※注意：請於答案卷上依序作答，並應註明作答之部份及其題號。

第一部份、選擇題：共 20 題。第 1-10 題每題 2 分，第 11-20 題每題 3 分，共 50 分

1. Personnel specialist, Steve Satterfield, is assessing a new supervisor's ability to follow company standards for evaluating employees. Steve has the new supervisor rate five hypothetical employees on a scale of one to ten. He is interested in how the new supervisor's ratings correlate with company norms for these benchmark cases.

	Employee				
	1	2	3	4	5
New Supervisor	8	8	9	7	5
Company Norm·	8	6	10	4	4

The Spearman rank correlation coefficient is _____.

(A) 0.80 (B) 0.85 (C) 0.90 (D) 0.95 (E) None of the above

2. Each person who applies for an assembly job at North Carolina Furniture is given a mechanical aptitude test. One part of the test involves assembling a dresser based on numbered instructions. A sample of the lengths of time it took 42 persons to assemble the dresser was organized into the following frequency distribution.

Length of time (minutes)	**Number**
2 up to 4	4
4 up to 6	8
6 up to 8	14
8 up to 10	9
10 up to 12	5
12 up to 14	2

What is the variance?

(A) 4.1402 (B) 4.8579 (C) 5.5376 (D) 6.7387 (E) None of the above.

3. Inspection of the following table of correlation coefficients for variables in a multiple regression analysis reveals potential multicollinearity with variables _____.

	Y	X_1	X_2	X_3	X_4	X_5
Y	1					
X_1	-0.0857	1				
X_2	-0.20246	0.868358	1			
X_3	-0.22631	-0.10604	-0.14853	1		
X_4	-0.28175	-0.0685	0.41468	-0.14151	1	
X_5	0.271105	0.150796	0.129388	-0.15243	0.00821	1

(A) X_1 and X_2 (B) X_1 and X_4 (C) X_4 and X_5 (D) X_4 and X_3

接背面

4. Which of the following is an acceptable method of managing multicollinearity in a regression model?
   (A) use the forward selection procedure
   (B) use the backward elimination procedure
   (C) use the forward elimination procedure
   (D) use the stepwise regression procedure

5. An analysis of personal loans at Taiwan Bank revealed the following facts: 10% of all personal loans are in default (D), 20% of those in default are homeowners (H|D), and 70% of those not in default are homeowners ($H|\overline{D}$). If one of the personal loans is selected at random, P(D|H) = _____.
   (A) 0.02 (B) 0.63 (C) 0.03 (D) 0.18 (E) None of the above.

6. The Wilcoxon test was used on 16 pairs of data. The total of the ranks (T) were computed to be 76 (for + ranks) and 60 (for - ranks). Calculate the Z value that would be used with this.
   (A) -0.41 (B) -0.02 (C) 0.02 (D) 16 (E) None of the above.

7. The staffs of the accounting and the quality control departments rated their respective supervisor's leadership style as either (1) authoritarian or (2) participatory. Their responses are tabulated in the following table.

	Leadership Style		
Department	Authoritarian	Participatory	Total
Accounting	40	5	45
Quality Control	20	35	55
Total	60	40	100

   Which of the following statements is NOT true?
   (A) Accounting and Participatory are statistically independent
   (B) Accounting and Quality Control are complements
   (C) Accounting and Quality Control are mutually exclusive
   (D) Authoritarian and participatory are collectively exhaustive

8. Performance records for 18 salespersons are selected to investigate whether compensation methods are a significant motivational factor.

Compensation Method	Sales						
Straight Salary	18	12	22	28	28		
Straight Commission	27	34	34	27	20	16	24
Salary plus Commission	11	17	27	14	30	22	

   A Kruskal-Wallis test is to be performed with $\alpha = 0.01$. The conclusion is to _____.
   (A) reject the null hypothesis
   (B) reject the alternate hypothesis
   (C) do not reject the null hypothesis
   (D) do no reject the alternate hypothesis

