

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Solar Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	22.7006272544179	-5.83751801988881	0.993119167283658
1	3.89674849371529	20.004505451112	0.0126313862456363
2	-0.103399902156668	1.74456975977362	0.00229709157622795
3	0.0347681596067411	-0.985730728221718	-0.000645494653452697
4	0.0066216390632735	0.0122205036063864	-0.0000477833747752426
5	-0.00229131582719245	0.00804566121281043	0.0000168714579439709
6	0.0000693710582551072	-0.00369829676238187	0.00000208598046426381
7	0.0000455910404076045	0.000679621380590398	0.0000141596445011138
8	0.00000171579481759763	0.000230838517252469	-0.00000138560397406639
9	0.00000445875490663411	0.0000542174019653193	0.00000549372920386886
10	0.0000573170973797585	0.000294679475164522	-0.00000291433577165712
11	-0.0000120418418683912	-0.0000988861153760371	-0.0000178362850777469
12	-0.0000557353832453657	-0.00039927208638917	0.00000282393180269699
13	0.00000615510408118395	0.0000426901175154417	0.0000111193596235039
14	0.0000217120546588859	0.000208077274625576	-0.00000130273072292778
15	-0.00000322215809441271	-0.000026064528140589	-0.00000338061624203493
16	-0.00000457608698075419	-0.0000604053356342686	0.000000367513271896598
17	0.00000172630793382019	0.00000671051070968588	0.000000747950001958606
18	0.00000147938805580226	0.000018242838647381	0.0000000582962194589306
19	0.00000122333984043585	0.0000115979696405888	-0.000000407484542009028
20	-0.000000554917502879814	-0.00000811595662699824	-0.0000000434385477680346
21	-0.000001229237966623	-0.00000266810715710627	0.0000000921796156152197
22	-0.000000480559785727636	-0.00000249104536927588	-0.000000140063465676619
23	-0.00000130798087080562	-0.0000145564393286223	0.000000267069403530592
24	0.000000654671672850516	0.00000919762497257332	0.000000187028610996582
25	0.00000258549738417625	0.0000168928902641723	-0.000000345110794805801
26	-0.000000411916029931753	-0.00000907187198994204	-0.000000111874820955368
27	-0.0000018925810992149	-0.00000928027801882073	0.000000209676364283535
28	0.000000219896432345563	0.00000506450852028187	0.0000000527222017344251
29	0.000000882810662428329	0.00000400864057404225	-0.0000000733335587211944
30	-0.00000000861211470104039	-0.00000125834287133677	-0.0000000345419676313172
31	-0.000000423278612111753	-0.00000260216469077359	0.0000000228642659898439
32	-0.000000126144523135771	0.000000056466531570407	0.0000000173867375753121
33	0.000000253704505606448	0.00000136471591545772	-0.0000000213236960756793
34	0.0000000341453980860233	-0.000000697658203280818	0.00000000695472022380865
35	-0.0000000546673418057436	0.000000597484651758618	0.0000000197947154757162
36	0.000000145659250789992	0.0000011558742624949	-0.0000000212890096036659
37	-0.000000145856270333406	-0.0000018263634397937	-0.00000000980823221517559
38	-0.000000209778057878275	-0.000000844853478078286	0.0000000199405252065929
39	0.000000214271210393498	0.00000167202332808543	0.00000000249881939554233
40	0.000000157487351215006	0.000000446652481952186	-0.0000000120034998429302

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Solar Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	6.60431691548437	17.1744343414852	1.01235970835287
1	4.13605385544825	-3.3007286238636	0.00119404173770678
2	-0.0411244912789874	-5.79376468892459	-0.00418720559725486
3	-0.0407964735053271	0.209841737159335	-0.0000528435135035864
4	0.00521186013366187	0.160169090359666	0.000104783296081982
5	0.00327982763596261	-0.0105218916142516	0.00000685312128504787
6	-0.000429581060334052	-0.00503604704360611	0.00000316429429306007
7	-0.00012727884532448	0.000682482896979849	0.00000882485708912289
8	0.0000598045256881696	0.0000350772131874354	-0.00000850126714297004
9	0.0000122563008870966	-0.000210237242214665	0.000000977364407297694
10	0.0000305253931518168	0.000109478620109887	-0.00001016209922573
11	-0.0000565141956762342	0.000103836928413387	-0.0000106864648264648
12	-0.0000401090326612999	0.000158585330634743	0.0000134412145293802
13	0.0000420946329973534	-0.00000164818321485944	0.00000735703915793554
14	0.0000183243073304871	-0.00016063101409135	-0.00000663785020093217
15	-0.0000168239745232051	-0.00000278847877054439	-0.00000304049456194152
16	-0.000007784085930439	0.0000665428583954832	0.00000188653114329138
17	0.00000539727334484818	0.00000567395084316377	0.000000803918290046691
18	0.00000121234815179475	-0.0000184973383475871	-0.000000363423800155669
19	-0.000000719796177021942	-0.0000112229098417507	0.000000181107687767403
20	0.0000022533910608058	0.00000705912029925132	0.0000000835280926065278
21	-0.000000829463505862207	-0.000000535867098527885	-0.000000111073952213749
22	-0.000000104708936787384	-0.00000107022379300142	-0.0000000434071863113626
23	-0.000000199301143047409	0.000010290841481525	-0.00000028181057745073
24	-0.00000267852728657684	-0.00000382279008981787	0.0000000215310507256605
25	0.00000136342012245081	-0.00000984059761069664	0.000000429363173158617
26	0.00000324098966742117	0.00000365547098842797	0.0000000125388959411436
27	-0.00000126345416652402	0.00000603988838270236	-0.00000032067549040982
28	-0.00000236639365704694	-0.00000178504834771335	-0.000000022584969308692
29	0.000000702542355738432	-0.00000245594019196099	0.00000014392917569088
30	0.0000011026017727198	0.00000111030160835492	0.00000000334635814157403
31	-0.000000365985178776493	-0.000000033172396187951	-0.0000000326593804163258
32	-0.000000186332719016742	-0.000000791687804330229	0.0000000103568855470305
33	0.000000188232954131884	0.000000639043522515289	0.00000000640171928035328
34	-0.0000000604783781173238	0.000000237930599660989	-0.00000000391102004339462
35	-0.0000000510714559745017	0.000000188417932960306	-0.0000000184600835281015
36	-0.000000125656279909792	0.000000360393652586587	-0.000000011063250057151
37	-0.0000000681560195084293	-0.00000112924226971424	0.0000000273354617871259
38	0.000000336915933179219	-0.000000759894811685852	0.0000000198608663406946
39	0.000000146647751434876	0.0000013758325437667	-0.0000000230894334752302
40	-0.000000369697707631891	0.00000074591359393259	-0.0000000175558613990545

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Solar Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	14.5299794600525	-10.5994386135222	0.994716082089595
1	4.05089726617186	-16.8763365876202	-0.013851670739207
2	0.151469324900438	3.50093305787505	0.00182099350260339
3	0.0134347821083631	0.97445095222027	0.000719500657285365
4	-0.0134250902066764	-0.0260519905568611	-0.0000251215669797004
5	-0.00210226168665346	-0.0231210496477652	-0.0000147249267196589
6	0.0002928944464687	-0.00511726587859117	0.0000063314227976827
7	0.000223571804520077	-0.0000463636660906025	-0.00000464951343737028
8	0.0000209484773117582	0.000508350347070956	-0.00000874848251381402
9	0.00000293635445139773	-0.0000663123929231602	-0.00000114134542169048
10	-0.0000239769940751806	-0.0000323817975615021	-0.0000130798844604247
11	-0.0000664790627625463	0.000243837764878474	0.00000578157570045556
12	0.0000173288982529302	-0.000210487959612261	0.0000155573783608044
13	0.0000454897434698646	-0.000169432949157031	-0.00000360496073800177
14	-0.00000718245214424371	0.000164121563775504	-0.00000724122274128332
15	-0.0000160670260892558	0.0000661840945830628	0.00000152771690676586
16	0.00000111296399868727	-0.0000543851869086595	0.0000018387676488601
17	0.00000437858793622648	-0.0000120790886441767	-0.000000456025409086418
18	0.000000871063182053032	0.0000156290534214264	-0.00000040983164389249
19	-0.00000065307961944218	0.00000451706248596622	-0.000000158995078110432
20	0.000000242435359267008	-0.0000101166336482153	0.000000209028094708835
21	-0.000000368795488382377	-0.0000069136809999892	0.000000140592597992665
22	-0.000000846134836658601	0.000000209680154808642	-0.00000000401250719897599
23	-0.0000000381528593274428	0.00000012936645269743	0.000000163415546895856
24	-0.0000000518072965405039	0.000000811416185297329	-0.000000129880682376776
25	0.000000503308241444262	0.00000621584527254369	-0.000000300966771483261
26	0.000000759242497994649	-0.00000789536718690523	0.000000127479278125074
27	-0.000000611110943324307	-0.00000534193897078765	0.000000214327801477215
28	-0.000000619489405889144	0.00000447360768850889	-0.0000000839448778493227
29	0.000000480538984948818	0.00000251940219623212	-0.0000000842059910356952
30	0.000000323173467263226	-0.00000227721650424271	0.0000000441508507388217
31	-0.000000213825832514283	-0.00000166676605911306	0.0000000240136000847487
32	-0.000000209877822663587	0.000000890077109115947	-0.0000000104444393877432
33	-0.0000000209809024585402	0.00000135389738036734	-0.000000016597326783215
34	0.000000109504787862001	0.000000119475519715021	-0.00000000822506724678947
35	0.0000000526210545283681	-0.000000200377127069277	0.000000017465369140505
36	0.0000000358982201953494	-0.000000357036059920235	0.00000000800239282167295
37	0.0000000704141068786119	-0.000000953732533058955	-0.0000000126211525414017
38	-0.000000128730816493388	0.000000138112481842418	-0.000000000700354432856651
39	-0.000000156988085390339	0.00000121337586306281	0.00000000596978043450498
40	0.000000137721761117082	-0.0000000555330938422997	-0.00000000237303193217603

