

Black-body function  $\sigma T^4$  in  $\text{cal cm}^{-2} \text{min}^{-1}$   
 $\sigma = .817 \times 10^{-10} \text{cal cm}^{-2} \text{min}^{-1} \text{deg}^{-4} \text{O}^\circ \text{C} = 2F3.0 \text{ }^\circ \text{K}$   
Computed in degrees Centigrade and degrees Kelvin

Department of Meteorology  
The University of Wisconsin

January 1957

4  
SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-149	.0193	.0193	.0192	.0191	.0191	.0190	.0189	.0189	.0188	.0188
-148	.0199	.0199	.0198	.0198	.0197	.0196	.0196	.0195	.0194	.0194
-147	.0206	.0205	.0205	.0204	.0203	.0203	.0202	.0201	.0201	.0200
-146	.0213	.0212	.0211	.0211	.0210	.0209	.0209	.0208	.0207	.0207
-145	.0219	.0219	.0218	.0217	.0217	.0216	.0215	.0215	.0214	.0213
-144	.0226	.0226	.0225	.0224	.0223	.0223	.0222	.0221	.0221	.0220
-143	.0233	.0233	.0232	.0231	.0230	.0230	.0229	.0228	.0228	.0227
-142	.0241	.0240	.0239	.0238	.0238	.0237	.0236	.0236	.0235	.0234
-141	.0248	.0247	.0247	.0246	.0245	.0244	.0244	.0243	.0242	.0241
-140	.0256	.0255	.0254	.0253	.0253	.0252	.0251	.0250	.0250	.0249
-139	.0263	.0263	.0262	.0261	.0260	.0260	.0259	.0258	.0257	.0256
-138	.0271	.0271	.0270	.0269	.0268	.0267	.0267	.0266	.0265	.0264
-137	.0279	.0279	.0278	.0277	.0276	.0275	.0275	.0274	.0273	.0272
-136	.0288	.0287	.0286	.0285	.0284	.0284	.0283	.0282	.0281	.0280
-135	.0296	.0295	.0295	.0294	.0293	.0292	.0291	.0290	.0289	.0289
-134	.0305	.0304	.0303	.0302	.0301	.0301	.0300	.0299	.0298	.0297
-133	.0314	.0313	.0312	.0311	.0310	.0309	.0309	.0308	.0307	.0306
-132	.0323	.0322	.0321	.0320	.0319	.0318	.0317	.0317	.0316	.0315
-131	.0332	.0331	.0330	.0329	.0328	.0328	.0327	.0326	.0325	.0324
-130	.0342	.0341	.0340	.0339	.0338	.0337	.0336	.0335	.0334	.0333
-129	.0351	.0350	.0349	.0348	.0347	.0346	.0345	.0345	.0344	.0343
-128	.0361	.0360	.0359	.0358	.0357	.0356	.0355	.0354	.0353	.0352
-127	.0371	.0370	.0369	.0368	.0367	.0366	.0365	.0364	.0363	.0362
-126	.0381	.0380	.0379	.0378	.0377	.0376	.0375	.0374	.0373	.0372
-125	.0392	.0391	.0390	.0389	.0388	.0387	.0386	.0385	.0384	.0383

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SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-124	.0403	.0402	.0401	.0399	.0398	.0397	.0396	.0395	.0394	.0393
-123	.0414	.0413	.0411	.0410	.0409	.0408	.0407	.0406	.0405	.0404
-122	.0425	.0424	.0423	.0421	.0420	.0419	.0418	.0417	.0416	.0415
-121	.0436	.0435	.0434	.0433	.0432	.0430	.0429	.0428	.0427	.0426
-120	.0448	.0447	.0445	.0444	.0443	.0442	.0441	.0440	.0438	.0437
-119	.0460	.0458	.0457	.0456	.0455	.0454	.0452	.0451	.0450	.0449
-118	.0472	.0470	.0469	.0468	.0467	.0466	.0464	.0463	.0462	.0461
-117	.0484	.0483	.0481	.0480	.0479	.0478	.0476	.0475	.0474	.0473
-116	.0496	.0495	.0494	.0493	.0491	.0490	.0489	.0488	.0486	.0485
-115	.0509	.0508	.0507	.0505	.0504	.0503	.0501	.0500	.0499	.0498
-114	.0522	.0521	.0520	.0518	.0517	.0516	.0514	.0513	.0512	.0510
-113	.0535	.0534	.0533	.0531	.0530	.0529	.0527	.0526	.0525	.0523
-112	.0549	.0548	.0546	.0545	.0544	.0542	.0541	.0539	.0538	.0537
-111	.0563	.0561	.0560	.0559	.0557	.0556	.0554	.0553	.0552	.0550
-110	.0577	.0575	.0574	.0572	.0571	.0570	.0568	.0567	.0565	.0564
-109	.0591	.0590	.0588	.0587	.0585	.0584	.0582	.0581	.0580	.0578
-108	.0606	.0604	.0603	.0601	.0600	.0598	.0597	.0595	.0594	.0592
-107	.0620	.0619	.0617	.0616	.0614	.0613	.0611	.0610	.0609	.0607
-106	.0635	.0634	.0632	.0631	.0629	.0628	.0626	.0625	.0623	.0622
-105	.0651	.0649	.0648	.0646	.0645	.0643	.0642	.0640	.0639	.0637
-104	.0666	.0665	.0663	.0662	.0660	.0659	.0657	.0655	.0654	.0652
-103	.0682	.0681	.0679	.0678	.0676	.0674	.0673	.0671	.0670	.0668
-102	.0699	.0697	.0695	.0694	.0692	.0690	.0689	.0687	.0686	.0684
-101	.0715	.0713	.0712	.0710	.0708	.0707	.0705	.0703	.0702	.0700
-100	.0732	.0730	.0728	.0727	.0725	.0723	.0722	.0720	.0718	.0717

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SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-99	.0749	.0747	.0745	.0744	.0742	.0740	.0739	.0737	.0735	.0734
-98	.0766	.0765	.0763	.0761	.0759	.0758	.0756	.0754	.0752	.0751
-97	.0784	.0782	.0780	.0779	.0777	.0775	.0773	.0772	.0770	.0768
-96	.0802	.0800	.0798	.0796	.0795	.0793	.0791	.0789	.0787	.0786
-95	.0820	.0818	.0816	.0815	.0813	.0811	.0809	.0807	.0806	.0804
-94	.0839	.0837	.0835	.0833	.0831	.0829	.0828	.0826	.0824	.0822
-93	.0858	.0856	.0854	.0852	.0850	.0848	.0846	.0844	.0843	.0841
-92	.0877	.0875	.0873	.0871	.0869	.0867	.0865	.0863	.0861	.0860
-91	.0896	.0894	.0892	.0891	.0889	.0887	.0885	.0883	.0881	.0879
-90	.0916	.0914	.0912	.0910	.0908	.0906	.0904	.0902	.0900	.0898
-89	.0936	.0934	.0932	.0930	.0928	.0926	.0924	.0922	.0920	.0918
-88	.0957	.0955	.0953	.0951	.0949	.0947	.0945	.0943	.0941	.0939
-87	.0978	.0976	.0974	.0972	.0969	.0967	.0965	.0963	.0961	.0959
-86	.0999	.0997	.0995	.0993	.0991	.0988	.0986	.0984	.0982	.0980
-85	.1021	.1018	.1016	.1014	.1012	.1010	.1008	.1005	.1003	.1001
-84	.1042	.1040	.1038	.1036	.1034	.1031	.1029	.1027	.1025	.1023
-83	.1065	.1062	.1060	.1058	.1056	.1054	.1051	.1049	.1047	.1045
-82	.1087	.1085	.1083	.1081	.1078	.1076	.1074	.1071	.1069	.1067
-81	.1110	.1108	.1106	.1103	.1101	.1099	.1096	.1094	.1092	.1090
-80	.1134	.1131	.1129	.1127	.1124	.1122	.1120	.1117	.1115	.1113
-79	.1157	.1155	.1152	.1150	.1148	.1145	.1143	.1141	.1138	.1136
-78	.1181	.1179	.1176	.1174	.1172	.1169	.1167	.1164	.1162	.1160
-77	.1206	.1203	.1201	.1198	.1196	.1193	.1191	.1189	.1186	.1184
-76	.1231	.1228	.1226	.1223	.1221	.1218	.1216	.1213	.1211	.1208
-75	.1256	.1253	.1251	.1248	.1246	.1243	.1241	.1238	.1236	.1233

