COMBINATIONS

- > A combination is a set of items taken from another set in which order does not matter.
 - Arranging letters ABC in a situation when order of the letters matters gives 3! arrangements. When order is important, we calculate a permutation: nPr ABC, ACB, CAB, BAC, CBA, BCA are all considered different arrangements.
 - Arranging letters ABC in a situation when order of the letters is unimportant, gives fewer possibilities. That is ABC, ACB, CAB, BAC, CBA, BCA are all considered the same combination.
- > The number of combinations of r items selected from a set of n items is given by:

Alternative notations: ______ or _____

Example1: In how many ways can a five-card hand be selected from a standard deck?

Example 2:

In a competition, junior chefs make a gourmet soup by selecting from 10 different ingredients. How many different soups can the chefs make if the soup must include: a) Four of the ingredients?

b) Five of the ingredients?

c) Six of the ingredients?

Example 3: How many triangles can be drawn using seven distinct points as vertices?

Example 4: A committee of 3 men and 3 women is formed from a group of 8 men and 10 women. How many ways are there to form a committee?

Notes: Give at least two examples of each:

1. Permutations of symbols/numbers/letters/items encountered or used daily:

2. Combination of symbols/numbers/letters/items encountered or used daily: