Tilastolliset taulukot
Statistical Tables

Ilkka Mellin

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	0.4960	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
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

Esipuhe / Preface

Tämä moniste sisältää *standardoidun normaalijakauman*, *t-jakauman*, χ^2*-jakauman* ja *F-jakauman* taulukot.

This handout includes the tables of *the standard normal distribution*, *t-distribution*, χ^2*-distribution* and *F-distribution*.

Syyskuu / September 2010

Ilkka Mellin

Taulukot / Tables

TAULUKKO 1.1. STANDARDOITU NORMAALIJAKAUMA N(0,1)
TABLE 1.1. STANDARD NORMAL DISTRIBUTION N(0,1)

Kertymäfunktion Φ(*z*) arvoja / Values of the cumulative distribution function Φ(z)

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	0.4960	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
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

Esimerkki / Example:

Jos $z = -2.23$, niin $\Phi(z) = \Pr(Z \leq -2.23) = 0.0129$
If $z = -2.23$, then $\Phi(z) = \Pr(Z \leq -2.23) = 0.0129$

TAULUKKO 1.2. STANDARDOITU NORMAALIJAKAUMA N(0,1)
TABLE 1.2. STANDARD NORMAL DISTRIBUTION N(0,1)

Kertymäfunktion Φ(*z*) arvoja / Values of the cumulative distribution function Φ(z)

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

Esimerkki / Example:

Jos z = +0.49, niin $\Phi(z) = \Pr(Z \leq +0.49) = 0.6879$
If z = +0.49, then $\Phi(z) = \Pr(Z \leq +0.49) = 0.6879$

TAULUKKO 2. ***t*-DISTRIBUTION *t*(*df*)**
TABLE 2. ***t*-JAKAUMA *t*(*df*)**

Kriittisiä arvoja / Critical values

	Merkitsevyystaso 1-suuntaisissa testeissä / Sigficance level in 1-sided tests									
df	**0.4**	**0.3**	**0.2**	**0.1**	**0.05**	**0.025**	**0.01**	**0.005**	**0.001**	**0.0005**
1	0.325	0.727	1.376	3.078	6.314	12.706	31.821	63.657	318.309	636.619
2	0.289	0.617	1.061	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.277	0.584	0.978	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.271	0.569	0.941	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.267	0.559	0.920	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.265	0.553	0.906	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.263	0.549	0.896	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.262	0.546	0.889	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.261	0.543	0.883	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.260	0.542	0.879	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.260	0.540	0.876	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.259	0.539	0.873	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.259	0.538	0.870	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.258	0.537	0.868	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.258	0.536	0.866	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.258	0.535	0.865	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.257	0.534	0.863	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.257	0.534	0.862	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.257	0.533	0.861	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.257	0.533	0.860	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.257	0.532	0.859	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.256	0.532	0.858	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.256	0.532	0.858	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.256	0.531	0.857	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.256	0.531	0.856	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.256	0.531	0.856	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.256	0.531	0.855	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.256	0.530	0.855	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.256	0.530	0.854	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.256	0.530	0.854	1.310	1.697	2.042	2.457	2.750	3.385	3.646
35	0.255	0.529	0.852	1.306	1.690	2.030	2.438	2.724	3.340	3.591
40	0.255	0.529	0.851	1.303	1.684	2.021	2.423	2.704	3.307	3.551
45	0.255	0.528	0.850	1.301	1.679	2.014	2.412	2.690	3.281	3.520
50	0.255	0.528	0.849	1.299	1.676	2.009	2.403	2.678	3.261	3.496
55	0.255	0.527	0.848	1.297	1.673	2.004	2.396	2.668	3.245	3.476
60	0.254	0.527	0.848	1.296	1.671	2.000	2.390	2.660	3.232	3.460
70	0.254	0.527	0.847	1.294	1.667	1.994	2.381	2.648	3.211	3.435
80	0.254	0.526	0.846	1.292	1.664	1.990	2.374	2.639	3.195	3.416
90	0.254	0.526	0.846	1.291	1.662	1.987	2.368	2.632	3.183	3.402
100	0.254	0.526	0.845	1.290	1.660	1.984	2.364	2.626	3.174	3.390
200	0.254	0.525	0.843	1.286	1.653	1.972	2.345	2.601	3.131	3.340
500	0.253	0.525	0.842	1.283	1.648	1.965	2.334	2.586	3.107	3.310
∞	0.253	0.524	0.842	1.282	1.645	1.960	2.326	2.576	3.090	3.291
df	**0.8**	**0.6**	**0.4**	**0.2**	**0.1**	**0.05**	**0.02**	**0.01**	**0.002**	**0.001**
	Merkitsevyystaso 2-suuntaisissa testeissä / Sigficance level in 2-sided tests									

Esimerkki / Example:

Jos α = 0.01 ja *df* = 11, niin Pr(*t* > 2.718) = 0.01
If α = 0.01 and *df* = 11, then Pr(*t* > 2.718) = 0.01

