18.05 Tables

Since we generally have access to computers there is no need for the comprehensive tables of old. These tables are designed to be complete enough and easy to use for exams.

Standard normal table of left tail probabilities.

z	$\Phi(z)$	z	$\Phi(z)$	z	$\Phi(z)$	z	$\Phi(z)$
-4.00	0.0000	-2.00	0.0228	0.00	0.5000	2.00	0.9772
-3.95	0.0000	-1.95	0.0256	0.05	0.5199	2.05	0.9798
-3.90	0.0000	-1.90	0.0287	0.10	0.5398	2.10	0.9821
-3.85	0.0001	-1.85	0.0322	0.15	0.5596	2.15	0.9842
-3.80	0.0001	-1.80	0.0359	0.20	0.5793	2.20	0.9861
-3.75	0.0001	-1.75	0.0401	0.25	0.5987	2.25	0.9878
-3.70	0.0001	-1.70	0.0446	0.30	0.6179	2.30	0.9893
-3.65	0.0001	-1.65	0.0495	0.35	0.6368	2.35	0.9906
-3.60	0.0002	-1.60	0.0548	0.40	0.6554	2.40	0.9918
-3.55	0.0002	-1.55	0.0606	0.45	0.6736	2.45	0.9929
-3.50	0.0002	-1.50	0.0668	0.50	0.6915	2.50	0.9938
-3.45	0.0003	-1.45	0.0735	0.55	0.7088	2.55	0.9946
-3.40	0.0003	-1.40	0.0808	0.60	0.7257	2.60	0.9953
-3.35	0.0004	-1.35	0.0885	0.65	0.7422	2.65	0.9960
-3.30	0.0005	-1.30	0.0968	0.70	0.7580	2.70	0.9965
-3.25	0.0006	-1.25	0.1056	0.75	0.7734	2.75	0.9970
-3.20	0.0007	-1.20	0.1151	0.80	0.7881	2.80	0.9974
-3.15	0.0008	-1.15	0.1251	0.85	0.8023	2.85	0.9978
-3.10	0.0010	-1.10	0.1357	0.90	0.8159	2.90	0.9981
-3.05	0.0011	-1.05	0.1469	0.95	0.8289	2.95	0.9984
-3.00	0.0013	-1.00	0.1587	1.00	0.8413	3.00	0.9987
-2.95	0.0016	-0.95	0.1711	1.05	0.8531	3.05	0.9989
-2.90	0.0019	-0.90	0.1841	1.10	0.8643	3.10	0.9990
-2.85	0.0022	-0.85	0.1977	1.15	0.8749	3.15	0.9992
-2.80	0.0026	-0.80	0.2119	1.20	0.8849	3.20	0.9993
-2.75	0.0030	-0.75	0.2266	1.25	0.8944	3.25	0.9994
-2.70	0.0035	-0.70	0.2420	1.30	0.9032	3.30	0.9995
-2.65	0.0040	-0.65	0.2578	1.35	0.9115	3.35	0.9996
-2.60	0.0047	-0.60	0.2743	1.40	0.9192	3.40	0.9997
-2.55	0.0054	-0.55	0.2912	1.45	0.9265	3.45	0.9997
-2.50	0.0062	-0.50	0.3085	1.50	0.9332	3.50	0.9998
-2.45	0.0071	-0.45	0.3264	1.55	0.9394	3.55	0.9998
-2.40	0.0082	-0.40	0.3446	1.60	0.9452	3.60	0.9998
-2.35	0.0094	-0.35	0.3632	1.65	0.9505	3.65	0.9999
-2.30	0.0107	-0.30	0.3821	1.70	0.9554	3.70	0.9999
-2.25	0.0122	-0.25	0.4013	1.75	0.9599	3.75	0.9999
-2.20	0.0139	-0.20	0.4207	1.80	0.9641	3.80	0.9999
-2.15	0.0158	-0.15	0.4404	1.85	0.9678	3.85	0.9999
-2.10	0.0179	-0.10	0.4602	1.90	0.9713	3.90	1.0000
-2.05	0.0202	-0.05	0.4801	1.95	0.9744	3.95	1.0000

$\Phi(z) = P(Z \le z)$ for Norm$(0, 1)$.

