
Contents

Theorem of permutation of set of objects all different	2
Derivation of permutation of set of objects all different	2
Expression of permutation of set of objects all different	2
Expression of permutation of set of objects all different taken all at a time . . .	2

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

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

Derivation of permutation of set of objects all different

$$\begin{aligned} P(n, r) &= n(n-1)(n-2)(n-3)\dots(n-r+1) \\ P(n, r) &= \frac{n(n-1)(n-2)(n-3)\dots(n-r+1)(n-r)\dots 3.2.1}{(n-r)\dots 3.2.1} \\ P(n, r) &= \frac{n!}{(n-r)!} \end{aligned}$$

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

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