

APPENDIX-B

NUMERICAL TABLES

Appendix Table 1-A
Negative Exponential Function : $\exp(-x)$ 0.000 to 0.349

	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.00	1.0000	0.9990	0.9980	0.9970	0.9960	0.9950	0.9940	0.9930	0.9920	0.9910
0.01	0.9900	0.9891	0.9881	0.9871	0.9861	0.9851	0.9841	0.9831	0.9822	0.9812
0.02	0.9802	0.9792	0.9782	0.9773	0.9763	0.9753	0.9743	0.9734	0.9724	0.9714
0.03	0.9704	0.9695	0.9685	0.9675	0.9666	0.9656	0.9646	0.9637	0.9627	0.9618
0.04	0.9608	0.9598	0.9589	0.9579	0.9570	0.9560	0.9550	0.9541	0.9531	0.9522
0.05	0.9512	0.9503	0.9493	0.9484	0.9474	0.9465	0.9455	0.9446	0.9436	0.9427
0.06	0.9418	0.9408	0.9399	0.9389	0.9380	0.9371	0.9361	0.9352	0.9343	0.9333
0.07	0.9324	0.9315	0.9305	0.9296	0.9287	0.9277	0.9268	0.9259	0.9250	0.9240
0.08	0.9231	0.9222	0.9213	0.9204	0.9194	0.9185	0.9176	0.9167	0.9158	0.9148
0.09	0.9139	0.9130	0.9121	0.9112	0.9103	0.9094	0.9085	0.9076	0.9066	0.9057
0.10	0.9048	0.9039	0.9030	0.9021	0.9012	0.9003	0.8994	0.8985	0.8976	0.8967
0.11	0.8958	0.8949	0.8940	0.8932	0.8923	0.8914	0.8905	0.8896	0.8887	0.8878
0.12	0.8869	0.8860	0.8851	0.8843	0.8834	0.8825	0.8816	0.8807	0.8799	0.8790
0.13	0.8781	0.8772	0.8763	0.8755	0.8746	0.8737	0.8728	0.8720	0.8711	0.8702
0.14	0.8694	0.8685	0.8676	0.8668	0.8659	0.8650	0.8642	0.8633	0.8624	0.8616
0.15	0.8607	0.8598	0.8590	0.8581	0.8573	0.8564	0.8556	0.8547	0.8538	0.8530
0.16	0.8521	0.8513	0.8504	0.8496	0.8487	0.8479	0.8470	0.8462	0.8454	0.8445
0.17	0.8437	0.8428	0.8420	0.8411	0.8403	0.8395	0.8386	0.8378	0.8369	0.8361
0.18	0.8353	0.8344	0.8336	0.8328	0.8319	0.8311	0.8303	0.8294	0.8286	0.8278
0.19	0.8270	0.8261	0.8253	0.8245	0.8237	0.8228	0.8220	0.8212	0.8204	0.8195
0.20	0.8187	0.8179	0.8171	0.8163	0.8155	0.8146	0.8138	0.8130	0.8122	0.8114
0.21	0.8106	0.8098	0.8090	0.8082	0.8073	0.8065	0.8057	0.8049	0.8041	0.8033
0.22	0.8025	0.8017	0.8009	0.8001	0.7993	0.7985	0.7977	0.7969	0.7961	0.7953
0.23	0.7945	0.7937	0.7929	0.7922	0.7914	0.7906	0.7898	0.7890	0.7882	0.7874
0.24	0.7866	0.7858	0.7851	0.7843	0.7835	0.7827	0.7819	0.7811	0.7804	0.7796
0.25	0.7788	0.7780	0.7772	0.7765	0.7757	0.7749	0.7741	0.7734	0.7726	0.7718
0.26	0.7711	0.7703	0.7695	0.7687	0.7680	0.7672	0.7664	0.7657	0.7649	0.7641
0.27	0.7634	0.7626	0.7619	0.7611	0.7600	0.7596	0.7588	0.7581	0.7573	0.7565
0.28	0.7558	0.7550	0.7543	0.7535	0.7528	0.7520	0.7513	0.7505	0.7498	0.7490
0.29	0.7483	0.7475	0.7468	0.7460	0.7453	0.7445	0.7438	0.7430	0.7423	0.7416
0.30	0.7408	0.7401	0.7393	0.7386	0.7393	0.7371	0.7364	0.7357	0.7349	0.7342
0.31	0.7334	0.7327	0.7320	0.7312	0.7305	0.7298	0.7291	0.7283	0.7276	0.7269
0.32	0.7261	0.7254	0.7247	0.7240	0.7233	0.7225	0.7218	0.7211	0.7204	0.7196
0.33	0.7189	0.7182	0.7175	0.7168	0.7161	0.7153	0.7146	0.7139	0.7132	0.7125
0.34	0.7118	0.7111	0.7103	0.7096	0.7089	0.7082	0.7075	0.7068	0.7061	0.7054

