Math 111 NAME:
Probability Questions

The most important concept is that probability is the number of successes divided by the number of total possibilities. This should be the first thing you write down, especially if you do not know where to begin. Carefully consider the number of successes (outcomes that fit the probability for which you're looking) and the total number of possibilities (outcomes that are possible).

When dealing with independent events, this idea can still be used. However, you need to keep in mind that P(E and F) = P(E)*P(F) if E and F are independent.

1. If the probability of winning a contest is .6, what is the probability of losing? (Remember you either win or lose.)

2. Consider the experiment of rolling a single six-sided die. What is the probability of rolling an even number?

3. Consider a standard deck of 52 playing cards. There are four suits: diamonds, hearts, spades, and clubs. The diamonds and hearts are red and the spades and clubs are black. In each suit, there are 13 cards Ace,2,3,4,5,6,7,8,9,10,Jack,Queen, and King.

a.) I will pick a single card from the deck. What is the probability that the card is a red Queen?

b.) Suppose I put this first card back and then select another card. What is the probability that this second card is **not** a red Queen?

c.) What is the probability that the first card is a red Queen and the second card is **not** a red Queen?

4. You have a bag with twenty marbles, fifteen red and five green. You select one marble from the bag.

a.) What is the probability that you get a red one?

b.) Suppose you put this first marble back and select another. What is the probability that this second marble is green?

c.) What is the probability that the first marble is red and the second marble is green?

5. For #4, the two events in a and b are independent. Which specific step (stated in the problem) makes these two events independent? (Hint: Think about why the events "get red on first" and "get green on second" do not affect each other.)

6. Consider that probability is the number of successes divided by the number of total possibilities. Explain why the probability of an event can not be greater than 1? Use an example of an experiment to illustrate your point.