Statistical Tables

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Three probability distributions will be used in this course. Different textbooks use different methods to construct these tables. To avoid confusion, I create the following distribution tables using the same methods as used in Navidi's textbook.

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Normal Table

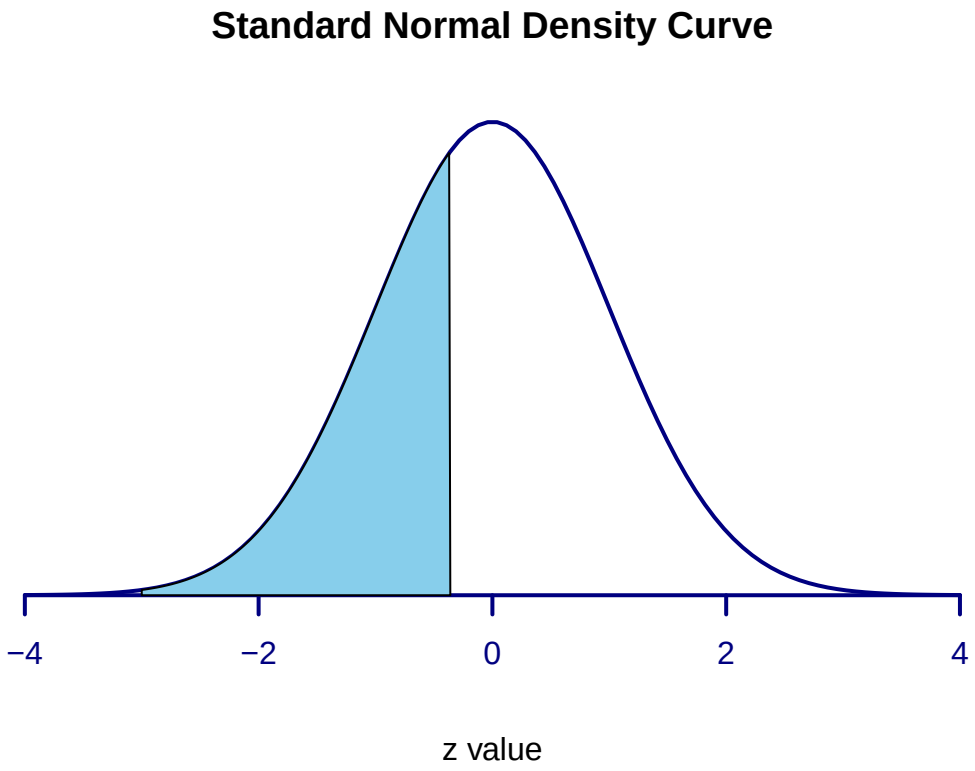


Table 1: Standard normal table based on the left-tail probability

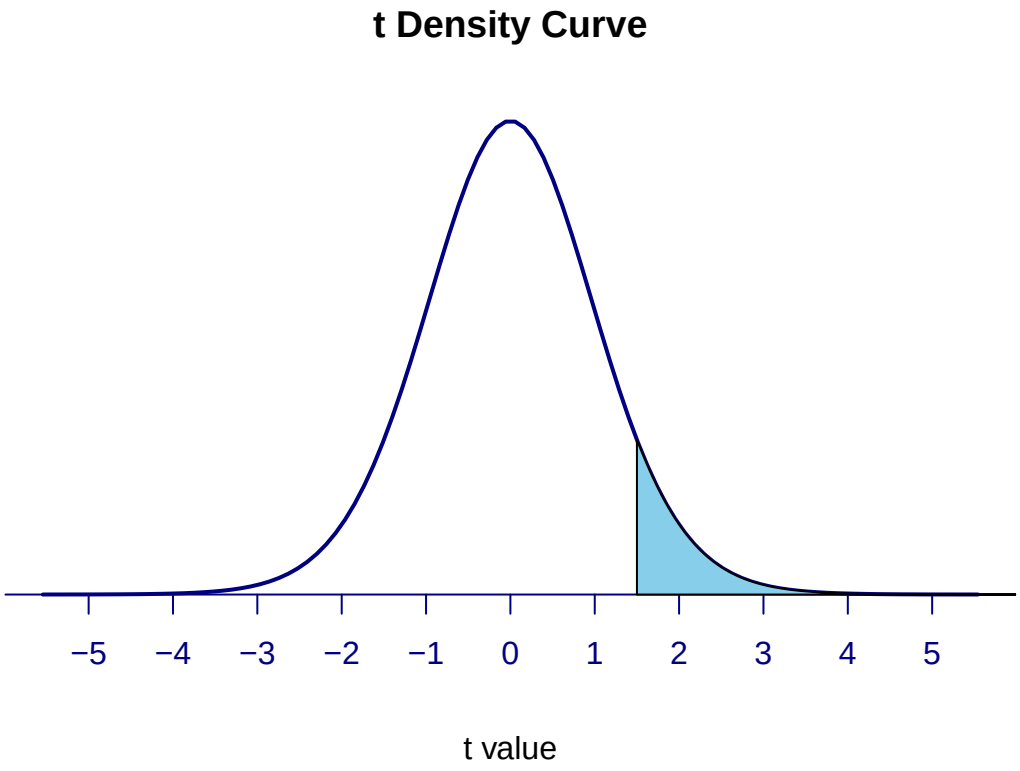
	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036

	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952

	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990

t-distribution Table

Unlike the normal table that contains probabilities in the main body of the table, t distribution givens the quantiles based on select degrees of freedom and **right tail** probabilities.



