

RESM2001

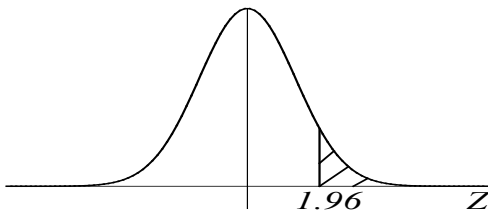
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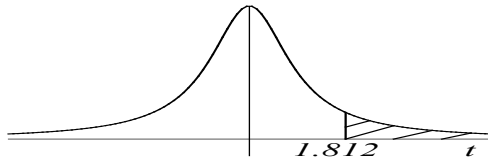
Areas of the Normal Curve Example

If Z is $N(0,1)$

$$P(Z > 1.96) = 0.0250$$



Normal Deviate x	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641
0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010

Percentage Points of the t Distribution

Example

For $v = 10$ degrees of freedom $P[t > 1.812] = 0.05$

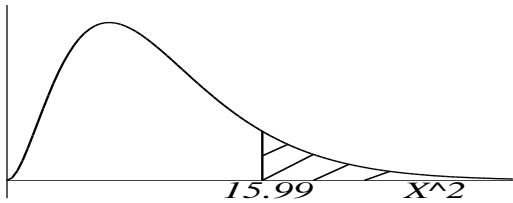
α $v \backslash$	0.25	0.2	0.15	0.1	0.05	0.025	0.01	0.005	0.001
1	1.000	1.376	1.963	3.078	6.314	12.706	31.821	63.66	636.6
2	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	31.60
3	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	12.92
4	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	8.610
5	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	6.869
6	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.959
7	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	5.408
8	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	5.041
9	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.781
10	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.587
11	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.437
12	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	4.318
13	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	4.221
14	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	4.140
15	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	4.073
16	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	4.015
17	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.965
18	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.922
19	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.883
20	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.850
21	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.819
22	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.792
23	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.768
24	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.745
25	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.725
26	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.707
40	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.551
60	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.460
120	0.677	0.845	1.041	1.289	1.658	1.980	2.358	2.617	3.373
∞	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.291

Percentage Points of the χ^2 Distribution

Example

For $\nu = 10$ degrees of freedom

$$P[\chi^2 > 15.99] = 0.1$$



$\alpha \backslash \nu$	0.99	0.9	0.5	0.25	0.1	0.05	0.025	0.01	0.005
1	0.0002	0.0158	0.4549	1.323	2.706	3.842	5.024	6.635	7.879
2	0.0201	0.2107	1.386	2.773	4.605	5.992	7.378	9.210	10.60
3	0.1148	0.5844	2.366	4.108	6.251	7.815	9.348	11.34	12.84
4	0.2971	1.064	3.357	5.385	7.779	9.488	11.14	13.28	14.86
5	0.5543	1.610	4.352	6.626	9.236	11.07	12.83	15.09	16.75
6	0.8721	2.204	5.348	7.841	10.64	12.59	14.45	16.81	18.55
7	1.239	2.833	6.346	9.037	12.02	14.07	16.01	18.48	20.28
8	1.647	3.490	7.344	10.22	13.36	15.51	17.53	20.09	21.96
9	2.088	4.168	8.343	11.39	14.68	16.92	19.02	21.67	23.59
10	2.558	4.865	9.342	12.55	15.99	18.31	20.48	23.21	25.19
11	3.054	5.578	10.34	13.70	17.28	19.68	21.92	24.73	26.76
12	3.571	6.304	11.34	14.85	18.55	21.03	23.34	26.22	28.30
13	4.107	7.042	12.34	15.98	19.81	22.36	24.74	27.69	29.82
14	4.660	7.790	13.34	17.12	21.06	23.68	26.12	29.14	31.32
15	5.229	8.547	14.34	18.25	22.31	25.00	27.49	30.58	32.80
16	5.812	9.312	15.34	19.37	23.54	26.30	28.85	32.00	34.27
17	6.408	10.09	16.34	20.49	24.77	27.59	30.19	33.41	35.72
18	7.015	10.86	17.34	21.60	25.99	28.87	31.53	34.81	37.16
19	7.633	11.65	18.34	22.72	27.20	30.14	32.85	36.19	38.58
20	8.260	12.44	19.34	23.83	28.41	31.41	34.17	37.57	40.00
21	8.897	13.24	20.34	24.93	29.62	32.67	35.48	38.93	41.40
22	9.543	14.04	21.34	26.04	30.81	33.92	36.78	40.29	42.80
23	10.20	14.85	22.34	27.14	32.01	35.17	38.08	41.64	44.18
24	10.86	15.66	23.34	28.24	33.20	36.42	39.36	42.98	45.56
25	11.52	16.47	24.34	29.34	34.38	37.65	40.65	44.31	46.93
26	12.20	17.29	25.34	30.43	35.56	38.89	41.92	45.64	48.29
27	12.88	18.11	26.34	31.53	36.74	40.11	43.19	46.96	49.64
28	13.56	18.94	27.34	32.62	37.92	41.34	44.46	48.28	50.99
29	14.26	19.77	28.34	33.71	39.09	42.56	45.72	49.59	52.34
30	14.95	20.60	29.34	34.80	40.26	43.77	46.98	50.89	53.67
40	22.16	29.05	39.34	45.62	51.81	55.76	59.34	63.69	66.77
50	29.71	37.69	49.33	56.33	63.17	67.50	71.42	76.15	79.49
60	37.48	46.46	59.33	66.98	74.40	79.08	83.30	88.38	91.95
70	45.44	55.33	69.33	77.58	85.53	90.53	95.02	100.4	104.2
80	53.54	64.28	79.33	88.13	96.58	101.9	106.6	112.3	116.3
90	61.75	73.29	89.33	98.65	107.6	113.1	118.1	124.1	128.3
100	70.06	82.36	99.33	109.1	118.5	124.3	129.6	135.8	140.2
Z_α	-2.326	-1.282	0.000	0.675	1.282	1.645	1.960	2.326	2.576

