H.W
31/7/21

Ch-6
SETS

Exercise - 6(A)

1. Write the following sets in roaster (Tabular form:

(i) $A_1 = \{x : 2x+3 = 11\}$

Sol:- $A_1 = \{x / 2x+3 = 11\}$

$\Rightarrow 2x+3 = 11$

$\Rightarrow 2x = 11-3$

$\Rightarrow 2x = 8$

$\Rightarrow x = \frac{8}{2}$

$\Rightarrow x = 4$

Given set in roaster form is $A_1 = \{4\}$

(ii) $A_2 = \{x : x^2-4x-5 = 0\}$

Sol:- $A_2 = \{x / x^2-4x-5 = 0\}$

$\Rightarrow x^2-4x-5 = 0$

$\Rightarrow x^2-5x+x-5 = 0$

$\Rightarrow x(x-5)+1(x-5) = 0$

$\Rightarrow (x-5)(x+1) = 0$

(iii) $A_3 = \{x / x \in Z, -3 \leq x < 4\}$

Sol:- $A_3 = \{x / x \in Z, -3 \leq x < 4\}$

$\Rightarrow -3 \leq x < 4$

$\Rightarrow x = -3, -2, -1, 0, 1, 2, 3$

Given set in roaster (Tabular) form is

$A_3 = \{-3, -2, -1, 0, 1, 2, 3\}$

(iv) $A_4 = \{x / x$ is a two digit number and sum of the digits of x is $7\}$

Sol:- $A_4 = \{x / x$ is a two digit number and sum of the digit of x is $7\}$

x is a two digit number and sum of digits of x is 7.

$x = 16, 25, 34, 43, 52, 61, 70$

Given set in roaster form is $A_4 = \{16, 25, 34, 43, 52, 61, 70\}$

(v) $A_5 = \{x / x = 4n, n \in W \text{ and } n < 4\}$

Sol:

$x = 4n$

When, $n = 0$ $\quad x = 4 \times 0$

$\Rightarrow x = 0$

When, $n = 1$ $\quad x = 4 \times 1$

$\Rightarrow x = 4$

When, $n = 2$ $\quad x = 4 \times 2$

$\Rightarrow x = 8$

When, $n = 3$ $\quad x = 4 \times 3$

$\Rightarrow x = 12$

Given set in roaster form is $A_5 = \{0, 4, 8, 12\}$

(vi) $A_6 = \{x / x = \frac{n}{n+2}; n \in N \& n > 5\}$

Sol: $A_6 = \{x / x = \frac{n}{n+2}; n \in N \& n \geq 5\}$

$x = \frac{n}{n+2}$

When, $n = 6$ $\quad x = \frac{6}{6+2}$

$\Rightarrow x = \frac{\cancel{6}\,3}{\cancel{8}\,4} = \frac{3}{4}$

When, $n = 7$ $\quad x = \frac{7}{7+2}$

$\Rightarrow x = \frac{7}{9}$

When, $n = 8$ $\quad x = \frac{8}{8+2}$

$\Rightarrow x = \frac{8^{4}}{10_{5}} = \frac{4}{5}$

When, $n = 9$ $\quad x = \frac{9}{9+2}$

$\Rightarrow x = \frac{9}{11}$

Given sets in roaster form is $A_6 = \{\frac{3}{4}, \frac{7}{9}, \frac{4}{5}, \frac{9}{11}\}$