# 12-4 Permutations and Combinations

Name: _____        Time› Start: _____   Finish: _____   Total Time = _____


_____ 1.        Is it combinations or permutations that ORDER DOESN'T MATTER?

**Use Desmos to calculate the following:**

_____ 2.        The number of permutations of 8 objects taken 3 at a time.

_____ 3.        The number of permutations of 12 objects taken 4 at a time.

_____ 4.        The number of combinations of 12 objects taken 4 at a time.

_____ 5.        The number of permutations of 30 objects taken 2 at a time.

_____ 6.        The number of combinations of 30 objects taken 2 at a time.

_____ 7.        The number of combinations of 22 objects taken 10 at a time.

_____ 8.        The number of permutations of 10 objects taken 2 at a time.

**Determine if the given situation is a permutation (order matters) or a combination (order doesn't matter).  You can put P for permutation and C for Combination.**

_____ 9.        Determine how many different 3-topping pizzas can be made from 10 topping choices.

_____ 10.       Determine how different groups of 2 people can be chosen from 14 students.

_____ 11.       Determine how many different seat charts can be made from 10 students in a class.

_____ 12.       Determine how many different ways you can select a President, Vice President, and Secretary from a class of 24 people.

_____ 13.       Determine how many ways you can arrange 3 letters from a list of 10 letters.

_____ 14.       Determine how many ways 6 runners can be assigned running lanes.


 **Use Desmos to get an actual answer.**

_____ 15.       How many 4-topping pizzas can be made from 20 topping choices?

_____ 16.       I must pick 3 kids to go to the office to pick up a heavy box for me.
                    From the 15 kids in my class, how many options to pick the 3 people do I have?

_____ 17.       From the 26 letters, I must pick a passcode using 3 of them.  How many passcodes exist?