d.f	0.4000	0.2500	0.1000	0.0500	0.0250	0.0100	0.0050	0.0025	0.0010	0.0005
1	0.3249	1.0000	3.078	6.314	12.706	31.820	63.657	127.321	318.309	636.619
2	0.2887	0.8165	1.886	2.920	4.303	6.965	9.925	14.089	22.327	31.599
3	0.2767	0.7649	1.638	2.353	3.182	4.541	5.841	7.453	10.214	12.924
4	0.2707	0.7407	1.533	2.132	2.776	3.747	4.604	5.598	7.173	8.610
5	0.2672	0.7267	1.476	2.015	2.571	3.365	4.032	4.773	5.893	6.869
6	0.2648	0.7176	1.440	1.943	2.447	3.143	3.707	4.317	5.208	5.959
7	0.2632	0.7111	1.415	1.895	2.365	2.998	3.499	4.029	4.785	5.408
8	0.2619	0.7064	1.397	1.859	2.306	2.897	3.355	3.833	4.501	5.041
9	0.2610	0.7027	1.383	1.833	2.262	2.821	3.250	3.690	4.297	4.781
10	0.2602	0.6998	1.372	1.812	2.228	2.764	3.169	3.581	4.144	4.587
11	0.2596	0.6974	1.363	1.796	2.201	2.718	3.106	3.497	4.025	4.437

