Name:

1. What does the symbol *!* represent? Four different people can stand in a line *4!* different ways. What is the actual number of ways that four people can stand in a line?

2. The winning numbers for the current California Daily 4 lottery are 5, 0, 0, and 4 in that exact order. Because order counts, do calculations for this lottery involve either of the two permutation rules presented in this section? Why or why not? If not, what rule does apply?

3. A social security number consists of nine digits in a particular order, and repetition of digits is allowed. If randomly selecting digits for one social security number, what is the probability that you get the social security number of the president?

4. There are seven books in the Harry Potter series. If the books are read in a randomly selected order, what is the probability that they are read in the order that they were written?

5. With a short time remaining in the day, a FedEx driver has time to make deliveries at three locations among the eight locations remaining. How many different routes are possible?

6. A classic counting problem is to determine the number of different ways that the letters of "STATISTICS" can be arranged. Find that number.

7. When four golfers are about to begin a game, they often toss a tee to randomly select the order in which they tee off. What is the probability that they tee off in alphabetical order?

8. Many newspapers carry "Jumble," a puzzle in which the reader must unscramble letters to form words. The letters **MYAIT** were included in newspapers on the day this exercise was written.

    a. How many ways can those letters be arranged?

    b. Identify the correct unscrambling.

    c. Determine the probability of getting the correct unscrambling by randomly selecting one arrangement of the given letters.