Figure 13.13o. 99.9995*th* PERCENTILES FOR THE *F* DISTRIBUTION [F_{ν_1,ν_2}]

[Calculated with *qf* in **R** Version 3.2.2 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 $\Pr(Y \le y) = 0.999995$ (ν_1 is the numerator, ν_2 the denominator, degrees of freedom)

F_{ν_1,ν_2} .999995

Df → / ↓ 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	16211389382	19999999999	21615185843	22499999999	23056198233	23437499999	23714946754	23925781249	24091374480	24224853515	24426727294	24630560702	24836320907	24960687119	25043972115	25148494902	25211428791	25253475786	25295595246	25337786831	25392138582	25428438643	25452061683	1
2	199998.5	199999.0	199999.2	199999.2	199999.3	199999.3	199999.4	199999.4	199999.4	199999.4	199999.4	199999.4	199999.4	199999.5	199999.5	199999.5	199999.5	199999.5	199999.5	199999.5	199999.5	199999.5	199999.5	
3	5791.9	5128.4	4865.7	4723.7	4634.5	4573.2	4528.6	4494.5	4467.7	4446.1	4413.3	4380.1	4346.4	4325.9	4312.2	4295.0	4284.6	4277.6	4270.6	4263.6	4254.6	4248.6	4244.7	
4	1092.11	892.43	814.94	773.26	747.13	729.19	716.09	706.11	698.24	691.89	682.24	672.46	662.52	656.49	652.44	647.34	644.26	642.20	640.13	638.06	635.38	633.59	632.42	
5	424.00	327.38	290.42	270.63	258.23	249.72	243.51	238.77	235.04	232.02	227.43	222.77	218.04	215.16	213.22	210.78	209.31	208.32	207.33	206.33	205.05	204.19	203.63	5
6	232.867	172.441	149.578	137.371	129.733	124.490	120.661	117.740	115.437	113.573	110.741	107.862	104.933	103.149	101.949	100.435	99.519	98.905	98.289	97.670	96.870	96.334	95.985	
7	154.675	110.958	94.549	85.810	80.347	76.596	73.857	71.766	70.117	68.782	66.752	64.687	62.583	61.300	60.436	59.345	58.685	58.242	57.797	57.350	56.772	56.385	56.132	
8	115.158	80.590	67.694	60.839	56.556	53.616	51.469	49.829	48.535	47.487	45.893	44.270	42.614	41.603	40.922	40.061	39.539	39.189	38.837	38.484	38.026	37.719	37.519	
9	92.253	63.298	52.549	46.844	43.281	40.835	39.048	37.683	36.606	35.733	34.404	33.050	31.668	30.823	30.253	29.532	29.094	28.801	28.506	28.209	27.824	27.566	27.398	
10	77.655	52.435	43.108	38.164	35.077	32.958	31.410	30.227	29.293	28.536	27.383	26.207	25.005	24.269	23.773	23.144	22.762	22.506	22.248	21.989	21.652	21.426	21.279	10
11	67.688	45.104	36.778	32.369	29.618	27.728	26.348	25.292	24.459	23.783	22.753	21.702	20.627	19.968	19.523	18.959	18.616	18.386	18.154	17.921	17.618	17.415	17.282	
12	60.520	39.883	32.295	28.280	25.775	24.054	22.797	21.836	21.076	20.460	19.521	18.562	17.579	16.977	16.570	16.053	15.739	15.528	15.315	15.100	14.822	14.635	14.513	
