Chapter 10

Tables

10.1 Standard Normal Distribution

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-2.9	0.0019	0.0018	0.0017	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
-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	0.0126	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	0.0238	0.0233
-1.8	0.0359	0.0352	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0300	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	0.0570	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0722	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	0.2297	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

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
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	0.7703	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
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	0.0079	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
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998
3.5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998

10.2 Quantiles of Student t Distribution

	p						
df	.80	.90	.95	.975	.99	.995	.9995
1	1.376	3.078	6.314	12.706	31.821	63.657	636.619
2	1.061	1.886	2.920	4.303	6.965	9.925	31.599
3	.978	1.638	2.353	3.182	4.541	5.841	12.924
4	.941	1.533	2.132	2.776	3.747	4.604	8.610
5	.920	1.476	2.015	2.571	3.365	4.032	6.869
6	.906	1.440	1.943	2.447	3.143	3.707	5.959
7	.896	1.415	1.895	2.365	2.998	3.499	5.408
8	.889	1.397	1.860	2.306	2.896	3.355	5.041
9	.883	1.383	1.833	2.262	2.821	3.250	4.781
10	.879	1.372	1.812	2.228	2.764	3.169	4.587
11	.876	1.363	1.796	2.201	2.718	3.106	4.437
12	.873	1.356	1.782	2.179	2.681	3.055	4.318
13	.870	1.350	1.771	2.160	2.650	3.012	4.221
14	.868	1.345	1.761	2.145	2.624	2.977	4.140
15	.866	1.341	1.753	2.131	2.602	2.947	4.073
16	.865	1.337	1.746	2.120	2.583	2.921	4.015
17	.863	1.333	1.740	2.110	2.567	2.898	3.965
18	.862	1.330	1.734	2.101	2.552	2.878	3.922
19	.861	1.328	1.729	2.093	2.539	2.861	3.883
20	.860	1.325	1.725	2.086	2.528	2.845	3.850
21	.859	1.323	1.721	2.080	2.518	2.831	3.819
22	.858	1.321	1.717	2.074	2.508	2.819	3.792
23	.858	1.319	1.714	2.069	2.500	2.807	3.768
24	.857	1.318	1.711	2.064	2.492	2.797	3.745
25	.856	1.316	1.708	2.060	2.485	2.787	3.725
26	.856	1.315	1.706	2.056	2.479	2.779	3.707
27	.855	1.314	1.703	2.052	2.473	2.771	3.690
28	.855	1.313	1.701	2.048	2.467	2.763	3.674
29	.854	1.311	1.699	2.045	2.462	2.756	3.659
30	.854	1.310	1.697	2.042	2.457	2.750	3.646
40	.851	1.303	1.648	2.021	2.423	2.704	3.551
50	.849	1.299	1.676	2.009	2.403	2.678	3.496
60	.848	1.296	1.671	2.000	2.390	2.660	3.460
100	.845	1.290	1.660	1.984	2.364	2.626	3.390
∞	0.842	1.282	1.645	1.960	2.327	2.576	3.292

10.3 Quantiles of χ^2 Distribution

	p								
df	.01	.025	.05	.10	.50	.90	.95	.975	.99
4	0.297	0.484	0.711	1.064	3.357	7.779	9.488	11.143	13.277
5	0.554	0.831	1.145	1.610	4.351	9.236	11.070	12.833	15.086
6	0.872	1.237	1.635	2.204	5.348	10.645	12.592	14.449	16.812
7	1.239	1.690	2.167	2.833	6.346	12.017	14.067	16.013	18.475
8	1.646	2.180	2.733	3.490	7.344	13.362	15.507	17.535	20.090
9	2.088	2.700	3.325	4.168	8.343	14.684	16.919	19.023	21.666
10	2.558	3.247	3.940	4.865	9.342	15.987	18.307	20.483	23.209
11	3.053	3.816	4.575	5.578	10.341	17.275	19.675	21.920	24.725
12	3.571	4.404	5.226	6.304	11.340	18.549	21.026	23.337	26.217
13	4.107	5.009	5.892	7.042	12.340	19.812	22.362	24.736	27.688
14	4.660	5.629	6.571	7.790	13.339	21.064	23.685	26.119	29.141
15	5.229	6.262	7.261	8.547	14.339	22.307	24.996	27.488	30.578
16	5.812	6.908	7.962	9.312	15.338	23.542	26.296	28.845	32.000
17	6.408	7.546	8.672	10.085	16.338	24.769	27.587	30.191	33.409
18	7.015	8.231	9.390	10.865	17.338	25.989	28.869	31.526	34.805
19	7.633	8.907	10.117	11.651	18.338	27.204	30.144	32.852	36.191
20	8.260	9.591	10.851	12.443	19.337	28.412	31.410	34.170	37.566
21	8.897	10.283	11.591	13.240	20.337	29.615	32.671	35.479	38.932
22	9.542	10.982	12.338	14.041	21.337	30.813	33.924	36.781	40.289
23	10.196	11.689	13.091	14.848	22.337	32.007	35.172	38.076	41.638
24	10.856	12.401	13.848	15.659	23.337	33.196	36.415	39.364	42.980
25	11.524	13.120	14.611	16.473	24.337	34.382	37.652	40.646	44.314
26	12.198	13.844	15.379	17.292	25.336	35.563	38.885	41.923	45.642
27	12.879	14.573	16.151	18.114	26.336	36.741	40.113	43.195	46.963
28	13.565	15.308	16.928	18.939	27.336	37.916	41.337	44.461	48.278
29	14.256	16.047	17.708	19.768	28.336	39.087	42.557	45.722	49.588
30	14.953	16.791	18.493	20.599	29.336	40.256	43.773	46.979	50.892
40	22.164	24.433	26.509	29.051	39.335	51.805	55.758	59.342	63.691
50	29.707	32.357	34.764	37.689	49.335	63.167	67.505	71.420	76.154
60	37.485	40.482	43.188	46.459	59.335	74.397	79.082	83.298	88.379

10.4 Standard Normal Quantiles

p	$1-p$	quantile
0.750	0.250	0.67449
0.800	0.200	0.84162
0.850	0.150	1.03643
0.900	0.100	1.28155
0.950	0.050	1.64485
0.975	0.025	1.95996
0.980	0.020	2.05375
0.990	0.010	2.32635
0.995	0.005	2.57583
0.999	0.001	3.09024