

Standard normal critical values(two-tailed: e.g., 5% of observations from $N(0,1)$ will fall outside ± 1.96)(one-tailed: e.g., 5% of observations from $N(0,1)$ will fall above 1.64)

	Significance											
	50%	25%	10%	5%	2.5%	1%	0.5%	0.25%	0.1%	0.05%	0.025%	0.01%
two-tailed	0.67	1.15	1.64	1.96	2.24	2.58	2.81	3.02	3.29	3.48	3.66	3.89
one-tailed	(0.00)	0.67	1.28	1.64	1.96	2.33	2.58	2.81	3.09	3.29	3.48	3.72

Chi-squared critical values(one-tailed: e.g., 5% of observations from $\chi^2(1)$ will exceed 3.84)

df	Significance											
	50%	25%	10%	5%	2.5%	1%	0.5%	0.25%	0.1%	0.05%	0.025%	0.01%
1	0.45	1.32	2.71	3.84	5.02	6.63	7.88	9.14	10.83	12.12	13.41	15.14
2	1.39	2.77	4.61	5.99	7.38	9.21	10.60	11.98	13.82	15.20	16.59	18.42
3	2.37	4.11	6.25	7.81	9.35	11.34	12.84	14.32	16.27	17.73	19.19	21.11
4	3.36	5.39	7.78	9.49	11.14	13.28	14.86	16.42	18.47	20.00	21.52	23.51
5	4.35	6.63	9.24	11.07	12.83	15.09	16.75	18.39	20.52	22.11	23.68	25.74
6	5.35	7.84	10.64	12.59	14.45	16.81	18.55	20.25	22.46	24.10	25.73	27.86
7	6.35	9.04	12.02	14.07	16.01	18.48	20.28	22.04	24.32	26.02	27.69	29.88
8	7.34	10.22	13.36	15.51	17.53	20.09	21.95	23.77	26.12	27.87	29.59	31.83
9	8.34	11.39	14.68	16.92	19.02	21.67	23.59	25.46	27.88	29.67	31.43	33.72
10	9.34	12.55	15.99	18.31	20.48	23.21	25.19	27.11	29.59	31.42	33.22	35.56
11	10.34	13.70	17.28	19.68	21.92	24.72	26.76	28.73	31.26	33.14	34.98	37.37
12	11.34	14.85	18.55	21.03	23.34	26.22	28.30	30.32	32.91	34.82	36.70	39.13
13	12.34	15.98	19.81	22.36	24.74	27.69	29.82	31.88	34.53	36.48	38.39	40.87
14	13.34	17.12	21.06	23.68	26.12	29.14	31.32	33.43	36.12	38.11	40.06	42.58
15	14.34	18.25	22.31	25.00	27.49	30.58	32.80	34.95	37.70	39.72	41.70	44.26
16	15.34	19.37	23.54	26.30	28.85	32.00	34.27	36.46	39.25	41.31	43.32	45.92
17	16.34	20.49	24.77	27.59	30.19	33.41	35.72	37.95	40.79	42.88	44.92	47.57
18	17.34	21.60	25.99	28.87	31.53	34.81	37.16	39.42	42.31	44.43	46.51	49.19
19	18.34	22.72	27.20	30.14	32.85	36.19	38.58	40.88	43.82	45.97	48.08	50.80
20	19.34	23.83	28.41	31.41	34.17	37.57	40.00	42.34	45.31	47.50	49.63	52.39
21	20.34	24.93	29.62	32.67	35.48	38.93	41.40	43.78	46.80	49.01	51.17	53.96
22	21.34	26.04	30.81	33.92	36.78	40.29	42.80	45.20	48.27	50.51	52.70	55.52
23	22.34	27.14	32.01	35.17	38.08	41.64	44.18	46.62	49.73	52.00	54.22	57.07
24	23.34	28.24	33.20	36.42	39.36	42.98	45.56	48.03	51.18	53.48	55.72	58.61
25	24.34	29.34	34.38	37.65	40.65	44.31	46.93	49.44	52.62	54.95	57.22	60.14
26	25.34	30.43	35.56	38.89	41.92	45.64	48.29	50.83	54.05	56.41	58.70	61.66
27	26.34	31.53	36.74	40.11	43.19	46.96	49.64	52.22	55.48	57.86	60.18	63.16
28	27.34	32.62	37.92	41.34	44.46	48.28	50.99	53.59	56.89	59.30	61.64	64.66
29	28.34	33.71	39.09	42.56	45.72	49.59	52.34	54.97	58.30	60.73	63.10	66.15
30	29.34	34.80	40.26	43.77	46.98	50.89	53.67	56.33	59.70	62.16	64.56	67.63
31	30.34	35.89	41.42	44.99	48.23	52.19	55.00	57.69	61.10	63.58	66.00	69.11
32	31.34	36.97	42.58	46.19	49.48	53.49	56.33	59.05	62.49	65.00	67.44	70.57
33	32.34	38.06	43.75	47.40	50.73	54.78	57.65	60.39	63.87	66.40	68.87	72.03
34	33.34	39.14	44.90	48.60	51.97	56.06	58.96	61.74	65.25	67.80	70.29	73.48
35	34.34	40.22	46.06	49.80	53.20	57.34	60.27	63.08	66.62	69.20	71.71	74.93
36	35.34	41.30	47.21	51.00	54.44	58.62	61.58	64.41	67.99	70.59	73.12	76.36
37	36.34	42.38	48.36	52.19	55.67	59.89	62.88	65.74	69.35	71.97	74.52	77.80
38	37.34	43.46	49.51	53.38	56.90	61.16	64.18	67.06	70.70	73.35	75.92	79.22
39	38.34	44.54	50.66	54.57	58.12	62.43	65.48	68.38	72.05	74.73	77.32	80.65
40	39.34	45.62	51.81	55.76	59.34	63.69	66.77	69.70	73.40	76.09	78.71	82.06
41	40.34	46.69	52.95	56.94	60.56	64.95	68.05	71.01	74.74	77.46	80.09	83.47
42	41.34	47.77	54.09	58.12	61.78	66.21	69.34	72.32	76.08	78.82	81.47	84.88
43	42.34	48.84	55.23	59.30	62.99	67.46	70.62	73.62	77.42	80.18	82.85	86.28
44	43.34	49.91	56.37	60.48	64.20	68.71	71.89	74.93	78.75	81.53	84.22	87.68
45	44.34	50.98	57.51	61.66	65.41	69.96	73.17	76.22	80.08	82.88	85.59	89.07
46	45.34	52.06	58.64	62.83	66.62	71.20	74.44	77.52	81.40	84.22	86.95	90.46
47	46.34	53.13	59.77	64.00	67.82	72.44	75.70	78.81	82.72	85.56	88.31	91.84
48	47.34	54.20	60.91	65.17	69.02	73.68	76.97	80.10	84.04	86.90	89.67	93.22
49	48.33	55.27	62.04	66.34	70.22	74.92	78.23	81.38	85.35	88.23	91.02	94.60
50	49.33	56.33	63.17	67.50	71.42	76.15	79.49	82.66	86.66	89.56	92.37	95.97

