

FIXED-PRICE GOOD

\rightarrow Stimmer $A = \{x_i: x_i \text{ Fixed}$
 $\text{and } B = \{x_i: x_i \text{ Fixed}\}$

(i) Set A and B in roster form

(ii) $A \cup B$ (iii) $A \cap B$

(iv) $A - B$ (v) $B - A$

Ans $\rightarrow A = \{4, 5, 6\}$

$B = \{0, 1, 2, 3\}$

(ii) $A \cup B = \{0, 1, 2, 3, 4, 5, 6\}$

(iii) $A \cap B = \{\emptyset\}$

(iv) $A - B = \{4, 5, 6\}$

(v) $B - A = \{0, 1, 2, 3\}$

Q2) If $P = \{x: x \in \mathbb{W} \text{ and } 4 \leq x \leq 8\}$, and $Q = \{x: x \in \mathbb{N} \text{ and } x < 6\}$. Find:

(i) $P \cup Q$ and $P \cap Q$.

(ii) Is $(P \cup Q) \supset (P \cap Q)$?

Ans \rightarrow (i) $P = \{4, 5, 6, 7, 8\}$

$Q = \{1, 2, 3, 4, 5\}$

$P \cup Q = \{1, 2, 3, 4, 5, 6, 7, 8\}$

$P \cap Q = \{4, 5\}$

(ii) Yes, all the elements of set $P \cup Q$ are contained in the set $P \cap Q$. Therefore $P \cup Q$ is a proper subset of $P \cap Q$.

Q3) If $A = \{5, 6, 7, 8, 9\}$, $B = \{x: 3 < x < 8 \text{ and } x \in \mathbb{W}\}$ and $C = \{x: x \leq 5 \text{ and } x \in \mathbb{N}\}$. Find:

(i) $A \cup B$ and $(A \cup B) \cup C$

(ii) $B \cup C$ and $A \cup (B \cup C)$

(iii) $A \cap B$ and $(A \cap B) \cap C$

(iv) $B \cap C$ and $A \cap (B \cap C)$

Is $(A \cup B) \cup C = A \cup (B \cup C)$?

Is $(A \cup B) \cap C = A \cap (B \cup C)$?

Ans $\rightarrow A = \{5, 6, 7, 8, 9\}$

$$(1, 2, 3, 4, 5)$$

$$A \cup B = (4, 5, 6, 7, 8, 9)$$

$$(A \cup B) \cap C = \{5\} \cup C = (1, 2, 3, 4, 5, 6, 7, 8, 9)$$

$$B \cup C = (1, 2, 3, 4, 5, 6, 7)$$

$$A \cup (B \cup C) = (1, 2, 3, 4, 5, 6, 7, 8, 9)$$

$$A \cap B = (5, 6, 7)$$

$$(A \cap B) \cap C = (5)$$

$$B \cap C = \{5\} \cup (4, 5)$$

$$A \cap (B \cap C) = (5)$$

$$(A \cup B) \cup C = (1, 2, 3, 4, 5, 6, 7, 8, 9)$$

$$A \cup (B \cup C) = (1, 2, 3, 4, 5, 6, 7, 8, 9)$$

yes, these are equal

$$(A \cap B) \cap C = A \cap (B \cap C)$$

$$\{5\} = \{5\}$$

yes, these are equal