(Use interpolation to estimate z values to a 3rd decimal place.)

t-table of *left tail* probabilities.   (The tables show $P(T < t)$ for $T \sim t(df)$.)

t\df	1	2	3	4	5	6	7	8	9
0.0	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
0.2	0.5628	0.5700	0.5729	0.5744	0.5753	0.5760	0.5764	0.5768	0.5770
0.4	0.6211	0.6361	0.6420	0.6452	0.6472	0.6485	0.6495	0.6502	0.6508
0.6	0.6720	0.6953	0.7046	0.7096	0.7127	0.7148	0.7163	0.7174	0.7183
0.8	0.7148	0.7462	0.7589	0.7657	0.7700	0.7729	0.7750	0.7766	0.7778
1.0	0.7500	0.7887	0.8045	0.8130	0.8184	0.8220	0.8247	0.8267	0.8283
1.2	0.7789	0.8235	0.8419	0.8518	0.8581	0.8623	0.8654	0.8678	0.8696
1.4	0.8026	0.8518	0.8720	0.8829	0.8898	0.8945	0.8979	0.9005	0.9025
1.6	0.8222	0.8746	0.8960	0.9076	0.9148	0.9196	0.9232	0.9259	0.9280
1.8	0.8386	0.8932	0.9152	0.9269	0.9341	0.9390	0.9426	0.9452	0.9473
2.0	0.8524	0.9082	0.9303	0.9419	0.9490	0.9538	0.9572	0.9597	0.9617
2.2	0.8642	0.9206	0.9424	0.9537	0.9605	0.9649	0.9681	0.9705	0.9723
2.4	0.8743	0.9308	0.9521	0.9628	0.9692	0.9734	0.9763	0.9784	0.9801
2.6	0.8831	0.9392	0.9598	0.9700	0.9759	0.9797	0.9823	0.9842	0.9856
2.8	0.8908	0.9463	0.9661	0.9756	0.9810	0.9844	0.9867	0.9884	0.9896
3.0	0.8976	0.9523	0.9712	0.9800	0.9850	0.9880	0.9900	0.9915	0.9925
3.2	0.9036	0.9573	0.9753	0.9835	0.9880	0.9907	0.9925	0.9937	0.9946
3.4	0.9089	0.9617	0.9788	0.9864	0.9904	0.9928	0.9943	0.9953	0.9961
3.6	0.9138	0.9654	0.9816	0.9886	0.9922	0.9943	0.9956	0.9965	0.9971
3.8	0.9181	0.9686	0.9840	0.9904	0.9937	0.9955	0.9966	0.9974	0.9979
4.0	0.9220	0.9714	0.9860	0.9919	0.9948	0.9964	0.9974	0.9980	0.9984

t\df	10	11	12	13	14	15	16	17	18	19
0.0	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
0.2	0.5773	0.5774	0.5776	0.5777	0.5778	0.5779	0.5780	0.5781	0.5781	0.5782
0.4	0.6512	0.6516	0.6519	0.6522	0.6524	0.6526	0.6528	0.6529	0.6531	0.6532
0.6	0.7191	0.7197	0.7202	0.7206	0.7210	0.7213	0.7215	0.7218	0.7220	0.7222
0.8	0.7788	0.7797	0.7804	0.7810	0.7815	0.7819	0.7823	0.7826	0.7829	0.7832
1.0	0.8296	0.8306	0.8315	0.8322	0.8329	0.8334	0.8339	0.8343	0.8347	0.8351
1.2	0.8711	0.8723	0.8734	0.8742	0.8750	0.8756	0.8762	0.8767	0.8772	0.8776
1.4	0.9041	0.9055	0.9066	0.9075	0.9084	0.9091	0.9097	0.9103	0.9107	0.9112
1.6	0.9297	0.9310	0.9322	0.9332	0.9340	0.9348	0.9354	0.9360	0.9365	0.9370
1.8	0.9490	0.9503	0.9515	0.9525	0.9533	0.9540	0.9546	0.9552	0.9557	0.9561
2.0	0.9633	0.9646	0.9657	0.9666	0.9674	0.9680	0.9686	0.9691	0.9696	0.9700
2.2	0.9738	0.9750	0.9759	0.9768	0.9774	0.9781	0.9786	0.9790	0.9794	0.9798
2.4	0.9813	0.9824	0.9832	0.9840	0.9846	0.9851	0.9855	0.9859	0.9863	0.9866
2.6	0.9868	0.9877	0.9884	0.9890	0.9895	0.9900	0.9903	0.9907	0.9910	0.9912
2.8	0.9906	0.9914	0.9920	0.9925	0.9929	0.9933	0.9936	0.9938	0.9941	0.9943
3.0	0.9933	0.9940	0.9945	0.9949	0.9952	0.9955	0.9958	0.9960	0.9962	0.9963

