EduSahara™ Worksheet

Name : Chapter Based Worksheet

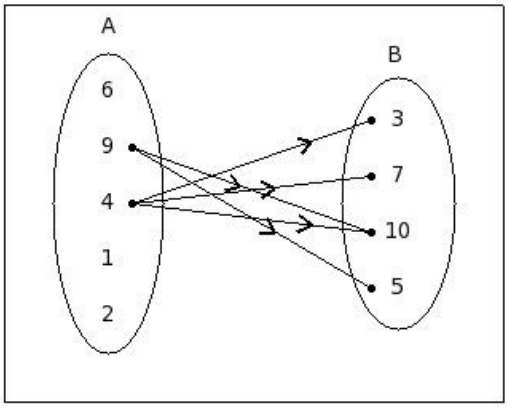
Chapter : Relations and Mapping

Grade : ICSE Grade VII

1. Find the cardinality of the given roster form,
where R = {(3,7),(7,7),(8,6),(8,5),(9,7)}

(i) 5 (ii) 2 (iii) 7 (iv) 6 (v) 4

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



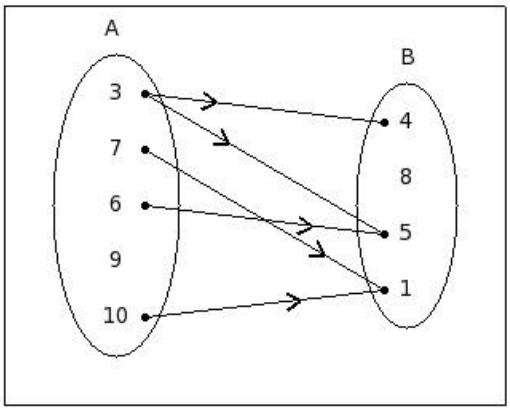
(i) {6,9,4,1,2} (ii) {6,9,4,1,2,10} (iii) {3,7,10,5,2} (iv) {4,9} (v) {3,7,10,5}

3. If A = {o,k,c} and B = {q,b,f} ,
which of the following is relation R:A→B ?

(i) {(q,o),(q,c),(f,k),(b,o),(q,k)} (ii) {(s,c),(g,c),(r,k),(s,k),(g,k)} (iii) {(b,s),(f,i),(b,r),(f,g),(f,s)}

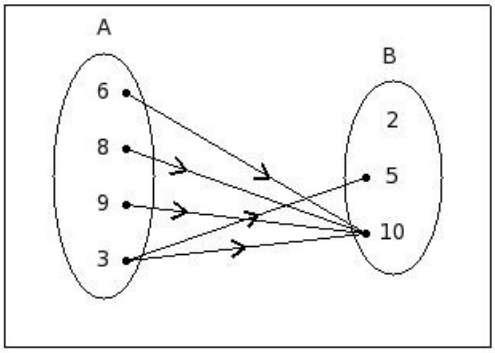
(iv) {(o,f),(c,b),(o,b),(k,q),(c,f)} (v) {(o,i),(k,g),(c,s),(o,g),(c,i)}

4. Find the range of given relation diagram.



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

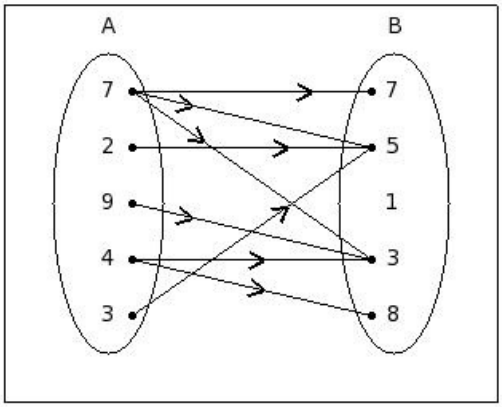
5. If $A = \{6,8,9,3\}$ and $B = \{2,5,10\}$,
then the relation $R: A \to B$ such that $a \in A$ is less than $b \in B$ is



(i) {(6,10),(8,10),(3,5),(3,10),(11,8)} (ii) {(6,10),(8,10),(3,5),(3,10)} (iii) {(6,10),(9,10),(3,5),(3,10),(10,8)}

(iv) {(6,10),(8,10),(9,10),(3,5),(3,10),(10,8)} (v) {(6,10),(8,10),(9,10),(3,5),(3,10)}

6. Find the cardinality of the given relation



(i) 9 (ii) 11 (iii) 5 (iv) 7 (v) 8

7. Which of the following does not represent a function $f: A \to B$,
where $A = \{9,1,10,7\}$ and $B = \{8,2,5,4,3,6\}$?

