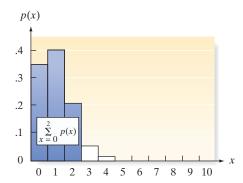
### Table I Binomial Probabilities



Tabulated values are  $\sum_{x=0}^{k} p(x)$ . (Computations are rounded at the third decimal place.)

a. n = 5

k p	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0 1 2 3 4	.951 .999 1.000 1.000 1.000	.774 .977 .999 1.000 1.000	.590 .919 .991 1.000 1.000	.328 .737 .942 .993 1.000	.168 .528 .837 .969	.078 .337 .683 .913	.031 .188 .500 .812 .969	.010 .087 .317 .663 .922	.002 .031 .163 .472 .832	.000 .007 .058 .263 .672	.000 .000 .009 .081 .410	.000 .000 .001 .023 .226	.000 .000 .000 .001 .049

### b. n = 6

k P	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0 1 2 3 4 5	.941 .999 1.000 1.000 1.000 1.000	.735 .967 .998 1.000 1.000	.531 .886 .984 .999 1.000 1.000	.262 .655 .901 .983 .998 1.000	.118 .420 .744 .930 .989	.047 .233 .544 .821 .959	.016 .109 .344 .656 .891 .984	.004 .041 .179 .456 .767 .953	.001 .011 .070 .256 .580 .882	.000 .002 .017 .099 .345 .738	.000 .000 .001 .016 .114 .469	.000 .000 .000 .002 .033 .265	.000 .000 .000 .000 .001 .059

### c. n = 7

k p	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0	.932	.698	.478	.210	.082	.028	.008	.002	.000	.000	.000	.000	.000
1	.998	.956	.850	.577	.329	.159	.063	.019	.004	.000	.000	.000	.000
2	1.000	.996	.974	.852	.647	.420	.227	.096	.029	.005	.000	.000	.000
3	1.000	1.000	.997	.967	.874	.710	.500	.290	.126	.033	.003	.000	.000
4	1.000	1.000	1.000	.995	.971	.904	.773	.580	.353	.148	.026	.004	.000
5	1.000	1.000	1.000	1.000	.996	.981	.937	.841	.671	.423	.150	.044	.002
6	1.000	1.000	1.000	1.000	1.000	.998	.992	.972	.918	.790	.522	.302	.068

### d. n = 8

k p	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0	.923	.663	.430	.168	.058	.017	.004	.001	.000	.000	.000	.000	.000
1	.997	.943	.813	.503	.255	.106	.035	.009	.001	.000	.000	.000	.000
2	1.000	.994	.962	.797	.552	.315	.145	.050	.011	.001	.000	.000	.000
3	1.000	1.000	.995	.944	.806	.594	.363	.174	.058	.010	.000	.000	.000
4	1.000	1.000	1.000	.990	.942	.826	.637	.406	.194	.056	.005	.000	.000
5	1.000	1.000	1.000	.999	.989	.950	.855	.685	.448	.203	.038	.006	.000
6	1.000	1.000	1.000	1.000	.999	.991	.965	.894	.745	.497	.187	.057	.003
7	1.000	1.000	1.000	1.000	1.000	.999	.996	.983	.942	.832	.570	.337	.077

Table I

(continued)

e. n = 9

k p	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0	.914	.630	.387	.134	.040	.010	.002	.000	.000	.000	.000	.000	.000
1	.997	.929	.775	.436	.196	.071	.020	.004	.000	.000	.000	.000	.000
2	1.000	.992	.947	.738	.463	.232	.090	.025	.004	.000	.000	.000	.000
3	1.000	.999	.992	.914	.730	.483	.254	.099	.025	.003	.000	.000	.000
4	1.000	1.000	.999	.980	.901	.733	.500	.267	.099	.020	.001	.000	.000
5	1.000	1.000	1.000	.997	.975	.901	.746	.517	.270	.086	.008	.001	.000
6	1.000	1.000	1.000	1.000	.996	.975	.910	.768	.537	.262	.053	.008	.000
7	1.000	1.000	1.000	1.000	1.000	.996	.980	.929	.804	.564	.225	.071	.003
8	1.000	1.000	1.000	1.000	1.000	1.000	.998	.990	.960	.866	.613	.370	.086

### f. n = 10

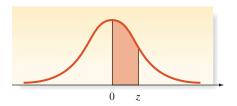
k p	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0	.904	.599	.349	.107	.028	.006	.001	.000	.000	.000	.000	.000	.000
1	.996	.914	.736	.376	.149	.046	.011	.002	.000	.000	.000	.000	.000
2	1.000	.988	.930	.678	.383	.167	.055	.012	.002	.000	.000	.000	.000
3	1.000	.999	.987	.879	.650	.382	.172	.055	.011	.001	.000	.000	.000
4	1.000	1.000	.998	.967	.850	.633	.377	.166	.047	.006	.000	.000	.000
5	1.000	1.000	1.000	.994	.953	.834	.623	.367	.150	.033	.002	.000	.000
6	1.000	1.000	1.000	.999	.989	.945	.828	.618	.350	.121	.013	.001	.000
7	1.000	1.000	1.000	1.000	.998	.988	.945	.833	.617	.322	.070	.012	.000
8	1.000	1.000	1.000	1.000	1.000	.998	.989	.954	.851	.624	.264	.086	.004
9	1.000	1.000	1.000	1.000	1.000	1.000	.999	.994	.972	.893	.651	.401	.096

g. n = 15

k p	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0	.860	.463	.206	.035	.005	.000	.000	.000	.000	.000	.000	.000	.000
1	.990	.829	.549	.167	.035	.005	.000	.000	.000	.000	.000	.000	.000
2	1.000	.964	.816	.398	.127	.027	.004	.000	.000	.000	.000	.000	.000
3	1.000	.995	.944	.648	.297	.091	.018	.002	.000	.000	.000	.000	.000
4	1.000	.999	.987	.838	.515	.217	.059	.009	.001	.000	.000	.000	.000
5	1.000	1.000	.998	.939	.722	.403	.151	.034	.004	.000	.000	.000	.000
6	1.000	1.000	1.000	.982	.869	.610	.304	.095	.015	.001	.000	.000	.000
7	1.000	1.000	1.000	.996	.950	.787	.500	.213	.050	.004	.000	.000	.000
8	1.000	1.000	1.000	.999	.985	.905	.696	.390	.131	.018	.000	.000	.000
9	1.000	1.000	1.000	1.000	.996	.966	.849	.597	.278	.061	.002	.000	.000
10	1.000	1.000	1.000	1.000	.999	.991	.941	.783	.485	.164	.013	.001	.000
11	1.000	1.000	1.000	1.000	1.000	.998	.982	.909	.703	.352	.056	.005	.000
12	1.000	1.000	1.000	1.000	1.000	1.000	.996	.973	.873	.602	.184	.036	.000
13	1.000	1.000	1.000	1.000	1.000	1.000	1.000	.995	.965	.833	.451	.171	.010
14	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	.995	.965	.794	.537	.140

