EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Relations and Mapping

Grade : ICSE Grade VII

1. If $f(x)=(x+1)$ and $g(y)=(7y+2)$, then find $f(4), g(1)$

   (i) 8,12 (ii) 4,8 (iii) 3,6 (iv) 5,9 (v) 6,10

2. Find the domain in the given roster form,
   where $R=\{(2,7),(3,7),(8,5),(2,4),(8,6)\}$

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

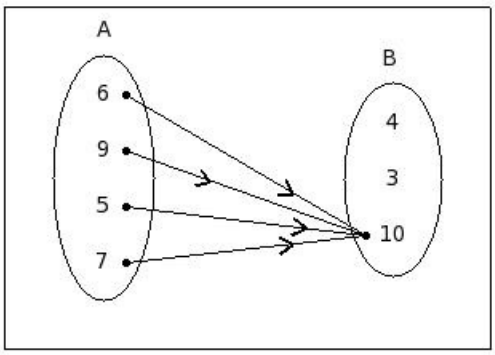
3. Let $f: R \to R$ be a function defined by given conditions
   $f(x)=(8x+3)$ if $x<-4$
   $f(x)=(3x+1)$ if $-4 \leq x \leq 3$
   $f(x)=(5x+2)$ if $x>3$
   find $f(x)$ where $x=-4$

   (i) -18 (ii) -29 (iii) -10 (iv) -11 (v) -12

4. Find the cardinality of the given roster form,
   where $R=\{(6,3),(1,8),(5,3),(9,9),(4,9)\}$

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

5. If $A=\{6,9,5,7\}$ and $B=\{4,3,10\}$,
   then the relation $R: A \to B$ such that $a \in A$ is less than $b \in B$ is



   (i) {(6,10),(9,10),(7,10)} (ii) {(6,10),(5,10),(7,10),(10,9)} (iii) {(6,10),(9,10),(5,10),(7,10)}

   (iv) {(6,10),(9,10),(7,10),(11,4)} (v) {(6,10),(9,10),(5,10),(7,10),(10,9)}

6. If $f(x)=(9x+2)$, then find $f(6)$

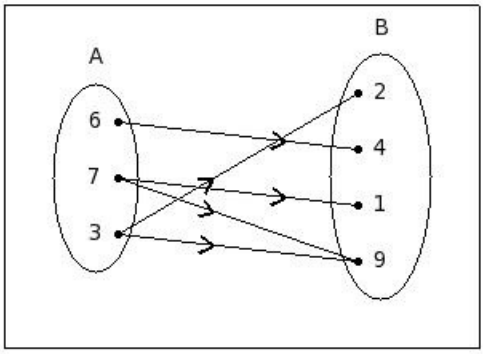
   (i) 55 (ii) 56 (iii) 54 (iv) 57 (v) 58

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

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

   (iv) {(5,8),(1,9),(7,2),(10,9)} (v) {(7,9),(10,8),(1,2),(5,8)}

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

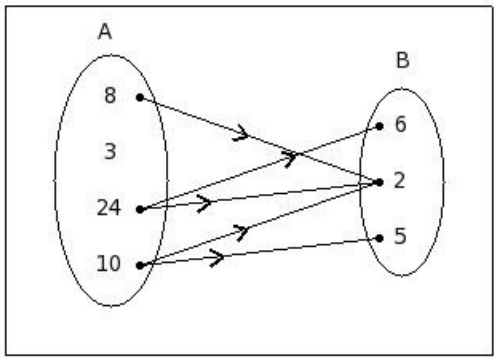


(i) {6,7,3,1} (ii) {3,7,6} (iii) {2,4,1,9} (iv) {2,4,1,9,3} (v) {6,7,3}

9. Find the range of $f: Z \to Z$ where $f(x) = (9x - 5)$ and domain of f is $\{x : -1 \leq x \leq 3\}$

(i) {-14,-5,4,22,14} (ii) {-14,-5,4,13,24} (iii) {-14,-5,4,13,22} (iv) {-14,4,13,22,-7} (v) {-5,4,13,22,-15}

