

## 國立臺北科技大學 110 學年度碩士班招生考試

系所組別：4201、4202、4203、4204 經營管理系碩士班

## 第一節 統計學 試題

第 1 頁 共 2 頁

**注意事項：**

1. 本試題共兩大題，共 100 分。
2. 不必抄題，作答時請將試題題號及答案依照順序寫在答案卷上。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

## 一、單選題

- (一) Suppose that 60 percent of the voters in a particular region support a candidate. Find the probability that a sample of 1,000 voters would yield a sample proportion in favor of the candidate within 4 percentage points of the actual proportion. (10 分)
- (A) 0.0155  
(B) 0.9902  
(C) 0.9952  
(D) 0.9484
- (二) If two equally likely events A and B are mutually exclusive, what is the probability that event A occurs? (10 分)
- (A) 0.  
(B) 0.50.  
(C) 1.00.  
(D) Cannot be determined from the information given.
- (三) A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? (10 分)
- (A) 0.511  
(B) 0.08  
(C) 0.15  
(D) 0.489

- (四) The owner of a car wash wants to see if the arrival rate of cars follows a Poisson distribution. In order to test the assumption of a Poisson distribution, a random sample of 150 ten-minute intervals was taken. You are given the following observed frequencies:

Number of Cars Arriving in a 10-Minute Interval	Frequency
0	3
1	10
2	15
3	23
4	30
5	24
6	20
7	13
8	8
9 or more	4

1. Calculate mean and use Poisson probabilities. The expected frequency of exactly 3 cars arriving in a 10-minute interval is (10 分)
 

(A) 0.1533  
(B) 0.1743  
(C) 23.158  
(D) 26.145
2. At the 0.05 level of significance, the conclusion of the test is that the (10 分)
 

(A) null hypothesis cannot be rejected.  
(B) arrival of cars does not follow a Poisson distribution.  
(C) 10-minute intervals follow a Poisson distribution.  
(D) arrival of cars has no distribution.

注意：背面尚有試題

(五) The editors of a national automotive magazine recently studied 30 different automobiles sold in the United States with the intent of seeing whether they could develop a multiple regression model to explain the variation in highway miles per gallon. A number of different independent variables were collected. The following regression output (with some values missing) was recently presented to the editors by the magazine's analysts:

ANOVA				
	df	SS	MS	F
Regression				
Residual		89.88341785		
Total		506.1666667		

	Coefficient	Standard Error	t State	p-Value	Lower 95%	Upper 95%
Intercept	41.77425	5.612843566				
Curb Weight	-0.00608	0.00145286				
Cylinders	0.959134	0.887531206				
Horse Power	0.052399	0.023938405				
Torque	-0.01747	0.024737052				
0 to 60 mph	0.492998	0.486960357				
Price as Tested	-0.00015	4.31238E-05				
Displacement	-2.11223	0.88675014				

Based on this output and your understanding of multiple regression analysis, which of the following statements is true? (10 分)

- (A) The overall multiple regression model explains a significant portion of the variation in highway mileage when tested at a significance level of 0.05.
- (B) Only the two independent variables are statistically significant in the presence of the others when a significance level of 0.05 is used to test.
- (C) The standard error of the estimate is a negative value due to the multicollinearity problems in the model.
- (D) None of the above is true.

二、計算題

(一) A black jack player at a Las Vegas casino learned that the house will provide a free room if play is for four hours at an average bet of \$50. The player's strategy provides a probability of 0.49 of winning on any on hand, and the player knows that there are 60 hands per hour. Suppose the player plays for four hours at a bet of \$50 per hand.

1. What is the player's expected payoff? (5 分)
2. What is the probability that player loses \$1,000 or more? (10 分)

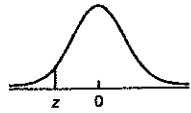
(二) A production line operation is tested for filling weight accuracy using the following hypothesis:

Hypothesis	Conclusion and Action
H0: $\mu=16$	Filling okay; keep running
H1: $\mu\neq 16$	Filling off standard; stop and adjust machine

The sample size is 30 and the population standard deviation is  $\sigma=0.8$ . Use  $\alpha=0.05$ .

1. What is the probability of making a Type II error when the machine is overfilling by 0.5 grams? (10 分)
2. What is the power of the statistical test when the machine is overfilling by 0.5 grams? (5 分)
3. Show the power curve for this hypothesis test. What information does it contain for the production manager? (10 分)

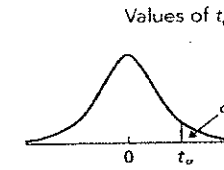
附表1  
Areas under the  
standard normal curve



