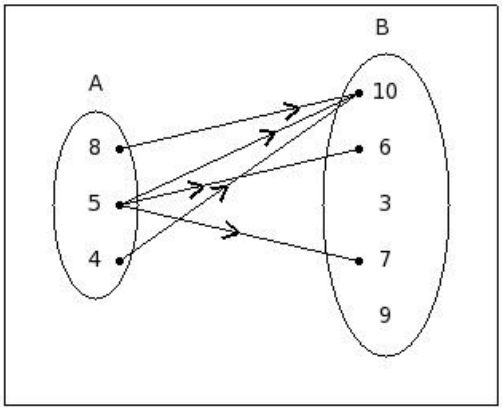
EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Relations and Mapping

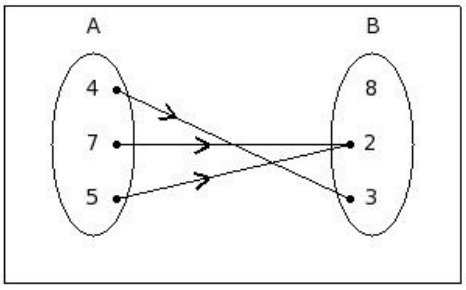
Grade : ICSE Grade VIII

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

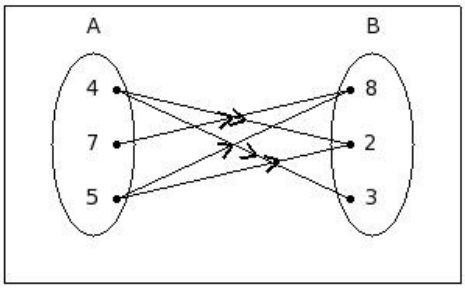


(i) {5,4,8} (ii) {8,5,4,10} (iii) {10,6,3,7,9} (iv) {10,6,3,7,9,4} (v) {8,5,4}

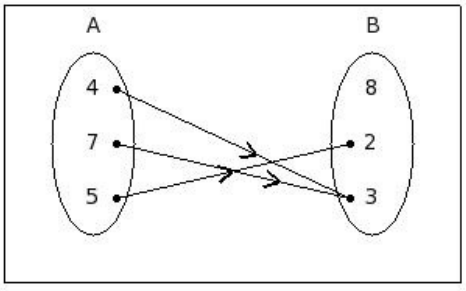
2. Which of the following does not represent a function $f: A \to B$, where $A = \{4,7,5\}$ and $B = \{8,2,3\}$?



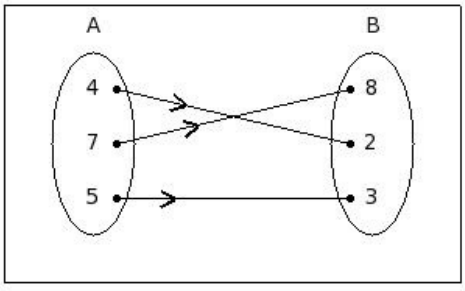
I



II



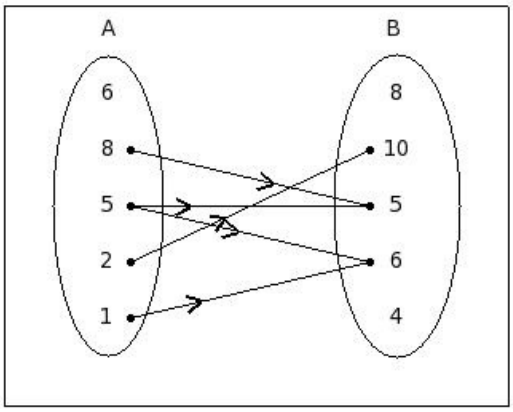
III



IV

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

3. Find the cardinality of the given relation



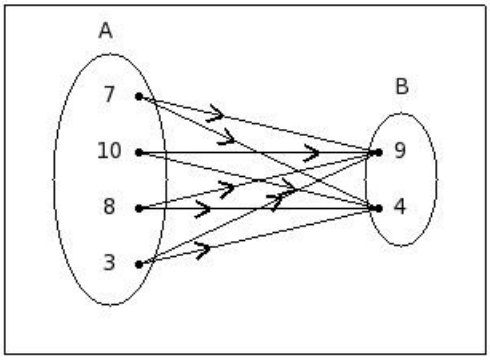
(i) 2 (ii) 7 (iii) 5 (iv) 6 (v) 4

4. Find the domain and range of the given relation
$R: A \to B = \{(1,4),(1,3),(1,8),(5,4),(5,3),(5,8),(6,4),(6,3),(6,8)\}$

(i) A = {1,4,-1} , B ={-6,2,0} (ii) A = {1,5,6} , B = {4,3,8} (iii) A = {9,6,5} , B ={3,8,11}

(iv) A = {5,6,8} , B ={8,4,5} (v) A = {4,5,10,6} , B ={8,9,1,3}

5. If $A = \{7,10,8,3\}$ and $B = \{9,4\}$, find $A \times B$



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

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

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

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

(i) {(s,j),(i,j),(k,h),(i,b),(s,b)} (ii) {(b,q),(j,o),(r,o),(h,q),(a,o)} (iii) {(o,k),(q,s),(o,i),(q,d),(o,n)}

