Statistical Tables

Table 1: Binomial Distribution Table

Percentage point $P(X \leq r)$ for binomial distribution with parameters n and p.
Blank entries are 0.0000 or 1.0000 as appropriate.

p		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
n	r									
2	0	0.8100	0.6400	0.4900	0.3600	0.2500	0.1600	0.0900	0.0400	0.0100
	1	0.9900	0.9600	0.9100	0.8400	0.7500	0.6400	0.5100	0.3600	0.1900
	2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	0	0.7290	0.5120	0.3430	0.2160	0.1250	0.0640	0.0270	0.0080	0.0010
	1	0.9720	0.8960	0.7840	0.6480	0.5000	0.3520	0.2160	0.1040	0.0280
	2	0.9990	0.9920	0.9730	0.9360	0.8750	0.7840	0.6570	0.4880	0.2710
	3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	0	0.6561	0.4096	0.2401	0.1296	0.0625	0.0256	0.0081	0.0016	0.0001
	1	0.9477	0.8192	0.6517	0.4752	0.3125	0.1792	0.0837	0.0272	0.0037
	2	0.9963	0.9728	0.9163	0.8208	0.6875	0.5248	0.3483	0.1808	0.0523
	3	0.9999	0.9984	0.9919	0.9744	0.9375	0.8704	0.7599	0.5904	0.3439
	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0	0.5905	0.3277	0.1681	0.0778	0.0313	0.0102	0.0024	0.0003	0.0000
	1	0.9185	0.7373	0.5282	0.3370	0.1875	0.0870	0.0308	0.0067	0.0005
	2	0.9914	0.9421	0.8369	0.6826	0.5000	0.3174	0.1631	0.0579	0.0086
	3	0.9995	0.9933	0.9692	0.9130	0.8125	0.6630	0.4718	0.2627	0.0815
	4	1.0000	0.9997	0.9976	0.9898	0.9688	0.9222	0.8319	0.6723	0.4095
	5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	0	0.5314	0.2621	0.1176	0.0467	0.0156	0.0041	0.0007	0.0001	0.0000
	1	0.8857	0.6554	0.4202	0.2333	0.1094	0.0410	0.0109	0.0016	0.0001
	2	0.9842	0.9011	0.7443	0.5443	0.3438	0.1792	0.0705	0.0170	0.0013
	3	0.9987	0.9830	0.9295	0.8208	0.6563	0.4557	0.2557	0.0989	0.0159
	4	0.9999	0.9984	0.9891	0.9590	0.8906	0.7667	0.5798	0.3446	0.1143
	5	1.0000	0.9999	0.9993	0.9959	0.9844	0.9533	0.8824	0.7379	0.4686
	6		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	0	0.4783	0.2097	0.0824	0.0280	0.0078	0.0016	0.0002	0.0000	0.0000
	1	0.8503	0.5767	0.3294	0.1586	0.0625	0.0188	0.0038	0.0004	0.0000
	2	0.9743	0.8520	0.6471	0.4199	0.2266	0.0963	0.0288	0.0047	0.0002
	3	0.9973	0.9667	0.8740	0.7102	0.5000	0.2898	0.1260	0.0333	0.0027
	4	0.9998	0.9953	0.9712	0.9037	0.7734	0.5801	0.3529	0.1480	0.0257
	5	1.0000	0.9996	0.9962	0.9812	0.9375	0.8414	0.6706	0.4233	0.1497
	6		1.0000	0.9998	0.9984	0.9922	0.9720	0.9176	0.7903	0.5217
	7			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Table 1: Binomial Distribution Table (cont.)

Percentage point $P(X \leq r)$ for binomial distribution with parameters n and p.
Blank entries are 0.0000 or 1.0000 as appropriate.

p		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
n	r									
8	0	0.4305	0.1678	0.0576	0.0168	0.0039	0.0007	0.0001	0.0000	0.0000
	1	0.8131	0.5033	0.2553	0.1064	0.0352	0.0085	0.0013	0.0001	0.0000
	2	0.9619	0.7969	0.5518	0.3154	0.1445	0.0498	0.0113	0.0012	0.0000
	3	0.9950	0.9437	0.8059	0.5941	0.3633	0.1737	0.0580	0.0104	0.0004
	4	0.9996	0.9896	0.9420	0.8263	0.6367	0.4059	0.1941	0.0563	0.0050
	5	1.0000	0.9988	0.9887	0.9502	0.8555	0.6846	0.4482	0.2031	0.0381
	6		0.9999	0.9987	0.9915	0.9648	0.8936	0.7447	0.4967	0.1869
	7		1.0000	0.9999	0.9993	0.9961	0.9832	0.9424	0.8322	0.5695
	8			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	0	0.3874	0.1342	0.0404	0.0101	0.0020	0.0003	0.0000	0.0000	0.0000
	1	0.7748	0.4362	0.1960	0.0705	0.0195	0.0038	0.0004	0.0000	0.0000
	2	0.9470	0.7382	0.4628	0.2318	0.0898	0.0250	0.0043	0.0003	0.0000
	3	0.9917	0.9144	0.7297	0.4826	0.2539	0.0994	0.0253	0.0031	0.0001
	4	0.9991	0.9804	0.9012	0.7334	0.5000	0.2666	0.0988	0.0196	0.0009
	5	0.9999	0.9969	0.9747	0.9006	0.7461	0.5174	0.2703	0.0856	0.0083
	6	1.0000	0.9997	0.9957	0.9750	0.9102	0.7682	0.5372	0.2618	0.0530
	7		1.0000	0.9996	0.9962	0.9805	0.9295	0.8040	0.5638	0.2252
	8			1.0000	0.9997	0.9980	0.9899	0.9596	0.8658	0.6126
	9				1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	0	0.3487	0.1074	0.0282	0.0060	0.0010	0.0001	0.0000	0.0000	0.0000
	1	0.7361	0.3758	0.1493	0.0464	0.0107	0.0017	0.0001	0.0000	0.0000
	2	0.9298	0.6778	0.3828	0.1673	0.0547	0.0123	0.0016	0.0001	0.0000
	3	0.9872	0.8791	0.6496	0.3823	0.1719	0.0548	0.0106	0.0009	0.0000
	4	0.9984	0.9672	0.8497	0.6331	0.3770	0.1662	0.0473	0.0064	0.0001
	5	0.9999	0.9936	0.9527	0.8338	0.6230	0.3669	0.1503	0.0328	0.0016
	6	1.0000	0.9991	0.9894	0.9452	0.8281	0.6177	0.3504	0.1209	0.0128
	7		0.9999	0.9984	0.9877	0.9453	0.8327	0.6172	0.3222	0.0702
	8		1.0000	0.9999	0.9983	0.9893	0.9536	0.8507	0.6242	0.2639
	9			1.0000	0.9999	0.9990	0.9940	0.9718	0.8926	0.6513
	10				1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Table 1: Binomial Distribution Table (cont.)