13	55.153	36.007	28.981	25.267	22.950	21.358	20.195	19.305	18.602	18.031	17.161	16.272	15.360	14.801	14.422	13.942	13.649	13.452	13.254	13.054	12.794	12.619	12.505	
14	51.0030	33.0302	26.4477	22.9693	20.7994	19.3094	18.2195	17.3861	16.7271	16.1925	15.3768	14.5423	13.6860	13.1601	12.8038	12.3513	12.0757	11.8901	11.7029	11.5140	11.2686	11.1033	10.9951	
15	47.7097	30.6826	24.4562	21.1677	19.1165	17.7077	16.6772	15.8889	15.2655	14.7596	13.9874	13.1969	12.3851	11.8861	11.5477	11.1176	10.8555	10.6788	10.5005	10.3206	10.0866	9.9288	9.8255	15
16	45.0392	28.7891	22.8550	19.7221	17.7682	16.4262	15.4442	14.6930	14.0987	13.6163	12.8797	12.1253	11.3499	10.8727	10.5490	10.1372	9.8860	9.7165	9.5455	9.3728	9.1480	8.9963	8.8969	
17	42.8343	27.2330	21.5427	18.5397	16.6669	15.3804	14.4390	13.7186	13.1486	12.6858	11.9789	11.2544	10.5092	10.0503	9.7387	9.3420	9.0998	8.9364	8.7713	8.6045	8.3872	8.2405	8.1443	
18	40.9855	25.9338	20.4498	17.5565	15.7522	14.5128	13.6056	12.9113	12.3618	11.9155	11.2337	10.5346	9.8148	9.3712	9.0698	8.6859	8.4512	8.2928	8.1327	7.9708	7.7598	7.6172	7.5236	
19	39.4149	24.8342	19.5268	16.7275	14.9819	13.7826	12.9047	12.2327	11.7008	11.2687	10.6082	9.9308	9.2328	8.8023	8.5095	8.1363	7.9081	7.7539	7.5980	7.4403	7.2345	7.0954	7.0040	
20	38.0652	23.8925	18.7378	16.0199	14.3250	13.1605	12.3080	11.6552	11.1385	10.7186	10.0767	9.4179	8.7387	8.3194	8.0341	7.6702	7.4474	7.2969	7.1445	6.9903	6.7890	6.6528	6.5633	20
22	35.8680	22.3660	17.4624	14.8779	13.2664	12.1589	11.3480	10.7268	10.2349	9.8351	9.2236	8.5953	7.9468	7.5459	7.2728	6.9239	6.7100	6.5653	6.4187	6.2701	6.0759	5.9443	5.8577	
24	34.1584	21.1844	16.4781	13.9985	12.4523	11.3897	10.6114	10.0151	9.5427	9.1587	8.5709	7.9666	7.3420	6.9554	6.6918	6.3545	6.1474	6.0071	5.8649	5.7206	5.5317	5.4035	5.3190	
26	32.7922	20.2441	15.6968	13.3017	11.8083	10.7818	10.0297	9.4534	8.9967	8.6253	8.0567	7.4716	6.8663	6.4911	6.2349	5.9069	5.7052	5.5684	5.4296	5.2886	5.1038	4.9780	4.8951	
28	31.6764	19.4790	15.0626	12.7369	11.2868	10.2899	9.5595	8.9996	8.5559	8.1949	7.6419	7.0726	6.4830	6.1171	5.8671	5.5464	5.3490	5.2151	5.0790	4.9406	4.7589	4.6350	4.5533	
30	30.7487	18.8449	14.5378	12.2703	10.8564	9.8844	9.1720	8.6258	8.1928	7.8405	7.3007	6.7445	6.1680	5.8098	5.5649	5.2503	5.0565	4.9248	4.7909	4.6545	4.4753	4.3529	4.2720	30
35	28.9964	17.6523	13.5537	11.3967	10.0518	9.1270	8.4489	7.9289	7.5164	7.1806	6.6656	6.1344	5.5827	5.2390	5.0035	4.7003	4.5129	4.3853	4.2553	4.1225	3.9474	3.8273	3.7478	
