**WS103 Combinations and Permutations Name:**

**PERMUTATIONS**

**Evaluate each expression.**

1. P(6, 3) 2. P(8, 5) 3. 9P4 4. 11P6

**How many different ways can the letters of each word be arranged?**

5. MOM 6. MONDAY 7. STEREOS

8. There are 7 people in a science competition. How many different ways could they be ranked? How many ways could the top 3 spots be awarded?

9. A chorus has been practicing 12 songs, but at their concert they will only perform 5. How many different sets of 5 songs could they choose? How many different orderings of 5 songs are possible?

**COMBINATIONS**

**Evaluate each expression.**

1. C (5, 3) 2. C (7, 4) 3. 15C7 4. 10C5

5. From a standard deck of 52 cards, in how many ways can 5 cards be drawn?

6. How many hockey teams of 6 players can be formed from 14 players without regard to position played?

7. From a group of 10 men and 12 women, how many committees of 5 men and 6 women can be formed?

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**Evaluate each expression.**

1. P (6, 3) 2. 8P2 3. C (5, 3) 4. 8C7

**Determine whether each situation involves a permutation or a combination AND then find the number of possibilities.**

5. Seating 8 students in 8 seats in the front row of the school auditorium

6. Introducing the 5 starting players on a basketball team at the start of a game

7. Checking out 3 library books from a list of 8 books for a research paper

8. Choosing 2 movies to rent from 5 movies

9. The 1st, 2nd and 3rd place finishers in a race of 10 people

10. Electing 4 members to a municipal planning board from 7 candidates

11. Choosing 2 choices from a menu that offers 6 entrée choices

12. An arrangement of the letters in the word “revenge”

13. Selecting 2 of 8 choices of orange juice at a store

14. Planting a red, yellow, white and pink rose bush in a row

15. Selecting 2 of 9 puppies at an animal shelter

16. An arrangement of the letters in the word “isosceles”

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