

EduSahara™ Learning Center Assignment

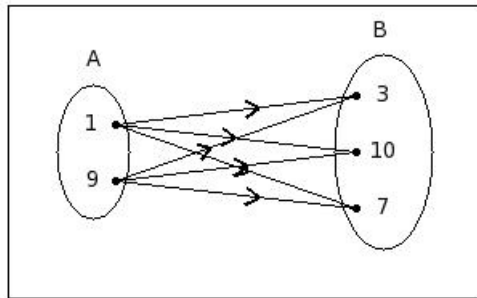
Grade : Class VIII, ICSE

Chapter : Relations and Mapping

Name : Relations

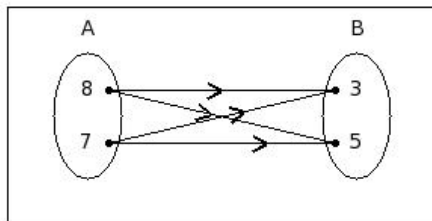
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1. If $A = \{1, 9\}$ and $B = \{3, 10, 7\}$, find $A \times B$

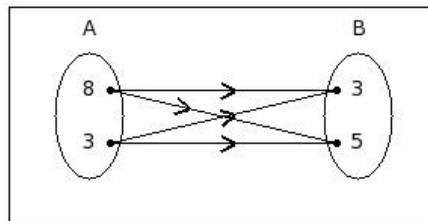


- (i) $\{(1,3), (1,10), (1,7), (9,10), (9,7), (4,8)\}$
 (ii) $\{(1,3), (1,10), (1,7), (9,10), (9,7)\}$
 (iii) $\{(1,3), (1,10), (1,7), (9,3), (9,10), (9,7)\}$
 (iv) $\{(1,3), (1,10), (1,7), (9,3), (9,10), (9,7), (7,1)\}$
 (v) $\{(1,3), (1,10), (9,3), (9,10), (9,7), (7,1)\}$

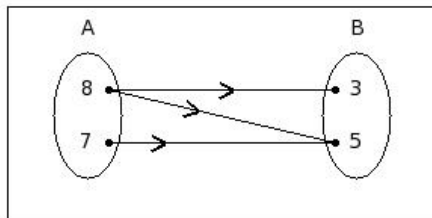
2. If $A = \{8, 7\}$ and $B = \{3, 5\}$, then $A \times B$ is



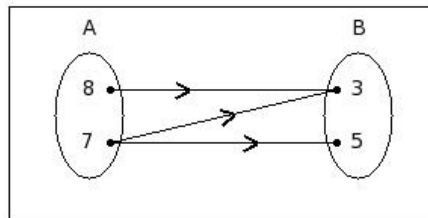
I



II



III

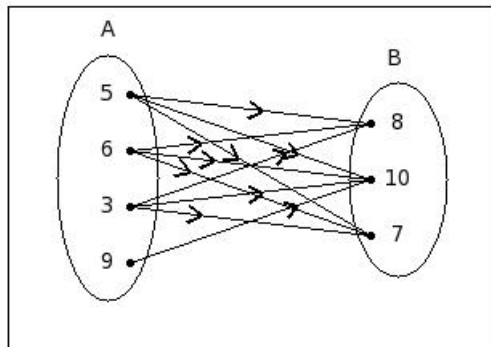


IV

- (i) I (ii) II (iii) IV (iv) III

If $A = \{5, 6, 3, 9\}$ and $B = \{8, 10, 7\}$,

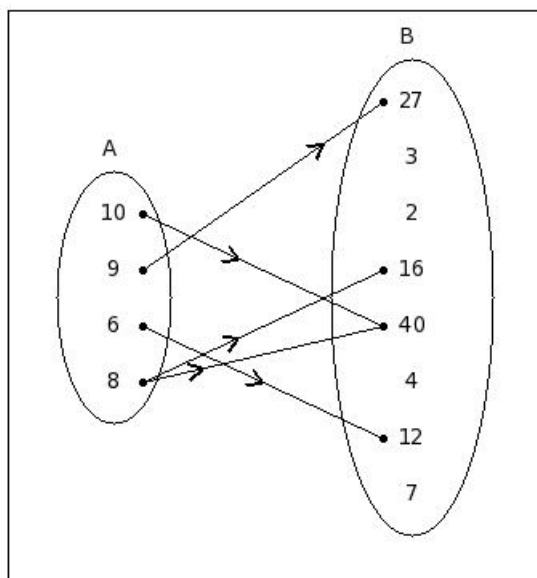
3. then the relation $R: A \rightarrow B$ such that $a \in A$ is less than $b \in B$ is