Standard normal critical values

% of obs. from N(0,1)...			% of obs. from N(0,1)...			% of obs. from N(0,1)...			% of obs. from N(0,1)...		
x	above x	outside ±x	x	above x	outside ±x	x	above x	outside ±x	x	above x	outside ±x
0.00	50.0%	100.0%	1.00	15.9%	31.7%	2.00	2.3%	4.6%	3.00	0.13%	0.27%
0.02	49.2%	98.4%	1.02	15.4%	30.8%	2.02	2.2%	4.3%	3.02	0.13%	0.25%
0.04	48.4%	96.8%	1.04	14.9%	29.8%	2.04	2.1%	4.1%	3.04	0.12%	0.24%
0.06	47.6%	95.2%	1.06	14.5%	28.9%	2.06	2.0%	3.9%	3.06	0.11%	0.22%
0.08	46.8%	93.6%	1.08	14.0%	28.0%	2.08	1.9%	3.8%	3.08	0.10%	0.21%
0.10	46.0%	92.0%	1.10	13.6%	27.1%	2.10	1.8%	3.6%	3.10	0.097%	0.19%
0.12	45.2%	90.4%	1.12	13.1%	26.3%	2.12	1.7%	3.4%	3.12	0.090%	0.18%
0.14	44.4%	88.9%	1.14	12.7%	25.4%	2.14	1.6%	3.2%	3.14	0.084%	0.17%
0.16	43.6%	87.3%	1.16	12.3%	24.6%	2.16	1.5%	3.1%	3.16	0.079%	0.16%
0.18	42.9%	85.7%	1.18	11.9%	23.8%	2.18	1.5%	2.9%	3.18	0.074%	0.15%
0.20	42.1%	84.1%	1.20	11.5%	23.0%	2.20	1.4%	2.8%	3.20	0.069%	0.14%
0.22	41.3%	82.6%	1.22	11.1%	22.2%	2.22	1.3%	2.6%	3.22	0.064%	0.13%
0.24	40.5%	81.0%	1.24	10.7%	21.5%	2.24	1.3%	2.5%	3.24	0.060%	0.12%
0.26	39.7%	79.5%	1.26	10.4%	20.8%	2.26	1.2%	2.4%	3.26	0.056%	0.11%
0.28	39.0%	77.9%	1.28	10.0%	20.1%	2.28	1.1%	2.3%	3.28	0.052%	0.10%
0.30	38.2%	76.4%	1.30	9.7%	19.4%	2.30	1.1%	2.1%	3.30	0.048%	0.097%
0.32	37.4%	74.9%	1.32	9.3%	18.7%	2.32	1.0%	2.0%	3.32	0.045%	0.090%
0.34	36.7%	73.4%	1.34	9.0%	18.0%	2.34	0.96%	1.9%	3.34	0.042%	0.084%
0.36	35.9%	71.9%	1.36	8.7%	17.4%	2.36	0.91%	1.8%	3.36	0.039%	0.078%
0.38	35.2%	70.4%	1.38	8.4%	16.8%	2.38	0.87%	1.7%	3.38	0.036%	0.072%
0.40	34.5%	68.9%	1.40	8.1%	16.2%	2.40	0.82%	1.6%	3.40	0.034%	0.067%
0.42	33.7%	67.4%	1.42	7.8%	15.6%	2.42	0.78%	1.6%	3.42	0.031%	0.063%
0.44	33.0%	66.0%	1.44	7.5%	15.0%	2.44	0.73%	1.5%	3.44	0.029%	0.058%
0.46	32.3%	64.6%	1.46	7.2%	14.4%	2.46	0.69%	1.4%	3.46	0.027%	0.054%
