109CM01

國立臺北科技大學 109 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

注意事項：

1. 本試題共 20 題單選題，每題 5 分，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。
4. 所需統計表共 4 張，皆附在本試題之後。

1. A local paint store carries 4 brands of paint (W, X, Y, and Z). The store has 5 cans of W, 3 cans of X, 6 cans of Y, and 15 cans of Z, all in white. It is thought that customers have no preference for one of these brands over another. If this is the case, what is the probability that the next 5 customers will select 1 can of W, X, Y and 2 cans of brand Z?
   (A) Approximately 0.004
   (B) Approximately 0.08
   (C) Approximately 0.001
   (D) Approximately 0.0009

2. If two events are independent, then
   (A) they must be mutually exclusive.
   (B) the sum of their probabilities must be equal to one.
   (C) their intersection must be zero.
   (D) None of the above

3. It is assumed that the time failures for an electronic component are exponentially distributed with a mean of 50 hours between consecutive failures. If one extra component is installed as a backup, what is the probability of at least one of the two components working for at least 60 hours?
   (A) About 0.51
   (B) About 0.09
   (C) About 0.03
   (D) About 0.0198

4. An Investment consultant tells her client that the probability of making a positive return with her suggested portfolio is 0.9. What is the risk, measured by standard deviation, that this investment manager has assumed in her calculation if it is known that return from her suggested portfolio are normally distributed with a mean of 6%?
   (A) 1.28%
   (B) 4.69%
   (C) 3.65%
   (D) 5.38%

5. A company that makes shampoo wants to test whether the average amount of shampoo per bottle is 16 ounces. The standard deviation is known to be 0.20 ounces. Assuming that the hypothesis test is to be performed using 0.10 level of significance and a random sample of n = 64 bottles, how large could the sample mean be before they would reject the null hypothesis?
   (A) 16.2 ounces
   (B) 16.049 ounces
   (C) 15.8 ounces
   (D) 16.041 ounces

6. A consumer group plans to test whether a new passenger car that is advertised to have a mean highway miles per gallon of at least 33 actually meets this level. They plan to test the hypothesis using a significance level of 0.05 and a sample size of n = 100 cars. It is believed that the population standard deviation is 3 mpg. Based upon this information, if the "true" population mean is 32.0 mpg, what is the probability that the test will lead the consumer group to "accept" the claimed mileage for this car?
   (A) About 0.45
   (B) Approximately 0.0455
   (C) About 0.9545
   (D) None of the above

7. A company is conducting a sweepstakes, and ships two boxes of game pieces to a particular store. Box A has 4% of its contents being winners, while 2% of the contents of box B are winners. Box A contains 29% of the total tickets. The contents of both boxes are mixed in a drawer and a ticket is chosen at random. What is the probability it came from box A if it is a winner?
   (A) 0.667
   (B) 0.009
   (C) 0.449
   (D) 0.333

注意：背面尚有試題

8. A certain type of rare gem serves as a status symbol for many of its owners. In theory, for low prices, the demand increases and it decreases as the price of the gem increases. However, experts hypothesize that when the gem is valued at very high prices, the demand increases with price due to the status owners believe they gain in obtaining the gem. Thus, the model proposed to best explain the demand for the gem by its price is the quadratic model: $Y = \beta_0 + \beta_1 X + \beta_2 X^2 + \varepsilon$ where Y = demand (in thousands) and X = retail price per carat. This model was fit to data collected for a sample of 12 rare gems of this type. A portion of the computer analysis is shown below:

Regression Statistics	
Multiple R	0.994
R^2	0.988
Standard Error	12.42
Observations	12

ANOVA				
	df	SS	MS	F
Regression	2	115145	57573	373
Residual	9	1388	154	
Total	11	116533		

	Coeff	StdError	t stat
Intercept	286.42	9.66	29.64
Price	-0.31	0.06	-5.14
Price^2	0.000067	0.00007	0.95

Does there appear to be significant upward curvature in the response curve relating the demand (Y) and the price (X) at 10% level of significance?