40	27.7667	16.8198	12.8688	10.7902	9.4941	8.6027	7.9490	7.4474	7.0494	6.7253	6.2279	5.7143	5.1798	4.8463	4.6173	4.3219	4.1387	4.0138	3.8862	3.7557	3.5828	3.4639	3.3848	
45	26.8573	16.2065	12.3655	10.3452	9.0855	8.2190	7.5834	7.0955	6.7083	6.3929	5.9085	5.4079	4.8863	4.5602	4.3359	4.0460	3.8659	3.7428	3.6168	3.4877	3.3160	3.1975	3.1185	
50	26.1578	15.7363	11.9804	10.0052	8.7736	7.9263	7.3047	6.8275	6.4486	6.1398	5.6656	5.1750	4.6632	4.3428	4.1221	3.8363	3.6584	3.5365	3.4117	3.2834	3.1123	2.9938	2.9145	50
60	25.1533	15.0632	11.4303	9.5203	8.3293	7.5098	6.9084	6.4465	6.0796	5.7805	5.3208	4.8447	4.3469	4.0345	3.8189	3.5388	3.3638	3.2435	3.1200	2.9925	2.8216	2.7023	2.6219	
70	24.4670	14.6051	11.0567	9.1915	8.0284	7.2280	6.6404	6.1891	5.8305	5.5380	5.0882	4.6220	4.1338	3.8268	3.6145	3.3381	3.1648	3.0455	2.9225	2.7953	2.6237	2.5032	2.4214	
80	23.9687	14.2732	10.7865	8.9540	7.8113	7.0248	6.4473	6.0037	5.6511	5.3634	4.9209	4.4618	3.9806	3.6775	3.4675	3.1937	3.0216	2.9028	2.7800	2.6526	2.4801	2.3581	2.2749	
90	23.5905	14.0219	10.5822	8.7745	7.6473	6.8714	6.3016	5.8638	5.5158	5.2318	4.7948	4.3412	3.8652	3.5650	3.3568	3.0848	2.9134	2.7949	2.6723	2.5446	2.3710	2.2475	2.1628	
100	23.2937	13.8250	10.4222	8.6341	7.5191	6.7515	6.1878	5.7546	5.4102	5.1291	4.6964	4.2471	3.7752	3.4773	3.2704	2.9997	2.8290	2.7107	2.5880	2.4600	2.2852	2.1601	2.0739	100
125	22.7720	13.4795	10.1419	8.3884	7.2949	6.5420	5.9890	5.5638	5.2258	4.9498	4.5247	4.0829	3.6181	3.3242	3.1196	2.8512	2.6812	2.5631	2.4401	2.3112	2.1336	2.0050	1.9151	
150	22.4330	13.2555	9.9604	8.2294	7.1499	6.4065	5.8605	5.4407	5.1067	4.8341	4.4140	3.9770	3.5169	3.2254	3.0224	2.7553	2.5857	2.4676	2.3442	2.2144	2.0343	1.9025	1.8093	
175	22.1951	13.0984	9.8333	8.1181	7.0484	6.3119	5.7707	5.3546	5.0236	4.7533	4.3366	3.9031	3.4463	3.1565	2.9544	2.6883	2.5189	2.4006	2.2769	2.1463	1.9640	1.8294	1.7331	
200	22.0189	12.9823	9.7393	8.0359	6.9735	6.2420	5.7045	5.2911	4.9622	4.6936	4.2796	3.8486	3.3941	3.1057	2.9043	2.6388	2.4695	2.3512	2.2271	2.0957	1.9116	1.7744	1.6754	
250	21.7753	12.8219	9.6096	7.9225	6.8703	6.1456	5.6132	5.2036	4.8777	4.6115	4.2010	3.7735	3.3224	3.0357	2.8353	2.5706	2.4014	2.2828	2.1582	2.0257	1.8385	1.6971	1.5933	250
300	21.6150	12.7164	9.5244	7.8480	6.8025	6.0824	5.5533	5.1462	4.8223	4.5577	4.1496	3.7244	3.2754	2.9898	2.7901	2.5258	2.3567	2.2379	2.1128	1.9794	1.7899	1.6451	1.5372	
350	21.5015	12.6418	9.4642	7.7954	6.7546	6.0377	5.5109	5.1057	4.7832	4.5196	4.1132	3.6896	3.2422	2.9574	2.7581	2.4942	2.3250	2.2061	2.0807	1.9466	1.7551	1.6076	1.4962	
