

Exercise 5(E)

Q.1 If $A \cap B = \phi$, then $n(A \cup B)$ is equal to which of the following

Ans (ii) $n(A) + n(B)$

Q.2. If $n(A) = 20$, $n(B) = 30$, $n(A \cap B) = 10$, then find the value of $n(A \cup B)$

$$\begin{aligned} n(A \cup B) &= n(A) + n(B) - n(A \cap B) \\ &= 20 + 30 - 10 \\ &= 50 - 10 \\ &= 40 \text{ Ans} \end{aligned}$$

Q.3. If $n(A \cup B) = 50$, $n(A) = 28$, $n(B) = 32$ then find the value of $n(A \cap B)$

$$\begin{aligned} n(A \cap B) &= n(A) + n(B) - n(A \cup B) \\ &= 28 + 32 - 50 \\ &= 60 - 50 \\ &= 10 \text{ Ans} \end{aligned}$$

Q.4. If $n(A) = 40$, $n(A \cup B) = 60$, $n(A \cap B) = 10$, then calculate the value of $n(B)$

$$\begin{aligned} n(B) &= n(A \cup B) + n(A \cap B) - n(A) \\ &= 60 + 10 - 40 \\ &= 70 - 40 = 30 \text{ Ans} \end{aligned}$$

Q.5. $n(A) = 17$, $n(B) = 23$, $n(A \cup B) = 38$, then find the value of $n(A \cap B)$.

$$\begin{aligned}n(A \cap B) &= n(A) + n(B) - n(A \cup B) \\ &= 17 + 23 - 38 \\ &= 2 \text{ Ans.}\end{aligned}$$

Q.6. $n(A \cup B) = 80$, $n(B) = 15$, $n(A \cap B) = 5$, then find the value of $n(A)$ and $n(A) - n(A \cap B)$.

$$\begin{aligned}n(A) &= n(A \cup B) + n(A \cap B) - n(B) \\ &= 80 + 5 - 15 \\ &= 70 \text{ Ans.}\end{aligned}$$

$$\begin{aligned}n(A) - n(A \cap B) &= 70 - 5 \\ &= 65 \text{ Ans.}\end{aligned}$$

Remember

$$n(A \cup B) = \text{Group (2+2)}_2$$

$$n(A) = \text{Element of A}$$

$$n(B) = \text{Element of B}$$

$$n(A \cap B) = \text{Element of both (A and B)}$$

let,

Q.7.

M = Mathematics पढ़ाने वाले

P = Physics पढ़ाने वाले

$$n(M \cup P) = 20$$

$$n(M) = 12$$

$$n(P \cap M) = 4$$

$$n(P) = ?$$

$$n(P) = n(M \cup P) + n(M \cap P) - n(M)$$

$$= 20 + 4 - 12$$

$$= 24 - 12$$

$$= 12 \text{ Ans.}$$

Q.8.

let,

H = Hindi पढ़ाने वाले

U = Urdu पढ़ाने वाले

$$n(H) = 100$$

$$n(U) = 50$$

$$n(H \cap U) = 25$$

$$n(H \cup U) = ?$$

$$n(H \cup U) = n(H) + n(U) - n(H \cap U)$$

$$= 100 + 50 - 25$$

$$= 125 \text{ Ans.}$$