t\df	20	21	22	23	24	25	26	27	28	29
0.0	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
0.2	0.5782	0.5783	0.5783	0.5784	0.5784	0.5785	0.5785	0.5785	0.5785	0.5786
0.4	0.6533	0.6534	0.6535	0.6536	0.6537	0.6537	0.6538	0.6538	0.6539	0.6540
0.6	0.7224	0.7225	0.7227	0.7228	0.7229	0.7230	0.7231	0.7232	0.7233	0.7234
0.8	0.7834	0.7837	0.7839	0.7841	0.7842	0.7844	0.7845	0.7847	0.7848	0.7849
1.0	0.8354	0.8357	0.8359	0.8361	0.8364	0.8366	0.8367	0.8369	0.8371	0.8372
1.2	0.8779	0.8782	0.8785	0.8788	0.8791	0.8793	0.8795	0.8797	0.8799	0.8801
1.4	0.9116	0.9119	0.9123	0.9126	0.9128	0.9131	0.9133	0.9136	0.9138	0.9139
1.6	0.9374	0.9377	0.9381	0.9384	0.9387	0.9389	0.9392	0.9394	0.9396	0.9398
1.8	0.9565	0.9569	0.9572	0.9575	0.9578	0.9580	0.9583	0.9585	0.9587	0.9589
2.0	0.9704	0.9707	0.9710	0.9713	0.9715	0.9718	0.9720	0.9722	0.9724	0.9725
2.2	0.9801	0.9804	0.9807	0.9809	0.9812	0.9814	0.9816	0.9817	0.9819	0.9820
2.4	0.9869	0.9871	0.9874	0.9876	0.9877	0.9879	0.9881	0.9882	0.9884	0.9885
2.6	0.9914	0.9916	0.9918	0.9920	0.9921	0.9923	0.9924	0.9925	0.9926	0.9927
2.8	0.9945	0.9946	0.9948	0.9949	0.9950	0.9951	0.9952	0.9953	0.9954	0.9955
3.0	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9971	0.9972	0.9973

t\df	30	31	32	33	34	35	36	37	38	39
0.0	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
0.2	0.5786	0.5786	0.5786	0.5786	0.5787	0.5787	0.5787	0.5787	0.5787	0.5787
0.4	0.6540	0.6541	0.6541	0.6541	0.6542	0.6542	0.6542	0.6543	0.6543	0.6543
0.6	0.7235	0.7236	0.7236	0.7237	0.7238	0.7238	0.7239	0.7239	0.7240	0.7240
0.8	0.7850	0.7851	0.7852	0.7853	0.7854	0.7854	0.7855	0.7856	0.7857	0.7857
1.0	0.8373	0.8375	0.8376	0.8377	0.8378	0.8379	0.8380	0.8381	0.8382	0.8383
1.2	0.8802	0.8804	0.8805	0.8807	0.8808	0.8809	0.8810	0.8811	0.8812	0.8813
1.4	0.9141	0.9143	0.9144	0.9146	0.9147	0.9148	0.9150	0.9151	0.9152	0.9153
1.6	0.9400	0.9401	0.9403	0.9404	0.9406	0.9407	0.9408	0.9409	0.9411	0.9412
1.8	0.9590	0.9592	0.9594	0.9595	0.9596	0.9598	0.9599	0.9600	0.9601	0.9602
2.0	0.9727	0.9728	0.9730	0.9731	0.9732	0.9733	0.9735	0.9736	0.9737	0.9738
2.2	0.9822	0.9823	0.9824	0.9825	0.9826	0.9827	0.9828	0.9829	0.9830	0.9831
2.4	0.9886	0.9887	0.9888	0.9889	0.9890	0.9891	0.9892	0.9892	0.9893	0.9894
2.6	0.9928	0.9929	0.9930	0.9931	0.9932	0.9932	0.9933	0.9933	0.9934	0.9935
2.8	0.9956	0.9956	0.9957	0.9958	0.9958	0.9959	0.9959	0.9960	0.9960	0.9960
3.0	0.9973	0.9974	0.9974	0.9974	0.9975	0.9975	0.9976	0.9976	0.9976	0.9977

