

**MAXIMUM TEMPERATURE RANGE**

**Thermocouple Grade**

32 to 3092°F  
0 to 1700°C

**Extension Grade**

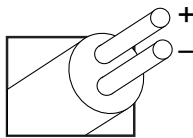
32 to 212°F  
0 to 100°C

**LIMITS OF ERROR**

(whichever is greater)  
**Standard:** 0.5°C over 800°C  
**Special:** NOT ESTABLISHED

**COMMENTS, BARE WIRE ENVIRONMENT:**  
Oxidizing or Inert; Do Not Insert in Metal Tubes;  
Beware of Contamination; High Temperature;  
Common Use in Glass Industry

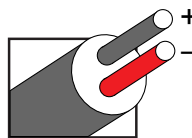
**TEMPERATURE IN DEGREES °F**  
**REFERENCE JUNCTION AT 32°F**



**Thermocouple Grade**

NONE ESTABLISHED

**Platinum-30% Rhodium**  
**vs.**  
**Platinum-6% Rhodium**



**Extension Grade**

**Revised Thermocouple Reference Tables**

**TYPE**  
**Reference Tables**  
**N.I.S.T.**  
**Monograph 175**  
**Revised to**  
**ITS-90**



**Thermoelectric Voltage in Millivolts**

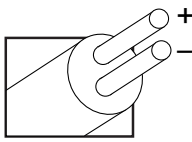
°F	0	1	2	3	4	5	6	7	8	9	10	°F
30			0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	30
40	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	40
50	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	50
60	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	60
70	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	70
80	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	80
90	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	90
100	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	100
110	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	110
120	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	120
130	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	130
140	0.006	0.006	0.007	0.007	0.007	0.007	0.008	0.008	0.008	0.009	0.009	140
150	0.009	0.009	0.009	0.010	0.010	0.010	0.011	0.011	0.011	0.012	0.012	150
160	0.012	0.012	0.013	0.013	0.013	0.014	0.014	0.015	0.015	0.015	0.016	160
170	0.015	0.016	0.016	0.016	0.017	0.017	0.018	0.018	0.019	0.019	0.019	170
180	0.019	0.019	0.020	0.020	0.021	0.021	0.022	0.022	0.023	0.023	0.023	180
190	0.023	0.023	0.024	0.024	0.025	0.025	0.026	0.026	0.027	0.027	0.027	190
200	0.027	0.028	0.028	0.029	0.029	0.030	0.030	0.031	0.031	0.032	0.032	200
210	0.032	0.033	0.033	0.034	0.034	0.035	0.035	0.036	0.036	0.037	0.037	210
220	0.037	0.038	0.038	0.039	0.039	0.040	0.041	0.041	0.042	0.042	0.043	220
230	0.043	0.043	0.044	0.044	0.045	0.046	0.046	0.047	0.048	0.048	0.049	230
240	0.049	0.049	0.050	0.050	0.051	0.052	0.052	0.053	0.053	0.054	0.055	240
250	0.055	0.055	0.056	0.057	0.057	0.058	0.059	0.059	0.060	0.060	0.061	250
