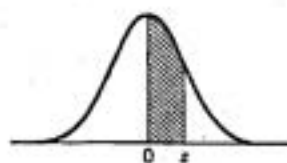


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AREAS UNDER THE NORMAL CURVE

An entry in the table is the proportion under the entire curve which is between $z = 0$ and a positive value of z . Areas for negative values of z are obtained by symmetry.



		Second decimal place of z								
z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2703	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

CUMULATIVE STANDARD NORMAL DISTRIBUTION*

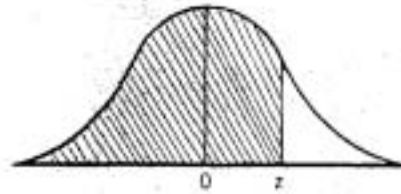


Table entries are cumulative probabilities represented in the shaded area above.

<i>z</i>	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
10	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.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	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.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	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.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	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
3.3	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998
<i>z</i>	1.282	1.645	1.960	2.326	2.575	3.090	3.291	3.981	4.417	
<i>F(z)</i>	.90	.95	.975	.99	.995	.999	.9995	.99995	.999995	

Source: Adapted by permission from A. M. Mood, *Introduction to the Theory of Statistics*, Table II, New York: McGraw-Hill Book Company, 1950

CHI SQUARE PROBABILITY DISTRIBUTION

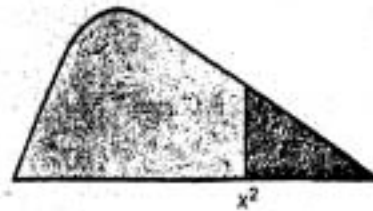
This table shows the black area:

VALUES OF CHI SQUARE χ^2_{α}

d.f.	0.99	0.98	0.95	0.90	0.80	0.70	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01
1	0.000157	0.000478	0.00193	0.0158	0.0542	0.148	0.455	1.074	1.442	2.706	3.841	5.412	6.635	
2	0.0201	0.0404	0.103	0.211	0.415	0.713	1.386	2.408	3.219	4.605	5.991	7.879	9.210	
3	0.115	0.185	0.352	0.584	1.005	1.424	2.366	3.665	4.642	6.251	7.815	9.837	11.345	
4	0.297	0.429	0.711	1.064	1.649	2.195	3.357	4.878	5.989	7.779	9.488	11.668	13.277	
5	0.554	0.752	1.145	1.610	2.343	3.000	4.351	6.084	7.289	9.236	11.070	13.388	15.086	
6	0.872	1.134	1.635	2.204	3.070	3.828	5.348	7.231	8.558	10.645	12.592	15.033	16.812	
7	1.239	1.564	2.167	2.833	3.822	4.671	6.346	8.383	9.803	12.017	14.067	16.622	18.475	
8	1.646	2.032	2.733	3.490	4.594	5.527	7.344	9.524	11.030	13.362	15.507	18.168	20.090	
9	2.088	2.532	3.325	4.168	5.300	6.393	8.343	10.656	12.242	14.684	16.919	19.579	21.666	
10	2.558	3.059	3.940	4.865	6.179	7.267	9.342	11.781	13.442	15.987	18.307	21.161	23.209	
11	3.053	3.609	4.575	5.578	6.989	8.148	10.341	12.899	14.631	17.275	19.675	22.618	24.725	
12	3.571	4.178	5.236	6.304	7.807	9.034	11.340	14.011	15.812	18.549	21.026	24.054	26.217	
13	4.107	4.765	5.897	7.042	8.634	9.924	12.340	15.119	16.985	19.812	22.362	25.472	27.688	
14	4.660	5.368	6.571	7.790	9.467	10.821	13.339	16.222	18.151	21.064	23.685	26.871	29.141	
15	5.229	5.985	7.261	8.547	10.307	11.721	14.339	17.322	19.311	22.307	24.996	28.259	30.578	
16	5.812	6.614	7.962	9.312	11.152	12.624	15.338	18.418	20.485	23.542	26.296	29.633	32.000	
17	6.408	7.255	8.672	10.085	12.002	13.521	16.338	19.511	21.615	24.769	27.587	30.995	33.409	
18	7.015	7.906	9.390	10.865	12.857	14.440	17.338	20.601	22.760	25.989	28.559	32.346	34.805	
19	7.633	8.567	10.117	11.651	13.716	15.352	18.338	21.689	23.900	27.204	30.144	33.687	36.191	
20	8.260	9.237	10.851	12.443	14.578	16.266	19.337	22.775	25.038	28.412	31.410	35.020	37.566	
21	8.897	9.915	11.591	13.240	15.445	17.182	20.337	23.858	26.171	29.615	32.671	36.341	38.932	
22	9.542	10.600	12.338	14.041	16.314	18.101	21.337	24.939	27.301	30.813	33.924	37.559	40.289	
23	10.196	11.293	13.091	14.848	17.187	19.021	22.337	26.018	28.429	32.007	35.172	38.968	41.638	
24	10.856	11.992	13.848	15.659	18.062	19.943	23.337	27.096	29.553	33.196	36.415	40.270	42.980	
25	11.524	12.697	14.611	16.473	18.940	20.867	24.337	28.172	30.675	34.382	37.652	41.566	44.314	
26	12.198	13.409	15.379	17.292	19.870	21.792	25.336	29.246	31.795	35.551	38.885	42.856	45.642	
27	12.879	14.125	16.151	18.114	20.703	22.719	26.336	30.319	32.912	36.741	40.113	44.140	46.963	
28	13.565	14.847	16.928	18.939	21.508	23.547	27.336	31.391	34.027	37.916	41.337	45.414	48.278	
29	14.256	15.574	17.708	19.758	22.425	24.527	28.336	32.461	35.139	39.087	42.557	46.693	49.588	
30	14.953	16.306	18.493	20.590	23.164	25.508	29.336	33.530	36.250	40.256	43.773	47.962	50.892	



PERCENTAGE POINTS OF THE χ^2 DISTRIBUTION



α	0.995	0.990	0.975	0.950	0.900	0.750	0.500
1	392704.10 ⁻¹⁰	157088.10 ⁻⁸	982069.10 ⁻⁶	393214.10 ⁻⁴	0.0157908	0.1015308	0.454936
2	0.0100251	0.0201007	0.0506356	0.102587	0.210721	0.575364	1.38629
3	0.0717218	0.114832	0.215795	0.351846	0.584374	1.212534	2.36597
4	0.206989	0.297109	0.484419	0.710723	1.063623	1.92256	3.35669
5	0.411742	0.554298	0.831212	1.145476	1.61031	2.67460	4.35148
6	0.675727	0.872090	1.23734	1.63538	2.20413	3.45460	5.34812
7	0.989256	1.239043	1.68987	2.16735	2.83311	4.25485	6.34581
8	1.34441	1.64650	2.17973	2.73264	3.48954	5.07064	7.34412
9	1.73493	2.08790	2.70039	3.32511	4.16816	5.89883	8.34283
10	2.15586	2.55821	3.24697	3.94030	4.86518	6.73720	9.34182
11	2.60322	3.05348	3.81575	4.57481	5.57776	7.58414	10.3410
12	3.07382	3.57057	4.40379	5.22603	6.30380	8.43842	11.3403
13	3.56503	4.10692	5.00875	5.89186	7.04150	9.29907	12.3398
14	4.07467	4.66043	5.62873	6.57063	7.78953	10.1653	13.3393
15	4.60092	5.22935	6.26214	7.26094	8.54676	11.0365	14.3389
16	5.14221	5.81221	6.90766	7.96165	9.31224	11.9122	15.3385
17	5.69722	6.40776	7.56419	8.67176	10.0852	12.7919	16.3382
18	6.26480	7.01491	8.23075	9.39046	10.8649	13.6753	17.3379
19	6.84397	7.63273	8.90652	10.1170	11.6509	14.5620	18.3377
20	7.43384	8.26040	9.59078	10.8508	12.4426	15.4518	19.3374
21	8.03365	8.89720	10.28293	11.5913	13.2396	16.3444	20.3372
22	8.64272	9.54249	10.9823	12.3380	14.0415	17.2396	21.3370
23	9.26043	10.19567	11.6886	13.0905	14.8480	18.1373	22.3369
24	9.88623	10.8564	12.4012	13.8484	15.6587	19.0373	23.3367
25	10.5197	11.5240	13.1197	14.6114	16.4734	19.9393	24.3366
26	11.1602	12.1981	13.8439	15.3792	17.2919	20.8434	25.3365
27	11.8076	12.8785	14.5734	16.1514	18.1139	21.7494	26.3363
28	12.4613	13.5647	15.3079	16.9279	18.9392	22.6572	27.3362
29	13.1211	14.2565	16.0471	17.7084	19.7677	23.5666	28.3361
30	13.7867	14.9535	16.7908	18.4927	20.5992	24.4776	29.3360
40	20.7065	22.1643	24.4330	26.5093	29.0505	33.6603	39.3353
50	27.9907	29.7087	32.3574	34.7643	37.6886	42.9421	49.3349
60	35.5345	37.4849	40.4817	43.1890	46.4589	52.2938	59.3347
70	43.2752	45.4417	48.7576	51.7393	55.3289	61.6983	69.3345
80	51.1719	53.5401	57.1532	60.3915	64.2778	71.1445	79.3343
90	59.1963	61.7541	65.6466	69.1260	73.2911	80.6247	89.3342
100	67.3276	70.0649	74.2219	77.9295	82.3581	90.1332	99.3341
χ	-2.5758	-2.3263	-1.9600	-1.6449	-1.2816	-0.6745	0.0000

