MATHS

BOOKS - FULL MARKS MATHS (TAMIL ENGLISH)

SET LANGUAGE

Thinking Corner

1. Are the sets {0} and $\{\phi\}$ empty sets?

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2. Is the set of natural numbers a finite set?

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3. Let A={x : x is a colour in national flag of India} and B={Red, Blue, Green}.

Are these sets equivalent?

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4. Are the sets ϕ, $\{0\}$ and $\{\phi\}$ equal or equivalent?

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5. Is W subset of N or Z?

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6. What is $(A - B) \cap (B - A)$?

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7. $(A - B) \cup (A - C) \cup (A \cap B) = \ldots\ldots .$

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8. Check whether $A - B = A \cap B'$

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9. $(A - B) \cup (B - A)' = \ldots\ldots\ldots .$

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10. $A \cap (A \cup B)' = \ldots\ldots\ldots\ldots$

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11. $(A \cup B)' \cup (A' \cap B) = \ldots\ldots$

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Exercise 1 1

1. Which of the following are sets?

The Collection of rich people in India.

A. The collection of prime numbers upto 100

B. The collection of rich people in India

C. The collection of all rivers in India

D. The collection of good hockey players

Answer:

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2. Consider the following sets A = {0, 3, 5, 8} B = {2, 4, 6, 10} C = {12, 14, 18, 20}

(a) State whether True or false.

(i) $18 \in C$

(ii) $6 \notin A$

(iii) $14 \notin C$

(iv) $10 \in B$

(v) $5 \in B$

(vi) $0 \in B$

(b) Fill in the blanks?

(i) $3 \in$ _____

(ii) $14 \in$ _____

(iii) 18 _____ B

(iv) 4 ____ B

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3. Represent the following sets in Roaster form.

(i) A=The set of all even natural numbers less than 20.

(ii) $B = \left\{ y : y = \frac{1}{2n}, n \in N, n \leq 5 \right\}$

(iii) $C = \{ \text{ x : x is a perfect cube, } 27 < x < 216\}$

(iv) $D : \{x : x \in Z, -5 < x \leq 2\}$

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4. Represent the following sets in set builder form.

B = The set of all Cricket players in India who scored double centuries in One Day Internationals.

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5. Represent of the following sets in descriptive form.

(i) P={January, June, July} (ii) Q={7,11,13,17,19,23,29}

(iii) $R = \{x : x \in N, x < 5\}$ (iv) S={x :x is a consonant in English alphabet}

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Exercise 1 2

1. Find the cardinal number of the following sets

(i) M={p,q,r,s,t,u}

(ii) $P = \{x : x = 3n + 2, n \in W \text{ and } x < 15\}$

(iii) $Q = \left\{y : y = \frac{4}{3n}, n \in N \text{ and } 2 < n \leq 5\right\}$

(iv) $R = \{\text{x : x is an integer, } x \in Z \text{ and } -5 \leq x < 5\}$

(v) S= The set of all leap years between 1882 and 1906.

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2. Identify the following sets as finite or infinite.

(i) X=The set of all districts in Tamilnadu.

(ii) Y=The set of all straight lines passing through a point.

(iii) $A = \{x : x \in Z \text{ and } x < 5\}$

(iv) $B = \{x : x^2 - 5x + 6 = 0, x \in N\}$

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3. Which of the following sets are equivalent or unequal or equal sets?

(i) A=The set of vowels in the Englisht alphabets.

B=The set of all letters in the word "VOWEL".

(ii) C={2,3,4,5}

$D = \{x : x \in W, 1 < x < 5\}$

(iii) $X = \{$ x : x is a letter in the word LIFE$\}$

Y={F,I,L,E}

(iv) $G = \{$x : x is a prime number and 3 $< x < 23\}$

H={x : x is a divisor of 18}

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4. Identify the following sets as null set or singleton set.

(i) $A = \{x : x \in N, 1 < x < 2\}$

(ii) B=The set of all even natural numbers which are not divisible by 2

(iii) C={0}.

(ic) D=The set of all triangles having four sides.

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5. State which pairs of sets are disjoint or overlapping?

A = $\{f, i, a, s\}$ and B = {a,n,f,h,s}

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6. If S = {square, rectangle, circle, rhombus, triangle}, list the elements of the following subset of S.

The set of shapes which have radius.

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7. If A={a, {a,b}}, write all the subsets fo A.

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8. Write down the power set of the following sets.

A = {a,b}

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9. Find the number of subsets and the number of proper subsets of the following sets

(i) W={red, blue, yellow}

(ii) $X = \{x^2 : x \in N, x^2 \leq 100\}$

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10. (i) If n(A)=4, find n[P(A)]

(ii) If n(A)=0, find n[P(A)]

(iii) If n[P(A)]=256, find n (A)

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Exercise 1 3

1. If U={a,b,c,d,e,f,g,h}, A={b,d,f,h} and B={a,d,e,h}, find the following

(i) A'

(ii) B'

(iii) $A' \cup B'$

(iv) $A' \cap B'$

(v) $(A \cup B)'$

(vi) $(A \cap B)'$

(viii) $(A')'$

(viii) (B')'

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2. Let U ={0,1,2,3,4,5,6,7}, A={1,3,5,7} and B={0,2,3,5,7}, find the following

(i) A'

(ii) B'

(iii) $A' \cup B'$

(iv) $A' \cap B'$

(v) $(A \cup B)'$

(vi) $(A \cap B)'$

(vii) $(A')'$

(viii) (B')'

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3. Find the symmetric difference between the follwing sets

(i) P={2,3,5,7,11} and Q={1,3,5,11}

(ii) R={l,m,o,p} and S={j,l,n,q}

(iii) X={5,6,7} and Y={5,7,9,10}

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4. Let A and B be two overlapping sets and the universal set U. Draw appropriate Venn diagram for each of the following,

(i) $A \cup B$

(ii) $A \cap B$

(iii) $(A \cap B)'$

(iv) (B - A)'

(v) $A' \cup B'$

(vi) $A' \cap B'$

(vii) What do you observe from the diagram (iii) and (v)?

