Lesson 6.3 The Multiplication Principle

Problem 1

Shayla has designed a new collection for her part in the spring fashion competition. She has created 4 tops, 3 pairs of pants, and 2 jackets. If we consider an outfit to be a top, pants, and a jacket, how many different combinations can Shayla’s models wear without repeating the exact same outfit? Verify your answer by exhibiting all possible outcomes using a tree diagram (see p. 354).

Problem 2

An environmental group plans to develop a fund-raising campaign featuring two endangered species. The list of candidates includes the (C)heetah, the (O)tter, the black-footed (F)erret, and the Bengal (T)iger. One animal will appear in a series of TV commercials and a different animal will appear in magazine advertisements. In how many ways can we choose the two animals for the campaign? Verify your answer by listing all possible outcomes.

Problem 3 - Use what you learned in problems 2 and 3 to find a solution to this problem:

An employee ID for a particular company consists of 2 letters of the alphabet followed by four digits. How many possible ID’s are there?