Figure 13.13. SIX 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 $\Pr(Y \le y) = p^*$ ($p^* = 0.9, ..., .9999$) (ν_1 is the numerator, ν_2 the denominator, degrees of freedom)

2017-02-20

F_{ν_1,ν_2}

$Df \rightarrow \nu_1$ / ν_2	p*	ν_1 1	2	3	4	5	6	7	8	9	10	12
11	.9	3.2252	2.8595	2.6602	2.5362	2.4512	2.3891	2.3416	2.3040	2.2735	2.2482	2.2087
	.95	4.8443	3.9823	3.5874	3.3567	3.2039	3.0946	3.0123	2.9480	2.8962	2.8536	2.7876
	.975	6.7241	5.2559	4.6300	4.2751	4.0440	3.8807	3.7586	3.6638	3.5879	3.5257	3.4296
	.99	9.6460	7.2057	6.2167	5.6683	5.3160	5.0692	4.8861	4.7445	4.6315	4.5393	4.3974
	.999	19.6868	13.8116	11.5611	10.3461	9.5784	9.0466	8.6553	8.3548	8.1163	7.9224	7.6256
	.9999	35.0605	23.8518	19.6585	17.4211	16.0178	15.0511	14.3425	13.7999	13.3706	13.0221	12.4901
12	.9	3.1765	2.8068	2.6055	2.4801	2.3940	2.3310	2.2828	2.2446	2.2135	2.1878	2.1474
	.95	4.7472	3.8853	3.4903	3.2592	3.1059	2.9961	2.9134	2.8486	2.7964	2.7534	2.6866
	.975	6.5538	5.0959	4.4742	4.1212	3.8911	3.7283	3.6065	3.5118	3.4358	3.3736	3.2773
	.99	9.3302	6.9266	5.9525	5.4120	5.0643	4.8206	4.6395	4.4994	4.3875	4.2961	4.1553
	.999	18.6433	12.9737	10.8042	9.6327	8.8921	8.3788	8.0009	7.7104	7.4797	7.2920	7.0046
	.9999	32.4269	21.8495	17.8995	15.7926	14.4710	13.5602	12.8924	12.3807	11.9757	11.6467	11.1443
13	.9	3.1362	2.7632	2.5603	2.4337	2.3467	2.2830	2.2341	2.1953	2.1638	2.1376	2.0966
	.95	4.6672	3.8056	3.4105	3.1791	3.0254	2.9153	2.8321	2.7669	2.7144	2.6710	2.6037
	.975	6.4143	4.9653	4.3472	3.9959	3.7667	3.6043	3.4827	3.3880	3.3120	3.2497	3.1532
	.99	9.0738	6.7010	5.7394	5.2053	4.8616	4.6204	4.4410	4.3021	4.1911	4.1003	3.9603
	.999	17.8154	12.3127	10.2089	9.0727	8.3541	7.8557	7.4886	7.2061	6.9818	6.7992	6.5192
	.9999	30.3878	20.3101	16.5523	14.5485	13.2913	12.4247	11.7889	11.3017	10.9158	10.6022	10.1231
14	.9	3.1022	2.7265	2.5222	2.3947	2.3069	2.2426	2.1931	2.1539	2.1220	2.0954	2.0537
	.95	4.6001	3.7389	3.3439	3.1122	2.9582	2.8477	2.7642	2.6987	2.6458	2.6022	2.5342
	.975	6.2979	4.8567	4.2417	3.8919	3.6634	3.5014	3.3799	3.2853	3.2093	3.1469	3.0502
	.99	8.8616	6.5149	5.5639	5.0354	4.6950	4.4558	4.2779	4.1399	4.0297	3.9394	3.8001
	.999	17.1434	11.7789	9.7294	8.6223	7.9218	7.4358	7.0775	6.8017	6.5826	6.4041	6.1302
