Figure 13.13j. 99.9*th* PERCENTILES FOR THE *F* DISTRIBUTION [F_{ν_1,ν_2}]

[Calculated with *qf* in **R** Version 3.3.2 using 17-digit arithmetic; the accuracy of all digits in the table entries has *not* been verified]

Each table entry is the value (y) of the random variable $Y \sim F_{\nu_1,\nu_2}$ such that $\Pr(Y \le y) = 0.999$ (ν_1 is the numerator, ν_2 the denominator, degrees of freedom)

$Df \rightarrow$ / ν_2 / ν_1	1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	60	75	100	175	350	1,000	
1	405284	499999	540379	562500	576405	585937	592873	598144	602284	605621	610668	615764	620908	624017	626099	628712	630285	631337	632390	633444	634803	635711	636301	1
2	998.50	999.00	999.17	999.25	999.30	999.33	999.36	999.37	999.39	999.40	999.42	999.43	999.45	999.46	999.47	999.47	999.48	999.48	999.49	999.49	999.49	999.50	999.50	
3	167.03	148.50	141.11	137.10	134.58	132.85	131.58	130.62	129.86	129.25	128.32	127.37	126.42	125.84	125.45	124.96	124.66	124.47	124.27	124.07	123.81	123.64	123.53	
4	74.137	61.246	56.177	53.436	51.712	50.525	49.658	48.996	48.475	48.053	47.412	46.761	46.100	45.699	45.429	45.089	44.883	44.746	44.608	44.469	44.290	44.171	44.093	
5	47.181	37.122	33.202	31.085	29.752	28.834	28.163	27.649	27.244	26.917	26.418	25.911	25.395	25.080	24.869	24.602	24.441	24.333	24.224	24.115	23.974	23.880	23.819	5
6	35.507	27.000	23.703	21.924	20.803	20.030	19.463	19.030	18.688	18.411	17.989	17.559	17.120	16.853	16.672	16.445	16.307	16.214	16.121	16.028	15.907	15.826	15.774	
7	29.245	21.689	18.772	17.198	16.206	15.521	15.019	14.634	14.330	14.083	13.707	13.324	12.932	12.692	12.530	12.326	12.202	12.119	12.035	11.951	11.842	11.769	11.722	
8	25.4148	18.4937	15.8295	14.3916	13.4847	12.8580	12.3980	12.0455	11.7665	11.5401	11.1945	10.8413	10.4797	10.2583	10.1087	9.9194	9.8044	9.7272	9.6495	9.5714	9.4701	9.4021	9.3577	
9	22.8571	16.3871	13.9018	12.5603	11.7137	11.1281	10.6979	10.3680	10.1066	9.8943	9.5700	9.2381	8.8976	8.6888	8.5476	8.3685	8.2597	8.1865	8.1129	8.0387	7.9425	7.8779	7.8357	
10	21.0396	14.9054	12.5527	11.2828	10.4807	9.9256	9.5175	9.2041	8.9558	8.7539	8.4452	8.1288	7.8037	7.6041	7.4688	7.2971	7.1927	7.1224	7.0516	6.9802	6.8876	6.8253	6.7845	10
11	19.6868	13.8116	11.5611	10.3461	9.5784	9.0466	8.6553	8.3548	8.1163	7.9224	7.6256	7.3210	7.0076	6.8147	6.6839	6.5178	6.4165	6.3483	6.2795	6.2102	6.1201	6.0595	6.0198	
12	18.6433	12.9737	10.8042	9.6327	8.8921	8.3788	8.0009	7.7104	7.4797	7.2920	7.0046	6.7092	6.4048	6.2172	6.0898	5.9278	5.8290	5.7623	5.6951	5.6272	5.5390	5.4795	5.4406	
