

Critical Values of the *F*-Distribution
 Taken from Rohlf and Sokal, 1981 Table 16

		Numerator Degrees of Freedom (V1)														Numerator Degrees of Freedom (V1)													
		α	1	2	3	4	5	6	7	8	9	10	11	12	α													α	
Denominator Degrees of Freedom (V2)	1	.75	.172	.389	.494	.553	.591	.617	.636	.650	.661	.670	.680	.684	.75													.75	
		.50	1.00	1.50	1.71	1.82	1.89	1.94	1.98	2.00	2.03	2.04	2.06	2.07	.50													.50	
		.25	5.83	7.50	8.20	8.58	8.82	8.98	9.10	9.19	9.26	9.32	9.37	9.41	.25													.25	
		.10	39.9	49.5	53.6	55.8	57.2	58.2	58.9	59.4	59.9	60.2	60.5	60.7	.10													.10	
		.05	161	199	216	225	230	234	237	239	241	241	243	244	.05													.05	
		.025	648	800	864	900	922	937	948	957	963	969	973	977	.025													.025	
		.01	4050	5000	5400	5620	5760	5860	5930	5980	6020	6060	6080	6110	.01													.01	
		.005	16200	20000	21600	22500	23100	23400	23700	23900	24100	24200	24300	24400	.005													.005	
		.001	405300	500000	540400	562500	576400	585900	592900	598100	602300	605600	608400	610700	.001													.001	
	Denominator Degrees of Freedom (V2)	2	.75	.133	.333	.439	.500	.540	.568	.588	.604	.616	.626	.633	.641	.75													.75
			.50	.667	1.00	1.13	1.21	1.25	1.28	1.30	1.32	1.33	1.35	1.36	1.36	.50													.50
			.25	2.57	3.00	3.15	3.23	3.28	3.31	3.34	3.35	3.37	3.38	3.39	3.39	.25													.25
		.10	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38	9.39	9.40	9.41	.10													.10	
		.05	18.5	19.0	19.2	19.2	19.3	19.3	19.4	19.4	19.4	19.4	19.4	19.4	.05													.05	
		.025	38.5	39.0	39.2	39.2	39.3	39.3	39.4	39.4	39.4	39.4	39.4	39.4	.025													.025	
		.01	98.5	99.0	99.2	99.2	99.3	99.3	99.4	99.4	99.4	99.4	99.4	99.4	.01													.01	
		.005	198	199	199	199	199	199	199	199	199	199	199	199	.005													.005	
		.001	999	999	999	999	999	999	999	999	999	999	999	999	.001													.001	
Denominator Degrees of Freedom (V2)		3	.75	.122	.317	.424	.489	.531	.561	.581	.600	.613	.624	.633	.641	.75													.75
			.50	.585	.881	1.00	1.06	1.10	1.13	1.15	1.16	1.17	1.18	1.19	1.20	.50													.50
			.25	2.02	2.28	2.36	2.39	2.41	2.42	2.43	2.44	2.44	2.44	2.45	2.45	.25													.25
		.10	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24	5.23	5.22	5.22	.10													.10	
		.05	10.1	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.76	8.74	.05													.05	
		.025	17.4	16.0	15.4	15.1	14.9	14.7	14.6	14.5	14.5	14.4	14.3	14.3	.025													.025	
		.01	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.3	27.2	27.1	27.1	.01													.01	
		.005	55.6	49.8	47.5	46.2	45.4	44.8	44.4	44.1	43.9	43.7	43.5	43.4	.005													.005	
		.001	167	149	141	137	135	133	132	131	130	129	128	128	.001													.001	
	Denominator Degrees of Freedom (V2)	4	.75	.117	.309	.418	.484	.528	.560	.583	.601	.615	.627	.637	.645	.75													.75
			.50	.549	.828	.941	1.00	1.04	1.06	1.08	1.09	1.10	1.11	1.12	1.13	.50													.50
			.25	1.81	2.00	2.05	2.06	2.07	2.08	2.08	2.08	2.08	2.08	2.08	2.08	.25													.25
		.10	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94	3.92	3.91	3.90	.10													.10	
		.05	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.93	5.91	.05													.05	
		.025	12.2	10.6	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84	8.79	8.75	.025													.025	
		.01	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.7	14.5	14.4	14.4	.01													.01	
		.005	31.3	26.3	24.3	23.2	22.4	22.0	21.6	21.4	21.1	21.0	20.8	20.7	.005													.005	
		.001	74.1	61.3	56.2	53.4	51.7	50.5	49.7	49.0	48.5	48.1	47.7	47.4	.001													.001	
Denominator Degrees of Freedom (V2)		5	.75	.113	.305	.415	.483	.528	.560	.584	.604	.618	.631	.641	.650	.75													.75
			.50	.528	.799	.907	.965	1.00	1.02	1.04	1.05	1.06	1.07	1.08	1.09	.50													.50
			.25	1.69	1.85	1.88	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	.25													.25
		.10	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32	3.30	3.28	3.27	.10													.10	
		.05	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.71	4.68	.05													.05	
		.025	10.0	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.57	6.52	.025													.025	
		.01	16.3	13.3	12.1	11.4	11.0	10.7	10.5	10.3	10.2	10.1	9.99	9.89	.01													.01	
		.005	22.8	18.3	16.5	15.6	14.9	14.5	14.2	14.0	13.8	13.6	13.5	13.4	.005													.005	
		.001	47.2	37.1	33.2	31.1	29.7	28.8	28.2	27.6	27.2	26.9	26.6	26.4	.001													.001	
	Denominator Degrees of Freedom (V2)	6	.75	.111	.302	.413	.481	.524	.561	.586	.606	.621	.635	.645	.654	.75													.75
			.50	.515	.780	.886	.942	.977	1.00	1.02	1.03	1.04	1.05	1.06	1.06	.50													.50
			.25	1.62	1.76	1.78	1.79	1.79	1.78	1.78	1.78	1.77	1.77	1.77	1.77	.25													.25
		.10	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96	2.94	2.92	2.90	.10													.10	
		.05	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.03	4.00	.05													.05	
		.025	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.41	5.37	.025													.025	
		.01	13.7	10.9	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.79	7.72	.01													.01	
		.005	18.6	14.5	12.9	12.0	11.5	11.1	10.8	10.6	10.4	10.3	10.1	10.0	.005													.005	
		.001	35.5	27.0	23.7	21.9	20.8	20.0	19.5	19.0	18.7	18.4	18.2	18.0	.001													.001	
Denominator Degrees of Freedom (V2)		7	.75	.110	.300	.412	.481	.528	.562	.588	.608	.624	.637	.649	.658	.75													.75
			.50	.506	.767	.871	.926	.960	.983	1.00	1.01	1.02	1.03	1.04	1.04	.50													.50
			.25	1.57	1.70	1.72	1.72	1.71	1.71	1.71	1.70	1.70	1.69	1.68	1.68	.25													.25
		.10	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72	2.70	2.68	2.67	.10													.10	
		.05	5.59	4.74	4.35	4.12	3.97	3.87	3.77	3.73	3.68	3.64	3.60	3.57	.05													.05	
		.025	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.89	4.82	4.76	4.71	4.67	.025													.025	
		.01	12.2	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.54	6.47	.01													.01	
		.005	16.2	12.4	10.9	10.1	9.52	9.16	8.89	8.68	8.52	8.38	8.27	8.18	.005													.005	
		.001	29.3	21.7	18.8	17.2	16.2	15.5	15.0	14.6	14.3	14.1	13.9	13.7	.001													.001	
	Denominator Degrees of Freedom (V2)	8	.75	.109	.298	.411	.481	.529	.563	.589	.610	.627	.640	.654	.661	.75													.75
			.50	.499	.757	.860	.915	.948	.971	.988	1.00	1.01	1.02	1.03	1.03	.50													.50
			.25	1.54	1.66	1.67	1.66	1.66	1.65	1.64	1.64	1.63	1.63	1.63	1.62	.25													.25
		.10	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56	2.54	2.52	2.50	.10													.10	
		.05	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.31	3.28	.05													.05	
		.025	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.25	4.20	.025													.025	
		.01	11.3	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.73	5.67	.01													.01	
		.005	14.7	11.0	9.60	8.81	8.30	7.95	7.69	7.50	7.34	7.21	7.10	7.01	.005													.005	
		.001	25.4	18.5	15.8	14.4	13																						

Critical Values of the *F*-Distribution (cont.)

