	61324	23409	2212		1389224	73074	2619
	62885	20151	2337		1347779	74156	2404
1789	64292	16779	2459	1808	1302249	75157	2171
	65534	13292	2576		1254066	76095	1927
	66602	9696	2688		1203033	76990	1679
	67486	5997	2795		1149855	77846	1435
1790	68176	+ 2203	2897	1809	1095000	78668	1197
	68660	− 1877	2991		1038935	79457	972
	68931	5634	3079		980205	80208	763
	68977	9660	3159		920467	80916	571
1791	68808	13743	3232	1810	859710	81574	399
	68361	17866	3296		798358	82173	248
	67681	22019	3350		735223	82708	116
	66741	26189	3396		670531	83165	+ 6
1792	65535	30335	3432	1811	603892	83539	− 84
	64057	34506	3457		535818	83821	154
	62300	38621	3471		466208	84006	203
	60262	42682	3474		395377	84084	236
1793	57941	46668	3465	1812	323629	84051	253
	55334	50559	3445		250765	83901	252
	52442	54335	3413		176588	83629	236
	49263	57974	3368		100999	83234	208
1794	45807	61454	3311	1813	23501	82712	168
	42078	64753	3242		−54595	82056	114
	38080	67848	3159		−132783	81265	− 51
	33828	70717	3068		−213068	80337	+ 22
1795	29327	73340	2964	1814	+ 24466	79269	103
	24597	75700	2849		− 20779	78060	194
	19647	77772	2722		−65055	76708	291
	14499	79540	2587		−108271	75213	394
1796	9171	80985	2442	1815	−150444	73573	503
−	3679	82095	2289		−191533	71789	616
+	1953	82855	2130		−231611	69856	734
	7702	83255	1963		−270551	67778	856
1797	13546	83285	1794	1816	−308244	65554	979
	19462	82934	1620		−344776	63181	1106
	25423	82200	1445		−380021	60663	1235
	31410	81086	1269		−413933	58002	1365
1798	37395	79598	1095	1817	−446466	55197	1495
	43358	77731	923		−477600	52249	1624
	49277	75485	757		−507226	49156	1754
	55132	72872	598		−535334	45929	1883
1799	60903	69903	447	1818	−561777	42569	2010
	66575	66588	307		−586488	39079	2134
	72190	62944	178		−609411	35462	2256
	77557	58986	+ 65		−630477	31725	2372
1800	82842	54731	− 34	1819	−649556	27873	2486
	87979	50199	112		−666662	23910	2595
	92962	45412	171		−681758	19852	2699
	97784	40392	209		−694828	15700	2796
1801	102444	35163	224	1820	−705843	11463	2887
	106941	29750	210		−714785	7155	2972
	111275	24183	175		−721650	+ 2784	3048
	115448	18487	111		−726435	− 1634	3117
1802	119461	12698	− 16	1821	−729140	6088	3176
	123315	6846	+ 106		−729772	10563	3225
	127012	− 964	254		−728341	15046	3265
	130548	+ 4906	427		−724863	19519	3295
1803	133921	10729	692	1822	−719354	23966	3312
	137123	16464	852		−711846	28370	3319
	140138	22068	1093		−702356	32712	3314
	142952	27500	1352		−690922	36972	3297
1804	145540	32717	1618	1823	−677582	41131	3267
	147866	37668	1885		−662408	45169	3224
	149903	42348	2148		−645409	49064	3168
	151609	46698	2397		−626654	52795	3101
1805	152938	50702	2626	1824	−606262	56342	3019
	153854	54346	2823		−584262	59685	2924
	154306	57626	2984		−560764	62804	2817
	154263	60544	3102		−535850	65678	2697
1806	153694	63120	3174	1825	−509634	68291	2567
	152574	65375	3194		−482238	70625	2421
	150901	67342	3166		−453779	72666	2267
	+148677	+ 69057	+3092		− 22980	− 74400	+2101

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Saturn and Uranus

		$d^2_t x$		$d^2_t y$		$d^2_t z$
1826	−	18267	−	75817	+	1927
		13462		76901		1744
		8592		77663		1552
	−	3680		78080		1354
1827	+	12447		78157		1149
		6156		77895		939
		11028		77294		726
		15835		76361		511
1828		20552		75104		293
		25153		73532	+	76
		29616		71657	−	141
		33922		69493		358
1829		38048		67036		569
		41979		64364		777
		45694		61433		981
		49183		58284		1178
1830		52431		54935		1371
		55427		51409		1554
		58167		47725		1731
		60642		43906		1899
1831		62847		39972		2058
		64780		35943		2208
		66440		31840		2343
		67828		27684		2478
1832		68948		23492		2597
		69800		19280		2707
		70389		15069		2806
		70724		10877		2894
1833		70808		6710		2973
		70650	−	2591		3040
		70258	+	14470		3097
		69640		5460		3145
1834		68807		9370		3182
		67764		13188		3211
		66521		16905		3230
		65102		20516		3238
1835		63498		24011		3239
		61723		27384		3232
		59791		30628		3215
		57709		33741		3192
1836		55485		36717		3161
		53128		39555		3122
		50648		42249		3078
		48052		44797		3026
1837		45351		47196		2968
		42548		49448		2905
		39654		51548		2836
		36674		53497		2761
1838		33616		55292		2682
		30485		56934		2599
		27288		58423		2511
		24031		59757		2419
1839		20719		60936		2323
		17358		61961		2224
		13951		62831		2122
		10505		63546		2017
1840		7024		64106		1909
	+	3509		64510		1800
	−	31		64759		1688
		3593		64854		1574
1841		7179		64793		1459
		10780		64575		1343
		14394		64201		1225
		18018		63669		1108
1842		21749		62977		989
		25286		62128		871
		28923		61118		753
		32558		59945		637
1843		36191		58608		520
		39818		57104		406
		43435		55434		291
		47038		53593		181
1844		50626		51581	−	72
		54197		49399	+	32
		57744		47033		134
	−	61264	+	44493		230

		$d^2_t x$		$d^2_t y$		$d^2_t z$
1845	−	64756	+	41775	+	324
		68217		38879		412
		71642		35803		493
		75027		32542		567
1846		78370		29100		635
		81668		25480		694
		84915		21685		744
		88109		17712		785
1847		91244		13572		817
		94317		9267		836
		97321		4807		845
		100251	+	205		843
1848		103101	−	4532		829
		105856		9383		805
		108522		14334		767
		111073		19360		720
1849		113495		24437		664
		115776		29541		600
		117892		34629		530
		119816		39679		458
1850		121410		44661		380
		122971		49511		314
		124123		54222		251
		124943		58756		197
1851		125391		63082		157
		125412		67180		135
		124972		71035		129
		124035		74630		146
1852		122576		77976		182
		120571		81072		236
		118010		83923		307
		114900		86549		391
1853		111251		88959		483
		107089		91167		577
		102457		93187		676
		97386		95022		763
1854		91923		96675		848
		86120		98147		914
		80028		99428		965
		73696		100512		996
1855		67174		101388		1010
		60510		102043		999
		53744		102454		971
		46919		102625		923
1856		40081		102533		851
		33261		102171		764
		26464		101530		654
		19802		100602		538
1857		13230		99388		405
		6797		97888		260
	−	528		96103	+	105
	+	5551		94041	−	58
1858		11420		91708		227
		17061		89115		400
		22455		86273		576
		27590		83198		752
1859		32457		79907		928
		37041		76415		1102
		41321		72739		1272
		45304		68905		1439
1860	+	48989	−	64928	−	1600

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Uranus on Neptune

	$d^2_t x$	$d^2_t y$	$d^2_t z$		$d^2_t x$	$d^2_t y$	$d^2_t z$
1750	− 16951	+ 12027	262	1769	− 15258	− 15051	− 269
	17155	11707	264		− 14992	15365	266
	17352	11385 −	267		14720	15675	264
	17543	11060 −	270		14440 −	15981 −	262
1751	17729	10732	273	1770	14154 −	16283 −	260
	17910	10401	275		13862	16582 −	257
	18083	10068 −	277		13563 −	16876	255
	18254	9733 −	280		13257 −	17166	252
1752	18417	9395	282	1771	12945	17451 −	250
	18574	9055	284		12627 −	17730 −	247
	18726	8713	286		12302 −	18005	244
	18872	8369 −	288		11970	18275	242
1753	19013	8023 −	290	1772	11632	18540 −	240
	19148	7674	292		11288 −	18801 −	237
	19276	7323	294		10937 −	19057	234
	19399	6971	296		10580	19307 −	231
1754	19515	6618	297	1773 −	10227	19552 −	228
	19626	6263 −	299	−	9848 −	19791	225
	19731	5906 −	301	−	9473 −	20024 −	222
	19829	5546	302	−	9092	20250 −	219
1755	19922	5185	303	1774 −	8706	20469	217
	20007	4823	305		8315	20673	214
	20089	4460	306		7917 −	20891 −	211
	20164	4096	307		7511 −	21091 −	208
1756	20233	3730	308	1775	7097	21284	206
	20295	3362 −	309		6677	21472	203
	20352	2994 −	310		6247	21654 −	200
	20402	2625	310		5815	21828 −	197
1757	20446	2256	311	1776	5379 −	21994	194
	20484	1885	312		4941 −	22153 −	191
	20516	1513	312		4501	22305 −	189
	20542	1141	313		4054	22449	186
1758	20562	0768	314	1777	3602	22584	183
	20576	0395	314		3144	22710 −	181
	20583 +	0021	314		2681	22828 −	178
	20584 −	0353	314		2212 −	22937	175
1759	20580 −	0728	314	1778 −	1739 −	23038 −	173
	20569	1103	314	−	1261	23131 −	170
	20552	1478	314	−	0779	23214 −	167
	20528	1853	314	−	0292	23288	165
1760	20499	2228	315	1779 +	0198	23353	162
	20464	2604	314		0692	23408 −	160
	20424	2979	314		1190	23453 −	157
	20376	3354	314		1692	23489	155
1761	20321	3729	314	1780	2197	23515	153
	20261	4103	313		2706	23529	151
	20195	4477	312		3218	23533 −	150
	20123	4850	311		3733	23526 −	148
1762	20045	5223	311	1781	4250	23509	146
	19960	5596 −	310		4770	23480	144
	19869	5968 −	309		5293	23440	142
	19772	6339	308		5818	23390 −	141
1763	19669	6709	307	1782	6344	23328 −	139
	19558	7078	307		6872	23253	138
	19441	7446	306		7402	23163	137
	19319	7812	305		7934 −	23063	136
1764	19191	8177 −	303	1783	8466 −	22959	135
	19057	8540	302		8997	22838	134
	18916	8902	301		9524	22703	133
	18767	9263 −	300		10048	22556	132
1765	18613	9624 −	299	1784	10603	22396	132
	18453 −	09982 −	298		11138	22224	131
	18287 −	10343	297		11672 −	22039	131
	18113	10685	295		12206 −	21841	132
1766	17933	11036	292	1785	12739	21630	132
	17746	11389 −	290		13271	21406	133
	17553	11734 −	288		13802 −	21174	134
	17353	12085 −	287		14331 −	20918	135
1767	17147	12424	285	1786	14858	20654	136
	16934	12762	284		15382	20377	137
	16715	13098	282		15904 −	20087 −	139
	16488	13431 −	280		16424 −	19783 −	141
1768	16254	13762 −	278	1787	16920	19465	143
	16015	14089 −	276		17453 −	19134	145
	15770	14413	274		17962 −	18789 −	178
	− 15518	− 14734 −	271	+	18467 −	18431 −	151

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Uranus on Neptune

	$d^2_t x$	$d^2_t y$	$d^2_t z$		$d^2_t x$	$d^2_t y$	$d^2_t z$
1788	+ 18968	− 18059	− 154	1807	+23458	+ 43737	− 2342
	19464	17674	158		22935	44465	2416
	19956	17276	162		22399	43595	2493
	20442	16863	167		21851	46737	2571
1789	20922	16436	172	1808	21291	47885	2651
	21397	15995	177		20718	49040	2733
	21865	15542	182		20132	50204	2818
	22327	15076	188		19535	51377	2904
1790	22782	14596	− 194	1809	18927	52557	− 2992
	23230	14102	− 200		18309	53745	− 3082
	23671	13595	206		17682	54941	3173
	24103	13074	213		17047	56146	3266
1791	24527	12540	221	1810	16403	57360	3361
	24943	11993	229		15752	58582	3458
	25350	11433	237		15094	59814	3556
	25748	10861	248		14429	61056	3657
1792	26137	− 10275	− 255	1811	13759	62307	3760
	26515	− 9676	266		13085	63566	3865
	26884	9064	276		12408	64833	− 3969
	27243	8440	287		11729	66110	− 4075
1793	27590	7803	− 298	1812	11048	67397	4183
	27926	7153	− 310		10367	68693	4292
	28250	6491	323		9687	69997	4402
	28562	5817	335		9010	71308	4512
1794	28862	5130	349	1813	8336	72628	4624
	29151	4431	363		7666	73958	4737
	29428	3722	377		7003	75297	4849
	29693	2002	− 394		6347	76645	− 4961
1795	29943	2270	− 410	1814	5700	78901	− 5073
	30179	1525	427		5063	79320	5184
	30401	− 770	444		4439	80673	5293
	30610	− 004	462		3828	82025	5403
1796	30805	+ 773	− 481	1815	3233	83375	5513
	30985	1561	− 500		2654	84725	5618
	31150	2359	520		2092	86070	5722
	31300	3168	541		1550	87408	5824
1797	31435	3987	− 563	1816	1029	88738	− 5924
	31555	4815	− 585		529	90057	− 6021
	31659	5653	− 609		+ 51	91365	6112
	31748	6501	633		− 401	92656	6191
1798	31821	7358	658	1817	824	93926	6274
	31877	8225	− 684		1217	95173	6349
	31917	9100	− 701		1582	96395	6418
	31942	9984	739		1924	97590	6482
1799	31951	10878	768	1818	2239	98751	6539
	31943	11780	− 798		2523	99876	6587
	31918	12690	− 829		2777	100963	6628
	31875	13605	860		3001	102006	6661
1800	31816	14530	− 892	1819	3195	103002	6685
	31741	15464	− 926		3364	103948	6701
	31649	16408	960		3503	104841	6709
	31540	17359	− 997		3615	105677	6707
1801	31414	18317	− 1034	1820	− 3703	106432	6694
	31271	19282	1073		− 3766	107164	6671
	31112	20254	1112		− 3805	107810	6638
	30935	21233	1152		3825	108388	6597
1802	30742	22219	1194	1821	3826	108896	6547
	30532	23211	1238		3811	109322	6488
	30304	24211	1283		3782	109670	6419
	30060	25218	1329		3740	109940	6340
1803	29799	26231	1376	1822	3687	110131	6252
	29522	27251	1425		3627	110244	6156
	29229	28277	1475		3563	110285	− 6051
	28919	29310	1526		3497	110285	− 5949
1804	28593	30349	1578	1823	3431	110216	5820
	28250	31394	1633		3367	110073	5605
	27891	32447	1690		3307	109841	5563
	27516	33507	1748		3254	109513	5425
1805	27126	34573	1807	1824	3210	109117	5287
	26720	35644	1868		3176	108653	− 5136
	26298	36722	1931		3156	108126	− 4985
	25861	37808	− 1995		3150	107529	4831
1806	25409	38900	2061	1825	3159	106870	4674
	24943	39997	2128		3186	106151	4516
	24462	41101	2197		3231	105376	4356
	+ 23967	+ 42216	− 2269		− 3295	+ 104546	− 4195

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Uranus on Neptune

	$a^2_t x$	$a^2_t y$	$a^2_t z$		$a^2_t x$	$a^2_t y$	$a^2_t z$
1826	− 3379	+ 1036 65 −	4033	1845	− 29103	+ 21654	+ 384
	3483	1027 36 −	3872		29219	20841	384
	3609	1017 82	3712		29326	20037	385
	3756	1007 48	3553		29423	19242	385
1827	− 3926	996 95	3395	1846	29509	+ 18446	384
	− 4117	986 07	3239		29586	17659	384
	4329	974 87 −	3085		29654	16879	384
	4561	963 38 −	2935		29712	16104	383
1828	− 4814	951 63	2787	1847	29760	15336	382
	− 5087	939 64	2642		29799	14573	381
	5380	927 45	2500		29828	13815	380
	5693	915 10	2362		29848	13063	380
1829	6023	902 60	2228	1848	− 29858	12317	379
	6369	889 96 −	2098		29858	11578	378
	6732	877 21 −	1973		29840	10845	377
	7111	864 38	1851		29831	10119	376
1830	7503	851 49	1733	1849	29803	9394	375
	7908	838 14	1620		29765	8673	374
	8325	825 64	1510		29717	7955	373
	8754	812 68	1405		29660	7239	371
1831	9193	799 74	1304	1850	29594	6528	370
	− 9641	786 82	1207		29518	5823	368
	− 10096	773 93	1115		29433	5174	367
	10534	761 10 −	1027		29338	4490	366
1832	11026	748 32 −	943	1851	29232	3810	365
	11499	735 61	863	−	29117	3139	364
	11977	722 97	786	−	28994	2474	364
	12458	710 42	712		28861	1815	363
1833	12941	697 96	642	1852	28718	1160	362
	13433	685 59	576		28566	+ 511	362
	13905	673 32	514		28403	− 132	361
	14387	661 17	451		28234	− 769	360
1834	− 14869	649 13 −	398	1853	− 28054	1400	359
	15349	637 19	345		− 27864	2025	358
	15826	625 36	295		27665	2644	358
	16299	613 65	248		27458	3256	357
1835	16769	602 05	203	1854	− 27241	3802	357
	17236	590 56	160		− 27016	4454	356
	17698	579 17	120		26781	5034	357
	18154	567 81	82		26537	5645	357
1836	18603	556 73 −	47	1855	26283	6224	356
	19046	545 70 −	14	−	26021	6796	357
	19483	534 79 +	18	−	25751	7362	357
	− 19913	523 98	48		25472	7922	357
1837	− 20336	513 28	75	1856	− 25183	8477	357
	20751	502 69	100		− 24886	9029	358
	21158	492 20	123		24581	9570	358
	21557	481 80	145		− 24267	+ 10104	358
1838	21948	471 51	167	1857	− 23945	10630	360
	22330	461 31	187		23615	11148	360
	22703	451 19	205		23276	11659	360
	23068	441 17	221		22929	12167	361
1839	23424	431 25	237	1858	22574	12658	362
	23771	421 42	252	−	22211	13147	363
	24108	411 68	266	−	21840	13629	365
	24437	402 02	278		21461	14102	366
1840	24756	392 45	289	1859	− 21076	14566	368
	− 25065	382 96	300	−	20682	15023	369
	25364	373 55	310	−	20278	15473	370
	25654	364 22	319	−	19864	15924	372
1841	− 25934	354 97	327	1860	− 19440	− 16355	+ 374
	26205	345 80	334				
	26467	336 70	341				
	26718	327 67	347				
1842	− 26959	318 72	353				
	− 27191	309 84	358				
	27414	301 03	362				
	27627	292 28	366				
1843	− 27820	283 60	370				
	− 28023	274 99	373				
	28207	266 45	376				
	28380	257 97	378				
1844	28544	249 55	380				
	28618	241 20	382				
	28844	232 91	382				
	− 28979	+ 224 68 +	383				

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Neptune on Uranus

	d^2x	d^2y	d^2z		d^2x	d^2y	d^2z
1750	− 330	+ 867	+ 22	1769	− 663	+ 546	− 43
	336	864	21		664	542	44
	342	862	20		666	537	44
	349	859	20		667	533	45
1751	355	856	20	1770	669	529	46
	361	853	20		670	524	47
	367	849	19		672	520	48
	374	845	17		673	516	49
1752	381	842	16	1771	675	512	50
	387	839	15		676	508	50
	393	836	14		677	504	51
	398	832	13		677	499	52
1753	405	828	13	1772	678	496	52
	411	825	12		680	492	53
	417	821	11		680	489	55
	423	818	11		681	484	56
1754	429	814	10	1773	682	481	57
	434	811	9		683	477	57
	440	808	8		683	473	58
	445	803	7		684	470	59
1755	451	799	6	1774	685	466	60
	456	795	5		685	464	61
	462	790	4		686	461	62
	467	787	3		686	457	63
1756	473	783	2	1775	686	455	64
	477	779	2		686	452	65
	483	775	+ 1		686	449	66
	488	770	0		686	446	67
1757	493	766	− 1	1776	685	443	68
	498	762	2		685	440	69
	503	759	3		685	437	70
	508	754	3		685	434	71
1758	513	749	4	1777	684	432	72
	519	745	5		684	431	73
	524	741	6		684	428	74
	528	736	7		683	427	75
1759	533	731	8	1778	683	425	76
	537	728	8		682	424	76
	541	723	9		681	422	77
	546	719	10		680	421	78
1760	550	714	11	1779	680	419	79
	554	710	12		679	418	80
	559	705	13		677	417	81
	562	700	14		676	416	83
1761	567	695	14	1780	675	414	84
	571	690	15		674	414	85
	575	687	16		674	413	86
	580	681	17		673	413	87
1762	583	677	18	1781	672	412	88
	587	672	19		671	413	89
	591	667	20		669	413	90
	594	663	21		668	413	92
1763	598	657	21	1782	666	413	93
	601	653	22		665	413	94
	605	648	23		665	414	95
	609	644	24		664	416	96
1764	612	639	25	1783	662	417	97
	615	634	26		661	418	98
	618	629	27		659	419	99
	621	624	28		657	420	100
1765	624	620	28	1784	656	423	101
	628	616	29		655	425	102
	630	612	30		652	428	104
	633	607	31		650	431	105
1766	635	602	32	1785	649	434	106
	638	597	33		648	437	108
	640	592	34		646	440	109
	643	588	35		645	443	111
1767	645	582	35	1786	644	446	112
	647	578	36		642	451	113
	650	573	37		642	455	114
	652	569	38		641	461	116
1768	655	564	39	1787	639	463	117
	657	559	40		637	470	118
	659	555	41		635	476	119
	− 661	+ 550	− 42		− 634	+ 481	− 120

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Neptune on Uranus

	d^2x	d^2y	d^2z		d^2x	d^2y	d^2z
1788	− 632	+ 487	− 122	1807	− 1032	+ 2766	− 412
	631	493	123		1050	2842	422
	630	500	125		1069	2920	430
	629	507	127		1088	3000	440
1789	627	515	128	1808	1107	3083	450
	626	523	129		1126	3167	460
	625	530	131		1147	3254	469
	623	539	133		1166	3343	480
1790	623	548	135	1809	1187	3436	491
	621	558	137		1208	3531	502
	621	566	139		1228	3628	512
	620	576	140		1248	3725	523
1791	619	587	142	1810	1269	3828	535
	619	598	143		1292	3934	547
	618	609	145		1311	4036	558
	617	620	147		1331	4144	570
1792	617	631	149	1811	1351	4257	583
	616	643	151		1371	4372	595
	616	656	153		1391	4488	608
	615	670	155		1410	4609	621
1793	616	684	157	1812	1427	4731	633
	616	698	159		1445	4858	647
	617	712	161		1464	4982	660
	617	727	164		1477	5114	673
1794	619	742	166	1813	1492	5248	687
	619	759	168		1505	5384	701
	619	776	170		1518	5521	714
	620	794	172		1528	5657	727
1795	621	812	175	1814	1536	5794	741
	622	830	177		1543	5933	754
	623	849	180		1548	6084	769
	626	868	182		1551	6236	782
1796	628	888	186	1815	1552	6390	795
	630	908	188		1550	6541	808
	633	931	191		1545	6691	820
	635	953	194		1536	6843	832
1797	638	976	197	1816	1526	6997	844
	641	999	200		1513	7148	855
	645	1024	203		1496	7301	865
	648	1049	206		1475	7452	875
1798	652	1076	209	1817	1451	7602	885
	656	1102	213		1423	7751	894
	660	1130	216		1390	7897	900
	665	1158	220		1357	8042	907
1799	670	1185	224	1818	1316	8184	915
	676	1218	227		1274	8321	920
	682	1249	231		1227	8455	924
	687	1282	235		1177	8586	926
1800	694	1315	239	1819	1121	8716	929
	700	1349	244		1084	8831	928
	708	1383	248		1002	8943	928
	715	1419	252		938	9052	926
1801	723	1457	257	1820	869	9153	924
	731	1496	262		797	9248	919
	739	1536	267		724	9334	914
	748	1576	272		649	9414	907
1802	758	1617	277	1821	570	9489	899
	767	1660	282		489	9548	890
	778	1705	288		408	9582	880
	788	1751	292		324	9622	868
1803	799	1798	298	1822	240	9658	855
	810	1847	304		155	9700	841
	822	1897	310		− 71	9730	827
	834	1948	316		+ 14	9738	809
1804	847	2001	322	1823	98	9738	792
	860	2056	328		182	9731	773
	873	2112	335		265	9716	755
	887	2169	342		346	9689	736
1805	901	2228	349	1824	425	9658	716
	916	2288	356		504	9615	695
	932	2351	364		579	9564	674
	948	2416	371		653	9507	653
1806	964	2483	379	1825	722	9443	630
	980	2551	388		789	9371	608
	997	2621	395		854	9294	586
	− 1015	+ 2692	− 404	+	915	+ 9209	− 563

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	$d_t^2 x$	$d_t^2 y$	$d_t^2 z$
1826	+ 972	+ 9119	− 540
	1027	9025	518
	1079	8924	495
	1127	8820	474
1827	1171	8711	451
	1211	8599	429
	1249	8483	408
	1283	8365	386
1828	1313	8244	365
	1341	8121	346
	1366	7995	325
	1385	7868	307
1829	1403	7741	287
	1418	7612	269
	1430	7484	251
	1438	7354	235
1830	1444	7224	218
	1448	7093	201
	1450	6966	186
	1449	6837	172
1831	1446	6708	156
	1442	6581	143
	1435	6457	130
	1427	6335	116
1832	1417	6212	104
	1406	6090	93
	1394	5970	82
	1380	5853	70
1833	1364	5737	61
	1350	5623	51
	1333	5511	42
	1317	5402	33
1834	1298	5294	24
	1279	5189	17
	1261	5085	9
	1242	4983	− 2
1835	1222	4884	+ 4
	1202	4786	12
	1181	4691	17
	1160	4597	23
1836	1140	4505	29
	1120	4414	33
	1099	4326	39
	1079	4239	44
1837	1058	4155	49
	1037	4073	53
	1018	3993	56
	998	3916	60
1838	978	3838	63
	958	3763	66
	939	3688	70
	920	3616	73
1839	902	3547	76
	883	3479	79
	866	3414	82
	847	3345	85
1840	830	3280	86
	813	3217	88
	796	3156	89
	781	3096	91
1841	764	3036	92
	748	2978	94
	733	2921	96
	718	2866	97
1842	704	2810	98
	686	2759	100
	677	2707	101
	662	2658	102
1843	641	2609	103
	636	2560	103
	624	2512	104
	611	2467	104
1844	599	2422	105
	588	2377	105
	577	2334	106
	+ 570	+ 2292	+ 107

	$d_t^2 x$	$d_t^2 y$	$d_t^2 z$
1845	+ 555	+ 2250.	108
	546	2209	108
	535	2169	108
	526	2130	109
1846	517	2092	110
	508	2055	110
	499	2018	110
	491	1983	110
1847	482	1949	110
	474	1915	110
	468	1883	110
	461	1850	111
1848	454	1818	111
	447	1788	111
	440	1758	111
	434	1728	111
1849	429	1699	111
	424	1670	111
	419	1642	112
	414	1616	112
1850	407	1590	112
	404	1563	112
	400	1537	112
	396	1512	112
1851	393	1488	112
	388	1464	112
	385	1441	112
	382	1418	112
1852	377	1398	112
	374	1376	112
	372	1355	112
	369	1335	112
1853	366	1314	111
	364	1294	111
	363	1274	111
	361	1256	111
1854	359	1238	111
	358	1221	110
	356	1203	110
	355	1185	110
1855	354	1169	110
	353	1152	110
	352	1136	110
	352	1121	110
1856	351	1106	110
	351	1092	109
	351	1077	109
	350	1062	108
1857	350	1049	108
	350	1035	108
	350	1021	108
	349	1009	108
1858	350	997	107
	350	985	107
	350	972	107
	351	961	107
1859	352	949	107
	353	939	107
	354	929	107
	354	918	107
1860	+ 355	+ 907	+ 107

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Uranus on Jupiter.