Appendix Table 1-B
Negative Exponential Function : (Continued) 0.350 to 0.699

	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.35	0.7047	0.7040	0.7033	0.7026	0.7019	0.7012	0.7005	0.6998	0.6991	0.6984
0.36	0.6977	0.6970	0.6963	0.6956	0.6949	0.6942	0.6935	0.6928	0.6921	0.6914
0.37	0.6907	0.6900	0.6894	0.6887	0.6880	0.6873	0.6866	0.6859	0.6852	0.6845
0.38	0.6839	0.6832	0.6825	0.6818	0.6811	0.6805	0.6798	0.6791	0.6781	0.6777
0.39	0.6771	0.6764	0.6757	0.6750	0.6744	0.6737	0.6730	0.6723	0.6717	0.6710
0.40	0.6703	0.6697	0.6690	0.6683	0.6676	0.6670	0.6663	0.6656	0.6650	0.6643
0.41	0.6637	0.6630	0.6623	0.6617	0.6610	0.6603	0.6597	0.6590	0.6584	0.6577
0.42	0.6570	0.6564	0.6557	0.6551	0.6544	0.6538	0.6531	0.6525	0.6518	0.6512
0.43	0.6505	0.6499	0.6492	0.6486	0.6479	0.6473	0.6466	0.6460	0.6453	0.6447
0.44	0.6440	0.6434	0.6427	0.6421	0.6415	0.6408	0.6402	0.6395	0.6389	0.6383
0.45	0.6376	0.6370	0.6364	0.6357	0.6351	0.6344	0.6338	0.6332	0.6325	0.6319
0.46	0.6313	0.6307	0.6300	0.6294	0.6288	0.6281	0.6275	0.6269	0.6263	0.6256
0.47	0.6250	0.6244	0.6238	0.6231	0.6225	0.6219	0.6213	0.6206	0.6200	0.6114
0.48	0.6188	0.6182	0.6175	0.6169	0.6163	0.6157	0.6151	0.6145	0.6139	0.6132
0.49	0.6126	0.6120	0.6114	0.6108	0.6102	0.6096	0.6090	0.6084	0.6077	0.6071
0.50	0.6065	0.6059	0.6053	0.6047	0.6041	0.6035	0.6029	0.6023	0.6017	0.6011
0.51	0.6005	0.5999	0.5993	0.5987	0.5981	0.5975	0.5969	0.5963	0.5957	0.5951
0.52	0.5945	0.5939	0.5933	0.5927	0.5921	0.5916	0.5910	0.5904	0.5898	0.5892
0.53	0.5886	0.5880	0.5874	0.5868	0.5863	0.5857	0.5851	0.5845	0.5839	0.5833
0.54	0.5827	0.5822	0.5816	0.5810	0.5804	0.5798	0.5793	0.5787	0.5781	0.5775
0.55	0.5769	0.5764	0.5758	0.5752	0.5746	0.5741	0.5735	0.5729	0.5724	0.5718
0.56	0.5712	0.5706	0.5701	0.5695	0.5689	0.5684	0.5678	0.5672	0.5667	0.5661
0.57	0.5655	0.5650	0.5644	0.5638	0.5633	0.5627	0.5621	0.5616	0.5610	0.2605
0.58	0.5599	0.5593	0.5588	0.5582	0.5577	0.5571	0.5565	0.5560	0.5554	0.5549
0.59	0.5543	0.5538	0.5532	0.5527	0.5521	0.5516	0.5510	0.5505	0.5499	0.5494
0.60	0.5488	0.5483	0.5477	0.5472	0.5466	0.5461	0.5455	0.5450	0.5444	0.5439
0.61	0.5434	0.5428	0.5423	0.5417	0.5412	0.5406	0.5401	0.5396	0.5390	0.5385
0.62	0.5379	0.5374	0.5369	0.5363	0.5358	0.5353	0.5347	0.5342	0.5337	0.5331
0.63	0.5326	0.5321	0.5315	0.5310	0.5305	0.5299	0.5294	0.5289	0.5283	0.5278
0.64	0.5273	0.5268	0.5262	0.5257	0.5252	0.5247	0.5241	0.5236	0.5231	0.5226
0.65	0.5220	0.5215	0.5210	0.5205	0.5200	0.5194	0.5189	0.5184	0.5179	0.5174
0.66	0.5169	0.5163	0.5158	0.5153	0.5148	0.5143	0.5138	0.5132	0.5127	0.5122
0.67	0.5117	0.5112	0.5107	0.5102	0.5097	0.5092	0.5086	0.5081	0.5076	0.5071
0.68	0.5066	0.5061	0.5056	0.5051	0.5046	0.5041	0.5036	0.5031	0.5026	0.5021
0.69	0.5016	0.5011	0.5006	0.5001	0.4996	0.4991	0.4986	0.4981	0.4976	0.4971

