

Ex - 6 (B)

1. Find the cardinal number of the following sets:

(i) $A_1 = \{-2, -1, 1, 3, 5\}$

Sol:- $A_1 = \{-2, -1, 1, 3, 5\}$

Cardinal number of set $A_1 = 5$

(ii) $A_2 = \{x : x \in \mathbb{N} \text{ and } 3 \leq x < 7\}$

Sol:- $A_2 = \{x : x \in \mathbb{N} \text{ and } 3 \leq x < 7\}$
 $= \{3, 4, 5, 6\}$

Cardinal number of set $A_2 = 4$.

(iii) $A_3 = \{p : p \in \mathbb{W} \text{ and } 2p - 3 < 8\}$

Sol:- $A_3 = \{p : p \in \mathbb{W} \text{ and } 2p - 3 < 8\}$

$$2p - 3 < 8$$

$$\Rightarrow 2p - 3 + 3 < 8 + 3$$

(Adding 3 to both sides)

$$\Rightarrow 2p < 11$$

$$\Rightarrow p < \frac{11}{2}$$

(Dividing both side by 2)

$$\Rightarrow p < 5.5$$

$$A_3 = \{0, 1, 2, 3, 4, 5\}$$

$$(11) \quad A_4 = \{b; b \in \mathbb{Z} \text{ and } -7 < 3b-1 \leq 2\}$$

Sol:- $A_4 = \{b; b \in \mathbb{Z} \text{ and } -7 < 3b-1 \leq 2\}$

$$-7 < 3b-1$$

$$\Rightarrow -7+1 < 3b-1+1 \quad (\text{Adding } 1 \text{ to both sides})$$

$$\Rightarrow -6 < 3b$$

$$\Rightarrow -\frac{6}{3} < b$$

$$\Rightarrow -2 < b$$

Again $3b-1 \leq 2$

$$\Rightarrow 3b-1+1 \leq 2+1 \quad (\text{Adding } 1 \text{ to both sides})$$

$$\Rightarrow 3b \leq 3$$

$$\Rightarrow b \leq \frac{3}{3}$$

$$\Rightarrow b \leq 1$$

$$\Rightarrow -2 < b \leq 1$$

Given set $A_4 = \{-1, 0, 1\}$

Cardinal number of Set $A_4 = 3$

2. If $P = \{P: P \text{ is a letter in the word "PERMANENT"}\}$.
Find $n(P)$.

Ans

$P = \{P: P \text{ is a letter in the word "PERMANENT"}\}$

$P = \{p, e, r, m, a, n, t\}$

$n(P) = 7$