	d^2z*	d^2zy	d^2zz
1750	+ 3535	−11867	+ 467
	1783	10560	398
	204	9193	326
	− 1192	7833	258
1751	2414	1528	193
	3475	5305	134
	4392	4185	82
	5182	3172	34
1752	5862	2265	− 8
	6446	1461	45
	6946	752	77
	7372	130	106
1753	7733	+ 414	131
	8037	888	152
	8288	1301	171
	8490	1661	187
1754	8646	1976	200
	8760	2250	212
	8832	2491	222
	8864	2706	229
1755	8856	2897	234
	8807	3072	239
	8716	3233	242
	8583	3386	242
1756	8406	3534	241
	8181	3682	238
	7904	3834	235
	7571	3992	228
1757	7179	4162	219
	6721	4347	208
	6189	4550	195
	5576	4773	177
1758	4872	5020	156
	4067	5292	131
	3149	5591	101
	2106	5915	66
1759	925	6260	− 24
	+ 407	6614	24
	1901	6962	80
	3559	7285	144
1760	5378	7554	215
	7339	7728	295
	9402	7760	379
	11505	7596	465
1761	13551	7187	548
	15418	6497	623
	16969	5517	683
	18067	4277	721
1762	18613	2844	+ 732
	18544	+ 1314	715
	17887	− 203	673
	16715	1610	609
1763	15143	2838	531
	13311	3853	445
	11344	4648	358
	9349	5248	276
1764	7405	5677	199
	5567	5974	130
	3864	6170	70
	2311	6289	66 ?
1765	910	6359	− 27
	− 343	6394	64
	1457	6407	94
	2443	6406	118
1766	3313	6397	139
	4077	6382	155
	4746	6363	167
	5331	6341	177
1767	5839	6314	184
	6279	6282	189
	6657	6243	191
	6980	6194	191
1768	7252	6133	192
	7478	6057	189
	7662	5963	185
	− 7808	− 5849	− 179

	d^2z*	d^2zy	d^2zz
1769	− 7917	− 5708	− 173
	7993	5537	165
	8037	5383	155
	8052	5088	145
1770	8035	4798	133
	7990	4456	119
	7916	4054	104
	7813	3583	87
1771	7680	3034	69
	7514	2396	48
	7310	1656	− 24
	7064	803	+ 1
1772	? 6779	+ 173	29
	6417	1287	60
	5995	2551	94
	5486	3974	131
1773	4871	5557	171
	4128	7295	212
	3230	9169	254
	2151	11138	295
1774	871	13138	332
	+ 620	15081	364
	2312	16843	386
	4159	18291	393
1775	6088	19293	384
	7990	19732	359
	9730	19540	317
	11196	19731	261
1776	12287	17372	197
	12957	15382	131
	13211	13508	66
	13090	12889	9
1777	12668	9045	− 41
	12026	6869	79
	11236	4812	111
	10369	2915	132
1778	9475	1187	146
	8593 −	371	153
	7747	1766	154
	6955	3010	151
1779	6224	4117	145
	5558	5101	136
	4957	5974	126
	4418	6747	114
1780	3930 ?	7429	100
	3511	8031	87
	3131	8559	73
	2793	9021	58
1781	2493	9419	43
	2224	9758	28
	1979	10044	− 13
	1753	10277	+ 2
1782	1541	10459	18
	1338	10590	33
	1137	10670	48
	933	10700	62
1783	720	10680	77
	491	10608	91
	+ 240	10479	105
	− 42	10293	118
1784	362	10045	131
	728	9730	143
	1148	9342	154
	1632	8874	163
1785	2111	8318	171
	2835	7664	178
	3575	6901	180
	4419	6015	180
1786	5374	4988	176
	6445	3804	166
	7632	2446	149
	8927 −	893	123
1787	10312 +	873	87
	11758	2884	+ 40
	13198	5081	− 21
	− 14578	7514	96

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Uranus on Jupiter.

	d^2x	d^2y	d^2z
1788	− 15802	+ 10818	− 186
	16767	12833	288
	17365	15550	400
	17502	18135	515
1789	17116	20433	626
	16199	22283	722
	14800	23570	798
	12999	24188	850
1790	10942	24156	873
	8760	23515	855
	6534	22363	833
	4378	20824	781
1791	2536	19025	715
	− 778	17083	638
	+ 1787	15091	558
	2166	13126	477
1792	3774	11238	398
	4428	9459	324
	5346	7810	253
	6149	6298	187
1793	6856	4924	127
	7478	3686	73
	8026	2576	− 24
	8511	1585	+ 21
1794	8937	+ 705	62
	9311	− 755	98
	9637	763	129
	9918	1369	159
1795	10152	1902	184
	10341	2369	206
	10487	2779	225
	10587	3139	242
1796	10640	3456	256
	10645	3737	269
	10596	3988	278
	10493	4217	285
1797	10332	4429	290
	10108	4631	291
	9816	4830	290
	9449	5031	286
1798	9004	5242	280
	8473	5467	270
	7847	5716	255
	7119	5991	237
1799	6279	6300	213
	5314	6648	186
	4214	7038	150
	2966	7474	108
1800	+ 1556	7955	59
	− 31	8476	+ 0
	1807	9034	− 68
	3782	9626	148
1801	5962	10189	239
	8350	10736	342
	10926	11209	456
	13659	11560	578
1802	16496	11728	706
	19366	11650	835
	22125	11266	959
	24640	10526	1069
1803	26776	9443	1157
	28373	8011	1213
	29308	6306	1233
	29501	4423	1215
1804	28954	2480	1159
	27721	− 593	1071
	25919	+ 1142	960
	23679	2665	836
1805	21152	3942	706
	18504	4972	577
	15822	5776	454
	13204	6387	341
1806	10714	6836	241
	8387	7162	154
	6247	7394	80
	− 4302	+ 7556	− 17

	d^2x	d^2y	d^2z
1807	− 2548	+ 7671	+ 35
	− 979	7750	78
	+ 414	7805	112
	1543	7845	140
1808	2731	7871	160
	3680	7884	176
	4505	7887	187
	5218	7879	194
1809	5832	7857	197
	6355	7818	197
	6797	7750	196
	7166	7680	192
1810	7470	7574	186
	7716	7439	178
	7911	7270	169
	8058	7063	157
1811	8166	6812	143
	8239	6516	129
	8281	6168	113
	8296	5762	96
1812	8287	5293	78
	8257	4753	58
	8210	4139	37
	8145	3432	14
1813	8065	2650	− 11
	7968	1759	38
	7855	+ 759	65
	7722	− 362	94
1814	7564	1612	125
	7373	2998	157
	7140	4527	191
	6852	6204	224
1815	6490	8028	257
	6035	9988	289
	5459	12062	318
	4739	14218	343
1816	3846	16396	360
	2758	18519	369
	+ 1470	20488	365
	− 12	22182	350
1817	1650	23473	320
	3379	24244	275
	5106	24402	214
	6723	23906	125
1818	8126	22777	84
	9232	21090	− 17
	9993	18967	+ 45
	10401	16552	97
1819	10483	13988	136
	10285	11402	165
	9898	8889	181
	9359	6517	188
1820	8736	4821	186
	8076	2337	179
	7415	− 554	166
	6777	+ 1029	150
1821	6180	2424	132
	5630	3646	113
	5133	4710	94
	4687	5630	73
1822	4288	6425	54
	3932	7105	34
	3616	7681	+ 15
	3336	8165	− 5
1823	3085	8567	20
	2853	8893	36
	2635	9151	52
	2427	9346	68
1824	2224	9484	82
	2021	9566	95
	1810	9600	108
	1588	9586	120
1825	1351	9525	132
	1093	9420	142
	805	9271	151
	− 492	+ 9077	− 159

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Uranus on Jupiter.

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1826	− 138	+ 8838	− 166
	+ 258	8553	172
	302	8219	177
	1201	7832	179
1827	1762	7389	181
	2390	6884	179
	3090	6311	175
	3830	5660	168
1828	4733	4921	156
	5679	4084	139
	6709	3136	117
	7814	2063	88
1829	8981	+ 853	52
	10184	− 509	− 6
	11388	2024	+ 48
	12539	3691	112
1830	13569	5492	185
	14397	7386	264
	14928	9305	348
	15085	11160	431
1831	14803	12833	506
	14053	14202	568
	12866	15161	611
	11311	15635	631
1832	9499	15604	626
	7553	15101	599
	5593	14207	557
	3694	13000	500
1833	1039	11609	436
	+ 354	10127	368
	− 1048	8630	301
	2271	7176	235
1834	3328	5805	175
	4239	4540	119
	5020	3391	68
	5688	2360	+ 23
1835	6260	1443	− 16
	6749	− 635	50
	7166	+ 76	82
	7518	697	109
1836	7814	1237	132
	8059	1707	153
	8256	2114	170
	8410	2469	186
1837	8524	2780	199
	8598	3047	211
	8632	3273	220
	8628	3481	228
1838	8586	3663	234
	8503	3824	237
	8380	3973	240
	8214	4111	241
1839	8002	4243	240
	7741	4373	238
	7426	4504	233
	7054	4640	227
1840	6618	4782	218
	6112	4933	206
	5529	5103	192
	4859	5287	173
1841	4093	5487	152
	3220	5705	126
	2228	5939	94
	− 1105	6185	57
1842	+ 162	6436	− 13
	1581	6680	+ 38
	3162	6900	97
	4900	7070	164
1843	6386	7158	239
	8787	7123	321
	10852	6919	408
	12903	6500	494
1844	14830	5823	578
	16499	4890	649
	17776	3702	704
	+ 18540	+ 2313	+ 737

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1845	+ 18714	+ 818	+ 738
	18278	− 686	713
	17284	2091	664
	15833	3318	595
1846	14058	4325	514
	12091	5098	427
	10054	5654	342
	8040	6024	259
1847	6115	6247	184
	4318	6358	117
	2671	6392	59
	+ 1181	6375	+ 8
1848	− 154	6323	− 34
	1342	6255	70
	2395	6179	100
	3324	6100	124
1849	4140	6023	144
	4855	5950	160
	5479	5879	172
	6023	5811	183
1850	6494	5744	191
	6899	5675	195
	7244	5603	197
	7536	5525	198
1851	7779	5437	197
	7976	5336	195
	8132	5219	192
	8248	5082	186
1852	8328	4921	179
	8373	4732	172
	8384	4508	162
	8362	4244	152
1853	8308	3938	140
	8221	3580	126
	8099	3156	110
	7943	2665	93
1854	7749	2097	73
	7514	1440	51
	7232	− 682	− 27
	6897	+ 185	+ 1
1855	6500	1177	30
	6029	2304	64
	5471	3575	101
	4807	4994	140
1856	4017	6557	184
	3078	8257	229
	1967	10060	275
	− 661	11916	320
1857	+ 847	13749	361
	2551	15458	394
	4418	16920	417
	6381	18001	425
1858	8338	18582	447
	10163	18582	389
	11726	17978	345
	12921	16812	287
1859	13679	15187	223
	13989	13236	155
	13883	11102	90
	13436	8913	+ 29
1860	+ 12725	+ 6764	− 19

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Neptune on Jupiter.

	d^2x	d^2y	d^2z
1750	− 1384	+ 2351	+ 8
	1445	2369	7
	1508	2393	6
	1573	2421	6
1751	1639	2455	6
	1705	2494	5
	1771	2538	5
	1836	2586	1
1752	1897	2638	+ 0
	1952	2693	− 1
	2000	2749	3
	2038	2804	4
1753	2066	2855	5
	2083	2899	7
	2087	2935	8
	2081	2959	8
1754	2064	2970	9
	2039	2967	10
	2008	2950	10
	1974	2919	10
1755	1939	2876	10
	1904	2822	10
	1871	2761	10
	1841	2696	9
1756	1815	2627	8
	1793	2555	7
	1776	2483	7
	1763	2411	6
1757	1753	2341	5
	1747	2272	5
	1745	2207	5
	1746	2144	6
1758	1750	2084	8
	1757	2027	10
	1767	1972	11
	1778	1921	13
1759	1793	1873	3
	1809	1827	3
	1827	1783	3
	1847	1742	3
1760	1870	1703	2
	1896	1667	3
	1924	1633	3
	1954	1601	3
1761	1987	1571	2
	2024	1543	2
	2064	1517	1
	2107	1493	1
1762	2153	1471	1
	2203	1452	− 0
	2257	1434	+ 0
	2316	1419	0
1763	2378	1407	2
	2444	1399	2
	2514	1394	3
	2587	1392	4
1764	2662	1395	5
	2739	1401	6
	2816	1413	7
	2892	1430	9
1765	2961	1451	10
	3034	1478	11
	3093	1506	11
	3143	1535	13
1766	3180	1565	13
	3203	1593	14
	3212	1617	14
	3206	1636	13
1767	3187	1648	14
	3156	1650	12
	3115	1642	11
	3066	1624	10
1768	3013	1597	8
	2956	1562	7
	2898	1521	5
	− 2841	+ 1473	+ 3

	d^2x	d^2y	d^2z
1769	− 2787	+ 1421	+ 2
	2736	1366	+ 0
	2689	1309	− 1
	2645	1252	3
1770	2606	1194	3
	2571	1137	5
	2540	1080	6
	2513	1025	7
1771	2491	970	8
	2473	918	9
	2458	867	10
	2446	816	11
1772	2438	768	12
	2434	721	12
	2432	675	13
	2434	629	12
1773	2439	585	13
	2448	542	12
	2460	500	13
	2476	458	12
1774	2496	416	13
	2519	375	11
	2546	335	11
	2577	294	10
1775	2612	254	9
	2651	214	7
	2695	175	6
	2743	136	4
1776	2796	97	2
	2853	61	− 0
	2915	+ 26	+ 2
	2980	− 6	5
1777	3049	36	8
	3121	62	11
	3194	84	14
	3266	100	18
1778	3336	111	22
	3401	115	24
	3459	114	28
	3508	106	29
1779	3545	93	32
	3568	77	31
	3576	60	33
	3568	− 42	33
1780	3547	26	32
	3511	12	31
	3462	− 2	28
	3404	+ 1	26
1781	3340	− 1	23
	3272	9	18
	3200	22	16
	3127	41	12
1782	3055	65	8
	2985	92	5
	2919	121	+ 1
	2855	152	− 1
1783	2796	187	4
	2742	222	6
	2690	259	9
	2645	296	11
1784	2602	334	12
	2564	372	14
	2530	410	16
	2500	449	17
1785	2474	488	18
	2452	528	19
	2434	570	19
	2419	611	20
1786	2407	653	21
	2398	697	20
	2393	741	20
	2391	786	20
1787	2393	832	19
	2398	880	18
	2406	929	16
	− 2418	− 981	− 15

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Neptune on Jupiter

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1788	− 2434	− 1034	− 13
	2453	1088	11
	2477	1143	9
	2505	1200	6
1789	2537	1258	− 3
	2573	1316	+ 1
	2614	1374	3
	2659	1431	7
1790	2708	1486	12
	2760	1539	16
	2814	1589	20
	2869	1632	25
1791	2923	1667	30
	2975	1695	34
	3022	1714	38
	3062	1724	41
1792	3093	1723	43
	3112	1714	45
	3119	1697	45
	3111	1673	44
1793	3090	1645	42
	3056	1615	40
	3010	1583	37
	2954	1552	32
1794	2890	1525	29
	2820	1503	24
	2748	1485	20
	2674	1470	15
1795	2598	1460	10
	2524	1454	6
	2453	1452	+ 2
	2384	1454	− 1
1796	2319	1460	5
	2256	1468	8
	2198	1479	10
	2143	1493	13
1797	2092	1509	15
	2044	1528	17
	2000	1550	18
	1959	1573	20
1798	1921	1598	21
	1886	1625	22
	1854	1654	23
	1825	1686	23
1799	1798	1721	23
	1774	1757	22
	1752	1794	22
	1732	1838	21
1800	1714	1882	20
	1699	1929	19
	1686	1979	18
	1675	2031	16
1801	1666	2087	15
	1661	2145	12
	1659	2207	10
	1659	2271	7
1802	1663	2338	4
	1671	2407	− 0
	1683	2477	+ 4
	1698	2548	9
1803	1718	2618	13
	1741	2686	18
	1769	2750	23
	1800	2809	28
1804	1832	2860	33
	1864	2902	37
	1896	2932	40
	1925	2950	43
1805	1949	2955	44
	1965	2946	45
	1972	2924	46
	1969	2891	44
1806	1956	2849	42
	1932	2803 ?	39
	1898	2748	36
	− 1855	− 2694	+ 31

	$d^2_t x$	$d^2_t y$	$d^2_t z$
1807	− 1805	− 2640	+ 26
	1749	2588	21
	1690	2539	17
	1628	2494	12
1808	1565	2453	8
	1502	2417	3
	1440	2386	+ 0
	1379	2360	− 3
1809	1320	2339	7
	1263	2323	10
	1208	2311	11
	1155	2302	14
1810	1104	2297	16
	1056	2296	18
	1010	2298	18
	965	231 ?	19
1811	922	2313	20
	880	2324	20
	840	2339	21
	801	2356	21
1812	762	2377	21
	725	2401	21
	689	2429	21
	653	2459	19
1813	618	2492	19
	583	2529	18
	550	2569	16
	517	2613	15
1814	485	2661	13
	454	2713	11
	424	2769	9
	397	2828	6
1815	371	2890	3
	348	2956	− 0
	328	3025	+ 4
	311	3096	7
1816	298	3167	11
	291	3237	15
	290	3305	20
	293	3368	23
1817	302	3423	26
	315	3468	30
	332	3501	32
	351	3519	35
1818	371	3521	36
	390	3508	36
	404	3480	35
	413	3437	34
1819	415	3383	32
	410	3320	29
	398	3251	25
	380	3178	22
1820	354	3105	18
	325	3033	15
	290	2963	10
	253	2898	8
1821	213	2837	4
	171	2781	+ 2
	129	2731	− 1
	87	2685	3
1822	44	2645	6
	− 0	2610	7
	+ 42	2579	9
	85	2553	10
1823	127	2530	12
	169	2511	12
	211	2495	13
	252	2483	13
1824	295	2474	14
	338	2468	14
	380	2466	15
	423	2466	15
1825	465	2469	15
	510	2476	14
	555	2485	14
	+ 601	− 2498	− 14

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Neptune on Jupiter.

	d^2x	d^2y	d^2z
1826	+ 648	− 2514	− 13
	696	2533	13
	745	2556	11
	796	2581	11
1827	847	2611	9
	899	2645	8
	951	2683	7
	1003	2725	5
1828	1054	2771	3
	1104	2821	− 2
	1153	2827	+ 1
	1199	2933	2
1829	1240	2993	5
	1275	3053	7
	1303	3112	9
	1322	3167	11
1830	1333	3216	14
	1334	3256	16
	1326	3284	17
	1309	3299	18
1831	1286	3297	19
	1260	3279	18
	1232	3246	18
	1203	3198	17
1832	1177	3139	17
	1155	3072	14
	1138	2999	13
	1126	2922	11
1833	1119	2843	9
	1119	2764	8
	1123 ?	2688	5
	1130	2616	4
1834	1141	2548	3
	1156	2484	1
	1174	2424	1
	1194	2369	+ 0
1835	1216	2319	− 1
	1240	2272	2
	1265	2229	3
	1291	2190	3
1836	1320	2155	3
	1450	2122	4
	1381	2092	4
	1414	2065	4
1837	1448	2040	4
	1484	2017	3
	1522	1997	4
	1561	1980	4
1838	1602	1964	5
	1645	1951	5
	1692	1940	5
	1740	1931	5
1839	1790	1924	4
	1843	1920	4
	1899	1919	4
	1957	1920	3
1840	2019	1925	4
	2083	1934	4
	2149	1947	5
	2218	1963	4
1841	2287	1983	5
	2356	2009	5
	2424	2039	4
	2490	2073	4
1842	2552	2110	5
	2608	2150	4
	2653	2192	4
	2686	2232	4
1843	2707	2269	3
	2714	2300	4
	2707	2321	3
	2685	2330	3
1844	2651	2321	2
	2609	2311	2
	2561	2281	1
	+ 2509	− 2239	− 0

	d^2x	d^2y	d^2z
1845	+ 2458	− 2187	+ 1
	2409	2129	1
	2362	2065	2
	2321	1998	3
1846	2284	1930	4
	2254	1862	4
	2228	1795	5
	2207	1729	4
1847	2192	1666	5
	2180	1606	5
	2173	1548	6
	2169	1493	6
1848	2169	1441	7
	2171	1392	7
	2176	1345	7
	2184	1300	8
1849	2195	1257	7
	2209	1216	7
	2225	1176	8
	2243	1138	8
1850	2264	1101	8
	2288	1066	7
	2314	1032	7
	2342	998	8
1851	2373	965	8
	2408	933	7
	2445	902	6
	2485	873	6
1852	2529	842	5
	2578	814	4
	2630	788	3
	2686	763	2
1853	2746	739	+ 0
	2810	718	− 2
	2879	701	3
	2951	686	5
1854	3026	674	7
	3102	667	10
	3178	667	12
	3252	671	15
1855	3321	681	17
	3383	697	19
	3434	718	21
	3471	742	23
1856	3491	766	23
	3494	789	23
	3479	808	22
	3446	820	22
1857	3400	824	20
	3343	820	18
	3278	807	15
	3208	785	12
1858	3136	755	8
	3066	719	6
	2998	679	3
	2935	635	− 1
1859	2877	589	+ 2
	2825	542	4
	2777	494	7
	2734	446	8
1860	+ 2696	− 399	+ 10

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Uranus on Saturn.

	d^2x	d^2y	d^2z		d^2x	d^2y	d^2z
1750	+ 1049	+ 11311	− 422	1769	+ 8286	− 10334	− 122
	1424	11351	414		7336	10364	68
	1822	11404	405		6456	10405	20
	2249	11471	395		5640	10453	24
1751	2703	11551	383	1770	4886	10510	63
	3186	11647	368		4130	10576	93
	3701	11756	352		3546	10652	127
	4251	11882	332		2954	10735	153
1752	4833	12026	338	1771	2409	10657	176
	5454	12187	351		1908	10920	196
	6114	12367	396		1449	11024	213
	6817	12575	432		1030	11133	228
1753	7566	12786	184	1772	648	11248	241
	7665	13027	144		+ 301	11369	251
	9207	13288	98		− 14	11494	260
	10106	13572	50		298	11623	267
1754	11064	13877	10	1773	554	11756	272
	12090	14204	33		781	11891	275
	13164	14552	143		983	12029	278
	14315	14923	221		1378	12473	273
1755	15539	15313	307	1774	1814	12312	281
	16839	15722	400		1446	12454	279
	18220	16149	505		1557	12599	277
	19686	16353	619		1648	12508	275
1756	21239	17039	744	1775	1722	12887	272
	22887	17494	881		1778	13031	268
	24627	17951	1029		1817	13174	263
	26465	18401	1192		1839	13316	258
1757	28398	18835	1366	1776	1848	13457	252
	30432	19245	1556		1840	13597	245
	32558	19617	1758		1820	13735	239
	34772	19940	1974		1788	13870	231
1758	37067	20196	2204	1777	1743	14003	222
	39431	20373	2445		1685	14134	215
	41848	20449	2697		1620	14261	206
	44296	20410	2957		1541	14385	197
1759	46749	20236	3223	1778	1452	14506	188
	49177	19908	3489		1356	14624	178
	51540	19405	3751		1250	14737	168
	53802	18725	4008		1134	14846	158
1760	55911	17855	4249	1779	1012	14952	147
	57822	16793	4471		881	15053	136
	59485	15545	4667		741	15145	125
	60857	14122	4829		601	15241	113
1761	61894	12544	4956	1780	450	15327	102
	62560	10838	5040		294	15409	90
	62832	9038	5078		− 141	15496	79
	62698	7183	5071		+ 33	15556	67
1762	62158	5294	5016	1781	204	15621	54
	61225	3461	4917		379	15680	43
	59925	+ 1671	4778		559	15734	30
	58291	− 25	4602		740	15782	18
1763	56368	1604	4395	1782	925	15825	5
	54203	3044	4162		1113	15858	8
	51845	4334	3913		1302	15890	21
	49347	5472	3653		1496	15914	34
1764	46751	6455	3385	1783	1688	15931	47
	44106	7290	3117		1882	15943	61
	41450	7987	2852		2078	15949	74
	38814	8558	2593		2273	15947	88
1765	36226	9018	2346	1784	2467	15939	101
	33760	9379	2113		2662	15926	115
	31474	9657	1887		2855	15905	129
	29400	9866	1679		3048	15880	141
1766	27511	10016	1485	1785	3238	15848	155
	25795	10124	1305		3425	15810	169
	24250	10195	1141		3611	15767	182
	20700	10243	988		3792	15717	196
1767	18922	10263	849	1786	3971	15662	210
	17253	10276	723		4146	15601	223
	15664	10282	608		4315	15536	236
	14229	10281	506		4480	15465	249
1768	12865	10282	411	1787	4639	15388	262
	11605	10285	327		4794	15308	276
	10409	10295	251		1 4940	15224	289
	+ 9308	− 10311	− 184		+ 5079	− 15134	− 302

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Uranus on Saturn.

	d^2x	d^2y	d^2z		d^2x	d^2y	d^2z
1788	+ 5210	−15038	− 315	1807	−93195	−29435	8327
	5336	14944	328		92247	26816	8088
	5452	14845	341		90799	24206	7694
	5558	14743	353		88920	21657	7306
1789	5655	14636	364	1808	86638	19199	6887
	5741	14527	377		84047	16870	6440
	5815	14418	388		81205	14690	5987
	5878	14308	399		78171	13346	5527
1790	5929	14197	410	1809	75000	10812	5072
	5966	14086	421		71751	9122	4628
	5992	13975	431		68467	7593	4198
	5998	13865	441		65185	6217	3787
1791	6015	13771	450	1810	61942	4982	3398
	5967	13651	459		58761	3878	3032
	5927	13549	468		55665	2892	2692
	5869	13451	476		52668	2010	2377
1792	5791	13358	483	1811	49783	1222	2086
	5694	13271	488		47013	− 516	1824
	5574	13190	493		44371	+ 121	1573
	5433	13118	498		41852	695	1350
1793	5268	13055	501	1812	39460	1215	1146
	5078	13001	503		37191	1691	963
	4864	12961	504		35042	2155	797
	4618	12933	505		33019	2530	647
1794	4348	12920	502	1813	31107	2906	512
	4046	12923	499		29306	3259	392
	3712	12944	492		27611	3592	285
	3346	12985	486		26017	3906	189
1795	2942	13048	476	1814	24520	4206	104
	2501	13135	464		23114	4494	29
	2020	13247	450		21794	4774	36
	1498	13388	432		20484	5041	94
1796	932	13561	410	1815	19405	5301	145
	+ 319	13766	386		18322	5556	188
	− 344	14007	357		17309	5805	226
	1060	14288	324		16363	6047	258
1797	1832	14610	286	1816	15480	6285	285
	2663	14978	242		14656	6519	308
	3557	15394	192		13886	6748	326
	4506	15879	134		13171	6973	341
1798	5552	16385	70	1817	12510	7187	352
	6661	16965	2		11950	7349	361
	7852	17608	85		11311	7621	365
	9128	18315	178		10779	7830	368
1799	10498	19089	282	1818	10287	8033	369
	11967	19936	397		9832	8233	368
	13541	20855	528		9413	8428	365
	15228	21848	673		9028	8618	360
1800	17034	22918	834	1819	8673	8804	354
	18969	24065	1013		8350	8984	347
	21039	25833	1210		8054	9159	338
	23252	26581	1429		7785	9329	329
1801	25614	27945	1669	1820	7659	9385	322
	28136	29373	1934		7322	9654	307
	30821	30851	1687		7124	9807	294
~~1802~~	33676	32374	2536		6949	9955	281
1802	36703	33923	2875	1821	6791	10097	268
	39901	35479	3241		6654	10232	254
	43272	37023	3631		6535	10361	240
~~1803~~	46803	38522	4045		6433	10484	225
1803	50485	39950	4480	1822	6343	10611	211
	54297	41270	4930		6271	10712	195
	58210	43447	5394		6212	10816	180
	62191	43435	5863		6164	10913	164
1804	66197	44200	6329	1823	6130	11003	149
	70143	44684	6783		6107	11087	134
	74052	44899	7219		6093	11165	118
	77772	44771	7620		6088	11235	102
1805	81259	44294	7979	1824	6094	11300	87
	84437	43459	8281		6107	11357	71
	87233	42269	8519		6128	11409	56
	89581	40741	8664		6156	11453	40
1806	91427	38907	8772	1825	6190	11492	24
	92727	36806	8777		6230	11523	9
	93456	34488	8704		6274	11549	6
	− 93610	− 32012	8552		− 6323	+ 11568	21

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Uranus on Saturn.