400	21.4169	12.5862	9.4193	7.7562	6.7189	6.0045	5.4794	5.0755	4.7540	4.4913	4.0861	3.6638	3.2175	2.9333	2.7343	2.4706	2.3015	2.1824	2.0567	1.9220	1.7290	1.5792	1.4648	
450	21.3514	12.5432	9.3846	7.7259	6.6913	5.9788	5.4551	5.0522	4.7315	4.4695	4.0652	3.6438	3.1984	2.9147	2.7159	2.4524	2.2832	2.1640	2.0381	1.9030	1.7087	1.5570	1.4399	
500	21.2992	12.5090	9.3570	7.7017	6.6694	5.9583	5.4357	5.0336	4.7136	4.4521	4.0486	3.6279	3.1832	2.8999	2.7013	2.4379	2.2687	2.1494	2.0232	1.8877	1.6924	1.5391	1.4196	500
600	21.2213	12.4578	9.3157	7.6657	6.6366	5.9277	5.4068	5.0059	4.6868	4.4261	4.0237	3.6042	3.1606	2.8778	2.6795	2.4163	2.2470	2.1276	2.0011	1.8650	1.6680	1.5120	1.3885	
700	21.1658	12.4214	9.2863	7.6401	6.6133	5.9060	5.3862	4.9862	4.6678	4.4076	4.0061	3.5874	3.1445	2.8620	2.6639	2.4009	2.2316	2.1120	1.9853	1.8488	1.6505	1.4924	1.3657	
800	21.1244	12.3942	9.2644	7.6209	6.5959	5.8898	5.3708	4.9715	4.6536	4.3938	3.9929	3.5748	3.1324	2.8503	2.6524	2.3894	2.2201	2.1004	1.9735	1.8366	1.6373	1.4776	1.3482	
900	21.0922	12.3731	9.2474	7.6061	6.5824	5.8772	5.3589	4.9601	4.6426	4.3832	3.9827	3.5650	3.1231	2.8412	2.6434	2.3805	2.2111	2.0914	1.9643	1.8272	1.6271	1.4660	1.3343	
1,000	21.0665	12.3563	9.2338	7.5942	6.5716	5.8672	5.3494	4.9510	4.6339	4.3746	3.9746	3.5573	3.1157	2.8339	2.6362	2.3734	2.2040	2.0842	1.9570	1.8196	1.6189	1.4566	1.3230	1,000
2,000	20.9515	12.2809	9.1730	7.5412	6.5234	5.8223	5.3069	4.9103	4.5946	4.3365	3.9381	3.5225	3.0824	2.8015	2.6041	2.3415	2.1720	2.0520	1.9242	1.7857	1.5818	1.4139	1.2696	
3,000	20.9133	12.2559	9.1529	7.5236	6.5074	5.8074	5.2928	4.8968	4.5816	4.3238	3.9260	3.5109	3.0714	2.7907	2.5935	2.3310	2.1614	2.0413	1.9133	1.7744	1.5694	1.3994	1.2506	
4,000	20.8943	12.2434	9.1429	7.5148	6.4995	5.8000	5.2858	4.8901	4.5751	4.3175	3.9200	3.5052	3.0659	2.7853	2.5882	2.3257	2.1561	2.0359	1.9078	1.7688	1.5632	1.3921	1.2408	
5,000	20.8829	12.2359	9.1368	7.5096	6.4947	5.7955	5.2816	4.8861	4.5712	4.3138	3.9164	3.5017	3.0626	2.7821	2.5850	2.3226	2.1530	2.0327	1.9046	1.7654	1.5594	1.3876	1.2348	
7,500	20.8677	12.2260	9.1288	7.5026	6.4883	5.7896	5.2760	4.8807	4.5660	4.3087	3.9116	3.4972	3.0582	2.7778	2.5808	2.3184	2.1487	2.0284	1.9002	1.7609	1.5544	1.3817	1.2267	
10,000	20.8601	12.2210	9.1248	7.4991	6.4851	5.7866	5.2732	4.8780	4.5634	4.3062	3.9092	3.4949	3.0560	2.7757	2.5787	2.3163	2.1466	2.0263	1.8981	1.7586	1.5519	1.3787	1.2226	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} .999995