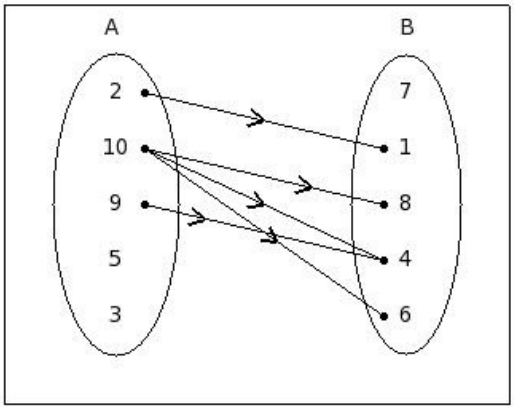
EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Relations and Mapping

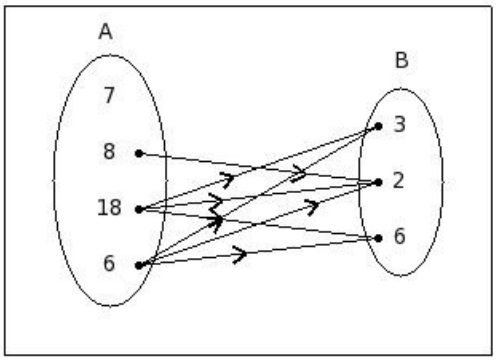
Grade : ICSE Grade VIII

1. Find the range of given relation diagram.



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

2. If $A = \{7,8,18,6\}$ and $B = \{3,2,6\}$,
then the relation $R: A \to B$ such that $a \in A$ is a multiple of $b \in B$ is



(i) {(8,2),(18,3),(18,2),(6,3),(6,2),(6,6)} (ii) {(8,2),(18,3),(18,2),(18,6),(6,3),(6,2),(6,6),(2,18)}

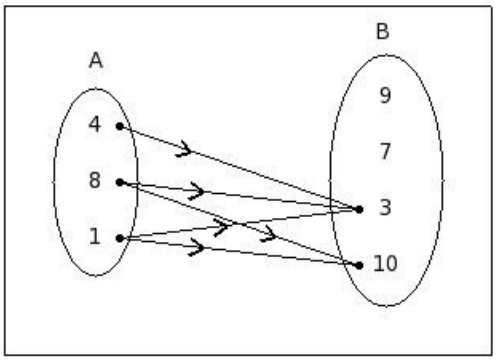
(iii) {(8,2),(18,3),(18,2),(6,3),(6,2),(6,6),(7,17)} (iv) {(8,2),(18,3),(18,2),(18,6),(6,3),(6,2),(6,6)}

(v) {(8,2),(18,3),(18,6),(6,3),(6,2),(6,6),(2,18)}

3. Which of the following relations is a function given ,
$A = \{8,5,7,6,2\}$ and $B = \{1,10,5,3\}$?

(i) {(8,1),(5,5),(7,10),(6,1),(2,1)} (ii) {(8,1),(5,5),(6,1),(2,1),(11,6)} (iii) {(8,1),(5,5),(6,1),(2,1)} (iv) {}

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

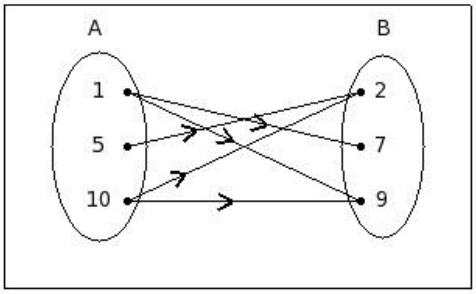


(i) {4,8,1,10} (ii) {4,8,1} (iii) {9,7,3,10} (iv) {9,7,3,10,8} (v) {1,8,4}

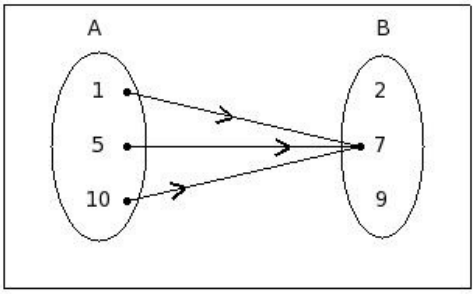
5. Find the cardinality of the given roster form,
where R = {(8,3),(10,3),(8,2),(8,1),(5,2)}