	$\Delta^2 t x$	$\Delta^2 t y$	$\Delta^2 t z$		$\Delta^2 t x$	$\Delta^2 t y$	$\Delta^2 t z$
1826	− 6375	+11582	36	1845	+4563	+17893	480
	6432	11589	50		5423	18687	570
	6491	11591	65		6343	19533	667
	6554	11587	79		7326	20433	773
1827	6619	11577	93	1846	8380	21383	887
	6684	11562	107		9508	22387	1009
	6751	11542	120		10715	23441	1142
	6818	11517	134		12008	24544	1286
1828	6886	11487	148	1847	13393	25693	1439
	6955	11453	161		14876	26883	1604
	7021	11414	174		16460	28105	1779
	7088	11371	185		18150	29349	1966
1829	7154	11325	198	1848	19954	30609	2162
	7218	11274	209		21867	31863	2368
	7281	11220	221		23894	33099	2583
	7341	11163	232		26031	34293	2805
1830	7398	11102	243	1849	28265	35417	3031
	7454	11040	255		30608	36446	3259
	7507	10975	265		32996	37357	3483
	7556	10907	275		35449	38109	3701
1831	7602	10838	285	1850	37765	38668	3885
	7645	10768	294		40379	39005	4097
	7683	10695	304		42776	39089	4265
	7717	10622	313		45068	38897	4404
1832	7746	10548	323	1851	47201	38413	4508
	7771	10474	332		49124	37629	4574
	7792	10399	339		51794	36545	4597
	7808	10324	347		53132	35174	4576
1833	7818	10251	354	1852	52682	33544	4455
	7823	10178	361		53770	31696	4400
	7817	10106	367		53211	29660	4202
	7815	10036	374		53859	27488	4061
1834	7803	9968	380	1853	53330	25229	3841
	7784	9902	385		52443	22928	3674
	7758	9837	391		51254	20640	3340
	7725	9777	396		49778	18392	8073
1835	7685	9720	399	1854	48080	16216	2795
	7638	9666	402		46193	14140	2521
	7585	9617	406		44180	12179	2284
	7523	9573	408		42071	10344	1997
1836	7440	9532	410	1855	39915	8637	1752
	7376	9498	411		37742	7061	1525
	7289	9470	412		35582	5610	1311
	7192	9447	412		33462	4822	1115
1837	7095	9433	412	1856	31300	3060	936
	6976	9426	411		29411	1946	775
	6853	9426	409		27747	+1121	635
	6720	9436	407		25684	− 15	497
1838	6577	9455	403	1857	23962	876	380
	6423	9483	398		24128	1668	275
	6257	9524	392		20805	2399	184
	6081	9575	386		19373	3076	103
1839	5893	9638	378	1858	18035	3706	32
	5692	9715	369		16785	4294	29
	5476	9806	359		15630	4843	150
	5249	9913	348		14556	5359	129
1840	5007	10033		1859	13562	5844	167
	4749	10170	320		12644	6303	201
	4476	10328	304		11793	6740	230
	4186	10505	286		11021	7150	254
1841	3879	10701	266	1860	+10308	+7542	272
	3553	10919	245				
	3210	11159	220				
	2844	11426	194				
1842	2456	11717	165				
	2046	12037	133				
	1611	12384	99				
	1151	12763	61				
1843	658	13176	19				
	− 139	13624	27				
	+ 414	14107	77				
	1002	14630	130				
1844	1638	15193	189				
	2292	15799	252				
	3000	16449	322				
	+3755	+17146	400				

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Neptune

	d^2x	d^2y	d^2z
1750	− 882	+2311	− 4
	907	2284	3
	931	2258	3
	955	2232	2
1751	980	2207	0
	1005	2183	− 0
	1030	2159	+ 1
	1054	2135	− 1
1752	1078	2112	1
	1102	2089	0
	1125	2066	0
	1148	2044	0
1753	1172	2022	5
	1195	2000	0
	1217	1978	0
	1240	1957	1
1754	1263	1936	1
	1285	1916	0
	1308	1895	1
	1330	1875	1
1755	1352	1854	1
	1375	1834	1
	1397	1814	1
	1419	1793	1
1756	1441	1773	+ 1
	1463	1754	1
	1486	1734	1
	1509	1714	1
1757	1531	1694	1
	1553	1674	1
	1576	1645	1
	1599	1635	2
1758	1622	1615	1
	1645	1595	1
	1668	1576	2
	1692	1556	1
1759	1716	1537	1
	1739	1518	2
	1763	1498	2
	1788	1478	1
1760	1812	1458	2
	1837	1438	2
	1863	1418	2
	1889	1398	2
1761	1915	1378	2
	1942	1358	2
	1970	1338	3
	1998	1317	3
1762	2026	1297	2
	2055	1276	3
	2085	1255	3
	2116	1234	3
1763	2148	1213	4
	2180	1193	4
	2213	1172	4
	2247	1151	5
1764	2283	1129	5
	2319	1107	5
	2356	1085	6
	2394	1064	7
1765	2435	1043	8
	2477	1022	8
	2520	1000	9
	2564	977	10
1766	2610	955	10
	2658	933	11
	2708	911	12
	2759	890	13
1767	2812	869	14
	2868	849	15
	2926	829	15
	2986	809	17
1768	3047	790	18
	3110	772	20
	3176	756	21
	−3243	+ 740	+ 22

on Saturn.

	d^2x	d^2y	d^2z
1769	− 3312	+ 725	+ 24
	3383	712	25
	3456	701	27
	3530	691	28
1770	3604	684	30
	3678	680	31
	3752	678	33
	3826	678	34
1771	3899	681	36
	3979	688	37
	4038	697	38
	4102	708	39
1772	4161	723	39
	4215	740	41
	4264	759	41
	4306	779	42
1773	4341	801	42
	4368	823	42
	4387	845	41
	4397	867	42
1774	4399	888	40
	4393	907	40
	4379	924	39
	4356	937	38
1775	4328	948	36
	4293	954	35
	4252	956	33
	4205	956	32
1776	4154	951	30
	4099	942	28
	4041	929	26
	3981	913	25
1777	3920	893	22
	3859	870	21
	3797	844	24
	3736	815	17
1778	3675	784	16
	3614	752	13
	3554	718	12
	3495	682	10
1779	3438	644	9
	3383	606	7
	3330	568	5
	3278	529	3
1780	3228	490	2
	3180	450	+ 1
	3134	410	− 1
	3090	371	2
1781	3047	331	2
	3005	292	4
	2965	253	5
	2927	215	7
1782	2890	177	7
	2854	139	8
	2820	102	10
	2787	65	10
1783	2755	+ 28	11
	2724	− 8	12
	2694	43	13
	2666	77	14
1784	2638	111	14
	2610	145	15
	2584	178	16
	2558	211	17
1785	2534	243	17
	2510	275	18
	2487	307	19
	2464	339	20
1786	2442	369	21
	2421	399	21
	2401	429	21
	2380	458	22
1787	2360	487	23
	2340	516	23
	2320	545	23
	−2301	− 574	+ 24

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Neptune

	d^2x	d^2y	d^2z
1788	-2283	-603	-24
	2265	631	24
	2247	659	25
	2229	686	25
1789	2212	713	26
	2196	740	26
	2179	768	27
	2162	795	27
1790	2146	822	27
	2130	849	27
	2114	875	29
	2098	901	29
1791	2082	927	29
	2067	954	29
	2052	981	29
	2037	1008	29
1792	2022	1035	29
	2007	1062	29
	1992	1089	29
	1977	1115	30
1793	1963	1142	30
	1949	1169	30
	1935	1196	30
	1921	1224	30
1794	1907	1252	29
	1893	1280	29
	1879	1308	29
	1866	1337	29
1795	1852	1365	29
	1838	1394	29
	1825	1424	28
	1812	1455	28
1796	1798	1485	28
	1785	1516	28
	1772	1547	28
	1758	1579	27
1797	1745	1612	27
	1732	1645	26
	1719	1679	26
	1706	1713	25
1798	1693	1749	25
	1680	1786	24
	1667	1823	24
	1655	1861	23
1799	1642	1900	22
	1630	1940	22
	1618	1981	21
	1606	2023	20
1800	1594	2067	19
	1582	2112	18
	1571	2158	17
	1560	2204	16
1801	1549	2253	15
	1538	2304	14
	1528	2355	12
	1518	2408	11
1802	1509	2463	9
	1500	2520	8
	1492	2578	6
	1484	2637	3
1803	1478	2698	- 1
	1472	2761	+ 1
	1467	2826	3
	1463	2892	5
1804	1460	2959	9
	1459	3028	12
	1459	3099	15
	1460	3171	18
1805	1463	3243	21
	1468	3316	24
	1475	3390	28
	-1484	-3463	+ 32

on Saturn.

	d^2x	d^2y	d^2z
1806	-1495	-3536	+ 35
	1508	3608	40
	1523	3680	45
	1540	3750	48
1807	1559	3817	53
	1580	3881	57
	1603	3942	62
	1627	3999	66
1808	1652	4051	70
	1678	4097	74
	1705	4137	78
	1732	4171	82
1809	1758	4199	85
	1783	4219	88
	1807	4232	91
	1830	4237	93
1810	1849	4235	96
	1864	4227	96
	1875	4212	98
	1882	4189	98
1811	1885	4160	98
	1885	4126	98
	1880	4087	98
	1870	4043	96
1812	1855	3996	95
	1836	3946	93
	1813	3893	90
	1785	3838	88
1813	1754	3782	85
	1719	3725	82
	1681	3668	80
	1641	3612	76
1814	1598	3556	72
	1554	3501	69
	1508	3447	66
	1460	3394	61
1815	1411	3343	59
	1361	3294	55
	1311	3245	52
	1260	3198	49
1816	1209	3153	46
	1159	3110	42
	1109	3068	40
	1059	3030	37
1817	1009	2993	33
	959	2957	31
	910	2921	28
	862	2887	26
1818	814	2855	23
	768	2824	22
	722	2794	19
	677	2765	17
1819	632	2740	15
	588	2715	14
	545	2690	11
	503	2666	10
1820	462	2643	8
	421	2621	7
	381	2601	5
	342	2581	4
1821	305	2561	2
	269	2542	+ 0
	234	2525	- 0
	199	2508	1
1822	164	2492	2
	131	2476	3
	83	2461	4
	48	2446	5
1823	- 14	2432	6
	+ 20	2418	6
	54	2404	8
	+ 87	-2390	- 8
	120	2377	9
	153	2365	9

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Neptune on Saturn.

	d^2x	d^2y	d^2z
1824	+120	−2377	−9
	153	2365	9
	155	2353	10
	217	2341	10
1825	249	2330	11
	280	2319	11
	311	2308	12
	342	2296	12
1826	372	2284	12
	403	2272	13
	434	2259	13
	465	2246	14
1827	495	2232	14
	525	2241	14
	556	2232	15
	586	2223	14
1828	616	2215	14
	646	2207	15
	677	2199	15
	708	2190	16
1829	739	2183	15
	770	2175	17
	801	2168	16
	832	2160	17
1830	863	2153	16
	895	2146	16
	927	2139	17
	959	2133	17
1831	991	2126	16
	1024	2120	17
	1058	2113	17
	1091	2106	16
1832	1125	2100	16
	1160	2094	17
	1195	2088	
	1230	2082	
1833	1264	2076	
	1302	2071	13
	1339	2065	13
	1377	2059	11
1834	1415	2054	17
	1454	2049	17
	1494	2044	17
	1535	2038	17
1835	1576	2033	18
	1618	2028	18
	1661	2024	18
	1704	2020	18
1836	1749	2017	17
	1795	2014	18
	1842	2011	18
	1890	2007	18
1837	1939	2004	18
	1989	2002	18
	2041	2000	19
	2094	1998	19
1838	2148	1998	20
	2203	1999	21
	2259	2000	21
	2317	2002	21
1839	2376	2004	20
	2437	2007	20
	2499	2011	20
	2563	2016	20
1840	2628	2022	21
	2694	2030	21
	2760	2039	22
	2828	2050	22
1841	2897	2062	22
	2966	2077	22
	3036	2093	22
	3106	2110	21
1842	3177	2129	22
	3247	2150	22
	3317	2173	21
	+3385	−2197	−22

	d^2x	d^2y	d^2z
1843	+3450	−2223	−21
	3513	2251	21
	3573	2281	20
	3631	2313	20
1844	3685	2345	19
	3733	2378	19
	3776	2411	18
	3814	2444	17
1845	3846	2477	15
	3871	2509	15
	3889	2538	13
	3900	2565	12
1846	3903	2589	10
	3894	2609	9
	3888	2625	8
	3870	2635	7
1847	3845	2640	5
	3815	2640	5
	3779	2634	3
	3738	2622	1
1848	3693	2604	−0
	3644	2581	+1
	3593	2552	2
	3540	2518	3
1849	3485	2479	4
	3430	2436	5
	3376	2389	6
	3322	2338	6
1850	3269	2285	7
	3217	2230	7
	3166	2172	8
	3117	2112	9
1851	3069	2051	10
	3023	1989	10
	2980	1927	11
	2938	1865	11
1852	2898	1803	11
	2861	1742	12
	2826	1682	12
	2793	1622	12
1853	2761	1562	12
	2733	1504	13
	2705	1447	14
	2679	1391	13
1854	2655	1336	14
	2632	1283	14
	2611	1231	14
	2591	1179	14
1855	2572	1128	13
	2554	1079	15
	2538	1031	16
	2523	984	15
1856	2509	937	16
	2495	892	16
	2482	848	17
	2470	805	16
1857	2459	763	17
	2449	722	17
	2439	682	18
	2429	642	19
1858	2420	603	19
	2412	565	19
	2404	528	20
	2397	491	20
1859	2391	454	21
	2385	418	20
	2379	383	21
	2373	348	21
1860	+2367	−314	+22

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Saturn on Jupiter.

	$d^2t\,x$	$d^2t\,y$	$d^2t\,z$
1750	+ 10903	+ 34549	− 1274
	10936	35030	1287
	10789	35531	1290
	10483	36034	1281
1751	10037	36524	1262
	9472	36987	1237
	8804	37413	1204
	8051	37795	1162
1752	7228	38126	1115
	6349	38402	1064
	5432	38617	1007
	4489	38773	948
1753	3532	38867	885
	2576	38900	818
	1634	38873	750
	+ 716	38788	681
1754	− 163	38646	611
	990	38454	541
	5154	38215	472
	2439	37935	404
1755	3027	37620	338
	3506	37280	274
	3858	36923	214
	4062	36560	158
1756	4097	36206	109
	3937	35877	53
	3554	35591	34
	2915	35372	12
1757	1982	35245	− 3
	− 710	35245	12
	+ 956	35412	41
	3079	35789	94
1758	5737	36434	178
	9025	37414	301
	13062	38804	470
	17989	40695	698
1759	23992	43193	1003
	31291	46407	1404
	40171	50453	1926
	50976	55431	2606
1760	64127	61396	3484
	80091	68298	4608
	99363	75895	6041
	122316	83623	7822
1761	148976	90446	9973
	178609	97772	12438
	209263	104613	15045
	243432	111878	17463
1762	258538	74849	19261
	268456	56030	20044
	265357	34896	19653
	250595	+ 15014	18233
1763	227871	− 11166	16149
	201420	12853	13799
	174641	20512	11486
	149668	25146	9385
1764	127456	27781	7519
	108343	29228	6043
	92190	30044	4781
	78702	30581	3750
1765	67530	31037	2912
	58345	31521	2231
	50839	32050	1682
	44755	32653	1240
1766	39877	33310	888
	36011	33997	607
	33014	34688	392
	30753	35358	227
1767	29117	35980	106
	28015	36533	− 24
	27365	36999	+ 27
	27099	37359	49
1768	27155	37601	47
	27481	37714	+ 26
	28026	37696	− 13
	+ 28750	− 37541	68

	$d^2t\,x$	$d^2t\,y$	$d^2t\,z$
1769	+ 29616	− 37243	− 135
	30590	36803	213
	31639	36225	299
	32738	35513	391
1770	33861	34667	488
	34987	33699	590
	36095	32616	694
	37170	31425	799
1771	38194	30138	904
	39152	28766	1007
	40032	27319	1107
	40823	25810	1205
1772	41516	24253	1298
	42104	22664	1386
	42580	21050	1468
	42940	19435	1544
1773	43182	17832	1613
	43302	16256	1674
	43303	14726	1727
	43186	13259	1771
1774	42956	11872	1806
	42618	10583	1832
	42177	9409	1848
	41644	8371	1855
1775	41029	7486	1852
	40344	6773	1838
	39605	6251	1813
	38826	5940	1778
1776	38022	5860	1732
	37211	6036	1676
	36414	6487	1607
	35652	7242	1525
1777	34948	8329	1431
	34326	9782	1323
	33814	11637	1200
	33441	13941	1062
1778	33236	16746	905
	33234	20112	728
	33470	24115	529
	33979	28847	303
1779	34798	34416	− 46
	35959	40950	+ 247
	37487	48608	583
	39386	57568	970
1780	41633	68039	1417
	44151	80244	1935
	46779	94406	2535
	49534	110685	3226
1781	51062	129113	4004
	51604	149437	4864
	50019	170940	5768
	45398	192225	6651
1782	37061	211115	7410
	24977	224896	7923
	+ 10110	231014	8077
	− 5638	227921	7823
1783	20023	215897	7197
	31286	196930	6313
	38695	173951	5321
	42490	149574	4343
1784	43520	126071	3467
	42753	104602	2732
	41035	85701	2144
	38980	69454	1691
1785	36980	55681	1356
	35253	44114	1117
	33900	34461	955
	32950	26440	853
1786	32387	19803	799
	32175	14340	781
	32268	9877	792
	32615	6265	826
1787	33172	3385	877
	33895	− 1157	941
	34743	+ 562	1015
	− 35583	1780	+ 1076

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Saturn on Jupiter.

	d^2x	d^2y	d^2z
1788	− 36683	+ 2576	+ 1182
	37718	3001	1272
	38761	3093	1363
	39795	2892	1456
1789	40798	2427	1549
	41754	1728	1640
	42650	+ 819	1729
	43472	− 271	1816
1790	44208	1538	1899
	44847	2944	1978
	45383	4477	2053
	45804	6118	2122
1791	46105	7850	2185
	46279	9656	2242
	46324	11517	2291
	46233	13414	2333
1792	46006	15331	2367
	45644	17250	2393
	45146	19152	2411
	44518	21018	2420
1793	43765	22829	2419
	42892	24566	2408
	41911	26210	2388
	40834	27742	2359
1794	39678	29142	2320
	38462	30392	2272
	37208	31473	2214
	35943	32367	2148
1795	34698	33058	2073
	33510	33531	1991
	32417	33771	1903
	31468	33766	1809
1796	30714	33507	1710
	30215	32986	1609
	30040	32197	1508
	30263	31141	1408
1797	30974	29818	1312
	32269	28235	1224
	34259	26399	1148
	37074	24322	1088
1798	40856	22026	1049
	45776	19505	1040
	52020	16793	1071
	59814	13890	1152
1799	69404	10790	1298
	81078	7469	1528
	95152	− 3863	1865
	111961	+ 144	2339
1800	131832	4760	2981
	155033	10297	3855
	181654	17224	4988
	211461	26169	6431
1801	243658	37886	8209
	276577	53097	10315
	307459	72153	12645
	332733	94660	15015
1802	348496	118855	17126
	351730	141817	18650
	340384	160106	19333
	317867	171015	19089
1803	287351	173563	18035
	253115	168578	16407
	218740	158052	14483
	186558	144276	12488
1804	157726	129216	10577
	132568	114288	8834
	110935	100358	7292
	92466	87882	5953
1805	76735	77019	4805
	63332	67766	3826
	51891	60018	2993
	42108	53626	2286
1806	33729	48432	1687
	26546	44272	1179
	20398	41002	748
	− 15132	+ 38485	+ 384

	d^2x	d^2y	d^2z
1807	− 10646	+ 36603	+ 76
	6842	35251	− 183
	3641	34339	400
	− 974	33790	580
1808	+ 1216	33527	728
	2979	33498	848
	4365	33654	943
	5408	33948	1017
1809	6147	34340	1071
	6614	34802	1108
	6839	35307	1130
	6851	35829	1138
1810	6675	36351	1134
	6334	36857	− 1119
	5849	37334	1095
	5243	37771	1063
1811	4535	38160	1023
	3741	38495	977
	2877	38771	925
	1961	38985	868
1812	1007	39135	807
	+ 29	39222	742
	− 961	39245	675
	1948	39205	606
1813	2922	39105	536
	3868	38947	463
	4774	38736	391
	5629	38477	319
1814	6419	38173	247
	7131	37835	177
	7751	37468	110
	8262	37083	− 47
1815	8689	36691	+ 14
	8893	36306	68
	8973	35944	115
	8872	35624	155
1816	8555	35366	185
	7994	35198	204
	7163	35152	208
	6012	35266	195
1817	4498	35587	161
	2564	36168	101
	− 138	37076	+ 9
	+ 2859	38389	− 121
1818	6534	40204	300
	11013	42625	540
	16459	45789	856
	23076	49842	1270
1819	31117	54945	1807
	40911	61263	2503
	52856	68934	3398
	67437	78018	4550
1820	85190	88414	6012
	106628	99718	7841
	132033	111022	10058
	161147	120772	12656
1821	192604	126743	15454
	223493	126482	18147
	249408	118272	20279
	265651	102335	21400
1822	269163	81180	21263
	260021	58620	19960
	241143	38030	17844
	216709	21265	15353
1823	190529	+ 8641	12846
	165228	− 4251	10542
	142242	6819	8539
	122145	11366	6853
1824	104942	14704	5463
	90570	17276	4330
	78569	19370	3413
	68657	21161	2674
1825	60533	22749	2080
	53918	24190	1606
	48584	25508	1232
	44330	26715	939

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Saturn on Jupiter.

	d^2x	d^2y	d^2z
1826	+ 40987	− 27807	− 712
	38419	28777	541
	36502	29619	418
	35135	30327	334
1827	34233	30892	284
	33221	31309	263
	33532	31573	266
	33611	31683	289
1828	33909	31638	330
	34380	31442	384
	34989	31094	450
	35700	30601	526
1829	36482	29967	610
	37310	29100	699
	38160	28308	792
	39010	27299	887
1830	39841	26181	984
	40637	24965	1081
	41383	23664	1177
	42066	22285	1270
1831	42675	20844	1360
	43201	19353	1447
	43635	17826	1528
	43973	16276	1603
1832	44209	14718	1672
	44340	13165	1735
	44364	11634	1791
	44281	10141	1838
1833	44094	8702	1878
	43806	7332	1909
	43422	6047	1931
	42948	4863	1944
1834	42394	3798	1949
	41770	2869	1945
	41089	2090	1931
	40362	1475	1908
1835	39604	1044	1876
	38831	814	1834
	38062	801	1783
	37314	1025	1722
1836	36608	1506	1651
	35967	2266	1570
	35417	3330	1479
	34981	4727	1376
1837	34692	6491	1261
	34580	8660	1134
	34681	11281	993
	35034	14409	837
1838	35680	18114	664
	36665	22476	471
	38039	27596	255
	39848	33591	− 12
1839	42139	40612	+ 262
	44943	48834	573
	48278	58462	928
	52095	69728	1333
1840	56300	82876	1797
	60663	98127	2324
	64786	115609	2917
	68040	135237	3567
1841	69542	156516	4250
	68224	178324	4918
	63072	198751	5496
	53571	215160	5891
1842	40125	224745	6016
	24286	225493	5828
	+ 8292	216983	5330
	− 5720	200742	4671
1843	16477	179446	3906
	23736	155988	3158
	28008	132700	2497
	30104	111063	1952
1844	30835	91809	1528
	30833	75149	1215
	30538	60985	995
	− 30224	− 49056	+ 852

	d^2x	d^2y	d^2z
1845	− 30041	− 39171	+ 769
	30057	30957	733
	30293	24196	734
	30738	18669	761
1846	31369	14190	810
	32155	10606	874
	33065	7788	950
	34065	5631	1036
1847	35126	4046	1126
	36221	2957	1219
	37324	2305	1315
	38415	2035	1412
1848	39475	2102	1509
	40486	2466	1605
	41431	3094	1698
	42297	3955	1788
1849	43074	5021	1875
	43748	6268	1958
	44310	7671	2035
	44753	9210	2106
1850	45069	10864	2171
	45252	12612	2230
	45295	14435	2281
	45197	16313	2325
1851	44955	18227	2361
	44567	20160	2388
	44034	22091	2406
	43360	24001	2415
1852	42548	25873	2415
	41604	27686	2405
	40537	29421	2386
	39359	31062	2357
1853	38081	32590	2318
	36721	33985	2270
	35298	35234	2213
	33833	36321	2147
1854	32353	37229	2073
	30885	37946	1991
	29464	38461	1904
	28126	38765	1809
1855	26914	38852	1710
	25874	38717	1607
	25055	38300	1505
	24516	37782	1403
1856	24321	36991	1303
	24339	36001	1208
	25254	34830	1122
	26548	33493	1048
1857	28523	32019	999
	31289	30442	954
	34973	28796	946
	39717	27124	973
1858	45686	25470	1046
	53073	23875	1177
	62091	22379	1381
	72990	21008	1675
1859	86055	19764	2085
	101599	18612	2642
	119950	17446	3380
	141408	16065	4345
1860	−166209	− 14123	+ 5585

	d^2x	d^2y	d^2z
1861			
1862			

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Heliocentric Coordinates of Neptune.

	x	y	z		x	y	z
1750	−13459949	+26747756	− 32003	1768	−27530769	+12222022	+ 65612
	13716655	26618977	30642		27647444	11955950	66854
	13972256	26488531	29279		27761169	11697772	68090
	14227119	26355524	27914		27873443	11433488	69320
1751	14480051	26219770	26545	1769	27982266	11171101	70544
	14732250	26081853	25172		28089336	10906613	71761
	14983113	25941154	23799		28193553	10640026	72973
	15232411	25798857	22424		28295516	10373344	74179
1752	15480228	25653853	21047	1770	28394424	10105685	75378
	15726722	25506433	19668		28490776	9837022	76566
	15971172	25356691	18287		28584471	9567446	77749
	16215272	25204633	16903		28676084	9297044	78926
1753	16457332	25050263	15518	1771	28764877	9025799	80096
	16697186	24893594	14133		28851077	8753372	81259
	16936858	24734644	12746		28934688	8480877	82415
	17174334	24573443	11357		29015698	8207325	83563
1754	17410259	24409999	9968	1772	29094099	7933289	84703
	17644555	24244331	8578		29169877	7658782	85835
	17877723	24076408	7187		29243022	7382806	86961
	18108285	23906285	5795		29313544	7105644	88079
1755	18336969	23733997	4402	1773	29381433	6828558	89188
	18563541	23559499	3010		29446685	6550911	90289
	18787142	23382877	1617		29509285	6272655	91383
	19015773	23204112	− 224		29569233	5993822	92469
1756	19238530	23023255	+ 1170	1774	29626533	5714455	93545
	19459110	22840266	2563		29681119	5434577	94613
	19677812	22655188	3956		29733177	5154208	95673
	19893536	22468033	5348		29782466	4873377	96724
1757	20110788	22278833	6740	1775	29828907	4592107	97767
	20324377	22087611	8131		29873033	4310417	98801
	20536107	21894388	9522		29914312	4028329	99826
	20745955	21699144	10912		29952888	3745894	100842
1758	20953911	21501933	12301	1776	29988777	3463144	101849
	21159977	21302766	13688		30022200	3180099	102846
	21364019	21101633	15074		30052544	2896774	103835
	21566226	20898588	16459		30080838	2613122	104815
1759	21766477	20693644	17843	1777	30105551	2329226	105785
	21964711	20486822	19224		30127795	2045208	106745
	22160955	20278133	20604		30147699	1760977	107696
	22355517	20067599	21983		30164744	1476588	108637
1760	22547335	19855233	23300	1778	30179077	1192044	109569
	22737449	19641066	24734		30190770	0.907399	110490
	22925555	19425104	26105		30199964	622633	111401
	23111152	19207388	27474		30205888	337899	112304
1761	23295391	18987991	28841	1779	30209422	+ 53099	113197
	23477715	18766711	30206		30210225	− 0.231722	114079
	23656778	18543822	31568		30208392	51653	114950
	23834255	18319233	32927		30203833	80128	115811
1762	24009956	18092988	34282	1780	30196555	1.085995	116662
	24182699	17865099	35635		30186577	1370522	117502
	24353633	17635588	36984		30173899	1654988	118332
	24522335	17404488	38330		30158553	1939266	119151
1763	24688885	17171799	39673	1781	30140488	2223400	119960
	24853112	16937553	41013		30119744	2507334	120758
	25015112	16701733	42348		30096311	2791044	121545
	25174855	16464443	43679		30070199	3074451	122321
1764	25332331	16225633	45006	1782	30041377	3357711	123086
	25487446	15985336	46330		30009888	3640.760	123841
	25640331	15743464	47649		29975711	3923155	124585
	25790884	15500050	48964		29938886	4205836	125317
1765	25939003	15255955	50274	1783	29899934	4488720	126038
	26084877	15010033	51580		29857755	4768764	126748
	26228335	14762755	52881		29812330	5049966	127447
	26369477	14514133	54177		29764811	5330222	128134
1766	26508220	14264199	55469	1784	29714633	5610330	128810
	26644533	14012966	56756		29661822	5889888	129474
	26778444	13760488	58037		29606388	6168894	130127
	26909944	13506755	59313		29548330	6447466	130768
1767	27039101	13251799	60584	1785	29487757	6725540	131397
	27165662	12995633	61849		29424721	7002772	132015
	27289977	12738301	63109		29358233	7279143	132621
	−27411466	+12479824	+ 64264		−29289664	− 7554549	+133216

