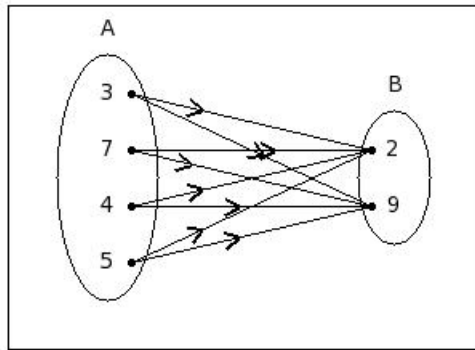


EduSahara™ Learning Center Assignment

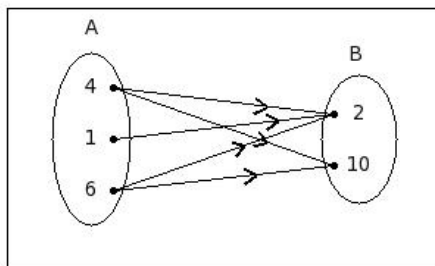
Grade : Class VIII, ICSE
Chapter : Relations and Mapping
Name : Concepts
Licensed To : Teachers and Students for non-commercial use

1. If $A = \{3, 7, 4, 5\}$ and $B = \{2, 9\}$, find $A \times B$

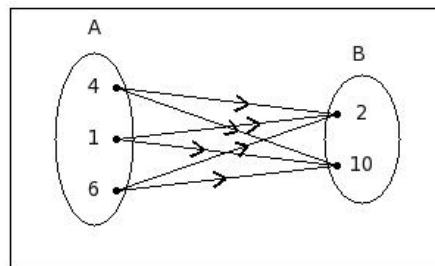


- (i) $\{(3, 2), (3, 9), (7, 2), (7, 9), (4, 2), (4, 9), (5, 2), (5, 9)\}$
 (ii) $\{(3, 2), (3, 9), (7, 2), (7, 9), (4, 2), (4, 9), (5, 2), (5, 9), (2, 7)\}$
 (iii) $\{(3, 2), (3, 9), (7, 2), (4, 2), (4, 9), (5, 2), (5, 9), (10, 6)\}$
 (iv) $\{(3, 2), (3, 9), (7, 2), (7, 9), (4, 9), (5, 2), (5, 9)\}$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

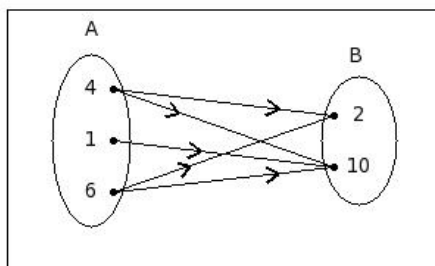
2. If $A = \{4, 1, 6\}$ and $B = \{2, 10\}$, then $A \times B$ is



