

Figure 13.13j. 99.9th PERCENTILES FOR THE F DISTRIBUTION $[F_{v_1, v_2}]$

[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]

df ↓ v ₂ / v ₁	Each table entry is the value (y) of the random variable $Y \sim F_{v_1, v_2}$ such that $\Pr(Y \leq y) = 0.999$ (v ₁ is the numerator, v ₂ the denominator, degrees of freedom)																									University of Waternloo
	1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	60	75	100	175	350	1,000			
2017-02-20	1	405.284	499.999	540.379	562.500	576.405	585.937	592.873	598.144	602.284	605.621	610.668	615.764	620.908	624.017	626.099	628.712	630.285	631.337	632.390	633.444	634.803	635.711	636.301	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	6.4081	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	1.93							