EduSahara™ Worksheet

Name : Chapter Based Worksheet

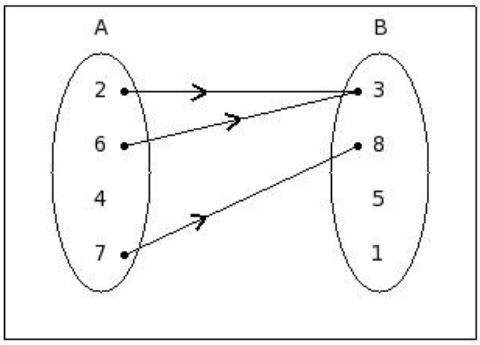
Chapter : Relations and Mapping

Grade : ICSE Grade VII

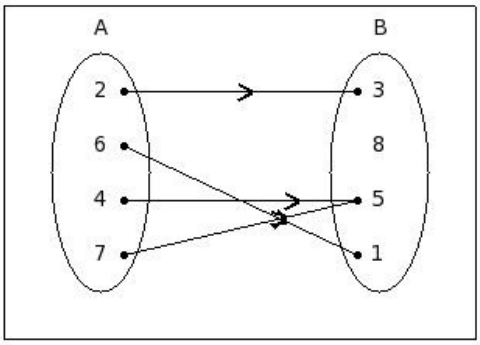
1. If $f(t)=(7t^2+7t+8)$ then find $f(x+1)$

   (i) $(8x^2+21x+22)$ (ii) $(10x^2+21x+22)$ (iii) $(7x^2+21x+22)$ (iv) $(6x^2+21x+22)$ (v) $(4x^2+21x+22)$

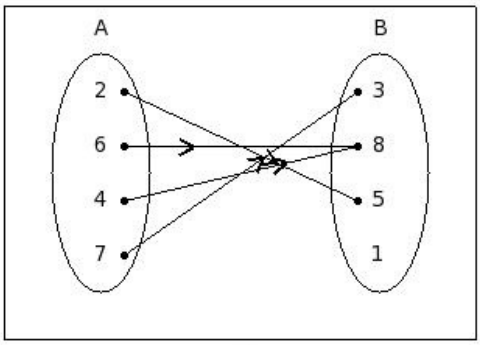
2. Which of the following does not represent a function $f: A \to B$, where $A = \{2,6,4,7\}$ and $B = \{3,8,5,1\}$?



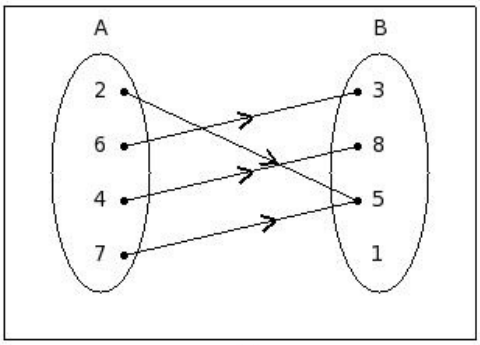
I



II



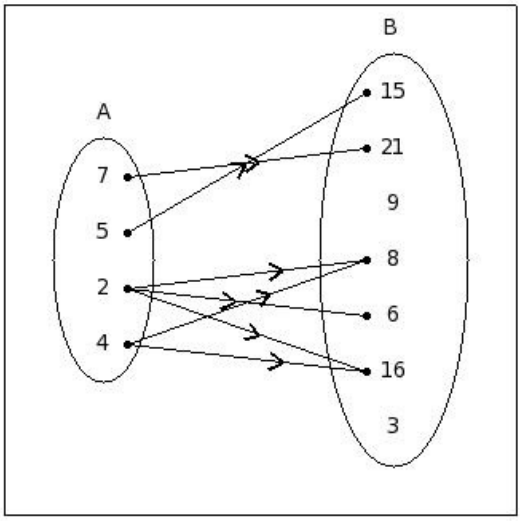
III



IV

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

3. If $A = \{7,5,2,4\}$ and $B = \{15,21,9,8,6,16,3\}$,
then the relation $R: A \to B$ such that $a \in A$ is a factor of $b \in B$ is



(i) {(7,21),(5,15),(2,8),(2,16),(4,8),(4,16),(7,1)} (ii) {(7,21),(5,15),(2,8),(2,6),(2,16),(4,8),(4,16),(8,2)}

