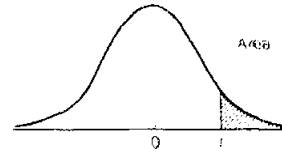


ภาคผนวก

ตารางที่ 1

Student's *t*-Distribution

Entries in the table are critical values of *t* for which area in tail of the distribution is α .



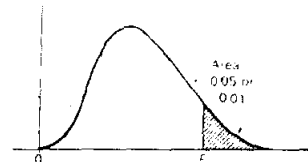
Number of Degrees of Freedom	Value of α					
	0.25	0.10	0.050	0.025	0.010	0.005
1	1.000	3.078	6.314	12.706	31.821	63.657
2	0.816	1.886	2.920	4.303	6.965	9.975
3	0.765	1.636	2.353	3.182	4.541	5.841
4	0.741	1.533	2.132	2.776	3.747	4.604
5	0.727	1.476	2.015	2.571	3.365	4.032
6	0.716	1.440	1.943	2.447	3.143	3.707
7	0.711	1.415	1.895	2.365	2.998	3.499
8	0.706	1.397	1.860	2.306	2.896	3.355
9	0.703	1.383	1.833	2.262	2.821	3.250
10	0.700	1.372	1.812	2.228	2.764	3.169
11	0.697	1.363	1.796	2.201	2.718	3.106
12	0.695	1.356	1.762	2.179	2.681	3.055
13	0.694	1.350	1.771	2.160	2.650	3.012
14	0.692	1.345	1.761	2.145	2.624	2.977
15	0.691	1.341	1.753	2.131	2.602	2.947
16	0.690	1.337	1.746	2.120	2.583	2.921
17	0.689	1.333	1.740	2.110	2.567	2.898
18	0.688	1.330	1.734	2.101	2.552	2.878
19	0.688	1.328	1.729	2.093	2.539	2.861
20	0.687	1.325	1.725	2.086	2.528	2.845
21	0.686	1.323	1.721	2.080	2.518	2.831
22	0.686	1.321	1.717	2.074	2.508	2.819
23	0.685	1.319	1.714	2.069	2.500	2.807
24	0.685	1.318	1.711	2.064	2.492	2.797
25	0.684	1.316	1.708	2.060	2.485	2.787
26	0.684	1.315	1.706	2.056	2.479	2.779
27	0.684	1.314	1.703	2.052	2.473	2.771
28	0.683	1.313	1.701	2.048	2.467	2.763
29	0.683	1.311	1.699	2.045	2.462	2.756
30	0.683	1.310	1.697	2.042	2.457	2.750
	0.674	1.282	1.645	1.960	2.326	2.576

Source: Adapted from R. A. Fisher, *Statistical Methods for Research Workers*, 15th ed (New York: Hafner, 1970). Table IV by permission of the copyright holder of record Mr V. A. Edgeloe, Registrar, University of Adelaide and the publisher.

ตารางที่ 2

F Distribution

Entries in the table are critical values of *F* for which area in upper tail is 0.05 (roman type) or 0.01 (boldface type)



