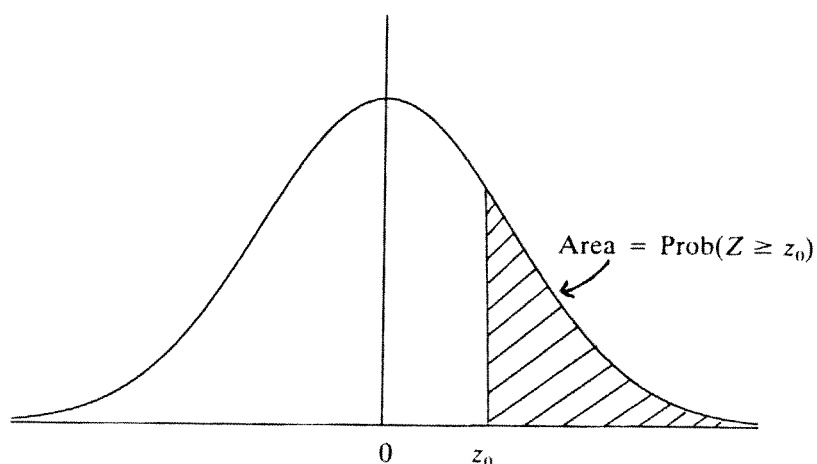


B

Statistical Tables

TABLE B.1
Standard Normal Distribution



→ ↓ z_0	Second decimal place of z_0									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641
0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0722	.0708	.0694	.0681

(continued on next page)

TABLE B.1 (continued)

→ ↓ z_0	Second decimal place of z_0									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
1.8	.0359	.0352	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
2.9	.0019	.0018	.0017	.0017	.0016	.0016	.0015	.0015	.0014	.0014
3.0	.00135									
3.5	.000 233									
4.0	.000 031 7									
4.5	.000 003 40									
5.0	.000 000 287									

Table entries give the probability that a $N(0, 1)$ variable takes on a value greater than or equal to z_0 . For example, if $Z \sim N(0, 1)$, the probability that $Z > 1.96 = 0.0250$. By symmetry, the table entries could also be interpreted as the probability that a $N(0, 1)$ variable takes a value less than or equal to $-z_0$.

Source: Thomas H. Wonnacott and Ronald J. Wonnacott, *Introductory Statistics*, 2d ed., p. 480. Copyright © 1972 by John Wiley & Sons, Inc., New York. Reprinted by permission of John Wiley & Sons, Inc.