0.48	31.6%	63.1%	1.48	6.9%	13.9%	2.48	0.66%	1.3%	3.48	0.025%	0.050%
0.50	30.9%	61.7%	1.50	6.7%	13.4%	2.50	0.62%	1.2%	3.50	0.023%	0.047%
0.52	30.2%	60.3%	1.52	6.4%	12.9%	2.52	0.59%	1.2%	3.52	0.022%	0.043%
0.54	29.5%	58.9%	1.54	6.2%	12.4%	2.54	0.55%	1.1%	3.54	0.020%	0.040%
0.56	28.8%	57.5%	1.56	5.9%	11.9%	2.56	0.52%	1.0%	3.56	0.019%	0.037%
0.58	28.1%	56.2%	1.58	5.7%	11.4%	2.58	0.49%	0.99%	3.58	0.017%	0.034%
0.60	27.4%	54.9%	1.60	5.5%	11.0%	2.60	0.47%	0.93%	3.60	0.016%	0.032%
0.62	26.8%	53.5%	1.62	5.3%	10.5%	2.62	0.44%	0.88%	3.62	0.015%	0.029%
0.64	26.1%	52.2%	1.64	5.1%	10.1%	2.64	0.41%	0.83%	3.64	0.014%	0.027%
0.66	25.5%	50.9%	1.66	4.8%	9.7%	2.66	0.39%	0.78%	3.66	0.013%	0.025%
0.68	24.8%	49.7%	1.68	4.6%	9.3%	2.68	0.37%	0.74%	3.68	0.012%	0.023%
0.70	24.2%	48.4%	1.70	4.5%	8.9%	2.70	0.35%	0.69%	3.70	0.011%	0.022%
0.72	23.6%	47.2%	1.72	4.3%	8.5%	2.72	0.33%	0.65%	3.72	0.0100%	0.020%
0.74	23.0%	45.9%	1.74	4.1%	8.2%	2.74	0.31%	0.61%	3.74	0.0092%	0.018%
0.76	22.4%	44.7%	1.76	3.9%	7.8%	2.76	0.29%	0.58%	3.76	0.0085%	0.017%
0.78	21.8%	43.5%	1.78	3.8%	7.5%	2.78	0.27%	0.54%	3.78	0.0078%	0.016%
0.80	21.2%	42.4%	1.80	3.6%	7.2%	2.80	0.26%	0.51%	3.80	0.0072%	0.014%
0.82	20.6%	41.2%	1.82	3.4%	6.9%	2.82	0.24%	0.48%	3.82	0.0067%	0.013%
0.84	20.0%	40.1%	1.84	3.3%	6.6%	2.84	0.23%	0.45%	3.84	0.0062%	0.012%
0.86	19.5%	39.0%	1.86	3.1%	6.3%	2.86	0.21%	0.42%	3.86	0.0057%	0.011%
0.88	18.9%	37.9%	1.88	3.0%	6.0%	2.88	0.20%	0.40%	3.88	0.0052%	0.010%
0.90	18.4%	36.8%	1.90	2.9%	5.7%	2.90	0.19%	0.37%	3.90	0.0048%	0.0096%
0.92	17.9%	35.8%	1.92	2.7%	5.5%	2.92	0.18%	0.35%	3.92	0.0044%	0.0089%
0.94	17.4%	34.7%	1.94	2.6%	5.2%	2.94	0.16%	0.33%	3.94	0.0041%	0.0081%
0.96	16.9%	33.7%	1.96	2.5%	5.0%	2.96	0.15%	0.31%	3.96	0.0037%	0.0075%
0.98	16.4%	32.7%	1.98	2.4%	4.8%	2.98	0.14%	0.29%	3.98	0.0034%	0.0069%