TAULUKKO 3. $\chi^2(df)$**-JAKAUMA**
TABLE 3. $\chi^2(df)$**-DISTRIBUTION**

Kriittisiä arvoja / Critical values

	Merkitsevyystaso 1-suuntaisissa testeissä / Sigficance level in 1-sided tests							
df	**0.999**	**0.99**	**0.95**	**0.9**	**0.1**	**0.05**	**0.01**	**0.001**
1	0.000	0.000	0.004	0.016	2.706	3.841	6.635	10.828
2	0.002	0.020	0.103	0.211	4.605	5.991	9.210	13.816
3	0.024	0.115	0.352	0.584	6.251	7.815	11.345	16.266
4	0.091	0.297	0.711	1.064	7.779	9.488	13.277	18.467
5	0.210	0.554	1.145	1.610	9.236	11.070	15.086	20.515
6	0.381	0.872	1.635	2.204	10.645	12.592	16.812	22.458
7	0.598	1.239	2.167	2.833	12.017	14.067	18.475	24.322
8	0.857	1.646	2.733	3.490	13.362	15.507	20.090	26.124
9	1.152	2.088	3.325	4.168	14.684	16.919	21.666	27.877
10	1.479	2.558	3.940	4.865	15.987	18.307	23.209	29.588
11	1.834	3.053	4.575	5.578	17.275	19.675	24.725	31.264
12	2.214	3.571	5.226	6.304	18.549	21.026	26.217	32.909
13	2.617	4.107	5.892	7.042	19.812	22.362	27.688	34.528
14	3.041	4.660	6.571	7.790	21.064	23.685	29.141	36.123
15	3.483	5.229	7.261	8.547	22.307	24.996	30.578	37.697
16	3.942	5.812	7.962	9.312	23.542	26.296	32.000	39.252
17	4.416	6.408	8.672	10.085	24.769	27.587	33.409	40.790
18	4.905	7.015	9.390	10.865	25.989	28.869	34.805	42.312
19	5.407	7.633	10.117	11.651	27.204	30.144	36.191	43.820
20	5.921	8.260	10.851	12.443	28.412	31.410	37.566	45.315
21	6.447	8.897	11.591	13.240	29.615	32.671	38.932	46.797
22	6.983	9.542	12.338	14.041	30.813	33.924	40.289	48.268
23	7.529	10.196	13.091	14.848	32.007	35.172	41.638	49.728
24	8.085	10.856	13.848	15.659	33.196	36.415	42.980	51.179
25	8.649	11.524	14.611	16.473	34.382	37.652	44.314	52.620
26	9.222	12.198	15.379	17.292	35.563	38.885	45.642	54.052
27	9.803	12.879	16.151	18.114	36.741	40.113	46.963	55.476
28	10.391	13.565	16.928	18.939	37.916	41.337	48.278	56.892
29	10.986	14.256	17.708	19.768	39.087	42.557	49.588	58.301
30	11.588	14.953	18.493	20.599	40.256	43.773	50.892	59.703
35	14.688	18.509	22.465	24.797	46.059	49.802	57.342	66.619
40	17.916	22.164	26.509	29.051	51.805	55.758	63.691	73.402
45	21.251	25.901	30.612	33.350	57.505	61.656	69.957	80.077
50	24.674	29.707	34.764	37.689	63.167	67.505	76.154	86.661
55	28.173	33.570	38.958	42.060	68.796	73.311	82.292	93.168
60	31.738	37.485	43.188	46.459	74.397	79.082	88.379	99.607
70	39.036	45.442	51.739	55.329	85.527	90.531	100.425	112.317
80	46.520	53.540	60.391	64.278	96.578	101.879	112.329	124.839
90	54.155	61.754	69.126	73.291	107.565	113.145	124.116	137.208
100	61.918	70.065	77.929	82.358	118.498	124.342	135.807	149.449
200	143.843	156.432	168.279	174.835	226.021	233.994	249.445	267.541
500	407.947	429.388	449.147	459.926	540.930	553.127	576.493	603.446

Esimerkki / Example:

Jos α = 0.01 ja *df* = 11, niin Pr(χ^2 > 24.725) = 0.01
If α = 0.01 and *df* = 11, then Pr(χ^2 > 24.725) = 0.01

TAULUKKO / TABLE 4.1.1. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 5 %:n merkitsevyystasolle / Critical values at the 5 % level of significance.

0.05	df_1									
df_2	1	2	3	4	5	6	7	8	9	10
1	161.448	199.500	215.707	224.583	230.162	233.986	236.768	238.883	240.543	241.882
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385	19.396
3	10.128	9.552	9.277	9.117	9.013	8.941	8.887	8.845	8.812	8.786
4	7.709	6.944	6.591	6.388	6.256	6.163	6.094	6.041	5.999	5.964
5	6.608	5.786	5.409	5.192	5.050	4.950	4.876	4.818	4.772	4.735
6	5.987	5.143	4.757	4.534	4.387	4.284	4.207	4.147	4.099	4.060
7	5.591	4.737	4.347	4.120	3.972	3.866	3.787	3.726	3.677	3.637
8	5.318	4.459	4.066	3.838	3.687	3.581	3.500	3.438	3.388	3.347
9	5.117	4.256	3.863	3.633	3.482	3.374	3.293	3.230	3.179	3.137
10	4.965	4.103	3.708	3.478	3.326	3.217	3.135	3.072	3.020	2.978
11	4.844	3.982	3.587	3.357	3.204	3.095	3.012	2.948	2.896	2.854
12	4.747	3.885	3.490	3.259	3.106	2.996	2.913	2.849	2.796	2.753
13	4.667	3.806	3.411	3.179	3.025	2.915	2.832	2.767	2.714	2.671
14	4.600	3.739	3.344	3.112	2.958	2.848	2.764	2.699	2.646	2.602
15	4.543	3.682	3.287	3.056	2.901	2.790	2.707	2.641	2.588	2.544
16	4.494	3.634	3.239	3.007	2.852	2.741	2.657	2.591	2.538	2.494
17	4.451	3.592	3.197	2.965	2.810	2.699	2.614	2.548	2.494	2.450
18	4.414	3.555	3.160	2.928	2.773	2.661	2.577	2.510	2.456	2.412
19	4.381	3.522	3.127	2.895	2.740	2.628	2.544	2.477	2.423	2.378
20	4.351	3.493	3.098	2.866	2.711	2.599	2.514	2.447	2.393	2.348
21	4.325	3.467	3.072	2.840	2.685	2.573	2.488	2.420	2.366	2.321
22	4.301	3.443	3.049	2.817	2.661	2.549	2.464	2.397	2.342	2.297
23	4.279	3.422	3.028	2.796	2.640	2.528	2.442	2.375	2.320	2.275
24	4.260	3.403	3.009	2.776	2.621	2.508	2.423	2.355	2.300	2.255
25	4.242	3.385	2.991	2.759	2.603	2.490	2.405	2.337	2.282	2.236
26	4.225	3.369	2.975	2.743	2.587	2.474	2.388	2.321	2.265	2.220
27	4.210	3.354	2.960	2.728	2.572	2.459	2.373	2.305	2.250	2.204
28	4.196	3.340	2.947	2.714	2.558	2.445	2.359	2.291	2.236	2.190
29	4.183	3.328	2.934	2.701	2.545	2.432	2.346	2.278	2.223	2.177
30	4.171	3.316	2.922	2.690	2.534	2.421	2.334	2.266	2.211	2.165
35	4.121	3.267	2.874	2.641	2.485	2.372	2.285	2.217	2.161	2.114
40	4.085	3.232	2.839	2.606	2.449	2.336	2.249	2.180	2.124	2.077
45	4.057	3.204	2.812	2.579	2.422	2.308	2.221	2.152	2.096	2.049
50	4.034	3.183	2.790	2.557	2.400	2.286	2.199	2.130	2.073	2.026
55	4.016	3.165	2.773	2.540	2.383	2.269	2.181	2.112	2.055	2.008
60	4.001	3.150	2.758	2.525	2.368	2.254	2.167	2.097	2.040	1.993
70	3.978	3.128	2.736	2.503	2.346	2.231	2.143	2.074	2.017	1.969
80	3.960	3.111	2.719	2.486	2.329	2.214	2.126	2.056	1.999	1.951
90	3.947	3.098	2.706	2.473	2.316	2.201	2.113	2.043	1.986	1.938
100	3.936	3.087	2.696	2.463	2.305	2.191	2.103	2.032	1.975	1.927
200	3.888	3.041	2.650	2.417	2.259	2.144	2.056	1.985	1.927	1.878
500	3.860	3.014	2.623	2.390	2.232	2.117	2.028	1.957	1.899	1.850
∞	3.841	2.996	2.605	2.372	2.214	2.099	2.010	1.938	1.880	1.831

