

Table 1: Critical values (percentiles) for the chi-square distribution.
For each degree of freedom (D) in the first column, the table entries are the critical values for the upper one-sided significance levels in the column headings or, equivalently, the percentiles for the corresponding percentages.

D	<i>Percentage</i>								
	<i>2.5</i>	<i>5</i>	<i>50</i>	<i>75</i>	<i>90</i>	<i>95</i>	<i>97.5</i>	<i>99</i>	<i>99.9</i>
	<i>Upper one-sided α</i>								
	<i>.975</i>	<i>.95</i>	<i>.50</i>	<i>.25</i>	<i>.10</i>	<i>.05</i>	<i>.025</i>	<i>.01</i>	<i>.001</i>
1	.001	.004	.455	1.32	2.71	3.84	5.02	6.63	10.83
2	.051	.103	1.39	2.77	4.61	5.99	7.38	9.21	13.82
3	.216	.352	2.37	4.11	6.25	7.82	9.35	11.34	16.27
4	.484	.711	3.36	5.39	7.78	9.49	11.14	13.28	18.47
5	.831	1.15	4.35	6.63	9.24	11.07	12.83	15.09	20.52
6	1.24	1.64	5.35	7.84	10.64	12.59	14.45	16.81	22.46
7	1.69	2.17	6.35	9.04	12.02	14.07	16.01	18.47	24.32
8	2.18	2.73	7.34	10.22	13.36	15.51	17.53	20.09	26.12
9	2.70	3.33	8.34	11.39	14.68	16.92	19.02	21.67	27.88
10	3.25	3.94	9.34	12.55	15.99	18.31	20.48	23.21	29.59
11	3.82	4.57	10.34	13.70	17.27	19.68	21.92	24.72	31.26
12	4.40	5.23	11.34	14.85	18.55	21.03	23.34	26.22	32.91
13	5.01	5.89	12.34	15.98	19.81	22.36	24.74	27.69	34.53
14	5.63	6.57	13.34	17.12	21.06	23.68	26.12	29.14	36.12
15	6.26	7.26	14.34	18.25	22.31	25.00	27.49	30.58	37.70
16	6.91	7.96	15.34	19.37	23.54	26.30	28.85	32.00	39.25
17	7.56	8.67	16.34	20.49	24.77	27.59	30.19	33.41	40.79
18	8.23	9.39	17.34	21.60	25.99	28.87	31.53	34.81	42.31
19	8.91	10.12	18.34	22.72	27.20	30.14	32.85	36.19	43.82
20	9.59	10.85	19.34	23.83	28.41	31.41	34.17	37.57	45.31
21	10.28	11.59	20.34	24.93	29.62	32.67	35.48	38.93	46.80
22	10.98	12.34	21.34	26.04	30.81	33.92	36.78	40.29	48.27
23	11.69	13.09	22.34	27.14	32.01	35.17	38.08	41.64	49.73
24	12.40	13.85	23.34	28.24	33.20	36.42	39.36	42.98	51.18
25	13.12	14.61	24.34	29.34	34.38	37.65	40.65	44.31	52.62
26	13.84	15.38	25.34	30.43	35.56	38.89	41.92	45.64	54.05
27	14.57	16.15	26.34	31.53	36.74	40.11	43.19	46.96	55.48
28	15.31	16.93	27.34	32.62	37.92	41.34	44.46	48.28	56.89
29	16.05	17.71	28.34	33.71	39.09	42.56	45.72	49.59	58.30
30	16.79	18.49	29.34	34.80	40.26	43.77	46.98	50.89	59.70
35	20.57	22.47	34.34	40.22	46.06	49.80	53.20	57.34	66.62
40	24.43	26.51	39.34	45.62	51.81	55.76	59.34	63.69	73.40
45	28.37	30.61	44.34	50.98	57.51	61.66	65.41	69.96	80.08
50	32.36	34.76	49.33	56.33	63.17	67.50	71.42	76.15	86.66
55	36.40	38.96	54.33	61.66	68.80	73.31	77.38	82.29	93.17
60	40.48	43.19	59.33	66.98	74.40	79.08	83.30	88.38	99.61
65	44.60	47.45	64.33	72.28	79.97	84.82	89.18	94.42	105.99
70	48.76	51.74	69.33	77.58	85.53	90.53	95.02	100.43	112.32
75	52.94	56.05	74.33	82.86	91.06	96.22	100.84	106.39	118.60
80	57.15	60.39	79.33	88.13	96.58	101.88	106.63	112.33	124.84
85	61.39	64.75	84.33	93.39	102.08	107.52	112.39	118.24	131.04
90	65.65	69.13	89.33	98.65	107.57	113.15	118.14	124.12	137.21
95	69.92	73.52	94.33	103.90	113.04	118.75	123.86	129.97	143.34
100	74.22	77.93	99.33	109.14	118.50	124.34	129.56	135.81	149.45