Percentage point $P(X \leq r)$ for binomial distribution with parameters n and p.
Blank entries are 0.0000 or 1.0000 as appropriate.

p		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
n	r									
11	0	0.3138	0.0859	0.0198	0.0036	0.0005	0.0000	0.0000	0.0000	0.0000
	1	0.6974	0.3221	0.1130	0.0302	0.0059	0.0007	0.0000	0.0000	0.0000
	2	0.9104	0.6174	0.3127	0.1189	0.0327	0.0059	0.0006	0.0000	0.0000
	3	0.9815	0.8389	0.5696	0.2963	0.1133	0.0293	0.0043	0.0002	0.0000
	4	0.9972	0.9496	0.7897	0.5328	0.2744	0.0994	0.0216	0.0020	0.0000
	5	0.9997	0.9883	0.9218	0.7535	0.5000	0.2465	0.0782	0.0117	0.0003
	6	1.0000	0.9980	0.9784	0.9006	0.7256	0.4672	0.2103	0.0504	0.0028
	7		0.9998	0.9957	0.9707	0.8867	0.7037	0.4304	0.1611	0.0185
	8		1.0000	0.9994	0.9941	0.9673	0.8811	0.6873	0.3826	0.0896
	9			1.0000	0.9993	0.9941	0.9698	0.8870	0.6779	0.3026
	10				1.0000	0.9995	0.9964	0.9802	0.9141	0.6862
	11					1.0000	1.0000	1.0000	1.0000	1.0000
12	0	0.2824	0.0687	0.0138	0.0022	0.0002	0.0000	0.0000	0.0000	0.0000
	1	0.6590	0.2749	0.0850	0.0196	0.0032	0.0003	0.0000	0.0000	0.0000
	2	0.8891	0.5583	0.2528	0.0834	0.0193	0.0028	0.0002	0.0000	0.0000
	3	0.9744	0.7946	0.4925	0.2253	0.0730	0.0153	0.0017	0.0001	0.0000
	4	0.9957	0.9274	0.7237	0.4382	0.1938	0.0573	0.0095	0.0006	0.0000
	5	0.9995	0.9806	0.8822	0.6652	0.3872	0.1582	0.0386	0.0039	0.0001
	6	0.9999	0.9961	0.9614	0.8418	0.6128	0.3348	0.1178	0.0194	0.0005
	7	1.0000	0.9994	0.9905	0.9427	0.8062	0.5618	0.2763	0.0726	0.0043
	8		0.9999	0.9983	0.9847	0.9270	0.7747	0.5075	0.2054	0.0256
	9		1.0000	0.9998	0.9972	0.9807	0.9166	0.7472	0.4417	0.1109
	10			1.0000	0.9997	0.9968	0.9804	0.9150	0.7251	0.3410
	11				1.0000	0.9998	0.9978	0.9862	0.9313	0.7176
	12					1.0000	1.0000	1.0000	1.0000	1.0000

Table 2: Standard Normal Distribution Table

Lower tail probability $P(Z < z)$ where Z follows a standard normal distribution.

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	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
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
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
3.6	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.7	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.8	0.99993	0.99993	0.99993	0.99994	0.99994	0.99994	0.99994	0.99995	0.99995	0.99995
3.9	0.99995	0.99995	0.99996	0.99996	0.99996	0.99996	0.99996	0.99996	0.99997	0.99997
4.0	0.99997									

Table 3: Student's t Distribution Table

Percentage point $P(t_\nu > t) = p$ for Student's t-distribution with ν degree of freedom. 

p	0.25	0.1	0.05	0.025	0.01	0.005	0.001
ν							
1	1.000	3.078	6.314	12.706	31.821	63.656	318.289
2	0.816	1.886	2.920	4.303	6.965	9.925	22.328
3	0.765	1.638	2.353	3.182	4.541	5.841	10.214
4	0.741	1.533	2.132	2.776	3.747	4.604	7.173
5	0.727	1.476	2.015	2.571	3.365	4.032	5.894
6	0.718	1.440	1.943	2.447	3.143	3.707	5.208
7	0.711	1.415	1.895	2.365	2.998	3.499	4.785
8	0.706	1.397	1.860	2.306	2.896	3.355	4.501
9	0.703	1.383	1.833	2.262	2.821	3.250	4.297
10	0.700	1.372	1.812	2.228	2.764	3.169	4.144
11	0.697	1.363	1.796	2.201	2.718	3.106	4.025
12	0.695	1.356	1.782	2.179	2.681	3.055	3.930
13	0.694	1.350	1.771	2.160	2.650	3.012	3.852
14	0.692	1.345	1.761	2.145	2.624	2.977	3.787
15	0.691	1.341	1.753	2.131	2.602	2.947	3.733
16	0.690	1.337	1.746	2.120	2.583	2.921	3.686
17	0.689	1.333	1.740	2.110	2.567	2.898	3.646
18	0.688	1.330	1.734	2.101	2.552	2.878	3.610
19	0.688	1.328	1.729	2.093	2.539	2.861	3.579
20	0.687	1.325	1.725	2.086	2.528	2.845	3.552
21	0.686	1.323	1.721	2.080	2.518	2.831	3.527
22	0.686	1.321	1.717	2.074	2.508	2.819	3.505
23	0.685	1.319	1.714	2.069	2.500	2.807	3.485
24	0.685	1.318	1.711	2.064	2.492	2.797	3.467
25	0.684	1.316	1.708	2.060	2.485	2.787	3.450
26	0.684	1.315	1.706	2.056	2.479	2.779	3.435
27	0.684	1.314	1.703	2.052	2.473	2.771	3.421
28	0.683	1.313	1.701	2.048	2.467	2.763	3.408
29	0.683	1.311	1.699	2.045	2.462	2.756	3.396
30	0.683	1.310	1.697	2.042	2.457	2.750	3.385
35	0.682	1.306	1.690	2.030	2.438	2.724	3.340
40	0.681	1.303	1.684	2.021	2.423	2.704	3.307
45	0.680	1.301	1.679	2.014	2.412	2.690	3.281
50	0.679	1.299	1.676	2.009	2.403	2.678	3.261
120	0.677	1.289	1.658	1.980	2.358	2.617	3.160
∞	0.674	1.282	1.645	1.960	2.326	2.576	3.090

