



### Class 11 Solutions Chapter 2 Relations Ex 2.3 Q16

We have,

$$A = \{1, 2, 3, 5\} \text{ and } B = \{4, 6, 9\}$$

It is given that,

$$R = \{(x, y) : \text{the difference between } x \text{ and } y \text{ is odd, } x \in A, y \in B\}$$

For the elements of the given sets  $A$  and  $B$ , we find that

$$\{1, 4\} \in R, \{1, 6\} \in R, \{2, 9\} \in R, \{3, 4\} \in R, \{3, 6\} \in R, \{5, 4\} \in R \text{ and } \{5, 6\} \in R$$

$$\therefore R = \{(1, 4), (1, 6), (2, 9), (3, 4), (3, 6), (5, 4), (5, 6)\}$$

Hence, relation  $R$  in roster form is  $\{(1, 4), (1, 6), (2, 9), (3, 4), (3, 6), (5, 4), (5, 6)\}$

### Class 11 Solutions Chapter 2 Relations Ex 2.3 Q17

We have,

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

For the elements of the given sets, we find that

$$x = 2, 3, 5, 7$$

$$\therefore \{2, 8\} \in R, \{3, 27\} \in R, \{5, 125\} \in R \text{ and } \{7, 343\} \in R$$

$$\therefore \text{Relation } R \text{ in roster form is } = \{(2, 8), (3, 27), (5, 125), (7, 343)\}$$

### Class 11 Solutions Chapter 2 Relations Ex 2.3 Q18

We have,

$$A = \{1, 2, 3, 4, 5, 6\}$$

and,  $R = \{(a, b) : a, b \in A, b \text{ is exactly divisible by } a\}$

(i) Now,  $a/b$  stands for ' $a$  divides  $b$ '. For the elements of the given sets  $A$  and  $A$ , we find that

$$1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 2/2, 2/4, 2/6, 3/3, 3/6, 4/4, 5/5, 6/6$$

$\therefore$  Relation  $R$  in roster form is

$$R = \{(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 2), (2, 4), (2, 6), (3, 3), (3, 6), (4, 4), (5, 5), (6, 6)\}$$

$$(ii) \text{ Domain } \{R\} = \{1, 2, 3, 4, 5, 6\}$$

$$(iii) \text{ Range } \{R\} = \{1, 2, 3, 4, 5, 6\}$$

### Class 11 Solutions Chapter 2 Relations Ex 2.3 Q19

(i) Set builder form of the relation from  $P$  to  $Q$  is

$$R = \{(x, y) : y = x - 2, x \in P, y \in Q\}$$

(ii) Roster form of the relation from  $P$  to  $Q$  is

$$R = \{(5, 3), (6, 4), (7, 5)\}$$

$$\text{Domain } \{R\} = \{5, 6, 7\}$$

$$\text{Range } \{R\} = \{3, 4, 5\}$$

\*\*\*\*\* END \*\*\*\*\*

