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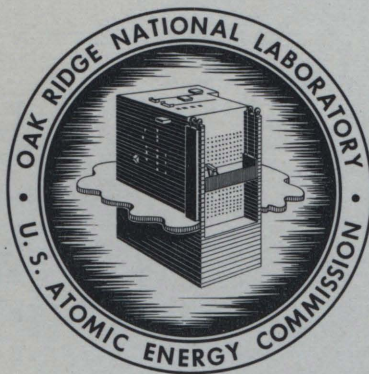
Section 2.1

SMOOTHED THERMOCOUPLE TABLES OF
EXTENDED SIGNIFICANCE (°C)

Volume 2

Section 2.1 Platinum vs Platinum-10%
Rhodium Thermocouples

R. K. Adams
E. G. Davisson



OAK RIDGE NATIONAL LABORATORY

operated by

UNION CARBIDE CORPORATION

for the

U.S. ATOMIC ENERGY COMMISSION

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Vol. 2, Sect. 2.1

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INSTRUMENTATION AND CONTROLS DIVISION

SMOOTHED THERMOCOUPLE TABLES OF EXTENDED SIGNIFICANCE (°C)

R. K. Adams and E. G. Davisson

Volume 2

SECTION 2.1 PLATINUM VS PLATINUM-10% RHODIUM THERMOCOUPLES

MARCH 1965

OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee
operated by
UNION CARBIDE CORPORATION
for the
U. S. ATOMIC ENERGY COMMISSION

FOREWORD

Smoothed Thermocouple Tables of Extended Significance, ORNL-3649, by R. K. Adams and E. G. Davisson, consists of two volumes. In Vol. 1 the techniques of computation of the tables are discussed. Volume 2 consists of 14 sections for temperatures in °C, each published separately. Each section contains a figure and a table: (1) a tabulation of smoothed emf (in absolute millivolts) vs temperature for a specific thermocouple and (2) a tabulation of emf differences. The figure illustrates the difference in microvolts between the values in the smoothed table and those in the reference table.

The titles of the sections in Vol. 2 are:

- 2.1 Platinum vs Platinum–10% Rhodium Thermocouples
- 2.2 Platinum vs Platinum–13% Rhodium Thermocouples
- 2.3 Chromel-Alumel Thermocouples
- 2.4 Iron-Constantan Thermocouples
- 2.5 Copper-Constantan Thermocouples
- 2.6 Chromel-Constantan Thermocouples
- 2.7 Tungsten vs Tungsten–26% Rhenium Thermocouples
- 2.8 Tungsten–5% Rhenium vs Tungsten–26% Rhenium Thermocouples
- 2.9 Tungsten–3% Rhenium vs Tungsten–25% Rhenium Thermocouples
- 2.10 Gold–2.1% Cobalt vs Copper Cryogenic Thermocouples
- 2.11 Constantan-Copper Cryogenic Thermocouples
- 2.12 Alumel-Chromel Cryogenic Thermocouples
- 2.13 Constantan (JN)–Iron (JP) Cryogenic Thermocouples
- 2.14 Constantan (YN)–Iron (YP) Cryogenic Thermocouples

Subsequent volumes for smoothed tables expressed in °F are planned for future publication.

SMOOTHED THERMOCOUPLE TABLES OF EXTENDED SIGNIFICANCE (°C)

R. K. Adams E. G. Davisson

Volume 2

SECTION 2.1 PLATINUM VS PLATINUM-10% RHODIUM THERMOCOUPLES

This section contains tables of emf (in absolute millivolts) vs temperature (in degrees Celsius on the International Temperature Scale of 1948) for Platinum vs Platinum-10% rhodium thermocouples. The values in these tables, derived from those given in National Bureau of Standards Circular 561, Table 2,¹ are computed to more significant digits, that is, to the nearest 0.001 μv . The techniques of computation are described in Vol. 1 of this report.

Figure 1, a plot of the difference in microvolts between the values in the smoothed table and those in the original table vs temperature, illustrates how the values in the smoothed table compare with those in the original table.

In Table 1 a smoothed emf value is tabulated in absolute millivolts for every degree Celsius in the range of the table.

In Table 1A the first two columns contain the same information as given in Table 1. To the right of these two columns is a difference table of the millivolt values in column 2. The difference table is expressed in thousandths of microvolts and contains orders 0 through 5. This difference table gives a convenient tabulation of differences for those engaged in temperature difference work.

Although these tables are expressed to the nearest 0.001 μv , which is roughly equivalent to 0.0001°C, this in no way implies that temperature measurements to this accuracy are possible. The user of these tables is reminded of the accuracy tolerances on thermocouples published by the American Society for Testing and Materials² and the Instrument Society of America,³ which state limits of error equivalent to about $\pm 2.8^\circ\text{C}$ from 0 to 540°C, $\pm 0.5\%$ of reading from 540 to 1480°C for "standard" materials, and one-half these limits for "special" materials. Individual calibration of platinum vs platinum-10% rhodium thermocouples in the ORNL Standards Laboratory can improve their accuracy to better than $\pm 0.5^\circ\text{C}$ in the range of 0 to 1100°C, and the reproducibility will be better than $\pm 0.25^\circ\text{C}$.

After a thermocouple has been used in the field to measure temperature, the reproducibility of the characteristic calibration curve for that thermocouple, previously standardized in the ORNL Standards Laboratory, depends on such factors as the temperatures to which the thermocouple had been exposed, the length of exposure to elevated or depressed temperatures, and the conditions of exposure.⁴

¹H. Shenker *et al.*, "Reference Tables for Thermocouples," *Nat. Bur. Std. (U.S.) Circ. 561*, GPO, Washington, 1955.

²"Temperature Electromotive Force (EMF) for Thermocouples, ASTM E 230-63," *Am. Soc. Testing Mater., ASTM Std. 1964*, Pt. 30, pp. 646-704; see Table XIII, p. 700.

³"Thermocouples and Thermocouple Extension Wires - Terminology, Limits of Error, and Wire Sizes," *Recommended Practice RP 1.3*, Instrument Society of America, Pittsburgh, Pa., 1959.

⁴"Temperature Electromotive Force (EMF) Tables for Thermocouples, ASTM E 230-63," *Am. Soc. Testing Mater., ASTM Std. 1964*, Pt. 30, pp. 646-704; see Note 3 to Table XIII, p. 700.

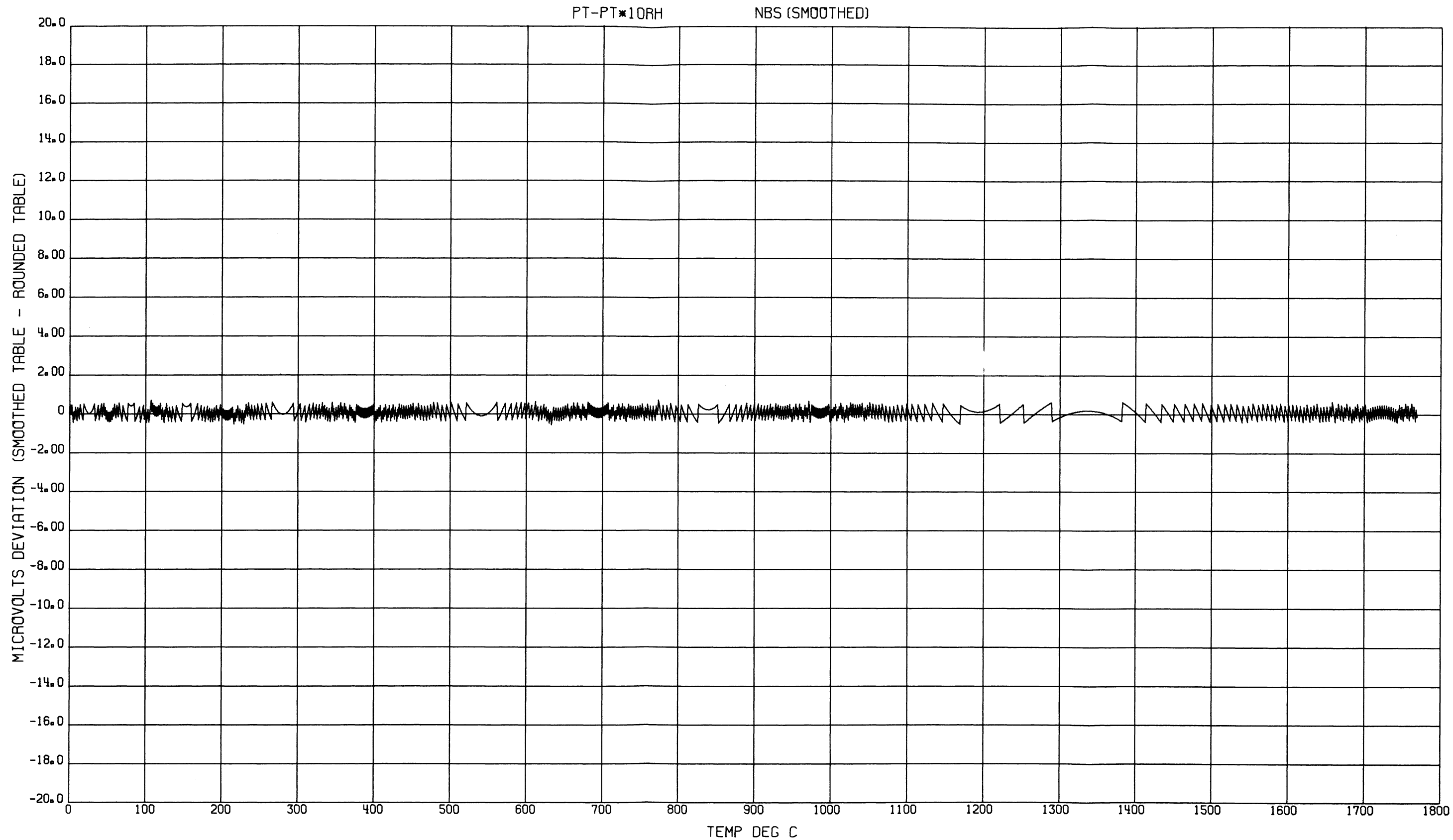


Fig. 1. Deviation of Original Table from Smoothed Table.

PT-PT*10RH NBS(SMOOTHED)
TABLE NO. 1

TEMP=DEG C (INT.1948)
VOLTAGE=MILLIVOLT ABSOLUTE

TEMP	0	1	2	3	4	5	6	7	8	9
					MILLIVOLTS					
0	0	.005467	.010956	.016466	.021998	.027551	.033126	.038723	.044340	.049979
10	.055639	.061320	.067021	.072744	.078488	.084253	.090038	.095844	.101671	.107518
20	.113386	.119274	.125183	.131112	.137061	.143030	.149019	.155028	.161058	.167107
30	.173176	.179264	.185373	.191501	.197648	.203815	.210002	.216207	.222433	.228677
40	.234940	.241223	.247524	.253845	.260184	.266542	.272919	.279315	.285729	.292162
50	.298613	.305083	.311571	.318077	.324602	.331144	.337705	.344284	.350881	.357495
60	.364128	.370778	.377446	.384131	.390835	.397555	.404293	.411048	.417821	.424611
70	.431418	.438242	.445083	.451941	.458816	.465707	.472616	.479541	.486482	.493441
80	.500415	.507406	.514414	.521437	.528477	.535533	.542605	.549693	.556797	.563916
90	.571052	.578203	.585370	.592552	.599750	.606963	.614192	.621436	.628695	.635970
100	.643259	.650563	.657883	.665217	.672566	.679930	.687308	.694701	.702109	.709531
110	.716967	.724418	.731883	.739362	.746855	.754363	.761884	.769419	.776968	.784531
120	.792108	.799698	.807302	.814919	.822550	.830194	.837851	.845522	.853206	.860902
130	.868612	.876335	.884070	.891819	.899580	.907354	.915140	.922939	.930750	.938574
140	.946410	.954258	.962119	.969991	.977876	.985772	.993681	1.001601	1.009533	1.017476
150	1.025431	1.033398	1.041376	1.049366	1.057366	1.065378	1.073402	1.081436	1.089481	1.097537
160	1.105604	1.113682	1.121771	1.129870	1.137979	1.146099	1.154230	1.162371	1.170522	1.178683
170	1.186855	1.195036	1.203228	1.211429	1.219640	1.227861	1.236091	1.244331	1.252581	1.260840
180	1.269108	1.277386	1.285673	1.293969	1.302274	1.310588	1.318911	1.327243	1.335584	1.343934
190	1.352292	1.360659	1.369034	1.377418	1.385811	1.394211	1.402621	1.411038	1.419463	1.427897
200	1.436339	1.444789	1.453247	1.461712	1.470186	1.478668	1.487157	1.495654	1.504159	1.512671
210	1.521191	1.529719	1.538254	1.546796	1.555346	1.563904	1.572469	1.581041	1.589620	1.598207
220	1.606801	1.615402	1.624011	1.632626	1.641249	1.649879	1.658516	1.667160	1.675811	1.684469
230	1.693134	1.701806	1.710485	1.719171	1.727864	1.736564	1.745270	1.753984	1.762704	1.771431
240	1.780165	1.788906	1.797654	1.806408	1.815170	1.823938	1.832713	1.841494	1.850282	1.859077
250	1.867879	1.876687	1.885502	1.894324	1.903152	1.911987	1.920828	1.929677	1.938531	1.947393
260	1.956260	1.965135	1.974016	1.982903	1.991797	2.000697	2.009604	2.018517	2.027437	2.036363
270	2.045296	2.054235	2.063180	2.072131	2.081089	2.090053	2.099024	2.108001	2.116983	2.125972
280	2.134968	2.143969	2.152977	2.161990	2.171010	2.180036	2.189067	2.198105	2.207149	2.216199
290	2.225254	2.234316	2.243383	2.252456	2.261535	2.270620	2.279711	2.288807	2.297909	2.307017
300	2.316130	2.325249	2.334373	2.343503	2.352639	2.361780	2.370926	2.380078	2.389235	2.398398
310	2.407566	2.416739	2.425918	2.435102	2.444291	2.453485	2.462684	2.471889	2.481098	2.490313
320	2.499533	2.508758	2.517987	2.527222	2.536461	2.545706	2.554955	2.564209	2.573468	2.582732
330	2.592000	2.601274	2.610552	2.619834	2.629121	2.638413	2.647709	2.657010	2.666316	2.675626
340	2.684940	2.694259	2.703582	2.712910	2.722242	2.731578	2.740919	2.750263	2.759613	2.768966
350	2.778323	2.787685	2.797051	2.806421	2.815795	2.825173	2.834555	2.843941	2.853331	2.862725
360	2.872124	2.881525	2.890931	2.900341	2.909754	2.919172	2.928593	2.938018	2.947446	2.956879
370	2.966315	2.975754	2.985198	2.994645	3.004095	3.013549	3.023007	3.032468	3.041933	3.051401
380	3.060873	3.070348	3.079827	3.089309	3.098794	3.108283	3.117775	3.127270	3.136769	3.146272
390	3.155777	3.165286	3.174798	3.184313	3.193832	3.203353	3.212878	3.222407	3.231938	3.241473

