

TABLE IA
 BINOMIAL CUMULATIVE PROBABILITIES, $n = 10: \sum_0^r P(r)$

r	P								
	0.01	0.05	0.10	0.25	0.50	0.75	0.90	0.95	0.99
0	0.9044	0.5987	0.3487	0.0563	0.0010				
1	0.9957	0.9139	0.7361	0.2440	0.0107	0.0000			
2	0.9999	0.9885	0.9298	0.5256	0.0547	0.0004			
3	1.0000	0.9990	0.9872	0.7759	0.1719	0.0035	0.0000		
4		0.9999	0.9984	0.9219	0.3770	0.0197	0.0001	0.0000	
5		1.0000	0.9999	0.9803	0.6230	0.0781	0.0016	0.0001	
6			1.0000	0.9965	0.8281	0.2241	0.0128	0.0010	0.0000
7				0.9996	0.9453	0.4744	0.0702	0.0115	0.0001
8				1.0000	0.9893	0.7560	0.2639	0.0861	0.0043
9					0.9990	0.9437	0.6513	0.4013	0.0956
10					1.0000	1.0000	1.0000	1.0000	1.0000

TABLE IBBINOMIAL CUMULATIVE PROBABILITIES, $n = 20: \sum_0^r P(r)$

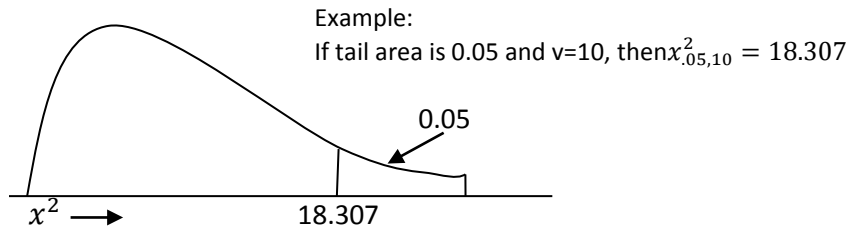
r	P								
	0.01	0.05	0.10	0.25	0.50	0.75	0.90	0.95	0.99
0	0.8179	0.3585	0.1216	0.0032	0.0000				
1	0.9831	0.7358	0.3917	0.0243	0.0000				
2	0.9990	0.9245	0.6769	0.0913	0.0002				
3	1.0000	0.9841	0.8670	0.2252	0.0013				
4		0.9974	0.9568	0.4148	0.0059				
5		0.9997	0.9887	0.6172	0.0207				
6		1.0000	0.9976	0.7858	0.0577	0.0000			
7			0.9996	0.8982	0.1316	0.0002			
8			0.9999	0.9591	0.2517	0.0009			
9			1.0000	0.9861	0.4119	0.0039			
10				0.9961	0.5881	0.0139	0.0000		
11				0.9991	0.7483	0.0409	0.0001		
12				0.9998	0.8684	0.1018	0.0004		
13				1.0000	0.9423	0.2142	0.0024	0.0000	
14					0.9793	0.3828	0.0113	0.0003	
15					0.9941	0.5852	0.0432	0.0026	
16					0.9987	0.7748	0.1330	0.0159	0.0000
17					0.9998	0.9087	0.3231	0.0755	0.0010
18					1.0000	0.9757	0.6083	0.2642	0.0169
19						0.9968	0.8784	0.6415	0.1821
20						1.0000	1.0000	1.0000	1.0000