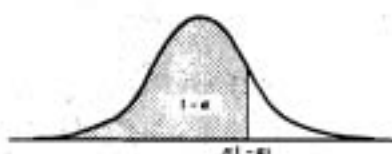
PERCENTAGE POINTS OF THE χ^2 DISTRIBUTION

ν	0.250	0.100	0.050	0.025	0.010	0.005	0.001
1	1.32330	2.70554	3.84146	5.02389	6.63490	7.87944	10.828
2	2.77259	4.60517	5.99146	7.37776	9.21034	10.5966	13.816
3	4.10834	6.25139	7.81473	9.34840	11.3449	12.8382	16.266
4	5.38527	7.77944	9.48773	11.1433	13.2767	14.8603	18.467
5	6.62566	9.23636	11.0705	12.8325	15.0863	16.7496	20.515
6	7.84080	10.6446	12.5916	14.4494	16.8119	18.5476	22.458
7	9.03715	12.0170	14.0671	16.0128	18.4753	20.2777	24.322
8	10.2189	13.3616	15.5073	17.5345	20.0902	21.9550	26.125
9	11.3888	14.6837	16.9190	19.0228	21.6660	23.5894	27.877
10	12.5489	15.9872	18.3070	20.4832	23.2093	25.1882	29.588
11	13.7007	17.2750	19.6751	21.9200	24.7250	26.7568	31.264
12	14.8454	18.5493	21.0261	23.3367	26.2170	28.2995	32.909
13	15.9839	19.8119	22.3620	24.7356	27.6882	29.8195	34.528
14	17.1169	21.0641	23.6848	26.1189	29.1412	31.3194	36.123
15	18.2451	22.3071	24.9958	27.4884	30.5779	32.8013	37.697
16	19.3689	23.5418	26.2962	28.8454	31.9999	34.2672	39.252
17	20.4887	24.7690	27.5871	30.1910	33.4087	35.7185	40.790
18	21.6049	25.9894	28.8693	31.5264	34.8053	37.1565	42.312
19	22.7178	27.2036	30.1435	32.8523	36.1909	38.5823	43.820
20	23.8277	28.4120	31.4104	34.1696	37.5662	39.9968	45.315
21	24.9348	29.6151	32.6706	35.4789	38.9322	41.4011	46.797
22	26.0393	30.8133	33.9244	36.7807	40.2894	42.7957	48.268
23	27.1413	32.0089	35.1725	38.0756	41.6384	44.1813	49.728
24	28.2412	33.1962	36.4150	39.3641	42.9798	45.5585	51.179
25	29.3389	34.3816	37.6525	40.6465	44.3141	46.9279	52.618
26	30.4346	35.5632	38.8851	41.9232	45.6417	48.2899	54.052
27	31.5284	36.7412	40.1133	43.1945	46.9629	49.6449	55.476
28	32.6205	37.9159	41.3371	44.4608	48.2782	50.9934	56.892
29	33.7109	39.0875	42.5570	45.7223	49.5879	52.3356	58.301
30	34.7997	40.2560	43.7730	46.9792	50.8922	53.6720	59.703
40	45.6160	51.8051	55.7585	59.3417	63.6907	66.7660	73.402
50	56.3336	63.1671	67.5048	71.4202	76.1539	79.4900	86.661
60	66.9815	74.3970	79.0819	83.2977	88.3794	91.9517	99.607
70	77.5767	85.5270	90.5312	95.0232	100.425	104.215	112.317
80	88.1303	96.5782	101.879	106.629	112.329	116.321	124.839
90	98.6499	107.565	113.145	118.136	124.116	128.299	137.208
100	109.141	118.498	124.342	129.561	135.807	140.169	149.449
X	+0.6745	+1.2816	+1.6449	+1.9600	+2.3263	+2.5758	+3.0902

Source: This table is reproduced with the kind permission of the Trustees of Biometrika from E. S. Pearson and H. O. Hartley (eds.), *The Biometrika Tables for Statisticians*, vol. 1, 3rd ed., Biometrika, 1966.

Table B-3 Percentiles of the t distribution

Entry is $t(1 - \alpha; \nu)$ where $P\{t(\nu) \leq t(1 - \alpha; \nu)\} = 1 - \alpha$



ν	$1 - \alpha$						
	.55	.60	.65	.70	.75	.80	.85
1	0.158	0.325	0.510	0.727	1.000	1.376	1.963
2	0.142	0.289	0.445	0.617	0.816	1.061	1.386
3	0.137	0.277	0.424	0.584	0.765	0.978	1.250
4	0.134	0.271	0.414	0.569	0.741	0.941	1.190
5	0.132	0.267	0.408	0.559	0.727	0.920	1.156
6	0.131	0.265	0.404	0.553	0.718	0.906	1.134
7	0.130	0.263	0.402	0.549	0.711	0.896	1.119
8	0.130	0.262	0.399	0.546	0.706	0.889	1.108
9	0.129	0.261	0.398	0.543	0.703	0.883	1.100
10	0.129	0.260	0.397	0.542	0.700	0.879	1.093
11	0.129	0.260	0.396	0.540	0.697	0.876	1.088
12	0.128	0.259	0.395	0.539	0.695	0.873	1.083
13	0.128	0.259	0.394	0.538	0.694	0.870	1.079
14	0.128	0.258	0.393	0.537	0.692	0.868	1.076
15	0.128	0.258	0.393	0.536	0.691	0.866	1.074
16	0.128	0.258	0.392	0.535	0.690	0.865	1.071
17	0.128	0.257	0.392	0.534	0.689	0.863	1.069
18	0.127	0.257	0.392	0.534	0.688	0.862	1.067
19	0.127	0.257	0.391	0.533	0.688	0.861	1.066
20	0.127	0.257	0.391	0.533	0.687	0.860	1.064
21	0.127	0.257	0.391	0.532	0.686	0.859	1.063
22	0.127	0.256	0.390	0.532	0.686	0.858	1.061
23	0.127	0.256	0.390	0.532	0.685	0.858	1.060
24	0.127	0.256	0.390	0.531	0.685	0.857	1.059
25	0.127	0.256	0.390	0.531	0.684	0.856	1.058
26	0.127	0.256	0.390	0.531	0.684	0.856	1.058
27	0.127	0.256	0.389	0.531	0.684	0.855	1.057
28	0.127	0.256	0.389	0.530	0.683	0.855	1.056
29	0.127	0.256	0.389	0.530	0.683	0.854	1.055
30	0.127	0.256	0.389	0.530	0.683	0.854	1.055
40	0.126	0.255	0.388	0.529	0.681	0.851	1.050
60	0.126	0.254	0.387	0.527	0.679	0.848	1.046
120	0.126	0.254	0.386	0.526	0.677	0.845	1.041
∞	0.126	0.253	0.385	0.524	0.674	0.842	1.036

Table B-3 Percentiles of the *t* distribution (Continued)

<i>v</i>	1 - α					
	.90	.95	.975	.99	.995	.9995
1	3.078	6.314	12.706	31.821	63.657	636.619
2	1.886	2.920	4.303	6.965	9.925	31.598
3	1.638	2.353	3.182	4.541	5.841	12.924
4	1.533	2.132	2.776	3.747	4.604	8.610
5	1.476	2.015	2.571	3.365	4.032	6.869
6	1.440	1.943	2.447	3.143	3.707	5.959
7	1.415	1.895	2.365	2.998	3.499	5.408
8	1.397	1.860	2.306	2.896	3.355	5.041
9	1.383	1.833	2.262	2.821	3.250	4.781
10	1.372	1.812	2.228	2.764	3.169	4.587
11	1.363	1.796	2.201	2.718	3.106	4.437
12	1.356	1.782	2.179	2.681	3.055	4.318
13	1.350	1.771	2.160	2.650	3.012	4.221
14	1.345	1.761	2.145	2.624	2.977	4.140
15	1.341	1.753	2.131	2.602	2.947	4.073
16	1.337	1.746	2.120	2.583	2.921	4.015
17	1.333	1.740	2.110	2.567	2.898	3.965
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3.819
22	1.321	1.717	2.074	2.508	2.819	3.792
23	1.319	1.714	2.069	2.500	2.807	3.767
24	1.318	1.711	2.064	2.492	2.797	3.745
25	1.316	1.708	2.060	2.485	2.787	3.725
26	1.315	1.706	2.056	2.479	2.779	3.707
27	1.314	1.703	2.052	2.473	2.771	3.690
28	1.313	1.701	2.048	2.467	2.763	3.674
29	1.311	1.699	2.045	2.462	2.756	3.659
30	1.310	1.697	2.042	2.457	2.750	3.646
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373
∞	1.282	1.645	1.960	2.326	2.576	3.291

SOURCE: Taken from Table III of Fisher and Yates: *Statistical Tables for Biological, Agricultural and Medical Research*, 6th ed., 1974, published by Longman Group Ltd., London, and by permission of the authors and publishers.

EXAMPLE: $t(0.95; 10) = 1.812$ so $P(t(10) \leq 1.812) = .95$.

