1. 50位同学，所有微積分及格 40 人，英文及格 36 人，兩科皆不及格 4 人，求：
   (1) 兩科皆及格的人數？
   (2) 微積分及格但英文不及格的人數？
   (3) 英文及格但微積分不及格的人數？
2. 1 到 100 的自然數中，不可被 2 和 3 整除的有多少個?
3. 一個班級選舉代表 4 人，此班有 50 人，一共有多少種狀況？
4. 如圖，由 A 到 B 有捷徑 (只許 →，↑)，試求
   (1) 由 A 到 B 全部的走法有幾種？
   (2) 由 A 到 B 必經 C 的走法有幾種？
   (3) 甲從 A 走到 B，請問甲會經過 C 點的機率有多少？
5. In a set of 15 aluminum castings, two casting are defective (D), and the remaining thirteen are good (G). A quality control inspector randomly selects 3 of the 15 castings without replacement, and classifies each as defective (D) or good (G). Which of the following is NOT an elementary event for this experiment? (90年臺大工)
   A. (D, D, G)  B. (G, D, G)  C. (D, D, D)  D. (G, G, G)
6. 甲、乙、丙三袋中，甲袋有 2 個黑球, 3 個白球；乙袋有 2 個黑球, 2 個白球；丙袋有 1 個黑球, 2 個白球。今自甲、乙、丙三袋中各任取一球，則至少取出 2 個黑球的機率為多少？
7. 袋中有 3 白球, 2 紅球, 3 黑球，由袋中任取 3 球，則：
   (1) 此 3 球恰有三種顏色的機率為多少？
   (2) 恰有二種顏色的機率為多少？
8. A committee of size 5 is to be selected from a group of 6 men and 9 women. If the selection is made randomly, what is the probability that the committee consists of 3 men and 2 women?
9. From a set of n item a randomly sample is size k is to be selected. What is the probability a given item will be among the k selected?
10. The domain of the probability measure P() is:
    (a) [0, ∞)
    (b) S, the corresponding sample space
    (c) subsets of S
    (d) [0, 1]
    (e) subsets of the real numbers
11. All results of probability follow three axioms. (93年清華工)
    (a) What are three Axioms?
    (b) Why three Axioms are important?
    (c) Prove or disprove that if equally likely E1, . . . , En partition the sample space, then P(Ei) = 1/n for i = 1, . . . , n.
12. (True or False) If events A and B are independent, then P(A and B) = 0.
13. Let Ec stand for the complements event of event E. Given P(A) = 0.68, P(B|A) = 0.3, and P(B|Ac) = 0.02, find
    (a) P(B)
    (b) P(A ∩ Bc)
    (c) P(Ac ∩ Bc)
    (d) P(A ∪ B)
14. Suppose a committee of 3 people is to be selected from a group consisting of 4 men and 5 women. What is the probability that all three people selected are men? (90年台大工管)

(A) 0.11  (B) 0.33  (C) 0.50  (D) 0.80

15. Bowl I contains 3 red chips and 7 blue chips. Bowls II contains 6 red chips and 4 blue chips. A bowl is selected at random and then 1 chip is drawn from this bowl. Compute the probability that this chip is red. (90年台大工管)

(A) 1/6  (B) 9/20  (C) 11/20  (D) 1/2

16. 盒子里有三張牌，第一張牌面都是黑的，第二張牌面都是紅的，第三張牌一面是黑的一面是紅的。現由盒中隨機抽取一張牌放在桌上，發現朝上的面是紅色。請問這張牌朝下的那一面是黑色的機率為何？(89年台大工管)