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Mercury Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	22.4608930862982	-8.46953866767858	1.16311550814894
1	3.30931160305863	17.0362507925155	-0.0328572180476319
2	0.305180307443296	3.03200450678078	0.325255161191285
3	0.934435641044271	5.20862298009029	-0.0526089014956864
4	-0.239015876059173	0.810998048051599	-0.128715346904248
5	-0.259647856769275	-2.61267883618761	0.043687116367216
6	0.20179434101325	0.442511370399411	0.0226639633762411
7	0.0667684493773065	0.880100595365299	-0.0306351018456613
8	-0.11434996590579	-0.570494353206115	-0.00105305870904265
9	-0.0004900259038217	-0.236610161939931	0.0130654865199125
10	0.0547837392442892	0.347353852513285	-0.00399576308417792
11	-0.0164469208671979	-0.00563727638248759	-0.00426058265373463
12	-0.0225653128667316	-0.171318718384748	0.00331101146708418
13	0.0148409560394334	0.0593987891560081	0.000828457231172791
14	0.00695753128858478	0.0678972492691132	-0.0017257981926964
15	-0.00953519621965211	-0.0514232393740918	0.000205251437728763
16	-0.000740015728538547	-0.018689713207927	0.000700027814894349
17	0.00507582746172803	0.0321626325679547	-0.000311880554937553
18	-0.00107438125887812	0.0000951415720311408	-0.000213514874880278
19	-0.00229655685079781	-0.0167274625198829	0.000199047019798612
20	0.00120084870849686	0.0047521886428115	0.0000364333864349443
21	0.000853169327076677	0.00745320846296085	-0.000096420289803222
22	-0.00086100347314446	-0.00459722273338218	0.00000829797848421876
23	-0.000212076515077782	-0.00272869837880056	0.0000401918866952721
24	0.000509945460190093	0.0032165679443055	-0.0000118964488747898
25	-0.0000236314465058476	0.000624962039952585	-0.0000158863779462634
26	-0.000264247031551978	-0.00192552062709394	0.00000797258928578716
27	0.0000826821086124012	0.000164739854487443	0.000006497355905876
28	0.000119750210279171	0.00102295566194104	-0.00000486235380066526
29	-0.0000767100170722926	-0.00036334266974638	-0.00000273740201544274
30	-0.0000443830882576049	-0.000475208618716761	0.00000310586649599674
31	0.0000538413194723687	0.000331865648493968	0.000000991542516949442
32	0.00000965822415727782	0.000177977998133101	-0.00000202577255686581
33	-0.0000322928817413609	-0.000237253046594352	-0.00000011636794319964
34	0.00000346795352001927	-0.0000360170704217928	0.00000124723131915907
35	0.0000170695547051947	0.000146785010633748	-0.000000265660600825148
36	-0.00000646487245445708	-0.0000199003552407396	-0.000000673946091212356
37	-0.0000078766407920712	-0.0000799979048769831	0.000000352562676035571
38	0.00000562167791170429	0.0000335548470688306	0.000000292439360794616
39	0.00000292279343806606	0.000037211381301595	-0.00000029102921223157
40	-0.00000386450220927362	-0.0000294975982950482	-0.0000000790750621691536

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Mercury Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	6.96988185490699	17.159881627573	1.07892315405526
1	3.91507132409209	-6.5187151869689	0.0975533135111703
2	0.514034600632082	-6.36815187763341	0.328623323177405
3	0.950917426816816	-0.878375514617573	-0.152807327758284
4	-0.42756399663742	-3.31809405114561	-0.124398602587823
5	-0.327647394437283	0.987407876150574	0.0297877141699569
6	0.124273920745663	1.15441381371793	0.0215135810656366
7	0.0843858361706199	-0.0248543843404816	0.00764608600548868
8	-0.0210223864050557	-0.264939255968234	-0.00363280912260366
9	-0.016812105744992	-0.130540652902751	-0.00352234071410953
10	0.00815854408910273	0.0532007382184733	-0.00096718829876913
11	-0.00119536023607095	0.037412201948087	-0.000366475608226744
12	-0.00652782779097047	0.00101126963955166	0.00113479783915787
13	0.00272230019912957	0.00482352381403604	0.000727461693160381
14	0.00394245880316213	-0.00208012292754628	-0.000223072475070707
15	-0.00101135223029165	-0.00827044505938699	-0.000382835534799682
16	-0.00178706664306919	-0.00341935598463741	-0.000109492755883107
17	0.000188730914165083	0.00412652104481421	0.000100740167677421
18	0.000552902044249512	0.0033438290818279	0.0000752987415035238
19	-0.0000719798011418105	-0.000999334204719653	0.0000172027080251141
20	-0.0000694313881089887	-0.00143703639330514	-0.0000112399854983218
21	0.0000918987478176507	-0.000060655209194471	-0.0000241451284868453
22	-0.0000225339310512297	0.000270806323506088	-0.0000116447711008481
23	-0.0000820844222859799	0.0000606261927253287	0.00000584118901730448
24	0.0000071645924342383	0.00007850858549414	0.00000997039373088681
25	0.0000486238019852417	0.0000726590733857401	0.0000027652298113973
26	0.00000589141413212911	-0.0000738550003314551	-0.00000325007234131952
27	-0.0000194114217307703	-0.0000893767654873198	-0.00000286153366424703
28	-0.00000548944708823004	0.0000142608369866426	-0.000000247519107330299
29	0.0000049017955813594	0.0000486455992100867	0.000000969839628164751
30	0.0000013293679930757	0.0000097664384027725	0.000000680810511205765
31	-0.000000813975623416609	-0.0000146719009464087	0.000000110600615164263
32	0.00000105712697972052	-0.00000753088573733853	-0.00000021566920581581
33	0.000000438965438678269	0.00000107500143072237	-0.00000026562243760999
34	-0.00000118074030958318	0.000000925684426362801	-0.0000000705099085062159
35	-0.000000455933091660139	0.00000119558377185772	0.0000000968328680459752
36	0.000000395806349323926	0.00000200792878828732	0.0000000904381511866703
37	0.000000221237161060551	-0.00000080788391883386	0.0000000267992521432559
38	0.000000233597959891132	-0.00000205818343588812	-0.0000000247656429891308
39	0.0000000501973083494754	0.00000067858089285253	-0.0000000497472177943716
40	-0.000000421898131689766	0.00000122252503812229	-0.0000000154751377917464

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Mercury Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	15.0146270166802	-13.8441593652598	1.18179787983008
1	3.46471353437318	-11.6139809569505	0.156703553622961
2	0.891108277668982	0.448541450487905	0.195056229861393
3	0.602468777273679	-2.65034711935855	-0.190240116510593
4	-0.416921220270685	4.12155417855744	-0.0888582506207643
5	-0.13243863580738	1.27963062412304	0.0736686644020845
6	0.218629729197048	-2.03017768592002	0.0197256772037606
7	0.00958965841556469	-0.249923857373266	-0.0359630555646091
8	-0.118544373693155	1.07482992899541	-0.00328350322224325
9	0.0232497724681624	-0.0820118763066174	0.0171664606670041
10	0.0573085057109106	-0.560697831616181	-0.00147805537577206
11	-0.0262135069139719	0.16155104405341	-0.0079667937519522
12	-0.0246468813343918	0.27303203802009	0.00215510969953953
13	0.0200922861098932	-0.149417802878891	0.00352730560912382
14	0.00859037781643878	-0.119065923000606	-0.00171969212372766
15	-0.0130431663998918	0.111005836197761	-0.00143800318092564
16	-0.00155908341119085	0.0416029709862249	0.00113687248157869
17	0.00754611322072495	-0.0727249653132197	0.000504767073189251
18	-0.000981201210164861	-0.00640191334646956	-0.000675023809698887
19	-0.00392589487966872	0.0431204066648828	-0.000120886030975196
20	0.00151364034315036	-0.00685076026696497	0.000368641265729567
21	0.00180124955457931	-0.0231277709973934	-0.0000153203437264037
22	-0.00129280980591854	0.00971631673909061	-0.00018530515336803
23	-0.000678147993672121	0.010933852096382	0.000048562305660168
24	0.0008928566513895	-0.00841188495518963	0.0000843269207959691
25	0.00015129828357451	-0.0041960259811849	-0.000044581672082108
26	-0.000538380654527809	0.00599093827570515	-0.0000331017304368595
27	0.0000548780123087483	0.000888821962525464	0.000031182774074944
28	0.000288356684048944	-0.00374723943888185	0.00000952205421567557
29	-0.000107084807861588	0.000468442399220672	-0.000018716598284369
30	-0.000134558390854424	0.00208469673351975	-0.000000128421379783808
31	0.0000968091246017464	-0.000834885288458004	0.00000992117827327522
32	0.0000503236394021949	-0.00101137987057982	-0.0000026389708959038
33	-0.0000689322279183038	0.00076916840291201	-0.00000459047747918707
34	-0.00000999724301331449	0.000394649063099021	0.00000272744930687615
35	0.0000422390978054344	-0.000565382272042127	0.00000172228507444087
36	-0.00000572654346467115	-0.0000823150052009853	-0.00000200913991973175
37	-0.0000225980736895224	0.000359917239115276	-0.000000363577051767482
38	0.00000943947823091509	-0.0000492158346460428	0.0000012449820930473
39	0.0000102958205393341	-0.000202101982120264	-0.000000169188985195069
40	-0.00000830018902613523	0.0000852310194193678	-0.000000668319960340178

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Venus Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	20.1162344504799	-12.1654728066375	1.07072448229796
1	4.78887967189445	9.80703853253696	0.408141570816621
2	-0.0131338938128386	6.81183277667174	-0.0193463278581986
3	-0.0676719085849936	-0.459297621492111	-0.00233789507503637
4	0.0219486413527856	-0.384237431274587	0.000157131696155532
5	0.00425945416804514	0.0530628988165725	-0.0000931845292203724
6	-0.00150971318586027	0.00876160484372844	0.0000215799146238923
7	-0.000276481488184167	-0.00377586130154821	0.00000823976167094321
8	0.000180043492463233	-0.000272957727132695	-0.00000357143080675712
9	0.000012831141053387	0.000468149773518427	0.00000462250604413207
10	0.0000314846429433346	0.000026032812170581	-0.0000126190763526617
11	-0.0000511933354969161	-0.000134258521066514	-0.0000115875684485408
12	-0.0000285736919824186	-0.000239994339135771	0.0000118275793075357
13	0.000032635776468273	0.0000803302311523615	0.0000066297495414463
14	0.00000636253120946607	0.000155613626280706	-0.00000483104500485109
15	-0.0000114492340070153	-0.0000508634222551462	-0.00000177381928568399
16	-0.0000000239380115617913	-0.000043841259117304	0.00000112208465161347
17	0.00000321216559358666	0.0000182704342788909	0.000000456389752157017
18	0.000000777522986728239	0.0000156421668959926	-0.000000250638250589873
19	0.000000213004605975905	0.00000521560791608899	-0.000000355963428791878
20	-0.000000212795094348323	-0.0000109961227764075	0.000000136410742200109
21	-0.000000641618112118048	-0.00000283056908905446	-0.000000000204249953316696
22	-0.000000896826896600728	-0.00000355823329910552	-0.0000000251394032852653
23	-0.000000874536327561979	-0.00000869901322992395	0.000000342255165417736
24	0.000000820173686430711	0.0000145201680090421	-0.0000000835348797340448
25	0.00000171038460901029	0.0000100340589606487	-0.000000355054526443505
26	-0.000000324127535483034	-0.0000136488613840677	0.000000097554234802507
27	-0.0000012810271311589	-0.00000457097648291168	0.000000195051520325564
28	0.000000112256755479612	0.00000739529969414703	-0.0000000397366119261453
29	0.000000646720538608431	0.00000181855081487936	-0.0000000749751167824117
30	0.00000000714909249345448	-0.0000027410754530494	-0.00000000327558057051281
31	-0.000000343591913713843	-0.00000187806991774397	0.0000000326493741374792
32	-0.000000107099478310112	0.00000111835736145587	-0.00000000103392148161545
33	0.000000185006025299541	0.00000101805053550654	-0.0000000182509468817309
34	0.0000000480083811007413	-0.000000721446205133317	0.000000020720318694539
35	0.00000000564463443866639	0.000000897802543116032	0.00000000352036915684483
36	0.000000100655757280927	0.000000154355004389519	-0.0000000258293939057039
37	-0.000000171038090118	-0.00000193450449822287	0.00000000726395209635959
38	-0.0000001671642069542	0.000000388560460228589	0.0000000178558990934621
39	0.000000211556826419952	0.0000016124321027545	-0.00000000823822845160652
40	0.000000133693500083866	-0.00000039419184082187	-0.00000000950010850437848