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

(iv) {(9,6),(7,5),(10,6),(1,4)} (v) {(1,3),(10,3),(9,6),(7,4)}

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

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

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

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

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

10. Find the range of $f: Z \to Z$ where $f(x) = (x^2 + 6x - 1)$
and domain of f is $\{x : 1 \leq x \leq 5\}$

(i) {15,26,39,54,8} (ii) {6,15,26,39,54} (iii) {6,15,26,39,52} (iv) {6,15,39,54,25} (v) {6,26,39,54,16}

11. If $f(x)=(9x+1)$ and $g(y)=(5y+7)$, then find $f(7), g(5)$

(i) 65,33 (ii) 63,31 (iii) 64,32 (iv) 62,30 (v) 67,35

12. Which of the following relations does not represent a function $f: A \to B$, where A = {c,h,b,j} and B = {d,f,g,m,n,a} ?

(i) {(b,a),(j,f),(h,f),(c,n)} (ii) {(b,f),(h,g),(c,m),(j,m)} (iii) {(j,n),(b,a),(h,d),(c,a)} (iv) {(c,d),(j,n),(b,n),(h,m)}

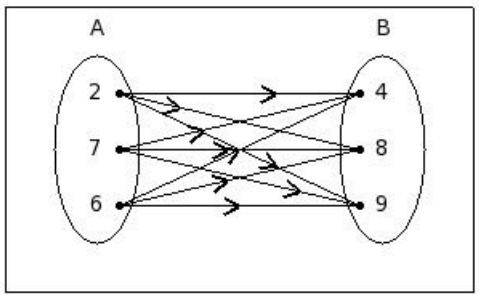
(v) {(c,n),(j,f),(c,m),(b,n)}

13. Which of the following relations is a function given , A = {2,5,9,8} and B = {8,4,5,7} ?

(i) {(2,5),(5,7),(8,7),(5,8)} (ii) {(2,5),(9,4),(8,7),(7,5)} (iii) {(2,5),(5,7),(9,4),(8,7)}

(iv) {(2,5),(5,7),(9,4),(8,7),(7,5)} (v) {(2,5),(5,7),(8,7)}

14. If A = {2,7,6} and B = {4,8,9} , find A × B

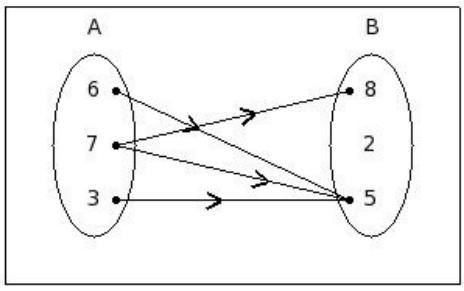


(i) {(2,4),(2,8),(2,9),(7,4),(7,9),(6,4),(6,8),(6,9),(9,6)} (ii) {(2,4),(2,8),(2,9),(7,8),(7,9),(6,4),(6,8),(6,9),(4,7)}

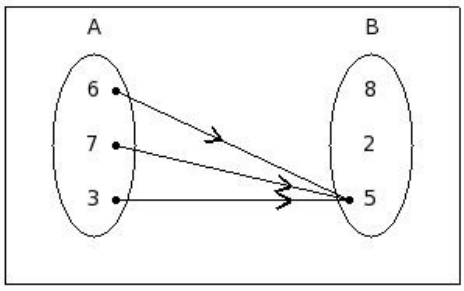
(iii) {(2,4),(2,8),(2,9),(7,4),(7,8),(7,9),(6,4),(6,8),(6,9),(4,7)} (iv) {(2,4),(2,8),(2,9),(7,4),(7,9),(6,4),(6,8),(6,9)}

(v) {(2,4),(2,8),(2,9),(7,4),(7,8),(7,9),(6,4),(6,8),(6,9)}

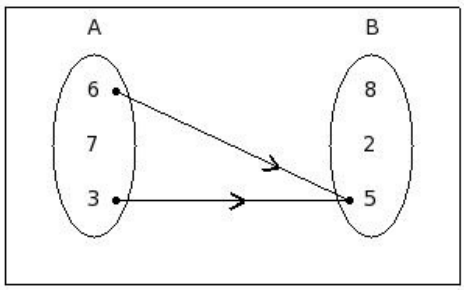
15. Which of the following relations $R: A \to B$ represent a function, given A = {6,7,3} and B = {8,2,5} ?



