EXERCISE.7.2

Question-1

Evaluate

(i) 8! (ii) 4! − 3!

Ans.

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

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

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

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

Question-2

Is 3! + 4! = 7!?

Ans.

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

$4! = 1 \times 2 \times 3 \times 4 = 24$

$3! + 4! = 6 + 24 = 30$

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

$3! + 4! \neq 7!$

Question-3

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

Ans.

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

Question-4

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

Ans.

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

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

$$\Rightarrow \frac{1}{6!}\left(1+\frac{1}{7}\right)=\frac{x}{8\times 7\times 6!}$$

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

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

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

$$\therefore x=64$$

Question-5

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

(i) $n = 6, r = 2$ (ii) $n = 9, r = 5$

Ans.

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

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

********** END **********