(i) 3 (ii) 5 (iii) 6 (iv) 4 (v) 7

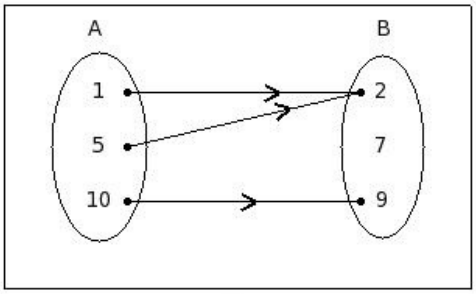
6. Which of the following does not represent a function $f: A \to B$,
where A = {1,5,10} and B = {2,7,9} ?



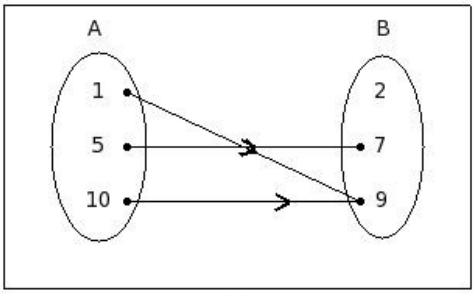
I



II



III



IV

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

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

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

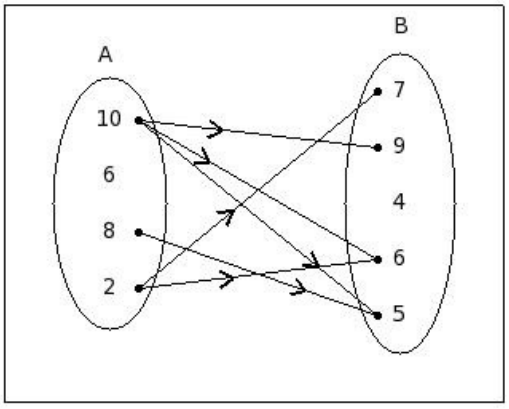
(iii) {(1,3),(10,2),(5,2),(9,3),(6,8),(7,8)} (iv) {(6,3),(7,4),(5,2),(9,4),(10,3),(1,2)}

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

8. If $f(t) = (6t^2 + 4t + 4)$ then find $f(x+3)$

(i) $(7x^2 + 40x + 70)$ (ii) $(6x^2 + 40x + 70)$ (iii) $(5x^2 + 40x + 70)$ (iv) $(9x^2 + 40x + 70)$ (v) $(3x^2 + 40x + 70)$

9. Find the cardinality of the given relation



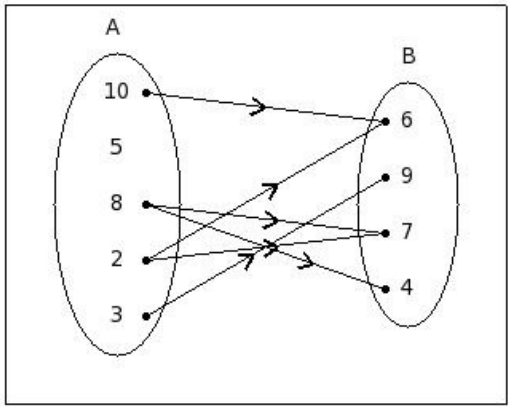
(i) 9 (ii) 7 (iii) 3 (iv) 6 (v) 5

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

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

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

11. Write the relation $R: A \to B$ in the given diagram,
where $A = \{10,5,8,2,3\}$ and $B = \{6,9,7,4\}$

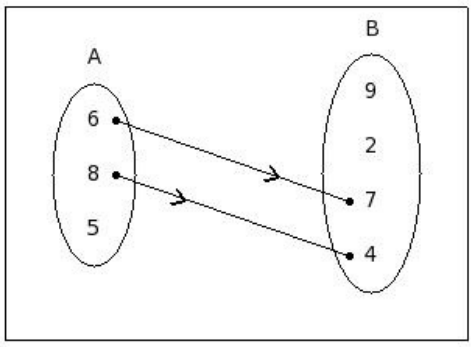


(i) $\{(2,6),(10,6),(8,7),(2,7),(3,9),(5,7)\}$ (ii) $\{(2,6),(10,6),(8,7),(2,7),(3,9)\}$