PT-PT*10RH NBS(SMOOTHED)
TABLE NO. 1

TEMP=DEG C (INT. 1948)
VOLTAGE=MILLIVOLT ABSOLUTE

TEMP	0	1	2	3	4	5	6	7	8	9	
					MILLIVOLTS						
400	3.251010	3.260551	3.270095	3.279642	3.289193	3.298746	3.308303	3.317863	3.327425	3.336991	
410	3.346560	3.356132	3.365707	3.375286	3.384867	3.394451	3.404039	3.413629	3.423223	3.432820	
420	3.442419	3.452022	3.461628	3.471237	3.480849	3.490464	3.500082	3.509703	3.519328	3.528955	
430	3.538585	3.548219	3.557856	3.567495	3.577138	3.586784	3.596433	3.606085	3.615741	3.625399	
440	3.635061	3.644725	3.654393	3.664064	3.673738	3.683416	3.693096	3.702780	3.712467	3.722157	
450	3.731850	3.741546	3.751246	3.760949	3.770655	3.780364	3.790077	3.799793	3.809512	3.819234	
460	3.828960	3.838689	3.848421	3.858156	3.867895	3.877637	3.887382	3.897131	3.906883	3.916638	
470	3.926397	3.936159	3.945924	3.955693	3.965465	3.975240	3.985019	3.994801	4.004586	4.014375	
480	4.024167	4.033963	4.043762	4.053564	4.063370	4.073179	4.082991	4.092807	4.102626	4.112449	
490	4.122275	4.132104	4.141937	4.151773	4.161613	4.171456	4.181302	4.191152	4.201005	4.210861	
500	4.220721	4.230585	4.240451	4.250321	4.260195	4.270072	4.279952	4.289836	4.299723	4.309613	
510	4.319507	4.329404	4.339304	4.349208	4.359116	4.369026	4.378940	4.388858	4.398778	4.408703	
520	4.418630	4.428561	4.438495	4.448433	4.458374	4.468318	4.478266	4.488217	4.498172	4.508130	
530	4.518091	4.528055	4.538023	4.547995	4.557970	4.567948	4.577929	4.587914	4.597902	4.607894	
540	4.617889	4.627888	4.637889	4.647895	4.657903	4.667915	4.677931	4.687950	4.697972	4.707998	
550	4.718027	4.728060	4.738096	4.748136	4.758179	4.768225	4.778275	4.788328	4.798385	4.808446	
560	4.818510	4.828557	4.838608	4.848722	4.858800	4.868881	4.878966	4.889055	4.899147	4.909242	
570	4.919341	4.929443	4.939549	4.949659	4.959772	4.969889	4.980009	4.990132	5.000259	5.010390	
580	5.020524	5.030662	5.040803	5.050948	5.061096	5.071247	5.081402	5.091561	5.101723	5.111888	
590	5.122057	5.132230	5.142406	5.152585	5.162767	5.172953	5.183143	5.193336	5.203532	5.213731	
600	5.223934	5.234140	5.244350	5.254563	5.264779	5.274998	5.285221	5.295446	5.305675	5.315908	
610	5.326143	5.336382	5.346624	5.356869	5.367117	5.377368	5.387622	5.397880	5.408140	5.418404	
620	5.428671	5.438940	5.449213	5.459489	5.469768	5.480049	5.490334	5.500622	5.510913	5.521206	
630	5.531503	5.541802	5.552105	5.562410	5.572719	5.583030	5.593344	5.603661	5.613982	5.624305	
640	5.634630	5.644959	5.655291	5.665626	5.675963	5.686304	5.696648	5.706994	5.717343	5.727696	
650	5.738051	5.748410	5.758771	5.769135	5.779502	5.789873	5.800246	5.810622	5.821002	5.831384	
660	5.841770	5.852159	5.862550	5.872945	5.883343	5.893744	5.904148	5.914555	5.924966	5.935380	
670	5.945796	5.956216	5.966640	5.977066	5.987496	5.997929	6.008365	6.018805	6.029247	6.039694	
680	6.050143	6.060596	6.071052	6.081511	6.091974	6.102440	6.112909	6.123382	6.133859	6.144338	
690	6.154821	6.165308	6.175798	6.186291	6.196788	6.207288	6.217791	6.228298	6.238809	6.249323	
700	6.259840	6.270361	6.280886	6.291413	6.301945	6.312479	6.323018	6.333559	6.344105	6.354653	
710	6.365205	6.375761	6.386320	6.396883	6.407449	6.418018	6.428591	6.439168	6.449748	6.460331	
720	6.470918	6.481509	6.492103	6.502700	6.513301	6.523905	6.534513	6.545124	6.555739	6.566357	
730	6.576978	6.587603	6.598232	6.608864	6.619499	6.630138	6.640780	6.651426	6.662075	6.672728	
740	6.683384	6.694044	6.704707	6.715373	6.726043	6.736716	6.747393	6.758073	6.768757	6.779444	
750	6.790134	6.800828	6.811525	6.822226	6.832930	6.843638	6.854349	6.865063	6.875781	6.886503	
760	6.897227	6.907955	6.918687	6.929422	6.940160	6.950902	6.961647	6.972395	6.983147	6.993902	
770	7.004661	7.015423	7.026188	7.036957	7.047729	7.058505	7.069283	7.080066	7.090851	7.101641	
780	7.112433	7.123229	7.134028	7.144830	7.155636	7.166446	7.177258	7.188074	7.198894	7.209717	
790	7.220543	7.231372	7.242205	7.253042	7.263881	7.274724	7.285571	7.296421	7.307274	7.318131	

PT-PT*10RH NBS(SMOOTHED)
TABLE NO. 1

TEMP=DEG C (INT.1948)
VOLTAGE=MILLIVOLT ABSOLUTE

TEMP	0	1	2	3	4	5	6	7	8	9	
					MILLIVOLTS						
800	7.328991	7.339854	7.350721	7.361591	7.372465	7.383342	7.394222	7.405106	7.415993	7.426884	
810	7.437778	7.448676	7.459577	7.470481	7.481389	7.492301	7.503215	7.514134	7.525055	7.535980	
820	7.546909	7.557841	7.568777	7.579716	7.590658	7.601604	7.612554	7.623507	7.634463	7.645423	
830	7.656387	7.667354	7.678324	7.689298	7.700275	7.711257	7.722241	7.733229	7.744221	7.755216	
840	7.766214	7.777216	7.788222	7.799231	7.810244	7.821260	7.832280	7.843303	7.854330	7.865360	
850	7.876394	7.887431	7.898471	7.909516	7.920563	7.931614	7.942669	7.953727	7.964789	7.975854	
860	7.986922	7.997994	8.009070	8.020148	8.031231	8.042316	8.053406	8.064498	8.075594	8.086694	
870	8.097797	8.108903	8.120012	8.131126	8.142242	8.153362	8.164485	8.175612	8.186742	8.197875	
880	8.209012	8.220152	8.231296	8.242443	8.253593	8.264746	8.275903	8.287064	8.298227	8.309395	
890	8.320565	8.331739	8.342916	8.354096	8.365280	8.376467	8.387658	8.398852	8.410049	8.421250	
900	8.432454	8.443661	8.454871	8.466085	8.477303	8.488524	8.499748	8.510975	8.522206	8.533440	
910	8.544678	8.555919	8.567163	8.578411	8.589662	8.600916	8.612174	8.623436	8.634700	8.645968	
920	8.657240	8.668515	8.679793	8.691075	8.702360	8.713649	8.724941	8.736236	8.747535	8.758837	
930	8.770143	8.781452	8.792765	8.804081	8.815400	8.826723	8.838050	8.849380	8.860713	8.872050	
940	8.883390	8.894734	8.906081	8.917432	8.928786	8.940143	8.951504	8.962869	8.974237	8.985608	
950	8.996983	9.008361	9.019743	9.031128	9.042517	9.053909	9.065305	9.076704	9.088107	9.099513	
960	9.110922	9.122335	9.133751	9.145171	9.156595	9.168021	9.179452	9.190885	9.202322	9.213763	
970	9.225207	9.236655	9.248106	9.259560	9.271018	9.282479	9.293944	9.305412	9.316884	9.328359	
980	9.339837	9.351319	9.362805	9.374294	9.385786	9.397282	9.408781	9.420284	9.431790	9.443300	
990	9.454813	9.466329	9.477849	9.489373	9.500899	9.512430	9.523963	9.535501	9.547041	9.558585	
1000	9.570133	9.581684	9.593238	9.604796	9.616358	9.627923	9.639491	9.651063	9.662638	9.674217	
1010	9.685799	9.697384	9.708974	9.720566	9.732162	9.743762	9.755365	9.766971	9.778581	9.790194	
1020	9.801811	9.813431	9.825055	9.836682	9.848312	9.859946	9.871583	9.883224	9.894868	9.906516	
1030	9.918167	9.929821	9.941479	9.953140	9.964805	9.976473	9.988144	9.999818	10.011496	10.023178	
1040	10.034862	10.046550	10.058241	10.069936	10.081633	10.093334	10.105038	10.116746	10.128456	10.140170	
1050	10.151887	10.163607	10.175331	10.187057	10.198787	10.210519	10.222255	10.233994	10.245736	10.257480	
1060	10.269228	10.280979	10.292733	10.304490	10.316249	10.328012	10.339777	10.351546	10.363317	10.375091	
1070	10.386868	10.398647	10.410430	10.422215	10.434003	10.445793	10.457586	10.469382	10.481180	10.492981	
1080	10.504785	10.516591	10.528400	10.540211	10.552025	10.563841	10.575660	10.587481	10.599305	10.611131	
1090	10.622960	10.634790	10.646623	10.658459	10.670297	10.682137	10.693979	10.705824	10.717670	10.729520	
1100	10.741371	10.753224	10.765080	10.776937	10.788797	10.800659	10.812523	10.824389	10.836257	10.848127	
1110	10.859999	10.871874	10.883750	10.895628	10.907508	10.919390	10.931274	10.943159	10.955047	10.966936	
1120	10.978828	10.990721	11.002616	11.014512	11.026411	11.038311	11.050213	11.062117	11.074022	11.085929	
1130	11.097838	11.109749	11.121661	11.133575	11.145490	11.157408	11.169326	11.181247	11.193169	11.205092	
1140	11.217017	11.228944	11.240872	11.252802	11.264733	11.276666	11.288600	11.300536	11.312473	11.324412	
1150	11.336352	11.348294	11.360237	11.372181	11.384128	11.396075	11.408024	11.419975	11.431926	11.443880	
1160	11.455834	11.467791	11.479748	11.491707	11.503667	11.515629	11.527592	11.539557	11.551523	11.563490	
1170	11.575459	11.587429	11.599400	11.611373	11.623347	11.635323	11.647299	11.659278	11.671257	11.683238	
1180	11.695220	11.707204	11.719189	11.731175	11.743163	11.755152	11.767142	11.779133	11.791126	11.803120	
1190	11.815115	11.827112	11.839110	11.851109	11.863109	11.875110	11.887113	11.899117	11.911122	11.923128	

PT-PT*10RH NBS(SMOOTHED)
TABLE NO. 1

TEMP=DEG C (INT.1948)
VOLTAGE=MILLIVOLT ABSOLUTE

TEMP	0	1	2	3	4	5	6	7	8	9
					MILLIVOLTS					
1200	11.935135	11.947143	11.959153	11.971163	11.983175	11.995187	12.007201	12.019216	12.031231	12.043248
1210	12.055265	12.067283	12.079303	12.091323	12.103344	12.115365	12.127388	12.139411	12.151435	12.163460
1220	12.175485	12.187511	12.199538	12.211565	12.223593	12.235622	12.247651	12.259680	12.271710	12.283740
1230	12.295771	12.307802	12.319834	12.331866	12.343898	12.355931	12.367963	12.379996	12.392030	12.404063
1240	12.416097	12.428131	12.440165	12.452199	12.464233	12.476267	12.488301	12.500335	12.512370	12.524404
1250	12.536438	12.548473	12.560507	12.572541	12.584575	12.596609	12.608642	12.620676	12.632709	12.644742
1260	12.656775	12.668808	12.680841	12.692873	12.704905	12.716937	12.728969	12.741000	12.753031	12.765062
1270	12.777092	12.789122	12.801152	12.813182	12.825211	12.837240	12.849268	12.861296	12.873324	12.885351
1280	12.897379	12.909405	12.921431	12.933457	12.945483	12.957508	12.969533	12.981557	12.993581	13.005604
1290	13.017627	13.029650	13.041672	13.053694	13.065715	13.077736	13.089756	13.101776	13.113796	13.125815
1300	13.137833	13.149852	13.161869	13.173887	13.185903	13.197920	13.209935	13.221951	13.233966	13.245980
1310	13.257994	13.270007	13.282020	13.294033	13.306045	13.318056	13.330067	13.342078	13.354088	13.366097
1320	13.378106	13.390114	13.402122	13.414130	13.426137	13.438143	13.450149	13.462155	13.474160	13.486164
1330	13.498168	13.510171	13.522174	13.534177	13.546178	13.558180	13.570181	13.582181	13.594181	13.606180
1340	13.618179	13.630177	13.642175	13.654172	13.666168	13.678165	13.690160	13.702155	13.714150	13.726144
1350	13.738137	13.750130	13.762122	13.774114	13.786105	13.798096	13.810086	13.822076	13.834065	13.846054
1360	13.858042	13.870029	13.882016	13.894002	13.905988	13.917973	13.929958	13.941942	13.953926	13.965909
1370	13.977891	13.989873	14.001854	14.013835	14.025815	14.037795	14.049774	14.061753	14.073731	14.085708
1380	14.097685	14.109662	14.121637	14.133613	14.145587	14.157561	14.169535	14.181508	14.193480	14.205452
1390	14.217423	14.229394	14.241364	14.253334	14.265303	14.277271	14.289239	14.301207	14.313173	14.325140
1400	14.337105	14.349070	14.361035	14.372999	14.384962	14.396925	14.408887	14.420848	14.432809	14.444770
1410	14.456730	14.468689	14.480647	14.492605	14.504563	14.516520	14.528476	14.540431	14.552386	14.564341
1420	14.576295	14.588248	14.600200	14.612152	14.624104	14.636054	14.648004	14.659954	14.671903	14.683851
1430	14.695998	14.707745	14.719692	14.731637	14.743582	14.755526	14.767470	14.779413	14.791355	14.803297
1440	14.815238	14.827178	14.839118	14.851057	14.862995	14.874933	14.886869	14.898806	14.910741	14.922676
1450	14.934610	14.946543	14.958476	14.970408	14.982339	14.994270	15.006200	15.018129	15.030057	15.041985
1460	15.053912	15.065838	15.077764	15.089689	15.101613	15.113536	15.125459	15.137381	15.149302	15.161222
1470	15.173142	15.185061	15.196979	15.208897	15.220814	15.232730	15.244645	15.256560	15.268473	15.280386
1480	15.292299	15.304210	15.316121	15.328031	15.339941	15.351849	15.363757	15.375664	15.387571	15.399476
1490	15.411381	15.423285	15.435189	15.447091	15.458993	15.470894	15.482794	15.494693	15.506592	15.518490
1500	15.530387	15.542283	15.554178	15.566073	15.577967	15.589860	15.601752	15.613643	15.625534	15.637423
1510	15.649312	15.661200	15.673087	15.684974	15.696859	15.708744	15.720628	15.732511	15.744393	15.756274
1520	15.768155	15.780034	15.791913	15.803791	15.815668	15.827544	15.839419	15.851293	15.863167	15.875039
1530	15.886911	15.898782	15.910652	15.922521	15.934389	15.946256	15.958122	15.969988	15.981852	15.993716
1540	16.005579	16.017441	16.029302	16.041162	16.053021	16.064879	16.076736	16.088593	16.100448	16.112303
1550	16.124157	16.136010	16.147861	16.159713	16.171563	16.183412	16.195260	16.207108	16.218954	16.230800
1560	16.242644	16.254488	16.266331	16.278173	16.290014	16.301854	16.313693	16.325532	16.337369	16.349206
1570	16.361041	16.372876	16.384710	16.396543	16.408375	16.420206	16.432036	16.443865	16.455693	16.467521
1580	16.479347	16.491172	16.502997	16.514821	16.526643	16.538465	16.550286	16.562106	16.573924	16.585742
1590	16.597559	16.609375	16.621190	16.633004	16.644817	16.656629	16.668440	16.680250	16.692059	16.703867