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Venus Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	5.872033910372	13.9158887793256	1.63573583713896
1	5.20573389504403	2.60447589255719	0.13395631945133
2	0.0459288542184132	-8.89564956055664	-0.0516453165812522
3	-0.0797007048323503	-0.402218895952729	-0.00152117332131158
4	-0.00981715355610062	0.430370450623866	0.000527327899243766
5	0.00995041598864179	0.0307860710619703	0.0000483633798945231
6	0.00131556924549235	-0.0211969205045851	-0.00000307388849377257
7	-0.000824172672627489	-0.0032940432342709	0.00000530566133827383
8	-0.000158553397511634	0.00152158211547045	-0.00000708003757963286
9	0.0000880763086613704	0.000306611670329539	0.00000226076079506443
10	0.000039793092784862	-0.0000289593145638129	-0.0000134842689100096
11	-0.0000470145208598523	-0.0000364822050902965	-0.00000770262249229615
12	-0.000019875283454894	0.000111487306760091	0.0000143705350750754
13	0.0000264198372590381	0.0000281657686694185	0.00000461400722337582
14	0.00000674368204623546	-0.000103309114156609	-0.0000064481699491911
15	-0.00000987613144299518	-0.00000419240406761772	-0.00000191658505497295
16	-0.00000368559437812748	0.0000393314049322277	0.00000174503245039251
17	0.00000346002422896812	0.00000491977962722997	0.00000044326373249103
18	0.000000621391055686515	-0.0000150336295868753	-0.000000273343403178404
19	-0.000000164056010922863	-0.00000923741640423159	0.00000024806345093463
20	0.00000178369476976272	0.00000793472547501882	0.0000000245575701345221
21	-0.00000088520896747079	-0.00000138919132668643	-0.0000000673221313050738
22	-0.000000149011018968651	0.00000216277379997689	-0.0000000702615099180022
23	-0.000000381742502189856	0.00000877981787955726	-0.000000309950828178521
24	-0.00000203092543257104	-0.00000864323492068113	0.0000000992951764477612
25	0.00000159251067780734	-0.00000818109694309123	0.000000417786782508543
26	0.00000252604381148115	0.00000733296942460915	-0.0000000593451132830014
27	-0.000001446896927289	0.00000537063950603386	-0.000000294350268011773
28	-0.00000190839077532612	-0.00000377589840012598	0.0000000197726083165859
29	0.000000780926575092462	-0.00000215652529818311	0.000000122093500913771
30	0.000000918921148278258	0.00000168497541333151	-0.0000000116200512606564
31	-0.000000358311697067807	-0.000000293307022716114	-0.0000000220406531698985
32	-0.00000014867269067807	-0.000000724600976516585	0.0000000119643364727678
33	0.000000169129563280431	0.000000710896366293969	0.00000000500965551232779
34	-0.0000000704956020916782	0.000000265991306059871	-0.00000000447380742118393
35	-0.000000066540488868554	0.000000348560864612895	-0.0000000211336663534782
36	-0.000000101096553953226	0.0000000401759501748227	-0.00000000752345107032138
37	-0.0000000213165187312743	-0.00000014053793503949	0.0000000304856188096827
38	0.000000305133006380252	-0.000000309563012050499	0.0000000146467065305902
39	0.0000000946123688262775	0.00000161689771232984	-0.0000000252536788400529
40	-0.000000343803345518516	0.000000361788254958075	-0.0000000128894886658811

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Venus Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	15.9670536742361	-12.3328447256016	1.52486080030685
1	5.15026317257213	-14.4908266383567	-0.229284562046497
2	0.149704450913521	7.63472385333364	-0.0336806736450224
3	-0.0341803877519705	1.45094133463676	0.00192301787386633
4	-0.0346329245180389	-0.27838935661196	-0.000246969940356876
5	0.00099361879062018	-0.0830731220564742	-0.0000123735962541776
6	0.0031114828705885	-0.00276935310692028	0.000017077451217439
7	0.000487055922430383	0.00629773875803998	-0.00000000877904881683885
8	-0.000197514949956403	0.00151835629982041	-0.00000676567580099803
9	-0.000077221080179357	-0.000396922960735361	0.000000105023536640177
10	0.00000249942384623848	-0.000283483954688301	-0.0000156320113264343
11	-0.0000359510831411033	0.0000780260427118424	-0.000000782792011770546
12	-0.00000266610752823761	-0.0000839598748040578	0.0000155185119300954
13	0.0000271950373563571	-0.000066595874751111	0.000000831317630900843
14	0.00000205166025778249	0.0000936795018073976	-0.00000663055277472024
15	-0.00000961842514036825	0.000029528056454297	0.000000002091919040582
16	-0.00000181397048956224	-0.0000297451376911935	0.00000165888951555726
17	0.00000301715759889206	-0.00000445667269620338	-0.000000059012726707419
18	0.00000140175628156847	0.0000128247968010615	-0.000000330358498826008
19	0.0000000153963963483516	0.00000573834855051177	-0.000000280534601820306
20	0.000000499157653690425	-0.00000919560582793476	0.0000000997949364734752
21	-0.000000638078560641339	-0.00000669430617067969	0.000000133818633128361
22	-0.000000909400806542352	-0.00000232752065541778	0.00000000191846812753341
23	-0.000000358207243385181	-0.00000245642892200451	0.000000216820779092553
24	-0.000000393527497084564	0.000009696712004909	-0.0000000270708261197445
25	0.00000100540563206529	0.00000826938378549166	-0.000000330469888656804
26	0.00000117265860934571	-0.00000855430800039881	0.000000019763961630135
27	-0.000000964803010543103	-0.0000060385676537938	0.00000022031009830845
28	-0.000000847754941657234	0.00000482444247543145	-0.0000000263457368469702
29	0.000000651041787081094	0.00000276613861900322	-0.0000000882593621941992
30	0.000000395085733870934	-0.00000212022626411112	0.0000000225072451226324
31	-0.000000271632662816469	-0.00000183585351350626	0.0000000275101112553761
32	-0.000000237962098357291	0.0000004370940688012	-0.000000000340841082705221
33	-0.0000000129422612600554	0.00000130891142940328	-0.0000000144538889931337
34	0.000000136890273566248	0.000000211082085660424	-0.0000000150102037326849
35	0.0000000509732835621263	-0.0000000629034826614326	0.0000000125561192174675
36	0.0000000151105483280744	0.0000000795835171434466	0.0000000121548280728559
37	0.0000000827807348036564	-0.000000977770085408694	-0.00000000975729237475556
38	-0.000000119925225666296	-0.000000444066523272707	-0.00000000301627470582862
39	-0.000000173110212205362	0.00000115779294364721	0.00000000552748410704573
40	0.000000137239379794519	0.000000355373694669737	-0.0000000012302495782515

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Mars Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	10.2407493677894	14.4272389837347	0.850981084235099
1	-0.662822413154707	2.97906196961279	0.0844327235790664
2	0.154243879353147	-1.74384725833407	0.153439162433626
3	0.217028518046594	-0.999301288939576	-0.0112464876882547
4	-0.0314108245317614	0.333590918749198	-0.00873899047274886
5	-0.0246405976690147	0.0764068033333541	0.00152879681105991
6	0.00598751832554868	-0.0642568078832442	0.000715600545286429
7	0.00313443450538268	-0.00353557597631142	-0.000242198143440922
8	-0.00121000411973662	0.0119492785789281	-0.0000625846227098414
9	-0.000392572819041107	-0.000873174981118405	0.0000453034592309115
10	0.000203489576114609	-0.00185103604810392	0.00000754154261613845
11	0.000066448591649222	0.000179322985878128	0.00000595741837534471
12	0.0000346430418026219	-0.00017064130525764	-0.00000680778084854726
13	-0.000033938350517571	0.000204974101699998	-0.0000139335544331305
14	-0.0000511035237897034	0.00029653834099142	0.00000485103077397138
15	0.0000181546644301288	-0.000173427309238723	0.00000715648514785856
16	0.0000224502959580059	-0.000120815753103106	-0.00000214135876560769
17	-0.0000064659563939025	0.0000689167661679561	-0.00000206197453015123
18	-0.00000713801659792573	0.0000326652251331261	0.000000603631529795102
19	0.0000030571994739232	-0.0000280212188895443	0.000000693648277529498
20	0.00000361425117780138	-0.0000124859364446171	-0.0000000880756149680539
21	-0.00000192930430142127	0.0000182172243252109	-0.000000355811311176408
22	-0.0000010844896627541	0.00000261124154757785	0.0000000797603512524824
23	-0.0000000280933464068201	-0.00000353828146617543	-0.0000000746250005307746
24	-0.00000174112997643427	0.00000715354851605746	-0.000000129657666749069
25	0.00000136392686140116	-0.00000955976286980945	0.000000352094836590431
26	0.00000252937486597168	-0.00000956414764413892	0.0000000849845549864171
27	-0.00000126101774158226	0.0000109196675316313	-0.000000323377281528685
28	-0.00000162450086210816	0.00000582301513793883	-0.0000000304741488267176
29	0.000000602767470798238	-0.00000597379676000243	0.000000166709169732424
30	0.00000076482205631304	-0.00000247679659534236	0.0000000210074734795024
31	-0.000000217684360299576	0.00000269743129916982	-0.000000059711032669821
32	-0.000000460786146606822	0.0000015306126038663	-0.0000000207934393061744
33	0.000000150047568000908	-0.00000195123873150273	0.000000027972191706498
34	0.00000027164995689478	-0.00000103982012614827	0.00000000280807679940167
35	-0.000000126865563820742	0.00000132418003509026	-0.000000021949845025551
36	-0.000000010043583249186	0.000000142348649100614	0.0000000179053089542031
37	0.0000000371979329491595	-0.000000155300742349153	0.0000000121068491729439
38	-0.00000015954450517741	0.000000451186120945794	-0.0000000239179898739498
39	0.000000038562935552932	-0.000000064342252962347	-0.00000000193903354547634
40	0.000000164403215771006	-0.000000046746395696948	0.0000000177382010956507

