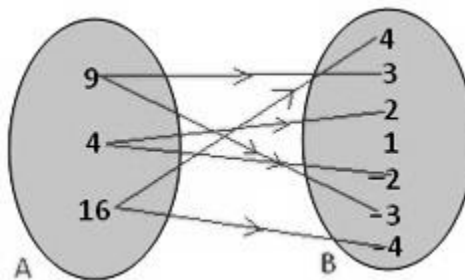# RELATIONS AND FUNCTIONS

EXAMPLES OF ARROW DIAGRAMS

EXERCISE
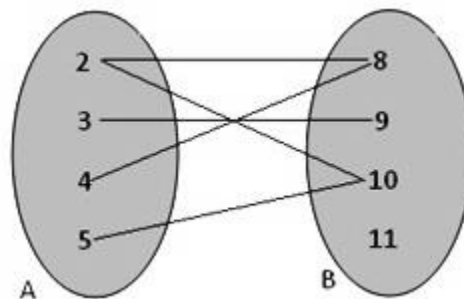
Q.1 The arrow diagram shows the relation (R) from set A to set B. Write this relation in the roster form.

Q.2 Let A = {2, 3, 4, 5} and B = {8, 9, 10, 11}.

Let R be the relation 'is factor of' from A to B.

(a) Write R in the roster form. Also, find Domain and Range of R.

(b) Draw an arrow diagram to represent the relation.

Q.3 Let A = {1, 2, 3, 4, 5} and B = {p, q, r, s}. Let R be a relation from A in B defined by

R = {1, p}, (1, r), (3, p), (4, q), (5, s)} Find domain and range of R.

Q.4 Determine the domain and range of the relation R defined by R = {x + 2, x + 3}:

x ∈ {0, 1, 2, 3, 4, 5}

Q.5   Let A = {3, 4, 5, 6, 7, 8}. Define a relation R from A to A by

- Depict this relation using an arrow diagram.
- Write down the domain and range

ANSWER KEY

1.   Roster form: R = {(9, 3); (9, -3); (4, 2); (4, -2); (16, 4); (16, -4)}

2.   (a) R = {(2, 8); (2, 10); (3, 9); (4, 8), (5, 10)}

      Domain of R = {2, 3, 4, 5} and

      Range of R = {8, 10, 9}

      (b) The arrow diagram representing R is as follows:

3.   Domain of R = {1, 3, 4, 5}

      Range of R = {p, r, q, s}

4.   Domain of R = {2, 3, 4, 5, 6, 7}

      Range of R = {3, 4, 5, 6, 7, 8}

5.   R= { (4, 3) (5, 4) (6, 5)}

      Domain= { 4, 5, 6}

      Range = { 3, 4, 5}