



## Vocabulary: Permutations and Combinations



### Vocabulary

- **Combination** – a collection of objects or values from a set in which the order does not matter.
  - The notation  ${}_n C_r$  represents the number of possible combinations of  $r$  objects from a set of  $n$  objects.
    - For example, the combinations of 2 letters that can be chosen from the letters A, B, and C are AB, AC, and BC. Therefore,  ${}_3 C_2 = 3$ .
- **Factorial** – the product of an integer and all positive integers below it.
  - The symbol for factorial is the exclamation point (!).
    - For example,  $5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 120$ .
  - By convention,  $0! = 1$ .
- **Permutation** – a collection of objects or values from a set in which the order matters.
  - The notation  ${}_n P_r$  represents the number of possible permutations of  $r$  objects from a set of  $n$  objects.
    - For example, the permutations of 2 letters that can be chosen from the letters A, B, and C are AB, BA, AC, CA, BC, and CB. Therefore,  ${}_3 P_2 = 6$ .