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	x	y	z
1786	−29.21843	− 7.83089	+1.33798
	29.14463	8.10559	1.34368
	29.06824	8.37955	1.34926
	28.98925	8.65278	1.35473
1787	28.90768	8.92525	1.36007
	28.82356	9.19692	1.36530
	28.73688	9.46775	1.37040
	28.64763	9.73772	1.37538
1788	28.55580	10.00685	1.38023
	28.46143	10.27511	1.38497
	28.36454	10.54246	1.38959
	28.26514	10.80885	1.39408
1789	28.16323	11.07428	1.39843
	28.05880	11.33872	1.40266
	27.95188	11.60216	1.40678
	27.84249	11.86457	1.41077
1790	27.73062	12.12592	1.41464
	27.61628	12.38619	1.41838
	27.49947	12.64536	1.42199
	27.38022	12.90341	1.42548
1791	27.25854	13.16032	1.42884
	27.13444	13.41605	1.43207
	27.00793	13.67058	1.43517
	26.87903	13.92390	1.43815
1792	26.74774	14.17599	1.44100
	26.61407	14.42683	1.44372
	26.47804	14.67636	1.44631
	26.33965	14.92463	1.44877
1793	26.19891	15.17154	1.45111
	26.05584	15.41711	1.45332
	25.91046	15.66131	1.45540
	25.76279	15.90411	1.45734
1794	25.61284	16.14551	1.45916
	25.46062	16.38549	1.46086
	25.30615	16.62401	1.46242
	25.14942	16.86104	1.46385
1795	24.99044	17.09655	1.46515
	24.82925	17.33061	1.46632
	24.66586	17.56309	1.46736
	24.50027	17.79400	1.46827
1796	24.33251	18.02334	1.46905
	24.16259	18.25109	1.46970
	23.99053	18.47722	1.47022
	23.81634	18.70170	1.47061
1797	23.64004	18.92453	1.47087
	23.46164	19.14567	1.47099
	23.28116	19.36511	1.47099
	23.09862	19.58285	1.47086
1798	22.91403	19.79886	1.47059
	22.72740	20.01310	1.47019
	22.53876	20.22556	1.46967
	22.34812	20.43622	1.46902
1799	22.15550	20.64508	1.46823
	21.96091	20.85210	1.46732
	21.76437	21.05728	1.46627
	21.56590	21.26058	1.46510
1800	21.36552	21.46199	1.46379
	21.16324	21.66151	1.46235
	20.95909	21.85911	1.46079
	20.75307	22.05477	1.45909
1801	20.54521	22.24846	1.45727
	20.33554	22.44018	1.45531
	20.12406	22.62992	1.45323
	19.91078	22.81765	1.45102
1802	19.69574	23.00335	1.44868
	19.47896	23.18701	1.44621
	19.26045	23.36861	1.44361
	19.04023	23.54814	1.44088
1803	18.81832	23.72559	1.43803
	18.59474	23.90092	1.43505
	18.36951	24.07413	1.43194
	− 18.14265	− 24.24521	+1.42871

	x	y	z
1804	−17.91418	−24.41414	+1.42535
	17.68412	24.58090	1.42186
	17.45250	24.74548	1.41825
	17.21933	24.90786	1.41451
1805	16.98463	25.06804	1.41064
	16.74842	25.22599	1.40665
	16.51073	25.38170	1.40253
	16.27157	25.53516	1.39829
1806	16.03096	25.68637	1.39392
	15.78892	25.83529	1.38943
	15.54548	25.98190	1.38482
	15.30068	26.12621	1.38009
1807	15.05452	26.26821	1.37523
	14.80701	26.40787	1.37025
	14.55819	26.54518	1.36515
	14.30808	26.68014	1.35993
1808	14.05670	26.81273	1.35458
	13.80406	26.94294	1.34912
	13.55020	27.07076	1.34354
	13.29515	27.19618	1.33784
1809	13.03891	27.31918	1.33202
	12.78151	27.43976	1.32608
	12.52298	27.55790	1.32002
	12.26333	27.67359	1.31385
1810	12.00260	27.78682	1.30756
	11.74080	27.89758	1.30115
	11.47795	28.00586	1.29462
	11.21409	28.11166	1.28798
1811	10.94923	28.21495	1.28123
	10.68339	28.31573	1.27437
	10.41661	28.41399	1.26739
	10.14889	28.50973	1.26029
1812	9.88027	28.60294	1.25308
	9.61077	28.69360	1.24577
	9.34043	28.78172	1.23835
	9.06926	28.86728	1.23081
1813	8.79727	28.95027	1.22310
	8.52449	29.03068	1.21541
	8.25096	29.10840	1.20755
	7.97671	29.18373	1.19958
1814	7.70175	29.25637	1.19150
	7.42610	29.32641	1.18332
	7.14978	29.39384	1.17503
	6.87283	29.45865	1.16664
1815	6.59528	29.52084	1.15814
	6.31713	29.58041	1.14954
	6.03841	29.63735	1.14084
	5.75915	29.69163	1.13204
1816	5.47939	29.74325	1.12313
	5.19914	29.79223	1.11412
	4.91842	29.83857	1.10501
	4.63727	29.88225	1.09581
1817	4.35570	29.92327	1.08651
	4.07375	29.96162	1.07711
	3.79144	29.99727	1.06762
	3.50878	30.03028	1.05803
1818	3.22580	30.06000	1.04835
	2.94254	30.08824	1.03857
	2.65902	30.11319	1.02870
	2.37526	30.13545	1.01874
1819	2.09129	30.15503	1.00869
	1.80714	30.17195	0.99855
	1.52282	30.18613	.98832
	1.23836	30.19761	.97799
1820	.95379	30.20641	.96758
	.66914	30.21252	.95709
	.38444	30.21596	.94652
	− .00991	30.21667	.93586
1821	+ .01850	30.21468	.92512
	.46978	30.20999	.91429
	.75448	30.20260	.90337
	+ 1.03910	−30.19251	+ .89238

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	X	Y	Z		X	Y	Z
1822	+1.32362	−30.17972	+.88131	1840	+19.95194	−22.47881	−.05527
	160803	30164251	87016		20163511	22285931	06916
	189230	30146071	85893		20373241	22091031	08305
	217641	30125191	84762		20581121	21894121	09692
1823	246032	30101601	83624	1841	20787131	21695221	11079
	274401	30075321	82478		20991251	21494341	12464
	302745	30046371	81325		21193461	21291511	13848
	331062	30014731	80165		21393741	21086751	15231
1824	359350	29980381	78998	1842	21592081	20880071	16613
	387605	29943341	77824		21788461	20671481	17993
	415825	29903631	76642		21982851	20461011	19372
	444008	29861251	75453		22175231	20248681	20749
1825	472152	29816181	74258	1843	22365591	20034501	22124
	500254	29768441	73057		22553921	19818501	23498
	528311	29718051	71849		22740191	19600691	24869
	556320	29664981	70634		22924391	19381081	26237
1826	584278	29609251	69413	1844	23106491	19159711	27602
	612182	29550861	68185		23286481	18936601	28966
	640035	29489841	66952		23464361	18711771	30327
	667829	29426151	65713		23640091	18485221	31685
1827	695563	29359831	64468	1845	23813651	18256981	33041
	723236	29290871	63217		23985071	18027071	34393
	750843	29219301	61960		24155251	17795521	35743
	778382	29145101	60698		24321261	17562351	37089
1828	805852	29068261	59430	1846	24486031	17327571	38451
	833249	28988801	58156		24648571	17091201	39671
	860571	28906751	56877		24808861	16853281	41107
	887815	28822111	55594		24966881	16613821	42438
1829	914980	28734851	54306	1847	25122621	16372831	43765
	942063	28645021	53013		25276051	16130341	45088
	969062	28553631	51714		25427171	15886371	46408
	995974	28457671	50411		25575971	15640941	47723
1830	1022795	28360161	49104	1848	25722421	15394091	49035
	1049524	28260091	47793		25866511	15145801	50342
	1076159	28157471	46477		26008241	14896181	51644
	1102697	28052311	45156		26147591	14645191	52940
1831	1129135	27944611	43832	1849	26284531	14392821	54233
	1155472	27834401	42504		26419061	14139151	55521
	1181705	27721691	41172		26551181	13884191	56803
	1207830	27606491	39836		26680851	13627951	58080
1832	1233846	27488801	38497	1850	26808071	13370441	59351
	1259753	27368621	37154		26932841	13111711	60617
	1285547	27245961	35808		27055141	12851781	61878
	1311223	27120851	34459		27174951	12590681	63134
1833	1336780	26993311	33106	1851	27292261	12328421	64383
	1362217	26863331	31750		27407071	12065031	65626
	1387532	26730911	30392		27519371	11800531	66864
	1412722	26596081	29031		27629151	11534941	68095
1834	1437784	26458871	27667	1852	27736371	11268291	69320
	1462716	26319261	26301		27841031	11000611	70638
	1487515	26177251	24933		27943141	10731911	71750
	1512180	26032871	23562		28042681	10462221	72956
1835	1536709	25886161	22189	1853	28139641	10191581	74154
	1561098	25737121	20714		28234021	9920001	75346
	1585346	25585741	19437		28325801	9647501	76531
	1609451	25432041	18058		28414971	9374121	77709
1836	1633411	25276041	16678	1854	28501511	9099881	78880
	1657222	25117751	15296		28585441	8824781	80044
	1680883	24957201	13913		28665741	8548901	81200
	1704392	24794391	12529		28745391	8272211	82348
1837	1727748	24629331	11143	1855	28821401	7994761	83489
	1750948	24462031	09756		28894771	7716581	84623
	1773988	24292511	08368		28965391	7437681	85748
	1796865	24120791	06980		29033411	7158091	86865
1838	1819580	23946881	05592	1856	29098741	6877851	87975
	1842131	23770811	04203		29161381	6596971	89077
	1864515	23592581	02813		29222331	6315491	90170
	1886730	23412211	01422		29279581	6034431	91255
1839	1908774	23229721	+0.00032	1857	29333131	5750801	92332
	1930644	23045121	−0.01358		29384981	5467631	93400
	1952338	22858431	.02748		29434131	5183951	94459
	+1973850	−22669651	04138		+29480551	−4899811	−95509

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Neptune's ephemeris

	x	y	z
1858 +	29.52422	−4.61523	−.96551
	29.56516	4.33022	.97584
	29.60337	4.04480	.98609
	29.63885	3.75900	.99624
1859	29.67160	3.47285	1.00629
	29.70160	3.18639	1.01625
	29.72885	2.89962	1.02612
	29.75334	2.61258	1.03589
1860 +	29.77509	−2.32532	−1.04557

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Perturbations 43

Ephemeris of Jupiter

	Longitude	Radius Vector	Latitude		Longitude	Radius Vector	Latitude		Longitude	Radius Vector	Latitude
	"										
1750	775.3	405	18.0	1767	2508.1	1026	14.0	1784	2761.8	510	24.6
	907.1	355	16.2		2406.9	1045	15.0		2812.7	541	23.8
	1054.4	312	14.4		2299.9	1056	16.1		2852.1	574	22.9
	1214.0	274	12.7		2189.8	1058	17.3		2880.1	610	21.9
1	1382.1	243	11.0	8	2079.1	1050	18.5	5	2896.8	647	20.8
	1555.1	222	9.4		1969.8	1034	19.7		2902.9	684	19.8
	1729.5	210	8.1		1864.3	1011	20.9		2899.3	720	18.6
	1902.0	207	6.9		1765.7	981	22.2		2886.9	752	17.3
2	2069.6	212	5.9	9	1677.0	944	23.4	6	2866.9	781	15.9
	2230.0	224	5.0		1600.6	899	24.5		2841.3	807	14.6
	2381.3	245	4.4		1538.9	849	25.6		2808.0	831	13.4
	2521.5	274	4.0		1494.0	794	26.6		2770.6	851	12.3
3	2649.0	310	3.8	1770	1467.4	737	27.5	7	2728.6	869	11.3
	2762.6	354	3.6		1460.1	681	28.2		2682.8	884	10.3
	2861.2	405	3.5		1472.3	626	28.7		2633.7	894	9.5
	2943.6	461	4.2		1503.7	571	29.1		2581.8	899	8.8
4	3008.6	520	4.9	1	1553.8	519	29.4	8	2527.5	900	8.3
	3055.5	583	5.8		1621.7	472	29.5		2471.5	899	8.0
	3083.5	650	6.9		1705.5	431	29.3		2414.4	896	7.9
	3091.9	720	8.3		1803.2	397	29.0		2356.7	890	7.9
1755	3080.0	791	9.7	2	1912.7	370	28.5	9	2299.0	880	8.0
	3047.6	861	11.2		2031.5	351	27.9		2242.8	866	8.3
	2994.8	929	12.8		2056.8	340	27.1		2189.7	850	8.9
	2921.7	993	14.5		2286.1	336	26.2		2140.6	833	9.7
6	2828.7	1052	16.3	3	2416.9	341	25.2	1790	2096.4	815	10.7
	2717.1	1105	18.2		2546.8	354	24.2		2058.9	795	11.8
	2589.0	1150	20.1		2673.2	373	23.1		2029.8	773	12.9
	2446.5	1186	22.1		2793.5	399	21.9		2010.3	750	14.1
7	2291.6	1212	23.9	4	2905.3	428	20.6	1	2001.0	727	15.4
	2127.1	1227	25.5		3006.6	463	19.3		2002.1	705	16.8
	1956.4	1231	27.1		3095.8	499	18.0		2013.9	683	18.3
	1783.4	1224	28.6		3171.2	538	16.7		2036.4	661	19.8
8	1612.5	1206	30.0	1775	3231.4	581	15.5	2	2068.8	640	21.2
	1447.7	1176	31.1		3275.7	625	14.3		2109.6	621	22.6
	1292.8	1134	32.0		3303.5	668	13.2		2157.5	606	24.1
	1152.1	1081	32.8		3314.3	713	12.2		2210.8	593	25.4
9	1029.4	1021	33.4	6	3307.9	758	11.4	3	2267.5	583	26.6
	928.1	954	33.7		3284.8	801	10.8		2325.2	575	27.7
	851.5	881	33.9		3245.8	842	10.3		2381.6	570	28.7
	802.2	805	33.9		3192.0	880	10.0		2435.2	568	29.6
1760	781.8	726	33.8	7	3124.8	914	9.8	4	2484.2	570	30.2
	791.2	648	33.3		3045.5	945	9.7		2526.9	576	30.6
	830.5	573	32.6		2955.6	973	9.7		2562.4	587	30.8
	899.1	502	31.8		2857.2	996	9.9		2590.1	601	30.8
1	995.5	435	30.8	8	2752.7	1014	10.3	1795	2610.4	618	30.5
	1116.8	375	29.7		2644.6	1026	10.9		2623.6	637	30.1
	1259.2	325	28.4		2535.6	1031	11.7		2629.9	655	29.6
	1418.4	285	27.0		2428.4	1028	12.6		2630.0	673	28.7
2	1589.5	256	25.6	9	2325.0	1017	13.5	6	2625.1	696	27.6
	1767.0	240	24.1		2227.6	999	14.5		2616.3	715	26.5
	1945.2	237	22.6		2138.8	975	15.6		2604.6	733	25.2
	2118.9	246	21.0		2061.2	943	16.7		2590.9	750	23.8
3	2283.1	267	19.4	1780	1996.9	904	17.9	7	2576.1	764	22.3
	2433.5	299	18.0		1948.0	859	19.1		2561.0	773	20.7
	2566.7	339	16.6		1916.1	810	20.2		2545.9	780	19.1
	2680.4	386	15.4		1902.2	757	21.2		2530.8	785	17.4
4	2773.3	439	14.3	1	1907.0	702	22.2	8	2516.0	786	15.6
	2845.1	495	13.3		1930.5	648	23.1		2501.8	783	13.9
	2896.0	554	12.5		1971.7	598	23.9		2488.2	776	12.2
	2926.8	614	11.9		2028.9	551	24.6		2475.1	766	10.6
5	2938.6	674	11.4	2	2100.0	511	25.3	9	2462.8	753	9.0
	2932.9	733	11.1		2181.9	479	25.8		2451.4	739	7.5
	2911.1	790	11.0		2271.1	455	26.1		2441.0	724	0.2
	2874.4	843	11.0		2363.4	444	26.3		2432.3	708	5.1
6	2823.8	891	11.3	3	2455.0	441	26.3	1800	2426.2	691	4.2
	2760.8	934	11.7		2543.4	447	26.1		2423.7	675	3.5
	2686.5	971	12.2		2625.8	461	25.7		2425.8	659	3.0
	2601.8	1001	13.0		2699.3	483	25.2		2433.2	646	2.7
1767	2508.1	1026	14.0	1784	2761.8	510	24.6	1801	2446.1	637	2.7

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	Longitude.	Radius Vector.	Latitude.
1801	2446.1	637	2.7
	2464.5	633	2.8
	2488.4	634	3.1
	2416.7	641	3.6
2	2547.5	656	4.4
	2578.5	678	5.4
	2607.2	707	6.6
	2630.4	742	8.0
3	2645.1	784	9.5
	2648.6	831	11.1
	2638.1	879	12.8
	2611.3	928	14.5
4	2566.4	978	16.3
	2503.0	1027	18.1
	2420.9	1071	19.9
	2320.1	1110	21.7
1805	2201.1	1141	23.3
	2065.4	1166	24.8
	1915.4	1185	26.2
	1754.3	1195	27.4
6	1585.4	1196	28.5
	1412.6	1187	29.4
	1240.3	1168	30.0
	1073.1	1140	30.5
7	915.6	1104	30.6
	772.7	1060	30.6
	649.0	1008	30.4
	548.5	948	29.9
8	474.1	883	29.2
	427.8	813	28.3
	410.8	742	27.2
	423.3	670	26.0
9	464.7	597	24.7
	533.9	526	23.2
	628.9	459	21.6
	746.9	397	19.9
1810	884.4	341	18.2
	1037.8	291	16.4
	1203.4	250	14.7
	1377.7	219	12.9
1	1557.1	196	11.2
	1738.2	182	9.6
	1917.5	178	8.1
	2092.2	184	6.8
2	2260.2	199	5.8
	2419.7	223	5.0
	2568.7	255	4.3
	2705.1	296	3.9
3	2827.2	345	3.6
	2933.8	401	3.5
	3023.6	463	3.7
	3094.8	528	4.1
4	3145.9	596	4.7
	3176.0	666	5.5
	3184.6	740	6.5
	3171.0	814	7.7
1815	3134.7	887	9.3
	3075.8	958	10.7
	2994.8	1026	12.4
	2892.3	1087	14.1
6	2770.0	1141	15.9
	2630.0	1189	17.8
	2474.8	1227	19.7
	2307.1	1253	21.6
7	2130.1	1268	23.4
	1943.5	1272	25.1
	1746.5	1265	26.6
	1542.4	1246	28.1
1818	1408.2	1215	29.6

	Longitude.	Radius Vector.	Latitude.
1818	1408.2	1215	29.6
	1245.4	1173	30.9
	1098.4	1121	31.9
	971.0	1060	32.8
9	866.4	991	33.4
	787.3	916	33.9
	736.1	833	34.1
	714.7	754	34.2
1820	723.9	671	34.0
	763.6	592	33.6
	831.7	516	33.0
	927.3	445	32.2
1	1047.3	383	31.3
	1188.5	332	30.2
	1343.4	293	28.9
	1510.2	265	27.5
2	1682.3	250	26.0
	1857.1	249	24.4
	2020.7	261	22.9
	2178.1	284	21.3
3	2322.8	317	19.8
	2451.2	358	18.3
	2561.2	407	16.8
	2652.0	461	15.5
4	2723.7	518	14.4
	2776.7	577	13.4
	2811.5	636	12.5
	2828.6	693	11.8
1825	2828.9	743	11.2
	2813.6	788	10.7
	2783.6	846	10.5
	2739.6	890	10.5
6	2682.6	928	10.7
	2613.6	961	11.0
	2533.7	989	11.5
	2444.1	1011	12.2
7	2346.8	1026	13.1
	2244.2	1034	14.1
	2138.4	1035	15.3
	2031.8	1029	16.5
8	1927.3	1015	17.7
	1827.9	993	18.9
	1736.2	965	20.2
	1654.1	931	21.5
9	1586.0	892	22.7
	1532.4	848	23.8
	1495.4	800	24.9
	1476.0	749	26.0
1830	1474.8	696	26.9
	1491.9	646	27.6
	1526.8	595	28.2
	1578.4	546	28.6
1	1645.1	502	28.8
	1725.3	463	29.0
	1817.2	430	29.0
	1919.0	403	28.8
2	2028.3	384	28.5
	2142.8	373	28.0
	2260.3	370	27.3
	2378.8	375	26.5
3	2496.1	389	25.5
	2610.0	409	24.5
	2718.4	435	23.4
	2819.3	464	22.2
4	2907.7	497	20.9
	2991.1	534	19.6
	3059.3	575	18.4
	3114.1	616	17.3
1835	3154.5	657	16.1

	Longitude.	Radius Vector.	Latitude.
1835	3154.5	657	16.1
	3179.8	698	14.9
	3189.6	739	13.8
	3183.8	778	12.8
6	3162.9	814	11.9
	3127.8	848	11.2
	3079.2	879	10.6
	3018.0	908	10.1
7	2945.9	933	9.8
	2865.0	953	9.7
	2777.1	968	9.7
	2684.3	980	9.9
8	2589.0	987	10.3
	2494.0	989	10.8
	2401.5	985	11.4
	2313.5	975	12.1
9	2232.2	959	13.0
	2160.1	937	14.0
	2099.3	908	15.1
	2051.9	874	16.2
1840	2019.6	837	17.3
	2003.4	795	18.4
	2004.0	749	19.6
	2021.1	702	20.7
1	2054.2	657	21.7
	2101.9	615	22.7
	2161.5	577	23.6
	2230.0	545	24.4
2	2304.5	520	25.2
	2382.0	504	25.8
	2458.9	497	26.2
	2532.2	499	26.5
3	2599.1	508	26.6
	2657.2	523	26.5
	2705.2	544	26.3
	2742.6	571	25.9
	2769.2	601	25.4
4	2785.8	634	24.6
	2793.3	668	23.7
	2792.4	701	22.7
1845	2784.3	734	21.7
	2770.3	764	20.7
	2751.2	792	19.6
	2727.9	817	18.4
6	2701.4	837	17.1
	2671.9	853	15.9
	2639.8	866	14.7
	2605.8	876	13.5
7	2570.1	881	12.4
	2532.7	880	11.3
	2493.8	875	10.4
	2453.6	867	9.7
8	2412.6	858	9.2
	2371.4	847	8.8
	2330.1	833	8.5
	2289.3	818	8.4
9	2250.4	803	8.4
	2215.3	788	8.6
	2185.0	773	9.1
	2160.6	758	9.8
1850	2143.3	743	10.6
	2134.1	728	11.5
	2134.1	712	12.6
	2143.4	698	13.7
1	2162.0	685	14.9
	2189.4	671	16.3
	2224.8	658	17.8
	2267.1	647	19.2
1852	2314.9	637	20.6

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	Longitude.	Radius Vector.	Latitude.
1852	23149	637	20.6
	2366.3	628	22.0
	2419.2	623	23.4
	2471.4	621	24.7
3	2520.7	620	25.9
	2565.4	622	27.0
	2603.5	628	28.0
	2633.8	636	28.8
4	2655.6	648	29.5
	2668.6	662	30.0
	2672.6	677	30.3
	2668.3	694	30.4
1855	2656.6	712	30.3
	2638.7	730	29.9
	2615.9	747	29.3
	2589.8	763	28.5
6	2562.0	778	27.6
	2533.9	791	26.6
	2506.4	801	25.4
	2480.5	807	24.0
7	2456.9	809	22.6
	2436.1	807	21.0
	2418.5	802	19.3
	2403.9	794	17.6
8	2392.4	782	15.9
	2384.1	766	14.1
	2378.7	746	12.4
	2375.9	725	10.7
9	2375.8	703	9.2
	2379.1	681	7.7
	2386.6	660	6.3
	2398.7	639	5.1
1860	2415.5	619	4.2

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Logarithms of the Radii Vectores

		Jupiter	Saturn	Uranus	Neptune
1750	0	.6946886	0.9982733	1.3004828	1.4763305
		.6945043	9989621	3011312	4761646
		.6947508	0.9996016	3012728	4763988
		.6954178	1.0001902	3013078	4764332
	1	6964892	0007273	3015363	4764676
		6979396	0012117	3016589	4765022
		6993328	0016420	3017753	4765370
		7008252	0020178	3018856	4765718
	2	7041660	0023380	3019808	4766067
		7067024	0026027	3020883	4766416
		7093845	0028129	3021811	4766766
		7121562	0029652	3022684	4767117
	3	7149648	0030605	3023499	4767464
		7176612	0030976	3024262	4767822
		7204958	0030773	3024974	4768176
		7231255	0030009	3025636	4768530
	4	7256079	0028673	3026245	4768885
		7279095	0026757	3026803	4769241
		7300001	0024266	3027311	4769597
		7318522	0021198	3027771	4769954
1755		7334404	0017562	3028181	4770311
		7347470	0013377	3028543	4770669
		7357566	0008634	3028854	4771027
		7364570	1.0003356	3029117	4771386
	6	7368378	0.9997542	3029333	4771745
		7368974	9991205	3029497	4772104
		7366339	9984337	3029609	4772463
		7360497	9976974	3029669	4772823
	7	7351500	9969134	3029678	4773184
		7339440	9960833	3029634	4773545
		7324461	9952095	3029533	4773906
		7306733	9942895	3029377	4774267
	8	7286491	9932778	3029164	4774627
		7264012	9922246	3028892	4774988
		7239554	9912868	3028558	4775348
		7213464	9902132	3028164	4775709
	9	7186171	9891049	3027706	4776070
		7158095	9879682	3027184	4776432
		7129719	9868026	3026599	4776794
		7101571	9856138	3025945	4777156
1760		7074169	9844013	3025222	4777518
		7048057	9831692	3024429	4777879
		7023814	9819196	3023565	4778240
	1	7001982	9806568	3022630	4778600
		6983024	9793817	3021625	4778960
		6967416	9781001	3020550	4779320
		6955570	9768129	3019400	4779680
		6947763	9755237	3018176	4780039
	2	6944200	9742371	3016878	4780398
		6944999	9729560	3015510	4780757
		6950121	9716858	3014070	4781116
		6959420	9704278	3012556	4781474
	3	6972677	9691875	3010968	4781831
		6989543	9679685	3009314	4782187
		7009580	9667779	3007593	4782543
		7032321	9656184	3005802	4782898
	4	7057260	9644944	3003942	4783252
		7083827	9634138	3002014	4783606
		7111490	9623788	3000026	4783959
		7139691	9613945	2997978	4784312
1765		7167927	9604670	2995869	4784664
		7195691	9595980	2993702	4785015
		7222521	9587932	2991479	4785365
		7248016	9580552	2989200	4785714
	6	7271767	9573870	2986870	4786062
		7293479	9567939	2984492	4786410
		7312841	9562755	2982065	4786757
		7329604	9558344	2979591	4787103
1767	0	.7343589	0.9554737	1.2977072	1.4787448

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1767	0. 73435890	0.95547370	1.29770720	1.47874480	
	73546400	95519500	29770514	47877920	
	73626020	95499660	29769170	47881340	
	73673820	95488330	29769283	47884740	
8	73689270	95485060	29766608	47888140	
	73672390	95490070	29763895	47891530	
	73623150	95503420	29761150	47894910	
	73542160	95525040	29758373	47898280	
9	73430610	95554540	29755563	47901640	
	73289530	95592240	29752723	47904980	
	73120590	95637600	29749855	47908310	
	72925800	95690470	29746955	47911620	
1770.	72707740	95750480	29744021	47914920	
	72469440	95817670	29741057	47918200	
	72214510	95891590	29738068	47921470	
	71946390	95971910	29735050	47924730	
1	71669270	96058020	29732001	47927970	
	71387680	96149890	29728919	47931200	
	71107040	96246970	29725808	47934420	
	70832480	96349080	29722670	47937620	
2	70569100	96455585	29719500	47940800	
	70322350	96566540	29716296	47943960	
	70097610	96681070	29713057	47947100	
	69899995	96798816	29709788	47950220	
3	69733418	96919590	29706487	47953330	
	69604170	97042780	29703153	47956420	
	69573130	97167880	28999783	47959500	
	69463240	97294850	28996377	47962570	
4	69456130	97422980	28992936	47965620	
	69491740	97552090	28989461	47968650	
	69569000	97681750	28985952	47971660	
	69686200	97811520	28982409	47974640	
1775	69840420	97941000	28978830	47977600	
	70027610	98069810	28975216	47980540	
	70243310	98197760	28971565	47983460	
	70483060	98324100	28967883	47986360	
6	70741260	98449040	28964172	47989240	
	71012330	98571990	28960429	47992110	
	71290970	98692750	28956654	47994960	
	71571930	98811060	28952850	47997790	
7	71850170	98926610	28949022	48000599	
	72120940	99039070	28945171	48003377	
	72380110	99148350	28941296	48006130	
8	72623640	99254030	28937400	48008870	
	72848120	0.99355970	28933485	48011578	
	73050450	99454060	28929559	48014270	
	73227880	99547900	28925619	48016940	
	73378210	99637420	28921669	48019590	
9	73499490	99722600	28917713	48022210	
	73590620	99803040	28913752	48024810	
	73650480	99878840	28909795	48027390	
	73678200	0.99949380	28905836	48029950	
1780	73673660	1.00014810	28901880	48032480	
	73637100	00075150	27997935	48034980	
	73568590	00130010	27994000	48037450	
	73469020	00179210	27990079	48039900	
1	73339790	00222790	27986175	48042320	
	73182480	00260660	27982291	48044720	
	72999130	00292420	27978427	48047100	
	72791840	00318080	27974584	48049460	
2	72563560	00337560	27970770	48051800	
	72317570	00350920	27966986	48054110	
	72057440	00358030	27963232	48056390	
	71786930	00358760	27959512	48058640	
3	71510540	00353250	27955824	48060860	
	71233060	00341230	27952169	48063050	
	70959220	00323170	27948552	48065210	
	70694390	00299110	27944973	48067350	
1784	0.70443620	1.00268730	1.27941432	1.48069470	

