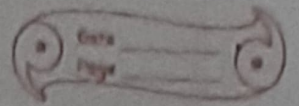


Exercise 6 D



$$1) A = \{x : x \in \mathbb{N} \text{ and } 3 < x \leq 6\}$$

$$B = \{x : x \in \mathbb{W} \text{ and } 0 \leq x < 4\}$$

ii) Sets A and B in roster form

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

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

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

iv) $A \cap B = \{\}$

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

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

$$2) P = \{x : x \in \mathbb{W} \text{ and } 4 < x \leq 8\}$$

$$Q = \{x : x \in \mathbb{N} \text{ and } x < 6\}$$

iii) $P = \{4, 5, 6, 7, 8\}$

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

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

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

vi) $P \cap Q \subset P \cup Q$

~~vii) The element of $P \cap Q$ is $\in P \cup Q$. So the given question is true.~~

$$3) A = \{5, 6, 7, 8, 9\}$$

$$B = \{x : 3 < x < 8 \text{ and } x \in \mathbb{W}\} = \{4, 5, 6, 7\}$$

$$C = \{x : x < 5 \text{ and } x \in \mathbb{N}\} = \{1, 2, 3, 4\}$$

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

$$A \cup B = \{4, 5, 6, 7, 8, 9\}$$

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

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

$$B \cup C = \{1, 2, 3, 4, 5, 6, 7\}$$

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

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

$$A \cap B = \{5, 6, 7\}$$

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

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

$$B \cap C = \{4, 5\}$$

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

$$9. (A \cup B) \cup C = A \cup (B \cup C)$$

Yes it is true because all the elements are same.

$$9. (A \cap B) \cap C = A \cap (B \cap C)$$

Yes it is true because both are singleton set having same element.