注意相關機率值:

$$\chi^2_{0.01}(9)=21.67, \quad \chi^2_{0.01}(10)=23.21$$

1. ABC 公司設計一套亂數產生器程式，並由此程式模擬產生 100 個亂數值如下:

數字	0	1	2	3	4	5	6	7	8	9
次數	15	6	13	9	11	9	11	8	8	10

試以 $\alpha = 0.01$ 檢定數字 $0, 1, \ldots, 9$ 出現的機率數否相等。(20%)

2. 某份問卷有四個問項 Q_1, Q_2, Q_3, Q_4 及四個觀察值，資料如下:

觀察值	Q_1	Q_2	Q_3	Q_4
1	3	4	3	3
2	4	3	4	3
3	2	2	2	4
4	3	3	3	2

試依上述資料求 Cronbach's α. (20%)

3. 試述如何決定樣本大小. (20%)

4. Delta Airlines quotes a flight time of 2 hours, 5 minutes for its flight from Cincinnati to Tampa. Suppose we believe that actual flight times are uniformly distributed between 2 hours and 2 hours, 20 minutes. (20%)
   a. What is the probability that the flight will be no more than five minutes late?
   b. What is the probability that the flight will be more than ten minutes late?
   c. What is the expected flight time?
   d. What is the variance?

5. If the estimated regression equation is $\hat{y}_i = b_0 + b_1 x_i$, find b_0 and b_1 by the least squares method. (20%)