Appendix Table 1-C
Negative Exponential Function : (Continued) 0.700 to 0.999

	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.70	0.4066	0.4961	0.4956	0.4951	0.4946	0.4941	0.4936	0.4931	0.4926	0.4921
0.71	0.4916	0.4912	0.4907	0.4902	0.4897	0.4892	0.4887	0.4882	0.4877	0.4872
0.72	0.4868	0.4863	0.4858	0.4853	0.4848	0.4843	0.4838	0.4834	0.4829	0.4824
0.73	0.4819	0.4914	0.4809	0.4805	0.4800	0.4795	0.4790	0.4785	0.4781	0.4776
0.74	0.4771	0.4766	0.4762	0.4757	0.4752	0.4747	0.4743	0.4738	0.4733	0.4728
0.75	0.4724	0.4719	0.4714	0.4710	0.4705	0.4700	0.4695	0.4691	0.4686	0.4681
0.76	0.4677	0.4672	0.4667	0.4663	0.4658	0.4653	0.4649	0.4644	0.4639	0.4635
0.77	0.4630	0.4626	0.4621	0.4616	0.4612	0.4607	0.4602	0.4598	0.4593	0.4589
0.78	0.4584	0.4579	0.4575	0.4570	0.4566	0.4561	0.4557	0.4552	0.4548	0.4543
0.79	0.4538	0.4534	0.4529	0.4525	0.4520	0.4516	0.4511	0.4507	0.4502	0.4498
0.80	0.4493	0.4489	0.4484	0.4480	0.4475	0.4471	0.4466	0.4462	0.4457	0.4453
0.81	0.4449	0.4444	0.4440	0.4435	0.4431	0.4426	0.4422	0.4418	0.4413	0.4409
0.82	0.4404	0.4400	0.4396	0.4391	0.4387	0.4382	0.4378	0.4374	0.4369	0.4365
0.83	0.4360	0.4356	0.4352	0.4347	0.4343	0.4339	0.4334	0.4330	0.4326	0.4321
0.84	0.4317	0.4313	0.4308	0.4304	0.4300	0.4296	0.4291	0.4287	0.4283	0.4278
0.85	0.4274	0.4270	0.4266	0.4261	0.4257	0.4253	0.4239	0.4244	0.4240	0.4236
0.86	0.4232	0.4227	0.4223	0.4219	0.4215	0.4211	0.4206	0.4202	0.4198	0.4194
0.87	0.4190	0.4185	0.4181	0.4117	0.4173	0.4169	0.4164	0.4160	0.4156	0.4152
0.88	0.4148	0.4144	0.4140	0.4135	0.4131	0.4127	0.4123	0.4119	0.4115	0.4111
0.89	0.4107	0.4102	0.4098	0.4094	0.4090	0.4086	0.4082	0.4078	0.4074	0.4070
0.90	0.4066	0.4062	0.4058	0.4054	0.4049	0.4045	0.4041	0.4037	0.4033	0.4029
0.91	0.4025	0.4021	0.4017	0.4013	0.4009	0.4005	0.4001	0.3997	0.3993	0.3989
0.92	0.3985	0.3981	0.3977	0.3973	0.3969	0.3965	0.3961	0.3957	0.3953	0.30949
0.93	0.3946	0.3042	0.3938	0.3934	0.3930	0.3926	0.3922	0.3918	0.3914	0.3910
0.94	0.3906	0.3902	0.3898	0.3895	0.3891	0.3887	0.3883	0.3879	0.3885	0.3871
0.95	0.3867	0.3864	0.3860	0.3856	0.3852	0.3848	0.3844	0.3840	0.3837	0.3833
0.96	0.3829	0.3825	0.3821	0.3817	0.3814	0.3810	0.3806	0.3802	0.3798	0.3795
0.97	0.3791	0.3787	0.3783	0.3779	0.3776	0.3772	0.3768	0.3764	0.3761	0.3761
0.98	0.3753	0.3749	0.3746	0.3742	0.3738	0.3734	0.3731	0.3727	0.3723	0.3719
0.99	0.3716	0.3712	0.3708	0.3705	0.3701	0.3697	0.3694	0.3690	0.3686	0.3682

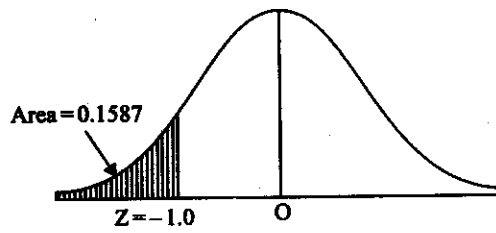
Appendix Table 1-D
Negative Exponential Function : (Continued) 1.00 to 3.99

	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
1.0	0.36788	0.36422	0.36059	0.35701	0.35345	0.34994	0.34646	0.34301	0.33960	0.33622
1.1	0.33287	0.32956	0.32628	0.32303	0.31982	0.31664	0.31349	0.31037	0.30728	0.30422
1.2	0.30119	0.29820	0.29523	0.29229	0.28938	0.28650	0.20365	0.28083	0.27804	0.27527
1.3	0.27553	0.26982	0.26714	0.26448	0.26185	0.25924	0.25666	0.25411	0.25158	0.24908
1.4	0.24660	0.24414	0.24171	0.23931	0.23693	0.23457	0.23224	0.22993	0.22764	0.22537
1.5	0.22313	0.22091	0.21871	0.21654	0.21438	0.21225	0.21014	0.20805	0.20598	0.20393
1.6	0.20190	0.19989	0.19790	0.19593	0.19398	0.19205	0.19014	0.18825	0.18637	0.18452
1.7	0.18268	0.18087	0.17907	0.17728	0.17552	0.17377	0.17204	0.17033	0.16864	0.16696
1.8	0.16530	0.16365	0.16203	0.16041	0.15882	0.15724	0.15567	0.15412	0.15259	0.15107
1.9	0.14957	0.14808	0.14661	0.14515	0.14370	0.14227	0.14086	0.13946	0.13807	0.13670
2.0	0.13534	0.13399	0.13266	0.13134	0.13003	0.12873	0.12745	0.12619	0.12493	0.12369
2.1	0.12246	0.12124	0.12003	0.11884	0.11765	0.11648	0.11533	0.11418	0.11304	0.11192
2.2	0.11080	0.10970	0.10861	0.10753	0.10646	0.10540	0.10435	0.10331	0.10228	0.10127
2.3	0.10026	0.09826	0.09827	0.09730	0.09633	0.09537	0.09442	0.09348	0.09255	0.09163
2.4	0.09072	0.08982	0.08892	0.08804	0.08716	0.08629	0.08543	0.08458	0.08374	0.08291
2.5	0.08208	0.08127	0.08046	0.07966	0.07887	0.07808	0.07730	0.07654	0.07577	0.07502
2.6	0.07427	0.07353	0.07280	0.07208	0.07136	0.07065	0.06995	0.06925	0.06856	0.06788
2.7	0.06721	0.06654	0.06587	0.06522	0.06457	0.06393	0.06329	0.06266	0.06204	0.06142
2.8	0.06081	0.06020	0.5961	0.05901	0.05843	0.05784	0.05727	0.05670	0.05613	0.05558
2.9	0.05502	0.05448	0.05393	0.05340	0.05287	0.05234	0.05182	0.05130	0.05079	0.05029
3.0	0.04979	0.04929	0.04880	0.04832	0.04783	0.04736	0.04689	0.04642	0.04596	0.04550
3.1	0.04505	0.04460	0.04416	0.04372	0.04328	0.04285	0.04243	0.04200	0.04259	0.04117
3.2	0.04076	0.04036	0.03996	0.03956	0.03916	0.03877	0.03839	0.03801	0.03763	0.03725
3.3	0.03688	0.03652	0.03615	0.03579	0.03544	0.03508	0.03474	0.03439	0.03405	0.03371
3.4	0.03337	0.03304	0.03271	0.03239	0.03206	0.03175	0.03143	0.03112	0.03118	0.03050
3.5	0.03020	0.02990	0.02960	0.02930	0.02901	0.02872	0.02844	0.02816	0.02788	0.02760
3.6	0.02732	0.02705	0.02678	0.02652	0.02625	0.02599	0.02573	0.02548	0.02522	0.02497
3.7	0.02472	0.02448	0.02423	0.02399	0.02375	0.02352	0.02328	0.02305	0.02282	0.02260
3.8	0.02237	0.02215	0.02193	0.02171	0.02149	0.02128	0.02107	0.02086	0.02065	0.02045
3.9	0.02024	0.02004	0.01984	0.01964	0.01945	0.01925	0.01906	0.01887	0.01869	0.01850