Table I	(con	tinued)											
$\mathbf{h.}n=2$	20												
k p	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	.818 .983 .999 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	.358 .736 .925 .984 .997 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	.122 .392 .677 .867 .957 .989 .998 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	.012 .069 .206 .411 .630 .804 .913 .968 .990 .997 .999 1.000 1.000 1.000 1.000 1.000 1.000	.001 .008 .035 .107 .238 .416 .608 .772 .887 .952 .983 .995 .999 1.000 1.000 1.000 1.000	.000 .001 .004 .016 .051 .126 .250 .416 .596 .755 .872 .943 .979 .994 .998 1.000 1.000 1.000 1.000	.000 .000 .000 .001 .006 .021 .058 .132 .252 .412 .588 .748 .868 .942 .979 .994 .999 1.000 1.000	.000 .000 .000 .000 .000 .002 .006 .021 .057 .128 .245 .404 .584 .750 .874 .949 .998 .999	.000 .000 .000 .000 .000 .000 .001 .005 .017 .048 .113 .228 .392 .584 .762 .893 .965 .992	.000 .000 .000 .000 .000 .000 .000 .00	.000 .000 .000 .000 .000 .000 .000 .00	.000 .000 .000 .000 .000 .000 .000 .00	.000 .000 .000 .000 .000 .000 .000 .00
i. n = 25	.01	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	.99
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	.778 .974 .998 1.000	.277 .642 .873 .966 .993 .999 1.000	.072 .271 .537 .764 .902 .967 .991 .998 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	.004 .027 .098 .234 .421 .617 .780 .891 .953 .983 .994 .998 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	.000 .002 .009 .033 .090 .193 .341 .512 .677 .811 .902 .956 .983 .994 .998 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	.000 .000 .000 .002 .009 .029 .074 .154 .274 .425 .586 .732 .846 .922 .966 .987 .996 .999 1.000 1.000 1.000 1.000	.000 .000 .000 .000 .000 .002 .007 .022 .054 .115 .212 .345 .500 .655 .788 .885 .946 .978 .993 .998 1.000 1.000 1.000 1.000	.000 .000 .000 .000 .000 .000 .001 .004 .013 .034 .078 .154 .268 .414 .575 .726 .846 .926 .971 .991 .998 1.000 1.000	.000 .000 .000 .000 .000 .000 .000 .00	.000 .000 .000 .000 .000 .000 .000 .00	.000 .000 .000 .000 .000 .000 .000 .00	.000 .000 .000 .000 .000 .000 .000 .00	.000 .000 .000 .000 .000 .000 .000 .00

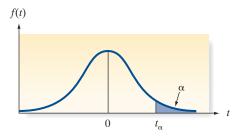
## Table II Normal Curve Areas



Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.49903	.49906	.49910	.49913	.49916	.49918	.49921	.49924	.49926	.48829
3.2	.49931	.49934	.49936	.49938	.49940	.49942	.49944	.49946	.49948	.49950
3.3	.49952	.49953	.49955	.49957	.49958	.49960	.49961	.49962	.49964	.49965
3.4	.49966	.49968	.49969	.49970	.49971	.49972	.49973	.49974	.49975	.49976
3.5	.49977	.49978	.49978	.49979	.49980	.49981	.49981	.49982	.49983	.49983
3.6	.49984	.49985	.49985	.49986	.49986	.49987	.49987	.49988	.49988	.49989
3.7	.49989	.49990	.49990	.49990	.49991	.49991	.49992	.49992	.49992	.49992
3.8	.49993	.49993	.49993	.49994	.49994	.49994	.49994	.49995	.49995	.49995
3.9	.49995	.49995	.49996	.49996	.49996	.49996	.49996	.49996	.49997	.49997
			.12220	,,,,	. 1,,,,,		,,,,	,,,,		.12221

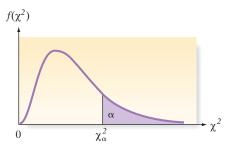
 $\textit{Source:} A bridged from Table I of A. Hald. \textit{Statistical Tables and Formulas} \ (New York: Wiley), 1952.$ 

## Table III Critical Values of t



Degrees of Freedom	t <sub>.100</sub>	t <sub>.050</sub>	t <sub>.025</sub>	t <sub>.010</sub>	t <sub>.005</sub>	t <sub>.001</sub>	t.0005
1	3.078	6.314	12.706	31.821	63.657	318.31	636.62
2	1.886	2.920	4.303	6.965	9.925	22.326	31.598
3	1.638	2.353	3.182	4.541	5.841	10.213	12.924
4	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	1.440	1.943	2.371	3.143	3.707	5.208	5.959
7	1.440	1.895	2.365	2.998	3.499	4.785	5.408
8	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	1.319	1.714	2.069	2.500	2.807	3.485	3.767
24	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	1.303	1.684	2.021	2.423	2.704	3.307	3.551
50	1.299	1.676	2.009	2.403	2.678	3.261	3.496
60	1.296	1.671	2.000	2.390	2.660	3.232	3.460
70	1.294	1.667	1.994	2.381	2.648	3.211	3.435
80	1.292	1.664	1.990	2.374	2.639	3.195	3.416
90	1.291	1.662	1.987	2.369	2.632	3.183	3.402
100	1.291	1.660	1.984	2.364	2.629	3.174	3.390
120	1.289	1.658	1.980	2.358	2.617	3.160	3.373
150	1.287	1.655	1.976	2.351	2.609	3.145	3.357
							3.291
∞	1.282	1.645	1.960	2.326	2.576	3.090	3.29

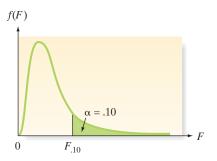
# Table IV Critical Values of $\chi^2$



Degrees of Freedom	X <sup>2</sup> .995	X <sup>2</sup> .990	X <sup>2</sup> .975	X <sup>2</sup> .950	X <sup>2</sup> .900
1	.0000393	.0001571	.0009821	.0039321	.0157908
2	.0100251	.0201007	.0506356	.102587	.210720
3	.0717212	.114832	.215795	.351846	.584375
4	.206990	.297110	.484419	.710721	1.063623
5	.411740	.554300	.831211	1.145476	1.61031
6	.675727	.872085	1.237347	1.63539	2.20413
7	.989265	1.239043	1.68987	2.16735	2.83311
8	1.344419	1.646482	2.17973	2.73264	3.48954
9	1.734926	2.087912	2.70039	3.32511	4.16816
10	2.15585	2.55821	3.24697	3.94030	4.86518
11	2.60321	3.05347	3.81575	4.57481	5.57779
12	3.07382	3.57056	4.40379	5.22603	6.30380
13	3.56503	4.10691	5.00874	5.89186	7.04150
14 15	4.07468	4.66043	5.62872	6.57063	7.78953
	4.60094	5.22935	6.26214	7.26094	8.54675
16	5.14224	5.81221	6.90766	7.96164	9.31223
17	5.69724	6.40776	7.56418	8.67176	10.0852
18	6.26481	7.01491	8.23075	9.39046	10.8649
19	6.84398	7.63273	8.90655	10.1170	11.6509
20	7.43386	8.26040	9.59083	10.8508	12.4426
21	8.03366	8.89720	10.28293	11.5913	13.2396
22	8.64272	9.54249	10.9823	12.3380	14.0415
23	9.26042	10.19567	11.6885	13.0905	14.8479
24	9.88623	10.8564	12.4011	13.8484	15.6587
25	10.5197	11.5240	13.1197	14.6114	16.4734
26	11.1603	12.1981	13.8439	15.3791	17.2919
27	11.8076	12.8786	14.5733	16.1513	18.1138
28	12.4613	13.5648	15.3079	16.9279	18.9392
29	13.1211	14.2565	16.0471	17.7083	19.7677
30	13.7867	14.9535	16.7908	18.4926	20.5992
40	20.7065	22.1643	24.4331	26.5093	29.0505
50	27.9907	29.7067	32.3574	34.7642	37.6886
60	35.5346	37.4848	40.4817	43.1879	46.4589
70	43.2752	45.4418	48.7576	51.7393	55.3290
80	51.1720	53.5400	57.1532	60.3915	64.2778
90	59.1963	61.7541	65.6466	69.1260	73.2912
100	67.3276	70.0648	74.2219	77.9295	82.3581
150	109.142	112.668	117.985	122.692	128.275
200	152.241	156.432	162.728	168.279	174.835
300	240.663	245.972	253.912	260.878	269.068
400	330.903	337.155	346.482	354.641	364.207
500	422.303	429.388	439.936	449.147	459.926