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Mars Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	11.6828425049027	2.77615318707386	1.53429104605082
1	1.98000485733273	-13.5419137982244	0.445204235010427
2	0.156683947735353	-0.951065333012292	-0.0311292734132917
3	-0.0159206711919512	0.234713022901959	-0.00347886615429806
4	0.00686617809688076	0.0114193855217642	0.000884575315249116
5	-0.000963910554994635	0.00238881097118158	-0.000105637677459947
6	0.0000935938965282033	-0.000322257764229562	0.0000194894509502492
7	-0.0000238047364435363	0.000197949892423767	0.00000839191527469225
8	0.0000304081822837639	-0.000270173964204689	0.00000597415874731864
9	-0.00000285965975542579	0.0000418759740991772	-0.00000347781635266498
10	0.0000158329214190074	-0.000127003153056182	0.00000353064320028815
11	0.0000170949055011038	-0.0000804153932907332	-0.0000153385084097396
12	-0.0000389576919912745	0.000297917808986313	-0.00000628940476191321
13	-0.00000927423792071359	0.0000332283747538565	0.0000138157327874772
14	0.0000206544242937932	-0.000172343892689675	0.00000325930551289665
15	0.00000295905146717255	-0.00000363689890829294	-0.00000589880417920352
16	-0.00000778845120643321	0.0000690590295745072	-0.00000131925282224613
17	0.000000113930970119306	-0.00000383539477215498	0.00000156473513315374
18	0.00000226578779013394	-0.000014955931533479	0.000000184969660302631
19	-0.000000519556164988747	0.000000488700816516425	-0.000000226221913305238
20	0.00000109971122510994	-0.00000725644209248871	0.000000276475596627249
21	-0.00000051853422783978	0.00000287291748656027	0.0000000187291440203419
22	-0.00000065849417505932	0.000000869362107126017	-0.00000000983762523960037
23	0.000000537957667752619	-0.00000000602369135881987	-0.00000000938435091063361
24	-0.00000104808570377851	0.00000885295140247338	-0.000000333898995887626
25	0.000000201397664695564	-0.00000310344955630725	0.000000130157594440521
26	0.00000167801587516677	-0.0000110612875932104	0.000000399995865021806
27	-0.000000428348116321362	0.00000242422718208232	-0.0000000845482179940184
28	-0.00000144910221896104	0.00000852038615756178	-0.000000263772647724052
29	0.000000293848229325041	-0.0000012283664638266	0.0000000366939087757938
30	0.000000827149136373891	-0.00000398280250480913	0.000000100531514386479
31	-0.000000210833792660533	0.000000937889841323139	-0.0000000191000700586369
32	-0.000000195057274507124	0.000000346839713282635	-0.0000000149892968171923
33	0.000000137801237125307	-0.000000609932643159601	0.0000000131892389027791
34	-0.0000000837098479370891	0.000000564077628319298	0.00000000625327709764968
35	-0.0000000388768701123193	0.0000000954178433580849	-0.00000000433579255243296
36	0.00000000980194225446809	0.000000383819287176487	-0.0000000235484228494033
37	-0.000000054277143642421	0.000000404962885428859	-0.00000000644650904504108
38	0.000000159249129576678	-0.00000138641896513502	0.0000000313677403638982
39	0.000000118917737955274	-0.000000715674234281857	0.000000012179076808245
40	-0.000000231149164014913	0.00000154384784970787	-0.0000000249330967949167

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Mars Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	16.7692554582219	-19.6544077919009	2.14492300355435
1	3.14585568979121	-5.56015283810277	0.175299142460425
2	0.128509867720347	3.25854780433388	-0.0264888075121392
3	-0.0226230793221762	0.354534096428641	0.00244027635950099
4	-0.00592078201425662	-0.048685084884002	0.000100572119802453
5	0.000366911857159342	-0.0129232638381069	-0.0000241195421135818
6	0.000301613403922575	0.000141474094076252	0.00000132618496322015
7	0.0000403859495198165	0.000416288702206261	0.0000038081546393759
8	-0.00000577538876812875	0.000111474434564352	-0.0000112708322337184
9	-0.00000295208182492316	-0.00000249917148324699	-0.0000000356792181465023
10	0.00000652408399093814	-0.0000883758229654513	-0.0000112032560085021
11	-0.0000321764598698009	0.000037233734849349	-0.00000457404205498159
12	-0.00000801683651610729	-0.0000345981227780809	0.0000165342379302924
13	0.0000240096623892366	-0.0000461944848779544	0.00000381922594241027
14	0.00000290171670872636	0.0000530401198625948	-0.00000853716028285851
15	-0.00000984301571585854	0.00001697669903072	-0.00000119022972614756
16	-0.00000156385360183497	-0.0000160496058943561	0.0000025870142829988
17	0.0000033304318540222	0.0000010385889116167	0.0000000893187208648585
18	0.000000832914512241078	0.00000750675879913588	-0.000000521036852071059
19	0.000000167511577040672	0.00000474646702765147	-0.000000265406918911691
20	0.000000742302349720106	-0.00000855200811342829	0.0000000750936681445139
21	-0.000000689777623119352	-0.00000700901146766424	0.000000221193298617205
22	-0.000000687686224183682	-0.000000435171841447543	-0.00000000930390543678569
23	-0.000000502198691744337	-0.00000293927853908815	0.000000138029905238447
24	-0.000000764335379990552	0.0000082087771622639	0.0000000351994770061486
25	0.00000117533720223732	0.0000100352524219322	-0.000000325042421803211
26	0.00000139929379647091	-0.00000865998124433422	-0.000000048894325384159
27	-0.00000107306547309759	-0.00000767882802114503	0.00000025685965527652
28	-0.000000901097333716925	0.00000572003617206436	0.0000000148912174883267
29	0.000000690839003766781	0.00000333664498001696	-0.000000121694715363593
30	0.000000394382910945477	-0.00000272080179571166	0.0000000117560925223022
31	-0.000000267396200332649	-0.00000184554901975027	0.0000000414055314997968
32	-0.000000254584592805948	0.00000050998738155066	-0.00000000215480307691107
33	-0.0000000284717330942393	0.00000143638349663799	-0.0000000147668459008991
34	0.000000164631165939481	0.000000325286643798905	-0.0000000152477604629937
35	0.0000000542534881452748	-0.000000383497312451796	0.00000000930395077690959
36	-0.00000000147092102223889	0.000000132903672064773	0.0000000163034829000436
37	0.00000000930694169389352	-0.0000000710541538363388	-0.00000000834836332366194
38	-0.000000118818692029793	-0.000000072602091880575	-0.00000000697937760832213
39	-0.000000184493838318483	0.00000108188539453298	0.00000000635418233713066
40	0.000000143332556075411	0.000000681248964134713	0.000000000321498325592255

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Jupiter Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	9.57566324677611	15.4524345614906	4.6580321232053
1	-0.332730322835982	1.67247124071959	0.28564245244235
2	0.0729125620565547	-0.437225201847431	0.234138913838662
3	0.0406686227119254	-0.180258469271151	-0.0197851291568253
4	-0.00538510085359161	0.0354948415865218	-0.00723958131991121
5	-0.00154139382984535	0.00433104342741286	0.000956350203473712
6	0.000352791119116163	-0.00245825695602286	0.000177383590630773
7	0.0000526750520061169	0.0000482968428516621	-0.0000572892268362007
8	-0.000032171042623718	0.000213714062292616	0.00000325322421460474
9	0.00000139259462377244	-0.0000392314210545548	0.00000889481165197233
10	-0.00000223435560027994	0.0000230225695573722	0.00000269499776608438
11	0.00000481221411276336	-0.0000301792940522476	0.0000120336259648537
12	0.0000129240480449179	-0.0000795467153438798	-0.00000905577815702777
13	-0.00000826258170668743	0.0000554302207980286	-0.0000137415312869487
14	-0.00000891353110663596	0.0000485665838409756	0.00000611218300468754
15	0.00000327121347950434	-0.0000245831274627374	0.00000622535275137393
16	0.00000253748925522613	-0.0000204489602489822	-0.0000022535163654424
17	0.000000162801440050744	0.000000242380868217414	-0.00000158885031180487
18	-0.000000614209814245287	0.00000482912877344548	0.000000502292127637315
19	0.0000011541029633524	-0.00000616758895436859	0.000000563729452681986
20	0.000000931155771317614	0.00000229379083835242	-0.0000000824081741041226
21	-0.00000141829981319768	0.00000909268180709887	-0.00000030230816705597
22	-0.0000002703419704179	-0.000000715453048057022	0.000000083440905859977
23	-0.000000661802694130172	0.0000029326418786899	-0.000000128683717243356
24	-0.000000897517322193294	-0.00000289977610728304	-0.0000000844995401517478
25	0.00000202909081592788	-0.0000119539597210661	0.000000379367029178875
26	0.00000106055369953446	0.00000393734526876477	0.0000000267937382262587
27	-0.00000163530685619803	0.00000964396371153178	-0.000000317907353511591
28	-0.000000517653879599803	-0.00000288912101583823	0.00000000308143304198451
29	0.000000759271483295262	-0.0000042909637832644	0.000000153301189097471
30	0.00000023533171852404	0.00000122924619074636	0.0000000107986234001594
31	-0.000000322460960173593	0.00000222332933365905	-0.0000000539549367757775
32	-0.000000247332800856961	-0.000000144055788022553	-0.0000000171422638778137
33	0.000000213706780841554	-0.00000182674457821662	0.0000000266970705643069
34	0.000000144254540791615	0.0000000801242684175582	-0.00000000168141233713198
35	-0.000000104190593998859	0.000000633384000010064	-0.0000000190320716212291
36	0.000000082445682511765	-0.000000351589162582561	0.0000000212642304295406
37	-0.0000000528040790197532	0.000000873909184642171	0.00000000751765141007541
38	-0.000000203188007068647	0.000000294664931399418	-0.0000000243432256034428
39	0.000000135545075921699	-0.00000142941969808791	0.00000000164974094231955
40	0.000000171352343881117	-0.0000000926597447308007	0.0000000165963899387155

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Jupiter Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	9.92427762124994	13.5144078096539	5.90326984410265
1	0.671572311492733	-3.60404823648938	0.655054045737155
2	0.0769035172560843	-0.493481255502842	-0.133395298925584
3	-0.0161725454906713	0.0631509400290915	-0.0187111379830229
4	0.000798264287115611	0.00126977413248404	0.00245933693543916
5	0.0000242476209712785	0.000302758420744549	-0.000085068505415537
6	-0.0000324479485327253	-0.0000104947297309101	0.00000779499156012029
7	0.00000626340754457959	-0.0000176555364676443	0.0000111754452295754
8	0.00000974119973712156	-0.0000623397317832822	-0.00000171805498197506
9	-0.0000016205136178341	0.0000107950027363302	-0.00000776173665850822
10	0.00000349430464205825	-0.0000192439683279292	-0.000000216542038952394
11	-0.00000125003972891632	0.0000204031593530633	-0.0000142931940208376
12	-0.0000119681753090619	0.0000759841120594898	0.00000191636168134574
13	0.00000115742211725154	-0.00000892192596085722	0.0000157675371912654
14	0.00000600377434876938	-0.000046122293355182	-0.00000166523039693246
15	-0.0000006492156869988	0.00000573622131151929	-0.00000756340850849347
16	-0.00000359799102644907	0.0000217998643580159	0.00000039264631780936
17	0.000000987157282073625	-0.0000104379503300574	0.00000232518614300586
18	0.00000134595796066564	-0.00000525516304292603	-0.0000000887058015613542
19	-0.0000000595159508374417	-0.0000027694187767004	-0.000000304517978990674
20	0.00000132764177104947	-0.00000367020836806385	0.000000265049016882709
21	-0.000000793691320621067	0.00000827857565015342	-0.0000000890281206039017
22	-0.000000642930196431209	0.000000158611531926707	-0.0000000881958027877296
23	0.0000000817556068545423	0.00000184585077795326	-0.0000000124928552482615
24	-0.00000113501515705019	0.0000032910957249323	-0.000000201544647001399
25	0.000000930968200352734	-0.0000103035646716496	0.00000029336902362175
26	0.00000178221664889038	-0.00000394799732163479	0.000000307164158509596
27	-0.000000957995595784534	0.0000101474733040869	-0.000000254069558018969
28	-0.0000015201367413693	0.00000394228504204651	-0.000000234236541709587
29	0.0000005174842751492	-0.00000618017932413539	0.000000133498685028295
30	0.000000832314216180544	-0.00000217155634809104	0.000000101350364449659
31	-0.000000256038108687771	0.00000251390119281422	-0.0000000472846619605616
32	-0.000000169499663606854	-0.000000156139380049512	-0.0000000147035646042297
33	0.000000148679127297924	-0.000000456439207346935	0.0000000154244057779167
34	-0.000000090098356877415	0.000000844187585377123	-0.000000000621685954894368
35	-0.0000000692813243475685	0.0000000608257475869443	-0.0000000107784303966298
36	-0.0000000177374225834538	0.0000000651796931193195	-0.0000000178935743591839
37	-0.0000000182460442007102	-0.000000370626681248106	0.00000000863265217323233
38	0.000000202194737894275	-0.00000123137061511237	0.0000000318909410871329
39	0.0000000964843240014709	0.000000498160913179667	-0.00000000352473450707491
40	-0.000000264786255360637	0.00000164633750061747	-0.0000000295568887221814