Table 4: Chi-square Distribution Table

Percentage point $P(\chi^2_\nu > x) = p$ for χ^2 distribution with ν degree of freedom.

p	0.99	0.975	0.95	0.9	0.1	0.05	0.025	0.01
ν								
1	0.000	0.001	0.004	0.016	2.706	3.841	5.024	6.635
2	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210
3	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345
4	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277
5	0.554	0.831	1.145	1.610	9.236	11.070	12.832	15.086
6	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812
7	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475
8	1.647	2.180	2.733	3.490	13.362	15.507	17.535	20.090
9	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666
10	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209
11	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725
12	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217
13	4.107	5.009	5.892	7.041	19.812	22.362	24.736	27.688
14	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141
15	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578
16	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000
17	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409
18	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805
19	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191
20	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566
21	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932
22	9.542	10.982	12.338	14.041	30.813	33.924	36.781	40.289
23	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638
24	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980
25	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314
26	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642
27	12.878	14.573	16.151	18.114	36.741	40.113	43.195	46.963
28	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278
29	14.256	16.047	17.708	19.768	39.087	42.557	45.722	49.588
30	14.953	16.791	18.493	20.599	40.256	43.773	46.979	50.892
40	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691
50	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154
60	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379
70	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425
80	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329
90	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116
100	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807

Table 5: F Distribution Table

Percentage point $P(F_{\nu_1,\nu_2} \leq x) = p$ for the F-distribution with ν_1, ν_2 degrees of freedom.

	ν_1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	30	50	∞
ν_2	p																			
1	0.900	39.9	49.5	53.6	55.8	57.2	58.2	58.9	59.4	59.9	60.2	60.5	60.7	60.9	61.1	61.2	61.7	62.3	62.7	63.3
	0.950	161	199	216	225	230	234	237	239	241	242	243	244	245	245	246	248	250	252	254
	0.975	648	799	864	900	922	937	948	957	963	969	973	977	980	983	985	993	1001	1008	1018
2	0.900	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38	9.39	9.40	9.41	9.41	9.42	9.42	9.44	9.46	9.47	9.49
	0.950	18.5	19.0	19.2	19.2	19.3	19.3	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.5	19.5	19.5
	0.975	38.5	39.0	39.2	39.2	39.3	39.3	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.5	39.5	39.5
	0.990	98.5	99.0	99.2	99.3	99.3	99.3	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.5	99.5	99.5
	0.995	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199
	0.999	998	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999
3	0.900	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24	5.23	5.22	5.22	5.21	5.20	5.20	5.18	5.17	5.15	5.13
	0.950	10.1	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.76	8.74	8.73	8.71	8.70	8.66	8.62	8.58	8.53
	0.975	17.4	16.0	15.4	15.1	14.9	14.7	14.6	14.5	14.5	14.4	14.4	14.3	14.3	14.3	14.3	14.2	14.1	14.0	13.9
	0.990	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.3	27.2	27.1	27.1	27.0	26.9	26.9	26.7	26.5	26.4	26.1
	0.995	55.6	49.8	47.5	46.2	45.4	44.8	44.4	44.1	43.9	43.7	43.5	43.4	43.3	43.2	43.1	42.8	42.5	42.2	41.8
	0.999	167	148	141	137	135	133	132	131	130	129	129	128	128	128	127	126	125	125	123
4	0.900	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94	3.92	3.91	3.90	3.89	3.88	3.87	3.84	3.82	3.80	3.76
	0.950	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.94	5.91	5.89	5.87	5.86	5.80	5.75	5.70	5.63
	0.975	12.2	10.6	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84	8.79	8.75	8.72	8.68	8.66	8.56	8.46	8.38	8.26
	0.990	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.7	14.5	14.5	14.4	14.3	14.2	14.2	14.0	13.8	13.7	13.5
	0.995	31.3	26.3	24.3	23.2	22.5	22.0	21.6	21.4	21.1	21.0	20.8	20.7	20.6	20.5	20.4	20.2	19.9	19.7	19.3
	0.999	74.1	61.2	56.2	53.4	51.7	50.5	49.7	49.0	48.5	48.1	47.7	47.4	47.2	46.9	46.8	46.1	45.4	44.9	44.1
5	0.900	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32	3.30	3.28	3.27	3.26	3.25	3.24	3.21	3.17	3.15	3.10
	0.950	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.70	4.68	4.66	4.64	4.62	4.56	4.50	4.44	4.37
	0.975	10.0	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.57	6.52	6.49	6.46	6.43	6.33	6.23	6.14	6.02
	0.990	16.3	13.3	12.1	11.4	11.0	10.7	10.5	10.3	10.2	10.1	9.96	9.89	9.82	9.77	9.72	9.55	9.38	9.24	9.02
	0.995	22.8	18.3	16.5	15.6	14.9	14.5	14.2	14.0	13.8	13.6	13.5	13.4	13.3	13.2	13.1	12.9	12.7	12.5	12.1
	0.999	47.2	37.1	33.2	31.1	29.8	28.8	28.2	27.6	27.2	26.9	26.6	26.4	26.2	26.1	25.9	25.4	24.9	24.4	23.8

Table 5: F Distribution Table (cont.)

Percentage point $P(F_{\nu_1,\nu_2} \leq x) = p$ for the F-distribution with ν_1, ν_2 degrees of freedom.