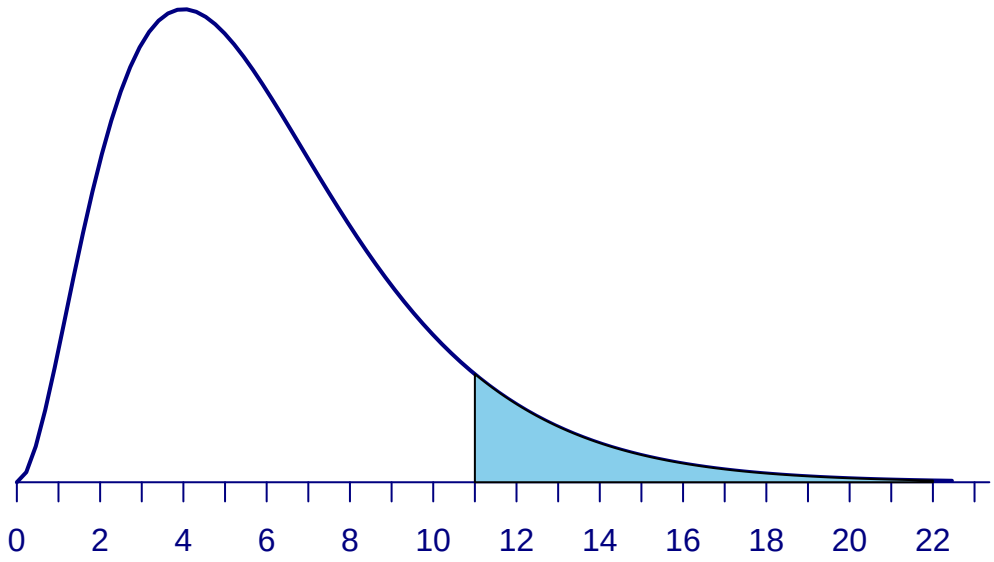
d.f	0.4000	0.2500	0.1000	0.0500	0.0250	0.0100	0.0050	0.0025	0.0010	0.0005
12	0.2590	0.6955	1.356	1.782	2.179	2.681	3.054	3.428	3.930	4.318
13	0.2586	0.6938	1.350	1.771	2.160	2.650	3.012	3.373	3.852	4.221
14	0.2582	0.6924	1.345	1.761	2.145	2.624	2.977	3.326	3.787	4.141
15	0.2579	0.6912	1.341	1.753	2.131	2.603	2.947	3.286	3.733	4.073
16	0.2576	0.6901	1.337	1.746	2.120	2.583	2.921	3.252	3.686	4.015
17	0.2573	0.6892	1.333	1.740	2.110	2.567	2.898	3.222	3.646	3.965
18	0.2571	0.6884	1.330	1.734	2.101	2.552	2.878	3.197	3.611	3.922
19	0.2569	0.6876	1.328	1.729	2.093	2.539	2.861	3.174	3.579	3.883
20	0.2567	0.6870	1.325	1.725	2.086	2.528	2.845	3.153	3.552	3.849
21	0.2566	0.6864	1.323	1.721	2.080	2.518	2.831	3.135	3.527	3.819
22	0.2564	0.6858	1.321	1.717	2.074	2.508	2.819	3.119	3.505	3.792
23	0.2563	0.6853	1.319	1.714	2.069	2.500	2.807	3.104	3.485	3.768
24	0.2562	0.6848	1.318	1.711	2.064	2.492	2.797	3.091	3.467	3.745
25	0.2561	0.6844	1.316	1.708	2.059	2.485	2.787	3.078	3.450	3.725
26	0.2560	0.6840	1.315	1.706	2.055	2.479	2.779	3.067	3.435	3.707
27	0.2559	0.6837	1.314	1.703	2.052	2.473	2.771	3.057	3.421	3.690
28	0.2558	0.6834	1.312	1.701	2.048	2.467	2.763	3.047	3.408	3.674
29	0.2557	0.6830	1.311	1.699	2.045	2.462	2.756	3.038	3.396	3.659
30	0.2556	0.6828	1.310	1.697	2.042	2.457	2.750	3.030	3.385	3.646
31	0.2555	0.6825	1.310	1.696	2.039	2.453	2.744	3.022	3.375	3.634
32	0.2555	0.6822	1.309	1.694	2.037	2.449	2.739	3.015	3.365	3.622
33	0.2554	0.6820	1.308	1.692	2.034	2.445	2.733	3.008	3.356	3.611
34	0.2553	0.6818	1.307	1.691	2.032	2.441	2.728	3.002	3.348	3.601
35	0.2553	0.6816	1.306	1.690	2.030	2.438	2.724	2.996	3.340	3.591
36	0.2552	0.6814	1.306	1.688	2.028	2.434	2.720	2.990	3.333	3.582