260	0.061	0.062	0.062	0.063	0.064	0.065	0.065	0.066	0.067	0.068	0.068	260
270	0.068	0.069	0.069	0.070	0.071	0.072	0.072	0.073	0.074	0.075	0.075	270
280	0.075	0.076	0.077	0.077	0.078	0.079	0.080	0.080	0.081	0.082	0.083	280
290	0.083	0.083	0.084	0.085	0.086	0.086	0.087	0.088	0.089	0.090	0.090	290
300	0.090	0.091	0.092	0.093	0.094	0.094	0.095	0.096	0.097	0.098	0.099	300
310	0.099	0.099	0.100	0.101	0.102	0.103	0.104	0.105	0.105	0.106	0.107	310
320	0.107	0.108	0.109	0.110	0.111	0.112	0.112	0.113	0.114	0.115	0.116	320
330	0.116	0.117	0.118	0.119	0.120	0.121	0.121	0.122	0.123	0.124	0.125	330
340	0.125	0.126	0.127	0.128	0.129	0.130	0.131	0.132	0.133	0.134	0.135	340
350	0.135	0.136	0.137	0.138	0.139	0.140	0.141	0.142	0.143	0.144	0.145	350
360	0.145	0.146	0.147	0.148	0.149	0.150	0.151	0.152	0.153	0.154	0.155	360
370	0.155	0.156	0.157	0.158	0.159	0.160	0.161	0.162	0.163	0.164	0.165	370
380	0.165	0.166	0.167	0.168	0.170	0.171	0.172	0.173	0.174	0.175	0.176	380
390	0.176	0.177	0.178	0.179	0.180	0.182	0.183	0.184	0.185	0.186	0.187	390
400	0.187	0.188	0.190	0.191	0.192	0.193	0.194	0.195	0.196	0.198	0.199	400
410	0.199	0.200	0.201	0.202	0.203	0.205	0.206	0.207	0.208	0.209	0.211	410
420	0.211	0.212	0.213	0.214	0.215	0.217	0.218	0.219	0.220	0.222	0.223	420
430	0.223	0.224	0.225	0.226	0.228	0.229	0.230	0.231	0.233	0.234	0.235	430
440	0.235	0.236	0.238	0.239	0.240	0.242	0.243	0.244	0.245	0.247	0.248	440
450	0.248	0.249	0.251	0.252	0.253	0.255	0.256	0.257	0.259	0.260	0.261	450
460	0.261	0.263	0.264	0.265	0.267	0.268	0.269	0.271	0.272	0.273	0.275	460
470	0.275	0.276	0.277	0.279	0.280	0.282	0.283	0.284	0.286	0.287	0.288	470
480	0.288	0.290	0.291	0.293	0.294	0.296	0.297	0.298	0.300	0.301	0.303	480
490	0.303	0.304	0.305	0.307	0.308	0.310	0.311	0.313	0.314	0.316	0.317	490
500	0.317	0.319	0.320	0.321	0.323	0.324	0.326	0.327	0.329	0.330	0.332	500
510	0.332	0.333	0.335	0.336	0.338	0.339	0.341	0.342	0.344	0.345	0.347	510
520	0.347	0.348	0.350	0.352	0.353	0.355	0.356	0.358	0.359	0.361	0.362	520
530	0.362	0.364	0.365	0.367	0.369	0.370	0.372	0.373	0.375	0.377	0.378	530
540	0.378	0.380	0.381	0.383	0.384	0.386	0.388	0.389	0.391	0.393	0.394	540
550	0.394	0.396	0.397	0.399	0.401	0.402	0.404	0.406	0.407	0.409	0.411	550
560	0.411	0.412	0.414	0.416	0.417	0.419	0.421	0.422	0.424	0.426	0.427	560
570	0.427	0.429	0.431	0.432	0.434	0.436	0.437	0.439	0.441	0.443	0.444	570
580	0.444	0.446	0.448	0.449	0.451	0.453	0.455	0.456	0.458	0.460	0.462	580
590	0.462	0.463	0.465	0.467	0.469	0.470	0.472	0.474	0.476	0.478	0.479	590
°F	0	1	2	3	4	5	6	7	8	9	10	°F

