

Stat 175 (Probability)

Problem Set No. 2

INSTRUCTIONS: Answer the following as indicated. Show detailed solutions.

1. Show that if the events A and B are independent so are A^c and B^c .
2. An electric company advertises a job in three newspapers, A, B and C. It is known that these papers attract readerships in the proportions 2:3:1. The probabilities that job applicant sees and replies to the job advertisement in these papers are 0.002, 0.001 and 0.005 respectively. Assume that the job applicant sees only one job advertisement. If the company receives only one reply, which paper most likely this applicant saw the advertisement? Explain your answer.
3. In front of Martin are three bags that each contain 100 pieces of bills:
 - Bag 1 has 75 pieces of 1000-peso bills and 25 pieces of 500-peso bills;
 - Bag 2 has 60 pieces of 1000-peso bills and 40 pieces of 500-peso bills;
 - Bag 3 has 45 pieces of 1000-peso bills and 55 pieces of 500-peso bill.

He is to choose one of the bags at random and then pick a bill from the chosen bag, also at random. What is the probability that the chosen bill is worth 1000 pesos?