For more than 100 degrees of freedom chi-square critical values may be found in terms of the degrees of freedom D and the corresponding two-sided critical value

Table 2: p -values for the chi-square distribution divided by degrees of freedom.

This table gives the p -value for a chi-square variable divided by its degrees of freedom. Values with $p \leq 0.05$ are tabled. The column labelled “ratio” is the value of the chi-square statistic divided by its degrees of freedom. The other columns, to the right, are headed by the degrees of freedom. For 1 degree of freedom the two-sided standard normal p -value (Table 2) for the square root of the chi-square statistic should be used. For 2 degrees of freedom, if Y is the value of the chi-square statistic, then $\exp(-Y/2)$ is the p -value. For more than 100 degrees of freedom use the two-sided standard normal p -value (Table 2) for $Z = \sqrt{Y} - \sqrt{2 \cdot DF - 1}$, where DF is the degrees of freedom.

Ratio	Degrees of freedom			Ratio	Degrees of freedom			
	3	4	5		6	7	8	9
2.2	.0858	.0663	.0514	1.85	.0853	.0733	.0632	.0545
2.3	.0752	.0563	.0423	1.90	.0768	.0651	.0554	.0472
2.4	.0658	.0477	.0348	1.95	.0690	.0578	.0485	.0408
2.5	.0576	.0404	.0285	2.00	.0620	.0512	.0424	.0352
2.6	.0503	.0342	.0234	2.05	.0556	.0453	.0370	.0303
2.7	.0440	.0289	.0191	2.10	.0498	.0400	.0323	.0261
2.8	.0384	.0244	.0156	2.15	.0447	.0354	.0281	.0224
2.9	.0336	.0206	.0127	2.20	.0400	.0312	.0244	.0192
3.0	.0293	.0174	.0104	2.25	.0357	.0275	.0212	.0164
3.1	.0256	.0146	.0084	2.30	.0320	.0242	.0184	.0141
3.2	.0223	.0123	.0068	2.35	.0285	.0213	.0160	.0120
3.3	.0194	.0103	.0056	2.40	.0255	.0187	.0138	.0102
3.4	.0169	.0087	.0045	2.45	.0227	.0165	.0120	.0087
3.5	.0148	.0073	.0036	2.50	.0203	.0144	.0103	.0074
3.6	.0129	.0061	.0029	2.55	.0180	.0127	.0089	.0063
3.7	.0112	.0051	.0024	2.60	.0161	.0111	.0077	.0054
3.8	.0097	.0043	.0019	2.65	.0143	.0097	.0066	.0045
3.9	.0085	.0036	.0016	2.70	.0127	.0085	.0057	.0039
4.0	.0074	.0030	.0012	2.75	.0113	.0074	.0049	.0033
4.1	.0064	.0025	.0010	2.80	.0100	.0065	.0042	.0028
4.2	.0056	.0021	.0008	2.85	.0089	.0057	.0036	.0023
4.3	.0049	.0018	.0007	2.90	.0079	.0050	.0031	.0020
4.4	.0042	.0015	.0005	2.95	.0070	.0043	.0027	.0017
4.5	.0037	.0012	.0004	3.00	.0062	.0038	.0023	.0014
4.6	.0032	.0010	.0003	3.05	.0055	.0033	.0020	.0012
4.7	.0028	.0009	.0003	3.10	.0049	.0029	.0017	.0010
4.8	.0024	.0007	.0002	3.15	.0043	.0025	.0014	.0008
4.9	.0021	.0006	.0002	3.20	.0038	.0022	.0012	.0007
5.0	.0018	.0005	.0001	3.25	.0034	.0019	.0011	.0006
5.1	.0016	.0004	.0001	3.30	.0030	.0016	.0009	.0005
5.2	.0014	.0003	.0001	3.35 ²	.0027	.0014	.0008	.0004
5.3	.0012	.0003	.0001	3.40	.0024	.0012	.0007	.0003
5.4	.0010	.0002	.0001	3.45	.0021	.0011	.0006	.0003
5.5	.0009	.0002	.0000	3.50	.0018	.0009	.0005	.0002
5.6	.0008	.0002	.0000	3.55	.0016	.0008	.0004	.0002
5.7	.0007	.0001	.0000	3.60	.0014	.0007	.0003	.0002
5.8	.0006	.0001	.0000	3.65	.0013	.0006	.0003	.0001
5.9	.0005	.0001	.0000	3.70	.0011	.0005	.0002	.0001
6.0	.0004	.0001	.0000	3.75	.0010	.0005	.0002	.0001
6.1	.0004	.0001	.0000	3.80	.0009	.0004	.0002	.0001
6.2	.0003	.0001	.0000	3.85	.0008	.0003	.0002	.0001