Esimerkki / Example:

Jos $df_1 = 5$ ja $df_2 = 8$, niin $\Pr(F > 3.687) = 0.05$.
If $df_1 = 5$ and $df_2 = 8$, then $\Pr(F > 3.687) = 0.05$.

TAULUKKO / TABLE 4.1.2. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 5 %:n merkitsevyystasolle / Critical values at the 5 % level of significance.

0.05	df_1									
df_2	12	15	20	25	30	40	60	80	120	∞
1	243.906	245.950	248.013	249.260	250.095	251.143	252.196	252.724	253.253	254.314
2	19.413	19.429	19.446	19.456	19.462	19.471	19.479	19.483	19.487	19.496
3	8.745	8.703	8.660	8.634	8.617	8.594	8.572	8.561	8.549	8.526
4	5.912	5.858	5.803	5.769	5.746	5.717	5.688	5.673	5.658	5.628
5	4.678	4.619	4.558	4.521	4.496	4.464	4.431	4.415	4.398	4.365
6	4.000	3.938	3.874	3.835	3.808	3.774	3.740	3.722	3.705	3.669
7	3.575	3.511	3.445	3.404	3.376	3.340	3.304	3.286	3.267	3.230
8	3.284	3.218	3.150	3.108	3.079	3.043	3.005	2.986	2.967	2.928
9	3.073	3.006	2.936	2.893	2.864	2.826	2.787	2.768	2.748	2.707
10	2.913	2.845	2.774	2.730	2.700	2.661	2.621	2.601	2.580	2.538
11	2.788	2.719	2.646	2.601	2.570	2.531	2.490	2.469	2.448	2.404
12	2.687	2.617	2.544	2.498	2.466	2.426	2.384	2.363	2.341	2.296
13	2.604	2.533	2.459	2.412	2.380	2.339	2.297	2.275	2.252	2.206
14	2.534	2.463	2.388	2.341	2.308	2.266	2.223	2.201	2.178	2.131
15	2.475	2.403	2.328	2.280	2.247	2.204	2.160	2.137	2.114	2.066
16	2.425	2.352	2.276	2.227	2.194	2.151	2.106	2.083	2.059	2.010
17	2.381	2.308	2.230	2.181	2.148	2.104	2.058	2.035	2.011	1.960
18	2.342	2.269	2.191	2.141	2.107	2.063	2.017	1.993	1.968	1.917
19	2.308	2.234	2.155	2.106	2.071	2.026	1.980	1.955	1.930	1.878
20	2.278	2.203	2.124	2.074	2.039	1.994	1.946	1.922	1.896	1.843
21	2.250	2.176	2.096	2.045	2.010	1.965	1.916	1.891	1.866	1.812
22	2.226	2.151	2.071	2.020	1.984	1.938	1.889	1.864	1.838	1.783
23	2.204	2.128	2.048	1.996	1.961	1.914	1.865	1.839	1.813	1.757
24	2.183	2.108	2.027	1.975	1.939	1.892	1.842	1.816	1.790	1.733
25	2.165	2.089	2.007	1.955	1.919	1.872	1.822	1.796	1.768	1.711
26	2.148	2.072	1.990	1.938	1.901	1.853	1.803	1.776	1.749	1.691
27	2.132	2.056	1.974	1.921	1.884	1.836	1.785	1.758	1.731	1.672
28	2.118	2.041	1.959	1.906	1.869	1.820	1.769	1.742	1.714	1.654
29	2.104	2.027	1.945	1.891	1.854	1.806	1.754	1.726	1.698	1.638
30	2.092	2.015	1.932	1.878	1.841	1.792	1.740	1.712	1.683	1.622
35	2.041	1.963	1.878	1.824	1.786	1.735	1.681	1.652	1.623	1.558
40	2.003	1.924	1.839	1.783	1.744	1.693	1.637	1.608	1.577	1.509
45	1.974	1.895	1.808	1.752	1.713	1.660	1.603	1.573	1.541	1.470
50	1.952	1.871	1.784	1.727	1.687	1.634	1.576	1.544	1.511	1.438
55	1.933	1.852	1.764	1.707	1.666	1.612	1.553	1.521	1.487	1.412
60	1.917	1.836	1.748	1.690	1.649	1.594	1.534	1.502	1.467	1.389
70	1.893	1.812	1.722	1.664	1.622	1.566	1.505	1.471	1.435	1.353
80	1.875	1.793	1.703	1.644	1.602	1.545	1.482	1.448	1.411	1.325
90	1.861	1.779	1.688	1.629	1.586	1.528	1.465	1.429	1.391	1.302
100	1.850	1.768	1.676	1.616	1.573	1.515	1.450	1.415	1.376	1.283
200	1.801	1.717	1.623	1.561	1.516	1.455	1.386	1.346	1.302	1.189
500	1.772	1.686	1.592	1.528	1.482	1.419	1.345	1.303	1.255	1.113
∞	1.752	1.666	1.571	1.506	1.459	1.394	1.318	1.274	1.221	1.008

Esimerkki / Example:

Jos $df_1 = 30$ ja $df_2 = 60$, niin $\Pr(F > 1.649) = 0.05$.
If $df_1 = 30$ and $df_2 = 60$, then $\Pr(F > 1.649) = 0.05$.

