Combinations of n Objects taken k at a Time

A **combination** containing k objects chosen from a set of n objects, $k \leq n$ is denoted using **combination notation** $_nC_k$

$$
(1) \qquad\qquad\qquad _nC_k = \frac{n!}{k!(n-k)!}
$$

or

$$
(2) \qquad\qquad\qquad _nC_k = \frac{_nP_k}{k!} = \frac{n(n-1)(n-2)\cdots[n-(k-1)]}{k!}
$$