Table 4: continued
Degrees of freedom

<i>Ratio</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i>
1.46	.1473	.1389	.1311	.1237	.1169	.1105	.1044	.0988	.0935	.0886
1.48	.1395	.1311	.1232	.1159	.1090	.1027	.0967	.0912	.0860	.0811
1.50	.1321	.1236	.1157	.1084	.1016	.0953	.0895	.0841	.0790	.0743
1.52	.1249	.1164	.1086	.1014	.0947	.0885	.0827	.0774	.0725	.0679
1.54	.1181	.1097	.1019	.0947	.0881	.0820	.0764	.0712	.0664	.0620
1.56	.1117	.1032	.0955	.0884	.0820	.0760	.0705	.0655	.0608	.0566
1.58	.1055	.0971	.0895	.0825	.0762	.0704	.0650	.0602	.0557	.0515
1.60	.0996	.0913	.0838	.0770	.0708	.0651	.0599	.0552	.0509	.0469
1.62	.0940	.0859	.0785	.0718	.0657	.0602	.0552	.0506	.0465	.0427
1.64	.0887	.0807	.0734	.0668	.0609	.0556	.0507	.0464	.0424	.0388
1.66	.0837	.0757	.0686	.0622	.0565	.0513	.0466	.0424	.0386	.0352
1.68	.0789	.0711	.0641	.0579	.0523	.0473	.0428	.0388	.0352	.0319
1.70	.0744	.0667	.0599	.0538	.0484	.0436	.0393	.0355	.0320	.0289
1.72	.0701	.0625	.0559	.0500	.0448	.0402	.0361	.0324	.0291	.0262
1.74	.0660	.0586	.0522	.0465	.0414	.0370	.0330	.0295	.0264	.0237
1.76	.0621	.0549	.0487	.0431	.0383	.0340	.0303	.0269	.0240	.0214
1.78	.0584	.0514	.0454	.0400	.0354	.0313	.0277	.0245	.0217	.0193
1.80	.0550	.0482	.0423	.0371	.0326	.0287	.0253	.0223	.0197	.0174
1.82	.0517	.0451	.0394	.0344	.0301	.0264	.0231	.0203	.0178	.0157
1.84	.0486	.0422	.0366	.0319	.0278	.0242	.0211	.0185	.0161	.0141
1.86	.0456	.0394	.0341	.0295	.0256	.0222	.0193	.0168	.0146	.0127
1.88	.0429	.0368	.0317	.0273	.0236	.0204	.0176	.0152	.0132	.0114
1.90	.0403	.0344	.0295	.0253	.0217	.0186	.0160	.0138	.0119	.0103
1.92	.0378	.0321	.0274	.0234	.0200	.0171	.0146	.0125	.0107	.0092
1.94	.0355	.0300	.0254	.0216	.0184	.0156	.0133	.0113	.0097	.0083