t\df	40	41	42	43	44	45	46	47	48	49
0.0	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
0.2	0.5788	0.5788	0.5788	0.5788	0.5788	0.5788	0.5788	0.5788	0.5788	0.5788
0.4	0.6544	0.6544	0.6544	0.6544	0.6545	0.6545	0.6545	0.6545	0.6545	0.6546
0.6	0.7241	0.7241	0.7241	0.7242	0.7242	0.7242	0.7243	0.7243	0.7243	0.7244
0.8	0.7858	0.7858	0.7859	0.7859	0.7860	0.7860	0.7861	0.7861	0.7862	0.7862
1.0	0.8383	0.8384	0.8385	0.8385	0.8386	0.8387	0.8387	0.8388	0.8388	0.8389
1.2	0.8814	0.8815	0.8816	0.8816	0.8817	0.8818	0.8819	0.8819	0.8820	0.8820
1.4	0.9154	0.9155	0.9156	0.9157	0.9157	0.9158	0.9159	0.9160	0.9160	0.9161
1.6	0.9413	0.9414	0.9415	0.9415	0.9416	0.9417	0.9418	0.9419	0.9419	0.9420
1.8	0.9603	0.9604	0.9605	0.9606	0.9606	0.9607	0.9608	0.9609	0.9609	0.9610
2.0	0.9738	0.9739	0.9740	0.9741	0.9742	0.9742	0.9743	0.9744	0.9744	0.9745
2.2	0.9832	0.9833	0.9833	0.9834	0.9834	0.9835	0.9836	0.9836	0.9837	0.9837
2.4	0.9894	0.9895	0.9895	0.9896	0.9897	0.9897	0.9898	0.9898	0.9898	0.9899
2.6	0.9935	0.9935	0.9936	0.9936	0.9937	0.9937	0.9938	0.9938	0.9938	0.9939
2.8	0.9961	0.9961	0.9962	0.9962	0.9962	0.9962	0.9963	0.9963	0.9963	0.9964
3.0	0.9977	0.9977	0.9977	0.9978	0.9978	0.9978	0.9978	0.9978	0.9979	0.9979

χ^2-**table of** *right tail critical values*

The table shows $\quad c_{df,p} =$ the $1 - p$ quantile of $\chi^2(df)$.

In R notation $c_{df,p} =$ `qchisq(1-p,m)`.