13	17.8154	12.3127	10.2089	9.0727	8.3541	7.8557	7.4886	7.2061	6.9818	6.7992	6.5192	6.2312	5.9340	5.7505	5.6258	5.4670	5.3700	5.3046	5.2385	5.1718	5.0849	5.0263	4.9879	
14	17.1434	11.7789	9.7294	8.6223	7.9218	7.4358	7.0775	6.8017	6.5826	6.4041	6.1302	5.8483	5.5568	5.3767	5.2542	5.0979	5.0023	4.9378	4.8726	4.8067	4.7208	4.6629	4.6248	
15	16.5874	11.3391	9.3353	8.2527	7.5674	7.0917	6.7408	6.4707	6.2559	6.0808	5.8121	5.5351	5.2484	5.0710	4.9502	4.7959	4.7015	4.6377	4.5732	4.5079	4.4228	4.3652	4.3275	15
16	16.1202	10.9710	9.0059	7.9442	7.2719	6.8049	6.4604	6.1950	5.9839	5.8117	5.5473	5.2745	4.9918	4.8167	4.6972	4.5446	4.4511	4.3878	4.3238	4.2590	4.1744	4.1172	4.0796	
17	15.7222	10.6584	8.7269	7.6831	7.0219	6.5625	6.2234	5.9620	5.7541	5.5844	5.3237	5.0544	4.7751	4.6019	4.4836	4.3323	4.2395	4.1767	4.1131	4.0486	3.9644	3.9074	3.8699	
18	15.3793	10.3899	8.4875	7.4593	6.8078	6.3550	6.0206	5.7628	5.5575	5.3900	5.1324	4.8663	4.5899	4.4182	4.3009	4.1507	4.0584	3.9960	3.9327	3.8685	3.7845	3.7276	3.6901	
19	15.0808	10.1568	8.2799	7.2655	6.6225	6.1754	5.8452	5.5904	5.3876	5.2219	4.9672	4.7037	4.4297	4.2594	4.1429	3.9936	3.9018	3.8396	3.7765	3.7125	3.6287	3.5718	3.5344	
20	14.8188	9.9526	8.0984	7.0960	6.4606	6.0186	5.6920	5.4400	5.2392	5.0752	4.8229	4.5618	4.2900	4.1208	4.0050	3.8564	3.7650	3.7030	3.6401	3.5762	3.4925	3.4356	3.3981	20
22	14.3803	9.6120	7.7960	6.8142	6.1914	5.7580	5.4376	5.1901	4.9929	4.8317	4.5835	4.3262	4.0579	3.8906	3.7759	3.6285	3.5376	3.4759	3.4131	3.3493	3.2656	3.2086	3.1710	
24	14.0280	9.3394	7.5545	6.5892	5.9768	5.5504	5.2349	4.9912	4.7968	4.6379	4.3929	4.1387	3.8732	3.7073	3.5935	3.4468	3.3562	3.2946	3.2320	3.1681	3.0842	3.0269	2.9891	
26	13.7390	9.1163	7.3572	6.4057	5.8018	5.3812	5.0698	4.8292	4.6372	4.4801	4.2378	3.9861	3.7228	3.5580	3.4448	3.2987	3.2083	3.1467	3.0840	3.0200	2.9357	2.8782	2.8401	
28	13.4976	8.9305	7.1931	6.2532	5.6565	5.2407	4.9328	4.6947	4.5047	4.3491	4.1091	3.8595	3.5980	3.4341	3.3213	3.1755	3.0852	3.0236	2.9608	2.8967	2.8120	2.7540	2.7156	
30	13.2930	8.7734	7.0545	6.1245	5.5339	5.1223	4.8173	4.5814	4.3930	4.2388	4.0006	3.7527	3.4928	3.3296	3.2171	3.0716	2.9813	2.9196	2.8567	2.7923	2.7072	2.6488	2.6100	30
35	12.8963	8.4697	6.7870	5.8764	5.2978	4.8942	4.5950	4.3634	4.1782	4.0265	3.7920	3.5474	3.2903	3.1283	3.0163	2.8711	2.7806	2.7187	2.6552	2.5902	2.5038	2.4443	2.4046	
40	12.6094	8.2508	6.5945	5.6981	5.1283	4.7306	4.4355	4.2070	4.0243	3.8744	3.6425	3.4003	3.1450	2.9838	2.8721	2.7268	2.6360	2.5737	2.5097	2.4439	2.3562	2.2955	2.2549	