Degrees of Freedom for Denominator	Degrees of Freedom for Numerator																									
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞		
1	161 4059	200 4999	216 5403	225 5629	230 5764	234 5859	237 5928	239 5981	241 6022	242 6056	243 6082	244 6106	245 6142	246 6169	248 6208	249 6234	250 6258	251 6286	252 6302	253 6323	254 6334	254 6352	254 6361	254 6366	254	
2	18.51 96.49	19.00 99.01	19.16 99.17	19.25 99.25	19.30 99.30	19.33 99.33	19.36 99.34	19.37 99.36	19.38 99.38	19.40 99.40	19.41 99.41	19.43 99.43	19.44 99.44	19.45 99.45	19.46 99.46	19.47 99.47	19.48 99.48	19.49 99.49	19.49 99.49	19.49 99.49	19.49 99.49	19.49 99.49	19.50 99.50	19.50 99.50	19.50	
3	10.13 34.12	9.53 30.81	9.28 29.46	9.13 28.71	9.04 28.24	8.94 27.91	8.88 27.67	8.81 27.49	8.78 27.34	8.76 27.23	8.74 27.13	8.73 27.06	8.71 26.92	8.69 26.83	8.66 26.69	8.64 26.60	8.62 26.50	8.60 26.41	8.58 26.30	8.57 26.27	8.56 26.23	8.56 26.18	8.54 26.14	8.54 26.12	8.54	
4	7.71 11.20	6.94 10.00	6.59 9.17	6.39 8.46	6.25 7.91	6.16 7.47	6.09 7.09	6.04 6.80	6.00 6.59	5.96 6.45	5.93 6.37	5.91 6.31	5.87 6.24	5.84 6.15	5.80 6.08	5.77 6.02	5.74 5.97	5.71 5.92	5.70 5.87	5.68 5.83	5.66 5.79	5.66 5.75	5.64 5.71	5.64 5.68	5.63	
5	6.61 16.26	5.79 13.27	5.41 12.06	5.19 11.39	5.05 10.97	4.95 10.67	4.88 10.45	4.82 10.27	4.78 10.15	4.74 10.05	4.70 9.96	4.68 9.90	4.64 9.83	4.60 9.76	4.56 9.68	4.53 9.63	4.50 9.57	4.46 9.51	4.44 9.47	4.42 9.43	4.40 9.39	4.38 9.35	4.37 9.31	4.37 9.27	4.36	
6	5.99 13.74	5.14 10.92	4.76 9.78	4.53 9.15	4.39 8.76	4.28 8.47	4.21 8.26	4.15 8.10	4.10 7.98	4.06 7.87	4.03 7.79	4.00 7.72	3.96 7.60	3.92 7.52	3.87 7.39	3.84 7.31	3.81 7.23	3.77 7.14	3.75 7.09	3.72 7.02	3.71 6.99	3.69 6.94	3.68 6.90	3.68 6.87	3.67	
7	5.59 12.25	4.74 9.65	4.35 8.45	4.12 7.83	3.97 7.46	3.87 7.19	3.79 7.00	3.73 6.84	3.68 6.71	3.63 6.62	3.60 6.54	3.57 6.47	3.52 6.35	3.49 6.27	3.44 6.16	3.41 6.07	3.38 5.98	3.34 5.90	3.32 5.85	3.29 5.78	3.26 5.76	3.25 5.70	3.24 5.67	3.24 5.65	3.23	