Table IV (contin	nued)				
Degrees of Freedom	X <sup>2</sup> .100	X <sup>2</sup> .050	χ <sup>2</sup> .025	X <sup>2</sup> .010	X <sup>2</sup> .005
1 2 3 4 5 6 7 8 9 10 11	2.70554 4.60517 6.25139 7.77944 9.23635 10.6446 12.0170 13.3616 14.6837 15.9871 17.2750 18.5494	3.84146 5.99147 7.81473 9.48773 11.0705 12.5916 14.0671 15.5073 16.9190 18.3070 19.6751 21.0261	5.02389 7.37776 9.34840 11.1433 12.8325 14.4494 16.0128 17.5346 19.0228 20.4831 21.9200 23.3367	6.63490 9.21034 11.3449 13.2767 15.0863 16.8119 18.4753 20.0902 21.6660 23.2093 24.7250 26.2170	7.87944 10.5966 12.8381 14.8602 16.7496 18.5476 20.2777 21.9550 23.5893 25.1882 26.7569 28.2995
12 13 14 15 16 17 18 19 20	18.3494 19.8119 21.0642 22.3072 23.5418 24.7690 25.9894 27.2036 28.4120	22.3621 23.6848 24.9958 26.2962 27.5871 28.8693 30.1435 31.4104	23.3307 24.7356 26.1190 27.4884 28.8454 30.1910 31.5264 32.8523 34.1696	27.6883 29.1413 30.5779 31.9999 33.4087 34.8053 36.1908 37.5662	29.8194 31.3193 32.8013 34.2672 35.7185 37.1564 38.5822 39.9968
21 22 23 24 25 26 27 28	29.6151 30.8133 32.0069 33.1963 34.3816 35.5631 36.7412 37.9159	32.6705 33.9244 35.1725 36.4151 37.6525 38.8852 40.1133 41.3372	35.4789 36.7807 38.0757 39.3641 40.6465 41.9232 43.1944 44.4607	38.9321 40.2894 41.6384 42.9798 44.3141 45.6417 46.9630 48.2782	41.4010 42.7956 44.1813 45.5585 46.9278 48.2899 49.6449 50.9933
29 30 40 50 60 70 80	39.0875 40.2560 51.8050 63.1671 74.3970 85.5271 96.5782	41.3372 42.5569 43.7729 55.7585 67.5048 79.0819 90.5312 101.879	44.4607 45.7222 46.9792 59.3417 71.4202 83.2976 95.0231 106.629	48.2782 49.5879 50.8922 63.6907 76.1539 88.3794 100.425 112.329	50.9933 52.3356 53.6720 66.7659 79.4900 91.9517 104.215 116.321
90 100 150 200 300 400 500	107.565 118.498 172.578 226.021 331.789 436.649 540.930	113.145 124.342 179.581 233.994 341.395 447.632 553.127	118.136 129.561 185.800 241.058 349.874 457.305 563.852	124.116 135.807 193.208 249.445 359.906 468.724 576.493	128.299 140.169 198.360 255.264 366.844 476.606 585.207

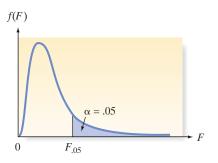
## Table V Percentage Points of the *F*-Distribution, $\alpha = .10$



	$\nu_1$				Numerate	or Degrees of	Freedom			
$\nu_2$		1	2	3	4	5	6	7	8	9
	1	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44	59.86
	2	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38
	2 3	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24
	4	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94
	5	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32
	6	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96
	7	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72
	8	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56
	9	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.44
	10	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.35
_	11	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27
Denominator Degrees of Freedom	12	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21
eo	13	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16
<u>.</u>	14	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12
Ę	15	3.07	2.70	2.49	2.36	2.27	2.21	2.16	2.12	2.09
SS	16	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06
ě	17	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03
Бe	18	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00
Ŏ	19	2.99	2.61	2.40	2.27	2.18	2.11	2.06	2.02	1.98
Ď	20	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2.00	1.96
Jai	21	2.96	2.57	2.36	2.23	2.14	2.08	2.02	1.98	1.95
Ē	22	2.95	2.56	2.35	2.22	2.13	2.06	2.01	1.97	1.93
0	23	2.94	2.55	2.34	2.21	2.11	2.05	1.99	1.95	1.92
Oe	24	2.93	2.54	2.33	2.19	2.10	2.04	1.98	1.94	1.91
_	25	2.92	2.53	2.32	2.18	2.09	2.02	1.97	1.93	1.89
	26	2.91	2.52	2.31	2.17	2.08	2.01	1.96	1.92	1.88
	27	2.90	2.51	2.30	2.17	2.07	2.00	1.95	1.91	1.87
	28	2.89	2.50	2.29	2.16	2.06	2.00	1.94	1.90	1.87
	29	2.89	2.50	2.28	2.15	2.06	1.99	1.93	1.89	1.86
	30	2.88	2.49	2.28	2.14	2.05	1.98	1.93	1.88	1.85
	40	2.84	2.44	2.23	2.09	2.00	1.93	1.87	1.83	1.79
	60	2.79	2.39	2.18	2.04	1.95	1.87	1.82	1.77	1.74
	120	2.75	2.35	2.13	1.99	1.90	1.82	1.77	1.72	1.68
	$\infty$	2.71	2.30	2.08	1.94	1.85	1.77	1.72	1.67	1.63

