**Permutation:** A permutation is an arrangement in a definite order of several objects taken some or all at a time. Let us take 10 numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. The number of different 4-digit-PIN which can be formed using these 10 numbers is 5040. P(10,4) = 5040.

**Formula: nPr=n!(n−r)!**

**Combination:** A combination is all about grouping. The number of different groups which can be formed from the available things can be calculated using [combinations](https://www.cuemath.com/data/combinations/). Let us try to understand this with a simple example. A team of 2 is formed from 5 students(William, James, Noah, Logan, and Oliver). This the combination of 'r' persons from the available 'n' persons is given as nCr=n!r!.(n−r)!nCr=n!r!.(n−r)! The combinations can happen in the following 10 ways by which the team of 2 could be formed.

* William James
* William Noah
* William Logan
* William Oliver
* James Noah
* James Logan
* James Oliver
* Logan Noah
* Logan Oliver
* Oliver Noah

This is a simple example of combinations. C(5,2) = 10.

Use combination when order does not matter.