Taken from Rohlf and Sokal, 1981 Table 16

		Numerator Degrees of Freedom (V1)												α		Numerator Degrees of Freedom (V1)												α																														
		1	2	3	4	5	6	7	8	9	10	11	12			1	2	3	4	5	6	7	8	9	10	11	12																															
Denominator Degrees of Freedom (V2)	11	.75	.107	.295	.408	.481	.529	.565	.592	.614	.633	.645	.658	.667	.75	.105	.293	.407	.480	.531	.568	.597	.619	.638	.653	.666	.677	.75	.476	.724	.823	.876	.908	.930	.946	.958	.967	.975	.981	.986	.75	1.42	1.51	1.51	1.50	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.43				
	.50	.486	.739	.840	.893	.926	.948	.964	.977	.986	.994	1.00	1.01		.50	.476	.724	.823	.876	.908	.930	.946	.958	.967	.975	.981	.986	.50	1.42	1.51	1.51	1.50	1.48	1.47	1.46	1.45	1.44	1.44	1.43	1.43	1.43	.50	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	2.01	1.99	1.99			
	.25	1.47	1.58	1.58	1.57	1.56	1.55	1.54	1.53	1.52	1.51	1.51	1.51		.25	1.42	1.51	1.51	1.50	1.48	1.47	1.46	1.45	1.44	1.43	1.43	1.43	.25	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	2.01	1.99	1.99	.25	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.42			
	.10	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27	2.25	2.23	2.21		.10	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	2.01	1.99	1.99	.10	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.42	.10	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.93	2.89	2.89		
	.05	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.82	2.79		.05	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.42	.05	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.93	2.89	2.89	.05	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.62	3.55	3.55		
	.025	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.48	3.43		.025	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.93	2.89	2.89	.025	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.62	3.55	3.55	.025	10.6	7.51	6.30	5.64	5.21	4.91	4.69	4.52	4.42	4.35	4.27	4.18	4.10	4.10	
	.01	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.46	4.40		.01	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.62	3.55	3.55	.01	10.6	7.51	6.30	5.64	5.21	4.91	4.69	4.52	4.42	4.35	4.27	4.18	4.10	4.10	.01	16.1	11.0	9.00	7.94	7.27	6.81	6.46	6.19	5.98	5.81	5.67	5.55	5.55	
	.005	12.2	8.91	7.60	6.88	6.42	6.10	5.86	5.68	5.54	5.42	5.32	5.24		.005	10.6	7.51	6.30	5.64	5.21	4.91	4.69	4.52	4.42	4.35	4.27	4.18	4.10	4.10	.005	16.1	11.0	9.00	7.94	7.27	6.81	6.46	6.19	5.98	5.81	5.67	5.55	5.55	.005	21.6	14.5	11.5	10.0	9.00	8.20	7.60	7.10	6.70	6.40	6.20	6.00	5.80	5.80
	.001	19.7	13.8	11.6	10.3	9.58	9.05	8.66	8.35	8.12	7.92	7.76	7.63		.001	16.1	11.0	9.00	7.94	7.27	6.81	6.46	6.19	5.98	5.81	5.67	5.55	5.55	.001	21.6	14.5	11.5	10.0	9.00	8.20	7.60	7.10	6.70	6.40	6.20	6.00	5.80	5.80	.001	27.1	18.0	13.5	11.5	10.5	9.50	8.70	8.10	7.60	7.20	6.90	6.70	6.50	6.50
	Denominator Degrees of Freedom (V2)	12	.75	.106	.295	.408	.480	.530	.566	.594	.616	.633	.649	.661	.671	.75	.105	.292	.407	.480	.531	.568	.597	.620	.639	.654	.667	.678	.75	.475	.722	.821	.874	.906	.928	.943	.955	.965	.972	.978	.983	.75	1.42	1.51	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.43	1.42	1.41	1.41			
		.50	.484	.735	.835	.888	.921	.943	.959	.972	.981	.989	.995	1.00		.50	.475	.722	.821	.874	.906	.928	.943	.955	.965	.972	.978	.983	.50	1.42	1.51	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.43	1.42	1.41	1.41	.50	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.98	1.96	1.96		
.25		1.46	1.56	1.56	1.55	1.54	1.53	1.52	1.51	1.50	1.49	1.48	1.47		.25	1.42	1.51	1.50	1.49	1.47	1.46	1.45	1.44	1.43	1.43	1.42	1.41	1.41	.25	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.98	1.96	1.96	.25	4.45	3.59	3.20	2.96	2.91	2.75	2.72	2.69	2.65	2.61	2.57	2.54	2.54		
.10		3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21	2.19	2.17	2.15		.10	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.98	1.96	1.96	.10	4.45	3.59	3.20	2.96	2.91	2.75	2.72	2.69	2.65	2.61	2.57	2.54	2.54	.10	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.87	2.82	2.82		
.05		4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.72	2.69		.05	4.45	3.59	3.20	2.96	2.91	2.75	2.72	2.69	2.65	2.61	2.57	2.54	2.54	.05	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.87	2.82	2.82	.05	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.52	3.46	3.46		
.025		6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.32	3.28		.025	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.87	2.82	2.82	.025	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.52	3.46	3.46	.025	10.4	7.35	6.16	5.50	5.07	4.78	4.56	4.39	4.25	4.14	4.05	3.97	3.97		
.01		9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.22	4.16		.01	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.52	3.46	3.46	.01	10.4	7.35	6.16	5.50	5.07	4.78	4.56	4.39	4.25	4.14	4.05	3.97	3.97	.01	15.7	10.7	8.73	7.68	7.02	6.56	6.22	5.96	5.75	5.58	5.44	5.32	5.32		
.005		11.8	8.51	7.23	6.52	6.07	5.76	5.52	5.35	5.20	5.09	4.99	4.91		.005	10.4	7.35	6.16	5.50	5.07	4.78	4.56	4.39	4.25	4.14	4.05	3.97	3.97	.005	15.7	10.7	8.73	7.68	7.02	6.56	6.22	5.96	5.75	5.58	5.44	5.32	5.32	.005	21.2	14.1	10.5	9.00	8.00	7.30	6.70	6.20	5.80	5.50	5.30	5.10	5.10		
.001		18.6	13.0	10.8	9.63	8.89	8.38	8.00	7.71	7.48	7.29	7.14	7.00		.001	15.7	10.7	8.73	7.68	7.02	6.56	6.22	5.96	5.75	5.58	5.44	5.32	5.32	.001	21.2	14.1	10.5	9.00	8.00	7.30	6.70	6.20	5.80	5.50	5.30	5.10	5.10	.001	26.7	17.6	12.5	10.5	9.50	8.80	8.20	7.70	7.30	7.00	6.80	6.60	6.60		
Denominator Degrees of Freedom (V2)		13	.75	.106	.294	.408	.480	.530	.567	.595	.617	.635	.650	.662	.673	.75	.105	.292	.407	.480	.531	.569	.598	.621	.639	.655	.668	.679	.75	.474	.721	.819	.872	.904	.926	.941	.953	.962	.970	.976	.981	.75	1.41	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.40	1.40			
		.50	.481	.731	.832	.885	.917	.939	.955	.967	.977	.984	.990	.996		.50	.474	.721	.819	.872	.904	.926	.941	.953	.962	.970	.976	.981	.50	1.41	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.40	1.40	.50	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00	1.98	1.95	1.93	1.93		
	.25	1.45	1.55	1.55	1.53	1.52	1.51	1.50	1.49	1.49	1.48	1.48	1.47		.25	1.41	1.50	1.49	1.48	1.46	1.45	1.44	1.43	1.42	1.42	1.41	1.40	1.40	.25	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00	1.98	1.95	1.93	1.93	.25	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.34		
	.10	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16	2.14	2.12	2.10		.10	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00	1.98	1.95	1.93	1.93	.10	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.34	.10	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.81	2.77	2.77		
	.05	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.64	2.60		.05	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.34	.05	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.81	2.77	2.77	.05	8.28	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.43	3.37	3.37		
	.025	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.20	3.15		.025	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.81	2.77	2.77	.025	8.28	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.43	3.37	3.37	.025	10.2	7.21	6.03	5.37	4.96	4.66	4.44	4.28							

Critical Values of the *F*-Distribution (cont.)