8	5.32 11.26	4.46 8.65	4.07 7.47	3.84 6.89	3.69 6.53	3.58 6.27	3.50 6.19	3.44 6.03	3.39 5.91	3.34 5.82	3.31 5.74	3.28 5.66	3.23 5.56	3.20 5.48	3.15 5.36	3.12 5.28	3.08 5.20	3.05 5.11	3.03 5.06	3.00 5.00	2.98 4.96	2.96 4.91	2.91 4.88	2.91 4.86	2.93	
9	5.12 10.66	4.26 8.02	3.86 6.86	3.63 6.42	3.48 6.06	3.37 5.80	3.29 5.62	3.23 5.47	3.18 5.35	3.13 5.26	3.10 5.18	3.07 5.11	3.02 5.00	2.98 4.92	2.93 4.80	2.90 4.73	2.86 4.64	2.82 4.56	2.80 4.51	2.77 4.45	2.76 4.41	2.73 4.35	2.72 4.33	2.72 4.31	2.71	
10	4.96 10.04	4.10 7.66	3.71 6.65	3.48 5.99	3.33 5.64	3.22 5.39	3.14 5.21	3.07 5.06	3.02 4.95	2.97 4.85	2.94 4.78	2.91 4.71	2.86 4.60	2.82 4.52	2.77 4.41	2.74 4.33	2.70 4.25	2.67 4.17	2.64 4.12	2.61 4.05	2.59 4.01	2.56 3.96	2.55 3.93	2.54 3.91	2.54	
11	4.84 9.65	3.98 7.20	3.59 6.22	3.36 5.67	3.20 5.32	3.09 5.07	3.01 4.88	2.95 4.74	2.90 4.63	2.84 4.54	2.82 4.46	2.79 4.40	2.74 4.29	2.70 4.21	2.65 4.10	2.61 4.02	2.57 3.94	2.53 3.86	2.50 3.80	2.47 3.74	2.45 3.70	2.42 3.66	2.41 3.62	2.40 3.60	2.40	
12	4.75 9.33	3.88 6.93	3.49 5.95	3.26 5.41	3.11 5.06	3.00 4.82	2.92 4.66	2.86 4.50	2.80 4.39	2.76 4.30	2.72 4.22	2.69 4.16	2.64 4.06	2.60 3.98	2.54 3.86	2.50 3.78	2.46 3.70	2.43 3.61	2.40 3.56	2.36 3.49	2.35 3.46	2.32 3.41	2.31 3.38	2.30 3.36	2.30	
13	4.67 9.07	3.80 6.70	3.41 5.74	3.18 5.20	3.02 4.86	2.92 4.62	2.84 4.44	2.77 4.30	2.72 4.19	2.67 4.10	2.63 4.02	2.60 3.96	2.55 3.86	2.51 3.78	2.46 3.67	2.42 3.59	2.38 3.51	2.34 3.42	2.32 3.37	2.28 3.30	2.26 3.27	2.24 3.21	2.22 3.18	2.21 3.16	2.21	
14	4.60 8.85	3.74 6.51	3.34 5.56	3.11 5.03	2.96 4.69	2.85 4.46	2.77 4.28	2.70 4.14	2.65 4.03	2.60 3.94	2.56 3.86	2.53 3.80	2.48 3.70	2.44 3.62	2.39 3.51	2.35 3.43	2.31 3.34	2.27 3.26	2.24 3.21	2.21 3.14	2.19 3.11	2.16 3.06	2.14 3.02	2.13 3.00	2.13	
15	4.54 8.68	3.68 6.36	3.29 5.42	3.06 4.89	2.90 4.56	2.79 4.32	2.70 4.14	2.64 4.00	2.59 3.89	2.55 3.80	2.51 3.73	2.48 3.67	2.43 3.56	2.39 3.48	2.33 3.36	2.29 3.29	2.25 3.20	2.21 3.12	2.18 3.07	2.15 3.00	2.12 2.97	2.10 2.91	2.08 2.88	2.07 2.87	2.07	