TEXT REFERENCE: Use of this table is discussed on pp. 167-168.

PERCENTAGE POINTS OF
THE f DISTRIBUTION



Table B-4 Percentiles of the *F* distribution (Continued)

$$1 - \alpha = .99$$

denominator <i>df</i>	numerator <i>df</i>								
	1	2	3	4	5	6	7	8	9
1	4052	4999.5	5403	5625	5764	5859	5928	5981	6022
2	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39
3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35
4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66
5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16
6	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98
7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72
8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91
9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35
10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19
14	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78
17	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60
19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26
25	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18
27	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12
29	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41

Table B-4 Percentiles of the *F* distribution (Continued)

$$1 - \alpha = .99$$

numerator <i>df</i>										denominator <i>df</i>
10	12	15	20	24	30	40	60	120	∞	
6056	6106	6157	6209	6235	6261	6287	6313	6339	6366	1
99.40	99.42	99.43	99.45	99.46	99.47	99.47	99.48	99.49	99.50	2
27.23	27.05	26.87	26.69	26.60	26.50	26.41	26.32	26.22	26.13	3
14.55	14.37	14.20	14.02	13.93	13.84	13.75	13.65	13.56	13.46	4
10.05	9.89	9.72	9.55	9.47	9.38	9.29	9.20	9.11	9.02	5
7.87	7.72	7.56	7.40	7.31	7.23	7.14	7.06	6.97	6.88	6
6.62	6.47	6.31	6.16	6.07	5.99	5.91	5.82	5.74	5.65	7
5.81	5.67	5.52	5.36	5.28	5.20	5.12	5.03	4.95	4.86	8
5.26	5.11	4.96	4.81	4.73	4.65	4.57	4.48	4.40	4.31	9
4.85	4.71	4.56	4.41	4.33	4.25	4.17	4.08	4.00	3.91	10
4.54	4.40	4.25	4.10	4.02	3.94	3.86	3.78	3.69	3.60	11
4.30	4.16	4.01	3.86	3.78	3.70	3.62	3.54	3.45	3.36	12
4.10	3.96	3.82	3.66	3.59	3.51	3.43	3.34	3.25	3.17	13
3.94	3.80	3.66	3.51	3.43	3.35	3.27	3.18	3.09	3.00	14
3.80	3.67	3.52	3.37	3.29	3.21	3.13	3.05	2.96	2.87	15
3.69	3.55	3.41	3.26	3.18	3.10	3.02	2.93	2.84	2.75	16
3.59	3.46	3.31	3.16	3.08	3.00	2.92	2.83	2.75	2.65	17
3.51	3.37	3.23	3.08	3.00	2.92	2.84	2.75	2.66	2.57	18
3.43	3.30	3.15	3.00	2.92	2.84	2.76	2.67	2.58	2.49	19
3.37	3.23	3.09	2.94	2.86	2.78	2.69	2.61	2.52	2.42	20
3.31	3.17	3.03	2.88	2.80	2.72	2.64	2.55	2.46	2.36	21
3.26	3.12	2.98	2.83	2.75	2.67	2.58	2.50	2.40	2.31	22
3.21	3.07	2.93	2.78	2.70	2.62	2.54	2.45	2.35	2.26	23
3.17	3.03	2.89	2.74	2.66	2.58	2.49	2.40	2.31	2.21	24
3.13	2.99	2.85	2.70	2.62	2.54	2.45	2.36	2.27	2.17	25
3.09	2.96	2.81	2.66	2.58	2.50	2.42	2.33	2.23	2.13	26
3.06	2.93	2.78	2.63	2.55	2.47	2.38	2.29	2.20	2.10	27
3.03	2.90	2.75	2.60	2.52	2.44	2.35	2.26	2.17	2.06	28
3.00	2.87	2.73	2.57	2.49	2.41	2.33	2.23	2.14	2.03	29
2.98	2.84	2.70	2.55	2.47	2.39	2.30	2.21	2.11	2.01	30
2.80	2.66	2.52	2.37	2.29	2.20	2.11	2.02	1.92	1.80	40
2.63	2.50	2.35	2.20	2.12	2.03	1.94	1.84	1.73	1.60	60
2.47	2.34	2.19	2.03	1.95	1.86	1.76	1.66	1.53	1.38	120
2.32	2.18	2.04	1.88	1.79	1.70	1.59	1.47	1.32	1.00	∞

Source: Tabulated values adapted from Table 5 of Pearson and Hartley, *Biometrika Tables for Statisticians*, Volume 2, 1972, published by the Cambridge University Press for the Biometrika Trustees, with the permission of the authors and publishers.

EXAMPLE: $F(.99; 8, 24) = 3.56$ so $P\{F(8, 24) \leq 3.56\} = .99$.

TEXT REFERENCE: Use of this table is discussed on pp. 170-171.

Table VII Critical Values of the F Distribution (Continued)



$\alpha = .05$

Table VIII* Critical Values of the F Distribution

$f_{\alpha}(v_1, v_2)$

v_2	v_1									
	1	2	3	4	5	6	7	8	9	∞
1	161.4	199.5	215.7	224.5	230.2	234.0	236.8	238.9	240.5	242.3
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.39
3	10.13	9.35	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.78
4	7.71	6.94	6.89	6.59	6.28	6.16	6.09	6.04	6.00	5.97
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.07
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.65
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.36
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.15
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.99
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.87
12	4.75	3.89	3.50	3.27	3.11	3.00	2.91	2.85	2.80	2.77
13	4.67	3.81	3.41	3.18	3.02	2.92	2.83	2.77	2.71	2.68
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.62
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.56
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.51
17	4.45	3.59	3.20	2.97	2.81	2.70	2.61	2.55	2.49	2.46
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.43
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.39
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.36
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.34
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.31
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.29
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.27
25	4.24	3.38	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.25
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.24
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.22
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.21
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.19
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.18
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.09
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	2.01
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96	1.93
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.85

$f_{\alpha}(v_1, v_2)$

v_2	v_1									
	10	12	15	20	24	30	40	60	120	∞
1	241.8	243.9	245.9	248.0	249.1	250.1	251.1	252.2	253.3	254.3
2	19.40	19.41	19.43	19.43	19.43	19.43	19.43	19.43	19.43	19.43
3	11.79	11.74	11.70	11.66	11.64	11.62	11.61	11.60	11.59	11.58
4	9.96	9.91	9.86	9.80	9.77	9.75	9.72	9.69	9.66	9.63
5	9.14	9.08	9.02	8.96	8.93	8.90	8.86	8.83	8.80	8.76
6	8.46	8.40	8.34	8.28	8.25	8.22	8.18	8.15	8.12	8.08
7	7.94	7.87	7.81	7.75	7.72	7.69	7.65	7.62	7.59	7.55
8	7.51	7.44	7.38	7.32	7.29	7.26	7.22	7.19	7.16	7.12
9	7.14	7.07	7.01	6.94	6.91	6.88	6.84	6.81	6.78	6.74
10	6.82	6.75	6.69	6.62	6.59	6.56	6.52	6.49	6.46	6.42
11	6.54	6.47	6.41	6.34	6.31	6.28	6.24	6.21	6.18	6.14
12	6.30	6.23	6.17	6.10	6.07	6.04	6.00	5.97	5.94	5.90
13	6.09	6.02	5.96	5.89	5.86	5.83	5.79	5.76	5.73	5.69
14	5.91	5.84	5.78	5.71	5.68	5.65	5.61	5.58	5.55	5.51
15	5.75	5.68	5.62	5.55	5.52	5.49	5.45	5.42	5.39	5.35
16	5.61	5.54	5.48	5.41	5.38	5.35	5.31	5.28	5.25	5.21
17	5.49	5.42	5.36	5.29	5.26	5.23	5.19	5.16	5.13	5.09
18	5.38	5.31	5.25	5.18	5.15	5.12	5.08	5.05	5.02	4.98
19	5.29	5.22	5.16	5.09	5.06	5.03	4.99	4.96	4.93	4.89
20	5.21	5.14	5.08	5.01	4.98	4.95	4.91	4.88	4.85	4.81
21	5.14	5.07	5.01	4.94	4.91	4.88	4.84	4.81	4.78	4.74
22	5.08	5.01	4.95	4.88	4.85	4.82	4.78	4.75	4.72	4.68
23	5.03	4.96	4.90	4.83	4.80	4.77	4.73	4.70	4.67	4.63
24	4.98	4.91	4.85	4.78	4.75	4.72	4.68	4.65	4.62	4.58
25	4.94	4.87	4.81	4.74	4.71	4.68	4.64	4.61	4.58	4.54
26	4.90	4.83	4.77	4.70	4.67	4.64	4.60	4.57	4.54	4.50
27	4.86	4.79	4.73	4.66	4.63	4.60	4.56	4.53	4.50	4.46
28	4.83	4.76	4.70	4.63	4.60	4.57	4.53	4.50	4.47	4.43
29	4.80	4.73	4.67	4.60	4.57	4.54	4.50	4.47	4.44	4.40
30	4.78	4.71	4.65	4.58	4.55	4.52	4.48	4.45	4.42	4.38
40	4.68	4.61	4.55	4.48	4.45	4.42	4.38	4.35	4.32	4.28
60	4.60	4.53	4.47	4.40	4.37	4.34	4.30	4.27	4.24	4.20
120	4.52	4.45	4.39	4.32	4.29	4.26	4.22	4.19	4.16	4.12
∞	4.44	4.37	4.31	4.24	4.21	4.18	4.14	4.11	4.08	4.04