Taken from Rohlf and Sokal, 1981 Table 16

		Numerator Degrees of Freedom (V1)												α				Numerator Degrees of Freedom (V1)												α	
		α	1	2	3	4	5	6	7	8	9	10	11					12	α	1	2	3	4	5	6	7	8	9	10		
Denominator Degrees of Freedom (V2)	21	.75	.104	.292	.407	.480	.532	.570	.599	.622	.641	.657	.671	.682	.75	.104	.291	.406	.480	.532	.571	.600	.624	.644	.660	.674	.686	.75			
		.50	.471	.717	.815	.867	.899	.921	.936	.948	.957	.965	.971	.976	.50	.468	.712	.810	.861	.893	.915	.930	.942	.951	.959	.965	.970	.50			
		.25	1.40	1.48	1.48	1.46	1.44	1.43	1.42	1.41	1.40	1.39	1.39	1.38	.25	1.38	1.46	1.45	1.44	1.42	1.41	1.39	1.38	1.37	1.37	1.36	1.35	.25			
		.10	2.96	2.57	2.36	2.23	2.14	2.08	2.02	1.98	1.95	1.92	1.90	1.87	.10	2.91	2.52	2.31	2.17	2.08	2.01	1.96	1.92	1.88	1.86	1.83	1.81	.10			
		.05	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.28	2.25	.05	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.18	2.15	.05			
		.025	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80	2.73	2.68	2.64	.025	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65	2.59	2.54	2.49	.025			
		.01	8.02	5.75	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.24	3.17	.01	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18	3.09	3.02	2.96	.01			
		.005	9.83	6.89	5.73	5.09	4.99	4.39	4.18	4.01	3.88	3.77	3.68	3.60	.005	9.41	6.54	5.41	4.79	4.38	4.10	3.89	3.73	3.60	3.49	3.40	3.33	.005			
		.001	14.6	9.77	7.94	6.95	6.32	5.88	5.56	5.31	5.11	4.95	4.81	4.70	.001	13.7	9.12	7.36	6.41	5.80	5.38	5.07	4.83	4.64	4.48	4.35	4.24	.001			
		22	.75	.104	.292	.407	.481	.532	.570	.599	.623	.642	.658	.671	.683	.75	.104	.291	.406	.480	.532	.571	.601	.624	.644	.660	.674	.686	.75		
		.50	.470	.715	.814	.866	.898	.919	.935	.947	.956	.963	.969	.974	.50	.467	.711	.809	.861	.892	.914	.930	.941	.950	.958	.964	.969	.50			
		.25	1.40	1.48	1.47	1.45	1.44	1.42	1.41	1.40	1.39	1.39	1.38	1.37	.25	1.38	1.46	1.45	1.43	1.42	1.40	1.39	1.38	1.37	1.36	1.35	1.35	.25			
	.10	2.95	2.56	2.35	2.22	2.13	2.06	2.01	1.97	1.93	1.90	1.88	1.86	.10	2.90	2.51	2.30	2.17	2.07	2.00	1.95	1.91	1.87	1.85	1.82	1.80	.10				
	.05	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.39	2.30	2.26	2.23	.05	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.17	2.13	.05				
	.025	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76	2.70	2.65	2.60	.025	5.63	4.24	3.65	3.31	3.08	2.92	2.80	2.71	2.63	2.57	2.51	2.47	.025				
	.01	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.18	3.12	.01	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15	3.06	2.99	2.93	.01				
	.005	6.73	6.81	5.65	5.02	4.61	4.32	4.11	3.94	3.81	3.70	3.61	3.53	.005	9.34	6.49	5.36	4.74	4.34	4.06	3.85	3.69	3.56	3.45	3.36	3.28	.005				
	.001	14.4	9.61	7.80	6.81	6.19	5.76	5.44	5.19	4.99	4.83	4.70	4.58	.001	13.6	9.02	7.27	6.33	5.73	5.31	5.00	4.76	4.57	4.41	4.28	4.17	.001				
	23	.75	.104	.291	.406	.481	.532	.570	.600	.623	.643	.659	.672	.684	.75	.103	.290	.406	.480	.532	.571	.601	.625	.645	.661	.675	.687	.75			
	.50	.470	.714	.813	.864	.896	.918	.934	.945	.955	.962	.968	.973	.50	.467	.711	.808	.860	.892	.913	.929	.940	.950	.957	.963	.968	.50				
	.25	1.39	1.47	1.47	1.45	1.43	1.42	1.41	1.40	1.39	1.38	1.37	1.37	.25	1.38	1.46	1.45	1.43	1.41	1.40	1.39	1.38	1.37	1.36	1.35	1.34	.25				
	.10	2.94	2.55	2.31	2.25	2.11	1.99	1.99	1.95	1.92	1.89	1.87	1.85	.10	2.89	2.50	2.29	2.16	2.06	2.00	1.94	1.90	1.87	1.84	1.81	1.79	.10				
	.05	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.24	2.20	.05	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.15	2.12	.05				
	.025	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73	2.67	2.62	2.57	.025	5.61	4.22	3.63	3.29	3.06	2.90	2.78	2.69	2.61	2.55	2.49	2.45	.025				
	.01	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.14	3.07	.01	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12	3.03	2.96	2.90	.01				
	.005	9.63	6.73	5.58	4.95	4.54	4.26	4.05	3.88	3.75	3.64	3.55	3.47	.005	9.28	6.44	5.32	4.70	4.30	4.02	3.81	3.65	3.52	3.41	3.32	3.25	.005				
	.001	14.2	9.47	7.67	6.69	6.08	5.65	5.33	5.09	4.89	4.73	4.59	4.48	.001	13.5	8.93	7.19	6.25	5.66	5.24	4.93	4.69	4.50	4.35	4.22	4.11	.001				
	24	.75	.104	.291	.406	.480	.532	.570	.600	.623	.643	.659	.671	.684	.75	.103	.290	.406	.480	.532	.571	.601	.625	.645	.661	.675	.687	.75			
	.50	.469	.714	.812	.863	.895	.917	.932	.944	.953	.961	.967	.972	.50	.467	.710	.808	.859	.891	.912	.928	.940	.949	.956	.962	.967	.50				
	.25	1.39	1.47	1.46	1.44	1.43	1.41	1.40	1.39	1.38	1.37	1.37	1.36	.25	1.38	1.45	1.45	1.43	1.41	1.40	1.38	1.37	1.36	1.35	1.35	1.34	.25				
	.10	2.93	2.54	2.33	2.19	2.10	2.04	1.98	1.94	1.91	1.88	1.85	1.83	.10	2.89	2.50	2.28	2.15	2.06	1.99	1.93	1.89	1.86	1.83	1.80	1.78	.10				
	.05	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.22	2.18	.05	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.14	2.10	.05				
	.025	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70	2.64	2.59	2.54	.025	5.59	4.20	3.60	3.27	3.04	2.88	2.76	2.67	2.59	2.51	2.47	2.43	.025				
	.01	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.09	3.03	.01	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09	3.00	2.93	2.87	.01				
	.005	9.55	6.66	5.52	4.89	4.49	4.20	3.99	3.83	3.69	3.59	3.50	3.42	.005	9.23	6.40	5.28	4.66	4.26	3.98	3.77	3.61	3.48	3.38	3.29	3.21	.005				
	.001	14.0	9.34	7.55	6.59	5.98	5.55	5.23	4.99	4.80	4.64	4.50	4.39	.001	13.4	8.85	7.12	6.19	5.59	5.18	4.87	4.64	4.45	4.29	4.16	4.05	.001				
	25	.75	.104	.292	.407	.481	.532	.571	.600	.624	.643	.659	.673	.685	.75	.103	.290	.406	.480	.532	.571	.601	.625	.645	.661	.676	.688	.75			
	.50	.468	.713	.811	.862	.894	.916	.931	.943	.952	.960	.966	.971	.50	.466	.709	.807	.858	.890	.912	.927	.939	.948	.955	.961	.966	.50				
	.25	1.39	1.47	1.46	1.44	1.42	1.41	1.40	1.39	1.38	1.37	1.36	1.36	.25	1.38	1.45	1.44	1.42	1.41	1.39	1.38	1.37	1.36	1.35	1.34	1.34	.25				
	.10	2.92	2.53	2.32	2.18	2.09	2.02	1.97	1.93	1.89	1.87	1.84	1.82	.10	2.88	2.49	2.28	2.14	2.05	1.98	1.93	1.88	1.85	1.82	1.79	1.77	.10				
	.05	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.20	2.16	.05	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.13	2.09	.05				
	.025	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68	2.61	2.56	2.51	.025	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57	2.51	2.46	2.41	.025				
	.01	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.22	3.13	3.06	2.99	.01	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.90	2.84	.01				
	.005	9.48	6.60	5.46	4.84	4.43	4.15	3.94	3.78	3.64	3.54	3.44	3.37	.005	9.18	6.35	5.24	4.62	4.23	3.95	3.74	3.58	3.45	3.34	3.25	3.18	.005				
	.001	13.9	9.22	7.45	6.49	5.88	5.46	5.15	4.91	4.71	4.56	4.42	4.31	.001	13.3	8.77	7.05	6.12	5.53	5.12	4.82	4.58	4.39	4.24	4.11	4.00	.001				