Standard normal critical values

% of observations from $\chi^2(1)$...

x	above x	x	above x	x	above x	x	above x	x	above x	x	above x
0.000	100.0%	1.250	26.4%	2.500	11.4%	3.750	5.3%	5.000	2.5%	6.250	1.2%
0.025	87.4%	1.275	25.9%	2.525	11.2%	3.775	5.2%	5.025	2.5%	6.275	1.2%
0.050	82.3%	1.300	25.4%	2.550	11.0%	3.800	5.1%	5.050	2.5%	6.300	1.2%
0.075	78.4%	1.325	25.0%	2.575	10.9%	3.825	5.0%	5.075	2.4%	6.325	1.2%
0.100	75.2%	1.350	24.5%	2.600	10.7%	3.850	5.0%	5.100	2.4%	6.350	1.2%
0.125	72.4%	1.375	24.1%	2.625	10.5%	3.875	4.9%	5.125	2.4%	6.375	1.2%
0.150	69.9%	1.400	23.7%	2.650	10.4%	3.900	4.8%	5.150	2.3%	6.400	1.1%
0.175	67.6%	1.425	23.3%	2.675	10.2%	3.925	4.8%	5.175	2.3%	6.425	1.1%
0.200	65.5%	1.450	22.9%	2.700	10.0%	3.950	4.7%	5.200	2.3%	6.450	1.1%
0.225	63.5%	1.475	22.5%	2.725	9.9%	3.975	4.6%	5.225	2.2%	6.475	1.1%
0.250	61.7%	1.500	22.1%	2.750	9.7%	4.000	4.6%	5.250	2.2%	6.500	1.1%
0.275	60.0%	1.525	21.7%	2.775	9.6%	4.025	4.5%	5.275	2.2%	6.525	1.1%
0.300	58.4%	1.550	21.3%	2.800	9.4%	4.050	4.4%	5.300	2.1%	6.550	1.0%
0.325	56.9%	1.575	20.9%	2.825	9.3%	4.075	4.4%	5.325	2.1%	6.575	1.0%
0.350	55.4%	1.600	20.6%	2.850	9.1%	4.100	4.3%	5.350	2.1%	6.600	1.0%
0.375	54.0%	1.625	20.2%	2.875	9.0%	4.125	4.2%	5.375	2.0%	6.625	1.0%
0.400	52.7%	1.650	19.9%	2.900	8.9%	4.150	4.2%	5.400	2.0%	6.650	0.99%
0.425	51.4%	1.675	19.6%	2.925	8.7%	4.175	4.1%	5.425	2.0%	6.675	0.98%
0.450	50.2%	1.700	19.2%	2.950	8.6%	4.200	4.0%	5.450	2.0%	6.700	0.96%
0.475	49.1%	1.725	18.9%	2.975	8.5%	4.225	4.0%	5.475	1.9%	6.725	0.95%
0.500	48.0%	1.750	18.6%	3.000	8.3%	4.250	3.9%	5.500	1.9%	6.750	0.94%
0.525	46.9%	1.775	18.3%	3.025	8.2%	4.275	3.9%	5.525	1.9%	6.775	0.92%
0.550	45.8%	1.800	18.0%	3.050	8.1%	4.300	3.8%	5.550	1.8%	6.800	0.91%
0.575	44.8%	1.825	17.7%	3.075	8.0%	4.325	3.8%	5.575	1.8%	6.825	0.90%
0.600	43.9%	1.850	17.4%	3.100	7.8%	4.350	3.7%	5.600	1.8%	6.850	0.89%
0.625	42.9%	1.875	17.1%	3.125	7.7%	4.375	3.6%	5.625	1.8%	6.875	0.87%
0.650	42.0%	1.900	16.8%	3.150	7.6%	4.400	3.6%	5.650	1.7%	6.900	0.86%
0.675	41.1%	1.925	16.5%	3.175	7.5%	4.425	3.5%	5.675	1.7%	6.925	0.85%
0.700	40.3%	1.950	16.3%	3.200	7.4%	4.450	3.5%	5.700	1.7%	6.950	0.84%
0.725	39.5%	1.975	16.0%	3.225	7.3%	4.475	3.4%	5.725	1.7%	6.975	0.83%
0.750	38.6%	2.000	15.7%	3.250	7.1%	4.500	3.4%	5.750	1.6%	7.000	0.82%
0.775	37.9%	2.025	15.5%	3.275	7.0%	4.525	3.3%	5.775	1.6%	7.025	0.80%
0.800	37.1%	2.050	15.2%	3.300	6.9%	4.550	3.3%	5.800	1.6%	7.050	0.79%
0.825	36.4%	2.075	15.0%	3.325	6.8%	4.575	3.2%	5.825	1.6%	7.075	0.78%
0.850	35.7%	2.100	14.7%	3.350	6.7%	4.600	3.2%	5.850	1.6%	7.100	0.77%
0.875	35.0%	2.125	14.5%	3.375	6.6%	4.625	3.2%	5.875	1.5%	7.125	0.76%
0.900	34.3%	2.150	14.3%	3.400	6.5%	4.650	3.1%	5.900	1.5%	7.150	0.75%
0.925	33.6%	2.175	14.0%	3.425	6.4%	4.675	3.1%	5.925	1.5%	7.175	0.74%
0.950	33.0%	2.200	13.8%	3.450	6.3%	4.700	3.0%	5.950	1.5%	7.200	0.73%
0.975	32.3%	2.225	13.6%	3.475	6.2%	4.725	3.0%	5.975	1.5%	7.225	0.72%
1.000	31.7%	2.250	13.4%	3.500	6.1%	4.750	2.9%	6.000	1.4%	7.250	0.71%
1.025	31.1%	2.275	13.1%	3.525	6.0%	4.775	2.9%	6.025	1.4%	7.275	0.70%
1.050	30.6%	2.300	12.9%	3.550	6.0%	4.800	2.8%	6.050	1.4%	7.300	0.69%
1.075	30.0%	2.325	12.7%	3.575	5.9%	4.825	2.8%	6.075	1.4%	7.325	0.68%
1.100	29.4%	2.350	12.5%	3.600	5.8%	4.850	2.8%	6.100	1.4%	7.350	0.67%
1.125	28.9%	2.375	12.3%	3.625	5.7%	4.875	2.7%	6.125	1.3%	7.375	0.66%
1.150	28.4%	2.400	12.1%	3.650	5.6%	4.900	2.7%	6.150	1.3%	7.400	0.65%
1.175	27.8%	2.425	11.9%	3.675	5.5%	4.925	2.6%	6.175	1.3%	7.425	0.64%
1.200	27.3%	2.450	11.8%	3.700	5.4%	4.950	2.6%	6.200	1.3%	7.450	0.63%
1.225	26.8%	2.475	11.6%	3.725	5.4%	4.975	2.6%	6.225	1.3%	7.475	0.63%

