EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Relations and Mapping

Grade : ICSE Grade VII

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

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

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

(v) $\{(6,1),(5,2),(10,1),(4,2),(8,7),(3,9)\}$

2. If $f(t) = (6t^2 + 2t + 6)$ then find $f(7x - 5)$

(i) $(295x^2 - 406x + 146)$ (ii) $(292x^2 - 406x + 146)$ (iii) $(293x^2 - 406x + 146)$ (iv) $(294x^2 - 406x + 146)$

(v) $(296x^2 - 406x + 146)$

3. If $f(x) = (7x + 6)$ and $g(y) = (y + 8)$, then find $f(4), g(9)$

(i) 36,19 (ii) 33,16 (iii) 34,17 (iv) 32,14 (v) 35,18

4. Which of the following relations is a function $f: A \to B$,
where $A = \{b,k,f,m\}$ and $B = \{e,l,c,b,a\}$?

(i) $\{(m,b),(f,b),(k,l)\}$ (ii) $\{(m,b),(b,e),(k,l),(b,f)\}$ (iii) $\{\}$ (iv) $\{(m,b),(f,b),(b,e),(k,l)\}$

(v) $\{(m,b),(f,b),(b,e),(k,l),(b,f)\}$

5. Which of the following relations does not represent a function $f: A \to B$,
where $A = \{n,h,k,a\}$ and $B = \{i,e,l,g\}$?

(i) $\{(a,g),(n,l),(h,e),(k,i)\}$ (ii) $\{(n,i),(h,g),(k,l),(a,l)\}$ (iii) $\{(h,g),(k,i),(a,i),(n,e)\}$ (iv) $\{(k,l),(a,i),(n,l),(h,i)\}$

(v) $\{(k,g),(h,i),(h,g),(n,g)\}$

6. If $((8x + 6y + 5), 10) = (3, (6x + 2y + 4))$ then find (x,y)

(i) (-3,2) (ii) (2,-3) (iii) (4,-3) (iv) (2,-4) (v) (3,-2)

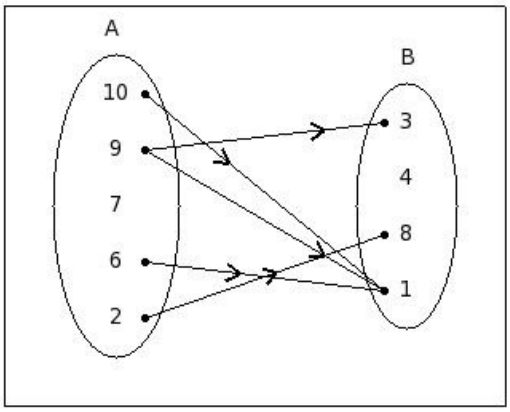
7. Find the range in given roster form,
where $R = \{(4,6),(3,6),(4,9),(10,7),(4,2)\}$

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

8. Find the range of $f: Z \to Z$ where $f(x) = (3x^2 + 2x - 4)$
and domain of f is $\{x : -2 \leq x \leq 2\}$

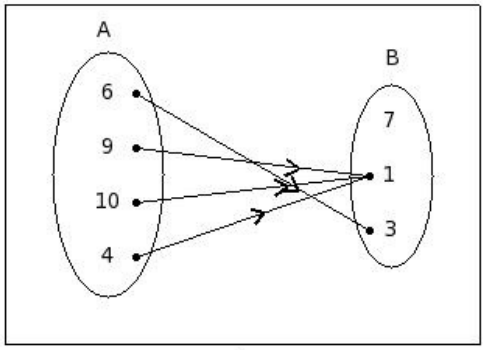
(i) $\{4,-3,1,12,-2\}$ (ii) $\{-3,-4,1,12,2\}$ (iii) $\{4,-3,-4,1,11\}$ (iv) $\{4,-3,-4,1,12\}$ (v) $\{4,-4,1,12,-2\}$

9. Find the range of given relation diagram.



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

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



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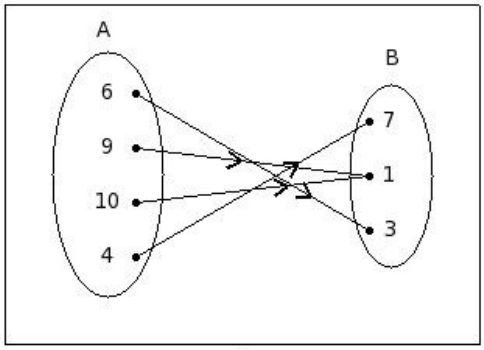
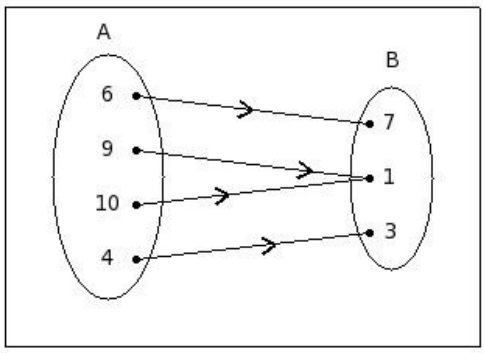