45	12.3922	8.0855	6.4495	5.5639	5.0007	4.6075	4.3157	4.0895	3.9086	3.7601	3.5301	3.2897	3.0357	2.8750	2.7635	2.6180	2.5268	2.4640	2.3995	2.3330	2.2439	2.1820	2.1404	
50	12.2221	7.9564	6.3364	5.4593	4.9013	4.5117	4.2224	3.9980	3.8185	3.6711	3.4426	3.2035	2.9506	2.7902	2.6787	2.5329	2.4413	2.3782	2.3131	2.2458	2.1555	2.0924	2.0499	50
60	11.9730	7.7678	6.1712	5.3067	4.7565	4.3721	4.0864	3.8648	3.6873	3.5415	3.3153	3.0781	2.8266	2.6665	2.5549	2.4086	2.3162	2.2523	2.1862	2.1175	2.0247	1.9593	1.9150	
70	11.7993	7.6366	6.0566	5.2008	4.6561	4.2753	3.9922	3.7725	3.5964	3.4517	3.2271	2.9912	2.7405	2.5807	2.4689	2.3220	2.2289	2.1643	2.0972	2.0274	1.9323	1.8649	1.8188	
80	11.6714	7.5401	5.9723	5.1231	4.5824	4.2043	3.9232	3.7049	3.5298	3.3859	3.1624	2.9274	2.6774	2.5176	2.4057	2.2582	2.1644	2.0992	2.0314	1.9604	1.8634	1.7940	1.7464	
90	11.5732	7.4661	5.9078	5.0636	4.5260	4.1500	3.8703	3.6531	3.4789	3.3356	3.1129	2.8787	2.6291	2.4693	2.3572	2.2092	2.1149	2.0491	1.9806	1.9086	1.8098	1.7387	1.6895	
100	11.4954	7.4077	5.8568	5.0167	4.4815	4.1071	3.8286	3.6123	3.4387	3.2959	3.0739	2.8402	2.5909	2.4311	2.3189	2.1704	2.0756	2.0094	1.9402	1.8674	1.7669	1.6942	1.6436	100
125	11.3573	7.3040	5.7664	4.9334	4.4026	4.0312	3.7548	3.5399	3.3675	3.2255	3.0047	2.7720	2.5232	2.3634	2.2509	2.1014	2.0056	1.9384	1.8680	1.7934	1.6895	1.6133	1.5595	
150	11.2666	7.2359	5.7072	4.8788	4.3510	3.9815	3.7064	3.4926	3.3209	3.1795	2.9595	2.7274	2.4789	2.3189	2.2062	2.0560	1.9595	1.8915	1.8201	1.7441	1.6375	1.5583	1.5017	
175	11.2023	7.1877	5.6653	4.8403	4.3145	3.9464	3.6723	3.4591	3.2880	3.1470	2.9275	2.6958	2.4476	2.2875	2.1746	2.0239	1.9267	1.8582	1.7859	1.7089	1.6000	1.5183	1.4593	
200	11.1545	7.1519	5.6341	4.8116	4.2874	3.9203	3.6469	3.4343	3.2635	3.1228	2.9038	2.6724	2.4243	2.2642	2.1510	1.9999	1.9022	1.8333	1.7604	1.6824	1.5717	1.4879	1.4266	
250	11.0880	7.1022	5.5909	4.7719	4.2497	3.8841	3.6117	3.3998	3.2296	3.0893	2.8708	2.6399	2.3920	2.2317	2.1183	1.9665	1.8681	1.7985	1.7247	1.6453	1.5316	1.4443	1.3793	250
300	11.0440	7.0693	5.5623	4.7456	4.2249	3.8601	3.5884	3.3771	3.2072	3.0672	2.8490	2.6184	2.3706	2.2102	2.0967	1.9444	1.8455	1.7754	1.7008	1.6205	1.5046	1.4145	1.3464	
350	11.0127	7.0459	5.5420	4.7269	4.2072	3.8431	3.5719	3.3609	3.1913	3.0515	2.8336	2.6031	2.3554	2.1950	2.0813	1.9286	1.8294	1.7589	1.6838	1.6027	1.4851	1.3928	1.3221	