37	0.2552	0.6812	1.305	1.687	2.026	2.431	2.715	2.985	3.326	3.574
38	0.2551	0.6810	1.304	1.686	2.024	2.429	2.712	2.980	3.319	3.566
39	0.2551	0.6808	1.304	1.685	2.023	2.426	2.708	2.976	3.313	3.558
40	0.2550	0.6807	1.303	1.684	2.021	2.423	2.704	2.971	3.307	3.551
41	0.2550	0.6805	1.302	1.683	2.019	2.421	2.701	2.967	3.301	3.544
42	0.2550	0.6804	1.302	1.682	2.018	2.418	2.698	2.963	3.296	3.538
43	0.2549	0.6802	1.302	1.681	2.017	2.416	2.695	2.959	3.291	3.532
44	0.2549	0.6801	1.301	1.680	2.015	2.414	2.692	2.955	3.286	3.526
45	0.2549	0.6800	1.301	1.679	2.014	2.412	2.690	2.952	3.281	3.520
46	0.2548	0.6799	1.300	1.679	2.013	2.410	2.687	2.949	3.277	3.515
47	0.2548	0.6797	1.300	1.678	2.012	2.408	2.685	2.946	3.273	3.510
48	0.2548	0.6796	1.299	1.677	2.011	2.407	2.682	2.943	3.269	3.505
49	0.2547	0.6795	1.299	1.677	2.010	2.405	2.680	2.940	3.265	3.500
50	0.2547	0.6794	1.299	1.676	2.009	2.403	2.678	2.937	3.261	3.496
51	0.2547	0.6793	1.298	1.675	2.008	2.402	2.676	2.934	3.258	3.492
52	0.2546	0.6792	1.298	1.675	2.007	2.400	2.674	2.932	3.255	3.488
53	0.2546	0.6791	1.298	1.674	2.006	2.399	2.672	2.929	3.251	3.484
54	0.2546	0.6791	1.297	1.674	2.005	2.397	2.670	2.927	3.248	3.480
55	0.2546	0.6790	1.297	1.673	2.004	2.396	2.668	2.925	3.245	3.476
56	0.2546	0.6789	1.297	1.673	2.003	2.395	2.667	2.922	3.242	3.473
57	0.2545	0.6788	1.297	1.672	2.002	2.394	2.665	2.920	3.240	3.470
58	0.2545	0.6787	1.296	1.672	2.002	2.392	2.663	2.918	3.237	3.466
59	0.2545	0.6787	1.296	1.671	2.001	2.391	2.662	2.916	3.234	3.463
60	0.2545	0.6786	1.296	1.671	2.000	2.390	2.660	2.915	3.232	3.460
61	0.2545	0.6785	1.296	1.670	2.000	2.389	2.659	2.913	3.229	3.457
62	0.2544	0.6785	1.295	1.670	1.999	2.388	2.658	2.911	3.227	3.454
63	0.2544	0.6784	1.295	1.669	1.998	2.387	2.656	2.909	3.225	3.452