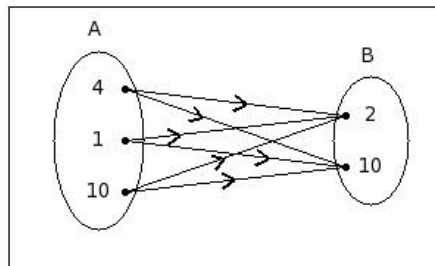
I



II



III

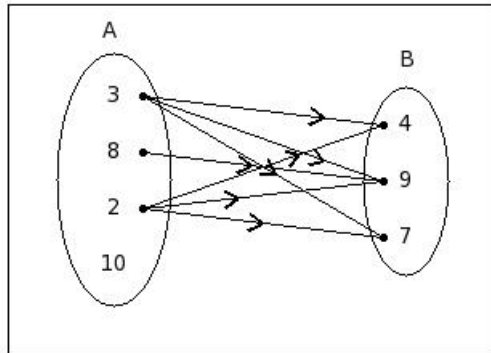


IV

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

If $A = \{3, 8, 2, 10\}$ and $B = \{4, 9, 7\}$,

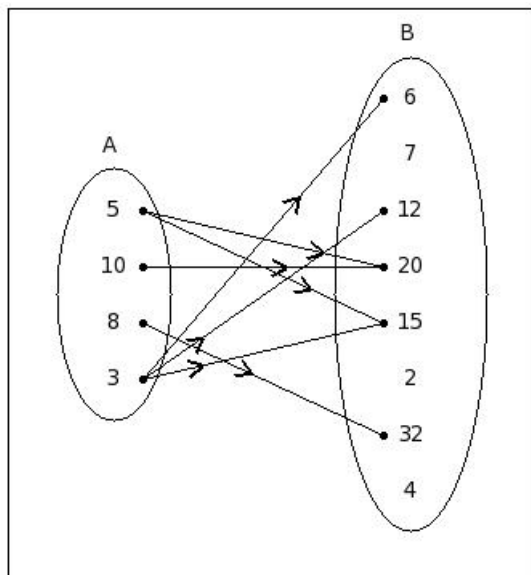
3. then the relation $R: A \rightarrow B$ such that $a \in A$ is less than $b \in B$ is



- (i) $\{(3, 4), (3, 9), (3, 7), (2, 4), (2, 9), (2, 7), (10, 7)\}$
 (ii) $\{(3, 4), (3, 9), (8, 9), (2, 4), (2, 9), (2, 7), (7, 3)\}$
 (iii) $\{(3, 4), (3, 9), (3, 7), (2, 4), (2, 9), (2, 7)\}$
 (iv) $\{(3, 4), (3, 9), (3, 7), (8, 9), (2, 4), (2, 9), (2, 7), (7, 3)\}$
 (v) $\{(3, 4), (3, 9), (3, 7), (8, 9), (2, 4), (2, 9), (2, 7)\}$

If $A = \{5, 10, 8, 3\}$ and $B = \{6, 7, 12, 20, 15, 2, 32, 4\}$,

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

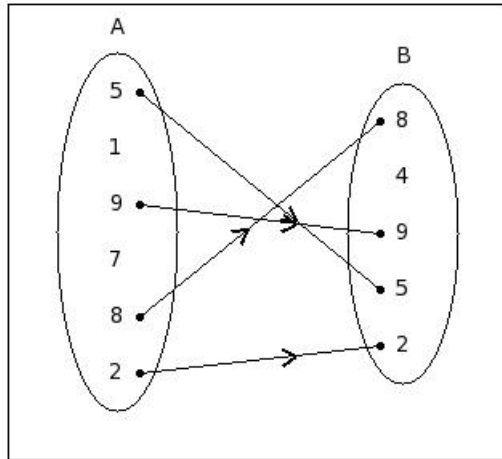


- (i) $\{(5, 20), (5, 15), (10, 20), (8, 32), (3, 6), (3, 12), (3, 15), (20, 10)\}$
 (ii) $\{(5, 20), (5, 15), (8, 32), (3, 6), (3, 12), (3, 15), (20, 10)\}$
 (iii) $\{(5, 20), (5, 15), (10, 20), (3, 6), (3, 12), (3, 15), (33, 7)\}$

(iv) $\{(5,20),(5,15),(10,20),(8,32),(3,6),(3,12),(3,15)\}$

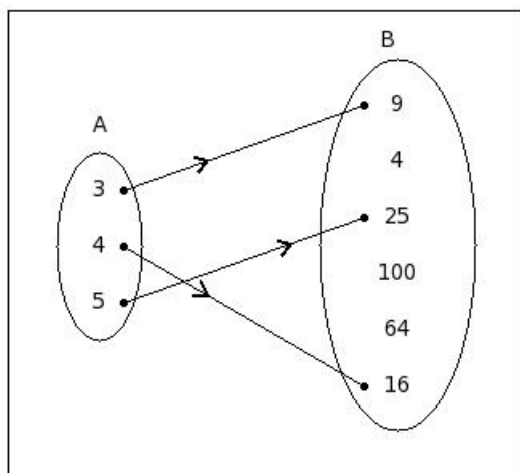
(v) $\{(5,20),(5,15),(10,20),(3,6),(3,12),(3,15)\}$

5. If $A = \{5,1,9,7,8,2\}$ and $B = \{8,4,9,5,2\}$,
then the relation $R: A \rightarrow B$ such that $a \in A$ is equal of $b \in B$ is



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

6. If $A = \{3,4,5\}$ and $B = \{9,4,25,100,64,16\}$,
then the relation $R: A \rightarrow B$ such that $a \in A$ is the square root of $b \in B$ is