1.96	.0333	.0280	.0236	.0199	.0169	.0143	.0121	.0103	.0087	.0074
1.98	.0312	.0261	.0219	.0184	.0155	.0131	.0110	.0093	.0078	.0066
2.00	.0293	.0244	.0203	.0170	.0142	.0119	.0100	.0084	.0071	.0059
2.02	.0274	.0227	.0189	.0157	.0131	.0109	.0091	.0076	.0063	.0053
2.04	.0257	.0212	.0175	.0145	.0120	.0099	.0082	.0069	.0057	.0047
2.06	.0241	.0197	.0162	.0133	.0110	.0091	.0075	.0062	.0051	.0042
2.08	.0225	.0184	.0150	.0123	.0101	.0083	.0068	.0056	.0046	.0038
2.10	.0211	.0171	.0139	.0113	.0092	.0075	.0061	.0050	.0041	.0034
2.12	.0197	.0159	.0129	.0104	.0084	.0069	.0056	.0045	.0037	.0030
2.14	.0185	.0148	.0119	.0096	.0077	.0062	.0050	.0041	.0033	.0027
2.16	.0173	.0138	.0110	.0088	.0071	.0057	.0046	.0037	.0030	.0024
2.18	.0162	.0128	.0102	.0081	.0065	.0052	.0041	.0033	.0026	.0021
2.20	.0151	.0119	.0094	.0075	.0059	.0047	.0037	.0030	.0024	.0019
2.22	.0141	.0111	.0087	.0069	.0054	.0043	.0034	.0027	.0021	.0017
2.24	.0132	.0103	.0080	.0063	.0049	.0039	.0030	.0024	.0019	.0015
2.26	.0123	.0096	.0074	.00583	.0045	.0035	.0027	.0022	.0017	.0013
2.28	.0115	.0089	.0069	.0053	.0041	.0032	.0025	.0019	.0015	.0012
2.30	.0107	.0082	.0063	.0049	.0038	.0029	.0022	.0017	.0013	.0010
2.32	.0100	.0076	.0058	.0045	.0034	.0026	.0020	.0016	.0012	.0009
2.34	.0094	.0071	.0054	.0041	.0031	.0024	.0018	.0014	.0011	.0008
2.36	.0087	.0066	.0050	.0038	.0028	.0022	.0016	.0012	.0009	.0007
2.38	.0081	.0061	.0046	.0034	.0026	.0020	.0015	.0011	.0008	.0006
2.40	.0076	.0057	.0042	.0032	.0024	.0018	.0013	.0010	.0007	.0006
2.42	.0071	.0052	.0039	.0029	.0021	.0016	.0012	.0009	.0007	.0005
2.44	.0066	.0049	.0036	.0026	.0020	.0014	.0011	.0008	.0006	.0004
2.46	.0062	.0045	.0033	.0024	.0018	.0013	.0010	.0007	.0005	.0004
2.48	.0057	.0042	.0030	.0022	.0016	.0012	.0009	.0006	.0005	.0003