16	4.49 8.63	3.63 6.23	3.24 5.29	3.01 4.77	2.85 4.44	2.74 4.20	2.66 4.03	2.59 3.89	2.54 3.78	2.49 3.69	2.45 3.61	2.42 3.55	2.37 3.45	2.33 3.37	2.28 3.26	2.24 3.18	2.20 3.10	2.16 3.01	2.13 2.96	2.09 2.89	2.07 2.86	2.04 2.80	2.02 2.77	2.01 2.74	2.01	
17	4.45 8.40	3.59 6.11	3.20 5.18	2.96 4.67	2.81 4.34	2.70 4.10	2.62 3.93	2.55 3.79	2.49 3.68	2.45 3.59	2.41 3.52	2.38 3.45	2.33 3.35	2.29 3.27	2.23 3.16	2.19 3.08	2.15 3.00	2.11 2.92	2.08 2.86	2.04 2.79	2.02 2.76	1.99 2.70	1.97 2.67	1.96 2.66	1.96	
18	4.41 8.28	3.55 6.01	3.16 5.09	2.92 4.56	2.77 4.26	2.66 4.01	2.58 3.85	2.51 3.71	2.45 3.60	2.41 3.51	2.37 3.44	2.34 3.37	2.29 3.27	2.25 3.19	2.19 3.07	2.15 3.00	2.11 2.91	2.07 2.83	2.04 2.78	2.00 2.71	1.98 2.68	1.95 2.62	1.93 2.59	1.92 2.57	1.92	
19	4.38 8.18	3.52 5.93	3.13 5.01	2.89 4.50	2.74 4.17	2.63 3.94	2.55 3.77	2.48 3.63	2.43 3.52	2.39 3.43	2.34 3.36	2.31 3.30	2.26 3.19	2.21 3.12	2.15 3.00	2.11 2.92	2.07 2.84	2.02 2.76	2.00 2.70	1.96 2.63	1.94 2.60	1.91 2.54	1.90 2.51	1.89 2.49	1.89	
20	4.35 8.10	3.49 5.86	3.10 4.94	2.87 4.43	2.71 4.10	2.60 3.87	2.52 3.71	2.45 3.56	2.40 3.45	2.36 3.37	2.31 3.30	2.28 3.23	2.23 3.13	2.18 3.05	2.12 2.94	2.08 2.86	2.04 2.77	2.00 2.69	1.99 2.63	1.96 2.56	1.94 2.53	1.91 2.47	1.90 2.44	1.89 2.42	1.89	
21	4.32 8.02	3.47 5.78	3.07 4.87	2.84 4.37	2.68 4.04	2.57 3.81	2.49 3.66	2.42 3.51	2.37 3.40	2.32 3.31	2.28 3.24	2.25 3.17	2.20 3.07	2.15 2.99	2.09 2.88	2.05 2.80	2.00 2.72	1.96 2.63	1.93 2.68	1.91 2.61	1.89 2.57	1.87 2.51	1.84 2.47	1.82 2.42	1.81	
22	4.30 7.94	3.44 5.72	3.03 4.82	2.82 4.31	2.66 3.99	2.55 3.76	2.47 3.61	2.40 3.45	2.35 3.36	2.30 3.26	2.26 3.18	2.22 3.12	2.18 3.02	2.13 2.94	2.07 2.83	2.03 2.75	1.98 2.67	1.94 2.60	1.91 2.53	1.89 2.46	1.87 2.42	1.84 2.37	1.81 2.32	1.80 2.31	1.80	
23	4.28 7.88	3.42 5.66	3.03 4.76	2.81 4.26	2.64 3.94	2.53 3.71	2.45 3.54	2.38 3.41	2.33 3.30	2.28 3.21	2.24 3.14	2.20 3.07	2.14 2.97	2.10 2.89	2.04 2.78	1.99 2.70	1.94 2.62	1.91 2.53	1.88 2.48	1.83 2.41	1.81 2.37	1.79 2.32	1.77 2.28	1.76 2.26	1.76	
24	4.26 7.82	3.40 5.61	3.01 4.72	2.78 4.22	2.62 3.90	2.51 3.67	2.43 3.50	2.36 3.36	2.																	

