1. How many ways can you arrange the letters in 
   GREENVILLE MISSISSIPPI
   so that no two vowels are next to each other?

2. Roll five dice. What is the probability that a 4 is the highest
   number shown?

3. What is the probability of getting a full house in 7 card poker
   (i.e., you get three cards in one denomination, at least two cards
   in at least one other denomination, and no denomination has four
   cards)?

4. A pile of cards consists of 8 hearts and 11 diamonds. You draw 6
   at random.
   a) What is the probability you get more diamonds than hearts?
   b) What is the probability you get more diamonds than hearts if
      you know you have at least 2 hearts?

5. A marksman gets bullseyes on 85% of his shots.
   a) What is the probability he gets at least 9 bullseyes in 11 shots?
   b) Suppose he shoots until he gets 9 bullseyes. What is the prob-
      ability it takes him at most 11 shots?

6. A certain country has a careless mint. One out of every 901 coins
   has two heads. The others are normal.
   Suppose you choose a coin at random and flip it six times. It
   comes up heads each time.
   a) What is the probability you picked a two-headed coin, given
      that it comes up heads all six times?
   b) What is the probability you get heads on a 7-th toss, given
      that the first six tosses came up heads?