(iii) {(7,21),(5,15),(2,8),(2,16),(4,8),(4,16)} (iv) {(7,21),(5,15),(2,8),(2,6),(2,16),(4,8),(4,16)}

(v) {(7,21),(5,15),(2,6),(2,16),(4,8),(4,16),(8,2)}

4. If $f(x) = (5x+1)$, then find $f(5)$

(i) 27 (ii) 25 (iii) 29 (iv) 26 (v) 23

5. Which of the following relations is a function given ,
$A = \{5,8,2,9,4\}$ and $B = \{8,5,10,2,6,9\}$?

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

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

6. If $f(x) = (9x+7)$ and $g(y) = (8y+4)$, then find $f(9), g(2)$

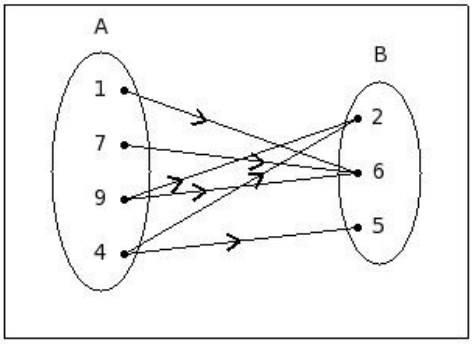
(i) 86,18 (ii) 90,23 (iii) 88,20 (iv) 89,21 (v) 87,19

7. If $A = \{f,e,i,l,a\}$ and $B = \{c,p,r,n,b\}$,
which of the following is relation $R: A \to B$?

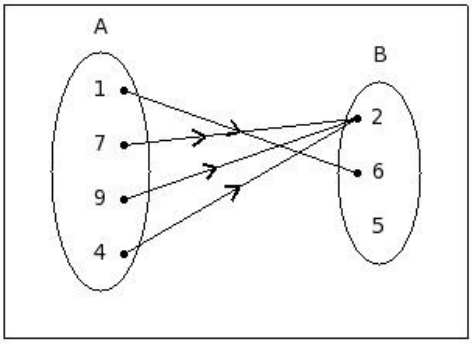
(i) {(c,d),(n,d),(n,m),(p,m),(n,s)} (ii) {(a,m),(e,s),(a,d),(e,d),(l,d)} (iii) {(m,e),(d,e),(m,f),(s,a),(s,e)}

(iv) {(n,i),(p,f),(b,a),(p,l),(r,e)} (v) {(e,b),(e,c),(l,r),(l,n),(l,b)}

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



I



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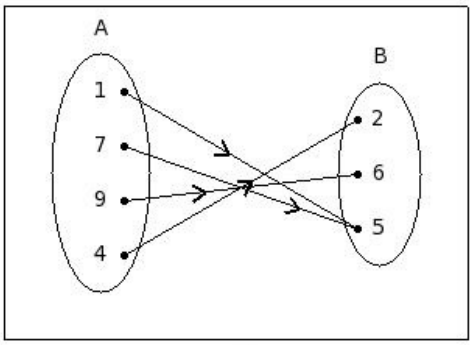
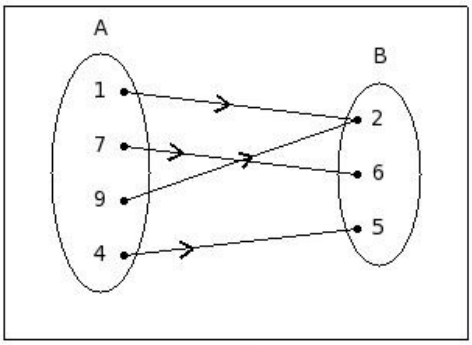


III



IV

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

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

$f(x) = (5x+1)$ if $x < -7$

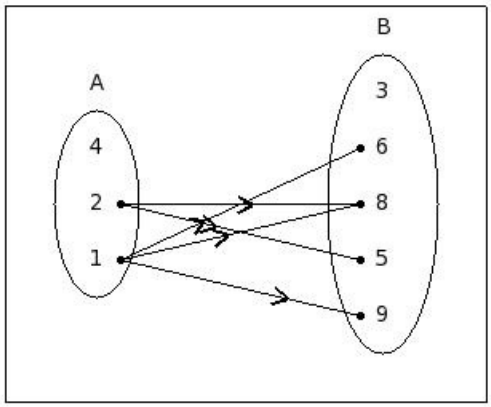
9. $f(x) = (3x+4)$ if $-7 \leq x \leq -4$

