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

$Df \to \nu_1$ / ν_2	p^*	1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	60	75	100	175	350	1,000	
150	.9	2.7393	2.3383	2.1207	1.9827	1.8861	1.8138	1.7572	1.7115	1.6736	1.6416	1.5901	1.5334	1.4698	1.4271	1.3960	1.3534	1.3251	1.3048	1.2831	1.2595	1.2255	1.1995	1.1805	150
	.95	3.9042	3.0564	2.6649	2.4320	2.2745	2.1595	2.0711	2.0006	1.9428	1.8943	1.8172	1.7335	1.6410	1.5796	1.5354	1.4752	1.4357	1.4074	1.3773	1.3448	1.2984	1.2631	1.2375	
	.975	5.1263	3.7811	3.2044	2.8722	2.6521	2.4936	2.3730	2.2775	2.1998	2.1349	2.0325	1.9222	1.8014	1.7220	1.6651	1.5882	1.5379	1.5022	1.4642	1.4234	1.3653	1.3215	1.2898	
	.99	6.8069	4.7495	3.9149	3.4467	3.1416	2.9244	2.7606	2.6319	2.5277	2.4412	2.3053	2.1603	2.0028	1.9001	1.8270	1.7286	1.6648	1.6195	1.5716	1.5204	1.4478	1.3934	1.3542	
	.999	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	
	.9999	15.9822	9.7998	7.5284	6.3192	5.5578	5.0298	4.6395	4.3379	4.0970	3.8996	3.5939	3.2739	2.9344	2.7176	2.5657	2.3648	2.2364	2.1465	2.0524	1.9528	1.8138	1.7113	1.6385	
175	.9	2.7344	2.3331	2.1153	1.9773	1.8805	1.8081	1.7514	1.7056	1.6676	1.6354	1.5837	1.5268	1.4628	1.4197	1.3884	1.3452	1.3165	1.2959	1.2736	1.2494	1.2143	1.1872	1.1671	175
	.95	3.8951	3.0476	2.6562	2.4233	2.2658	2.1507	2.0622	1.9916	1.9337	1.8851	1.8078	1.7239	1.6309	1.5691	1.5245	1.4637	1.4237	1.3950	1.3643	1.3311	1.2832	1.2465	1.2195	
	.975	5.1115	3.7677	3.1916	2.8597	2.6397	2.4812	2.3606	2.2651	2.1873	2.1224	2.0198	1.9093	1.7880	1.7082	1.6509	1.5733	1.5225	1.4862	1.4476	1.4059	1.3462	1.3007	1.2673	
	.99	6.7819	4.7285	3.8955	3.4282	3.1235	2.9066	2.7429	2.6143	2.5101	2.4237	2.2878	2.1426	1.9848	1.8817	1.8081	1.7091	1.6446	1.5988	1.5502	1.4980	1.4235	1.3671	1.3259	
	.999	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	
	.9999	15.8575	9.7126	7.4554	6.2537	5.4971	4.9722	4.5843	4.2844	4.0449	3.8485	3.5444	3.2258	2.8875	2.6712	2.5195	2.3185	2.1897	2.0994	2.0046	1.9039	1.7626	1.6574	1.5818	
200	.9	2.7308	2.3293	2.1114	1.9732	1.8763	1.8038	1.7470	1.7011	1.6630	1.6308	1.5789	1.5218	1.4575	1.4142	1.3826	1.3390	1.3100	1.2891	1.2665	1.2418	1.2058	1.1776	1.1566	200
	.95	3.8884	3.0411	2.6498	2.4168	2.2592	2.1441	2.0556	1.9849	1.9269	1.8783	1.8008	1.7166	1.6233	1.5612	1.5164	1.4551	1.4146	1.3856	1.3545	1.3206	1.2716	1.2336	1.2054	