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1784	0.704436	1.0026873	1.2741432	1.480694
	702121	1.0023251	2737932	480715
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	694828	0.9989630	2717784	480835
6	694989	0.9982161	2714569	480853
	695567	0.9974196	2711392	480872
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	697911	0.9956843	2705158	480908
7	699617	0.9947495	2702099	480926
	701627	0.9937704	2699085	480944
	703893	0.9927505	2696112	480961
	706363	0.9916920	2693175	480978
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	711709	0.9894685	2687420	481010
	714798	0.9883083	2684605	481026
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9	719959	0.9859041	2679097	481057
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	725052	0.9834078	2673748	481087
	727359	0.9821315	2671138	481102
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	731328	0.9795402	2666054	481130
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	736056	0.9743044	2656476	481181
	736485	0.9730064	2654215	481194
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	735871	0.9692024	2647752	481229
	735043	0.9679792	2645725	481240
	733916	0.9667817	2643768	481250
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	730817	0.9644972	2640070	481270
	728883	0.9634161	2638327	481280
	726724	0.9623802	2636661	481289
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	719213	0.9595918	2632136	481324
	716488	0.9587817	2630793	481331
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	708217	0.9567474	2627307	481352
	705619	0.9562141	2626326	481359
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	701081	0.9553808	2624641	481370
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	694871	0.9548241	2621864	481398
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	697188	0.9556532	2621752	481407
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	707622	0.9585605	2623365	481416
1800	710294	0.9593477	2623944	481417
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	715807	0.9610992	2625341	481417
	718548	0.9620557	2626158	481417
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	72839768	9663159	2630151	481414 4
2	73040111	9674689	2631321	481412 7
	73216611	9686464	2632562	481410 7
	73366988	9698449	2633866	481408 4
	73489334	9710605	2635232	481405 8
3	73582224	9722899	2636661	481402 8
	73644775	9735291	2638150	481399 4
	73675891	9747764	2639697	481395 7
	73675251	9760261	2641302	481391 7
4	73643000	9772772	2642965	481387 4
	73579211	9785261	2644688	481382 8
	73484544	9797696	2646469	481377 8
	73360091	9810045	2648305	481372 5
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	73027100	9834391	2652147	481360 8
	72823044	9846313	2654158	481354 5
	72597044	9858050	2656217	481347 8
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	70712977	9932373	2672291	481292 2
	70456577	9941596	2674824	481282 9
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	69821755	9966815	2682794	481253 2
	69671145	9974327	2685569	481242 6
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	73290097	0.9936359	2798243	480741 7
7	73121077	0.9926755	2802056	480721 2
	72926112	0.9916761	2805859	480700 3
	72707082	0.9906421	2809653	480679 1
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	7082339	9825824	2835794	4805238
	7055806	9813474	2839465	4805006
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	6988458	9775842	2850374	4804296
	6971814	9763225	2853978	4804054
	6958781	9750599	2857569	4803809
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	6944902	9725500	2864706	4803312
	6944411	9713116	2868249	4803060
	6948254	9700869	2871776	4802805
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	6968481	9676982	2878797	4802289
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	7049951	9632782	2892675	4801230
	7076154	9622755	2896114	4800959
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	7188071	9588056	2909712	4799851
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	7346870	9562866	2957254	4795416
	7333594	9567584	2960126	4795104
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	7146918	9629539	2981159	4792560
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	6977305	9709115	2996334	4790252
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	6944876	9759724	3003580	4788902
	6947289	9772557	3005233	4788562
	6953915	9785398	3006822	4788222
4	6964603	9798209	3008352	4787881
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	712 13944	988 38025	301 74400	478 54566
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	717 74966	990 61100	301 95586	478 47566
	720 48851	991 67888	302 05400	478 44055
	723 11556	992 70999	302 14688	478 40554
7	725 60055	993 70388	302 23488	478 37061
	727 90311	994 65766	302 31844	478 33577
	729 99905	995 57077	302 39722	478 29992
	731 83855	996 43811	302 47110	478 26536
8	733 42122	997 26100	302 54000	478 22800
	734 72066	998 03877	302 60433	478 19248
	735 72100	998 76744	302 66388	478 15677
	736 41166	0.999 44855	302 71844	478 12100
9	736 78522	1.000 00764	302 76822	478 08522
	736 83544	000 65499	302 81333	478 04944
	736 56222	001 17799	302 85322	478 01355
	735 96922	001 64722	302 88811	477 97775
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	726 33677	003 26011	302 98166	477 76111
	723 91229	003 31888	302 97711	477 72500
	721 33332	003 31499	302 96611	477 68900
2	718 63877	003 24899	302 94900	477 65299
	715 87366	003 11922	302 92555	477 61688
	713 08221	002 92900	302 89500	477 58066
	710 31711	002 67577	302 85777	477 54444
3	707 62644	002 36188	302 81377	477 50833
	705 06200	001 98800	302 76244	477 47222
	702 68133	001 55377	302 70422	477 43611
	700 53500	001 06366	302 63911	477 40000
4	698 67033	1.000 51488	302 56644	477 36389
	697 13255	0.999 91277	302 48622	477 32778
	695 95777	999 25866	302 39899	477 29177
	695 17511	998 54922	302 30444	477 25577
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	695 33199	996 12977	301 97622	477 14777
	696 21488	995 23011	301 85200	477 11188
6	697 48311	994 28511	301 72066	477 07600
	699 10555	993 29955	301 58255	477 04033
	701 04277	992 27299	301 43722	477 00466
	703 25011	991 20922	301 28466	476 96900
7	705 67644	990 11055	301 12555	476 93344
	708 26779	988 97799	300 95988	476 89788
	710 97116	987 81155	300 78788	476 86233
	713 73758	986 62622	300 60944	476 82689
8	716 51000	985 41122	300 42511	476 79155
	719 24422	984 17300	300 23433	476 75622
	721 89330	982 91644	300 03822	476 72100
	724 41559	981 64388	299 83666	476 68589
9	726 77761	980 35933	299 62977	476 65088
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	730 87677	977 76388	299 20033	476 58089
	732 56216	976 46322	298 97786	476 54611
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	735 10688	973 86833	298 52122	476 47677
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	736 44911	971 31255	298 04688	476 40777
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	736 53355	968 82611	297 55688	476 33922
	736 09844	967 62100	297 30611	476 30522
	735 35211	966 44544	297 05119	476 27133
1852	0.734 30133	0.965 30477	1.296 79939	1.476 23755

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	7250561	9602624	2954527	4760701
	7225747	9594164	2951744	4760371
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	7117111	9566822	2940269	4759067
	7089892	9561775	2937312	4758744
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	7038964	9553777	2931276	4758102
	7016319	9551276	2928207	4757783
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	6950822	9555324	2905617	4755607
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	6968263	9563740	2898796	4755001
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	7000423	9575153	2891816	4754403
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	7044199	9589369	2884668	4753813
9	7069242	9597448	2881036	4753521
	7095693	9606116	2877368	4753230
	7123028	9615340	2873668	4752942
	7150711	9625109	2869935	4752656
1860	7178235	0.9635281	1.2866170	1.4752372

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Logarithms of the 54 Mutual Distances R of

	Jupiter Saturn	Jupiter Uranus	Jupiter Neptune	Saturn Uranus	Saturn Neptune	Uranus Neptune	
1750	1.134169	1.229063	1.507613	1.338096	1.553680	1.688505	17
	142842	236131	499461	332543	557249	688228	
	150599	250753	490687	326851	560689	687944	
	157447	265556	481406	321016	563959	687653	
1	163402	280232	471734	315042	566437	687352	
	168476	294534	461831	308928	570094	687045	
	172687	308262	457855	302667	572955	686727	
	176056	321276	441999	296259	575673	686404	
2	178597	333469	432470	289706	578250	686071	
	180339	344771	423489	283005	579694	685731	
	181298	355138	415281	276155	582998	685383	
	181498	364541	408063	268155	585168	685024	
3	180954	372971	402037	262006	587201	684661	17
	179691	380427	397376	254709	589098	684289	
	177718	386918	394210	247265	590859	683909	
	175051	392457	392634	239672	592488	683539	
4	171699	397057	392661	231933	593782	683125	
	167669	400737	394262	224053	595342	682722	
	162965	403507	397358	216035	596568	682309	
	157588	405387	401821	207883	597659	681896	
1755	151529	406394	407494	199603	598621	681466	
	144787	406525	414208	191203	599446	681028	
	137343	405802	421733	182693	600136	680584	
	129186	404230	429916	174084	600691	680130	
6	120287	401807	438563	165390	601110	679671	
	110628	398541	447500	156624	601395	679203	
	100171	394426	456574	147810	601542	678725	
	088884	389503	465646	138969	601553	678240	
7	076723	383649	474591	130126	601426	677745	
	063667	376980	483304	121310	601159	677244	
	049595	369456	491689	112555	600757	676731	
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8	018346	351841	507171	095396	599560	675681	17
	1.001021	341754	514132	087080	598679	675144	
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	962656	319199	526228	071247	596695	674035	
9	941489	306804	531271	063850	595296	673467	
	918945	293773	535588	056888	593871	672889	
	894999	280227	539143	050433	592293	672302	
	869684	266329	541909	044548	590564	671704	
1760	843083	252294	543849	039313	588679	671097	
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	758372	212460	544506	028162	582075	669227	
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	704317	191871	540485	025092	576858	667904	
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	663743	180215	532875	025861	570975	666552	
2	652560	178579	527759	027712	567779	665861	
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3	682447	200250	499455	044385	553268	662987	17
	703993	211242	490751	050642	549181	662240	
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	755412	236834	472062	065220	540494	660708	
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	804151	264456	452581	082051	531088	659149	
	828470	278215	442945	091125	526117	658350	
	851697	291619	433624	100542	520969	657538	
1765	873740	300501	424818	110233	515738	656719	
	894457	316742	416730	119937	510144	656884	
	913951	328252	409557	130195	504475	655041	
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	965389	357916	395286	160795	486479	652444	
	980407	366102	393388	170996	480173	651557	
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1767	1.007676	1.379880	1.394157	1.191190	1.467140	1.644747	178

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Logarithms of the Mutual Distances R

	Jupiter Saturn	Jupiter Uranus	Jupiter Neptune	Saturn Uranus	Saturn Neptune	Uranus Neptune
1767	1.0076676	1.3798880	1.3941570	1.1911900	1.4671400	1.6499747
	0200063	3855478	3967846	2011280	4604322	6488216
	0331698	3902399	4000795	2110320	4536133	6478992
	0426399	3941111	4060646	2205880	4466955	6469488
8	0529332	3971156	4123844	2300700	4396966	6459883
	0626177	3993353	4196344	2393222	4326632	6450999
	0717600	4007006	4276166	2484799	4255521	6440445
	0803655	4012.10	4361433	2573877	4183844	6430554
9	0884711	4008611	4450488	2660822	4112488	6420552
	0961022	3996488	4541174	2745677	4041311	6420366
	1032755	3975633	4633844	2828311	3970677	6410099
	1100003	3955966	4725177	2908755	3900811	6389960
1770	1162900	3907255	4814666	2986944	3832144	6379211
	1221449	3859388	4901266	3062877	3764900	6368257
	1275755	3802222	4984011	3136688	3699888	6357714
	1325611	3735554	5062088	3208122	3636200	6346183
1	1370922	3659200	5134655	3277336	3575522	6335778
	1411666	3573155	5201333	3344442	3517178	6324558
	1447611	3477311	5261288	3409266	3463377	6313277
	1478622	3371777	5311417	3471955	3412677	6301822
2	1504488	3256667	5353923	3532551	3366015	6290488
	1525177	3132433	5389637	3590977	3323822	6278477
	1539800	2999633	5425114	3647378	3286355	6256599
	1548777	2859244	5454528	3701176	3253922	6254355
3	1551777	2712566	5456522	3754115	3226755	6242355
	1548310	2561422	5458744	3804599	3205088	6230033
	1538377	2408166	5457181	3853110	3189055	6217544
	1521766	2255788	5435700	3900681	3178733	6208788
4	1498300	2107955	5410449	3944554	3174155	6199177
	1437877	1961882	5376288	3987588	3175799	6193916
	1430377	1843111	5333332	4028833	3182118	6186599
	1385711	1735666	5281933	4068400	3195566	6175232
1775	1333844	1650766	5222511	4106277	3212300	6140550
	1274733	1592333	5155557	4142577	3235188	6125666
	1208333	1563100	5080755	4177718	3262933	6110900
	1134655	1563644	5001800	4210088	3295244	6096997
6	1053677	1593326	4916577	4241813	3331822	6082886
	0965312	1649766	4827088	4271833	3372333	6069377
	0869600	1729477	4733444	4300047	3416422	6055511
	0766433	1828224	4639991	4327667	3463766	6042011
7	0655688	1941644	4544993	4353466	3513933	6025778
	0537255	2065399	4451044	4377888	3566699	6010844
	0411100	2195655	4355993	4400999	3621622	5995333
	0277671	2329099	4259339	4422777	3688500	5980045
8	1.0136416	2462999	4193228	4443258	3736944	5965000
	0.9983144	2595044	4121443	4462544	3796700	5941177
	9823377	2723844	4059655	4480577	3857499	5933353
	9654559	2847800	4011111	4497388	3919122	5917611
9	9476611	2966066	3972577	4513044	3981322	5904111
	9289277	3077866	3946949	4527511	4043877	5885114
	9092533	3182722	3941173	4539955	4106559	5868655
	8886588	3280244	3948755	4553077	4169300	5851966
1780	8671922	3370199	3970552	4564155	4231888	5835500
	8449599	3452377	4006355	4573155	4294144	5818166
	8221255	3526622	4045244	4581004	4355999	5800855
	7989633	3592833	4111562	4590955	4417300	5783400
1	7755833	3650933	4186000	4597755	4477988	5766588
	7534700	3691788	4264555	4603511	4537933	5748111
	7325133	3742300	4334955	4608222	4597055	5730155
	7140188	3775355	4439044	4611899	4655531	5712000
2	6991677	3799822	4531477	4614555	4712644	5693622
	6849162	3815522	4622577	4616211	4768977	5675514
	6850055	3822322	4711865	4614822	4824277	5656411
	6873200	3819000	4810661	4616455	4878488	5636700
3	6961122	3808366	4899969	4615066	4931577	5618344
	7107833	3787200	4984571	4612667	4983533	5599898
	7302766	3756625	5066567	4609299	5034299	5579949
	7534333	3715344	5140444	4604933	5083887	5560911
1784	0.7789266	1.3664244	1.5209077	1.4599754	1.5132233	1.5539178

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1784	0.778926	1.366424	1.520907	1.459954	1.513223	1.553978	18
	805721	360278	527186	459317	517935	551961	
	832958	353081	532452	458579	522522	549923	
	859984	344825	537644	457744	526981	547862	
1785	886344	335549	540742	456821	531314	545779	
	911727	325147	543670	455768	535517	543673	
	935918	313759	545650	454627	539591	541669	
	958800	301370	546719	453387	543533	539491	
6	0.980306	288095	546872	452042	547343	537175	
	1.000411	273965	546108	450593	551020	535016	
	019117	259122	544434	449038	554566	532794	
	036457	243708	541867	447377	557975	530545	
7	052447	227925	538428	445608	561251	528372	
	067153	211966	534150	443728	564384	525917	
	080622	196242	529068	441744	567398	523654	
	092910	180796	523227	439641	570264	521307	
8	104074	166616	516812	437385	572994	518935	18
	114182	153536	509489	435092	575586	516538	
	123270	142185	501722	432645	578038	514114	
	131414	132964	493460	430077	580351	511666	
9	138656	126223	484785	427386	582521	509192	
	145050	122217	475801	424572	584551	506691	
	150640	121034	466699	421629	586437	504165	
	155470	122756	457375	418556	588183	501613	
1790	159579	127138	448193	415352	589777	499035	
	163006	133948	439234	412013	590325	496429	
	165777	142847	430656	408538	592530	493798	
	167922	153446	422640	404919	593682	491441	
1	169469	165359	415362	401415	594008	488456	
	170433	178217	408994	397250	595537	485945	
	170839	191690	403712	393192	596239	482186	
	170692	205483	399669	388982	596796	480243	
2	169980	219358	396985	384616	597165	477452	
	168792	233117	395753	380092	597403	474659	
	167046	246595	396019	375402	597459	471789	
	164776	259665	397784	370549	597366	468911	
3	161974	272229	401001	365524	597110	466016	18
	158631	284202	405583	360327	596675	463089	
	154743	295518	411402	354964	596099	460136	
	150295	306129	418601	349401	595341	457142	
4	145271	315987	426104	343665	594415	454288	
	139651	325070	434623	337742	593317	451075	
	133415	333328	443670	331626	592047	447898	
	126532	340755	453058	325330	590602	444949	
1795	118979	347304	462611	318827	588980	441828	
	110718	352958	472167	312128	587181	438681	
	101725	357700	481575	305230	585204	435500	
	091955	361501	490699	298127	583047	432292	
6	081377	364332	499420	290817	580712	439056	
	069952	366187	507632	283300	578195	435791	
	057638	367035	515245	275574	575496	432538	
	044405	366867	522183	267637	572613	419170	
7	030207	365663	528374	259490	569552	415815	
	1.015017	363416	533771	251129	566307	412429	
	0.998802	360127	538329	242562	562879	409013	
8	981530	355768	542016	233840	559271	405566	
	963179	350368	544811	224801	555476	402088	18
	943729	343928	546698	215613	551510	398578	
	923171	336462	546732	206222	547362	395037	
	901499	327995	545744	196639	543037	391463	
9	878733	318555	543915	186865	538537	387858	
	854962	308182	541205	176910	533866	384220	
	830064	296923	537639	166784	529025	380550	
	804320	284837	533241	156497	524268	376846	
1800	777826	271996	528047	146063	518849	373134	
	750816	258487	523090	135495	513522	369344	
	723643	244421	517419	124815	508039	365545	
	696799	229978	511896	114040	502448	361712	
1801	0.670955	1.215164	1.506120	1.103197	1.496633	1.357847	18

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1801	0.670955	1.215164	1.511120	1.103197	1.496633	1.357847
	646992	200325	503610	092308	490721	355395
	626011	185636	495612	081414	484677	350022
	609143	171369	487203	070638	478510	346062
2	597629	157826	478473	059727	472226	342070
	592363	145342	469525	049027	465836	338048
	593795	134305	460454	038479	459347	333993
	601785	125053	451406	028143	452769	329909
3	615640	117945	442514	018075	446114	325794
	634303	113260	433934	1.008338	439393	321651
	656579	111199	425834	0.999002	432622	317476
	681322	111887	417392	990134	425813	313273
4	707562	115267	411786	981807	418979	309045
	734535	121209	406197	974142	412141	304782
	761673	129457	401792	967086	405314	300494
	788571	139724	398713	960831	398509	296180
1805	814953	151627	397074	955403	391772	291840
	840632	164808	396948	950863	385104	287473
	865496	178912	398357	947261	378530	283084
	889475	193612	401279	944633	372076	278669
6	912524	208619	405636	943006	365772	274231
	934627	223683	410775	942390	359643	269771
	955769	238588	418152	942787	353697	265289
	975952	253160	425973	944174	348018	260786
7	0.995176	267250	434578	946521	342580	256263
	1.013440	280737	443761	949788	337430	251725
	030747	293523	453323	953926	332599	247161
	047095	305525	463066	958855	328113	242580
8	162488	316675	472811	964546	324003	237989
	076923	326919	482393	970895	320292	233383
	090399	336211	491667	977841	317006	228771
	102917	344515	500498	985314	314168	224132
9	114473	351804	508783	0.993249	311797	219489
	125078	358058	516425	1.001572	309904	214834
	134729	363260	523350	010224	308508	210175
	143439	367404	529497	019157	307615	205507
1810	157212	370485	534819	028294	306728	200834
	158066	372511	539284	037610	307354	196156
	164017	373498	542868	047052	307983	191474
	169083	373426	545562	056585	309111	186793
1	173282	372340	547361	066174	310726	182115
	176638	370255	548272	075791	312813	177422
	179175	367176	548364	085402	315359	172733
	180915	363139	547472	094994	318335	168113
2	181880	358164	545799	104574	321725	163466
	182092	352106	543316	114035	325501	158832
	181573	345499	540025	123324	329637	154232
	180338	337866	535983	132784	334107	149623
3	178405	329401	531215	142021	338883	145051
	175786	320142	525759	151157	343934	140499
	172414	310125	519655	160181	349228	135990
	168527	299391	512953	169087	354753	131532
4	163896	287995	505696	177876	360468	127076
	158599	276001	497959	186542	366341	122687
	152627	263486	489775	195087	372361	118336
	145977	250549	481257	203483	378524	114045
1815	138623	237314	472465	211754	384769	109811
	130574	223929	463519	219899	391004	105505
	121767	210586	454534	227908	397467	101535
	112237	197504	445636	235783	403879	097504
6	101889	184958	436980	243524	410314	093555
	090707	173257	428731	251131	416754	089685
	078673	162746	421067	258603	423183	085906
	065710	153789	414180	265942	429588	082229
7	051774	146757	408259	273101	435959	078642
	036809	141980	403491	279752	442280	075165
	020753	139732	400040	287155	448542	071800
	1.003538	140180	398041	293957	454739	068555
1818	0.985099	1.143377	1.397604	1.300628	1.460858	1.065407

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1818	0.985099	1.143377	1.397604	1.300628	1.460858	1.065407
	965372	149243	398760	307168	466892	062433
	944289	157569	401505	315775	472835	059566
	921808	168055	405774	319852	478678	055837
9	897904	180329	411447	325996	484416	054270
	872587	193889	418352	332010	490044	051812
	845931	208635	426301	337893	495556	045524
	818105	223887	435074	343642	500947	047384
1820	789418	239403	444447	347587	506214	045406
	760374	254882	454190	354751	511351	043587
	731760	270069	465571	360109	516358	041935
	704659	284788	473982	365334	521225	040446
1	680510	298839	483658	370429	525952	039122
	660983	312105	492949	375389	533910	037967
	647749	324488	501797	380215	534976	036980
	642044	335913	510883	384910	539268	036156
2	644322	346335	517583	389472	543407	035521
	654076	355715	524392	393899	547395	035047
	670045	364040	530406	398190	551226	034742
	690585	371303	535589	402345	554900	034606
3	714048	377506	539922	406366	558417	034637
	739052	382661	543390	410247	561774	034833
	764536	386785	545946	413995	564665	035184
	789770	389890	547741	417601	567993	035717
4	814275	392005	548631	421069	570856	036400
	837768	393148	548688	424399	573551	037239
	860103	393343	547922	427588	576079	038231
	881220	392610	546356	430635	578436	039376
1825	901113	390971	544011	433544	580596	040668
	919819	388444	541091	436305	582641	042107
	937389	385047	537080	438926	584484	043677
	953888	380795	532555	441402	586155	045389
6	969388	374322	527334	443736	587643	047231
	983949	369786	521487	445923	588974	049203
	0.997648	363055	514935	447966	590120	051298
	1.010554	355519	508017	449864	591094	053508
7	022716	347212	500485	451616	591889	055835
	034191	338134	492493	453222	592510	058274
	045030	328318	484110	454682	592955	060816
	055275	317791	475416	455998	593227	063463
8	064962	306602	466501	457170	593324	066201
	074127	294807	457479	458198	593247	069035
	082791	282484	448429	459079	592994	071954
	090979	269743	439653	459818	601503	074953
9	098704	256720	431169	460416	591972	078033
	105960	243593	423216	460869	591203	081184
	112806	230587	416000	461174	590265	084407
	119194	217987	409726	461347	589161	087694
1830	125130	206112	404605	461398	587886	091042
	130616	195339	400827	461269	586446	094446
	135643	186103	398555	461030	584843	097900
	140169	178794	397902	460643	583070	101404
1	144206	173799	398929	460125	581139	104950
	147728	171450	401628	459475	579047	108536
	150711	171916	405936	458692	576795	112159
	153131	175249	411708	457776	574387	115814
2	154964	181336	418768	456729	571821	119498
	156193	189914	426891	455552	569103	123208
	156791	200578	435841	454248	566232	126941
	156740	213014	444912	452817	563209	130690
3	156021	226642	455232	451261	560035	134600
	154618	241062	465212	449572	556718	138237
	152519	255875	475108	447764	553251	142027
	149712	270736	484746	445832	549640	145827
4	146190	285361	493978	443784	545887	149630
	151949	299519	502685	441604	541994	153435
	136984	313043	510774	439304	537959	157245
	131295	325797	518163	436882	533786	161052
1835	1.124878	1.337692	1.524815	1.434339	1.529478	1.164861

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1835	1.124878	1.337692	1.524815	1.434330	1.529478	1.164861
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	108868	358688	535710	428886	520462	1.172461
	101269	367729	539962	425980	515759	176270
6	091934	375791	543365	422953	510928	180036
	081858	382871	545942	419805	506078	183811
	071033	388985	547700	416534	500894	187567
	059442	394144	548650	413126	495694	191064
7	047069	398362	548801	409678	490378	195098
	033896	401661	548171	405989	484952	198800
	019897	404055	546572	402228	479450	202528
	1.005048	405558	544623	398342	473771	206234
8	0.989318	406184	541736	394329	468028	209936
	972682	405947	538133	390189	462186	213598
	955109	404851	533835	385922	456256	217273
	936593	402905	528858	381524	452242	220925
9	917111	400111	523229	376997	444151	224561
	896678	396473	516976	372337	437990	228180
	875299	391991	510131	367546	431769	231658
	853153	386661	502734	362611	425495	235374
1840	830300	380477	494836	357548	419205	238947
	807017	373260	486491	352335	412836	242504
	783681	365556	477780	346986	406475	246045
	760841	356819	468790	341491	400113	249571
1	739257	347240	459635	335849	393763	253077
	719915	336838	450442	330061	387443	256568
	703978	325642	441370	324125	381171	260042
	692692	313700	431663	318035	374967	263501
2	687164	301077	424332	311788	368855	266942
	688096	287877	416790	305384	362854	270366
	695655	274234	410202	298824	356988	273773
	709304	260337	404796	292111	351287	277163
3	728057	246419	400787	285216	345775	280536
	750658	232459	398351	278166	340704	283892
	775829	219796	397614	270952	335437	287241
	802447	207868	398632	263573	330672	290550
4	829599	197455	401395	256031	326215	293852
	856600	189035	405812	248321	322097	297164
	882965	183017	411731	240450	318350	300403
	908351	179737	418934	232418	315002	303651
1845	932547	179389	427191	224226	312081	306879
	955425	182000	436238	215881	309611	310088
	976911	187415	445826	207388	307637	313279
	0.996488	195339	455679	198753	306124	316451
6	1.015654	205360	465610	189987	305141	319603
	032940	217021	475305	181097	304682	322734
	048888	229846	484911	172103	304761	325848
	063549	243404	493988	163014	305375	328944
7	076975	257309	502531	153856	306524	332013
	089231	271239	510456	144647	308207	335067
	100371	284936	517717	135413	310408	338102
	110458	298200	524223	126200	313114	341126
8	119560	310882	529992	117029	316309	344115
	127718	322872	534989	107947	319968	347092
	134994	334097	539204	098996	324069	350046
	141437	344506	542633	090232	328580	352981
9	147095	354069	545278	081730	333473	355903
	152011	362768	547142	073495	338715	358788
	156231	370597	548231	065716	344279	361690
	159766	377554	548556	058354	350125	364553
1850	162673	383641	548120	051493	356227	367402
	164970	388864	546934	045325	362549	370233
	166683	393229	545010	039819	369060	373201
	167831	396742	542353	035080	375729	375845
1	168433	399405	538978	031186	382529	378645
	168497	401219	534896	028201	389432	381490
	168038	402187	530119	026178	396410	384138
	167061	402302	522865	025171	403438	387065
1852	1.165570	1.401561	1.518551	1.025100	1.411148	1.389588

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1852	1.165570	1.401561	1.518551	1.025100	1.411148	1.389588
	163561	399957	511811	026221	417553	392290
	161035	397479	504476	028309	424598	394978
	157979	393738	496586	031404	431613	397648
3	154392	389848	488206	035470	438575	400304
	150255	384717	479404	040468	445472	402946
	145554	378559	470271	046284	452291	405838
	140276	371501	460920	052694	459017	408189
4	134377	363488	451494	060208	465683	410790
	127850	354512	442152	068138	472141	413092
	120665	344556	432933	076601	478402	415862
	112788	333679	422527	085515	484767	418512
1855	104188	321859	416702	094799	490874	421060
	094829	309155	409865	104382	496831	423595
	084679	295644	404263	114194	502634	426115
	073703	281431	400121	124165	508276	428524
6	061853	266680	397623	134243	513755	431120
	049118	251552	396888	144363	519061	433603
	035457	236344	397970	153142	524204	436073
	020828	221371	400833	164621	529168	438530
7	1.005209	207020	405365	174658	533955	440976
	0.988575	193734	411389	184598	538560	443409
	970903	181988	418676	194412	542987	445828
	952181	172259	426968	204077	547230	448233
8	932398	164975	435999	213579	551289	450616
	911545	160464	445511	222902	555165	453005
	889638	158914	453263	232029	558858	455373
	866699	160345	465043	240953	562367	457725
9	842772	164600	474676	249663	565693	460064
	817936	171393	483999	258162	568836	462390
	792313	180334	492902	266472	571797	464802
	766100	190970	501287	274490	574576	466800
1860.	0.739562	1.202891	1.509081	1.282318	1.577177	1.469288

