ECS20
Discussion 9: Counting

Counting: product rule and sum rule

Exercise 1:
How many strings are there of five lowercase letters that have the letter x in them at least once?

Exercise 2:

   a) How many strings of six lowercase letters from the English alphabet contain:
      a. The letter a?
      b. The letters a and b?
   b) How many bit strings contain exactly eight 0s and 10 1s if every 0 must be immediately followed by a 1.
   c) How many ways are there to seat six people around a circular table?

Exercise 3:

A combination lock has three numbers in the combination, each in the range 1 to 40.
   a. How many different combinations are there?
   b. How many of the combinations have no duplicate numbers?
   c. How many of the combinations have exactly two of the three numbers matching?