- (i) $\{(3,9),(4,16),(26,4)\}$
 (ii) $\{(3,9),(4,16),(5,25),(16,4)\}$

(iii) $\{(3,9),(4,16),(5,25)\}$

(iv) $\{(3,9),(5,25),(16,4)\}$

(v) $\{(3,9),(5,25)\}$

Find the domain in the given roster form,

7. where $R = \{(9,8),(3,2),(7,10),(3,8),(7,2)\}$

(i) $\{2,8,10\}$

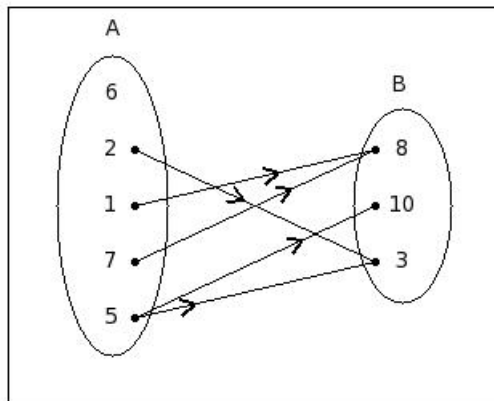
(ii) $\{7,9\}$

(iii) $\{9,3,7\}$

(iv) $\{9,3,7,8\}$

(v) $\{7,9,3,10\}$

8. Find the domain of the given relation.



(i) $\{1,5,2,7\}$

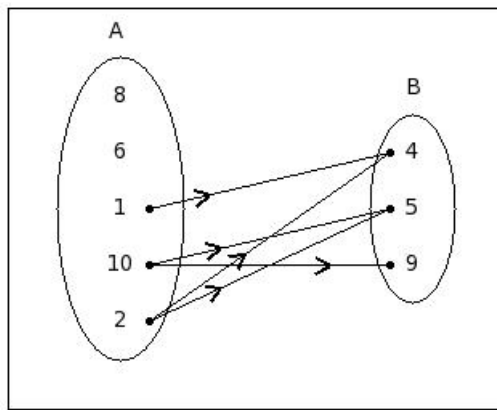
(ii) $\{1,5,2,7,8\}$

(iii) $\{6,2,1,7,5,10\}$

(iv) $\{8,10,3\}$

(v) $\{6,2,1,7,5\}$

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

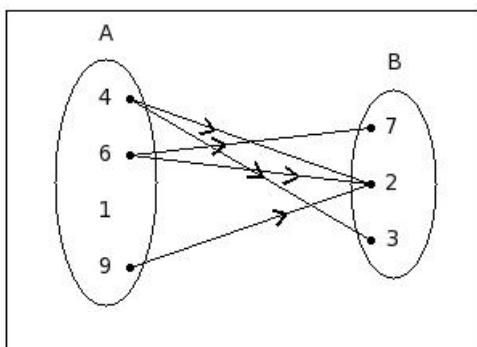


- (i) $\{4, 5, 9\}$
- (ii) $\{8, 6, 1, 10, 2\}$
- (iii) $\{4, 5, 9, 2\}$
- (iv) $\{8, 6, 1, 10, 2, 4\}$
- (v) $\{1, 10, 2\}$

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

- (i) $\{3, 6, 10, 1, 4, 8\}$
- (ii) $\{10, 1, 4, 6\}$
- (iii) $\{7, 2, 8, 6\}$
- (iv) $\{3, 6, 10, 1, 4\}$
- (v) $\{8, 7, 2\}$

11. Find the range of given relation diagram.

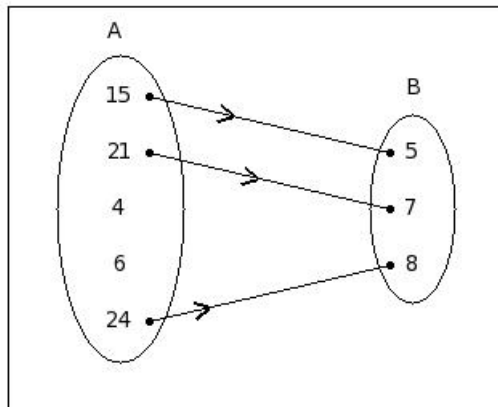


- (i) $\{4, 6, 1, 9\}$
- (ii) $\{7, 2, 3, 1\}$
- (iii) $\{7, 3\}$
- (iv) $\{7, 3, 2\}$

