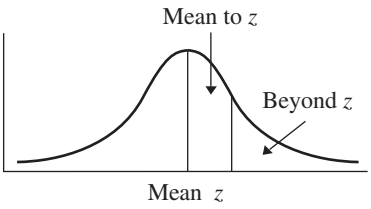
Appendix A STATISTICAL TABLES

Note: All of the entries in the following tables were computed by the author, except where otherwise indicated.

Table A.1
Areas Under the Standard Normal Distribution



z	Mean to z	Beyond z	z	Mean to z	Beyond z
.00	.0000	.5000	.41	.1591	.3409
.01	.0040	.4960	.42	.1628	.3372
.02	.0080	.4920	.43	.1664	.3336
.03	.0120	.4880	.44	.1700	.3300
.04	.0160	.4840	.45	.1736	.3264
.05	.0199	.4801	.46	.1772	.3228
.06	.0239	.4761	.47	.1808	.3192
.07	.0279	.4721	.48	.1844	.3156
.08	.0319	.4681	.49	.1879	.3121
.09	.0359	.4641	.50	.1915	.3085
.10	.0398	.4602	.51	.1950	.3050
.11	.0438	.4562	.52	.1985	.3015
.12	.0478	.4522	.53	.2019	.2981
.13	.0517	.4483	.54	.2054	.2946
.14	.0557	.4443	.55	.2088	.2912
.15	.0596	.4404	.56	.2123	.2877
.16	.0636	.4364	.57	.2157	.2843
.17	.0675	.4325	.58	.2190	.2810
.18	.0714	.4286	.59	.2224	.2776
.19	.0753	.4247	.60	.2257	.2743
.20	.0793	.4207	.61	.2291	.2709
.21	.0832	.4168	.62	.2324	.2676
.22	.0871	.4129	.63	.2357	.2643
.23	.0910	.4090	.64	.2389	.2611
.24	.0948	.4052	.65	.2422	.2578
.25	.0987	.4013	.66	.2454	.2546
.26	.1026	.3974	.67	.2486	.2514
.27	.1064	.3936	.68	.2517	.2483
.28	.1103	.3897	.69	.2549	.2451
.29	.1141	.3859	.70	.2580	.2420
.30	.1179	.3821	.71	.2611	.2389
.31	.1217	.3783	.72	.2642	.2358
.32	.1255	.3745	.73	.2673	.2327
.33	.1293	.3707	.74	.2704	.2296
.34	.1331	.3669	.75	.2734	.2266
.35	.1368	.3632	.76	.2764	.2236
.36	.1406	.3594	.77	.2794	.2206
.37	.1443	.3557	.78	.2823	.2177
.38	.1480	.3520	.79	.2852	.2148
.39	.1517	.3483	.80	.2881	.2119
.40	.1554	.3446	.81	.2910	.2090

Table A.1 (*continued*) Areas Under the Standard Normal Distribution

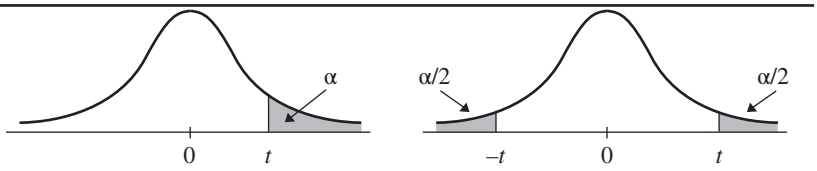
z	Mean to z	Beyond z	z	Mean to z	Beyond z
.82	.2939	.2061	1.42	.4222	.0778
.83	.2967	.2033	1.43	.4236	.0764
.84	.2995	.2005	1.44	.4251	.0749
.85	.3023	.1977	1.45	.4265	.0735
.86	.3051	.1949	1.46	.4279	.0721
.87	.3078	.1922	1.47	.4292	.0708
.88	.3106	.1894	1.48	.4306	.0694
.89	.3133	.1867	1.49	.4319	.0681
.90	.3159	.1841	1.50	.4332	.0668
.91	.3186	.1814	1.51	.4345	.0655
.92	.3212	.1788	1.52	.4357	.0643
.93	.3238	.1762	1.53	.4370	.0630
.94	.3264	.1736	1.54	.4382	.0618
.95	.3289	.1711	1.55	.4394	.0606
.96	.3315	.1685	1.56	.4406	.0594
.97	.3340	.1660	1.57	.4418	.0582
.98	.3365	.1635	1.58	.4429	.0571
.99	.3389	.1611	1.59	.4441	.0559
1.00	.3413	.1587	1.60	.4452	.0548
1.01	.3438	.1562	1.61	.4463	.0537
1.02	.3461	.1539	1.62	.4474	.0526
1.03	.3485	.1515	1.63	.4484	.0516
1.04	.3508	.1492	1.64	.4495	.0505
1.05	.3531	.1469	1.65	.4505	.0495
1.06	.3554	.1446	1.66	.4515	.0485
1.07	.3577	.1423	1.67	.4525	.0475
1.08	.3599	.1401	1.68	.4535	.0465
1.09	.3621	.1379	1.69	.4545	.0455
1.10	.3643	.1357	1.70	.4554	.0446
1.11	.3665	.1335	1.71	.4564	.0436
1.12	.3686	.1314	1.72	.4573	.0427
1.13	.3708	.1292	1.73	.4582	.0418
1.14	.3729	.1271	1.74	.4591	.0409
1.15	.3749	.1251	1.75	.4599	.0401
1.16	.3770	.1230	1.76	.4608	.0392
1.17	.3790	.1210	1.77	.4616	.0384
1.18	.3810	.1190	1.78	.4625	.0375
1.19	.3830	.1170	1.79	.4633	.0367
1.20	.3849	.1151	1.80	.4641	.0359
1.21	.3869	.1131	1.81	.4649	.0351
1.22	.3888	.1112	1.82	.4656	.0344
1.23	.3907	.1093	1.83	.4664	.0336
1.24	.3925	.1075	1.84	.4671	.0329
1.25	.3944	.1056	1.85	.4678	.0322
1.26	.3962	.1038	1.86	.4686	.0314
1.27	.3980	.1020	1.87	.4693	.0307
1.28	.3997	.1003	1.88	.4699	.0301
1.29	.4015	.0985	1.89	.4706	.0294
1.30	.4032	.0968	1.90	.4713	.0287
1.31	.4049	.0951	1.91	.4719	.0281
1.32	.4066	.0934	1.92	.4726	.0274
1.33	.4082	.0918	1.93	.4732	.0268
1.34	.4099	.0901	1.94	.4738	.0262
1.35	.4115	.0885	1.95	.4744	.0256
1.36	.4131	.0869	1.96	.4750	.0250
1.37	.4147	.0853	1.97	.4756	.0244
1.38	.4162	.0838	1.98	.4761	.0239
1.39	.4177	.0823	1.99	.4767	.0233
1.40	.4192	.0808	2.00	.4772	.0228
1.41	.4207	.0793	2.01	.4778	.0222