PT-PT*10RH NBS(SMOOTHED)
TABLE NO. 1

TEMP=DEG C (INT.1948)
VOLTAGE=MILLIVOLT ABSOLUTE

TEMP	0	1	2	3	4	5	6	7	8	9
					MILLIVOLTS					
1600	16.715675	16.727481	16.739286	16.751090	16.762893	16.774695	16.786496	16.798296	16.810094	16.821892
1610	16.833689	16.845485	16.857279	16.869073	16.880866	16.892657	16.904448	16.916237	16.928025	16.939812
1620	16.951599	16.963384	16.975168	16.986950	16.998732	17.010513	17.022292	17.034071	17.045848	17.057624
1630	17.069399	17.081173	17.092946	17.104718	17.116489	17.128258	17.140027	17.151794	17.163560	17.175325
1640	17.187089	17.198852	17.210614	17.222374	17.234134	17.245892	17.257649	17.269405	17.281160	17.292914
1650	17.304666	17.316418	17.328168	17.339917	17.351665	17.363412	17.375158	17.386902	17.398646	17.410388
1660	17.422129	17.433869	17.445608	17.457346	17.469083	17.480818	17.492552	17.504286	17.516018	17.527749
1670	17.539478	17.551207	17.562934	17.574661	17.586386	17.598110	17.609832	17.621554	17.633274	17.644994
1680	17.656712	17.668429	17.680145	17.691859	17.703573	17.715285	17.726996	17.738706	17.750415	17.762123
1690	17.773829	17.785535	17.797239	17.808942	17.820643	17.832344	17.844043	17.855742	17.867439	17.879135
1700	17.890829	17.902523	17.914215	17.925906	17.937596	17.949285	17.960972	17.972658	17.984344	17.996028
1710	18.007710	18.019392	18.031072	18.042751	18.054429	18.066106	18.077782	18.089456	18.101129	18.112801
1720	18.124472	18.136141	18.147810	18.159477	18.171143	18.182808	18.194471	18.206134	18.217795	18.229455
1730	18.241114	18.252772	18.264428	18.276083	18.287737	18.299390	18.311042	18.322692	18.334342	18.345990
1740	18.357637	18.369282	18.380927	18.392570	18.404212	18.415853	18.427493	18.439131	18.450769	18.462405
1750	18.474040	18.485673	18.497306	18.508937	18.520567	18.532196	18.543824	18.555450	18.567076	18.578700
1760	18.590323	18.601945	18.613565	18.625184	18.636802	18.648419	18.660035	18.671650	18.683263	18.694875
1770										

TABLE IA

TEMP	MV	PT-PT+10RH					NBS(SMOOTHED)					
		DIFFERENCE ORDER										
		0 TH	1 ST	2 ND	3 RD	4 TH	5 TH					
0	0	0	5467	22								
1	.005467	5467	5467	22								
2	.010956	10956	5489	21	=1							
3	.016466	16466	5510	22	1	2					=4	
4	.021998	21998	5532	21	=1	2					4	
5	.027551	27551	5553	22	1						=3	
6	.033126	33126	5575	22	0	=2					-1	
7	.038723	38723	5597	20	=2	4					6	
8	.044340	44340	5617	22	2	=3					-7	
9	.049979	49979	5639	21	=1	1					4	
10	.055639	55639	5660	21	0	=1					-2	
11	.061320	61320	5681	20	=1	3					4	
12	.067021	67021	5701	22	2	=5					-6	
13	.072744	72744	5723	21	=1	1					4	
14	.078488	78488	5744	21	0						-2	
15	.084253	84253	5765	20	=1	2					3	
16	.090038	90038	5785	21	1	=1					-3	
17	.095844	95844	5806	21	0	=1					0	
18	.101671	101671	5827	20	=1	2					3	
19	.107518	107518	5847	21	1	=2					-4	
20	.113386	113386	5868	20	=1	2					4	
21	.119274	119274	5888	21	1	=2					-4	
22	.125183	125183	5909	20	=1	1					3	
23	.131112	131112	5929	20	0						-1	
24	.137061	137061	5949	20	0	0					0	
25	.143030	143030	5969	20	0	0					0	
26	.149019	149019	5989	20	0	1					1	
27	.155028	155028	6009	21	1	=3					-4	
28	.161058	161058	6030	19	=2	3					6	
29	.167107	167107	6049	20	1						-5	
30	.173176	173176	6069	19	=1	3					5	
31	.179264	179264	6088	21	2	=4					-7	
32	.185373	185373	6109	19	=2	2					6	
33	.191501	191501	6128	19	0	1					-1	
34	.197648	197648	6147	20	1	=1					-2	
35	.203815	203815	6167	20	0	=2					-1	

36	.210002	210002	5187	18	=2	5	7
37	.216207	216207	5205	21	3	=6	=11
38	.222433	222433	5225	18	=3	4	10
39	.228677	228677	5244	19	1	0	-4
40	.234940	234940	5263	20	1	=3	=3
41	.241223	241223	5283	18	=2	4	7
42	.247524	247524	5301	20	2	=4	-8
43	.253845	253845	5321	18	=2	3	7
44	.260184	260184	5339	19	1	=1	-4
45	.266542	266542	5359	19	0	0	1
46	.272919	272919	5377	19	0	=1	-1
47	.279315	279315	5395	18	=1	2	3
48	.285729	285729	5414	19	1	=2	-4
49	.292162	292162	5433	18	=1	2	4
50	.298613	298613	5451	19	1	=2	-4
51	.305083	305083	5470	18	=1	1	3
52	.311571	311571	5489	18	0	1	0
53	.318077	318077	5506	19	1	=3	-4
54	.324602	324602	5525	17	=2	4	7
55	.331144	331144	5542	19	2	=3	-7
56	.337705	337705	5561	18	=1	1	4
57	.344284	344284	5579	18	0	=1	-2
58	.350881	350881	5597	17	=1	3	4
59	.357495	357495	5614	19	2	=4	-7
60	.364128	364128	5633	17	=2	3	7
61	.370778	370778	5650	18	1	=2	-5
62	.377446	377446	5668	17	=1	3	5
63	.384131	384131	5685	19	2	=5	-8
64	.390835	390835	5704	16	=3	2	10
65	.397555	397555	5720	18	2	=3	-8
66	.404293	404293	5739	17	=1	2	5
67	.411048	411048	5755	18	1	=2	-4
68	.417821	417821	5773	17	=1	1	3
69	.424611	424611	5790	17	0	0	-1
70	.431418	431418	5807	17	0	0	0
71	.438242	438242	5824	17	0	0	0
72	.445083	445083	5841	17	0	0	0
73	.451941	451941	5859	17	0	=1	-1
74	.458816	458816	5875	16	=1	3	4
75	.465707	465707	5891	18	2	=4	-7
76	.472616	472616	5909	16	=2	2	6

77	.479541	479541	5929	16	0	2	0
78	.486482	486482	5941	18	2	2	-7
79	.493441	493441	5959	19	-3	3	10
80	.500415	500415	5974	17	2	-2	-7
81	.507406	507406	5991	17	0	-2	0
82	.514414	514414	7009	19	-2	4	6
83	.521437	521437	7025	17	2	-3	-7
84	.528477	528477	7040	16	-1	1	4
85	.535533	535533	7055	16	0	0	-1
86	.542605	542605	7072	16	0	0	0
87	.549693	549693	7088	16	0	-1	-1
88	.556797	556797	7104	19	-1	3	4
89	.563916	563916	7119	17	2	-4	-7
90	.571052	571052	7135	19	-2	3	7
91	.578203	578203	7151	16	1	-2	-5
92	.585370	585370	7167	19	-1	2	4
93	.592552	592552	7182	16	1	-2	-4
94	.599750	599750	7198	19	-1	2	4
95	.606963	606963	7213	16	1	-2	-4
96	.614192	614192	7229	19	-1	1	3
97	.621436	621436	7244	19	0	1	0
98	.628695	628695	7259	16	1	-3	-4
99	.635970	635970	7275	14	-2	3	6
100	.643259	643259	7289	19	1	0	-3
101	.650563	650563	7304	16	1	-3	-3
102	.657883	657883	7320	14	-2	3	6
103	.665217	665217	7334	19	1	-1	-4
104	.672566	672566	7349	19	0	-1	0
105	.679930	679930	7364	14	-1	2	3
106	.687308	687308	7379	19	1	-1	-3
107	.694701	694701	7393	19	0	-1	0
108	.702109	702109	7409	14	-1	1	2
109	.709531	709531	7422	14	0	1	0
110	.716967	716967	7435	19	1	-2	-3
111	.724418	724418	7451	14	-1	1	3
112	.731883	731883	7465	14	0	0	-1
113	.739362	739362	7479	14	0	1	1
114	.746855	746855	7493	19	1	-3	-4
115	.754363	754363	7509	19	-2	3	6
116	.761884	761884	7521	14	1	-1	-4

117	.769419	769419	7535	14	0		1
118	.776968	776968	7549	14	0	0	0
119	.784531	784531	7563	14	0	1	-1
120	.792108	792108	7577	13	1	2	3
121	.799698	799698	7590	14	1	2	-4
122	.807302	807302	7604	13	1	2	4
123	.814919	814919	7617	14	1	2	-4
124	.822550	822550	7631	13	1		3
125	.830194	830194	7644	13	0	1	0
126	.837851	837851	7657	14	1	2	-3
127	.845522	845522	7671	13	1		2
128	.853206	853206	7684	12	1	3	3
129	.860902	860902	7696	14	2	3	-6
130	.868612	868612	7710	13	1		3
131	.876335	876335	7723	12	1	3	3
132	.884070	884070	7735	14	2	-4	-7
133	.891819	891819	7749	12	2	3	7
134	.899580	899580	7761	13	1	2	-5
135	.907354	907354	7774	12	1	2	4
136	.915140	915140	7785	13	1	2	-4
137	.922939	922939	7799	12	1	2	4
138	.930750	930750	7811	13	1	2	-4
139	.938574	938574	7824	12	1	1	3
140	.946410	946410	7835	12	0	1	0
141	.954258	954258	7848	13	1	-3	-4
142	.962119	962119	7861	11	2	4	7
143	.969991	969991	7872	13	2	4	-8
144	.977876	977876	7885	11	2	4	8
145	.985772	985772	7895	13	2	4	-8
146	.993681	993681	7909	11	-2	3	7
147	1.001601	1001601	7920	12	1	2	-5
148	1.009533	1009533	7932	11	-1	2	4
149	1.017476	1017476	7943	12	1	1	-3
150	1.025431	1025431	7953	12	0	1	0
151	1.033398	1033398	7967	11	-1	2	3
152	1.041376	1041376	7978	12	1	-3	-5
153	1.049366	1049366	7990	10	2	1	7
154	1.057366	1057366	8000	12	2	-2	-6
155	1.065378	1065378	8012	12	0	2	0
156	1.073402	1073402	8024	10	2	3	5

157	1.081436	1081436	8034	11	1		-4
158	1.089481	1089481	8043	11	0	1	1
159	1.097537	1097537	8055	11	0	0	0
160	1.105604	1105604	8067	11	0	0	0
161	1.113682	1113682	8078	11	0	1	-1
162	1.121771	1121771	8089	10	-1	1	2
163	1.129870	1129870	8099	10	0	1	0
164	1.137979	1137979	8109	11	1	1	-2
165	1.146099	1146099	8120	11	0	1	0
166	1.154230	1154230	8131	10	-1	1	2
167	1.162371	1162371	8141	10	0	0	-1
168	1.170522	1170522	8151	10	0	1	1
169	1.178683	1178683	8161	11	1	3	-4
170	1.186855	1186855	8172	9	-2	4	7
171	1.195036	1195036	8181	11	2	4	-8
172	1.203228	1203228	8192	9	-2	5	7
173	1.211429	1211429	8201	10	1	1	-4
174	1.219640	1219640	8211	10	0	1	0
175	1.227861	1227861	8221	9	-1	2	3
176	1.236091	1236091	8230	10	1	1	-3
177	1.244331	1244331	8240	10	0	1	0
178	1.252581	1252581	8250	9	-1	1	2
179	1.260840	1260840	8259	9	0	1	0
180	1.269108	1269108	8268	10	1	2	-3
181	1.277386	1277386	8278	9	-1	1	3
182	1.285673	1285673	8287	9	0	0	-1
183	1.293969	1293969	8295	9	0	0	0
184	1.302274	1302274	8305	9	0	0	0
185	1.310588	1310588	8314	9	0	0	0
186	1.318911	1318911	8323	9	0	0	0
187	1.327243	1327243	8332	9	0	0	0
188	1.335584	1335584	8341	9	0	1	-1
189	1.343934	1343934	8350	8	-1	2	3
190	1.352292	1352292	8358	9	1	2	-4
191	1.360659	1360659	8367	8	-1	2	4
192	1.369034	1369034	8375	9	1	1	-3
193	1.377418	1377418	8384	9	0	2	-1
194	1.385811	1385811	8393	7	-2	5	7
195	1.394211	1394211	8400	10	3	6	11
196	1.402621	1402621	8410	7	-3	4	10
197	1.411038	1411038	8417	8	1	0	-4

198	1.419463	1419463	8425	9	1	-2	-2
199	1.427897	1427897	8434	8	=1	1	3
200	1.436339	1436339	8442	8	0	0	=1
201	1.444789	1444789	8450	8	0	=1	=1
202	1.453247	1453247	8458	7	=1	3	4
203	1.461712	1461712	8465	9	2	=3	=6
204	1.470186	1470186	8474	8	=1	0	3
205	1.478668	1478668	8482	7	=1	2	2
206	1.487157	1487157	8489	8	1	=1	=3
207	1.495654	1495654	8497	8	0	=1	0
208	1.504159	1504159	8505	7	=1	2	3
209	1.512671	1512671	8512	8	1	=1	=3
210	1.521191	1521191	8520	8	0	=1	0
211	1.529719	1529719	8528	7	=1	1	2
212	1.538254	1538254	8535	7	0	1	0
213	1.546796	1546796	8542	8	1	=1	=2
214	1.555346	1555346	8550	8	0	=1	0
215	1.563904	1563904	8558	7	=1	1	2
216	1.572469	1572469	8565	7	0	0	=1
217	1.581041	1581041	8572	7	0	1	1
218	1.589620	1589620	8579	8	1	=2	=3
219	1.598207	1598207	8587	7	=1	1	3
220	1.606801	1606801	8594	7	0	1	0
221	1.615402	1615402	8601	8	1	=3	=4
222	1.624011	1624011	8609	6	=2	4	7
223	1.632626	1632626	8615	8	2	=3	=7
224	1.641249	1641249	8623	7	=1	1	4
225	1.649879	1649879	8630	7	0	0	=1
226	1.658516	1658516	8637	7	0	0	0
227	1.667160	1667160	8644	7	0	0	0
228	1.675811	1675811	8651	7	0	0	0
229	1.684466	1684469	8658	7	0	0	0
230	1.693134	1693134	8665	7	0	0	0
231	1.701806	1701806	8672	7	0	0	0
232	1.710485	1710485	8679	7	0	0	0
233	1.719171	1719171	8685	7	0	0	0
234	1.727864	1727864	8693	7	0	=1	=1
235	1.736564	1736564	8700	6	=1	3	4
236	1.745270	1745270	8705	8	2	=4	=7
237	1.753984	1753984	8714	6	=2	5	7

