1.   An experiment consists of tossing a coin six times.

      a) How many different outcomes are possible?

      b) How many different outcomes have exactly four heads?

      c) How many different outcomes have at most two heads?

      d) How many different outcomes have at least three heads?

2.   A bag contains seven white balls and three red balls. In how many ways can three balls be selected to achieve the following outcomes?

      a) Two balls are white and one is red.

      b) All three balls are white.

      c) All three balls are red.

3.   In how many ways can three apple trees, four peach trees, and two plum trees be arranged along a fence line if one does not distinguish between trees of the same kind?

4.   How many different eleven-letter words (real or imaginary) can be formed from the letters in the word MATHEMATICS?

5.   In how many ways can twelve children be placed on three distinct teams of three, five, and four members?

6.   A group consists of five men and eight women. A committee of four is to be formed from this group, and policy dictates that at least one woman be on this committee.

     a) How many committees can be formed that contain exactly one man?

     b) How many committees can be formed that contain exactly two women?

     c) How many committees can be formed that contain at least one man?

7.   In how many ways can thirty diplomats be assigned to five countries with each country receiving an equal number of diplomats?

8.   An experiment consists of tossing a coin eight times. How many outcomes have more heads than tails?

9.   In how many ways can a committee of four be selected from six men and eight women if the committee must contain at least two women?

10.   How many eight-bit strings contain exactly five ones?

11.   How many eight-bit strings contain at least two ones?

12.   How many eight-bit strings contain an even number of ones?