Table A.1 (*continued*)

Areas Under the Standard Normal Distribution

z	Mean to z	Beyond z	z	Mean to z	Beyond z
2.02	.4783	.0217	2.56	.4948	.0052
2.03	.4788	.0212	2.57	.4949	.0051
2.04	.4793	.0207	2.58	.4951	.0049
2.05	.4798	.0202	2.59	.4952	.0048
2.06	.4803	.0197	2.60	.4953	.0047
2.07	.4808	.0192	2.61	.4955	.0045
2.08	.4812	.0188	2.62	.4956	.0044
2.09	.4817	.0183	2.63	.4957	.0043
2.10	.4821	.0179	2.64	.4959	.0041
2.11	.4826	.0174	2.65	.4960	.0040
2.12	.4830	.0170	2.66	.4961	.0039
2.13	.4834	.0166	2.67	.4962	.0038
2.14	.4838	.0162	2.68	.4963	.0037
2.15	.4842	.0158	2.69	.4964	.0036
2.16	.4846	.0154	2.70	.4965	.0035
2.17	.4850	.0150	2.71	.4966	.0034
2.18	.4854	.0146	2.72	.4967	.0033
2.19	.4857	.0143	2.73	.4968	.0032
2.20	.4861	.0139	2.74	.4969	.0031
2.21	.4864	.0136	2.75	.4970	.0030
2.22	.4868	.0132	2.76	.4971	.0029
2.23	.4871	.0129	2.77	.4972	.0028
2.24	.4875	.0125	2.78	.4973	.0027
2.25	.4878	.0122	2.79	.4974	.0026
2.26	.4881	.0119	2.80	.4974	.0026
2.27	.4884	.0116	2.81	.4975	.0025
2.28	.4887	.0113	2.82	.4976	.0024
2.29	.4890	.0110	2.83	.4977	.0023
2.30	.4893	.0107	2.84	.4977	.0023
2.31	.4896	.0104	2.85	.4978	.0022
2.32	.4898	.0102	2.86	.4979	.0021
2.33	.4901	.0099	2.87	.4979	.0021
2.34	.4904	.0096	2.88	.4980	.0020
2.35	.4906	.0094	2.89	.4981	.0019
2.36	.4909	.0091	2.90	.4981	.0019
2.37	.4911	.0089	2.91	.4982	.0018
2.38	.4913	.0087	2.92	.4982	.0018
2.39	.4916	.0084	2.93	.4983	.0017
2.40	.4918	.0082	2.94	.4984	.0016
2.41	.4920	.0080	2.95	.4984	.0016
2.42	.4922	.0078	2.96	.4985	.0015
2.43	.4925	.0075	2.97	.4985	.0015
2.44	.4927	.0073	2.98	.4986	.0014
2.45	.4929	.0071	2.99	.4986	.0014
2.46	.4931	.0069	3.00	.4987	.0013
2.47	.4932	.0068	3.20	.4993	.0007
2.48	.4934	.0066			
2.49	.4936	.0064	3.40	.4997	.0003
2.50	.4938	.0062			
2.51	.4940	.0060	3.60	.4998	.0002
2.52	.4941	.0059			
2.53	.4943	.0057	3.80	.4999	.0001
2.54	.4945	.0055			
2.55	.4946	.0054	4.00	.49997	.00003

Table A.2
Critical Values of the *t* Distribution



One-tailed test | Two-tailed test

	Level of Significance for One-Tailed Test					
	.10	.05	.025	.01	.005	.0005
	Level of Significance for Two-Tailed Test					
df	.20	.10	.05	.02	.01	.001
1	3.078	6.314	12.706	31.821	63.657	636.620
2	1.886	2.920	4.303	6.965	9.925	31.599
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	3.768
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

Table A.3

Power as a Function of δ and Significance Criterion (α)