238	1.762704	1762704	9720	1	1	-1	-4
239	1.771431	1771431	9727	7	0	0	1
240	1.780165	1780165	9734	7	0	0	0
241	1.788906	1788906	9741	7	0	-1	-1
242	1.797654	1797654	9748	6	-1	3	4
243	1.806408	1806408	9754	8	2	-4	-7
244	1.815170	1815170	9762	6	-2	3	7
245	1.823938	1823938	9768	7	1	-2	-5
246	1.832713	1832713	9775	6	-1	2	4
247	1.841494	1841494	9781	7	1	-1	-3
248	1.850282	1850282	9788	7	0	0	1
249	1.859077	1859077	9795	7	0	-1	-1
250	1.867879	1867879	9802	6	-1	2	3
251	1.876687	1876687	9808	7	1	-1	-3
252	1.885502	1885502	9815	7	0	-1	0
253	1.894324	1894324	9822	6	-1	2	3
254	1.903152	1903152	9828	7	1	-2	-4
255	1.911987	1911987	9835	6	-1	3	5
256	1.920828	1920828	9841	8	2	-5	-8
257	1.929677	1929677	9849	5	-3	5	11
258	1.938531	1938531	9854	8	3	-5	-12
259	1.947393	1947393	9862	5	-3	6	12
260	1.956260	1956260	9867	8	3	-5	-11
261	1.965135	1965135	9875	6	-2	2	7
262	1.974016	1974016	9881	6	0	1	-1
263	1.982903	1982903	9887	7	1	-2	-3
264	1.991797	1991797	9894	6	-1	2	4
265	2.000697	2000697	9900	7	1	-2	-4
266	2.009604	2009604	9907	6	-1	2	4
267	2.018517	2018517	9915	7	1	-2	-4
268	2.027437	2027437	9920	6	-1	2	4
269	2.036363	2036363	9926	7	1	-2	-4
270	2.045296	2045296	9933	6	-1	1	3
271	2.054235	2054235	9939	6	0	0	-1
272	2.063180	2063180	9945	6	0	1	1
273	2.072131	2072131	9951	7	1	-2	-3
274	2.081089	2081089	9958	6	-1	2	4
275	2.090053	2090053	9964	7	1	-2	-4
276	2.099024	2099024	9971	6	-1	0	2
277	2.108001	2108001	9977	5	-1	3	3
278	2.116983	2116983	9982	7	2	-2	-5

279	2.125972	2125972	9989	7	0	=2	0
280	2.134968	2134968	9996	5	=2	4	6
281	2.143969	2143969	9001	7	2	=4	=8
282	2.152977	2152977	9009	5	=2	4	8
283	2.161990	2161990	9013	7	2	=3	=7
284	2.171010	2171010	9020	6	=1	0	3
285	2.180036	2180036	9025	5	=1	3	3
286	2.189067	2189067	9031	7	2	=3	=6
287	2.198105	2198105	9038	6	=1	1	4
288	2.207149	2207149	9044	6	0	=1	=2
289	2.216199	2216199	9050	5	=1	3	4
290	2.225254	2225254	9055	7	2	=4	=7
291	2.234316	2234316	9062	5	=2	3	7
292	2.243383	2243383	9067	6	1	=1	=4
293	2.252456	2252456	9073	6	0	=1	1
294	2.261535	2261535	9079	6	0	0	0
295	2.270620	2270620	9085	6	0	=1	=1
296	2.279711	2279711	9091	5	=1	2	3
297	2.288807	2288807	9096	6	1	=1	=3
298	2.297909	2297909	9102	6	0	=1	0
299	2.307017	2307017	9108	5	=1	2	3
300	2.316130	2316130	9113	6	1	=2	=4
301	2.325249	2325249	9119	5	=1	2	4
302	2.334373	2334373	9124	6	1	=1	=3
303	2.343503	2343503	9130	6	0	=1	0
304	2.352639	2352639	9135	5	=1	1	2
305	2.361780	2361780	9141	5	0	1	0
306	2.370926	2370926	9146	6	1	=2	=3
307	2.380078	2380078	9152	5	=1	2	4
308	2.389235	2389235	9157	6	1	=2	=4
309	2.398398	2398398	9163	5	=1	1	3
310	2.407566	2407566	9169	5	0	1	0
311	2.416739	2416739	9173	6	1	=2	=3
312	2.425918	2425918	9179	5	=1	1	3
313	2.435102	2435102	9184	5	0	0	=1
314	2.444291	2444291	9189	5	0	0	0
315	2.453485	2453485	9194	5	0	1	1
316	2.462684	2462684	9199	6	1	=3	=4
317	2.471889	2471889	9205	4	=2	4	7
318	2.481098	2481098	9209	6	2	=3	=7
319	2.490313	2490313	9213	5	=1	1	4

320	2.499533	2499533	9220	5	0	-1	-2
321	2.508758	2508758	9225	4	=1	3	4
322	2.517987	2517987	9229	6	2	=4	-7
323	2.527222	2527222	9235	4	-2	4	8
324	2.536461	2536461	9239	6	2	-4	-8
325	2.545706	2545706	9245	4	-2	3	7
326	2.554955	2554955	9249	5	1	=1	-4
327	2.564209	2564209	9254	5	0	0	1
328	2.573468	2573468	9259	5	0	=1	-1
329	2.582732	2582732	9264	4	=1	3	4
330	2.592000	2592000	9268	6	2	=4	-7
331	2.601274	2601274	9274	4	-2	=4	6
332	2.610552	2610552	9279	4	0	2	=1
333	2.619834	2619834	9282	4	0	1	-2
334	2.629121	2629121	9287	5	1	=1	0
335	2.638413	2638413	9292	5	0	=1	3
336	2.647709	2647709	9295	4	=1	2	-3
337	2.657010	2657010	9301	5	1	=1	0
338	2.666316	2666316	9305	5	0	=1	2
339	2.675626	2675626	9310	4	=1	1	0
340	2.684940	2684940	9314	4	0	1	-3
341	2.694259	2694259	9319	5	1	=2	4
342	2.703582	2703582	9323	4	=1	2	-4
343	2.712910	2712910	9328	5	1	=2	3
344	2.722242	2722242	9332	4	=1	1	0
345	2.731578	2731578	9336	4	0	1	-4
346	2.740919	2740919	9341	5	1	=3	-4
347	2.750263	2750263	9344	3	-2	5	8
348	2.759613	2759613	9349	6	3	=5	=11
349	2.768966	2768966	9350	5	-3	4	10
350	2.778323	2778323	9353	4	1	0	-4
351	2.787685	2787685	9357	4	1	0	-2
352	2.797051	2797051	9362	5	1	=2	3
353	2.806421	2806421	9365	4	=1	1	-1
354	2.815795	2815795	9366	4	0	0	0
355	2.825173	2825173	9370	4	0	0	0
356	2.834555	2834555	9374	4	0	0	0
357	2.843941	2843941	9378	4	0	0	0
358	2.853331	2853331	9382	4	0	0	0
359	2.862725	2862725	9385	4	0	0	0
360	2.872124	2872124	9390	4	0	0	1
			9394	4	0	1	1
			9399	5	1	=4	-5
			9403	5	-3	5	10

361	2.881525	2881525	9401	5	3	=4	=10
362	2.890931	2890931	9405	4	=1	0	4
363	2.900341	2900341	9410	5	=1	3	3
364	2.909754	2909754	9413	5	2	=4	=7
365	2.919172	2919172	9418	5	=2	5	7
366	2.928593	2928593	9421	4	1	=2	=5
367	2.938018	2938018	9425	5	=1	5	5
368	2.947446	2947446	9428	5	2	=4	=7
369	2.956879	2956879	9433	5	=2	2	6
370	2.966315	2966315	9435	5	0	2	0
371	2.975754	2975754	9439	5	2	=4	=6
372	2.985198	2985198	9444	5	=2	2	6
373	2.994645	2994645	9447	5	0	1	=1
374	3.004095	3004095	9450	4	1	=1	=2
375	3.013549	3013549	9454	4	0	=1	0
376	3.023007	3023007	9458	5	=1	2	5
377	3.032468	3032468	9461	4	1	=2	=4
378	3.041933	3041933	9465	5	=1	2	4
379	3.051401	3051401	9468	4	1	=2	=4
380	3.060873	3060873	9472	5	=1	2	4
381	3.070348	3070348	9475	4	1	=2	=4
382	3.079827	3079827	9479	5	=1	1	5
383	3.089309	3089309	9482	5	0	1	0
384	3.098794	3098794	9485	4	1	=2	=3
385	3.108283	3108283	9489	5	=1	1	5
386	3.117775	3117775	9492	5	0	1	0
387	3.127270	3127270	9495	4	1	=1	=2
388	3.136769	3136769	9499	4	0	=2	=1
389	3.146272	3146272	9503	2	=2	4	6
390	3.155777	3155777	9505	4	2	=3	=7
391	3.165286	3165286	9509	5	=1	1	4
392	3.174798	3174798	9512	5	0	1	0
393	3.184313	3184313	9515	4	1	=3	=4
394	3.193832	3193832	9519	2	=2	4	7
395	3.203353	3203353	9521	4	2	=2	=6
396	3.212878	3212878	9525	4	0	=2	0
397	3.222407	3222407	9529	2	=2	4	6
398	3.231938	3231938	9531	4	2	=4	=8
399	3.241473	3241473	9535	2	=2	4	8
400	3.251010	3251010	9537	4	2	=3	=7
401	3.260551	3260551	9541	5	=1	1	4

402	3.270095	3270095	9544	3	0	1	0
403	3.279642	3279642	9547	4	1	-3	-4
404	3.289193	3289193	9551	2	-2	4	7
405	3.298746	3298746	9553	4	2	-5	-7
406	3.308303	3308303	9557	3	-1	0	3
407	3.317863	3317863	9560	2	-1	3	3
408	3.327425	3327425	9562	4	2	-5	-6
409	3.336991	3336991	9565	3	-1	1	4
410	3.346560	3346560	9569	3	0	0	-1
411	3.356132	3356132	9572	3	0	1	1
412	3.365707	3365707	9575	4	1	-5	-4
413	3.375286	3375286	9579	2	-2	3	6
414	3.384867	3384867	9581	3	1	0	-3
415	3.394451	3394451	9584	4	1	-3	-3
416	3.404039	3404039	9588	2	-2	4	7
417	3.413629	3413629	9590	4	2	-3	-7
418	3.423223	3423223	9594	3	-1	0	3
419	3.432820	3432820	9597	2	-1	3	3
420	3.442419	3442419	9599	4	2	-3	-6
421	3.452022	3452022	9603	3	-1	1	4
422	3.461628	3461628	9605	3	0	0	-1
423	3.471237	3471237	9609	3	0	0	0
424	3.480849	3480849	9612	3	0	0	0
425	3.490464	3490464	9615	3	0	0	0
426	3.500082	3500082	9618	3	0	1	1
427	3.509703	3509703	9621	4	1	-3	-4
428	3.519328	3519328	9625	2	-2	3	6
429	3.528955	3528955	9627	3	1	0	-3
430	3.538585	3538585	9630	4	1	-2	-2
431	3.548219	3548219	9634	3	-1	0	2
432	3.557856	3557856	9637	2	-1	3	3
433	3.567495	3567495	9639	4	2	-3	-6
434	3.577138	3577138	9643	3	-1	1	4
435	3.586784	3586784	9645	3	0	0	-1
436	3.596433	3596433	9649	3	0	1	1
437	3.606085	3606085	9652	4	1	-3	-4
438	3.615741	3615741	9655	2	-2	4	7
439	3.625399	3625399	9659	4	2	-4	-8
440	3.635061	3635061	9662	2	-2	4	8
441	3.644725	3644725	9664	4	2	-3	-7
442	3.654393	3654393	9668	3	-1	1	4

443	3.664064	3664064	9071	3	0	1	0
444	3.673738	3673738	9674	4	1	-3	-4
445	3.683416	3683416	9673	2	-2	4	7
446	3.693096	3693096	9680	4	2	-3	-7
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448	3.712467	3712467	9687	3	0	0	-1
449	3.722157	3722157	9690	3	0	0	0
450	3.731850	3731850	9693	3	0	1	1
451	3.741546	3741546	9695	4	1	-2	-3
452	3.751246	3751246	9700	3	-1	1	3
453	3.760949	3760949	9703	3	0	0	-1
454	3.770655	3770655	9705	3	0	1	1
455	3.780364	3780364	9709	4	1	-2	-3
456	3.790077	3790077	9713	3	-1	1	3
457	3.799793	3799793	9715	3	0	0	-1
458	3.809512	3809512	9719	3	0	1	1
459	3.819234	3819234	9722	4	1	-2	-3
460	3.828960	3828960	9726	3	-1	1	3
461	3.838689	3838689	9729	3	0	0	-1
462	3.848421	3848421	9732	3	0	1	1
463	3.858156	3858156	9735	4	1	-2	-3
464	3.867895	3867895	9739	3	-1	1	3
465	3.877637	3877637	9742	3	0	1	0
466	3.887382	3887382	9745	4	1	-2	-3
467	3.897131	3897131	9749	3	-1	1	3
468	3.906883	3906883	9752	3	0	1	0
469	3.916638	3916638	9755	4	1	-2	-3
470	3.926397	3926397	9759	3	-1	1	3
471	3.936159	3936159	9762	3	0	1	0
472	3.945924	3945924	9765	4	1	-2	-3
473	3.955693	3955693	9769	3	-1	1	3
474	3.965465	3965465	9772	3	0	1	0
475	3.975240	3975240	9775	4	1	-2	-3
476	3.985019	3985019	9779	3	-1	1	3
477	3.994801	3994801	9782	3	0	1	0
478	4.004586	4004586	9785	4	1	-2	-3
479	4.014375	4014375	9789	4	-1	2	4
480	4.024167	4024167	9792	4	1	-2	-4
481	4.033963	4033963	9795	3	-1	1	3
482	4.043762	4043762	9799	3	0	1	0
483	4.053564	4053564	9802	4	1	-2	-3