	ν_1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	30	50	∞
ν_2	p																			
6	0.900	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96	2.94	2.92	2.90	2.89	2.88	2.87	2.84	2.80	2.77	2.72
	0.950	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.03	4.00	3.98	3.96	3.94	3.87	3.81	3.75	3.67
	0.975	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.41	5.37	5.33	5.30	5.27	5.17	5.07	4.98	4.85
	0.990	13.7	10.9	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.79	7.72	7.66	7.60	7.56	7.40	7.23	7.09	6.88
	0.995	18.6	14.5	12.9	12.0	11.5	11.1	10.8	10.6	10.4	10.3	10.1	10.0	9.95	9.88	9.81	9.59	9.36	9.17	8.88
	0.999	35.5	27.0	23.7	21.9	20.8	20.0	19.5	19.0	18.7	18.4	18.2	18.0	17.8	17.7	17.6	17.1	16.7	16.3	15.7
7	0.900	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72	2.70	2.68	2.67	2.65	2.64	2.63	2.59	2.56	2.52	2.47
	0.950	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.60	3.57	3.55	3.53	3.51	3.44	3.38	3.32	3.23
	0.975	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76	4.71	4.67	4.63	4.60	4.57	4.47	4.36	4.28	4.14
	0.990	12.2	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.54	6.47	6.41	6.36	6.31	6.16	5.99	5.86	5.65
	0.995	16.2	12.4	10.9	10.1	9.52	9.16	8.89	8.68	8.51	8.38	8.27	8.18	8.10	8.03	7.97	7.75	7.53	7.35	7.08
	0.999	29.2	21.7	18.8	17.2	16.2	15.5	15.0	14.6	14.3	14.1	13.9	13.7	13.6	13.4	13.3	12.9	12.5	12.2	11.7
8	0.900	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56	2.54	2.52	2.50	2.49	2.48	2.46	2.42	2.38	2.35	2.29
	0.950	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.31	3.28	3.26	3.24	3.22	3.15	3.08	3.02	2.93
	0.975	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.24	4.20	4.16	4.13	4.10	4.00	3.89	3.81	3.67
	0.990	11.3	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.73	5.67	5.61	5.56	5.52	5.36	5.20	5.07	4.86
	0.995	14.7	11.0	9.60	8.81	8.30	7.95	7.69	7.50	7.34	7.21	7.10	7.01	6.94	6.87	6.81	6.61	6.40	6.22	5.95
	0.999	25.4	18.5	15.8	14.4	13.5	12.9	12.4	12.0	11.8	11.5	11.4	11.2	11.1	10.9	10.8	10.5	10.1	9.80	9.33
9	0.900	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.44	2.42	2.40	2.38	2.36	2.35	2.34	2.30	2.25	2.22	2.16
	0.950	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.10	3.07	3.05	3.03	3.01	2.94	2.86	2.80	2.71
	0.975	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96	3.91	3.87	3.83	3.80	3.77	3.67	3.56	3.47	3.33
	0.990	10.6	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.18	5.11	5.05	5.01	4.96	4.81	4.65	4.52	4.31
	0.995	13.6	10.1	8.72	7.96	7.47	7.13	6.88	6.69	6.54	6.42	6.31	6.23	6.15	6.09	6.03	5.83	5.62	5.45	5.19
	0.999	22.9	16.4	13.9	12.6	11.7	11.1	10.7	10.4	10.1	9.89	9.72	9.57	9.44	9.33	9.24	8.90	8.55	8.26	7.81
10	0.900	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.35	2.32	2.30	2.28	2.27	2.26	2.24	2.20	2.16	2.12	2.06
	0.950	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.94	2.91	2.89	2.86	2.85	2.77	2.70	2.64	2.54
	0.975	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72	3.66	3.62	3.58	3.55	3.52	3.42	3.31	3.22	3.08
	0.990	10.0	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.77	4.71	4.65	4.60	4.56	4.41	4.25	4.12	3.91
	0.995	12.8	9.43	8.08	7.34	6.87	6.54	6.30	6.12	5.97	5.85	5.75	5.66	5.59	5.53	5.47	5.27	5.07	4.90	4.64
	0.999	21.0	14.9	12.6	11.3	10.5	9.93	9.52	9.20	8.96	8.75	8.59	8.45	8.32	8.22	8.13	7.80	7.47	7.19	6.76

Table 5: F Distribution Table (cont.)

Percentage point $P(F_{\nu_1,\nu_2} \leq x) = p$ for the F-distribution with ν_1, ν_2 degrees of freedom.