TAULUKKO / TABLE 4.2.1. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 2.5 %:n merkitsevyystasolle / Critical values at the 2.5 % level of significance.

0.025	df_1									
df_2	1	2	3	4	5	6	7	8	9	10
1	647.789	799.500	864.163	899.583	921.848	937.111	948.217	956.656	963.285	968.627
2	38.506	39.000	39.165	39.248	39.298	39.331	39.355	39.373	39.387	39.398
3	17.443	16.044	15.439	15.101	14.885	14.735	14.624	14.540	14.473	14.419
4	12.218	10.649	9.979	9.605	9.364	9.197	9.074	8.980	8.905	8.844
5	10.007	8.434	7.764	7.388	7.146	6.978	6.853	6.757	6.681	6.619
6	8.813	7.260	6.599	6.227	5.988	5.820	5.695	5.600	5.523	5.461
7	8.073	6.542	5.890	5.523	5.285	5.119	4.995	4.899	4.823	4.761
8	7.571	6.059	5.416	5.053	4.817	4.652	4.529	4.433	4.357	4.295
9	7.209	5.715	5.078	4.718	4.484	4.320	4.197	4.102	4.026	3.964
10	6.937	5.456	4.826	4.468	4.236	4.072	3.950	3.855	3.779	3.717
11	6.724	5.256	4.630	4.275	4.044	3.881	3.759	3.664	3.588	3.526
12	6.554	5.096	4.474	4.121	3.891	3.728	3.607	3.512	3.436	3.374
13	6.414	4.965	4.347	3.996	3.767	3.604	3.483	3.388	3.312	3.250
14	6.298	4.857	4.242	3.892	3.663	3.501	3.380	3.285	3.209	3.147
15	6.200	4.765	4.153	3.804	3.576	3.415	3.293	3.199	3.123	3.060
16	6.115	4.687	4.077	3.729	3.502	3.341	3.219	3.125	3.049	2.986
17	6.042	4.619	4.011	3.665	3.438	3.277	3.156	3.061	2.985	2.922
18	5.978	4.560	3.954	3.608	3.382	3.221	3.100	3.005	2.929	2.866
19	5.922	4.508	3.903	3.559	3.333	3.172	3.051	2.956	2.880	2.817
20	5.871	4.461	3.859	3.515	3.289	3.128	3.007	2.913	2.837	2.774
21	5.827	4.420	3.819	3.475	3.250	3.090	2.969	2.874	2.798	2.735
22	5.786	4.383	3.783	3.440	3.215	3.055	2.934	2.839	2.763	2.700
23	5.750	4.349	3.750	3.408	3.183	3.023	2.902	2.808	2.731	2.668
24	5.717	4.319	3.721	3.379	3.155	2.995	2.874	2.779	2.703	2.640
25	5.686	4.291	3.694	3.353	3.129	2.969	2.848	2.753	2.677	2.613
26	5.659	4.265	3.670	3.329	3.105	2.945	2.824	2.729	2.653	2.590
27	5.633	4.242	3.647	3.307	3.083	2.923	2.802	2.707	2.631	2.568
28	5.610	4.221	3.626	3.286	3.063	2.903	2.782	2.687	2.611	2.547
29	5.588	4.201	3.607	3.267	3.044	2.884	2.763	2.669	2.592	2.529
30	5.568	4.182	3.589	3.250	3.026	2.867	2.746	2.651	2.575	2.511
35	5.485	4.106	3.517	3.179	2.956	2.796	2.676	2.581	2.504	2.440
40	5.424	4.051	3.463	3.126	2.904	2.744	2.624	2.529	2.452	2.388
45	5.377	4.009	3.422	3.086	2.864	2.705	2.584	2.489	2.412	2.348
50	5.340	3.975	3.390	3.054	2.833	2.674	2.553	2.458	2.381	2.317
55	5.310	3.948	3.364	3.029	2.807	2.648	2.528	2.433	2.355	2.291
60	5.286	3.925	3.343	3.008	2.786	2.627	2.507	2.412	2.334	2.270
70	5.247	3.890	3.309	2.975	2.754	2.595	2.474	2.379	2.302	2.237
80	5.218	3.864	3.284	2.950	2.730	2.571	2.450	2.355	2.277	2.213
90	5.196	3.844	3.265	2.932	2.711	2.552	2.432	2.336	2.259	2.194
100	5.179	3.828	3.250	2.917	2.696	2.537	2.417	2.321	2.244	2.179
200	5.100	3.758	3.182	2.850	2.630	2.472	2.351	2.256	2.178	2.113
500	5.054	3.716	3.142	2.811	2.592	2.434	2.313	2.217	2.139	2.074
∞	5.024	3.689	3.116	2.786	2.567	2.408	2.288	2.192	2.114	2.048

Esimerkki / Example:

Jos $df_1 = 5$ ja $df_2 = 8$, niin $\Pr(F > 4.817) = 0.025$.
If $df_1 = 5$ and $df_2 = 8$, then $\Pr(F > 4.817) = 0.025$.

TAULUKKO / TABLE 4.2.2. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 2.5 %:n merkitsevyystasolle / Critical values at the 2.5 % level of significance.