d.f	0.4000	0.2500	0.1000	0.0500	0.0250	0.0100	0.0050	0.0025	0.0010	0.0005
64	0.2544	0.6783	1.295	1.669	1.998	2.386	2.655	2.908	3.223	3.449
65	0.2544	0.6783	1.295	1.669	1.997	2.385	2.654	2.906	3.220	3.447
66	0.2544	0.6782	1.294	1.668	1.997	2.384	2.652	2.905	3.218	3.444
67	0.2544	0.6782	1.294	1.668	1.996	2.383	2.651	2.903	3.216	3.442
68	0.2543	0.6781	1.294	1.668	1.996	2.382	2.650	2.901	3.215	3.439
69	0.2543	0.6781	1.294	1.667	1.995	2.382	2.649	2.900	3.213	3.437
70	0.2543	0.6780	1.294	1.667	1.994	2.381	2.648	2.899	3.211	3.435
71	0.2543	0.6780	1.294	1.667	1.994	2.380	2.647	2.897	3.209	3.433
72	0.2543	0.6779	1.293	1.666	1.994	2.379	2.646	2.896	3.207	3.431
73	0.2543	0.6779	1.293	1.666	1.993	2.378	2.645	2.895	3.206	3.429
74	0.2543	0.6778	1.293	1.666	1.992	2.378	2.644	2.894	3.204	3.427
75	0.2542	0.6778	1.293	1.665	1.992	2.377	2.643	2.892	3.203	3.425
76	0.2542	0.6777	1.293	1.665	1.992	2.376	2.642	2.891	3.201	3.423
77	0.2542	0.6777	1.293	1.665	1.991	2.376	2.641	2.890	3.200	3.421
78	0.2542	0.6776	1.292	1.665	1.991	2.375	2.640	2.889	3.198	3.420
79	0.2542	0.6776	1.292	1.664	1.990	2.374	2.639	2.888	3.197	3.418
80	0.2542	0.6776	1.292	1.664	1.990	2.374	2.639	2.887	3.195	3.416
81	0.2542	0.6775	1.292	1.664	1.990	2.373	2.638	2.886	3.194	3.415
82	0.2542	0.6775	1.292	1.664	1.989	2.373	2.637	2.885	3.193	3.413
83	0.2542	0.6775	1.292	1.663	1.989	2.372	2.636	2.884	3.191	3.412
84	0.2542	0.6774	1.292	1.663	1.989	2.372	2.636	2.883	3.190	3.410
85	0.2541	0.6774	1.292	1.663	1.988	2.371	2.635	2.882	3.189	3.409
86	0.2541	0.6774	1.292	1.663	1.988	2.370	2.634	2.881	3.188	3.407
87	0.2541	0.6773	1.291	1.663	1.988	2.370	2.634	2.880	3.187	3.406
88	0.2541	0.6773	1.291	1.662	1.987	2.369	2.633	2.880	3.185	3.405
89	0.2541	0.6773	1.291	1.662	1.987	2.369	2.632	2.879	3.184	3.403
90	0.2541	0.6772	1.291	1.662	1.987	2.369	2.632	2.878	3.183	3.402
91	0.2541	0.6772	1.291	1.662	1.986	2.368	2.631	2.877	3.182	3.401
92	0.2541	0.6772	1.291	1.662	1.986	2.368	2.630	2.876	3.181	3.399
93	0.2541	0.6771	1.291	1.661	1.986	2.367	2.630	2.876	3.180	3.398
94	0.2541	0.6771	1.291	1.661	1.986	2.367	2.629	2.875	3.179	3.397
95	0.2541	0.6771	1.290	1.661	1.985	2.366	2.629	2.874	3.178	3.396
96	0.2541	0.6771	1.290	1.661	1.985	2.366	2.628	2.873	3.177	3.395
97	0.2540	0.6770	1.290	1.661	1.985	2.365	2.627	2.873	3.176	3.394
98	0.2540	0.6770	1.290	1.661	1.984	2.365	2.627	2.872	3.175	3.393
99	0.2540	0.6770	1.290	1.660	1.984	2.365	2.626	2.871	3.175	3.392
100	0.2540	0.6770	1.290	1.660	1.984	2.364	2.626	2.871	3.174	3.390