°F	0	1	2	3	4	5	6	7	8	9	10	°F
600	0.479	0.481	0.483	0.485	0.486	0.488	0.490	0.492	0.494	0.495	0.497	600
610	0.497	0.499	0.501	0.503	0.505	0.506	0.508	0.510	0.512	0.514	0.516	610
620	0.516	0.517	0.519	0.521	0.523	0.525	0.527	0.529	0.530	0.532	0.534	620
630	0.534	0.536	0.538	0.540	0.542	0.544	0.546	0.547	0.549	0.551	0.553	630
640	0.553	0.555	0.557	0.559	0.561	0.563	0.565	0.567	0.569	0.570	0.572	640
650	0.572	0.574	0.576	0.578	0.580	0.582	0.584	0.586	0.588	0.590	0.592	650
660	0.592	0.594	0.596	0.598	0.600	0.602	0.604	0.606	0.608	0.610	0.612	660
670	0.612	0.614	0.616	0.618	0.620	0.622	0.624	0.626	0.628	0.630	0.632	670
680	0.632	0.634	0.636	0.638	0.640	0.642	0.644	0.646	0.648	0.650	0.653	680
690	0.653	0.655	0.657	0.659	0.661	0.663	0.665	0.667	0.669	0.671	0.673	690
700	0.673	0.675	0.678	0.680	0.682	0.684	0.686	0.688	0.690	0.692	0.694	700
710	0.694	0.697	0.699	0.701	0.703	0.705	0.707	0.709	0.712	0.714	0.716	710
720	0.716	0.718	0.720	0.722	0.725	0.727	0.729	0.731	0.733	0.735	0.738	720
730	0.738	0.740	0.742	0.744	0.746	0.749	0.751	0.753	0.755	0.757	0.760	730
740	0.760	0.762	0.764	0.766	0.769	0.771	0.773	0.775	0.778	0.780	0.782	740
750	0.782	0.784	0.787	0.789	0.791	0.793	0.796	0.798	0.800	0.802	0.805	750
760	0.805	0.807	0.809	0.812	0.814	0.816	0.818	0.821	0.823	0.825	0.828	760
770	0.828	0.830	0.832	0.835	0.837	0.839	0.842	0.844	0.846	0.849	0.851	770
780	0.851	0.853	0.856	0.858	0.860	0.863	0.865	0.867	0.870	0.872	0.875	780
790	0.875	0.877	0.879	0.882	0.884	0.886	0.889	0.891	0.894	0.896	0.898	790
800	0.898	0.901	0.903	0.906	0.908	0.910	0.913	0.915	0.918	0.920	0.923	800
810	0.923	0.925	0.927	0.930	0.932	0.935	0.937	0.940	0.942	0.945	0.947	810
820	0.947	0.950	0.952	0.955	0.957	0.959	0.962	0.964	0.967	0.969	0.972	820
830	0.972	0.974	0.977	0.979	0.982	0.984	0.987	0.989	0.992	0.994	0.997	830
840	0.997	1.000	1.002	1.005	1.007	1.010	1.012	1.015	1.017	1.020	1.022	840
850	1.022	1.025	1.027	1.030	1.033	1.035	1.038	1.040	1.043	1.045	1.048	850
860	1.048	1.051	1.053	1.056	1.058	1.061	1.064	1.				

# Revised Thermocouple Reference Tables

## TYPE B

Reference Tables  
N.I.S.T.  
Monograph 175  
Revised to ITS-90

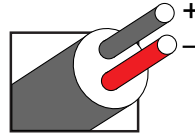


Thermocouple Grade

NONE ESTABLISHED

Platinum-30% Rhodium  
vs.  
Platinum-6% Rhodium

Extension Grade



MAXIMUM TEMPERATURE RANGE

Thermocouple Grade

32 to 3092°F

0 to 1700°C

Extension Grade

32 to 212°F

0 to 100°C

LIMITS OF ERROR

(whichever is greater)

Standard: 0.5°C over 800°C

Special: NOT ESTABLISHED

COMMENTS, BARE WIRE ENVIRONMENT:  
Oxidizing or Inert; Do NOT Insert in Metal Tubes;  
Beware of Contamination; High Temperature;  
Common Use in Glass Industry