Critical Values of the *F*-Distribution (cont.)

Taken from Rohlf and Sokal, 1981 Table 16

Numerator Degrees of Freedom (V1)

		Numerator Degrees of Freedom (V1)																	
		α	1	2	3	4	5	6	7	8	9	10	11	12	α				
40	.75	.103	.289	.404	.480	.533	.572	.603	.627	.647	.662	.679	.689	.698	.75	40			
	.50	.463	.705	.802	.854	.885	.907	.922	.934	.943	.950	.956	.961	.964	.50				
	.25	1.36	1.44	1.42	1.40	1.39	1.37	1.36	1.35	1.34	1.33	1.32	1.31	1.31	.25				
	.10	2.84	2.44	2.23	2.09	2.00	1.93	1.87	1.83	1.79	1.76	1.74	1.74	1.74	.10				
	.05	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.04	2.04	2.04	.05				
	.025	5.42	4.05	3.46	3.13	2.90	2.74	2.62	2.53	2.45	2.39	2.33	2.29	2.29	.025				
	.01	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.73	2.66	2.66	.01				
	.005	8.83	6.07	4.98	4.37	3.99	3.71	3.51	3.35	3.22	3.12	3.03	2.95	2.95	.005				
	.001	12.6	8.25	6.60	5.70	5.13	4.73	4.44	4.21	4.02	3.87	3.74	3.64	3.64	.001				
	60	.75	.102	.289	.405	.480	.534	.573	.604	.629	.650	.667	.682	.695	.704		.75	60	
		.50	.461	.701	.798	.849	.880	.901	.917	.928	.937	.945	.951	.956	.959		.50		
		.25	1.35	1.42	1.41	1.38	1.37	1.35	1.33	1.32	1.31	1.30	1.29	1.29	1.29		.25		
.10		2.79	2.39	2.18	2.04	1.95	1.87	1.82	1.77	1.74	1.71	1.68	1.66	1.66	.10				
.05		4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.95	1.92	1.92	.05				
.025		5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33	2.27	2.22	2.17	2.17	.025				
.01		7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.56	2.50	2.50	.01				
.005		8.49	5.79	4.73	4.14	3.76	3.49	3.29	3.13	3.01	2.90	2.81	2.74	2.74	.005				
.001		12.0	7.76	6.17	5.31	4.76	4.37	4.09	3.87	3.69	3.54	3.41	3.31	3.31	.001				
120		.75	.102	.288	.405	.481	.534	.574	.606	.631	.652	.670	.686	.699	.708	.75	120		
		.50	.458	.697	.793	.844	.875	.896	.912	.923	.932	.939	.945	.950	.953	.50			
		.25	1.34	1.40	1.39	1.37	1.35	1.33	1.31	1.30	1.29	1.28	1.27	1.26	1.26	.25			
	.10	2.75	2.35	2.13	1.99	1.90	1.82	1.77	1.72	1.68	1.65	1.63	1.60	1.60	.10				
	.05	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96	1.91	1.87	1.83	1.83	.05				
	.025	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22	2.16	2.10	2.05	2.05	.025				
	.01	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.40	2.34	2.34	.01				
	.005	8.18	5.54	4.50	3.92	3.55	3.28	3.09	2.93	2.81	2.71	2.62	2.54	2.54	.005				
	.001	11.4	7.32	5.79	4.95	4.42	4.04	3.77	3.55	3.38	3.24	3.11	3.02	3.02	.001				
	∞	.75	.102	.288	.404	.481	.535	.576	.608	.634	.655	.674	.690	.703	.712	.75		∞	
		.50	.455	.693	.789	.839	.870	.891	.907	.918	.927	.934	.939	.945	.948	.50			
		.25	1.32	1.39	1.37	1.35	1.33	1.31	1.29	1.28	1.27	1.25	1.24	1.24	1.24	.25			
.10		2.71	2.30	2.08	1.94	1.85	1.77	1.72	1.67	1.63	1.60	1.57	1.55	1.55	.10				
.05		3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.79	1.75	1.75	.05				
.025		5.02	3.69	3.11	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.99	1.94	1.94	.025				
.01		6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.25	2.18	2.18	.01				
.005		7.88	5.30	4.28	3.72	3.35	3.09	2.90	2.74	2.62	2.52	2.43	2.36	2.36	.005				
.001		10.8	6.91	5.42	4.62	4.10	3.74	3.47	3.27	3.10	2.96	2.84	2.74	2.74	.001				

Critical Values of the *F*-Distribution (cont.)