Table 4: continued
Degrees of freedom

<i>Ratio</i>	<i>20</i>	<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>	<i>25</i>	<i>26</i>	<i>27</i>	<i>28</i>	<i>29</i>
1.86	.0111	.0097	.0084	.0074	.0064	.0056	.0049	.0043	.0038	.0033
1.88	.0099	.0086	.0075	.0065	.0056	.0049	.0043	.0037	.0032	.0028
1.90	.0089	.0076	.0066	.0057	.0049	.0043	.0037	.0032	.0028	.0024
1.92	.0079	.0068	.0058	.0050	.0043	.0037	.0032	.0028	.0024	.0021
1.94	.0071	.0060	.0052	.0044	.0038	.0032	.0028	.0024	.0021	.0018
1.96	.0063	.0054	.0046	.0039	.0033	.0028	.0024	.0021	.0018	.0015
1.98	.0056	.0047	.0040	.0034	.0029	.0025	.0021	.0018	.0015	.0013
2.00	.0050	.0042	.0035	.0030	.0025	.0021	.0018	.0015	.0013	.0011
2.02	.0044	.0037	.0031	.0026	.0022	.0018	.0016	.0013	.0011	.0009
2.04	.0040	.0033	.0027	.0023	.0019	.0016	.0013	.0011	.0009	.0008
2.06	.0035	.0029	.0024	.0020	.0017	.0014	.0012	.0010	.0008	.0007
2.08	.0031	.0026	.0021	.0018	.0014	.0012	.0010	.0008	.0007	.0006
2.10	.0028	.0023	.0019	.0015	.0013	.0010	.0009	.0007	.0006	.0005
2.12	.0025	.0020	.0016	.0013	.0011	.0009	.0007	.0006	.0005	.0004
2.14	.0022	.0018	.0014	.0012	.0009	.0008	.0006	.0005	.0004	.0003
2.16	.0019	.0016	.0013	.0010	.0008	.0007	.0005	.0004	.0004	.0003
2.18	.0017	.0014	.0011	.0009	.0007	.0006	.0005	.0004	.0003	.0002
2.20	.0015	.0012	.0010	.0008	.0006	.0005	.0004	.0003	.0003	.0002
2.22	.0013	.0011	.0008	.0007	.0005	.0004	.0003	.0003	.0002	.0002
2.24	.0012	.0009	.0007	.0006	.0005	.0004	.0003	.0002	.0002	.0001
2.26	.0010	.0008	.0006	.0005	.0004	.0003	.0002	.0002	.0002	.0001
2.23	.0009	.0007	.0006	.0004	.0003	.0003	.0002	.0002	.0001	.0001
2.30	.0008	.0006	.0005	.0004	.0003	.0002	.0002	.0001	.0001	.0001
2.32	.0007	.0005	.0004	.0003	.0003	.0002	.0002	.0001	.0001	.0001
2.34	.0006	.0005	.0004	.0003	.0002	.0002	.0001	.0001	.0001	.0001
2.36	.0006	.0004	.0003	.0002	.0002	.0001	.0001	.0001	.0001	.0000
2.38	.0005	.0004	.0003	.0002	.0002	.0001	.0001	.0001	.0001	.0000
2.40	.0004	.0003	.0002	.0002	.0001	.0001	.0001	.0001	.0000	.0000
2.42	.0004	.0003	.0002	.0002	.0001	.0001	.0001	.0001	.0000	.0000
2.44	.0003	.0002	.0002	.0001	.0001	.0001	.0001	.0000	.0000	.0000
2.46	.0003	.0002	.0002	.0001	.0001	.0001	.0000	.0000	.0000	.0000
2.48	.0003	.0002	.0001	.0001	.0001	.0001	.0000	.0000	.0000	.0000
2.50	.0002	.0002	.0001	.0001	.0001	.0000	.0000	.0000	.0000	.0000
2.52	.0002	.0001	.0001	.0001	.0001	.0000	.0000	.0000	.0000	.0000
1.30	.1257	.1102	.0968	.0853	.0754	.0667	.0591	.0525		
1.31	.1192	.1037	.0906	.0793	.0696	.0612	.0539	.0476		
1.32	.1128	.0976	.0846	.0736	.0642	.0561	.0491	.0430		
1.33	.1068	.0917	.0790	.0683	.0591	.0513	.0446	.0389		
1.34	.1010	.0862	.0737	.0633	.0544	.0469	.0405	.0351		
1.35	.0955	.0809	.0687	.0586	.0500	.0429	.0368	.0316		
1.36	.0903	.0759	.0640	.0542	.0460	.0391	.0333	.0284		
1.37	.0853	.0711	.0596	.0501 ⁴	.0422	.0356	.0301	.0255		
1.38	.0805	.0666	.0554	.0462	.0387	.0324	.0272	.0229		
1.39	.0759	.0624	.0515	.0426	.0354	.0295	.0246	.0205		
1.40	.0716	.0584	.0478	.0393	.0324	.0267	.0221	.0184		
1.41	.0674	.0546	.0444	.0362	.0296	.0243	.0199	.0164		
1.42	.0635	.0510	.0411	.0333	.0270	.0220	.0179	.0146		
1.43	.0598	.0476	.0381	.0306	.0246	.0199	.0161	.0130		
1.44	.0563	.0444	.0353	.0281	.0224	.0180	.0144	.0116		
1.45	.0529	.0415	.0326	.0258	.0204	.0162	.0129	.0103		
1.46	.0497	.0386	.0302	.0236	.0186	.0146	.0116	.0092		
1.47	.0467	.0360	.0279	.0217	.0169	.0132	.0103	.0081		

