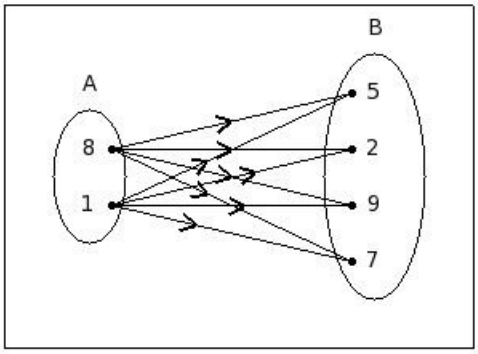
EduSahara™ Assignment

Name : Concepts

Chapter : Relations and Mapping

Grade : ICSE Grade VIII

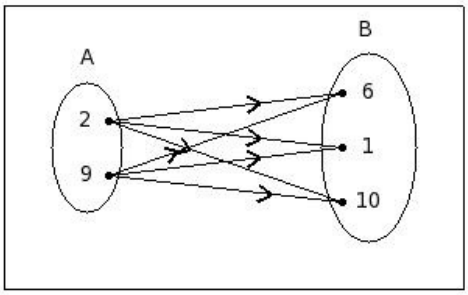
1. If $A = \{8,1\}$ and $B = \{5,2,9,7\}$, find $A \times B$



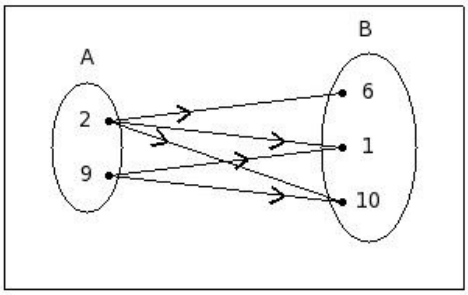
(i) {(8,5),(8,2),(8,9),(8,7),(1,5),(1,2),(1,9),(1,7),(9,8)} (ii) {} (iii) {(8,5),(8,2),(8,9),(8,7),(1,2),(1,9),(1,7)}

(iv) {(8,5),(8,2),(8,9),(8,7),(1,5),(1,2),(1,9),(1,7)} (v) {(8,5),(8,2),(8,7),(1,5),(1,2),(1,9),(1,7),(9,8)}

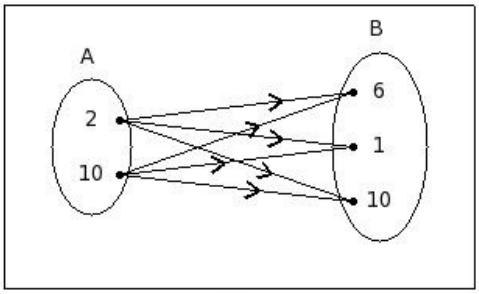
2. If $A = \{2,9\}$ and $B = \{6,1,10\}$, then $A \times B$ is



