Math 340
Fall 09
Dr. Sethuraman
HW 2
Due Monday Sep 21st

1. Two fair dice are rolled. What the probability that at least one lands on 6, given that the dice land on different numbers?

2. Problem 10, page 46 (§1.4) of the text.

3. An urn contains 12 balls, of which 8 are white. A sample if size 4 is to be drawn without replacement. What is the conditional probability that the first and third balls are white, given that sample drawn contains exactly three white balls? (Note: the arrangement, or order, of the balls matters here! Choose your sample space accordingly.)

4. A recent college graduate is planning to take three exams. She will first take Exam 1, and if she passes that, she'll take Exam 2, and then, if she passes that as well, she'll take Exam 3. If she fails an exam, she is not allowed to take any of the remaining exams. The probability that she passes Exam 1 is 0.9. If she passes the first exam, the conditional probability that she passes the second is .8, and if she passes the first two, the conditional probability that she passes the third is .7.

   (a) What is the probability that she passes all three exams?

   (b) Given that she did not pass all three exams, what is the conditional probability that she failed the second exam?

5. Suppose that 5% of men and 0.25% of women are colorblind. A colorblind person is selected at random. What is the probability that this person is a male? Assume that the population consists of twice as many men as women.

6. Problem 5, page 54 (§1.5) of the text.