	One-Tailed Test (α)			
	.05	.025	.01	.005
	Two-Tailed Test (α)			
δ	.10	.05	.02	.01
0.5	.14	.08	.03	.02
0.6	.16	.09	.04	.02
0.7	.18	.11	.05	.03
0.8	.21	.13	.06	.04
0.9	.23	.15	.08	.05
1.0	.26	.17	.09	.06
1.1	.29	.20	.11	.07
1.2	.33	.22	.13	.08
1.3	.37	.26	.15	.10
1.4	.40	.29	.18	.12
1.5	.44	.32	.20	.14
1.6	.48	.36	.23	.16
1.7	.52	.40	.27	.19
1.8	.56	.44	.30	.22
1.9	.60	.48	.33	.25
2.0	.64	.52	.37	.28
2.1	.68	.56	.41	.32
2.2	.71	.60	.45	.35
2.3	.74	.63	.49	.39
2.4	.77	.67	.53	.43
2.5	.80	.71	.57	.47
2.6	.83	.74	.61	.51
2.7	.85	.77	.65	.55
2.8	.88	.80	.68	.59
2.9	.90	.83	.72	.63
3.0	.91	.85	.75	.66
3.1	.93	.87	.78	.70
3.2	.94	.89	.81	.73
3.3	.95	.91	.84	.77
3.4	.96	.93	.86	.80
3.5	.97	.94	.88	.82
3.6	.97	.95	.90	.85
3.7	.98	.96	.92	.87
3.8	.98	.97	.93	.89
3.9	.99	.97	.94	.91
4.0	.99	.98	.95	.92
4.1	.99	.98	.96	.94
4.2	.99	.99	.97	.95
4.3	*	.99	.98	.96
4.4		.99	.98	.97
4.5		.99	.99	.97
4.6		*	.99	.98
4.7			.99	.98
4.8			.99	.99
4.9			*	.99
5.0				.99

*The power at and below this point is greater than .995.

Table A.4
δ as a Function of Significance Criterion (α) and Power

	One-Tailed Test (α)			
	.05	.025	.01	.005
	Two-Tailed Test (α)			
Power	.10	.05	.02	.01
.25	0.97	1.29	1.65	1.90
.50	1.64	1.96	2.33	2.58
.60	1.90	2.21	2.58	2.83
.65	2.08	2.39	2.76	3.01
.70	2.17	2.48	2.85	3.10
.75	2.32	2.63	3.00	3.25
.80	2.49	2.80	3.17	3.42
.85	2.68	3.00	3.36	3.61
.90	2.93	3.24	3.61	3.86
.95	3.29	3.60	3.97	4.22
.99	3.97	4.29	4.65	4.90
.999	4.37	5.05	5.42	5.67

Table A.5
Critical Values of Pearson's *r* (df = *N* − 2)

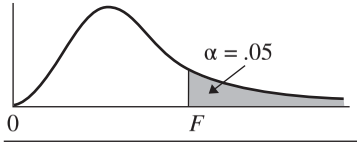
	Levels of Significance for a One-Tailed Test			
	.05	.025	.01	.005
	Levels of Significance for a Two-Tailed Test			
df	.10	.05	.02	.01
2	.900	.950	.980	.990
3	.805	.878	.934	.959
4	.729	.811	.882	.917
5	.669	.755	.833	.875
6	.622	.707	.789	.834
7	.582	.666	.750	.798
8	.549	.632	.716	.765
9	.521	.602	.685	.735
10	.498	.576	.658	.708
11	.476	.553	.634	.684
12	.458	.533	.612	.661
13	.441	.514	.592	.641
14	.426	.497	.574	.623
15	.412	.482	.558	.606
16	.400	.468	.542	.590
17	.389	.456	.529	.575
18	.379	.444	.516	.562
19	.369	.433	.503	.549
20	.360	.423	.492	.537
21	.351	.413	.482	.526
22	.344	.404	.472	.515
23	.337	.396	.462	.505
24	.330	.388	.453	.496
25	.323	.381	.445	.487
26	.317	.374	.437	.479
27	.311	.367	.430	.471
28	.306	.361	.423	.463
29	.301	.355	.416	.456
30	.296	.349	.409	.449
35	.275	.325	.381	.418
40	.257	.304	.358	.393
45	.243	.288	.338	.372
50	.231	.273	.322	.354
55	.220	.261	.307	.339
60	.211	.250	.295	.325
70	.195	.232	.274	.302
80	.183	.217	.256	.283
90	.173	.205	.242	.267
100	.164	.195	.230	.254
120	.150	.178	.210	.232
150	.134	.159	.189	.208
200	.116	.138	.164	.181
300	.095	.113	.134	.148
400	.082	.098	.116	.128
500	.073	.088	.104	.115
1000	.052	.062	.073	.081