Second decimal place in z										z
0.09	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.00	
									0.0000 <sup>1</sup>	-3.9
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	-3.8
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	-3.7
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	-3.6
0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	-3.5
0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	-3.4
0.0003	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	-3.3
0.0005	0.0005	0.0005	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	-3.2
0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0010	-3.1
0.0010	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012	0.0013	0.0013	0.0013	-3.0
0.0014	0.0014	0.0015	0.0015	0.0016	0.0016	0.0017	0.0018	0.0018	0.0019	-2.9
0.0019	0.0020	0.0021	0.0021	0.0022	0.0023	0.0023	0.0024	0.0025	0.0026	-2.8
0.0026	0.0027	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034	0.0035	-2.7
0.0036	0.0037	0.0038	0.0039	0.0040	0.0041	0.0043	0.0044	0.0045	0.0047	-2.6
0.0048	0.0049	0.0051	0.0052	0.0054	0.0055	0.0057	0.0059	0.0060	0.0062	-2.5
0.0064	0.0066	0.0068	0.0069	0.0071	0.0073	0.0075	0.0078	0.0080	0.0082	-2.4
0.0084	0.0087	0.0089	0.0091	0.0094	0.0096	0.0099	0.0102	0.0104	0.0107	-2.3
0.0110	0.0113	0.0116	0.0119	0.0122	0.0125	0.0129	0.0132	0.0136	0.0139	-2.2
0.0143	0.0146	0.0150	0.0154	0.0158	0.0162	0.0166	0.0170	0.0174	0.0179	-2.1
0.0183	0.0188	0.0192	0.0197	0.0202	0.0207	0.0212	0.0217	0.0222	0.0228	-2.0
0.0233	0.0239	0.0244	0.0250	0.0256	0.0262	0.0268	0.0274	0.0281	0.0287	-1.9
0.0294	0.0301	0.0307	0.0314	0.0322	0.0329	0.0336	0.0344	0.0351	0.0359	-1.8
0.0367	0.0375	0.0384	0.0392	0.0401	0.0409	0.0418	0.0427	0.0436	0.0446	-1.7
0.0455	0.0465	0.0475	0.0485	0.0495	0.0505	0.0516	0.0526	0.0537	0.0548	-1.6
0.0559	0.0571	0.0582	0.0594	0.0606	0.0618	0.0630	0.0643	0.0655	0.0668	-1.5
0.0681	0.0694	0.0708	0.0721	0.0735	0.0749	0.0764	0.0778	0.0793	0.0808	-1.4
0.0823	0.0838	0.0853	0.0869	0.0885	0.0901	0.0918	0.0934	0.0951	0.0968	-1.3
0.0985	0.1003	0.1020	0.1038	0.1056	0.1075	0.1093	0.1112	0.1131	0.1151	-1.2
0.1170	0.1190	0.1210	0.1230	0.1251	0.1271	0.1292	0.1314	0.1335	0.1357	-1.1
0.1379	0.1401	0.1423	0.1446	0.1469	0.1492	0.1515	0.1539	0.1562	0.1587	-1.0
0.1611	0.1635	0.1660	0.1685	0.1711	0.1736	0.1762	0.1788	0.1814	0.1841	-0.9
0.1867	0.1894	0.1922	0.1949	0.1977	0.2005	0.2033	0.2061	0.2090	0.2119	-0.8
0.2148	0.2177	0.2206	0.2236	0.2266	0.2296	0.2327	0.2358	0.2389	0.2420	-0.7
0.2451	0.2483	0.2514	0.2546	0.2578	0.2611	0.2643	0.2676	0.2709	0.2743	-0.6
0.2776	0.2810	0.2843	0.2877	0.2912	0.2946	0.2981	0.3015	0.3050	0.3085	-0.5
0.3121	0.3156	0.3192	0.3228	0.3264	0.3300	0.3336	0.3372	0.3409	0.3446	-0.4
0.3483	0.3520	0.3557	0.3594	0.3632	0.3669	0.3707	0.3745	0.3783	0.3821	-0.3
0.3859	0.3897	0.3936	0.3974	0.4013	0.4052	0.4090	0.4129	0.4168	0.4207	-0.2
0.4247	0.4286	0.4325	0.4364	0.4404	0.4443	0.4483	0.4522	0.4562	0.4602	-0.1
0.4641	0.4681	0.4721	0.4761	0.4801	0.4840	0.4880	0.4920	0.4960	0.5000	-0.0

<sup>1</sup> For  $z \leq -3.90$ , the areas are 0.0000 to four decimal places.

附表2-1

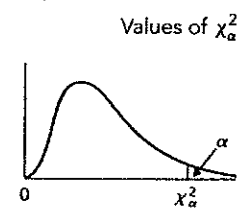


df	$t_{0.10}$	$t_{0.05}$	$t_{0.025}$	$t_{0.01}$	$t_{0.005}$	df
1	3.078	6.314	12.706	31.821	63.657	1
2	1.886	2.920	4.303	6.965	9.925	2
3	1.638	2.353	3.182	4.541	5.841	3
4	1.533	2.132	2.776	3.747	4.604	4
5	1.476	2.015	2.571	3.365	4.032	5
6	1.440	1.943	2.447	3.143	3.707	6
7	1.415	1.895	2.365	2.998	3.499	7
8	1.397	1.860	2.306	2.896	3.355	8
9	1.383	1.833	2.262	2.821	3.250	9
10	1.372	1.812	2.228	2.764	3.169	10
11	1.363	1.796	2.201	2.718	3.106	11
12	1.356	1.782	2.179	2.681	3.055	12
13	1.350	1.771	2.160	2.650	3.012	13
14	1.345	1.761	2.145	2.624	2.977	14
15	1.341	1.753	2.131	2.602	2.947	15
16	1.337	1.746	2.120	2.583	2.921	16
17	1.333	1.740	2.110	2.567	2.898	17
18	1.330	1.734	2.101	2.552	2.878	18
19	1.328	1.729	2.093	2.539	2.861	19
20	1.325	1.725	2.086	2.528	2.845	20
21	1.323	1.721	2.080	2.518	2.831	21
22	1.321	1.717	2.074	2.508	2.819	22
23	1.319	1.714	2.069	2.500	2.807	23
24	1.318	1.711	2.064	2.492	2.797	24
25	1.316	1.708	2.060	2.485	2.787	25
26	1.315	1.706	2.056	2.479	2.779	26
27	1.314	1.703	2.052	2.473	2.771	27
28	1.313	1.701	2.048	2.467	2.763	28
29	1.311	1.699	2.045	2.462	2.756	29
30	1.310	1.697	2.042	2.457	2.750	30
31	1.309	1.696	2.040	2.453	2.744	31
32	1.309	1.694	2.037	2.449	2.738	32
33	1.308	1.692	2.035	2.445	2.733	33
34	1.307	1.691	2.032	2.441	2.728	34
35	1.306	1.690	2.030	2.438	2.724	35
36	1.306	1.688	2.028	2.434	2.719	36
37	1.305	1.687	2.026	2.431	2.715	37
38	1.304	1.686	2.024	2.429	2.712	38
39	1.304	1.685	2.023	2.426	2.708	39
40	1.303	1.684	2.021	2.423	2.704	40
41	1.303	1.683	2.020	2.421	2.701	41
42	1.302	1.682	2.018	2.418	2.698	42
43	1.302	1.681	2.017	2.416	2.695	43
44	1.301	1.680	2.015	2.414	2.692	44
45	1.301	1.679	2.014	2.412	2.690	45
46	1.300	1.679	2.013	2.410	2.687	46
47	1.300	1.678	2.012	2.408	2.685	47
48	1.299	1.677	2.011	2.407	2.682	48
49	1.299	1.677	2.010	2.405	2.680	49

