



Permutations Ex 16.1 Q3(ii)

$$\begin{aligned}\frac{x}{10!} &= \frac{1}{8!} + \frac{1}{9!} \\ \Rightarrow x &= \frac{10!}{8!} + \frac{10!}{9!} \\ \Rightarrow x &= \frac{10 \times 9 \times 8!}{8!} + \frac{10 \times 9!}{9!} \\ \Rightarrow x &= 10 \times 9 + 10 \\ \Rightarrow x &= 100\end{aligned}$$

Permutations Ex 16.1 Q3(iii)

$$\begin{aligned}\frac{1}{6!} + \frac{1}{7!} &= \frac{x}{8!} \\ \Rightarrow x &= \frac{8!}{6!} + \frac{8!}{7!} \\ \Rightarrow x &= \frac{8 \times 7 \times 6!}{6!} + \frac{8 \times 7!}{7!} \\ \Rightarrow x &= 8 \times 7 + 8 \\ \Rightarrow x &= 64\end{aligned}$$

Permutations Ex 16.1 Q4(i)

We have,

$$\begin{aligned}5 \times 6 \times 7 \times 8 \times 9 \times 10 \\ &= \frac{10 \times 9 \times 8 \times 7 \times 6 \times 5 \times (4 \times 3 \times 2 \times 1)}{4 \times 3 \times 2 \times 1} \\ &= \frac{10!}{4!}\end{aligned}$$

$$\text{Hence, } 5 \times 6 \times 7 \times 8 \times 9 \times 10 = \frac{10!}{4!}$$

Permutations Ex 16.1 Q4(ii)

We have,

$$\begin{aligned}3 \times 6 \times 9 \times 12 \times 15 \times 18 \\ &= 3 \times (3 \times 2) \times (3 \times 3) \times (3 \times 4) \times (3 \times 5) \times (3 \times 6) \\ &= 3^6 \times [2 \times 3 \times 4 \times 5 \times 6] \\ &= 3^6 \times (6!)\end{aligned}$$

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