(v) $\{6,4,9,7\}$

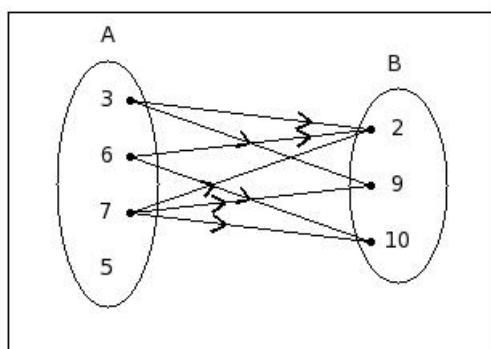
12. Find the cardinality of the given roster form,
 where $R = \{(9,9), (10,2), (10,6), (1,1), (10,1), (1,2), (1,9), (3,9), (9,1), (10,9)\}$
- (i) 12 (ii) 11 (iii) 7 (iv) 9 (v) 10

13. If $A = \{15, 21, 4, 6, 24\}$ and $B = \{5, 7, 8\}$,
 then the relation $R: A \rightarrow B$ such that $a \in A$ is a multiple of $b \in B$ is



- (i) $\{(15,5), (21,7), (24,8)\}$
 (ii) $\{(15,5), (24,8)\}$
 (iii) $\{(15,5), (21,7), (9,23)\}$
 (iv) $\{(15,5), (24,8), (7,21)\}$
 (v) $\{(15,5), (21,7), (24,8), (7,21)\}$

14. If R is a relation from $A \rightarrow B$,
 where $A = \{3, 6, 7, 5\}$ and $B = \{2, 9, 10\}$, find R^{-1} .



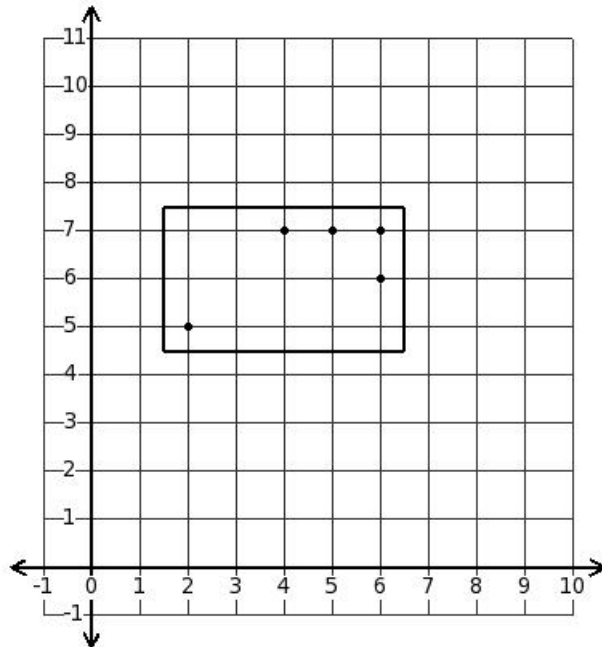
- (i) $\{(2,3), (10,7), (2,6), (2,7), (9,3), (10,6)\}$
 (ii) $\{(2,3), (10,7), (9,7), (2,7), (9,3), (10,6), (6,2)\}$
 (iii) $\{(2,3), (10,7), (2,6), (9,7), (2,7), (9,3), (10,6)\}$

(iv) $\{(2,3),(10,7),(2,6),(2,7),(9,3),(10,6),(8,8)\}$

(v) $\{(2,3),(10,7),(2,6),(9,7),(2,7),(9,3),(10,6),(6,2)\}$

If $A = \{2,6,7,4,5\}$ and $B = \{7,6,5\}$,

15. find the roster form of the relation $R: A \rightarrow B$ shown in the diagram



(i) $\{(2,5),(6,7),(5,7),(6,6),(4,7),(7,6)\}$

(ii) $\{(2,5),(6,7),(6,6),(4,7),(8,4)\}$

(iii) $\{(2,5),(6,7),(6,6),(4,7)\}$

(iv) $\{(2,5),(6,7),(5,7),(6,6),(4,7)\}$

(v) $\{(2,5),(5,7),(6,6),(4,7),(7,6)\}$

If $A = \{h,o,r\}$ and $B = \{j,m,e\}$,

16. which of the following is relation $R: A \rightarrow B$?

