

Name _____ Class _____ Date _____

11-1 Activity: Word Analysis

Permutations and Combinations

This activity is for groups of two students. Parts A and B should be done as a group and Part C should be done individually.

$$\frac{(7 \cdot 6 \cdot 5)}{(3 \cdot 2 \cdot 1)}$$

Part A

1. Find the number of distinct three-letter combinations of the letters that make up the word COMBINE.

$$35$$

7

2. Find the number of distinct three-letter permutations of the letters that make up the word COMBINE.

$$7 \cdot 6 \cdot 5 = 210$$

3. Which of these two values is larger? Explain. Support your answer with numbers and actual examples from the word COMBINE.

*2 permutations ; for *1 INE is same as NEI or ENI

Part B

4. Find the number of distinct three-letter combinations of the letters that make up the word PERMUTE.

5. Find the number of distinct three-letter permutations of the letters that make up the word PERMUTE.

6. How does Part B differ from Part A? Explain what you had to do to resolve the difference.

7. Write the statement for Part B that parallels $35 \cdot 6 = 210$ from Part A.

Part C

Using the letters in your first, middle, and last names, find the following:

8. The number of distinct four-letter combinations.

9. The number of distinct five-letter permutations.

10. Try to find two English words of four or more letters using the distinct letters in your name.

Bonus: How many of the four-letter combinations from Exercise 8 contain a vowel?