	ν_1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	30	50	∞
ν_2	p																			
11	0.900	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27	2.25	2.23	2.21	2.19	2.18	2.17	2.12	2.08	2.04	1.97
	0.950	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.82	2.79	2.76	2.74	2.72	2.65	2.57	2.51	2.40
	0.975	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.47	3.43	3.39	3.36	3.33	3.23	3.12	3.03	2.88
	0.990	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.46	4.40	4.34	4.29	4.25	4.10	3.94	3.81	3.60
	0.995	12.2	8.91	7.60	6.88	6.42	6.10	5.86	5.68	5.54	5.42	5.32	5.24	5.16	5.10	5.05	4.86	4.65	4.49	4.23
	0.999	19.7	13.8	11.6	10.3	9.58	9.05	8.65	8.35	8.12	7.92	7.76	7.63	7.51	7.41	7.32	7.01	6.68	6.42	6.00
12	0.900	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21	2.19	2.17	2.15	2.13	2.12	2.10	2.06	2.01	1.97	1.90
	0.950	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.72	2.69	2.66	2.64	2.62	2.54	2.47	2.40	2.30
	0.975	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.32	3.28	3.24	3.21	3.18	3.07	2.96	2.87	2.72
	0.990	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.22	4.16	4.10	4.05	4.01	3.86	3.70	3.57	3.36
	0.995	11.8	8.51	7.23	6.52	6.07	5.76	5.52	5.35	5.20	5.09	4.99	4.91	4.84	4.77	4.72	4.53	4.33	4.17	3.90
	0.999	18.6	13.0	10.8	9.63	8.89	8.38	8.00	7.71	7.48	7.29	7.14	7.00	6.89	6.79	6.71	6.40	6.09	5.83	5.42
13	0.900	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16	2.14	2.12	2.10	2.08	2.07	2.05	2.01	1.96	1.92	1.85
	0.950	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.63	2.60	2.58	2.55	2.53	2.46	2.38	2.31	2.21
	0.975	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.20	3.15	3.12	3.08	3.05	2.95	2.84	2.74	2.60
	0.990	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	4.02	3.96	3.91	3.86	3.82	3.66	3.51	3.38	3.17
	0.995	11.4	8.19	6.93	6.23	5.79	5.48	5.25	5.08	4.94	4.82	4.72	4.64	4.57	4.51	4.46	4.27	4.07	3.91	3.65
	0.999	17.8	12.3	10.2	9.07	8.35	7.86	7.49	7.21	6.98	6.80	6.65	6.52	6.41	6.31	6.23	5.93	5.63	5.37	4.97
14	0.900	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12	2.10	2.07	2.05	2.04	2.02	2.01	1.96	1.91	1.87	1.80
	0.950	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.57	2.53	2.51	2.48	2.46	2.39	2.31	2.24	2.13
	0.975	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21	3.15	3.09	3.05	3.01	2.98	2.95	2.84	2.73	2.64	2.49
	0.990	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.86	3.80	3.75	3.70	3.66	3.51	3.35	3.22	3.00
	0.995	11.1	7.92	6.68	6.00	5.56	5.26	5.03	4.86	4.72	4.60	4.51	4.43	4.36	4.30	4.25	4.06	3.86	3.70	3.44
	0.999	17.1	11.8	9.73	8.62	7.92	7.44	7.08	6.80	6.58	6.40	6.26	6.13	6.02	5.93	5.85	5.56	5.25	5.00	4.60
15	0.900	3.07	2.70	2.49	2.36	2.27	2.21	2.16	2.12	2.09	2.06	2.04	2.02	2.00	1.99	1.97	1.92	1.87	1.83	1.76
	0.950	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.51	2.48	2.45	2.42	2.40	2.33	2.25	2.18	2.07
	0.975	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12	3.06	3.01	2.96	2.92	2.89	2.86	2.76	2.64	2.55	2.40
	0.990	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.73	3.67	3.61	3.56	3.52	3.37	3.21	3.08	2.87
	0.995	10.8	7.70	6.48	5.80	5.37	5.07	4.85	4.67	4.54	4.42	4.33	4.25	4.18	4.12	4.07	3.88	3.69	3.52	3.26
	0.999	16.6	11.3	9.34	8.25	7.57	7.09	6.74	6.47	6.26	6.08	5.94	5.81	5.71	5.62	5.54	5.25	4.95	4.70	4.31

Table 5: F Distribution Table (cont.)

Percentage point $P(F_{\nu_1,\nu_2} \leq x) = p$ for the F-distribution with ν_1, ν_2 degrees of freedom.

	ν_1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	30	50	∞
ν_2	p																			
16	0.900	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	2.01	1.99	1.97	1.95	1.94	1.89	1.84	1.79	1.72
	0.950	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.40	2.37	2.35	2.28	2.19	2.12	2.01
	0.975	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.93	2.89	2.85	2.82	2.79	2.68	2.57	2.47	2.32
	0.990	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.62	3.55	3.50	3.45	3.41	3.26	3.10	2.97	2.75
	0.995	10.6	7.51	6.30	5.64	5.21	4.91	4.69	4.52	4.38	4.27	4.18	4.10	4.03	3.97	3.92	3.73	3.54	3.37	3.11
	0.999	16.1	11.0	9.01	7.94	7.27	6.80	6.46	6.20	5.98	5.81	5.67	5.55	5.44	5.35	5.27	4.99	4.70	4.45	4.06
17	0.900	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.98	1.96	1.94	1.93	1.91	1.86	1.81	1.76	1.69
	0.950	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.41	2.38	2.35	2.33	2.31	2.23	2.15	2.08	1.96
	0.975	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.87	2.82	2.79	2.75	2.72	2.62	2.50	2.41	2.25
	0.990	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.52	3.46	3.40	3.35	3.31	3.16	3.00	2.87	2.65
	0.995	10.4	7.35	6.16	5.50	5.07	4.78	4.56	4.39	4.25	4.14	4.05	3.97	3.90	3.84	3.79	3.61	3.41	3.25	2.98
	0.999	15.7	10.7	8.73	7.68	7.02	6.56	6.22	5.96	5.75	5.58	5.44	5.32	5.22	5.13	5.05	4.78	4.48	4.24	3.85
18	0.900	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00	1.98	1.95	1.93	1.92	1.90	1.89	1.84	1.78	1.74	1.66
	0.950	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.31	2.29	2.27	2.19	2.11	2.04	1.92
	0.975	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.81	2.77	2.73	2.70	2.67	2.56	2.44	2.35	2.19
	0.990	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.43	3.37	3.32	3.27	3.23	3.08	2.92	2.78	2.57
	0.995	10.22	7.21	6.03	5.37	4.96	4.66	4.44	4.28	4.14	4.03	3.94	3.86	3.79	3.73	3.68	3.50	3.30	3.14	2.87
	0.999	15.38	10.39	8.49	7.46	6.81	6.35	6.02	5.76	5.56	5.39	5.25	5.13	5.03	4.94	4.87	4.59	4.30	4.06	3.67
19	0.900	2.99	2.61	2.40	2.27	2.18	2.11	2.06	2.02	1.98	1.96	1.93	1.91	1.89	1.88	1.86	1.81	1.76	1.71	1.63
	0.950	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.34	2.31	2.28	2.26	2.23	2.16	2.07	2.00	1.88
	0.975	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88	2.82	2.76	2.72	2.68	2.65	2.62	2.51	2.39	2.30	2.13
	0.990	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.36	3.30	3.24	3.19	3.15	3.00	2.84	2.71	2.49
	0.995	10.1	7.09	5.92	5.27	4.85	4.56	4.34	4.18	4.04	3.93	3.84	3.76	3.70	3.64	3.59	3.40	3.21	3.04	2.78
	0.999	15.1	10.2	8.28	7.27	6.62	6.18	5.85	5.59	5.39	5.22	5.08	4.97	4.87	4.78	4.70	4.43	4.14	3.90	3.51
20	0.900	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2.00	1.96	1.94	1.91	1.89	1.87	1.86	1.84	1.79	1.74	1.69	1.61
	0.950	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.31	2.28	2.25	2.22	2.20	2.12	2.04	1.97	1.84
	0.975	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84	2.77	2.72	2.68	2.64	2.60	2.57	2.46	2.35	2.25	2.09
	0.990	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.29	3.23	3.18	3.13	3.09	2.94	2.78	2.64	2.42
	0.995	9.94	6.99	5.82	5.17	4.76	4.47	4.26	4.09	3.96	3.85	3.76	3.68	3.61	3.55	3.50	3.32	3.12	2.96	2.69
	0.999	14.8	9.95	8.10	7.10	6.46	6.02	5.69	5.44	5.24	5.08	4.94	4.82	4.72	4.64	4.56	4.29	4.00	3.77	3.38

Table 5: F Distribution Table (cont.)