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Heliocentric Coordinates

Jupiter

	x	y	z
1750	+ 4.937 80	+ 0.342 32	− 0.1.1345
	4.833 21	1.057 51	0.1.1353
	4.630 32	1.175 118	0.1.1130
	4.333 40	2.409 27	0.1.0681
1751	3.948 88	3.018 65	0.1.0016
	3.485 16	3.567 48	0.0.9150
	2.952 22	4.045 47	0.0.8103
	2.361 36	4.494 11	0.0.6896
1752	1.724 81	4.756 82	0.0.5556
	1.055 42	4.979 02	0.0.4109
	+ 0.366 26	5.108 17	0.0.2587
	− 0.328 66	5.143 58	− 0.0.1016
1753	1.019 68	5.086 38	+ 0.0.0574
	1.691 76	4.939 36	0.0.2153
	2.334 58	4.706 77	0.0.3895
	2.937 77	4.394 14	0.0.5174
1754	3.491 94	4.008 10	0.0.6567
	3.988 84	3.556 26	0.0.7852
	4.421 34	3.046 96	0.0.9010
	4.783 47	2.489 13	0.1.0024
1755	5.070 39	1.892 13	0.1.0881
	5.278 48	1.265 70	0.1.1569
	5.405 22	+ 0.619 76	0.1.2078
	5.449 23	− 0.035 65	0.1.2403
1756	5.410 21	0.600 51	0.1.2538
	5.289 02	1.334 85	0.1.2483
	5.087 50	1.958 90	0.1.2238
	4.808 59	2.553 13	0.1.1887
1757	4.456 26	3.108 32	0.1.1196
	4.035 44	3.615 70	0.1.0413
	3.552 10	4.067 02	0.0.9468
	3.013 15	4.455 463	0.0.8375
1758	2.426 48	4.771 64	0.0.7149
	1.800 84	5.011 97	0.0.5809
	1.145 81	5.170 47	0.0.4373
	− 0.471 76	5.243 11	0.0.2865
1759	+ 0.210 25	5.227 15	+ 0.0.1309
	0.888 62	5.121 16	− 0.0.0270
	1.551 37	4.925 25	0.0.1844
	2.186 34	4.641 17	0.0.3385
1760	2.781 39	4.272 37	0.0.4865
	3.324 64	3.824 09	0.0.6254
	3.804 96	3.303 40	0.0.7524
	4.211 98	2.719 11	0.0.8649
1761	4.536 60	2.081 65	0.0.9605
	4.771 34	1.402 97	0.1.0371
	4.910 54	− 0.696 23	0.1.0929
	4.950 61	+ 0.024 54	0.1.1267
1762	4.890 19	0.744 79	0.1.1376
	4.730 31	1.449 88	0.1.1253
	4.474 25	2.125 47	0.1.0902
	4.127 54	2.757 99	0.1.0330
1763	3.697 76	3.335 00	0.0.9552
	3.194 20	3.845 50	0.0.8580
	2.627 65	4.280 17	0.0.7440
	2.009 98	4.631 60	0.0.6156
1764	1.353 81	4.894 38	0.0.4754
	+ 0.672 12	5.063 05	0.0.3262
	− 0.022 03	5.142 13	0.0.1710
	0.715 83	5.125 96	− 0.0.0127
1765	1.396 96	5.018 64	+ 0.0.1459
	2.053 77	4.823 78	0.0.3019
	2.675 48	4.546 34	0.0.4527
	3.252 28	4.192 51	0.0.5960
1766	3.775 42	3.769 44	0.0.7293
	4.237 28	3.285 13	0.0.8508
	4.631 85	2.748 23	0.0.9588
	4.952 30	2.167 93	0.1.0515
1767	5.195 97	1.553 80	0.1.1278
	5.359 35	0.915 68	0.1.1867
	5.440 53	+ 0.263 51	0.1.2274
	5.438 71	− 0.392 67	0.1.2494
1768	− 5.354 17	− 1.042 87	+ 0.1.2523

Saturn

	x.	y.	z.
	− 5.680 55	− 8.173 45	+ 0.366 079
	5.284 35	8.454 18	0.354 600
	4.877 05	8.713 98	0.342 251
	4.453 72	8.952 30	0.329 057
	4.021 44	9.168 66	0.315 056
	3.579 30	9.362 59	0.300 287
	3.128 39	9.533 68	0.284 787
	2.669 82	9.681 61	0.268 599
	2.204 72	9.806 03	0.251 758
	1.734 23	9.906 73	0.234 308
	1.259 50	9.983 52	0.216 296
	0.781 65	10.036 18	0.197 763
	− 0.301 85	10.064 60	0.178 752
	+ 0.178 74	10.068 73	0.159 314
	0.658 98	10.048 56	0.139 485
	1.137 71	10.004 17	0.119 322
	1.613 77	9.935 55	0.098 868
	2.086 00	9.842 88	0.078 177
	2.553 25	9.726 32	0.057 294
	3.014 36	9.586 10	0.036 268
	3.468 21	9.422 50	+ 0.015 153
	3.913 63	9.235 88	− 0.006 003
	4.349 54	9.026 58	0.027 145
	4.774 81	8.795 08	0.048 222
	5.188 37	− 8.541 83	0.069 185
	5.589 11	8.267 38	0.089 979
	5.975 95	7.972 26	0.110 555
	6.347 88	7.657 19	0.130 854
	6.703 87	7.322 84	0.150 828
	7.042 95	6.969 95	0.170 423
	7.364 16	6.599 33	0.189 590
	7.666 50	6.211 76	0.208 270
	7.949 09	5.808 16	0.226 420
	8.211 04	5.389 47	0.243 979
	8.451 59	4.956 74	0.260 908
	8.669 91	4.510 97	0.277 149
	8.865 21	4.053 23	0.292 656
	9.037 88	3.584 71	0.307 380
	9.184 19	3.106 54	0.321 275
	9.306 63	2.620 01	0.334 299
	9.403 57	2.126 31	0.346 411
	9.474 57	1.626 78	0.357 561
	9.519 18	1.122 76	0.367 711
	9.537 09	0.615 66	0.376 829
	9.527 96	− 0.106 85	0.384 872
	9.491 64	+ 0.402 24	0.391 811
	9.427 92	0.910 06	0.397 614
	9.336 77	1.415 22	0.402 260
	9.218 24	1.916 16	0.405 716
	9.072 41	2.411 39	0.407 961
	8.899 50	2.899 37	0.408 986
	8.699 76	3.378 60	0.408 772
	8.473 57	3.847 54	0.407 309
	8.221 38	4.304 67	0.404 588
	7.943 82	4.748 51	0.400 614
	7.641 51	5.177 56	0.395 384
	7.315 20	5.590 35	0.388 910
	6.965 80	5.985 50	0.381 202
	6.594 22	6.361 59	0.372 275
	6.201 50	6.717 29	0.362 150
	5.788 80	7.052 35	0.350 857
	5.357 33	7.362 51	0.338 421
	4.908 38	7.649 65	0.324 879
	4.443 33	7.911 69	0.310 269
	3.963 63	8.147 63	0.294 633
	3.470 82	8.356 42	0.278 025
	2.966 46	8.537 78	0.260 490
	2.452 19	8.691 44	0.242 086
	1.929 72	8.816 00	0.222 871
	1.400 77	8.910 00	0.202 911
	0.867 10	8.971 98	0.182 269
	+ 0.330 51	9.002 77	0.161 014
	− 0.207 17	+ 9.009 14	− 0.139 218

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Jupiter.

	x.	y	z
1768	− 5.3 5 4 1 7	− 1 0 4 2 8 7	+ 0.1 2 5 2 3
	5.1 8 8 3 5	1.6 7 7 2 1	0.1 2 3 6 2
	4.9 4 3 6 3	2.2 8 6 0 4	0.1 2 0 1 3
	4.6 2 3 5 0	2.8 5 9 9 8	0.1 1 4 8 1
1769	4.2 3 2 4 8	3.3 9 0 0 5	0.1 0 7 7 3
	3.7 7 6 0 2	3.8 6 7 7 2	0.0 9 8 9 8
	3.2 6 0 6 3	4.2 8 5 0 1	0.0 8 8 6 9
	2.6 9 3 7 4	4.6 3 4 6 2	0.0 7 7 0 0
1770	2.0 8 3 7 5	4.9 1 0 0 5	0.0 6 4 0 7
	1.4 3 9 9 0	5.1 0 5 7 2	0.0 5 0 1 0
	0.7 7 2 3 1	5.2 1 7 0 9	0.0 3 5 3 0
	− 0.0 9 1 7 6	5.2 4 0 7 6	0.0 1 9 9 2
1771	+ 0.5 9 0 3 5	5.1 7 4 6 9	0.0 0 4 1 9
	1.2 6 2 1 1	5.0 1 8 3 1	0.0 1 1 6 1
	1.9 1 1 3 8	4.7 7 2 6 9	0.0 2 7 2 0
	2.5 2 5 9 4	4.4 4 0 5 4	0.0 4 2 3 0
1772	3.0 9 3 7 8	4.0 2 6 3 2	0.0 5 6 6 2
	3.6 0 3 3 4	3.5 3 6 3 5	0.0 6 9 8 6
	4.0 4 3 8 8	2.9 7 8 6 6	0.0 8 1 7 7
	4.4 0 5 7 5	2.3 6 3 0 8	0.0 9 2 0 9
1773	4.6 8 0 7 9	1.7 0 0 9 8	0.1 0 0 5 9
	4.8 6 2 4 8	1.0 0 4 9 8	0.1 0 7 0 8
	4.9 4 6 3 2	− 0.2 8 8 7 5	0.1 1 1 4 2
	4.9 3 0 0 0	+ 0.4 3 3 3 2	+ 0.1 1 3 5 1
1774	4.8 1 3 5 2	1.1 4 6 5 9	− 0.1 1 3 2 8
	4.5 9 9 1 8	1.8 3 6 5 8	0.1 1 0 7 6
	4.2 9 1 5 3	2.4 8 9 3 2	0.1 0 5 9 8
	3.8 9 7 3 0	3.0 9 1 8 7	0.0 9 9 0 7
1775	3.4 2 5 0 8	3.6 3 2 5 8	0.0 9 0 1 8
	2.8 8 5 0 0	4.1 0 1 3 8	0.0 7 9 5 0
	2.2 8 8 4 9	4.4 9 0 0 1	0.0 6 7 2 6
	1.6 4 7 9 1	4.7 9 2 2 2	0.0 5 3 7 3
1776	0.9 7 6 0 9	5.0 0 3 6 8	0.0 3 9 1 8
	+ 0.2 8 6 0 7	5.1 2 2 0 3	0.0 2 3 9 0
	− 0.4 0 9 1 9	5.1 4 6 8 4	0.0 0 8 1 8
	1.0 9 7 1 4	5.0 7 9 4 6	− 0.0 0 7 6 8
1777	1.7 6 5 8 4	4.9 2 2 8 2	+ 0.0 2 3 4 1
	2.4 0 4 1 0	4.6 8 1 3 4	0.0 3 8 7 3
	3.0 0 1 7 2	4.3 6 0 6 7	0.0 5 3 4 0
	3.5 4 9 1 4 8	3.9 6 7 5 5	0.0 6 7 1 9
1778	4.0 3 9 2 6	3.5 0 9 6 0	0.0 7 9 8 2
	4.4 6 4 0 8	2.9 9 5 1 7	0.0 9 1 2 6
	4.8 1 8 0 8	2.4 3 3 1 9	0.1 0 1 2 1
	5.0 9 6 5 6	1.8 3 3 0 5	0.1 0 9 5 7
1779	5.2 9 5 9 6	1.2 0 4 4 4	0.1 1 6 2 3
	5.4 1 3 9 0	+ 0.5 5 7 2 7	0.1 2 1 1 0
	5.4 4 9 0 6	− 0.0 9 8 4 4	0.1 2 4 1 2
	5.4 0 1 2 1	0.7 5 2 6 7	0.1 2 5 2 5
1780	5.2 7 1 2 5	1.6 9 5 3 6	0.1 2 4 4 7
	5.0 1 1 1 5	2.0 1 7 1 4	0.1 2 1 8 0
	4.7 7 3 8 6	2.6 0 8 0 4	0.1 1 7 2 8
	4.4 1 3 4 3	3.1 5 9 0 0	0.1 1 0 9 6
1781	3.9 8 4 9 3	3.6 6 1 2 6	0.1 0 2 9 2
	3.4 9 4 4 4	4.1 0 6 5 7	0.0 9 3 2 8
	2.9 4 8 9 9	4.4 8 7 3 0	0.0 8 2 1 8
	2.3 5 6 5 8	4.7 9 6 5 4	0.0 6 9 7 7
1782	1.7 2 6 1 2	5.0 2 8 3 0	0.0 5 6 0 3
	1.0 6 7 4 0	5.1 7 7 5 4	0.0 4 1 7 7
	− 0.3 9 0 9 1	5.2 4 0 3 9	0.0 2 6 6 2
	+ 0.2 9 2 5 4	5.2 1 4 2 0	+ 0.0 1 1 0 1
1783	0.9 7 0 0 7	5.0 9 7 7 9	− 0.0 0 4 7 8
	1.6 3 0 8 2	4.8 7 1 4 8	0.0 2 0 4 9
	2.2 6 2 1 6	4.5 9 7 2 4	0.0 3 5 8 3
	2.8 5 2 0 4	4.2 1 8 8 2	0.0 5 0 5 1
1784	3.3 8 3 5 8	3.7 6 1 7 4	0.0 6 4 2 4
	3.8 6 0 7 7	3.2 3 3 2 8	0.0 7 6 7 5
	4.2 5 8 4 7	2.6 4 2 4 7	0.0 8 7 7 8
	4.5 7 2 8 4	1.9 9 9 9 9	0.0 9 7 0 9
1785	4.7 9 6 6 2	1.3 1 4 9 1	0.1 0 4 4 7
	4.9 2 4 4 3	− 0.6 0 9 4 6	0.1 0 9 7 7
	4.9 5 2 9 8	+ 0.1 1 1 3 0	0.1 1 2 8 5
	4.8 8 1 2 0	0.8 2 9 8 3	0.1 1 3 6 5
1786.	+ 4.7 1 0 3 8	+ 1.5 3 1 5 4	− 0.1 1 2 1 3

Saturn.

	x.	y.	z.
	− 0.2 0 7 1 7	+ 9.0 0 9 1 4	− 0.1 3 9 2 1 8
	0.7 4 4 1 5	8.9 8 2 1 1	0.1 1 6 9 5 1
	1.2 7 8 5 6	8.9 2 4 8 0	0.0 9 4 2 9 8
	1.8 0 8 6 9	8.8 3 7 4 4	0.0 7 1 3 3 1
	2.3 2 2 6 8	8.7 2 0 3 0	0.0 4 8 1 1 5
	2.8 4 8 8 2	8.5 7 3 9 5	0.0 2 4 7 4 5
	3.3 5 5 3 8	8.3 9 8 8 8	− 0.0 0 1 2 9 3
	3.8 5 0 7 0	8.1 9 5 7 8	+ 0.0 2 2 1 5 9
	4.3 3 3 1 5	7.9 6 5 5 4 2	0.0 4 5 5 4 0
	4.8 0 1 2 1	7.7 0 8 7 4	0.0 6 8 7 6 8
	5.2 5 3 4 0	7.4 2 6 6 9	0.0 9 1 7 6 3
	5.6 8 8 3 2	7.1 2 0 3 3	0.1 1 4 4 6 2
	6.1 0 4 6 0	6.7 9 0 7 5	0.1 3 6 7 8 9
	6.5 0 1 0 6	6.4 3 9 2 5	0.1 5 8 6 6 7
	6.8 7 6 5 2	6.0 6 7 0 5	0.1 8 0 0 3 6
	7.2 2 9 9 8	5.6 7 5 5 4	0.2 0 0 8 2 8
	7.5 6 0 4 6	5.2 6 6 1 0	0.2 2 0 9 8 8
	7.8 6 7 0 7	4.8 4 0 1 1	0.2 4 0 4 5 2
	8.1 4 9 1 0	4.3 9 9 0 9	0.2 5 9 1 6 5
	8.4 0 5 8 3	3.9 4 4 4 7	0.2 7 7 0 7 3
	8.6 3 6 7 4	3.4 7 7 8 1	0.2 9 4 1 3 8
	8.8 4 1 3 1	3.0 0 0 5 9	0.3 1 0 3 0 8
	9.0 1 9 1 4	2.5 1 4 3 5	0.3 2 5 5 3 5
	9.1 7 0 0 1	2.0 2 0 6 3	0.3 3 9 7 9 4
	9.2 9 3 6 6	1.5 2 0 9 3	0.3 5 3 0 4 8
	9.3 9 0 0 1	1.0 1 6 7 9	0.3 6 5 2 6 4
	9.4 5 9 0 3	0.5 0 9 7 0	0.3 7 6 4 1 5
	9.5 0 0 7 4	+ 0.0 0 1 1 3	0.3 8 6 4 8 6
	9.5 1 5 2 7	− 0.5 0 7 4 6	0.3 9 5 4 5 0
	9.5 0 2 8 0	1.0 1 4 6 1	0.4 0 3 2 9 4
	9.4 6 3 6 4	1.5 1 8 9 6	0.4 1 0 0 0 6
	9.3 9 8 0 6	2.0 1 9 1 0	0.4 1 5 5 7 1
	9.3 0 6 5 6	2.5 1 3 7 1	0.4 1 9 9 9 2
	9.1 8 9 5 4	3.0 0 1 4 9	0.4 2 3 2 6 3
	9.0 4 1 5 7	3.4 8 1 1 7	0.4 2 5 3 8 4
	8.8 8 1 2 1	3.9 5 1 5 5	0.4 2 6 3 5 8
	8.6 9 1 1 0	4.4 1 1 4 3	0.4 2 6 1 9 3
	8.4 7 7 8 9	4.8 5 9 6 8	0.4 2 4 8 9 7
	8.2 4 2 3 5	5.2 9 5 2 4	0.4 2 2 4 8 1
	7.9 8 5 2 1	5.7 1 7 0 3	0.4 1 8 9 5 8
	7.7 0 7 2 9	6.1 2 4 0 6	0.4 1 4 3 4 6
	7.4 0 9 4 7	6.5 1 5 4 0	0.4 0 8 6 6 6
	7.0 9 2 5 9	6.8 9 0 1 1	0.4 0 1 9 3 4
	6.7 5 7 5 8	7.2 4 7 3 6	0.3 9 4 1 8 0
	6.4 0 5 4 1	7.5 8 6 3 9	0.3 8 5 4 2 6
	6.0 3 7 0 3	7.9 0 6 3 6	0.3 7 5 6 9 9
	5.6 5 3 4 7	8.2 0 6 6 4	0.3 6 5 0 3 2
	5.2 5 5 6 9	8.4 8 6 4 7	0.3 5 3 4 4 8
	4.8 4 4 7 8	8.7 4 5 3 0	0.3 4 0 9 8 2
	4.4 2 1 8 3	8.9 8 2 5 9	0.3 2 7 6 7 4
	3.9 8 7 8 8	9.1 9 1 7 8	0.3 1 3 6 5 8
	3.5 4 4 0 8	9.3 9 0 3 8	0.2 9 8 6 5 6
	3.0 9 1 5 2	9.5 6 0 0 1	0.2 8 3 0 4 7
	2.6 3 1 3 5	9.7 0 6 3 2	0.2 6 6 7 3 3
	2.1 6 4 7 0	9.8 2 8 9 2	0.2 4 9 7 6 6
	1.6 9 2 7 2	9.9 2 7 5 0	0.2 3 2 1 9 3
	1.2 1 6 5 7	10.0 0 2 0 5	0.2 1 4 0 5 2
	0.7 3 7 4 3	10.0 5 3 2 5	0.1 9 5 3 8 9
	− 0.2 5 6 4 6	10.0 7 7 9 8	0.1 7 6 2 5 5
	+ 0.2 2 5 1 9	10.0 7 9 2 2	0.1 5 6 6 9 3
	0.7 0 6 3 1	10.0 5 5 9 7	0.1 3 6 7 5 2
	1.1 8 5 7 5	10.0 0 8 2 1	0.1 1 6 4 7 8
	1.6 6 2 3 2	9.9 3 6 1 4	0.0 9 5 9 2 2
	2.1 3 4 8 7	9.8 3 9 9 0	0.0 7 5 1 3 5
	2.6 0 2 1 9	9.7 1 9 6 1	0.0 5 4 1 6 6
	3.0 6 3 1 7	9.5 7 5 6 2	0.0 3 3 0 6 7
	3.5 1 6 6 2	9.4 0 8 1 9	+ 0.0 1 1 8 9 3
	3.9 6 1 4 2	9.2 1 7 7 2	− 0.0 0 9 3 0 8
	4.3 9 6 4 0	9.0 0 4 5 5	0.0 3 0 4 7 9
	4.8 2 0 5 0	8.7 6 9 2 3	0.0 5 1 5 7 3
	5.2 3 2 5 8	8.5 1 2 2 2	0.0 7 2 5 3 2
	5.6 3 1 5 7	8.2 3 4 0 9	0.0 9 3 3 0 3
	+ 6.0 1 6 4 2	− 7.9 3 5 4 6	− 0.1 1 3 8 3 7

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Jupiter -

Saturn.

	x	y	z.	x.	y.	z.
1786	+ 4.711038	+ 1.531154	− 0.112213	+ 6.016442	− 7.935466	− 0.113837
	4.444406	2.202025	0.108835	6.386099	7.616999	0.134081
	4.088801	2.828553	0.102338	6.739558	7.279936	0.153979
	3.649996	3.398133	0.094335	7.075792	6.923340	0.173478
1787	3.139326	3.900024	0.084445	7.394113	6.549986	0.192533
	2.567709	4.325780	0.072888	7.693329	6.159960	0.211081
	1.945506	4.667359	0.059991	7.972250	5.753534	0.229087
	1.285922	4.920399	0.045799	8.230094	5.332644	0.246490
1788	+ 0.602644	5.080944	0.030081	8.467799	4.897822	0.263235
	− 0.091176	5.148800	− 0.008526	8.682226	4.450040	0.279286
	0.784488	5.122206	+ 0.000056	8.873655	3.991119	0.294589
	1.463316	5.000535	0.016377	9.041277	3.521144	0.309102
1789	2.116733	4.801162	0.031900	9.184488	3.042332	0.322775
	2.734055	4.575922	0.046888	9.302755	2.555505	0.335566
	3.305555	4.154555	0.061108	9.395549	2.060899	0.347434
	3.822626	3.724755	0.074227	9.462288	1.561115	0.358337
1790	4.277773	3.234554	0.086255	9.502700	1.057116	0.368239
	4.664457	2.692634	0.096866	9.516455	0.553030	0.377101
	4.977770	2.108204	0.105934	9.503277	− 0.041988	0.384892
	5.211325	1.490844	0.113366	9.462911	+ 0.466399	0.391577
1791	5.368219	0.850399	0.119037	9.395529	0.973344	0.397132
	5.440799	+ 0.196855	0.122877	9.300030	1.477740	0.401524
	5.430266	− 0.459776	0.124847	9.178100	1.977710	0.404735
	5.337017	1.109399	0.124900	9.028711	2.470887	0.406744
1792	5.162517	1.742177	0.123066	8.852444	2.957227	0.407541
	4.909319	2.348411	0.119357	8.649477	3.434773	0.407100
	4.581047	2.918744	0.113817	8.420233	3.901777	0.405419
	4.182287	3.444416	0.106527	8.165519	4.356786	0.402491
1793	3.718697	3.916177	0.097587	7.884933	4.799850	0.398319
	3.196897	4.326872	0.087117	7.580014	5.229527	0.392901
	2.624507	4.668917	0.075267	7.251522	5.635617	0.386246
	2.010047	4.936047	0.062207	6.899922	6.028300	0.378362
1794	1.362917	5.122747	0.048137	6.526297	6.401776	0.369271
	0.693317	5.224637	0.033277	6.131697	6.754177	0.358991
	− 0.042107	5.238547	0.017857	5.717227	7.086107	0.347547
	+ 0.669237	5.162617	+ 0.002127	5.284077	7.394387	0.334970
1795	1.338827	4.996527	− 0.013647	4.833517	7.678537	0.321285
	1.984577	4.741477	0.029167	4.366927	7.937577	0.306545
	2.594157	4.400377	0.044147	3.885867	8.170367	0.290783
	3.155787	3.977947	0.058317	3.391737	8.376127	0.274052
1796	3.658017	3.480657	0.071387	2.886167	8.554037	0.256404
	4.090227	2.916767	0.083087	2.370777	8.703347	0.237886
	4.442967	2.296217	0.093177	1.847257	8.823447	0.218568
	4.708207	1.630427	0.101427	1.317377	8.913907	0.198503
1797	4.879677	0.932157	0.107657	0.782917	8.974267	0.177765
	4.953017	− 0.215137	0.111727	+ 0.245597	9.004307	0.156415
	4.926387	+ 0.506257	0.113537	− 0.292697	9.003917	0.134531
	4.799777	1.217377	0.113047	0.830127	8.973037	0.112185
1798	4.575757	1.903817	0.110257	1.364887	8.911757	0.089450
	4.259127	2.551737	0.105237	1.895147	8.820347	0.066408
	3.856747	3.148277	0.098097	2.419107	8.699087	0.043133
	3.377337	3.681957	0.088997	2.934987	8.548467	− 0.019708
1799	2.831197	4.142877	0.078137	3.441097	8.369137	+ 0.006390
	2.229847	4.523007	0.065757	3.935727	8.161717	0.027281
	1.585647	4.816227	0.052167	4.417247	7.927027	0.050687
	0.911457	5.018377	0.037467	4.884117	7.665967	0.073927
1800.	+ 0.220317	5.127327	0.022137	5.336487	7.379537	0.096930
	− 0.477487	5.142767	− 0.000647	5.776797	7.068787	0.119616
	1.151697	5.061187	+ 0.009457	6.202157	6.734957	0.141912
	1.827967	4.900687	0.025147	6.577627	6.379237	0.163751
1801	2.462907	4.650777	0.040407	6.947897	6.002927	0.186053
	3.056267	4.322197	0.054977	7.299347	5.607377	0.207779
	3.598927	3.921767	0.068637	7.626357	5.194007	0.228839
	4.082817	3.457207	0.081177	7.929247	4.764307	0.249188
1802	4.501067	2.936937	0.092407	8.207197	4.319727	0.263766
	4.847907	2.369997	0.102177	8.459507	3.861777	0.281521
	5.118747	1.765827	0.110347	8.685657	3.391947	0.298407
	5.310137	1.134207	0.116797	8.885167	2.911797	0.314378
1803	5.419787	+ 0.485077	0.121447	9.057687	2.422877	0.329395
	5.446527	− 0.171497	0.124247	9.202937	1.926727	0.343420
	5.390277	0.825447	0.125147	9.320777	1.424897	0.356420
	5.252077	1.466817	0.124147	9.411057	0.918917	0.368364
1804	− 5.034047	− 2.085867	+ 0.121257	− 9.473827	+ 0.410297	0.379231

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	Jupiter.			Saturn.		
	x.	y.	z.	x.	y.	z.
1804	−.503404	−2.08586	+0.121225	−9.47382	+0.41029	+0.379231
	.473930	2.67307	0.111652	9.50913	−0.09946	0.388999
	.437206	3.21933	0.110000	9.51715	0.60888	0.397647
	.393750	3.71594	0.101779	9.49810	1.11649	0.405159
1805	.344181	4.15475	0.092600	9.45232	1.62094	0.411529
	.289214	4.52827	0.080776	9.38010	2.12077	0.416743
	.229659	4.82981	0.068124	9.28192	2.61468	0.420800
	1.66408	5.05350	0.054463	9.15831	3.10136	0.423700
1806	1.00440	5.19445	0.040012	9.00976	3.57955	0.425444
	−0.32804	5.24892	0.024794	8.83690	4.04799	0.426034
	+0.35383	5.21442	+0.009935	8.64036	4.50553	0.425481
	1.02956	5.08990	−0.006411	8.42096	4.95108	0.423799
1807	1.68716	4.87583	0.022205	8.17940	5.38353	0.420999
	2.31447	4.57426	0.037330	7.91645	5.80183	0.417099
	2.89944	4.18902	0.057186	7.63296	6.20501	0.412109
	3.43038	3.72570	0.065545	7.32979	6.59213	0.406054
1808	3.89624	3.19168	0.077881	7.00788	6.96228	0.398961
	4.28694	2.59610	0.088666	6.66819	7.31472	0.390853
	4.59375	1.94972	0.097777	6.31164	7.64860	0.381751
	4.80945	1.26468	0.104915	5.93922	7.96325	0.371695
1809	4.92887	−0.55432	0.110003	5.55195	8.25783	0.360721
	4.94876	+0.16723	0.112888	5.15089	8.53194	0.348842
	4.86821	0.88537	0.113444	4.73707	8.78487	0.336100
	4.68869	1.58549	0.111169	4.31156	9.01610	0.322533
1810	4.41391	2.25340	0.107688	3.87546	9.22518	0.308178
	4.04978	2.87568	0.101148	3.42982	9.41161	0.293070
	3.60426	3.44015	0.093225	2.97581	9.57509	0.277245
	3.08696	3.93611	0.083155	2.51451	9.71528	0.260750
1811	2.50886	4.35458	0.071142	2.04705	9.83179	0.243623
	1.88204	4.68851	0.058311	1.57459	9.92443	0.225911
	1.21923	4.93286	0.044406	1.09828	9.99308	0.207647
	+0.53349	4.08455	0.029000	0.61925	10.03756	0.188887
1812	−0.16214	5.14244	−0.013400	−0.13867	10.05772	0.169671
	0.85488	5.10725	+0.002430	+0.34230	10.05355	0.150046
	1.53250	4.98137	0.018250	0.82251	10.02508	0.130057
	2.18348	4.76874	0.033733	1.30080	9.97229	0.109754
1813	2.79720	4.47459	0.048643	1.77600	9.89532	0.089188
	3.36404	4.10533	0.062733	2.24697	9.79433	0.068401
	3.87546	3.66836	0.075780	2.71252	9.66952	0.047446
	4.32401	3.17182	0.087863	3.17153	9.52111	0.026378
1814	4.70344	2.62454	0.098806	3.62288	9.34946	+0.005240
	5.00868	2.03584	0.106944	4.06541	9.15486	−0.015910
	5.23580	1.41537	0.111415	4.49798	8.93769	0.037028
	5.38204	0.77304	0.111960	4.91953	8.69843	0.058053
1815	5.44576	+0.11886	0.112321	5.32893	8.43763	0.078941
	5.42642	−0.53712	0.112495	5.72513	8.15578	0.099634
	5.32402	1.18491	0.112478	6.10707	7.85352	0.120080
	5.14194	1.81468	0.112272	6.47369	7.53147	0.140225
1816	4.88110	2.41683	0.111879	6.82400	7.19039	0.160027
	4.54582	2.98209	0.111305	7.15703	6.83102	0.179416
	4.14083	3.50157	0.105558	7.47180	6.45419	0.198358
	3.67185	3.96691	0.096448	7.76738	6.06073	0.216791
1817	3.14557	4.37030	0.085787	8.04288	5.65156	0.234666
	2.56964	4.70466	0.073990	8.29743	5.22765	0.251929
	1.95261	4.96371	0.060775	8.53026	4.79004	0.268537
	1.30387	5.14212	0.046662	8.74052	4.33974	0.284433
1818	−0.63361	5.23559	0.031771	8.92751	3.87789	0.299575
	+0.04730	5.24105	0.016127	9.09063	3.40568	0.313913
	0.72939	5.15675	+0.000055	9.22911	2.92425	0.327401
	1.39477	4.98242	−0.015118	9.34250	2.43488	0.339999
1819	2.03730	4.71938	0.030263	9.43020	1.93884	0.351661
	2.64285	4.37069	0.045553	9.49181	1.43746	0.362349
	3.19948	3.94114	0.059591	9.52689	0.93204	0.372018
	3.69578	3.43732	0.072252	9.53511	−0.42411	0.380639
1820	4.12124	2.81765	0.084061	9.51629	+0.08502	0.388173
	4.46648	2.24219	0.093977	9.47014	0.59387	0.394592
	4.72353	1.57248	0.102002	9.39667	1.10169	0.399866
	4.88624	0.87141	0.108031	9.29577	1.60491	0.403965
1821	4.95056	−0.15282	0.111186	9.16749	2.10393	0.406871
	4.91457	+0.56884	0.113441	9.01197	2.59964	0.408561
	4.77866	1.27892	0.112701	8.82951	3.08160	0.409024
	4.54554	1.96298	0.109681	8.62036	3.55522	0.408242
1822	+4.22023	+2.60722	−0.104431	+8.38496	+4.02198	−0.406212