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Jupiter Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	11.3419009449813	5.36081685327759	5.89433068109397
1	0.627862155681331	-3.77890350454661	-0.664814188579337
2	-0.0851059894199603	0.533447364075146	-0.133166801458436
3	-0.0154303563531982	0.114242469489749	0.0204668467653412
4	-0.000583594485133896	0.00211671061121094	0.00324030840823986
5	0.0000822614195512874	-0.00101639800696831	0.0000826656164624273
6	0.0000435915811349543	-0.00024197851196952	-0.0000169619971829841
7	0.00000863353228652212	-0.0000455722585496228	-0.0000135532896161556
8	-0.00000667431613414097	0.0000569815935584173	-0.00000558873785397139
9	-0.00000255621377983171	0.0000139648623266027	0.00000616722856618579
10	-0.00000274063123829117	0.0000192154945820404	-0.00000189139609856063
11	-0.00000402280384004092	0.0000183675376653826	0.0000138794526227236
12	0.00000971818450879017	-0.000080108427187278	0.00000674456809401513
13	0.00000377599989403701	-0.0000149472865064707	-0.0000144025864028435
14	-0.00000720752608081327	0.0000562982979260159	-0.00000473409691423582
15	-0.00000188337646142962	0.0000104293069737352	0.00000657531304017811
16	0.00000123006731215973	-0.0000125778405698878	0.00000141092763355477
17	0.00000116323887107932	-0.00000796093918827619	-0.00000186944634574647
18	0.000000129186568213231	0.00000167515046355086	-0.000000271842717601696
19	0.000000175528013596226	-0.00000275889095895247	0.000000339283027418338
20	0.00000123571181179294	-0.0000075267566178945	0.000000333793740173405
21	-0.000000456657591220832	0.00000405919325473254	-0.0000000152337419738755
22	-0.00000075567784173032	0.00000359414448507521	-0.000000152410347984503
23	-0.000000216462482061221	0.00000253659750301335	0.0000000166491498466506
24	-0.00000105883593232173	0.00000690566461423054	-0.000000195956570260314
25	0.000000577250273125079	-0.00000600958599753214	-0.0000000825729131291742
26	0.00000175545242748273	-0.0000100532762337047	0.000000314453713142249
27	-0.000000603181565852492	0.00000547273028265284	0.0000000850117440124837
28	-0.00000115139602477302	0.00000594012475144164	-0.000000220366262842603
29	0.000000486373441253674	-0.00000360696384777755	-0.0000000303950428982746
30	0.000000501577064303324	-0.00000243415926994255	0.000000098765500234816
31	-0.000000211530164231875	0.00000143028358839364	-0.00000000208127489722107
32	-0.000000263227683274073	0.00000156163451534432	-0.000000033396463632782
33	-0.0000000558410572357088	0.000000222542349400306	-0.000000005828276094091
34	0.000000153121905301407	-0.00000103930860857993	0.000000011219999067589
35	0.0000000909273618728631	-0.000000425496728018633	0.0000000184389175467736
36	-0.0000000189278073325736	0.0000000282980266030985	-0.00000000657106583652023
37	0.0000000556453701387699	-0.000000374839690231999	-0.0000000157027842342459
38	-0.0000000770324112346855	0.00000073036427931269	0.00000000658192919999061
39	-0.000000160886873938352	0.0000000891894743148742	0.00000000607308310468552
40	0.000000104249468963749	-0.000000087998823052222	-0.00000000525225082033763

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Saturn Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Horizontal Parallax(H.P.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	0.906152413154506	3.29132904300731	10.0216960312714
1	0.38578661243395	2.53304333284326	0.486541679985608
2	0.041828508284333	0.196203225466335	-0.183439146179895
3	-0.0105678075271881	-0.073718478392711	-0.0172542180887515
4	-0.0000802202063895709	0.000625347075264141	0.00389638197045584
5	0.0000689169175133075	0.000523421073178214	-0.00000187959089485709
6	-0.0000163002457085951	-0.0000866164754524697	-0.0000237381948806615
7	0.000000126113100269463	0.00000504087010968854	0.0000138937396991975
8	0.00000424980550996292	0.0000367047162907535	0.00000500790269638497
9	0.000000674059828439829	0.00000102254772917129	-0.00000469292990014405
10	0.00000212613675258251	0.0000193252101107801	0.00000271995411510309
11	0.00000173026192327739	0.00000433924844649082	-0.0000143516361263759
12	-0.00000494654082081867	-0.0000409437529326084	-0.00000682675717332467
13	-0.00000393271689222327	-0.0000162350028330988	0.000014081766499463
14	0.00000287000370610948	0.0000233407083864853	0.00000405272105039952
15	0.000000825050625510886	0.000000484333986163944	-0.00000602538464397198
16	-0.00000114194394516709	-0.0000117672537201149	-0.00000109517072738371
17	0.000000979397580257129	0.0000062898111174137	0.00000149858843977602
18	0.00000029416280719258	0.00000242669447377028	0.00000033751802552707
19	0.00000101665706915466	0.00000663656471514729	-0.000000414599186900881
20	0.000000239507744602577	0.00000411683723326997	-0.000000293799014453639
21	-0.00000139095896640709	-0.00000755579020870417	0.000000205949586859971
22	-0.0000000957979767326073	-0.000000834797104300727	-0.0000000168003646447998
23	-0.000000758140772926436	-0.0000053814660622154	0.0000000285854545858279
24	-0.000000381913358202198	-0.0000053926722255148	0.000000305236960920642
25	0.00000213005242598725	0.0000126653982744029	-0.000000190831899581499
26	0.000000398073984112661	0.00000560187969790635	-0.000000306544092229095
27	-0.00000167079236282442	-0.00000966480669272838	0.000000178137525301617
28	-0.000000118342449924851	-0.00000237831689606166	0.000000169182492236617
29	0.000000766804162527093	0.00000443315374192968	-0.0000000787413454384009
30	0.0000000728849649491906	0.0000011887235280922	-0.0000000719272949031739
31	-0.000000347980484501721	-0.00000188104809425997	0.0000000134086376535208
32	-0.000000167198019684263	-0.00000149967197918931	0.000000034820654070727
33	0.000000236995082559709	0.00000117733493985722	-0.00000000881932420406122
34	0.0000000915392606738195	0.000000777283363755594	-0.0000000148938105641654
35	-0.0000000937911542724699	-0.000000519144729553986	0.0000000227041007225343
36	0.0000000955504366979051	0.000000705084214882893	-0.00000000367430238992643
37	-0.0000000876958152323609	-0.000000352191113766505	-0.0000000236740150990335
38	-0.000000181450628222723	-0.0000014183275209055	0.0000000134168352081705
39	0.000000168294631448433	0.000000788121566269573	0.0000000146480045634831
40	0.000000143088358282982	0.00000114412791282808	-0.0000000118913337166051

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Saturn Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Horizontal Parallax(H.P.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	1.61938001729852	7.47863174799971	9.54232484387596
1	0.232112847539455	1.10878387835525	-0.872258418387499
2	-0.0804782386679588	-0.503003636349665	-0.0645275897931758
3	-0.00802646459246746	-0.0310419352678788	0.0356854394363482
4	0.000977890423967579	0.00659213155479281	0.00241620938428192
5	0.000228006110652856	0.000992240690207728	-0.000203132359060476
6	0.0000281251429979647	0.000136123223535731	-0.0000435467836200883
7	0.00000167917074395122	0.0000134525986338796	-0.0000111096779687313
8	-0.00000232447089256818	-0.0000213821988660928	-0.0000118859693333221
9	-0.0000038119782029941	-0.0000166896415355568	0.00000533850389968
10	-0.000000458585596146348	-0.00000153860926131751	-0.00000272157466416
11	-0.00000540724057034956	-0.0000221602682791578	0.00000796600219426695
12	0.00000227765640394523	0.0000264550261244287	0.000014056523213747
13	0.00000479279665897687	0.0000235234017975787	-0.00000975495885867807
14	-0.00000304239756644623	-0.0000308707821375607	-0.00000971199554599898
15	-0.00000244841050262255	-0.0000126446009956924	0.00000471527485589819
16	-0.000000188120523975911	0.00000114922842756009	0.00000398459014127407
17	0.00000185750851924379	0.00000621539942704153	-0.00000126340231383308
18	0.000000519729011677396	0.00000322688773408479	-0.00000100700885185211
19	0.0000000922135078342485	-0.000000437808681410114	0.000000308456918924288
20	0.00000120143133748442	0.00000989469852944935	-0.000000117204681776196
21	-0.00000111834673424801	-0.00000303631035288629	-0.000000142419674990446
22	-0.00000055557563175307	-0.00000495372867412247	0.0000000660951916977116
23	-0.0000000870942789230208	0.0000000160387774497712	0.00000000810157660675679
24	-0.000000870138798325613	-0.00000754251279529345	0.000000287243756790955
25	0.00000141125260099558	0.00000442480974981799	0.0000000958408576753369
26	0.00000141260754940463	0.0000123745361194629	-0.000000405356541151761
27	-0.00000142784570054129	-0.0000038598610247659	-0.000000126632380938218
28	-0.00000127246641353073	-0.0000102439421740047	0.000000291379993416425
29	0.000000806272732177641	0.000001399493321697	0.000000086646514443811
30	0.000000714225064638354	0.00000542066478086221	-0.000000128357194145832
31	-0.000000344728346213305	-0.000000719777206449524	-0.0000000246619461547735
32	-0.000000121349653821044	-0.00000122596945989899	0.0000000319107425471282
33	0.000000138031192974826	0.000000902945122344061	-0.00000000582113149304196
34	-0.000000108468935400888	-0.000000349719926348305	-0.00000000940872290768598
35	-0.0000000671893416023687	-0.000000602120510002844	-0.000000000514475700309426
36	-0.0000000122035702011538	-0.000000226614448536993	0.0000000168951232936933
37	0.0000000246329013359881	-0.000000224984273134748	0.0000000182002541857779
38	0.000000207060161969915	0.00000115796085049364	-0.0000000209007579605948
39	0.0000000301748485451879	0.000000977304092537061	-0.0000000265295419507857
40	-0.000000276182338375315	-0.00000137472375420916	0.0000000157947508300066