χ^2 Distribution Table

This χ^2 distribution table will be used for the hypothesis of independence test and the goodness of fit in last part of this course. The structure of this χ^2 is similar to that of the t-table. The main body has quantiles calculated based on various degrees of freedom and the right tail probability as used in Navidi's textbook.

Chisquare Density Curve



Chisqaure value

d.f	0.9950	0.9900	0.9750	0.9500	0.9000	0.1000	0.0500	0.0250	0.0100	0.0050
1	0.0000	0.0002	0.0010	0.0039	0.0158	2.705	3.841	5.024	6.635	7.879
2	0.0100	0.0201	0.0506	0.1026	0.2107	4.605	5.992	7.378	9.210	10.597
3	0.0717	0.1148	0.2158	0.3518	0.5844	6.251	7.815	9.348	11.345	12.838
4	0.2070	0.2971	0.4844	0.7107	1.0636	7.779	9.488	11.143	13.277	14.860
5	0.4117	0.5543	0.8312	1.1455	1.6103	9.236	11.070	12.832	15.086	16.750
6	0.6757	0.8721	1.2373	1.6354	2.2041	10.645	12.592	14.449	16.812	18.548
7	0.9893	1.2390	1.6899	2.1673	2.8331	12.017	14.067	16.013	18.475	20.278
8	1.3444	1.6465	2.1797	2.7326	3.4895	13.362	15.507	17.535	20.090	21.955
9	1.7349	2.0879	2.7004	3.3251	4.1682	14.684	16.919	19.023	21.666	23.589
10	2.1559	2.5582	3.2470	3.9403	4.8652	15.987	18.307	20.483	23.209	25.188
11	2.6032	3.0535	3.8157	4.5748	5.5778	17.275	19.675	21.920	24.725	26.757
12	3.0738	3.5706	4.4038	5.2260	6.3038	18.549	21.026	23.337	26.217	28.299
13	3.5650	4.1069	5.0088	5.8919	7.0415	19.812	22.362	24.736	27.688	29.820
14	4.0747	4.6604	5.6287	6.5706	7.7895	21.064	23.685	26.119	29.141	31.319
15	4.6009	5.2293	6.2621	7.2609	8.5468	22.307	24.996	27.488	30.578	32.801
16	5.1422	5.8122	6.9077	7.9616	9.3122	23.542	26.296	28.845	32.000	34.267
17	5.6972	6.4078	7.5642	8.6718	10.0852	24.769	27.587	30.191	33.409	35.718
18	6.2648	7.0149	8.2307	9.3905	10.8649	25.989	28.869	31.526	34.805	37.157
19	6.8440	7.6327	8.9065	10.1170	11.6509	27.204	30.143	32.852	36.191	38.582
20	7.4338	8.2604	9.5908	10.8508	12.4426	28.412	31.410	34.170	37.566	39.997
21	8.0337	8.8972	10.2829	11.5913	13.2396	29.615	32.671	35.479	38.932	41.401
22	8.6427	9.5425	10.9823	12.3380	14.0415	30.813	33.924	36.781	40.289	42.796
23	9.2604	10.1957	11.6886	13.0905	14.8480	32.007	35.172	38.076	41.638	44.181
24	9.8862	10.8564	12.4012	13.8484	15.6587	33.196	36.415	39.364	42.980	45.559