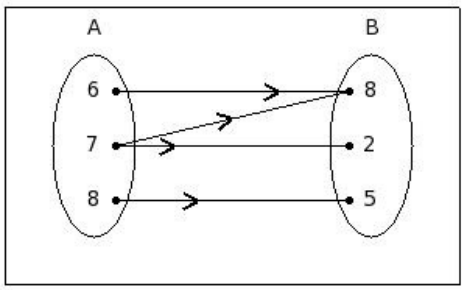
I



II



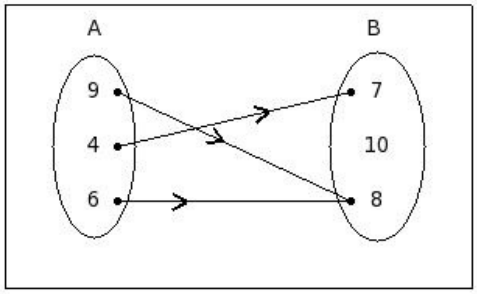
III



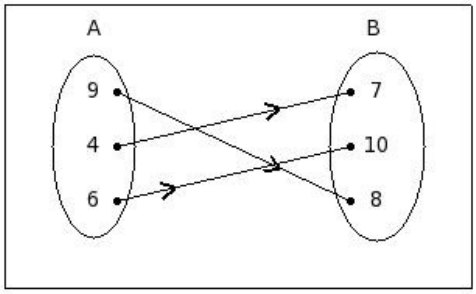
IV

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

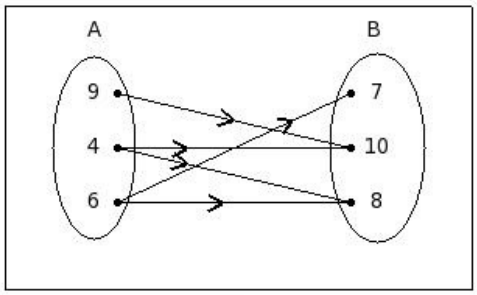
16. Which of the following does not represent a function $f: A \to B$, where $A = \{9,4,6\}$ and $B = \{7,10,8\}$?



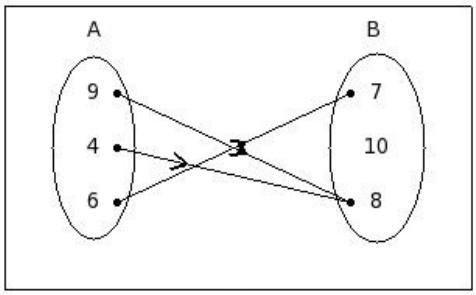
I



II



III



IV

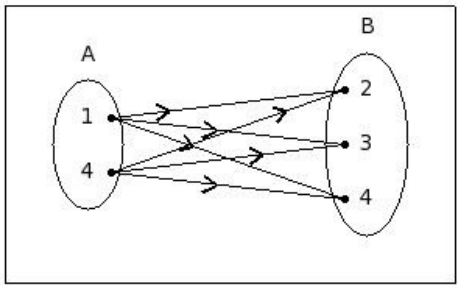
(i) IV (ii) I (iii) III (iv) II

17. Which of the following does not represent a function $f: A \to B$, where $A = \{2,10,5,3\}$ and $B = \{1,4,7,9,8,6\}$?

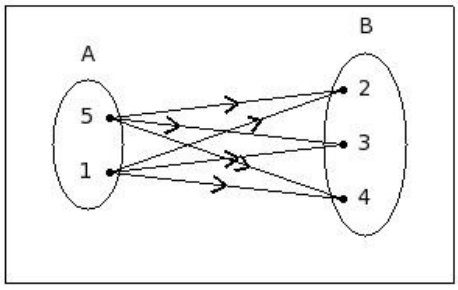
(i) {(3,1),(10,9),(5,9),(2,6)} (ii) {(10,1),(5,4),(3,8),(2,8)} (iii) {(3,9),(10,8),(2,1),(5,1)}

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

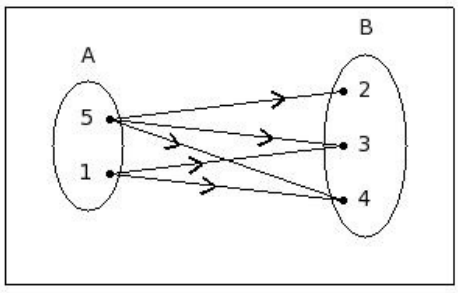
18. If $A = \{5,1\}$ and $B = \{2,3,4\}$, then $A \times B$ is