附表2-2

Values of $t_{\alpha}$	df	$t_{0.10}$	$t_{0.05}$	$t_{0.025}$	$t_{0.01}$	$t_{0.005}$	df
	50	1.299	1.676	2.009	2.403	2.678	50
	51	1.298	1.675	2.008	2.402	2.676	51
	52	1.298	1.675	2.007	2.400	2.674	52
	53	1.298	1.674	2.006	2.399	2.672	53
	54	1.297	1.674	2.005	2.397	2.670	54
	55	1.297	1.673	2.004	2.396	2.668	55
	56	1.297	1.673	2.003	2.395	2.667	56
	57	1.297	1.672	2.002	2.394	2.665	57
	58	1.296	1.672	2.002	2.392	2.663	58
	59	1.296	1.671	2.001	2.391	2.662	59
	60	1.296	1.671	2.000	2.390	2.660	60
	61	1.296	1.670	2.000	2.389	2.659	61
	62	1.295	1.670	1.999	2.388	2.657	62
	63	1.295	1.669	1.998	2.387	2.656	63
	64	1.295	1.669	1.998	2.386	2.655	64
	65	1.295	1.669	1.997	2.385	2.654	65
	66	1.295	1.668	1.997	2.384	2.652	66
	67	1.294	1.668	1.996	2.383	2.651	67
	68	1.294	1.668	1.995	2.382	2.650	68
	69	1.294	1.667	1.995	2.382	2.649	69
	70	1.294	1.667	1.994	2.381	2.648	70
	71	1.294	1.667	1.994	2.380	2.647	71
	72	1.293	1.666	1.993	2.379	2.646	72
	73	1.293	1.666	1.993	2.379	2.645	73
	74	1.293	1.666	1.993	2.378	2.644	74
	75	1.293	1.665	1.992	2.377	2.643	75
	80	1.292	1.664	1.990	2.374	2.639	80
	85	1.292	1.663	1.988	2.371	2.635	85
	90	1.291	1.662	1.987	2.368	2.632	90
	95	1.291	1.661	1.985	2.366	2.629	95
	100	1.290	1.660	1.984	2.364	2.626	100
	200	1.286	1.653	1.972	2.345	2.601	200
	300	1.284	1.650	1.968	2.339	2.592	300
	400	1.284	1.649	1.966	2.336	2.588	400
	500	1.283	1.648	1.965	2.334	2.586	500
	600	1.283	1.647	1.964	2.333	2.584	600
	700	1.283	1.647	1.963	2.332	2.583	700
	800	1.283	1.647	1.963	2.331	2.582	800
	900	1.282	1.647	1.963	2.330	2.581	900
	1000	1.282	1.646	1.962	2.330	2.581	1000
	2000	1.282	1.646	1.961	2.328	2.578	2000

附表3-1

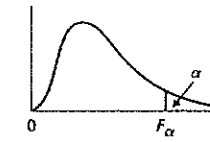


df	$\chi^2_{0.995}$	$\chi^2_{0.99}$	$\chi^2_{0.975}$	$\chi^2_{0.95}$	$\chi^2_{0.90}$
1	0.000	0.000	0.001	0.004	0.016
2	0.010	0.020	0.051	0.103	0.211
3	0.072	0.115	0.216	0.352	0.584
4	0.207	0.297	0.484	0.711	1.064
5	0.412	0.554	0.831	1.145	1.610
6	0.676	0.872	1.237	1.635	2.204
7	0.989	1.239	1.690	2.167	2.833
8	1.344	1.646	2.180	2.733	3.490
9	1.735	2.088	2.700	3.325	4.168
10	2.156	2.558	3.247	3.940	4.865
11	2.603	3.053	3.816	4.575	5.578
12	3.074	3.571	4.404	5.226	6.304
13	3.565	4.107	5.009	5.892	7.042
14	4.075	4.660	5.629	6.571	7.790
15	4.601	5.229	6.262	7.261	8.547
16	5.142	5.812	6.908	7.962	9.312
17	5.697	6.408	7.564	8.672	10.085
18	6.265	7.015	8.231	9.390	10.865
19	6.844	7.633	8.907	10.117	11.651
20	7.434	8.260	9.591	10.851	12.443
21	8.034	8.897	10.283	11.591	13.240
22	8.643	9.542	10.982	12.338	14.041
23	9.260	10.196	11.689	13.091	14.848
24	9.886	10.856	12.401	13.848	15.659
25	10.520	11.524	13.120	14.611	16.473
26	11.160	12.198	13.844	15.379	17.292
27	11.808	12.879	14.573	16.151	18.114
28	12.461	13.565	15.308	16.928	18.939
29	13.121	14.256	16.047	17.708	19.768
30	13.787	14.953	16.791	18.493	20.599
40	20.707	22.164	24.433	26.509	29.051
50	27.991	29.707	32.357	34.764	37.689
60	35.534	37.485	40.482	43.188	46.459
70	43.275	45.442	48.758	51.739	55.329
80	51.172	53.540	57.153	60.391	64.278
90	59.196	61.754	65.647	69.126	73.291
100	67.328	70.065	74.222	77.930	82.358

