

NCERT Solutions for Class-XI Maths

Chapter-7 Exercise-7.2 NCERT Math Class 11

1. Evaluate

(i) $8!$

(ii) $4! - 3!$

1. (i) $8! = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 = 40320$

(ii) $4! = 1 \times 2 \times 3 \times 4 = 24$

$3! = 1 \times 2 \times 3 = 6$

$\therefore 4! - 3! = 24 - 6 = 18$

2. Is $3! + 4! = 7!$?

2. Computing left hand side:

$3! + 4! = (3 \times 2 \times 1) + (4 \times 3 \times 2 \times 1) = 6 + 24 = 30$

Computing the right-hand side:

$7! = 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 5040$

We observe that the left-hand side is not equal to the right hand side.

3. Compute $\frac{8!}{6! \times 2!}$

3. $\frac{8!}{6! \times 2!} = \frac{8 \times 7 \times 6!}{6! \times 2 \times 1} = \frac{8 \times 7}{2} = 28$

4. If $\frac{1}{6!} + \frac{1}{7!} = \frac{x}{8!}$

4. Solving left hand side:

$\frac{1}{6!} + \frac{1}{7!} = \frac{1}{6!} + \frac{1}{7 \times 6!}$

$\Rightarrow \frac{7+1}{7 \times 6!} = \frac{8}{7!}$

Equating left hand side to right hand side:

$\frac{8}{7!} = \frac{x}{8!}$

$$\Rightarrow \frac{8}{7!} = \frac{x}{8 \times 7!}$$

$$\Rightarrow 8 \times 8 = x$$

$$\Rightarrow x = 64.$$

5. Evaluate $\frac{n!}{(n-r)!}$, when

(i) $n = 6, r = 2$

(ii) $n = 9, r = 5$

5. (i) When $n = 6, r = 2$: $\frac{n!}{(n-r)!} = \frac{6!}{(6-2)!} = \frac{6!}{4!} = \frac{6 \times 5 \times 4!}{4!} = 30$

(ii) When $n = 9, r = 5$: $\frac{n!}{(n-r)!} = \frac{9!}{(9-5)!} = \frac{9!}{4!} = \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4!}{4!}$

$$= 9 \times 8 \times 7 \times 6 \times 5 = 15120$$



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