Tab	ole V	(continue	ed)								
	$\nu_1$				Nun	nerator Degi	rees of Free	dom			
$\nu_2$		10	12	15	20	24	30	40	60	120	∞
of Freedom	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	60.19 9.39 5.23 3.92 3.30 2.94 2.70 2.54 2.42 2.32 2.25 2.19 2.14 2.10 2.06	60.71 9.41 5.22 3.90 3.27 2.90 2.67 2.50 2.38 2.28 2.21 2.15 2.10 2.05 2.02	61.22 9.42 5.20 3.87 3.24 2.87 2.63 2.46 2.34 2.24 2.17 2.10 2.05 2.01 1.97	61.74 9.44 5.18 3.84 3.21 2.84 2.59 2.42 2.30 2.20 2.12 2.06 2.01 1.96 1.92	62.00 9.45 5.18 3.83 3.19 2.82 2.58 2.40 2.28 2.18 2.10 2.04 1.98 1.94 1.90	62.26 9.46 5.17 3.82 3.17 2.80 2.56 2.38 2.25 2.16 2.08 2.01 1.96 1.91 1.87	62.53 9.47 5.16 3.80 3.16 2.78 2.54 2.36 2.23 2.13 2.05 1.99 1.93 1.89 1.85	62.79 9.47 5.15 3.79 3.14 2.76 2.51 2.34 2.21 2.11 2.03 1.96 1.90 1.86 1.82	63.06 9.48 5.14 3.78 3.12 2.74 2.49 2.32 2.18 2.08 2.00 1.93 1.88 1.83 1.79	63.33 9.49 5.13 3.76 3.10 2.72 2.47 2.29 2.16 2.06 1.97 1.90 1.85 1.80 1.76
Denominator Degrees	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 40 60 120	2.03 2.00 1.98 1.96 1.94 1.92 1.90 1.89 1.88 1.87 1.86 1.85 1.84 1.83 1.82 1.76 1.71 1.65 1.60	1.99 1.96 1.93 1.91 1.89 1.87 1.86 1.84 1.83 1.82 1.81 1.80 1.79 1.78 1.77 1.71 1.66 1.60 1.55	1.94 1.91 1.89 1.86 1.84 1.83 1.81 1.80 1.78 1.77 1.76 1.75 1.74 1.73 1.72 1.66 1.60 1.55 1.49	1.89 1.86 1.84 1.81 1.79 1.78 1.76 1.74 1.73 1.72 1.71 1.70 1.69 1.68 1.67 1.61 1.54 1.48	1.87 1.84 1.81 1.79 1.77 1.75 1.73 1.72 1.70 1.69 1.68 1.67 1.66 1.65 1.64 1.57 1.51 1.45	1.84 1.81 1.78 1.76 1.74 1.72 1.70 1.69 1.67 1.66 1.65 1.64 1.63 1.62 1.61 1.54 1.48 1.41	1.81 1.78 1.75 1.73 1.71 1.69 1.67 1.66 1.64 1.63 1.61 1.60 1.59 1.58 1.57 1.51 1.44	1.78 1.75 1.72 1.70 1.68 1.66 1.64 1.62 1.61 1.59 1.58 1.57 1.56 1.55 1.40 1.32 1.24	1.75 1.72 1.69 1.67 1.64 1.62 1.60 1.59 1.57 1.56 1.54 1.53 1.52 1.51 1.50 1.42 1.35 1.26 1.17	1.72 1.69 1.66 1.63 1.61 1.59 1.57 1.55 1.53 1.52 1.50 1.49 1.48 1.47 1.46 1.38 1.29 1.19

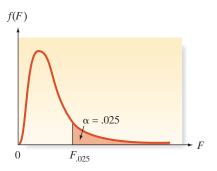
## Table VI Percentage Points of the *F*-Distribution, $\alpha = .05$



	$\nu_1$				Numerate	or Degrees of	Freedom			
$\nu_2$		1	2	3	4	5	6	7	8	9
	1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5
	2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
	3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
	4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
	5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
	6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
	7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
	8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
	9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
	10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
Ε	11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
ᅙ	12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80
ě	13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71
Ĕ	14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65
of	15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59
Denominator Degrees of Freedom	16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
ě	17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49
9	18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
	19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42
ᅙ	20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
na	21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
Ē	22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34
S	23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32
Ğ	24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30
	25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28
	26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.77
	27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25
	28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
	29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22
	30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
	40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12
	60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04
	120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96
	∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88

Tal	ole VI	(continue	ed)								
	$\nu_1$				Nun	nerator Degi	ees of Freed	dom			
$\nu_2$		10	12	15	20	24	30	40	60	120	$\infty$
Denominator Degrees of Freedom	1 2 3 4 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	10  241.9 19.40 8.79 5.96 4.74 4.06 3.64 3.35 3.14 2.98 2.85 2.75 2.67 2.60 2.54 2.49 2.45 2.41 2.38 2.35 2.32 2.30 2.27 2.25	12  243.9 19.41 8.74 5.91 4.68 4.00 3.57 3.28 3.07 2.91 2.79 2.69 2.60 2.53 2.48 2.42 2.38 2.34 2.31 2.28 2.25 2.23 2.20 2.18	15  245.9 19.43 8.70 5.86 4.62 3.94 3.51 3.22 3.01 2.85 2.72 2.62 2.53 2.46 2.40 2.35 2.31 2.27 2.23 2.20 2.18 2.15 2.13 2.11	20  248.0 19.45 8.66 5.80 4.56 3.87 3.44 3.15 2.94 2.77 2.65 2.54 2.46 2.39 2.33 2.28 2.23 2.19 2.16 2.12 2.10 2.07 2.05 2.03	24  249.1 19.45 8.64 5.77 4.53 3.84 3.41 3.12 2.90 2.74 2.61 2.51 2.42 2.35 2.29 2.24 2.19 2.15 2.11 2.08 2.05 2.03 2.01 1.98	30  250.1 19.46 8.62 5.75 4.50 3.81 3.38 3.08 2.86 2.70 2.57 2.47 2.38 2.31 2.25 2.19 2.15 2.11 2.07 2.04 2.01 1.98 1.96 1.94	40  251.1 19.47 8.59 5.72 4.46 3.77 3.34 3.04 2.83 2.66 2.53 2.43 2.34 2.27 2.20 2.15 2.10 2.06 2.03 1.99 1.96 1.94 1.91 1.89	252.2 19.48 8.57 5.69 4.43 3.74 3.30 3.01 2.79 2.62 2.49 2.38 2.30 2.22 2.16 2.11 2.06 2.02 1.98 1.95 1.92 1.89 1.86 1.84	253.3 19.49 8.55 5.66 4.40 3.70 3.27 2.97 2.75 2.58 2.45 2.34 2.25 2.18 2.11 2.06 2.01 1.97 1.93 1.90 1.87 1.84 1.81 1.79	254.3 19.50 8.53 5.63 4.36 3.67 3.23 2.93 2.71 2.54 2.40 2.30 2.21 2.13 2.07 2.01 1.96 1.92 1.88 1.84 1.81 1.78 1.76 1.73
	25 26 27 28 29 30 40 60 120	2.24 2.22 2.20 2.19 2.18 2.16 2.08 1.99 1.91 1.83	2.16 2.15 2.13 2.12 2.10 2.09 2.00 1.92 1.83 1.75	2.09 2.07 2.06 2.04 2.03 2.01 1.92 1.84 1.75 1.67	2.01 1.99 1.97 1.96 1.94 1.93 1.84 1.75 1.66 1.57	1.96 1.95 1.93 1.91 1.90 1.89 1.79 1.70 1.61	1.92 1.90 1.88 1.87 1.85 1.84 1.74 1.65 1.55	1.87 1.85 1.84 1.82 1.81 1.79 1.69 1.59 1.50	1.82 1.80 1.79 1.77 1.75 1.74 1.64 1.53 1.43	1.77 1.75 1.73 1.71 1.70 1.68 1.58 1.47 1.35	1.71 1.69 1.67 1.65 1.64 1.62 1.51 1.39 1.25 1.00

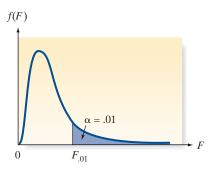
## Table VII Percentage Points of the F-Distribution, $\alpha = .025$