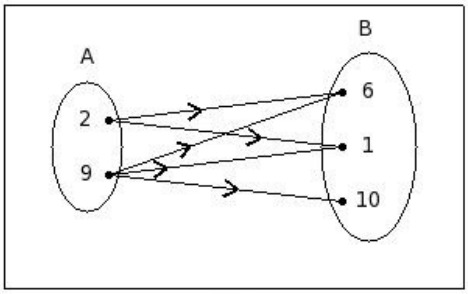
I



II



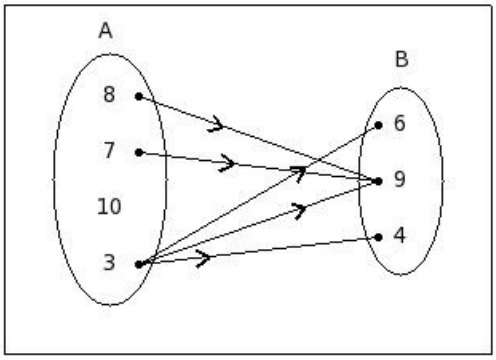
III



IV

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

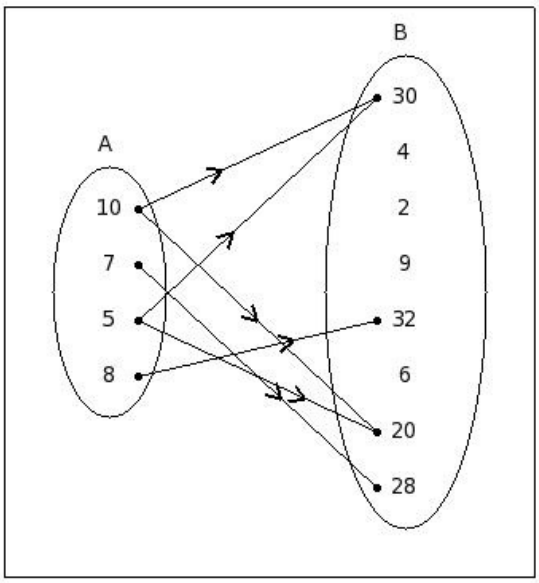
3. If $A = \{8,7,10,3\}$ and $B = \{6,9,4\}$,
then the relation $R: A \to B$ such that $a \in A$ is less than $b \in B$ is



(i) {(8,9),(3,6),(3,9),(3,4),(9,7)} (ii) {(8,9),(7,9),(3,6),(3,9),(3,4)} (iii) {(8,9),(7,9),(3,6),(3,9),(3,4),(9,7)}

(iv) {(8,9),(7,9),(3,9),(3,4)} (v) {(8,9),(7,9),(3,9),(3,4),(7,2)}

4. If $A = \{10,7,5,8\}$ and $B = \{30,4,2,9,32,6,20,28\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is

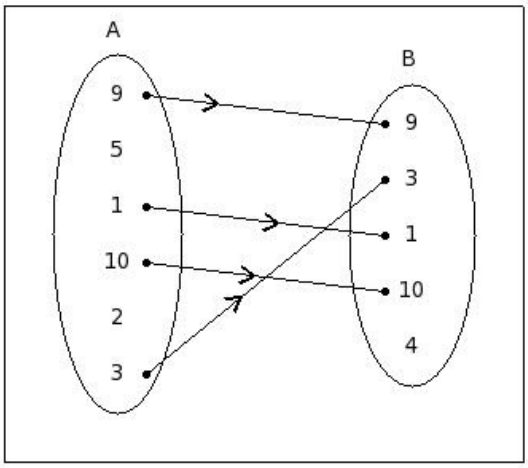


(i) {(10,30),(10,20),(5,30),(5,20),(8,32),(28,7)} (ii) {(10,30),(10,20),(7,28),(5,30),(5,20),(8,32),(28,7)}

(iii) {(10,30),(10,20),(7,28),(5,20),(8,32)} (iv) {(10,30),(10,20),(7,28),(5,20),(8,32),(31,4)}

(v) {(10,30),(10,20),(7,28),(5,30),(5,20),(8,32)}

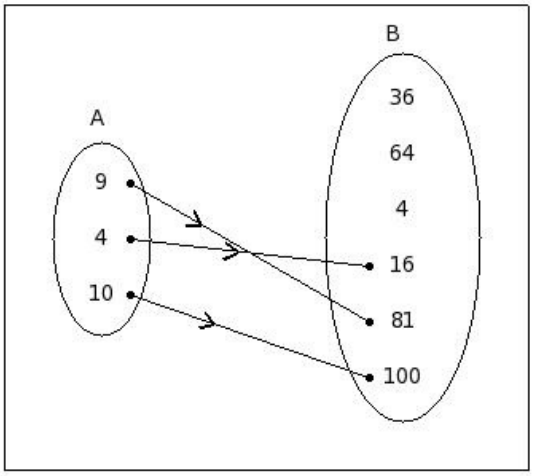
5. If $A = \{9,5,1,10,2,3\}$ and $B = \{9,3,1,10,4\}$,
then the relation $R: A \to B$ such that $a \in A$ is equal of $b \in B$ is



(i) {(9,9),(1,1),(3,3)} (ii) {(9,9),(1,1),(3,3),(11,9)} (iii) {(9,9),(1,1),(10,10),(3,3)}

(iv) {(9,9),(1,1),(10,10),(3,3),(4,4)} (v) {(9,9),(1,1),(10,10),(3,3),(2,2)}

6. If $A = \{9,4,10\}$ and $B = \{36,64,4,16,81,100\}$,
then the relation $R: A \to B$ such that $a \in A$ is the square root of $b \in B$ is