TABLE B.2
The χ^2 Distribution

Degrees of freedom (<i>m</i>)	Probability that $\chi^2(m)$ is greater than entry						
	0.995	0.990	0.975	0.950	0.900	0.750	0.500
1	4×10^{-5}	2×10^{-4}	0.001	0.004	0.016	0.102	0.455
2	0.010	0.020	0.051	0.103	0.211	0.575	1.39
3	0.072	0.115	0.216	0.352	0.584	1.21	2.37
4	0.207	0.297	0.484	0.711	1.06	1.92	3.36
5	0.412	0.554	0.831	1.15	1.61	2.67	4.35
6	0.676	0.872	1.24	1.64	2.20	3.45	5.35
7	0.989	1.24	1.69	2.17	2.83	4.25	6.35
8	1.34	1.65	2.18	2.73	3.49	5.07	7.34
9	1.73	2.09	2.70	3.33	4.17	5.90	8.34
10	2.16	2.56	3.25	3.94	4.87	6.74	9.34
11	2.60	3.05	3.82	4.57	5.58	7.58	10.3
12	3.07	3.57	4.40	5.23	6.30	8.44	11.3
13	3.57	4.11	5.01	5.89	7.04	9.30	12.3
14	4.07	4.66	5.63	6.57	7.79	10.2	13.3
15	4.60	5.23	6.26	7.26	8.55	11.0	14.3
16	5.14	5.81	6.91	7.96	9.31	11.9	15.3
17	5.70	6.41	7.56	8.67	10.1	12.8	16.3
18	6.26	7.01	8.23	9.39	10.9	13.7	17.3
19	6.84	7.63	8.91	10.1	11.7	14.6	18.3
20	7.43	8.26	9.59	10.9	12.4	15.5	19.3
21	8.03	8.90	10.3	11.6	13.2	16.3	20.3
22	8.64	9.54	11.0	12.3	14.0	17.2	21.3
23	9.26	10.2	11.7	13.1	14.8	18.1	22.3
24	9.89	10.9	12.4	13.8	15.7	19.0	23.3
25	10.5	11.5	13.1	14.6	16.5	19.9	24.3
26	11.2	12.2	13.8	15.4	17.3	20.8	25.3
27	11.8	12.9	14.6	16.2	18.1	21.7	26.3
28	12.5	13.6	15.3	16.9	18.9	22.7	27.3
29	13.1	14.3	16.0	17.7	19.8	23.6	28.3
30	13.8	15.0	16.8	18.5	20.6	24.5	29.3
40	20.7	22.2	24.4	26.5	29.1	33.7	39.3
50	28.0	29.7	32.4	34.8	37.7	42.9	49.3
60	35.5	37.5	40.5	43.2	46.5	52.3	59.3
70	43.3	45.4	48.8	51.7	55.3	61.7	69.3
80	51.2	53.5	57.2	60.4	64.3	71.1	79.3
90	59.2	61.8	65.6	69.1	73.3	80.6	89.3
100	67.3	70.1	74.2	77.9	82.4	90.1	99.3

(continued on next page)

TABLE B.2 (continued)

Degrees of freedom (<i>m</i>)	Probability that $\chi^2(m)$ is greater than entry						
	0.250	0.100	0.050	0.025	0.010	0.005	0.001
1	1.32	2.71	3.84	5.02	6.63	7.88	10.8
2	2.77	4.61	5.99	7.38	9.21	10.6	13.8
3	4.11	6.25	7.81	9.35	11.3	12.8	16.3
4	5.39	7.78	9.49	11.1	13.3	14.9	18.5
5	6.63	9.24	11.1	12.8	15.1	16.7	20.5
6	7.84	10.6	12.6	14.4	16.8	18.5	22.5
7	9.04	12.0	14.1	16.0	18.5	20.3	24.3
8	10.2	13.4	15.5	17.5	20.1	22.0	26.1
9	11.4	14.7	16.9	19.0	21.7	23.6	27.9
10	12.5	16.0	18.3	20.5	23.2	25.2	29.6
11	13.7	17.3	19.7	21.9	24.7	26.8	31.3
12	14.8	18.5	21.0	23.3	26.2	28.3	32.9
13	16.0	19.8	22.4	24.7	27.7	29.8	34.5
14	17.1	21.1	23.7	26.1	29.1	31.3	36.1
15	18.2	22.3	25.0	27.5	30.6	32.8	37.7
16	19.4	23.5	26.3	28.8	32.0	34.3	39.3
17	20.5	24.8	27.6	30.2	33.4	35.7	40.8
18	21.6	26.0	28.9	31.5	34.8	37.2	42.3
19	22.7	27.2	30.1	32.9	36.2	38.6	43.8
20	23.8	28.4	31.4	34.2	37.6	40.0	45.3
21	24.9	29.6	32.7	35.5	38.9	41.4	46.8
22	26.0	30.8	33.9	36.8	40.3	42.8	48.3
23	27.1	32.0	35.2	38.1	41.6	44.2	49.7
24	28.2	33.2	36.4	39.4	43.0	45.6	51.2
25	29.3	34.4	37.7	40.6	44.3	46.9	52.6
26	30.4	35.6	38.9	41.9	45.6	48.3	54.1
27	31.5	36.7	40.1	43.2	47.0	49.6	55.5
28	32.6	37.9	41.3	44.5	48.3	51.0	56.9
29	33.7	39.1	42.6	45.7	49.6	52.3	58.3
30	34.8	40.3	43.8	47.0	50.9	53.7	59.7
40	45.6	51.8	55.8	59.3	63.7	66.8	73.4
50	56.3	63.2	67.5	71.4	76.2	79.5	86.7
60	67.0	74.4	79.1	83.3	88.4	92.0	99.6
70	77.6	85.5	90.5	95.0	100	104	112
80	88.1	96.6	102	107	112	116	125
90	98.6	108	113	118	124	128	137
100	109	118	124	130	136	140	149