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BINOMIAL PROBABILITY DISTRIBUTIONS



Table B-5 Binomial probabilities

Entry is probability mass $f(x)$ corresponding to $X = x$, where $f(x) = \binom{n}{x} p^x(1-p)^{n-x}$

n \ x	p									x
	.01	.02	.03	.04	.05	.06	.07	.08	.09	
2 0	0.9801	0.9604	0.9409	0.9216	0.9025	0.8836	0.8649	0.8464	0.8281	2
1	0.0199	0.0392	0.0582	0.0768	0.0950	0.1128	0.1302	0.1472	0.1638	1
2	0.0001	0.0004	0.0009	0.0016	0.0025	0.0036	0.0049	0.0064	0.0081	0 2
3 0	0.9703	0.9412	0.9127	0.8847	0.8574	0.8306	0.8044	0.7787	0.7536	3
1	0.0294	0.0576	0.0847	0.1106	0.1354	0.1590	0.1816	0.2031	0.2236	2
2	0.0003	0.0012	0.0026	0.0046	0.0071	0.0102	0.0137	0.0177	0.0221	1
3	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0003	0.0005	0.0007	0 3
4 0	0.9606	0.9224	0.8853	0.8493	0.8145	0.7807	0.7481	0.7164	0.6857	4
1	0.0388	0.0753	0.1095	0.1416	0.1715	0.1993	0.2252	0.2492	0.2713	3
2	0.0006	0.0023	0.0051	0.0088	0.0135	0.0191	0.0254	0.0325	0.0402	2
3	0.0000	0.0000	0.0001	0.0002	0.0005	0.0008	0.0013	0.0019	0.0027	1
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0 4
5 0	0.9510	0.9039	0.8587	0.8154	0.7738	0.7339	0.6957	0.6591	0.6240	5
1	0.0480	0.0922	0.1328	0.1699	0.2036	0.2342	0.2618	0.2866	0.3086	4
2	0.0010	0.0038	0.0082	0.0142	0.0214	0.0299	0.0394	0.0498	0.0610	3
3	0.0000	0.0001	0.0003	0.0006	0.0011	0.0019	0.0030	0.0043	0.0060	2
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0003	1
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0 5
6 0	0.9415	0.8858	0.8330	0.7828	0.7351	0.6899	0.6470	0.6064	0.5679	6
1	0.0571	0.1085	0.1546	0.1957	0.2321	0.2642	0.2922	0.3164	0.3370	5
2	0.0014	0.0055	0.0120	0.0204	0.0308	0.0422	0.0550	0.0688	0.0833	4
3	0.0000	0.0002	0.0005	0.0011	0.0021	0.0036	0.0055	0.0080	0.0110	3
4	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0005	0.0008	2
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0 6
7 0	0.9321	0.8681	0.8080	0.7514	0.6983	0.6485	0.6017	0.5578	0.5168	7
1	0.0659	0.1240	0.1749	0.2192	0.2573	0.2897	0.3170	0.3398	0.3578	6
2	0.0020	0.0076	0.0162	0.0274	0.0406	0.0555	0.0716	0.0886	0.1061	5
3	0.0000	0.0003	0.0008	0.0019	0.0036	0.0059	0.0090	0.0128	0.0175	4
4	0.0000	0.0000	0.0000	0.0001	0.0002	0.0004	0.0007	0.0011	0.0017	3
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	2
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0 7
8 0	0.9227	0.8508	0.7837	0.7214	0.6634	0.6096	0.5596	0.5132	0.4703	8
1	0.0746	0.1389	0.1939	0.2405	0.2793	0.3113	0.3370	0.3570	0.3721	7
2	0.0026	0.0099	0.0210	0.0351	0.0515	0.0695	0.0888	0.1087	0.1286	6
3	0.0001	0.0004	0.0013	0.0029	0.0054	0.0089	0.0134	0.0189	0.0255	5
4	0.0000	0.0000	0.0001	0.0002	0.0004	0.0007	0.0013	0.0021	0.0031	4
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	3
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0 8
9 0	0.9135	0.8337	0.7602	0.6925	0.6302	0.5730	0.5204	0.4722	0.4279	9
1	0.0830	0.1531	0.2116	0.2597	0.2985	0.3292	0.3525	0.3695	0.3809	8
2	0.0034	0.0125	0.0262	0.0433	0.0629	0.0840	0.1061	0.1285	0.1507	7
3	0.0001	0.0006	0.0019	0.0042	0.0077	0.0125	0.0186	0.0261	0.0348	6
4	0.0000	0.0000	0.0001	0.0003	0.0006	0.0012	0.0021	0.0034	0.0052	5
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0005	4
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0 9
	.99	.98	.97	.96	.95	.94	.93	.92	.91	x
	p									

Table B-5 Binomial probabilities (Continued)

n	x	p									n
		.01	.02	.03	.04	.05	.06	.07	.08	.09	
10	0	0.9044	0.8171	0.7374	0.6648	0.5987	0.5386	0.4840	0.4344	0.3894	10
	1	0.0914	0.1829	0.2626	0.3352	0.4013	0.4614	0.5160	0.5656	0.6196	9
	2	0.0042	0.0153	0.0317	0.0519	0.0746	0.0990	0.1234	0.1478	0.1714	8
	3	0.0001	0.0008	0.0026	0.0058	0.0105	0.0168	0.0240	0.0323	0.0412	7
	4	0.0000	0.0000	0.0001	0.0004	0.0010	0.0019	0.0033	0.0052	0.0078	6
	5	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0005	0.0009	5
	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	4
	7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3
	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
	9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
	10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0
12	0	0.8864	0.7847	0.6938	0.6127	0.5404	0.4759	0.4186	0.3677	0.3225	12
	1	0.1074	0.1922	0.2575	0.3064	0.3413	0.3645	0.3781	0.3827	0.3887	11
	2	0.0060	0.0216	0.0438	0.0702	0.0998	0.1280	0.1565	0.1835	0.2082	10
	3	0.0002	0.0015	0.0045	0.0098	0.0173	0.0272	0.0393	0.0532	0.0686	9
	4	0.0000	0.0001	0.0003	0.0009	0.0021	0.0039	0.0067	0.0104	0.0153	8
	5	0.0000	0.0000	0.0000	0.0001	0.0002	0.0004	0.0008	0.0014	0.0024	7
	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0003	6
	7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5
	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4
	9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3
	10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
	11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
	12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0
15	0	0.8601	0.7386	0.6333	0.5421	0.4633	0.3953	0.3367	0.2863	0.2430	15
	1	0.1303	0.2261	0.2938	0.3388	0.3658	0.3785	0.3801	0.3734	0.3605	14
	2	0.0092	0.0223	0.0438	0.0702	0.1014	0.1361	0.1733	0.2123	0.2526	13
	3	0.0004	0.0029	0.0085	0.0178	0.0307	0.0468	0.0653	0.0857	0.1078	12
	4	0.0000	0.0002	0.0008	0.0022	0.0044	0.0070	0.0108	0.0158	0.0217	11
	5	0.0000	0.0000	0.0001	0.0002	0.0004	0.0007	0.0013	0.0021	0.0031	10
	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0006	0.0011	9
	7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	8
	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	7
	9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6
	10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5
	11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4
	12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3
	13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
	14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
	15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0
20	0	0.8179	0.6676	0.5438	0.4420	0.3585	0.2901	0.2342	0.1887	0.1516	20
	1	0.1652	0.2725	0.3364	0.3683	0.3774	0.3703	0.3526	0.3282	0.3000	19
	2	0.0150	0.0528	0.0988	0.1458	0.1887	0.2246	0.2521	0.2711	0.2818	18
	3	0.0010	0.0065	0.0183	0.0364	0.0596	0.0860	0.1139	0.1414	0.1672	17
	4	0.0000	0.0006	0.0024	0.0065	0.0133	0.0233	0.0364	0.0523	0.0703	16
	5	0.0000	0.0000	0.0002	0.0009	0.0022	0.0048	0.0086	0.0145	0.0222	15
	6	0.0000	0.0000	0.0000	0.0001	0.0003	0.0008	0.0017	0.0032	0.0055	14
	7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0005	0.0011	13
	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	12
	9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	11
	10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10
	11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9
	12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8
	13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	7
	14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6
	15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5
	16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4
	17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3
	18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
	19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1
	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0
		.99	.98	.97	.96	.95	.94	.93	.92	.91	n