ตารางที่ 2 ต่อ

Degrees of Freedom for Denominator	Degrees of Freedom for Numerator																											
	1	2	3	4	5	6	7	8	9	10	11	12	14	15	20	24	30	40	50	75	100	200	500	∞				
26	4.22 7.72	3.37 6.53	2.89 4.64	2.74 4.14	2.59 3.82	2.47 3.59	2.36 3.42	2.32 3.29	2.27 3.17	2.22 3.09	2.18 3.02	2.15 2.96	2.10 2.86	2.05 2.77	1.99 2.68	1.95 2.60	1.90 2.41	1.84 2.36	1.82 2.28	1.78 2.25	1.76 2.21	1.72 2.16	1.70 2.12	1.69 2.09	1.69 2.09			
27	4.21 7.68	3.35 6.49	2.90 4.60	2.73 4.11	2.57 3.79	2.45 3.56	2.37 3.39	2.30 3.26	2.25 3.14	2.20 3.06	2.16 2.98	2.13 2.93	2.08 2.83	2.03 2.74	1.97 2.63	1.93 2.55	1.88 2.47	1.84 2.38	1.81 2.33	1.78 2.25	1.76 2.21	1.74 2.16	1.71 2.12	1.68 2.09	1.67 2.10			
28	4.20 7.64	3.34 6.45	2.90 4.67	2.71 4.07	2.55 3.76	2.44 3.53	2.36 3.35	2.29 3.23	2.24 3.11	2.19 3.03	2.15 2.95	2.12 2.90	2.06 2.80	2.02 2.71	1.96 2.60	1.91 2.52	1.87 2.44	1.83 2.35	1.80 2.30	1.78 2.22	1.75 2.18	1.72 2.13	1.69 2.09	1.67 2.06	1.65 2.06			
29	4.18 7.60	3.33 6.42	2.89 4.54	2.70 4.04	2.54 3.73	2.43 3.50	2.35 3.33	2.28 3.20	2.22 3.08	2.18 3.00	2.14 2.92	2.10 2.87	2.05 2.77	2.00 2.68	1.94 2.57	1.90 2.49	1.85 2.41	1.80 2.32	1.77 2.27	1.73 2.19	1.71 2.15	1.68 2.10	1.65 2.06	1.64 2.03	1.64 2.03			
30	4.17 7.56	3.32 6.39	2.89 4.51	2.69 4.02	2.53 3.70	2.42 3.47	2.34 3.30	2.27 3.17	2.21 3.06	2.16 2.98	2.12 2.90	2.09 2.84	2.04 2.74	1.99 2.66	1.93 2.55	1.89 2.47	1.84 2.38	1.79 2.29	1.76 2.25	1.72 2.20	1.69 2.12	1.66 2.08	1.64 2.03	1.63 2.03	1.62 1.96			
32	4.15 7.50	3.30 6.34	2.86 4.46	2.67 3.97	2.51 3.66	2.40 3.42	2.32 3.25	2.25 3.12	2.19 3.01	2.14 2.94	2.10 2.86	2.07 2.80	2.02 2.70	1.97 2.62	1.91 2.51	1.86 2.42	1.82 2.34	1.76 2.25	1.74 2.20	1.69 2.12	1.67 2.08	1.64 2.02	1.61 1.98	1.61 1.98	1.59 1.96			
34	4.13 7.44	3.28 6.29	2.85 4.42	2.65 3.93	2.49 3.61	2.38 3.38	2.30 3.21	2.23 3.08	2.17 2.97	2.12 2.89	2.08 2.82	2.05 2.76	2.00 2.66	1.95 2.58	1.89 2.47	1.84 2.38	1.81 2.30	1.77 2.21	1.74 2.15	1.71 2.08	1.67 2.04	1.64 1.98	1.61 1.94	1.59 1.91	1.57 1.91			
36	4.11 7.39	3.26 6.25	2.84 4.38	2.63 3.89	2.48 3.58	2.36 3.35	2.28 3.18	2.21 3.04	2.15 2.91	2.10 2.86	2.06 2.78	2.03 2.72	1.99 2.62	1.94 2.54	1.87 2.35	1.82 2.26	1.78 2.17	1.74 2.12	1.71 2.09	1.69 2.05	1.65 2.00	1.62 1.94	1.59 1.90	1.56 1.87	1.55 1.87			
38	4.10 7.35	3.25 6.21	2.83 4.34	2.62 3.86	2.46 3.54	2.35 3.32	2.27 3.16	2.20 3.02	2.14 2.91	2.09 2.82	2.05 2.75	2.02 2.69	1.96 2.59	1.92 2.51	1.85 2.40	1.80 2.32	1.76 2.22	1.71 2.14	1.67 2.08	1.63 2.00	1.60 1.97	1.57 1.90	1.54 1.86	1.53 1.84	1.53 1.84			