Table A.6
Table of Fisher's Transformation of *r* to *Z*

r	*Z*	*r*	*Z*	*r*	*Z*	*r*	*Z*
0.000	0.000	0.250	0.255	0.500	0.549	0.750	0.973
0.005	0.005	0.255	0.261	0.505	0.556	0.755	0.984
0.010	0.010	0.260	0.266	0.510	0.563	0.760	0.996
0.015	0.015	0.265	0.271	0.515	0.570	0.765	1.008
0.020	0.020	0.270	0.277	0.520	0.576	0.770	1.020
0.025	0.025	0.275	0.282	0.525	0.583	0.775	1.033
0.030	0.030	0.280	0.288	0.530	0.590	0.780	1.045
0.035	0.035	0.285	0.293	0.535	0.597	0.785	1.058
0.040	0.040	0.290	0.299	0.540	0.604	0.790	1.071
0.045	0.045	0.295	0.304	0.545	0.611	0.795	1.085
0.050	0.050	0.300	0.310	0.550	0.618	0.800	1.099
0.055	0.055	0.305	0.315	0.555	0.626	0.805	1.113
0.060	0.060	0.310	0.320	0.560	0.633	0.810	1.127
0.065	0.065	0.315	0.326	0.565	0.640	0.815	1.142
0.070	0.070	0.320	0.332	0.570	0.648	0.820	1.157
0.075	0.075	0.325	0.337	0.575	0.655	0.825	1.172
0.080	0.080	0.330	0.343	0.580	0.662	0.830	1.188
0.085	0.085	0.335	0.348	0.585	0.670	0.835	1.204
0.090	0.090	0.340	0.354	0.590	0.678	0.840	1.221
0.095	0.095	0.345	0.360	0.595	0.685	0.845	1.238
0.100	0.100	0.350	0.365	0.600	0.693	0.850	1.256
0.105	0.105	0.355	0.371	0.605	0.701	0.855	1.274
0.110	0.110	0.360	0.377	0.610	0.709	0.860	1.293
0.115	0.116	0.365	0.383	0.615	0.717	0.865	1.313
0.120	0.121	0.370	0.388	0.620	0.725	0.870	1.333
0.125	0.126	0.375	0.394	0.625	0.733	0.875	1.354
0.130	0.131	0.380	0.400	0.630	0.741	0.880	1.376
0.135	0.136	0.385	0.406	0.635	0.750	0.885	1.398
0.140	0.141	0.390	0.412	0.640	0.758	0.890	1.422
0.145	0.146	0.395	0.418	0.645	0.767	0.895	1.447
0.150	0.151	0.400	0.424	0.650	0.775	0.900	1.472
0.155	0.156	0.405	0.430	0.655	0.784	0.905	1.499
0.160	0.161	0.410	0.436	0.660	0.793	0.910	1.528
0.165	0.167	0.415	0.442	0.665	0.802	0.915	1.557
0.170	0.172	0.420	0.448	0.670	0.811	0.920	1.589
0.175	0.177	0.425	0.454	0.675	0.820	0.925	1.623
0.180	0.182	0.430	0.460	0.680	0.829	0.930	1.658
0.185	0.187	0.435	0.466	0.685	0.838	0.935	1.697
0.190	0.192	0.440	0.472	0.690	0.848	0.940	1.738
0.195	0.198	0.445	0.478	0.695	0.858	0.945	1.783
0.200	0.203	0.450	0.485	0.700	0.867	0.950	1.832
0.205	0.208	0.455	0.491	0.705	0.877	0.955	1.886
0.210	0.213	0.460	0.497	0.710	0.887	0.960	1.946
0.215	0.218	0.465	0.504	0.715	0.897	0.965	2.014
0.220	0.224	0.470	0.510	0.720	0.908	0.970	2.092
0.225	0.229	0.475	0.517	0.725	0.918	0.975	2.185
0.230	0.234	0.480	0.523	0.730	0.929	0.980	2.298
0.235	0.239	0.485	0.530	0.735	0.940	0.985	2.443
0.240	0.245	0.490	0.536	0.740	0.950	0.990	2.647
0.245	0.250	0.495	0.543	0.745	0.962	0.995	2.994

Table A.7

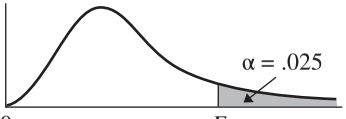
Critical Values of the *F* Distribution for $\alpha = .05$



df Denominator	df Numerator 1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	60	120	∞
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.74	8.70	8.66	8.63	8.62	8.59	8.57	8.55	8.53
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.91	5.86	5.80	5.77	5.75	5.72	5.69	5.66	5.63
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.68	4.62	4.56	4.52	4.50	4.46	4.43	4.40	4.36
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.00	3.94	3.87	3.83	3.81	3.77	3.74	3.70	3.67
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.57	3.51	3.44	3.40	3.38	3.34	3.30	3.27	3.23
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.28	3.22	3.15	3.11	3.08	3.04	3.01	2.97	2.93
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.07	3.01	2.94	2.89	2.86	2.83	2.79	2.75	2.71
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.91	2.85	2.77	2.73	2.70	2.66	2.62	2.58	2.54
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.79	2.72	2.65	2.60	2.57	2.53	2.49	2.45	2.40
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.69	2.62	2.54	2.50	2.47	2.43	2.38	2.34	2.30
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.60	2.53	2.46	2.41	2.38	2.34	2.30	2.25	2.21
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.53	2.46	2.39	2.34	2.31	2.27	2.22	2.18	2.13
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.48	2.40	2.33	2.28	2.25	2.20	2.16	2.11	2.07
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.42	2.35	2.28	2.23	2.19	2.15	2.11	2.06	2.01
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.38	2.31	2.23	2.18	2.15	2.10	2.06	2.01	1.96
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.34	2.27	2.19	2.14	2.11	2.06	2.02	1.97	1.92
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.31	2.23	2.16	2.11	2.07	2.03	1.98	1.93	1.88
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.28	2.20	2.12	2.07	2.04	1.99	1.95	1.90	1.84
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.25	2.18	2.10	2.04	2.01	1.96	1.92	1.87	1.81
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.23	2.15	2.07	2.02	1.98	1.94	1.89	1.84	1.78
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.20	2.13	2.05	2.00	1.96	1.91	1.86	1.81	1.76
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.18	2.11	2.03	1.97	1.94	1.89	1.84	1.79	1.73
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.16	2.09	2.01	1.95	1.92	1.87	1.82	1.77	1.71
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.15	2.07	1.99	1.94	1.90	1.85	1.80	1.75	1.69
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.13	2.06	1.97	1.92	1.88	1.84	1.79	1.73	1.67
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.12	2.04	1.96	1.91	1.87	1.82	1.77	1.71	1.65
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.10	2.03	1.94	1.90	1.85	1.81	1.75	1.70	1.64
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.09	2.01	1.93	1.88	1.84	1.79	1.74	1.68	1.62
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.00	1.92	1.84	1.78	1.74	1.69	1.64	1.58	1.51
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.92	1.84	1.75	1.69	1.65	1.59	1.53	1.47	1.39
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96	1.91	1.83	1.75	1.66	1.60	1.55	1.50	1.43	1.35	1.25
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.75	1.67	1.57	1.51	1.46	1.39	1.32	1.22	1.00