II



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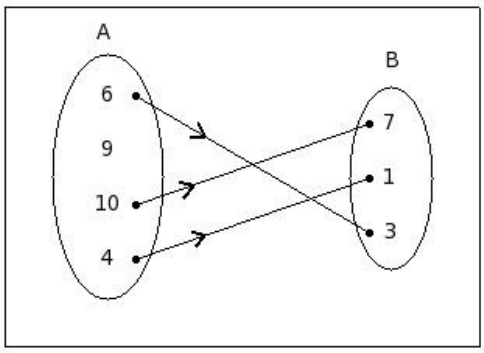


IV

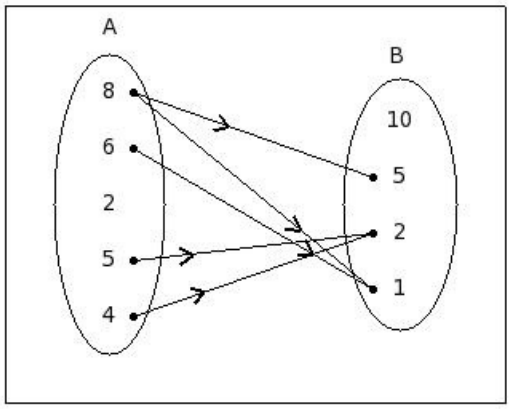
(i) III (ii) IV (iii) I (iv) II

11. Find the domain and range of the given relation
$R: A \to B = \{(5,9),(5,1),(5,4),(5,7),(3,9),(3,1),(3,4),(3,7)\}$

(i) A = {3,5,9} , B ={9,4,1,6,3} (ii) A = {2,8} , B ={8,7,-4,-5} (iii) A = {5,3} , B = {9,1,4,7}

(iv) A = {5,1} , B ={7,4,9,5} (v) A = {6,3} , B ={7,9,12,1}

12. Find the cardinality of the given relation



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

13. Find the cardinality of the given roster form,
where R = {(4,10),(4,5),(8,10),(3,5),(4,6)}

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

14. If f:A→B is defined by $f(x)=(6x+7)$ and A = {1,7,3,5} ,
find the range

(i) {49,37,25,-8,17,13} (ii) {25,13,49} (iii) {25,13,37,61} (iv) {55,13,49,25} (v) {13,49,25,37}

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

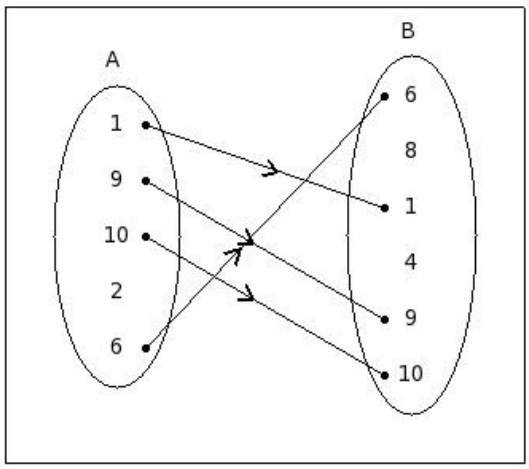
(i) {10,4,2,8} (ii) {10,4,2,8,7} (iii) {5,7,9,3,6} (iv) {1,10,4,8,2} (v) {1,10,4,8,2,3}

16. If A = {h,r,s,a} and B = {j,b,m,g} ,
which of the following is relation R:A→B ?

(i) {(b,n),(j,c),(m,i),(b,i),(j,i)} (ii) {(b,r),(g,h),(g,a),(j,r),(j,h)} (iii) {(h,g),(s,b),(a,m),(s,m),(a,g)}