Table B-5 Binomial probabilities (Continued)

n	x	p									n
		.10	.15	.20	.25	.30	.35	.40	.45	.50	
2	0	0.8100	0.7225	0.6400	0.5625	0.4900	0.4225	0.3600	0.3025	0.2500	2
	1	0.1800	0.2550	0.3200	0.3750	0.4200	0.4550	0.4800	0.4950	0.5000	1
	2	0.0100	0.0225	0.0400	0.0625	0.0900	0.1225	0.1600	0.2025	0.2500	0 2
3	0	0.7290	0.6141	0.5120	0.4219	0.3430	0.2746	0.2160	0.1664	0.1250	3
	1	0.2430	0.3251	0.3840	0.4219	0.4410	0.4436	0.4320	0.4004	0.3750	2
	2	0.0270	0.0574	0.0960	0.1406	0.1890	0.2309	0.2680	0.3341	0.3750	1
	3	0.0010	0.0034	0.0080	0.0156	0.0270	0.0429	0.0640	0.0911	0.1250	0 3
4	0	0.6561	0.5220	0.4096	0.3164	0.2401	0.1785	0.1296	0.0915	0.0625	4
	1	0.2916	0.3685	0.4096	0.4219	0.4116	0.3845	0.3456	0.2995	0.2500	3
	2	0.0486	0.0975	0.1536	0.2109	0.2646	0.3105	0.3456	0.3675	0.3750	2
	3	0.0036	0.0115	0.0256	0.0469	0.0756	0.1115	0.1536	0.2005	0.2500	1
	4	0.0001	0.0005	0.0016	0.0039	0.0081	0.0150	0.0256	0.0410	0.0625	0 4
5	0	0.5905	0.4437	0.3277	0.2373	0.1681	0.1160	0.0778	0.0503	0.0312	5
	1	0.3280	0.3915	0.4096	0.3955	0.3601	0.3124	0.2592	0.2059	0.1562	4
	2	0.0729	0.1382	0.2048	0.2637	0.3067	0.3364	0.3456	0.3309	0.3125	3
	3	0.0081	0.0244	0.0512	0.0879	0.1323	0.1811	0.2304	0.2757	0.3125	2
	4	0.0004	0.0022	0.0064	0.0146	0.0283	0.0468	0.0768	0.1128	0.1562	1
	5	0.0000	0.0001	0.0003	0.0010	0.0024	0.0053	0.0102	0.0185	0.0312	0 5
6	0	0.5314	0.3771	0.2621	0.1780	0.1176	0.0754	0.0467	0.0277	0.0156	6
	1	0.3543	0.3993	0.3932	0.3560	0.3025	0.2437	0.1866	0.1399	0.0938	5
	2	0.0984	0.1762	0.2458	0.2966	0.3241	0.3280	0.3110	0.2780	0.2344	4
	3	0.0146	0.0415	0.0819	0.1318	0.1892	0.2395	0.2765	0.3032	0.3125	3
	4	0.0012	0.0055	0.0154	0.0330	0.0595	0.0951	0.1382	0.1861	0.2344	2
	5	0.0001	0.0004	0.0015	0.0044	0.0102	0.0205	0.0369	0.0609	0.0938	1
	6	0.0000	0.0000	0.0001	0.0002	0.0007	0.0018	0.0041	0.0083	0.0156	0 6
7	0	0.4783	0.3206	0.2097	0.1335	0.0824	0.0490	0.0280	0.0152	0.0078	7
	1	0.3720	0.3960	0.3670	0.3115	0.2471	0.1848	0.1305	0.0872	0.0547	6
	2	0.1240	0.2097	0.2753	0.3115	0.3177	0.2945	0.2613	0.2140	0.1641	5
	3	0.0230	0.0617	0.1147	0.1730	0.2269	0.2679	0.2903	0.2918	0.2734	4
	4	0.0026	0.0109	0.0287	0.0577	0.0972	0.1442	0.1935	0.2388	0.2734	3
	5	0.0002	0.0012	0.0043	0.0115	0.0250	0.0466	0.0774	0.1172	0.1641	2
	6	0.0000	0.0001	0.0004	0.0013	0.0036	0.0084	0.0172	0.0320	0.0547	1
	7	0.0000	0.0000	0.0000	0.0001	0.0002	0.0006	0.0016	0.0037	0.0070	0
8	0	0.4305	0.2725	0.1678	0.1001	0.0576	0.0319	0.0168	0.0084	0.0039	8
	1	0.3826	0.3847	0.3358	0.2670	0.1977	0.1373	0.0896	0.0548	0.0312	7
	2	0.1488	0.2376	0.2936	0.3115	0.2965	0.2507	0.2090	0.1569	0.1094	6
	3	0.0331	0.0839	0.1468	0.2076	0.2541	0.2766	0.2787	0.2568	0.2188	5
	4	0.0046	0.0185	0.0459	0.0865	0.1361	0.1875	0.2322	0.2627	0.2734	4
	5	0.0004	0.0026	0.0092	0.0231	0.0467	0.0808	0.1239	0.1719	0.2188	3
	6	0.0000	0.0002	0.0011	0.0038	0.0100	0.0217	0.0413	0.0703	0.1094	2
	7	0.0000	0.0000	0.0001	0.0004	0.0012	0.0033	0.0079	0.0164	0.0312	1
	8	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0007	0.0017	0.0039	0 8
9	0	0.3874	0.2316	0.1342	0.0751	0.0404	0.0207	0.0101	0.0046	0.0020	9
	1	0.3874	0.3679	0.3020	0.2253	0.1556	0.1004	0.0605	0.0339	0.0176	8
	2	0.1722	0.2597	0.3020	0.3003	0.2668	0.2162	0.1612	0.1110	0.0703	7
	3	0.0446	0.1069	0.1762	0.2336	0.2668	0.2716	0.2508	0.2119	0.1641	6
	4	0.0074	0.0283	0.0661	0.1168	0.1715	0.2194	0.2508	0.2600	0.2461	5
	5	0.0008	0.0050	0.0165	0.0389	0.0735	0.1181	0.1672	0.2128	0.2461	4
	6	0.0001	0.0006	0.0028	0.0087	0.0210	0.0424	0.0743	0.1160	0.1641	3
	7	0.0000	0.0000	0.0003	0.0012	0.0039	0.0090	0.0212	0.0407	0.0703	2
	8	0.0000	0.0000	0.0000	0.0001	0.0004	0.0013	0.0035	0.0083	0.0176	1
	9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0008	0.0020	0 9
		.90	.85	.80	.75	.70	.65	.60	.55	.50	n
p											

CUMULATIVE PROBABILITIES FOR BINOMIAL DISTRIBUTIONS



$$CP(x) = \sum_{k=0}^x \binom{n}{k} p^k q^{n-k}$$

n = 5									
x	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.59049	.32768	.16807	.07776	.03125	.01024	.00243	.00032	.00001
1	.91854	.73728	.52822	.33696	.18750	.08704	.03078	.00672	.00046
2	.99144	.94208	.83692	.68256	.50000	.31744	.16808	.05792	.00856
3	.99954	.99328	.96922	.91296	.81250	.66304	.47178	.26272	.08146
4	.99999	.99968	.99757	.98976	.96875	.92224	.83193	.67232	.40951
5	*****	*****	*****	*****	*****	*****	*****	*****	*****
n = 10									
x	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.34868	.10737	.02825	.00605	.00098	.00010	.00001	.00000	.00000
1	.73610	.37581	.14931	.04636	.01074	.00168	.00014	.00000	.00000
2	.92981	.67780	.38278	.16729	.05469	.01229	.00159	.00008	.00000
3	.98720	.87913	.64961	.38228	.17187	.05476	.01059	.00086	.00001
4	.99836	.96721	.84973	.63310	.37696	.16624	.04735	.00637	.00015
5	.99985	.99363	.95265	.83376	.62305	.36690	.15027	.03279	.00163
6	.99999	.99913	.98941	.94524	.82812	.61772	.35039	.12087	.01280
7	*****	.99992	.99841	.98770	.94531	.83271	.61722	.32220	.07019
8	*****	.99999	.99985	.99832	.98926	.95364	.85069	.62419	.26390
9	*****	*****	.99999	.99999	.99902	.99395	.97175	.89262	.65132
10	*****	*****	*****	*****	*****	*****	*****	*****	*****
n = 15									
x	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.20589	.03518	.00475	.00047	.00003	.00000	.00000	.00000	.00000
1	.54904	.16713	.03527	.00517	.00049	.00003	.00000	.00000	.00000
2	.81594	.39802	.12683	.02711	.00369	.00028	.00001	.00000	.00000
3	.94444	.64816	.29687	.09050	.01758	.00193	.00009	.00000	.00000
4	.98728	.83577	.51549	.21728	.05923	.00935	.00067	.00001	.00000
5	.99775	.93895	.72162	.40321	.15086	.03383	.00365	.00011	.00000
6	.99969	.98194	.86885	.69981	.30362	.09505	.01524	.00078	.00000
7	.99996	.99576	.94998	.78689	.50000	.21310	.05001	.00424	.00003
8	*****	.99921	.98475	.90495	.69638	.39019	.13114	.01806	.00031
9	*****	.99989	.99634	.96616	.84912	.59678	.27838	.06105	.00225
10	*****	.99999	.99932	.99065	.94076	.78272	.48451	.16423	.01272
11	*****	*****	.99991	.99807	.98242	.90949	.70313	.35184	.05556
12	*****	*****	.99999	.99972	.99631	.97288	.87317	.60197	.18406
13	*****	*****	*****	.99997	.99951	.99462	.96473	.83287	.45096
14	*****	*****	*****	*****	.99997	.99953	.99525	.96481	.79411
15	*****	*****	*****	*****	*****	*****	.99999	*****	*****

Asterisks mean 1.00000 throughout Appendix C.