Appendix Table 1-E
Negative Exponential Function : (Continued) 4.00 to 6.99

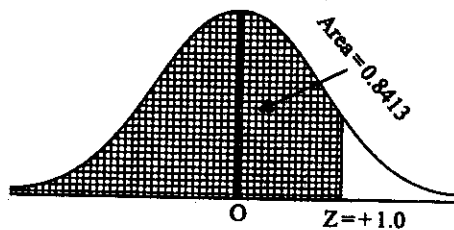
	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
4.0	0.01832	0.01813	0.01795	0.01777	0.01760	0.01742	0.01725	0.01708	0.01691	0.01674
4.1	0.01657	0.01641	0.01624	0.01608	0.01692	0.01576	0.01561	0.01545	0.01530	0.01515
4.2	0.01500	0.01485	0.01470	0.01455	0.01441	0.01426	0.01412	0.01398	0.01384	0.01370
4.3	0.01357	0.01343	0.01330	0.01317	0.01304	0.01291	0.01278	0.01265	0.01253	0.01240
4.4	0.01228	0.01216	0.01203	0.01191	0.01180	0.01168	0.01156	0.01145	0.01133	0.01122
4.5	0.01111	0.01100	0.01089	0.01078	0.01067	0.01057	0.01046	0.01036	0.01025	0.01015
4.6	0.01005	0.00995	0.00985	0.00975	0.00966	0.00956	0.00947	0.00937	0.00928	0.00919
4.7	0.00910	0.00900	0.00892	0.00883	0.00874	0.00865	0.00857	0.00848	0.00840	0.00831
4.8	0.00823	0.00815	0.00807	0.00799	0.00791	0.00783	0.00775	0.00767	0.00760	0.00752
4.9	0.00745	0.00737	0.00730	0.00723	0.00715	0.00708	0.00701	0.00694	0.00687	0.00681
5.0	0.00674	0.00667	0.00660	0.00654	0.00647	0.00641	0.00635	0.00628	0.00622	0.00616
5.1	0.00610	0.00604	0.00598	0.00592	0.00586	0.00580	0.00574	0.00568	0.00563	0.00557
5.2	0.00552	0.00546	0.00541	0.00535	0.00530	0.00525	0.00520	0.00514	0.00509	0.00504
5.3	0.00499	0.00494	0.00489	0.00484	0.00480	0.00475	0.00470	0.00465	0.00461	0.00456
5.4	0.00452	0.00447	0.00443	0.00438	0.00434	0.00430	0.00425	0.00421	0.00417	0.00413
5.5	0.00409	0.00405	0.00401	0.00397	0.00393	0.0389	0.00385	0.00381	0.00377	0.00374
5.6	0.00370	0.00366	0.00362	0.00359	0.00355	0.00352	0.00348	0.00345	0.00341	0.00338
5.7	0.00335	0.00331	0.00328	0.00325	0.00321	0.00318	0.0015	0.00312	0.00309	0.00306
5.8	0.00303	0.00300	0.00297	0.00294	0.00291	0.00288	0.00285	0.00282	0.00279	0.00277
5.9	0.00274	0.00271	0.00269	0.00266	0.00263	0.00261	0.00258	0.00255	0.00253	0.00250
6.0	0.00248	0.00245	0.00243	0.00241	0.00238	0.00236	0.00233	0.00231	0.00229	0.00227
6.1	0.00224	0.00222	0.00220	0.00218	0.00215	0.00213	0.00211	0.00209	0.00207	0.00205
6.2	0.00203	0.00201	0.00199	0.00197	0.00195	0.00193	0.00191	0.00189	0.00187	0.00185
6.3	0.00184	0.00182	0.00180	0.00178	0.00176	0.00175	0.00173	0.00171	0.00170	0.00168
6.4	0.00166	0.00165	0.00163	0.00161	0.00160	0.00158	0.00156	0.00155	0.00153	0.00152
6.5	0.00150	0.00149	0.00147	0.00146	0.00144	0.00143	0.00142	0.00140	0.00139	0.00137
6.6	0.00136	0.00135	0.00133	0.00132	0.00131	0.00129	0.00128	0.00127	0.00126	0.00124
6.7	0.00123	0.00122	0.00121	0.00119	0.00118	0.00117	0.00116	0.00115	0.00114	0.00112
6.8	0.00111	0.00110	0.00109	0.00108	0.00107	0.00106	0.00105	0.00104	0.00103	0.00102
6.9	0.00101	0.00100	0.00099	0.00098	0.00097	0.00096	0.00095	0.00094	0.00093	0.00092