40	4.08 7.31	3.23 6.18	2.84 4.31	2.61 3.83	2.45 3.61	2.34 3.29	2.25 3.12	2.18 2.99	2.12 2.88	2.07 2.80	2.04 2.73	2.00 2.66	1.95 2.56	1.90 2.49	1.84 2.37	1.79 2.29	1.74 2.20	1.69 2.11	1.66 2.03	1.61 1.97	1.59 1.91	1.55 1.88	1.53 1.84	1.51 1.84	1.51 1.84			
42	4.07 7.27	3.22 6.15	2.83 4.29	2.59 3.80	2.44 3.49	2.32 3.26	2.24 3.10	2.17 2.96	2.11 2.86	2.06 2.77	2.02 2.70	1.99 2.64	1.94 2.54	1.89 2.45	1.82 2.35	1.78 2.26	1.73 2.17	1.68 2.08	1.64 2.02	1.60 1.94	1.57 1.91	1.54 1.86	1.51 1.80	1.49 1.80	1.49 1.78			
44	4.06 7.24	3.21 6.12	2.82 4.26	2.58 3.78	2.43 3.46	2.31 3.24	2.23 3.07	2.16 2.94	2.10 2.84	2.05 2.76	2.01 2.68	1.98 2.62	1.92 2.52	1.88 2.44	1.81 2.32	1.76 2.24	1.72 2.15	1.66 2.06	1.63 2.00	1.58 1.92	1.56 1.88	1.52 1.82	1.49 1.78	1.48 1.78	1.48 1.78			
46	4.05 7.21	3.20 6.10	2.81 4.24	2.57 3.76	2.42 3.44	2.30 3.22	2.22 3.05	2.14 2.92	2.09 2.82	2.04 2.73	2.00 2.66	1.97 2.60	1.91 2.50	1.87 2.42	1.80 2.29	1.75 2.13	1.69 2.04	1.65 1.98	1.62 1.90	1.57 1.86	1.54 1.80	1.51 1.76	1.48 1.76	1.46 1.76	1.46 1.76			
48	4.04 7.19	3.19 6.08	2.80 4.22	2.56 3.74	2.41 3.42	2.30 3.20	2.21 3.04	2.14 2.90	2.08 2.80	2.03 2.71	1.99 2.64	1.96 2.58	1.90 2.43	1.86 2.40	1.79 2.28	1.74 2.20	1.70 2.11	1.64 2.02	1.61 1.96	1.56 1.88	1.53 1.84	1.50 1.78	1.47 1.73	1.45 1.70	1.45 1.70			
50	4.03 7.17	3.18 6.06	2.79 4.20	2.55 3.72	2.40 3.41	2.29 3.02	2.20 2.88	2.13 2.78	2.07 2.82	2.02 2.70	1.98 2.62	1.93 2.56	1.89 2.46	1.83 2.39	1.78 2.26	1.74 2.18	1.69 2.10	1.63 2.00	1.60 1.94	1.55 1.86	1.52 1.82	1.48 1.76	1.45 1.71	1.44 1.68	1.44 1.68			
55	4.02 7.12	3.17 6.01	2.78 4.16	2.54 3.68	2.38 3.37	2.27 3.16	2.18 2.98	2.11 2.85	2.05 2.75	2.00 2.66	1.97 2.69	1.93 2.53	1.88 2.43	1.83 2.35	1.76 2.23	1.72 2.15	1.67 2.06	1.61 1.96	1.58 1.90	1.52 1.82	1.50 1.78	1.46 1.71	1.43 1.66	1.41 1.64	1.41 1.64			
60	4.00 7.08	3.15 6.00	2.76 4.13	2.52 3.65	2.37 3.34	2.25 3.12	2.17 2.95	2.10 2.82	2.04 2.72	1.99 2.63	1.95 2.60	1.92 2.50	1.86 2.40	1.81 2.32	1.75 2.20	1.70 2.12	1.65 2.03	1.59 1.93	1.56 1.87	1.50 1.79	1.48 1.74	1.44 1.68	1.41 1.63	1.39 1.60	1.39 1.60			
65	3.99 7.04	3.14 6.00	2.75 4.10	2.51 3.62	2.36 3.31	2.24 3.09	2.15 2.93	2.08 2.79	2.02 2.70	1.96 2.61	1.94 2.64	1.90 2.47	1.85 2.37	1.80 2.30	1.73 2.18	1.68 2.09	1.63 2.00	1.57 1.90	1.54 1.84	1.49 1.76	1.46 1.71	1.42 1.64	1.39 1.61	1.37 1.56	1.37 1.56			