0.025	df_1									
df_2	12	15	20	25	30	40	60	80	120	∞
1	976.708	984.867	993.103	998.081	1001.414	1005.598	1009.800	1011.908	1014.020	1018.258
2	39.415	39.431	39.448	39.458	39.465	39.473	39.481	39.485	39.490	39.498
3	14.337	14.253	14.167	14.115	14.081	14.037	13.992	13.970	13.947	13.902
4	8.751	8.657	8.560	8.501	8.461	8.411	8.360	8.335	8.309	8.257
5	6.525	6.428	6.329	6.268	6.227	6.175	6.123	6.096	6.069	6.015
6	5.366	5.269	5.168	5.107	5.065	5.012	4.959	4.932	4.904	4.849
7	4.666	4.568	4.467	4.405	4.362	4.309	4.254	4.227	4.199	4.142
8	4.200	4.101	3.999	3.937	3.894	3.840	3.784	3.756	3.728	3.670
9	3.868	3.769	3.667	3.604	3.560	3.505	3.449	3.421	3.392	3.333
10	3.621	3.522	3.419	3.355	3.311	3.255	3.198	3.169	3.140	3.080
11	3.430	3.330	3.226	3.162	3.118	3.061	3.004	2.974	2.944	2.883
12	3.277	3.177	3.073	3.008	2.963	2.906	2.848	2.818	2.787	2.725
13	3.153	3.053	2.948	2.882	2.837	2.780	2.720	2.690	2.659	2.595
14	3.050	2.949	2.844	2.778	2.732	2.674	2.614	2.583	2.552	2.487
15	2.963	2.862	2.756	2.689	2.644	2.585	2.524	2.493	2.461	2.395
16	2.889	2.788	2.681	2.614	2.568	2.509	2.447	2.415	2.383	2.316
17	2.825	2.723	2.616	2.548	2.502	2.442	2.380	2.348	2.315	2.247
18	2.769	2.667	2.559	2.491	2.445	2.384	2.321	2.289	2.256	2.187
19	2.720	2.617	2.509	2.441	2.394	2.333	2.270	2.237	2.203	2.133
20	2.676	2.573	2.464	2.396	2.349	2.287	2.223	2.190	2.156	2.085
21	2.637	2.534	2.425	2.356	2.308	2.246	2.182	2.148	2.114	2.042
22	2.602	2.498	2.389	2.320	2.272	2.210	2.145	2.111	2.076	2.003
23	2.570	2.466	2.357	2.287	2.239	2.176	2.111	2.077	2.041	1.968
24	2.541	2.437	2.327	2.257	2.209	2.146	2.080	2.045	2.010	1.935
25	2.515	2.411	2.300	2.230	2.182	2.118	2.052	2.017	1.981	1.906
26	2.491	2.387	2.276	2.205	2.157	2.093	2.026	1.991	1.954	1.878
27	2.469	2.364	2.253	2.183	2.133	2.069	2.002	1.966	1.930	1.853
28	2.448	2.344	2.232	2.161	2.112	2.048	1.980	1.944	1.907	1.829
29	2.430	2.325	2.213	2.142	2.092	2.028	1.959	1.923	1.886	1.807
30	2.412	2.307	2.195	2.124	2.074	2.009	1.940	1.904	1.866	1.787
35	2.341	2.235	2.122	2.049	1.999	1.932	1.861	1.824	1.785	1.702
40	2.288	2.182	2.068	1.994	1.943	1.875	1.803	1.764	1.724	1.637
45	2.248	2.141	2.026	1.952	1.900	1.831	1.757	1.718	1.677	1.586
50	2.216	2.109	1.993	1.919	1.866	1.796	1.721	1.681	1.639	1.545
55	2.190	2.083	1.967	1.891	1.838	1.768	1.692	1.651	1.607	1.511
60	2.169	2.061	1.944	1.869	1.815	1.744	1.667	1.625	1.581	1.482
70	2.136	2.028	1.910	1.833	1.779	1.707	1.628	1.585	1.539	1.436
80	2.111	2.003	1.884	1.807	1.752	1.679	1.599	1.555	1.508	1.400
90	2.092	1.983	1.864	1.787	1.731	1.657	1.576	1.531	1.483	1.371
100	2.077	1.968	1.849	1.770	1.715	1.640	1.558	1.512	1.463	1.347
200	2.010	1.900	1.778	1.698	1.640	1.562	1.474	1.425	1.370	1.229
500	1.971	1.859	1.736	1.655	1.596	1.515	1.423	1.370	1.311	1.137
∞	1.945	1.833	1.708	1.626	1.566	1.484	1.388	1.333	1.268	1.009

Esimerkki / Example:

Jos $df_1 = 30$ ja $df_2 = 60$, niin $\Pr(F > 1.815) = 0.025$.
If $df_1 = 30$ and $df_2 = 60$, then $\Pr(F > 1.815) = 0.025$.

TAULUKKO / TABLE 4.3.1. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 1 %:n merkitsevyystasolle / Critical values at the 1 % level of significance.