Taken from Rohlf and Sokal, 1981 Table 16

		Numerator Degrees of Freedom (V1)										Numerator Degrees of Freedom (V1)										α	
		α	15	20	24	30	40	50	60	120	∞	15	20	24	30	40	50	60	120	∞			
Denominator Degrees of Freedom (V2)	1	.75	.698	.712	.719	.727	.734	.738	.741	.749	.756	.675	.696	.707	.718	.729	.736	.741	.753	.765	.75		
		.50	2.09	2.12	2.13	2.15	2.16	2.17	2.17	2.18	2.20	1.07	1.08	1.09	1.10	1.10	1.11	1.11	1.12	1.12	.50		
		.25	9.49	9.58	9.63	9.67	9.71	9.74	9.76	9.80	9.85	1.76	1.76	1.75	1.75	1.75	1.74	1.74	1.74	1.74	.25		
		.10	61.2	61.7	62.0	62.3	62.5	62.7	62.8	63.1	63.3	2.87	2.84	2.82	2.80	2.78	2.77	2.76	2.74	2.72	.10		
		.05	246	248	249	250	251	252	252	253	254	3.94	3.87	3.84	3.81	3.77	3.75	3.74	3.70	3.67	.05		
		.025	985	993	997	1000	1010	1010	1010	1010	1020	5.27	5.17	5.12	5.07	5.01	4.98	4.96	4.90	4.85	.025		
		.01	6160	6210	6230	6260	6290	6300	6310	6340	6370	7.56	7.40	7.31	7.23	7.14	7.09	7.06	6.97	6.88	.01		
		.005	24630	24836	24940	25440	25148	25211	25253	25359	25465	9.81	9.59	9.47	9.36	9.24	9.17	9.12	9.00	8.88	.005		
		.001	615800	620900	623500	626100	628700	630300	631300	634000	636600	17.6	17.1	16.9	16.7	16.4	16.3	16.2	16.0	15.8	.001		
		Denominator Degrees of Freedom (V2)	6	.75	.657	.672	.680	.689	.697	.702	.705	.713	.721	.679	.702	.713	.725	.737	.745	.749	.762	.775	.75
				.50	1.38	1.39	1.40	1.41	1.42	1.43	1.43	1.43	1.44	1.05	1.07	1.07	1.08	1.08	1.09	1.09	1.10	1.10	.50
.25	3.41			3.43	3.43	3.44	3.45	3.46	3.46	3.47	3.48	1.68	1.67	1.67	1.66	1.66	1.65	1.65	1.65	1.65	.25		
.10	9.42			9.44	9.45	9.46	9.47	9.47	9.47	9.48	9.49	2.63	2.59	2.58	2.56	2.54	2.52	2.51	2.49	2.47	.10		
.05	19.4			19.4	19.5	19.5	19.5	19.5	19.5	19.5	19.5	3.51	3.44	3.41	3.38	3.34	3.32	3.30	3.27	3.23	.05		
.025	39.4			39.4	39.5	39.5	39.5	39.5	39.5	39.5	39.5	4.57	4.47	4.42	4.36	4.31	4.27	4.25	4.20	4.14	.025		
.01	99.4			99.4	99.5	99.5	99.5	99.5	99.5	99.5	99.5	6.31	6.16	6.07	5.99	5.91	5.86	5.82	5.74	5.65	.01		
.005	199			199	199	199	199	199	199	199	200	7.97	7.75	7.65	7.53	7.42	7.35	7.31	7.19	7.08	.005		
.001	999			999	1000	1000	1000	1000	1000	1000	1000	13.3	12.9	12.7	12.5	12.3	12.2	12.1	11.9	11.7	.001		
Denominator Degrees of Freedom (V2)	7			.75	.658	.675	.684	.694	.702	.708	.711	.721	.730	.684	.707	.718	.730	.743	.751	.756	.769	.783	.75
				.50	1.21	1.23	1.23	1.24	1.25	1.25	1.25	1.26	1.27	1.04	1.05	1.06	1.07	1.08	1.07	1.08	1.08	1.09	.50
		.25	2.46	2.46	2.46	2.47	2.47	2.47	2.47	2.47	2.47	1.62	1.61	1.60	1.60	1.59	1.59	1.59	1.58	1.58	.25		
		.10	5.20	5.18	5.18	5.17	5.16	5.15	5.15	5.14	5.13	2.46	2.42	2.40	2.38	2.36	2.35	2.34	2.32	2.29	.10		
		.05	8.70	8.66	8.64	8.62	8.59	8.58	8.57	8.55	8.53	3.22	3.15	3.12	3.08	3.04	3.02	3.01	2.97	2.93	.05		
		.025	14.3	14.2	14.1	14.1	14.0	14.0	14.0	13.9	13.9	4.10	4.00	3.95	3.89	3.84	3.80	3.78	3.73	3.67	.025		
		.01	26.9	26.7	26.6	26.5	26.4	26.3	26.3	26.2	26.1	5.52	5.36	5.28	5.20	5.12	5.07	5.03	4.95	4.86	.01		
		.005	43.1	42.8	42.6	42.5	42.3	42.2	42.1	42.0	41.8	6.81	6.61	6.50	6.40	6.29	6.22	6.18	6.06	5.95	.005		
		.001	127	126	126	125	125	125	124	124	124	10.8	10.5	10.3	10.1	9.9	9.8	9.7	9.5	9.3	.001		
		Denominator Degrees of Freedom (V2)	8	.75	.664	.683	.692	.702	.712	.718	.722	.733	.743	.687	.711	.723	.736	.749	.757	.762	.776	.791	.75
				.50	1.14	1.15	1.16	1.16	1.17	1.18	1.18	1.18	1.19	1.03	1.04	1.05	1.05	1.06	1.07	1.07	1.07	1.08	.50
.25	2.08			2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	1.57	1.56	1.56	1.55	1.55	1.54	1.54	1.53	1.53	.25		
.10	3.87			3.84	3.83	3.82	3.80	3.79	3.79	3.78	3.76	2.34	2.30	2.28	2.25	2.23	2.22	2.21	2.18	2.16	.10		
.05	5.86			5.80	5.77	5.75	5.72	5.70	5.69	5.66	5.63	3.01	2.94	2.90	2.86	2.83	2.81	2.79	2.75	2.71	.05		
.025	8.66			8.56	8.51	8.46	8.41	8.38	8.36	8.31	8.26	3.77	3.67	3.61	3.56	3.51	3.47	3.45	3.39	3.33	.025		
.01	14.2			14.0	13.9	13.8	13.7	13.7	13.7	13.6	13.5	4.96	4.81	4.73	4.65	4.57	4.52	4.48	4.40	4.31	.01		
.005	20.4			20.2	20.0	19.9	19.8	19.7	19.6	19.5	19.3	6.03	5.83	5.73	5.62	5.52	5.45	5.41	5.30	5.19	.005		
.001	46.8			46.1	45.8	45.4	45.1	44.9	44.8	44.4	44.0	9.24	8.90	8.72	8.55	8.37	8.26	8.19	8.00	7.81	.001		
Denominator Degrees of Freedom (V2)	9			.75	.669	.690	.700	.711	.722	.732	.743	.755	.691	.714	.727	.740	.754	.762	.767	.782	.797	.75	
				.50	1.10	1.11	1.12	1.12	1.13	1.14	1.14	1.14	1.15	1.02	1.03	1.04	1.05	1.05	1.06	1.06	1.06	1.07	.50
		.25	1.89	1.88	1.88	1.88	1.88	1.87	1.87	1.87	1.87	1.53	1.52	1.52	1.51	1.51	1.50	1.50	1.49	1.48	.25		
		.10	3.24	3.21	3.19	3.17	3.16	3.15	3.14	3.12	3.10	2.24	2.20	2.18	2.16	2.13	2.12	2.11	2.08	2.06	.10		
		.05	4.62	4.56	4.53	4.50	4.46	4.44	4.43	4.40	4.36	2.85	2.77	2.74	2.70	2.66	2.64	2.62	2.58	2.54	.05		
		.025	6.43	6.33	6.28	6.23	6.18	6.14	6.12	6.07	6.02	3.52	3.42	3.37	3.31	3.26	3.22	3.20	3.14	3.08	.025		
		.01	9.72	9.55	9.47	9.38	9.29	9.24	9.20	9.11	9.02	4.56	4.41	4.33	4.25	4.17	4.12	4.08	4.00	3.91	.01		
		.005	13.1	12.9	12.8	12.7	12.5	12.4	12.4	12.3	12.1	5.47	5.27	5.17	5.07	4.97	4.90	4.86	4.75	4.64	.005		
		.001	25.9	25.4	25.1	24.9	24.6	24.4	24.3	24.1	23.7	8.13	7.80	7.64	7.47	7.30	7.19	7.12	6.94	6.76	.001		
		Denominator Degrees of Freedom (V2)	10	.75	.669	.690	.700	.711	.722	.732	.743	.755	.691	.714	.727	.740	.754	.762	.767	.782	.797	.75	
				.50	1.10	1.11	1.12	1.12	1.13	1.14	1.14	1.14	1.15	1.02	1.03	1.04	1.05	1.05	1.06	1.06	1.06	1.07	.50
.25	1.89			1.88	1.88	1.88	1.88	1.87	1.87	1.87	1.87	1.53	1.52	1.52	1.51	1.51	1.50	1.50	1.49	1.48	.25		
.10	3.24			3.21	3.19	3.17	3.16	3.15	3.14	3.12	3.10	2.24	2.20	2.18	2.16	2.13	2.12	2.11	2.08	2.06	.10		
.05	4.62			4.56	4.53	4.50	4.46	4.44	4.43	4.40	4.36	2.85	2.77	2.74	2.70	2.66	2.64	2.62	2.58	2.54	.05		
.025	6.43			6.33	6.28	6.23	6.18	6.14	6.12	6.07	6.02	3.52	3.42	3.37	3.31	3.26	3.22	3.20	3.14	3.08	.025		
.01	9.72			9.55	9.47	9.38	9.29	9.24	9.20	9.11	9.02	4.56	4.41	4.33	4.25	4.17	4.12	4.08	4.00	3.91	.01		
.005	13.1			12.9	12.8	12.7	12.5	12.4	12.4	12.3	12.1	5.47	5.27	5.17	5.07	4.97	4.90	4.86	4.75	4.64	.005		
.001	25.9			25.4	25.1	24.9	24.6	24.4	24.3	24.1	23.7	8.13	7.80	7.64	7.47	7.30	7.19	7.12	6.94	6.76	.001		