Standard normal critical values

% of observations from $\chi^2(2)$...

x	above x	x	above x	x	above x	x	above x	x	above x	x	above x
0.00	100.0%	2.50	28.7%	5.00	8.2%	7.50	2.4%	10.00	0.67%	12.50	0.19%
0.05	97.5%	2.55	27.9%	5.05	8.0%	7.55	2.3%	10.05	0.66%	12.55	0.19%
0.10	95.1%	2.60	27.3%	5.10	7.8%	7.60	2.2%	10.10	0.64%	12.60	0.18%
0.15	92.8%	2.65	26.6%	5.15	7.6%	7.65	2.2%	10.15	0.63%	12.65	0.18%
0.20	90.5%	2.70	25.9%	5.20	7.4%	7.70	2.1%	10.20	0.61%	12.70	0.17%
0.25	88.2%	2.75	25.3%	5.25	7.2%	7.75	2.1%	10.25	0.59%	12.75	0.17%
0.30	86.1%	2.80	24.7%	5.30	7.1%	7.80	2.0%	10.30	0.58%	12.80	0.17%
0.35	83.9%	2.85	24.1%	5.35	6.9%	7.85	2.0%	10.35	0.57%	12.85	0.16%
0.40	81.9%	2.90	23.5%	5.40	6.7%	7.90	1.9%	10.40	0.55%	12.90	0.16%
0.45	79.9%	2.95	22.9%	5.45	6.6%	7.95	1.9%	10.45	0.54%	12.95	0.15%
0.50	77.9%	3.00	22.3%	5.50	6.4%	8.00	1.8%	10.50	0.52%	13.00	0.15%
0.55	76.0%	3.05	21.8%	5.55	6.2%	8.05	1.8%	10.55	0.51%	13.05	0.15%
0.60	74.1%	3.10	21.2%	5.60	6.1%	8.10	1.7%	10.60	0.50%	13.10	0.14%
0.65	72.3%	3.15	20.7%	5.65	5.9%	8.15	1.7%	10.65	0.49%	13.15	0.14%
0.70	70.5%	3.20	20.2%	5.70	5.8%	8.20	1.7%	10.70	0.47%	13.20	0.14%
0.75	68.7%	3.25	19.7%	5.75	5.6%	8.25	1.6%	10.75	0.46%	13.25	0.13%
0.80	67.0%	3.30	19.2%	5.80	5.5%	8.30	1.6%	10.80	0.45%	13.30	0.13%
0.85	65.4%	3.35	18.7%	5.85	5.4%	8.35	1.5%	10.85	0.44%	13.35	0.13%
0.90	63.8%	3.40	18.3%	5.90	5.2%	8.40	1.5%	10.90	0.43%	13.40	0.12%
0.95	62.2%	3.45	17.8%	5.95	5.1%	8.45	1.5%	10.95	0.42%	13.45	0.12%
1.00	60.7%	3.50	17.4%	6.00	5.0%	8.50	1.4%	11.00	0.41%	13.50	0.12%
1.05	59.2%	3.55	16.9%	6.05	4.9%	8.55	1.4%	11.05	0.40%	13.55	0.11%
1.10	57.7%	3.60	16.5%	6.10	4.7%	8.60	1.4%	11.10	0.39%	13.60	0.11%
1.15	56.3%	3.65	16.1%	6.15	4.6%	8.65	1.3%	11.15	0.38%	13.65	0.11%
1.20	54.9%	3.70	15.7%	6.20	4.5%	8.70	1.3%	11.20	0.37%	13.70	0.11%
1.25	53.5%	3.75	15.3%	6.25	4.4%	8.75	1.3%	11.25	0.36%	13.75	0.10%
1.30	52.2%	3.80	15.0%	6.30	4.3%	8.80	1.2%	11.30	0.35%	13.80	0.10%
1.35	50.9%	3.85	14.6%	6.35	4.2%	8.85	1.2%	11.35	0.34%	13.85	0.098%
1.40	49.7%	3.90	14.2%	6.40	4.1%	8.90	1.2%	11.40	0.33%	13.90	0.096%
1.45	48.4%	3.95	13.9%	6.45	4.0%	8.95	1.1%	11.45	0.33%	13.95	0.093%
1.50	47.2%	4.00	13.5%	6.50	3.9%	9.00	1.1%	11.50	0.32%	14.00	0.091%
1.55	46.1%	4.05	13.2%	6.55	3.8%	9.05	1.1%	11.55	0.31%	14.05	0.089%
1.60	44.9%	4.10	12.9%	6.60	3.7%	9.10	1.1%	11.60	0.30%	14.10	0.087%
1.65	43.8%	4.15	12.6%	6.65	3.6%	9.15	1.0%	11.65	0.30%	14.15	0.085%
1.70	42.7%	4.20	12.2%	6.70	3.5%	9.20	1.01%	11.70	0.29%	14.20	0.083%
1.75	41.7%	4.25	11.9%	6.75	3.4%	9.25	0.98%	11.75	0.28%	14.25	0.080%
1.80	40.7%	4.30	11.6%	6.80	3.3%	9.30	0.96%	11.80	0.27%	14.30	0.078%
1.85	39.7%	4.35	11.4%	6.85	3.3%	9.35	0.93%	11.85	0.27%	14.35	0.077%
1.90	38.7%	4.40	11.1%	6.90	3.2%	9.40	0.91%	11.90	0.26%	14.40	0.075%
1.95	37.7%	4.45	10.8%	6.95	3.1%	9.45	0.89%	11.95	0.25%	14.45	0.073%
2.00	36.8%	4.50	10.5%	7.00	3.0%	9.50	0.87%	12.00	0.25%	14.50	0.071%
2.05	35.9%	4.55	10.3%	7.05	2.9%	9.55	0.84%	12.05	0.24%	14.55	0.069%
2.10	35.0%	4.60	10.0%	7.10	2.9%	9.60	0.82%	12.10	0.24%	14.60	0.068%
2.15	34.1%	4.65	9.8%	7.15	2.8%	9.65	0.80%	12.15	0.23%	14.65	0.066%
2.20	33.3%	4.70	9.5%	7.20	2.7%	9.70	0.78%	12.20	0.22%	14.70	0.064%
2.25	32.5%	4.75	9.3%	7.25	2.7%	9.75	0.76%	12.25	0.22%	14.75	0.063%
2.30	31.7%	4.80	9.1%	7.30	2.6%	9.80	0.74%	12.30	0.21%	14.80	0.061%
2.35	30.9%	4.85	8.8%	7.35	2.5%	9.85	0.73%	12.35	0.21%	14.85	0.060%
2.40	30.1%	4.90	8.6%	7.40	2.5%	9.90	0.71%	12.40	0.20%	14.90	0.058%
2.45	29.4%	4.95	8.4%	7.45	2.4%	9.95	0.69%	12.45	0.20%	14.95	0.057%

Standard normal critical values

% of observations from $\chi^2(3)$...