附表3-2

Values of $\chi^2_\alpha$	$\chi^2_{0.10}$	$\chi^2_{0.05}$	$\chi^2_{0.025}$	$\chi^2_{0.01}$	$\chi^2_{0.005}$	df
	2.706	3.841	5.024	6.635	7.879	1
	4.605	5.991	7.378	9.210	10.597	2
	6.251	7.815	9.348	11.345	12.838	3
	7.779	9.488	11.143	13.277	14.860	4
	9.236	11.070	12.833	15.086	16.750	5
	10.645	12.592	14.449	16.812	18.548	6
	12.017	14.067	16.013	18.475	20.278	7
	13.362	15.507	17.535	20.090	21.955	8
	14.684	16.919	19.023	21.666	23.589	9
	15.987	18.307	20.483	23.209	25.188	10
	17.275	19.675	21.920	24.725	26.757	11
	18.549	21.026	23.337	26.217	28.300	12
	19.812	22.362	24.736	27.688	29.819	13
	21.064	23.685	26.119	29.141	31.319	14
	22.307	24.996	27.488	30.578	32.801	15
	23.542	26.296	28.845	32.000	34.267	16
	24.769	27.587	30.191	33.409	35.718	17
	25.989	28.869	31.526	34.805	37.156	18
	27.204	30.143	32.852	36.191	38.582	19
	28.412	31.410	34.170	37.566	39.997	20
	29.615	32.671	35.479	38.932	41.401	21
	30.813	33.924	36.781	40.290	42.796	22
	32.007	35.172	38.076	41.638	44.181	23
	33.196	36.415	39.364	42.980	45.559	24
	34.382	37.653	40.647	44.314	46.928	25
	35.563	38.885	41.923	45.642	48.290	26
	36.741	40.113	43.195	46.963	49.645	27
	37.916	41.337	44.461	48.278	50.994	28
	39.087	42.557	45.722	49.588	52.336	29
	40.256	43.773	46.979	50.892	53.672	30
	51.805	55.759	59.342	63.691	66.767	40
	63.167	67.505	71.420	76.154	79.490	50
	74.397	79.082	83.298	88.381	91.955	60
	85.527	90.531	95.023	100.424	104.213	70
	96.578	101.879	106.628	112.328	116.320	80
	107.565	113.145	118.135	124.115	128.296	90
	118.499	124.343	129.563	135.811	140.177	100

附表4-1 Values of  $F_\alpha$



dfd	$\alpha$	dfn								
		1	2	3	4	5	6	7	8	9
1	0.10	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44	59.86
	0.05	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54
	0.025	647.79	799.50	864.16	899.58	921.85	937.11	948.22	956.66	963.28
	0.01	4052.2	4999.5	5403.4	5624.6	5763.6	5859.0	5928.4	5981.1	6022.5
	0.005	16211	20000	21615	22500	23056	23437	23715	23925	24091
2	0.10	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38
	0.05	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
	0.025	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39
	0.01	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39
	0.005	198.50	199.00	199.17	199.25	199.30	199.33	199.36	199.37	199.39
3	0.10	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24
	0.05	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
	0.025	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47
	0.01	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35
	0.005	55.55	49.80	47.47	46.19	45.39	44.84	44.43	44.13	43.88
4	0.10	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94
	0.05	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
	0.025	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90
	0.01	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66
	0.005	31.33	26.28	24.26	23.15	22.46	21.97	21.62	21.35	21.14
5	0.10	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32
	0.05	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
	0.025	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68
	0.01	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16
	0.005	22.78	18.31	16.53	15.56	14.94	14.51	14.20	13.96	13.77
6	0.10	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96
	0.05	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
	0.025	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52
	0.01	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98
	0.005	18.63	14.54	12.92	12.03	11.46	11.07	10.79	10.57	10.39
7	0.10	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72
	0.05	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
	0.025	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82
	0.01	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72
	0.005	16.24	12.40	10.88	10.05	9.52	9.16	8.89	8.68	8.51
8	0.10	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56
	0.05	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
	0.025	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36
	0.01	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91
	0.005	14.69	11.04	9.60	8.81	8.30	7.95	7.69	7.50	7.34