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	x	y	z	x.	y.	z.	
1822	+4.220023	+2.607722	−0.104443	+8.384996	+4.021998	−0.406212	1
	3.809980	3.199888	0.097007	8.123777	4.477436	0.402927	
	3.323116	3.726557	0.087777	7.837739	4.912866	0.398381	6
	2.770175	4.180553	0.076774	7.526359	5.336088	0.392596	
1823	2.164220	4.552886	0.064221	7.192044	5.742477	0.385568	1
	1.577599	4.837622	0.050444	6.834373	6.130669	0.377310	
	0.839088	5.030911	0.035571	6.455561	6.499339	0.368477	
	+0.146554	5.130775	0.020233	6.055775	6.847223	0.357198	
1824	−0.548722	5.137703	−0.004557	5.636131	7.172996	0.345389	1
	1.234223	5.057146	+0.011227	5.198552	7.475339	0.332453	
	1.898813	4.877227	0.026922	4.743775	7.755340	0.318413	
	2.529422	4.619144	0.042210	4.273400	8.005966	0.303362	
1825	3.118022	4.282999	0.056556	3.788955	8.232122	0.287290	11
	3.654933	3.875776	0.070009	3.291944	8.431011	0.270269	
	4.132266	3.405227	0.082488	2.788399	8.601185	0.252344	
	4.543233	2.880017	0.093554	2.266773	8.743397	0.233579	
1826	4.882200	2.309233	0.103112	1.741900	8.856986	0.214032	1
	5.144775	1.702266	0.111108	1.211121	8.939995	0.193769	
	5.327662	1.068933	0.117332	0.676447	8.993033	0.172856	
	5.428662	+0.419188	0.121175	+0.139446	9.015833	0.151364	
1827	5.446671	−0.236955	0.124333	−0.398011	9.008277	0.129365	1
	5.381197	0.889455	0.125011	0.934122	8.977035	0.106928	
	5.235551	1.528444	0.123779	1.467706	8.902227	0.084138	
	5.009552	2.144420	0.120770	1.995704	8.804224	0.061064	
1828	4.707222	2.727228	0.115776	2.516288	8.676665	0.037784	1
	4.332877	3.268661	0.109005	3.029906	8.520001	−0.014387	
	3.891773	3.759555	0.100066	3.531169	8.334493	+0.009061	
	3.390103	4.191999	0.090770	4.022251	8.122211	0.032472	
1829	2.834999	4.558448	0.079132	4.499994	7.882236	0.055773	1
	2.234777	4.852232	0.066667	4.967243	7.611160	0.078893	
	1.598440	5.067688	0.052955	5.408554	7.325582	0.101753	
	0.935777	5.199775	0.038335	5.836955	7.011119	0.124283	
1830	−0.257150	5.244886	0.023111	6.246632	6.673780	0.146403	1
	+0.425122	5.200066	+0.007748	6.635477	6.314922	0.168051	
	1.100334	5.066220	−0.008828	7.003778	5.935584	0.189162	
	1.756044	4.842088	0.023899	7.348688	5.533788	0.209669	
1831	2.138002	4.530644	0.039077	7.670081	5.122499	0.229511	1
	2.960177	4.135900	0.053553	7.966881	4.691088	0.248632	
	3.484822	3.663733	0.066999	8.241198	4.245116	0.266979	
	3.943044	3.121766	0.079916	8.489965	3.786188	0.284502	
1832	4.324833	2.519388	0.089800	8.711288	3.315699	0.301157	1
	4.621666	1.867557	0.098688	8.906444	2.835155	0.316895	
	4.826600	1.178633	0.105600	9.074811	2.346177	0.331684	
	4.934630	−0.466066	0.111039	9.216110	1.850248	0.345483	
1833	4.942900	+0.255933	0.112955	9.330016	1.348888	0.358263	18
	4.850799	0.972174	0.113322	9.416855	0.843600	0.369993	
	4.660202	1.669779	0.111118	9.476221	+0.335899	0.380651	
	4.377461	2.332996	0.106899	9.508333	−0.172799	0.390213	
1834	4.000075	2.949900	0.100044	9.513355	0.680977	0.398662	1
	3.546160	3.505991	0.091197	9.491146	1.187225	0.405986	
	3.021995	3.993211	0.081167	9.442944	1.690221	0.412173	
	2.437995	4.402116	0.069777	9.368116	2.188850	0.417213	
1835	1.806773	4.725995	0.056552	9.267759	2.680779	0.421105	1
	1.141109	4.959778	0.042119	9.141770	3.165581	0.423846	
	+0.454008	5.100887	0.027077	8.991101	3.642230	0.425437	
	−0.241330	5.148228	−0.011145	8.816116	4.109906	0.425884	
1836	0.932335	5.102993	+0.004377	8.617776	4.569493	0.425197	
	1.606944	4.967744	0.020172	8.396853	5.008199	0.423381	
	2.253689	4.745889	0.035552	8.155323	5.439958	0.420453	
	2.862113	4.443655	0.050031	7.888860	5.856524	0.416427	
1837	3.422799	4.067222	0.064266	7.603499	6.257822	0.411323	1
	3.927228	3.624033	0.077716	7.298776	6.643336	0.405157	
	4.368333	3.122330	0.088881	6.973530	7.012200	0.397951	
	4.739986	2.570879	0.099004	6.633400	7.362877	0.389733	
1838	5.036888	1.979901	0.107772	6.277586	7.695118	0.380526	1
	5.255559	1.356355	0.114472	5.906187	8.008246	0.370362	
	5.393330	0.712777	0.119195	5.519302	8.301333	0.359266	
	5.448447	+0.058255	0.123335	5.110355	8.573826	0.347277	
1839	5.420644	−0.597119	0.124866	4.679489	8.825066	0.334423	1
	5.310041	1.243558	0.124488	4.226776	9.054600	0.320741	
	5.119448	1.871111	0.122220	3.753000	9.261822	0.306262	
	4.850559	2.470197	0.118073	3.258276	9.446377	0.291030	
1840	−4.507553	−3.031553	+0.112133	−2.927716	−9.607833	+0.275085	1

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1840	−4.50753	−3.03153	+0.11213	−2.92716	−9.60783	+0.27508 5
	4.09510	3.54625	0.10446	2.46431	9.74583	0.25846 8
	3.61912	4.00595	0.09517	1.99538	9.86006	0.24121 6
	3.08641	4.40288	0.08439	1.52152	9.95027	0.22338 1
1841	2.50473	4.72995	0.07228	1.04391	10.01623	0.20499 8
	1.88276	4.98092	0.05899	0.56370	10.05785	0.18614
	1.23008	5.15053	0.04477 5	−0.08209	10.07500	0.16678 2
	−0.55704	5.23457	0.02976	+0.39975	10.06762	0.14710 40
1842	+0.12534	5.23013	+0.01427	0.88065	10.03573	0.12694 2
	0.80548	5.13566	−0.00146	1.35944	9.97935	0.10654 0
	1.47143	4.95109	0.01716	1.83494	9.89866	0.08587 9
	2.11098	4.67802	0.03255	2.30598	9.79378	0.06500 6
1843	2.71196	4.31970	0.04735	2.77139	9.66494	0.04397 2
	3.26250	3.88119	0.06126	3.23002	9.51242	0.02283 8
	3.75134	3.36940	0.07402	3.68070	9.33652	+0.00164 8
	4.16808	2.79295	0.08535	4.12232	9.13768	−0.01954 2
1844	4.50354	2.16207	0.09502	4.55370	8.91625	0.04068 1
	4.75006	1.48851	0.10280	4.97379	8.67280	0.06171 3
	4.90175	0.78523	0.10854	5.38146	8.40785	0.08259 1
	4.95478	−0.06614	0.11209	5.77562	8.12192	0.10325 7
1845	4.90755	+0.65433	0.11337	6.15525	7.81572	0.12365 8
	4.76072	1.36156	0.11235	6.51932	7.48990	0.14377 41
	4.57731	2.04121	0.10905	6.86680	7.14519	0.16345 2
	4.18253	6.78240	0.10355	7.19674	6.78240	0.18274 7
1846	3.76362	3.26424	0.09596	7.50816	6.40229	0.20156 7
	3.26966	3.78383	0.08646	7.80021	6.00582	0.21986 1
	2.71124	4.22886	0.07525	8.07194	5.59387	0.23757 7
	2.10004	4.59168	0.06258	8.32256	5.16745	0.25461 9
1847	1.44858	4.86656	0.04871	8.55128	4.72757	0.27101 88
	0.76980	5.04975	0.03392	8.75730	4.27529	0.28678 4
	+0.07677	5.13949	0.01850	8.93995	3.81175	0.30175 11
	−0.61767	5.13591	−0.00274	9.09858	3.33810	0.31582 0
1848	1.30111	5.04084	+0.01306	9.23254	2.85553	0.32906 8
	1.96181	4.85768	0.02864	9.34127	2.36528	0.34141 9
	2.58886	4.59122	0.04372	9.42431	1.86866	0.35282 22
	3.17234	4.24747	0.05807	9.48121	1.36696	0.36324 23
1849	3.70334	3.83346	0.07145	9.51161	0.86156	0.37264 5
	4.17409	3.35705	0.08368	9.51516	−0.35382	0.38098 7
	4.57791	2.82678	0.09455	9.49166	+0.15482	0.38824 42
	4.90932	2.25175	0.10394	9.44099	0.66294	0.39438 3
1850	5.16397	1.64148	0.11169	9.36298	1.16905	0.39937 7
	5.33865	1.00574	0.11772	9.25766	1.67169	0.40320 1
	5.43125	+0.35448	0.12193	9.12513	2.16934	0.40583 3
1857	5.44084	−0.30224	0.12428	8.96548	2.66050	0.40725 55
	5.36757	0.95441	0.12474	8.77902	3.14366	0.40744 54
	5.21259	1.59210	0.12330	8.56600	3.61729	0.40641 6
	4.97822	2.20557	0.11998	8.32694	4.07990	0.40411 41
	4.66780	2.78538	0.11483	8.06230	4.52996	0.40006 16
1852	4.28569	3.32241	0.10791	7.77270	4.96610	0.39584 6
	3.83731	3.80804	0.09932	7.45880	5.38668	0.38983 35
	3.32905	4.23423	0.08919	7.12148	5.79025	0.38259 9
	2.76828	4.59357	0.07765	6.76150	6.17556	0.37411 44
1853	2.16330	4.87941	0.06486	6.37995	6.54124	0.36449 2
	1.52328	5.08607	0.05103	5.97787	6.88596	0.35536 8
	0.85825	5.20892	0.03635	5.55646	7.20849	0.34169 1
	−0.17893	5.24447	0.02107	5.11678	7.50784	0.32860 0
1854	+0.50337	5.19053	+0.00543	4.66034	7.78222	0.31443 30
	1.17685	5.04637	−0.01030	4.18840	8.03127	0.29992 20
	1.82939	4.81284	0.02585	3.70255	8.25383	0.28301 6
	2.44885	4.49243	0.04093	3.20431	8.44904	0.26589
1855	3.02322	4.08942	0.05525	2.69524	8.61613	0.24783 31
	3.54093	3.60981	0.06854	2.17701	8.75442	0.22899 56
	3.99116	3.06145	0.08052	1.65135	8.86339	0.20930 9
	4.36412	2.45385	0.09094	1.12000	8.94259	0.18899 53
1856	4.65144	1.79807	0.09957	0.58471	8.99165	0.16799 51
	4.84639	1.10659	0.10623	+0.04773	9.01039	0.14637 7
	4.94419	−0.39290	0.11076	−0.49041	8.99868	0.12430 13
	4.94216	+0.32875	0.11305	1.02660	8.95663	0.10180 2
1857	4.83993	1.04376	0.11305	1.55948	8.88430	0.07894 9
	4.63947	1.73761	0.11075	2.08721	8.78196	0.05582 22
	4.34500	2.39627	0.10621	2.60804	8.65006	0.03250 4
	3.96290	3.00663	0.09953	3.12019	8.48901	0.00902 5
1858	+3.50144	+3.55679	−0.09085	−3.62198		

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	x.	y.	z.	x.	y.	z.
1858	+3.501144	+3.556799	−0.090085	−3.621998	+8.299951	+0.014410
	2.997056	4.036446	0.080377	4.111172	8.088222	0.037845
	2.381551	4.437709	0.068312	4.587189	7.838804	0.061160
	1.746449	4.752006	0.054955	5.048888	7.567784	0.084276
1859	1.078330	4.976778	0.040053	5.493223	7.277268	0.107123
	+0.389998	5.108760	0.025535	5.919958	6.953760	0.129625
	−0.305551	5.146881	−0.009971	6.321661	6.611991	0.151708
	0.995552	5.092445	+0.006111	6.713116	6.248881	0.173302
1860	1.116799	2.948823	0.021882	−7.077794	+5.865552	+0.194339

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Perturbations of Saturn.

	Longitude	Radius Vector	Latitude		Longitude	Radius Vector	Latitude		Longitude	Radius Vector	Latitude
1750	65229.	1629	+ 5.0	1766	2808.4	5011	+50.8	1782	4663.6	3703	+20.6
	6595.7	1670	3.4		2713.1	4897	52.8		4703.6	3778	19.6
	6663.0	1717	2.3		2622.8	4781	24.7		4739.5	3847	18.8
	6724.6	1771	+ 1.1		2537.6	4666	56.5		4772.1	3906	17.8
1	6780.5	1833	.0	7	2457.6	4554	58.2	3	4801.8	3956	17.0
	6830.8	1904	− .9		2383.0	4445	59.7		4829.1	3991	16.1
	6875.7	1979	1.6		2313.7	4331	61.1		4854.2	4021	15.2
	6915.5	2061	2.1		2249.6	4225	62.2		4877.3	4047	14.6
2	6950.3	2150	2.5	8	2190.5	4117	63.4	4	4898.4	4062	13.7
	6980.3	2244	2.9		2136.4	4010	64.4		4917.6	4073	13.0
	7005.6	2345	3.0		2087.2	3906	64.9		4934.5	4079	12.5
	7026.3	2449	2.9		2043.1	3805	65.5		4948.5	4063	12.0
3	7042.4	2558	2.8	9	2004.3	3702	65.9	1785	4959.1	4082	11.7
	7054.0	2669	2.3		1970.7	3605	66.1		4965.9	4081	11.3
	7061.5	2785	2.0		1942.2	3509	66.1		4968.4	4078	11.2
	7065.2	2909	1.6		1918.6	3415	65.8		4966.4	4074	11.4
4	7065.0	3032	1.1	1770	1899.7	3319	65.5	6	4959.8	4069	11.5
	7061.0	3158	− .4		1885.2	3228	64.9		4948.5	4065	11.7
	7053.3	3285	+ .3		1875.0	3139	64.2		4932.4	4058	12.1
	7041.9	3411	1.0		1869.0	3053	63.2		4911.2	4054	12.9
1755	7027.0	3536	1.8	1	1867.3	2963	62.3	7	4884.7	4052	13.6
	7009.0	3665	2.5		1869.8	2878	61.1		4853.0	4043	14.6
	6987.8	3791	3.3		1876.4	2793	59.9		4816.0	4037	15.6
	6963.3	3920	4.2		1887.1	2711	58.5		4773.8	4030	16.9
6	6935.6	4047	5.0	2	1902.0	2635	57.0	8	4726.3	4023	18.2
	6904.7	4174	5.8		1921.2	2558	55.6		4673.4	4015	19.7
	6870.6	4299	6.4		1944.5	2485	54.1		4615.2	4009	21.3
	6833.0	4421	7.1		1971.9	2415	52.3		4551.9	4005	22.9
7	6791.1	4544	7.8	3	2003.6	2350	50.9	9	4483.8	3999	24.7
	6746.6	4666	8.5		2039.6	2290	49.5		4411.2	3995	26.5
	6697.9	4788	9.0		2080.0	2232	47.8		4334.4	3989	28.5
	6645.6	4905	9.7		2124.8	2181	46.2		4253.4	3984	30.5
8	6589.3	5021	10.1	4	2174.1	2133	44.9	1790	4168.4	3978	32.5
	6528.7	5132	10.7		2227.8	2094	43.4		4079.6	3974	34.6
	6463.4	5245	11.1		2285.6	2060	41.8		3987.6	3973	36.6
	6392.9	5354	11.5		2347.5	2030	40.6		3892.9	3968	38.7
9	6317.1	5458	12.0	1775	2413.6	2006	39.3	1	3795.7	3960	40.6
	6235.9	5563	12.5		2483.7	1988	38.2		3696.5	3948	42.6
	6149.9	5662	13.1		2557.5	1979	37.2		3595.6	3939	44.6
	6056.5	5760	13.7		2634.8	1971	36.1		3493.6	3930	46.2
1760	5957.7	5852	14.1	6	2715.2	1973	35.2	2	3391.1	3921	47.8
	5852.6	5938	14.6		2798.3	1980	34.4		3288.5	3908	49.6
	5740.9	6019	15.3		2883.7	1995	33.7		3186.3	3898	51.3
	5622.7	6093	16.0		2971.4	2019	32.9		3085.0	3880	52.8
1	5498.2	6158	16.8	7	3061.2	2049	32.3	3	2985.0	3867	54.1
	5367.6	6214	17.8		3152.6	2086	31.8		2887.0	3854	55.4
	5230.9	6256	18.9		3245.3	2130	31.3		2791.5	3839	56.6
	5088.5	6284	19.7		3338.9	2179	30.8		2699.0	3825	57.9
2	4941.3	6301	20.9	8	3433.0	2235	30.3	4	2610.0	3811	58.8
	4790.5	6303	22.4		3527.2	2299	29.9		2525.0	3798	59.6
	4637.5	6292	23.8		3621.1	2369	29.3		2444.7	3787	60.5
	4483.8	6263	25.2		3714.3	2441	29.0		2369.6	3776	61.1
3	4330.9	6221	26.8	9	3806.4	2524	28.3	1795	2300.1	3763	62.0
	4179.9	6163	28.6		3897.2	2612	28.1		2236.4	3748	62.4
	4031.8	6094	30.4		3986.2	2706	27.8		2178.7	3739	63.0
	3887.4	6011	32.3		4072.8	2802	27.2		2127.6	3730	63.5
4	3747.5	5917	34.2	1780	4156.5	2903	26.5	6	2083.5	3725	63.7
	3612.4	5819	36.2		4236.9	3008	25.9		2046.8	3721	64.2
	3482.6	5713	38.3		4313.4	3115	25.3		2017.5	3716	64.4
	3358.0	5600	40.5		4385.2	3220	24.5		1995.7	3718	64.8
5	3238.4	5486	42.5	1	4451.8	3324	23.9	7	1981.5	3717	65.0
	3123.7	5367	44.6		4513.0	3429	23.1		1974.9	3717	65.3
	3013.8	5249	46.8		4568.6	3528	22.3		1975.8	3723	65.6
	2908.7	5130	48.8		4618.7	3620	21.5		1983.8	3729	65.8
1766	2808.4	5011	+50.8	1782	4663.6	3703	+20.6	1798	1998.4	3732	+66.1

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Perturbations of Saturn.

	Longitude	Radius Vector	Latitude
1798	1998.4	37732	+66.1
	2019.1	37739	66.3
	2045.3	37744	66.6
	2076.6	37749	66.9
9	2112.4	37757	67.1
	2152.0	37764	67.4
	2194.6	37766	67.7
	2239.5	37768	67.8
1800	2286.1	37768	68.1
	2333.6	37763	68.2
	2381.4	37755	68.4
	2429.0	37740	68.5
1	2476.2	37720	68.6
	2523.1	37689	68.5
	2570.0	37646	68.5
	2617.3	37599	68.3
2	2666.7	37542	68.0
	2716.2	37471	67.6
	2767.1	37388	67.1
	2818.6	37296	66.5
3	2871.0	37193	65.6
	2924.0	37081	64.8
	2978.0	36963	63.9
	3033.2	36840	62.5
4	3089.1	36714	61.1
	3146.5	36585	59.8
	3205.6	36453	58.3
	3266.9	36322	56.5
1805	3330.8	36210	54.6
	3397.5	36091	52.5
	3467.1	35978	50.4
	3539.2	35870	48.3
6	3613.8	35768	45.9
	3690.8	35670	43.4
	3770.5	35578	41.0
	3852.0	35493	38.6
7	3936.6	35419	36.1
	4024.6	35349	33.7
	4116.5	35291	31.3
	4210.8	35236	28.8
8	4308.4	35189	26.4
	4409.1	35153	24.0
	4513.0	35125	21.5
9	4620.8	35106	19.4
	4731.8	35095	17.4
	4846.6	35096	15.4
	4965.6	35106	13.4
	5088.7	35124	11.7
1810	5216.8	35152	10.2
	5349.3	35185	8.7
	5486.5	35231	7.4
	5628.5	35289	6.2
1	5775.5	35357	5.2
	5927.8	35434	4.4
	6085.8	35522	3.7
	6249.8	35622	3.1
2	6419.8	35735	2.7
	6596.6	35861	2.5
	6779.7	35999	2.2
	6969.2	36150	2.1
3	7165.2	36316	2.3
	7368.3	36495	2.3
	7578.9	36687	2.3
	7796.9	36892	2.6
1814	6939.8	2581	+ 2.7

	Longitude	Radius Vector	Latitude
1814	6939.8	2581	+ 2.7
	6961.5	2714	3.1
	6979.8	2844	3.2
	6994.6	2980	3.5
5	7006.7	3115	3.7
	7014.3	3251	3.9
	7019.1	3388	4.2
	7020.2	3525	4.4
	7017.6	3661	4.6
6	7011.0	3799	4.9
	7000.4	3937	5.0
	6985.5	4074	5.1
	6966.3	4210	5.2
7	6942.5	4344	5.3
	6913.7	4477	5.3
	6879.6	4608	5.5
	6839.7	4737	5.4
8	6793.6	4867	5.5
	6741.2	4991	5.7
	6682.1	5114	5.7
	6616.0	5233	5.8
9	6542.8	5352	6.0
	6462.2	5464	6.3
	6373.9	5571	6.6
	6277.4	5676	7.1
1820	6172.6	5778	7.5
	6059.6	5856	8.1
	5938.7	5930	8.8
	5811.2	5996	9.7
	5674.7	6046	10.7
	5532.8	6084	11.8
	5385.5	6108	13.1
	5234.2	6118	14.4
2	5080.2	6112	16.0
	4925.6	6090	17.6
	4771.4	6053	19.5
	4618.8	6000	21.3
3	4468.9	5936	23.3
	4322.4	5863	25.3
	4179.6	5780	27.4
	4041.1	5689	29.7
4	3907.1	5592	32.1
	3777.5	5490	34.4
	3652.4	5388	36.6
	3531.7	5283	39.1
1825	3415.4	5177	41.2
	3303.2	5075	43.5
	3195.1	4968	45.9
	3091.4	4865	48.1
6	2992.3	4758	50.1
	2897.8	4655	52.1
	2808.0	4552	53.9
	2722.9	4450	55.5
7	2642.4	4347	57.2
	2566.4	4248	58.5
	2495.0	4150	59.8
	2428.2	4052	60.9
8	2366.1	3955	61.7
	2308.8	3862	62.4
	2256.2	3770	62.9
	2208.0	3678	63.2
9	2164.0	3586	63.5
	2124.3	3495	63.5
	2088.1	3407	63.3
1830	2058.3	3318	+62.9

	Longitude	Radius Vector	Latitude
1830	2058.3	3318	+62.9
	2031.6	3234	62.4
	2009.0	3150	61.8
	1990.4	3063	61.4
1	1975.9	2982	60.5
	1965.5	2898	59.6
	1959.3	2820	58.5
	1957.4	2742	57.4
2	1959.8	2664	56.4
	1966.6	2591	55.5
	1977.9	2521	54.1
	1993.9	2458	52.9
3	2014.6	2397	51.8
	2040.0	2340	50.7
	2070.1	2286	49.7
	2105.1	2240	48.7
4	2145.0	2200	47.6
	2189.7	2164	46.5
	2239.1	2129	45.6
	2293.1	2100	44.8
1835	2351.3	2078	44.1
	2413.5	2060	43.3
	2479.7	2048	42.6
	2549.5	2042	42.0
6	2622.7	2045	41.4
	2699.0	2051	40.9
	2778.0	2066	40.3
	2859.7	2085	39.6
7	2943.6	2113	39.3
	3029.1	2148	38.8
	3116.0	2190	38.2
	3203.9	2233	37.8
8	3292.5	2282	37.3
	3381.6	2341	36.7
	3470.7	2404	36.0
	3559.4	2477	35.5
9	3647.3	2552	34.9
	3733.9	2634	34.2
	3818.8	2716	33.3
	3901.3	2805	32.3
1840	3981.0	2899	31.3
	4057.3	2989	30.4
	4129.8	3081	29.3
	4198.0	3171	28.3
1	4261.6	3256	27.1
	4320.3	3337	25.8
	4374.3	3411	24.6
	4424.2	3478	23.2
2	4470.6	3538	21.8
	4514.2	3587	20.7
	4555.6	3629	19.6
	4595.2	3660	18.3
3	4633.3	3685	17.1
	4670.2	3700	15.8
	4705.8	3707	14.7
	4739.9	3713	13.9
4	4771.8	3701	12.8
	4801.0	3710	12.1
	4827.2	3707	11.3
	4850.1	3701	10.6
5	4869.4	3698	10.1
	4884.6	3693	9.9
	4895.4	3690	9.8
	4901.7	3685	9.7
1846	4903.3	3678	+ 9.8

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	Longitude	Radius Vector.	Latitude.
1846	49033	36778	+ 98
	49001	36775	10.1
	48911	36771	10.7
	48778	36770	11.3
7	48603	36768	12.1
	48366	36766	12.9
	48078	36767	13.8
	47738	36768	15.1
8	47345	36770	16.5
	46901	36771	17.7
	46406	36774	19.2
	45856	36778	20.8
9	45272	36785	22.4
	44633	36789	24.2
	43957	36796	26.0
	43236	37005	27.6
1850	42477	37009	29.4
	41677	37015	31.1
	40843	37021	32.9
	39978	37024	34.7
1	39088	37029	36.4
	38177	37029	38.0
	37248	37035	39.5
	36306	37038	40.9
2	35354	37040	42.5
	34397	37038	44.0
	33441	37042	45.2
	32490	37040	46.4
3	31544	37039	47.6
	30621	37040	48.7
	29711	37044	49.7
	28829	37047	50.8
4	27997	37048	51.6
	27162	37051	52.4
	26382	37054	53.3
	25644	37059	54.0
1855	24956	37063	54.7
	24322	37070	55.5
	23742	37078	56.2
	23219	37089	56.8
6	22754	37099	57.6
	22350	38013	58.3
	22010	38025	59.0
	21734	38044	59.7
7	21520	38059	60.5
	21366	38076	61.3
	21267	38097	61.9
	21222	39013	62.7
8	21227	39032	63.5
	21278	39048	64.4
	21369	39065	65.2
	21493	39079	66.0
9	21647	39093	66.7
	21823	40002	67.6
	22013	40007	68.5
	22211	40113	69.2
1860	22412	40007	+69.9