TABLE ICBINOMIAL CUMULATIVE PROBABILITIES, $n = 50: \sum_0^r P(r)$

r	P								
	0.01	0.05	0.10	0.25	0.50	0.75	0.90	0.95	0.99
0	0.6050	0.0769	0.0052	0.0000					
1	0.9106	0.2794	0.0338	0.0000					
2	0.9862	0.5405	0.1117	0.0001					
3	0.9984	0.7604	0.2503	0.0005					
4	0.9999	0.8964	0.4312	0.0021					
5	1.0000	0.9622	0.6161	0.0070					
6		0.9882	0.7702	0.0194					
7		0.9968	0.8779	0.0453					
8		0.9992	0.9421	0.0916					
9		0.9998	0.9755	0.1637					
10		1.0000	0.9906	0.2622					
11			0.9968	0.3816	0.0000				
12			0.9990	0.5110	0.0002				
13			0.9997	0.6370	0.0005				
14			0.9999	0.7481	0.0013				
15			1.0000	0.8369	0.0033				
16				0.9017	0.0077				0.0000
17				0.9449	0.0164				0.0010
18				0.9713	0.0325				0.0169
19				0.9868	0.0595				0.1821
20				0.9937	0.1013				1.0000
21				0.9974	0.1611				
22				0.9990	0.2399				
23				0.9996	0.3359				
24				0.9999	0.4439	0.0000			
25				1.0000	0.5561	0.0001			
26					0.6641	0.0004			
27					0.7601	0.0010			
28					0.8389	0.0026			
29					0.8987	0.0063			
30					0.9405	0.0139			
31					0.9675	0.0287			
32					0.9836	0.0551			
33					0.9923	0.0983			
34					0.9967	0.1631	0.0000		
35					0.9987	0.2519	0.0001		
36					0.9995	0.3630	0.0003		
37					0.9998	0.4890	0.0010		
38					1.0000	0.6184	0.0032		
39						0.7378	0.0094	0.0000	
40						0.8363	0.0245	0.0002	
41						0.9084	0.0579	0.0008	

42	0.9547	0.1221	0.0032	
43	0.9806	0.2298	0.0118	
44	0.9930	0.3839	0.0378	0.0000
45	0.9979	0.5688	0.1036	0.0001
46	0.9995	0.7497	0.2396	0.0016
47	0.9999	0.8883	0.4595	0.0138
48	1.0000	0.9662	0.7206	0.0894
49		0.9948	0.9231	0.3950
50		1.0000	1.0000	1.0000

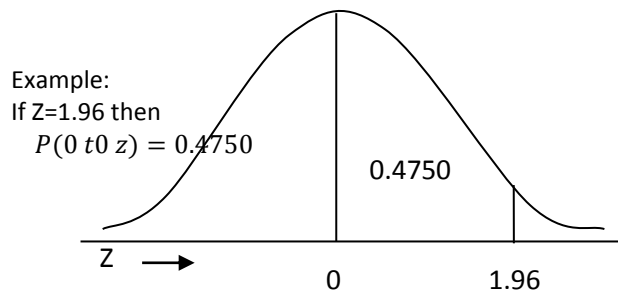
TABLE IV



VALUES OF χ^2 FOR SPECIFIED RIGHT-TAIL AREAS

Degrees of freedom v	Right-tail area				
	0.20	0.10	0.05	0.02	0.01
1	1.642	2.706	3.841	5.412	6.635
2	3.219	4.605	5.991	7.824	9.210
3	4.642	6.251	7.815	9.837	11.345
4	5.989	7.779	9.488	11.668	13.277
5	7.289	9.236	11.070	13.388	15.086
6	8.558	10.645	12.592	15.033	16.812
7	9.803	12.017	14.067	16.622	18.475
8	11.030	13.362	15.507	18.168	20.090
9	12.242	14.684	16.919	19.679	21.666
10	13.442	15.987	18.307	21.161	23.209
11	14.631	17.275	19.675	22.618	24.725
12	15.812	18.549	21.026	24.054	26.217
13	16.985	19.812	22.362	25.472	27.688
14	18.151	21.064	23.685	26.873	29.141
15	19.311	22.307	24.996	28.259	30.578
16	20.465	23.542	26.296	29.633	32.000
17	21.615	24.769	27.587	30.995	33.409
18	22.760	25.989	28.869	32.346	34.805
19	23.900	27.204	30.144	33.687	36.191
20	25.038	28.412	31.410	35.020	37.566
21	26.171	29.615	32.671	36.343	38.932
22	27.301	30.813	33.924	37.659	40.289
23	28.429	32.007	35.172	38.968	41.638
24	29.553	33.196	36.415	40.270	42.980
25	30.675	34.382	37.652	41.566	44.314
26	31.795	35.563	38.885	42.856	45.642
27	32.912	36.741	40.113	44.140	46.963
28	34.027	37.916	41.337	45.419	48.278
29	35.139	39.087	42.557	46.693	49.588
30	36.250	40.256	43.773	47.962	50.892