Critical Values of the *F*-Distribution (cont.)

Taken from Rohlf and Sokal, 1981 Table 16

		Numerator Degrees of Freedom (V1)										Numerator Degrees of Freedom (V1)									
		α	15	20	24	30	40	50	60	120	∞	15	20	24	30	40	50	60	120	∞	α
Denominator Degrees of Freedom (V2)	11	.75	.694	.719	.730	.744	.758	.767	.773	.788	.803	.703	.730	.744	.759	.775	.785	.791	.808	.826	.75
		.50	1.02	1.03	1.03	1.04	1.05	1.05	1.05	1.06	1.06	.997	1.01	1.01	1.02	1.03	1.03	1.03	1.04	1.04	.50
		.25	1.50	1.49	1.49	1.48	1.47	1.47	1.47	1.46	1.45	1.41	1.40	1.39	1.38	1.37	1.37	1.36	1.35	1.34	.25
		.10	2.17	2.12	2.10	2.08	2.05	2.04	2.03	2.00	1.97	1.94	1.89	1.87	1.84	1.81	1.79	1.78	1.75	1.72	.10
		.05	2.72	2.65	2.61	2.57	2.53	2.51	2.49	2.45	2.40	2.35	2.28	2.24	2.19	2.15	2.12	2.11	2.06	2.01	.05
		.025	3.33	3.23	3.17	3.12	3.06	3.02	3.00	2.94	2.88	2.79	2.68	2.63	2.57	2.51	2.47	2.45	2.38	2.32	.025
		.01	4.25	4.10	4.02	3.94	3.86	3.81	3.78	3.69	3.60	3.41	3.26	3.18	3.10	3.02	2.97	2.93	2.84	2.75	.01
		.005	5.05	4.86	4.76	4.65	4.55	4.49	4.45	4.34	4.23	3.92	3.73	3.64	3.54	3.44	3.37	3.33	3.22	3.11	.005
		.001	7.32	7.01	6.85	6.68	6.52	6.42	6.35	6.17	6.00	5.27	4.99	4.85	4.70	4.54	4.45	4.39	4.23	4.06	.001
		12	.75	.695	.721	.734	.748	.762	.771	.777	.792	.808	.704	.732	.746	.762	.777	.787	.794	.811	.830
		.50	1.01	1.02	1.03	1.03	1.04	1.04	1.05	1.05	1.06	.995	1.01	1.01	1.02	1.02	1.03	1.03	1.03	1.04	.50
		.25	1.48	1.47	1.46	1.45	1.45	1.44	1.44	1.43	1.42	1.40	1.39	1.38	1.37	1.36	1.36	1.35	1.34	1.33	.25
		.10	2.11	2.06	2.04	2.01	1.99	1.97	1.96	1.93	1.90	1.91	1.86	1.84	1.81	1.78	1.76	1.75	1.72	1.69	.10
		.05	2.62	2.54	2.51	2.47	2.43	2.40	2.38	2.34	2.30	2.31	2.23	2.19	2.15	2.10	2.08	2.06	2.01	1.96	.05
		.025	3.18	3.07	3.02	2.96	2.91	2.87	2.85	2.79	2.72	2.72	2.62	2.56	2.50	2.44	2.41	2.38	2.32	2.25	.025
		.01	4.01	3.86	3.78	3.70	3.62	3.57	3.54	3.45	3.36	3.31	3.16	3.08	3.00	2.92	2.87	2.83	2.75	2.65	.01
		.005	4.72	4.53	4.43	4.33	4.23	4.16	4.12	4.01	3.90	3.79	3.61	3.51	3.41	3.31	3.25	3.21	3.10	2.98	.005
		.001	6.71	6.40	6.25	6.09	5.93	5.83	5.76	5.59	5.42	5.05	4.78	4.63	4.48	4.33	4.24	4.18	4.02	3.85	.001
	13	.75	.697	.723	.737	.751	.766	.775	.781	.797	.813	.706	.733	.748	.764	.780	.790	.797	.814	.833	.75
		.50	1.01	1.02	1.02	1.03	1.04	1.04	1.04	1.05	1.05	.992	1.00	1.01	1.02	1.02	1.03	1.03	1.03	1.04	.50
		.25	1.46	1.45	1.44	1.43	1.42	1.42	1.42	1.41	1.40	1.39	1.38	1.37	1.36	1.35	1.34	1.34	1.33	1.32	.25
		.10	2.05	2.01	1.98	1.96	1.93	1.92	1.90	1.88	1.85	1.89	1.84	1.81	1.78	1.75	1.74	1.72	1.69	1.66	.10
		.05	2.53	2.46	2.42	2.38	2.34	2.31	2.30	2.25	2.21	2.27	2.19	2.15	2.11	2.06	2.04	2.02	1.97	1.92	.05
		.025	3.05	2.95	2.89	2.84	2.78	2.74	2.72	2.66	2.60	2.67	2.56	2.50	2.44	2.38	2.35	2.32	2.26	2.19	.025
		.01	3.82	3.66	3.59	3.51	3.43	3.37	3.34	3.25	3.17	3.23	3.08	3.00	2.92	2.84	2.78	2.75	2.66	2.57	.01
		.005	4.46	4.27	4.17	4.07	3.97	3.91	3.87	3.76	3.65	3.68	3.50	3.40	3.30	3.20	3.14	3.10	2.99	2.87	.005
		.001	6.23	5.93	5.78	5.63	5.47	5.37	5.30	5.14	4.97	4.87	4.59	4.45	4.30	4.15	4.06	4.00	3.84	3.67	.001
	14	.75	.699	.726	.740	.754	.769	.778	.785	.801	.818	.707	.735	.750	.766	.782	.792	.799	.817	.836	.75
		.50	1.00	1.01	1.02	1.03	1.03	1.04	1.04	1.04	1.05	.990	1.00	1.01	1.01	1.02	1.02	1.02	1.03	1.04	.50
		.25	1.44	1.43	1.42	1.41	1.41	1.40	1.40	1.39	1.38	1.38	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.30	.25
		.10	2.01	1.96	1.94	1.91	1.89	1.87	1.86	1.83	1.80	1.86	1.81	1.79	1.76	1.73	1.71	1.70	1.67	1.63	.10
		.05	2.46	2.39	2.35	2.31	2.27	2.24	2.22	2.18	2.13	2.23	2.16	2.11	2.07	2.03	2.00	1.98	1.93	1.88	.05
		.025	2.95	2.84	2.79	2.73	2.67	2.64	2.61	2.55	2.49	2.62	2.51	2.45	2.39	2.33	2.30	2.27	2.20	2.13	.025
		.01	3.66	3.51	3.43	3.35	3.27	3.21	3.18	3.09	3.00	3.15	3.00	2.92	2.84	2.76	2.71	2.67	2.58	2.49	.01
		.005	4.25	4.06	3.96	3.86	3.76	3.70	3.66	3.55	3.44	3.59	3.40	3.31	3.21	3.11	3.04	3.00	2.89	2.78	.005
		.001	5.85	5.56	5.41	5.25	5.10	5.00	4.94	4.77	4.60	4.70	4.43	4.29	4.14	3.99	3.90	3.84	3.68	3.51	.001
	15	.75	.701	.728	.742	.757	.772	.782	.788	.805	.822	.708	.736	.751	.767	.784	.794	.801	.820	.840	.75
		.50	1.00	1.01	1.02	1.02	1.03	1.03	1.03	1.04	1.05	.989	1.00	1.01	1.01	1.02	1.02	1.02	1.03	1.03	.50
		.25	1.43	1.41	1.41	1.40	1.39	1.38	1.38	1.37	1.36	1.37	1.36	1.35	1.34	1.33	1.33	1.32	1.31	1.29	.25
		.10	1.97	1.92	1.90	1.87	1.85	1.83	1.82	1.79	1.76	1.84	1.79	1.77	1.74	1.71	1.69	1.68	1.64	1.61	.10
		.05	2.40	2.33	2.29	2.25	2.20	2.18	2.16	2.11	2.07	2.20	2.12	2.08	2.04	1.99	1.97	1.95	1.90	1.84	.05
		.025	2.86	2.76	2.70	2.64	2.59	2.55	2.52	2.46	2.40	2.57	2.46	2.41	2.35	2.29	2.25	2.22	2.16	2.09	.025
		.01	3.52	3.37	3.29	3.21	3.13	3.08	3.05	2.96	2.87	3.09	2.94	2.86	2.78	2.69	2.64	2.61	2.52	2.42	.01
		.005	4.07	3.88	3.79	3.69	3.59	3.52	3.48	3.37	3.26	3.50	3.32	3.22	3.12	3.02	2.96	2.92	2.81	2.69	.005
		.001	5.54	5.25	5.10	4.95	4.80	4.70	4.64	4.47	4.31	4.56	4.29	4.15	4.00	3.86	3.76	3.70	3.54	3.38	.001

