Homework 4 (Do NOT hand in)

Problem 1. Three cards are randomly selected successively without replacement, from an ordinary deck of 52 playing cards. Compute the conditional probability that the first card selected is a spade, given that the second and the third cards are spades.

Problem 2. Suppose that an insurance company classifies people into one of the following three classes: low risk, average risk, and high risk. Their records indicate that the probabilities that a low, average, and high risk persons will be involved in an accident over a 1-year period are 0.05, 0.15 and 0.30, respectively. Let 30% of the population be low-risk, 50% be average-risk, and 20% be high-risk.

(a) What is the probability that a randomly chosen person has an accident in a fixed year?

(b) If Mr. Berry had no accident in 2007, what is the probability that he is low-risk?

Problem 3. Each of 2 balls is equally likely to be painted either red or gold. Then they are placed in an urn.

(a) Suppose that you obtained information that the gold paint has been used. Compute the conditional probability that both balls are painted gold.

(b) Suppose, now, that the urn tips over and one ball falls out. It is painted gold. What is the probability that both balls are painted gold in this case?