df\p	0.010	0.025	0.050	0.100	0.200	0.300	0.500	0.700	0.800	0.900	0.950	0.975	0.990
1	6.63	5.02	3.84	2.71	1.64	1.07	0.45	0.15	0.06	0.02	0.00	0.00	0.00
2	9.21	7.38	5.99	4.61	3.22	2.41	1.39	0.71	0.45	0.21	0.10	0.05	0.02
3	11.34	9.35	7.81	6.25	4.64	3.66	2.37	1.42	1.01	0.58	0.35	0.22	0.11
4	13.28	11.14	9.49	7.78	5.99	4.88	3.36	2.19	1.65	1.06	0.71	0.48	0.30
5	15.09	12.83	11.07	9.24	7.29	6.06	4.35	3.00	2.34	1.61	1.15	0.83	0.55
6	16.81	14.45	12.59	10.64	8.56	7.23	5.35	3.83	3.07	2.20	1.64	1.24	0.87
7	18.48	16.01	14.07	12.02	9.80	8.38	6.35	4.67	3.82	2.83	2.17	1.69	1.24
8	20.09	17.53	15.51	13.36	11.03	9.52	7.34	5.53	4.59	3.49	2.73	2.18	1.65
9	21.67	19.02	16.92	14.68	12.24	10.66	8.34	6.39	5.38	4.17	3.33	2.70	2.09
10	23.21	20.48	18.31	15.99	13.44	11.78	9.34	7.27	6.18	4.87	3.94	3.25	2.56
16	32.00	28.85	26.30	23.54	20.47	18.42	15.34	12.62	11.15	9.31	7.96	6.91	5.81
17	33.41	30.19	27.59	24.77	21.61	19.51	16.34	13.53	12.00	10.09	8.67	7.56	6.41
18	34.81	31.53	28.87	25.99	22.76	20.60	17.34	14.44	12.86	10.86	9.39	8.23	7.01
19	36.19	32.85	30.14	27.20	23.90	21.69	18.34	15.35	13.72	11.65	10.12	8.91	7.63
20	37.57	34.17	31.41	28.41	25.04	22.77	19.34	16.27	14.58	12.44	10.85	9.59	8.26
21	38.93	35.48	32.67	29.62	26.17	23.86	20.34	17.18	15.44	13.24	11.59	10.28	8.90
22	40.29	36.78	33.92	30.81	27.30	24.94	21.34	18.10	16.31	14.04	12.34	10.98	9.54
23	41.64	38.08	35.17	32.01	28.43	26.02	22.34	19.02	17.19	14.85	13.09	11.69	10.20
24	42.98	39.36	36.42	33.20	29.55	27.10	23.34	19.94	18.06	15.66	13.85	12.40	10.86
25	44.31	40.65	37.65	34.38	30.68	28.17	24.34	20.87	18.94	16.47	14.61	13.12	11.52
30	50.89	46.98	43.77	40.26	36.25	33.53	29.34	25.51	23.36	20.60	18.49	16.79	14.95
31	52.19	48.23	44.99	41.42	37.36	34.60	30.34	26.44	24.26	21.43	19.28	17.54	15.66
32	53.49	49.48	46.19	42.58	38.47	35.66	31.34	27.37	25.15	22.27	20.07	18.29	16.36
33	54.78	50.73	47.40	43.75	39.57	36.73	32.34	28.31	26.04	23.11	20.87	19.05	17.07
34	56.06	51.97	48.60	44.90	40.68	37.80	33.34	29.24	26.94	23.95	21.66	19.81	17.79
35	57.34	53.20	49.80	46.06	41.78	38.86	34.34	30.18	27.84	24.80	22.47	20.57	18.51
40	63.69	59.34	55.76	51.81	47.27	44.16	39.34	34.87	32.34	29.05	26.51	24.43	22.16
41	64.95	60.56	56.94	52.95	48.36	45.22	40.34	35.81	33.25	29.91	27.33	25.21	22.91
42	66.21	61.78	58.12	54.09	49.46	46.28	41.34	36.75	34.16	30.77	28.14	26.00	23.65
43	67.46	62.99	59.30	55.23	50.55	47.34	42.34	37.70	35.07	31.63	28.96	26.79	24.40
44	68.71	64.20	60.48	56.37	51.64	48.40	43.34	38.64	35.97	32.49	29.79	27.57	25.15
45	69.96	65.41	61.66	57.51	52.73	49.45	44.34	39.58	36.88	33.35	30.61	28.37	25.90
46	71.20	66.62	62.83	58.64	53.82	50.51	45.34	40.53	37.80	34.22	31.44	29.16	26.66
47	72.44	67.82	64.00	59.77	54.91	51.56	46.34	41.47	38.71	35.08	32.27	29.96	27.42
48	73.68	69.02	65.17	60.91	55.99	52.62	47.34	42.42	39.62	35.95	33.10	30.75	28.18
49	74.92	70.22	66.34	62.04	57.08	53.67	48.33	43.37	40.53	36.82	33.93	31.55	28.94

18.05 Introduction to Probability and Statistics
Spring 2014