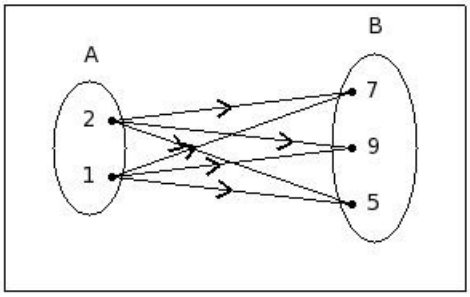
EduSahara™ Assignment

Name : Relations

Chapter : Relations and Mapping

Grade : ICSE Grade VII

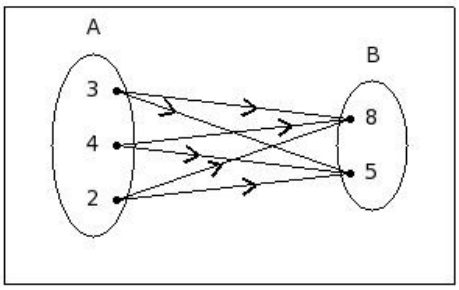
1. If $A = \{2,1\}$ and $B = \{7,9,5\}$, find $A \times B$



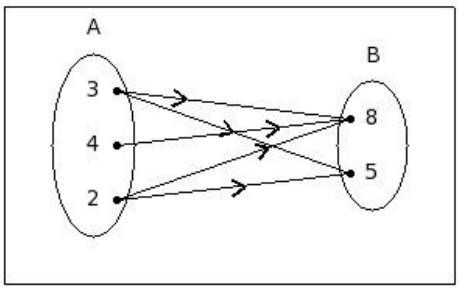
(i) {(2,7),(2,9),(2,5),(1,9),(1,5)} (ii) {(2,7),(2,9),(2,5),(1,9),(1,5),(8,0)} (iii) {(2,7),(2,9),(2,5),(1,7),(1,9),(1,5)}

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

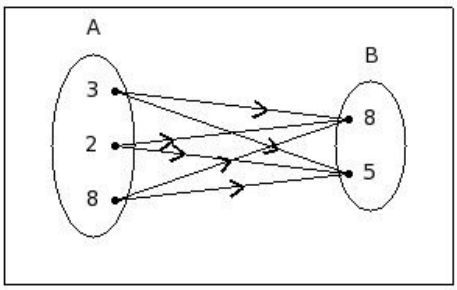
2. If $A = \{3,4,2\}$ and $B = \{8,5\}$, then $A \times B$ is



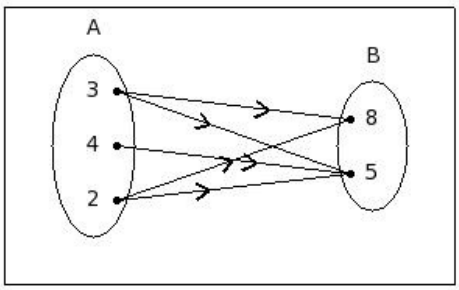
I



II



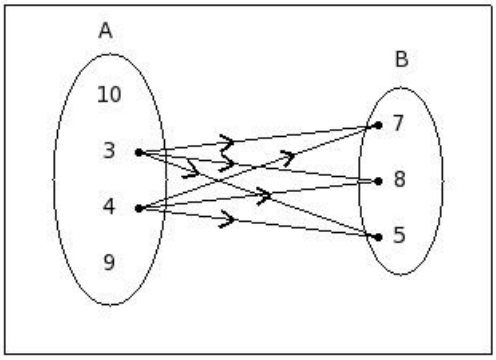
III



IV

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

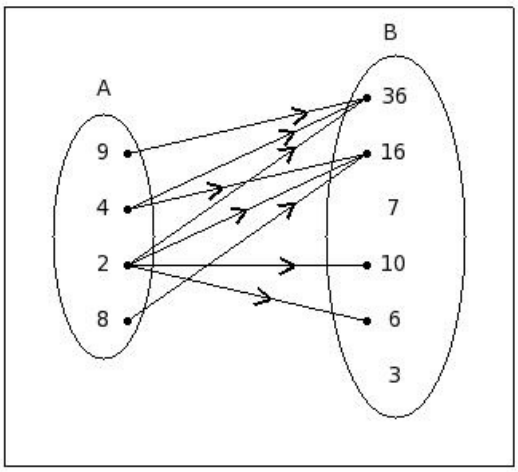
3. If $A = \{10,3,4,9\}$ and $B = \{7,8,5\}$,
then the relation $R: A \to B$ such that $a \in A$ is less than $b \in B$ is