0.01	df_1									
df_2	1	2	3	4	5	6	7	8	9	10
1	4052.181	4999.500	5403.352	5624.583	5763.650	5858.986	5928.356	5981.070	6022.473	6055.847
2	98.503	99.000	99.166	99.249	99.299	99.333	99.356	99.374	99.388	99.399
3	34.116	30.817	29.457	28.710	28.237	27.911	27.672	27.489	27.345	27.229
4	21.198	18.000	16.694	15.977	15.522	15.207	14.976	14.799	14.659	14.546
5	16.258	13.274	12.060	11.392	10.967	10.672	10.456	10.289	10.158	10.051
6	13.745	10.925	9.780	9.148	8.746	8.466	8.260	8.102	7.976	7.874
7	12.246	9.547	8.451	7.847	7.460	7.191	6.993	6.840	6.719	6.620
8	11.259	8.649	7.591	7.006	6.632	6.371	6.178	6.029	5.911	5.814
9	10.561	8.022	6.992	6.422	6.057	5.802	5.613	5.467	5.351	5.257
10	10.044	7.559	6.552	5.994	5.636	5.386	5.200	5.057	4.942	4.849
11	9.646	7.206	6.217	5.668	5.316	5.069	4.886	4.744	4.632	4.539
12	9.330	6.927	5.953	5.412	5.064	4.821	4.640	4.499	4.388	4.296
13	9.074	6.701	5.739	5.205	4.862	4.620	4.441	4.302	4.191	4.100
14	8.862	6.515	5.564	5.035	4.695	4.456	4.278	4.140	4.030	3.939
15	8.683	6.359	5.417	4.893	4.556	4.318	4.142	4.004	3.895	3.805
16	8.531	6.226	5.292	4.773	4.437	4.202	4.026	3.890	3.780	3.691
17	8.400	6.112	5.185	4.669	4.336	4.102	3.927	3.791	3.682	3.593
18	8.285	6.013	5.092	4.579	4.248	4.015	3.841	3.705	3.597	3.508
19	8.185	5.926	5.010	4.500	4.171	3.939	3.765	3.631	3.523	3.434
20	8.096	5.849	4.938	4.431	4.103	3.871	3.699	3.564	3.457	3.368
21	8.017	5.780	4.874	4.369	4.042	3.812	3.640	3.506	3.398	3.310
22	7.945	5.719	4.817	4.313	3.988	3.758	3.587	3.453	3.346	3.258
23	7.881	5.664	4.765	4.264	3.939	3.710	3.539	3.406	3.299	3.211
24	7.823	5.614	4.718	4.218	3.895	3.667	3.496	3.363	3.256	3.168
25	7.770	5.568	4.675	4.177	3.855	3.627	3.457	3.324	3.217	3.129
26	7.721	5.526	4.637	4.140	3.818	3.591	3.421	3.288	3.182	3.094
27	7.677	5.488	4.601	4.106	3.785	3.558	3.388	3.256	3.149	3.062
28	7.636	5.453	4.568	4.074	3.754	3.528	3.358	3.226	3.120	3.032
29	7.598	5.420	4.538	4.045	3.725	3.499	3.330	3.198	3.092	3.005
30	7.562	5.390	4.510	4.018	3.699	3.473	3.304	3.173	3.067	2.979
35	7.419	5.268	4.396	3.908	3.592	3.368	3.200	3.069	2.963	2.876
40	7.314	5.179	4.313	3.828	3.514	3.291	3.124	2.993	2.888	2.801
45	7.234	5.110	4.249	3.767	3.454	3.232	3.066	2.935	2.830	2.743
50	7.171	5.057	4.199	3.720	3.408	3.186	3.020	2.890	2.785	2.698
55	7.119	5.013	4.159	3.681	3.370	3.149	2.983	2.853	2.748	2.662
60	7.077	4.977	4.126	3.649	3.339	3.119	2.953	2.823	2.718	2.632
70	7.011	4.922	4.074	3.600	3.291	3.071	2.906	2.777	2.672	2.585
80	6.963	4.881	4.036	3.563	3.255	3.036	2.871	2.742	2.637	2.551
90	6.925	4.849	4.007	3.535	3.228	3.009	2.845	2.715	2.611	2.524
100	6.895	4.824	3.984	3.513	3.206	2.988	2.823	2.694	2.590	2.503
200	6.763	4.713	3.881	3.414	3.110	2.893	2.730	2.601	2.497	2.411
500	6.686	4.648	3.821	3.357	3.054	2.838	2.675	2.547	2.443	2.356
∞	6.635	4.605	3.782	3.319	3.017	2.802	2.639	2.511	2.407	2.321

Esimerkki / Example:

Jos $df_1 = 5$ ja $df_2 = 8$, niin $\Pr(t > 6.632) = 0.01$.
If $df_1 = 5$ and $df_2 = 8$, then $\Pr(t > 6.632) = 0.01$.

TAULUKKO / TABLE 4.3.2. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 1 %:n merkitsevyystasolle / Critical values at the 1 % level of significance.

0.01	df_1									
df_2	12	15	20	25	30	40	60	80	120	∞
1	6106.321	6157.285	6208.730	6239.825	6260.649	6286.782	6313.030	6326.197	6339.391	6365.861
2	99.416	99.433	99.449	99.459	99.466	99.474	99.482	99.487	99.491	99.499
3	27.052	26.872	26.690	26.579	26.505	26.411	26.316	26.269	26.221	26.125
4	14.374	14.198	14.020	13.911	13.838	13.745	13.652	13.605	13.558	13.463
5	9.888	9.722	9.553	9.449	9.379	9.291	9.202	9.157	9.112	9.020
6	7.718	7.559	7.396	7.296	7.229	7.143	7.057	7.013	6.969	6.880
7	6.469	6.314	6.155	6.058	5.992	5.908	5.824	5.781	5.737	5.650
8	5.667	5.515	5.359	5.263	5.198	5.116	5.032	4.989	4.946	4.859
9	5.111	4.962	4.808	4.713	4.649	4.567	4.483	4.441	4.398	4.311
10	4.706	4.558	4.405	4.311	4.247	4.165	4.082	4.039	3.996	3.909
11	4.397	4.251	4.099	4.005	3.941	3.860	3.776	3.734	3.690	3.602
12	4.155	4.010	3.858	3.765	3.701	3.619	3.535	3.493	3.449	3.361
13	3.960	3.815	3.665	3.571	3.507	3.425	3.341	3.298	3.255	3.165
14	3.800	3.656	3.505	3.412	3.348	3.266	3.181	3.138	3.094	3.004
15	3.666	3.522	3.372	3.278	3.214	3.132	3.047	3.004	2.959	2.868
16	3.553	3.409	3.259	3.165	3.101	3.018	2.933	2.889	2.845	2.753
17	3.455	3.312	3.162	3.068	3.003	2.920	2.835	2.791	2.746	2.653
18	3.371	3.227	3.077	2.983	2.919	2.835	2.749	2.705	2.660	2.566
19	3.297	3.153	3.003	2.909	2.844	2.761	2.674	2.630	2.584	2.489
20	3.231	3.088	2.938	2.843	2.778	2.695	2.608	2.563	2.517	2.421
21	3.173	3.030	2.880	2.785	2.720	2.636	2.548	2.503	2.457	2.360
22	3.121	2.978	2.827	2.733	2.667	2.583	2.495	2.450	2.403	2.305
23	3.074	2.931	2.781	2.686	2.620	2.535	2.447	2.401	2.354	2.256
24	3.032	2.889	2.738	2.643	2.577	2.492	2.403	2.357	2.310	2.211
25	2.993	2.850	2.699	2.604	2.538	2.453	2.364	2.317	2.270	2.169
26	2.958	2.815	2.664	2.569	2.503	2.417	2.327	2.281	2.233	2.131
27	2.926	2.783	2.632	2.536	2.470	2.384	2.294	2.247	2.198	2.097
28	2.896	2.753	2.602	2.506	2.440	2.354	2.263	2.216	2.167	2.064
29	2.868	2.726	2.574	2.478	2.412	2.325	2.234	2.187	2.138	2.034
30	2.843	2.700	2.549	2.453	2.386	2.299	2.208	2.160	2.111	2.006
35	2.740	2.597	2.445	2.348	2.281	2.193	2.099	2.050	2.000	1.891
40	2.665	2.522	2.369	2.271	2.203	2.114	2.019	1.969	1.917	1.805
45	2.608	2.464	2.311	2.213	2.144	2.054	1.958	1.907	1.853	1.737
50	2.562	2.419	2.265	2.167	2.098	2.007	1.909	1.857	1.803	1.683
55	2.526	2.382	2.228	2.129	2.060	1.968	1.869	1.817	1.761	1.638
60	2.496	2.352	2.198	2.098	2.028	1.936	1.836	1.783	1.726	1.601
70	2.450	2.306	2.150	2.050	1.980	1.886	1.785	1.730	1.672	1.540
80	2.415	2.271	2.115	2.015	1.944	1.849	1.746	1.690	1.630	1.494
90	2.389	2.244	2.088	1.987	1.916	1.820	1.716	1.659	1.598	1.457
100	2.368	2.223	2.067	1.965	1.893	1.797	1.692	1.634	1.572	1.427
200	2.275	2.129	1.971	1.868	1.794	1.694	1.583	1.521	1.453	1.279
500	2.220	2.075	1.915	1.810	1.735	1.633	1.517	1.452	1.377	1.164
∞	2.185	2.039	1.878	1.773	1.696	1.592	1.473	1.404	1.325	1.010