	$\nu_1$				Numerato	or Degrees of	Freedom			
$\nu_2$		1	2	3	4	5	6	7	8	9
	1	647.8	799.5	864.2	899.6	921.8	937.1	948.2	956.7	963.3
	2	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39
	3	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47
	4	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90
	5	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68
	6	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52
	7	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82
	8	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36
	9	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03
	10	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78
_	11	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59
Denominator Degrees of Freedom	12	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44
ğ	13	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31
E.	14	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21
<del>_</del>	15	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12
တ္သ	16	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05
<u>ğ</u>	17	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98
<u>B</u>	18	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93
ػ	19	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88
Ď	20	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84
Ja.	21	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80
Ē	22	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76
0	23	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73
ē	24	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70
_	25	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68
	26	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65
	27	5.63	4.24	3.65	3.31	3.08	2.92	2.80	2.71	2.63
	28	5.61	4.22	3.63	3.29	3.06	2.90	2.78	2.69	2.61
	29	5.59	4.20	3.61	3.27	3.04	2.88	2.76	2.67	2.59
	30	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57
	40	5.42	4.05	3.46	3.13	2.90	2.74	2.62	2.53	2.45
	60	5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33
	120	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22
	$\infty$	5.02	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11

Tab	ole VII	(continued)  Numerator Degrees of Freedom													
	$\nu_1$				Nun	nerator Deg	rees of Freed	dom							
$\nu_2$		10	12	15	20	24	30	40	60	120	∞				
Denominator Degrees of Freedom	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 40 60 120 $\infty$	968.6 39.40 14.42 8.84 6.62 5.46 4.76 4.30 3.96 3.72 3.53 3.37 3.25 3.15 3.06 2.99 2.92 2.87 2.82 2.77 2.73 2.70 2.67 2.64 2.61 2.59 2.57 2.55 2.53 2.51 2.39 2.27 2.16 2.05	976.7 39.41 14.34 8.75 6.52 5.37 4.67 4.20 3.87 3.62 3.43 3.28 3.15 3.05 2.96 2.89 2.82 2.77 2.72 2.68 2.64 2.60 2.57 2.54 2.51 2.49 2.47 2.45 2.43 2.41 2.29 2.17 2.05 1.94	984.9 39.43 14.25 8.66 6.43 5.27 4.57 4.10 3.77 3.52 3.33 3.18 3.05 2.95 2.86 2.79 2.72 2.67 2.62 2.57 2.53 2.50 2.47 2.44 2.41 2.39 2.36 2.34 2.32 2.31 2.18 2.06 1.94 1.83	993.1 39.45 14.17 8.56 6.33 5.17 4.47 4.00 3.67 3.42 3.23 3.07 2.95 2.84 2.76 2.68 2.62 2.56 2.51 2.46 2.42 2.39 2.36 2.33 2.30 2.28 2.25 2.21 2.20 2.07 1.94 1.82 1.71	997.2 39.46 14.12 8.51 6.28 5.12 4.42 3.95 3.61 3.37 3.17 3.02 2.89 2.79 2.70 2.63 2.56 2.50 2.45 2.41 2.37 2.33 2.30 2.27 2.24 2.22 2.19 2.17 2.15 2.14 2.01 1.88 1.76 1.64	1,001 39.46 14.08 8.46 6.23 5.07 4.36 3.89 3.56 3.31 3.12 2.96 2.84 2.73 2.64 2.57 2.50 2.44 2.39 2.35 2.31 2.27 2.24 2.21 2.18 2.16 2.13 2.11 2.09 2.07 1.94 1.82 1.69 1.57	1,006 39.47 14.04 8.41 6.18 5.01 4.31 3.84 3.51 3.26 3.06 2.91 2.78 2.67 2.59 2.51 2.44 2.38 2.33 2.29 2.25 2.21 2.18 2.15 2.12 2.09 2.07 2.05 2.03 2.01 1.88 1.74 1.61 1.48	1,010 39.48 13.99 8.36 6.12 4.96 4.25 3.78 3.45 3.20 3.00 2.85 2.72 2.61 2.52 2.45 2.38 2.32 2.27 2.22 2.18 2.14 2.11 2.08 2.05 2.03 2.00 1.98 1.96 1.94 1.80 1.67 1.53 1.39	1,014 39.49 13.95 8.31 6.07 4.90 4.20 3.73 3.39 3.14 2.94 2.79 2.66 2.55 2.46 2.38 2.32 2.26 2.20 2.16 2.11 2.08 2.04 2.01 1.98 1.95 1.93 1.91 1.89 1.87 1.72 1.58 1.43 1.27	1,018 39.50 13.90 8.26 6.02 4.85 4.14 3.67 3.33 3.08 2.88 2.72 2.60 2.49 2.40 2.32 2.25 2.19 2.13 2.09 2.04 2.00 1.97 1.94 1.91 1.88 1.85 1.83 1.81 1.79 1.64 1.48 1.31 1.00				

## Table VIII Percentage Points of the *F*-Distribution, $\alpha = .01$



	$\nu_1$				Numerato	or Degrees of	Freedom			
$\nu_2$		1	2	3	4	5	6	7	8	9
	1	4,052	4,999.5	5,403	5,625	5,764	5,859	5,928	5,982	6,022
	2	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39
	3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35
	4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66
	5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16
	6	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98
	7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72
	8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91
	9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35
	10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94
Ε	11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63
ğ	12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39
ě	13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19
표	14	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03
of	15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89
SS	16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78
ě	17	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68
eg	18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60
Denominator Degrees of Freedom	19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52
ţ	20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46
na	21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40
Ξ	22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35
2	23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30
Бе	24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26
	25	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22
	26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18
	27	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15
	28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12
	29	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09
	30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07
	40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89
	60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72
	120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56
	∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41

Table	e VIII	(continued)  Numerator Degrees of Freedom													
	$\nu_1$				Nun	nerator Degr	ees of Freed	dom							
$\nu_2$		10	12	15	20	24	30	40	60	120	∞				
Denominator Degrees of Freedom	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 40 60 120 $\infty$	6,056 99,40 27,23 14,55 10.05 7,87 6,62 5,81 5,26 4,85 4,54 4,30 4,10 3,94 3,80 3,69 3,59 3,51 3,43 3,37 3,31 3,26 3,21 3,17 3,13 3,09 3,06 3,03 3,00 2,98 2,80 2,63 2,47 2,32	6,106 99,42 27,05 14,37 9,89 7,72 6,47 5,67 5,11 4,71 4,40 4,16 3,96 3,80 3,67 3,55 3,46 3,37 3,30 3,23 3,17 3,12 3,07 3,03 2,99 2,96 2,93 2,90 2,87 2,84 2,66 2,50 2,34 2,18	6,157 99.43 26.87 14.20 9.72 7.56 6.31 5.52 4.96 4.56 4.25 4.01 3.82 3.66 3.52 3.41 3.31 3.23 3.15 3.09 3.03 2.98 2.93 2.89 2.85 2.81 2.78 2.75 2.73 2.70 2.52 2.35 2.19 2.04	6,209 99.45 26.69 14.02 9.55 7.40 6.16 5.36 4.81 4.41 4.10 3.86 3.66 3.51 3.37 3.26 3.16 3.08 3.00 2.94 2.88 2.83 2.78 2.74 2.70 2.66 2.63 2.60 2.57 2.55 2.37 2.20 2.03 1.88	6,235 99.46 26.60 13.93 9.47 7.31 6.07 5.28 4.73 4.33 4.02 3.78 3.59 3.43 3.29 3.18 3.00 2.92 2.86 2.80 2.75 2.70 2.66 2.62 2.58 2.55 2.52 2.49 2.47 2.29 2.12 1.95 1.79	6,261 99,47 26,50 13,84 9,38 7,23 5,99 5,20 4,65 4,25 3,94 3,70 3,51 3,35 3,21 3,10 3,00 2,92 2,84 2,78 2,72 2,67 2,62 2,58 2,54 2,50 2,47 2,44 2,41 2,39 2,20 2,03 1,86 1,70	6,287 99.47 26.41 13.75 9.29 7.14 5.91 5.12 4.57 4.17 3.86 3.62 3.43 3.27 3.13 3.02 2.92 2.84 2.76 2.69 2.64 2.58 2.54 2.49 2.45 2.42 2.38 2.35 2.33 2.30 2.11 1.94 1.76 1.59	6,313 99.48 26.32 13.65 9.20 7.06 5.82 5.03 4.48 4.08 3.78 3.54 3.34 3.18 3.05 2.93 2.83 2.75 2.67 2.61 2.55 2.50 2.45 2.40 2.36 2.33 2.29 2.26 2.23 2.21 2.02 1.84 1.66 1.47	6,339 99.49 26.22 13.56 9.11 6.97 5.74 4.95 4.40 4.00 3.69 3.45 3.25 3.09 2.96 2.84 2.75 2.66 2.58 2.52 2.46 2.40 2.35 2.31 2.27 2.23 2.20 2.17 2.14 2.11 1.92 1.73 1.53 1.32	6,366 99.50 26.13 13.46 9.02 6.88 5.65 4.86 4.31 3.91 3.60 3.36 3.17 3.00 2.87 2.75 2.65 2.57 2.49 2.42 2.36 2.31 2.26 2.21 2.17 2.13 2.10 2.06 2.03 2.01 1.80 1.60 1.38 1.00				