The probability shown at the head of the column is the area in the right-hand tail. For example, there is a 10% probability that a χ^2 variable with 2 degrees of freedom would be greater than 4.61.

Source: Adapted from Henri Theil, *Principles of Econometrics*, pp. 718–19. Copyright © 1971 by John Wiley & Sons, Inc., New York. Also Thomas H. Wonnacott and Ronald J. Wonnacott, *Introductory Statistics*, 2d ed., p. 482. Copyright © 1972 by John Wiley & Sons, Inc., New York. Reprinted by permission of John Wiley & Sons, Inc.

TABLE B.3
The *t* Distribution

Degrees of freedom (<i>m</i>)	Probability that <i>t</i> (<i>m</i>) is greater than entry						
	0.25	0.10	0.05	0.025	0.010	0.005	0.001
1	1.000	3.078	6.314	12.706	31.821	63.657	318.31
2	.816	1.886	2.920	4.303	6.965	9.925	22.326
3	.765	1.638	2.353	3.182	4.541	5.841	10.213
4	.741	1.533	2.132	2.776	3.747	4.604	7.173
5	.727	1.476	2.015	2.571	3.365	4.032	5.893
6	.718	1.440	1.943	2.447	3.143	3.707	5.208
7	.711	1.415	1.895	2.365	2.998	3.499	4.785
8	.706	1.397	1.860	2.306	2.896	3.355	4.501
9	.703	1.383	1.833	2.262	2.821	3.250	4.297
10	.700	1.372	1.812	2.228	2.764	3.169	4.144
11	.697	1.363	1.796	2.201	2.718	3.106	4.025
12	.695	1.356	1.782	2.179	2.681	3.055	3.930
13	.694	1.350	1.771	2.160	2.650	3.012	3.852
14	.692	1.345	1.761	2.145	2.624	2.977	3.787
15	.691	1.341	1.753	2.131	2.602	2.947	3.733
16	.690	1.337	1.746	2.120	2.583	2.921	3.686
17	.689	1.333	1.740	2.110	2.567	2.898	3.646
18	.688	1.330	1.734	2.101	2.552	2.878	3.610
19	.688	1.328	1.729	2.093	2.539	2.861	3.579
20	.687	1.325	1.725	2.086	2.528	2.845	3.552
21	.686	1.323	1.721	2.080	2.518	2.831	3.527
22	.686	1.321	1.717	2.074	2.508	2.819	3.505
23	.685	1.319	1.714	2.069	2.500	2.807	3.485
24	.685	1.318	1.711	2.064	2.492	2.797	3.467
25	.684	1.316	1.708	2.060	2.485	2.787	3.450
26	.684	1.315	1.706	2.056	2.479	2.779	3.435
27	.684	1.314	1.703	2.052	2.473	2.771	3.421
28	.683	1.313	1.701	2.048	2.467	2.763	3.408
29	.683	1.311	1.699	2.045	2.462	2.756	3.396
30	.683	1.310	1.697	2.042	2.457	2.750	3.385
40	.681	1.303	1.684	2.021	2.423	2.704	3.307
60	.679	1.296	1.671	2.000	2.390	2.660	3.232
120	.677	1.289	1.658	1.980	2.358	2.617	3.160
∞	.674	1.282	1.645	1.960	2.326	2.576	3.090

The probability shown at the head of the column is the area in the right-hand tail. For example, there is a 10% probability that a *t* variable with 20 degrees of freedom would be greater than 1.325. By symmetry, there is also a 10% probability that a *t* variable with 20 degrees of freedom would be less than -1.325.