TEMPERATURE IN DEGREES °F  
REFERENCE JUNCTION AT 32°F

Thermoelectric Voltage in Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F	1800	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820				
1200	2.094	2.097	2.101	2.104	2.108	2.111	2.115	2.118	2.122	2.126	2.129	1200	1800	4.673	4.678	4.683	4.688	4.693	4.698	4.703	4.708	4.713	4.718	4.723	1800	4.875	4.880	4.885	4.890	4.895	4.900	4.905	4.911	4.916	4.921	4.926	1840
1210	2.129	2.133	2.136	2.140	2.143	2.147	2.151	2.154	2.158	2.161	2.165	1210	1810	4.724	4.728	4.733	4.738	4.743	4.748	4.754	4.759	4.764	4.769	4.774	1810	4.876	4.881	4.886	4.891	4.896	4.901	4.906	4.911	4.916	4.921	4.926	1840
1220	2.165	2.169	2.172	2.176	2.179	2.183	2.187	2.190	2.194	2.197	2.201	1220	1820	4.774	4.779	4.784	4.789	4.794	4.799	4.804	4.809	4.814	4.819	4.824	1820	4.877	4.882	4.887	4.892	4.897	4.902	4.907	4.912	4.917	4.922	4.927	1840
1230	2.201	2.205	2.208	2.212	2.216	2.219	2.223	2.226	2.230	2.234	2.237	1230	1830	4.824	4.829	4.834	4.839	4.844	4.850	4.855	4.860	4.865	4.870	4.875	1830	4.878	4.883	4.888	4.893	4.898	4.903	4.908	4.913	4.918	4.923	4.928	1840
1240	2.237	2.241	2.245	2.248	2.252	2.256	2.259	2.263	2.267	2.270	2.274	1240	1840	4.875	4.880	4.885	4.890	4.895	4.900	4.905	4.911	4.916	4.921	4.926	1840	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1250	2.274	2.278	2.281	2.285	2.289	2.292	2.296	2.300	2.303	2.307	2.311	1250	1850	4.926	4.931	4.936	4.941	4.946	4.951	4.957	4.962	4.967	4.972	4.977	1850	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1260	2.311	2.315	2.318	2.322	2.326	2.329	2.333	2.337	2.341	2.344	2.348	1260	1860	4.977	4.982	4.987	4.992	4.998	5.003	5.008	5.013	5.018	5.023	5.028	1860	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1270	2.348	2.352	2.355	2.359	2.363	2.367	2.370	2.374	2.378	2.382	2.385	1270	1870	5.028	5.034	5.039	5.044	5.049	5.054	5.059	5.065	5.070	5.075	5.080	1870	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1280	2.385	2.389	2.393	2.397	2.400	2.404	2.408	2.412	2.416	2.419	2.423	1280	1880	5.080	5.085	5.090	5.096	5.101	5.106	5.111	5.116	5.121	5.127	5.132	1880	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1290	2.423	2.427	2.431	2.434	2.438	2.442	2.446	2.450	2.453	2.457	2.461	1290	1890	5.132	5.137	5.142	5.147	5.153	5.158	5.163	5.168	5.173	5.179	5.184	1890	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1300	2.461	2.465	2.469	2.472	2.476	2.480	2.484	2.488	2.492	2.495	2.499	1300	1900	5.184	5.189	5.194	5.199	5.205	5.210	5.215	5.220	5.225	5.231	5.236	1900	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1310	2.499	2.503	2.507	2.511	2.515	2.518	2.522	2.526	2.530	2.534	2.538	1310	1910	5.236	5.241	5.246	5.252	5.257	5.262	5.267	5.273	5.278	5.283	5.288	1910	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1320	2.538	2.541	2.545	2.549	2.553	2.557	2.561	2.565	2.569	2.572	2.576	1320	1920	5.288	5.294	5.299	5.304	5.309	5.315	5.320	5.325	5.330	5.336	5.341	1920	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1330	2.576	2.580	2.584	2.588	2.592	2.596	2.600	2.604	2.607	2.611	2.615	1330	1930	5.341	5.346	5.351	5.357	5.362	5.367	5.373	5.378	5.383	5.388	5.394	1930	