Appendix Table 2-A
Area Under the Standard normal Distribution
for Negative Values of Z



Z to First Decimal	Second Decimal									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.0	.0014	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0126	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0238	.0233
-1.8	.0359	.0352	.0344	.0336	.0329	.0322	.0314	.0307	.0300	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0570	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0722	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1529	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1785	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2297	.2266	.2236	.2206	.2177	.2143
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

Appendix Table 2-B
Area Under the Standard Normal Distribution
from extreme Left to Positive Values of Z



Example. To find the area under the curve from extreme left ($Z = -\infty$) to a point $Z = 1.0$ to the right of the mean, look up the value opposite 1.0 in the table; .8413 of the area under the curve lies between the extreme left ($Z = -\infty$) to a z value.

Z to First Decimal	Second Decimal									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6841	.6879
0.5	.6915	.6950	.6985	.9019	.7054	.7088	.7123	.7157	.7190	.7224
0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7406	.7517	.7549
0.7	.7580	.7611	.7642	.7673	.7703	.7734	.7764	.7794	.7823	.7852
0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8910	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9278	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9430	.9441
1.6	.9452	.9463	.9474	.9485	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9700	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9762	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9865	.9868	.9871	.9874	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9924	.9926	.9928	.9930	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9944	.9946	.9932	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9958	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9979	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9986	.9987	.9987	.9988	.9988	.9988	.9989	.9989	.9990	.9990

Appendix Table 3
Proportion of Total Area Under the Normal Curve From ∞ To t ,
Where $t = (x - \mu)/\sigma$

t	$\Psi(t)$	t	$\Psi(t)$	t	$\Psi(t)$	t	$\Psi(t)$
0.00	0.5000	0.65	0.7422	1.30	0.9032	1.95	0.9744
0.01	0.5040	0.66	0.7454	1.31	0.9049	1.96	0.9750
0.02	0.5080	0.67	0.7486	1.32	0.9066	1.97	0.9756
0.03	0.5120	0.68	0.7517	1.33	0.9082	1.98	0.9761
0.04	0.5160	0.69	0.7549	1.34	0.9099	1.99	0.9767
0.05	0.5199	0.70	0.7580	1.35	0.9115	2.00	0.9772
0.06	0.5239	.071	0.7611	1.36	0.9131	2.02	0.9783
0.07	0.5279	0.72	0.7642	1.37	0.9147	2.04	.09793
0.08	0.5319	0.73	0.7673	1.38	0.9162	2.06	0.9803
0.09	0.5359	0.74	0.7703	1.39	0.9177	2.08	0.9812
0.10	0.5398	0.75	0.7734	1.40	0.9192	2.10	0.9821
0.11	0.5438	0.76	0.7764	1.41	0.9207	2.12	0.9830
0.12	0.5478	0.77	0.7794	1.42	0.9222	2.14	0.9838
0.13	0.5517	0.78	0.7823	1.43	0.9236	2.16	0.9846
0.14	0.5557	0.79	0.7852	1.44	0.9251	2.18	0.9854
0.15	0.5596	0.80	0.7881	1.45	0.9265	2.20	0.9861
0.16	0.5636	0.81	0.7910	1.46	0.9279	2.22	0.9868
0.17	0.5675	0.82	0.7939	1.47	0.9292	2.24	0.9875
0.18	0.5714	0.83	0.7967	1.48	0.9306	2.26	0.9881
0.19	0.5753	0.84	0.7995	1.49	0.9319	2.28	0.9887
0.20	0.5793	0.85	0.8023	1.50	0.9332	2.30	0.9893
0.21	0.5832	0.86	0.8051	1.51	0.9345	2.32	0.9898
0.22	0.5871	0.87	0.8078	1.52	0.9357	2.34	0.9904
0.23	0.5910	0.88	0.8106	1.53	0.9370	2.36	0.9909
0.24	0.5948	0.89	0.8133	1.54	0.9382	2.38	0.9913
0.25	0.5987	0.90	0.8159	1.55	0.9394	2.40	0.9918
0.26	0.6026	0.91	0.8186	1.56	0.9406	2.42	0.9922
0.27	0.6064	0.92	0.8212	1.57	0.9418	2.44	0.9927
0.28	0.6103	0.93	0.8238	1.58	0.9429	2.46	0.9931
0.29	0.6141	0.94	0.8264	1.59	0.9441	2.48	0.9934
0.30	0.6179	0.95	0.8289	1.60	0.9252	2.50	0.9938
0.31	0.6217	0.96	0.8315	1.61	0.9463	2.52	0.9941
0.32	0.6255	0.97	0.8340	1.62	0.9474	2.54	0.9945
0.33	0.6293	0.98	0.8365	1.63	0.9484	2.56	0.9948
0.34	0.6331	0.99	0.8389	1.64	0.9495	2.58	0.9951
0.35	0.6368	1.00	0.8413	1.65	0.9505	2.60	0.9953
0.36	0.6406	0.01	0.8438	1.66	0.9515	2.62	0.9956
0.37	0.6443	1.02	0.8461	1.67	0.9525	2.64	0.9959
0.38	0.6480	1.03	0.8485	1.68	0.9535	2.66	0.9961
0.39	0.6517	1.04	0.8508	1.69	0.9545	2.68	0.9963
0.40	0.6554	1.05	0.8531	1.70	0.9554	2.70	0.9965
0.41	0.6591	1.06	0.8554	1.71	0.9564	2.72	0.9967
0.42	0.6628	1.07	0.8577	1.72	0.9573	2.74	0.9969
0.43	0.6664	1.08	0.8599	1.73	0.9582	2.76	0.9971
0.44	0.6700	0.09	0.8621	1.74	0.9591	2.78	0.9973
0.45	0.6736	1.10	0.8643	1.75	0.5999	2.80	0.9974
0.46	0.6772	1.11	0.8665	1.76	0.9608	2.82	0.9976
0.47	0.6808	1.12	0.8686	1.77	0.9616	2.84	0.9977
0.48	0.6844	1.13	0.8708	1.78	0.9625	2.86	0.9979
0.49	0.6879	1.14	0.8729	1.79	0.9633	2.88	0.9980
0.50	0.6915	1.15	0.8749	1.80	0.9641	2.90	0.9981
0.51	0.6950	1.16	0.8770	1.81	0.9649	2.92	0.9982
0.52	0.6985	1.17	0.8790	1.82	0.9656	2.94	0.9984
0.53	0.7019	1.18	0.8810	1.83	0.9664	2.96	0.9985