	.9999	28.7662	19.0932	15.4908	13.5703	12.3653	11.5343	10.9245	10.4569	10.0865	9.7853	9.3249
15	.9	3.0732	2.6952	2.4898	2.3614	2.2730	2.2081	2.1582	2.1185	2.0862	2.0593	2.0171
	.95	4.5431	3.6823	3.2874	3.0556	2.9013	2.7905	2.7066	2.6408	2.5876	2.5437	2.4753
	.975	6.1995	4.7650	4.1528	3.8043	3.5764	3.4147	3.2934	3.1987	3.1227	3.0602	2.9633
	.99	8.6831	6.3589	5.4170	4.8932	4.5556	4.3183	4.1415	4.0045	3.8948	3.8049	3.6662
	.999	16.5874	11.3391	9.3353	8.2527	7.5674	7.0917	6.7408	6.4707	6.2559	6.0808	5.8121
	.9999	27.4480	18.1091	14.6350	12.7832	11.6211	10.8194	10.2310	9.7796	9.4218	9.1309	8.6859
16	.9	3.0481	2.6682	2.4618	2.3327	2.2438	2.1783	2.1280	2.0880	2.0553	2.0281	1.9854
	.95	4.4940	3.6337	3.2389	3.0069	2.8524	2.7413	2.6572	2.5911	2.5377	2.4935	2.4247
	.975	6.1151	4.6867	4.0768	3.7294	3.5021	3.3406	3.2194	3.1248	3.0488	2.9862	2.8890
	.99	8.5310	6.2262	5.2922	4.7726	4.4374	4.2016	4.0259	3.8896	3.7804	3.6909	3.5527
	.999	16.1202	10.9710	9.0059	7.9442	7.2719	6.8049	6.4604	6.1950	5.9839	5.8117	5.5473
	.9999	26.3569	17.2982	13.9315	12.1372	11.0111	10.2340	9.6634	9.2256	8.8784	8.5961	8.1639
17	.9	3.0262	2.6446	2.4374	2.3077	2.2183	2.1524	2.1017	2.0613	2.0284	2.0009	1.9577
	.95	4.4513	3.5915	3.1968	2.9647	2.8100	2.6987	2.6143	2.5480	2.4943	2.4499	2.3807
	.975	6.0420	4.6189	4.0112	3.6648	3.4379	3.2767	3.1556	3.0610	2.9849	2.9222	2.8249
	.99	8.3997	6.1121	5.1850	4.6690	4.3359	4.1015	3.9267	3.7910	3.6822	3.5931	3.4552
	.999	15.7222	10.6584	8.7269	7.6831	7.0219	6.5625	6.2234	5.9620	5.7541	5.5844	5.3237
	.9999	25.4396	16.6193	13.3439	11.5984	10.5028	9.7466	9.1911	8.7648	8.4267	8.1515	7.7302
18	.9	3.0070	2.6239	2.4160	2.2858	2.1958	2.1296	2.0785	2.0379	2.0047	1.9770	1.9333
	.95	4.4139	3.5546	3.1599	2.9277	2.7729	2.6613	2.5767	2.5102	2.4563	2.4117	2.3421
	.975	5.9781	4.5597	3.9539	3.6083	3.3820	3.2209	3.0999	3.0053	2.9291	2.8664	2.7689
	.99	8.2854	6.0129	5.0919	4.5790	4.2479	4.0146	3.8406	3.7054	3.5971	3.5082	3.3706
	.999	15.3793	10.3899	8.4875	7.4593	6.8078	6.3550	6.0206	5.7628	5.5575	5.3900	5.1324
	.9999	24.6582	16.0430	12.8461	11.1426	10.0732	9.3349	8.7925	8.3760	8.0456	7.7767	7.3647
19	.9	2.9899	2.6056	2.3970	2.2663	2.1760	2.1094	2.0580	2.0171	1.9836	1.9557	1.9117