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1340	2.615	2.619	2.623	2.627	2.631	2.635	2.639	2.643	2.647	2.651	2.654	1340	1940	5.394	5.399	5.404	5.410	5.415	5.420	5.425	5.431	5.436	5.441	5.447	1940	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1350	2.654	2.658	2.662	2.666	2.670	2.674	2.678	2.682	2.686	2.690	2.694	1350	1950	5.447	5.452	5.457	5.463	5.468	5.473	5.479	5.484	5.489	5.495	5.500	1950	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1360	2.694	2.698	2.702	2.706	2.710	2.714	2.718	2.722	2.726	2.730	2.734	1360	1960	5.500	5.505	5.511	5.516	5.521	5.527	5.532	5.537	5.543	5.548	5.553	1960	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1370	2.734	2.738	2.742	2.746	2.750	2.754	2.758	2.762	2.766	2.770	2.774	1370	1970	5.553	5.559	5.564	5.569	5.575	5.580	5.585	5.591	5.596	5.601	5.607	1970	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1380	2.774	2.778	2.782	2.786	2.790	2.794	2.798	2.802	2.806	2.810	2.814	1380	1980	5.607	5.612	5.618	5.623	5.628	5.634	5.639	5.644	5.650	5.655	5.661	1980	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1390	2.814	2.818	2.822	2.826	2.830	2.834	2.838	2.842	2.846	2.850	2.854	1390	1990	5.661	5.666	5.671	5.677	5.682	5.688	5.693	5.698	5.704	5.709	5.715	1990	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1400	2.854	2.859	2.863	2.867	2.871	2.875	2.879	2.883	2.887	2.891	2.895	1400	2000	5.715	5.720	5.725	5.731	5.736	5.742	5.747	5.752	5.758	5.763	5.769	2000	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1410	2.895	2.899	2.903	2.908	2.912	2.916	2.920	2.924	2.928	2.932	2.936	1410	2010	5.769	5.774	5.778	5.785	5.790	5.796	5.801	5.807	5.812	5.818	5.823	2010	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1420	2.936	2.940	2.944	2.949	2.953	2.957	2.961	2.965	2.969	2.973	2.978	1420	2020	5.823	5.828	5.834	5.839	5.845	5.850	5.856	5.861	5.867	5.872	5.878	2020	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1430	2.978	2.982	2.986	2.990	2.994	2.998	3.002	3.006	3.011	3.015	3.019	1430	2030	5.878	5.883	5.888	5.894	5.899	5.905	5.910	5.916	5.921	5.927	5.932	2030	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1440	3.019	3.023	3.027	3.032	3.036	3.040	3.044	3.048	3.052	3.057	3.061	1440	2040	5.932	5.938	5.943	5.949	5.954	5.960	5.965	5.971	5.976	5.982	5.987	2040	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1450	3.061	3.065	3.069	3.073	3.078	3.082	3.086	3.090	3.094	3.099	3.103	1450	2050	5.987	5.993	5.998	6.004	6.009	6.015	6.020	6.026	6.031	6.037	6.042	2050	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1460	3.103	3.107	3.111	3.116	3.120	3.124	3.128	3.132	3.137	3.141	3.145	1460	2060	6.042	6.048	6.053	6.059	6.064	6.070	6.075	6.081	6.086	6.092	6.098	2060	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1470	3.145	3.149	3.154	3.158	3.162	3.166	3.171	3.175	3.179	3.183	3.188	1470	2070	6.098	6.103	6.109	6.114	6.120	6.125	6.131	6.136	6.142	6.147	6.153	2070	4.879	4.884	4.889	4.894	4.899	4.904	4.909	4.914	4.919	4.924	4.929	1840
1480	3.188	3.192	3.196	3.200	3.205	3.209	3.213	3.218	3.222	3.226	3.230	1480	2080	6.153	6.159	6.164	6.170	6.175	6.181	6.186	6.192	6.197	6.203	6.209	2080	4.879	4.884	4.889	4.894	4.899	4.904	4.909</					