(i) {(3,7),(3,8),(3,5),(4,7),(4,8),(4,5),(5,3)} (ii) {(3,7),(3,8),(4,7),(4,8),(4,5),(5,3)}

(iii) {(3,7),(3,8),(3,5),(4,7),(4,8),(4,5)} (iv) {(3,7),(3,8),(3,5),(4,8),(4,5)} (v) {(3,7),(3,8),(3,5),(4,8),(4,5),(8,3)}

4. If $A = \{9,4,2,8\}$ and $B = \{36,16,7,10,6,3\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is



(i) {(9,36),(4,36),(4,16),(2,36),(2,16),(2,10),(2,6),(8,16)}

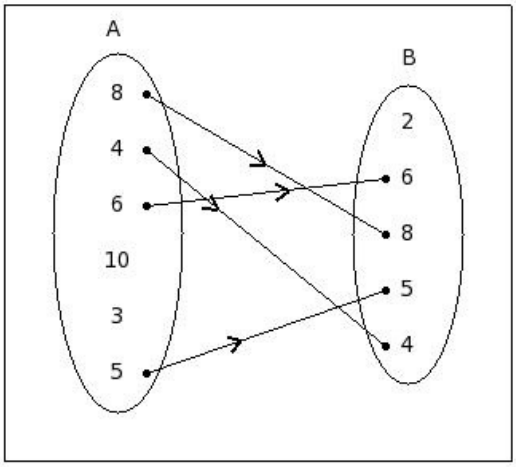
(ii) {(9,36),(4,36),(4,16),(2,16),(2,10),(2,6),(8,16),(37,1)}

(iii) {(9,36),(4,36),(2,36),(2,16),(2,10),(2,6),(8,16),(16,4)}

(iv) {(9,36),(4,36),(4,16),(2,36),(2,16),(2,10),(2,6),(8,16),(16,4)}

(v) {(9,36),(4,36),(4,16),(2,36),(2,10),(2,6),(8,16)}

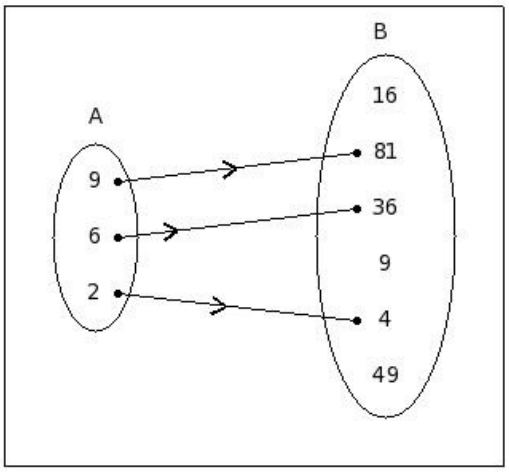
5. If $A = \{8,4,6,10,3,5\}$ and $B = \{2,6,8,5,4\}$,
then the relation $R: A \to B$ such that $a \in A$ is equal of $b \in B$ is



(i) {(8,8),(4,4),(5,5)} (ii) {(8,8),(4,4),(6,6),(5,5),(2,2)} (iii) {(8,8),(4,4),(5,5),(7,5)}

(iv) {(8,8),(4,4),(6,6),(5,5)} (v) {(8,8),(4,4),(6,6),(5,5),(3,3)}

6. If $A = \{9,6,2\}$ and $B = \{16,81,36,9,4,49\}$,
then the relation $R: A \to B$ such that $a \in A$ is the square root of $b \in B$ is