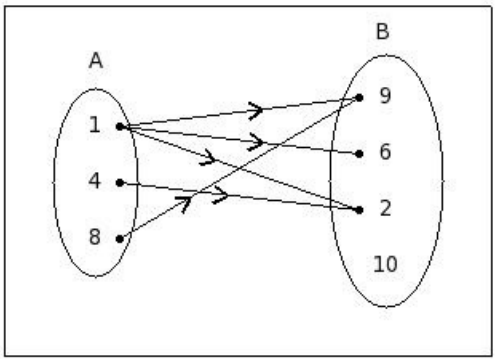
(i) {(9,81),(4,16),(101,9)} (ii) {(9,81),(4,16),(10,100),(16,4)} (iii) {(9,81),(10,100)}

(iv) {(9,81),(4,16),(10,100)} (v) {(9,81),(10,100),(16,4)}

7. Find the domain in the given roster form,
where R = {(5,3),(5,8),(2,1),(9,8),(10,3)}

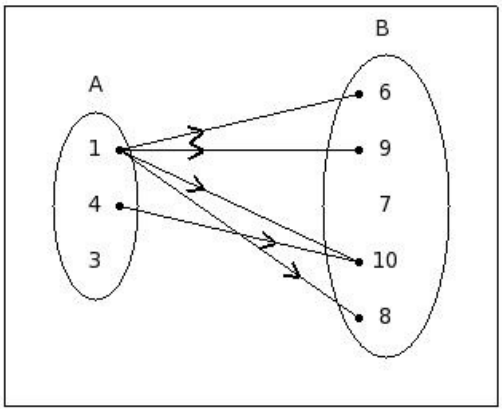
(i) {5,2,9,10} (ii) {5,2,9,10,3} (iii) {9,2,4,10,5} (iv) {9,2,4,10,5,3} (v) {1,8,3}

8. Find the domain of the given relation.



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

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

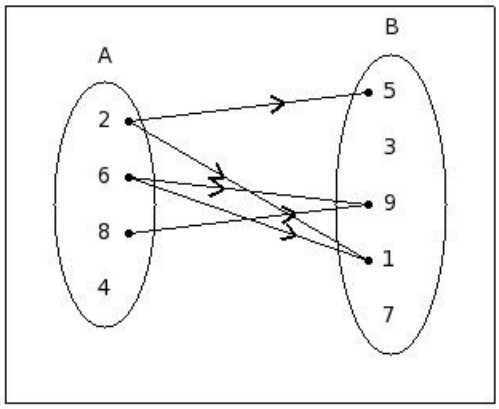


(i) {1,4,3} (ii) {1,4} (iii) {1,4,3,7} (iv) {6,9,7,10,8} (v) {6,9,7,10,8,1}

10. Find the range in given roster form,
where R = {(2,8),(4,10),(1,9),(2,6),(3,7)}

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

11. Find the range of given relation diagram.

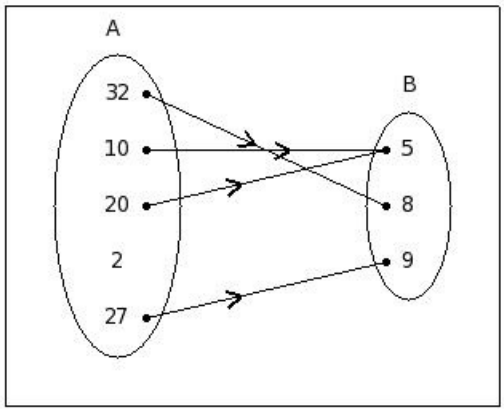


(i) {2,6,8,4} (ii) {5,3,9,1,7,4} (iii) {5,3,9,1,7} (iv) {6,2,8,7} (v) {1,5,9}

12. Find the cardinality of the given roster form,
where R = {(4,5),(6,1),(8,5),(1,1),(1,6),(6,2),(1,5),(4,10),(1,10),(4,2),(6,5),(6,6)}

(i) 15 (ii) 13 (iii) 11 (iv) 12 (v) 9

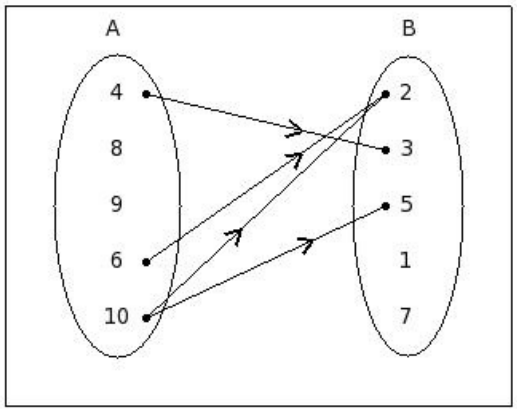
13. If A = {32,10,20,2,27} and B = {5,8,9} ,
then the relation R:A→B such that a ∈ A is a multiple of b ∈ B is