附表4-2

Values of $F_{\alpha}$	dfn									$\alpha$	dfd
	10	12	15	20	24	30	40	60	120		
60.19	60.71	61.22	61.74	62.00	62.26	62.53	62.79	63.06		0.10	1
241.88	243.91	245.95	248.01	249.05	250.10	251.14	252.20	253.25		0.05	
968.63	976.71	984.87	993.10	997.25	1001.41	1005.60	1009.80	1014.02		0.025	
6055.8	6106.3	6157.3	6208.7	6234.6	6260.6	6286.7	631.9	6339.4		0.01	
24224	24426	24630	24836	24940	25044	25148	25253	25359		0.005	
9.39	9.41	9.42	9.44	9.45	9.46	9.47	9.47	9.48		0.10	2
19.40	19.41	19.43	19.45	19.45	19.46	19.47	19.48	19.49		0.05	
39.40	39.41	39.43	39.45	39.46	39.46	39.47	39.48	39.49		0.025	
99.40	99.42	99.43	99.45	99.46	99.47	99.47	99.48	99.49		0.01	
199.40	199.42	199.43	199.45	199.46	199.47	199.47	199.48	199.49		0.005	
5.23	5.22	5.20	5.18	5.18	5.17	5.16	5.15	5.14		0.10	3
8.79	8.74	8.70	8.66	8.64	8.62	8.59	8.57	8.55		0.05	
14.42	14.34	14.25	14.17	14.12	14.08	14.04	13.99	13.95		0.025	
27.23	27.05	26.87	26.69	26.60	26.50	26.41	26.32	26.22		0.01	
43.69	43.39	43.08	42.78	42.62	42.47	42.31	42.15	41.99		0.005	
3.92	3.90	3.87	3.84	3.83	3.82	3.80	3.79	3.78		0.10	4
5.96	5.91	5.86	5.80	5.77	5.75	5.72	5.69	5.66		0.05	
8.84	8.75	8.66	8.56	8.51	8.46	8.41	8.36	8.31		0.025	
14.55	14.37	14.20	14.02	13.93	13.84	13.75	13.65	13.56		0.01	
20.97	20.70	20.44	20.17	20.03	19.89	19.75	19.61	19.47		0.005	
3.30	3.27	3.24	3.21	3.19	3.17	3.16	3.14	3.12		0.10	5
4.74	4.68	4.62	4.56	4.53	4.50	4.46	4.43	4.40		0.05	
6.62	6.52	6.43	6.33	6.28	6.23	6.18	6.12	6.07		0.025	
10.05	9.89	9.72	9.55	9.47	9.38	9.29	9.20	9.11		0.01	
13.62	13.38	13.15	12.90	12.78	12.66	12.53	12.40	12.27		0.005	
2.94	2.90	2.87	2.84	2.82	2.80	2.78	2.76	2.74		0.10	6
4.06	4.00	3.94	3.87	3.84	3.81	3.77	3.74	3.70		0.05	
5.46	5.37	5.27	5.17	5.12	5.07	5.01	4.96	4.90		0.025	
7.87	7.72	7.56	7.40	7.31	7.23	7.14	7.06	6.97		0.01	
10.25	10.03	9.81	9.59	9.47	9.36	9.24	9.12	9.00		0.005	
2.70	2.67	2.63	2.59	2.58	2.56	2.54	2.51	2.49		0.10	7
3.64	3.57	3.51	3.44	3.41	3.38	3.34	3.30	3.27		0.05	
4.76	4.67	4.57	4.47	4.41	4.36	4.31	4.25	4.20		0.025	
6.62	6.47	6.31	6.16	6.07	5.99	5.91	5.82	5.74		0.01	
8.38	8.18	7.97	7.75	7.64	7.53	7.42	7.31	7.19		0.005	
2.54	2.50	2.46	2.42	2.40	2.38	2.36	2.34	2.32		0.10	8
3.35	3.28	3.22	3.15	3.12	3.08	3.04	3.01	2.97		0.05	
4.30	4.20	4.10	4.00	3.95	3.89	3.84	3.78	3.73		0.025	
5.81	5.67	5.52	5.36	5.28	5.20	5.12	5.03	4.95		0.01	
7.21	7.01	6.81	6.61	6.50	6.40	6.29	6.18	6.06		0.005	

附表4-3

Values of  $F_{\alpha}$

dfd	$\alpha$	dfn								
		1	2	3	4	5	6	7	8	9
9	0.10	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.44
	0.05	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
	0.025	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03
	0.01	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35
10	0.005	13.61	10.11	8.72	7.96	7.47	7.13	6.88	6.69	6.54
	0.10	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.35
	0.05	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
	0.025	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78
11	0.01	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94
	0.005	12.83	9.43	8.08	7.34	6.87	6.54	6.30	6.12	5.97
	0.10	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27
	0.05	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
12	0.025	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59
	0.01	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63
	0.005	12.23	8.91	7.60	6.88	6.42	6.10	5.86	5.68	5.54
	0.10	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21
13	0.05	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80
	0.025	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44
	0.01	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39
	0.005	11.75	8.51	7.23	6.52	6.07	5.76	5.52	5.35	5.20
14	0.10	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16
	0.05	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71
	0.025	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31
	0.01	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19
15	0.005	11.37	8.19	6.93	6.23	5.79	5.48	5.25	5.08	4.94
	0.10	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12
	0.05	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65
	0.025	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21
16	0.01	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03
	0.005	11.06	7.92	6.68	6.00	5.56	5.26	5.03	4.86	4.72
	0.10	3.07	2.70	2.49	2.36	2.27	2.21	2.16	2.12	2.09
	0.05	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59
17	0.025	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12
	0.01	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89
	0.005	10.80	7.70	6.48	5.80	5.37	5.07	4.85	4.67	4.54
	0.10	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06
18	0.05	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
	0.025	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05
	0.01	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78
	0.005	10.58	7.51	6.30	5.64	5.21	4.91	4.69	4.52	4.38

