1. The telephone extensions at a company use 4 digits.

a. How many extensions are possible if there are no restrictions?

b. How many extensions are possible if the first digit cannot be 0 or 9?

c. How many extensions are possible if the first digit can only be 1?

2. You are choosing a computer password. The password has 3 letters followed by 3 digits.

a. How many passwords are possible if the letters must be uppercase?

b. How many passwords are possible if no letter or digit can be repeated and the letters have to be lowercase?

**In exercise 2 and 3, use the following information. You have a 6-sided number cube and a spinner divided into 6-equal parts.**

3. You spin the spinner two times. Find the probability that the spinner stops on 3, then 1

4. You spin the spinner once and roll the number cube once. Find the probability that the spinner stops on the same number that you roll with the number cube.

5. You flip a coin five times. What is the probability that the results are all heads or all tails?

6. Each person that works at a company is given 1 5-digit code followed by a letter, either uppercase or lowercase. These employees must enter their codes on a kepypad to enter and exit the office building. The company has 130 employees.

a. How many codes are possible if there are no restrictions?

b. What is the probability of someone entering a code at random and gaining entry to the building?