	.975	5.1004	3.7578	3.1820	2.8503	2.6304	2.4720	2.3513	2.2558	2.1780	2.1130	2.0103	1.8996	1.7780	1.6978	1.6403	1.5621	1.5108	1.4742	1.4350	1.3927	1.3316	1.2846	1.2498	
	.99	6.7633	4.7129	3.8810	3.4143	3.1100	2.8933	2.7298	2.6012	2.4971	2.4106	2.2747	2.1294	1.9713	1.8679	1.7941	1.6945	1.6295	1.5833	1.5341	1.4811	1.4050	1.3469	1.3040	
	.999	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	
	.9999	15.7648	9.6478	7.4012	6.2052	5.4521	4.9296	4.5433	4.2448	4.0062	3.8106	3.5077	3.1902	2.8527	2.6369	2.4853	2.2841	2.1551	2.0644	1.9690	1.8674	1.7241	1.6165	1.5384	
250	.9	2.7257	2.3239	2.1058	1.9675	1.8704	1.7978	1.7409	1.6949	1.6567	1.6244	1.5723	1.5149	1.4501	1.4064	1.3745	1.3304	1.3009	1.2795	1.2564	1.2310	1.1935	1.1638	1.1411	250
	.95	3.8789	3.0319	2.6407	2.4078	2.2501	2.1350	2.0463	1.9756	1.9174	1.8687	1.7910	1.7065	1.6127	1.5502	1.5049	1.4430	1.4019	1.3723	1.3405	1.3058	1.2550	1.2150	1.1847	
	.975	5.0849	3.7439	3.1687	2.8373	2.6175	2.4591	2.3384	2.2429	2.1650	2.0999	1.9971	1.8861	1.7640	1.6834	1.6254	1.5465	1.4945	1.4573	1.4174	1.3739	1.3108	1.2614	1.2241	
	.99	6.7373	4.6911	3.8609	3.3950	3.0912	2.8748	2.7114	2.5830	2.4789	2.3925	2.2565	2.1110	1.9525	1.8487	1.7744	1.6740	1.6083	1.5614	1.5113	1.4571	1.3787	1.3178	1.2720	
	.999	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	
	.9999	15.6364	9.5582	7.3262	6.1380	5.3898	4.8706	4.4867	4.1900	3.9528	3.7583	3.4569	3.1409	2.8047	2.5893	2.4379	2.2365	2.1070	2.0157	1.9194	1.8165	1.6700	1.5585	1.4760	
300	.9	2.7223	2.3203	2.1021	1.9637	1.8666	1.7938	1.7369	1.6908	1.6525	1.6201	1.5679	1.5102	1.4452	1.4012	1.3691	1.3246	1.2947	1.2730	1.2495	1.2236	1.1851	1.1541	1.1301	300
	.95	3.8726	3.0258	2.6347	2.4017	2.2441	2.1289	2.0402	1.9693	1.9112	1.8623	1.7845	1.6998	1.6057	1.5428	1.4973	1.4349	1.3934	1.3634	1.3312	1.2958	1.2436	1.2021	1.1700	
	.975	5.0747	3.7346	3.1599	2.8286	2.6089	2.4505	2.3299	2.2343	2.1563	2.0913	1.9883	1.8771	1.7547	1.6738	1.6155	1.5360	1.4836	1.4459	1.4055	1.3613	1.2966	1.2453	1.2060	
F_{ν_1,ν_2}	.99	6.7201	4.6766	3.8475	3.3823	3.0787	2.8625	2.6993	2.5709	2.4668	2.3804	2.2444	2.0988	1.9401	1.8359	1.7614	1.6604	1.5942	1.5468	1.4961	1.4410	1.3608	1.2977	1.2495	F_{ν_1,ν_2}
	.999	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	
	.9999	15.5515	9.4990	7.2768	6.0937	5.3487	4.8317	4.4495	4.1539	3.9176	3.7238	3.4235	3.1085	2.7730	2.5580	2.4066	2.2051	2.0752	1.9835	1.8866	1.7826	1.6338	1.5191	1.4330	