(iv) {(c,a),(n,r),(n,s),(i,s),(c,r)} (v) {(h,c),(a,n),(a,i),(r,n),(s,c)}

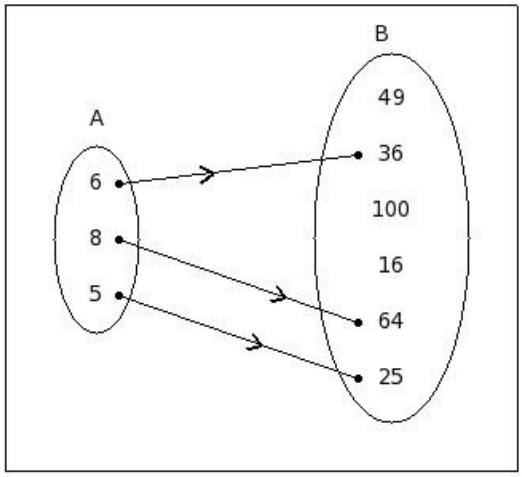
17. If A = {1,9,10,2,6} and B = {6,8,1,4,9,10} ,
then the relation R:A→B such that $a \in A$ is equal of $b \in B$ is



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

(iv) {(1,1),(9,9),(10,10),(7,5)} (v) {(1,1),(9,9),(6,6),(10,10),(2,2)}

18. If $A = \{6,8,5\}$ and $B = \{49,36,100,16,64,25\}$,
then the relation $R: A \to B$ such that $a \in A$ is the square root of $b \in B$ is



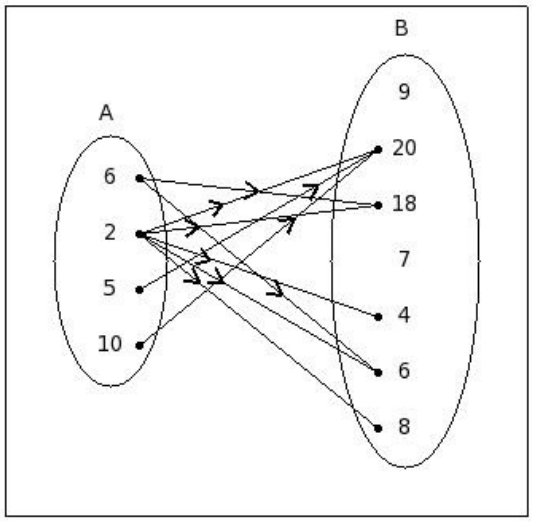
(i) {(6,36),(8,64),(26,4)} (ii) {(6,36),(8,64),(5,25),(64,8)} (iii) {(6,36),(5,25),(64,8)} (iv) {(6,36),(5,25)}

(v) {(6,36),(8,64),(5,25)}

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

(i) {8,13,18,23,30} (ii) {8,13,18,23,28} (iii) {13,18,23,28,9} (iv) {8,18,23,28,11} (v) {8,13,18,28,22}

20. If $A = \{6,2,5,10\}$ and $B = \{9,20,18,7,4,6,8\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is



(i) {(6,18),(6,6),(2,20),(2,18),(2,6),(2,8),(5,20),(10,20),(5,1)}

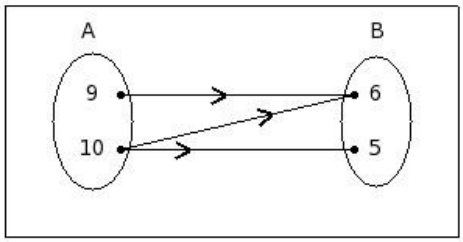
(ii) {(6,18),(6,6),(2,20),(2,4),(2,6),(2,8),(5,20),(10,20),(18,2)}

(iii) {(6,18),(6,6),(2,20),(2,18),(2,6),(2,8),(5,20),(10,20)}

(iv) {(6,18),(6,6),(2,20),(2,18),(2,4),(2,6),(2,8),(5,20),(10,20)}

(v) {(6,18),(6,6),(2,20),(2,18),(2,4),(2,6),(2,8),(5,20),(10,20),(18,2)}

21. If $A = \{9,10\}$ and $B = \{6,5\}$, then $A \times B$ is



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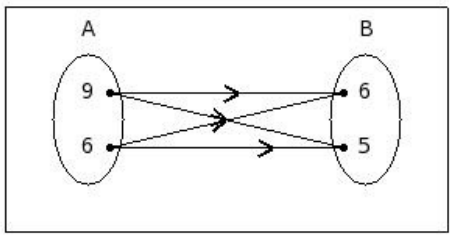

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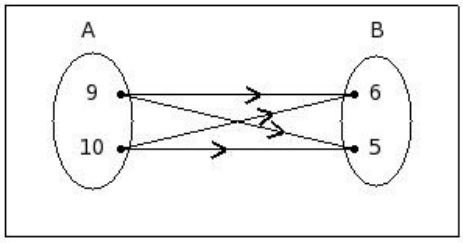