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Saturn Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Horizontal Parallax(H.P.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	1.53830795575268	6.74158835533671	8.61440351081882
1	-0.223253731151274	-1.22907720606137	0.215575088624247
2	0.0273123037598525	0.23695981898773	0.252473860675372
3	0.0218828473983689	0.124658019471148	-0.0125796723520631
4	-0.00127491593301064	-0.00949994811949648	-0.00773955700386714
5	-0.000673681809169661	-0.0040331672016973	0.000317188033055876
6	0.0000572559121796013	0.000361575310443767	0.000176591196627727
7	0.0000180867047843318	0.000122153368819053	-0.00000562888462860348
8	0.000000878765519611052	0.0000195647206063853	0.00000755559316141899
9	0.00000191252465881162	0.00000827105506181101	-0.00000459409327665468
10	0.00000126098531946831	0.0000114040440483525	0.00000235113442872164
11	0.00000402522799135687	0.0000215770521477602	-0.00000733192157612764
12	-0.00000307108252392908	-0.0000356843221707014	-0.0000143760133657611
13	-0.00000670001527152735	-0.0000299381124241833	0.00000872703669350872
14	0.00000105572019389656	0.0000150909197134261	0.0000105038526985011
15	0.0000031889079267656	0.0000151240542151449	-0.0000044069133254198
16	-0.00000176124751320991	-0.0000160633110615332	-0.00000378714474806485
17	-0.0000000191478593132551	-0.0000022878710090647	0.00000155478664668232
18	0.000000837475898872821	0.00000733209826634097	0.000000850905145703119
19	0.000000648648600972327	0.00000228649930871581	-0.000000246768775215925
20	0.0000011669320638907	0.00000880098250633235	-0.000000355093948841793
21	-0.000000856130173638177	-0.00000144236656774959	-0.000000143241682577667
22	-0.000000776183129208789	-0.00000574154839265709	0.000000155921420521701
23	-0.000000275157008191776	-0.000000982251834986983	-0.00000000383704596980451
24	-0.00000112777728953994	-0.00000807748234588171	0.000000107996677625787
25	0.000000982643937544102	0.000000985316697463544	0.000000215622029101127
26	0.00000187204231924007	0.0000136333775242363	-0.000000206014512193338
27	-0.000000979931777623047	-0.00000131496280763676	-0.000000234493563733809
28	-0.00000121092097884368	-0.00000955047047111139	0.000000159480782915284
29	0.000000685656734305211	0.00000191624279619179	0.0000001237508502214
30	0.000000503779308692186	0.0000044138759192216	-0.0000000870634439500654
31	-0.000000292141053708279	-0.000000852251045748892	-0.000000036490902653959
32	-0.00000026803228332608	-0.00000189189474246734	0.0000000345318514559249
33	-0.0000000232495080517672	-0.000000731228834744301	0.0000000151846345699295
34	0.000000177242309041485	0.000000803824921461935	-0.00000000436654245428496
35	0.0000000793581623607926	0.000000787371748290493	-0.0000000190468871014949
36	-0.0000000369793994961103	-0.000000193956149610147	-0.00000000481847461498214
37	0.000000056701513601316	0.000000403735182723536	0.0000000172928368306636
38	-0.0000000789624909683958	-0.000000070608563253891	0.00000000110776236209144
39	-0.000000157474292187533	-0.00000123921778905906	-0.00000000953567242990721
40	0.000000115881560572311	0.000000196502389338325	0.0000000028963377928409

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Uranus Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	4.03758685842248	20.5535165269269	19.505742696402
1	0.0693903381558209	0.207240253930856	0.886780534295763
2	0.0495426427948629	0.136527836708773	-0.0327094673709414
3	-0.0024126007167504	-0.00940614592108371	-0.0425614217580131
4	-0.00104785604960099	-0.00363571035431241	0.00193814756004884
5	0.00010893417200981	0.000443080283757662	0.000559230207141533
6	0.00000312184905025376	0.000043877894141203	-0.0000584096715804567
7	-0.00000424369468539114	-0.0000165949902553025	0.00000217364859586069
8	0.000000902756791875304	0.0000145976994773127	0.0000142945363677452
9	0.00000123808913087894	0.00000216998092416897	-0.00000191886464959615
10	0.0000000961491826916474	0.00000921727920831566	0.00000600223967229715
11	0.00000225965461214946	0.00000492392854347542	-0.00000490258288166747
12	-0.000000382077333486007	-0.00000463104056285366	-0.0000169817268754855
13	-0.0000050045600547703	-0.00000993602375887898	0.0000049670456777914
14	0.000000226919140192364	-0.00000170690432381641	0.0000106610341524788
15	0.00000126846064989318	0.00000222093795332086	-0.00000234504564881695
16	-0.000000311166344595715	-0.0000100870286260892	-0.00000335979777749023
17	0.000000988839817449086	0.00000160511206577611	0.000000661132461018078
18	0.000000101520845412948	0.0000018604200836478	0.000000816792763840386
19	0.00000115906738323645	0.00000236476268636649	-0.0000000378451927933345
20	0.000000300201952777322	0.0000106933039126201	-0.000000432570406180389
21	-0.0000015701602983527	-0.00000230515658648596	0.00000000388121616528889
22	-0.000000100466285416363	-0.00000253264709888828	0.0000000796337194950919
23	-0.00000084018565447207	-0.00000149374122175423	-0.000000123254074958185
24	-0.0000004179748387611	-0.000011798004152546	0.000000288128493729804
25	0.00000238331437812056	0.00000369417506976564	0.000000133156499357295
26	0.000000425443520992376	0.0000137718721539307	-0.000000359133839947976
27	-0.00000186428691447755	-0.00000355278641446484	-0.0000000678822239152828
28	-0.000000118007517945797	-0.00000746250371572032	0.000000217722488934476
29	0.000000849298000032223	0.000002015077584066	0.0000000330840957636505
30	0.0000000723510609180904	0.00000318052603612247	-0.0000000803746931046685
31	-0.000000389184946540129	-0.000000308817508812325	-0.000000028345304936926
32	-0.000000179031473186538	-0.00000224376394473346	0.00000002818440092655
33	0.000000271319866635544	-0.000000214883744993589	0.0000000139145363027572
34	0.0000000979274746799186	0.00000134668908631894	-0.0000000222814314268635
35	-0.000000106218581785392	-0.000000305813512140342	0.0000000100327631671214
36	0.000000103928455265194	0.000000358210599914823	0.0000000171378618450575
37	-0.000000103999485076483	0.000000673324003738922	-0.0000000229838437276453
38	-0.000000194029087525286	-0.00000150528152784047	-0.00000000645254927076402
39	0.000000195231807847977	-0.000000499932537166148	0.000000020353124286104
40	0.000000151043792949173	0.00000142672601216994	0.000000000212929113996881

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Uranus Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	4.37284333408864	21.4221851549156	20.045738994586
1	0.206799350551356	0.49128915249181	-0.486461217932699
2	-0.0239270524110203	-0.0706534240573816	-0.203421162234901
3	-0.00700604213156246	-0.0127273626398723	0.0202865779221341
4	0.000273611746850584	0.00146586219685743	0.00411238403983783
5	0.0000575610271355995	-0.0000260660715383558	-0.000119120280690847
6	0.00000725958841599135	-0.00000145439914764	-0.0000185824579666081
7	0.00000224433427191908	0.0000081265315898792	-0.00000172871225619204
8	0.00000194581988071007	0.00000534207921605222	-0.0000148590022557642
9	-0.00000258750567322277	0.00000046184820229145	-0.00000102530944965718
10	0.000000622632523953075	0.00000435870254744343	-0.00000302828333575047
11	-0.00000418605304579782	-0.000000231721055563993	-0.00000134381757392869
12	-0.00000190464421033264	-0.000000634917390309443	0.0000173772167774816
13	0.00000289441424936735	0.00000952182617955168	0.00000127171703304143
14	-0.00000044245317474467	-0.0000114400061610707	-0.0000122293390259269
15	-0.00000142197301603491	-0.00000499237976061698	-0.000000741859920525728
16	-0.00000127248685986001	-0.00000483133118405677	0.00000475700528976374
17	0.00000160850847211484	-0.00000449420270472189	0.00000049204084539392
18	0.000000790516515562923	0.00000480968665132422	-0.00000116129819364056
19	0.000000160688833129471	-0.00000242924818409684	0.0000000750662937800322
20	0.00000131908466438362	0.00000883205156269553	0.0000000560756219991357
21	-0.00000120748506477608	0.00000443543793049598	-0.000000236678975130714
22	-0.000000588888004244671	-0.00000556168336534113	-0.00000000217100677123988
23	-0.0000000759516781588666	0.00000131608734504005	-0.0000000723475159213773
24	-0.00000100367360572953	-0.00000736137062697247	0.000000179702777869142
25	0.00000148808029792181	-0.00000434278941272912	0.00000032804544997989
26	0.00000159040686918583	0.0000126370558577056	-0.000000223342292167789
27	-0.00000150232123953393	0.00000524019652230599	-0.000000339739163045874
28	-0.00000141982127624713	-0.0000095881767622109	0.000000144115802203963
29	0.000000847254534070841	-0.00000439689772977361	0.000000202984965987644
30	0.000000792622005765335	0.00000480115108860257	-0.0000000614865476474943
31	-0.000000368042334772696	0.00000155000245665835	-0.0000000649805066996228
32	-0.000000133004153403634	-0.00000154997818194348	0.0000000222564025445385
33	0.000000150490395208759	0.000000666159638433808	0.00000000485015860154204
34	-0.000000120760357588792	0.000000293991293234977	-0.000000011388832861827
35	-0.0000000704319302081575	-0.000000641125113273274	-0.00000000840386997871243
36	-0.000000014044925541557	-0.000000301194711165021	0.00000000637734610015687
37	0.0000000203039652902603	-0.000000678693777205236	0.0000000270972734925379
38	0.00000023002418266876	0.000000442355709516595	0.000000000401529756654007
39	0.0000000403558519275071	0.0000017097342354088	-0.0000000326966001871173
40	-0.000000306207747542976	-0.000000304952056585977	-0.00000000505589724906242