Percentage point $P(F_{\nu_1,\nu_2} \leq x) = p$ for the F-distribution with ν_1, ν_2 degrees of freedom.

	ν_1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	30	50	∞
ν_2	p																			
21	0.900	2.96	2.57	2.36	2.23	2.14	2.08	2.02	1.98	1.95	1.92	1.90	1.87	1.86	1.84	1.83	1.78	1.72	1.67	1.59
	0.950	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.28	2.25	2.22	2.20	2.18	2.10	2.01	1.94	1.82
	0.975	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80	2.73	2.68	2.64	2.60	2.56	2.53	2.42	2.31	2.21	2.05
	0.990	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.24	3.17	3.12	3.07	3.03	2.88	2.72	2.58	2.38
	0.995	9.83	6.89	5.73	5.09	4.68	4.39	4.18	4.01	3.88	3.77	3.68	3.60	3.54	3.48	3.43	3.24	3.05	2.88	2.64
	0.999	14.6	9.77	7.94	6.95	6.32	5.88	5.56	5.31	5.11	4.95	4.81	4.70	4.60	4.51	4.44	4.17	3.88	3.64	3.32
22	0.900	2.95	2.56	2.35	2.22	2.13	2.06	2.01	1.97	1.93	1.90	1.88	1.86	1.84	1.83	1.81	1.76	1.70	1.65	1.57
	0.950	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.26	2.23	2.20	2.17	2.15	2.07	1.98	1.91	1.79
	0.975	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76	2.70	2.65	2.60	2.56	2.53	2.50	2.39	2.27	2.17	2.01
	0.990	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.18	3.12	3.07	3.02	2.98	2.83	2.67	2.53	2.33
	0.995	9.73	6.81	5.65	5.02	4.61	4.32	4.11	3.94	3.81	3.70	3.61	3.54	3.47	3.41	3.36	3.18	2.98	2.82	2.57
	0.999	14.4	9.61	7.80	6.81	6.19	5.76	5.44	5.19	4.99	4.83	4.70	4.58	4.49	4.40	4.33	4.06	3.78	3.54	3.21
23	0.900	2.94	2.55	2.34	2.21	2.11	2.05	1.99	1.95	1.92	1.89	1.87	1.84	1.83	1.81	1.80	1.74	1.69	1.64	1.55
	0.950	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.24	2.20	2.18	2.15	2.13	2.05	1.96	1.88	1.76
	0.975	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73	2.67	2.62	2.57	2.53	2.50	2.47	2.36	2.24	2.14	1.98
	0.990	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.14	3.07	3.02	2.97	2.93	2.78	2.62	2.48	2.28
	0.995	9.63	6.73	5.58	4.95	4.54	4.26	4.05	3.88	3.75	3.64	3.55	3.47	3.41	3.35	3.30	3.12	2.92	2.76	2.51
	0.999	14.2	9.47	7.67	6.70	6.08	5.65	5.33	5.09	4.89	4.73	4.60	4.48	4.39	4.30	4.23	3.96	3.68	3.44	3.11
24	0.900	2.93	2.54	2.33	2.19	2.10	2.04	1.98	1.94	1.91	1.88	1.85	1.83	1.81	1.80	1.78	1.73	1.67	1.62	1.54
	0.950	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.22	2.18	2.15	2.13	2.11	2.03	1.94	1.86	1.74
	0.975	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70	2.64	2.59	2.54	2.50	2.47	2.44	2.33	2.21	2.11	1.95
	0.990	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.09	3.03	2.98	2.93	2.89	2.74	2.58	2.44	2.23
	0.995	9.55	6.66	5.52	4.89	4.49	4.20	3.99	3.83	3.69	3.59	3.50	3.42	3.35	3.30	3.25	3.06	2.87	2.70	2.45
	0.999	14.0	9.34	7.55	6.59	5.98	5.55	5.24	4.99	4.80	4.64	4.51	4.39	4.30	4.21	4.14	3.87	3.59	3.36	3.02
25	0.900	2.92	2.53	2.32	2.18	2.09	2.02	1.97	1.93	1.89	1.87	1.84	1.82	1.80	1.79	1.77	1.72	1.66	1.61	1.52
	0.950	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.20	2.16	2.14	2.11	2.09	2.01	1.92	1.84	1.72
	0.975	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68	2.61	2.56	2.51	2.48	2.44	2.41	2.30	2.18	2.08	1.92
	0.990	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22	3.13	3.06	2.99	2.94	2.89	2.85	2.70	2.54	2.40	2.19
	0.995	9.48	6.60	5.46	4.84	4.43	4.15	3.94	3.78	3.64	3.54	3.45	3.37	3.30	3.25	3.20	3.01	2.82	2.65	2.40
	0.999	13.9	9.22	7.45	6.49	5.89	5.46	5.15	4.91	4.71	4.56	4.42	4.31	4.22	4.13	4.06	3.79	3.52	3.28	2.94

Table 5: F Distribution Table (cont.)

Percentage point $P(F_{\nu_1,\nu_2} \leq x) = p$ for the F-distribution with ν_1, ν_2 degrees of freedom.