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SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-74	.1281	.1279	.1276	.1274	.1271	.1268	.1266	.1263	.1261	.1258
-73	.1307	.1305	.1302	.1299	.1297	.1294	.1292	.1289	.1286	.1284
-72	.1334	.1331	.1328	.1326	.1323	.1320	.1318	.1315	.1312	.1310
-71	.1360	.1358	.1355	.1352	.1350	.1347	.1344	.1342	.1339	.1336
-70	.1387	.1385	.1382	.1379	.1377	.1374	.1371	.1368	.1366	.1363
-69	.1415	.1412	.1409	.1407	.1404	.1401	.1398	.1396	.1393	.1390
-68	.1443	.1440	.1437	.1434	.1432	.1429	.1426	.1423	.1421	.1418
-67	.1471	.1468	.1466	.1463	.1460	.1457	.1454	.1451	.1449	.1446
-66	.1500	.1497	.1494	.1491	.1488	.1486	.1483	.1480	.1477	.1474
-65	.1529	.1526	.1523	.1520	.1518	.1515	.1512	.1509	.1506	.1503
-64	.1559	.1556	.1553	.1550	.1547	.1544	.1541	.1538	.1535	.1532
-63	.1589	.1586	.1583	.1580	.1577	.1574	.1571	.1568	.1565	.1562
-62	.1619	.1616	.1613	.1610	.1607	.1604	.1601	.1598	.1595	.1592
-61	.1650	.1647	.1644	.1641	.1638	.1635	.1632	.1629	.1626	.1622
-60	.1682	.1679	.1675	.1672	.1669	.1666	.1663	.1660	.1657	.1653
-59	.1713	.1710	.1707	.1704	.1701	.1698	.1694	.1691	.1688	.1685
-58	.1746	.1742	.1739	.1736	.1733	.1730	.1726	.1723	.1720	.1717
-57	.1778	.1775	.1772	.1769	.1765	.1762	.1759	.1755	.1752	.1749
-56	.1812	.1808	.1805	.1802	.1798	.1795	.1792	.1788	.1785	.1782
-55	.1845	.1842	.1838	.1835	.1832	.1828	.1825	.1822	.1818	.1815
-54	.1879	.1876	.1872	.1869	.1866	.1862	.1859	.1855	.1852	.1849
-53	.1914	.1910	.1907	.1903	.1900	.1897	.1893	.1890	.1886	.1883
-52	.1949	.1945	.1942	.1938	.1935	.1931	.1928	.1924	.1921	.1917
-51	.1984	.1981	.1977	.1974	.1970	.1967	.1963	.1960	.1956	.1952
-50	.2020	.2017	.2013	.2010	.2006	.2002	.1999	.1995	.1992	.1988

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SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-49	.2057	.2053	.2050	.2046	.2042	.2039	.2035	.2031	.2028	.2024
-48	.2094	.2090	.2086	.2083	.2079	.2075	.2072	.2068	.2064	.2061
-47	.2131	.2128	.2124	.2120	.2116	.2113	.2109	.2105	.2101	.2098
-46	.2169	.2166	.2162	.2158	.2154	.2150	.2146	.2143	.2139	.2135
-45	.2208	.2204	.2200	.2196	.2192	.2189	.2185	.2181	.2177	.2173
-44	.2247	.2243	.2239	.2235	.2231	.2227	.2223	.2219	.2216	.2212
-43	.2286	.2282	.2278	.2274	.2270	.2266	.2263	.2259	.2255	.2251
-42	.2326	.2322	.2318	.2314	.2310	.2306	.2302	.2298	.2294	.2290
-41	.2367	.2363	.2359	.2355	.2351	.2347	.2342	.2338	.2334	.2330
-40	.2408	.2404	.2400	.2396	.2391	.2387	.2383	.2379	.2375	.2371
-39	.2450	.2445	.2441	.2437	.2433	.2429	.2425	.2420	.2416	.2412
-38	.2492	.2487	.2483	.2479	.2475	.2471	.2466	.2462	.2458	.2454
-37	.2534	.2530	.2526	.2522	.2517	.2513	.2509	.2504	.2500	.2496
-36	.2578	.2573	.2569	.2565	.2560	.2556	.2552	.2547	.2543	.2539
-35	.2621	.2617	.2613	.2608	.2604	.2599	.2595	.2591	.2586	.2582
-34	.2666	.2661	.2657	.2652	.2648	.2643	.2639	.2635	.2630	.2626
-33	.2711	.2706	.2702	.2697	.2693	.2688	.2684	.2679	.2675	.2670
-32	.2756	.2751	.2747	.2742	.2738	.2733	.2729	.2724	.2720	.2715
-31	.2802	.2797	.2793	.2788	.2784	.2779	.2774	.2770	.2765	.2761
-30	.2849	.2844	.2839	.2835	.2830	.2825	.2821	.2816	.2811	.2807
-29	.2896	.2891	.2886	.2882	.2877	.2872	.2868	.2863	.2858	.2853
-28	.2944	.2939	.2934	.2929	.2924	.2920	.2915	.2910	.2905	.2901
-27	.2992	.2987	.2982	.2977	.2973	.2968	.2963	.2958	.2953	.2948
-26	.3041	.3036	.3031	.3026	.3021	.3016	.3012	.3007	.3002	.2997
-25	.3091	.3086	.3081	.3076	.3071	.3066	.3061	.3056	.3051	.3046

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SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
-24	.3141	.3136	.3131	.3126	.3121	.3115	.3110	.3105	.3100	.3095
-23	.3191	.3186	.3181	.3176	.3171	.3166	.3161	.3156	.3151	.3146
-22	.3243	.3238	.3232	.3227	.3222	.3217	.3212	.3207	.3202	.3197
-21	.3295	.3290	.3284	.3279	.3274	.3269	.3263	.3258	.3253	.3248
-20	.3347	.3342	.3337	.3332	.3326	.3321	.3316	.3310	.3305	.3300
-19	.3401	.3395	.3390	.3385	.3379	.3374	.3369	.3363	.3358	.3353
-18	.3454	.3449	.3444	.3438	.3433	.3427	.3422	.3417	.3411	.3406
-17	.3509	.3504	.3498	.3493	.3487	.3482	.3476	.3471	.3465	.3460
-16	.3564	.3559	.3553	.3548	.3542	.3536	.3531	.3525	.3520	.3514
-15	.3620	.3614	.3609	.3603	.3598	.3592	.3586	.3581	.3575	.3570
-14	.3676	.3671	.3665	.3659	.3654	.3648	.3642	.3637	.3631	.3626
-13	.3733	.3728	.3722	.3716	.3711	.3705	.3699	.3693	.3688	.3682
-12	.3791	.3785	.3780	.3774	.3768	.3762	.3757	.3751	.3745	.3739
-11	.3850	.3844	.3838	.3832	.3826	.3820	.3815	.3809	.3803	.3797
-10	.3909	.3903	.3897	.3891	.3885	.3879	.3873	.3867	.3861	.3856
-9	.3969	.3963	.3957	.3951	.3945	.3939	.3933	.3927	.3921	.3915
-8	.4029	.4023	.4017	.4011	.4005	.3999	.3993	.3987	.3981	.3975
-7	.4090	.4084	.4078	.4072	.4066	.4060	.4053	.4047	.4041	.4035
-6	.4152	.4146	.4140	.4133	.4127	.4121	.4115	.4109	.4103	.4096
-5	.4215	.4208	.4202	.4196	.4190	.4183	.4177	.4171	.4165	.4158
-4	.4278	.4272	.4265	.4259	.4253	.4246	.4240	.4234	.4227	.4221
-3	.4342	.4335	.4329	.4323	.4316	.4310	.4303	.4297	.4291	.4284
-2	.4407	.4400	.4394	.4387	.4381	.4374	.4368	.4361	.4355	.4348
-1	.4472	.4465	.4459	.4452	.4446	.4439	.4433	.4426	.4420	.4413
-0	.4538	.4531	.4525	.4518	.4512	.4505	.4498	.4492	.4485	.4479

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SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.4538	.4545	.4551	.4558	.4565	.4571	.4578	.4585	.4592	.4598
1	.4605	.4612	.4618	.4625	.4632	.4639	.4645	.4652	.4659	.4666
2	.4673	.4679	.4686	.4693	.4700	.4707	.4713	.4720	.4727	.4734
3	.4741	.4748	.4755	.4762	.4768	.4775	.4782	.4789	.4796	.4803
4	.4810	.4817	.4824	.4831	.4838	.4845	.4852	.4859	.4866	.4873
5	.4880	.4887	.4894	.4901	.4908	.4915	.4922	.4929	.4936	.4943
6	.4950	.4957	.4965	.4972	.4979	.4986	.4993	.5000	.5007	.5015
7	.5022	.5029	.5036	.5043	.5050	.5058	.5065	.5072	.5079	.5087
8	.5094	.5101	.5108	.5116	.5123	.5130	.5138	.5145	.5152	.5159
9	.5167	.5174	.5181	.5189	.5196	.5204	.5211	.5218	.5226	.5233
10	.5240	.5248	.5255	.5263	.5270	.5278	.5285	.5292	.5300	.5307
11	.5315	.5322	.5330	.5337	.5345	.5352	.5360	.5367	.5375	.5383
12	.5390	.5398	.5405	.5413	.5420	.5428	.5436	.5443	.5451	.5459
13	.5466	.5474	.5482	.5489	.5497	.5505	.5512	.5520	.5528	.5535
14	.5543	.5551	.5559	.5566	.5574	.5582	.5590	.5597	.5605	.5613
15	.5621	.5629	.5636	.5644	.5652	.5660	.5668	.5676	.5683	.5691
16	.5699	.5707	.5715	.5723	.5731	.5739	.5747	.5755	.5763	.5771
17	.5778	.5786	.5794	.5802	.5810	.5818	.5826	.5834	.5843	.5851
18	.5859	.5867	.5875	.5883	.5891	.5899	.5907	.5915	.5923	.5931
19	.5940	.5948	.5956	.5964	.5972	.5980	.5989	.5997	.6005	.6013
20	.6021	.6030	.6038	.6046	.6054	.6063	.6071	.6079	.6087	.6096
21	.6104	.6112	.6121	.6129	.6137	.6146	.6154	.6162	.6171	.6179
22	.6187	.6196	.6204	.6213	.6221	.6229	.6238	.6246	.6255	.6263
23	.6272	.6280	.6289	.6297	.6306	.6314	.6323	.6331	.6340	.6348
24	.6357	.6366	.6374	.6383	.6391	.6400	.6408	.6417	.6426	.6434