- (i) $\{(5, 8), (5, 10), (5, 7), (6, 8), (6, 10), (6, 7), (3, 8), (3, 10), (3, 7), (9, 10)\}$
- (ii) $\{(5, 8), (5, 10), (5, 7), (6, 8), (6, 10), (6, 7), (3, 8), (3, 10), (3, 7), (9, 10), (8, 6)\}$
- (iii) $\{(5, 8), (5, 10), (5, 7), (6, 8), (6, 7), (3, 8), (3, 10), (3, 7), (9, 10), (11, 5)\}$
- (iv) $\{(5, 8), (5, 10), (5, 7), (6, 8), (6, 10), (3, 8), (3, 10), (3, 7), (9, 10)\}$
- (v) $\{(5, 8), (5, 10), (5, 7), (6, 10), (6, 7), (3, 8), (3, 10), (3, 7), (9, 10), (8, 6)\}$

If $A = \{10, 9, 6, 8\}$ and $B = \{27, 3, 2, 16, 40, 4, 12, 7\}$,

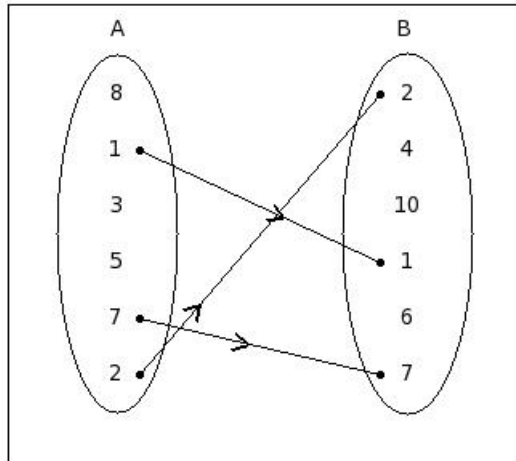
4. then the relation $R: A \rightarrow B$ such that $a \in A$ is a factor of $b \in B$ is



- (i) $\{(10, 40), (9, 27), (6, 12), (8, 16), (8, 40), (27, 9)\}$
- (ii) $\{(10, 40), (6, 12), (8, 16), (8, 40), (27, 9)\}$
- (iii) $\{(10, 40), (9, 27), (8, 16), (8, 40), (13, 5)\}$
- (iv) $\{(10, 40), (9, 27), (8, 16), (8, 40)\}$
- (v) $\{(10, 40), (9, 27), (6, 12), (8, 16), (8, 40)\}$

If $A = \{8, 1, 3, 5, 7, 2\}$ and $B = \{2, 4, 10, 1, 6, 7\}$,

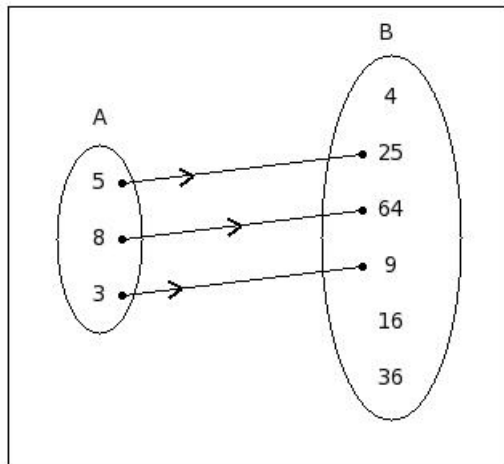
5. then the relation $R: A \rightarrow B$ such that $a \in A$ is equal of $b \in B$ is