Table IX Control Chair	t Constants				
Number of Observations in Subgroup, <i>n</i>	A <sub>2</sub>	d <sub>2</sub>	d <sub>3</sub>	$D_3$	$D_4$
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1.880 1.023 .729 .577 .483 .419 .373 .337 .308 .285 .266 .249 .235 .223 .212 .203 .194	1.128 1.693 2.059 2.326 2.534 2.704 2.847 2.970 3.078 3.173 3.258 3.336 3.407 3.472 3.532 3.588 3.640	.853 .888 .880 .864 .848 .833 .820 .808 .797 .787 .778 .770 .762 .755 .749 .743	.000 .000 .000 .000 .000 .076 .136 .184 .223 .256 .283 .307 .328 .347 .363 .378	3.267 2.574 2.282 2.114 2.004 1.924 1.864 1.816 1.777 1.744 1.717 1.693 1.672 1.653 1.637 1.622 1.608
19 20 21 22 23 24 25	.187 .180 .173 .167 .162 .157 .153	3.689 3.735 3.778 3.819 3.858 3.895 3.931	.733 .729 .724 .720 .716 .712 .709	.403 .415 .425 .434 .443 .451	1.597 1.585 1.575 1.566 1.557 1.548 1.541

Table	X Critic	cal Values fo	or the Durbi	n-Watson d	-Statistic, $\alpha$	= .05				
	k =	= 1	k =	= 2	k =	= 3	k =	= 4	k =	= 5
n	$d_{L}$	d <sub>U</sub>	$d_{L}$	$d_{U}$	$d_{L}$	$d_{U}$	$d_{L}$	$d_{U}$	$d_{L}$	$d_{U}$
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	1.08 1.10 1.13 1.16 1.18 1.20 1.22 1.24 1.26 1.27 1.29 1.30 1.32 1.33 1.34 1.35 1.36 1.37 1.38 1.39 1.40 1.41 1.42 1.43 1.43 1.44	1.36 1.37 1.38 1.39 1.40 1.41 1.42 1.43 1.44 1.45 1.45 1.46 1.47 1.48 1.48 1.49 1.50 1.50 1.51 1.51 1.51 1.52 1.52 1.52 1.53 1.54 1.54	.95 .98 1.02 1.05 1.08 1.10 1.13 1.15 1.17 1.19 1.21 1.22 1.24 1.26 1.27 1.28 1.30 1.31 1.32 1.33 1.34 1.35 1.36 1.37 1.38 1.39	1.54 1.54 1.54 1.53 1.53 1.53 1.54 1.54 1.54 1.55 1.55 1.55 1.55 1.56 1.56 1.56 1.57 1.57 1.57 1.57 1.57 1.57 1.58 1.58 1.58 1.58 1.59 1.59 1.59 1.60 1.60	.82 .86 .90 .93 .97 1.00 1.03 1.05 1.08 1.10 1.12 1.14 1.16 1.18 1.20 1.21 1.23 1.24 1.26 1.27 1.28 1.29 1.31 1.32 1.33	1.75 1.73 1.71 1.69 1.68 1.68 1.67 1.66 1.66 1.66 1.65 1.65 1.65 1.65 1.65	.69 .74 .78 .92 .86 .90 .93 .96 .99 1.01 1.04 1.06 1.08 1.10 1.12 1.14 1.16 1.18 1.19 1.21 1.22 1.24 1.25 1.26 1.27	1.97 1.93 1.90 1.87 1.85 1.83 1.81 1.80 1.79 1.78 1.77 1.76 1.76 1.75 1.74 1.74 1.74 1.73 1.73 1.73 1.73 1.73 1.73 1.73 1.73	.56 .62 .67 .71 .75 .79 .83 .96 .90 .93 .95 .98 1.01 1.03 1.05 1.07 1.09 1.11 1.13 1.15 1.16 1.18 1.19 1.21 1.22	2.21 2.15 2.10 2.06 2.02 1.99 1.96 1.94 1.92 1.90 1.89 1.88 1.86 1.85 1.84 1.83 1.83 1.83 1.83 1.83 1.82 1.81 1.80 1.80 1.79 1.79
45 50 55 60 65	1.48 1.50 1.53 1.55 1.57	1.57 1.59 1.60 1.62 1.63	1.43 1.46 1.49 1.51 1.54	1.62 1.63 1.64 1.65 1.66	1.38 1.42 1.45 1.48 1.50	1.67 1.67 1.68 1.69 1.70	1.34 1.38 1.41 1.44 1.47	1.72 1.72 1.72 1.73 1.73	1.29 1.34 1.38 1.41 1.44	1.78 1.77 1.77 1.77 1.77
70 75 80 85 90 95 100	1.58 1.60 1.61 1.62 1.63 1.64 1.65	1.64 1.65 1.66 1.67 1.68 1.69	1.55 1.57 1.59 1.60 1.61 1.62 1.63	1.67 1.68 1.69 1.70 1.70 1.71	1.52 1.54 1.56 1.57 1.59 1.60 1.61	1.70 1.71 1.72 1.72 1.73 1.73 1.74	1.49 1.51 1.53 1.55 1.57 1.58 1.59	1.74 1.74 1.74 1.75 1.75 1.75 1.76	1.46 1.49 1.51 1.52 1.54 1.56 1.57	1.77 1.77 1.77 1.77 1.78 1.78 1.78