附表4-4

Values of $F_\alpha$	dfn									$\alpha$	dfd
	10	12	15	20	24	30	40	60	120		
2.42	2.38	2.34	2.30	2.28	2.25	2.23	2.21	2.18		0.10	
3.14	3.07	3.01	2.94	2.90	2.86	2.83	2.79	2.75		0.05	
3.96	3.87	3.77	3.67	3.61	3.56	3.51	3.45	3.39		0.025	9
5.26	5.11	4.96	4.81	4.73	4.65	4.57	4.48	4.40		0.01	
6.42	6.23	6.03	5.83	5.73	5.62	5.52	5.41	5.30		0.005	
2.32	2.28	2.24	2.20	2.18	2.16	2.13	2.11	2.08		0.10	
2.98	2.91	2.85	2.77	2.74	2.70	2.66	2.62	2.58		0.05	
3.72	3.62	3.52	3.42	3.37	3.31	3.26	3.20	3.14		0.025	10
4.85	4.71	4.56	4.41	4.33	4.25	4.17	4.08	4.00		0.01	
5.85	5.66	5.47	5.27	5.17	5.07	4.97	4.86	4.75		0.005	
2.25	2.21	2.17	2.12	2.10	2.08	2.05	2.03	2.00		0.10	
2.85	2.79	2.72	2.65	2.61	2.57	2.53	2.49	2.45		0.05	
3.53	3.43	3.33	3.23	3.17	3.12	3.06	3.00	2.94		0.025	11
4.54	4.40	4.25	4.10	4.02	3.94	3.86	3.78	3.69		0.01	
5.42	5.24	5.05	4.86	4.76	4.65	4.55	4.45	4.34		0.005	
2.19	2.15	2.10	2.06	2.04	2.01	1.99	1.96	1.93		0.10	
2.75	2.69	2.62	2.54	2.51	2.47	2.43	2.38	2.34		0.05	
3.37	3.28	3.18	3.07	3.02	2.96	2.91	2.85	2.79		0.025	12
4.30	4.16	4.01	3.86	3.78	3.70	3.62	3.54	3.45		0.01	
5.09	4.91	4.72	4.53	4.43	4.33	4.23	4.12	4.01		0.005	
2.14	2.10	2.05	2.01	1.98	1.96	1.93	1.90	1.88		0.10	
2.67	2.60	2.53	2.46	2.42	2.38	2.34	2.30	2.25		0.05	
3.25	3.15	3.05	2.95	2.89	2.84	2.78	2.72	2.66		0.025	13
4.10	3.96	3.82	3.66	3.59	3.51	3.43	3.34	3.25		0.01	
4.82	4.64	4.46	4.27	4.17	4.07	3.97	3.87	3.76		0.005	
2.10	2.05	2.01	1.96	1.94	1.91	1.89	1.86	1.83		0.10	
2.60	2.53	2.46	2.39	2.35	2.31	2.27	2.22	2.18		0.05	
3.15	3.05	2.95	2.84	2.79	2.73	2.67	2.61	2.55		0.025	14
3.94	3.80	3.66	3.51	3.43	3.35	3.27	3.18	3.09		0.01	
4.60	4.43	4.25	4.06	3.96	3.86	3.76	3.66	3.55		0.005	
2.06	2.02	1.97	1.92	1.90	1.87	1.85	1.82	1.79		0.10	
2.54	2.48	2.40	2.33	2.29	2.25	2.20	2.16	2.11		0.05	
3.06	2.96	2.86	2.76	2.70	2.64	2.59	2.52	2.46		0.025	15
3.80	3.67	3.52	3.37	3.29	3.21	3.13	3.05	2.96		0.01	
4.42	4.25	4.07	3.88	3.79	3.69	3.58	3.48	3.37		0.005	
2.03	1.99	1.94	1.89	1.87	1.84	1.81	1.78	1.75		0.10	
2.49	2.42	2.35	2.28	2.24	2.19	2.15	2.11	2.06		0.05	
2.99	2.89	2.79	2.68	2.63	2.57	2.51	2.45	2.38		0.025	16
3.69	3.55	3.41	3.26	3.18	3.10	3.02	2.93	2.84		0.01	
4.27	4.10	3.92	3.73	3.64	3.54	3.44	3.33	3.22		0.005	

附表4-5

Values of $F_\alpha$	dfd	$\alpha$	dfn								
			1	2	3	4	5	6	7	8	9
		0.10	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03
		0.05	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49
	17	0.025	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98
		0.01	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68
		0.005	10.38	7.35	6.16	5.50	5.07	4.78	4.56	4.39	4.25
		0.10	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00
		0.05	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
	18	0.025	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93
		0.01	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60
		0.005	10.22	7.21	6.03	5.37	4.96	4.66	4.44	4.28	4.14
		0.10	2.99	2.61	2.40	2.27	2.18	2.11	2.06	2.02	1.98
		0.05	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42
	19	0.025	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88
		0.01	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52
		0.005	10.07	7.09	5.92	5.27	4.85	4.56	4.34	4.18	4.04
		0.10	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2.00	1.96
		0.05	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
	20	0.025	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84
		0.01	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46
		0.005	9.94	6.99	5.82	5.17	4.76	4.47	4.26	4.09	3.96
		0.10	2.96	2.57	2.36	2.23	2.14	2.08	2.02	1.98	1.95
		0.05	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
	21	0.025	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80
		0.01	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40
		0.005	9.83	6.89	5.73	5.09	4.68	4.39	4.18	4.01	3.88
		0.10	2.95	2.56	2.35	2.22	2.13	2.06	2.01	1.97	1.93
		0.05	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34
	22	0.025	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76
		0.01	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35
		0.005	9.73	6.81	5.65	5.02	4.61	4.32	4.11	3.94	3.81
		0.10	2.94	2.55	2.34	2.21	2.11	2.05	1.99	1.95	1.92
		0.05	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32
	23	0.025	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73
		0.01	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30
		0.005	9.63	6.73	5.58	4.95	4.54	4.26	4.05	3.88	3.75
		0.10	2.93	2.54	2.33	2.19	2.10	2.04	1.98	1.94	1.91
		0.05	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30
	24	0.025	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70
		0.01	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26
		0.005	9.55	6.66	5.52	4.89	4.49	4.20	3.99	3.83	3.69