	.95	4.3807	3.5219	3.1274	2.8951	2.7401	2.6283	2.5435	2.4768	2.4227	2.3779	2.3080
	.975	5.9216	4.5075	3.9034	3.5587	3.3327	3.1718	3.0509	2.9563	2.8801	2.8172	2.7196
	.99	8.1849	5.9259	5.0103	4.5003	4.1708	3.9386	3.7653	3.6305	3.5225	3.4338	3.2965
	.999	15.0808	10.1568	8.2799	7.2655	6.6225	6.1754	5.8452	5.5904	5.3876	5.2219	4.9672
	.9999	23.9851	15.5482	12.4194	10.7524	9.7057	8.9830	8.4519	8.0440	7.7202	7.4567	7.0528
20	.9	2.9747	2.5893	2.3801	2.2489	2.1582	2.0913	2.0397	1.9985	1.9649	1.9367	1.8924
	.95	4.3512	3.4928	3.0984	2.8661	2.7109	2.5990	2.5140	2.4471	2.3928	2.3479	2.2776
	.975	5.8715	4.4613	3.8587	3.5147	3.2891	3.1283	3.0074	2.9128	2.8365	2.7737	2.6758
	.99	8.0960	5.8489	4.9382	4.4307	4.1027	3.8714	3.6987	3.5644	3.4567	3.3682	3.2311
	.999	14.8188	9.9526	8.0984	7.0960	6.4606	6.0186	5.6920	5.4400	5.2392	5.0752	4.8229
	.9999	23.3995	15.1189	12.0498	10.4147	9.3880	8.6789	8.1577	7.7573	7.4394	7.1805	6.7837
		1	2	3	4	5	6	7	8	9	10	12

ν_2	p*	15	20	25	30	40	50	60	75	100	175	350	1,000	
11	.9	2.1671	2.1230	2.0953	2.0762	2.0516	2.0364	2.0261	2.0157	2.0050	1.9911	1.9817	1.9755	11
	.95	2.7186	2.6464	2.6014	2.5705	2.5309	2.5066	2.4901	2.4734	2.4566	2.4345	2.4196	2.4098	
	.975	3.3299	3.2261	3.1616	3.1176	3.0613	3.0268	3.0035	2.9800	2.9561	2.9250	2.9040	2.8902	
	.99	4.2509	4.0990	4.0051	3.9411	3.8596	3.8097	3.7761	3.7421	3.7077	3.6630	3.6329	3.6131	
	.999	7.3210	7.0076	6.8147	6.6839	6.5178	6.4165	6.3483	6.2795	6.2102	6.1201	6.0595	6.0198	
	.9999	11.9458	11.3877	11.0452	10.8134	10.5194	10.3406	10.2203	10.0991	9.9769	9.8185	9.7119	9.6422	
12	.9	2.1049	2.0597	2.0312	2.0115	1.9861	1.9704	1.9597	1.9489	1.9379	1.9234	1.9136	1.9071	12
	.95	2.6169	2.5436	2.4977	2.4663	2.4259	2.4010	2.3842	2.3671	2.3498	2.3271	2.3118	2.3017	
	.975	3.1772	3.0728	3.0077	2.9633	2.9063	2.8714	2.8478	2.8238	2.7996	2.7680	2.7466	2.7325	
	.99	4.0096	3.8584	3.7647	3.7008	3.6192	3.5692	3.5355	3.5014	3.4668	3.4219	3.3915	3.3716	
	.999	6.7092	6.4048	6.2172	6.0898	5.9278	5.8290	5.7623	5.6951	5.6272	5.5390	5.4795	5.4406	
	.9999	10.6298	10.1015	9.7769	9.5570	9.2778	9.1078	8.9933	8.8780	8.7616	8.6106	8.5089	8.4423	
13	.9	2.0532	2.0070	1.9778	1.9576	1.9315	1.9153	1.9043	1.8931	1.8817	1.8667	1.8565	1.8498	13