Table A.8

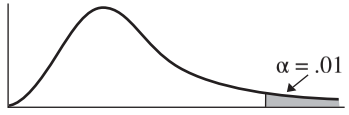
Critical Values of the *F* Distribution for $\alpha = .025$



df Denominator	df Numerator 1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	60	120	∞
3	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47	14.42	14.34	14.25	14.17	14.12	14.08	14.04	13.99	13.95	13.90
4	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84	8.75	8.66	8.56	8.50	8.46	8.41	8.36	8.31	8.26
5	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.52	6.43	6.33	6.27	6.23	6.18	6.12	6.07	6.02
6	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.37	5.27	5.17	5.11	5.07	5.01	4.96	4.90	4.85
7	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76	4.67	4.57	4.47	4.40	4.36	4.31	4.25	4.20	4.14
8	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.20	4.10	4.00	3.94	3.89	3.84	3.78	3.73	3.67
9	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96	3.87	3.77	3.67	3.60	3.56	3.51	3.45	3.39	3.33
10	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72	3.62	3.52	3.42	3.35	3.31	3.26	3.20	3.14	3.08
11	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.43	3.33	3.23	3.16	3.12	3.06	3.00	2.94	2.88
12	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.28	3.18	3.07	3.01	2.96	2.91	2.85	2.79	2.72
13	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.15	3.05	2.95	2.88	2.84	2.78	2.72	2.66	2.60
14	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21	3.15	3.05	2.95	2.84	2.78	2.73	2.67	2.61	2.55	2.49
15	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12	3.06	2.96	2.86	2.76	2.69	2.64	2.59	2.52	2.46	2.40
16	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.89	2.79	2.68	2.61	2.57	2.51	2.45	2.38	2.32
17	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.82	2.72	2.62	2.55	2.50	2.44	2.38	2.32	2.25
18	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.77	2.67	2.56	2.49	2.44	2.38	2.32	2.26	2.19
19	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88	2.82	2.72	2.62	2.51	2.44	2.39	2.33	2.27	2.20	2.13
20	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84	2.77	2.68	2.57	2.46	2.40	2.35	2.29	2.22	2.16	2.09
21	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80	2.73	2.64	2.53	2.42	2.36	2.31	2.25	2.18	2.11	2.04
22	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76	2.70	2.60	2.50	2.39	2.32	2.27	2.21	2.14	2.08	2.00
23	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73	2.67	2.57	2.47	2.36	2.29	2.24	2.18	2.11	2.04	1.97
24	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70	2.64	2.54	2.44	2.33	2.26	2.21	2.15	2.08	2.01	1.94
25	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68	2.61	2.51	2.41	2.30	2.23	2.18	2.12	2.05	1.98	1.91
26	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65	2.59	2.49	2.39	2.28	2.21	2.16	2.09	2.03	1.95	1.88
27	5.63	4.24	3.65	3.31	3.08	2.92	2.80	2.71	2.63	2.57	2.47	2.36	2.25	2.18	2.13	2.07	2.00	1.93	1.85
28	5.61	4.22	3.63	3.29	3.06	2.90	2.78	2.69	2.61	2.55	2.45	2.34	2.23	2.16	2.11	2.05	1.98	1.91	1.83
29	5.59	4.20	3.61	3.27	3.04	2.88	2.76	2.67	2.59	2.53	2.43	2.32	2.21	2.14	2.09	2.03	1.96	1.89	1.81
30	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57	2.51	2.41	2.31	2.20	2.12	2.07	2.01	1.94	1.87	1.79
40	5.42	4.05	3.46	3.13	2.90	2.74	2.62	2.53	2.45	2.39	2.29	2.18	2.07	1.99	1.94	1.88	1.80	1.72	1.64
60	5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33	2.27	2.17	2.06	1.94	1.87	1.82	1.74	1.87	1.58	1.48
120	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22	2.16	2.05	1.94	1.82	1.75	1.69	1.61	1.53	1.43	1.31
∞	5.02	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.94	1.83	1.71	1.63	1.57	1.48	1.39	1.27	1.00