Esimerkki / Example:

Jos $df_1 = 30$ ja $df_2 = 60$, niin $\Pr(t > 2.028) = 0.01$.
If $df_1 = 30$ and $df_2 = 60$, then $\Pr(t > 2.028) = 0.01$.

TAULUKKO / TABLE 4.4.1. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 0.5 %:n merkitsevyystasolle / Critical values at the 0.5 % level of significance.

0.005	df_1									
df_2	1	2	3	4	5	6	7	8	9	10
1	16210.7	19999.5	21614.7	22499.6	23055.8	23437.1	23714.6	23925.4	24091.0	24224.5
2	198.501	199.000	199.166	199.250	199.300	199.333	199.357	199.375	199.388	199.400
3	55.552	49.799	47.467	46.195	45.392	44.838	44.434	44.126	43.882	43.686
4	31.333	26.284	24.259	23.155	22.456	21.975	21.622	21.352	21.139	20.967
5	22.785	18.314	16.530	15.556	14.940	14.513	14.200	13.961	13.772	13.618
6	18.635	14.544	12.917	12.028	11.464	11.073	10.786	10.566	10.391	10.250
7	16.236	12.404	10.882	10.050	9.522	9.155	8.885	8.678	8.514	8.380
8	14.688	11.042	9.596	8.805	8.302	7.952	7.694	7.496	7.339	7.211
9	13.614	10.107	8.717	7.956	7.471	7.134	6.885	6.693	6.541	6.417
10	12.826	9.427	8.081	7.343	6.872	6.545	6.302	6.116	5.968	5.847
11	12.226	8.912	7.600	6.881	6.422	6.102	5.865	5.682	5.537	5.418
12	11.754	8.510	7.226	6.521	6.071	5.757	5.525	5.345	5.202	5.085
13	11.374	8.186	6.926	6.233	5.791	5.482	5.253	5.076	4.935	4.820
14	11.060	7.922	6.680	5.998	5.562	5.257	5.031	4.857	4.717	4.603
15	10.798	7.701	6.476	5.803	5.372	5.071	4.847	4.674	4.536	4.424
16	10.575	7.514	6.303	5.638	5.212	4.913	4.692	4.521	4.384	4.272
17	10.384	7.354	6.156	5.497	5.075	4.779	4.559	4.389	4.254	4.142
18	10.218	7.215	6.028	5.375	4.956	4.663	4.445	4.276	4.141	4.030
19	10.073	7.093	5.916	5.268	4.853	4.561	4.345	4.177	4.043	3.933
20	9.944	6.986	5.818	5.174	4.762	4.472	4.257	4.090	3.956	3.847
21	9.830	6.891	5.730	5.091	4.681	4.393	4.179	4.013	3.880	3.771
22	9.727	6.806	5.652	5.017	4.609	4.322	4.109	3.944	3.812	3.703
23	9.635	6.730	5.582	4.950	4.544	4.259	4.047	3.882	3.750	3.642
24	9.551	6.661	5.519	4.890	4.486	4.202	3.991	3.826	3.695	3.587
25	9.475	6.598	5.462	4.835	4.433	4.150	3.939	3.776	3.645	3.537
26	9.406	6.541	5.409	4.785	4.384	4.103	3.893	3.730	3.599	3.492
27	9.342	6.489	5.361	4.740	4.340	4.059	3.850	3.687	3.557	3.450
28	9.284	6.440	5.317	4.698	4.300	4.020	3.811	3.649	3.519	3.412
29	9.230	6.396	5.276	4.659	4.262	3.983	3.775	3.613	3.483	3.377
30	9.180	6.355	5.239	4.623	4.228	3.949	3.742	3.580	3.450	3.344
35	8.976	6.188	5.086	4.479	4.088	3.812	3.607	3.447	3.318	3.212
40	8.828	6.066	4.976	4.374	3.986	3.713	3.509	3.350	3.222	3.117
45	8.715	5.974	4.892	4.294	3.909	3.638	3.435	3.276	3.149	3.044
50	8.626	5.902	4.826	4.232	3.849	3.579	3.376	3.219	3.092	2.988
55	8.554	5.843	4.773	4.181	3.800	3.531	3.330	3.173	3.046	2.942
60	8.495	5.795	4.729	4.140	3.760	3.492	3.291	3.134	3.008	2.904
70	8.403	5.720	4.661	4.076	3.698	3.431	3.232	3.076	2.950	2.846
80	8.335	5.665	4.611	4.029	3.652	3.387	3.188	3.032	2.907	2.803
90	8.282	5.623	4.573	3.992	3.617	3.352	3.154	2.999	2.873	2.770
100	8.241	5.589	4.542	3.963	3.589	3.325	3.127	2.972	2.847	2.744
200	8.057	5.441	4.408	3.837	3.467	3.206	3.010	2.856	2.732	2.629
500	7.950	5.355	4.330	3.763	3.396	3.137	2.941	2.789	2.665	2.562
∞	7.879	5.298	4.279	3.715	3.350	3.091	2.897	2.744	2.621	2.519