	.95	2.5331	2.4589	2.4123	2.3803	2.3392	2.3138	2.2966	2.2791	2.2614	2.2382	2.2224	2.2121	
	.975	3.0527	2.9477	2.8821	2.8372	2.7797	2.7443	2.7204	2.6961	2.6715	2.6393	2.6175	2.6032	
	.99	3.8154	3.6646	3.5710	3.5070	3.4253	3.3752	3.3413	3.3070	3.2723	3.2270	3.1964	3.1763	
	.999	6.2312	5.9340	5.7505	5.6258	5.4670	5.3700	5.3046	5.2385	5.1718	5.0849	5.0263	4.9879	
	.9999	9.6319	9.1270	8.8164	8.6058	8.3381	8.1750	8.0651	7.9542	7.8423	7.6969	7.5989	7.5348	
14	.9	2.0095	1.9625	1.9326	1.9119	1.8852	1.8686	1.8572	1.8457	1.8340	1.8185	1.8080	1.8011	14
	.95	2.4630	2.3879	2.3407	2.3082	2.2664	2.2405	2.2229	2.2051	2.1870	2.1632	2.1471	2.1365	
	.975	2.9493	2.8437	2.7777	2.7324	2.6742	2.6384	2.6142	2.5895	2.5646	2.5319	2.5097	2.4951	
	.99	3.6557	3.5052	3.4116	3.3476	3.2656	3.2153	3.1813	3.1468	3.1118	3.0662	3.0353	3.0150	
	.999	5.8483	5.5568	5.3767	5.2542	5.0979	5.0023	4.9378	4.8726	4.8067	4.7208	4.6629	4.6248	
	.9999	8.8526	8.3664	8.0670	7.8638	7.6053	7.4476	7.3412	7.2339	7.1255	6.9845	6.8895	6.8272	
15	.9	1.9722	1.9243	1.8939	1.8728	1.8454	1.8284	1.8168	1.8049	1.7929	1.7770	1.7661	1.7589	15
	.95	2.4034	2.3275	2.2797	2.2468	2.2043	2.1780	2.1601	2.1419	2.1234	2.0992	2.0826	2.0718	
	.975	2.8621	2.7559	2.6894	2.6437	2.5850	2.5488	2.5242	2.4993	2.4739	2.4408	2.4182	2.4034	
	.99	3.5222	3.3719	3.2782	3.2141	3.1319	3.0814	3.0471	3.0124	2.9772	2.9312	2.9000	2.8795	
	.999	5.5351	5.2484	5.0710	4.9502	4.7959	4.7015	4.6377	4.5732	4.5079	4.4228	4.3652	4.3275	
	.9999	8.2290	7.7582	7.4679	7.2707	7.0197	6.8663	6.7628	6.6583	6.5527	6.4153	6.3225	6.2617	
16	.9	1.9399	1.8913	1.8603	1.8388	1.8108	1.7934	1.7816	1.7694	1.7570	1.7407	1.7296	1.7222	16
	.95	2.3522	2.2756	2.2272	2.1938	2.1507	2.1240	2.1058	2.0873	2.0685	2.0437	2.0268	2.0157	
	.975	2.7875	2.6808	2.6138	2.5678	2.5085	2.4719	2.4471	2.4218	2.3961	2.3624	2.3395	2.3245	
	.99	3.4089	3.2587	3.1650	3.1007	3.0182	2.9675	2.9330	2.8981	2.8627	2.8163	2.7848	2.7641	
	.999	5.2745	4.9918	4.8167	4.6972	4.5446	4.4511	4.3878	4.3238	4.2590	4.1744	4.1172	4.0796	
	.9999	7.7198	7.2618	6.9791	6.7869	6.5419	6.3922	6.2911	6.1889	6.0855	5.9509	5.8599	5.8003	
17	.9	1.9117	1.8624	1.8309	1.8090	1.7805	1.7628	1.7506	1.7382	1.7255	1.7088	1.6973	1.6898	17