(A) No, since the p-value for the test is greater than 0.10.
(B) Yes, since the value of β_2 is positive.
(C) Yes, since the p-value for the test is less than 0.10.
(D) No, since the value of β_2 is near 0.

9. Given information provided in **Question 8**, what is the correct interpretation of the coefficient of multiple determination?

(A) 98.8% of the total variation in demand can be explained by the quadratic relationship between demand and price.
(B) 99.4% of the total variation in demand can be explained by the linear relationship between demand and price.
(C) 98.8% of the total variation in demand can be explained by the addition of the square term in price.
(D) 99.4% of the total variation in demand can be explained by just the square term in price.

10. As a project for his business statistics class, a student examined the factors that determined parking meter rates throughout the campus area. Data were collected for the price per hour of parking, blocks to the quadrangle, and one of the three jurisdictions: on campus, in downtown and off campus, or outside of downtown and off campus. The population regression model hypothesized is

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \varepsilon$$

where
Y is the meter price
X_1 is the number of blocks to the quad
X_2 is a dummy variable that takes the value 1 if the meter is located in downtown and off campus and the value 0 otherwise
X3 is a dummy variable that takes the value 1 if the meter is located outside of downtown and off campus, and the value 0 otherwise.

Suppose that whether the meter is located on campus is an important explanatory factor. Why should the variable that depicts this attribute not be included in the model?

(A) Its inclusion will introduce collinearity.
(B) Its inclusion will introduce collinearity and autocorrelation.
(C) Its inclusion will introduce autocorrelation and will inflate the standard errors of the estimated coefficients
(D) Its inclusion will introduce collinearity and will inflate the standard errors of the estimated coefficients

11. On average, the state police catch eight speeders per hour at a certain location on Interstate 90. Assume that the number of speeders per hour follow the Poisson distribution. What is the probability that the state police wait less than 10 minutes for the next speeder?

(A) 0.7363
(B) 0.1333
(C) 0.2637
(D) 0.125

12. Psychologists have found that people are generally reluctant to transmit bad news to their peers. This phenomenon has been termed the "MUM effect." To investigate the cause of the MUM effect, 40 undergraduates at Duke University participated in an experiment. Each subject was asked to administer an IQ test to another student and then provide the test taker with his or her percentile score. Unknown to the subject, the test taker was a bogus student who was working with the researchers. The experimenters manipulated two factors: subject visibility and success of test taker, each at two levels. Subject visibility was either visible or not visible to the test taker. Success of the test taker was either top 20% or bottom 20%. Ten subjects were randomly assigned to each of the 2 x 2 = 4 experimental conditions, then the time (in seconds) between the end of the test and the delivery of the percentile score from the subject to the test taker was measured. (This variable is called the latency to feedback.) The data were subjected to appropriate analyses with the following sum of squares.

Source	SS
Subject Visibility	1380.24
Test Take Success	1325.16
Interaction	3385.80
Error	11,664.00

At the 0.01 level, what conclusions can you reach from the analysis?
(A) At the 0.01 level, subject visibility and test taker success are significant predictors of latency feedback.
(B) At the 0.01 level, the model is not useful for predicting latency to feedback.
(C) At the 0.01 level, there is evidence to indicate that subject visibility and test taker success interact.
(D) At the 0.01 level, there is no evidence of interaction between subject visibility and test taker success.

13. Given information provided in **Question 12**, interpret the statement: "Subject visibility and test taker success interact."
(A) The difference between the mean feedback time for visible and nonvisible subjects depends on the success of the test taker.
(B) The difference between the mean feedback time for test takers scoring in the top 20% and bottom 20% depends on the visibility of the subject.
(C) The relationship between feedback time and subject visibility depends on the success of the test taker.
(D) All of the above are correct interpretations.