d.f	0.9950	0.9900	0.9750	0.9500	0.9000	0.1000	0.0500	0.0250	0.0100	0.0050
25	10.5197	11.5240	13.1197	14.6114	16.4734	34.382	37.653	40.647	44.314	46.928
26	11.1602	12.1981	13.8439	15.3792	17.2919	35.563	38.885	41.923	45.642	48.290
27	11.8076	12.8785	14.5734	16.1514	18.1139	36.741	40.113	43.194	46.963	49.645
28	12.4613	13.5647	15.3079	16.9279	18.9392	37.916	41.337	44.461	48.278	50.993
29	13.1211	14.2565	16.0471	17.7084	19.7677	39.087	42.557	45.722	49.588	52.336
30	13.7867	14.9535	16.7908	18.4927	20.5992	40.256	43.773	46.979	50.892	53.672
31	14.4578	15.6555	17.5387	19.2806	21.4336	41.422	44.985	48.232	52.191	55.003
32	15.1340	16.3622	18.2908	20.0719	22.2706	42.585	46.194	49.480	53.486	56.328
33	15.8153	17.0735	19.0467	20.8665	23.1102	43.745	47.400	50.725	54.776	57.648
34	16.5013	17.7891	19.8063	21.6643	23.9523	44.903	48.602	51.966	56.061	58.964
35	17.1918	18.5089	20.5694	22.4650	24.7967	46.059	49.802	53.203	57.342	60.275
36	17.8867	19.2327	21.3359	23.2686	25.6433	47.212	50.998	54.437	58.619	61.581
37	18.5858	19.9602	22.1056	24.0749	26.4921	48.363	52.192	55.668	59.892	62.883
38	19.2889	20.6914	22.8785	24.8839	27.3430	49.513	53.383	56.895	61.162	64.181
39	19.9959	21.4262	23.6543	25.6954	28.1958	50.660	54.572	58.120	62.428	65.476
40	20.7065	22.1643	24.4330	26.5093	29.0505	51.805	55.758	59.342	63.691	66.766
41	21.4208	22.9056	25.2145	27.3256	29.9071	52.949	56.942	60.561	64.950	68.053
42	22.1385	23.6501	25.9987	28.1440	30.7654	54.090	58.124	61.777	66.206	69.336
43	22.8595	24.3976	26.7854	28.9647	31.6255	55.230	59.303	62.990	67.459	70.616
44	23.5837	25.1480	27.5746	29.7875	32.4871	56.368	60.481	64.201	68.710	71.893
45	24.3110	25.9013	28.3662	30.6123	33.3504	57.505	61.656	65.410	69.957	73.166
46	25.0413	26.6572	29.1601	31.4390	34.2152	58.641	62.830	66.617	71.201	74.436
47	25.7746	27.4158	29.9562	32.2676	35.0814	59.774	64.001	67.821	72.443	75.704
48	26.5106	28.1770	30.7545	33.0981	35.9491	60.907	65.171	69.023	73.683	76.969
49	27.2493	28.9406	31.5549	33.9303	36.8182	62.038	66.339	70.222	74.919	78.231
50	27.9907	29.7067	32.3574	34.7643	37.6886	63.167	67.505	71.420	76.154	79.490
51	28.7347	30.4750	33.1618	35.5999	38.5604	64.295	68.669	72.616	77.386	80.747
52	29.4812	31.2457	33.9681	36.4371	39.4334	65.422	69.832	73.810	78.616	82.001
53	30.2300	32.0185	34.7763	37.2759	40.3076	66.548	70.993	75.002	79.843	83.253
54	30.9813	32.7934	35.5863	38.1162	41.1830	67.673	72.153	76.192	81.069	84.502
55	31.7348	33.5705	36.3981	38.9580	42.0596	68.796	73.311	77.380	82.292	85.749
56	32.4905	34.3495	37.2116	39.8013	42.9373	69.918	74.468	78.567	83.513	86.994
57	33.2484	35.1305	38.0267	40.6459	43.8161	71.040	75.624	79.752	84.733	88.236
58	34.0084	35.9135	38.8435	41.4920	44.6960	72.160	76.778	80.936	85.950	89.477
59	34.7704	36.6982	39.6619	42.3393	45.5770	73.279	77.930	82.117	87.166	90.715
60	35.5345	37.4849	40.4817	43.1880	46.4589	74.397	79.082	83.298	88.379	91.952
61	36.3005	38.2732	41.3031	44.0379	47.3418	75.514	80.232	84.476	89.591	93.186
62	37.0684	39.0633	42.1260	44.8890	48.2257	76.630	81.381	85.654	90.802	94.419
63	37.8382	39.8551	42.9503	45.7414	49.1105	77.745	82.529	86.830	92.010	95.649
64	38.6098	40.6486	43.7760	46.5949	49.9963	78.860	83.675	88.004	93.217	96.878
65	39.3831	41.4436	44.6030	47.4496	50.8829	79.973	84.821	89.177	94.422	98.105
66	40.1582	42.2402	45.4314	48.3054	51.7705	81.085	85.965	90.349	95.626	99.330
67	40.9350	43.0384	46.2610	49.1623	52.6588	82.197	87.108	91.519	96.828	100.554
68	41.7135	43.8380	47.0920	50.0202	53.5481	83.308	88.250	92.689	98.028	101.776
69	42.4935	44.6392	47.9242	50.8792	54.4381	84.418	89.391	93.856	99.228	102.996
70	43.2752	45.4417	48.7576	51.7393	55.3289	85.527	90.531	95.023	100.425	104.215
71	44.0584	46.2457	49.5922	52.6003	56.2206	86.635	91.670	96.189	101.621	105.432
72	44.8431	47.0510	50.4279	53.4623	57.1129	87.743	92.808	97.353	102.816	106.648
73	45.6293	47.8577	51.2648	54.3253	58.0061	88.850	93.945	98.516	104.010	107.862
74	46.4170	48.6657	52.1028	55.1892	58.9000	89.956	95.082	99.678	105.202	109.074
75	47.2060	49.4750	52.9419	56.0541	59.7946	91.061	96.217	100.839	106.393	110.286
76	47.9965	50.2856	53.7821	56.9198	60.6899	92.166	97.351	101.999	107.582	111.495