Table A.9

Critical Values of the *F* Distribution for $\alpha = .01$



df Denominator	df Numerator 1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	60	120	∞
3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35	27.23	27.05	26.87	26.69	26.58	26.50	26.41	26.32	26.22	26.13
4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55	14.37	14.20	14.02	13.91	13.84	13.75	13.65	13.56	13.46
5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16	10.05	9.89	9.72	9.55	9.45	9.38	9.29	9.20	9.11	9.02
6	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.72	7.56	7.40	7.30	7.23	7.14	7.06	6.97	6.88
7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.47	6.31	6.16	6.06	5.99	5.91	5.82	5.74	5.65
8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.67	5.52	5.36	5.26	5.20	5.12	5.03	4.95	4.86
9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.11	4.96	4.81	4.71	4.65	4.57	4.48	4.40	4.31
10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.71	4.56	4.41	4.31	4.25	4.17	4.08	4.00	3.91
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.40	4.25	4.10	4.01	3.94	3.86	3.78	3.69	3.60
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.16	4.01	3.86	3.76	3.70	3.62	3.54	3.45	3.36
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.96	3.82	3.66	3.57	3.51	3.43	3.34	3.25	3.17
14	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.80	3.66	3.51	3.41	3.35	3.27	3.18	3.09	3.00
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.67	3.52	3.37	3.28	3.21	3.13	3.05	2.96	2.87
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.55	3.41	3.26	3.16	3.10	3.02	2.93	2.84	2.75
17	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.46	3.31	3.16	3.087	3.00	2.92	2.83	2.75	2.65
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.37	3.23	3.08	3.098	2.92	2.84	2.75	2.66	2.57
19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.30	3.15	3.00	2.91	2.84	2.76	2.67	2.58	2.49
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.23	3.09	2.94	2.84	2.78	2.69	2.61	2.52	2.42
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.17	3.03	2.88	2.78	2.72	2.64	2.55	2.46	2.36
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.12	2.98	2.83	2.753	2.67	2.58	2.50	2.40	2.31
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.07	2.93	2.78	2.68	2.62	2.54	2.45	2.35	2.26
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.03	2.89	2.74	2.64	2.58	2.49	2.40	2.31	2.21
25	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22	3.13	2.99	2.85	2.70	2.60	2.54	2.45	2.36	2.27	2.17
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18	3.09	2.96	2.81	2.66	2.57	2.50	2.42	2.33	2.23	2.13
27	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15	3.06	2.93	2.78	2.63	2.53	2.47	2.38	2.29	2.20	2.10
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12	3.03	2.90	2.75	2.60	2.51	2.44	2.35	2.26	2.17	2.06
29	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09	3.00	2.87	2.73	2.57	2.47	2.41	2.33	2.23	2.14	2.03
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.84	2.70	2.55	2.45	2.39	2.30	2.21	2.11	2.01
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.66	2.52	2.37	2.27	2.20	2.11	2.02	1.92	1.80
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.50	2.35	2.20	2.10	2.03	1.94	1.84	1.73	1.60
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.34	2.19	2.03	1.93	1.86	1.76	1.66	1.53	1.38
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.18	2.04	1.88	1.77	1.70	1.59	1.47	1.32	1.00

Table A.10
Power of ANOVA
($\alpha = .05$)

$k = 2$					(ϕ)				
df_w	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.6	3.0
4	.20	.26	.33	.41	.49	.57	.65	.78	.88
8	.24	.32	.41	.51	.61	.70	.78	.89	.96
12	.26	.35	.44	.55	.65	.74	.81	.92	.97
16	.26	.36	.46	.57	.67	.76	.83	.93	.98
20	.27	.37	.47	.58	.68	.77	.84	.94	.98
30	.28	.38	.48	.59	.69	.78	.85	.94	.98
60	.29	.39	.50	.61	.71	.79	.86	.95	.99
∞	.29	.40	.51	.62	.72	.81	.88	.96	.99
$k = 3$					(ϕ)				
df_w	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.6	3.0
4	.18	.23	.30	.38	.46	.54	.62	.76	.86
8	.23	.32	.42	.52	.63	.72	.80	.92	.97
12	.26	.36	.47	.58	.69	.78	.86	.95	.99
16	.27	.38	.49	.61	.72	.81	.88	.96	.99
20	.28	.39	.51	.63	.74	.83	.89	.97	.99
30	.29	.41	.53	.65	.76	.85	.91	.98	*
60	.31	.43	.55	.68	.78	.87	.92	.98	*
∞	.32	.44	.57	.70	.80	.88	.94	.99	*
$k = 4$					(ϕ)				
df_w	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.6	3.0
4	.17	.23	.29	.37	.45	.53	.61	.75	.86
8	.24	.33	.43	.54	.65	.75	.83	.94	.98
12	.27	.38	.50	.62	.73	.82	.89	.97	.99
16	.29	.40	.53	.66	.77	.86	.92	.98	*
20	.30	.42	.55	.68	.79	.87	.93	.99	*
30	.32	.45	.58	.71	.82	.90	.95	.99	*
60	.34	.47	.61	.74	.84	.92	.96	.99	*
∞	.36	.50	.64	.77	.87	.93	.97	*	*
$k = 5$					(ϕ)				
df_w	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.6	3.0
4	.17	.22	.29	.36	.45	.53	.61	.75	.86
8	.24	.34	.45	.56	.67	.77	.85	.95	.99
12	.28	.39	.52	.65	.76	.85	.92	.98	*
16	.30	.43	.56	.69	.81	.89	.94	.99	*
20	.32	.45	.59	.72	.83	.91	.96	.99	*
30	.34	.48	.63	.76	.86	.93	.97	*	*
60	.37	.52	.67	.80	.89	.95	.98	*	*
∞	.40	.55	.71	.83	.92	.96	.99	*	*

*Power $\geq .995$.

Source: Adapted from "Tables of the Power of the *F* Test," by M. L. Tiku, 1967, *Journal of the American Statistical Association*, Vol. 62, pp. 525–539. Copyright © 1967 by American Statistical Association. Reprinted by permission of the American Statistical Association via the Copyright Clearance Center.