Table 4: continued
Degrees of freedom

<i>Ratio</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i>
2.66	.0030	.0021	.0014	.0010	.0007	.0005	.0003	.0002	.0002	.0001
2.68	.0028	.0019	.0013	.0009	.0006	.0004	.0003	.0002	.0001	.0001
2.70	.0026	.0018	.0012	.0008	.0006	.0004	.0003	.0002	.0001	.0001
2.72	.0024	.0016	.0011	.0007	.0005	.0003	.0002	.0002	.0001	.0001
2.74	.0023	.0015	.0010	.0007	.0005	.0003	.0002	.0001	.0001	.0001
2.76	.0021	.0014	.0009	.0006	.0004	.0003	.0002	.0001	.0001	.0001
2.78	.0019	.0013	.0009	.0006	.0004	.0002	.0002	.0001	.0001	.0000
2.80	.0018	.0012	.0008	.0005	.0003	.0002	.0001	.0001	.0001	.0000
2.82	.0017	.0011	.0007	.0005	.0003	.0002	.0001	.0001	.0001	.0000
2.84	.0016	.0010	.0007	.0004	.0003	.0002	.0001	.0001	.0001	.0000
2.86	.0014	.0009	.0006	.0004	.0003	.0002	.0001	.0001	.0000	.0000
2.88	.0013	.0009	.0006	.0004	.0002	.0001	.0001	.0001	.0000	.0000
2.90	.0012	.0008	.0005	.0003	.0002	.0001	.0001	.0001	.0000	.0000
2.92	.0012	.0007	.0005	.0003	.0002	.0001	.0001	.0000	.0000	.0000
2.94	.0011	.0007	.0004	.0003	.0002	.0001	.0001	.0000	.0000	.0000
2.96	.0010	.0006	.0004	.0002	.0002	.0001	.0001	.0000	.0000	.0000
2.98	.0009	.0006	.0004	.0002	.0001	.0001	.0001	.0000	.0000	.0000
3.00	.0009	.0005	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000
3.02	.0008	.0005	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000
3.04	.0007	.0004	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000
3.06	.0007	.0004	.0002	.0001	.0001	.0001	.0000	.0000	.0000	.0000
3.08	.0006	.0004	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000
3.10	.0006	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000
3.12	.0005	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000
3.14	.0005	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000
3.16	.0005	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000
3.18	.0004	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000
3.20	.0004	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000
3.22	.0004	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000
3.24	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000
3.26	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000
3.28	.0003	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000
3.30	.0003	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
3.32	.0003	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
3.34	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
3.36	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
3.38	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
3.40	.0002	.0001	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
3.42	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
3.44	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
1.46	.0839	.0795	.0754	.0715	.0678	.0643	.0611	.0580	.0551	.0523
1.48	.0766	.0723	.0683	.0646 ⁵	.0611	.0577	.0546	.0517	.0489	.0463
1.50	.0699	.0657	.0619	.0583	.0549	.0517	.0488	.0460	.0434	.0409
1.52	.0636	.0597	.0559	.0525	.0493	.0463	.0435	.0408	.0384	.0361
1.54	.0579	.0541	.0505	.0472	.0442	.0413	.0387	.0362	.0339	.0317
1.56	.0526	.0489	.0456	.0424	.0395	.0368	.0343	.0320	.0299	.0279
1.58	.0478	.0443	.0410	.0381	.0353	.0328	.0305	.0283	.0263	.0245
1.60	.0433	.0400	.0369	.0341	.0315	.0292	.0270	.0250	.0231	.0214
1.62	.0392	.0361	.0332	.0305	.0281	.0259	.0239	.0220	.0203	.0187
1.64	.0355	.0325	.0298	.0273	.0250	.0230	.0211	.0193	.0178	.0163
1.66	.0321	.0293	.0267	.0244	.0222	.0203	.0186	.0170	.0155	.0142
1.68	.0290	.0263	.0239	.0217	.0198	.0180	.0164	.0149	.0136	.0124

