

1. If  $\left(\frac{x}{3}+1, y-\frac{2}{3}\right) = \left(\frac{5}{3}, \frac{1}{3}\right)$ , find the values of  $x$  and  $y$ .

*Solution*

Equating the corresponding elements, we get

$$\frac{x}{3}+1 = \frac{5}{3} \text{ and } y-\frac{2}{3} = \frac{1}{3} \quad \therefore \frac{x}{3} = \frac{5}{3}-1 = \frac{2}{3} \text{ and } y = \frac{1}{3} + \frac{2}{3} = 1 \quad \therefore x = 2 \text{ and } y = 1$$

2. Consider the relation  $R = \{(x, x^3) : x \text{ is a prime number less than } 10.\}$

(a) Write the relation in roster form

(b) Write the domain and range

## ANSWER

a)  $R = \{(x, x^3) : x \text{ is a prime number less than } 10\}$

The prime numbers less than 10 are 2, 3, 5 and 7

$$\therefore R = \{(2, 8), (3, 27), (5, 125), (7, 343)\}$$

b) Domain( $R$ ) =  $\{2, 3, 5, 7\}$

$$\text{Range}(R) = \{8, 27, 125, 343\}$$