Critical Values of the *F*-Distribution (cont.)

Taken from Rohlf and Sokal, 1981 Table 16

		Numerator Degrees of Freedom (V1)									Numerator Degrees of Freedom (V1)										
		α	15	20	24	30	40	50	60	120	∞	15	20	24	30	40	50	60	120		
21	.75	.709	.738	.753	.769	.786	.796	.803	.822	.842	.713	.743	.759	.776	.793	.805	.812	.832	.854	.875	26
	.50	.987	.998	1.00	1.01	1.02	1.02	1.02	1.03	1.03	.981	.992	.998	1.00	1.01	1.01	1.01	1.02	1.03	1.03	
	.25	1.37	1.35	1.34	1.33	1.32	1.32	1.31	1.30	1.28	1.34	1.32	1.31	1.30	1.29	1.28	1.28	1.26	1.25	1.25	
	.10	1.83	1.78	1.75	1.72	1.69	1.67	1.66	1.62	1.59	1.76	1.71	1.68	1.65	1.61	1.59	1.58	1.54	1.50	1.10	
	.05	2.18	2.10	2.05	2.01	1.96	1.94	1.92	1.87	1.81	2.07	1.99	1.95	1.90	1.85	1.82	1.80	1.75	1.69	.05	
	.025	2.53	2.42	2.37	2.31	2.25	2.21	2.18	2.11	2.04	2.39	2.28	2.22	2.16	2.09	2.05	2.03	1.95	1.88	.025	
	.01	3.03	2.88	2.80	2.72	2.64	2.58	2.55	2.46	2.36	2.81	2.66	2.58	2.50	2.42	2.36	2.33	2.23	2.13	.01	
	.005	3.43	3.24	3.15	3.05	2.95	2.88	2.84	2.73	2.61	3.15	2.97	2.87	2.77	2.67	2.61	2.56	2.45	2.33	.005	
	.001	4.44	4.17	4.03	3.88	3.74	3.64	3.58	3.42	3.26	3.99	3.72	3.59	3.44	3.30	3.21	3.15	2.99	2.82	.001	
	22	.75	.710	.739	.754	.770	.787	.798	.805	.824	.845	.714	.744	.760	.777	.795	.806	.814	.834	.856	
.50		.986	.997	1.00	1.01	1.01	1.02	1.02	1.03	1.03	.980	.991	.997	1.00	1.01	1.01	1.01	1.02	1.03	.50	
.25		1.36	1.34	1.33	1.32	1.31	1.31	1.30	1.29	1.28	1.33	1.32	1.31	1.30	1.28	1.28	1.27	1.26	1.24	.25	
.10		1.81	1.76	1.73	1.70	1.67	1.65	1.64	1.60	1.57	1.75	1.70	1.67	1.64	1.60	1.58	1.57	1.53	1.49	.10	
.05		2.15	2.07	2.03	1.98	1.94	1.91	1.89	1.84	1.78	2.06	1.97	1.93	1.88	1.84	1.81	1.79	1.73	1.67	.05	
.025		2.50	2.39	2.33	2.27	2.21	2.17	2.14	2.08	2.00	2.36	2.25	2.19	2.13	2.07	2.03	2.00	1.93	1.85	.025	
.01		2.98	2.83	2.75	2.67	2.58	2.53	2.50	2.40	2.31	2.78	2.63	2.55	2.47	2.38	2.33	2.29	2.20	2.10	.01	
.005		3.36	3.18	3.08	2.98	2.88	2.82	2.77	2.66	2.55	3.11	2.93	2.83	2.73	2.63	2.57	2.52	2.41	2.29	.005	
.001		4.33	4.06	3.92	3.78	3.63	3.54	3.48	3.32	3.15	3.92	3.66	3.52	3.38	3.23	3.14	3.08	2.92	2.75	.001	
23		.75	.711	.740	.756	.772	.789	.800	.807	.827	.847	.714	.745	.761	.778	.796	.807	.815	.836	.858	.875
	.50	.984	.996	1.00	1.01	1.01	1.02	1.02	1.02	1.03	.979	.990	.996	1.00	1.01	1.01	1.01	1.02	1.02	.50	
	.25	1.35	1.34	1.33	1.32	1.31	1.30	1.30	1.28	1.27	1.33	1.31	1.30	1.29	1.28	1.27	1.27	1.25	1.24	.25	
	.10	1.80	1.74	1.72	1.69	1.66	1.64	1.62	1.59	1.55	1.74	1.69	1.66	1.63	1.59	1.57	1.56	1.52	1.48	.10	
	.05	2.13	2.05	2.01	1.96	1.91	1.89	1.86	1.81	1.76	2.04	1.96	1.91	1.87	1.82	1.79	1.77	1.71	1.65	.05	
	.025	2.47	2.36	2.30	2.24	2.18	2.14	2.11	2.04	1.97	2.34	2.23	2.17	2.11	2.05	2.01	1.98	1.91	1.83	.025	
	.01	2.93	2.78	2.70	2.62	2.54	2.48	2.45	2.35	2.26	2.75	2.60	2.52	2.44	2.35	2.30	2.26	2.17	2.06	.01	
	.005	3.30	3.12	3.02	2.92	2.82	2.76	2.71	2.60	2.48	3.07	2.89	2.79	2.69	2.59	2.53	2.48	2.37	2.25	.005	
	.001	4.23	3.96	3.82	3.68	3.53	3.44	3.38	3.22	3.05	3.86	3.60	3.46	3.32	3.18	3.09	3.02	2.86	2.69	.001	
	24	.75	.712	.741	.757	.773	.791	.802	.809	.829	.850	.715	.745	.762	.779	.797	.809	.816	.837	.860	.875
.50		.983	.994	1.00	1.01	1.01	1.02	1.02	1.02	1.03	.979	.990	.996	1.00	1.01	1.01	1.01	1.02	1.02	.50	
.25		1.35	1.33	1.32	1.31	1.30	1.29	1.29	1.28	1.26	1.32	1.31	1.30	1.29	1.27	1.27	1.26	1.25	1.23	.25	
.10		1.78	1.73	1.70	1.67	1.64	1.62	1.61	1.57	1.53	1.73	1.68	1.65	1.62	1.58	1.56	1.55	1.51	1.47	.10	
.05		2.11	2.03	1.98	1.94	1.89	1.86	1.84	1.79	1.73	2.03	1.94	1.90	1.85	1.81	1.78	1.75	1.70	1.64	.05	
.025		2.44	2.33	2.27	2.21	2.15	2.11	2.08	2.01	1.94	2.32	2.21	2.15	2.09	2.03	1.99	1.96	1.89	1.81	.025	
.01		2.89	2.74	2.66	2.58	2.49	2.44	2.40	2.31	2.21	2.73	2.57	2.49	2.41	2.33	2.27	2.23	2.14	2.03	.01	
.005		3.25	3.06	2.97	2.87	2.77	2.70	2.66	2.55	2.43	3.04	2.86	2.76	2.66	2.56	2.49	2.45	2.33	2.21	.005	
.001		4.14	3.87	3.74	3.59	3.45	3.36	3.29	3.14	2.97	3.80	3.54	3.41	3.27	3.12	3.03	2.97	2.81	2.64	.001	
25		.75	.712	.742	.758	.775	.792	.803	.811	.831	.852	.716	.746	.763	.780	.798	.810	.818	.839	.862	.875
	.50	.982	.993	.999	1.00	1.01	1.01	1.02	1.02	1.03	.978	.989	.994	1.00	1.01	1.01	1.01	1.02	1.02	.50	
	.25	1.34	1.33	1.32	1.31	1.29	1.29	1.28	1.27	1.25	1.32	1.30	1.29	1.28	1.27	1.26	1.26	1.24	1.23	.25	
	.10	1.77	1.72	1.69	1.66	1.63	1.61	1.59	1.56	1.52	1.72	1.67	1.64	1.61	1.57	1.55	1.54	1.50	1.46	.10	
	.05	2.09	2.01	1.96	1.92	1.87	1.84	1.82	1.77	1.71	2.01	1.93	1.89	1.84	1.79	1.76	1.74	1.68	1.62	.05	
	.025	2.41	2.30	2.24	2.18	2.12	2.08	2.05	1.98	1.91	2.31	2.20	2.14	2.07	2.01	1.97	1.94	1.87	1.79	.025	
	.01	2.85	2.70	2.62	2.54	2.45	2.40	2.36	2.27	2.17	2.70	2.55	2.47	2.39	2.30	2.25	2.21	2.11	2.01	.01	
	.005	3.20	3.01	2.92	2.82	2.72	2.65	2.61	2.50	2.38	3.01	2.82	2.73	2.63	2.52	2.46	2.42	2.30	2.18	.005	
	.001	4.06	3.97	3.66	3.52	3.37	3.28	3.22	3.06	2.89	3.75	3.49	3.36	3.22	3.07	2.98	2.92	2.76	2.59	.001	