CUMULATIVE PROBABILITIES FOR BINOMIAL DISTRIBUTIONS

n = 20									
	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.12158	.01153	.00080	.00004	.00000	.00000	.00000	.00000	.00000
1	.39175	.06918	.00764	.00052	.00002	.00000	.00000	.00000	.00000
2	.67693	.20608	.03548	.00361	.00020	.00001	.00000	.00000	.00000
3	.86705	.41145	.10709	.01596	.00129	.00005	.00000	.00000	.00000
4	.95682	.62965	.23751	.05095	.00591	.00032	.00001	.00000	.00000
5	.98875	.80421	.41637	.12560	.02069	.00161	.00004	.00000	.00000
6	.99761	.91331	.60801	.25001	.05766	.00647	.00026	.00000	.00000
7	.99958	.96786	.77227	.41589	.13159	.02103	.00128	.00002	.00000
8	.99994	.99002	.88667	.69560	.25172	.06653	.00514	.00010	.00000
9	.99999	.99740	.95203	.75533	.41190	.12752	.01714	.00056	.00000
10	.....	.99943	.98285	.87248	.68810	.24466	.04796	.00259	.00001
11	.....	.99990	.99486	.94347	.74828	.40440	.11333	.00998	.00006
12	.....	.99998	.99872	.97897	.86841	.58410	.22773	.03214	.00042
13	.....	.....	.99973	.99353	.94234	.74998	.39199	.08889	.00239
14	.....	.....	.99995	.99638	.97930	.87440	.58363	.19579	.01125
15	.....	.....	.99999	.99968	.99409	.94904	.78249	.37035	.04317
16	.....	.....	.....	.99995	.99871	.98403	.89291	.58855	.13295
17	.....	.....	.....	.99999	.99980	.99638	.96451	.79391	.32307
18	.....	.....	.....	.....	.99998	.99947	.99236	.93082	.60825
19	.....	.....	.....	.....	.....	.99996	.99920	.98847	.87842
20	.....	.....	.....	.....	.....	.....	.99999	.99999	.99999

n = 25									
x	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.07179	.00378	.00013	.00000	.00000	.00000	.00000	.00000	.00000
1	.27121	.02739	.00157	.00005	.00000	.00000	.00000	.00000	.00000
2	.53709	.08822	.00896	.00043	.00001	.00000	.00000	.00000	.00000
3	.76359	.23399	.03324	.00237	.00008	.00000	.00000	.00000	.00000
4	.90200	.42067	.09047	.00947	.00046	.00001	.00000	.00000	.00000
5	.96660	.61669	.19349	.02936	.00204	.00005	.00000	.00000	.00000
6	.99052	.78003	.34065	.07357	.00732	.00028	.00000	.00000	.00000
7	.99774	.89088	.51185	.15355	.02164	.00121	.00002	.00000	.00000
8	.99954	.95322	.67693	.27353	.05388	.00433	.00010	.00000	.00000
9	.99992	.98267	.81056	.42462	.11476	.01317	.00045	.00000	.00000
10	.99999	.99444	.90220	.58577	.21218	.03439	.00178	.00001	.00000
11	.....	.99846	.95575	.73228	.34502	.07780	.00599	.00008	.00000
12	.....	.99963	.98252	.84623	.50000	.15377	.01747	.00037	.00000
13	.....	.99992	.99400	.82219	.65498	.26772	.04425	.00154	.00000
14	.....	.99998	.99822	.96560	.75782	.41422	.09780	.00555	.00001
15	.....	.99999	.99964	.98663	.88524	.67538	.18943	.01733	.00008

n = 25									
x	.1	.2	.3	.4	.5	.6	.7	.8	.9
16	.....	.....	.99990	.99567	.94612	.72646	.32307	.04677	.00046
17	.....	.....	.99998	.99879	.97835	.84644	.48815	.10912	.00226
18	.....	.....	.99999	.99971	.99268	.92643	.65934	.21996	.00948
19	.....	.....	.99999	.99994	.99796	.97063	.80650	.38331	.03340
20	.....	.....	.99999	.99999	.99954	.99052	.90962	.57932	.09799
21	.....	.....	.99999	.99999	.99992	.99763	.96675	.76600	.23641
22	.....	.....	.99999	.99999	.99999	.99956	.99103	.90177	.46290
23	.....	.....	.99999	.99999	.99999	.99994	.99842	.97260	.72879
24	.....	.....	.99999	.99999	.....	.99999	.99986	.99621	.92820
25	.....	.....	.99999	.99999	.....	.99999	.99999	.99999	.99999
n = 30									
x	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.04239	.00124	.00002	.00000	.00000	.00000	.00000	.00000	.00000
1	.18369	.01052	.00031	.00000	.00000	.00000	.00000	.00000	.00000
2	.41135	.04418	.00211	.00005	.00000	.00000	.00000	.00000	.00000
3	.64744	.12271	.00932	.00031	.00000	.00000	.00000	.00000	.00000
4	.82450	.25523	.03015	.00151	.00003	.00000	.00000	.00000	.00000
5	.92681	.42751	.07658	.00566	.00016	.00000	.00000	.00000	.00000
6	.97417	.60687	.15952	.01718	.00072	.00001	.00000	.00000	.00000
7	.99221	.76079	.28138	.04352	.00261	.00005	.00000	.00000	.00000
8	.99798	.87135	.43152	.09401	.00806	.00022	.00000	.00000	.00000
9	.99954	.93891	.58881	.17529	.02139	.00086	.00001	.00000	.00000
10	.99991	.97438	.73037	.29147	.04937	.00285	.00004	.00000	.00000
11	.99998	.99050	.84067	.43109	.10024	.00830	.00016	.00000	.00000
12	.....	.99589	.91552	.57846	.18080	.02124	.00063	.00000	.00000
13	.....	.99909	.95994	.71450	.29233	.04811	.00212	.00001	.00000
14	.....	.99977	.98306	.82463	.42777	.09706	.00637	.00005	.00000
15	.....	.99994	.99362	.90294	.57223	.17537	.01694	.00023	.00000
16	.....	.99999	.99787	.95188	.70767	.28549	.04005	.00090	.00000
17	.....	.99999	.99937	.97875	.81920	.42153	.08447	.00311	.00000
18	.....	.....	.99983	.99169	.89975	.56891	.15932	.00949	.00002
19	.....	.....	.99996	.99714	.95063	.70852	.26963	.02562	.00009
20	.....	.....	.99999	.99914	.97861	.82371	.41119	.06109	.00045
21	.....	.....	.99999	.99977	.99193	.90598	.56848	.12865	.00202
22	.....	.....	.99999	.99994	.99738	.95647	.71862	.23921	.00778
23	.....	.....	.99999	.99998	.99928	.98281	.84047	.39303	.02583
24	.....	.....	.99999	.99999	.99983	.99433	.92340	.57248	.07319
25	.....	.....	.99999	.99999	.99997	.99848	.96984	.74476	.17549
26	.....	.....	.99999	.99999	.99999	.99568	.99067	.87728	.35256
27	.....	.....	.99999	.99999	.....	.99994	.99788	.95581	.58864
28	.....	.....	.99999	.99999	.....	.99999	.99968	.98947	.81630
29	.....	.....	.99999	.99999	.....	.99999	.99997	.99875	.95760
30	.....	.....	.99999	.99999	.....	.99999	.99999	.99999	.99999

POISSON DISTRIBUTION
VALUES OF $e^{-\mu} \frac{\mu^x}{x!}$

μ x	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0
0	90484	.81873	74082	67032	60653	54881	49659	44933	40657	36788
1	.09048	.16375	22225	26813	30327	32929	34761	35946	36591	36788
2	.00452	.01637	.03334	.05363	.07582	.09879	12166	14379	16466	18394
3	.00015	.00109	.00333	.00715	.01264	.01976	.02839	.03834	.04940	.06131
4	.00000	.00005	.00025	.00072	.00158	.00296	.00497	.00767	.01111	.01533
5	.00000	.00000	.00002	.00006	.00016	.00036	.00070	.00123	.00200	.00307
6	.00000	.00000	.00000	.00000	.00001	.00004	.00008	.00016	.00030	.00051
7	.00000	.00000	.00000	.00000	.00000	.00000	.00001	.00002	.00004	.00007
8	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00001
9	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

μ x	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
0	33287	30119	.27253	24660	22313	20190	18268	16530	14957	13534
1	.36616	.36143	.35429	34524	33470	32303	31056	29754	28418	27067
2	.20139	21686	23029	24166	25102	25843	26398	26778	26997	27067
3	.07384	.08674	.09979	11278	12551	13783	14959	16067	17098	18045
4	.02031	.02602	.03243	.03947	.04707	.05513	.06357	.07230	.08122	.09022
5	.00447	.00625	.00843	.01105	.01412	.01764	.02162	.02603	.03086	.03608
6	.00082	.00125	.00183	.00258	.00353	.00470	.00612	.00781	.00977	.01203
7	.00013	.00021	.00034	.00052	.00076	.00108	.00149	.00201	.00265	.00344
8	.00002	.00003	.00006	.00009	.00014	.00022	.00032	.00045	.00063	.00086
9	.00000	.00000	.00001	.00001	.00002	.00004	.00006	.00009	.00013	.00019
10	.00000	.00000	.00000	.00000	.00000	.00001	.00001	.00002	.00003	.00004
11	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00001
12	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
13	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

Source: Lincoln L. Chao, *Statistics: Methods and Analysis*, New York: McGraw-Hill Book Company, 2nd ed., 1974. Reprinted by permission.