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TABLE B.4
The *F* Distribution

Denominator degrees of freedom (m_2)	Numerator degrees of freedom (m_1)									
	1	2	3	4	5	6	7	8	9	10
1	161 4052	200 4999	216 5403	225 5625	230 5764	234 5859	237 5928	239 5981	241 6022	242 6056
2	18.51 98.49	19.00 99.00	19.16 99.17	19.25 99.25	19.30 99.30	19.33 99.33	19.36 99.34	19.37 99.36	19.38 99.38	19.39 99.40
3	10.13 34.12	9.55 30.82	9.28 29.46	9.12 28.71	9.01 28.24	8.94 27.91	8.88 27.67	8.84 27.49	8.81 27.34	8.78 27.23
4	7.71 21.20	6.94 18.00	6.59 16.69	6.39 15.98	6.26 15.52	6.16 15.21	6.09 14.98	6.04 14.80	6.00 14.66	5.96 14.54
5	6.61 16.26	5.79 13.27	5.41 12.06	5.19 11.39	5.05 10.97	4.95 10.67	4.88 10.45	4.82 10.27	4.78 10.15	4.74 10.05
6	5.99 13.74	5.14 10.92	4.76 9.78	4.53 9.15	4.39 8.75	4.28 8.47	4.21 8.26	4.15 8.10	4.10 7.98	4.06 7.87
7	5.59 12.25	4.74 9.55	4.35 8.45	4.12 7.85	3.97 7.46	3.87 7.19	3.79 7.00	3.73 6.84	3.68 6.71	3.63 6.62
8	5.32 11.26	4.46 8.65	4.07 7.59	3.84 7.01	3.69 6.63	3.58 6.37	3.50 6.19	3.44 6.03	3.39 5.91	3.34 5.82
9	5.12 10.56	4.26 8.02	3.86 6.99	3.63 6.42	3.48 6.06	3.37 5.80	3.29 5.62	3.23 5.47	3.18 5.35	3.13 5.26
10	4.96 10.04	4.10 7.56	3.71 6.55	3.48 5.99	3.33 5.64	3.22 5.39	3.14 5.21	3.07 5.06	3.02 4.95	2.97 4.85
11	4.84 9.65	3.98 7.20	3.59 6.22	3.36 5.67	3.20 5.32	3.09 5.07	3.01 4.88	2.95 4.74	2.90 4.63	2.86 4.54
12	4.75 9.33	3.88 6.93	3.49 5.95	3.26 5.41	3.11 5.06	3.00 4.82	2.92 4.65	2.85 4.50	2.80 4.39	2.76 4.30
13	4.67 9.07	3.80 6.70	3.41 5.74	3.18 5.20	3.02 4.86	2.92 4.62	2.84 4.44	2.77 4.30	2.72 4.19	2.67 4.10
14	4.60 8.86	3.74 6.51	3.34 5.56	3.11 5.03	2.96 4.69	2.85 4.46	2.77 4.28	2.70 4.14	2.65 4.03	2.60 3.94
15	4.54 8.68	3.68 6.36	3.29 5.42	3.06 4.89	2.90 4.56	2.79 4.32	2.70 4.14	2.64 4.00	2.59 3.89	2.55 3.80
16	4.49 8.53	3.63 6.23	3.24 5.29	3.01 4.77	2.85 4.44	2.74 4.20	2.66 4.03	2.59 3.89	2.54 3.78	2.49 3.69
17	4.45 8.40	3.59 6.11	3.20 5.18	2.96 4.67	2.81 4.34	2.70 4.10	2.62 3.93	2.55 3.79	2.50 3.68	2.45 3.59
18	4.41 8.28	3.55 6.01	3.16 5.09	2.93 4.58	2.77 4.25	2.66 4.01	2.58 3.85	2.51 3.71	2.46 3.60	2.41 3.51
19	4.38 8.18	3.52 5.93	3.13 5.01	2.90 4.50	2.74 4.17	2.63 3.94	2.55 3.77	2.48 3.63	2.43 3.52	2.38 3.43