Table A.11

Critical Values of the Studentized Range Statistic (q) for $\alpha = .05$

	Number of Groups (or Number of Steps Between Ordered Means)																		
df for Error Term	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
1	17.97	26.98	32.82	37.08	40.41	43.12	45.40	47.36	49.07	50.59	51.96	53.20	54.33	55.36	56.32	57.22	58.04	58.83	59.56
2	6.08	8.33	9.80	10.88	11.74	12.44	13.03	13.54	13.99	14.39	14.75	15.08	15.38	15.65	15.91	16.14	16.37	16.57	16.77
3	4.50	5.91	6.82	7.50	8.04	8.48	8.85	9.18	9.46	9.72	9.95	10.15	10.35	10.52	10.69	10.84	10.98	11.11	11.24
4	3.93	5.04	5.76	6.29	6.71	7.05	7.35	7.60	7.83	8.03	8.21	8.37	8.52	8.66	8.79	8.91	9.03	9.13	9.23
5	3.64	4.60	5.22	5.67	6.03	6.33	6.58	6.80	6.99	7.17	7.32	7.47	7.60	7.72	7.83	7.93	8.03	8.12	8.21
6	3.46	4.34	4.90	5.30	5.63	5.90	6.12	6.32	6.49	6.65	6.79	6.92	7.03	7.14	7.24	7.34	7.43	7.51	7.59
7	3.34	4.16	4.68	5.06	5.36	5.61	5.82	6.00	6.16	6.30	6.43	6.55	6.66	6.76	6.85	6.94	7.02	7.10	7.17
8	3.26	4.04	4.53	4.89	5.17	5.40	5.60	5.77	5.92	6.05	6.18	6.29	6.39	6.48	6.57	6.65	6.73	6.80	6.87
9	3.20	3.95	4.41	4.76	5.02	5.24	5.43	5.59	5.74	5.87	5.98	6.09	6.19	6.28	6.36	6.44	6.51	6.58	6.64
10	3.15	3.88	4.33	4.65	4.91	5.12	5.30	5.46	5.60	5.72	5.83	5.93	6.03	6.11	6.19	6.27	6.34	6.40	6.47
11	3.11	3.82	4.26	4.57	4.82	5.03	5.20	5.35	5.49	5.61	5.71	5.81	5.90	5.98	6.06	6.13	6.20	6.27	6.33
12	3.08	3.77	4.20	4.51	4.75	4.95	5.12	5.27	5.39	5.51	5.61	5.71	5.80	5.88	5.95	6.02	6.09	6.15	6.21
13	3.06	3.73	4.15	4.45	4.69	4.88	5.05	5.19	5.32	5.43	5.53	5.63	5.71	5.79	5.86	5.93	5.99	6.05	6.11
14	3.03	3.70	4.11	4.41	4.64	4.83	4.99	5.13	5.25	5.36	5.46	5.55	5.64	5.71	5.79	5.85	5.91	5.97	6.03
15	3.01	3.67	4.08	4.37	4.59	4.78	4.94	5.08	5.20	5.31	5.40	5.49	5.57	5.65	5.72	5.78	5.85	5.90	5.96
16	3.00	3.65	4.05	4.33	4.56	4.74	4.90	5.03	5.15	5.26	5.35	5.44	5.52	5.59	5.66	5.73	5.79	5.84	5.90
17	2.98	3.63	4.02	4.30	4.52	4.70	4.86	4.99	5.11	5.21	5.31	5.39	5.47	5.54	5.61	5.67	5.73	5.79	5.84
18	2.97	3.61	4.00	4.28	4.49	4.67	4.82	4.96	5.07	5.17	5.27	5.35	5.43	5.50	5.57	5.63	5.69	5.74	5.79
19	2.96	3.59	3.98	4.25	4.47	4.65	4.79	4.92	5.04	5.14	5.23	5.31	5.39	5.46	5.53	5.59	5.65	5.70	5.75
20	2.95	3.58	3.96	4.23	4.45	4.62	4.77	4.90	5.01	5.11	5.20	5.28	5.36	5.43	5.49	5.55	5.61	5.66	5.71
24	2.92	3.53	3.90	4.17	4.37	4.54	4.68	4.81	4.92	5.01	5.10	5.18	5.25	5.32	5.38	5.44	5.49	5.55	5.59
30	2.89	3.49	3.85	4.10	4.30	4.46	4.60	4.72	4.82	4.92	5.00	5.08	5.15	5.21	5.27	5.33	5.38	5.43	5.47
40	2.86	3.44	3.79	4.04	4.23	4.39	4.52	4.63	4.73	4.82	4.90	4.98	5.04	5.11	5.16	5.22	5.27	5.31	5.36
60	2.83	3.40	3.74	3.98	4.16	4.31	4.44	4.55	4.65	4.73	4.81	4.88	4.94	5.00	5.06	5.11	5.15	5.20	5.24
120	2.80	3.36	3.68	3.92	4.10	4.24	4.36	4.47	4.56	4.64	4.71	4.78	4.84	4.90	4.95	5.00	5.04	5.09	5.13
∞	2.77	3.31	3.63	3.86	4.03	4.17	4.29	4.39	4.47	4.55	4.62	4.68	4.74	4.80	4.85	4.89	4.93	4.97	5.01

Source: Adapted from *Biometrika Tables for Statisticians*, Vol. 1, 3rd ed., by E. Pearson & H. Hartley, Table 29. Copyright © 1966 University Press. Used with the permission of the Biometrika Trustees.

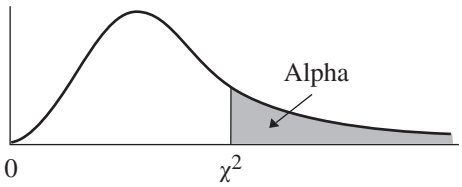
Table A.12
Orthogonal Polynomial Trend Coefficients