接次頁

9. Max Sandlin is exploring the characteristics of stock market investors. He found that 60% of all investors have a net worth exceeding $1,000,000; 20% of all investors use an online brokerage; and 10% of all investors have a net worth exceeding $1,000,000 and use an online brokerage. An investor is selected randomly, and E is the event "networth exceeds $1,000,000," and O is the event "uses an online brokerage." Which of the following is true?
   (A) E and O are collectively exhaustive
   (B) E and O are dependent
   (C) E and O are mutually exclusive
   (D) E and O are independent

10. An "all possible regressions" search of a data set containing 7 independent variables will produce _____.
   (A) 13 regressions
   (B) 48 regressions
   (C) 64 regressions
   (D) 127 regressions
   (E) none of the above

11. Consider the following transformation where X_1 and X_2 are independent, each with the uniform distribution $U(0,1)$. Let

   $z_1=\sqrt{-2\ln X_1}\cos(2\pi X_2)$, and $z_2=\sqrt{-2\ln X_1}\sin(2\pi X_2)$

   Then, the joint p.d.f. of z_1 and z_2 is

   (A) $g(z_1, z_2)=\frac{1}{\pi}\exp(-\frac{z_1^2+z_2^2}{2})$, $-\infty<z_1<\infty,-\infty<z_2<\infty$.

   (B) $g(z_1, z_2)=\frac{1}{2\pi}\exp(-\frac{z_1^2+z_2^2}{2})$, $-\infty<z_1<\infty,-\infty<z_2<\infty$.

   (C) $g(z_1, z_2)=\frac{1}{2\pi}\exp(\frac{z_1^2+z_2^2}{2})$, $-\infty<z_1<\infty,-\infty<z_2<\infty$.

   (D) None of the above

12. Let X and Y have the joint p.m.f.

   $f(x,y)=\frac{x+2y}{18}$, x=1,2, y=1,2,

   The marginal probability mass function are, respectively,

   $f_1(x)=\frac{2x+6}{18}$, x=1,2 and $f_2(y)=\frac{3+4y}{18}$, y=1,2

   Find the correlation coefficient of X and Y ?

   (A) -0.45 (B) -0.025 (C) 0.45 (D) 0.21 (E) None of the above

13. A CD player has a magazine that holds six CDs. The machine is capable of selecting a CD at random and then selecting a song randomly from that CD. Suppose that five CDs are albums by Paul McCartney and one is by Billy Joel. The player selects songs until a song by Billy Joel is played after which the machine is turned off. Find the probability that the machine is turned off after at least five songs have been played.

   (A) 0.4823 (B) 0.729 (C) 0.935 (D) 0.231 (E) None of the above

接背面

14. Let X and Y equal the concentration in parts per billion of chromium in the blood for healthy persons and for persons with a suspected disease, respectively. Assume that the distribution of X and Y are $N=(\mu_x,\sigma_x^2)$ and $N=(\mu_y,\sigma_y^2)$. Using n=8 observations of X:

    15 23 12 18 9 28 11 10

    and m=10 observations of Y:

    25 20 35 15 40 16 10 22 18 32

    Find a one sided 95% confidence interval that is an upper bound for σ_x^2/σ_y^2

    (A) [3, 5.374] (B) [1.82, 2] (C) [0, 1.835] (D) None of the above

15. Pate's Pharmacy, Inc. operates a regional chain of 120 pharmacies. Each pharmacy's floor plan includes a greeting card department which is relatively isolated. Sandra Royo, Marketing Manager, feels that the lighting level in the greeting card department may affect sales in that department. She divides the 120 pharmacies into 3 groups (urban, suburban, and rural) and randomly assigns six pharmacies to each lighting level (soft, medium, and bright). Sandra's experimental design is a _____.

    (A) factorial design

    (B) random block design

    (C) normalized block design

    (D) completely randomized design

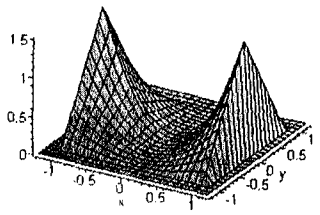
16. The Belgian 20-franc coin (B20), the Italian 500-lire coin (I500), and the Hong Kong 5-dollar coin (HK5) are approximately the same size. Coin purse one (C1) contains six of each of these coins. Coin purse two (C2) contains nine B20s, six I500s and three HK5s. A fair four-sided die is rolled. If the outcome is {1}, a coin is selected randomly from C1. If the outcome belongs to {2,3,4}, a coin is selected randomly from C2. Find P(C1|B20), the conditional probability that the coin was selected from C1, given that it was a Belgian coin.