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SIGMA X T

T  
DEG C

	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
25	.6443	.6452	.6460	.6469	.6478	.6486	.6495	.6504	.6512	.6521
26	.6530	.6539	.6547	.6556	.6565	.6574	.6582	.6591	.6600	.6609
27	.6618	.6627	.6635	.6644	.6653	.6662	.6671	.6680	.6689	.6697
28	.6706	.6715	.6724	.6733	.6742	.6751	.6760	.6769	.6778	.6787
29	.6796	.6805	.6814	.6823	.6832	.6841	.6850	.6859	.6868	.6877
30	.6886	.6896	.6905	.6914	.6923	.6932	.6941	.6950	.6959	.6969
31	.6978	.6987	.6996	.7005	.7015	.7024	.7033	.7042	.7052	.7061
32	.7070	.7079	.7089	.7098	.7107	.7117	.7126	.7135	.7145	.7154
33	.7163	.7173	.7182	.7191	.7201	.7210	.7220	.7229	.7238	.7248
34	.7257	.7267	.7276	.7286	.7295	.7305	.7314	.7324	.7333	.7343
35	.7352	.7362	.7371	.7381	.7391	.7400	.7410	.7419	.7429	.7439
36	.7448	.7458	.7468	.7477	.7487	.7497	.7506	.7516	.7526	.7535
37	.7545	.7555	.7565	.7574	.7584	.7594	.7604	.7614	.7623	.7633
38	.7643	.7653	.7663	.7673	.7682	.7692	.7702	.7712	.7722	.7732
39	.7742	.7752	.7762	.7772	.7782	.7792	.7801	.7811	.7821	.7831
40	.7842	.7852	.7862	.7872	.7882	.7892	.7902	.7912	.7922	.7932
41	.7942	.7952	.7962	.7973	.7983	.7993	.8003	.8013	.8023	.8034
42	.8044	.8054	.8064	.8075	.8085	.8095	.8105	.8116	.8126	.8136
43	.8146	.8157	.8167	.8177	.8188	.8198	.8209	.8219	.8229	.8240
44	.8250	.8261	.8271	.8281	.8292	.8302	.8313	.8323	.8334	.8344
45	.8355	.8365	.8376	.8386	.8397	.8407	.8418	.8429	.8439	.8450
46	.8460	.8471	.8482	.8492	.8503	.8513	.8524	.8535	.8545	.8556
47	.8567	.8578	.8588	.8599	.8610	.8621	.8631	.8642	.8653	.8664
48	.8674	.8685	.8696	.8707	.8718	.8729	.8739	.8750	.8761	.8772
49	.8783	.8794	.8805	.8816	.8827	.8838	.8849	.8860	.8871	.8882

4  
SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
50	.8893	.8904	.8915	.8926	.8937	.8948	.8959	.8970	.8981	.8992
51	.9003	.9014	.9026	.9037	.9048	.9059	.9070	.9081	.9093	.9104
52	.9115	.9126	.9137	.9149	.9160	.9171	.9182	.9194	.9205	.9216
53	.9228	.9239	.9250	.9262	.9273	.9284	.9296	.9307	.9319	.9330
54	.9341	.9353	.9364	.9376	.9387	.9399	.9410	.9422	.9433	.9445
55	.9456	.9468	.9479	.9491	.9502	.9514	.9526	.9537	.9549	.9560
56	.9572	.9584	.9595	.9607	.9619	.9630	.9642	.9654	.9666	.9677
57	.9689	.9701	.9712	.9724	.9736	.9748	.9760	.9771	.9783	.9795
58	.9807	.9819	.9831	.9843	.9854	.9866	.9878	.9890	.9902	.9914
59	.9926	.9938	.9950	.9962	.9974	.9986	.9998	1.0010	1.0022	1.0034
60	1.0046	1.0058	1.0070	1.0082	1.0094	1.0107	1.0119	1.0131	1.0143	1.0155
61	1.0167	1.0180	1.0192	1.0204	1.0216	1.0228	1.0241	1.0253	1.0265	1.0277
62	1.0290	1.0302	1.0314	1.0327	1.0339	1.0351	1.0364	1.0376	1.0388	1.0401
63	1.0413	1.0425	1.0438	1.0450	1.0463	1.0475	1.0488	1.0500	1.0513	1.0525
64	1.0538	1.0550	1.0563	1.0575	1.0588	1.0600	1.0613	1.0625	1.0638	1.0651
65	1.0663	1.0676	1.0688	1.0701	1.0714	1.0726	1.0739	1.0752	1.0765	1.0777
66	1.0790	1.0803	1.0815	1.0828	1.0841	1.0854	1.0867	1.0879	1.0892	1.0905
67	1.0918	1.0931	1.0944	1.0956	1.0969	1.0982	1.0995	1.1008	1.1021	1.1034
68	1.1047	1.1060	1.1073	1.1086	1.1099	1.1112	1.1125	1.1138	1.1151	1.1164
69	1.1177	1.1190	1.1203	1.1216	1.1229	1.1243	1.1256	1.1269	1.1282	1.1295
70	1.1308	1.1322	1.1335	1.1348	1.1361	1.1374	1.1388	1.1401	1.1414	1.1427
71	1.1441	1.1454	1.1467	1.1481	1.1494	1.1507	1.1521	1.1534	1.1548	1.1561
72	1.1574	1.1588	1.1601	1.1615	1.1628	1.1642	1.1655	1.1669	1.1682	1.1696
73	1.1709	1.1723	1.1736	1.1750	1.1763	1.1777	1.1791	1.1804	1.1818	1.1831
74	1.1845	1.1859	1.1872	1.1886	1.1900	1.1914	1.1927	1.1941	1.1955	1.1969

4  
SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
75	1.1982	1.1996	1.2010	1.2024	1.2037	1.2051	1.2065	1.2079	1.2093	1.2107
76	1.2121	1.2134	1.2148	1.2162	1.2176	1.2190	1.2204	1.2218	1.2232	1.2246
77	1.2260	1.2274	1.2288	1.2302	1.2316	1.2330	1.2344	1.2358	1.2373	1.2387
78	1.2401	1.2415	1.2429	1.2443	1.2457	1.2472	1.2486	1.2500	1.2514	1.2529
79	1.2543	1.2557	1.2571	1.2586	1.2600	1.2614	1.2628	1.2643	1.2657	1.2672
80	1.2686	1.2700	1.2715	1.2729	1.2743	1.2758	1.2772	1.2787	1.2801	1.2816
81	1.2830	1.2845	1.2859	1.2874	1.2888	1.2903	1.2917	1.2932	1.2947	1.2961
82	1.2976	1.2990	1.3005	1.3020	1.3034	1.3049	1.3064	1.3078	1.3093	1.3108
83	1.3123	1.3137	1.3152	1.3167	1.3182	1.3197	1.3211	1.3226	1.3241	1.3256
84	1.3271	1.3286	1.3300	1.3315	1.3330	1.3345	1.3360	1.3375	1.3390	1.3405
85	1.3420	1.3435	1.3450	1.3465	1.3480	1.3495	1.3510	1.3525	1.3540	1.3556
86	1.3571	1.3586	1.3601	1.3616	1.3631	1.3646	1.3662	1.3677	1.3692	1.3707
87	1.3722	1.3738	1.3753	1.3768	1.3784	1.3799	1.3814	1.3830	1.3845	1.3860
88	1.3876	1.3891	1.3906	1.3922	1.3937	1.3953	1.3968	1.3984	1.3999	1.4014
89	1.4030	1.4045	1.4061	1.4077	1.4092	1.4108	1.4123	1.4139	1.4154	1.4170
90	1.4186	1.4201	1.4217	1.4233	1.4248	1.4264	1.4280	1.4295	1.4311	1.4327
91	1.4343	1.4358	1.4374	1.4390	1.4406	1.4422	1.4437	1.4453	1.4469	1.4485
92	1.4501	1.4517	1.4533	1.4549	1.4565	1.4580	1.4596	1.4612	1.4628	1.4644
93	1.4660	1.4676	1.4692	1.4709	1.4725	1.4741	1.4757	1.4773	1.4789	1.4805
94	1.4821	1.4837	1.4854	1.4870	1.4886	1.4902	1.4918	1.4935	1.4951	1.4967
95	1.4984	1.5000	1.5016	1.5032	1.5049	1.5065	1.5081	1.5098	1.5114	1.5131
96	1.5147	1.5163	1.5180	1.5196	1.5213	1.5229	1.5246	1.5262	1.5279	1.5295
97	1.5312	1.5328	1.5345	1.5362	1.5378	1.5395	1.5411	1.5428	1.5445	1.5461
98	1.5478	1.5495	1.5512	1.5528	1.5545	1.5562	1.5578	1.5595	1.5612	1.5629
99	1.5646	1.5662	1.5679	1.5696	1.5713	1.5730	1.5747	1.5764	1.5781	1.5798