(continued on page 758)

<i>11</i>	<i>12</i>	<i>14</i>	<i>16</i>	<i>20</i>	<i>24</i>	<i>30</i>	<i>40</i>	<i>50</i>	<i>75</i>	<i>100</i>	<i>200</i>	<i>500</i>	∞
243	244	245	246	248	249	250	251	252	253	253	254	254	254
6082	6106	6142	6169	6203	6234	6258	6286	6302	6323	6334	6352	6361	6366
19.40	19.41	19.42	19.43	19.44	19.45	19.46	19.47	19.47	19.48	19.49	19.49	19.50	19.50
99.41	99.42	99.43	99.44	99.45	99.46	99.47	99.48	99.48	99.49	99.49	99.49	99.50	99.50
8.76	8.74	8.71	8.69	8.66	8.64	8.62	8.60	8.58	8.57	8.56	8.54	8.54	8.53
27.13	27.05	26.92	26.83	26.69	26.60	26.50	26.41	26.35	26.27	26.23	26.18	26.14	26.12
5.93	5.91	5.87	5.84	5.80	5.77	5.74	5.71	5.70	5.68	5.66	5.65	5.64	5.63
14.45	14.37	14.24	14.15	14.02	13.93	13.83	13.74	13.69	13.61	13.57	13.52	13.48	13.46
4.70	4.68	4.64	4.60	4.56	4.53	4.50	4.46	4.44	4.42	4.40	4.38	4.37	4.36
9.96	9.89	9.77	9.68	9.55	9.47	9.38	9.29	9.24	9.17	9.13	9.07	9.04	9.02
4.03	4.00	3.96	3.92	3.87	3.84	3.81	3.77	3.75	3.72	3.71	3.69	3.68	3.67
7.79	7.72	7.60	7.52	7.39	7.31	7.23	7.14	7.09	7.02	6.99	6.94	6.90	6.88
3.60	3.57	3.52	3.49	3.44	3.41	3.38	3.34	3.32	3.29	3.28	3.25	3.24	3.23
6.54	6.47	6.35	6.27	6.15	6.07	5.98	5.90	5.85	5.78	5.75	5.70	5.67	5.65
3.31	3.28	3.23	3.20	3.15	3.12	3.08	3.05	3.03	3.00	2.98	2.96	2.94	2.93
5.74	5.67	5.56	5.48	5.36	5.28	5.20	5.11	5.06	5.00	4.96	4.91	4.88	4.86
3.10	3.07	3.02	2.98	2.93	2.90	2.86	2.82	2.80	2.77	2.76	2.73	2.72	2.71
5.18	5.11	5.00	4.92	4.80	4.73	4.64	4.56	4.51	4.45	4.41	4.36	4.33	4.31
2.94	2.91	2.86	2.82	2.77	2.74	2.70	2.67	2.64	2.61	2.59	2.56	2.55	2.54
4.78	4.71	4.60	4.52	4.41	4.33	4.25	4.17	4.12	4.05	4.01	3.96	3.93	3.91
2.82	2.79	2.74	2.70	2.65	2.61	2.57	2.53	2.50	2.47	2.45	2.42	2.41	2.40
4.46	4.40	4.29	4.21	4.10	4.02	3.94	3.86	3.80	3.74	3.70	3.66	3.62	3.60
2.72	2.69	2.64	2.60	2.54	2.50	2.46	2.42	2.40	2.36	2.35	2.32	2.31	2.30
4.22	4.16	4.05	3.93	3.86	3.78	3.70	3.61	3.56	3.49	3.46	3.41	3.38	3.36
2.63	2.60	2.55	2.51	2.46	2.42	2.38	2.34	2.32	2.28	2.26	2.24	2.22	2.21
4.02	3.96	3.85	3.78	3.67	3.59	3.51	3.42	3.37	3.30	3.27	3.21	3.18	3.16
2.56	2.53	2.48	2.44	2.39	2.35	2.31	2.27	2.24	2.21	2.19	2.16	2.14	2.13
3.86	3.80	3.70	3.62	3.51	3.43	3.34	3.26	3.21	3.14	3.11	3.06	3.02	3.00
2.51	2.48	2.43	2.39	2.33	2.29	2.25	2.21	2.18	2.15	2.12	2.10	2.08	2.07
3.73	3.67	3.56	3.48	3.36	3.29	3.20	3.12	3.07	3.00	2.97	2.92	2.89	2.87
2.45	2.42	2.37	2.33	2.28	2.24	2.20	2.16	2.13	2.09	2.07	2.04	2.02	2.01
3.61	3.55	3.45	3.37	3.25	3.18	3.10	3.01	2.96	2.89	2.86	2.80	2.77	2.75
2.41	2.38	2.33	2.29	2.23	2.19	2.15	2.11	2.08	2.04	2.02	1.99	1.97	1.96
3.52	3.45	3.35	3.27	3.16	3.08	3.00	2.92	2.86	2.79	2.76	2.70	2.67	2.65
2.37	2.34	2.29	2.25	2.19	2.15	2.11	2.07	2.04	2.00	1.98	1.95	1.93	1.92
3.44	3.37	3.27	3.19	3.07	3.00	2.91	2.83	2.78	2.71	2.68	2.62	2.59	2.57
2.34	2.31	2.26	2.21	2.15	2.11	2.07	2.02	2.00	1.96	1.94	1.91	1.90	1.88
3.36	3.30	3.19	3.12	3.00	2.92	2.84	2.76	2.70	2.63	2.60	2.54	2.51	2.49

