3-5 Permutations

Name _____

_____ 1. In an ice cream shop, I have the option of chocolate, vanilla, strawberry, or mint-chocolate chip. There are also the toppings of walnuts, coconut shavings, or raisins (what a crazy ice cream shop). I can also pick either the waffle cone or a regular cone. Assuming that I do get a cone with a topping, how many possible ways could I make my cone?

_____ 2. Assume the same situation in question 1. This time, I can get a topping or not get a topping. I also can choose to not get a cone, but have it put in a bowl instead. Now how many possible ways exist?

_____ 3. When my last name, HICKAM, was sent through the computer, the encryption messed up and all of the letters of my name got messed up. Thus, all the company knew was that my last name contained the letters H, I, C, K, A, and M. What would be the probability they could put the letters together and actually figure out what my last name happened to be? Think of how many different ways these 6 letters could be put together.

_____ 4. I have a safe in my house that has a key pad on it with the digits 0 – 9 on it. If my combination is a 5 digit code, how many possible combinations exist?

_____ 5. My password to log on to my computer is 3 letters followed by 3 digits. What is the probability you could break my code in one try?

_____ 6. A zip code is a 5 digit number that the post office uses to help deliver the mail. How many zip codes exist?

_____ 7. What if a zip code had to be all odd numbers, then how many would exist?

_____ 8. What if the zip code had to be all odd numbers and you couldn't repeat a number, then how many would exist?

_____ 9. Old VA license plates used to be 3 letters followed by 3 numbers. How many license plates could the state make in this manner?

_____ 10. Now VA allows you to put all letters, all numbers, or any mix of the two, and it allows 7 characters. Assuming all plates have 7 characters, how many possible license plates exist?

_____ 11. P(4, 2)

_____ 12. P(6, 3)

_____ 13. P(10, 3)

_____ 14. P(8, 5)

_____ 15. P(4, 4)

_____ 16. P(9, 2)