4  
SIGMA X T

T  
DEG C

	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
100	1.5815	1.5832	1.5849	1.5866	1.5883	1.5900	1.5917	1.5934	1.5951	1.5968
101	1.5985	1.6002	1.6019	1.6036	1.6053	1.6070	1.6088	1.6105	1.6122	1.6139
102	1.6156	1.6174	1.6191	1.6208	1.6226	1.6243	1.6260	1.6277	1.6295	1.6312
103	1.6330	1.6347	1.6364	1.6382	1.6399	1.6417	1.6434	1.6451	1.6469	1.6486
104	1.6504	1.6521	1.6539	1.6557	1.6574	1.6592	1.6609	1.6627	1.6644	1.6662
105	1.6680	1.6697	1.6715	1.6733	1.6750	1.6768	1.6786	1.6804	1.6821	1.6839
106	1.6857	1.6875	1.6893	1.6910	1.6928	1.6946	1.6964	1.6982	1.7000	1.7018
107	1.7036	1.7054	1.7071	1.7089	1.7107	1.7125	1.7143	1.7161	1.7179	1.7198
108	1.7216	1.7234	1.7252	1.7270	1.7288	1.7306	1.7324	1.7342	1.7361	1.7379
109	1.7397	1.7415	1.7434	1.7452	1.7470	1.7488	1.7507	1.7525	1.7543	1.7562
110	1.7580	1.7598	1.7617	1.7635	1.7653	1.7672	1.7690	1.7709	1.7727	1.7746
111	1.7764	1.7783	1.7801	1.7820	1.7838	1.7857	1.7876	1.7894	1.7913	1.7931
112	1.7950	1.7969	1.7987	1.8006	1.8025	1.8043	1.8062	1.8081	1.8100	1.8118
113	1.8137	1.8156	1.8175	1.8194	1.8213	1.8231	1.8250	1.8269	1.8288	1.8307
114	1.8326	1.8345	1.8364	1.8383	1.8402	1.8421	1.8440	1.8459	1.8478	1.8497
115	1.8516	1.8535	1.8554	1.8573	1.8593	1.8612	1.8631	1.8650	1.8669	1.8688
116	1.8708	1.8727	1.8746	1.8765	1.8785	1.8804	1.8823	1.8843	1.8862	1.8881
117	1.8901	1.8920	1.8940	1.8959	1.8978	1.8998	1.9017	1.9037	1.9056	1.9076
118	1.9095	1.9115	1.9135	1.9154	1.9174	1.9193	1.9213	1.9233	1.9252	1.9272
119	1.9292	1.9311	1.9331	1.9351	1.9370	1.9390	1.9410	1.9430	1.9449	1.9469
120	1.9489	1.9509	1.9529	1.9549	1.9569	1.9588	1.9608	1.9628	1.9648	1.9668
121	1.9688	1.9708	1.9728	1.9748	1.9768	1.9788	1.9808	1.9829	1.9849	1.9869
122	1.9889	1.9909	1.9929	1.9949	1.9970	1.9990	2.0010	2.0030	2.0051	2.0071
123	2.0091	2.0111	2.0132	2.0152	2.0172	2.0193	2.0213	2.0233	2.0254	2.0274
124	2.0295	2.0315	2.0336	2.0356	2.0377	2.0397	2.0418	2.0438	2.0459	2.0479

4  
SIGMA X T

T DEG C	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
125	2.0500	2.0521	2.0541	2.0562	2.0583	2.0603	2.0624	2.0645	2.0665	2.0686
126	2.0707	2.0728	2.0748	2.0769	2.0790	2.0811	2.0832	2.0853	2.0873	2.0894
127	2.0915	2.0936	2.0957	2.0978	2.0999	2.1020	2.1041	2.1062	2.1083	2.1104
128	2.1125	2.1146	2.1167	2.1188	2.1210	2.1231	2.1252	2.1273	2.1294	2.1315
129	2.1337	2.1358	2.1379	2.1400	2.1422	2.1443	2.1464	2.1486	2.1507	2.1528
130	2.1550	2.1571	2.1593	2.1614	2.1635	2.1657	2.1678	2.1700	2.1721	2.1743
131	2.1764	2.1786	2.1808	2.1829	2.1851	2.1872	2.1894	2.1916	2.1937	2.1959
132	2.1981	2.2002	2.2024	2.2046	2.2068	2.2089	2.2111	2.2133	2.2155	2.2177
133	2.2199	2.2221	2.2242	2.2264	2.2286	2.2308	2.2330	2.2352	2.2374	2.2396
134	2.2418	2.2440	2.2462	2.2484	2.2506	2.2529	2.2551	2.2573	2.2595	2.2617
135	2.2639	2.2661	2.2684	2.2706	2.2728	2.2750	2.2773	2.2795	2.2817	2.2840
136	2.2862	2.2884	2.2907	2.2929	2.2952	2.2974	2.2997	2.3019	2.3041	2.3064
137	2.3086	2.3109	2.3132	2.3154	2.3177	2.3199	2.3222	2.3245	2.3267	2.3290
138	2.3313	2.3335	2.3358	2.3381	2.3403	2.3426	2.3449	2.3472	2.3495	2.3517
139	2.3540	2.3563	2.3586	2.3609	2.3632	2.3655	2.3678	2.3701	2.3724	2.3747
140	2.3770	2.3793	2.3816	2.3839	2.3862	2.3885	2.3908	2.3931	2.3954	2.3977
141	2.4001	2.4024	2.4047	2.4070	2.4094	2.4117	2.4140	2.4163	2.4187	2.4210
142	2.4233	2.4257	2.4280	2.4304	2.4327	2.4350	2.4374	2.4397	2.4421	2.4444
143	2.4468	2.4491	2.4515	2.4538	2.4562	2.4586	2.4609	2.4633	2.4657	2.4680
144	2.4704	2.4728	2.4751	2.4775	2.4799	2.4823	2.4846	2.4870	2.4894	2.4918
145	2.4942	2.4966	2.4990	2.5013	2.5037	2.5061	2.5085	2.5109	2.5133	2.5157
146	2.5181	2.5205	2.5229	2.5253	2.5278	2.5302	2.5326	2.5350	2.5374	2.5398
147	2.5423	2.5447	2.5471	2.5495	2.5520	2.5544	2.5568	2.5592	2.5617	2.5641
148	2.5666	2.5690	2.5714	2.5739	2.5763	2.5788	2.5812	2.5837	2.5861	2.5886
149	2.5910	2.5935	2.5959	2.5984	2.6009	2.6033	2.6058	2.6083	2.6107	2.6132