Table 4: continued
Degrees of freedom

<i>Ratio</i>	<i>30</i>	<i>35</i>	<i>40</i>	<i>45</i>	<i>50</i>	<i>55</i>	<i>60</i>	<i>65</i>
1.55	.0278	.0200	.0144	.0104	.0076	.0055	.0041	.0030
1.56	.0260	.0185	.0132	.0095	.0068	.0049	.0036	.0026
1.57	.0243	.0171	.0121	.0086	.0062	.0044	.0032	.0023
1.58	.0227	.0159	.0111	.0078	.0055	.0039	.0028	.0020
1.59	.0212	.0147	.0102	.0071	.0050	.0035	.0025	.0017
1.60	.0198	.0136	.0093	.0065	.0045	.0031	.0022	.0015
1.61	.0185	.0125	.0086	.0059	.0040	.0028	.0019	.0013
1.62	.0173	.0116	.0078	.0053	.0036	.0025	.0017	.0012
1.63	.0161	.0107	.0071	.0048	.0032	.0022	.0015	.0010
1.64	.0150	.0099	.0065	.0043	.0029	.0019	.0013	.0009
1.65	.0140	.0091	.0060	.0039	.0026	.0017	.0011	.0008
1.66	.0130	.0084	.0054	.0035	.0023	.0015	.0010	.0007
1.67	.0121	.0077	.0050	.0032	.0021	.0013	.0009	.0006
1.68	.0113	.0071	.0045	.0029	.0019	.0012	.0008	.0005
1.69	.0105	.0065	.0041	.0026	.0017	.0011	.0007	.0004
1.70	.0097	.0060	.0037	.0023	.0015	.0009	.0006	.0004
1.71	.0091	.0055	.0034	.0021	.0013	.0008	.0005	.0003
1.72	.0084	.0051	.0031	.0019	.0012	.0007	.0004	.0003
1.73	.0078	.0047	.0028	.0017	.0010	.0006	.0004	.0002
1.74	.0072	.0043	.0026	.0015	.0009	.0006	.0003	.0002
1.75	.0067	.0039	.0023	.0014	.0008	.0005	.0003	.0002
1.76	.0062	.0036	.0021	.0012	.0007	.0004	.0003	.0002
1.77	.0058	.0033	.0019	.0011	.0006	.0004	.0002	.0001
1.78	.0054	.0030	.0017	.0010	.0006	.0003	.0002	.0001
1.79	.0050	.0028	.0016	.0009	.0005	.0003	.0002	.0001
1.80	.0046	.0025	.0014	.0008	.0004	.0003	.0001	.0001
1.81	.0043	.0023	.0013	.0007	.0004	.0002	.0001	.0001
1.82	.0039	.0021	.0012	.0006	.0004	.0002	.0001	.0001
1.83	.0036	.0020	.0011	.0006	.0003	.0002	.0001	.0001
1.84	.0034	.0018	.0010	.0005	.0003	.0001	.0001	.0000
1.85	.0031	.0016	.0009	.0005	.0002	.0001	.0001	.0000
1.86	.0029	.0015	.0008	.0004	.0002	.0001	.0001	.0000
1.87	.0027	.0014	.0007	.0004	.0002	.0001	.0001	.0000
1.88	.0025	.0012	.0006	.0003	.0002	.0001	.0000	.0000
1.89	.0023	.0011	.0006	.0003	.0001	.0001	.0000	.0000
1.90	.0021	.0010	.0005	.0003	.0001	.0001	.0000	.0000
1.91	.0019	.0009	.0005	.0002	.0001	.0001	.0000	.0000
1.92	.0018	.0009	.0004	.0002	.0001	.0000	.0000	.0000
1.93	.0016	.0008	.0004	.0002	.0001	.0000	.0000	.0000
1.94	.0015	.0007	.0003	.0002	.0001	.0000	.0000	.0000
1.95	.0014	.0006	.0003	.00016	.0001	.0000	.0000	.0000
1.96	.0013	.0006	.0003	.0001	.0001	.0000	.0000	.0000
1.97	.0012	.0005	.0002	.0001	.0001	.0000	.0000	.0000
1.98	.0011	.0005	.0002	.0001	.0000	.0000	.0000	.0000
1.99	.0010	.0004	.0002	.0001	.0000	.0000	.0000	.0000
2.00	.0009	.0004	.0002	.0001	.0000	.0000	.0000	.0000
2.01	.0008	.0004	.0002	.0001	.0000	.0000	.0000	.0000
2.02	.0008	.0003	.0001	.0001	.0000	.0000	.0000	.0000
2.03	.0007	.0003	.0001	.0001	.0000	.0000	.0000	.0000
2.04	.0007	.0003	.0001	.0000	.0000	.0000	.0000	.0000
2.05	.0006	.0002	.0001	.0000	.0000	.0000	.0000	.0000
2.06	.0006	.0002	.0001	.0000	.0000	.0000	.0000	.0000