    (A) 2/11 (B) 2/13 (C) 4/7 (D) 3/7 (E) None of the above

17. Let X and Y have the joint p.d.f.

    $f(x,y)=3/2x^2(1-|y|)$, $-1<x,1,-1<y<1$,

    The graph of $Z=f(x,y)$ is given in the below figure.



Let $A=\{(x,y):0<x<1,o<y<x\}$. The probability that (X,Y) falls in A is given by

(A)8/23 (B)5/13 (C)9/40 (D)3/20 (E) None of the above.

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18. Given the moment generating function (m.g.f.) of X is

$M(t)=\frac{e^t/2}{1-e^t/2}$, $t< \ln 2$.

then the p.m.f. of X is

(A) $f(x)=(\frac{1}{2})^x$, x=1,2,3.....

(B) $f(x)=(\frac{3}{2})^x$, x=1,2,3.....

(C) $f(x)(\frac{2}{3})^x$, x=1,2,3.....

(D) $f(x)(-\frac{2}{3})^x$, x=1,2,3.....

19. Let $Y_1<Y_2<Y_3....<Y_{13}$ be the order statistics associated with 13 independent observations of a random sample from a continuous-type distribution with 35th percentile $\pi_{0.35}$. Please find $P(Y_3<\pi_{0.35}<Y_7)$=?
(A) 0.3402 (B) 0.4327 (C) 0.6132 (D) 0.7573 (E) None of the above

20. Let $X_1,X_2,X_3.....X_n$ be a random sample from $N(\theta,\sigma^2)$, where σ^2 is known. Given an unbiased estimator of θ: $Y=(X_1+X_2)/2$, what is the efficiency of Y?
(A) 1/13 (B) 1/7 (C) 1/5 (D) 2/7 (E) None of the above

第二部份、計算題：4 題共 50 分(第 1 題 10%，第 2 題 12%，第 3 題 16%，第 4 題 12%，)

1.某人擲一粒骰子 48 次，出現 5 點的次數為 12 次，請問該骰子之 5 點是否較其它各點更容易被擲出？($\alpha = 0.05$)

2.某公司製造 5 分直徑鋼釘一批，其客戶要求鋼釘的直徑標準差必須小於 0.11 分，且採 $\alpha = 0.025$ 驗收。產品完成後運達客戶處，經抽取 10 支檢驗，得其直徑之標準差為 $s=\sqrt{\Sigma(X-\overline{X})^2/10}=0.12$ 分，請問：(1)客戶是否應允諾點收該批產品？(2)估計全批鋼釘的標準差之 90% 信賴區間。

接背面

3.為了探討策略聯盟合作雙方之間，「溝通頻率」對於「合作績效」是否會產生顯著影響，因此以合作雙方溝通頻率(Communi)為自變項，以合作績效(Performance)為依變項進行迴歸分析。請根據統計套裝軟體產生報表，回答以下問題：(1)請問溝通頻率之變異係數(Coefficient of Variation)為何？ (2)請進行總檢定，以確認構建出來的迴歸模式是否有效；(3)請針對研究目的建立研究假說，並進行檢定；(4)請寫出迴歸估計式。

The REG Procedure

Model: MODEL1

Dependent Variable: Performance

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	89925	89925	202.93	<.0001
Error	423	187446	443.13468		
Corrected Total	424	277371			

Root MSE	21.05076	R-Square	0.3242
Dependent Mean	52.63957	Adj R-Sq	0.3226

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	23.42835	2.29076	10.23	<.0001
Communi	1	0.56563	0.03971	14.25	<.0001

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4.為了探討企業進行跨國合作的過程中，是否會因為合作對象「國籍別」(country)的不同(分為國籍別 1、2、3 三類)，而使其「信任程度」(Trust)有明顯差異，遂以合作對象之國籍別為分類依據，進行一因子變異數分析(One-Way ANOVA)及 Scheffe 檢定。請根據統計套裝軟體產生之報表，回答以下問題：(1)請依據研究目的建立假說，並進行檢定。(2)請根據 Scheffe 檢定報表內容，解釋三個不同國籍別合作對象之間的信任程度是否有明顯差異？