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



(i) {(8,2),(24,6),(24,2),(10,2),(10,5),(6,24)} (ii) {(8,2),(24,2),(10,2),(10,5),(6,24)}

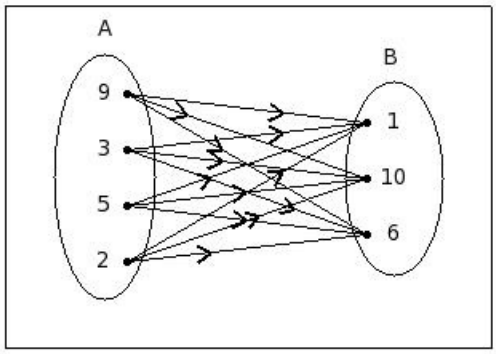
(iii) {(8,2),(24,6),(24,2),(10,2),(10,5)} (iv) {(8,2),(24,6),(10,2),(10,5)} (v) {(8,2),(24,6),(10,2),(10,5),(3,23)}

11. Which of the following relations is a function $f: A \to B$,
where A = {l,n,e,m} and B = {l,h,e,n,j} ?

(i) {(l,e),(e,l),(m,j),(l,n)} (ii) {(l,e),(n,l),(m,j)} (iii) {(l,e),(n,l),(e,l),(m,j)} (iv) {}

(v) {(l,e),(n,l),(e,l),(m,j),(l,n)}

12. If $A = \{9,3,5,2\}$ and $B = \{1,10,6\}$, find $A \times B$



(i) {(9,1),(9,10),(9,6),(3,1),(3,10),(3,6),(5,10),(5,6),(2,1),(2,10),(2,6)}

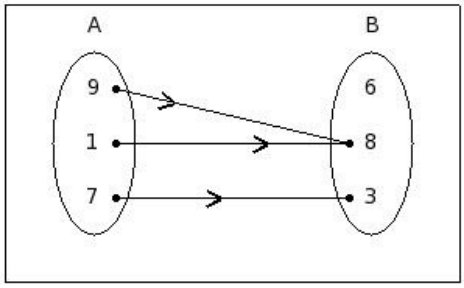
(ii) {(9,1),(9,10),(9,6),(3,1),(3,10),(5,1),(5,10),(5,6),(2,1),(2,10),(2,6),(7,2)}

(iii) {(9,1),(9,10),(9,6),(3,1),(3,10),(3,6),(5,1),(5,10),(5,6),(2,1),(2,10),(2,6),(10,3)}

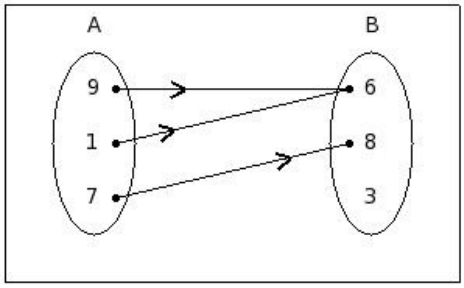
(iv) {(9,1),(9,10),(9,6),(3,1),(3,6),(5,1),(5,10),(5,6),(2,1),(2,10),(2,6),(10,3)}

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

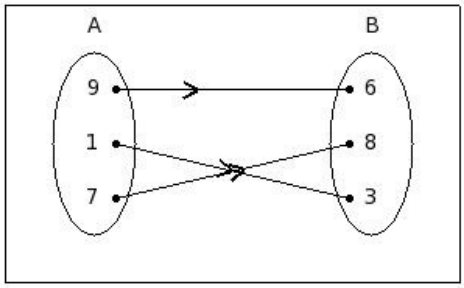
13. Which of the following does not represent a function $f: A \to B$, where $A = \{9,1,7\}$ and $B = \{6,8,3\}$?