附表4-6

Values of $F_{\alpha}$	dfn									$\alpha$	dfd
	10	12	15	20	24	30	40	60	120		
2.00	1.96	1.91	1.86	1.84	1.81	1.78	1.75	1.72	1.72	0.10	
2.45	2.38	2.31	2.23	2.19	2.15	2.10	2.06	2.01	2.01	0.05	
2.92	2.82	2.72	2.62	2.56	2.50	2.44	2.38	2.32	2.32	0.025	17
3.59	3.46	3.31	3.16	3.08	3.00	2.92	2.83	2.75	2.75	0.01	
4.14	3.97	3.79	3.61	3.51	3.41	3.31	3.21	3.10	3.10	0.005	
1.98	1.93	1.89	1.84	1.81	1.78	1.75	1.72	1.69	1.69	0.10	
2.41	2.34	2.27	2.19	2.15	2.11	2.06	2.02	1.97	1.97	0.05	
2.87	2.77	2.67	2.56	2.50	2.44	2.38	2.32	2.26	2.26	0.025	18
3.51	3.37	3.23	3.08	3.00	2.92	2.84	2.75	2.66	2.66	0.01	
4.03	3.86	3.68	3.50	3.40	3.30	3.20	3.10	2.99	2.99	0.005	
1.96	1.91	1.86	1.81	1.79	1.76	1.73	1.70	1.67	1.67	0.10	
2.38	2.31	2.23	2.16	2.11	2.07	2.03	1.98	1.93	1.93	0.05	
2.82	2.72	2.62	2.51	2.45	2.39	2.33	2.27	2.20	2.20	0.025	19
3.43	3.30	3.15	3.00	2.92	2.84	2.76	2.67	2.58	2.58	0.01	
3.93	3.76	3.59	3.40	3.31	3.21	3.11	3.00	2.89	2.89	0.005	
1.94	1.89	1.84	1.79	1.77	1.74	1.71	1.68	1.64	1.64	0.10	
2.35	2.28	2.20	2.12	2.08	2.04	1.99	1.95	1.90	1.90	0.05	
2.77	2.68	2.57	2.46	2.41	2.35	2.29	2.22	2.16	2.16	0.025	20
3.37	3.23	3.09	2.94	2.86	2.78	2.69	2.61	2.52	2.52	0.01	
3.85	3.68	3.50	3.32	3.22	3.12	3.02	2.92	2.81	2.81	0.005	
1.92	1.87	1.83	1.78	1.75	1.72	1.69	1.66	1.62	1.62	0.10	
2.32	2.25	2.18	2.10	2.05	2.01	1.96	1.92	1.87	1.87	0.05	
2.73	2.64	2.53	2.42	2.37	2.31	2.25	2.18	2.11	2.11	0.025	21
3.31	3.17	3.03	2.88	2.80	2.72	2.64	2.55	2.46	2.46	0.01	
3.77	3.60	3.43	3.24	3.15	3.05	2.95	2.84	2.73	2.73	0.005	
1.90	1.86	1.81	1.76	1.73	1.70	1.67	1.64	1.60	1.60	0.10	
2.30	2.23	2.15	2.07	2.03	1.98	1.94	1.89	1.84	1.84	0.05	
2.70	2.60	2.50	2.39	2.33	2.27	2.21	2.14	2.08	2.08	0.025	22
3.26	3.12	2.98	2.83	2.75	2.67	2.58	2.50	2.40	2.40	0.01	
3.70	3.54	3.36	3.18	3.08	2.98	2.88	2.77	2.66	2.66	0.005	
1.89	1.84	1.80	1.74	1.72	1.69	1.66	1.62	1.59	1.59	0.10	
2.27	2.20	2.13	2.05	2.01	1.96	1.91	1.86	1.81	1.81	0.05	
2.67	2.57	2.47	2.36	2.30	2.24	2.18	2.11	2.04	2.04	0.025	23
3.21	3.07	2.93	2.78	2.70	2.62	2.54	2.45	2.35	2.35	0.01	
3.64	3.47	3.30	3.12	3.02	2.92	2.82	2.71	2.60	2.60	0.005	
1.88	1.83	1.78	1.73	1.70	1.67	1.64	1.61	1.57	1.57	0.10	
2.25	2.18	2.11	2.03	1.98	1.94	1.89	1.84	1.79	1.79	0.05	
2.64	2.54	2.44	2.33	2.27	2.21	2.15	2.08	2.01	2.01	0.025	24
3.17	3.03	2.89	2.74	2.66	2.58	2.49	2.40	2.31	2.31	0.01	
3.59	3.42	3.25	3.06	2.97	2.87	2.77	2.66	2.55	2.55	0.005	