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0.54	0.7054	1.19	0.8830	1.84	0.9671	2.98	0.9986
0.55	0.7088	1.20	0.8849	1.85	0.9678	3.00	0.99865
0.56	0.7123	1.21	0.8869	1.86	0.9686	3.20	0.99931
0.57	0.7190	1.22	0.8888	1.87	0.9693	3.40	0.99966
0.58	0.7190	1.23	0.8907	1.88	0.9699	3.60	0.999841
0.59	0.7224	1.24	0.8925	1.89	0.9706	3.80	0.999928
0.60	0.7257	1.25	0.8944	1.90	0.9713	4.00	0.999968
0.61	0.7291	1.26	0.8962	1.91	0.9719	4.50	0.999997
0.62	0.7324	1.27	0.8980	1.92	0.9726	5.00	0.999997
0.63	0.7357	1.28	0.8997	1.93	0.9732		
0.64	0.7389	1.29	0.9015	1.94	0.9738		

Appendix Table 4

Values of e^x and e^{-x}

x	e^x	e^{-x}	x	e^x	e^{-x}
0.00	1.000	1.000	3.00	20.086	0.050
0.10	1.105	0.905	3.10	22.198	0.045
0.20	1.221	0.819	3.20	24.533	0.041
0.30	1.350	0.741	3.30	27.113	0.037
0.40	1.492	0.670	3.40	29.964	0.033
0.50	1.649	0.607	3.50	33.115	0.030
0.60	1.822	0.549	3.60	36.598	0.027
0.70	2.014	0.497	3.70	40.447	0.025
0.80	2.226	0.449	3.80	44.701	0.022
0.90	2.460	0.407	3.90	49.402	0.020
1.00	2.718	0.368	4.00	54.598	0.018
1.10	3.004	0.333	4.10	60.340	0.017
1.20	3.320	0.301	4.20	66.686	0.015
1.30	3.669	0.273	4.30	73.700	0.014
1.40	4.055	0.247	4.40	81.451	0.012
1.50	4.482	0.223	4.50	90.017	0.011
1.60	4.953	0.202	4.60	99.484	0.010
1.70	5.474	0.183	4.70	109.95	0.009
1.80	6.050	0.165	4.80	121.51	0.008
1.90	6.686	0.150	4.90	134.29	0.007
2.00	7.389	0.135	5.00	148.41	0.007
2.10	8.166	0.122	5.10	164.02	0.066
2.20	9.025	0.111	5.20	181.27	0.066
2.30	9.974	0.100	5.30	200.34	0.055
2.40	11.023	0.091	5.40	221.41	0.055
2.50	12.182	0.082	5.50	244.69	0.004
2.60	13.464	0.074	5.60	270.43	0.004
2.70	14.880	0.067	5.70	298.87	0.003
2.80	16.445	0.061	5.80	330.30	0.003
2.90	18.174	0.055	5.90	365.04	0.003
3.00	20.086	0.050	6.00	403.43	0.002

