

Math 109-D04  
Assignment 2

Deadline: Wed Feb 24, 2:30pm Pacific Time  
Submit on D2L

Number of Questions: 5  
Total Marks: 15

Show all your work for full marks.

You MAY use the course website (notes, videos etc) and your own notes

You may NOT copy from others (classmates, tutors, Chegg etc)

Submit jpg or pdf files

Feel free to handwrite your solutions and take photos of your work

Covers Sections 4.3-5.1

1. [3 marks] An accounting firm consists of 20 accountants and 4 managers. Four people are randomly selected from the firm. Find the probability that at least three accountants are selected.
2. [3 marks] A charity sells 200 lottery tickets for \$20 each. There is 1 prize of \$500 and 20 prizes of \$10. Calculate your expected net winnings on a single lottery ticket.
3. [3 marks] Ali has a 75% probability of passing a test. Beiyan has an 83% probability of passing the same test. Colin has a 71% probability of passing the same test. Assume that each student's performance is independent of the others. Find the probability that at least one of the three students passes the test.
4. [3 marks]  $Pr(E \cup F) = 0.65$ ,  $Pr(E) = 0.4$ , and  $Pr(F) = 0.5$ . Find the probability that  $F$  happens, given that  $E$  has happened.
5. [3 marks] A multinational company has two divisions: A and B. Sixty percent of the company's employees work in Division A (and the other 40% work in Division B.) Ten percent of employees from Division A are lawyers. Fifty percent of employees from Division B are lawyers. Find the probability that an employee who is a lawyer works in Division B.