(i) $\{(m,o),(m,h),(j,o),(e,r),(j,h)\}$

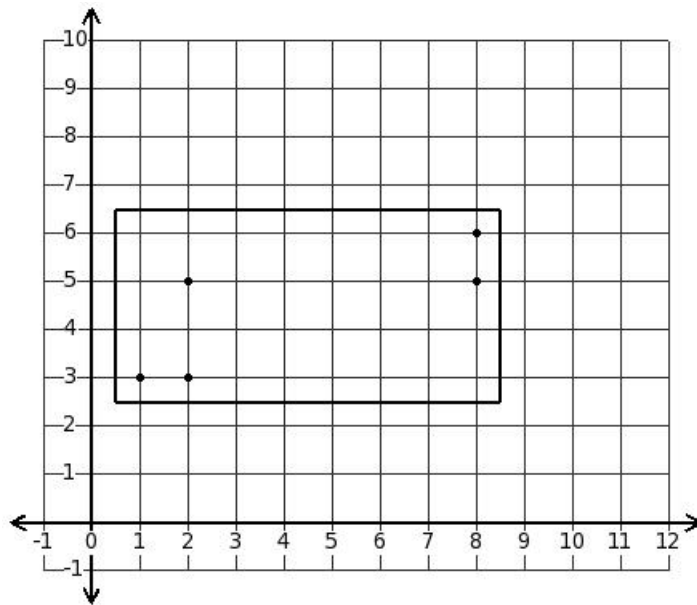
(ii) $\{(r,q),(r,s),(r,b),(o,f),(h,f)\}$

(iii) $\{(e,f),(m,s),(j,b),(e,p),(j,n)\}$

(iv) $\{(b,o),(s,o),(d,h),(f,r),(p,r)\}$

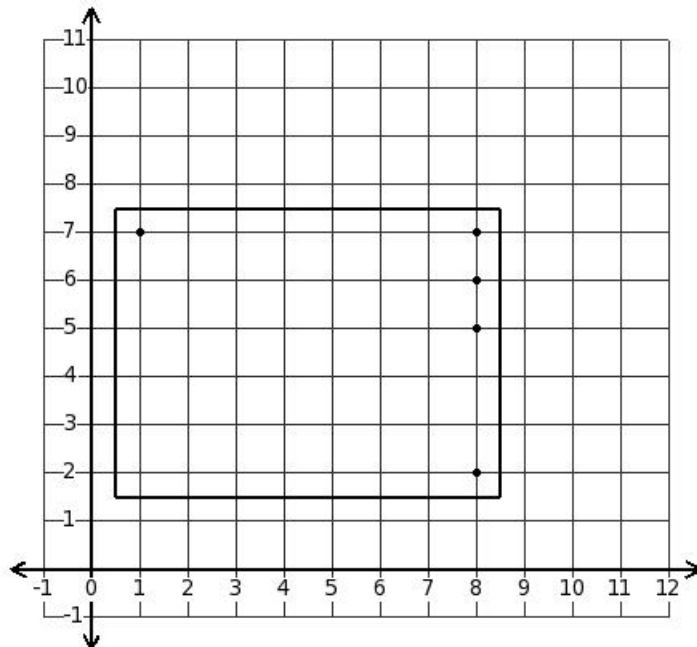
(v) $\{(h,e),(o,m),(h,m),(r,e),(o,j)\}$

17. Find the domain from the given graphical representation of relation R.



- (i) $\{7, 6, 3, 5\}$
- (ii) $\{8, 1, 4, 2\}$
- (iii) $\{2, 8, 1, 5\}$
- (iv) $\{2, 8, 1\}$
- (v) $\{8, 1, 4, 2, 5\}$

18. Find the range from the given graphical representation of relation R.



- (i) $\{8, 4, 3, 1\}$
- (ii) $\{7, 2, 5, 6, 3\}$
- (iii) $\{7, 5, 2, 6\}$

(iv) $\{8,4,3,1,6\}$

(v) $\{8,1\}$

19. Which of the following are true?

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

b) $(a,b) \in \{(a,b)\}$

c) $a \in (a,b)$

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

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

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

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

(i) 255 (ii) 256 (iii) 257 (iv) 254 (v) 252

21. If $A = \{2,3,4\}$ and $B = \{8,1,5\}$, find $(A \times B)^{-1}$

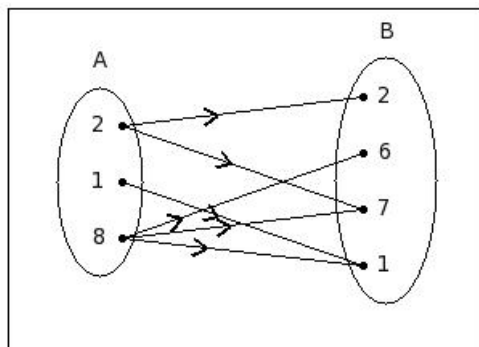
(i) $\{(8,2),(1,2),(5,2),(8,3),(1,3),(5,3),(8,4),(1,4),(5,4)\}$