484	4.063370	4063370	9805	3	-1	1	3
485	4.073179	4073179	9809	3	0	1	0
486	4.082991	4082991	9812	4	1	-2	-3
487	4.092807	4092807	9815	3	-1	2	4
488	4.102626	4102626	9819	4	1	-2	-4
489	4.112449	4112449	9823	3	-1	1	3
490	4.122275	4122275	9825	3	0	1	0
491	4.132104	4132104	9829	4	1	-2	-3
492	4.141937	4141937	9833	3	-1	2	4
493	4.151773	4151773	9835	4	1	-2	-4
494	4.161613	4161613	9840	3	-1	1	3
495	4.171456	4171456	9843	3	0	1	0
496	4.181302	4181302	9845	4	1	-2	-3
497	4.191152	4191152	9850	3	-1	1	3
498	4.201005	4201005	9853	3	0	1	0
499	4.210861	4210861	9855	4	1	-1	-2
500	4.220721	4220721	9860	4	0	-2	-1
501	4.230585	4230585	9864	2	-2	4	6
502	4.240451	4240451	9865	4	2	-2	-6
503	4.250321	4250321	9870	4	0	-1	1
504	4.260195	4260195	9874	3	-1	1	2
505	4.270072	4270072	9877	3	0	1	0
506	4.279952	4279952	9880	4	1	-2	-3
507	4.289836	4289836	9884	3	-1	1	3
508	4.299723	4299723	9887	3	0	1	0
509	4.309613	4309613	9890	4	1	-2	-3
510	4.319507	4319507	9894	3	-1	1	3
511	4.329404	4329404	9897	3	0	1	0
512	4.339304	4339304	9900	4	1	-1	-2
513	4.349208	4349208	9904	4	0	-2	-1
514	4.359116	4359116	9909	2	-2	4	6
515	4.369026	4369026	9910	4	2	-2	-6
516	4.378940	4378940	9914	4	0	-2	0
517	4.388858	4388858	9918	4	-2	-2	7
518	4.398778	4398778	9920	2	3	3	11
519	4.408703	4408703	9925	2	-3	3	11
520	4.418630	4418630	9927	4	2	-3	-8
521	4.428561	4428561	9931	3	-1	2	5
522	4.438495	4438495	9934	4	1	-2	-4
523	4.448433	4448433	9938	3	-1	1	3
524	4.458374	4458374	9941	3	0	1	0

525	4.468318	4468318	9944	4	1	-2	-3
526	4.478266	4478266	9948	3	-1	2	4
527	4.488217	4488217	9951	4	1	-2	-4
528	4.498172	4498172	9955	3	-1	1	3
529	4.508130	4508130	9958	3	0	0	-1
530	4.518091	4518091	9961	3	0	1	1
531	4.528055	4528055	9964	4	1	-1	-2
532	4.538023	4538023	9968	4	0	-1	0
533	4.547995	4547995	9972	3	-1	1	2
534	4.557970	4557970	9975	3	0	0	-1
535	4.567948	4567948	9978	3	0	1	1
536	4.577929	4577929	9981	4	1	-2	-3
537	4.587914	4587914	9985	3	-1	2	4
538	4.597902	4597902	9988	4	1	-2	-4
539	4.607894	4607894	9992	3	-1	2	4
540	4.617889	4617889	9995	4	1	-3	-5
541	4.627888	4627888	9999	2	-2	3	8
542	4.637889	4637889	10001	3	3	-6	-11
543	4.647895	4647895	10006	2	-3	3	11
544	4.657903	4657903	10009	4	2	-2	-7
545	4.667915	4667915	10012	4	0	-1	1
546	4.677931	4677931	10015	3	-1	1	2
547	4.687950	4687950	10018	3	0	1	0
548	4.697972	4697972	10022	4	1	-2	-3
549	4.707998	4707998	10026	3	-1	2	4
550	4.718027	4718027	10029	4	1	-2	-4
551	4.728060	4728060	10033	3	-1	2	4
552	4.738096	4738096	10036	4	1	-2	-4
553	4.748136	4748136	10040	3	-1	1	3
554	4.758179	4758179	10043	3	0	1	0
555	4.768225	4768225	10045	4	1	-2	-3
556	4.778275	4778275	10050	3	-1	2	4
557	4.788328	4788328	10053	4	1	-1	-3
558	4.798385	4798385	10057	4	0	-1	0
559	4.808446	4808446	10061	3	-1	1	2
560	4.818510	4818510	10064	3	0	1	0
561	4.828577	4828577	10067	4	1	-2	-3
562	4.838648	4838648	10071	3	-1	2	4
563	4.848722	4848722	10074	4	1	-2	-4
564	4.858800	4858800	10078	3	-1	2	4

565	4.868881	4868881	10081	4	1		-3
566	4.878966	4878966	10085	4	0	1	0
567	4.889055	4889055	10089	3	-1	1	2
568	4.899147	4899147	10092	3	0	1	0
569	4.909242	4909242	10095	4	1		-3
570	4.919341	4919341	10099	3	-1	2	4
571	4.929443	4929443	10102	4	1	1	-3
572	4.939549	4939549	10105	4	0	1	0
573	4.949659	4949659	10110	3	-1	2	3
574	4.959772	4959772	10113	4	1	-2	-4
575	4.969889	4969889	10117	3	-1	1	3
576	4.980009	4980009	10120	3	0	1	0
577	4.990132	4990132	10123	4	1	1	-2
578	5.000259	5000259	10127	4	0	1	0
579	5.010390	5010390	10131	3	-1	2	3
580	5.020524	5020524	10134	4	1	-2	-4
581	5.030662	5030662	10138	3	-1	2	4
582	5.040803	5040803	10141	4	1	-2	-4
583	5.050948	5050948	10145	3	-1	1	3
584	5.061096	5061096	10149	3	0	1	0
585	5.071247	5071247	10151	4	1	1	-2
586	5.081402	5081402	10155	4	0	1	0
587	5.091561	5091561	10159	3	-1	1	2
588	5.101723	5101723	10162	3	0	1	0
589	5.111888	5111888	10165	4	1	-1	-2
590	5.122057	5122057	10169	4	0	1	0
591	5.132230	5132230	10173	3	-1	1	2
592	5.142406	5142406	10175	3	0	0	-1
593	5.152585	5152585	10179	3	0	1	1
594	5.162767	5162767	10182	4	1	1	-2
595	5.172953	5172953	10185	4	0	1	0
596	5.183143	5183143	10190	3	-1	1	2
597	5.193336	5193336	10193	3	0	0	-1
598	5.203532	5203532	10195	3	0	1	1
599	5.213731	5213731	10199	4	1	-2	-3
600	5.223934	5223934	10203	3	-1	2	4
601	5.234140	5234140	10205	4	1	-2	-4
602	5.244350	5244350	10210	3	-1	1	3
603	5.254563	5254563	10213	3	0	0	-1
604	5.264779	5264779	10215	3	0	1	1

605	5.274998	5274998	10 ²¹⁹	4	1	=3	-4
606	5.285221	5285221	10 ²²³	2	=2	4	7
607	5.295446	5295446	10 ²²⁵	4	2	=2	-6
608	5.305675	5305675	10 ²²⁹	4	0	=2	0
609	5.315908	5315908	10 ²³³	2	=2	4	6
610	5.326143	5326143	10 ²³⁵	4	2	=3	-7
611	5.336382	5336382	10 ²³⁹	3	-1	1	4
612	5.346624	5346624	10 ²⁴²	3	0	0	-1
613	5.356869	5356869	10 ²⁴⁵	3	0	0	0
614	5.367117	5367117	10 ²⁴⁸	3	0	0	0
615	5.377368	5377368	10 ²⁵¹	3	0	1	1
616	5.387622	5387622	10 ²⁵⁴	4	1	=3	-4
617	5.397880	5397880	10 ²⁵⁸	2	=2	4	7
618	5.408140	5408140	10 ²⁶⁰	4	2	-3	-7
619	5.418404	5418404	10 ²⁶⁴	3	-1	0	3
620	5.428671	5428671	10 ²⁶⁷	2	=1	3	3
621	5.438940	5438940	10 ²⁶⁹	4	2	=3	-6
622	5.449213	5449213	10 ²⁷³	3	-1	1	4
623	5.459489	5459489	10 ²⁷⁵	3	0	=1	-2
624	5.469768	5469768	10 ²⁷⁹	2	=1	3	4
625	5.480049	5480049	10 ²⁸¹	4	2	-3	-6
626	5.490334	5490334	10 ²⁸⁵	3	-1	1	4
627	5.500622	5500622	10 ²⁸⁸	3	0	=1	-2
628	5.510913	5510913	10 ²⁹¹	2	=1	3	4
629	5.521206	5521206	10 ²⁹³	4	2	=4	-7
630	5.531503	5531503	10 ²⁹⁷	2	=2	4	8
631	5.541802	5541802	10 ²⁹⁹	4	2	-4	-8
632	5.552105	5552105	10 ³⁰³	2	=2	4	8
633	5.562410	5562410	10 ³⁰⁵	4	2	-4	-8
634	5.572719	5572719	10 ³⁰⁹	2	=2	3	7
635	5.583030	5583030	10 ³¹¹	3	1	-1	-4
636	5.593344	5593344	10 ³¹⁴	3	0	1	2
637	5.603661	5603661	10 ³¹⁷	4	1	=3	-4
638	5.613982	5613982	10 ³²¹	2	=2	2	5
639	5.624305	5624305	10 ³²³	2	0	2	0
640	5.634630	5634630	10 ³²⁵	4	2	=3	-5
641	5.644959	5644959	10 ³²⁹	3	=1	1	4
642	5.655291	5655291	10 ³³²	3	0	=1	-2
643	5.665626	5665626	10 ³³⁵	2	=1	3	4
644	5.675963	5675963	10 ³³⁷	4	2	-3	-6

645	5.686304	5686304	10341	3	-1	0	3
646	5.696648	5696648	10344	2	-1	2	2
647	5.706994	5706994	10345	3	1	0	-2
648	5.717343	5717343	10349	4	1	-3	-3
649	5.727696	5727696	10353	2	-2	4	7
650	5.738051	5738051	10355	4	2	-4	-8
651	5.748410	5748410	10359	2	-2	3	7
652	5.758771	5758771	10361	3	1	-1	-4
653	5.769135	5769135	10364	3	0	1	2
654	5.779502	5779502	10367	4	1	-3	-4
655	5.789873	5789873	10371	2	-2	3	6
656	5.800246	5800246	10373	3	1	0	-3
657	5.810622	5810622	10376	4	1	-3	-3
658	5.821002	5821002	10380	2	-2	4	7
659	5.831384	5831384	10382	4	2	-3	-7
660	5.841770	5841770	10386	3	-1	0	3
661	5.852159	5852159	10389	2	-1	3	3
662	5.862550	5862550	10391	4	2	-3	-6
663	5.872945	5872945	10395	3	-1	1	4
664	5.883343	5883343	10398	3	0	0	-1
665	5.893744	5893744	10401	3	0	0	0
666	5.904148	5904148	10404	3	0	1	1
667	5.914555	5914555	10407	4	1	-2	-3
668	5.924966	5924966	10411	3	-1	0	2
669	5.935380	5935380	10414	2	-1	3	3
670	5.945796	5945796	10415	4	2	-2	-5
671	5.956216	5956216	10420	4	0	-2	0
672	5.966640	5966640	10424	2	-2	4	6
673	5.977066	5977066	10425	4	2	-3	-7
674	5.987496	5987496	10430	3	-1	1	4
675	5.997929	5997929	10433	3	0	1	0
676	6.008365	6008365	10435	4	1	-3	-4
677	6.018805	6018805	10440	2	-2	3	8
678	6.029247	6029247	10442	3	3	-6	-11
679	6.039694	6039694	10447	2	-3	3	11
680	6.050143	6050143	10449	4	2	-3	-8
681	6.060596	6060596	10453	3	-1	1	4
682	6.071052	6071052	10456	3	0	1	0
683	6.081511	6081511	10459	4	1	-2	-3
684	6.091974	6091974	10463	3	-1	1	3

685	6.102440	6102440	10 ⁴⁶⁵	3	0	1	0
686	6.112909	6112909	10 ⁴⁶⁹	4	1	=1	=2
687	6.123382	6123382	10 ⁴⁷³	4	0	=2	=1
688	6.133859	6133859	10 ⁴⁷⁷	2	=2	4	6
689	6.144338	6144338	10 ⁴⁷⁹	4	2	=2	=6
690	6.154821	6154821	10 ⁴⁸³	4	0	=1	1
691	6.165308	6165308	10 ⁴⁸⁷	3	=1	1	2
692	6.175798	6175798	10 ⁴⁹⁰	3	0	1	0
693	6.186291	6186291	10 ⁴⁹³	4	1	=2	=3
694	6.196788	6196788	10 ⁴⁹⁷	3	=1	1	3
695	6.207288	6207288	10 ⁵⁰⁰	3	0	1	0
696	6.217791	6217791	10 ⁵⁰³	4	1	=1	=2
697	6.228298	6228298	10 ⁵⁰⁷	4	0	=1	0
698	6.238809	6238809	10 ⁵¹¹	3	=1	1	2
699	6.249323	6249323	10 ⁵¹⁴	3	0	1	0
700	6.259840	6259840	10 ⁵¹⁷	4	1	=1	=2
701	6.270361	6270361	10 ⁵²¹	4	0	=2	=1
702	6.280886	6280886	10 ⁵²⁵	2	=2	5	7
703	6.291413	6291413	10 ⁵²⁷	3	3	=6	=11
704	6.301945	6301945	10 ⁵³²	2	=3	6	12
705	6.312479	6312479	10 ⁵³⁴	3	3	=6	=12
706	6.323018	6323018	10 ⁵³⁹	2	=3	6	12
707	6.333559	6333559	10 ⁵⁴¹	3	3	=5	=12
708	6.344105	6344105	10 ⁵⁴⁵	2	=3	3	11
709	6.354653	6354653	10 ⁵⁴⁸	4	2	=2	=7
710	6.365205	6365205	10 ⁵⁵²	4	0	=1	1
711	6.375761	6375761	10 ⁵⁵⁵	3	=1	2	3
712	6.386320	6386320	10 ⁵⁵⁹	4	1	=2	=4
713	6.396883	6396883	10 ⁵⁶³	3	=1	1	3
714	6.407449	6407449	10 ⁵⁶⁵	3	0	1	0
715	6.418018	6418018	10 ⁵⁶⁹	4	1	=1	=2
716	6.428591	6428591	10 ⁵⁷³	4	0	=1	0
717	6.439168	6439168	10 ⁵⁷⁷	3	=1	1	2
718	6.449748	6449748	10 ⁵⁸⁰	3	0	1	0
719	6.460331	6460331	10 ⁵⁸³	4	1	=1	=2
720	6.470918	6470918	10 ⁵⁸⁷	4	0	=1	0
721	6.481509	6481509	10 ⁵⁹¹	3	=1	1	2
722	6.492103	6492103	10 ⁵⁹⁴	3	0	1	0
723	6.502700	6502700	10 ⁵⁹⁷	4	1	=2	=3
724	6.513301	6513301	10 ⁶⁰¹	3	=1	2	4