14. A university has six colleges and takes a poll to gauge student support for a tuition increase. The university wants to ensure each college is represented fairly. The below table shows the observed number of students that participate in the poll from each college and the actual proportion of students in each college. Standardize Squared Deviation is also partially given.

College	Observed	Proportion	Standardized Squared Deviation
1	457	0.20	2.629
2	206	0.08	0.393
3	301	0.13	
4	792	0.29	
5	336	0.15	3.081
6	373	0.15	0.029

At the 1% of significance value, the decision and conclusion are:
(A) reject the null hypothesis; at least one of the proportions is different from its hypothesized value
(B) reject the null hypothesis; all of the proportions are not the same
(C) do not reject the null hypothesis; all proportions are equal to 0.20
(D) do not reject the null hypothesis; we cannot conclude not all of the proportions are the same

15. The heights (in cm) for a random sample of 60 males were measured. The sample mean is 166.55, the standard deviation is 12.57, the sample kurtosis is 0.12, and the sample skewness is −0.23. The following table shows the heights subdivided into non-overlapping intervals.

Class	Observed	Expected p_i	Standardized Squared Deviation
Height < 150	10	0.09	3.92
150 ≤ Height < 160	6		
160 ≤ Height < 170	18	0.31	3.46
170 ≤ Height < 180	17	0.25	0.02
Height ≥ 180	9		

At the 5% of significance value, decision and conclusion are:
(A) reject the null hypothesis; conclude that heights are normally distributed
(B) reject the null hypothesis; conclude that heights are not normally distributed
(C) do not reject the null hypothesis; conclude that heights are normally distributed
(D) do not reject the null hypothesis; conclude that heights are not normally distributed

16. According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $50,000 is 80%. Of the households surveyed, 60% had incomes over $50,000 and 70% had 2 cars. The probability that annual household income is over $50,000 if the residents of a household do not own 2 cars is:
(A) 0.12
(B) 0.18
(C) 0.40
(D) 0.70

17. The Central Limit Theorem is important in statistics because
(A) for a large n, it says the population is approximately normal.
(B) for any population, it says the sampling distribution of the sample mean is approximately normal, regardless of the sample size.
(C) for a large n, it says the sampling distribution of the sample mean is approximately normal, regardless of the shape of the population.
(D) for any sized sample, it says the sampling distribution of the sample mean is approximately normal.

18. A company is interested in estimating μ, the mean number of days of sick leave taken by its employees. Their statistician randomly selects 15 personnel files and notes the number of sick days taken by each employee. The sample mean is 12.2 days, and the sample standard deviation is 10 days. How many personnel files would the statistician have to select in order to estimate μ to within 2 days with a 99 percent confidence interval?
(A) 53
(B) 173
(C) 136
(D) 68

19. The Wall Street Journal recently ran an article indicating differences in perception of sexual harassment on the job between men and women. The article claimed that women perceived the problem to be much more prevalent than did men. One question asked to both men and women was: "Do you think sexual harassment is a major problem in the American workplace?" Some 24% of the men compared to 62% of the women responded "Yes." Suppose that 150 women and 200 men were interviewed. What conclusion should be reached?
(A) There is no evidence of a significant difference between the men and women in their perception.
(B) Using a 0.01 level of significance, there is sufficient evidence to conclude that women perceive the problem of sexual harassment on the job as much more prevalent than do men.
(C) There is insufficient evidence to conclude with at least 99% confidence that women perceive the problem of sexual harassment on the job as much more prevalent than do men
(D) More information is needed to draw any conclusions from the data set.

20. The following Excel output given above summarizes the results of a one-way analysis of variance in an attempt to compare the performance characteristics of four brands of vacuum cleaners. The response variable is the amount of time it takes to clean a specific size room with a specific amount of dirt.