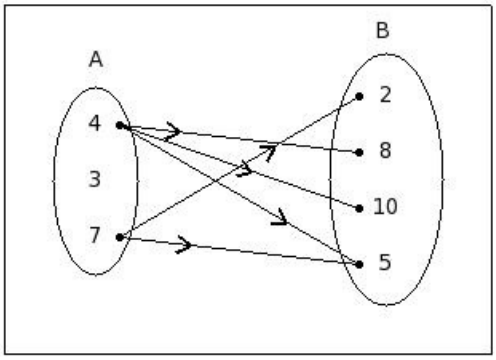
(i) {(9,81),(6,36),(5,1)} (ii) {(9,81),(6,36),(2,4)} (iii) {(9,81),(2,4),(36,6)} (iv) {(9,81),(6,36),(2,4),(36,6)}

(v) {(9,81),(2,4)}

7. Find the domain in the given roster form,
where $R = \{(4,8),(3,6),(3,8),(7,1),(5,6)\}$

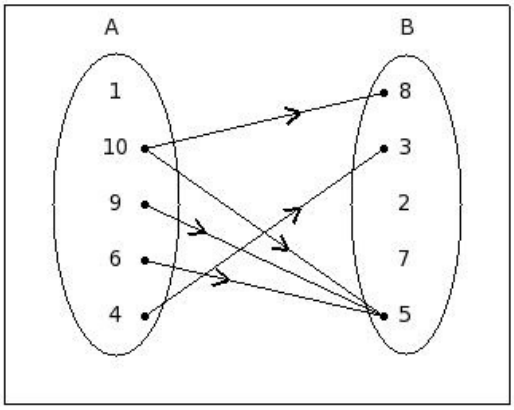
(i) {4,3,7,5} (ii) {5,7,2,4,3} (iii) {4,3,7,5,1} (iv) {5,7,2,4,3,6} (v) {8,1,6}

8. Find the domain of the given relation.



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

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

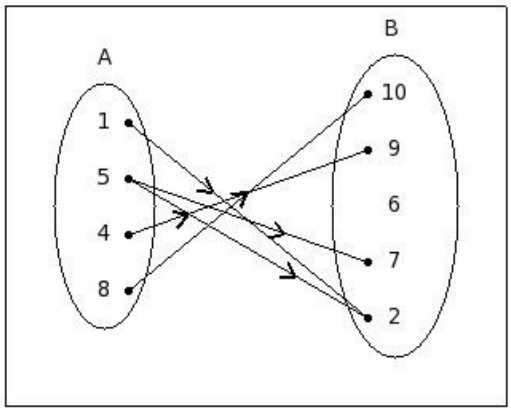


(i) {1,10,9,6,4,3} (ii) {10,6,9,4} (iii) {8,3,2,7,5} (iv) {1,10,9,6,4} (v) {8,3,2,7,5,4}

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

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

11. Find the range of given relation diagram.

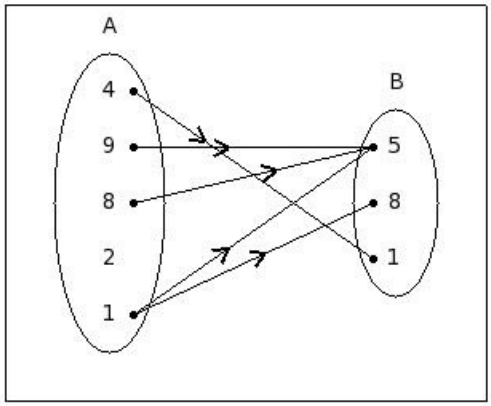


(i) {10,9,6,7,2,1} (ii) {1,5,4,8} (iii) {10,9,6,7,2} (iv) {7,2,9,10} (v) {5,1,4,8,7}