(ii) $\{(2,8),(2,1),(2,5),(3,8),(3,1),(3,5),(4,8),(4,1),(4,5)\}$

(iii) $\{(8,2),(1,2),(5,2),(8,3),(5,3),(8,4),(1,4),(5,4),(4,0)\}$

(iv) $\{\}$

22. Find the cardinality of the given relation



(i) 3 (ii) 8 (iii) 5 (iv) 6 (v) 7

23. Find the domain and range of the given relation

$R: A \rightarrow B = \{(8,7),(8,9),(8,6),(4,7),(4,9),(4,6)\}$

(i) $A = \{-5,-4\}$, $B = \{7,3,2\}$

(ii) $A = \{8,6,9\}$, $B = \{9,7,6,10\}$

(iii) $A = \{8, 7\}$, $B = \{6, 7, 4\}$

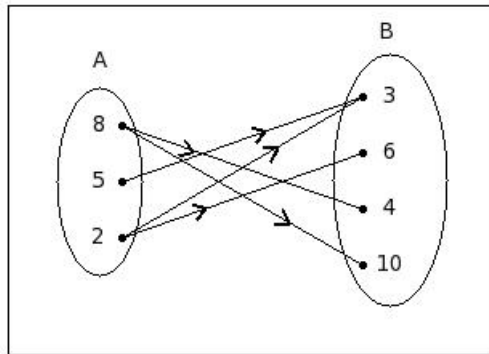
(iv) $A = \{5, 8\}$, $B = \{13, 9, 6\}$

(v) $A = \{8, 4\}$, $B = \{7, 9, 6\}$

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

24.

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



(i) $\{(2, 3), (8, 10), (2, 6), (8, 4), (5, 3), (10, 8)\}$

(ii) $\{(2, 3), (8, 10), (8, 4), (5, 3)\}$

(iii) $\{(2, 3), (8, 10), (8, 4), (5, 3), (7, 1)\}$

(iv) $\{(2, 3), (8, 10), (2, 6), (8, 4), (5, 3)\}$

(v) $\{(2, 3), (2, 6), (8, 4), (5, 3), (10, 8)\}$

25. If $f(x) = (2x + 4)$, then find $f(6)$

(i) 19 (ii) 17 (iii) 15 (iv) 16 (v) 13

26. If $f(x) = (3x + 4)$ and $g(y) = (4y + 9)$, then find $f(7)$, $g(9)$

(i) 26, 46 (ii) 25, 45 (iii) 23, 43 (iv) 28, 48 (v) 24, 44

27. If $f: A \rightarrow B$ is defined by $f(x) = (2x + 1)$ and $A = \{7, 5, 8, 1\}$, find the range

(i) $\{11, 17, 15\}$

(ii) $\{15, 11, 17, 3\}$

(iii) $\{17, 3, 23, 11\}$

(iv) $\{-15, 15, 3, 11, 16, 17\}$

(v) $\{-5, 31, 12, 17\}$

If $A = \{d, g, n\}$ and $B = \{c, i, k\}$,

28. which of the following is relation $R: B \rightarrow A$?

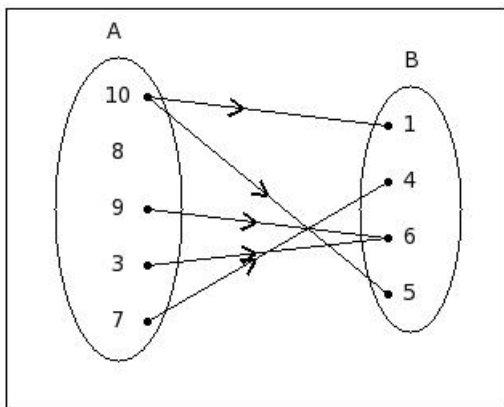
- (i) $\{(c, d), (c, n), (c, g), (i, g), (i, d)\}$
 - (ii) $\{(k, b), (c, h), (c, a), (i, b), (c, m)\}$
 - (iii) $\{(d, m), (n, a), (g, h), (d, a), (g, b)\}$
 - (iv) $\{(a, d), (h, n), (h, d), (b, g), (m, d)\}$
 - (v) $\{(n, c), (n, k), (g, k), (d, k), (d, c)\}$
-