TABLE V



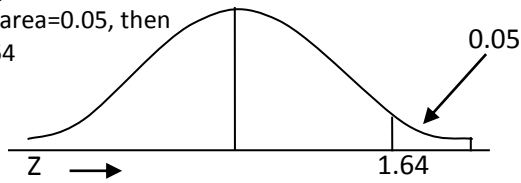
AREAS UNDER THE NORMAL CURVE

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990

TABLE VI

Example:

If tail area=0.05, then

 $z=1.64$ 

FOR ONE-TAIL AREAS UNDER THE NORMAL CURVE

(Locate tail area in margins; take z from body of table)

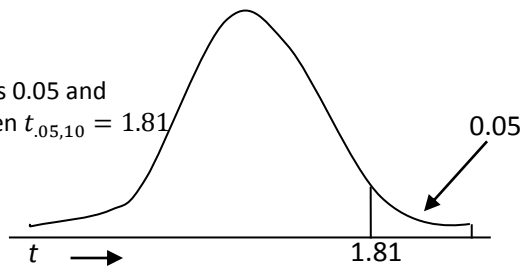
Area	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.00		3.09	2.88	2.75	2.65	2.58	2.51	2.46	2.41	2.37
0.01	2.33	2.29	2.26	2.23	2.20	2.17	2.14	2.12	2.10	2.07
0.02	2.05	2.03	2.01	2.00	1.98	1.96	1.94	1.93	1.91	1.90
0.03	1.88	1.87	1.85	1.84	1.83	1.81	1.80	1.79	1.77	1.76
0.04	1.75	1.74	1.73	1.72	1.71	1.70	1.68	1.67	1.66	1.65
0.05	1.64	1.64	1.63	1.62	1.61	1.60	1.59	1.58	1.57	1.56
0.06	1.55	1.55	1.54	1.53	1.52	1.51	1.51	1.50	1.49	1.48
0.07	1.48	1.47	1.46	1.45	1.45	1.44	1.43	1.43	1.42	1.41
0.08	1.41	1.40	1.39	1.39	1.38	1.37	1.36	1.36	1.35	1.35
0.09	1.34	1.33	1.33	1.32	1.32	1.31	1.30	1.30	1.29	1.29
0.10	1.28	1.28	1.27	1.26	1.26	1.25	1.25	1.24	1.24	1.23

TABLE VII

Example:

If tail area is 0.05 and

$\nu = 10$, then $t_{.05,10} = 1.81$

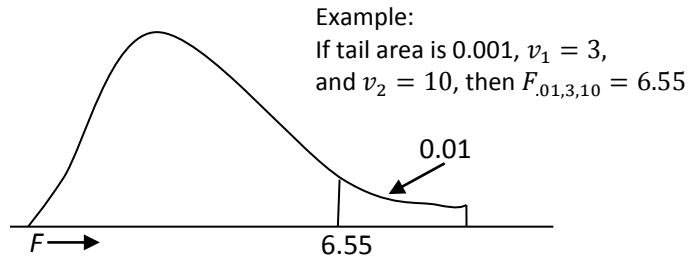


THE STUDENT t DISTRIBUTION

(Entries are t values for selected tail areas)