$f(x) = (x+8)$ if $x > -4$

find $f(x)$ where $x = -6$

(i) -29 (ii) -14 (iii) -13 (iv) 2 (v) -15

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



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

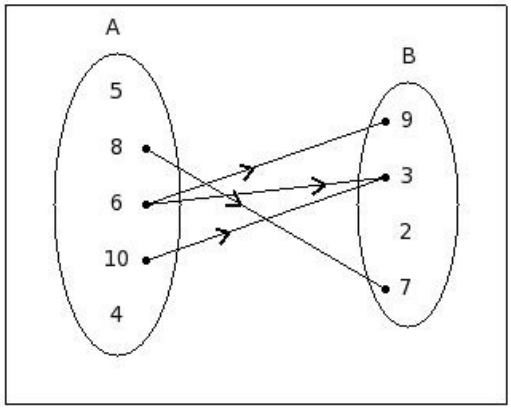
11. Find the domain and range of the given relation

$R: A \to B = \{(3,6),(3,1),(1,6),(1,1),(9,6),(9,1),(4,6),(4,1)\}$

(i) A = {3,1,9,4} , B = {6,1} (ii) A = {4,9,1,13} , B ={1,14} (iii) A = {14,1,13,6} , B ={11,-3}

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

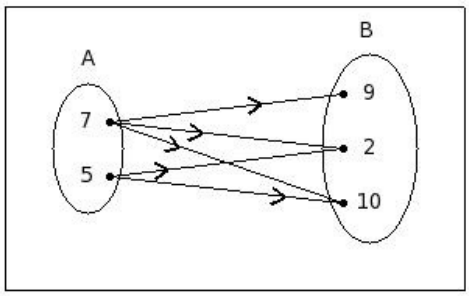
12. Write the relation $R: A \to B$ in the given diagram, where $A = \{5,8,6,10,4\}$ and $B = \{9,3,2,7\}$



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

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

13. If $A = \{7,5\}$ and $B = \{9,2,10\}$, then $A \times B$ is



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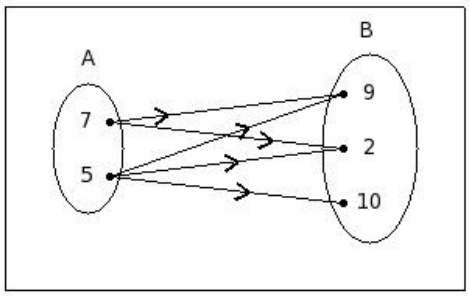

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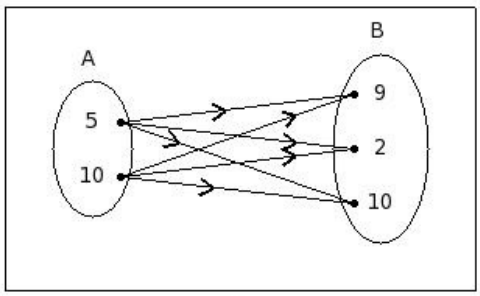

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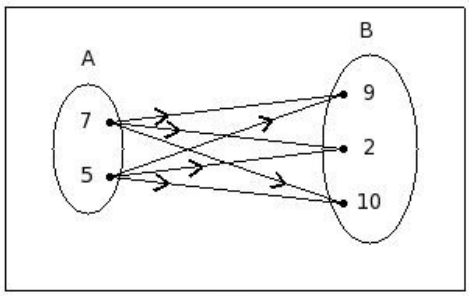
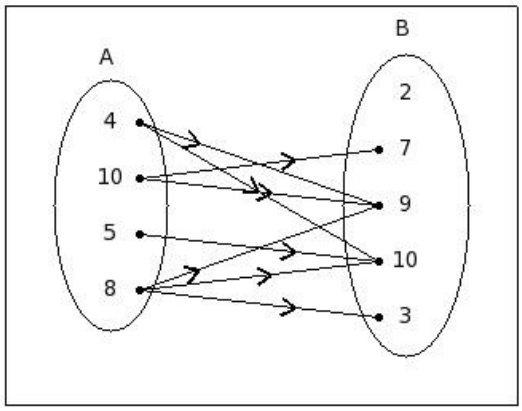