4  
SIGMA X T

T  
DEG C

	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
150	2.6157	2.6181	2.6206	2.6231	2.6256	2.6281	2.6305	2.6330	2.6355	2.6380
151	2.6405	2.6430	2.6455	2.6480	2.6505	2.6530	2.6555	2.6580	2.6605	2.6630
152	2.6655	2.6680	2.6705	2.6730	2.6755	2.6781	2.6806	2.6831	2.6856	2.6881
153	2.6907	2.6932	2.6957	2.6983	2.7008	2.7033	2.7059	2.7084	2.7109	2.7135
154	2.7160	2.7186	2.7211	2.7237	2.7262	2.7288	2.7313	2.7339	2.7364	2.7390
155	2.7416	2.7441	2.7467	2.7493	2.7518	2.7544	2.7570	2.7595	2.7621	2.7647
156	2.7673	2.7698	2.7724	2.7750	2.7776	2.7802	2.7828	2.7854	2.7880	2.7906
157	2.7932	2.7958	2.7984	2.8010	2.8036	2.8062	2.8088	2.8114	2.8140	2.8166
158	2.8192	2.8219	2.8245	2.8271	2.8297	2.8323	2.8350	2.8376	2.8402	2.8429
159	2.8455	2.8481	2.8508	2.8534	2.8560	2.8587	2.8613	2.8640	2.8666	2.8693
160	2.8719	2.8746	2.8772	2.8799	2.8826	2.8852	2.8879	2.8905	2.8932	2.8959
161	2.8986	2.9012	2.9039	2.9066	2.9093	2.9119	2.9146	2.9173	2.9200	2.9227
162	2.9254	2.9280	2.9307	2.9334	2.9361	2.9388	2.9415	2.9442	2.9469	2.9496
163	2.9524	2.9551	2.9578	2.9605	2.9632	2.9659	2.9686	2.9714	2.9741	2.9768
164	2.9795	2.9823	2.9850	2.9877	2.9905	2.9932	2.9959	2.9987	3.0014	3.0042
165	3.0069	3.0096	3.0124	3.0151	3.0179	3.0207	3.0234	3.0262	3.0289	3.0317
166	3.0345	3.0372	3.0400	3.0428	3.0455	3.0483	3.0511	3.0539	3.0566	3.0594
167	3.0622	3.0650	3.0678	3.0706	3.0733	3.0761	3.0789	3.0817	3.0845	3.0873
168	3.0901	3.0929	3.0957	3.0985	3.1014	3.1042	3.1070	3.1098	3.1126	3.1154
169	3.1183	3.1211	3.1239	3.1267	3.1296	3.1324	3.1352	3.1381	3.1409	3.1437
170	3.1466	3.1494	3.1523	3.1551	3.1579	3.1608	3.1636	3.1665	3.1694	3.1722
171	3.1751	3.1779	3.1808	3.1837	3.1865	3.1894	3.1923	3.1951	3.1980	3.2009
172	3.2038	3.2067	3.2095	3.2124	3.2153	3.2182	3.2211	3.2240	3.2269	3.2298
173	3.2327	3.2356	3.2385	3.2414	3.2443	3.2472	3.2501	3.2530	3.2559	3.2588
174	3.2618	3.2647	3.2676	3.2705	3.2735	3.2764	3.2793	3.2822	3.2852	3.2881

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
124	.0193	.0194	.0194	.0195	.0196	.0196	.0197	.0198	.0198	.0199
125	.0199	.0200	.0201	.0201	.0202	.0203	.0203	.0204	.0205	.0205
126	.0206	.0207	.0207	.0208	.0209	.0209	.0210	.0211	.0211	.0212
127	.0213	.0213	.0214	.0215	.0215	.0216	.0217	.0217	.0218	.0219
128	.0219	.0220	.0221	.0221	.0222	.0223	.0223	.0224	.0225	.0226
129	.0226	.0227	.0228	.0228	.0229	.0230	.0230	.0231	.0232	.0233
130	.0233	.0234	.0235	.0236	.0236	.0237	.0238	.0238	.0239	.0240
131	.0241	.0241	.0242	.0243	.0244	.0244	.0245	.0246	.0247	.0247
132	.0248	.0249	.0250	.0250	.0251	.0252	.0253	.0253	.0254	.0255
133	.0256	.0256	.0257	.0258	.0259	.0260	.0260	.0261	.0262	.0263
134	.0263	.0264	.0265	.0266	.0267	.0267	.0268	.0269	.0270	.0271
135	.0271	.0272	.0273	.0274	.0275	.0275	.0276	.0277	.0278	.0279
136	.0279	.0280	.0281	.0282	.0283	.0284	.0284	.0285	.0286	.0287
137	.0288	.0289	.0289	.0290	.0291	.0292	.0293	.0294	.0295	.0295
138	.0296	.0297	.0298	.0299	.0300	.0301	.0301	.0302	.0303	.0304
139	.0305	.0306	.0307	.0308	.0309	.0309	.0310	.0311	.0312	.0313
140	.0314	.0315	.0316	.0317	.0317	.0318	.0319	.0320	.0321	.0322
141	.0323	.0324	.0325	.0326	.0327	.0328	.0328	.0329	.0330	.0331
142	.0332	.0333	.0334	.0335	.0336	.0337	.0338	.0339	.0340	.0341
143	.0342	.0343	.0344	.0345	.0345	.0346	.0347	.0348	.0349	.0350
144	.0351	.0352	.0353	.0354	.0355	.0356	.0357	.0358	.0359	.0360
145	.0361	.0362	.0363	.0364	.0365	.0366	.0367	.0368	.0369	.0370
146	.0371	.0372	.0373	.0374	.0375	.0376	.0377	.0378	.0379	.0380
147	.0381	.0383	.0384	.0385	.0386	.0387	.0388	.0389	.0390	.0391
148	.0392	.0393	.0394	.0395	.0396	.0397	.0398	.0399	.0401	.0402

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
149	.0403	.0404	.0405	.0406	.0407	.0408	.0409	.0410	.0411	.0413
150	.0414	.0415	.0416	.0417	.0418	.0419	.0420	.0421	.0423	.0424
151	.0425	.0426	.0427	.0428	.0429	.0430	.0432	.0433	.0434	.0435
152	.0436	.0437	.0438	.0440	.0441	.0442	.0443	.0444	.0445	.0447
153	.0448	.0449	.0450	.0451	.0452	.0454	.0455	.0456	.0457	.0458
154	.0460	.0461	.0462	.0463	.0464	.0466	.0467	.0468	.0469	.0470
155	.0472	.0473	.0474	.0475	.0476	.0478	.0479	.0480	.0481	.0483
156	.0484	.0485	.0486	.0488	.0489	.0490	.0491	.0493	.0494	.0495
157	.0496	.0498	.0499	.0500	.0501	.0503	.0504	.0505	.0507	.0508
158	.0509	.0510	.0512	.0513	.0514	.0516	.0517	.0518	.0520	.0521
159	.0522	.0523	.0525	.0526	.0527	.0529	.0530	.0531	.0533	.0534
160	.0535	.0537	.0538	.0539	.0541	.0542	.0544	.0545	.0546	.0548
161	.0549	.0550	.0552	.0553	.0554	.0556	.0557	.0559	.0560	.0561
162	.0563	.0564	.0565	.0567	.0568	.0570	.0571	.0572	.0574	.0575
163	.0577	.0578	.0580	.0581	.0582	.0584	.0585	.0587	.0588	.0590
164	.0591	.0592	.0594	.0595	.0597	.0598	.0600	.0601	.0603	.0604
165	.0606	.0607	.0609	.0610	.0611	.0613	.0614	.0616	.0617	.0619
166	.0620	.0622	.0623	.0625	.0626	.0628	.0629	.0631	.0632	.0634
167	.0635	.0637	.0639	.0640	.0642	.0643	.0645	.0646	.0648	.0649
168	.0651	.0652	.0654	.0655	.0657	.0659	.0660	.0662	.0663	.0665
169	.0666	.0668	.0670	.0671	.0673	.0674	.0676	.0678	.0679	.0681
170	.0682	.0684	.0686	.0687	.0689	.0690	.0692	.0694	.0695	.0697
171	.0699	.0700	.0702	.0703	.0705	.0707	.0708	.0710	.0712	.0713
172	.0715	.0717	.0718	.0720	.0722	.0723	.0725	.0727	.0728	.0730
173	.0732	.0734	.0735	.0737	.0739	.0740	.0742	.0744	.0745	.0747



4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
174	.0749	.0751	.0752	.0754	.0756	.0758	.0759	.0761	.0763	.0765
175	.0766	.0768	.0770	.0772	.0773	.0775	.0777	.0779	.0780	.0782
176	.0784	.0786	.0787	.0789	.0791	.0793	.0795	.0796	.0798	.0800
177	.0802	.0804	.0806	.0807	.0809	.0811	.0813	.0815	.0816	.0818
178	.0820	.0822	.0824	.0826	.0828	.0829	.0831	.0833	.0835	.0837
179	.0839	.0841	.0843	.0844	.0846	.0848	.0850	.0852	.0854	.0856
180	.0858	.0860	.0861	.0863	.0865	.0867	.0869	.0871	.0873	.0875
181	.0877	.0879	.0881	.0883	.0885	.0887	.0889	.0891	.0892	.0894
182	.0896	.0898	.0900	.0902	.0904	.0906	.0908	.0910	.0912	.0914
183	.0916	.0918	.0920	.0922	.0924	.0926	.0928	.0930	.0932	.0934
184	.0936	.0939	.0941	.0943	.0945	.0947	.0949	.0951	.0953	.0955
185	.0957	.0959	.0961	.0963	.0965	.0967	.0969	.0972	.0974	.0976
186	.0978	.0980	.0982	.0984	.0986	.0988	.0991	.0993	.0995	.0997
187	.0999	.1001	.1003	.1005	.1008	.1010	.1012	.1014	.1016	.1018
188	.1021	.1023	.1025	.1027	.1029	.1031	.1034	.1036	.1038	.1040
189	.1042	.1045	.1047	.1049	.1051	.1054	.1056	.1058	.1060	.1062
190	.1065	.1067	.1069	.1071	.1074	.1076	.1078	.1081	.1083	.1085
191	.1087	.1090	.1092	.1094	.1096	.1099	.1101	.1103	.1106	.1108
192	.1110	.1113	.1115	.1117	.1120	.1122	.1124	.1127	.1129	.1131
193	.1134	.1136	.1138	.1141	.1143	.1145	.1148	.1150	.1152	.1155
194	.1157	.1160	.1162	.1164	.1167	.1169	.1172	.1174	.1176	.1179
195	.1181	.1184	.1186	.1189	.1191	.1193	.1196	.1198	.1201	.1203
196	.1206	.1208	.1211	.1213	.1216	.1218	.1221	.1223	.1226	.1228
197	.1231	.1233	.1236	.1238	.1241	.1243	.1246	.1248	.1251	.1253
198	.1256	.1258	.1261	.1263	.1266	.1268	.1271	.1274	.1276	.1279