Appendix Table 5-B
Poisson Distribution (Continued)

x/λ	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
0	.0450	.0408	.0369	.0334	.0302	.0273	.0247	.0224	.0224	.0183
1	.1397	.1304	.1217	.1135	.1057	.0984	.0915	.0850	.0789	.0733
2	.2165	.2087	.2008	.1929	.1850	.1771	.1692	.1615	.1539	.1465
3	.2237	.2226	.2209	.2186	.2158	.2125	.2087	.2046	.2001	.1954
4	.0734	.1781	.1823	.1858	.1888	.1912	.1931	.1944	.1951	.1954
5	.1075	.1140	.1203	.1264	.1322	.1377	.1429	.1477	.1522	.1563
6	.0555	.0608	.0662	.0716	.0771	.0826	.0881	.0936	.0989	.1042
7	.0246	.0278	.0312	.0348	.0385	.0425	.0466	.008	.0551	.1595
8	.0095	.0111	.0129	.0148	.0159	.0191	.0215	.0241	.0269	.0298
9	.0033	.0040	.0047	.0056	.0066	.0076	.0089	.0102	.0116	.0132
10	.0010	.0013	.0016	.0019	.0023	.0028	.0033	.0039	.0045	.0053
11	.0003	.0004	.0005	.0006	.0007	.0009	.0011	.0013	.0016	.0019
12	.0001	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0005	.0006
13	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0001	.0002	.0002
14	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001
x/λ	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
0	.0166	.0150	.0136	.0123	.0111	.0101	.0091	.0082	.0074	.0067
1	.0679	.0630	.0583	.0540	.0500	.0462	.0427	.0395	.0365	.0337
2	.1393	.1323	.1254	.1188	.1125	.1063	.1005	.0948	.0894	.0842
3	.1904	.1852	.1798	.1743	.1687	.1631	.1574	.1517	.1460	.1404
4	.1951	.1944	.1933	.1917	.1898	.1875	.1849	.1820	.1789	.1775
5	.1600	.1633	.1662	.1687	.1708	.1725	.1738	.1747	.1753	.1755
6	.1093	.1143	.1191	.1237	.1281	.1323	.1362	.1398	.1432	.1462
7	.0640	.0686	.0732	.0778	.0824	.0869	.0914	.0959	.1002	.1044
8	.0328	.0360	.0393	.0428	.0463	.0500	.0537	.0537	.0614	.0653
9	.0150	.0168	.0188	.0209	.0232	.0255	.0280	.0307	.0334	.0363
10	.0061	.0071	.0081	.0092	.0104	.0118	.0132	.0147	.0164	.0181
11	.0023	.0027	.0032	.0037	.0043	.0049	.0056	.0064	.0073	.0082
12	.0008	.0009	.0011	.0014	.0016	.0019	.0022	.0026	.0030	.0034
13	.0002	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0011	.0013
14	.0001	.0001	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0005
15	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0001	.0001	.0002

Appendix Table 5- C
Poisson Distribution (Continued)

x/λ	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
0	.0061	.0055	.0050	.0045	.0041	.0037	.0033	.0030	.0027	.0025
1	.0311	.0287	.0265	.0244	.0225	.0207	.0191	.0176	.0162	.0149
2	.0793	.0746	.0701	.0659	.0618	.0580	.0544	.0509	.0477	.0446
3	.1348	.1293	.1239	.1185	.1133	.1082	.1033	.0985	.0938	.0892
4	.1719	.1681	.1641	.1600	.1558	.1515	.1472	.1428	.1383	.1339
5	.1753	.1748	.1740	.1728	.1714	.1697	.1678	.1656	.1632	.1606
6	.1490	.1515	.1537	.1555	.1571	.1584	.1594	.1601	.1605	.1606
7	.1086	.1125	.1163	.1200	.1234	.1267	.1298	.1326	.1353	.1377
8	.0692	.0731	.0771	.0810	.0849	.0887	.0925	.0962	.0998	.1033
9	.0362	.0423	.0454	.0486	.0519	.0552	.0586	.0620	.0654	.0688
10	.0200	.0220	.0241	.0262	.0285	.0309	.0334	.0359	.0386	.0413
11	.0093	.0104	.0116	.0129	.0143	.0157	.0173	.0190	.0207	.0225
12	.0039	.0045	.0051	.0058	.0065	.0073	.0082	.0092	.0102	.0113
13	.0015	.0014	.0021	.0024	.0028	.0032	.0036	.0041	.0046	.0052
14	.0006	.0007	.0008	.0009	.0011	.0013	.0015	.0017	.0019	.0022
15	.0002	.0002	.0003	.0003	.0004	.0005	.0006	.0007	.0008	.0009
16	.0001	.0001	.0001	.0001	.0001	.0002	.0002	.0002	.0003	.0003
17	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0001
x/λ	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
0	.0022	.0020	.0018	.0017	.0015	.0014	.0012	.0011	.0010	.0000
1	.0137	.0126	.0116	.0106	.0098	.0090	.0082	.0076	.0070	.0064
2	.0417	.0390	.0364	.0340	.0318	.0296	.0276	.0258	.0240	.0223
3	.0848	.0806	.0765	.0726	.0688	.0652	.0617	.0584	.0552	.0521
4	.1294	.1249	.1203	.1162	.1118	.1076	.1034	.0992	.0952	.0912
5	.1579	.1549	.1519	.1487	.1454	.1420	.1385	.1349	.1314	.1277
6	.1605	.1601	.1595	.1586	.1575	.1562	.1546	.1529	.1511	.1490
7	.1399	.1418	.1435	.1450	.1462	.1472	.1480	.1486	.1489	.1490
8	.1066	.1099	.1130	.1160	.1188	.1215	.1240	.1263	.1284	.1304
9	.0723	.0757	.0791	.0825	.0858	.0891	.0923	.0954	.0985	.1014
10	.0441	.0469	.0498	.5285	.0558	.0588	.0618	.0679	.0679	.0710
11	.0245	.0265	.0285	.0307	.0330	.0353	.0377	.0401	.0426	.0452
12	.0124	.0137	.0150	.0164	.0179	.0194	.0210	.0227	.0245	.0264
13	.0058	.0065	.0073	.0081	.0089	.0098	.0108	.0117	.0130	.0142
14	.0025	.0029	.0033	.0037	.0041	.0046	.0052	.0058	.0064	.0071
15	.0010	.0012	.0014	.0016	.0018	.0020	.0023	.0026	.0029	.0033
16	.0004	.0005	.0005	.0006	.0007	.0008	.0010	.0011	.0013	.0014
17	.0001	.0002	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0006
18	.0000	.0001	.0001	.0001	.0001	.0001	.0001	.0002	.0002	.0002
19	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001