725	6.523905	6523905	10^{604}	4	1	-2	-4
726	6.534513	6534513	10^{603}	3	=1	2	4
727	6.545124	6545124	10^{611}	4	1	-2	-4
728	6.555739	6555739	10^{613}	3	=1	1	3
729	6.566357	6566357	10^{613}	3	0	1	0
730	6.576978	6576978	10^{621}	4	1	=1	-2
731	6.587603	6587603	10^{625}	4	0	=1	0
732	6.598232	6598232	10^{627}	3	=1	1	2
733	6.608864	6608864	10^{632}	3	0	1	0
734	6.619499	6619499	10^{635}	4	1	-2	-3
735	6.630138	6630138	10^{639}	3	=1	-2	4
736	6.640780	6640780	10^{642}	4	1	-2	-4
737	6.651426	6651426	10^{645}	3	=1	2	4
738	6.662075	6662075	10^{649}	4	1	-2	-4
739	6.672728	6672728	10^{653}	3	=1	2	4
740	6.683384	6683384	10^{655}	4	1	-2	-4
741	6.694044	6694044	10^{660}	3	=1	1	3
742	6.704707	6704707	10^{663}	3	0	1	0
743	6.715373	6715373	10^{665}	4	1	-2	-3
744	6.726043	6726043	10^{670}	3	=1	2	4
745	6.736716	6736716	10^{673}	4	1	-2	-4
746	6.747393	6747393	10^{677}	3	=1	2	4
747	6.758073	6758073	10^{680}	4	1	-2	-4
748	6.768757	6768757	10^{684}	3	=1	1	3
749	6.779444	6779444	10^{687}	3	0	1	0
750	6.790134	6790134	10^{690}	4	1	-2	-3
751	6.800828	6800828	10^{694}	3	=1	2	4
752	6.811525	6811525	10^{697}	4	1	-2	-4
753	6.822226	6822226	10^{701}	3	=1	2	4
754	6.832930	6832930	10^{704}	4	1	-2	-4
755	6.843638	6843638	10^{708}	3	=1	1	3
756	6.854349	6854349	10^{711}	3	0	1	0
757	6.865063	6865063	10^{714}	4	1	=1	-2
758	6.875781	6875781	10^{718}	4	0	-2	-1
759	6.886503	6886503	10^{722}	2	-2	4	6
760	6.897227	6897227	10^{724}	4	2	-2	-6
761	6.907955	6907955	10^{728}	4	0	=1	1
762	6.918687	6918687	10^{732}	3	=1	1	2
763	6.929422	6929422	10^{735}	3	0	1	0
764	6.940160	6940160	10^{738}	4	1	-2	-3

765	6.920902	6950902	10742	3	=1	1	3
766	6.961647	6961647	10743	3	0	1	0
767	6.972395	6972395	10748	4	1	=2	=3
768	6.983147	6983147	10752	3	=1	2	4
769	6.993902	6993902	10753	4	1	=2	=4
770	7.004661	7004661	10759	3	=1	1	3
771	7.015423	7015423	10762	3	0	1	0
772	7.026188	7026188	10763	4	1	=2	=3
773	7.036957	7036957	10769	3	=1	2	4
774	7.047729	7047729	10772	4	1	=3	=5
775	7.058505	7058505	10775	2	=2	5	8
776	7.069283	7069283	10779	5	3	=6	=11
777	7.080066	7080066	10783	2	=3	6	12
778	7.090851	7090851	10783	5	3	=6	=12
779	7.101641	7101641	10790	2	=3	5	11
780	7.112433	7112433	10792	4	2	=3	=8
781	7.123229	7123229	10796	3	=1	1	4
782	7.134028	7134028	10799	3	0	1	0
783	7.144830	7144830	10802	4	1	=1	=2
784	7.155636	7155636	10805	4	0	=2	=1
785	7.166446	7166446	10810	2	=2	4	6
786	7.177258	7177258	10812	4	2	=2	=6
787	7.188074	7188074	10815	4	0	=1	1
788	7.198894	7198894	10820	3	=1	1	2
789	7.209717	7209717	10823	3	0	0	=1
790	7.220543	7220543	10826	3	0	1	1
791	7.231372	7231372	10829	4	1	=1	=2
792	7.242205	7242205	10833	4	0	=2	=1
793	7.253042	7253042	10837	2	=2	4	6
794	7.263881	7263881	10839	4	2	=2	=6
795	7.274724	7274724	10843	4	0	=1	1
796	7.285571	7285571	10847	3	=1	1	2
797	7.296421	7296421	10850	3	0	1	0
798	7.307274	7307274	10853	4	1	=2	=3
799	7.318131	7318131	10857	3	=1	1	3
800	7.328991	7328991	10860	3	0	1	0
801	7.339854	7339854	10863	4	1	=2	=3
802	7.350721	7350721	10867	3	=1	2	4
803	7.361591	7361591	10870	4	1	=2	=4
804	7.372465	7372465	10874	3	=1	1	3

805	7.383342	7383342	10871	3	0	1	0
806	7.394222	7394222	10880	4	1	-2	-3
807	7.405106	7405106	10884	3	-1	2	4
808	7.415993	7415993	10887	4	1	-2	-4
809	7.426884	7426884	10891	3	-1	2	4
810	7.437778	7437778	10894	4	1	-2	-4
811	7.448676	7448676	10898	3	-1	1	3
812	7.459577	7459577	10901	3	0	1	0
813	7.470481	7470481	10904	4	1	-1	-2
814	7.481389	7481389	10903	4	0	-2	-1
815	7.492301	7492301	10912	4	-2	-2	7
816	7.503215	7503215	10914	2	3	5	-11
817	7.514134	7514134	10919	2	-3	5	11
818	7.525055	7525055	10921	4	2	5	-7
819	7.535980	7535980	10925	4	0	-2	1
820	7.546909	7546909	10929	4	-1	-1	3
821	7.557841	7557841	10932	3	1	2	-4
822	7.568777	7568777	10936	4	-1	-2	3
823	7.579716	7579716	10939	3	0	1	0
824	7.590658	7590658	10942	3	1	1	-2
825	7.601604	7601604	10946	4	0	-1	0
826	7.612554	7612554	10950	4	-1	-1	2
827	7.623507	7623507	10953	3	0	1	0
828	7.634463	7634463	10956	4	1	-1	-2
829	7.645423	7645423	10960	4	0	-1	0
830	7.656387	7656387	10964	3	-1	1	2
831	7.667354	7667354	10967	3	0	1	0
832	7.678324	7678324	10970	4	1	-2	-3
833	7.689298	7689298	10974	4	-1	-2	5
834	7.700275	7700275	10977	3	2	3	-8
835	7.711257	7711257	10982	3	-3	5	10
836	7.722241	7722241	10984	2	2	5	-7
837	7.733229	7733229	10988	4	0	-1	1
838	7.744221	7744221	10992	4	-1	1	2
839	7.755216	7755216	10995	3	0	1	0
840	7.766214	7766214	10998	4	1	-1	-2
841	7.777216	7777216	11002	4	0	-1	0
842	7.788222	7788222	11006	3	-1	2	3
843	7.799231	7799231	11009	4	1	-2	-4
844	7.810244	7810244	11013	4	-1	2	4

845	7.821260	7821260	11016	4	1	=2	-4
846	7.832280	7832280	11020	3	=1	2	4
847	7.843303	7843303	11023	4	1	=2	-4
848	7.854330	7854330	11027	3	=1	2	4
849	7.865360	7865360	11030	4	1	=2	-4
850	7.876394	7876394	11034	3	=1	1	3
851	7.887431	7887431	11037	3	0	2	1
852	7.898471	7898471	11040	3	2	=5	-7
853	7.909516	7909516	11045	2	=3	5	10
854	7.920563	7920563	11047	4	2	=2	-7
855	7.931614	7931614	11051	4	0	=1	1
856	7.942669	7942669	11055	3	=1	2	3
857	7.953727	7953727	11058	4	1	=2	-4
858	7.964789	7964789	11062	3	=1	1	3
859	7.975854	7975854	11065	3	0	1	0
860	7.986922	7986922	11068	4	1	=1	-2
861	7.997994	7997994	11072	4	0	=2	=1
862	8.009070	8009070	11075	2	=2	5	7
863	8.020148	8020148	11078	3	3	=6	=11
864	8.031231	8031231	11083	2	=3	6	12
865	8.042316	8042316	11085	3	3	=5	=12
866	8.053406	8053406	11090	2	=3	5	11
867	8.064498	8064498	11092	4	2	=2	-7
868	8.075594	8075594	11095	4	0	=1	1
869	8.086694	8086694	11100	3	=1	1	2
870	8.097797	8097797	11103	3	0	0	=1
871	8.108903	8108903	11105	3	0	0	2
872	8.120012	8120012	11109	3	2	=3	-7
873	8.131126	8131126	11114	2	=3	5	10
874	8.142242	8142242	11115	4	2	=3	-8
875	8.153362	8153362	11120	3	-1	2	5
876	8.164485	8164485	11123	4	1	=2	-4
877	8.175612	8175612	11127	3	-1	=2	3
878	8.186742	8186742	11130	3	0	1	0
879	8.197875	8197875	11133	4	1	=2	-3
880	8.209012	8209012	11137	3	=1	2	4
881	8.220152	8220152	11140	4	1	=2	-4
882	8.231296	8231296	11144	3	=1	1	3
883	8.242443	8242443	11147	3	0	0	=1
884	8.253593	8253593	11150	3	0	1	1

885	8.264746	8264746	11153	4	1	=1	=2
886	8.275903	8275903	11157	4	0	=2	=1
887	8.287064	8287064	11161	2	=2	5	7
888	8.298227	8298227	11163	5	3	=6	=11
889	8.309395	8309395	11168	2	=3	5	11
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891	8.331739	8331739	11174	3	=1	1	4
892	8.342916	8342916	11177	3	0	1	0
893	8.354096	8354096	11180	4	1	=2	=3
894	8.365280	8365280	11184	3	=1	2	4
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896	8.387658	8387658	11191	3	=1	1	3
897	8.398852	8398852	11194	3	0	1	0
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900	8.432454	8432454	11204	3	0	0	=1
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902	8.454871	8454871	11210	4	1	=1	=2
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908	8.522206	8522206	11231	3	=1	2	4
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914	8.589662	8589662	11251	3	0	1	0
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916	8.612174	8612174	11258	4	0	=2	=1
917	8.623436	8623436	11262	2	=2	4	6
918	8.634700	8634700	11264	4	2	=2	=6
919	8.645968	8645968	11268	4	0	=1	1
920	8.657240	8657240	11272	3	=1	1	2
921	8.668515	8668515	11275	3	0	1	0
922	8.679793	8679793	11278	4	1	=2	=3
923	8.691075	8691075	11282	3	=1	2	4
924	8.702360	8702360	11285	4	1	=2	=4
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926	8.724941	8724941	11292	3	0	1	0
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929	8.758837	8758837	11302	4	1	=2	-4
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933	8.804081	8804081	11315	3	0	1	0
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935	8.826723	8826723	11323	4	0	=1	0
936	8.838050	8838050	11327	3	=1	=1	2
937	8.849380	8849380	11330	3	0	1	0
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940	8.883390	8883390	11340	4	1	=2	-4
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943	8.917432	8917432	11351	3	=1	1	3
944	8.928786	8928786	11354	3	0	1	0
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946	8.951504	8951504	11361	4	0	=1	0
947	8.962869	8962869	11363	3	=1	1	2
948	8.974237	8974237	11368	3	0	1	0
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950	8.996983	8996983	11375	3	=1	2	4
951	9.008361	9008361	11379	4	1	=2	-4
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956	9.065305	9065305	11396	3	=1	2	4
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958	9.088107	9088107	11403	3	=1	1	3
959	9.099513	9099513	11406	3	0	1	0
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964	9.156595	9156595	11424	2	=2	5	7
965	9.168021	9168021	11426	5	3	=6	=11

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967	9.190885	9190885	11433	4	2	=2	=7
968	9.202322	9202322	11437	4	0	=1	1
969	9.213763	9213763	11441	3	=1	2	3
970	9.225207	9225207	11444	4	1	=2	=4
971	9.236655	9236655	11448	3	=1	1	3
972	9.248106	9248106	11451	3	0	1	0
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975	9.282479	9282479	11461	4	1	=2	=4
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981	9.351319	9351319	11482	4	0	=1	0
982	9.362805	9362805	11483	3	=1	1	2
983	9.374294	9374294	11489	3	0	1	0
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987	9.420284	9420284	11503	3	=1	2	4
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989	9.443300	9443300	11510	3	=1	=2	3
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992	9.477849	9477849	11520	4	0	=1	=1
993	9.489373	9489373	11524	2	=2	5	7
994	9.500899	9500899	11526	3	3	=6	=11
995	9.512430	9512430	11531	2	=3	5	12
996	9.523963	9523963	11533	3	3	=6	=12
997	9.535501	9535501	11538	2	=3	5	11
998	9.547041	9547041	11540	4	2	=2	=7
999	9.558585	9558585	11544	4	0	=1	1
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1001	9.581684	9581684	11551	3	0	1	0
1002	9.593238	9593238	11554	4	1	=1	=2
1003	9.604796	9604796	11558	4	0	=1	0
1004	9.616358	9616358	11562	3	=1	1	2
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1010	9.685799	9685799	11582	3	0	2	1
1011	9.697384	9697384	11585	3	2	=5	=7
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1013	9.720566	9720566	11592	4	2	=2	=7
1014	9.732162	9732162	11596	4	0	=1	1
1015	9.743762	9743762	11600	3	=1	1	2
1016	9.755365	9755365	11603	3	0	1	0
1017	9.766971	9766971	11606	4	1	=2	=3
1018	9.778581	9778581	11610	3	=1	2	4
1019	9.790194	9790194	11613	4	1	=2	=4
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1021	9.813431	9813431	11620	4	1	=2	=4
1022	9.825055	9825055	11624	3	=1	1	3
1023	9.836682	9836682	11627	3	0	1	0
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1035	9.976473	9976473	11668	3	0	0	=1
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1039	10.023178	10023178	11682	2	=2	4	6
1040	10.034862	10034862	11684	4	2	=3	=7
1041	10.046550	10046550	11688	3	=1	2	5
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1044	10.081633	10081633	11697	4	2	=3	=7
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1047	10.116746	10116746	11708	2	=2	4	7
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1050	10.151887	10151887	11717	3	0	1	0
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1052	10.175331	10175331	11724	2	=2	4	7
1053	10.187057	10187057	11725	4	2	=4	-8
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1055	10.210519	10210519	11732	4	2	=3	-7
1056	10.222255	10222255	11735	3	=1	1	4
1057	10.233994	10233994	11739	3	0	=1	-2
1058	10.245736	10245736	11742	2	=1	3	4
1059	10.257480	10257480	11744	4	2	=3	-6
1060	10.269228	10269228	11748	3	=1	1	4
1061	10.280979	10280979	11751	3	0	0	-1
1062	10.292733	10292733	11754	3	0	=1	-1
1063	10.304490	10304490	11757	2	=1	3	4
1064	10.316249	10316249	11759	4	2	=4	-7
1065	10.328012	10328012	11763	2	=2	4	8
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1067	10.351546	10351546	11769	2	=2	3	7
1068	10.363317	10363317	11771	3	1	=1	-4
1069	10.375091	10375091	11774	3	0	=1	0
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1071	10.398647	10398647	11779	4	2	=4	-7
1072	10.410430	10410430	11783	2	=2	3	7
1073	10.422215	10422215	11785	3	1	=2	-5
1074	10.434003	10434003	11788	2	=1	2	4
1075	10.445793	10445793	11790	3	1	=1	-3
1076	10.457586	10457586	11793	3	0	=1	0
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1078	10.481180	10481180	11798	3	1	=1	-3
1079	10.492981	10492981	11801	3	0	=1	0
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1081	10.516591	10516591	11805	3	1	=2	-4
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1084	10.552025	10552025	11814	2	=1	2	4
1085	10.563841	10563841	11816	3	1	=2	-4
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1087	10.587481	10587481	11821	3	1	=2	-4