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Corr of Saturns Ephemeris

Δx.	Δy.	Δ(R.Δ.R.)		Δx.	Δy.	Δ(R.Δ.R.)		Δx.	Δy.	Δ(R.Δ.R.)	
1750	−354	+246	+167	1766	+384	−187	+215	1782	−402	+ 49	− 44	1798
	380	237	157		395	164	220		378	28	26	
	402	225	145		400	130	221		349	+ 9	− 10	
	420	210	131		398	113	219		317	−	+ 4	
1	435	191	114	7	390	85	209	3	280	20	17	
	443	169	94		373	58	198		240	28	25	
	445	146	73		350	34	184		199	32	29	
	443	122	51		320	− 12	167		156	33	30	
2	436	98	28	8	284	+ 7	148	4	112	30	27	
	421	74	+ 8		243	20	126		68	21	19	
	402	51	− 10		199	28	102		− 25	− 8	+ 8	
	379	30	26		152	30	78		+ 17	+ 8	− 6	
3	357	+ 10	41	9	102	27	52	1785	59	29	24	
	319	− 6	50		52	19	28		97	54	44	
	284	18	56		+ 4	+ 1	+ 5		131	81	65	
	246	27	58		− 42	− 22	− 18		162	111	87	
4	206	33	58	1770	85	46	40	6	189	144	111	
	163	34	52		123	77	56		211	178	133	
	119	31	42		156	111	68		228	212	153	
	75	23	29		184	147	77		240	246	170	
1755	− 31	− 11	− 13	1	206	185	83	7	247	279	186	
	+ 12	+ 6	+ 7		220	223	83		248	311	199	
	53	26	28		228	260	80		245	340	207	
	91	50	50		231	295	73		237	366	212	
6	127	77	74	2	228	328	62	8	225	389	212	
	158	107	98		218	356	47		208	407	208	
	185	139	121		204	379	30		189	420	201	
	208	172	143		187	391	− 12		167	428	190	
7	226	207	165	3	165	409	+ 8	9	142	430	176	1800
	238	241	183		141	414	27		116	426	160	
	245	274	198		116	413	44		91	416	143	
	248	306	210		91	406	60		66	400	124	
8	246	336	220	4	65	392	75	1790	42	377	104	
	238	364	224		41	371	86		20	349	85	
	227	387	225		20	345	93		+ 2	316	67	
	212	406	222		− 1	314	96		− 13	279	50	
9	192	420	215	1775	+ 15	278	96	1	25	237	33	
	164	429	204		25	238	90		29	192	21	
	141	432	190		31	196	80		28	146	11	
	118	429	173		32	152	67		23	100	4	
1760	95	419	153	6	29	106	50	2	− 13	53	0	
	72	402	130		19	60	29		+ 2	+ 6	0	
	49	380	108		+ 5	− 15	+ 1		22	− 38	4	
	27	353	86		− 13	+ 28	− 16		45	80	11	
1	+ 4	321	64	7	35	70	41	3	73	120	20	
	− 12	284	45		62	108	66		106	153	33	
	23	244	29		92	142	89		141	180	48	
	30	201	15		124	172	112		177	202	64	
2	32	155	+ 4	8	158	198	133	4	215	219	83	1810
	28	107	− 2		193	218	151		251	228	102	
	19	60	4		228	233	166		285	231	121	
	− 5	+ 14	− 2		262	244	178		316	228	138	
3	+ 15	− 32	+ 5	9	297	250	187	1795	345	218	155	
	41	74	17		329	250	191		368	202	169	
	70	112	31		358	246	191		385	183	180	
	101	146	48		384	238	188		396	161	188	
4	135	176	68	1780	406	225	182	6	401	135	194	
	172	198	91		423	208	171		396	110	194	
	208	215	113		425	189	158		385	84	190	
	244	225	134		443	168	143		367	57	182	
5	280	230	155	1	446	144	125	7	343	30	171	
	312	227	174		442	120	105		310	− 9	155	
	340	219	191		434	96	85		273	+ 8	136	
	364	206	205		421	73	65		233	21	115	
1766	+384	−187	+215	1782	−402	+ 49	− 44	1798	+188	+ 29	− 92	1808

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	Δ x.	Δ y.	Δ(R.ΔR)		Δ x.	Δ y.	Δ(R.ΔR)		Δ x.	Δ y.	Δ(R.ΔR)
1798.	+188	+ 29	− 92	1814	− 11	− 4	− 4	1830	−214	−201	− 111
	140	30	67		+ 31	+ 14	+ 13		226	238	114
	91	25	43		91	36	32		232	273	113
	+ 42	+ 14	− 19		108	61	53		232	307	108
9	− 6	− 2	+ 3	5	143	90	77	1	227	339	100
	51	25	23		173	121	100		215	365	87
	92	52	40		198	153	123		199	386	72
	130	83	53		218	183	145		180	402	55
1800	164	118	64	6	234	222	168	2	157	412	36
	190	155	70		244	257	188		132	414	− 17
	210	193	73		249	290	206		106	410	+ 12
	224	231	72		249	321	221		80	400	20
1	232	268	68	7	245	349	233	3	55	383	+ 37
	232	303	60		235	374	239		92	359	50
	227	334	49		221	395	241		− 12	331	60
	217	361	36		204	411	239		+ 5	299	66
2	202	384	22	8	184	423	234	4	19	261	70
	182	400	+ 7		161	428	224		27	219	167
	160	410	− 18		137	428	211		31	176	160
	136	414	24		112	422	195		30	131	49
3	110	412	40	9	85	411	177	1835	25	85	36
	84	403	53		60	393	156		+ 14	− 39	+ 18
	60	387	64		37	369	134		− 2	+ 5	− 2
	37	366	72		+ 16	340	111		22	47	24
4	− 15	338	78	1820	− 3	306	89	6	46	87	49
	+ 3	305	80		19	267	68		74	124	74
	19	269	79		26	225	49		105	156	98
	216	229	74		30	181	32		138	184	121
1805	32	185	66	1	30	133	178	7	172	209	144
	32	140	54		24	85			207	227	164
	27	94	39		− 13	+ 38	3		242	241	181
	14	48	22		+ 3	− 8	2		276	250	195
6	+ 1	− 3	− 1	2	25	53	4	8	310	253	206
	− 19	+ 40	+ 21		52	94	12		341	251	213
	42	80	44		82	130	23		369	245	216
	69	117	67		115	162	37		393	235	215
7	99	151	90	3	151	189	54	9	414	220	211
	132	180	113		189	209	74		429	202	200
	166	204	133		226	223	94		439	182	186
	201	223	157		261	230	114		444	160	170
8	237	238	168	4	295	232	135	1840	445	135	151
	272	241	180		322	226	154		439	111	133
	305	251	188		354	215	171		428	87	115
	336	250	193		385	200	185		412	64	99
9	364	245	194	1825	390	180	198	1	391	41	79
	388	235	189		398	156	206		365	21	59
	408	221	181		400	130	210		335	+ 4	40
	424	204	169		395	103	210		301	− 11	23
1810	433	184	152	6	383	75	205	2	262	23	− 9
	443	163	133		362	50	195		221	30	+ 2
	444	140	113		336	29	182		179	33	9
	440	116	92		304	− 16	165		136	32	13
1	430	90	69	7	266	+ 12	145	3	91	26	13
	414	69	47		223	23	122		46	16	08
	394	45	27		177	28	97		− 3	− 2	+ 0
	369	24	+ 2		129	28	71		+ 39	+ 17	− 12
2	339	+ 5	− 8	8	80	23	44	4	79	40	27
	304	− 10	21		+ 31	+ 10	+ 19		115	67	46
	267	21	30		− 16	− 8			148	96	66
	228	29	35		60	31	33		177	127	87
3	186	33	37	9	102	58	− 56	5	202	159	110
	143	32	34		138	90	75		222	193	132
	99	27	28		169	125	90		237	227	153
	55	18	18		194	162	102		247	261	172
1814	− 11	− 4	− 4	1830	−214	−201	−111	1846	+251	+291	− 190

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	Δx.	Δy.	Δ(R.Δ.R.)
1846	+251	+294	-190
	250	325	204
	244	353	215
	234	398	222
7	220	398	226
	201	414	225
	180	424	220
	157	429	212
8	132	428	199
	106	421	183
	81	408	166
	57	389	148
9	33	363	128
	+12	332	111
	-5	297	93
	18	258	75
1850	27	216	55
	30	170	40
	38	123	27
	21	76	14
1	-10	+129	-2
	+8	-119	+2
	31	610	-1
	57	100	4
2	88	137	8
	122	168	18
	157	193	30
	196	212	44
3	231	225	60
	267	230	77
	3010	230	94
	330	224	111
4	356	213	129
	376	196	144
	390	176	156
	398	152	165
1855	400	125	172
	393	97	174
	379	70	172
	358	45	166
6	330	21	157
	295	-2	143
	256	+13	126
	213	23	107
7	163	29	84
	118	27	60
	69	20	36
	+21	+	-12
8	-27	-12	+13
	71	37	36
	111	65	56
	146	97	73
9	177	134	85
	199	170	92
	216	207	96
	228	244	99
1860	-234	-283	+101

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	$\Delta\Delta x.3.$	$\Delta\Delta y.3.$	$\Delta d^2x.$	$\Delta d^2y.$
1750	−25.2	+17.3	+16.1	−10.0
	27.0	16.8	17.6	10.0
	28.4	15.9	18.8	9.7
	29.5	14.8	19.9	9.3
1	30.5	13.4	20.9	9.0
	31.0	11.8	21.5	7.7
	31.0	10.2	21.6	6.8
	30.8	8.5	21.7	5.8
2	30.2	6.8	21.3	4.7
	29.1	5.1	20.6	3.6
	27.8	3.5	19.7	2.5
	26.2	2.1	18.6	1.6
3	24.2	+ 0.7	17.1	− 0.7
	22.0	− 0.4	15.5	+ 0.1
	19.6	1.2	13.7	0.6
	17.0	1.9	11.9	1.1
4	14.2	2.3	8.9	1.4
	11.3	2.4	7.8	1.5
	8.2	2.1	5.6	1.2
	5.2	1.6	3.5	1.0
1755	− 2.1	− 0.8	+ 1.3	+ 0.4
	+ .8	+ 0.4	− 0.5	− 0.2
	3.7	1.8	2.4	1.0
	6.4	3.5	4.0	1.9
6	9.0	5.4	4.5	2.8
	11.2	7.6	6.6	3.7
	13.2	9.9	7.6	4.5
	14.9	12.3	8.2	5.2
7	16.3	14.9	8.5	5.8
	17.2	17.4	8.4	5.9
	17.8	19.9	8.1	5.6
	18.2	22.4	7.6	4.9
8	18.1	24.9	6.7	3.6
	17.7	27.0	5.7	− 1.3
	17.0	29.0	4.5	+ 1.7
	16.0	30.6	3.3	5.9
9	14.5	31.8	1.9	11.5
	12.7	32.9	1.1	18.2
	10.9	33.3	.7	27.2
	9.2	33.4	.4	37.7
1760	7.4	32.9	.6	50.0
	5.7	31.8	1.6	64.5
	3.9	30.3	3.4	80.5
	2.2	28.4	5.7	99.4
1	+ 0.3	26.1	13.5	113.6
	− 1.0	23.3	19.0	125.8
	1.9	20.2	23.5	131.0
	2.5	16.8	25.2	125.6
2	2.7	13.0	24.1	106.9
	2.4	9.1	18.9	76.2
	1.6	5.1	11.1	41.6
	− 0.4	+ 1.2	− 2.2	+ 8.9
3	+ 1.3	− 2.8	+ 6.2	− 17.6
	3.6	6.5	13.3	34.3
	6.2	9.9	18.1	42.4
	9.0	13.0	20.3	44.4
4	12.2	15.8	20.7	42.6
	15.6	18.0	19.8	37.7
	19.0	19.6	16.5	32.0
	22.4	20.7	14.7	26.0
5	25.9	21.3	11.2	20.3
	29.0	21.1	7.3	15.1
	31.8	20.5	+ 3.4	10.8
	34.3	19.4	− 0.6	7.3
1766	+36.3	−17.7	− 4.2	− 4.6

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	Δ M. x. s.	Δ M. y. s.	$\Delta d^2 x$.	$\Delta d^2 y$.
1766	+ 36.3	− 17.7	− 4.2	− 4.6
	37.5	15.6	7.4	2.6
	38.1	13.2	10.2	1.4
	38.0	10.8	12.5	0.7
7	37.4	8.1	14.2	0.5
	35.8	5.6	15.1	0.7
	33.7	3.3	15.6	0.9
	30.8	− 1.2	15.2	1.4
8	27.3	+ 0.7	14.3	2.1
	23.4	1.9	12.9	2.4
	19.1	2.7	10.9	2.6
	14.6	2.9	8.6	2.5
9	9.8	2.6	6.0	2.1
	5.0	1.6	3.1	1.2
	+ 0.4	+ 0.1	− 0.3	− 0.1
	− 4.0	− 2.1	+ 2.6	+ 1.5
1770	8.0	4.3	5.3	3.1
	11.6	7.2	7.8	5.3
	14.6	10.4	9.9	7.6
	17.1	13.7	11.7	10.0
1	19.1	17.1	13.3	12.4
	20.2	20.5	14.1	15.0
	20.8	23.7	14.6	17.3
	20.9	26.8	14.7	19.6
2	20.5	29.5	14.5	21.5
	19.5	31.8	13.9	23.2
	18.1	33.6	13.0	24.5
	16.4	34.9	11.8	25.3
3	14.4	35.7	10.4	25.8
	12.3	35.8	9.0	25.8
	9.9	35.4	7.3	25.4
	7.7	34.5	5.8	24.5
4	5.5	33.0	4.3	23.2
	3.4	31.0	2.9	21.6
	1.7	28.5	1.7	19.6
	− 0.1	25.7	+ 0.6	17.3
1775	+ 1.2	22.6	− 0.2	15.0
	2.0	19.2	.8	12.5
	2.5	15.6	1.0	9.9
	2.5	12.0	1.1	7.4
6	2.3	8.3	1.0	4.9
	1.5	5.9	.6	3.9
	+ 0.4	− 1.2	− .2	+ 0.6
	− 1.0	+ 2.1	+ .4	− 1.0
7	2.7	5.3	1.2	2.6
	4.7	8.1	1.2	3.6
	6.8	10.6	1.3	4.2
	9.2	12.8	1.2	4.5
8	11.6	14.6	+ .6	4.2
	14.1	16.0	− .7	3.6
	16.5	16.9	2.6	2.4
	18.9	17.6	5.4	− 0.9
9	21.3	18.0	9.5	+ 1.0
	23.5	17.9	15.0	3.1
	25.4	17.5	22.0	5.6
	27.1	16.8	31.1	8.3
1780	28.6	15.8	42.2	10.9
	29.6	14.6	56.0	13.2
	30.4	13.2	72.3	15.2
	30.8	11.7	91.7	16.7
1	30.9	10.0	113.8	17.1
	30.6	8.3	137.1	16.9
	30.0	6.6	161.0	16.4
	28.4	5.0	183.0	13.1
1782	− 27.7	+ 3.4	−197.1	+ 9.4

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1782	−27.7	+	3.4	−197.1	+	9.4
	26.0		1.9	201.4		5.4
	24.0	+	0.6	192.6	+	1.2
	21.8	−	0.5	171.8	−	2.3
3	19.3		1.4	141.4		4.2
	16.5		1.9	107.4		5.0
	13.7		2.2	75.9		5.0
	10.8		2.3	48.8		4.4
4	7.7		2.1	28.0		3.0
	4.7		1.5	13.3		1.8
	− 1.7	−	0.6	− 3.8	−	0.4
	+ 1.2	+	0.6	+ 2.0	+	0.4
1785	4.1		2.0	4.9		1.1
	6.8		3.8	5.8		1.1
	9.3		5.7	5.2	+	.7
	11.5		7.9	3.9	−	.2
6	13.5		10.3	2.2		1.5
	15.1		12.8	+ 0.2		3.0
	16.4		15.3	− 1.6		4.8
	17.4		17.9	3.5		6.8
7	17.6		19.9	4.6		8.4
	18.3		22.9	6.3		11.1
	18.1		25.2	7.2		13.3
	17.7		27.3	7.8		15.3
8	16.9		29.2	8.1		17.1
	15.8		30.8	8.1		18.9
	14.4		32.1	7.7		20.4
	12.9		33.0	7.3		21.6
9	10.0		33.4	6.3		22.4
	9.1		33.4	5.3		22.8
	7.2		32.9	4.2		22.8
	5.3		31.9	3.1		22.5
1790	3.4		30.3	1.9		21.7
	1.6		28.3	− 0.7		20.4
	+ 0.2		25.8	+ 0.1		18.7
	− 1.1		23.0	1.0		16.8
1	2.1		19.8	1.7		14.6
	2.4		16.2	1.9		12.0
	2.4		12.4	1.8		9.2
	2.0		8.6	1.5		6.4
2	− 1.1		4.6	+ 0.8		3.4
	+ 0.2	+	0.5	− 0.2	−	0.4
	1.9	−	3.3	1.4	+	2.5
	4.0		7.1	3.0		5.3
3	6.5		10.7	4.7		8.0
	9.6		13.8	7.0		10.3
	12.8		16.3	9.2		12.1
	16.2		18.5	11.6		13.8
4	19.8		20.2	13.9		14.9
	23.2		21.1	16.2		15.5
	26.6		21.5	18.3		15.7
	29.6		21.4	20.0		15.6
1795	32.5		20.5	21.5		14.8
	34.8		19.1	22.5		13.8
	36.6		17.4	23.0		12.5
	37.8		15.4	23.0		11.1
6	38.4		12.9	22.4		9.4
	38.0		10.6	21.1		7.9
	37.0		8.1	19.3		6.4
	35.3		5.5	17.1		4.9
7	33.0		2.9	14.4		3.7
	29.9	−	0.9	11.5		2.8
	26.3	+	0.8	8.4		2.3
	22.4		2.0	5.5		2.0
1798	+ 18.1	+	2.8	− 2.8	+	1.9

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1798	+ 18.1	+ 2.8	− 2.8	+ 1.9	
	13.4	2.9	− 0.6	1.9	
	8.5	2.4	+ 0.8	1.8	
	+ 4.0	+ 1.3	+ 1.0	+ 1.2	
9	− 0.6	− 0.2	− 0.2	− 0.2	
	4.8	2.3	3.4	3.4	
	8.7	4.9	8.6	8.7	
	12.2	7.8	17.0	17.6	
1800	15.3	11.0	28.6	31.5	
	17.6	14.4	43.5	51.7	
	19.4	17.8	61.8	80.1	
	20.5	21.1	83.9	118.5	
1	21.1	24.4	109.1	167.5	
	20.9	27.3	135.1	226.7	
	20.3	29.9	160.6	291.5	
	19.3	32.1	181.9	353.3	
2	17.8	33.9	193.9	408.6	
	15.9	35.0	192.5	438.4	
	13.9	35.6	179.1	439.3	
	11.7	35.6	156.1	412.2	
3	9.4	35.2	126.3	364.0	
	7.1	34.1	95.3	305.1	
	5.0	32.5	68.0	243.9	
	3.1	30.4	45.3	188.4	
4	− 1.2	27.9	28.0	139.8	
	+ 0.2	24.8	16.0	100.4	
	1.4	21.8	8.5	69.7	
	2.1	18.4	4.1	46.5	
1805	2.5	14.7	1.5	29.1	
	2.5	11.1	− 0.3	16.9	
	2.1	7.4	0.0	8.5	
	1.3	3.7	+ 0.1	3.3	
6	+ 0.1	− 0.2	0.0	− 0.2	
	− 1.5	+ 3.1	+ 0.3	+ 1.2	
	3.2	6.1	0.7	1.4	
	5.2	8.8	1.3	+ 0.9	
7	7.4	11.3	2.3	− 0.2	
	9.8	13.4	3.4	2.1	
	12.3	15.1	4.9	3.9	
	14.7	16.4	6.5	5.6	
8	17.3	17.4	8.4	7.2	
	19.7	17.9	10.1	8.4	
	22.0	18.1	12.0	9.4	
	24.1	17.9	13.9	10.1	
9	26.0	17.5	15.5	10.5	
	27.6	16.7	17.1	10.5	
	28.9	15.6	18.4	10.3	
	29.9	14.4	19.4	9.8	
1810	30.7	12.9	20.4	8.9	
	31.0	11.4	20.8	8.1	
	31.0	9.8	21.1	7.1	
	30.7	8.1	21.3	6.0	
1	29.9	6.3	20.9	4.7	
	28.7	4.6	20.1	3.4	
	27.3	3.1	19.2	2.3	
	25.6	1.7	18.2	1.2	
2	23.5	+ 0.3	16.7	− 0.2	
	21.0	− 0.7	14.9	+ 0.4	
	18.5	1.5	13.1	1.0	
	15.8	2.0	11.2	1.3	
3	12.9	2.3	9.1	1.5	
	9.9	2.2	6.9	1.4	
	6.9	1.9	4.8	1.2	
	3.8	1.3	2.6	0.8	
1814	− 0.8	− 0.3	+ 0.5	+ 0.2	

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1814	− 0.8	− 0.3	+ 0.5	+ 0.2
	+ 2.2	+ 1.0	− 1.5	− 0.7
	5.0	2.5	3.4	1.5
	7.6	4.3	5.0	2.5
5	10.1	6.4	6.6	3.7
	12.3	8.6	7.9	4.7
	14.2	10.9	8.9	5.8
	15.7	13.4	9.6	6.8
6	16.9	16.0	10.0	7.8
	17.7	18.7	10.1	8.5
	18.2	21.2	10.0	8.8
	18.3	23.6	9.7	8.8
7	18.2	25.9	9.1	8.4
	17.5	27.9	8.3	7.3
	16.6	29.7	7.3	5.7
	15.4	31.1	6.3	− 3.2
8	14.0	32.3	5.2	.0
	12.4	32.9	4.3	+ 4.1
	10.6	33.2	3.6	9.2
	8.8	33.0	3.3	15.4
9	6.7	32.4	3.6	22.8
	4.8	31.3	4.4	31.2
	3.0	29.6	6.0	40.8
	+ 1.3	27.5	8.4	51.0
1820	− 0.2	25.0	12.0	61.0
	1.4	22.0	16.2	70.1
	2.2	18.7	20.1	76.4
	2.5	15.2	22.7	79.9
1	2.5	11.2	22.7	80.8
	2.0	7.2	19.0	53.4
	− 1.0	+ 3.3	− 10.9	+ 26.5
	+ 0.3	− 0.7	+ 1.1	− 6.4
2	2.2	4.6	16.3	39.7
	4.6	8.3	29.5	63.7
	7.3	11.5	39.4	80.6
	10.3	14.5	45.4	85.5
3	13.6	17.0	47.7	82.7
	17.2	19.0	46.7	74.4
	20.7	20.4	43.5	63.9
	24.0	21.2	38.6	52.7
4	27.3	21.5	32.7	42.3
	30.5	21.1	26.6	32.9
	33.2	20.1	20.4	24.9
	35.3	18.8	14.3	18.4
1825	36.9	17.0	8.5	13.3
	37.8	14.5	+ 3.4	9.6
	38.1	12.4	− 1.0	6.4
	37.7	9.8	4.5	4.6
6	36.7	7.2	7.5	3.3
	34.7	4.8	9.3	2.7
	32.3	2.6	10.6	2.4
	29.2	− 0.6	11.0	2.5
7	25.6	+ 1.2	10.8	2.7
	21.4	2.2	9.8	2.6
	17.0	2.7	8.4	2.6
	12.4	2.7	6.4	2.3
8	7.6	2.2	4.1	1.6
	+ 3.0	+ 1.0	− 1.7	− 0.8
	− 1.5	− 0.8	+ 0.9	+ 0.6
	5.7	2.9	3.4	2.0
9	9.6	5.5	5.9	3.9
	13.0	8.4	8.2	6.0
	15.8	11.7	10.1	8.3
	18.0	15.0	11.7	10.7
1830	−19.7	−18.6	+13.0	+13.3

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1830	− 19.7	− 18.6	+ 13.0	+ 13.3
	20.1	21.8	13.8	15.6
	21.1	24.9	14.3	18.0
	21.0	27.2	14.4	20.0
1	20.4	30.4	14.1	22.0
	19.1	32.5	13.2	23.5
	17.6	34.1	12.3	24.7
	15.8	35.2	11.2	25.5
2	13.6	35.8	9.6	25.9
	11.4	35.7	8.1	25.8
	9.1	35.0	6.6	25.2
	6.8	33.9	5.0	24.4
3	4.6	32.1	3.5	22.9
	2.7	29.9	2.2	21.2
	− 1.10	27.3	+ 1.0	19.2
	+ 0.4	24.4	0.0	17.0
4	1.5	21.1	− 0.6	14.5
	2.2	17.6	1.1	11.9
	2.5	14.0	1.4	9.3
	2.4	10.3	1.2	6.8
1835	2.0	6.7	1.1	4.3
	+ 1.1	− 3.0	− 0.6	+ 1.9
	− 0.2	+ 0.4	+ 0.1	− 0.2
	1.7	3.6	0.8	2.1
6	3.5	6.6	1.5	3.7
	5.6	9.3	2.2	4.9
	7.8	11.6	2.8	5.8
	10.2	13.6	3.2	6.3
7	12.7	15.4	3.2	6.6
	15.2	16.7	2.9	6.4
	17.6	17.5	1.9	5.8
	20.0	18.1	+ 0.5	5.0
8	22.3	18.2	− 1.8	3.7
	24.4	17.9	5.0	2.4
	26.2	17.4	9.4	− 0.8
	27.8	16.6	14.8	+ 0.9
9	29.2	15.5	21.7	2.5
	30.1	14.2	30.2	4.0
	30.7	12.7	40.4	5.4
	30.9	11.1	52.5	6.4
1840	30.9	9.4	66.8	6.5
	30.4	7.7	82.7	5.9
	29.6	6.0	100.0	4.1
	28.4	4.4	118.1	+ 2.4
1	27.0	2.8	135.0	− 3.1
	25.1	1.4	148.8	7.1
	23.1	+ 0.3	156.4	10.7
	20.7	− 0.8	154.9	13.8
2	18.1	1.6	141.6	15.9
	15.2	2.1	119.2	14.4
	12.3	2.3	91.2	13.6
	9.4	2.2	62.2	10.6
3	6.3	1.8	35.9	6.8
	3.2	1.1	14.9	3.5
	− 0.2	− 0.1	− 0.8	− 0.6
	+ 2.7	+ 1.2	+ 8.1	+ 1.9
4	5.5	2.8	12.6	3.6
	8.1	4.7	13.8	4.4
	10.5	6.8	13.2	4.3
	12.6	9.0	11.3	3.5
5	14.4	11.4	8.9	2.1
	16.0	13.9	6.1	+ 0.5
	17.2	16.4	3.4	− 1.5
	18.0	19.0	+ 0.9	3.8
1846	+ 18.4	+ 21.6	− 1.2	− 6.1

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1846	+18.4	+21.6	− 1.2	− 6.1
	24.0	24.0	8.7	8.7
	26.2	26.2	12.5	10.0
	28.2	28.2	16.2	13.3
7	30.0	30.0	19.5	15.7
	31.8	31.5	22.5	17.3
	32.5	32.5	24.9	18.9
	33.2	33.2	26.8	20.2
8	33.4	33.3	28.2	20.9
	33.1	33.1	29.0	21.4
	32.4	32.4	29.3	21.6
	31.1	31.1	28.8	21.1
9	29.3	29.3	27.8	20.2
	27.0	27.0	26.1	19.0
	24.4	24.4	24.0	17.4
	21.4	21.4	21.4	15.4
1850	18.1	18.1	18.4	13.2
	14.3	14.3	14.8	10.5
	10.5	10.8	11.2	7.8
	6.5	6.5	6.9	4.8
1	+ 2.5	+ 2.5	− 2.7	− 1.9
	− 1.5	− 1.5	+ 1.7	+ 1.1
	5.3	5.3	6.0	4.0
	8.9	8.9	10.2	6.7
2	12.3	12.3	14.3	9.2
	15.2	15.1	18.1	11.4
	17.5	17.5	21.2	13.1
	19.4	19.4	24.1	14.6
3	20.7	20.7	26.5	15.4
	21.3	21.3	28.3	15.9
	21.5	21.4	29.4	16.0
	21.0	21.0	30.0	15.6
4	20.1	20.1	30.2	15.0
	18.6	18.6	29.7	13.8
	16.7	16.7	28.8	12.4
	14.5	14.5	27.3	10.8
1855	12.0	12.0	25.7	9.1
	9.3	9.3	23.5	7.3
	6.7	6.7	21.3	5.6
	4.3	4.3	19.0	4.1
6	2.0	2.0	16.5	2.8
	− 0.2	− 0.2	14.2	+ 1.8
	+ 1.3	+ 1.3	11.8	− 1.1
	2.2	2.2	9.7	0.7
7	2.8	2.8	7.4	0.5
	2.6	2.6	5.4	0.5
	1.9	1.9	3.3	− 0.5
	+ 0.7	+ 0.7	+ 1.1	+ .2
8	− 1.1	− 1.1	− 1.5	− 0.5
	3.5	3.5	4.2	2.2
	6.1	6.1	7.8	5.1
	9.1	9.1	11.8	10.1
9	12.5	12.5	17.2	18.0
	15.7	15.7	23.6	29.3
	19.0	19.0	31.6	45.4
	22.3	22.3	40.8	69.9
1860	−22.5	−25.5	−53.9	−98.9

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1798
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1800
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1814

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