- (i) $\{(1,1), (7,7), (2,2), (3,3)\}$
- (ii) $\{(1,1), (2,2)\}$
- (iii) $\{(1,1), (7,7), (3,1)\}$
- (iv) $\{(1,1), (7,7), (2,2), (10,10)\}$
- (v) $\{(1,1), (7,7), (2,2)\}$

If $A = \{5, 8, 3\}$ and $B = \{4, 25, 64, 9, 16, 36\}$,

6. then the relation $R: A \rightarrow B$ such that $a \in A$ is the square root of $b \in B$ is



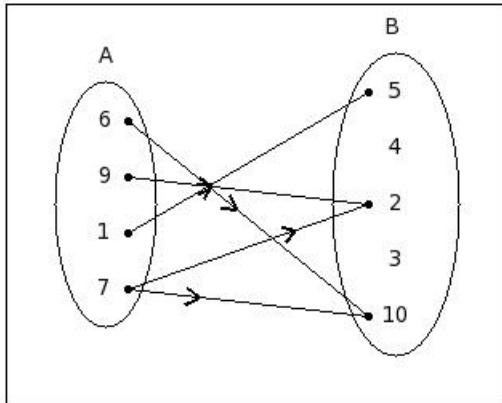
- (i) $\{(5,25), (8,64), (10,2)\}$
- (ii) $\{(5,25), (3,9), (64,8)\}$
- (iii) $\{(5,25), (3,9)\}$
- (iv) $\{(5,25), (8,64), (3,9), (64,8)\}$
- (v) $\{(5,25), (8,64), (3,9)\}$

Find the domain in the given roster form,

7. where $R = \{(3,6), (2,4), (1,4), (1,6), (5,10)\}$

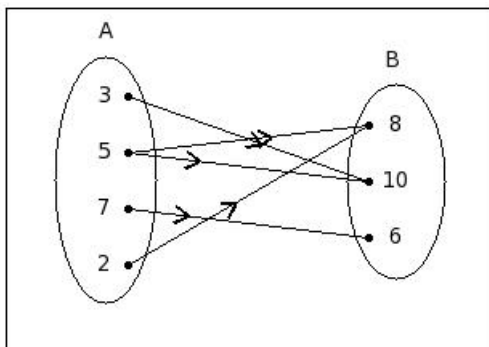
- (i) $\{2,3,5,1,10\}$
 - (ii) $\{10,6,8,4\}$
 - (iii) $\{2,3,1\}$
 - (iv) $\{3,2,1,5\}$
 - (v) $\{3,2,1,5,10\}$
-

8. Find the domain of the given relation.



- (i) $\{9,7,1,6\}$
 - (ii) $\{9,7,1,6,2\}$
 - (iii) $\{5,4,2,3,10\}$
 - (iv) $\{6,9,1,7,3\}$
 - (v) $\{9,1,7\}$
-

