Contents

Theorem of permutation of set of objects all different

The permutations of 'n' objects taken 'r' at a time when 'n' is greater than or equal to 'r' is given by

$$P(n,r) = n(n-1)(n-2)(n-3)...(n-r+1)$$

Derivation of permutation of set of objects all different

$$P(n,r) = n(n-1)(n-2)(n-3)...(n-r+1)$$
$$P(n,r) = \frac{n(n-1)(n-2)(n-3)..(n-r+1)(n-r)...3.2.1}{(n-r)...3.2.1}$$
$$P(n,r) = \frac{n!}{(n-r)!}$$

Expression of permutation of set of objects all different

$$P(n,r) = \frac{n!}{(n-r)!}$$

Expression of permutation of set of objects all different taken all at a time

$$P(n,r) = n!$$