able	XI Criti	cal Values f	or the Durbi	n-Watson d	-Statistic, a	e = .01				
	k =	= 1	k =	= 2	k =	= 3	k =	= 4	k =	= 5
n	$d_{L}$	$d_{U}$	$d_{L}$	$d_{U}$	$d_{L}$	$d_{U}$	$d_{L}$	$d_{U}$	$d_{L}$	$d_{U}$
15	.81	1.07	.70	1.25	.59	1.46	.49	1.70	.39	1.96
16	.84	1.09	.74	1.25	.63	1.44	.53	1.66	.44	1.90
17	.87	1.10	.77	1.25	.67	1.43	.57	1.3	.48	1.85
18	.90	1.12	.80	1.26	.71	1.42	.61	1.60	.52	1.80
19	.93	1.13	.83	1.26	.74	1.41	.65	1.58	.56	1.77
20	.95	1.15	.86	1.27	.77	1.41	.68	1.57	.60	1.74
21	.97	1.16	.89	1.27	.80	1.41	.72	1.55	.63	1.71
22	1.00	1.17	.91	1.28	.83	1.40	.75	1.54	.66	1.69
23	1.02	1.19	.94	1.29	.86	1.40	.77	1.53	.70	1.67
24	1.04	1.20	.96	1.30	.88	1.41	.80	1.53	.72	1.66
25	1.05	1.21	.98	1.30	.90	1.41	.83	1.52	.75	1.65
26	1.07	1.22	1.00	1.31	.93	1.41	.85	1.52	.78	1.64
27	1.09	1.23	1.02	1.32	.95	1.41	.88	1.51	.81	1.63
28	1.10	1.24	1.04	1.32	.97	1.41	.90	1.51	.83	1.62
29	1.12	1.25	1.05	1.33	.99	1.42	.92	1.51	.85	1.61
30	1.13	1.26	1.07	1.34	1.01	1.42	.94	1.51	.88	1.61
31	1.15	1.27	1.08	1.34	1.02	1.42	.96	1.51	.90	1.60
32	1.16	1.28	1.10	1.35	1.04	1.43	.98	1.51	.92	1.60
33	1.17	1.29	1.11	1.36	1.05	1.43	1.00	1.51	.94	1.59
34	1.18	1.30	1.13	1.36	1.07	1.43	1.01	1.51	.95	1.59
35	1.19	1.31	1.14	1.27	1.08	1.44	1.03	1.51	.97	1.59
36	1.21	1.32	1.15	1.38	1.10	1.44	1.04	1.51	.99	1.59
37	1.22	1.32	1.16	1.38	1.11	1.45	1.06	1.51	1.00	1.59
38	1.23	1.33	1.18	1.39	1.12	1.45	1.07	1.52	1.02	1.58
39	1.24	1.34	1.19	1.39	1.14	1.45	1.09	1.52	1.03	1.58
40	1.25	1.34	1.20	1.40	1.15	1.46	1.10	1.52	1.05	1.58
45	1.29	1.38	1.24	1.42	1.20	1.48	1.16	1.53	1.11	1.58
50	1.32	1.40	1.28	1.45	1.24	1.49	1.20	1.54	1.16	1.59
55	1.36	1.43	1.32	1.47	1.28	1.51	1.25	1.55	1.21	1.59
60	1.38	1.45	1.35	1.48	1.32	1.52	1.28	1.56	1.25	1.60
65	1.41	1.47	1.38	1.50	1.35	1.53	1.31	1.57	1.28	1.61
70	1.43	1.49	1.40	1.52	1.37	1.55	1.34	1.58	1.31	1.61
75	1.45	1.50	1.42	1.53	1.39	1.56	1.37	1.59	1.34	1.62
80	1.47	1.52	1.44	1.54	1.42	1.57	1.39	1.60	1.36	1.62
85	1.48	1.53	1.46	1.55	1.43	1.58	1.41	1.60	1.39	1.63
90	1.50	1.54	1.47	1.56	1.45	1.59	1.43	1.61	1.41	1.64
95	1.51	1.55	1.49	1.57	1.47	1.60	1.45	1.62	1.42	1.64
00	1.52	1.56	1.50	1.58	1.48	1.60	1.46	1.63	1.44	1.65

### Table XII Critical Values of T<sub>L</sub> and T<sub>U</sub> for the Wilcoxon Rank Sum Test: Independent Samples

Test statistic is the rank sum associated with the smaller sample (if equal sample sizes, either rank sum can be used).

a.  $\alpha = .025$  one-tailed;  $\alpha = .05$  two-tailed

$n_1$ $n_2$	(	3	4	4	į	5	(	6	7	7	8	3	Ç	9	1	0
	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	T <sub>L</sub>	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	T <sub>U</sub>
3 4 5 6 7 8 9	5 6 6 7 7 8 8	16 18 21 23 26 28 31 33	6 11 12 12 13 14 15 16	18 25 28 32 35 38 41 44	6 12 18 19 20 21 22 24	21 28 37 41 45 49 53 56	7 12 19 26 28 29 31 32	23 32 41 52 56 61 65 70	7 13 20 28 37 39 41 43	26 35 45 56 68 73 78 83	8 14 21 29 39 49 51 54	28 38 49 61 73 87 93 98	8 15 22 31 41 51 63 66	31 41 53 65 78 93 108 114	9 16 24 32 43 54 66 79	33 44 56 70 83 98 114 131

b.  $\alpha = .05$  one-tailed;  $\alpha = .10$  two-tailed

$n_1$ $n_2$	3	3	2	4	Ę	5	(	6	7	7	8	3	ę	9	1	0
	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$	$T_{L}$	$T_{U}$
3 4 5 6 7 8 9	6 7 7 8 9 9 10 11	15 17 20 22 24 27 29 31	7 12 13 14 15 16 17 18	17 24 27 30 33 36 39 42	7 13 19 20 22 24 25 26	20 27 36 40 43 46 50 54	8 14 20 28 30 32 33 35	22 30 40 50 54 58 63 67	9 15 22 30 39 41 43 46	24 33 43 54 66 71 76 80	9 16 24 32 41 52 54 57	27 36 46 58 71 84 90 95	10 17 25 33 43 54 66 69	29 39 50 63 76 90 105 111	11 18 26 35 46 57 69 83	31 42 54 67 80 95 111 127

Source: From Wilcoxon, F., & Wilcox, R. A. "Some rapid approximate statistical procedures," 1964, 20–23. Courtesy of Lederle Laboratories Division of American Cyanamid Company, Madison, NJ.

Table XIII	Critical Values o	of $T_0$ in the Wilco	oxon Paired Dif	ference Signed	Rank Test		
One-Tailed	Two-Tailed	n = 5	n = 6	n = 7	n = 8	n = 9	n = 10
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	1	2 1	4 2 0	6 4 2 0	8 6 3 2	11 8 5 3
		n = 11	n = 12	n = 13	n = 14	n = 15	n = 16
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	14 11 7 5	17 14 10 7	21 17 13 10	26 21 16 13	30 25 20 16	36 30 24 19
		n = 17	n = 18	n = 19	n = 20	n = 21	n = 22
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	41 35 28 23	47 40 33 28	54 46 38 32	60 52 43 37	68 59 49 43	75 66 56 49
		n = 23	n = 24	n = 25	n = 26	n = 27	n = 28
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	83 73 62 55	92 81 69 61	101 90 77 68	110 98 85 76	120 107 93 84	130 117 102 92
		n = 29	n = 30	n = 31	n = 32	n = 33	n = 34
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	141 127 111 100	152 137 120 109	163 148 130 118	175 159 141 128	188 171 151 138	201 183 162 149
		n = 35	n = 36	n = 37	n = 38	n = 39	
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	214 195 174 160	228 208 186 171	242 222 198 183	256 235 211 195	271 250 224 208	
		n = 40	n = 41	n = 42	n = 43	n = 44	n = 45
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	287 264 238 221	303 279 252 234	319 295 267 248	336 311 281 262	353 327 297 277	371 344 313 292
		n = 46	n = 47	n = 48	n = 49	n = 50	
$\alpha = .05$ $\alpha = .025$ $\alpha = .01$ $\alpha = .005$	$\alpha = .10$ $\alpha = .05$ $\alpha = .02$ $\alpha = .01$	389 361 329 307	408 379 345 323	427 397 362 339	446 415 380 356	466 434 398 373	

Source: From Wilcoxon, F., & Wilcox, R. A. "Some rapid approximate statistical procedures," 1964, p. 28. Courtesy of Lederle Laboratories Division of American Cyanamid Company, Madison, NJ.