350	.9	2.7199	2.3178	2.0995	1.9610	1.8638	1.7910	1.7340	1.6878	1.6495	1.6170	1.5647	1.5069	1.4417	1.3975	1.3652	1.3204	1.2903	1.2684	1.2446	1.2183	1.1789	1.1470	1.1218	350
	.95	3.8682	3.0215	2.6304	2.3975	2.2398	2.1245	2.0358	1.9649	1.9067	1.8578	1.7799	1.6950	1.6006	1.5376	1.4919	1.4291	1.3873	1.3571	1.3244	1.2885	1.2353	1.1925	1.1590	
	.975	5.0674	3.7280	3.1536	2.8225	2.6028	2.4444	2.3238	2.2282	2.1502	2.0851	1.9820	1.8707	1.7481	1.6669	1.6084	1.5286	1.4758	1.4378	1.3969	1.3522	1.2862	1.2335	1.1924	
	.99	6.7078	4.6663	3.8380	3.3732	3.0699	2.8538	2.6906	2.5623	2.4582	2.3718	2.2358	2.0901	1.9312	1.8268	1.7521	1.6507	1.5840	1.5363	1.4852	1.4295	1.3478	1.2830	1.2327	
	.999	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	
	.9999	15.4913	9.4570	7.2417	6.0623	5.3196	4.8042	4.4230	4.1283	3.8927	3.6994	3.3998	3.0855	2.7506	2.5358	2.3845	2.1828	2.0526	1.9607	1.8632	1.7584	1.6077	1.4906	1.4014	
400	.9	2.7181	2.3159	2.0975	1.9590	1.8617	1.7889	1.7318	1.6856	1.6472	1.6147	1.5623	1.5045	1.4391	1.3948	1.3623	1.3173	1.2870	1.2649	1.2409	1.2143	1.1743	1.1415	1.1153	400
	.95	3.8648	3.0183	2.6272	2.3942	2.2366	2.1212	2.0325	1.9616	1.9033	1.8544	1.7764	1.6914	1.5969	1.5337	1.4878	1.4247	1.3827	1.3522	1.3193	1.2831	1.2290	1.1852	1.1504	
	.975	5.0619	3.7231	3.1489	2.8179	2.5983	2.4399	2.3192	2.2236	2.1456	2.0805	1.9773	1.8659	1.7431	1.6618	1.6031	1.5230	1.4699	1.4317	1.3905	1.3453	1.2784	1.2244	1.1819	
	.99	6.6987	4.6586	3.8309	3.3664	3.0632	2.8472	2.6842	2.5559	2.4518	2.3654	2.2294	2.0836	1.9245	1.8200	1.7451	1.6434	1.5764	1.5285	1.4770	1.4207	1.3380	1.2717	1.2197	
	.999	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	
	.9999	15.4464	9.4257	7.2156	6.0389	5.2979	4.7836	4.4033	4.1092	3.8741	3.6812	3.3822	3.0683	2.7339	2.5192	2.3679	2.1661	2.0358	1.9435	1.8457	1.7403	1.5881	1.4689	1.3770	
450	.9	2.7167	2.3144	2.0960	1.9574	1.8601	1.7872	1.7301	1.6839	1.6455	1.6129	1.5605	1.5025	1.4370	1.3926	1.3601	1.3148	1.2844	1.2622	1.2380	1.2111	1.1706	1.1371	1.1101	450
	.95	3.8622	3.0158	2.6247	2.3918	2.2340	2.1187	2.0299	1.9590	1.9007	1.8517	1.7737	1.6887	1.5939	1.5306	1.4846	1.4213	1.3791	1.3485	1.3153	1.2788	1.2241	1.1794	1.1435	
	.975	5.0577	3.7193	3.1452	2.8143	2.5947	2.4364	2.3157	2.2201	2.1420	2.0769	1.9737	1.8622	1.7393	1.6578	1.5990	1.5186	1.4653	1.4269	1.3854	1.3399	1.2722	1.2173	1.1734	