MAXIMUM TEMPERATURE RANGE

Thermocouple Grade

32 to 3092°F  
0 to 1700°C

Extension Grade

32 to 212°F  
0 to 100°C

LIMITS OF ERROR

(whichever is greater)

Standard: 0.5°C over 800°C

Special: NOT ESTABLISHED

COMMENTS, BARE WIRE ENVIRONMENT:

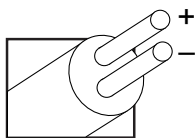
Oxidizing or Inert; Do Not Insert in Metal Tubes;

Beware of Contamination; High Temperature;

Common Use in Glass Industry

TEMPERATURE IN DEGREES °F

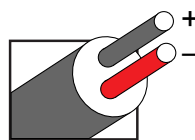
REFERENCE JUNCTION AT 32°F



Thermocouple Grade

NONE ESTABLISHED

Platinum-30% Rhodium  
vs.  
Platinum-6% Rhodium



Extension Grade

Revised Thermocouple Reference Tables

TYPE B  
Reference Tables  
N.I.S.T.  
Monograph 175  
Revised to ITS-90



Thermoelectric Voltage in Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F	°F	0	1	2	3	4	5	6	7	8	9	10	°F
2400	8.018	8.024	8.030	8.036	8.042	8.048	8.054	8.060	8.066	8.073	8.079	2400	2900	11.185	11.192	11.198	11.205	11.211	11.218	11.224	11.231	11.237	11.244	11.250	2900
2410	8.079	8.085	8.091	8.097	8.103	8.109	8.115	8.121	8.127	8.134	8.140	2410	2910	11.250	11.257	11.263	11.270	11.276	11.282	11.289	11.295	11.302	11.308	11.315	2910
2420	8.140	8.146	8.152	8.158	8.164	8.170	8.176	8.182	8.188	8.195	8.201	2420	2920	11.315	11.321	11.328	11.334	11.341	11.347	11.354	11.360	11.367	11.373	11.380	2920
2430	8.201	8.207	8.213	8.219	8.225	8.231	8.237	8.244	8.250	8.256	8.262	2430	2930	11.380	11.386	11.393	11.399	11.406	11.412	11.419	11.425	11.432	11.438	11.445	2930
2440	8.262	8.268	8.274	8.280	8.286	8.293	8.299	8.305	8.311	8.317	8.323	2440	2940	11.445	11.451	11.458	11.464	11.471	11.477	11.484	11.490	11.497	11.503	11.510	2940
2450	8.323	8.329	8.336	8.342	8.348	8.354	8.360	8.366	8.372	8.379	8.385	2450	2950	11.510	11.516	11.523	11.529	11.536	11.542	11.549	11.555	11.562	11.568	11.575	2950
2460	8.385	8.391	8.397	8.403	8.409	8.416	8.422	8.428	8.434	8.440	8.446	2460	2960	11.575	11.582	11.588	11.595	11.601	11.608	11.614	11.621	11.627	11.634	11.640	2960
2470	8.446	8.453	8.459	8.465	8.471	8.477	8.483	8.490	8.496	8.502	8.508	2470	2970	11.640	11.647	11.653	11.660	11.666	11.673	11.679	11.686	11.692	11.699	11.705	2970
2480	8.508	8.514	8.521	8.527	8.533	8.539	8.545	8.551	8.558	8.564	8.570	2480	2980	11.705	11.712	11.718	11.725	11.731	11.738	11.744	11.751	11.757	11.764	11.770	2980
2490	8.570	8.576	8.582	8.589	8.595	8.601	8.607	8.613	8.620	8.626	8.632	2490	2990	11.770	11.777	11.783	11.790	11.796	11.803	11.809	11.816	11.822	11.829	11.835	2990