## Table XIV Critical Values of Spearman's Rank Correlation Coefficient

The values correspond to a one-tailed test of  $H_0$ : p=0. The value should be doubled for two-tailed tests.

n	$\alpha = .05$	$\alpha = .025$	$\alpha = .01$	$\alpha = .005$	n	$\alpha = .05$	$\alpha = .025$	$\alpha = .01$	$\alpha = .005$
5	.900	_	_	_	18	.399	.476	.564	.625
6	.829	.886	.943	_	19	.388	.462	.549	.608
7	.714	.786	.893	_	20	.377	.450	.534	.591
8	.643	.738	.833	.881	21	.368	.438	.521	.576
9	.600	.683	.783	.833	22	.359	.428	.508	.562
10	.564	.648	.745	.794	23	.351	.418	.496	.549
11	.523	.623	.736	.818	24	.343	.409	.485	.537
12	.497	.591	.703	.780	25	.336	.400	.475	.526
13	.475	.566	.673	.745	26	.329	.392	.465	.515
14	.457	.545	.646	.716	27	.323	.385	.456	.505
15	.441	.525	.623	.689	28	.317	.377	.448	.496
16	.425	.507	.601	.666	29	.311	.370	.440	.487
17	.412	.490	.582	.645	30	.305	.364	.432	.478

Table XV	Critical Values of the Studentized Range, $lpha = .05$											
νk	2	3	4	5	6	7	8	9	10	11		
1	17.97	26.98	32.82	37.08	40.41	43.12	45.40	47.36	49.07	50.59		
2	6.08	8.33	9.80	10.88	11.74	12.44	13.03	13.54	13.99	14.39		
3	4.50	5.91	6.82	7.50	8.04	8.48	8.85	9.18	9.46	9.72		
4	3.93	5.04	5.76	6.29	6.71	7.05	7.35	7.60	7.83	8.03		
5	3.64	4.60	5.22	5.67	6.03	6.33	6.58	6.80	6.99	7.17		
6	3.46	4.34	4.90	5.30	5.63	5.90	6.12	6.32	6.49	6.65		
7	3.34	4.16	4.68	5.06	5.36	5.61	5.82	6.00	6.16	6.30		
8	3.26	4.04	4.53	4.89	5.17	5.40	5.60	5.77	5.92	6.05		
9	3.20	3.95	4.41	4.76	5.02	5.24	5.43	5.59	5.74	5.87		
10	3.15	3.88	4.33	4.65	4.91	5.12	5.30	5.46	5.60	5.72		
11	3.11	3.82	4.26	4.57	4.82	5.03	5.20	5.35	5.49	5.61		
12	3.08	3.77	4.20	4.51	4.75	4.95	5.12	5.27	5.39	5.51		
13	3.06	3.73	4.15	4.45	4.69	4.88	5.05	5.19	5.32	5.43		
14	3.03	3.70	4.11	4.41	4.64	4.83	4.99	5.13	5.25	5.36		
15	3.01	3.67	4.08	4.37	4.60	4.78	4.94	5.08	5.20	5.31		
16	3.00	3.65	4.05	4.33	4.56	4.74	4.90	5.03	5.15	5.26		
17	2.98	3.63	4.02	4.30	4.52	4.70	4.86	4.99	5.11	5.21		
18	2.97	3.61	4.00	4.28	4.49	4.67	4.82	4.96	5.07	5.17		
19	2.96	3.59	3.98	4.25	4.47	4.65	4.79	4.92	5.04	5.14		
20	2.95	3.58	3.96	4.23	4.45	4.62	4.77	4.90	5.01	5.11		
24	2.92	3.53	3.90	4.17	4.37	4.54	4.68	4.81	4.92	5.01		
30	2.89	3.49	3.85	4.10	4.30	4.46	4.60	4.72	4.82	4.92		
40	2.86	3.44	3.79	4.04	4.23	4.39	4.52	4.63	4.73	4.82		
60	2.83	3.40	3.74	3.98	4.16	4.31	4.44	4.55	4.65	4.73		
120	2.80	3.36	3.68	3.92	4.10	4.24	4.36	4.47	4.56	4.64		
∞	2.77	3.31	3.63	3.86	4.03	4.17	4.29	4.39	4.47	4.55		

v k	12	13	14	15	16	17	18	19	20
1	51.96	53.20	54.33	55.36	56.32	57.22	58.04	58.83	59.56
2	14.75	15.08	15.38	15.65	15.91	16.14	16.37	16.57	16.77
3	9.95	10.15	10.35	10.52	10.69	10.84	10.98	11.11	11.24
4	8.21	8.37	8.52	8.66	8.79	8.91	9.03	9.13	9.23
5	7.32	7.47	7.60	7.72	7.83	7.93	8.03	8.12	8.21
6	6.79	6.92	7.03	7.14	7.24	7.34	7.43	7.51	7.59
7	6.43	6.55	6.66	6.76	6.85	6.94	7.02	7.10	7.17
8	6.18	6.29	6.39	6.48	6.57	6.65	6.73	6.80	6.87
9	5.98	6.09	6.19	6.28	6.36	6.44	6.51	6.58	6.64
10	5.83	5.93	6.03	6.11	6.19	6.27	6.34	6.40	6.47
11	5.71	5.81	5.90	5.98	6.06	6.13	6.20	6.27	6.33
12	5.61	5.71	5.80	5.88	5.95	6.02	6.09	6.15	6.21
13	5.53	5.63	5.71	5.79	5.86	5.93	5.99	6.05	6.11
14	5.46	5.55	5.64	5.71	5.79	5.85	5.91	5.97	6.03
15	5.40	5.49	5.57	5.65	5.72	5.78	5.85	5.90	5.96
16	5.35	5.44	5.52	5.59	5.66	5.73	5.79	5.84	5.90
17	5.31	5.39	5.47	5.54	5.61	5.67	5.73	5.79	5.84
18	5.27	5.35	5.43	5.50	5.57	5.63	5.69	5.74	5.79
19	5.23	5.31	5.39	5.46	5.53	5.59	5.65	5.70	5.75
20	5.20	5.28	5.36	5.43	5.49	5.55	5.61	5.66	5.71
24	5.10	5.18	5.25	5.32	5.38	5.44	5.49	5.55	5.59
30	5.00	5.08	5.15	5.21	5.27	5.33	5.38	5.43	5.47
40	4.90	4.98	5.04	5.11	5.16	5.22	5.27	5.31	5.36
60	4.81	4.88	4.94	5.00	5.06	5.11	5.15	5.20	5.24
120	4.71	4.78	4.84	4.90	4.95	5.00	5.04	5.09	5.13
	4.62	4.68	4.74	4.80	4.85	4.89	4.93	4.97	5.01