9. Find the co-domain of given relation diagram.



- (i) $\{8,10,6,3\}$
- (ii) $\{5,3,7,2\}$
- (iii) $\{8,10,6\}$

(iv) $\{3,5,7,2,10\}$

(v) $\{3,5,7,2\}$

10. Find the range in given roster form,
where $R = \{(1,7),(6,2),(4,7),(9,2),(4,2)\}$

(i) $\{9,4,1,5,6\}$

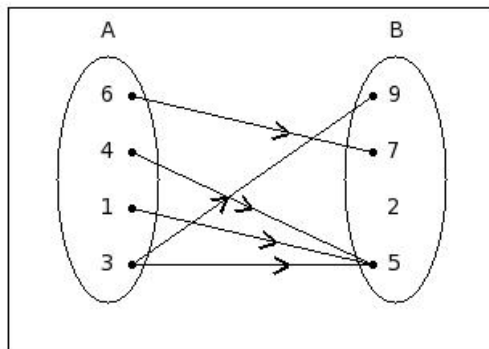
(ii) $\{7,10,2\}$

(iii) $\{1,6,4,9,10\}$

(iv) $\{7,10,2,4\}$

(v) $\{7,2\}$

11. Find the range of given relation diagram.



(i) $\{9,7,2,5,3\}$

(ii) $\{6,4,1,3\}$

(iii) $\{5,7,9\}$

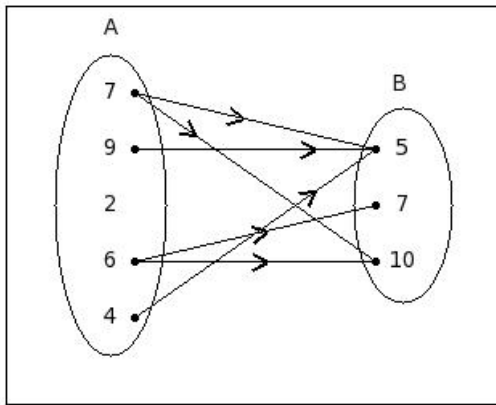
(iv) $\{9,7,2,5\}$

(v) $\{1,6,3,4,7\}$

12. Find the cardinality of the given roster form,
where $R = \{(6,1),(2,4),(6,8),(2,10),(2,1),(6,2),(2,8),(6,4),(7,4),(7,8)\}$

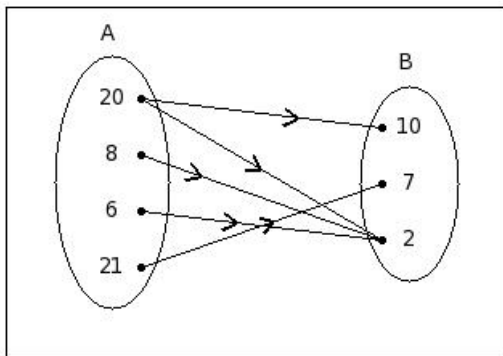
(i) 8 (ii) 11 (iii) 9 (iv) 13 (v) 10

13. Find the cardinality of the given relation



- (i) 5 (ii) 6 (iii) 4 (iv) 7 (v) 9

14. If $A = \{20, 8, 6, 21\}$ and $B = \{10, 7, 2\}$,
then the relation $R: A \rightarrow B$ such that $a \in A$ is a multiple of $b \in B$ is



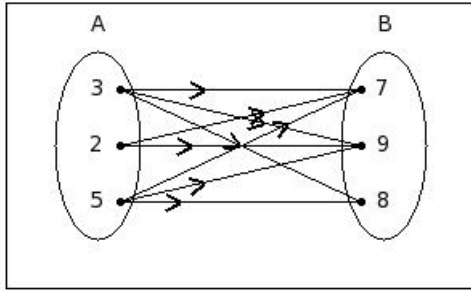
- (i) $\{(20, 10), (20, 2), (8, 2), (6, 2), (21, 7), (2, 20)\}$
 (ii) $\{(20, 10), (20, 2), (6, 2), (21, 7)\}$
 (iii) $\{(20, 10), (8, 2), (6, 2), (21, 7), (2, 20)\}$
 (iv) $\{(20, 10), (20, 2), (8, 2), (6, 2), (21, 7)\}$
 (v) $\{(20, 10), (20, 2), (6, 2), (21, 7), (3, 7)\}$

15. Find the domain and range of the given relation
 $R: A \rightarrow B = \{(5, 4), (5, 9), (5, 2), (2, 4), (2, 9), (2, 2), (4, 4), (4, 9), (4, 2)\}$

- (i) $A = \{-3, 1, 8\}$, $B = \{-4, 11, 4\}$
 (ii) $A = \{2, 1, 4, 5\}$, $B = \{1, 9, 2, 5\}$
 (iii) $A = \{5, 2, 4\}$, $B = \{4, 9, 2\}$
 (iv) $A = \{5, 2, 4\}$, $B = \{9, 4\}$
 (v) $A = \{7, 4, 2\}$, $B = \{4, 7, 9\}$