(iv) {(n,o),(k,o),(d,q),(k,q),(s,q)} (v) {(b,s),(j,k),(j,n),(b,i),(h,k)}

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

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

(iv) {(4,7),(9,7),(3,7)} (v) {(4,7),(3,1),(9,8),(2,7)}

8. If $f(x) = (7x+3)$ and $g(y) = (9y+2)$, then find $f(3), g(6)$

(i) 27,59 (ii) 25,57 (iii) 24,56 (iv) 23,55 (v) 22,53

Let $f: R \to R$ be a function defined by given conditions

$f(x) = (8x+1)$ if $x<4$

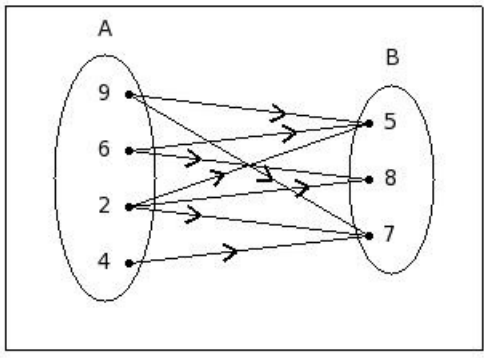
9. $f(x) = (5x+6)$ if $4 \le x \le 5$

$f(x) = (x+7)$ if $x>5$

find $f(x)$ where $x = 10$

(i) 18 (ii) 16 (iii) 17 (iv) 81 (v) 56

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



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

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

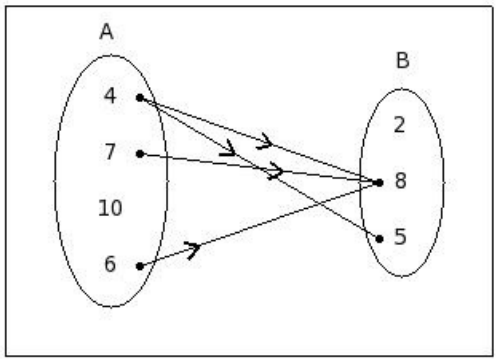
(v) {(2,7),(2,8),(6,8),(2,5),(6,5),(4,7),(9,7),(5,9)}

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

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

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

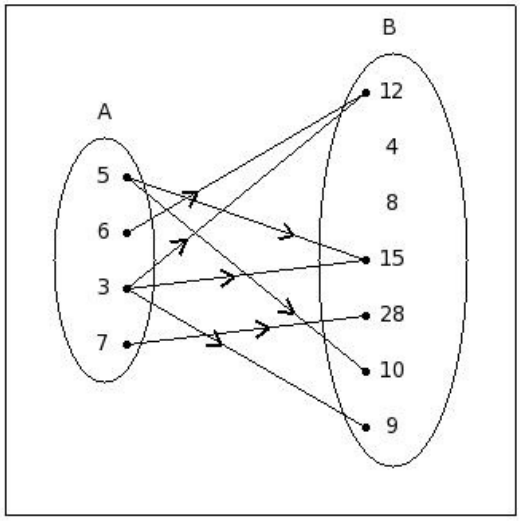
12. If $A = \{4,7,10,6\}$ and $B = \{2,8,5\}$,
then the relation $R: A \to B$ such that $a \in A$ is less than $b \in B$ is



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

(iv) {(4,8),(4,5),(6,8)} (v) {(4,8),(4,5),(6,8),(9,6)}

13. If $A = \{5,6,3,7\}$ and $B = \{12,4,8,15,28,10,9\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is



(i) {(5,15),(5,10),(6,12),(3,12),(3,15),(3,9),(7,28)} (ii) {(5,15),(5,10),(3,12),(3,15),(3,9),(7,28),(12,6)}

(iii) {(5,15),(5,10),(6,12),(3,12),(3,15),(3,9),(7,28),(12,6)} (iv) {(5,15),(5,10),(6,12),(3,15),(3,9),(7,28)}

(v) {(5,15),(5,10),(6,12),(3,15),(3,9),(7,28),(13,2)}

14. If $f(x)=4x$ and $g(x)=(3x^2+2x-5)$,
find the value of $\frac{f(3)+f(-4)+f(-6)}{g(-4)+g(-6)+g(-3)}$

(i) $(\frac{-12}{71})$ (ii) $(\frac{-14}{71})$ (iii) $(\frac{-14}{69})$ (iv) $(\frac{-14}{73})$ (v) $(\frac{-16}{71})$

15. If $f(t)=(6t^2+5t+9)$ then find $f(4x+5)$

(i) $(95x^2+260x+184)$ (ii) $(97x^2+260x+184)$ (iii) $(98x^2+260x+184)$ (iv) $(96x^2+260x+184)$

(v) $(94x^2+260x+184)$

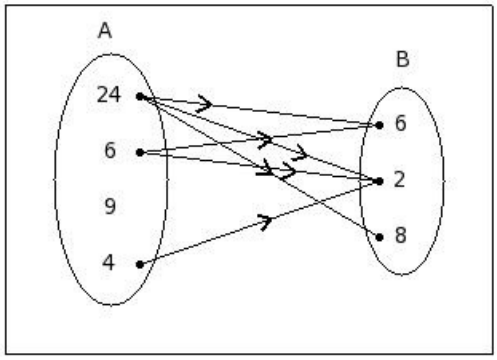
16. Which of the following relations is a function $f: A \to B$,
where $A = \{o,d,j,a\}$ and $B = \{o,i,h,l\}$?