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
199	.1281	.1284	.1286	.1289	.1292	.1294	.1297	.1299	.1302	.1305
200	.1307	.1310	.1312	.1315	.1318	.1320	.1323	.1326	.1328	.1331
201	.1334	.1336	.1339	.1342	.1344	.1347	.1350	.1352	.1355	.1358
202	.1360	.1363	.1366	.1368	.1371	.1374	.1377	.1379	.1382	.1385
203	.1387	.1390	.1393	.1396	.1398	.1401	.1404	.1407	.1409	.1412
204	.1415	.1418	.1421	.1423	.1426	.1429	.1432	.1434	.1437	.1440
205	.1443	.1446	.1449	.1451	.1454	.1457	.1460	.1463	.1466	.1468
206	.1471	.1474	.1477	.1480	.1483	.1486	.1488	.1491	.1494	.1497
207	.1500	.1503	.1506	.1509	.1512	.1515	.1518	.1520	.1523	.1526
208	.1529	.1532	.1535	.1538	.1541	.1544	.1547	.1550	.1553	.1556
209	.1559	.1562	.1565	.1568	.1571	.1574	.1577	.1580	.1583	.1586
210	.1589	.1592	.1595	.1598	.1601	.1604	.1607	.1610	.1613	.1616
211	.1619	.1622	.1626	.1629	.1632	.1635	.1638	.1641	.1644	.1647
212	.1650	.1653	.1657	.1660	.1663	.1666	.1669	.1672	.1675	.1679
213	.1682	.1685	.1688	.1691	.1694	.1698	.1701	.1704	.1707	.1710
214	.1713	.1717	.1720	.1723	.1726	.1730	.1733	.1736	.1739	.1742
215	.1746	.1749	.1752	.1755	.1759	.1762	.1765	.1769	.1772	.1775
216	.1778	.1782	.1785	.1788	.1792	.1795	.1798	.1802	.1805	.1808
217	.1812	.1815	.1818	.1822	.1825	.1828	.1832	.1835	.1838	.1842
218	.1845	.1849	.1852	.1855	.1859	.1862	.1866	.1869	.1872	.1876
219	.1879	.1883	.1886	.1890	.1893	.1897	.1900	.1903	.1907	.1910
220	.1914	.1917	.1921	.1924	.1928	.1931	.1935	.1938	.1942	.1945
221	.1949	.1952	.1956	.1960	.1963	.1967	.1970	.1974	.1977	.1981
222	.1984	.1988	.1992	.1995	.1999	.2002	.2006	.2010	.2013	.2017
223	.2020	.2024	.2028	.2031	.2035	.2039	.2042	.2046	.2050	.2053

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
224	.2057	.2061	.2064	.2068	.2072	.2075	.2079	.2083	.2086	.2090
225	.2094	.2098	.2101	.2105	.2109	.2113	.2116	.2120	.2124	.2128
226	.2131	.2135	.2139	.2143	.2146	.2150	.2154	.2158	.2162	.2166
227	.2169	.2173	.2177	.2181	.2185	.2189	.2192	.2196	.2200	.2204
228	.2208	.2212	.2216	.2219	.2223	.2227	.2231	.2235	.2239	.2243
229	.2247	.2251	.2255	.2259	.2263	.2266	.2270	.2274	.2278	.2282
230	.2286	.2290	.2294	.2298	.2302	.2306	.2310	.2314	.2318	.2322
231	.2326	.2330	.2334	.2338	.2342	.2347	.2351	.2355	.2359	.2363
232	.2367	.2371	.2375	.2379	.2383	.2387	.2391	.2396	.2400	.2404
233	.2408	.2412	.2416	.2420	.2425	.2429	.2433	.2437	.2441	.2445
234	.2450	.2454	.2458	.2462	.2466	.2471	.2475	.2479	.2483	.2487
235	.2492	.2496	.2500	.2504	.2509	.2513	.2517	.2522	.2526	.2530
236	.2534	.2539	.2543	.2547	.2552	.2556	.2560	.2565	.2569	.2573
237	.2578	.2582	.2586	.2591	.2595	.2599	.2604	.2608	.2613	.2617
238	.2621	.2626	.2630	.2635	.2639	.2643	.2648	.2652	.2657	.2661
239	.2666	.2670	.2675	.2679	.2684	.2688	.2693	.2697	.2702	.2706
240	.2711	.2715	.2720	.2724	.2729	.2733	.2738	.2742	.2747	.2751
241	.2756	.2761	.2765	.2770	.2774	.2779	.2784	.2788	.2793	.2797
242	.2802	.2807	.2811	.2816	.2821	.2825	.2830	.2835	.2839	.2844
243	.2849	.2853	.2858	.2863	.2868	.2872	.2877	.2882	.2886	.2891
244	.2896	.2901	.2905	.2910	.2915	.2920	.2924	.2929	.2934	.2939
245	.2944	.2948	.2953	.2958	.2963	.2968	.2973	.2977	.2982	.2987
246	.2992	.2997	.3002	.3007	.3012	.3016	.3021	.3026	.3031	.3036
247	.3041	.3046	.3051	.3056	.3061	.3066	.3071	.3076	.3081	.3086
248	.3091	.3095	.3100	.3105	.3110	.3115	.3121	.3126	.3131	.3136

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
249	.3141	.3146	.3151	.3156	.3161	.3166	.3171	.3176	.3181	.3186
250	.3191	.3197	.3202	.3207	.3212	.3217	.3222	.3227	.3232	.3238
251	.3243	.3248	.3253	.3258	.3263	.3269	.3274	.3279	.3284	.3290
252	.3295	.3300	.3305	.3310	.3316	.3321	.3326	.3332	.3337	.3342
253	.3347	.3353	.3358	.3363	.3369	.3374	.3379	.3385	.3390	.3395
254	.3401	.3406	.3411	.3417	.3422	.3427	.3433	.3438	.3444	.3449
255	.3454	.3460	.3465	.3471	.3476	.3482	.3487	.3493	.3498	.3504
256	.3509	.3514	.3520	.3525	.3531	.3536	.3542	.3548	.3553	.3559
257	.3564	.3570	.3575	.3581	.3586	.3592	.3598	.3603	.3609	.3614
258	.3620	.3626	.3631	.3637	.3642	.3648	.3654	.3659	.3665	.3671
259	.3676	.3682	.3688	.3693	.3699	.3705	.3711	.3716	.3722	.3728
260	.3733	.3739	.3745	.3751	.3757	.3762	.3768	.3774	.3780	.3785
261	.3791	.3797	.3803	.3809	.3815	.3820	.3826	.3832	.3838	.3844
262	.3850	.3856	.3861	.3867	.3873	.3879	.3885	.3891	.3897	.3903
263	.3909	.3915	.3921	.3927	.3933	.3939	.3945	.3951	.3957	.3963
264	.3969	.3975	.3981	.3987	.3993	.3999	.4005	.4011	.4017	.4023
265	.4029	.4035	.4041	.4047	.4053	.4060	.4066	.4072	.4078	.4084
266	.4090	.4096	.4103	.4109	.4115	.4121	.4127	.4133	.4140	.4146
267	.4152	.4158	.4165	.4171	.4177	.4183	.4190	.4196	.4202	.4208
268	.4215	.4221	.4227	.4234	.4240	.4246	.4253	.4259	.4265	.4272
269	.4278	.4284	.4291	.4297	.4303	.4310	.4316	.4323	.4329	.4335
270	.4342	.4348	.4355	.4361	.4368	.4374	.4381	.4387	.4394	.4400
271	.4407	.4413	.4420	.4426	.4433	.4439	.4446	.4452	.4459	.4465
272	.4472	.4479	.4485	.4492	.4498	.4505	.4512	.4518	.4525	.4531
273	.4538	.4545	.4551	.4558	.4565	.4571	.4578	.4585	.4592	.4598