TABLE B.4 (continued)

Denominator degrees of freedom (m_2)	Numerator degrees of freedom (m_1)									
	1	2	3	4	5	6	7	8	9	10
20	4.35	3.49	3.10	2.87	2.71	2.60	2.52	2.45	2.40	2.35
	8.10	5.85	4.94	4.43	4.10	3.87	3.71	3.56	3.45	3.37
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32
	8.02	5.78	4.87	4.37	4.04	3.81	3.65	3.51	3.40	3.31
22	4.30	3.44	3.05	2.82	2.66	2.55	2.47	2.40	2.35	2.30
	7.94	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26
23	4.28	3.42	3.03	2.80	2.64	2.53	2.45	2.38	2.32	2.28
	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21
24	4.26	3.40	3.01	2.78	2.62	2.51	2.43	2.36	2.30	2.26
	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.25	3.17
25	4.24	3.38	2.99	2.76	2.60	2.49	2.41	2.34	2.28	2.24
	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.21	3.13
26	4.22	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22
	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.17	3.09
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.30	2.25	2.20
	7.68	5.49	4.60	4.11	3.79	3.56	3.39	3.26	3.14	3.06
28	4.20	3.34	2.95	2.71	2.56	2.44	2.36	2.29	2.24	2.19
	7.64	5.45	4.57	4.07	3.76	3.53	3.36	3.23	3.11	3.03
29	4.18	3.33	2.93	2.70	2.54	2.43	2.35	2.28	2.22	2.18
	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.08	3.00
30	4.17	3.32	2.92	2.69	2.53	2.42	2.34	2.27	2.21	2.16
	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.06	2.98
32	4.15	3.30	2.90	2.67	2.51	2.40	2.32	2.25	2.19	2.14
	7.50	5.34	4.46	3.97	3.66	3.42	3.25	3.12	3.01	2.94
34	4.13	3.28	2.88	2.65	2.49	2.38	2.30	2.23	2.17	2.12
	7.44	5.29	4.42	3.93	3.61	3.38	3.21	3.08	2.97	2.89
36	4.11	3.26	2.86	2.63	2.48	2.36	2.28	2.21	2.15	2.10
	7.39	5.25	4.38	3.89	3.58	3.35	3.18	3.04	2.94	2.86
38	4.10	3.25	2.85	2.62	2.46	2.35	2.26	2.19	2.14	2.09
	7.35	5.21	4.34	3.86	3.54	3.32	3.15	3.02	2.91	2.82
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.07
	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.88	2.80
42	4.07	3.22	2.83	2.59	2.44	2.32	2.24	2.17	2.11	2.06
	7.27	5.15	4.29	3.80	3.49	3.26	3.10	2.96	2.86	2.77
44	4.06	3.21	2.82	2.58	2.43	2.31	2.23	2.16	2.10	2.05
	7.24	5.12	4.26	3.78	3.46	3.24	3.07	2.94	2.84	2.75
46	4.05	3.20	2.81	2.57	2.42	2.30	2.22	2.14	2.09	2.04
	7.21	5.10	4.24	3.76	3.44	3.22	3.05	2.92	2.82	2.73
48	4.04	3.19	2.80	2.56	2.41	2.30	2.21	2.14	2.08	2.03
	7.19	5.08	4.22	3.74	3.42	3.20	3.04	2.90	2.80	2.71
50	4.03	3.18	2.79	2.56	2.40	2.29	2.20	2.13	2.07	2.02
	7.17	5.06	4.20	3.72	3.41	3.18	3.02	2.88	2.78	2.70
55	4.02	3.17	2.78	2.54	2.38	2.27	2.18	2.11	2.05	2.00
	7.12	5.01	4.16	3.68	3.37	3.15	2.98	2.85	2.75	2.66