The GLM Procedure

Dependent Variable: Trust

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	48.447608	24.223804	11.66	<.0001
Error	958	1989.842391	2.077080		
Corrected Total	960	2038.290000			

R-Square	Coeff Var	Root MSE	Trust Mean
0.023769	2.95112E16	1.441208	4.8836E-15

Source	DF	Type I SS	Mean Square	F Value	Pr > F
COUNTRY	2	48.44760847	24.22380424	11.66	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
COUNTRY	2	48.44760847	24.22380424	11.65	<.0001

Scheffe's Test for Trust

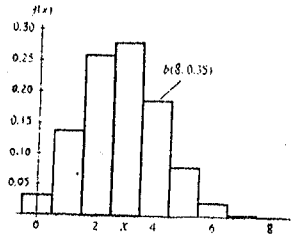
Alpha	0.05
Error Degrees of Freedom	958
Error Mean Square	2.07708
Critical Value of F	3.00512

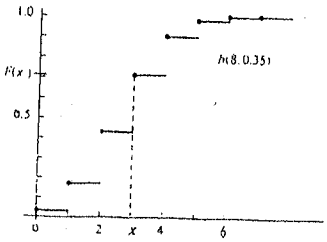
Comparisons significant at the 0.05 level are indicated by ***.

COUNTRY Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
1 - 3	0.4514	0.1780	0.7247	***
1 - 2	0.4711	0.1930	0.7491	***
3 - 1	-0.4514	-0.7247	-0.1780	***
3 - 2	0.0197	-0.2714	0.3107	
2 - 1	-0.4711	-0.7491	-0.1930	***
2 - 3	-0.0197	-0.3107	0.2714	