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Uranus Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	4.46454935851211	21.6518371685016	18.7436975613211
1	-0.120840555439639	-0.260321086948316	-0.460350362933579
2	-0.0294843766142817	-0.0679502876401381	0.224798736422438
3	0.00905330520831995	0.0175976925692913	0.0267816249766381
4	0.00116284030185508	0.00297657731977772	-0.00568696533581588
5	-0.000166194357349022	-0.0000874667547489787	-0.000690860302137798
6	-0.0000331266197313428	-0.0000839849238965361	0.000069056032503707
7	-0.000000126733314820685	-0.0000129142329864337	0.0000137176228357813
8	0.000000660786943970078	0.0000109937959485818	0.0000139698636933357
9	0.00000128321257142308	0.0000062153288018239	0.00000121863476706105
10	0.000000583702274641894	0.00000469545213793869	0.00000317480910252434
11	0.00000191916716628983	0.00000989787855271145	0.00000271847241625248
12	0.00000147617910647213	-0.00000479481378154292	-0.0000170460482553753
13	-0.00000419703077189752	-0.00000143551337732787	-0.00000377425404227242
14	-0.00000245806276350499	-0.00000666853012232941	0.0000119753154005699
15	0.00000189235897314562	0.00000210837394396491	0.00000185059993640291
16	-0.000000484762608680971	-0.00000657718248625261	-0.00000448799717672787
17	0.000000436596517086174	-0.00000603555957900618	-0.000000262018870081747
18	0.000000554635252902339	0.00000391561613649208	0.0000010922199444781
19	0.000000604571901077808	-0.00000136799713464708	0.000000185981244530155
20	0.00000134882940933294	0.00000828295837660439	-0.000000207764486611673
21	-0.00000088266769558971	0.00000637203729595548	-0.000000300095855913517
22	-0.0000008776783377499	-0.00000396260364613789	0.0000000318331046055037
23	-0.000000319072903101563	0.000000476878801511674	0.00000000156690390543793
24	-0.00000122982705509937	-0.00000686247341278771	-0.0000000143800564521742
25	0.00000105434399815118	-0.00000862255712853775	0.00000028618272263467
26	0.00000205661753983818	0.0000105688182088124	0.0000000356615343505276
27	-0.00000104280296390256	0.00000806271251200252	-0.000000301971235475948
28	-0.00000133068141823717	-0.00000803434104383122	-0.000000020911630676968
29	0.000000734472464645134	-0.00000349641193038006	0.000000171872823107948
30	0.00000055805905168781	0.00000422588962751629	-0.00000000910552149242928
31	-0.000000314718072621266	0.0000015205685833354	-0.0000000654942179755875
32	-0.000000303245979395013	-0.00000128934608017586	0.00000000932707941904164
33	-0.0000000294934176294144	-0.00000151714357604772	0.0000000220936626832008
34	0.00000019907333649954	-0.00000015434248243949	0.00000000956253419043835
35	0.0000000909533161187908	0.00000090098764539866	-0.0000000114511055968969
36	-0.0000000360824812317749	0.0000000433391389915847	-0.0000000174150916576024
37	0.0000000615893821223874	0.000000340738439767106	0.00000000942054908704365
38	-0.0000000961159404336215	0.000000620921243036241	0.0000000104562978694162
39	-0.000000175243264372091	-0.00000107830037772563	-0.00000000761259336567063
40	0.000000135858981022508	-0.000000771494698034842	-0.00000000205741937322879

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Neptune Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	0.243428712412309	0.0999642248099114	30.5588330538609
1	0.117671229930853	0.77400933406212	0.366385489733839
2	0.0109847733985017	0.0600094004700482	-0.22275961543753
3	-0.00442869252971631	-0.0294954791243359	-0.0151707547927509
4	-0.000141834631374224	-0.000680726554064307	0.00523496406589018
5	0.0000537321204920935	0.000355142327273613	0.0000889878818875639
6	-0.0000019323763712593	-0.0000122395527005267	-0.0000488725129864844
7	-0.00000023823961686498	0.0000000829911078050783	0.0000130122390957344
8	0.00000149600289864037	0.0000126864310064874	0.00000301851526012778
9	0.000000194469306476806	0.00000006191894161252	-0.00000584668528307722
10	0.000000622754577844929	0.00000567465534277582	0.00000129171430794648
11	-0.000000146177232119485	-0.00000274514765043318	-0.0000147481414715158
12	-0.00000134007417904242	-0.0000117216137364031	-0.00000381399616441343
13	-0.00000216603757971846	-0.0000118722955992038	0.000015176756950374
14	0.00000071654171071392	0.00000630644513677173	0.00000235617688075768
15	0.000000152481934057596	-0.000000281965561295761	-0.00000663829749399268
16	-0.000000512591327179958	-0.00000458701848504642	-0.000000596549695700424
17	0.00000109757200947621	0.00000714104583291199	0.00000167330963894251
18	0.000000148297617946233	0.00000116527915775563	0.000000220090080853208
19	0.000000932903993774972	0.00000617929554681212	-0.000000486591468641155
20	0.000000335890046790482	0.00000281892479949014	-0.000000244645797515809
21	-0.00000132380383250982	-0.00000826263672493117	0.000000243845393852578
22	-0.000000117276719143911	-0.000000839659605658093	-0.0000000199764420021964
23	-0.000000714626600853167	-0.00000486736117139408	0.0000000511268602811055
24	-0.000000446873279942491	-0.0000036250836267968	0.000000273180248908793
25	0.0000020240326870241	0.0000129734969307618	-0.000000244471876276264
26	0.000000478776163965361	0.00000386753195327497	-0.000000270539901493343
27	-0.00000159092432261174	-0.000010086483967315	0.000000221212390549773
28	-0.000000165535341610843	-0.00000147822585386716	0.000000149130563173334
29	0.000000730715317518591	0.00000462208239474	-0.000000101085146061736
30	0.0000000891582032298865	0.000000763252972725028	-0.0000000670173847217699
31	-0.000000330594360735683	-0.00000206264667119565	0.0000000231455027248283
32	-0.000000172836162323928	-0.00000123425255087753	0.0000000346060443261272
33	0.000000225559921590341	0.00000138076878062028	-0.0000000127084377905873
34	0.0000000970050300953513	0.000000676468281149959	-0.0000000127880105987598
35	-0.0000000907824018243324	-0.00000056232556527132	0.0000000230529587633953
36	0.000000090864855110396	0.000000618443677079368	-0.0000000073962920132647
37	-0.0000000825015130142907	-0.000000492625160402709	-0.0000000218736833185415
38	-0.000000179613243450155	-0.00000123442814095817	0.0000000165275021443514
39	0.000000160746474218498	0.000000976508518544166	0.0000000124294297783119
40	0.000000142966883825192	0.000000987423996057446	-0.0000000137504132140764

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Neptune Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	0.413334416981109	1.14850151293912	29.8249167423408
1	0.0192753365919598	0.0702797557705112	-0.908104031003161
2	-0.0293737997875672	-0.189860002800404	0.0121625965965777
3	-0.000248472773826508	0.000718434908541679	0.0439064292137123
4	0.000659545037365797	0.0042946320101577	0.000210687021096722
5	0.0000299595632419191	0.000163287164119806	-0.000535764962831702
6	-0.00000303548651479506	-0.0000214984501489961	-0.0000244516271536358
7	-0.000000282464725588158	-0.00000223005767216083	-0.00000524313980829463
8	0.0000000669943664658403	-0.00000214839264761455	-0.00000779683733682019
9	-0.00000132203580948811	-0.00000705070199009742	0.00000778844927901989
10	0.000000270045405328381	0.00000166882780231661	-0.00000163888617917569
11	-0.00000214586445652743	-0.0000115324327833039	0.0000107666989683087
12	0.000000310794371725988	0.00000561072776588529	0.00000980536706590899
13	0.000000895148921454308	0.0000045706159014686	-0.000013675010302724
14	-0.00000184101023730518	-0.0000154153970175043	-0.00000680674570940544
15	-0.000000452041299651484	-0.00000243568150679656	0.0000068843525758829
16	-0.000000542927193888075	-0.00000280165404994943	0.0000029419151204528
17	0.00000111259924377674	0.00000600254439325808	-0.00000205678189965532
18	0.000000569483459543402	0.0000038046115546099	-0.000000784410570209292
19	0.00000015164378067039	0.000000737622796686721	0.000000412760402147338
20	0.00000117165101130799	0.00000827036920542107	-0.000000172854402262022
21	-0.00000100635224681019	-0.00000561790772145522	-0.0000000800918040193765
22	-0.000000538932232122382	-0.00000400113194960919	0.0000000993151139370488
23	-0.000000039856577231299	-0.00000011193063637125	0.0000000493455898691893
24	-0.000000866687132934384	-0.0000061779511288502	0.000000279801064585257
25	0.00000122970070602713	0.00000697283952898122	-0.0000000401202354141929
26	0.00000139040532492214	0.0000100703035984917	-0.000000423947142746972
27	-0.00000124640485356414	-0.00000692650213789856	0.0000000058579106773583
28	-0.00000123809167969366	-0.0000087883306705294	0.000000318679310376259
29	0.000000696043966512441	0.00000365713425976312	0.0000000110257033704307
30	0.000000693125762476768	0.0000048587359945959	-0.000000144401729705841
31	-0.000000304923884921852	-0.000001632805523512	0.000000000653065106224963
32	-0.000000121928436992819	-0.000000951648605876707	0.0000000336474568754026
33	0.000000133401414452776	0.000000884194613784162	-0.0000000106516912841193
34	-0.000000101409540607124	-0.00000057714110116279	-0.00000000701914343235319
35	-0.0000000650986773880907	-0.000000479587807300992	0.00000000418706057407205
36	-0.0000000108461537103607	-0.000000105920756239572	0.0000000188265135923304
37	0.0000000139379811206457	0.00000000178237890985918	0.00000000990598290673022
38	0.000000194531200502402	0.0000012437199765096	-0.0000000278743784429808
39	0.0000000445659541182874	0.000000492787395243828	-0.0000000184349167661878
40	-0.000000259400211011256	-0.00000162055148977086	0.0000000238117220947806

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Neptune Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	0.32486847692809	0.531682720084016	29.2582879701338
1	-0.068287077870155	-0.42230932607619	0.514399623834133
2	0.0172675654963167	0.123202067360788	0.216256296712178
3	0.00491717901799731	0.0303750989912581	-0.0263803243687211
4	-0.000505861438472491	-0.0036034690421925	-0.00586488113077251
5	-0.0000949118256494772	-0.000585851269065202	0.000437047809789772
6	0.0000103173062869078	0.0000748252453730621	0.0000874064450865438
7	0.00000061206670105857	0.00000407535166187634	0.00000161176323105198
8	0.0000015487268167121	0.0000135439967144694	0.00000763768446686951
9	0.000000191932165698358	0.000000588346245402562	-0.00000677295428965281
10	0.000000911144135996844	0.00000660411944277412	0.00000187802363864784
11	0.000000307087707178738	0.00000134662170607325	-0.0000108340237669839
12	-0.0000010531619793344	-0.0000110124653806775	-0.0000105661125697752
13	-0.00000189978799302153	-0.0000100301923613372	0.0000127306230062782
14	-0.000000454665074112889	-0.000000733331967359953	0.00000767946740975617
15	0.000000777426717656231	0.00000421616982550815	-0.00000626905335839358
16	-0.00000108227021424302	-0.0000083225609897751	-0.00000260297591854182
17	0.000000597936024434658	0.00000349253410258574	0.00000199153210396923
18	0.000000636537087283669	0.00000468761365681714	0.000000531518097086777
19	0.000000457520182306886	0.00000258271677669147	-0.000000358686963878047
20	0.00000115415371759964	0.00000784502443561007	-0.000000348172213643484
21	-0.000000706886856960723	-0.00000387856283285947	-0.0000000505145477099616
22	-0.000000743360762801145	-0.00000508369688109873	0.000000175485880620093
23	-0.000000271856276931039	-0.0000015766948337769	-0.0000000113225198739115
24	-0.0000010851625590299	-0.00000727974596482941	0.000000150740866149831
25	0.000000849881609073742	0.0000045354402323223	0.000000146670706931052
26	0.00000179169976321599	0.0000121262974401282	-0.000000278721201417116
27	-0.000000844973705931247	-0.00000462044827526119	-0.000000158186630576933
28	-0.00000116184870949828	-0.00000802345576680491	0.000000209234948237285
29	0.000000606509281369429	0.00000354955295084827	0.0000000753957833984111
30	0.000000490908341330828	0.00000347072236015787	-0.000000103454036111078
31	-0.000000255987804303405	-0.00000151290521514669	-0.0000000148109265572057
32	-0.000000260798726990409	-0.00000174660766517682	0.0000000377498618419566
33	-0.000000368163508072704	-0.000000346068259766782	0.00000000910074742689281
34	0.000000165200946369274	0.00000102301177893985	-0.00000000911290446451873
35	0.0000000813767680337374	0.000000590033643544716	-0.0000000190795259299599
36	-0.0000000299471798696599	-0.00000019555633952053	0.00000000171421824713419
37	0.0000000584213613371457	0.000000390667474788231	0.0000000174786305028411
38	-0.0000000759840603990787	-0.000000409350968361048	-0.00000000347054169617985
39	-0.000000159123351301823	-0.00000109310725787436	-0.00000000834571804771701
40	0.000000108362903660339	0.000000605930451511501	0.00000000463382131033995