(continued on page 760)

TABLE B.4 (continued)

Denominator degrees of freedom (m_2)	Numerator degrees of freedom (m_1)									
	1	2	3	4	5	6	7	8	9	10
60	4.00	3.15	2.76	2.52	2.37	2.25	2.17	2.10	2.04	1.99
	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63
65	3.99	3.14	2.75	2.51	2.36	2.24	2.15	2.08	2.02	1.98
	7.04	4.95	4.10	3.62	3.31	3.09	2.93	2.79	2.70	2.61
70	3.98	3.13	2.74	2.50	2.35	2.23	2.14	2.07	2.01	1.97
	7.01	4.92	4.08	3.60	3.29	3.07	2.91	2.77	2.67	2.59
80	3.96	3.11	2.72	2.48	2.33	2.21	2.12	2.05	1.99	1.95
	6.96	4.88	4.04	3.56	3.25	3.04	2.87	2.74	2.64	2.55
100	3.94	3.09	2.70	2.46	2.30	2.19	2.10	2.03	1.97	1.92
	6.90	4.82	3.98	3.51	3.20	2.99	2.82	2.69	2.59	2.51
125	3.92	3.07	2.68	2.44	2.29	2.17	2.08	2.01	1.95	1.90
	6.84	4.78	3.94	3.47	3.17	2.95	2.79	2.65	2.56	2.47
150	3.91	3.06	2.67	2.43	2.27	2.16	2.07	2.00	1.94	1.89
	6.81	4.75	3.91	3.44	3.14	2.92	2.76	2.62	2.53	2.44
200	3.89	3.04	2.65	2.41	2.26	2.14	2.05	1.98	1.92	1.87
	6.76	4.71	3.88	3.41	3.11	2.90	2.73	2.60	2.50	2.41
400	3.86	3.02	2.62	2.39	2.23	2.12	2.03	1.96	1.90	1.85
	6.70	4.66	3.83	3.36	3.06	2.85	2.69	2.55	2.46	2.37
1000	3.85	3.00	2.61	2.38	2.22	2.10	2.02	1.95	1.89	1.84
	6.66	4.62	3.80	3.34	3.04	2.82	2.66	2.53	2.43	2.34
∞	3.84	2.99	2.60	2.37	2.21	2.09	2.01	1.94	1.88	1.83
	6.64	4.60	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32

The table describes the distribution of an F variable with m_1 numerator and m_2 denominator degrees of freedom. Entries in the standard typeface give the 5% critical value, and boldface entries give the 1% critical value for the distribution. For example, there is a 5% probability that an F variable with 2 numerator and 50 denominator degrees of freedom would exceed 3.18; there is only a 1% probability that it would exceed 5.06.