Degrees of freedom ν	Tail area					
	0.25	0.10	0.05	0.025	0.01	0.005
1	1.00	3.08	6.31	12.71	31.82	63.66
2	0.82	1.89	2.92	4.30	6.96	9.92
3	0.76	1.64	2.35	3.18	4.54	5.84
4	0.74	1.53	2.13	2.78	3.75	4.60
5	0.73	1.48	2.02	2.57	3.36	4.03
6	0.72	1.44	1.94	2.45	3.14	3.71
7	0.71	1.41	1.89	2.36	3.00	3.50
8	0.71	1.40	1.86	2.31	2.90	3.36
9	0.70	1.38	1.83	2.26	2.82	3.25
10	0.70	1.37	1.81	2.23	2.76	3.17
11	0.70	1.36	1.80	2.20	2.72	3.11
12	0.70	1.36	1.78	2.18	2.68	3.05
13	0.69	1.35	1.77	2.16	2.65	3.01
14	0.69	1.35	1.76	2.14	2.62	2.98
15	0.69	1.34	1.75	2.13	2.60	2.95
16	0.69	1.34	1.75	2.12	2.58	2.92
17	0.69	1.33	1.74	2.11	2.57	2.90
18	0.69	1.33	1.73	2.10	2.55	2.88
19	0.69	1.33	1.73	2.09	2.54	2.86
20	0.69	1.33	1.72	2.09	2.53	2.85
21	0.69	1.32	1.72	2.08	2.52	2.83
22	0.69	1.32	1.72	2.07	2.51	2.82
23	0.69	1.32	1.71	2.07	2.50	2.81
24	0.68	1.32	1.71	2.06	2.49	2.80
25	0.68	1.32	1.71	2.06	2.49	2.79
26	0.68	1.31	1.71	2.06	2.48	2.78
27	0.68	1.31	1.70	2.05	2.47	2.77
28	0.68	1.31	1.70	2.05	2.47	2.76
29	0.68	1.31	1.70	2.05	2.46	2.76
30	0.68	1.31	1.70	2.04	2.46	2.75
40	0.68	1.30	1.68	2.02	2.42	2.70
60	0.68	1.30	1.67	2.00	2.39	2.66
∞	0.67	1.28	1.64	1.96	2.33	

TABLE VIII



F VALUES FOR RIGHT-TAIL AREA OF 0.01

		Degrees of freedom for numerator									
		1	2	3	4	5	6	7	8	9	10
Degree of freedom for denominator	1	4052	5000	5403	5625	5764	5859	5928	5982	6022	6056
	2	98.5	99.0	99.2	99.2	99.3	99.4	99.4	99.4	99.4	99.4
	3	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.3	27.2
	4	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.7	14.5
	5	16.3	13.3	12.1	11.4	11.0	10.7	10.5	10.3	10.2	10.1
	6	13.7	10.9	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87
	7	12.2	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62
	8	11.3	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81
	9	10.6	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26
	10	10.0	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85
	11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54
	12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30
	13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10
	14	8.86	6.51	5.56	5.04	4.70	4.46	4.28	4.14	4.03	3.94
	15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80
	16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69
	17	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59
	18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51
	19	8.19	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43
	20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37
	21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31
	22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26
	23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21
	24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17
	25	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.22	3.13
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	

F VALUES FOR RIGHT-TAIL AREA OF 0.05

		Degree of freedom for numerator									
		1	2	3	4	5	6	7	8	9	10
Degree of freedom for denominator	1	161	200	216	225	230	234	237	239	241	242
	2	18.5	19.0	19.2	19.2	19.3	19.3	19.4	19.4	19.4	19.4
	3	10.1	9.55	9.28	9.12	9.01	8.94	8.89	8.89	8.81	8.79
	4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.09	6.00	5.96
	5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.88	4.77	4.74
	6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06
	7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64
	8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35
	9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14
	10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98
	11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85
	12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75
	13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67
	14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60
	15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54
	16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49
	17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45
	18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41
	19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38
	20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35
	21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32
	22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30
	23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27
	24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25
	25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	
120	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96	1.91	
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	