(i) {(32,8),(10,5),(27,9),(6,19)} (ii) {(32,8),(10,5),(20,5),(27,9)} (iii) {(32,8),(20,5),(27,9),(5,10)}

(iv) {(32,8),(10,5),(20,5),(27,9),(5,10)} (v) {(32,8),(10,5),(27,9)}

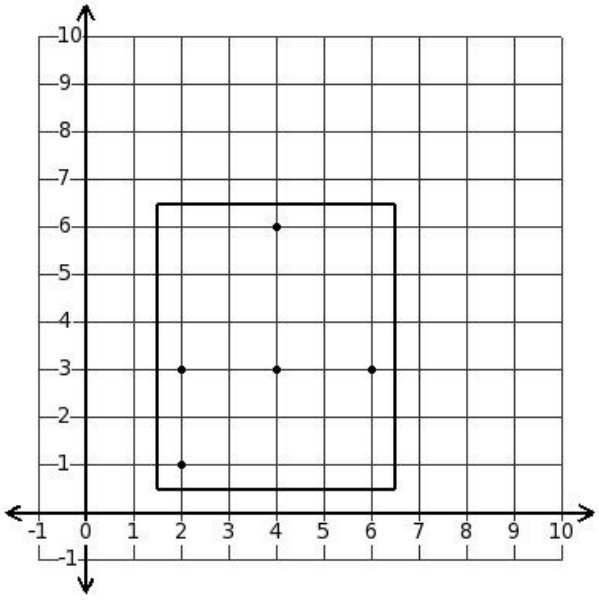
14. If R is a relation from A→B,
where A = {4,8,9,6,10} and B = {2,3,5,1,7} , find R^{-1}.



(i) {(5,10),(2,10),(2,6),(3,4)} (ii) {(5,10),(2,10),(2,6),(3,4),(10,2)} (iii) {(5,10),(2,10),(3,4)}

(iv) {(5,10),(2,10),(3,4),(7,1)} (v) {(5,10),(2,6),(3,4),(10,2)}

15. If $A = \{2,1,6,4\}$ and $B = \{2,6,3,1\}$,
find the roster form of the relation $R: A \to B$ shown in the diagram



(i) {(6,3),(2,3),(2,1),(4,3)} (ii) {(6,3),(2,3),(4,6),(2,1),(4,3),(3,2)} (iii) {(6,3),(2,3),(4,6),(2,1),(4,3)}

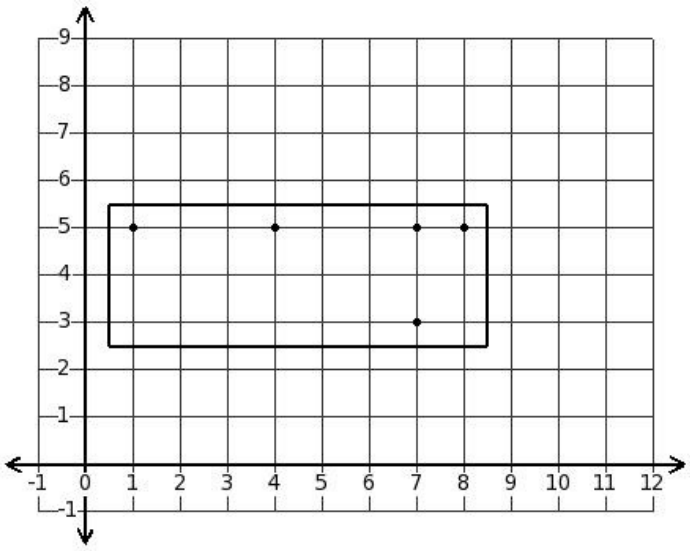
(iv) {(6,3),(2,3),(2,1),(4,3),(7,3)} (v) {(6,3),(4,6),(2,1),(4,3),(3,2)}

16. If $A = \{o,k,i\}$ and $B = \{m,p,b\}$,
which of the following is relation $R: A \to B$?

(i) {(b,s),(b,l),(p,s),(b,n),(p,g)} (ii) {(i,s),(o,g),(o,n),(o,e),(k,s)} (iii) {(s,o),(l,i),(e,k),(e,o),(c,o)}