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<i>11</i>	<i>12</i>	<i>14</i>	<i>16</i>	<i>20</i>	<i>24</i>	<i>30</i>	<i>40</i>	<i>50</i>	<i>75</i>	<i>100</i>	<i>200</i>	<i>500</i>	∞
1.95	1.92	1.86	1.81	1.75	1.70	1.65	1.59	1.56	1.50	1.48	1.44	1.41	1.39
2.56	2.50	2.40	2.32	2.20	2.12	2.03	1.93	1.87	1.79	1.74	1.68	1.63	1.60
1.94	1.90	1.85	1.80	1.73	1.68	1.63	1.57	1.54	1.49	1.46	1.42	1.39	1.37
2.54	2.47	2.37	2.30	2.18	2.09	2.00	1.90	1.84	1.76	1.71	1.64	1.60	1.56
1.93	1.89	1.84	1.79	1.72	1.67	1.62	1.56	1.53	1.47	1.45	1.40	1.37	1.35
2.51	2.45	2.35	2.28	2.15	2.07	1.98	1.88	1.82	1.74	1.69	1.62	1.56	1.53
1.91	1.88	1.82	1.77	1.70	1.65	1.60	1.54	1.51	1.45	1.42	1.38	1.35	1.32
2.48	2.41	2.32	2.24	2.11	2.03	1.94	1.84	1.78	1.70	1.65	1.57	1.52	1.49
1.88	1.85	1.79	1.75	1.68	1.63	1.57	1.51	1.48	1.42	1.39	1.34	1.30	1.28
2.43	2.36	2.26	2.19	2.06	1.98	1.89	1.79	1.73	1.64	1.59	1.51	1.46	1.43
1.86	1.83	1.77	1.72	1.65	1.60	1.55	1.49	1.45	1.39	1.36	1.31	1.27	1.25
2.40	2.33	2.23	2.15	2.03	1.94	1.85	1.75	1.68	1.59	1.54	1.46	1.40	1.37
1.85	1.82	1.76	1.71	1.64	1.59	1.54	1.47	1.44	1.37	1.34	1.29	1.25	1.22
2.37	2.30	2.20	2.12	2.00	1.91	1.83	1.72	1.66	1.56	1.51	1.43	1.37	1.33
1.83	1.80	1.74	1.69	1.62	1.57	1.52	1.45	1.42	1.35	1.32	1.26	1.22	1.19
2.34	2.28	2.17	2.09	1.97	1.88	1.79	1.69	1.62	1.53	1.48	1.39	1.33	1.28
1.81	1.78	1.72	1.67	1.60	1.54	1.49	1.42	1.38	1.32	1.28	1.22	1.16	1.13
2.29	2.23	2.12	2.04	1.92	1.84	1.74	1.64	1.57	1.47	1.42	1.32	1.24	1.19
1.80	1.76	1.70	1.65	1.58	1.53	1.47	1.41	1.36	1.30	1.26	1.19	1.13	1.08
2.26	2.20	2.09	2.01	1.89	1.81	1.71	1.61	1.54	1.44	1.38	1.28	1.19	1.11
1.79	1.75	1.69	1.64	1.57	1.52	1.46	1.40	1.35	1.28	1.24	1.17	1.11	1.00
2.24	2.18	2.07	1.99	1.87	1.79	1.69	1.59	1.52	1.41	1.36	1.25	1.15	1.00