70	3.98 7.01	3.13 6.00	2.74 4.08	2.50 3.60	2.35 3.29	2.23 3.07	2.14 2.91	2.07 2.77	2.01 2.67	1.97 2.69	1.93 2.51	1.89 2.45	1.84 2.35	1.79 2.28	1.73 2.15	1.67 2.07	1.62 1.98	1.56 1.88	1.53 1.82	1.47 1.74	1.45 1.69	1.40 1.63	1.37 1.56	1.35 1.53	1.35 1.53			
80	3.96 6.95	3.11 6.00	2.72 4.04	2.48 3.56	2.33 3.25	2.21 3.04	2.12 2.87	2.05 2.74	1.99 2.64	1.95 2.55	1.91 2.48	1.88 2.41	1.82 2.32	1.77 2.24	1.70 2.11	1.65 2.03	1.60 1.94	1.51 1.84	1.51 1.78	1.45 1.70	1.42 1.65	1.38 1.57	1.35 1.52	1.32 1.49	1.32 1.49			
100	3.94 6.90	3.09 6.00	2.70 3.98	2.46 3.51	2.30 3.20	2.19 2.99	2.10 2.82	2.03 2.69	1.97 2.59	1.92 2.51	1.88 2.43	1.85 2.36	1.79 2.26	1.75 2.19	1.68 2.06	1.63 1.98	1.57 1.89	1.51 1.79	1.48 1.73	1.42 1.64	1.39 1.59	1.34 1.51	1.30 1.46	1.28 1.43	1.28 1.43			
125	3.92 6.84	3.07 6.00	2.68 3.94	2.44 3.47	2.29 3.17	2.17 2.95	2.08 2.79	2.01 2.65	1.95 2.56	1.90 2.47	1.86 2.40	1.83 2.33	1.77 2.23	1.72 2.15	1.65 2.03	1.60 1.94	1.55 1.85	1.49 1.75	1.47 1.68	1.40 1.59	1.36 1.54	1.31 1.48	1.27 1.40	1.27 1.40	1.27 1.40			
150	3.91 6.81	3.06 6.00	2.67 3.91	2.43 3.44	2.27 3.13	2.16 2.92	2.07 2.76	2.00 2.62	1.94 2.53	1.89 2.44	1.85 2.37	1.82 2.30	1.76 2.20	1.71 2.12	1.64 2.00	1.59 1.91	1.54 1.83	1.47 1.72	1.44 1.66	1.37 1.56	1.34 1.51	1.29 1.43	1.25 1.37	1.22 1.33	1.22 1.33			
200	3.89 6.75	3.04 6.00	2.65 3.88	2.41 3.41	2.26 3.11	2.14 2.90	2.05 2.73	1.98 2.60	1.92 2.50	1.87 2.41	1.83 2.34	1.80 2.28	1.74 2.17	1.69 2.11	1.62 1.97	1.57 1.88	1.52 1.79	1.45 1.69	1.42 1.62	1.35 1.53	1.32 1.48	1.26 1.39	1.22 1.33	1.22 1.33	1.22 1.33			
400	3.86 6.70	3.02 6.00	2.62 3.83	2.39 3.36	2.23 3.06	2.12 2.85	2.03 2.69	1.96 2.55	1.90 2.46	1.85 2.37	1.81 2.30	1.76 2.23	1.72 2.12	1.67 2.04	1.60 1.92	1.54 1.84	1.49 1.74	1.42 1.64	1.38 1.67	1.32 1.47	1.28 1.42	1.22 1.32	1.16 1.24	1.13 1.24	1.13 1.24			
1000	3.85 6.66	3.00 6.00	2.61 3.80	2.38 3.34	2.22 3.04	2.10 2.82	2.02 2.66	1.95 2.53	1.89 2.43	1.84 2.34	1.80 2.26	1.76 2.20	1.70 2.09	1.65 2.01	1.58 1.89	1.53 1.81	1.47 1.71	1.41 1.61	1.36 1.64	1.30 1.44	1.26 1.38	1.19 1.28	1.13 1.19	1.08 1.11	1.08 1.11			
	3.84 6.64	2.99 6.00	2.60 3.78	2.37 3.32	2.21 3.03	2.09 2.80	2.01 2.64	1.94 2.51	1.88 2.32	1.83 2.24	1.79 2.18	1.75 2.07	1.69 1.99	1.64 1.99	1.57 1.87	1.52 1.81	1.46 1.69	1.40 1.59	1.35 1.62	1.28 1.41	1.24 1.36	1.17 1.25	1.11 1.15	1.00 1.00	1.00 1.00			