12. Find the cardinality of the given roster form,
where R = {(5,7),(4,7),(4,3),(2,8),(3,4),(1,10),(4,8),(5,3),(1,8)}

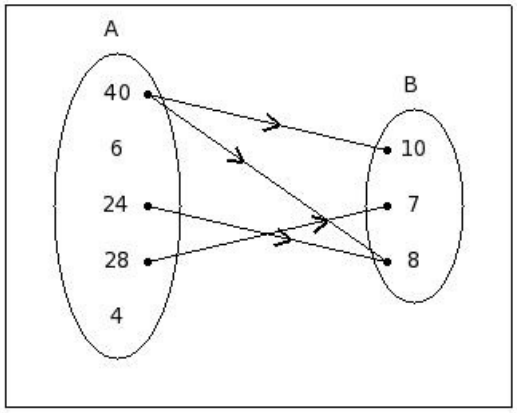
(i) 12 (ii) 10 (iii) 7 (iv) 8 (v) 9

13. Find the cardinality of the given relation



(i) 6 (ii) 3 (iii) 8 (iv) 4 (v) 5

14. If $A = \{40,6,24,28,4\}$ and $B = \{10,7,8\}$,
then the relation $R: A \to B$ such that $a \in A$ is a multiple of $b \in B$ is



(i) {(40,10),(40,8),(28,7)} (ii) {(40,10),(24,8),(28,7),(8,40)} (iii) {(40,10),(40,8),(28,7),(9,23)}

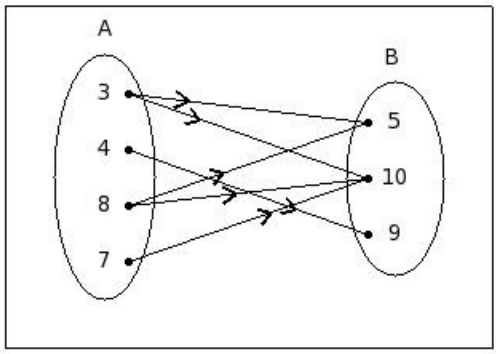
(iv) {(40,10),(40,8),(24,8),(28,7),(8,40)} (v) {(40,10),(40,8),(24,8),(28,7)}

15. Find the domain and range of the given relation
$R: A \to B = \{(4,5),(4,6),(6,5),(6,6)\}$

(i) A = {4,6} , B = {5,6} (ii) A = {4,5,2} , B ={5,6,10} (iii) A = {-2,-7} , B ={10,7}

(iv) A = {9,6} , B ={15,6} (v) A = {6,5} , B ={6}

16. Write the relation $R: A \to B$ in the given diagram,
where $A = \{3,4,8,7\}$ and $B = \{5,10,9\}$



(i) {(8,10),(4,9),(8,5),(3,10),(7,10),(3,5)} (ii) {(8,10),(4,9),(3,10),(7,10),(3,5),(5,8)}

(iii) {(8,10),(4,9),(8,5),(7,10),(3,5)} (iv) {(8,10),(4,9),(8,5),(7,10),(3,5),(11,2)}

(v) {(8,10),(4,9),(8,5),(3,10),(7,10),(3,5),(5,8)}

17. If $A = \{r,d,k,o,p\}$ and $B = \{i,e,c,a,f\}$,
which of the following is relation $R: A \to B$?

(i) {(h,k),(m,r),(m,k),(g,p),(h,r)} (ii) {(k,e),(p,c),(k,f),(p,a),(o,f)} (iii) {(e,b),(a,m),(i,q),(f,b),(c,q)}

(iv) {(i,p),(f,o),(i,k),(a,p),(c,o)} (v) {(k,m),(k,h),(r,h),(p,g),(r,g)}

18. If $A = \{f,j,p\}$ and $B = \{m,l,g\}$,
which of the following is relation $R: B \to A$?

(i) {(i,j),(r,f),(r,j),(r,p),(k,f)} (ii) {(g,j),(l,j),(l,p),(m,p),(l,f)} (iii) {(j,m),(j,g),(p,g),(j,l),(p,l)}

(iv) {(g,k),(g,q),(l,q),(g,r),(l,k)} (v) {(j,q),(j,i),(f,i),(j,d),(j,r)}

19. If $((2x+4y+9), 7) = (9, (5x+2y+5))$ then find (x,y)

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

20. Which of the following are true?

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

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

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

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

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

Assignment Key

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