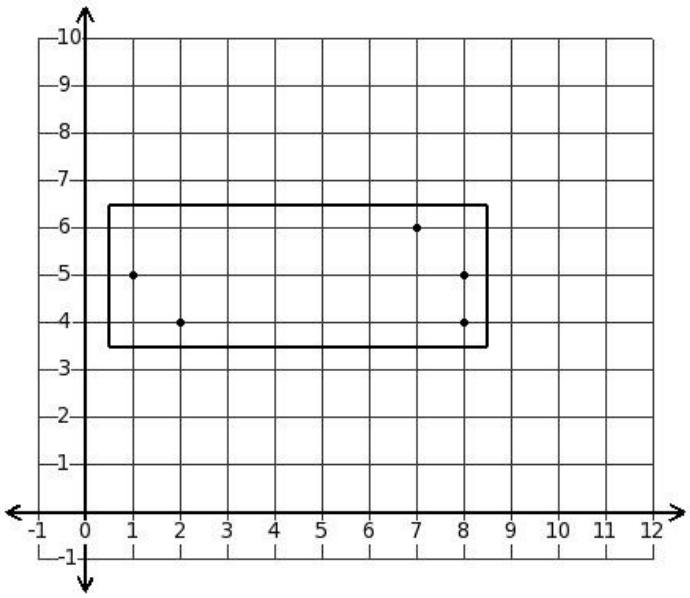
(iv) {(i,p),(i,b),(k,m),(k,b),(k,p)} (v) {(p,o),(p,k),(m,o),(b,i),(m,k)}

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



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

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



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

19. Which of the following are true?

a) $(a,b) \subset \{a,b\}$
b) (a,b) = (b,a)
c) $(a,b) \neq \{a,b\}$
d) $(a,b) \in \{(a,b)\}$
e) $a \in (a,b)$

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

20. If n(A) = 4 and n(B) = 3 then the number of possible relations from A → B is

(i) 4096 (ii) 4093 (iii) 4097 (iv) 4095 (v) 4094

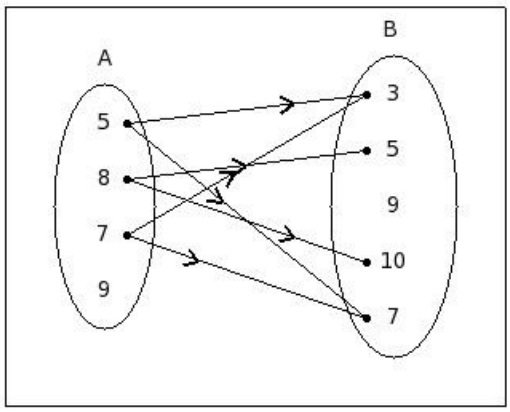
21. If A = {6,8,1} and B = {10,2,4} , find $(A \times B)^{-1}$

(i) {(10,6),(2,6),(4,6),(10,8),(4,8),(10,1),(2,1),(4,1),(9,1)} (ii) {}

(iii) {(6,10),(6,2),(6,4),(8,10),(8,2),(8,4),(1,10),(1,2),(1,4)}

(iv) {(10,6),(2,6),(4,6),(10,8),(2,8),(4,8),(10,1),(2,1),(4,1)}

22. Find the cardinality of the given relation



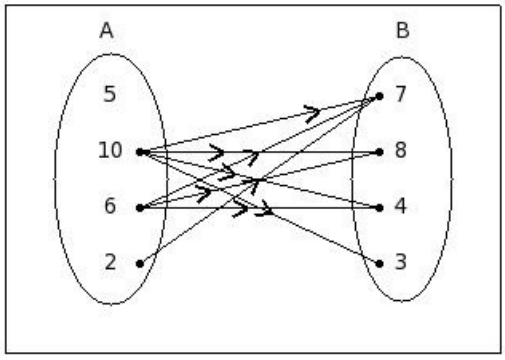
(i) 9 (ii) 5 (iii) 3 (iv) 7 (v) 6

23. Find the domain and range of the given relation
R:A→B = {(2,5),(2,7),(9,5),(9,7),(1,5),(1,7),(5,5),(5,7)}

(i) A = {2,1,16,3} , B ={3,2} (ii) A = {1,2,5,7} , B ={5,9} (iii) A = {9,1,13,2} , B ={14,5}

(iv) A = {2,9,1,5} , B = {5,7} (v) A = {9,1,3,7,5} , B ={5,7,9}

24. Write the relation R:A→B in the given diagram,
where A = {5,10,6,2} and B = {7,8,4,3}



(i) {(6,8),(10,7),(10,8),(6,7),(6,4),(2,7),(10,4),(3,10)} (ii) {(6,8),(10,7),(10,3),(6,7),(6,4),(2,7),(10,4),(9,9)}