(i) {(o,o),(j,l),(d,i),(a,l)} (ii) {} (iii) {(o,o),(d,i),(a,l),(l,j)} (iv) {(o,o),(j,l),(d,i),(a,l),(l,j)} (v) {(o,o),(j,l),(a,l)}

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

(i) $((\frac{-57}{44}),\frac{5}{4})$ (ii) $((\frac{-53}{42}),\frac{53}{42})$ (iii) $((\frac{-55}{42}),\frac{53}{42})$ (iv) $((\frac{-55}{42}),\frac{51}{40})$ (v) $(\frac{53}{42},(\frac{-55}{42}))$

18. If $A = \{24,6,9,4\}$ and $B = \{6,2,8\}$,
then the relation $R: A \to B$ such that $a \in A$ is a multiple of $b \in B$ is



(i) {(24,6),(24,2),(24,8),(6,2),(4,2),(7,5)} (ii) {(24,6),(24,2),(24,8),(6,2),(4,2)}

(iii) {(24,6),(24,2),(6,6),(6,2),(4,2),(8,24)} (iv) {(24,6),(24,2),(24,8),(6,6),(6,2),(4,2),(8,24)}

(v) {(24,6),(24,2),(24,8),(6,6),(6,2),(4,2)}

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

(i) {(f,e),(l,h),(d,h),(o,h),(b,e),(c,e)} (ii) {(c,k),(f,h),(b,h),(l,h),(o,a),(d,e)}

(iii) {(c,k),(b,k),(o,h),(f,a),(d,a),(l,k)} (iv) {(o,e),(f,k),(l,k),(b,e),(c,h),(d,k)}

(v) {(d,e),(o,e),(f,k),(l,e),(l,a),(c,k)}

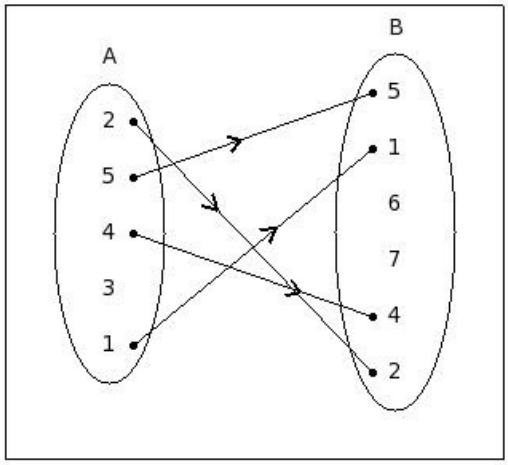
20. If $f(x) = (8x + 6)$, then find $f(7)$

(i) 63 (ii) 62 (iii) 61 (iv) 60 (v) 65

21. If $f: A \to B$ is defined by $f(x) = (8x + 9)$ and $A = \{3,9,1,10\}$,
find the range

(i) {33,81,17,89} (ii) {89,33,17} (iii) {33,81,89,14} (iv) {33,89,64,16} (v) {17,81,-2,33,89,-6}

22. If $A = \{2,5,4,3,1\}$ and $B = \{5,1,6,7,4,2\}$,
then the relation $R: A \to B$ such that $a \in A$ is equal of $b \in B$ is



(i) {(5,5),(4,4),(1,1),(2,2),(7,7)} (ii) {(5,5),(4,4),(2,2),(2,0)} (iii) {(5,5),(4,4),(1,1),(2,2),(3,3)}

(iv) {(5,5),(4,4),(2,2)} (v) {(5,5),(4,4),(1,1),(2,2)}

23. Which of the following are true?

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

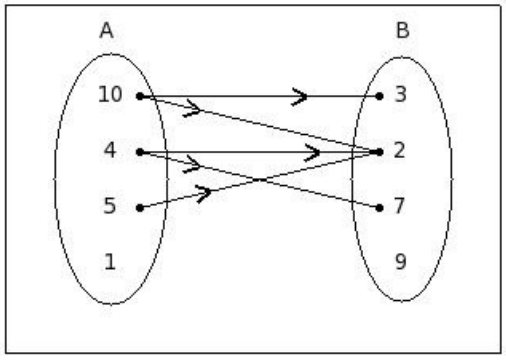
(i) {a,b} (ii) {e,a,b} (iii) {b,d} (iv) {c,d} (v) {c,d,b}

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

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

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

25. Find the domain of the given relation.



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

Assignment Key

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