	ν_1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	30	50	∞
ν_2	p																			
30	0.900	2.88	2.49	2.28	2.14	2.05	1.98	1.93	1.88	1.85	1.82	1.79	1.77	1.75	1.74	1.72	1.67	1.61	1.55	1.46
	0.950	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.13	2.09	2.06	2.04	2.01	1.93	1.84	1.76	1.62
	0.975	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57	2.51	2.46	2.41	2.37	2.34	2.31	2.20	2.07	1.97	1.79
	0.990	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.91	2.84	2.79	2.74	2.70	2.55	2.39	2.25	2.00
	0.995	9.18	6.35	5.24	4.62	4.23	3.95	3.74	3.58	3.45	3.34	3.25	3.18	3.11	3.06	3.01	2.82	2.63	2.46	2.18
	0.999	13.3	8.77	7.05	6.12	5.53	5.12	4.82	4.58	4.39	4.24	4.11	4.00	3.91	3.82	3.75	3.49	3.22	2.98	2.59
40	0.900	2.84	2.44	2.23	2.09	2.00	1.93	1.87	1.83	1.79	1.76	1.74	1.71	1.70	1.68	1.66	1.61	1.54	1.48	1.38
	0.950	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.04	2.00	1.97	1.95	1.92	1.84	1.74	1.66	1.51
	0.975	5.42	4.05	3.46	3.13	2.90	2.74	2.62	2.53	2.45	2.39	2.33	2.29	2.25	2.21	2.18	2.07	1.94	1.83	1.64
	0.990	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.73	2.66	2.61	2.56	2.52	2.37	2.20	2.06	1.80
	0.995	8.83	6.07	4.98	4.37	3.99	3.71	3.51	3.35	3.22	3.12	3.03	2.95	2.89	2.83	2.78	2.60	2.40	2.23	1.93
	0.999	12.6	8.25	6.59	5.70	5.13	4.73	4.44	4.21	4.02	3.87	3.75	3.64	3.55	3.47	3.40	3.15	2.87	2.64	2.23
60	0.900	2.79	2.39	2.18	2.04	1.95	1.87	1.82	1.77	1.74	1.71	1.68	1.66	1.64	1.62	1.60	1.54	1.48	1.41	1.29
	0.950	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.95	1.92	1.89	1.86	1.84	1.75	1.65	1.56	1.39
	0.975	5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33	2.27	2.22	2.17	2.13	2.09	2.06	1.94	1.82	1.70	1.48
	0.990	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.56	2.50	2.44	2.39	2.35	2.20	2.03	1.88	1.60
	0.995	8.49	5.79	4.73	4.14	3.76	3.49	3.29	3.13	3.01	2.90	2.82	2.74	2.68	2.62	2.57	2.39	2.19	2.01	1.69
	0.999	12.0	7.77	6.17	5.31	4.76	4.37	4.09	3.86	3.69	3.54	3.42	3.32	3.23	3.15	3.08	2.83	2.55	2.32	1.89
120	0.900	2.75	2.35	2.13	1.99	1.90	1.82	1.77	1.72	1.68	1.65	1.63	1.60	1.58	1.56	1.55	1.48	1.41	1.34	1.19
	0.950	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96	1.91	1.87	1.83	1.80	1.78	1.75	1.66	1.55	1.46	1.25
	0.975	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22	2.16	2.10	2.05	2.01	1.98	1.94	1.82	1.69	1.56	1.31
	0.990	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.40	2.34	2.28	2.23	2.19	2.03	1.86	1.70	1.38
	0.995	8.18	5.54	4.50	3.92	3.55	3.28	3.09	2.93	2.81	2.71	2.62	2.54	2.48	2.42	2.37	2.19	1.98	1.80	1.43
	0.999	11.4	7.32	5.78	4.95	4.42	4.04	3.77	3.55	3.38	3.24	3.12	3.02	2.93	2.85	2.78	2.53	2.26	2.02	1.54
∞	0.900	2.71	2.30	2.08	1.94	1.85	1.77	1.72	1.67	1.63	1.60	1.57	1.55	1.52	1.50	1.49	1.42	1.34	1.26	1.00
	0.950	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.79	1.75	1.72	1.69	1.67	1.57	1.46	1.35	1.00
	0.975	5.02	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.99	1.94	1.90	1.87	1.83	1.71	1.57	1.43	1.00
	0.990	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.25	2.18	2.13	2.08	2.04	1.88	1.70	1.52	1.00
	0.995	7.88	5.30	4.28	3.72	3.35	3.09	2.90	2.74	2.62	2.52	2.43	2.36	2.29	2.24	2.19	2.00	1.79	1.59	1.00
	0.999	10.83	6.91	5.42	4.62	4.10	3.74	3.47	3.27	3.10	2.96	2.84	2.74	2.66	2.58	2.51	2.27	1.99	1.74	1.00

Table 6: Wilcoxon Signed Rank Distribution Table

Percentage point $P(W^+ \leq w^+) = p$. Note that $P(W^+ \leq w^+) = P(W^+ \geq \frac{1}{2}n(n+1) - w^+)$.
For large n, use normal approximation with mean $\frac{1}{4}n(n+1)$ and variance $\frac{1}{24}n(n+1)(2n+1)$.

n	1	2	3	4	5	6	7	8	9	10	11
w^+											
0	0.5000	0.2500	0.1250	0.0625	0.0313	0.0156	0.0078	0.0039	0.0020	0.0010	0.0005
1		0.5000	0.2500	0.1250	0.0625	0.0313	0.0156	0.0078	0.0039	0.0020	0.0010
2			0.3750	0.1875	0.0938	0.0469	0.0234	0.0117	0.0059	0.0029	0.0015
3				0.3125	0.1562	0.0781	0.0391	0.0195	0.0098	0.0049	0.0024
4				0.4375	0.2187	0.1094	0.0547	0.0273	0.0137	0.0068	0.0034
5					0.3125	0.1562	0.0781	0.0391	0.0195	0.0098	0.0049
6					0.4062	0.2187	0.1094	0.0547	0.0273	0.0137	0.0068
7					0.5000	0.2812	0.1484	0.0742	0.0371	0.0186	0.0093
8						0.3437	0.1875	0.0977	0.0488	0.0244	0.0122
9						0.4219	0.2344	0.1250	0.0645	0.0322	0.0161
10						0.5000	0.2891	0.1562	0.0820	0.0420	0.0210
11							0.3437	0.1914	0.1016	0.0527	0.0269
12							0.4062	0.2305	0.1250	0.0654	0.0337
13							0.4687	0.2734	0.1504	0.0801	0.0415
14								0.3203	0.1797	0.0967	0.0508
15								0.3711	0.2129	0.1162	0.0615
16								0.4219	0.2480	0.1377	0.0737
17								0.4727	0.2852	0.1611	0.0874
18									0.3262	0.1875	0.1030
19									0.3672	0.2158	0.1201
20									0.4102	0.2461	0.1392
21									0.4551	0.2783	0.1602
22									0.5000	0.3125	0.1826
23										0.3477	0.2065
24										0.3848	0.2324
25										0.4229	0.2598
26										0.4609	0.2886
27										0.5000	0.3188
28											0.3501
29											0.3823
30											0.4155
31											0.4492
32											0.4829