2500	8.632	8.638	8.644	8.651	8.657	8.663	8.669	8.675	8.682	8.688	8.694	2500	3000	11.835	11.842	11.848	11.855	11.861	11.868	11.874	11.881	11.887	11.894	11.900	3000
2510	8.694	8.700	8.707	8.713	8.719	8.725	8.731	8.738	8.744	8.750	8.756	2510	3010	11.900	11.907	11.913	11.920	11.926	11.933	11.939	11.946	11.952	11.959	11.965	3010
2520	8.756	8.763	8.769	8.775	8.781	8.787	8.794	8.800	8.806	8.812	8.819	2520	3020	11.965	11.972	11.978	11.985	11.991	11.998	12.004	12.011	12.017	12.024	12.030	3020
2530	8.819	8.825	8.831	8.837	8.844	8.850	8.856	8.862	8.869	8.875	8.881	2530	3030	12.030	12.037	12.043	12.050	12.056	12.063	12.069	12.076	12.082	12.089	12.095	3030
2540	8.881	8.887	8.894	8.900	8.906	8.912	8.919	8.925	8.931	8.937	8.944	2540	3040	12.095	12.102	12.108	12.115	12.121	12.128	12.134	12.141	12.147	12.154	12.160	3040
2550	8.944	8.950	8.956	8.962	8.969	8.975	8.981	8.988	8.994	9.000	9.006	2550	3050	12.160	12.166	12.173	12.179	12.186	12.192	12.199	12.205	12.212	12.218	12.225	3050
2560	9.006	9.013	9.019	9.025	9.031	9.038	9.044	9.050	9.057	9.063	9.069	2560	3060	12.225	12.231	12.238	12.244	12.251	12.257	12.264	12.270	12.277	12.283	12.290	3060
2570	9.069	9.075	9.082	9.088	9.094	9.101	9.107	9.113	9.119	9.126	9.132	2570	3070	12.290	12.296	12.303	12.309	12.316	12.322	12.329	12.335	12.342	12.348	12.355	3070
2580	9.132	9.138	9.145	9.151	9.157	9.164	9.170	9.176	9.182	9.189	9.195	2580	3080	12.355	12.361	12.368	12.374	12.381	12.387	12.394	12.400	12.407	12.413	12.420	3080
2590	9.195	9.201	9.208	9.214	9.220	9.227	9.233	9.239	9.245	9.252	9.258	2590	3090	12.420	12.426	12.433	12.439	12.446	12.452	12.458	12.465	12.471	12.478	12.484	3090
2600	9.258	9.264	9.271	9.277	9.283	9.290	9.296	9.302	9.309	9.315	9.321	2600	3100	12.484	12.491	12.497	12.504	12.510	12.517	12.523	12.530	12.536	12.543	12.549	3100
2610	9.321	9.328	9.334	9.340	9.347	9.353	9.359	9.366	9.372	9.378	9.385	2610	3110	12.549	12.556	12.562	12.569	12.575	12.582	12.588	12.595	12.601	12.607	12.614	3110
2620	9.385	9.391	9.397	9.404	9.410	9.416	9.423	9.429	9.435	9.442	9.448	2620	3120	12.614	12.620	12.627	12.633	12.640	12.646	12.653	12.659	12.666	12.672	12.679	3120
2630	9.448	9.454	9.461	9.467	9.473	9.480	9.486	9.492	9.499	9.505	9.511	2630	3130	12.679	12.685	12.692	12.698	12.704	12.711	12.717	12.724	12.730	12.737	12.743	3130
2640	9.511	9.518	9.524	9.530	9.537	9.543	9.550	9.556	9.562	9.569	9.575	2640	3140	12.743	12.750	12.756	12.763	12.769	12.776	12.782	12.789	12.795	12.801	12.808	3140
2650	9.575	9.581	9.588	9.594	9.600	9.607	9.613	9.619	9.626	9.632	9.639	2650	3150	12.808	12.814	12.821	12.827	12.834	12.840	12.847	12.853	12.860	12.866	12.872	3150
