Finite Math NAMES:
Counting Techniques and Probability

The following problems are broken into intermediate steps. Remember always, the probability of an event is the number of successes divided by the number of total possibilities. Write the probabilities as real numbers in decimal form.

1. An unbiased coin is tossed four times. Find the probability that the coin lands heads exactly once.

a.) Describe a success?

b.) What is the sample space for this experiment? List every possibility and circle the successes.

c.) What is the number of successes?

d.) What is the total number of possibilities?

e.) Find the probability.

2. Suzy grabs three marbles out of a bag that contains six marbles, three blue, two red, and one yellow. Regard the marbles as all distinguishable from one another. What is the probability that Suzy grabs the three blue marbles?

a.) Describe a success?

b.) What is the sample space for this experiment? List every possibility and circle the successes.

c.) What is the number of successes?

d.) What is the total number of possibilities?

e.) Find the probability.

3. The City Transit Authority plans to hire 12 new bus drivers. From a group of 100 qualified applicants, of which 60 are male and 40 are female, 12 names are to be selected. It has been stipulated that six drivers of each sex are to be hired. If Mary (female) and John (male) are among the 100 qualified applicants, what is the probability that both of them will be selected?

a.) Describe a success?

b.) What is the sample space for this experiment?

c.) What is the number of successes?

d.) What is the total number of possibilities?

e.) Find the probability.