k	Trend	1	2	3	4	5	6	7	8	9	10	ΣC_j^2
3	Linear	−1	0	1								2
	Quadratic	1	−2	1								6
4	Linear	−3	−1	1	3							20
	Quadratic	1	−1	−1	1							4
	Cubic	−1	3	−3	1							20
5	Linear	−2	−1	0	1	2						10
	Quadratic	2	−1	−2	−1	2						14
	Cubic	−1	2	0	−2	1						10
	Quartic	1	−4	6	−4	1						70
6	Linear	−5	−3	−1	1	3	5					70
	Quadratic	5	−1	−4	−4	−1	5					84
	Cubic	−5	7	4	−4	−7	5					180
	Quartic	1	−3	2	2	−3	1					28
7	Linear	−3	−2	−1	0	1	2	3				28
	Quadratic	5	0	−3	−4	−3	0	5				84
	Cubic	−1	1	1	0	−1	−1	1				6
	Quartic	3	−7	1	6	1	−7	3				154
8	Linear	−7	−5	−3	−1	1	3	5	7			168
	Quadratic	7	1	−3	−5	−5	−3	1	7			168
	Cubic	−7	5	7	3	−3	−7	−5	7			264
	Quartic	7	−13	−3	9	9	−3	−13	7			616
	Quintic	−7	23	−17	−15	15	17	−23	7			2184
9	Linear	−4	−3	−2	−1	0	1	2	3	4		60
	Quadratic	28	7	−8	−17	−20	−17	−8	7	28		2772
	Cubic	−14	7	13	9	0	−9	−13	−7	14		990
	Quartic	14	−21	−11	9	18	9	−11	−21	14		2002
	Quintic	−4	11	−4	−9	0	9	4	−11	4		468
10	Linear	−9	−7	−5	−3	−1	1	3	5	7	9	330
	Quadratic	6	2	−1	−3	−4	−4	−3	−1	2	6	132
	Cubic	−42	14	35	31	12	−12	−31	−35	−14	42	8580
	Quartic	18	−22	−17	3	18	18	3	−17	−22	18	2860
	Quintic	−6	14	−1	−11	−6	6	11	1	−14	6	780

Table A.13
Probabilities of the Binomial Distribution for $P = .5$

n	X	p	n	X	p	n	X	p
1	0	.5000		1	.0176	13	0	.0001
	1	.5000		2	.0703		1	.0016
2	0	.2500		3	.1641		2	.0095
	1	.5000		4	.2461		3	.0349
	2	.2500		5	.2461		4	.0873
3	0	.1250		6	.1641		5	.1571
	1	.3750		7	.0703		6	.2095
	2	.3750		8	.0176		7	.2095
	3	.1250		9	.0020		8	.1571
4	0	.0625	10	0	.0010		9	.0873
	1	.2500		1	.0098		10	.0349
	2	.3750		2	.0439		11	.0095
	3	.2500		3	.1172		12	.0016
	4	.0625		4	.2051		13	.0001
5	0	.0312		5	.2461	14	0	.0001
	1	.1562		6	.2051		1	.0009
	2	.3125		7	.1172		2	.0056
	3	.3125		8	.0439		3	.0222
	4	.1562		9	.0098		4	.0611
	5	.0312		10	.0010		5	.1222
6	0	.0156	11	0	.0005		6	.1833
	1	.0938		1	.0054		7	.2095
	2	.2344		2	.0269		8	.1833
	3	.3125		3	.0806		9	.1222
	4	.2344		4	.1611		10	.0611
	5	.0938		5	.2256		11	.0222
	6	.0156		6	.2256		12	.0056
7	0	.0078		7	.1611		13	.0009
	1	.0547		8	.0806		14	.0001
	2	.1641		9	.0269	15	0	.0000
	3	.2734		10	.0054		1	.0005
	4	.2734		11	.0005		2	.0032
	5	.1641	12	0	.0002		3	.0139
	6	.0547		1	.0029		4	.0417
	7	.0078		2	.0161		5	.0916
8	0	.0039		3	.0537		6	.1527
	1	.0312		4	.1208		7	.1964
	2	.1094		5	.1934		8	.1964
	3	.2188		6	.2256		9	.1527
	4	.2734		7	.1934		10	.0916
	5	.2188		8	.1208		11	.0417
	6	.1094		9	.0537		12	.0139
	7	.0312		10	.0161		13	.0032
	8	.0039		11	.0029		14	.0005
9	0	.0020		12	.0002		15	.0000

Table A.14
Critical Values of the χ^2 Distribution



	Alpha (area in the upper tail)				
df	**.10**	**.05**	**.025**	**.01**	**.005**
1	2.71	3.84	5.02	6.63	7.88
2	4.61	5.99	7.38	9.21	10.60
3	6.25	7.81	9.35	11.35	12.84
4	7.78	9.49	11.14	13.28	14.86
5	9.24	11.07	12.83	15.09	16.75
6	10.64	12.59	14.45	16.81	18.55
7	12.02	14.07	16.01	18.48	20.28
8	13.36	15.51	17.54	20.09	21.96
9	14.68	16.92	19.02	21.67	23.59
10	15.99	18.31	20.48	23.21	25.19
11	17.28	19.68	21.92	24.72	26.75
12	18.55	21.03	23.34	26.22	28.30
13	19.81	22.36	24.74	27.69	29.82
14	21.06	23.69	26.12	29.14	31.32
15	22.31	25.00	27.49	30.58	32.80
16	23.54	26.30	28.85	32.00	34.27
17	24.77	27.59	30.19	33.41	35.72
18	25.99	28.87	31.53	34.81	37.15
19	27.20	30.14	32.85	36.19	38.58
20	28.41	31.41	34.17	37.56	40.00
21	29.62	32.67	35.48	38.93	41.40
22	30.81	33.92	36.78	40.29	42.80
23	32.01	35.17	38.08	41.64	44.18
24	33.20	36.42	39.37	42.98	45.56
25	34.38	37.65	40.65	44.31	46.93
26	35.56	38.89	41.92	45.64	48.29
27	36.74	40.11	43.19	46.96	49.64
28	37.92	41.34	44.46	48.28	50.99
29	39.09	42.56	45.72	49.59	52.34
30	40.26	43.77	46.98	50.89	53.67
40	51.80	55.76	59.34	63.69	66.78
50	63.16	67.50	71.42	76.16	79.50
60	74.40	79.08	83.30	88.39	91.96
70	85.53	90.53	95.03	100.43	104.23
80	96.58	101.88	106.63	112.34	116.33
90	107.56	113.14	118.14	124.12	128.31
100	118.50	124.34	129.56	135.81	140.18