附表4-7

Values of  $F_{\alpha}$

dfd	$\alpha$	dfn								
		1	2	3	4	5	6	7	8	9
25	0.10	2.92	2.53	2.32	2.18	2.09	2.02	1.97	1.93	1.89
	0.05	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28
	0.025	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68
	0.01	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22
26	0.005	9.48	6.60	5.46	4.84	4.43	4.15	3.94	3.78	3.64
	0.10	2.91	2.52	2.31	2.17	2.08	2.01	1.96	1.92	1.88
	0.05	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27
	0.025	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65
27	0.01	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18
	0.005	9.41	6.54	5.41	4.79	4.38	4.10	3.89	3.73	3.60
	0.10	2.90	2.51	2.30	2.17	2.07	2.00	1.95	1.91	1.87
	0.05	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25
28	0.025	5.63	4.24	3.65	3.31	3.08	2.92	2.80	2.71	2.63
	0.01	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15
	0.005	9.34	6.49	5.36	4.74	4.34	4.06	3.85	3.69	3.56
	0.10	2.89	2.50	2.29	2.16	2.06	2.00	1.94	1.90	1.87
29	0.05	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
	0.025	5.61	4.22	3.63	3.29	3.06	2.90	2.78	2.69	2.61
	0.01	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12
	0.005	9.28	6.44	5.32	4.70	4.30	4.02	3.81	3.65	3.52
30	0.10	2.89	2.50	2.28	2.15	2.06	1.99	1.93	1.89	1.86
	0.05	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22
	0.025	5.59	4.20	3.61	3.27	3.04	2.88	2.76	2.67	2.59
	0.01	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09
60	0.005	9.23	6.40	5.28	4.66	4.26	3.98	3.77	3.61	3.48
	0.10	2.88	2.49	2.28	2.14	2.05	1.98	1.93	1.88	1.85
	0.05	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
	0.025	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57
120	0.01	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07
	0.005	9.18	6.35	5.24	4.62	4.23	3.95	3.74	3.58	3.45
	0.10	2.79	2.39	2.18	2.04	1.95	1.87	1.82	1.77	1.74
	0.05	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04
24	0.025	5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33
	0.01	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72
	0.005	8.49	5.79	4.73	4.14	3.76	3.49	3.29	3.13	3.01
	0.10	2.75	2.35	2.13	1.99	1.90	1.82	1.77	1.72	1.68
24	0.05	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96
	0.025	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22
	0.01	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56
	0.005	8.18	5.54	4.50	3.92	3.55	3.28	3.09	2.93	2.81



附表 4-8

Values of  $F_{\alpha}$

dfn									$\alpha$	dfd
10	12	15	20	24	30	40	60	120		
1.87	1.82	1.77	1.72	1.69	1.66	1.63	1.59	1.56	0.10	25
2.24	2.16	2.09	2.01	1.96	1.92	1.87	1.82	1.77	0.05	
2.61	2.51	2.41	2.30	2.24	2.18	2.12	2.05	1.98	0.025	
3.13	2.99	2.85	2.70	2.62	2.54	2.45	2.36	2.27	0.01	
3.54	3.37	3.20	3.01	2.92	2.82	2.72	2.61	2.50	0.005	
1.86	1.81	1.76	1.71	1.68	1.65	1.61	1.58	1.54	0.10	26
2.22	2.15	2.07	1.99	1.95	1.90	1.85	1.80	1.75	0.05	
2.59	2.49	2.39	2.28	2.22	2.16	2.09	2.03	1.95	0.025	
3.09	2.96	2.81	2.66	2.58	2.50	2.42	2.33	2.23	0.01	
3.49	3.33	3.15	2.97	2.87	2.77	2.67	2.56	2.45	0.005	
1.85	1.80	1.75	1.70	1.67	1.64	1.60	1.57	1.53	0.10	27
2.20	2.13	2.06	1.97	1.93	1.88	1.84	1.79	1.73	0.05	
2.57	2.47	2.36	2.25	2.19	2.13	2.07	2.00	1.93	0.025	
3.06	2.93	2.78	2.63	2.55	2.47	2.38	2.29	2.20	0.01	
3.45	3.28	3.11	2.93	2.83	2.73	2.63	2.52	2.41	0.005	
1.84	1.79	1.74	1.69	1.66	1.63	1.59	1.56	1.52	0.10	28
2.19	2.12	2.04	1.96	1.91	1.87	1.82	1.77	1.71	0.05	
2.55	2.45	2.34	2.23	2.17	2.11	2.05	1.98	1.91	0.025	
3.03	2.90	2.75	2.60	2.52	2.44	2.35	2.26	2.17	0.01	
3.41	3.25	3.07	2.89	2.79	2.69	2.59	2.48	2.37	0.005	
1.83	1.78	1.73	1.68	1.65	1.62	1.58	1.55	1.51	0.10	29
2.18	2.10	2.03	1.94	1.90	1.85	1.81	1.75	1.70	0.05	
2.53	2.43	2.32	2.21	2.15	2.09	2.03	1.96	1.89	0.025	
3.00	2.87	2.73	2.57	2.49	2.41	2.33	2.23	2.14	0.01	
3.38	3.21	3.04	2.86	2.76	2.66	2.56	2.45	2.33	0.005	
1.82	1.77	1.72	1.67	1.64	1.61	1.57	1.54	1.50	0.10	30
2.16	2.09	2.01	1.93	1.89	1.84	1.79	1.74	1.68	0.05	
2.51	2.41	2.31	2.20	2.14	2.07	2.01	1.94	1.87	0.025	
2.98	2.84	2.70	2.55	2.47	2.39	2.30	2.21	2.11	0.01	
3.34	3.18	3.01	2.82	2.73	2.63	2.52	2.42	2.30	0.005	
1.71	1.66	1.60	1.54	1.51	1.48	1.44	1.40	1.35	0.10	60
1.99	1.92	1.84	1.75	1.70	1.65	1.59	1.53	1.47	0.05	
2.27	2.17	2.06	1.94	1.88	1.82	1.74	1.67	1.58	0.025	
2.63	2.50	2.35	2.20	2.12	2.03	1.94	1.84	1.73	0.01	
2.90	2.74	2.57	2.39	2.29	2.19	2.08	1.96	1.83	0.005	
1.65	1.60	1.55	1.48	1.45	1.41	1.37	1.32	1.26	0.10	120
1.91	1.83	1.75	1.66	1.61	1.55	1.50	1.43	1.35	0.05	
2.16	2.05	1.94	1.82	1.76	1.69	1.61	1.53	1.43	0.025	
2.47	2.34	2.19	2.03	1.95	1.86	1.76	1.66	1.53	0.01	
2.71	2.54	2.37	2.19	2.09	1.98	1.87	1.75	1.61	0.005	