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Appendix Table 6
Control Charts

Number of Observations in Sample <i>n</i>	Chart for Averages			Chart for Standard Deviations						Chart for Ranges						
	Factors for Control Limits			Factors for Central Line		Factors for Control Limits				Factors for Central Line		Factors for Control Limits				
	A	A ₁	A ₂	c ₂	1/c ₂	B ₁	B ₂	B ₃	B ₄	d ₂	1/d ₂	d ₃	D ₁	D ₂	D ₃	D ₄
2	2.121	3.760	1.880	0.5642	1.7725	0	1.843	0	3.267	1.128	0.8865	0.853	0	3.686	0	3.267
3	1.732	2.394	1.023	0.7236	1.3820	0	1.858	0	2.568	1.693	0.5907	0.888	0	4.358	0	2.576
4	1.500	1.880	0.729	0.7979	1.2533	0	1.808	0	2.266	2.059	0.4857	0.880	0	4.698	0	2.282
5	1.342	1.596	0.577	0.8407	1.1894	0	1.756	0	2.089	2.326	0.4299	0.864	0	4.918	0	2.115
6	1.225	1.410	0.483	0.8686	1.1512	0.026	1.711	0.030	0.970	2.534	0.3946	0.848	0	5.078	0	2.004
7	1.134	1.277	0.419	0.8882	1.1259	0.105	1.672	0.118	1.882	2.704	0.3698	0.833	0.205	5.203	0.076	1.294
8	1.061	1.175	0.373	0.9027	1.1078	0.167	1.638	0.185	1.815	2.847	0.3512	0.820	0.387	5.307	0.136	1.884
9	1.000	1.094	0.337	0.9139	1.0942	0.219	1.609	0.239	1.761	2.970	0.3367	0.808	0.546	5.394	0.184	1.816
10	0.949	1.028	0.308	0.9227	1.0837	0.262	1.584	0.284	1.716	3.078	0.3249	0.797	0.687	5.489	0.223	1.777
11	0.905	0.973	0.285	0.9300	1.0753	0.299	1.561	0.321	1.679	3.173	0.3152	0.787	0.812	5.534	0.256	1.744
12	0.866	0.925	0.266	0.9359	1.0684	0.331	1.541	0.354	1.646	3.258	0.3059	0.778	0.924	5.592	0.284	1.716
13	0.882	0.884	0.249	0.9410	1.0627	0.359	1.523	0.382	1.618	3.336	0.2998	0.770	1.026	5.546	0.308	1.692
14	0.802	0.848	0.235	0.9453	1.0579	0.384	1.507	0.406	1.594	3.407	0.2935	0.762	1.121	5.523	0.329	1.671
15	0.775	0.816	0.223	0.9490	1.0537	0.406	1.492	0.428	1.572	3.472	0.2880	0.755	1.207	5.737	0.348	1.652
16	0.750	0.788	0.212	0.9523	1.0501	0.427	1.478	0.448	1.552	3.532	0.2831	0.749	1.285	5.779	0.364	1.636
17	0.728	0.762	0.203	0.9551	1.0470	0.445	1.465	0.466	1.534	3.588	0.2787	0.743	1.359	5.817	0.379	1.621
18	0.707	0.738	0.194	0.9576	1.0442	0.461	1.454	0.482	1.518	3.640	0.2747	0.738	1.426	5.854	0.392	1.608
19	0.688	0.717	0.187	0.9599	1.0418	0.477	1.443	0.497	1.503	3.689	0.2711	0.733	1.490	5.888	0.404	1.596
20	0.671	0.697	0.180	0.9619	1.0396	0.491	1.433	0.510	1.490	3.735	0.2677	0.729	1.548	5.922	0.414	1.586
21	0.655	0.679	0.173	0.9638	1.0376	0.504	1.424	0.523	1.477	3.778	0.2647	0.724	1.605	5.950	0.425	1.575
22	0.640	0.662	0.167	0.9655	1.0358	0.516	1.415	0.534	1.466	3.819	0.2618	0.720	1.659	5.979	0.434	1.566
23	0.626	0.647	0.162	0.9670	1.0342	0.527	1.407	0.545	1.455	3.858	0.2592	0.716	1.710	6.008	0.443	1.557
24	0.612	0.632	0.157	0.9684	1.0327	0.538	1.399	0.555	1.445	3.895	0.2567	0.712	1.759	6.031	0.452	1.548
25	0.600	0.619	0.153	0.9696	1.0313	0.548	1.392	0.565	1.435	3.931	0.2544	0.709	1.804	6.058	0.459	1.541
Over 25	$\frac{3}{\sqrt{n}}$	$\frac{3}{\sqrt{n}}$	-	-	-	↑	↑	↑	↑	-	-	-	-	-	-	-



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