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
274	.4605	.4612	.4618	.4625	.4632	.4639	.4645	.4652	.4659	.4666
275	.4673	.4679	.4686	.4693	.4700	.4707	.4713	.4720	.4727	.4734
276	.4741	.4748	.4755	.4762	.4768	.4775	.4782	.4789	.4796	.4803
277	.4810	.4817	.4824	.4831	.4838	.4845	.4852	.4859	.4866	.4873
278	.4880	.4887	.4894	.4901	.4908	.4915	.4922	.4929	.4936	.4943
279	.4950	.4957	.4965	.4972	.4979	.4986	.4993	.5000	.5007	.5015
280	.5022	.5029	.5036	.5043	.5050	.5058	.5065	.5072	.5079	.5087
281	.5094	.5101	.5108	.5116	.5123	.5130	.5138	.5145	.5152	.5159
282	.5167	.5174	.5181	.5189	.5196	.5204	.5211	.5218	.5226	.5233
283	.5240	.5248	.5255	.5263	.5270	.5278	.5285	.5292	.5300	.5307
284	.5315	.5322	.5330	.5337	.5345	.5352	.5360	.5367	.5375	.5383
285	.5390	.5398	.5405	.5413	.5420	.5428	.5436	.5443	.5451	.5459
286	.5466	.5474	.5482	.5489	.5497	.5505	.5512	.5520	.5528	.5535
287	.5543	.5551	.5559	.5566	.5574	.5582	.5590	.5597	.5605	.5613
288	.5621	.5629	.5636	.5644	.5652	.5660	.5668	.5676	.5683	.5691
289	.5699	.5707	.5715	.5723	.5731	.5739	.5747	.5755	.5763	.5771
290	.5778	.5786	.5794	.5802	.5810	.5818	.5826	.5834	.5843	.5851
291	.5859	.5867	.5875	.5883	.5891	.5899	.5907	.5915	.5923	.5931
292	.5940	.5948	.5956	.5964	.5972	.5980	.5989	.5997	.6005	.6013
293	.6021	.6030	.6038	.6046	.6054	.6063	.6071	.6079	.6087	.6096
294	.6104	.6112	.6121	.6129	.6137	.6146	.6154	.6162	.6171	.6179
295	.6187	.6196	.6204	.6213	.6221	.6229	.6238	.6246	.6255	.6263
296	.6272	.6280	.6289	.6297	.6306	.6314	.6323	.6331	.6340	.6348
297	.6357	.6366	.6374	.6383	.6391	.6400	.6408	.6417	.6426	.6434
298	.6443	.6452	.6460	.6469	.6478	.6486	.6495	.6504	.6512	.6521

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
299	.6530	.6539	.6547	.6556	.6565	.6574	.6582	.6591	.6600	.6609
300	.6618	.6627	.6635	.6644	.6653	.6662	.6671	.6680	.6689	.6697
301	.6706	.6715	.6724	.6733	.6742	.6751	.6760	.6769	.6778	.6787
302	.6796	.6805	.6814	.6823	.6832	.6841	.6850	.6859	.6868	.6877
303	.6886	.6896	.6905	.6914	.6923	.6932	.6941	.6950	.6959	.6969
304	.6978	.6987	.6996	.7005	.7015	.7024	.7033	.7042	.7052	.7061
305	.7070	.7079	.7089	.7098	.7107	.7117	.7126	.7135	.7145	.7154
306	.7163	.7173	.7182	.7191	.7201	.7210	.7220	.7229	.7238	.7248
307	.7257	.7267	.7276	.7286	.7295	.7305	.7314	.7324	.7333	.7343
308	.7352	.7362	.7371	.7381	.7391	.7400	.7410	.7419	.7429	.7439
309	.7448	.7458	.7468	.7477	.7487	.7497	.7506	.7516	.7526	.7535
310	.7545	.7555	.7565	.7574	.7584	.7594	.7604	.7614	.7623	.7633
311	.7643	.7653	.7663	.7673	.7682	.7692	.7702	.7712	.7722	.7732
312	.7742	.7752	.7762	.7772	.7782	.7792	.7801	.7811	.7821	.7831
313	.7842	.7852	.7862	.7872	.7882	.7892	.7902	.7912	.7922	.7932
314	.7942	.7952	.7962	.7973	.7983	.7993	.8003	.8013	.8023	.8034
315	.8044	.8054	.8064	.8075	.8085	.8095	.8105	.8116	.8126	.8136
316	.8146	.8157	.8167	.8177	.8188	.8198	.8209	.8219	.8229	.8240
317	.8250	.8261	.8271	.8281	.8292	.8302	.8313	.8323	.8334	.8344
318	.8355	.8365	.8376	.8386	.8397	.8407	.8418	.8429	.8439	.8450
319	.8460	.8471	.8482	.8492	.8503	.8513	.8524	.8535	.8545	.8556
320	.8567	.8578	.8588	.8599	.8610	.8621	.8631	.8642	.8653	.8664
321	.8674	.8685	.8696	.8707	.8718	.8729	.8739	.8750	.8761	.8772
322	.8783	.8794	.8805	.8816	.8827	.8838	.8849	.8860	.8871	.8882
323	.8893	.8904	.8915	.8926	.8937	.8948	.8959	.8970	.8981	.8992

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
324	.9003	.9014	.9026	.9037	.9048	.9059	.9070	.9081	.9093	.9104
325	.9115	.9126	.9137	.9149	.9160	.9171	.9182	.9194	.9205	.9216
326	.9228	.9239	.9250	.9262	.9273	.9284	.9296	.9307	.9319	.9330
327	.9341	.9353	.9364	.9376	.9387	.9399	.9410	.9422	.9433	.9445
328	.9456	.9468	.9479	.9491	.9502	.9514	.9526	.9537	.9549	.9560
329	.9572	.9584	.9595	.9607	.9619	.9630	.9642	.9654	.9666	.9677
330	.9689	.9701	.9712	.9724	.9736	.9748	.9760	.9771	.9783	.9795
331	.9807	.9819	.9831	.9843	.9854	.9866	.9878	.9890	.9902	.9914
332	.9926	.9938	.9950	.9962	.9974	.9986	.9998	1.0010	1.0022	1.0034
333	1.0046	1.0058	1.0070	1.0082	1.0094	1.0107	1.0119	1.0131	1.0143	1.0155
334	1.0167	1.0180	1.0192	1.0204	1.0216	1.0228	1.0241	1.0253	1.0265	1.0277
335	1.0290	1.0302	1.0314	1.0327	1.0339	1.0351	1.0364	1.0376	1.0388	1.0401
336	1.0413	1.0425	1.0438	1.0450	1.0463	1.0475	1.0488	1.0500	1.0513	1.0525
337	1.0538	1.0550	1.0563	1.0575	1.0588	1.0600	1.0613	1.0625	1.0638	1.0651
338	1.0663	1.0676	1.0688	1.0701	1.0714	1.0726	1.0739	1.0752	1.0765	1.0777
339	1.0790	1.0803	1.0815	1.0828	1.0841	1.0854	1.0867	1.0879	1.0892	1.0905
340	1.0918	1.0931	1.0944	1.0956	1.0969	1.0982	1.0995	1.1008	1.1021	1.1034
341	1.1047	1.1060	1.1073	1.1086	1.1099	1.1112	1.1125	1.1138	1.1151	1.1164
342	1.1177	1.1190	1.1203	1.1216	1.1229	1.1243	1.1256	1.1269	1.1282	1.1295
343	1.1308	1.1322	1.1335	1.1348	1.1361	1.1374	1.1388	1.1401	1.1414	1.1427
344	1.1441	1.1454	1.1467	1.1481	1.1494	1.1507	1.1521	1.1534	1.1548	1.1561
345	1.1574	1.1588	1.1601	1.1615	1.1628	1.1642	1.1655	1.1669	1.1682	1.1696
346	1.1709	1.1723	1.1736	1.1750	1.1763	1.1777	1.1791	1.1804	1.1818	1.1831
347	1.1845	1.1859	1.1872	1.1886	1.1900	1.1914	1.1927	1.1941	1.1955	1.1969
348	1.1982	1.1996	1.2010	1.2024	1.2037	1.2051	1.2065	1.2079	1.2093	1.2107