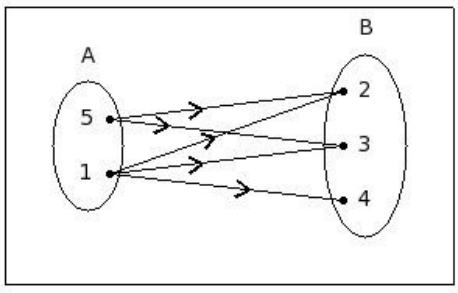
I



II



III



IV

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

19. If $A = \{k,n,i\}$ and $B = \{b,h,s\}$,
which of the following is relation $R: B \to A$?

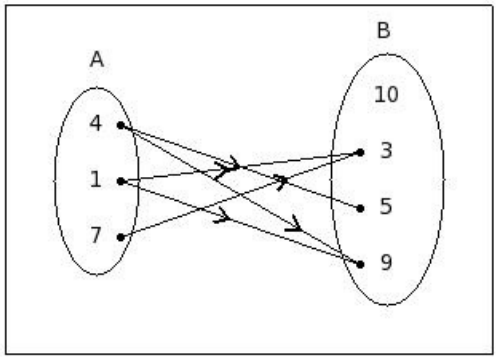
(i) {(n,e),(k,q),(k,e),(i,d),(k,d)} (ii) {(e,i),(e,n),(d,k),(d,i),(g,k)} (iii) {(h,e),(b,e),(b,g),(s,e),(s,d)}

(iv) {(k,h),(k,s),(n,s),(n,b),(i,h)} (v) {(h,i),(h,k),(b,i),(b,k),(h,n)}

20. Let $f: R \to R$ be a function defined by given conditions
$f(x) = (x+3)$ if $x < -8$
$f(x) = (7x+2)$ if $-8 \leq x \leq 7$
$f(x) = (4x+3)$ if $x > 7$
find $f(x)$ where $x = -3$

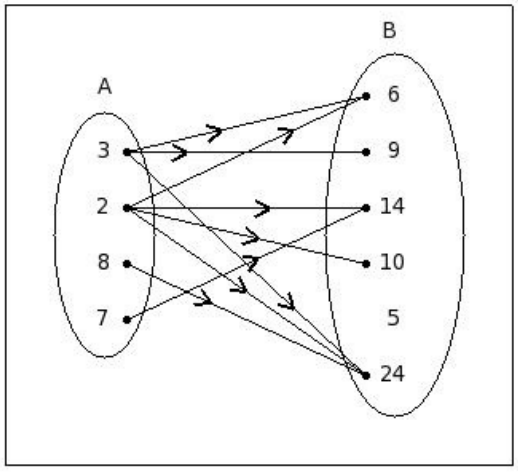
(i) -18 (ii) -20 (iii) -9 (iv) -19 (v) 0

21. Find the domain of the given relation.



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

22. If $A = \{3,2,8,7\}$ and $B = \{6,9,14,10,5,24\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is



(i) {(3,6),(3,9),(3,24),(2,6),(2,10),(2,24),(8,24),(7,14),(15,1)}

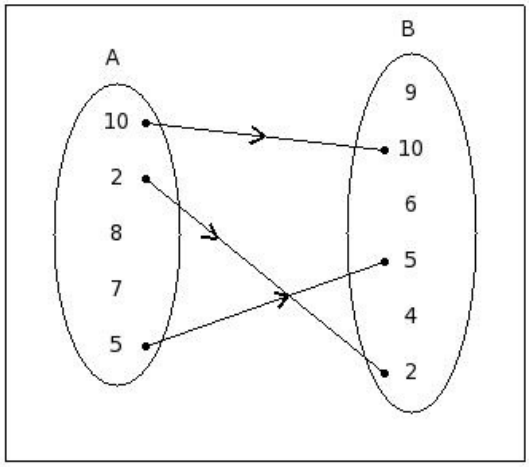
(ii) {(3,6),(3,9),(3,24),(2,14),(2,10),(2,24),(8,24),(7,14),(6,2)}

(iii) {(3,6),(3,9),(3,24),(2,6),(2,10),(2,24),(8,24),(7,14)}

(iv) {(3,6),(3,9),(3,24),(2,6),(2,14),(2,10),(2,24),(8,24),(7,14),(6,2)}

(v) {(3,6),(3,9),(3,24),(2,6),(2,14),(2,10),(2,24),(8,24),(7,14)}

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



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

(v) {(10,10),(5,5),(2,2),(8,8)}

24. If $f(t) = (t^2 + 5t + 6)$ then find $f(9x - 3)$

(i) $(82x^2 - 9x)$ (ii) $(78x^2 - 9x)$ (iii) $(80x^2 - 9x)$ (iv) $(84x^2 - 9x)$ (v) $(81x^2 - 9x)$

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

Assignment Key

1) (i)	2) (v)	3) (iv)	4) (iii)	5) (v)	6) (v)
7) (i)	8) (v)	9) (i)	10) (ii)	11) (iii)	12) (v)
13) (iii)	14) (v)	15) (iv)	16) (iii)	17) (iv)	18) (iv)
19) (v)	20) (iv)	21) (i)	22) (v)	23) (iii)	24) (v)
25) (iii)					