Table 7: Wilcoxon Rank Sum Distribution Table

Percentage point $P(W \leq w) = p$ where
W is the sum of ranks of the smaller sample.

	n_2	3	4	5	6	7	8
n_1	w						
3	6	0.0500	0.0286	0.0179	0.0119	0.0083	0.0061
	7	0.1000	0.0571	0.0357	0.0238	0.0167	0.0121
	8	0.2000	0.1143	0.0714	0.0476	0.0333	0.0242
	9	0.3500	0.2000	0.1250	0.0833	0.0583	0.0424
	10	0.5000	0.3143	0.1964	0.1310	0.0917	0.0667
	11	0.6500	0.4286	0.2857	0.1905	0.1333	0.0970
	12		0.5714	0.3929	0.2738	0.1917	0.1394
	13			0.5000	0.3571	0.2583	0.1879
	14			0.6071	0.4524	0.3333	0.2485
	15				0.5476	0.4167	0.3152
	16					0.5000	0.3879
	17					0.5833	0.4606
	18						0.5394
4	10		0.0143	0.0079	0.0048	0.0030	0.0020
	11		0.0286	0.0159	0.0095	0.0061	0.0040
	12		0.0571	0.0317	0.0190	0.0121	0.0081
	13		0.1000	0.0556	0.0333	0.0212	0.0141
	14		0.1714	0.0952	0.0571	0.0364	0.0242
	15		0.2429	0.1429	0.0857	0.0545	0.0364
	16		0.3429	0.2063	0.1286	0.0818	0.0545
	17		0.4429	0.2778	0.1762	0.1152	0.0768
	18		0.5571	0.3651	0.2381	0.1576	0.1071
	19			0.4524	0.3048	0.2061	0.1414
	20			0.5476	0.3810	0.2636	0.1838
	21				0.4571	0.3242	0.2303
	22				0.5429	0.3939	0.2848
	23					0.4636	0.3414
	24					0.5364	0.4040
	25						0.4667
	26						0.5333

Table 7: Wilcoxon Rank Sum Distribution Table (cont.)

Percentage point $P(W \leq w) = p$ where
W is the sum of ranks of the smaller sample.

	n_2	5	6	7	8
n_1	w				
5	15	0.0040	0.0022	0.0013	0.0008
	16	0.0079	0.0043	0.0025	0.0016
	17	0.0159	0.0087	0.0051	0.0031
	18	0.0278	0.0152	0.0088	0.0054
	19	0.0476	0.0260	0.0152	0.0093
	20	0.0754	0.0411	0.0240	0.0148
	21	0.1111	0.0628	0.0366	0.0225
	22	0.1548	0.0887	0.0530	0.0326
	23	0.2103	0.1234	0.0745	0.0466
	24	0.2738	0.1645	0.1010	0.0637
	25	0.3452	0.2143	0.1338	0.0855
	26	0.4206	0.2684	0.1717	0.1111
	27	0.5000	0.3312	0.2159	0.1422
	28	0.5794	0.3961	0.2652	0.1772
	29		0.4654	0.3194	0.2176
	30		0.5346	0.3775	0.2618
	31			0.4381	0.3108
	32			0.5000	0.3621
	33			0.5619	0.4165
	34				0.4716
	35				0.5284

		6	7	8
n_1	w			
6	21	0.0011	0.0006	0.0003
	22	0.0022	0.0012	0.0007
	23	0.0043	0.0023	0.0013
	24	0.0076	0.0041	0.0023
	25	0.0130	0.0070	0.0040
	26	0.0206	0.0111	0.0063
	27	0.0325	0.0175	0.0100
	28	0.0465	0.0256	0.0147
	29	0.0660	0.0367	0.0213
	30	0.0898	0.0507	0.0296
	31	0.1201	0.0688	0.0406
	32	0.1548	0.0903	0.0539
	33	0.1970	0.1171	0.0709
	34	0.2424	0.1474	0.0906
	35	0.2944	0.1830	0.1142
	36	0.3496	0.2226	0.1412
	37	0.4091	0.2669	0.1725
	38	0.4686	0.3141	0.2068
	39	0.5314	0.3654	0.2454
	40		0.4178	0.2864
	41		0.4726	0.3310
	42		0.5274	0.3773
	43			0.4259
	44			0.4749
	45			0.5251

Table 7: Wilcoxon Rank Sum Distribution Table (cont.)

Percentage point $P(W \leq w) = p$ where
W is the sum of ranks of the smaller sample.

	n_2	7	8
n_1	w		
7	28	0.0003	0.0002
	29	0.0006	0.0003
	30	0.0012	0.0006
	31	0.0020	0.0011
	32	0.0035	0.0019
	33	0.0055	0.0030
	34	0.0087	0.0047
	35	0.0131	0.0070
	36	0.0189	0.0103
	37	0.0265	0.0145
	38	0.0364	0.0200
	39	0.0487	0.0270
	40	0.0641	0.0361
	41	0.0825	0.0469
	42	0.1043	0.0603
	43	0.1297	0.0760
	44	0.1588	0.0946
	45	0.1914	0.1159
	46	0.2279	0.1405
	47	0.2675	0.1678
	48	0.3100	0.1984
	49	0.3552	0.2317
	50	0.4024	0.2679
	51	0.4508	0.3063
	52	0.5000	0.3472
	53	0.5492	0.3894
	54		0.4333
	55		0.4775
	56		0.5225

	n_2	8
n_1	w	
8	36	0.0000
	37	0.0002
	38	0.0003
	39	0.0005
	40	0.0009
	41	0.0015
	42	0.0023
	43	0.0035
	44	0.0052
	45	0.0074
	46	0.0103
	47	0.0141
	48	0.0190
	49	0.0249
	50	0.0325
	51	0.0415
	52	0.0524
	53	0.0652
	54	0.0803
	55	0.0974
	56	0.1172
	57	0.1393
	58	0.1641
	59	0.1911
	60	0.2209
	61	0.2527
	62	0.2869
	63	0.3227
	64	0.3605
	65	0.3992
	66	0.4392
	67	0.4796
	68	0.5204