	.99	6.6915	4.6526	3.8254	3.3611	3.0581	2.8422	2.6791	2.5509	2.4469	2.3604	2.2244	2.0786	1.9194	1.8147	1.7397	1.6377	1.5705	1.5223	1.4705	1.4139	1.3302	1.2628	1.2093	
	.999	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	
	.9999	15.4115	9.4015	7.1953	6.0208	5.2811	4.7677	4.3881	4.0945	3.8597	3.6671	3.3685	3.0551	2.7210	2.5064	2.3551	2.1533	2.0227	1.9303	1.8321	1.7262	1.5728	1.4518	1.3576	
500	.9	2.7156	2.3132	2.0948	1.9561	1.8588	1.7859	1.7288	1.6825	1.6441	1.6115	1.5590	1.5010	1.4354	1.3909	1.3582	1.3129	1.2823	1.2600	1.2356	1.2086	1.1676	1.1336	1.1058	500
	.95	3.8601	3.0138	2.6227	2.3898	2.2320	2.1167	2.0279	1.9569	1.8986	1.8496	1.7715	1.6864	1.5916	1.5282	1.4821	1.4186	1.3762	1.3455	1.3122	1.2753	1.2201	1.1746	1.1378	
	.975	5.0543	3.7162	3.1423	2.8114	2.5919	2.4335	2.3129	2.2172	2.1392	2.0740	1.9708	1.8592	1.7362	1.6546	1.5957	1.5151	1.4616	1.4231	1.3814	1.3356	1.2672	1.2114	1.1664	
	.99	6.6858	4.6478	3.8210	3.3569	3.0540	2.8381	2.6751	2.5469	2.4429	2.3565	2.2204	2.0746	1.9152	1.8105	1.7353	1.6332	1.5658	1.5174	1.4654	1.4084	1.3240	1.2555	1.2007	
	.999	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	
	.9999	15.3837	9.3821	7.1792	6.0064	5.2677	4.7550	4.3759	4.0827	3.8482	3.6559	3.3576	3.0445	2.7107	2.4962	2.3449	2.1430	2.0123	1.9197	1.8212	1.7149	1.5605	1.4380	1.3418	
600	.9	2.7139	2.3114	2.0929	1.9543	1.8569	1.7840	1.7268	1.6805	1.6420	1.6094	1.5568	1.4987	1.4329	1.3883	1.3555	1.3099	1.2792	1.2567	1.2321	1.2047	1.1631	1.1281	1.0991	600
	.95	3.8570	3.0107	2.6198	2.3868	2.2290	2.1137	2.0248	1.9538	1.8955	1.8465	1.7683	1.6831	1.5881	1.5245	1.4782	1.4145	1.3719	1.3409	1.3073	1.2701	1.2140	1.1674	1.1289	
	.975	5.0492	3.7117	3.1379	2.8071	2.5876	2.4293	2.3086	2.2130	2.1349	2.0697	1.9664	1.8548	1.7316	1.6498	1.5907	1.5099	1.4561	1.4173	1.3753	1.3290	1.2597	1.2024	1.1555	
	.99	6.6773	4.6407	3.8144	3.3505	3.0478	2.8321	2.6691	2.5409	2.4369	2.3505	2.2144	2.0685	1.9091	1.8041	1.7288	1.6263	1.5587	1.5101	1.4577	1.4001	1.3145	1.2445	1.1873	
	.999	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	
	.9999	15.3422	9.3532	7.1550	5.9848	5.2477	4.7361	4.3578	4.0651	3.8311	3.6391	3.3414	3.0287	2.6953	2.4809	2.3297	2.1276	1.9967	1.9038	1.8050	1.6980	1.5419	1.4171	1.3174	
		1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	60	75	100	175	350	1,000	

(*continued overleaf*)