



Permutations Ex 16.1 Q7

We have,

$$(n+2)! = 60[(n-1)!]$$

$$(n+2)(n+1)(n)(n-1)! = 60[(n-1)!]$$

$$\Rightarrow (n+2)(n+1)n = 60$$

$$\Rightarrow (n+2)(n+1)n = 5 \times 4 \times 3$$

$$\therefore n = 3 \quad [\text{By comparing}]$$

Hence,  $n = 3$

Permutations Ex 16.1 Q8

We have,

$$(n+1)! = 90[(n-1)!]$$

$$\Rightarrow (n+1) \times n \times (n-1)! = 90[(n-1)!]$$

$$\Rightarrow n(n+1) = 90$$

$$\Rightarrow n^2 + n = 90$$

$$\Rightarrow n^2 + n - 90 = 0$$

$$\Rightarrow n^2 + 10n - 9n - 90 = 0$$

$$\Rightarrow n(n+10) - 9(n+10) = 0$$

$$\Rightarrow (n-9)(n+10) = 0$$

$$\Rightarrow n-9 = 0 \quad [\because n+10 \neq 0]$$

$$\Rightarrow n = 9$$

Hence,  $n = 9$

Permutations Ex 16.1 Q9

We have,

$$(n+3)! = 56 [(n+1)!]$$

$$\Rightarrow (n+3) \times (n+2) \times (n+1)! = 56 [(n+1)!]$$

$$\Rightarrow (n+2)(n+3) = 56$$

$$\Rightarrow n^2 + 3n + 2n + 6 = 56$$

$$\Rightarrow n^2 + 5n + 6 - 56 = 0$$

$$\Rightarrow n^2 + 5n - 50 = 0$$

$$\Rightarrow n^2 + 10n - 5n - 50 = 0$$

$$\Rightarrow n(n+10) - 5(n+10) = 0$$

$$\Rightarrow (n+10)(n-5) = 0$$

$$\Rightarrow n-5 = 0 \quad [\because n+10 \neq 0]$$

$$\Rightarrow n-5 = 0$$

$$\Rightarrow n = 5$$

\*\*\*\*\*END\*\*\*\*\*