IV

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

14. Find the cardinality of the given relation



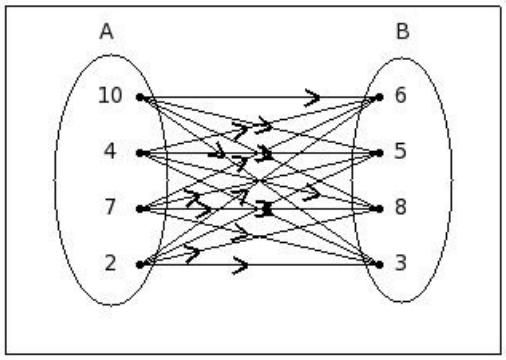
(i) 9 (ii) 6 (iii) 10 (iv) 7 (v) 8

15. If $A = \{p,e,l,c,b\}$ and $B = \{j,g,r,k,h\}$,
which of the following is relation $R: B \to A$?

(i) {(m,l),(m,p),(i,e),(f,e),(m,b)} (ii) {(r,i),(j,i),(j,f),(g,f),(h,m)} (iii) {(g,b),(k,p),(h,b),(j,b),(h,p)}

(iv) {(l,k),(c,r),(c,k),(p,r),(b,r)} (v) {(l,f),(p,m),(c,m),(b,f),(c,f)}

16. If $A = \{10,4,7,2\}$ and $B = \{6,5,8,3\}$, find $A \times B$



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

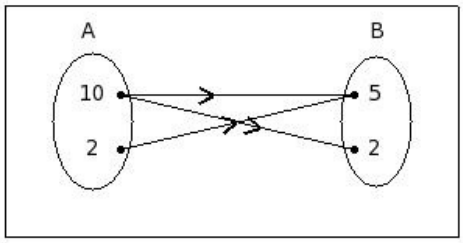
(ii) {(10,6),(10,5),(10,8),(10,3),(4,6),(4,5),(4,8),(4,3),(7,6),(7,5),(7,8),(7,3),(2,6),(2,5),(2,8),(2,3),(5,4)}

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

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

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

17. Which of the following relations $R: A \to B$ represent a function,
given $A = \{10,6\}$ and $B = \{5,2\}$?



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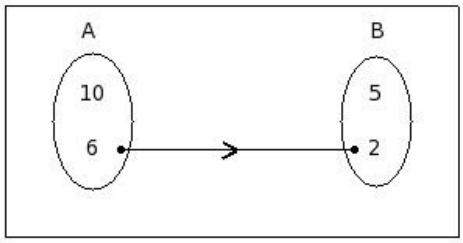
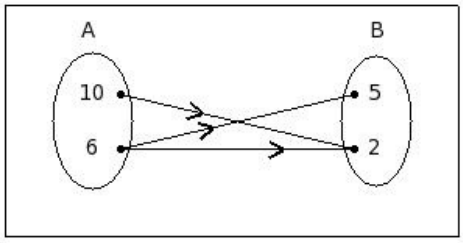
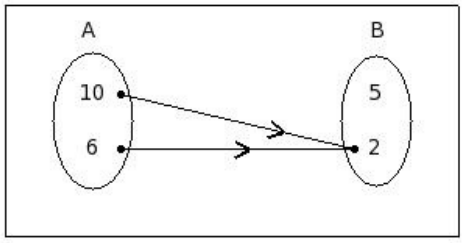