2660	9.639	9.645	9.651	9.658	9.664	9.670	9.677	9.683	9.690	9.696	9.702	2660	3160	12.872	12.879	12.885	12.892	12.898	12.905	12.911	12.918	12.924	12.931	12.937	3160
2670	9.702	9.709	9.715	9.721	9.728	9.734	9.741	9.747	9.753	9.760	9.766	2670	3170	12.937	12.943	12.950	12.956	12.963	12.969	12.976	12.982	12.989	12.995	13.001	3170
2680	9.766	9.772	9.779	9.785	9.792	9.798	9.804	9.811	9.817	9.824	9.830	2680	3180	13.001	13.008	13.014	13.021	13.027	13.034	13.040	13.047	13.053	13.059	13.066	3180
2690	9.830	9.836	9.843	9.849	9.856	9.862	9.868	9.875	9.881	9.888	9.894	2690	3190	13.066	13.072	13.079	13.085	13.092	13.098	13.104	13.111	13.117	13.124	13.130	3190
2700	9.894	9.900	9.907	9.913	9.920	9.926	9.932	9.939	9.945	9.952	9.958	2700	3200	13.130	13.137	13.143	13.149	13.156	13.162	13.169	13.175	13.182	13.188	13.194	3200
2710	9.958	9.964	9.971	9.977	9.984	9.990	9.996	10.003	10.009	10.016	10.022	2710	3210	13.194	13.201	13.207	13.214	13.220	13.227	13.233	13.239	13.246	13.252	13.259	3210
2720	10.022	10.028	10.035	10.041	10.048	10.054	10.061	10.067	10.073	10.080	10.086	2720	3220	13.259	13.265	13.271	13.278	13.284	13.291	13.297	13.304	13.310	13.316	13.323	3220
2730	10.086	10.093	10.099	10.105	10.112	10.118	10.125	10.131	10.138	10.144	10.150	2730	3230	13.323	13.329	13.336	13.342	13.348	13.355	13.361	13.368	13.374	13.380	13.387	3230
2740	10.150	10.157	10.163	10.170	10.176	10.183	10.189	10.195	10.202	10.208	10.215	2740	3240	13.387	13.393	13.400	13.406	13.412	13.419	13.425	13.432	13.438	13.444	13.451	3240
2750	10.215	10.221	10.228	10.234	10.240	10.247	10.253	10.260	10.266	10.273	10.279	2750	3250	13.451	13.457	13.464	13.470	13.476	13.483	13.489	13.496	13.502	13.508	13.515	3250
2760	10.279	10.286	10.292	10.298	10.305	10.311	10.318	10.324	10.331	10.337	10.344	2760	3260	13.515	13.521	13.527	13.534	13.540	13.547	13.553	13.559	13.566	13.572	13.579	3260
2770	10.344	10.350	10.356	10.363	10.369	10.376	10.382	10.389	10.395	10.402	10.408	2770	3270	13.579	13.585	13.591	13.598	13.604	13.610	13.617	13.623	13.630	13.636	13.642	3270
2780	10.408	10.414	10.421	10.427	10.434	10.440	10.447	10.453	10.460	10.466	10.473	2780	3280	13.642	13.649	13.655	13.661	13.668	13.674	13.680	13.687	13.693	13.700	13.706	3280
2790	10.473	10.479	10.485	10.492	10.498	10.505	10.511	10.518	10.524	10.531	10.537	2790	3290	13.706	13.712	13.719	13.725	13.731	13.738	13.744	13.750	13.757	13.763	13.769	3290
2800	10.537	10.544	10.550	10.556	10.563	10.569	10.576	1																	