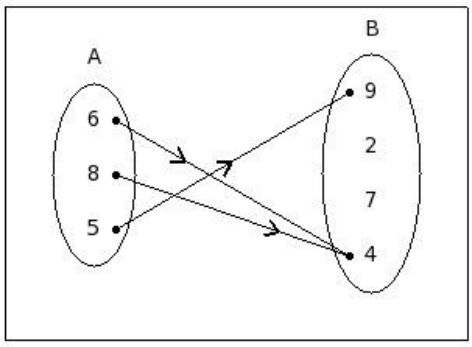
(iii) $\{(2,6),(10,6),(8,7),(8,4),(2,7),(3,9),(7,8)\}$ (iv) $\{(2,6),(10,6),(8,4),(2,7),(3,9),(7,8)\}$

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

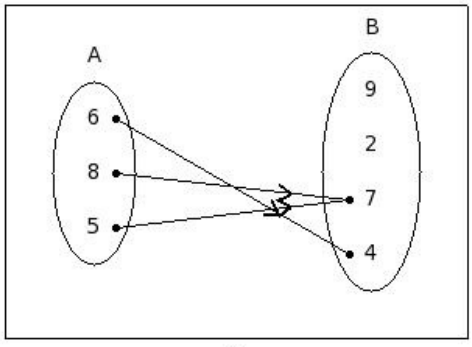
12. Which of the following does not represent a function $f: A \to B$,
where $A = \{6,8,5\}$ and $B = \{9,2,7,4\}$?



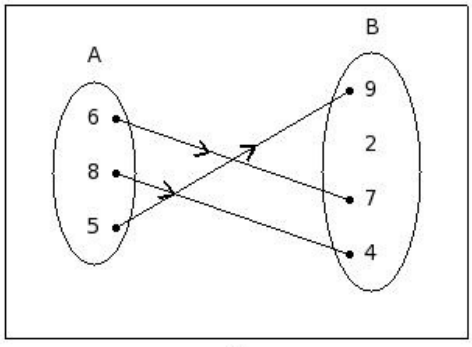
I



II



III



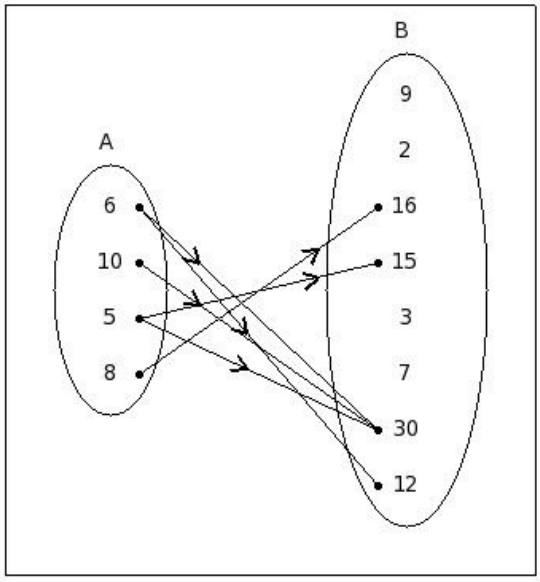
IV

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

13. If $((9x+3y+1), 9) = (8, (5x+10y+4))$ then find (x,y)

(i) $(\frac{11}{17}, \frac{2}{17})$ (ii) $(\frac{11}{15}, \frac{2}{13})$ (iii) $(\frac{13}{15}, \frac{2}{15})$ (iv) $(\frac{2}{15}, \frac{11}{15})$ (v) $(\frac{11}{15}, \frac{2}{15})$