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Pluto Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

January 0 – May 1, a = 0 , b = 121

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	20.6330488755456	-23.0113615996129	36.3197543931214
1	0.105756703342909	0.236442487925379	-0.46071749356198
2	-0.0145659565850396	-0.0753548566140046	-0.201074306577941
3	-0.00388168500373569	-0.0125491007384751	0.0246040734580539
4	0.000315361787356691	0.00149978699109755	0.00450267954854394
5	0.0000447572677631021	0.000206922571431089	-0.000358630223007501
6	-0.00000157403701381757	-0.00000927056265512878	-0.0000365474214820922
7	0.000000975057417287972	0.00000411351580153837	0.0000104618268470212
8	0.00000121963912756764	-0.00000326417557180981	-0.0000100657588626791
9	-0.000000410770082807909	-0.00000194662384583647	-0.00000431338024310542
10	0.000000574583688898901	-0.00000491392643126	-0.00000465869041691387
11	-0.00000179234375950359	-0.00000913639829592739	-0.0000104673687186697
12	-0.000000781865598233467	-0.00000447694188177698	0.0000127203641812691
13	-0.000000761138200256024	-0.00000213241197765883	0.0000110336581994605
14	0.000000270761861009491	0.00000643862518534887	-0.00000796970287094612
15	-0.000000557950824375571	-0.00000293482614703619	-0.00000473905587749655
16	-0.000000596877779564834	0.00000527104759320266	0.00000264563374622376
17	0.00000139543314092348	0.00000649883502899195	0.00000115448913252447
18	0.000000164212108509312	-0.000000555109033747185	-0.00000056557904178502
19	0.000000993932108785907	0.00000447978447421616	-0.000000485204986451596
20	0.00000058155090181476	-0.00000716510649809965	0.000000168780638687793
21	-0.00000143293898085256	-0.00000696656374675423	0.000000253017437074643
22	-0.000000182000754038109	0.00000143665704926922	-0.0000000961203766806912
23	-0.000000790320541442333	-0.00000391322051125063	0.000000173219542579607
24	-0.000000711505140192257	0.00000737754036079669	0.000000000390519771631529
25	0.00000220805817937574	0.000010884437187083	-0.00000038570292799542
26	0.000000786980487531122	-0.00000893326272591989	0.0000000690774812944996
27	-0.00000174217719503698	-0.00000787865831684786	0.000000298731948165625
28	-0.000000325177426376798	0.00000549756949257404	-0.0000000559771381206819
29	0.000000805990842652842	0.00000327765423612668	-0.000000139561713273368
30	0.000000157818137758085	-0.00000219976101743207	0.00000000765364920874244
31	-0.000000354519510013247	-0.00000204046634551102	0.000000052884630463808
32	-0.000000229554409425479	0.000000787111118245781	0.00000000891271794145965
33	0.000000234480957906194	0.00000176102478627967	-0.0000000270923992175387
34	0.000000131120300856654	-0.000000534501605909232	0.00000000835120834552296
35	-0.000000100751226841439	-0.000000335633622176707	0.0000000141727794522307
36	0.000000103854805356823	0.000000330497675862095	-0.0000000244361402170248
37	-0.0000000766334994385288	-0.00000119990968590689	-0.000000000339430671665316
38	-0.000000221702813246422	0.0000000789111295161909	0.0000000235793860629085
39	0.000000162671146116048	0.0000015767451031195	-0.00000000686416971864246
40	0.000000180912872232225	-0.000000268929214494218	-0.000000014651439647283

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Pluto Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

April 30 – September 1, a = 120 , b = 244

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	20.6692132453942	-23.2169115260947	35.1300136827309
1	-0.0696423373378598	-0.398922052749117	-0.373921807635648
2	-0.0143505794665457	-0.020663541469703	0.225299557276199
3	0.0045842884214163	0.021040364269817	0.0214025432921986
4	0.00041275248098806	0.000591881004640035	-0.00530805455947376
5	-0.0000655159863640662	-0.000385868053262101	-0.000343738036254881
6	-0.00000594284589201984	-0.0000124633028361149	0.0000472306294317581
7	0.00000021957111493923	0.00000090287215785229	-0.0000026687787880668
8	0.000000304573484378339	-0.00000400349646281474	0.00000614742524536984
9	-0.000000187497265393688	-0.0000048166476885089	0.00000874400634453379
10	0.000000378297647332125	-0.000000803411889771454	0.000000753138811764928
11	-0.000000674789508275911	-0.00000757494662050046	0.0000115951559112362
12	0.000000362893096716835	0.00000374127967446916	-0.00000752061192475889
13	-0.000000947877021229693	-0.00000979266595141537	-0.0000146186117865696
14	-0.0000022718515438035	-0.00000326538382804332	0.00000572679997566256
15	0.000000477791069323273	0.00000573574007496376	0.00000751888235238774
16	-0.000000626664596214501	0.000000979647838711724	-0.00000203731519727828
17	0.000000758406931578187	0.00000958223094430435	-0.00000254281691232796
18	0.000000704979936739292	-0.000000836753678858448	0.000000459595229066173
19	0.000000177938454414573	0.00000293459426957347	0.000000355977484940513
20	0.00000142554179075198	0.000000249518988143664	-0.000000240609749452627
21	-0.000000984043111920119	-0.000010250040528765	0.00000015781581244179
22	-0.000000698028390976124	0.00000145828157916308	0.0000000988808394321988
23	-0.00000000842241389141812	-0.00000105570076145558	0.000000107269500357777
24	-0.00000106325376045547	0.000000416037670977847	0.0000000954932593313092
25	0.00000120773369573153	0.0000112605431801544	-0.000000358302301955222
26	0.0000017362358381954	-0.00000174708257925941	-0.000000190070176883878
27	-0.00000120713813416409	-0.0000122304394608918	0.000000344961931646853
28	-0.00000151874167906626	0.000000269657823594086	0.000000165610022652741
29	0.00000064027573040887	0.00000813148590036727	-0.000000196019426975728
30	0.000000842742646940213	0.000000308381771554137	-0.0000000789033616829531
31	-0.000000287357562197128	-0.00000331140969586974	0.0000000689524951094741
32	-0.000000164676192996446	0.000000557866217972019	0.0000000105612750872453
33	0.000000155362261924198	0.000000327530463043846	-0.0000000162613757924159
34	-0.000000102896567651252	-0.000000906691743954288	0.00000000468660454077805
35	-0.0000000838995325244264	0.000000144791891704097	0.0000000120096473092627
36	-0.0000000161314630814282	0.000000195455832868494	0.0000000115970890672717
37	0.000000000958094721405596	0.0000000612801113805417	-0.0000000168132994034453
38	0.00000021630467486424	0.000000852954900315011	-0.0000000272141197821595
39	0.0000000848629609847964	-0.00000111881353488487	0.0000000145391980483921
40	-0.000000283786223898247	-0.00000138572837976701	0.0000000281547043163705

2027 Year Coefficient Tables for Computerized Celestial Position Calculations

Pluto Apparent Right Ascension(R.A.) , Apparent Declination(Dec.) , Geocentric Distance(Dist.)

August 31 – December 31, a = 243 , b = 366

CN	R.A.	Dec.	Dist.
N	h	°	AU
0	20.5881637611908	-23.5841201314007	35.9110926051109
1	0.0249912534771702	0.131101234947061	0.955908317825385
2	0.028606890705846	0.0996846928529996	-0.0136619316401769
3	-0.000401101722864459	-0.00728166618884369	-0.0460752492002305
4	-0.000712447703987064	-0.00213071760890967	0.000290403603003597
5	0.0000171036805562567	0.000137111278834009	0.000706737827641108
6	0.00000918503729927275	0.00000990722718203377	-0.00000300942908002609
7	-0.000000317544026237706	0.000000193063187636816	0.00000206335270463706
8	0.00000209813198935022	0.00000423890795353506	-0.00000561501197122797
9	-0.000000737915902882876	-0.00000746954943900278	-0.00000755226572906452
10	0.00000113999849159317	0.0000020231937359608	-0.00000157395697001076
11	-0.00000121733950124117	-0.0000127706042999464	-0.0000127463508560609
12	-0.00000135835640627771	-0.00000365494430715767	0.00000665893763941336
13	0.00000000361474130268124	-0.0000030062340544096	0.0000151610755267322
14	-0.000000547574774213536	0.00000318953401570879	-0.00000435694039394822
15	-0.000000136290408951957	-0.000000901775114770725	-0.00000731915684038379
16	-0.00000130601960981538	-0.00000102943757231767	0.00000187110223084838
17	0.000000833237341839879	0.00000994429560425968	0.00000197816627624389
18	0.000000755147716340211	0.000000751891201500062	-0.000000540806948117892
19	0.000000402778040305846	0.00000390371453652517	-0.000000481971422537562
20	0.00000140295528388146	0.0000000248636262658912	-0.000000127052923030662
21	-0.00000062888327246379	-0.00000968887106858847	0.00000023328888827215
22	-0.000000872083114106265	-0.00000135574579546267	0.000000128183271076222
23	-0.000000284762790110731	-0.00000226055126460665	-0.00000000604176030411424
24	-0.00000130730187137386	-0.000000714812198285699	0.000000155472321338965
25	0.000000753187586432938	0.000012602224576137	-0.00000014153476569951
26	0.00000213813773463692	0.00000198160369391559	-0.000000288868624277401
27	-0.000000764758006623566	-0.0000119640840612033	0.000000143198646870708
28	-0.00000140762023776354	-0.000000294036357054516	0.000000208211415483271
29	0.000000595115635565566	0.00000662612717799102	-0.0000000941323461925608
30	0.000000610768431134072	-0.000000568276717054028	-0.0000000832658904530731
31	-0.00000024885014048058	-0.0000028354052716518	0.0000000482254995527852
32	-0.000000307185432856571	-0.000000526131487260618	0.0000000246304376630821
33	-0.0000000706952895233032	0.00000103991052222059	-0.0000000122765312178066
34	0.000000176036987706757	0.0000011487384145618	-0.0000000173105454277377
35	0.000000105183499456381	-0.000000242927208233163	-0.0000000066755703302694
36	-0.0000000310220345385682	-0.000000204622797039379	0.0000000180898929404507
37	0.0000000730266750685065	0.0000000623818959688394	0.00000000687995694480629
38	-0.0000000715641978732929	-0.00000100675604182674	-0.0000000129788875168127
39	-0.000000197164412745685	-0.000000069101693158996	-0.000000000228827862871167
40	0.000000104119002663725	0.00000132017174509327	0.00000000605342338307753