	.95	2.3077	2.2304	2.1815	2.1477	2.1040	2.0769	2.0584	2.0396	2.0204	1.9952	1.9779	1.9666	
	.975	2.7230	2.6158	2.5484	2.5020	2.4422	2.4053	2.3801	2.3545	2.3285	2.2943	2.2711	2.2558	
	.99	3.3117	3.1615	3.0676	3.0032	2.9205	2.8694	2.8348	2.7996	2.7639	2.7171	2.6853	2.6644	
	.999	5.0544	4.7751	4.6019	4.4836	4.3323	4.2395	4.1767	4.1131	4.0486	3.9644	3.9074	3.8699	
	.9999	7.2970	6.8498	6.5735	6.3854	6.1455	5.9987	5.8996	5.7993	5.6978	5.5655	5.4760	5.4172	
18	.9	1.8868	1.8368	1.8049	1.7827	1.7537	1.7356	1.7232	1.7106	1.6976	1.6805	1.6687	1.6609	18
	.95	2.2686	2.1906	2.1413	2.1071	2.0629	2.0354	2.0166	1.9975	1.9780	1.9523	1.9348	1.9232	
	.975	2.6667	2.5590	2.4912	2.4445	2.3842	2.3468	2.3214	2.2956	2.2692	2.2346	2.2110	2.1954	
	.99	3.2273	3.0771	2.9831	2.9185	2.8354	2.7841	2.7493	2.7139	2.6779	2.6307	2.5986	2.5775	
	.999	4.8663	4.5899	4.4182	4.3009	4.1507	4.0584	3.9960	3.9327	3.8685	3.7845	3.7276	3.6901	
	.9999	6.9408	6.5028	6.2318	6.0473	5.8117	5.6674	5.5699	5.4712	5.3712	5.2408	5.1525	5.0945	
19	.9	1.8647	1.8142	1.7818	1.7592	1.7298	1.7114	1.6988	1.6858	1.6726	1.6551	1.6431	1.6351	19
	.95	2.2341	2.1555	2.1057	2.0712	2.0264	1.9986	1.9795	1.9601	1.9403	1.9142	1.8963	1.8845	
	.975	2.6171	2.5089	2.4408	2.3937	2.3329	2.2952	2.2696	2.2434	2.2167	2.1816	2.1577	2.1419	
	.99	3.1533	3.0031	2.9089	2.8442	2.7608	2.7093	2.6742	2.6386	2.6023	2.5547	2.5223	2.5009	
	.999	4.7037	4.4297	4.2594	4.1429	3.9936	3.9018	3.8396	3.7765	3.7125	3.6287	3.5718	3.5344	
	.9999	6.6369	6.2068	5.9405	5.7590	5.5271	5.3849	5.2887	5.1913	5.0927	4.9637	4.8764	4.8190	
20	.9	1.8449	1.7938	1.7611	1.7382	1.7083	1.6896	1.6768	1.6636	1.6501	1.6323	1.6200	1.6118	20
	.95	2.2033	2.1242	2.0739	2.0391	1.9938	1.9656	1.9464	1.9267	1.9066	1.8800	1.8618	1.8497	
	.975	2.5731	2.4645	2.3959	2.3486	2.2873	2.2493	2.2234	2.1969	2.1699	2.1344	2.1101	2.0941	
	.99	3.0880	2.9377	2.8434	2.7785	2.6947	2.6430	2.6077	2.5718	2.5353	2.4873	2.4546	2.4329	
	.999	4.5618	4.2900	4.1208	4.0050	3.8564	3.7650	3.7030	3.6401	3.5762	3.4925	3.4356	3.3981	
	.9999	6.3748	5.9516	5.6894	5.5105	5.2817	5.1413	5.0463	4.9500	4.8524	4.7248	4.6382	4.5813	
		15	20	25	30	40	50	60	75	100	175	350	1,000	

F_{ν_1,ν_2}

(continued)