Permutations

- The notion of permutation relates to the act of permuting (rearranging) objects or values.
- Informally, a permutation of a set of objects is an arrangement of those objects into a particular order.
- For example, there are six permutations of the set $\{1, 2, 3\}$, namely (1,2,3), (1,3,2), (2,1,3), (2,3,1), (3,1,2), and (3,2,1).
- As another example, an anagram of a word is a permutation of its letters.

Permutations

- Permutations where repetition is allowed:

$$n!$$

- Permutations where repetition is not allowed

$$\frac{n!}{(n-k)!}$$