	F-distribution, upper 1% points															
	Degrees of freedom for numerator															
	1	2	3	4	5	6	7	8	9	10	12	20	30	60	120	
Degrees of freedom for denominator	1	4052	5000	5403	5625	5764	5859	5928	5981	6022	6056	6106	6209	6261	6313	6339
	2	98.5	99.0	99.2	99.3	99.3	99.3	99.4	99.4	99.4	99.4	99.4	99.5	99.5	99.5	99.5
	3	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.4	27.2	27.1	26.7	26.5	26.3	26.2
	4	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.7	14.6	14.4	14.0	13.8	13.7	13.6
	5	16.3	13.3	12.1	11.4	11.0	10.7	10.5	10.3	10.2	10.1	9.89	9.55	9.38	9.2	9.11
	6	13.8	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.72	7.40	7.23	7.06	6.97
	7	12.3	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.47	6.16	5.99	5.82	5.74
	8	11.3	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.67	5.36	5.20	5.03	4.95
	9	10.6	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.11	4.81	4.65	4.48	4.40
	10	10.0	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.71	4.41	4.25	4.08	4.00
	11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.40	4.10	3.94	3.78	3.69
	12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.16	3.86	3.70	3.54	3.45
	13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.96	3.66	3.51	3.34	3.25
	14	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.80	3.51	3.35	3.18	3.09
	15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.67	3.37	3.21	3.05	2.96
	16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.55	3.26	3.10	2.93	2.84
	17	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.46	3.16	3.00	2.83	2.75
	18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.37	3.08	2.92	2.75	2.66
	19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.30	3.00	2.84	2.67	2.58
	20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.23	2.94	2.78	2.61	2.52
	21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.17	2.88	2.72	2.55	2.46
	22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.12	2.83	2.67	2.50	2.40
	23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.07	2.78	2.62	2.45	2.35
	24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.03	2.74	2.58	2.40	2.31
	25	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22	3.13	2.99	2.70	2.54	2.36	2.27
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.84	2.55	2.39	2.21	2.11	
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.66	2.37	2.20	2.02	1.92	
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.50	2.20	2.03	1.84	1.73	
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.34	2.03	1.86	1.66	1.53	
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.18	1.88	1.70	1.47	1.32	

		F-distribution, upper 5% points														
		Degrees of freedom for numerator														
Degrees of freedom for denominator		1	2	3	4	5	6	7	8	9	10	12	20	30	60	120
	1	162	200	216	225	230	234	237	239	241	242	244	248	250	252	253
	2	18.5	19.0	19.2	19.3	19.3	19.3	19.4	19.4	19.4	19.4	19.4	19.5	19.5	19.5	19.5
	3	10.1	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.74	8.66	8.62	8.57	8.55
	4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.91	5.80	5.75	5.69	5.66
	5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.68	4.56	4.50	4.43	4.40
	6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.00	3.87	3.81	3.74	3.70
	7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.57	3.44	3.38	3.30	3.27
	8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.28	3.15	3.08	3.01	2.97
	9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.07	2.94	2.86	2.79	2.75
	10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.91	2.77	2.70	2.62	2.58
	11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.79	2.65	2.57	2.49	2.45
	12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.69	2.54	2.47	2.38	2.34
	13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.60	2.46	2.38	2.30	2.25
	14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.53	2.39	2.31	2.22	2.18
	15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.48	2.33	2.25	2.16	2.11
	16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.42	2.28	2.19	2.11	2.06
	17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.38	2.23	2.15	2.06	2.01
	18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.34	2.19	2.11	2.02	1.97
	19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.31	2.16	2.07	1.98	1.93
	20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.28	2.12	2.04	1.95	1.90
	21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.25	2.10	2.01	1.92	1.87
	22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.23	2.07	1.98	1.89	1.84
	23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.20	2.05	1.96	1.86	1.81
	24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.18	2.03	1.94	1.84	1.79
	25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.16	2.01	1.92	1.82	1.77
	30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.09	1.93	1.84	1.74	1.68
	40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.00	1.84	1.74	1.64	1.58
	60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.92	1.75	1.65	1.53	1.47
	120	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96	1.91	1.83	1.66	1.55	1.43	1.35
	∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.75	1.57	1.46	1.32	1.22