14. If $A=\{6,10,5,8\}$ and $B=\{9,2,16,15,3,7,30,12\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is



(i) {(6,30),(6,12),(10,30),(5,15),(5,30),(8,16),(30,10)} (ii) {(6,30),(6,12),(10,30),(5,30),(8,16)}

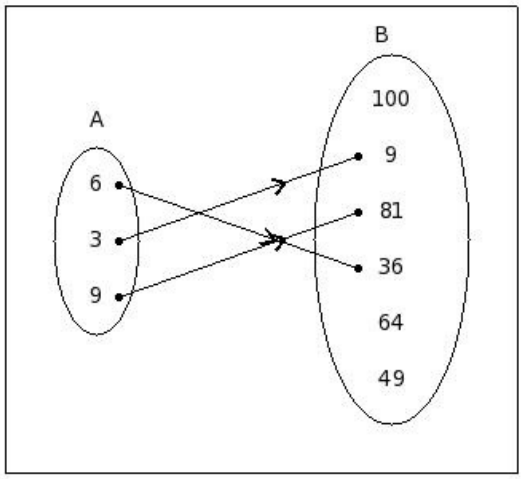
(iii) {(6,30),(6,12),(10,30),(5,30),(8,16),(16,4)} (iv) {(6,30),(6,12),(5,15),(5,30),(8,16),(30,10)}

(v) {(6,30),(6,12),(10,30),(5,15),(5,30),(8,16)}

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

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

16. If $A=\{6,3,9\}$ and $B=\{100,9,81,36,64,49\}$,
then the relation $R: A \to B$ such that $a \in A$ is the square root of $b \in B$ is



(i) {(6,36),(9,81)} (ii) {(6,36),(3,9),(9,81)} (iii) {(6,36),(3,9),(9,81),(9,3)} (iv) {(6,36),(9,81),(9,3)}

(v) {(6,36),(3,9),(82,8)}

17. If $f(x)=(9x-2)$ and $g(x)=(3x^2+3x-1)$,
find the value of $\dfrac{f(-4)+f(-6)+f(-3)}{g(-6)+g(-3)+g(-2)}$

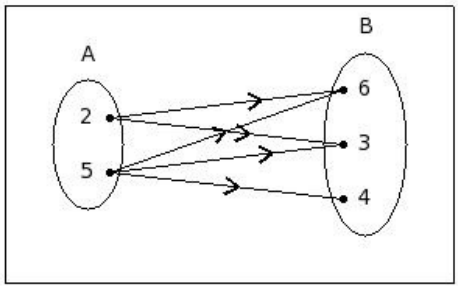
(i) $(\frac{-39}{35})$ (ii) $(\frac{-43}{37})$ (iii) $(\frac{-39}{37})$ (iv) $(\frac{-41}{37})$ (v) $(\frac{-43}{39})$

18. If $A = \{m,e,a,r\}$ and $B = \{n,g,q,k\}$,
which of the following is relation $R: B \to A$?

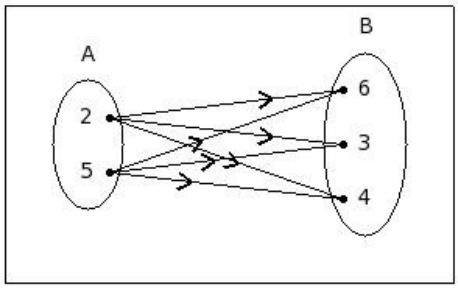
(i) {(n,r),(q,m),(k,e),(n,m),(q,r)} (ii) {(r,p),(m,o),(e,h),(a,h),(m,h)} (iii) {(k,j),(k,p),(n,p),(q,o),(q,j)}

(iv) {(r,q),(a,q),(r,n),(m,q),(a,k)} (v) {(p,e),(p,m),(p,r),(j,r),(j,e)}

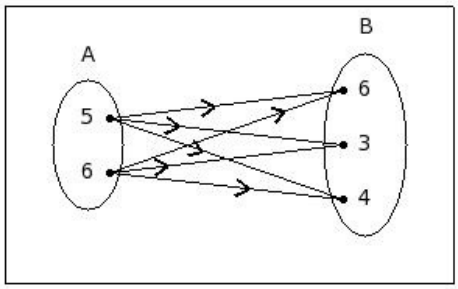
19. If $A = \{2,5\}$ and $B = \{6,3,4\}$, then $A \times B$ is