Table 4: *continued.*
Degrees of freedom

<i>Ratio</i>	<i>30</i>	<i>35</i>	<i>40</i>	<i>45</i>	<i>50</i>	<i>55</i>	<i>60</i>	<i>65</i>
2.15	.0003	.0001	.0000	.0000	.0000	.0000	.0000	.0000
2.16	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000
2.17	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000
2.18	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000
2.19	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000
2.20	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000
2.21	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000
<i>Ratio</i>	<i>70</i>	<i>75</i>	<i>80</i>	<i>85</i>	<i>90</i>	<i>95</i>	<i>100</i>	
1.24	.0845	.0778	.0718	.0662	.0611	.0565	.0522	
1.25	.0769	.0704	.0646	.0593	.0544	.0500	.0460	
1.26	.0698	.0636	.0580	.0529	.0483	.0442	.0404	
1.27	.0633	.0573	.0520	.0472	.0428	.0389	.0354	
1.28	.0573	.0516	.0465	.0420	.0379	.0343	.0310	
1.29	.0517	.0463	.0415	.0372	.0334	.0300	.0270	
1.30	.0467	.0415	.0370	.0330	.0294	.0263	.0235	
1.31	.0420	.0372	.0329	.0292	.0259	.0230	.0204	
1.32	.0378	.0332	.0292	.0257	.0227	.0200	.0177	
1.33	.0339	.0296	.0259	.0227	.0198	.0174	.0153	
1.34	.0304	.0264	.0229	.0199	.0173	.0151	.0132	
1.35	.0272	.0234	.0202	.0175	.0151	.0131	.0113	
1.36	.0243	.0208	.0178	.0153	.0131	.0113	.0097	
1.37	.0217	.0184	.0157	.0134	.0114	.0097	.0083	
1.38	.0193	.0163	.0138	.0117	.0099	.0084	.0071	
1.39	.0172	.0144	.0121	.0101	.0085	.0072	.0060	
1.40	.0153	.0127	.0106	.0088	.0074	.0061	.0051	
1.41	.0135	.0112	.0092	.0076	.0063	.0053	.0044	
1.42	.0120	.0098	.0081	.0066	.0054	.0045	.0037	
1.43	.0106	.0086	.0070	.0057	.0047	.0038	.0031	
1.44	.0094	.0075	.0061	.0049	.0040	.0032	.0026	
1.45	.0082	.0066	.0053	.0043	.0034	.0027	.0022	
1.46	.0073	.0058	.0046	.0037	.0029	.0023	.0019	
1.47	.0064	.0050	.0040	.0031	.0025	.0020	.0016	
1.48	.0056	.0044	.0034	.0027	.0021	.0017	.0013	
1.49	.0049	.0038	.0030	.0023	.0018	.0014	.0011	
1.50	.0043	.0033	.0025	.0020	.0015	.0012	.0009	
1.51	.0038	.0029	.0022	.0017	.0013	.0010	.0008	
1.52	.0033	.0025	.0019	.0014	.0011	.0008	.0006	
1.53	.0029	.0022	.0016	.0012	.0009	.0007	.0005	
1.54	.0025	.0019	.0014	.0010	.0008	.0006	.0004	
1.55	.0022	.0016	.0012	.0009	.0006	.0005	.0004	
1.56	.0019	.0014	.0010	.0007	.0005	.0004	.0003	
1.57	.0016	.0012	.0009	.0006	.0005	.0003	.0002	
1.58	.0014	.0010	.0007	.0005	.0004	.0003	.0002	
1.59	.0012	.0009	.0006	.0004	.0003	.0002	.0002	
1.60	.0011	.0008	.0005	.0004	.0003	.0002	.0001	
1.61	.0009	.0006	.0004	.0003	.0002	.0002	.0001	
1.62	.0008	.0005	.0004	.0003	.0002	.0001	.0001	
1.63	.0007	.0005	.0003	.0002	.0002	.0001	.0001	
1.64	.0006	.0004	.0003	.0002	.0001	.0001	.0001	
1.65	.0005	.0003	.0002	.0002	.0001	.0001	.0000	
1.66	.0004	.0003	.0002	.0001	.0001	.0001	.0000	