接背面

The Binomial Distribution





$$F(x) = P(X \le x) = \sum_{k=0}^{x} \frac{n!}{k!(n-k)!} p^k (1-p)^{n-k}$$

continued

		p									
n	x	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50
	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9998	0.9995
	11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	0	0.5404	0.2824	0.1422	0.0687	0.0317	0.0138	0.0057	0.0022	0.0008	0.0002
	1	0.8816	0.6590	0.4435	0.2749	0.1584	0.0850	0.0424	0.0196	0.0083	0.0032
	2	0.9804	0.8891	0.7358	0.5583	0.3907	0.2528	0.1513	0.0834	0.0421	0.0193
	3	0.9978	0.9744	0.9078	0.7946	0.6488	0.4925	0.3467	0.2253	0.1345	0.0730
	4	0.9998	0.9957	0.9761	0.9274	0.8424	0.7237	0.5833	0.4382	0.3044	0.1938
	5	1.0000	0.9995	0.9954	0.9806	0.9456	0.8822	0.7873	0.6652	0.5269	0.3872
	6	1.0000	0.9999	0.9993	0.9961	0.9857	0.9614	0.9154	0.8418	0.7393	0.6128
	7	1.0000	1.0000	0.9999	0.9994	0.9972	0.9905	0.9745	0.9427	0.8883	0.8062
	8	1.0000	1.0000	1.0000	0.9999	0.9996	0.9983	0.9944	0.9847	0.9644	0.9270
	9	1.0000	1.0000	1.0000	1.0000	1.0000	0.9998	0.9992	0.9972	0.9921	0.9807
	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9989	0.9968
	11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998
	12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	0	0.5133	0.2542	0.1209	0.0550	0.0238	0.0097	0.0037	0.0013	0.0004	0.0001
	1	0.8646	0.6213	0.3983	0.2336	0.1267	0.0637	0.0296	0.0126	0.0049	0.0017
	2	0.9755	0.8661	0.6920	0.5017	0.3326	0.2025	0.1132	0.0579	0.0269	0.0112
	3	0.9969	0.9658	0.8820	0.7473	0.5843	0.4206	0.2783	0.1686	0.0929	0.0461
	4	0.9997	0.9935	0.9658	0.9009	0.7940	0.6543	0.5005	0.3530	0.2279	0.1334
	5	1.0000	0.9991	0.9924	0.9700	0.9198	0.8346	0.7159	0.5744	0.4268	0.2905
	6	1.0000	0.9999	0.9987	0.9930	0.9757	0.9376	0.8705	0.7712	0.6437	0.5000
	7	1.0000	1.0000	0.9998	0.9988	0.9944	0.9818	0.9538	0.9023	0.8212	0.7095
	8	1.0000	1.0000	1.0000	0.9998	0.9990	0.9960	0.9874	0.9679	0.9302	0.8666
	9	1.0000	1.0000	1.0000	1.0000	0.9999	0.9993	0.9975	0.9922	0.9797	0.9539
	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9987	0.9959	0.9888
	11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9995	0.9983
	12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
	13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	0	0.4877	0.2288	0.1028	0.0440	0.0178	0.0068	0.0024	0.0008	0.0002	0.0001
	1	0.8470	0.5846	0.3567	0.1979	0.1010	0.0475	0.0205	0.0081	0.0029	0.0009
	2	0.9699	0.8416	0.6479	0.4481	0.2811	0.1608	0.0839	0.0398	0.0170	0.0065
	3	0.9958	0.9559	0.8535	0.6982	0.5213	0.3552	0.2205	0.1243	0.0632	0.0287
	4	0.9996	0.9908	0.9533	0.8702	0.7415	0.5842	0.4227	0.2793	0.1672	0.0898
	5	1.0000	0.9985	0.9885	0.9561	0.8883	0.7805	0.6405	0.4859	0.3373	0.2120
	6	1.0000	0.9998	0.9978	0.9884	0.9617	0.9067	0.8164	0.6925	0.5461	0.3953
	7	1.0000	1.0000	0.9997	0.9976	0.9897	0.9685	0.9247	0.8499	0.7414	0.6047
	8	1.0000	1.0000	1.0000	0.9996	0.9978	0.9917	0.9757	0.9417	0.8811	0.7880
	9	1.0000	1.0000	1.0000	1.0000	0.9997	0.9983	0.9940	0.9825	0.9574	0.9102
	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.9998	0.9989	0.9961	0.9886	0.9713

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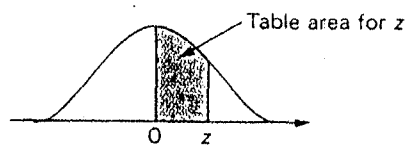
Areas of the Standard Normal Distribution



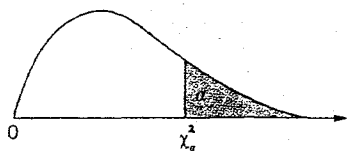
The table areas are probabilities that the standard normal random variable is between 0 and z.

	Second Decimal Place in z									
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
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998
3.5	0.4998									
4.0	0.49997									
4.5	0.499997									
5.0	0.4999997									
6.0	0.499999999									