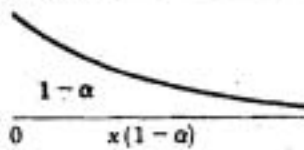
μ x	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
0	1.2246	1.1080	1.0026	.89072	.82029	.7427	.66721	.60081	.5502	.4979
1	2.5716	2.4377	2.3080	2.1772	2.0521	1.9311	1.8146	1.7027	1.5957	1.4936
2	2.7002	2.6814	2.6518	2.6127	2.5652	2.5105	2.4496	2.3838	2.3137	2.2404
3	1.8901	1.9664	2.0331	2.0901	2.1376	2.1757	2.2047	2.2248	2.2366	2.2404
4	0.9923	1.0815	1.1690	1.2541	1.3380	1.4142	1.4881	1.5574	1.6215	1.6803
5	0.4168	0.4759	0.5377	0.6020	0.6680	0.7354	0.8036	0.8721	0.9405	1.0082
6	0.1459	0.1745	0.2061	0.2408	0.2783	0.3187	0.3616	0.4070	0.4546	0.5041
7	0.0438	0.0548	0.0677	0.0826	0.0994	0.1184	0.1395	0.1628	0.1883	0.2160
8	0.0115	0.0151	0.0195	0.0248	0.0311	0.0385	0.0471	0.0570	0.0683	0.0810
9	0.0027	0.0037	0.0050	0.0066	0.0086	0.0111	0.0141	0.0177	0.0220	0.0270
10	0.0006	0.0008	0.0011	0.0016	0.0022	0.0029	0.0038	0.0050	0.0064	0.0081
11	0.0001	0.0002	0.0002	0.0003	0.0005	0.0007	0.0009	0.0013	0.0017	0.0022
12	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	0.0003	0.0004	0.0006
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

μ x	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
0	0.4505	0.4076	0.3688	0.3337	0.3020	0.2732	0.2472	0.2237	0.2024	0.1832
1	1.3965	1.3044	1.2172	1.1347	1.0569	0.9837	0.9146	0.8501	0.7894	0.7326
2	2.1646	2.0870	2.0083	1.9290	1.8496	1.7706	1.6923	1.6152	1.5394	1.4653
3	2.2368	2.2262	2.2091	2.1862	2.1579	2.1247	2.0872	2.0459	2.0012	1.9537
4	1.7335	1.7809	1.8225	1.8582	1.8881	1.9122	1.9307	1.9436	1.9512	1.9537
5	1.0748	1.1398	1.2029	1.2636	1.3217	1.3768	1.4287	1.4771	1.5219	1.5629
6	0.5553	0.6079	0.6616	0.7160	0.7710	0.8261	0.8810	0.9355	0.9892	1.0419
7	0.2459	0.2779	0.3119	0.3478	0.3855	0.4248	0.4657	0.5078	0.5511	0.5954
8	0.0953	0.1112	0.1287	0.1478	0.1686	0.1912	0.2154	0.2412	0.2687	0.2977
9	0.0328	0.0395	0.0472	0.0558	0.0656	0.0765	0.0885	0.1018	0.1164	0.1323
10	0.0102	0.0126	0.0156	0.0190	0.0230	0.0275	0.0328	0.0387	0.0454	0.0529
11	0.0029	0.0037	0.0047	0.0059	0.0073	0.0090	0.0110	0.0134	0.0161	0.0192
12	0.0007	0.0010	0.0013	0.0017	0.0021	0.0027	0.0034	0.0042	0.0052	0.0064
13	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0010	0.0012	0.0016	0.0020
14	0.0000	0.0001	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003	0.0004	0.0006
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

μ x	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
0	.01657	.01500	.01357	.01228	.01111	.01005	.00910	.00823	.00745	.00674
1	.06785	.06298	.05835	.05402	.04999	.04624	.04275	.03950	.03649	.03369
2	.13929	.13226	.12544	.11885	.11248	.10635	.10046	.09481	.08940	.08422
3	.19037	.18517	.17980	.17431	.16872	.16307	.15738	.15169	.14602	.14037
4	.19513	.19442	.19328	.19174	.18981	.18753	.18493	.18203	.17887	.17747
5	.16000	.16331	.16622	.16873	.17083	.17252	.17383	.17475	.17529	.17547
6	.10933	.11432	.11913	.12373	.12812	.13227	.13617	.13980	.14315	.14622
7	.06404	.06859	.07318	.07777	.08236	.08692	.09143	.09586	.10021	.10444
8	.03282	.03601	.03933	.04278	.04633	.04998	.05371	.05752	.06138	.06528
9	.01495	.01680	.01879	.02091	.02316	.02554	.02805	.03068	.03342	.03627
10	.00813	.00706	.00608	.00520	.01042	.01175	.01318	.01472	.01637	.01813
11	.00228	.00269	.00316	.00368	.00426	.00491	.00563	.00642	.00729	.00824
12	.00078	.00094	.00113	.00135	.00160	.00188	.00221	.00257	.00298	.00343
13	.00025	.00030	.00037	.00046	.00055	.00067	.00080	.00095	.00112	.00132
14	.00007	.00009	.00011	.00014	.00018	.00022	.00027	.00033	.00039	.00047
15	.00002	.00003	.00003	.00004	.00005	.00007	.00008	.00010	.00013	.00016
16	.00001	.00001	.00001	.00001	.00002	.00002	.00002	.00003	.00004	.00005
17	.00000	.00000	.00000	.00000	.00000	.00001	.00001	.00001	.00001	.00001
18	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
19	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
0	.00248	.00091	.00034	.00012	.00005	.00002	.00001	.00000	.00000	.00000
1	.01487	.00638	.00268	.00111	.00045	.00018	.00007	.00003	.00001	.00000
2	.04462	.02234	.01073	.00500	.00227	.00101	.00044	.00019	.00008	.00003
3	.08924	.05213	.02873	.01499	.00757	.00370	.00177	.00083	.00038	.00017
4	.13385	.08123	.05725	.03374	.01892	.01019	.00531	.00269	.00133	.00065
5	.16062	.12772	.09160	.06073	.03783	.02242	.01274	.00699	.00373	.00194
6	.16062	.14900	.12214	.09109	.06306	.04109	.02548	.01515	.00870	.00484
7	.13768	.14900	.13959	.11712	.09008	.06458	.04368	.02814	.01739	.01037
8	.10326	.13038	.13959	.13175	.11260	.08879	.06552	.04573	.03044	.01944
9	.06884	.10140	.12408	.13175	.12511	.10852	.08736	.06605	.04734	.03241
10	.04130	.07098	.09926	.11858	.12511	.11938	.10484	.08587	.06628	.04861
11	.02253	.04517	.07219	.09702	.11374	.11938	.11437	.10148	.08436	.06629
12	.01126	.02635	.04813	.07276	.09478	.10943	.11437	.10994	.09842	.08286
13	.00520	.01419	.02962	.05038	.07291	.09259	.10557	.10994	.10599	.09561
14	.00223	.00709	.01692	.03238	.05208	.07275	.09049	.10209	.10599	.10243
15	.00089	.00331	.00903	.01843	.03472	.05335	.07239	.08847	.09892	.10243
16	.00033	.00145	.00451	.01093	.02170	.03868	.05429	.07189	.08656	.09603
17	.00012	.00060	.00212	.00579	.01276	.02373	.03832	.05497	.07128	.08473
18	.00004	.00023	.00094	.00289	.00709	.01450	.02555	.03970	.05544	.07061
19	.00001	.00009	.00040	.00137	.00373	.00840	.01614	.02716	.04085	.05575
20	.00000	.00003	.00016	.00062	.00187	.00462	.00968	.01766	.02860	.04181
21	.00000	.00001	.00006	.00026	.00089	.00242	.00553	.01093	.01906	.02986
22	.00000	.00000	.00002	.00011	.00040	.00121	.00300	.00646	.01213	.02038
23	.00000	.00000	.00001	.00004	.00018	.00058	.00157	.00365	.00738	.01328
24	.00000	.00000	.00000	.00002	.00007	.00027	.00079	.00198	.00431	.00830
25	.00000	.00000	.00000	.00001	.00003	.00012	.00038	.00103	.00241	.00498
26	.00000	.00000	.00000	.00000	.00001	.00005	.00017	.00051	.00130	.00287
27	.00000	.00000	.00000	.00000	.00000	.00002	.00008	.00025	.00067	.00160
28	.00000	.00000	.00000	.00000	.00000	.00001	.00003	.00011	.00034	.00086
29	.00000	.00000	.00000	.00000	.00000	.00000	.00001	.00005	.00016	.00044
30	.00000	.00000	.00000	.00000	.00000	.00000	.00001	.00002	.00008	.00022
31	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00001	.00003	.00011
32	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00001	.00005
33	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00001	.00002
34	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00001
35	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

Table B-7 Cumulative probabilities of the exponential probability distribution



Entry is area $1 - \alpha$ under the exponential probability curve from 0 to $x(1 - \alpha)$

