Math 102
Counting Activity

**Instructions:** Work together with your group to solve the following problems. Make sure at least one member of your group records the reasoning you used to arrive at your solution. You do not have to work these problems in order. Once you have found a solution to one of the problems, let me know and I can check to see if both your reasoning and your answer is correct. If you get stuck, ask me and I may be willing to give you a hint about how to proceed.

1. Suppose you first roll a 6-sided die and then you flip a coin. How many different results can you get?

2. Suppose that Bob has 6 shirts, 5 pairs of pants, and 3 pairs of shoes. How many different outfits can Bob make by combining one shirt with one pair of pants and one pair of shoes?

3. Suppose you roll two 6-sided dice.
   (a) How many different ways can you roll "doubles"?
   (b) How many different rolls give you a total equal to 10?
   (c) How many give you a total less than 10?

4. Suppose you need to pick a 4-digit personal ID number.
   (a) How many different PINs are there if there are no restrictions on the numbers used?

   (b) How many different PINs are there if no number can be repeated?