1088	10.599305	10599305	11824	2	=1	2	4
1089	10.611131	10611131	11825	3	1	=3	=5
1090	10.622960	10622960	11829	1	=2	4	7
1091	10.634790	10634790	11830	3	2	=2	=6
1092	10.646623	10646623	11833	3	0	=1	1
1093	10.658459	10658459	11835	2	=1	1	2
1094	10.670297	10670297	11838	2	0	0	=1
1095	10.682137	10682137	11840	2	0	1	1
1096	10.693979	10693979	11842	3	1	=3	=4
1097	10.705824	10705824	11845	1	=2	5	8
1098	10.717670	10717670	11845	4	3	=6	=11
1099	10.729520	10729520	11850	1	=3	4	10
1100	10.741371	10741371	11851	2	1	0	=4
1101	10.753224	10753224	11853	3	1	=3	=3
1102	10.765080	10765080	11855	1	=2	4	7
1103	10.776937	10776937	11857	3	2	=3	=7
1104	10.788797	10788797	11860	2	=1	1	4
1105	10.800659	10800659	11862	2	0	0	=1
1106	10.812523	10812523	11864	2	0	0	0
1107	10.824389	10824389	11865	2	0	0	0
1108	10.836257	10836257	11869	2	0	0	0
1109	10.848127	10848127	11870	2	0	1	1
1110	10.859999	10859999	11872	3	1	=3	=4
1111	10.871874	10871874	11875	1	=2	3	6
1112	10.883750	10883750	11875	2	1	=1	=4
1113	10.895628	10895628	11879	2	0	0	1
1114	10.907508	10907508	11880	2	0	0	0
1115	10.919390	10919390	11882	2	0	=1	=1
1116	10.931274	10931274	11884	1	=1	3	4
1117	10.943159	10943159	11885	3	2	=4	=7
1118	10.955047	10955047	11889	1	=2	4	8
1119	10.966936	10966936	11889	3	2	=4	=8
1120	10.978828	10978828	11892	1	=2	3	7
1121	10.990721	10990721	11893	2	1	=2	=5
1122	11.002616	11002616	11895	1	=1	3	5
1123	11.014512	11014512	11896	3	2	=4	=7
1124	11.026411	11026411	11899	1	=2	3	7
1125	11.038311	11038311	11900	2	1	=1	=4
1126	11.050213	11050213	11902	2	0	=1	0
1127	11.062117	11062117	11904	1	=1	2	3
1128	11.074022	11074022	11905	2	1	=1	=3

1129	11.085929	11085929	11907	2	0	0	1
1130	11.097838	11097838	11909	2	0	0	-1
1131	11.109749	11109749	11911	1	-1	2	3
1132	11.121661	11121661	11912	2	1	-2	-4
1133	11.133575	11133575	11914	1	-1	3	5
1134	11.145490	11145490	11915	3	2	-5	-8
1135	11.157408	11157408	11918	0	-3	6	11
1136	11.169326	11169326	11918	3	3	-5	-11
1137	11.181247	11181247	11921	1	-2	2	7
1138	11.193169	11193169	11922	1	0	1	-1
1139	11.205092	11205092	11923	2	1	-1	-2
1140	11.217017	11217017	11925	2	0	-1	0
1141	11.228944	11228944	11927	1	-1	2	3
1142	11.240872	11240872	11928	2	1	-2	-4
1143	11.252802	11252802	11930	1	-1	2	4
1144	11.264733	11264733	11931	2	1	-2	-4
1145	11.276666	11276666	11933	1	-1	2	4
1146	11.288600	11288600	11934	2	1	-2	-4
1147	11.300536	11300536	11935	1	-1	2	4
1148	11.312473	11312473	11937	2	1	-2	-4
1149	11.324412	11324412	11939	1	-1	2	4
1150	11.336352	11336352	11940	2	1	-2	-4
1151	11.348294	11348294	11942	1	-1	1	3
1152	11.360237	11360237	11943	1	0	2	1
1153	11.372181	11372181	11944	3	2	-5	-7
1154	11.384128	11384128	11947	0	-3	5	10
1155	11.396075	11396075	11947	2	2	-2	-7
1156	11.408024	11408024	11949	2	0	-2	0
1157	11.419975	11419975	11951	0	-2	5	7
1158	11.431926	11431926	11951	3	3	-6	-11
1159	11.443880	11443880	11954	0	-3	6	12
1160	11.455834	11455834	11954	3	3	-6	-12
1161	11.467791	11467791	11957	0	-3	5	11
1162	11.479748	11479748	11957	2	2	-3	-8
1163	11.491707	11491707	11959	1	-1	2	5
1164	11.503667	11503667	11960	2	1	-2	-4
1165	11.515629	11515629	11962	1	-1	2	4
1166	11.527592	11527592	11963	2	1	-2	-4
1167	11.539557	11539557	11965	1	-1	1	3
1168	11.551523	11551523	11965	1	0	1	0
1169	11.563490	11563490	11967	2	1	-2	-3

1170	11.5/5459	11575459	11969	1	=1	1	3
1171	11.587429	11587429	11970	1	0	1	0
1172	11.599400	11599400	11971	2	1	=2	-3
1173	11.611373	11611373	11973	1	=1	2	4
1174	11.623347	11623347	11974	2	1	=3	-5
1175	11.635323	11635323	11975	0	=2	5	8
1176	11.647299	11647299	11975	3	3	=5	=11
1177	11.659278	11659278	11979	0	=3	5	11
1178	11.671257	11671257	11979	2	2	=3	-8
1179	11.683238	11683238	11981	1	=1	2	5
1180	11.695220	11695220	11982	2	1	=2	-4
1181	11.707204	11707204	11984	1	=1	1	3
1182	11.719189	11719189	11985	1	0	1	0
1183	11.731175	11731175	11986	2	1	=2	-3
1184	11.743163	11743163	11988	1	=1	1	3
1185	11.755152	11755152	11989	1	0	0	-1
1186	11.767142	11767142	11990	1	0	1	1
1187	11.779133	11779133	11991	2	1	=2	-3
1188	11.791126	11791126	11993	1	=1	1	3
1189	11.803120	11803120	11994	1	0	1	0
1190	11.815115	11815115	11993	2	1	=2	-3
1191	11.827112	11827112	11997	1	=1	1	3
1192	11.839110	11839110	11998	1	0	0	-1
1193	11.851109	11851109	11995	1	0	0	0
1194	11.863109	11863109	12000	1	0	1	1
1195	11.875110	11875110	12001	2	1	=2	-3
1196	11.887113	11887113	12003	1	=1	1	3
1197	11.899117	11899117	12004	1	0	0	-1
1198	11.911122	11911122	12005	1	0	0	0
1199	11.923128	11923128	12006	1	0	0	0
1200	11.935135	11935135	12007	1	0	1	1
1201	11.947143	11947143	12008	2	1	=3	-4
1202	11.959153	11959153	12010	0	=2	4	7
1203	11.971163	11971163	12010	2	2	=4	-8
1204	11.983175	11983175	12012	0	=2	4	8
1205	11.995187	11995187	12012	2	2	=3	-7
1206	12.007201	12007201	12014	1	=1	0	3
1207	12.019216	12019216	12013	0	=1	3	3
1208	12.031231	12031231	12015	2	2	=4	-7
1209	12.043248	12043248	12017	0	=2	3	7
1210	12.055265	12055265	12017	1	1	0	-3

1211	12.067283	12067283	12013	2	1	-3	-3
1212	12.079303	12079303	12020	0	-2	3	6
1213	12.091323	12091323	12020	1	1	-2	-5
1214	12.103344	12103344	12021	0	-1	3	5
1215	12.115365	12115365	12021	2	2	-4	-7
1216	12.127388	12127388	12023	0	-2	3	7
1217	12.139411	12139411	12023	1	1	-1	-4
1218	12.151435	12151435	12024	1	0	-1	0
1219	12.163460	12163460	12025	0	-1	2	3
1220	12.175485	12175485	12025	1	1	-1	-3
1221	12.187511	12187511	12025	1	0	-1	0
1222	12.199538	12199538	12027	0	-1	2	3
1223	12.211565	12211565	12027	1	1	-1	-3
1224	12.223593	12223593	12029	1	0	-1	0
1225	12.235622	12235622	12029	0	-1	1	2
1226	12.247651	12247651	12029	0	0	1	0
1227	12.259680	12259680	12029	1	1	-2	-3
1228	12.271710	12271710	12030	0	-1	2	4
1229	12.283740	12283740	12030	1	1	-2	-4
1230	12.295771	12295771	12031	0	-1	2	4
1231	12.307802	12307802	12031	1	1	-2	-4
1232	12.319834	12319834	12032	0	-1	1	3
1233	12.331866	12331866	12032	0	0	1	0
1234	12.343898	12343898	12032	1	1	-3	-4
1235	12.355931	12355931	12033	-1	-2	4	7
1236	12.367963	12367963	12032	1	2	-2	-6
1237	12.379996	12379996	12033	1	0	-2	0
1238	12.392030	12392030	12034	-1	-2	4	6
1239	12.404063	12404063	12033	1	2	-3	-7
1240	12.416097	12416097	12034	0	-1	1	4
1241	12.428131	12428131	12034	0	0	0	-1
1242	12.440165	12440165	12034	0	0	0	0
1243	12.452199	12452199	12034	0	0	0	0
1244	12.464233	12464233	12034	0	0	0	0
1245	12.476267	12476267	12034	0	0	0	0
1246	12.488301	12488301	12034	0	0	1	1
1247	12.500335	12500335	12034	1	1	-3	-4
1248	12.512370	12512370	12035	-1	-2	3	6
1249	12.524404	12524404	12034	0	1	0	-3
1250	12.536438	12536438	12034	1	1	-3	-3
1251	12.548473	12548473	12035	-1	-2	3	6

1252	12.560507	12560507	12034	0	1	1	-4
1253	12.572541	12572541	12034	0	0	0	1
1254	12.584575	12584575	12034	0	0	1	-1
1255	12.596609	12596609	12034	1	1	3	4
1256	12.608642	12608642	12033	1	2	4	-7
1257	12.620676	12620676	12034	1	-2	3	7
1258	12.632709	12632709	12033	0	1	1	-4
1259	12.644742	12644742	12033	0	0	0	1
1260	12.656775	12656775	12033	0	0	0	0
1261	12.668808	12668808	12033	0	0	1	-1
1262	12.680841	12680841	12033	1	1	1	3
1263	12.692873	12692873	12032	0	1	1	-3
1264	12.704905	12704905	12032	0	0	0	1
1265	12.716937	12716937	12032	0	0	1	-1
1266	12.728969	12728969	12032	1	1	2	3
1267	12.741000	12741000	12031	0	1	1	-3
1268	12.753031	12753031	12031	0	0	1	0
1269	12.765062	12765062	12031	1	1	2	3
1270	12.777092	12777092	12030	0	1	1	-3
1271	12.789122	12789122	12030	0	0	0	1
1272	12.801152	12801152	12030	0	0	1	-1
1273	12.813182	12813182	12030	1	1	2	3
1274	12.825211	12825211	12029	0	1	1	-4
1275	12.837240	12837240	12029	1	1	2	4
1276	12.849268	12849268	12029	0	1	1	-3
1277	12.861296	12861296	12029	0	0	1	0
1278	12.873324	12873324	12029	1	1	3	4
1279	12.885351	12885351	12027	1	2	5	-8
1280	12.897379	12897379	12029	2	3	5	10
1281	12.909405	12909405	12025	0	2	2	-7
1282	12.921431	12921431	12025	0	0	0	2
1283	12.933457	12933457	12025	0	0	1	1
1284	12.945483	12945483	12025	1	1	1	3
1285	12.957508	12957508	12025	0	1	2	-4
1286	12.969533	12969533	12025	1	1	2	4
1287	12.981557	12981557	12024	0	1	2	-4
1288	12.993581	12993581	12024	1	1	2	4
1289	13.005604	13005604	12023	0	1	1	-3
1290	13.017627	13017627	12023	0	0	1	0
1291	13.029650	13029650	12023	1	1	2	3
1292	13.041672	13041672	12022	0	1	2	-4

1293	13.053694	13053694	12022	=1	=1	2	4
1294	13.065715	13065715	12021	0	1	=2	=4
1295	13.077736	13077736	12021	=1	=1	2	4
1296	13.089756	13089756	12020	0	1	=1	=3
1297	13.101776	13101776	12020	0	0	=1	0
1298	13.113796	13113796	12020	=1	=1	1	2
1299	13.125815	13125815	12019	=1	0	2	1
1300	13.137833	13137833	12019	1	2	=5	=7
1301	13.149852	13149852	12019	=2	=3	5	11
1302	13.161869	13161869	12017	1	3	=6	=12
1303	13.173887	13173887	12018	=2	=3	6	12
1304	13.185903	13185903	12015	1	3	=6	=12
1305	13.197920	13197920	12017	=2	=3	6	12
1306	13.209935	13209935	12015	1	3	=5	=11
1307	13.221951	13221951	12015	=1	=2	2	7
1308	13.233966	13233966	12015	=1	0	1	=1
1309	13.245980	13245980	12014	0	1	=2	=3
1310	13.257994	13257994	12014	=1	=1	2	4
1311	13.270007	13270007	12013	0	1	=1	=3
1312	13.282020	13282020	12013	0	0	=1	0
1313	13.294033	13294033	12013	0	=1	=1	2
1314	13.306045	13306045	12012	=1	0	1	0
1315	13.318056	13318056	12011	0	1	=1	=2
1316	13.330067	13330067	12011	0	0	=1	0
1317	13.342078	13342078	12011	=1	=1	1	2
1318	13.354088	13354088	12010	=1	0	1	0
1319	13.366097	13366097	12009	0	1	=1	=3
1320	13.378106	13378106	12009	0	=1	=2	4
1321	13.390114	13390114	12008	=1	1	2	=3
1322	13.402122	13402122	12008	0	0	=1	0
1323	13.414130	13414130	12008	0	=1	1	2
1324	13.426137	13426137	12007	=1	0	1	0
1325	13.438143	13438143	12005	=1	1	1	=2
1326	13.450149	13450149	12005	0	0	=1	0
1327	13.462155	13462155	12005	0	0	=1	2
1328	13.474160	13474160	12005	=1	0	1	0
1329	13.486164	13486164	12004	=1	1	1	=3
1330	13.498168	13498168	12004	0	=1	=2	4
1331	13.510171	13510171	12003	=1	=1	2	=3
1332	13.522174	13522174	12003	0	1	=1	=3
1333	13.534177	13534177	12003	0	0	=2	=1
			12003	=2	=2	5	7

