1. Suppose that A and B are mutually exclusive events for which P(A) = .3 and P(B) = .5. What is the probability that
   (a) either A or B occurs;
   (b) A occurs but B does not;
   (c) both A and B occur?

2. Two symmetric dice have both had two of their sides painted red, two painted black, one painted yellow, and the other painted white. When the pair of dice is flipped, what is the probability that both land on the same color?

3. An urn contains 5 red, 6 blue and 8 green balls. If a set of 3 balls is randomly selected, what is the probability that each of the balls will be
   (a) Of the same color?
   (b) Of different colors?
   (c) What are the probabilities if the balls are replaced after each draw?

4. Two cards are chosen at random from a deck of 52 playing cards. What is the probability that they
   (a) Are both aces?
   (b) Have the same value?

5. Mr. Esparza, SJ gives his class a set of 10 problems with the information that the Probability exam will consist of a random selection of 5 of them. If Christopher has figured out how to do 7 of the problems, what is the probability that he or she will answer correctly

(a) All 5 problems?

(b) At least 4 of the problems?

6. In Lotto Texas, a player must choose six of the numbers from 1 to 54. The lottery commission then selects 6 of these 54 numbers. Assuming that the choice of the lottery commission is equally likely to be any of the $\binom{54}{6}$ combinations, what is the probability that a player has

(a) All 6 numbers selected;

(b) 5 of the number selected;

(c) At least 4 of the numbers selected?