400	10.9893	7.0284	5.5268	4.7129	4.1940	3.8305	3.5596	3.3488	3.1794	3.0397	2.8220	2.5917	2.3440	2.1836	2.0697	1.9168	1.8173	1.7465	1.6710	1.5893	1.4703	1.3763	1.3032	
450	10.9712	7.0149	5.5151	4.7021	4.1838	3.8206	3.5500	3.3394	3.1702	3.0306	2.8131	2.5829	2.3352	2.1747	2.0608	1.9077	1.8079	1.7369	1.6611	1.5789	1.4588	1.3632	1.2882	
500	10.9567	7.0041	5.5057	4.6935	4.1756	3.8128	3.5424	3.3320	3.1628	3.0234	2.8060	2.5759	2.3282	2.1677	2.0537	1.9004	1.8004	1.7292	1.6531	1.5705	1.4495	1.3526	1.2759	500
600	10.9350	6.9879	5.4916	4.6806	4.1634	3.8010	3.5310	3.3208	3.1518	3.0125	2.7953	2.5653	2.3177	2.1571	2.0430	1.8894	1.7892	1.7177	1.6412	1.5579	1.4354	1.3365	1.2568	
700	10.9196	6.9764	5.4816	4.6714	4.1547	3.7927	3.5229	3.3129	3.1440	3.0048	2.7877	2.5578	2.3102	2.1496	2.0354	1.8816	1.7812	1.7095	1.6327	1.5489	1.4253	1.3248	1.2427	
800	10.9080	6.9677	5.4741	4.6645	4.1482	3.7864	3.5168	3.3069	3.1381	2.9990	2.7820	2.5522	2.3047	2.1440	2.0297	1.8758	1.7752	1.7033	1.6263	1.5422	1.4177	1.3159	1.2318	
900	10.8990	6.9610	5.4683	4.6592	4.1432	3.7816	3.5121	3.3023	3.1336	2.9945	2.7776	2.5478	2.3003	2.1396	2.0253	1.8712	1.7705	1.6985	1.6213	1.5369	1.4118	1.3089	1.2232	
1,000	10.8919	6.9557	5.4637	4.6549	4.1391	3.7777	3.5083	3.2986	3.1300	2.9909	2.7740	2.5443	2.2968	2.1361	2.0218	1.8676	1.7668	1.6947	1.6173	1.5327	1.4070	1.3033	1.2161	1,000
2,000	10.8596	6.9317	5.4428	4.6358	4.1210	3.7603	3.4914	3.2820	3.1137	2.9748	2.7582	2.5287	2.2812	2.1204	2.0059	1.8513	1.7500	1.6774	1.5993	1.5137	1.3853	1.2772	1.1823	
3,000	10.8489	6.9237	5.4359	4.6294	4.1150	3.7545	3.4858	3.2765	3.1083	2.9695	2.7529	2.5235	2.2761	2.1152	2.0006	1.8459	1.7444	1.6716	1.5933	1.5073	1.3779	1.2683	1.1702	
4,000	10.8436	6.9197	5.4324	4.6262	4.1120	3.7516	3.4830	3.2738	3.1056	2.9668	2.7503	2.5209	2.2735	2.1126	1.9980	1.8432	1.7416	1.6688	1.5903	1.5041	1.3743	1.2638	1.1639	
5,000	10.8404	6.9173	5.4304	4.6243	4.1102	3.7499	3.4813	3.2721	3.1039	2.9652	2.7487	2.5194	2.2719	2.1110	1.9964	1.8415	1.7399	1.6670	1.5885	1.5022	1.3720	1.2610	1.1600	
7,500	10.8361	6.9141	5.4276	4.6218	4.1078	3.7476	3.4790	3.2699	3.1018	2.9631	2.7466	2.5173	2.2699	2.1089	1.9943	1.8394	1.7377	1.6647	1.5861	1.4996	1.3691	1.2574	1.1548	
10,000	10.8340	6.9125	5.4262	4.6205	4.1066	3.7464	3.4779	3.2688	3.1007	2.9620	2.7456	2.5163	2.2688	2.1079	1.9933	1.8383	1.7366	1.6636	1.5849	1.4983	1.3676	1.2555	1.1521	10,000
	1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	60	75	100	175	350	1,000	

F_{ν_1,ν_2} .999

F_{ν_1,ν_2} .999

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