x	above x	x	above x	x	above x	x	above x	x	above x	x	above x
0.00	100.0%	2.50	47.5%	5.00	17.2%	7.50	5.8%	10.00	1.9%	12.50	0.59%
0.05	99.7%	2.55	46.6%	5.05	16.8%	7.55	5.6%	10.05	1.8%	12.55	0.57%
0.10	99.2%	2.60	45.7%	5.10	16.5%	7.60	5.5%	10.10	1.8%	12.60	0.56%
0.15	98.5%	2.65	44.9%	5.15	16.1%	7.65	5.4%	10.15	1.7%	12.65	0.55%
0.20	97.8%	2.70	44.0%	5.20	15.8%	7.70	5.3%	10.20	1.7%	12.70	0.53%
0.25	96.9%	2.75	43.2%	5.25	15.4%	7.75	5.1%	10.25	1.7%	12.75	0.52%
0.30	96.0%	2.80	42.3%	5.30	15.1%	7.80	5.0%	10.30	1.6%	12.80	0.51%
0.35	95.0%	2.85	41.5%	5.35	14.8%	7.85	4.9%	10.35	1.6%	12.85	0.50%
0.40	94.0%	2.90	40.7%	5.40	14.5%	7.90	4.8%	10.40	1.5%	12.90	0.49%
0.45	93.0%	2.95	39.9%	5.45	14.2%	7.95	4.7%	10.45	1.5%	12.95	0.47%
0.50	91.9%	3.00	39.2%	5.50	13.9%	8.00	4.6%	10.50	1.5%	13.00	0.46%
0.55	90.8%	3.05	38.4%	5.55	13.6%	8.05	4.5%	10.55	1.4%	13.05	0.45%
0.60	89.6%	3.10	37.6%	5.60	13.3%	8.10	4.4%	10.60	1.4%	13.10	0.44%
0.65	88.5%	3.15	36.9%	5.65	13.0%	8.15	4.3%	10.65	1.4%	13.15	0.43%
0.70	87.3%	3.20	36.2%	5.70	12.7%	8.20	4.2%	10.70	1.3%	13.20	0.42%
0.75	86.1%	3.25	35.5%	5.75	12.4%	8.25	4.1%	10.75	1.3%	13.25	0.41%
0.80	84.9%	3.30	34.8%	5.80	12.2%	8.30	4.0%	10.80	1.3%	13.30	0.40%
0.85	83.7%	3.35	34.1%	5.85	11.9%	8.35	3.9%	10.85	1.3%	13.35	0.39%
0.90	82.5%	3.40	33.4%	5.90	11.7%	8.40	3.8%	10.90	1.2%	13.40	0.38%
0.95	81.3%	3.45	32.7%	5.95	11.4%	8.45	3.8%	10.95	1.2%	13.45	0.38%
1.00	80.1%	3.50	32.1%	6.00	11.2%	8.50	3.7%	11.00	1.2%	13.50	0.37%
1.05	78.9%	3.55	31.4%	6.05	10.9%	8.55	3.6%	11.05	1.1%	13.55	0.36%
1.10	77.7%	3.60	30.8%	6.10	10.7%	8.60	3.5%	11.10	1.1%	13.60	0.35%
1.15	76.5%	3.65	30.2%	6.15	10.5%	8.65	3.4%	11.15	1.1%	13.65	0.34%
1.20	75.3%	3.70	29.6%	6.20	10.2%	8.70	3.4%	11.20	1.1%	13.70	0.33%
1.25	74.1%	3.75	29.0%	6.25	10.0%	8.75	3.3%	11.25	1.0%	13.75	0.33%
1.30	72.9%	3.80	28.4%	6.30	9.8%	8.80	3.2%	11.30	1.0%	13.80	0.32%
1.35	71.7%	3.85	27.8%	6.35	9.6%	8.85	3.1%	11.35	1.00%	13.85	0.31%
1.40	70.6%	3.90	27.2%	6.40	9.4%	8.90	3.1%	11.40	0.97%	13.90	0.30%
1.45	69.4%	3.95	26.7%	6.45	9.2%	8.95	3.0%	11.45	0.95%	13.95	0.30%
1.50	68.2%	4.00	26.1%	6.50	9.0%	9.00	2.9%	11.50	0.93%	14.00	0.29%
1.55	67.1%	4.05	25.6%	6.55	8.8%	9.05	2.9%	11.55	0.91%	14.05	0.28%
1.60	65.9%	4.10	25.1%	6.60	8.6%	9.10	2.8%	11.60	0.89%	14.10	0.28%
1.65	64.8%	4.15	24.6%	6.65	8.4%	9.15	2.7%	11.65	0.87%	14.15	0.27%
1.70	63.7%	4.20	24.1%	6.70	8.2%	9.20	2.7%	11.70	0.85%	14.20	0.26%
1.75	62.6%	4.25	23.6%	6.75	8.0%	9.25	2.6%	11.75	0.83%	14.25	0.26%
1.80	61.5%	4.30	23.1%	6.80	7.9%	9.30	2.6%	11.80	0.81%	14.30	0.25%
1.85	60.4%	4.35	22.6%	6.85	7.7%	9.35	2.5%	11.85	0.79%	14.35	0.25%
1.90	59.3%	4.40	22.1%	6.90	7.5%	9.40	2.4%	11.90	0.77%	14.40	0.24%
1.95	58.3%	4.45	21.7%	6.95	7.4%	9.45	2.4%	11.95	0.76%	14.45	0.24%
2.00	57.2%	4.50	21.2%	7.00	7.2%	9.50	2.3%	12.00	0.74%	14.50	0.23%
2.05	56.2%	4.55	20.8%	7.05	7.0%	9.55	2.3%	12.05	0.72%	14.55	0.22%
2.10	55.2%	4.60	20.4%	7.10	6.9%	9.60	2.2%	12.10	0.70%	14.60	0.22%
2.15	54.2%	4.65	19.9%	7.15	6.7%	9.65	2.2%	12.15	0.69%	14.65	0.21%
2.20	53.2%	4.70	19.5%	7.20	6.6%	9.70	2.1%	12.20	0.67%	14.70	0.21%
2.25	52.2%	4.75	19.1%	7.25	6.4%	9.75	2.1%	12.25	0.66%	14.75	0.20%
2.30	51.3%	4.80	18.7%	7.30	6.3%	9.80	2.0%	12.30	0.64%	14.80	0.20%
2.35	50.3%	4.85	18.3%	7.35	6.2%	9.85	2.0%	12.35	0.63%	14.85	0.19%
2.40	49.4%	4.90	17.9%	7.40	6.0%	9.90	1.9%	12.40	0.61%	14.90	0.19%
2.45	48.4%	4.95	17.5%	7.45	5.9%	9.95	1.9%	12.45	0.60%	14.95	0.19%

Standard normal critical values

% of observations from $\chi^2(4)$...

x	above x	x	above x	x	above x	x	above x	x	above x	x	above x
0.00	100.0%	2.50	64.5%	5.00	28.7%	7.50	11.2%	10.00	4.0%	12.50	1.4%
0.05	100.0%	2.55	63.6%	5.05	28.2%	7.55	11.0%	10.05	4.0%	12.55	1.4%
0.10	99.9%	2.60	62.7%	5.10	27.7%	7.60	10.7%	10.10	3.9%	12.60	1.3%
0.15	99.7%	2.65	61.8%	5.15	27.2%	7.65	10.5%	10.15	3.8%	12.65	1.3%
0.20	99.5%	2.70	60.9%	5.20	26.7%	7.70	10.3%	10.20	3.7%	12.70	1.3%
0.25	99.3%	2.75	60.0%	5.25	26.3%	7.75	10.1%	10.25	3.6%	12.75	1.3%
0.30	99.0%	2.80	59.2%	5.30	25.8%	7.80	9.9%	10.30	3.6%	12.80	1.2%
0.35	98.6%	2.85	58.3%	5.35	25.3%	7.85	9.7%	10.35	3.5%	12.85	1.2%
0.40	98.2%	2.90	57.5%	5.40	24.9%	7.90	9.5%	10.40	3.4%	12.90	1.2%
0.45	97.8%	2.95	56.6%	5.45	24.4%	7.95	9.3%	10.45	3.3%	12.95	1.2%
0.50	97.4%	3.00	55.8%	5.50	24.0%	8.00	9.2%	10.50	3.3%	13.00	1.1%
0.55	96.8%	3.05	54.9%	5.55	23.5%	8.05	9.0%	10.55	3.2%	13.05	1.1%
0.60	96.3%	3.10	54.1%	5.60	23.1%	8.10	8.8%	10.60	3.1%	13.10	1.1%
0.65	95.7%	3.15	53.3%	5.65	22.7%	8.15	8.6%	10.65	3.1%	13.15	1.1%
0.70	95.1%	3.20	52.5%	5.70	22.3%	8.20	8.5%	10.70	3.0%	13.20	1.0%
0.75	94.5%	3.25	51.7%	5.75	21.9%	8.25	8.3%	10.75	3.0%	13.25	1.0%
0.80	93.8%	3.30	50.9%	5.80	21.5%	8.30	8.1%	10.80	2.9%	13.30	0.99%
0.85	93.2%	3.35	50.1%	5.85	21.1%	8.35	8.0%	10.85	2.8%	13.35	0.97%
0.90	92.5%	3.40	49.3%	5.90	20.7%	8.40	7.8%	10.90	2.8%	13.40	0.95%
0.95	91.7%	3.45	48.6%	5.95	20.3%	8.45	7.6%	10.95	2.7%	13.45	0.93%
1.00	91.0%	3.50	47.8%	6.00	19.9%	8.50	7.5%	11.00	2.7%	13.50	0.91%
1.05	90.2%	3.55	47.0%	6.05	19.5%	8.55	7.3%	11.05	2.6%	13.55	0.89%
1.10	89.4%	3.60	46.3%	6.10	19.2%	8.60	7.2%	11.10	2.5%	13.60	0.87%
1.15	88.6%	3.65	45.5%	6.15	18.8%	8.65	7.0%	11.15	2.5%	13.65	0.85%
1.20	87.8%	3.70	44.8%	6.20	18.5%	8.70	6.9%	11.20	2.4%	13.70	0.83%
1.25	87.0%	3.75	44.1%	6.25	18.1%	8.75	6.8%	11.25	2.4%	13.75	0.81%
1.30	86.1%	3.80	43.4%	6.30	17.8%	8.80	6.6%	11.30	2.3%	13.80	0.80%
1.35	85.3%	3.85	42.7%	6.35	17.4%	8.85	6.5%	11.35	2.3%	13.85	0.78%
1.40	84.4%	3.90	42.0%	6.40	17.1%	8.90	6.4%	11.40	2.2%	13.90	0.76%
1.45	83.5%	3.95	41.3%	6.45	16.8%	8.95	6.2%	11.45	2.2%	13.95	0.75%
1.50	82.7%	4.00	40.6%	6.50	16.5%	9.00	6.1%	11.50	2.1%	14.00	0.73%
1.55	81.8%	4.05	39.9%	6.55	16.2%	9.05	6.0%	11.55	2.1%	14.05	0.71%
1.60	80.9%	4.10	39.3%	6.60	15.9%	9.10	5.9%	11.60	2.1%	14.10	0.70%
1.65	80.0%	4.15	38.6%	6.65	15.6%	9.15	5.7%	11.65	2.0%	14.15	0.68%
1.70	79.1%	4.20	38.0%	6.70	15.3%	9.20	5.6%	11.70	2.0%	14.20	0.67%
1.75	78.2%	4.25	37.3%	6.75	15.0%	9.25	5.5%	11.75	1.9%	14.25	0.65%
1.80	77.2%	4.30	36.7%	6.80	14.7%	9.30	5.4%	11.80	1.9%	14.30	0.64%
1.85	76.3%	4.35	36.1%	6.85	14.4%	9.35	5.3%	11.85	1.9%	14.35	0.63%
1.90	75.4%	4.40	35.5%	6.90	14.1%	9.40	5.2%	11.90	1.8%	14.40	0.61%
1.95	74.5%	4.45	34.9%	6.95	13.9%	9.45	5.1%	11.95	1.8%	14.45	0.60%
2.00	73.6%	4.50	34.3%	7.00	13.6%	9.50	5.0%	12.00	1.7%	14.50	0.59%
2.05	72.7%	4.55	33.7%	7.05	13.3%	9.55	4.9%	12.05	1.7%	14.55	0.57%
2.10	71.7%	4.60	33.1%	7.10	13.1%	9.60	4.8%	12.10	1.7%	14.60	0.56%
2.15	70.8%	4.65	32.5%	7.15	12.8%	9.65	4.7%	12.15	1.6%	14.65	0.55%
2.20	69.9%	4.70	31.9%	7.20	12.6%	9.70	4.6%	12.20	1.6%	14.70	0.54%
2.25	69.0%	4.75	31.4%	7.25	12.3%	9.75	4.5%	12.25	1.6%	14.75	0.52%
2.30	68.1%	4.80	30.8%	7.30	12.1%	9.80	4.4%	12.30	1.5%	14.80	0.51%
2.35	67.2%	4.85	30.3%	7.35	11.9%	9.85	4.3%	12.35	1.5%	14.85	0.50%
2.40	66.3%	4.90	29.8%	7.40	11.6%	9.90	4.2%	12.40	1.5%	14.90	0.49%
2.45	65.4%	4.95	29.2%	7.45	11.4%	9.95	4.1%	12.45	1.4%	14.95	0.48%

Standard normal critical values

% of observations from $\chi^2(5)$...