接背面

試題隨卷繳回

Critical Values of the Chi-Square Distribution



Degrees of Freedom	$\chi^2_{.995}$	$\chi^2_{.990}$	$\chi^2_{.975}$	$\chi^2_{.950}$	$\chi^2_{.900}$	$\chi^2_{.100}$	$\chi^2_{.050}$	$\chi^2_{.025}$	$\chi^2_{.010}$	$\chi^2_{.005}$
1	0.0000393	0.0001571	0.0009821	0.0039321	0.0157908	2.70554	3.84146	5.02389	6.63490	7.87944
2	0.0100251	0.0201007	0.0506356	0.102587	0.210720	4.60517	5.99147	7.37776	9.21034	10.5966
3	0.0717212	0.114832	0.215795	0.351846	0.584375	6.25139	7.81473	9.34840	11.3449	12.8381
4	0.206990	0.297110	0.484419	0.710721	1.063623	7.77944	9.48773	11.1433	13.2767	14.8602
5	0.411740	0.554300	0.831211	1.145476	1.61031	9.23635	11.0705	12.8325	15.0863	16.7496
6	0.675727	0.872085	1.237347	1.63539	2.20413	10.6446	12.5916	14.4494	16.8119	18.5476
7	0.989265	1.239043	1.68987	2.16735	2.83311	12.0170	14.0671	16.0128	18.4753	20.2777
8	1.344419	1.646482	2.17973	2.73264	3.48954	13.3616	15.5073	17.5346	20.0902	21.9550
9	1.734926	2.087912	2.70039	3.32511	4.16816	14.6837	16.9190	19.0228	21.6660	23.5893
10	2.15585	2.55821	3.24697	3.94030	4.86518	15.9871	18.3070	20.4831	23.2093	25.1882
11	2.60321	3.05347	3.81575	4.57481	5.57779	17.2750	19.6751	21.9200	24.7250	26.7569
12	3.07382	3.57056	4.40379	5.22603	6.30380	18.5494	21.0261	23.3367	26.2170	28.2995
13	3.56503	4.10691	5.00874	5.89186	7.04150	19.8119	22.3621	24.7356	27.6883	29.8194
14	4.07468	4.66043	5.62872	6.57063	7.78953	21.0642	23.6848	26.1190	29.1413	31.3193
15	4.60094	5.22935	6.26214	7.26094	8.54675	22.3072	24.9958	27.4884	30.5779	32.8013
16	5.14224	5.81221	6.90766	7.96164	9.31223	23.5418	26.2962	28.8454	31.9999	34.2672
17	5.69724	6.40776	7.56418	8.67176	10.0852	24.7690	27.5871	30.1910	33.4087	35.7185
18	6.26481	7.01491	8.23075	9.39046	10.8649	25.9894	28.8693	31.5264	34.8053	37.1564
19	6.84398	7.63273	8.90655	10.1170	11.6509	27.2036	30.1435	32.8523	36.1908	38.5822
20	7.43386	8.26040	9.59083	10.8508	12.4426	28.4120	31.4104	34.1696	37.5662	39.9968
21	8.03366	8.89720	10.28293	11.5913	13.2396	29.6151	32.6705	35.4789	38.9321	41.4010
22	8.64272	9.54249	10.9823	12.3380	14.0415	30.8133	33.9244	36.7807	40.2894	42.7956
23	9.26042	10.19567	11.6885	13.0905	14.8479	32.0069	35.1725	38.0757	41.6384	44.1813
24	9.88623	10.8564	12.4011	13.8484	15.6587	33.1963	36.4151	39.3641	42.9798	45.5585
25	10.5197	11.5240	13.1197	14.6114	16.4734	34.3816	37.6525	40.6465	44.3141	46.9278
26	11.1603	12.1981	13.8439	15.3791	17.2919	35.5631	38.8852	41.9232	45.6417	48.2899
27	11.8076	12.8786	14.5733	16.1513	18.1138	36.7412	40.1133	43.1944	46.9630	49.6449
28	12.4613	13.5648	15.3079	16.9279	18.9392	37.9159	41.3372	44.4607	48.2782	50.9933
29	13.1211	14.2565	16.0471	17.7083	19.7677	39.0875	42.5569	45.7222	49.5879	52.3356
30	13.7867	14.9535	16.7908	18.4926	20.5992	40.2560	43.7729	46.9792	50.8922	53.6720
40	20.7065	22.1643	24.4331	26.5093	29.0505	51.8050	55.7585	59.3417	63.6907	66.7659
50	27.9907	29.7067	32.3574	34.7642	37.6886	63.1671	67.5048	71.4202	76.1539	79.4900
60	35.5346	37.4848	40.4817	43.1879	46.4589	74.3970	79.0819	83.2976	88.3794	91.9517
70	43.2752	45.4418	48.7576	51.7393	55.3290	85.5271	90.5312	95.0231	100.425	104.215
80	51.1720	53.5400	57.1532	60.3915	64.2778	96.5782	101.879	106.629	112.329	116.321
90	59.1963	61.7541	65.6466	69.1260	73.2912	107.565	113.145	118.136	124.116	128.299
100	67.3276	70.0648	74.2219	77.9295	82.3581	118.498	124.342	129.561	135.807	140.169

Source: C. M. Thompson, "Tables of the Percentage Points of the χ^2-Distribution," *Biometrika* 32 (1941), pp. 188–89. Reproduced by permission of the *Biometrika* Trustees.