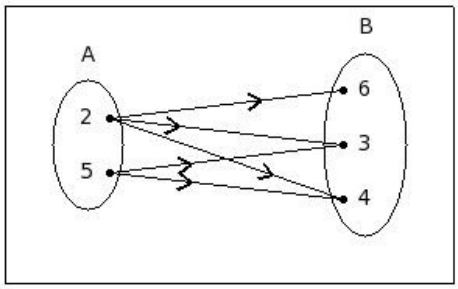
I



II



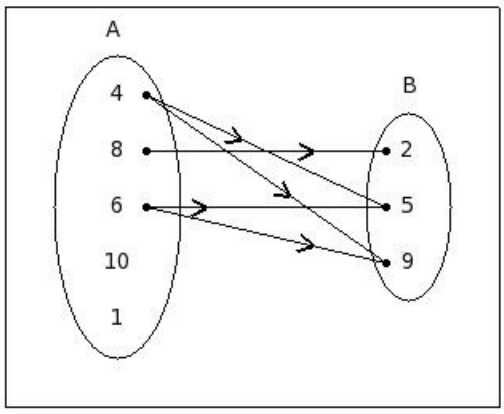
III



IV

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

20. Find the domain of the given relation.

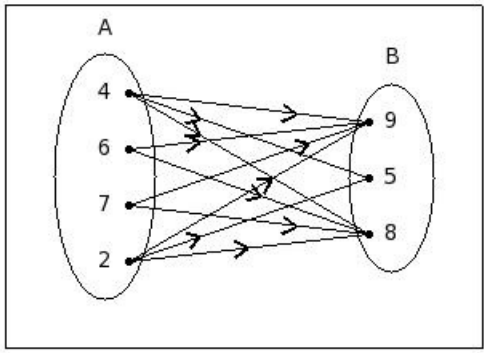


(i) {2,5,9} (ii) {4,8,6,10,1,9} (iii) {6,4,8} (iv) {4,8,6,10,1} (v) {6,4,8,9}

21. Find the range of $f: Z \to Z$ where $f(x) = (6x^2 + x + 1)$
and domain of f is $\{x : -3 \leq x \leq 1\}$

(i) {52,23,6,1} (ii) {52,23,6,1,8} (iii) {52,23,1,8,5} (iv) {52,6,1,8,24} (v) {23,6,1,8,54}

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



(i) {(4,9),(4,5),(4,8),(6,8),(7,9),(7,8),(2,9),(2,5),(2,8),(9,6)}

(ii) {(4,9),(4,5),(4,8),(6,9),(6,8),(7,9),(7,8),(2,9),(2,5),(2,8),(9,6)}

(iii) {(4,9),(4,5),(4,8),(6,9),(6,8),(7,8),(2,9),(2,5),(2,8)}

(iv) {(4,9),(4,5),(4,8),(6,9),(7,9),(7,8),(2,9),(2,5),(2,8),(9,5)}

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

23. If $f(x) = (4x+6)$ and $g(y) = (4y+4)$, then find $f(2), g(5)$

(i) 15,25 (ii) 13,23 (iii) 11,21 (iv) 14,24 (v) 17,27

24. Find the range of $f: Z \to Z$ where $f(x) = (9x-4)$
and domain of f is $\{x : 2 \leq x \leq 6\}$

(i) {14,23,32,41,50} (ii) {14,23,41,50,30} (iii) {14,23,32,41,51} (iv) {14,23,32,50,40}

(v) {14,32,41,50,25}

25. Which of the following relations is a function $f: A \to B$,
where $A = \{j,m,l,o\}$ and $B = \{j,m,l,d,n,b\}$?

(i) {(m,m),(j,l),(l,b),(o,j)} (ii) {(m,m),(l,b),(o,j),(l,j)} (iii) {(m,m),(j,l),(o,j)} (iv) {(m,m),(j,l),(l,b),(o,j),(l,j)}

(v) {}

Assignment Key

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