Find the domain of R^{-1} where

29. $R = \{(2, 9), (8, 3), (6, 3), (4, 3), (8, 9)\}$

- (i) $\{4, 10, 1, 8, 2, 6\}$
 - (ii) $\{9, 3, 2\}$
 - (iii) $\{9, 3\}$
 - (iv) $\{4, 10, 1, 8, 6\}$
 - (v) $\{7, 5, 9, 4\}$
-

30. Find the domain of R^{-1} from the given diagram.



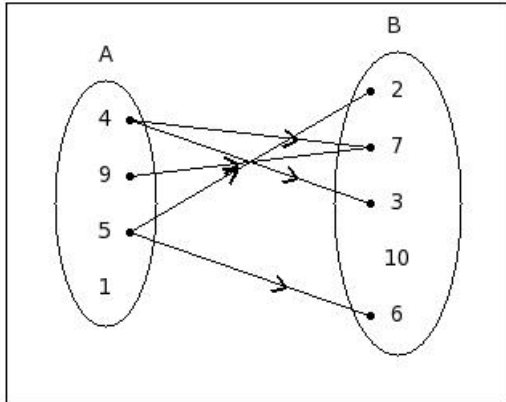
- (i) $\{10, 8, 9, 3, 7\}$
 - (ii) $\{4, 6, 5, 3\}$
 - (iii) $\{4, 6, 5, 1, 3\}$
 - (iv) $\{4, 6, 5, 1\}$
 - (v) $\{8, 9, 3, 7\}$
-

Find the range of R^{-1} where

31. $R = \{(6, 8), (7, 4), (5, 9), (7, 8), (1, 2)\}$

- (i) $\{6,5,10,7,3,9\}$
- (ii) $\{2,4,9\}$
- (iii) $\{2,4,8,9\}$
- (iv) $\{6,7,5,1\}$

32. Find the range of R^{-1} from the given diagram.



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

33. Find R^{-1} given $R = \{(3,6),(9,1),(9,8),(2,8),(9,5)\}$

- (i) $\{(5,9),(8,9),(8,2),(1,9)\}$
- (ii) $\{(5,9),(8,9),(6,3),(8,2),(1,9)\}$
- (iii) $\{(5,9),(8,9),(6,3),(8,2),(1,9),(9,8)\}$
- (iv) $\{(5,9),(6,3),(8,2),(1,9),(9,8)\}$
- (v) $\{(5,9),(8,9),(8,2),(1,9),(4,5)\}$

34. If $\left(\begin{pmatrix} 4x + 3y + 7 \\ 1 \end{pmatrix}, \begin{pmatrix} 7 \\ 3x + 8y + 9 \end{pmatrix} \right) = (7, (3x + 8y + 9))$ then find (x,y)

- (i) $\left(\frac{24}{23}, \left(\frac{-32}{23} \right) \right)$
- (ii) $\left(\frac{24}{23}, \left(\frac{-10}{7} \right) \right)$
- (iii) $\left(\left(\frac{-32}{23} \right), \frac{24}{23} \right)$
- (iv) $\left(\frac{26}{25}, \left(\frac{-34}{25} \right) \right)$

$$(v) \left(\frac{26}{23}, \left(\frac{-32}{23} \right) \right)$$

Assignment Key

- 1) (i)
- 2) (iii)
- 3) (v)
- 4) (iv)
- 5) (iv)
- 6) (iii)
- 7) (iii)
- 8) (i)
- 9) (i)
- 10) (ii)
- 11) (iv)
- 12) (v)
- 13) (i)
- 14) (iii)
- 15) (iv)
- 16) (v)
- 17) (iv)
- 18) (iii)
- 19) (v)
- 20) (i)
- 21) (i)
- 22) (iv)
- 23) (v)
- 24) (iv)
- 25) (iv)
- 26) (ii)
- 27) (ii)
- 28) (i)
- 29) (iii)
- 30) (iv)
- 31) (iv)
- 32) (v)
- 33) (ii)
- 34) (i)