d.f	0.9950	0.9900	0.9750	0.9500	0.9000	0.1000	0.0500	0.0250	0.0100	0.0050
77	48.7884	51.0974	54.6234	57.7864	61.5858	93.270	98.484	103.158	108.771	112.704
78	49.5816	51.9104	55.4656	58.6539	62.4825	94.374	99.617	104.316	109.958	113.911
79	50.3761	52.7247	56.3089	59.5223	63.3799	95.476	100.749	105.473	111.144	115.117
80	51.1719	53.5401	57.1532	60.3915	64.2778	96.578	101.879	106.629	112.329	116.321
81	51.9690	54.3566	57.9984	61.2615	65.1765	97.680	103.010	107.783	113.512	117.524
82	52.7674	55.1743	58.8446	62.1323	66.0757	98.780	104.139	108.937	114.695	118.726
83	53.5669	55.9931	59.6918	63.0039	66.9756	99.880	105.267	110.090	115.876	119.927
84	54.3677	56.8130	60.5398	63.8763	67.8761	100.980	106.395	111.242	117.056	121.126
85	55.1696	57.6339	61.3888	64.7494	68.7772	102.079	107.522	112.393	118.236	122.325
86	55.9727	58.4559	62.2386	65.6233	69.6788	103.177	108.648	113.544	119.414	123.522
87	56.7769	59.2790	63.0894	66.4979	70.5810	104.275	109.773	114.693	120.591	124.718
88	57.5823	60.1030	63.9409	67.3732	71.4838	105.372	110.898	115.841	121.767	125.912
89	58.3888	60.9281	64.7934	68.2493	72.3872	106.469	112.022	116.989	122.942	127.106
90	59.1963	61.7541	65.6466	69.1260	73.2911	107.565	113.145	118.136	124.116	128.299
91	60.0049	62.5811	66.5007	70.0035	74.1955	108.661	114.268	119.282	125.290	129.490
92	60.8146	63.4090	67.3556	70.8816	75.1005	109.756	115.390	120.427	126.462	130.681
93	61.6253	64.2379	68.2112	71.7603	76.0060	110.850	116.511	121.572	127.633	131.871
94	62.4370	65.0677	69.0677	72.6398	76.9119	111.944	117.632	122.715	128.803	133.059
95	63.2496	65.8984	69.9249	73.5198	77.8184	113.038	118.752	123.858	129.973	134.246
96	64.0633	66.7299	70.7828	74.4005	78.7254	114.131	119.871	125.000	131.141	135.433
97	64.8780	67.5624	71.6415	75.2819	79.6329	115.223	120.990	126.141	132.309	136.619
98	65.6936	68.3957	72.5009	76.1638	80.5408	116.315	122.108	127.282	133.476	137.803
99	66.5101	69.2299	73.3611	77.0463	81.4493	117.407	123.225	128.422	134.642	138.987
100	67.3276	70.0649	74.2219	77.9295	82.3581	118.498	124.342	129.561	135.807	140.169