Partial ANOVA table

Source	SS	df
Treatmnet	6.000	3
Error	1.486	14
Total	7.485	17

Post hoc analysis

Tukey simultaneous comparison t-values (d.f. = 14)

		Brand 3	Brand 2	Brand 4	Brand 1
		1.4	2.28	2.58	2.95
Brand 3	1.4				
Brand 2	2.28	4.27			
Brand 4	2.58	5.38	1.35		
Brand 1	2.95	7.09	3.07	1.63	
Critical values for experimentwise error rate:					
0.05	2.91				
0.01	3.76				

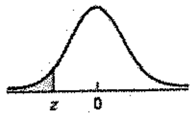
Analysis of the Tukey simultaneous confidence intervals shows that at the significance level (experimentwise) of .05, we would conclude that

(A) all four brands of vacuum cleaners differ from each other in terms of their performance.
(B) brand 1 differs from brand 2, and brand 2 differs from brand 3, while the rest of the vacuum cleaner pairs do not differ from each other in terms of their performance.
(C) brand 1 differs from brand 2, and brand 3 differs from brands 1, 2, and 4, while the rest of the vacuum cleaner pairs do not differ from each other in terms of their performance.
(D) only brand 3 differs from the other three brands (brands 1, 2, and 3), while the rest of the vacuum cleaner pairs do not differ from each other in terms of their performance.

注意：背面尚有參考資料

附表1

Areas under the standard normal curve

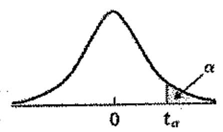


Second decimal place in z										
0.09	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.00	z
									0.0000[†]	−3.9
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	−3.8
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	−3.7
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	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

[†] For $z \leq -3.90$, the areas are 0.0000 to four decimal places.

附表2-1

Values of t_α



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

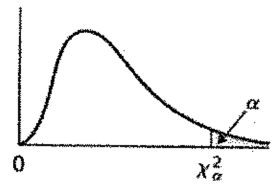
附表2-2

Values of t_α

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

Values of χ^2_α



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

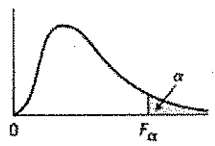
注意：背面尚有參考資料

附表3-2

Values of χ^2_α

$\chi^2_{0.10}$	$\chi^2_{0.05}$	$\chi^2_{0.025}$	$\chi^2_{0.01}$	$\chi^2_{0.005}$	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_α



dfd	α	dfn 1	2	3	4	5	6	7	8	9
	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
1	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
	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
2	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
	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
3	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
	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
4	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
	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
5	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
	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
6	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
	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
7	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
	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
8	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_{α}

dfn 10	12	15	20	24	30	40	60	120	α	dfd
60.19	60.71	61.22	61.74	62.00	62.26	62.53	62.79	63.06	0.10	
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	1
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	
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	2
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	
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	3
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	
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	4
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	
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	5
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	
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	6
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	
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	7
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	
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	8
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_{α}

dfd	α	dfn 1	2	3	4	5	6	7	8	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
9	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
	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
10	0.025	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78
	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
11	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
	0.05	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80
12	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
	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
13	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
	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
14	0.025	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21
	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
15	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
	0.05	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
16	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

注意：背面尚有參考資料

附表4-4

Values of F_{α}

dfn										
10	12	15	20	24	30	40	60	120	α	dfd
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_{α}

		dfn								
dfd	α	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_α

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

附表4-7

Values of F_α

dfd	α	dfn 1	2	3	4	5	6	7	8	9
	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
25	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
	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
26	0.025	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65
	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
27	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
	0.05	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
28	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
	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
29	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
	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
30	0.025	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57
	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
60	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
	0.05	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96
120	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

注意：背面尚有參考資料

附表 4-8

Values of F_{α}

dfn 10	12	15	20	24	30	40	60	120	α	dfd
1.87	1.82	1.77	1.72	1.69	1.66	1.63	1.59	1.56	0.10	
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	25
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	
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	26
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	
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	27
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	
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	28
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	
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	29
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	
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	30
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	
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	60
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	
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	120
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	