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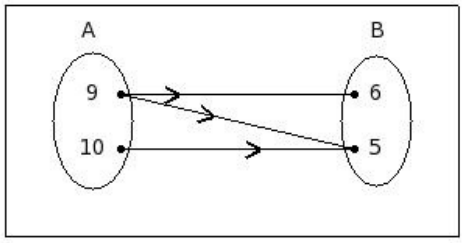
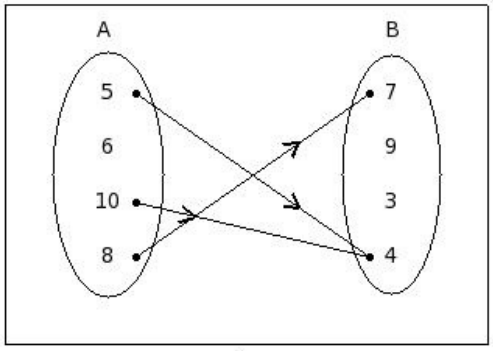


IV

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

22. Which of the following relations $R: A \to B$ represent a function, given $A = \{5,6,10,8\}$ and $B = \{7,9,3,4\}$?



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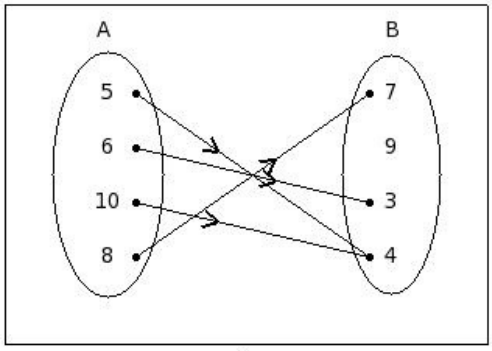
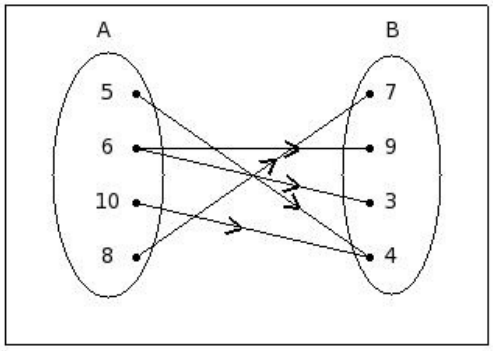
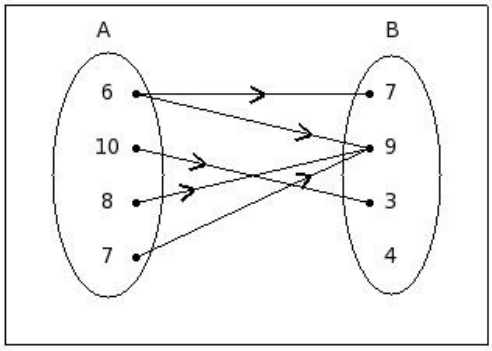


II



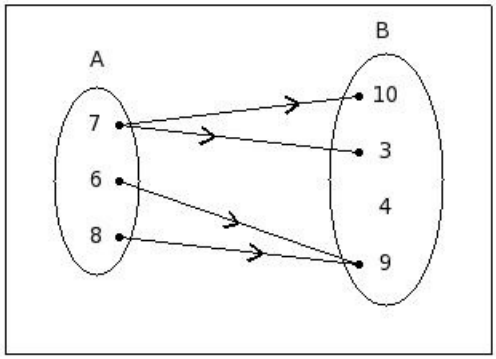
III



IV

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

23. Write the relation $R: A \to B$ in the given diagram,
where $A = \{7,6,8\}$ and $B = \{10,3,4,9\}$



(i) $\{(8,9),(7,3),(7,10),(6,9)\}$ (ii) $\{(8,9),(7,3),(7,10),(6,9),(3,7)\}$ (iii) $\{(8,9),(7,10),(6,9),(3,7)\}$

(iv) $\{(8,9),(7,3),(6,9)\}$ (v) $\{(8,9),(7,3),(6,9),(11,6)\}$

24. Which of the following relations is a function given ,
$A = \{7,4,2,3,1\}$ and $B = \{10,4,9,8,3,6\}$?

(i) $\{(7,3),(4,9),(3,4),(1,3),(5,1)\}$ (ii) $\{(7,3),(4,9),(3,4),(1,3)\}$ (iii) $\{(7,3),(4,9),(2,4),(3,4),(1,3)\}$

(iv) $\{(7,3),(2,4),(3,4),(1,3),(9,4)\}$ (v) $\{(7,3),(4,9),(2,4),(3,4),(1,3),(9,4)\}$

25. If $f(x)=(7x+7)$, then find $f(4)$

(i) 34 (ii) 35 (iii) 33 (iv) 37 (v) 36

Assignment Key

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