Esimerkki / Example:

Jos $df_1 = 5$ ja $df_2 = 8$, niin $\Pr(t > 8.302) = 0.005$.
If $df_1 = 5$ and $df_2 = 8$, then $\Pr(t > 8.302) = 0.005$.

TAULUKKO / TABLE 4.4.2. F-JAKAUMA / F-DISTRIBUTION $F(df_1, df_2)$

Kriittisiä arvoja 0.5 %:n merkitsevyystasolle / Critical values at the 0.5 % level of significance.

0.005	df_1									
df_2	12	15	20	25	30	40	60	80	120	∞
1	24426.4	24630.2	24836.0	24960.3	25043.6	25148.2	25253.1	25305.8	25358.6	25464.4
2	199.416	199.433	199.450	199.460	199.466	199.475	199.483	199.487	199.491	199.500
3	43.387	43.085	42.778	42.591	42.466	42.308	42.149	42.070	41.989	41.828
4	20.705	20.438	20.167	20.002	19.892	19.752	19.611	19.540	19.468	19.325
5	13.384	13.146	12.903	12.755	12.656	12.530	12.402	12.338	12.274	12.144
6	10.034	9.814	9.589	9.451	9.358	9.241	9.122	9.062	9.001	8.879
7	8.176	7.968	7.754	7.623	7.534	7.422	7.309	7.251	7.193	7.076
8	7.015	6.814	6.608	6.482	6.396	6.288	6.177	6.121	6.065	5.951
9	6.227	6.032	5.832	5.708	5.625	5.519	5.410	5.356	5.300	5.188
10	5.661	5.471	5.274	5.153	5.071	4.966	4.859	4.805	4.750	4.639
11	5.236	5.049	4.855	4.736	4.654	4.551	4.445	4.391	4.337	4.226
12	4.906	4.721	4.530	4.412	4.331	4.228	4.123	4.069	4.015	3.904
13	4.643	4.460	4.270	4.153	4.073	3.970	3.866	3.812	3.758	3.647
14	4.428	4.247	4.059	3.942	3.862	3.760	3.655	3.602	3.547	3.436
15	4.250	4.070	3.883	3.766	3.687	3.585	3.480	3.427	3.372	3.260
16	4.099	3.920	3.734	3.618	3.539	3.437	3.332	3.279	3.224	3.112
17	3.971	3.793	3.607	3.492	3.412	3.311	3.206	3.152	3.097	2.984
18	3.860	3.683	3.498	3.382	3.303	3.201	3.096	3.042	2.987	2.873
19	3.763	3.587	3.402	3.287	3.208	3.106	3.000	2.946	2.891	2.776
20	3.678	3.502	3.318	3.203	3.123	3.022	2.916	2.861	2.806	2.690
21	3.602	3.427	3.243	3.128	3.049	2.947	2.841	2.786	2.730	2.614
22	3.535	3.360	3.176	3.061	2.982	2.880	2.774	2.719	2.663	2.546
23	3.475	3.300	3.116	3.001	2.922	2.820	2.713	2.658	2.602	2.484
24	3.420	3.246	3.062	2.947	2.868	2.765	2.658	2.603	2.546	2.428
25	3.370	3.196	3.013	2.898	2.819	2.716	2.609	2.553	2.496	2.377
26	3.325	3.151	2.968	2.853	2.774	2.671	2.563	2.508	2.450	2.330
27	3.284	3.110	2.928	2.812	2.733	2.630	2.522	2.466	2.408	2.287
28	3.246	3.073	2.890	2.775	2.695	2.592	2.483	2.427	2.369	2.247
29	3.211	3.038	2.855	2.740	2.660	2.557	2.448	2.391	2.333	2.210
30	3.179	3.006	2.823	2.708	2.628	2.524	2.415	2.358	2.300	2.176
35	3.048	2.876	2.693	2.577	2.497	2.392	2.282	2.224	2.164	2.036
40	2.953	2.781	2.598	2.482	2.401	2.296	2.184	2.125	2.064	1.932
45	2.881	2.709	2.527	2.410	2.329	2.222	2.109	2.049	1.987	1.851
50	2.825	2.653	2.470	2.353	2.272	2.164	2.050	1.989	1.925	1.786
55	2.779	2.608	2.425	2.308	2.226	2.118	2.002	1.940	1.876	1.733
60	2.742	2.570	2.387	2.270	2.187	2.079	1.962	1.900	1.834	1.689
70	2.684	2.513	2.329	2.211	2.128	2.019	1.900	1.837	1.769	1.618
80	2.641	2.470	2.286	2.168	2.084	1.974	1.854	1.789	1.720	1.563
90	2.608	2.437	2.253	2.134	2.051	1.939	1.818	1.752	1.682	1.520
100	2.583	2.411	2.227	2.108	2.024	1.912	1.790	1.723	1.652	1.485
200	2.468	2.297	2.112	1.991	1.905	1.790	1.661	1.590	1.512	1.314
500	2.402	2.230	2.044	1.922	1.835	1.717	1.584	1.509	1.425	1.184
∞	2.358	2.187	2.000	1.877	1.789	1.669	1.533	1.454	1.364	1.012

Esimerkki / Example:

Jos $df_1 = 30$ ja $df_2 = 60$, niin $\Pr(t > 2.187) = 0.005$.
If $df_1 = 30$ and $df_2 = 60$, then $\Pr(t > 2.187) = 0.005$.