Week 2 Challenge Exercises

1) Computer programs have a mathematical operation you may not have seen before: modulo. The symbol used is '%'. X % Y is defined as the remainder when X is divided by Y. Try to compute the following by hand, then check yourself with python.

   a. 10 % 3 = 1, because 10/3 is 3 remainder 1
   b. 10 % 2 = 0, because there is no remainder when you divide by 2
   c. 15 % 3
   d. 15 % 5
   e. 15 % 9
   f. 75 % 11
   g. 100 % 100
   h. 5 % 10

2) Modulo is surprisingly useful in programming. Try to write a function that takes in an integer and prints just the ones digit.

3) Modify your function to print the ones, tens, and hundreds digit of an integer. If the integer doesn't have a tens or hundreds digit, the function should just print 0.

4) Suppose you wanted to write an algorithm that makes change: given a number of cents less than 100, you need to know how many quarters, dimes, nickels, and pennies to give. Of course, the easy thing to do is only give change in pennies, but everyone would hate that. Write a function that makes change using as few coins as possible.