16. Write the relation $R: A \rightarrow B$ in the given diagram,

where $A = \{3, 2, 5\}$ and $B = \{7, 9, 8\}$



- (i) $\{(5, 8), (5, 9), (2, 9), (3, 9), (5, 7), (3, 7), (3, 8), (2, 7), (9, 2)\}$
- (ii) $\{(5, 8), (5, 9), (3, 9), (5, 7), (3, 7), (3, 8), (2, 7), (9, 2)\}$
- (iii) $\{(5, 8), (5, 9), (2, 9), (5, 7), (3, 7), (3, 8), (2, 7), (10, 2)\}$
- (iv) $\{(5, 8), (5, 9), (2, 9), (3, 9), (3, 7), (3, 8), (2, 7)\}$
- (v) $\{(5, 8), (5, 9), (2, 9), (3, 9), (5, 7), (3, 7), (3, 8), (2, 7)\}$

17. If $A = \{n, a, l, o, r\}$ and $B = \{m, q, i, j, k\}$,
which of the following is relation $R: A \rightarrow B$?

- (i) $\{(o, s), (l, g), (n, b), (a, g), (o, b)\}$
- (ii) $\{(k, s), (j, b), (q, b), (i, g), (k, g)\}$
- (iii) $\{(b, l), (g, l), (s, l), (b, n), (s, n)\}$
- (iv) $\{(q, l), (j, r), (k, n), (k, l), (i, r)\}$
- (v) $\{(o, q), (a, i), (l, k), (l, i), (a, q)\}$

18. If $A = \{d, e, l, q\}$ and $B = \{c, i, m, n\}$,
which of the following is relation $R: B \rightarrow A$?

- (i) $\{(a, d), (a, q), (o, l), (a, e), (o, e)\}$
- (ii) $\{(n, a), (n, o), (m, a), (i, o), (c, o)\}$
- (iii) $\{(q, m), (q, i), (l, n), (d, c), (e, i)\}$
- (iv) $\{(m, d), (n, e), (n, d), (c, e), (n, q)\}$
- (v) $\{(e, o), (d, a), (q, a), (l, a), (q, o)\}$

19. Which of the following are true?

- a) $(a, b) \in \{(a, b)\}$
- b) $a \in (a, b)$
- c) $(a, b) \subset \{a, b\}$

d) $(a,b) \neq \{a,b\}$

e) $(a,b) = (b,a)$

(i) $\{a,d\}$ (ii) $\{b,a\}$ (iii) $\{c,d\}$ (iv) $\{e,b,a\}$ (v) $\{c,d,a\}$

20. If $((x + 8y + 7), 7) = (7, (3x + 7y + 6))$ then find (x,y)

(i) $(\frac{10}{17}, (\frac{-1}{17}))$

(ii) $(\frac{8}{19}, (\frac{-1}{19}))$

(iii) $(\frac{8}{17}, (\frac{-1}{17}))$

(iv) $(\frac{8}{17}, (\frac{-1}{15}))$

(v) $(\frac{-1}{17}, \frac{8}{17})$

21. If $n(A) = 2$ and $n(B) = 4$ then the number of possible relations from $A \rightarrow B$ is

(i) 256 (ii) 254 (iii) 258 (iv) 255 (v) 253

22. Which of the following statements are true if $f: A \rightarrow B$ and $a \in A, b \in B$?

a) $f(b) = a$

b) $f(b)$ is called the image of b under f

c) $f(a)$ is called the image of a under f

d) $f(a) = b$

(i) $\{a,d,c\}$ (ii) $\{a,b,c\}$ (iii) $\{b,d\}$ (iv) $\{c,d\}$ (v) $\{a,c\}$

Assignment Key

- 1) (iii)
- 2) (i)
- 3) (i)
- 4) (v)
- 5) (v)
- 6) (v)
- 7) (iv)
- 8) (i)
- 9) (iii)
- 10) (v)
- 11) (iii)
- 12) (v)
- 13) (ii)
- 14) (iv)
- 15) (iii)
- 16) (v)
- 17) (v)
- 18) (iv)
- 19) (i)
- 20) (iii)
- 21) (iv)
- 22) (iv)