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
349	1.2121	1.2134	1.2148	1.2162	1.2176	1.2190	1.2204	1.2218	1.2232	1.2246
350	1.2260	1.2274	1.2288	1.2302	1.2316	1.2330	1.2344	1.2358	1.2373	1.2387
351	1.2401	1.2415	1.2429	1.2443	1.2457	1.2472	1.2486	1.2500	1.2514	1.2529
352	1.2543	1.2557	1.2571	1.2586	1.2600	1.2614	1.2628	1.2643	1.2657	1.2672
353	1.2686	1.2700	1.2715	1.2729	1.2743	1.2758	1.2772	1.2787	1.2801	1.2816
354	1.2830	1.2845	1.2859	1.2874	1.2888	1.2903	1.2917	1.2932	1.2947	1.2961
355	1.2976	1.2990	1.3005	1.3020	1.3034	1.3049	1.3064	1.3078	1.3093	1.3108
356	1.3123	1.3137	1.3152	1.3167	1.3182	1.3197	1.3211	1.3226	1.3241	1.3256
357	1.3271	1.3286	1.3300	1.3315	1.3330	1.3345	1.3360	1.3375	1.3390	1.3405
358	1.3420	1.3435	1.3450	1.3465	1.3480	1.3495	1.3510	1.3525	1.3540	1.3556
359	1.3571	1.3586	1.3601	1.3616	1.3631	1.3646	1.3662	1.3677	1.3692	1.3707
360	1.3722	1.3738	1.3753	1.3768	1.3784	1.3799	1.3814	1.3830	1.3845	1.3860
361	1.3876	1.3891	1.3906	1.3922	1.3937	1.3953	1.3968	1.3984	1.3999	1.4014
362	1.4030	1.4045	1.4061	1.4077	1.4092	1.4108	1.4123	1.4139	1.4154	1.4170
363	1.4186	1.4201	1.4217	1.4233	1.4248	1.4264	1.4280	1.4295	1.4311	1.4327
364	1.4343	1.4358	1.4374	1.4390	1.4406	1.4422	1.4437	1.4453	1.4469	1.4485
365	1.4501	1.4517	1.4533	1.4549	1.4565	1.4580	1.4596	1.4612	1.4628	1.4644
366	1.4660	1.4676	1.4692	1.4709	1.4725	1.4741	1.4757	1.4773	1.4789	1.4805
367	1.4821	1.4837	1.4854	1.4870	1.4886	1.4902	1.4918	1.4935	1.4951	1.4967
368	1.4984	1.5000	1.5016	1.5032	1.5049	1.5065	1.5081	1.5098	1.5114	1.5131
369	1.5147	1.5163	1.5180	1.5196	1.5213	1.5229	1.5246	1.5262	1.5279	1.5295
370	1.5312	1.5328	1.5345	1.5362	1.5378	1.5395	1.5411	1.5428	1.5445	1.5461
371	1.5478	1.5495	1.5512	1.5528	1.5545	1.5562	1.5578	1.5595	1.5612	1.5629
372	1.5646	1.5662	1.5679	1.5696	1.5713	1.5730	1.5747	1.5764	1.5781	1.5798
373	1.5815	1.5832	1.5849	1.5866	1.5883	1.5900	1.5917	1.5934	1.5951	1.5968



4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
374	1.5985	1.6002	1.6019	1.6036	1.6053	1.6070	1.6088	1.6105	1.6122	1.6139
375	1.6156	1.6174	1.6191	1.6208	1.6226	1.6243	1.6260	1.6277	1.6295	1.6312
376	1.6330	1.6347	1.6364	1.6382	1.6399	1.6417	1.6434	1.6451	1.6469	1.6486
377	1.6504	1.6521	1.6539	1.6557	1.6574	1.6592	1.6609	1.6627	1.6644	1.6662
378	1.6680	1.6697	1.6715	1.6733	1.6750	1.6768	1.6786	1.6804	1.6821	1.6839
379	1.6857	1.6875	1.6893	1.6910	1.6928	1.6946	1.6964	1.6982	1.7000	1.7018
380	1.7036	1.7054	1.7071	1.7089	1.7107	1.7125	1.7143	1.7161	1.7179	1.7198
381	1.7216	1.7234	1.7252	1.7270	1.7288	1.7306	1.7324	1.7342	1.7361	1.7379
382	1.7397	1.7415	1.7434	1.7452	1.7470	1.7488	1.7507	1.7525	1.7543	1.7562
383	1.7580	1.7598	1.7617	1.7635	1.7653	1.7672	1.7690	1.7709	1.7727	1.7746
384	1.7764	1.7783	1.7801	1.7820	1.7838	1.7857	1.7876	1.7894	1.7913	1.7931
385	1.7950	1.7969	1.7987	1.8006	1.8025	1.8043	1.8062	1.8081	1.8100	1.8118
386	1.8137	1.8156	1.8175	1.8194	1.8213	1.8231	1.8250	1.8269	1.8288	1.8307
387	1.8326	1.8345	1.8364	1.8383	1.8402	1.8421	1.8440	1.8459	1.8478	1.8497
388	1.8516	1.8535	1.8554	1.8573	1.8593	1.8612	1.8631	1.8650	1.8669	1.8688
389	1.8708	1.8727	1.8746	1.8765	1.8785	1.8804	1.8823	1.8843	1.8862	1.8881
390	1.8901	1.8920	1.8940	1.8959	1.8978	1.8998	1.9017	1.9037	1.9056	1.9076
391	1.9095	1.9115	1.9135	1.9154	1.9174	1.9193	1.9213	1.9233	1.9252	1.9272
392	1.9292	1.9311	1.9331	1.9351	1.9370	1.9390	1.9410	1.9430	1.9449	1.9469
393	1.9489	1.9509	1.9529	1.9549	1.9569	1.9588	1.9608	1.9628	1.9648	1.9668
394	1.9688	1.9708	1.9728	1.9748	1.9768	1.9788	1.9808	1.9829	1.9849	1.9869
395	1.9889	1.9909	1.9929	1.9949	1.9970	1.9990	2.0010	2.0030	2.0051	2.0071
396	2.0091	2.0111	2.0132	2.0152	2.0172	2.0193	2.0213	2.0233	2.0254	2.0274
397	2.0295	2.0315	2.0336	2.0356	2.0377	2.0397	2.0418	2.0438	2.0459	2.0479
398	2.0500	2.0521	2.0541	2.0562	2.0583	2.0603	2.0624	2.0645	2.0665	2.0686

4  
SIGMA X T

T DEG K	0.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
399	2.0707	2.0728	2.0748	2.0769	2.0790	2.0811	2.0832	2.0853	2.0873	2.0894
400	2.0915	2.0936	2.0957	2.0978	2.0999	2.1020	2.1041	2.1062	2.1083	2.1104
401	2.1125	2.1146	2.1167	2.1188	2.1210	2.1231	2.1252	2.1273	2.1294	2.1315
402	2.1337	2.1358	2.1379	2.1400	2.1422	2.1443	2.1464	2.1486	2.1507	2.1528
403	2.1550	2.1571	2.1593	2.1614	2.1635	2.1657	2.1678	2.1700	2.1721	2.1743
404	2.1764	2.1786	2.1808	2.1829	2.1851	2.1872	2.1894	2.1916	2.1937	2.1959
405	2.1981	2.2002	2.2024	2.2046	2.2068	2.2089	2.2111	2.2133	2.2155	2.2177
406	2.2199	2.2221	2.2242	2.2264	2.2286	2.2308	2.2330	2.2352	2.2374	2.2396
407	2.2418	2.2440	2.2462	2.2484	2.2506	2.2529	2.2551	2.2573	2.2595	2.2617
408	2.2639	2.2661	2.2684	2.2706	2.2728	2.2750	2.2773	2.2795	2.2817	2.2840
409	2.2862	2.2884	2.2907	2.2929	2.2952	2.2974	2.2997	2.3019	2.3041	2.3064
410	2.3086	2.3109	2.3132	2.3154	2.3177	2.3199	2.3222	2.3245	2.3267	2.3290
411	2.3313	2.3335	2.3358	2.3381	2.3403	2.3426	2.3449	2.3472	2.3495	2.3517
412	2.3540	2.3563	2.3586	2.3609	2.3632	2.3655	2.3678	2.3701	2.3724	2.3747
413	2.3770	2.3793	2.3816	2.3839	2.3862	2.3885	2.3908	2.3931	2.3954	2.3977
414	2.4001	2.4024	2.4047	2.4070	2.4094	2.4117	2.4140	2.4163	2.4187	2.4210
415	2.4233	2.4257	2.4280	2.4304	2.4327	2.4350	2.4374	2.4397	2.4421	2.4444
416	2.4468	2.4491	2.4515	2.4538	2.4562	2.4586	2.4609	2.4633	2.4657	2.4680
417	2.4704	2.4728	2.4751	2.4775	2.4799	2.4823	2.4846	2.4870	2.4894	2.4918
418	2.4942	2.4966	2.4990	2.5013	2.5037	2.5061	2.5085	2.5109	2.5133	2.5157
419	2.5181	2.5205	2.5229	2.5253	2.5278	2.5302	2.5326	2.5350	2.5374	2.5398
420	2.5423	2.5447	2.5471	2.5495	2.5520	2.5544	2.5568	2.5592	2.5617	2.5641
421	2.5666	2.5690	2.5714	2.5739	2.5763	2.5788	2.5812	2.5837	2.5861	2.5886
422	2.5910	2.5935	2.5959	2.5984	2.6009	2.6033	2.6058	2.6083	2.6107	2.6132
423	2.6157	2.6181	2.6206	2.6231	2.6256	2.6281	2.6305	2.6330	2.6355	2.6380