(iii) {(6,8),(10,7),(10,3),(10,8),(6,7),(6,4),(2,7),(10,4),(3,10)} (iv) {(6,8),(10,7),(10,3),(10,8),(6,4),(2,7),(10,4)}

(v) {(6,8),(10,7),(10,3),(10,8),(6,7),(6,4),(2,7),(10,4)}

25. If $f(x)=(5x+5)$, then find $f(9)$

(i) 50 (ii) 52 (iii) 51 (iv) 49 (v) 48

26. If $f(x)=(7x+7)$ and $g(y)=(3y+6)$, then find $f(8)$, $g(8)$

(i) 65,33 (ii) 64,31 (iii) 60,27 (iv) 62,29 (v) 63,30

27. If f:A→B is defined by $f(x)=(6x+9)$ and A = {10,6,5,4} ,
find the range

(i) {45,36,69,49} (ii) {33,39,88,45} (iii) {69,45,39,33} (iv) {33,45,39,-19,69,11} (v) {33,39,69}

28. If A = {d,e,f,r} and B = {k,i,o,b} ,
which of the following is relation R:B→A ?

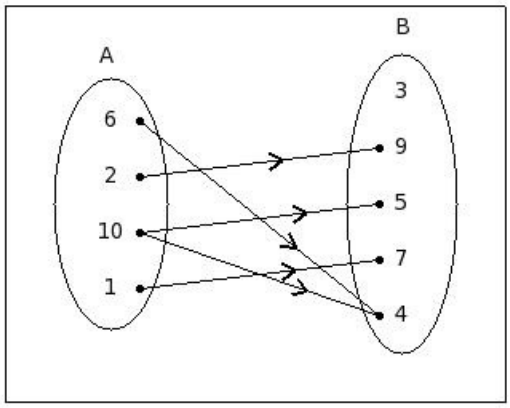
(i) {(e,k),(r,i),(r,o),(e,o),(e,b)} (ii) {(n,f),(m,f),(l,d),(n,r),(n,d)} (iii) {(k,r),(o,e),(b,d),(b,f),(b,r)}

(iv) {(o,h),(o,j),(b,h),(o,l),(i,h)} (v) {(f,h),(e,j),(d,j),(r,j),(d,n)}

29. Find the domain of R^{-1} where
R = {(3,9),(2,4),(7,4),(7,1),(2,9)}

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

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

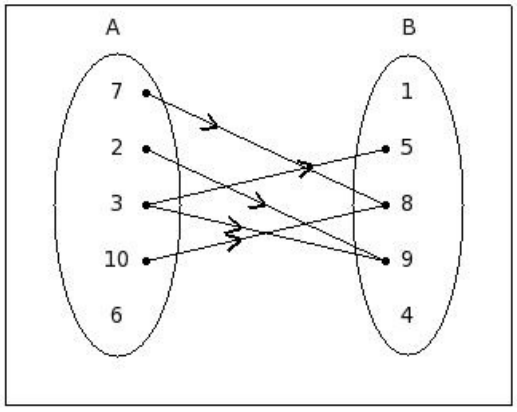


(i) {6,2,10,1} (ii) {6,2,1} (iii) {4,5,9,7,6} (iv) {4,5,9,7} (v) {3,9,5,4,2}

31. Find the range of R^{-1} where
R = {(10,1),(10,9),(2,6),(7,9),(7,1)}

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

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



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

33. Find R^{-1} given R = {(9,2),(9,7),(6,9),(6,7),(6,2)}

(i) {(7,9),(9,6),(2,6),(2,9)} (ii) {(7,9),(7,6),(2,6),(2,9),(6,9)} (iii) {} (iv) {(7,9),(9,6),(7,6),(2,6),(2,9)}

(v) {(7,9),(9,6),(7,6),(2,6),(2,9),(6,9)}

34. If $((10x+10y+2),8) = (1,(2x+4y+4))$ then find (x,y)

(i) $(\frac{21}{10},(\frac{-11}{5}))$ (ii) $((\frac{-9}{5}),\frac{21}{10})$ (iii) $((\frac{-11}{5}),\frac{17}{8})$ (iv) $((\frac{-11}{5}),\frac{21}{10})$ (v) $((\frac{-15}{7}),\frac{25}{12})$

Assignment Key

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