λx	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	0.0000	0.0100	0.0198	0.0296	0.0392	0.0488	0.0582	0.0676	0.0769	0.0861
0.1	0.0952	0.1042	0.1131	0.1219	0.1306	0.1393	0.1479	0.1563	0.1647	0.1730
0.2	0.1813	0.1894	0.1975	0.2055	0.2134	0.2212	0.2289	0.2366	0.2442	0.2517
0.3	0.2592	0.2666	0.2739	0.2811	0.2882	0.2953	0.3023	0.3093	0.3161	0.3229
0.4	0.3297	0.3363	0.3430	0.3495	0.3560	0.3624	0.3687	0.3750	0.3812	0.3874
0.5	0.3935	0.3995	0.4055	0.4114	0.4173	0.4231	0.4288	0.4345	0.4401	0.4457
0.6	0.4512	0.4566	0.4621	0.4674	0.4727	0.4780	0.4831	0.4883	0.4934	0.4984
0.7	0.5034	0.5084	0.5133	0.5181	0.5229	0.5276	0.5323	0.5370	0.5416	0.5462
0.8	0.5507	0.5551	0.5596	0.5640	0.5683	0.5726	0.5768	0.5810	0.5852	0.5893
0.9	0.5934	0.5975	0.6016	0.6056	0.6096	0.6133	0.6171	0.6209	0.6247	0.6284
1.0	0.6321	0.6358	0.6394	0.6430	0.6465	0.6501	0.6536	0.6570	0.6604	0.6638
1.1	0.6671	0.6704	0.6737	0.6770	0.6802	0.6834	0.6865	0.6896	0.6927	0.6958
1.2	0.6988	0.7018	0.7048	0.7077	0.7106	0.7135	0.7163	0.7192	0.7220	0.7247
1.3	0.7275	0.7302	0.7329	0.7355	0.7382	0.7408	0.7433	0.7459	0.7484	0.7509
1.4	0.7534	0.7559	0.7583	0.7607	0.7631	0.7654	0.7678	0.7701	0.7724	0.7746
1.5	0.7769	0.7791	0.7813	0.7835	0.7856	0.7878	0.7899	0.7920	0.7940	0.7961
1.6	0.7981	0.8001	0.8021	0.8041	0.8060	0.8080	0.8099	0.8118	0.8136	0.8155
1.7	0.8173	0.8191	0.8209	0.8227	0.8245	0.8262	0.8280	0.8297	0.8314	0.8330
1.8	0.8347	0.8363	0.8380	0.8396	0.8412	0.8428	0.8443	0.8459	0.8474	0.8489
1.9	0.8504	0.8519	0.8534	0.8549	0.8563	0.8577	0.8591	0.8605	0.8619	0.8633
2.0	0.8647	0.8660	0.8673	0.8687	0.8700	0.8713	0.8725	0.8738	0.8751	0.8763
2.1	0.8775	0.8788	0.8800	0.8812	0.8823	0.8835	0.8847	0.8858	0.8869	0.8881
2.2	0.8892	0.8903	0.8914	0.8925	0.8935	0.8946	0.8956	0.8967	0.8977	0.8987
2.3	0.8997	0.9007	0.9017	0.9027	0.9037	0.9046	0.9056	0.9065	0.9074	0.9084
2.4	0.9093	0.9102	0.9111	0.9120	0.9129	0.9137	0.9146	0.9154	0.9163	0.9171
2.5	0.9179	0.9187	0.9195	0.9203	0.9211	0.9219	0.9227	0.9235	0.9242	0.9250
2.6	0.9257	0.9265	0.9272	0.9279	0.9286	0.9293	0.9301	0.9307	0.9314	0.9321
2.7	0.9328	0.9335	0.9341	0.9348	0.9354	0.9361	0.9367	0.9373	0.9380	0.9386
2.8	0.9392	0.9398	0.9404	0.9410	0.9416	0.9422	0.9427	0.9433	0.9439	0.9444
2.9	0.9450	0.9455	0.9461	0.9466	0.9471	0.9477	0.9482	0.9487	0.9492	0.9497
3.0	0.9502	0.9507	0.9512	0.9517	0.9522	0.9526	0.9531	0.9536	0.9540	0.9545
3.1	0.9550	0.9554	0.9558	0.9563	0.9567	0.9571	0.9576	0.9580	0.9584	0.9588
3.2	0.9592	0.9596	0.9600	0.9604	0.9608	0.9612	0.9616	0.9620	0.9624	0.9627
3.3	0.9631	0.9635	0.9638	0.9642	0.9646	0.9649	0.9653	0.9656	0.9660	0.9663
3.4	0.9666	0.9670	0.9673	0.9676	0.9679	0.9683	0.9686	0.9689	0.9692	0.9695
3.5	0.9698	0.9701	0.9704	0.9707	0.9710	0.9713	0.9716	0.9718	0.9721	0.9724
3.6	0.9727	0.9729	0.9732	0.9735	0.9737	0.9740	0.9743	0.9745	0.9748	0.9750
3.7	0.9753	0.9755	0.9758	0.9760	0.9762	0.9765	0.9767	0.9769	0.9772	0.9774
3.8	0.9776	0.9779	0.9781	0.9783	0.9785	0.9787	0.9789	0.9791	0.9793	0.9795
3.9	0.9798	0.9800	0.9802	0.9804	0.9806	0.9807	0.9809	0.9811	0.9813	0.9815

λx	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
4.0	0.9817	0.9834	0.9850	0.9864	0.9877	0.9889	0.9899	0.9909	0.9918	0.9926
5.0	0.9933	0.9939	0.9945	0.9950	0.9955	0.9959	0.9963	0.9967	0.9970	0.9973
6.0	0.9975	0.9978	0.9980	0.9982	0.9983	0.9985	0.9986	0.9988	0.9989	0.9990
7.0	0.9991	0.9992	0.9993	0.9993	0.9994	0.9994	0.9995	0.9995	0.9996	0.9996
8.0	0.9997	0.9997	0.9997	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9999
9.0	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999

EXAMPLE: For $\lambda = .6$ and $x = 1.5$, $\lambda x = .78$ so $P(X \leq 1.5; \lambda = .6) = .416$.

TEXT REFERENCE: Use of this table is discussed on pp. 156-157.

Table B-8 Table of random digits

Line	(1)-(5)	(6)-(10)	(11)-(15)	(16)-(20)	(21)-(25)	(26)-(30)	(31)-(35)
101	13284	16834	74151	92027	24670	36665	00770
102	21224	00370	30420	03883	94648	89428	41583
103	99052	47887	81085	64933	66279	80432	65793
104	00199	50993	98603	38452	87890	94624	69721
105	60578	06483	28733	37867	07936	98710	98539
106	91240	18312	17441	01929	18163	69201	31211
107	97458	14229	12063	59611	32249	90466	33216
108	35249	38646	34475	72417	60514	69257	12489
109	38980	46600	11759	11900	46743	27860	77940
110	10750	52745	38749	87365	58959	53731	89295
111	36247	27850	73958	20673	37800	63835	71051
112	70994	66986	99744	72438	01174	42159	11392
113	99638	94702	11463	18148	81386	80431	90628
114	72055	15774	43857	99805	10419	76939	25993
115	24038	65541	85788	55835	38835	59399	13790
116	74976	14631	35908	28221	39470	91548	12854
117	35553	71628	70189	26436	63407	91178	90348
118	35676	12797	51434	82976	42010	26344	92920
119	74815	67523	72985	23183	02446	63594	98924
120	45246	88048	65173	50989	91060	89894	36036
121	76509	47069	86378	41797	11910	49672	88575
122	19689	90332	04315	21358	97248	11188	39062
123	42751	35318	97513	61537	54955	08159	00337
124	11946	22681	45045	13964	57517	59419	58045
125	96518	48688	20996	11090	48396	57177	83867
126	35726	58643	76869	84622	39098	36083	72505
127	39737	42750	48968	70536	84864	64952	38404
128	97025	66492	56177	04049	80312	48028	26408
129	62814	08075	09788	56350	76787	51591	54509
130	25578	22950	15227	83291	41737	59599	96191
131	68763	69576	88991	49662	46704	63362	56625
132	17900	00813	64361	60725	88974	61005	99709
133	71944	60227	63551	71109	05624	43836	58254
134	54684	93691	85132	64399	29182	44324	14491
135	25946	27623	11258	65204	52832	50880	22273
136	01353	39318	44961	44972	91766	90262	56073
137	99083	88191	27662	99113	57174	35571	99884
138	52021	45406	37945	75234	24327	86978	22644
139	78755	47744	43776	83098	03225	14281	83637
140	25282	69106	59180	16257	22810	43609	12224
141	11959	94202	02743	86847	79725	51811	12998
142	11644	13792	98190	01424	30078	28197	55583
143	06307	97912	68110	59812	95448	43244	31262
144	76285	75714	89585	99296	52640	46518	55486
145	55322	07598	39600	60866	63007	20007	66819
146	78017	90928	90220	92503	83375	26986	74399
147	44768	43342	20696	26331	43140	69744	82928
148	25100	19336	14605	86603	51680	97678	24261
149	83612	46623	62876	85197	07824	91392	58317
150	41347	81666	82961	60413	71020	83658	02415

Source: Excerpt from *Table of 105,000 Random Deviate Digits*, Interstate Commerce Commission, Bureau of Transport Economics and Statistics, May 1949.

(15) Remarks: This table is discussed on pp. 145-147.