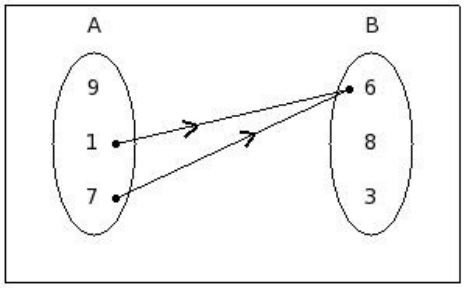
I



II



III



IV

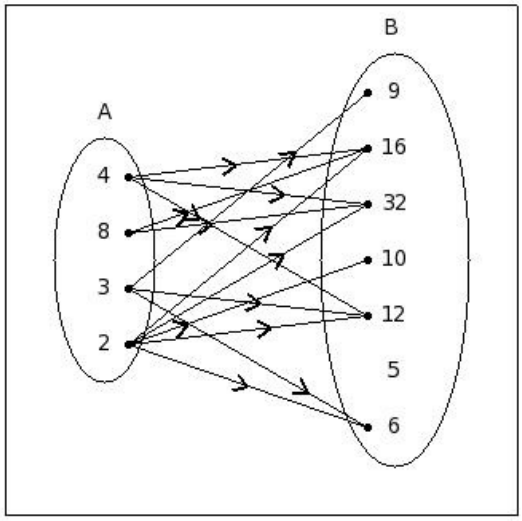
(i) I (ii) III (iii) II (iv) IV

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

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

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

15. If $A = \{4,8,3,2\}$ and $B = \{9,16,32,10,12,5,6\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is



(i) {(4,16),(4,32),(4,12),(8,16),(8,32),(3,9),(3,6),(2,16),(2,32),(2,10),(2,12),(2,6)}

(ii) {(4,16),(4,32),(4,12),(8,16),(8,32),(3,12),(3,6),(2,16),(2,32),(2,10),(2,12),(2,6),(10,2)}

(iii) {(4,16),(4,32),(4,12),(8,16),(3,9),(3,12),(3,6),(2,16),(2,32),(2,10),(2,12),(2,6),(32,8)}

(iv) {(4,16),(4,32),(4,12),(8,16),(8,32),(3,9),(3,12),(3,6),(2,16),(2,32),(2,10),(2,12),(2,6),(32,8)}

(v) {(4,16),(4,32),(4,12),(8,16),(8,32),(3,9),(3,12),(3,6),(2,16),(2,32),(2,10),(2,12),(2,6)}

16. Which of the following relations does not represent a function $f: A \to B$,
where $A = \{e,b,g,a,j\}$ and $B = \{i,l,f,c,k,o\}$?

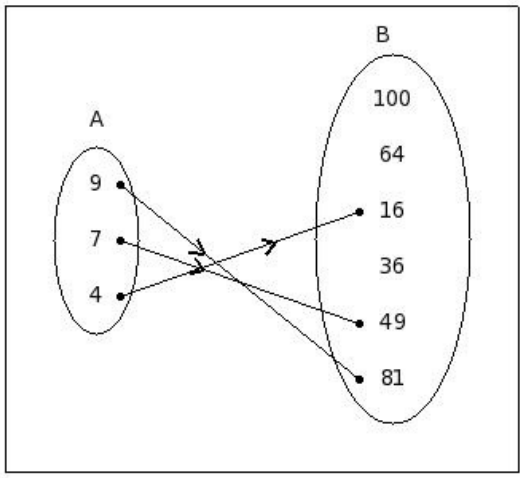
(i) {(g,c),(e,k),(a,i),(j,o),(b,f)} (ii) {(g,f),(e,f),(b,c),(j,o),(a,i)} (iii) {(g,o),(b,f),(j,l),(a,k),(g,k)}

(iv) {(g,o),(j,k),(a,c),(b,f),(e,f)} (v) {(a,f),(j,f),(e,l),(g,i),(b,o)}

17. If $((6x+5y+10), 4) = (2, (8x+9y+3))$ then find (x,y)

(i) $(5, (\frac{-11}{2}))$ (ii) $((\frac{-11}{2}), 4)$ (iii) $((\frac{-11}{2}), 5)$ (iv) $((\frac{-21}{4}), 6)$ (v) $((\frac{-9}{2}), 5)$