1334	13.546178	13546178	12001	1	5	=5	=10
1335	13.558180	13558180	12002	=1	=2	2	7
1336	13.570181	13570181	12001	=1	0	1	-1
1337	13.582181	13582181	12000	0	1	=2	=3
1338	13.594181	13594181	12000	=1	=1	2	4
1339	13.606180	13606180	11999	0	1	=2	-4
1340	13.618179	13618179	11999	=1	=1	2	4
1341	13.630177	13630177	11998	0	1	=2	-4
1342	13.642175	13642175	11998	=1	=1	1	3
1343	13.654172	13654172	11997	=1	0	2	1
1344	13.666168	13666168	11996	1	2	=5	-7
1345	13.678165	13678165	11997	-2	=3	5	10
1346	13.690160	13690160	11995	0	2	=2	-7
1347	13.702155	13702155	11995	0	0	=1	1
1348	13.714150	13714150	11997	=1	=1	1	2
1349	13.726144	13726144	11994	=1	0	1	0
1350	13.738137	13738137	11993	0	1	=2	=3
1351	13.750130	13750130	11993	0	=1	2	4
1352	13.762122	13762122	11992	-1	1	=2	-4
1353	13.774114	13774114	11992	0	=1	2	4
1354	13.786105	13786105	11991	-1	1	=2	-4
1355	13.798096	13798096	11991	0	=1	2	4
1356	13.810088	13810088	11990	-1	1	=2	-4
1357	13.822076	13822076	11990	0	=1	2	4
1358	13.834065	13834065	11989	=1	1	=2	-4
1359	13.846054	13846054	11989	0	=1	1	3
1360	13.858042	13858042	11989	-1	0	1	0
1361	13.870029	13870029	11987	=1	1	=2	=3
1362	13.882016	13882016	11987	0	=1	2	4
1363	13.894002	13894002	11986	-1	1	=2	-4
1364	13.905988	13905988	11985	0	=1	2	4
1365	13.917973	13917973	11985	-1	1	=2	-4
1366	13.929958	13929958	11985	0	-1	2	4
1367	13.941942	13941942	11984	-1	1	2	-4
1368	13.953926	13953926	11984	0	=1	=2	3
1369	13.965909	13965909	11983	-1	0	1	0
1370	13.977891	13977891	11982	=1	1	=2	-3
1371	13.989873	13989873	11982	0	=1	2	4
1372	14.001854	14001854	11981	-1	1	=2	-4
1373	14.013835	14013835	11981	0	=1	2	4
1374	14.025815	14025815	11980	=1	1	=2	-4

1375	14.037795	14037795	11980	-1	=1	2	4
1376	14.049774	14049774	11979	0	1	=2	-4
1377	14.061753	14061753	11979	-1	=1	1	3
1378	14.073731	14073731	11979	-1	0	1	0
1379	14.085708	14085708	11977	0	1	=1	-2
1380	14.097685	14097685	11977	0	0	=2	=1
1381	14.109662	14109662	11977	-2	=2	5	7
1382	14.121637	14121637	11975	1	3	=6	=11
1383	14.133613	14133613	11975	-2	=3	5	11
1384	14.145587	14145587	11974	0	2	=2	=7
1385	14.157561	14157561	11974	0	0	=1	1
1386	14.169535	14169535	11974	-1	=1	1	2
1387	14.181508	14181508	11973	-1	0	1	0
1388	14.193480	14193480	11972	0	1	=2	-3
1389	14.205452	14205452	11972	-1	=1	2	4
1390	14.217423	14217423	11971	0	1	=2	-4
1391	14.229394	14229394	11971	-1	=1	2	4
1392	14.241364	14241364	11970	0	1	=2	-4
1393	14.253334	14253334	11970	=1	=1	1	3
1394	14.265303	14265303	11969	=1	0	1	0
1395	14.277271	14277271	11969	0	1	=1	=2
1396	14.289239	14289239	11969	0	0	=2	-1
1397	14.301207	14301207	11969	=2	=2	5	7
1398	14.313173	14313173	11965	1	3	=6	=11
1399	14.325140	14325140	11967	=2	=3	5	11
1400	14.337105	14337105	11965	0	2	=2	=7
1401	14.349070	14349070	11965	0	0	=1	1
1402	14.361035	14361035	11965	=1	=1	1	2
1403	14.372999	14372999	11964	-1	0	1	0
1404	14.384962	14384962	11963	0	1	=2	-3
1405	14.396925	14396925	11963	=1	=1	1	3
1406	14.408887	14408887	11962	=1	0	1	0
1407	14.420848	14420848	11961	0	1	=1	=2
1408	14.432809	14432809	11961	0	0	=1	0
1409	14.444770	14444770	11961	-1	=1	1	2
1410	14.456730	14456730	11960	-1	0	0	-1
1411	14.468689	14468689	11959	-1	0	1	1
1412	14.480647	14480647	11959	0	1	=1	=2
1413	14.492605	14492605	11959	0	0	=1	0
1414	14.504563	14504563	11958	-1	-1	1	2
1415	14.516520	14516520	11957	-1	0	0	-1

1416	14.528476	14528476	11955	=1	0	1	1
1417	14.540431	14540431	11955	0	1	=1	-2
1418	14.552386	14552386	11955	0	0	=1	0
1419	14.564341	14564341	11955	-1	=1	1	2
1420	14.576295	14576295	11954	-1	0	0	=1
1421	14.588248	14588248	11953	-1	0	1	1
1422	14.600200	14600200	11952	0	1	=1	-2
1423	14.612152	14612152	11952	0	0	=2	-1
1424	14.624104	14624104	11952	-2	=2	4	6
1425	14.636054	14636054	11950	0	2	=2	-6
1426	14.648004	14648004	11950	0	0	=1	1
1427	14.659954	14659954	11950	-1	=1	1	2
1428	14.671903	14671903	11949	-1	0	0	=1
1429	14.683851	14683851	11948	-1	0	1	1
1430	14.695798	14695798	11947	0	1	=1	-2
1431	14.707745	14707745	11947	0	0	=2	-1
1432	14.719692	14719692	11947	-2	=2	4	6
1433	14.731637	14731637	11945	0	2	=3	-7
1434	14.743582	14743582	11945	-1	=1	2	5
1435	14.755526	14755526	11944	0	1	=2	-4
1436	14.767470	14767470	11944	-1	=1	1	3
1437	14.779413	14779413	11943	-1	0	1	0
1438	14.791355	14791355	11942	0	1	=2	-3
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1440	14.815238	14815238	11941	-1	0	1	0
1441	14.827178	14827178	11940	0	1	=2	-3
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1443	14.851057	14851057	11939	-1	0	1	0
1444	14.862995	14862995	11939	0	1	=3	-4
1445	14.874933	14874933	11938	-2	-2	5	8
1446	14.886869	14886869	11935	1	3	=6	-11
1447	14.898806	14898806	11937	-2	=3	5	11
1448	14.910741	14910741	11935	0	2	-3	-8
1449	14.922676	14922676	11935	-1	=1	1	4
1450	14.934610	14934610	11934	-1	0	1	0
1451	14.946543	14946543	11933	0	1	=2	-3
1452	14.958476	14958476	11933	-1	=1	1	3
1453	14.970408	14970408	11932	-1	0	1	0
1454	14.982339	14982339	11931	0	1	=2	-3
1455	14.994270	14994270	11931	-1	=1	1	3
1456	15.006200	15006200	11930	-1	0	0	-1

1457	15.018129	15018129	11929	=1	0	1	1
1458	15.030057	15030057	11923	0	1	-2	=3
1459	15.041985	15041985	11923	=1	=1	1	3
1460	15.053912	15053912	11927	-1	0	1	0
1461	15.065838	15065838	11926	0	1	-2	=3
1462	15.077764	15077764	11926	-1	=1	1	3
1463	15.089689	15089689	11923	-1	0	0	=1
1464	15.101613	15101613	11924	-1	0	1	1
1465	15.113536	15113536	11923	0	1	-2	=3
1466	15.125459	15125459	11923	-1	=1	1	3
1467	15.137381	15137381	11922	-1	0	0	=1
1468	15.149302	15149302	11921	-1	0	0	1
1469	15.161222	15161222	11920	0	1	-2	=3
1470	15.173142	15173142	11920	-1	=1	1	3
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1472	15.196979	15196979	11918	0	1	-2	=3
1473	15.208897	15208897	11918	-1	-1	1	3
1474	15.220814	15220814	11917	-1	0	0	=1
1475	15.232730	15232730	11916	=1	0	1	1
1476	15.244645	15244645	11915	0	1	=3	-4
1477	15.256560	15256560	11915	=2	-2	4	7
1478	15.268473	15268473	11915	0	2	=2	=6
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1480	15.292299	15292299	11915	=2	-2	4	6
1481	15.304210	15304210	11911	0	2	=3	-7
1482	15.316121	15316121	11911	-1	=1	2	5
1483	15.328031	15328031	11910	0	1	=3	=5
1484	15.339941	15339941	11910	=2	=2	4	7
1485	15.351849	15351849	11908	0	2	=3	-7
1486	15.363757	15363757	11908	-1	=1	2	5
1487	15.375664	15375664	11907	0	1	=3	=5
1488	15.387571	15387571	11907	-2	=2	4	7
1489	15.399476	15399476	11903	0	2	=3	=7
1490	15.411381	15411381	11905	-1	=1	2	5
1491	15.423285	15423285	11904	0	1	=3	=5
1492	15.435189	15435189	11904	-2	-2	4	7
1493	15.447091	15447091	11902	0	2	=3	-7
1494	15.458993	15458993	11902	-1	=1	1	4
1495	15.470894	15470894	11901	-1	0	0	=1
1496	15.482794	15482794	11900	-1	0	1	1

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1499	15.518490	15518490	11898	-1	0	0	=1
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1502	15.554178	15554178	11895	0	1	=2	=3
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1521	15.780034	15780034	11879	0	2	=3	=7
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1531	15.898782	15898782	11871	-1	0	0	=1
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1560	16.242644	16242644	11844	0	2	=3	-7
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1562	16.266331	16266331	11843	-1	0	0	=1
1563	16.278173	16278173	11842	-1	0	0	0
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1570	16.361041	16361041	11835	0	2	=3	-7
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1572	16.384710	16384710	11834	=1	0	0	-1
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1583	16.514821	16514821	11824	-2	=1	3	3
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1586	16.550286	16550286	11821	-1	0	=1	-2
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1591	16.609375	16609375	11815	-1	0	0	0
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1593	16.633004	16633004	11814	-1	0	0	0
1594	16.644817	16644817	11813	-1	0	0	0
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1601	16.727481	16727481	11805	-1	1	=1	-4
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1610	16.833689	16833689	11797	-1	0	=1	-2
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1615	16.892657	16892657	11791	0	2	=4	-7
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1617	16.916237	16916237	11789	-1	1	=1	-4
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1663	17.457346	17457346	11738	-1	0	1	-1
1664	17.469083	17469083	11737	-2	-1	2	3
1665	17.480818	17480818	11735	1	1	0	-2
1666	17.492552	17492552	11734	0	1	-3	-3
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1668	17.516018	17516018	11732	-1	1	-2	5
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1670	17.539478	17539478	11729	0	2	-4	-7
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1672	17.562934	17562934	11727	0	2	-4	-8
1673	17.574661	17574661	11727	-2	-2	3	7
1674	17.586386	17586386	11725	-1	1	-2	-5
1675	17.598110	17598110	11724	-2	1	3	5
1676	17.609832	17609832	11722	0	2	-3	-6
1677	17.621554	17621554	11722	-1	1	0	3
1678	17.633274	17633275	11721	-2	1	2	2
1679	17.644994	17644994	11719	1	1	-1	-3
1680	17.656712	17656712	11718	-1	0	0	1
1681	17.668429	17668429	11717	-1	0	0	-1
1682	17.680145	17680145	11716	-2	1	3	4
1683	17.691859	17691859	11716	0	2	-4	-7
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1687	17.738706	17738706	11710	-1	0	0	0
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1689	17.762123	17762123	11708	-2	1	3	4
1690	17.773829	17773829	11705	0	2	-4	-7
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1692	17.797239	17797239	11704	-1	1	-2	-5
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1694	17.820643	17820643	11701	0	2	4	-7
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1698	17.867439	17867439	11697	-1	1	-2	-5
1699	17.879135	17879135	11696	-2	1	3	5
1700	17.890829	17890829	11694	0	2	4	-7
1701	17.902523	17902523	11694	-2	2	3	7

1702	17.914215	17914215	11692	-1	1	=1	=4
1703	17.925906	17925906	11691	-1	0	0	1
1704	17.937596	17937596	11690	-1	0	=1	=1
1705	17.949285	17949285	11689	-2	=1	2	3
1706	17.960972	17960972	11687	-1	1	0	=2
1707	17.972658	17972658	11685	0	1	=3	=3
1708	17.984344	17984344	11685	-2	=2	2	5
1709	17.996028	17996028	11684	-2	0	2	0
1710	18.007710	18007710	11682	0	2	=4	=6
1711	18.019392	18019392	11682	-2	=2	3	7
1712	18.031072	18031072	11680	-1	1	=1	=4
1713	18.042751	18042751	11679	-1	0	0	1
1714	18.054429	18054429	11679	-1	0	0	0
1715	18.066106	18066106	11677	-1	0	=1	=1
1716	18.077782	18077782	11675	=2	=1	2	3
1717	18.089456	18089456	11674	-1	1	=1	=3
1718	18.101129	18101129	11673	-1	0	0	1
1719	18.112801	18112801	11672	-1	0	0	=1
1720	18.124472	18124472	11671	-2	=1	3	4
1721	18.136141	18136141	11669	0	2	=4	=7
1722	18.147810	18147810	11669	=2	=2	3	7
1723	18.159477	18159477	11667	-1	1	=1	=4
1724	18.171143	18171143	11665	-1	0	=1	0
1725	18.182808	18182808	11665	=2	=1	3	4
1726	18.194471	18194471	11663	0	2	=4	=7
1727	18.206134	18206134	11663	-2	=2	3	7
1728	18.217795	18217795	11661	-1	1	=1	=4
1729	18.229455	18229455	11660	-1	0	0	1
1730	18.241114	18241114	11659	-1	0	=1	=1
1731	18.252772	18252772	11658	=2	=1	2	3
1732	18.264428	18264428	11655	-1	1	=1	=3
1733	18.276083	18276083	11655	-1	0	0	1
1734	18.287737	18287737	11654	-1	0	0	0
1735	18.299390	18299390	11653	-1	0	0	=1
1736	18.311042	18311042	11652	=2	=1	3	4
1737	18.322692	18322692	11650	0	2	=4	=7
1738	18.334342	18334342	11650	=2	=2	3	7
1739	18.345990	18345990	11649	-1	1	=2	=5
1740	18.357637	18357637	11647	=2	-1	3	5
1741	18.369282	18369282	11645	0	2	=4	=7
1742	18.380927	18380927	11643	-2	=2	3	7

1743	18.392570	18392570	11643	*	1	*	-4
1744	18.404212	18404212	11642	*	0	0	1
1745	18.415853	18415853	11641	*	0	*	-1
1746	18.427493	18427493	11640	**	*	3	4
1747	18.439131	18439131	11639	U	2	*	-7
1748	18.450769	18450769	11638	**	-2	3	7
1749	18.462405	18462405	11635	*	1	**	-5
1750	18.474040	18474040	11635	**	*	3	5
1751	18.485673	18485673	11633	U	2	*	-7
1752	18.497306	18497306	11633	**	-2	3	7
1753	18.508937	18508937	11631	*	1	*	-4
1754	18.520567	18520567	11630	*	0	0	1
1755	18.532196	18532196	11629	*	0	*	-1
1756	18.543824	18543824	11628	**	*	3	4
1757	18.555450	18555450	11625	U	2	*	-7
1758	18.567076	18567076	11625	**	-2	3	7
1759	18.578700	18578700	11624	*	1	*	-4
1760	18.590323	18590323	11623	*	0	*	0
1761	18.601945	18601945	11622	**	*	2	3
1762	18.613565	18613565	11620	*	1	*	-3
1763	18.625184	18625184	11619	*	0	0	1
1764	18.636802	18636802	11618	*	0	0	0
1765	18.648419	18648419	11617	*	0	0	0
1766	18.660035	18660035	11615	*	0	*	-1
1767	18.671650	18671650	11613	**	*	2	3
1768	18.683263	18683263	11613	*	1		
1769	18.694875	18694875	11612				

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