x	above x	x	above x	x	above x	x	above x	x	above x	x	above x
0.00	100.0%	2.50	77.6%	5.00	41.6%	7.50	18.6%	10.00	7.5%	12.50	2.9%
0.05	100.0%	2.55	76.9%	5.05	41.0%	7.55	18.3%	10.05	7.4%	12.55	2.8%
0.10	100.0%	2.60	76.1%	5.10	40.4%	7.60	18.0%	10.10	7.2%	12.60	2.7%
0.15	100.0%	2.65	75.4%	5.15	39.8%	7.65	17.7%	10.15	7.1%	12.65	2.7%
0.20	99.9%	2.70	74.6%	5.20	39.2%	7.70	17.4%	10.20	7.0%	12.70	2.6%
0.25	99.8%	2.75	73.8%	5.25	38.6%	7.75	17.1%	10.25	6.8%	12.75	2.6%
0.30	99.8%	2.80	73.1%	5.30	38.0%	7.80	16.8%	10.30	6.7%	12.80	2.5%
0.35	99.7%	2.85	72.3%	5.35	37.5%	7.85	16.5%	10.35	6.6%	12.85	2.5%
0.40	99.5%	2.90	71.5%	5.40	36.9%	7.90	16.2%	10.40	6.5%	12.90	2.4%
0.45	99.4%	2.95	70.8%	5.45	36.3%	7.95	15.9%	10.45	6.3%	12.95	2.4%
0.50	99.2%	3.00	70.0%	5.50	35.8%	8.00	15.6%	10.50	6.2%	13.00	2.3%
0.55	99.0%	3.05	69.2%	5.55	35.2%	8.05	15.4%	10.55	6.1%	13.05	2.3%
0.60	98.8%	3.10	68.5%	5.60	34.7%	8.10	15.1%	10.60	6.0%	13.10	2.2%
0.65	98.6%	3.15	67.7%	5.65	34.2%	8.15	14.8%	10.65	5.9%	13.15	2.2%
0.70	98.3%	3.20	66.9%	5.70	33.7%	8.20	14.6%	10.70	5.8%	13.20	2.2%
0.75	98.0%	3.25	66.2%	5.75	33.1%	8.25	14.3%	10.75	5.7%	13.25	2.1%
0.80	97.7%	3.30	65.4%	5.80	32.6%	8.30	14.0%	10.80	5.5%	13.30	2.1%
0.85	97.4%	3.35	64.6%	5.85	32.1%	8.35	13.8%	10.85	5.4%	13.35	2.0%
0.90	97.0%	3.40	63.9%	5.90	31.6%	8.40	13.6%	10.90	5.3%	13.40	2.0%
0.95	96.6%	3.45	63.1%	5.95	31.1%	8.45	13.3%	10.95	5.2%	13.45	2.0%
1.00	96.3%	3.50	62.3%	6.00	30.6%	8.50	13.1%	11.00	5.1%	13.50	1.9%
1.05	95.8%	3.55	61.6%	6.05	30.1%	8.55	12.8%	11.05	5.0%	13.55	1.9%
1.10	95.4%	3.60	60.8%	6.10	29.7%	8.60	12.6%	11.10	4.9%	13.60	1.8%
1.15	95.0%	3.65	60.1%	6.15	29.2%	8.65	12.4%	11.15	4.8%	13.65	1.8%
1.20	94.5%	3.70	59.3%	6.20	28.7%	8.70	12.2%	11.20	4.8%	13.70	1.8%
1.25	94.0%	3.75	58.6%	6.25	28.3%	8.75	11.9%	11.25	4.7%	13.75	1.7%
1.30	93.5%	3.80	57.9%	6.30	27.8%	8.80	11.7%	11.30	4.6%	13.80	1.7%
1.35	93.0%	3.85	57.1%	6.35	27.4%	8.85	11.5%	11.35	4.5%	13.85	1.7%
1.40	92.4%	3.90	56.4%	6.40	26.9%	8.90	11.3%	11.40	4.4%	13.90	1.6%
1.45	91.9%	3.95	55.7%	6.45	26.5%	8.95	11.1%	11.45	4.3%	13.95	1.6%
1.50	91.3%	4.00	54.9%	6.50	26.1%	9.00	10.9%	11.50	4.2%	14.00	1.6%
1.55	90.7%	4.05	54.2%	6.55	25.6%	9.05	10.7%	11.55	4.2%	14.05	1.5%
1.60	90.1%	4.10	53.5%	6.60	25.2%	9.10	10.5%	11.60	4.1%	14.10	1.5%
1.65	89.5%	4.15	52.8%	6.65	24.8%	9.15	10.3%	11.65	4.0%	14.15	1.5%
1.70	88.9%	4.20	52.1%	6.70	24.4%	9.20	10.1%	11.70	3.9%	14.20	1.4%
1.75	88.3%	4.25	51.4%	6.75	24.0%	9.25	9.9%	11.75	3.8%	14.25	1.4%
1.80	87.6%	4.30	50.7%	6.80	23.6%	9.30	9.8%	11.80	3.8%	14.30	1.4%
1.85	86.9%	4.35	50.0%	6.85	23.2%	9.35	9.6%	11.85	3.7%	14.35	1.4%
1.90	86.3%	4.40	49.3%	6.90	22.8%	9.40	9.4%	11.90	3.6%	14.40	1.3%
1.95	85.6%	4.45	48.7%	6.95	22.4%	9.45	9.2%	11.95	3.5%	14.45	1.3%
2.00	84.9%	4.50	48.0%	7.00	22.1%	9.50	9.1%	12.00	3.5%	14.50	1.3%
2.05	84.2%	4.55	47.3%	7.05	21.7%	9.55	8.9%	12.05	3.4%	14.55	1.2%
2.10	83.5%	4.60	46.7%	7.10	21.3%	9.60	8.7%	12.10	3.3%	14.60	1.2%
2.15	82.8%	4.65	46.0%	7.15	21.0%	9.65	8.6%	12.15	3.3%	14.65	1.2%
2.20	82.1%	4.70	45.4%	7.20	20.6%	9.70	8.4%	12.20	3.2%	14.70	1.2%
2.25	81.4%	4.75	44.7%	7.25	20.3%	9.75	8.3%	12.25	3.2%	14.75	1.1%
2.30	80.6%	4.80	44.1%	7.30	19.9%	9.80	8.1%	12.30	3.1%	14.80	1.1%
2.35	79.9%	4.85	43.4%	7.35	19.6%	9.85	8.0%	12.35	3.0%	14.85	1.1%
2.40	79.1%	4.90	42.8%	7.40	19.3%	9.90	7.8%	12.40	3.0%	14.90	1.1%
2.45	78.4%	4.95	42.2%	7.45	18.9%	9.95	7.7%	12.45	2.9%	14.95	1.1%