18. If $A = \{9,7,4\}$ and $B = \{100,64,16,36,49,81\}$,
then the relation $R: A \to B$ such that $a \in A$ is the square root of $b \in B$ is



(i) {(9,81),(7,49),(4,16),(49,7)} (ii) {(9,81),(7,49),(4,16)} (iii) {(9,81),(4,16),(49,7)}

(iv) {(9,81),(7,49),(17,3)} (v) {(9,81),(4,16)}

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

(i) {(p,g),(m,c),(p,e),(d,h),(m,g)} (ii) {(d,f),(m,j),(p,r),(m,r),(p,f)} (iii) {(r,p),(f,d),(f,p),(r,d),(r,m)}

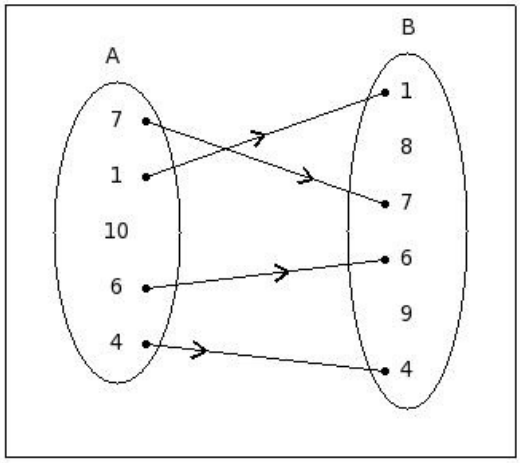
(iv) {(h,f),(e,f),(g,r),(o,r),(c,r)} (v) {(r,n),(j,k),(f,o),(r,o),(f,h)}

20. Find the domain and range of the given relation
$R: A \to B = \{(5,8),(5,5),(5,9),(3,8),(3,5),(3,9)\}$

(i) A = {3,5} , B ={9,5,3} (ii) A = {2,5,3} , B ={5,9,8,1} (iii) A = {7,0} , B ={9,5,15}

(iv) A = {5,3} , B = {8,5,9} (v) A = {15,3} , B ={8,5,15}

21. If $A = \{7,1,10,6,4\}$ and $B = \{1,8,7,6,9,4\}$,
then the relation $R: A \to B$ such that $a \in A$ is equal of $b \in B$ is



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

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

22. Find the range of $f: Z \to Z$ where $f(x) = (x^2 + 4x)$
and domain of f is $\{x : 0 \le x \le 4\}$

(i) {0,5,12,32,20} (ii) {0,12,21,32,3} (iii) {0,5,21,32,14} (iv) {0,5,12,21,33} (v) {0,5,12,21,32}

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

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

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

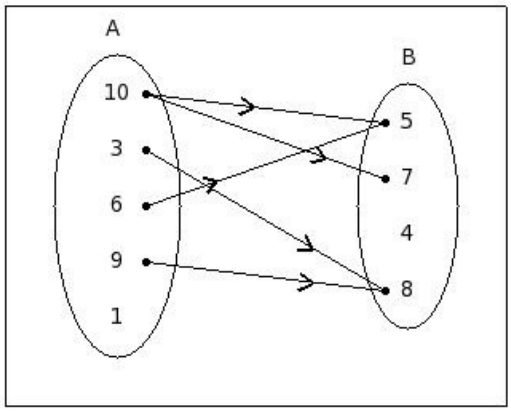
(v) {(2,9),(3,5),(6,5),(8,7),(4,1),(10,5)}

24. Which of the following relations is a function given ,
$A = \{5,4,1,2\}$ and $B = \{1,8,4,7,6\}$?

(i) {(5,1),(4,1),(1,4),(2,4)} (ii) {(5,1),(4,1),(2,4)} (iii) {(5,1),(4,1),(2,4),(5,0)} (iv) {(5,1),(1,4),(2,4)}

(v) {}

25. Find the range of given relation diagram.



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

Assignment Key

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