Source: Paul G. Hoel, *Elementary Statistics*, 2d ed. (New York: Wiley, 1966), pp. 336-339, Table XI, by permission of the publisher.

**VALUES OF THE CORRELATION
COEFFICIENT FOR DIFFERENT
LEVELS OF SIGNIFICANCE***

<i>n</i>	.05	.02	.01
1	.996917	.9995066	.9998766
2	.95000	.98000	.990000
3	.8783	.93433	.95873
4	.8114	.8822	.91720
5	.7545	.8329	.8745
6	.7067	.7887	8343
7	.6664	.7498	.7977
8	.6319	.7155	.7646
9	.6021	.6851	.7348
10	.5760	.6581	.7079
11	.5529	.6339	.6835
12	.5324	.6120	.6614
13	.5139	.5923	.6411
14	.4973	.5742	.6226
15	.4821	.5577	.6055
16	.4683	.5425	.5897
17	.4555	.5285	.5751
18	.4438	.5155	.5614
19	.4329	.5034	.5487
20	.4227	.4921	.5368
25	.3809	.4451	.4869
30	.3494	.4093	.4487
35	.3246	.3810	.4182
40	.3044	.3578	.3932
45	.2875	.3384	.3721
50	.2732	.3218	.3541
60	.2500	.2948	.3248
70	.2319	.2737	.3017
80	.2172	.2565	.2830
90	.2050	.2422	.2673
100	.1946	.2301	.2540

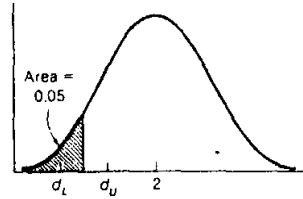
Note: $n = N - k$

* This table is reprinted from Table V-A of R. H. Fisher, *Statistical Methods for Research Workers*, published by Oliver and Boyd, Ltd., Edinburgh, by permission of the author and publishers.

Durbin-Watson Statistic

$$d = \frac{\sum_{i=1}^n (e_i - e_{i-1})^2}{\sum_{i=1}^n e_i^2}$$

Entries in the table are approximations to the critical value of d for which area in lower tail is 0.05. Area to left of d_L is not more than 0.05, area to left of d_U is at least 0.05.



Number of Observations (n)	k = 1		k = 2		k = 3		k = 4		k = 5	
	d_L	d_U	d_L	d_U	d_L	d_U	d_L	d_U	d_L	d_U
15	1.08	1.36	0.95	1.54	0.82	1.75	0.69	1.97	0.56	2.21
16	1.10	1.37	0.98	1.54	0.86	1.73	0.74	1.93	0.62	2.15
17	1.13	1.38	1.02	1.54	0.90	1.71	0.78	1.90	0.67	2.10
18	1.16	1.39	1.05	1.53	0.93	1.69	0.82	1.87	0.71	2.06
19	1.18	1.40	1.08	1.53	0.97	1.68	0.86	1.85	0.75	2.02
20	1.20	1.41	1.10	1.54	1.00	1.68	0.90	1.83	0.79	1.99
21	1.22	1.42	1.13	1.54	1.03	1.67	0.93	1.81	0.83	1.96
22	1.24	1.43	1.15	1.54	1.05	1.66	0.96	1.80	0.86	1.94
23	1.26	1.44	1.17	1.54	1.08	1.66	0.99	1.79	0.90	1.92
24	1.27	1.45	1.19	1.55	1.10	1.66	1.01	1.70	0.93	1.90
25	1.29	1.45	1.21	1.55	1.12	1.66	1.04	1.77	0.95	1.89
30	1.35	1.49	1.28	1.57	1.21	1.65	1.14	1.74	1.07	1.83
35	1.40	1.52	1.34	1.58	1.28	1.65	1.22	1.73	1.16	1.80
40	1.44	1.54	1.39	1.60	1.34	1.66	1.29	1.72	1.23	1.79
50	1.50	1.59	1.46	1.63	1.42	1.67	1.36	1.72	1.34	1.77
60	1.55	1.62	1.51	1.65	1.48	1.69	1.44	1.73	1.41	1.77
70	1.50	1.64	1.55	1.67	1.52	1.70	1.49	1.74	1.46	1.77
80	1.61	1.66	1.59	1.69	1.56	1.72	1.53	1.74	1.51	1.77
90	1.63	1.66	1.61	1.70	1.59	1.73	1.57	1.75	1.54	1.70
100	1.65	1.69	1.63	1.72	1.61	1.74	1.59	1.76	1.57	1.78

Source: Adapted from J. Durbin and G. S. Watson, "Testing for Serial Correlation in Least Squares Regression," *Biometrika*, 38(June 1951):173. Table 4, by permission of E. S. Pearson for the *Biometrika* Trustees.

Note: k denotes the number of independent variables in the regression.



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Ramkhamhaeng University Press.