Critical Values of the *F*-Distribution (cont.)

Taken from *Rohlf and Sokal, 1981 Table 16*

		Numerator Degrees of Freedom (V1)									
		α	15	20	24	30	40	50	60	120	∞
Denominator Degrees of Freedom (V2)	40	.75	.720	.752	.769	.787	.806	.819	.828	.851	.877
		.50	.972	.983	.989	.994	1.00	1.00	1.01	1.01	1.02
		.25	1.30	1.28	1.26	1.25	1.24	1.23	1.22	1.21	1.19
		.10	1.66	1.61	1.57	1.54	1.51	1.48	1.47	1.42	1.38
		.05	1.92	1.84	1.79	1.74	1.69	1.66	1.64	1.58	1.51
		.025	2.18	2.07	2.01	1.94	1.88	1.83	1.80	1.72	1.64
		.01	2.52	2.37	2.29	2.20	2.11	2.06	2.02	1.92	1.80
		.005	2.78	2.60	2.50	2.40	2.30	2.23	2.18	2.06	1.93
		.001	3.40	3.15	3.01	2.87	2.73	2.64	2.57	2.41	2.23
		.75	.725	.758	.776	.796	.816	.830	.840	.865	.896
		.50	.967	.978	.983	.989	.994	.998	1.00	1.01	1.01
		.25	1.27	1.25	1.24	1.22	1.21	1.20	1.19	1.17	1.15
	.10	1.60	1.54	1.51	1.48	1.44	1.41	1.40	1.35	1.29	
	.05	1.84	1.75	1.70	1.65	1.59	1.56	1.53	1.47	1.39	
	.025	2.06	1.94	1.88	1.82	1.74	1.70	1.67	1.58	1.48	
	.01	2.35	2.20	2.12	2.03	1.94	1.88	1.84	1.73	1.60	
	.005	2.57	2.39	2.29	2.19	2.08	2.01	1.96	1.83	1.69	
	.001	3.08	2.83	2.69	2.55	2.41	2.32	2.25	2.08	1.89	
	.75	.730	.765	.784	.805	.828	.843	.853	.884	.923	
	.50	.961	.972	.978	.983	.989	.992	.994	1.00	1.01	
	.25	1.24	1.22	1.21	1.19	1.18	1.17	1.16	1.13	1.10	
	.10	1.55	1.48	1.45	1.41	1.37	1.34	1.32	1.26	1.19	
	.05	1.75	1.66	1.61	1.55	1.50	1.46	1.43	1.35	1.25	
	.025	1.95	1.82	1.76	1.69	1.61	1.56	1.53	1.43	1.31	
	.01	2.19	2.03	1.95	1.86	1.76	1.70	1.66	1.53	1.38	
	.005	2.37	2.19	2.09	1.98	1.87	1.80	1.75	1.61	1.43	
	.001	2.78	2.53	2.40	2.26	2.11	2.02	1.95	1.76	1.54	
	.75	.736	.773	.793	.816	.842	.860	.872	.910	1.00	
	.50	.956	.967	.972	.978	.983	.987	.989	.994	1.00	
	.25	1.22	1.19	1.18	1.16	1.14	1.13	1.12	1.08	1.00	
	.10	1.49	1.42	1.38	1.34	1.30	1.26	1.24	1.17	1.00	
	.05	1.67	1.57	1.52	1.46	1.39	1.35	1.32	1.22	1.00	
	.025	1.83	1.71	1.64	1.57	1.48	1.43	1.39	1.27	1.00	
	.01	2.04	1.88	1.79	1.70	1.59	1.52	1.47	1.32	1.00	
	.005	2.19	2.00	1.90	1.79	1.67	1.59	1.53	1.36	1.00	
	.001	2.51	2.27	2.13	1.99	1.84	1.73	1.66	1.45	1.00	