II



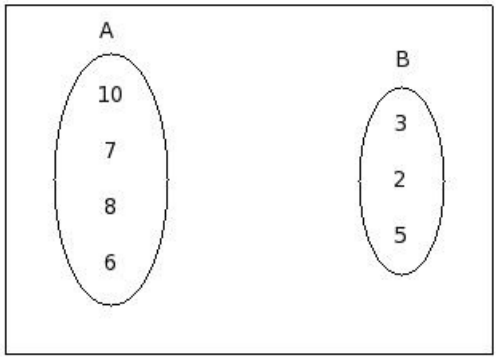
III



IV

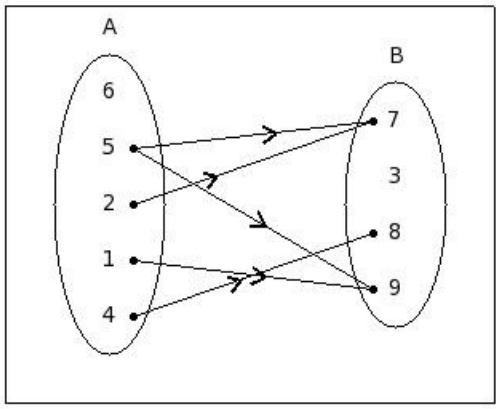
(i) III (ii) IV (iii) II (iv) I

18. If $A = \{10,7,8,6\}$ and $B = \{3,2,5\}$,
then the relation $R: A \to B$ such that $a \in A$ is less than $b \in B$ is



(i) {(1,(-1))} (ii) {(0,0)} (iii) {}

19. Find the range of given relation diagram.



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

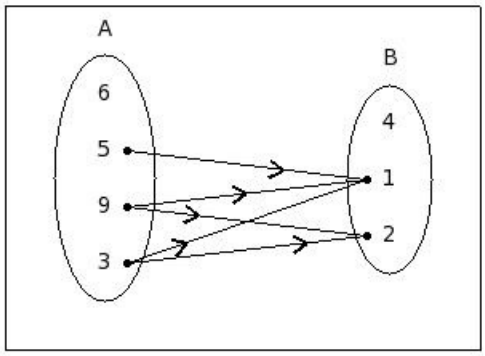
20. Find the range of $f: Z \to Z$ where $f(x) = (x^2 + 4x - 9)$
and domain of f is $\{x : 2 \leq x \leq 6\}$

(i) {3,23,36,51,11} (ii) {3,12,23,51,34} (iii) {3,12,36,51,25} (iv) {3,12,23,36,52} (v) {3,12,23,36,51}

21. If $f: A \to B$ is defined by $f(x) = (x + 3)$ and $A = \{8,4,10,1\}$,
find the range

(i) {7,27,4,13} (ii) {8,19,11,7} (iii) {11,4,13} (iv) {7,13,18,11,-10,4} (v) {11,7,13,4}

22. Find the domain of the given relation.

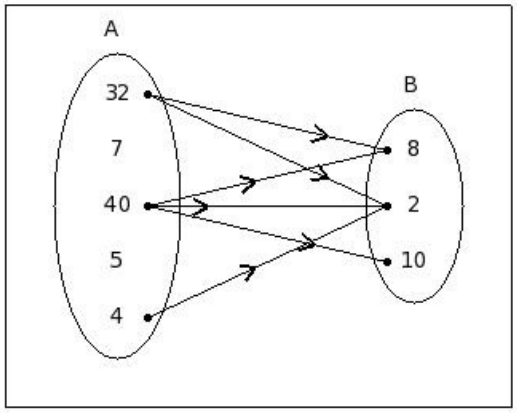


(i) {9,3,5} (ii) {9,3,5,1} (iii) {6,5,9,3,1} (iv) {4,1,2} (v) {6,5,9,3}

23. Find the range of $f: Z \to Z$ where $f(x) = (3x + 4)$
and domain of f is $\{x : -4 \leq x \leq 0\}$

(i) {-8,-2,1,4,-3} (ii) {-8,-5,-2,4,0} (iii) {-8,-5,1,4,-4} (iv) {-8,-5,-2,1,5} (v) {-8,-5,-2,1,4}

24. If $A = \{32,7,40,5,4\}$ and $B = \{8,2,10\}$,
then the relation $R: A \to B$ such that $a \in A$ is a multiple of $b \in B$ is



(i) {(32,8),(32,2),(40,2),(40,10),(4,2),(8,40)} (ii) {(32,8),(32,2),(40,8),(40,2),(40,10),(4,2)}

(iii) {(32,8),(32,2),(40,8),(40,2),(40,10),(4,2),(8,40)} (iv) {(32,8),(32,2),(40,8),(40,10),(4,2)}

(v) {(32,8),(32,2),(40,8),(40,10),(4,2),(3,39)}

25. Find the range in given roster form,
where $R = \{(2,6),(3,8),(9,7),(9,5),(2,8)\}$

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

Assignment Key

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