Probability Homework – Sample Test: Probability*

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Abstract

This module provides a sample test related to probability.

Exercise 1

In the video game Stroller Race 2000™, you start by choosing which baby character you will play (Hotsy, Totsy, Potsy, or Mac) and what color stroller you will be racing (red, green, blue, or yellow).

a. Draw a tree diagram listing all the possible baby-stroller combinations you can play.
b. When the computer races against you, it chooses a baby-stroller combination at random. What is the chance that it will choose the same one you chose?
c. What is the chance that the computer will choose a baby whose name rhymes with "Dotsy"?
d. What is the chance that the computer will choose a baby whose name rhymes with "Dotsy" **and** a red stroller?
e. All four babies are racing in red strollers today. **One** possible outcome is that Hotsy will come in first, followed by Totsy, then Potsy, then Mac. How many total possible outcomes are there?

Exercise 2

The weatherman predicts a 20% chance of rain on Tuesday. **If** it rains, there is a 10% chance that your roof will leak. (If it doesn't rain, of course, your roof is safe.) What is the chance that you will have a leaky roof on Tuesday?

Exercise 3

A game of "Yahtzee!" begins by rolling five 6-sided dice.

a. What is the chance that all five dice will roll "6"?
b. What is the chance that all five dice will roll the same as each other?
c. What is the chance that all five dice will roll "5" or "6"?
d. What is the chance that **no** dice will roll "6"?
e. What is the chance that **at least one die** will roll "6"?

Exercise 4

How many three-letter combinations can be made from the 26 letters in the alphabet? We can ask this question three different ways, with three different answers.

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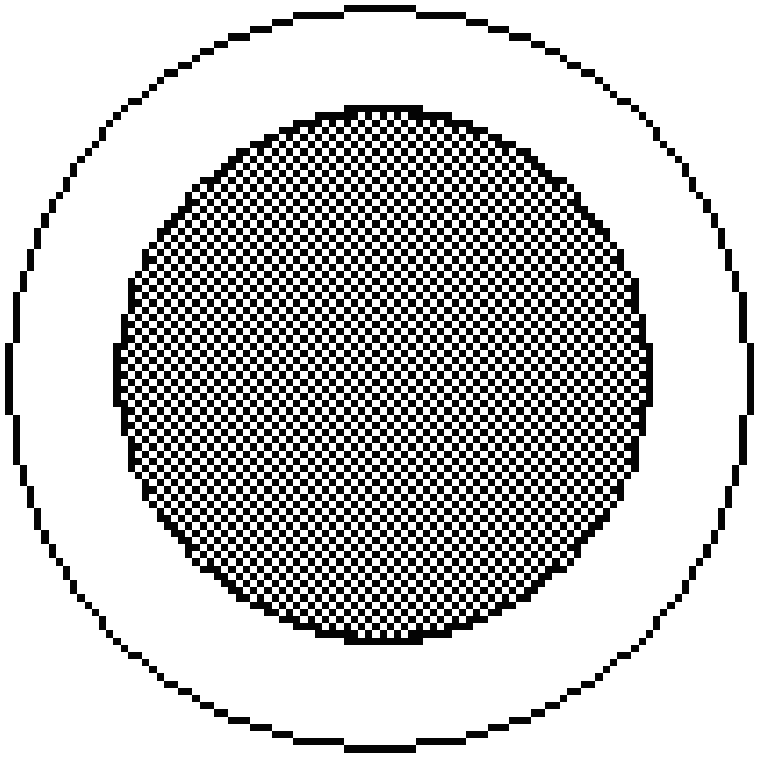
a. First, assume any three-letter combination is valid: NNN, for instance. (This gives you the actual number of possible three-letter words.)
b. Second, assume that you cannot use the same letter twice. (Here you can imagine that you have a bag of files, one for each letter, and you are drawing three of them out in order to make a word.)
c. Third, assume that you still cannot use the same letter twice, but order doesn't matter: CAT and ACT are the same. (Here you can imagine that as you pull the tiles, you are creating unscramble-the-word puzzles instead of words.)

Exercise 5
In a Sudoku puzzle, a 3-by-3 grid must be populated with each of the digits 1 through 9. Every digit must be used once, which means that no digit can be repeated. How many possible 3-by-3 grids can be made?



Extra credit:
How many different three-digit numbers can you make by rearranging the following digits?

1	1	2	3	4	5	6	7	8	9

Table 1