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Exercise 1 4

1. If P={1,2,5,7,9}, Q={2,3,5,9,11}, R={3,4,6,7,9} and S={2,3,4,5,8} then find

(i) $(P \cup Q) \cup R)$ (ii) $(P \cap Q) \cap S$ (iii) $(Q \cap S) \cap R$

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2. Test for the commutative property of union and intersection of the sets

P = {x : x is a real number between 2 and 7} and

Q = {x : x is an irrational number between 2 and 7}

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3. If A = {p, q, r, s}, B = {m, n, q, s, t} and C = {m, n, p, q, s}, then verify the associative property of union of sets.

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4. Verify the associative property of intersection of sets for $A = \{-11, \sqrt{2}, \sqrt{5}, 7\}, B = \{\sqrt{3}, \sqrt{5}, 6, 13\}$ and $C = \{\sqrt{2}, \sqrt{3}, \sqrt{5}, 9\}$.

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5. If $A = \{x : x = 2^n, n \in W \text{ and } n < 4\}, B = \{x : x = 2n, n \in \mathbb{N} \text{ and } \leq 4\}$ and C = {0, 1, 2, 5, 6}, then verify the associative property of intersection of sets.

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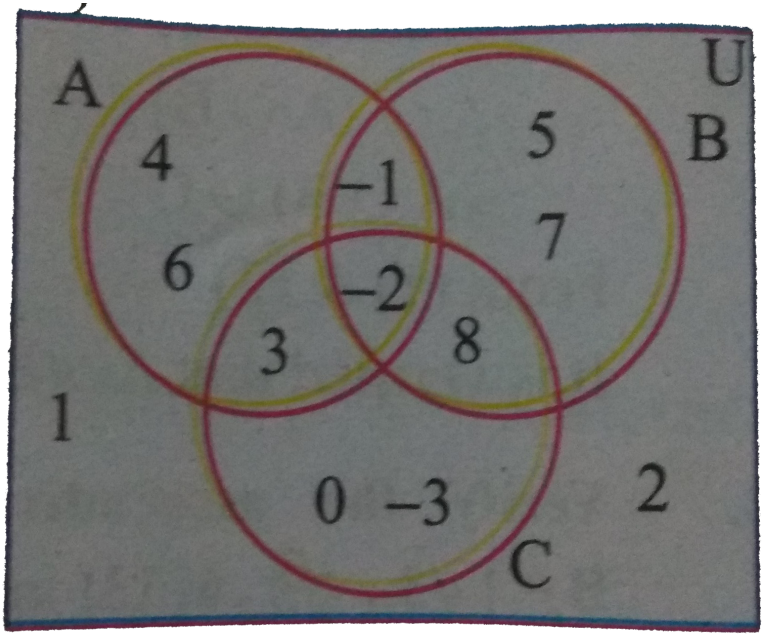
Exercise 1 5

1. Using the adjacent venn diagram, find the following sets :



(i) A - B

(ii) B - C

(iii) $A' \cup B'$

(iv) $A' \cap B'$

(v) $(B \cup C)'$

(vi) $A - (B \cup C)$

(vii) $A - (B \cap C)$

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2. If K = {a, b, d, e, f}, L = {b, c, d, g} and M = (a, b, c, d, h} then find the following:

$K \cup (L \cap M)$ and verify distributive laws.

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3. For $A = \{x : x \in Z, \ -2 < x \leq 4\}. B = \{x : x \in W, x \leq 5\}, C = \{-4, \ -1,$

.

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4. Verify $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ using Venn diagrams.

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5. If A = {b, c, e, g, h}, B = {a, c, d, g, i} and C = {a, d, e, g, h}, then show that $A-(B \cap C)=(A-B) \cup(A-C)$.

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6. If $A=\{x: x=6n, n \in W \text{ and } n<6\}, B=\{x: x=2n, n \in \mathbb{N} \text{ and } 2<n$, then show that $A-(B \cap C)=(A-B) \cup(A-C)$

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7. If A = {-2, 0, 1, 3, 5}, B = {-1, 0, 2, 5, 6} and C = {-1, 2, 5, 6, 7}, then show that $A-(B \cup C)=(A-B) \cap(A-C)$.

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8. If $A = \left\{y : y = \frac{a+1}{2}, a \in W \text{ and } a \leq 5\right\}, B = \left\{y : y = \frac{2n-1}{2}, n \in W$, then show that $A - (B \cup C) = (A - B) \cap (A - C)$.

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9. Verify $A - (B \cap C) = (A - B) \cup (A - C)$ using Venn diagrams.

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10. If U = {4, 7, 8, 10, 11, 12, 15, 16}, A = {7, 8, 11, 12} and B = {4, 8, 12, 15}, then verify De Morgan's Laws for complementation.

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11. Verify $(A \cap B)' = A' \cup B'$ using Venn diagrams.

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Exercise 1 6

1. (i)If n(A)=25, n(B)=40, $n(A \cup B) = 50$ and $n(B') = 25$, find $n(A \cap B)$ and $n(U)$.

(ii) If $n(A) = 300, n(A \cup B) = 500, n(A \cap B) = 50$ and $n(B') = 350$, find $n(B)$ and $n(U)$.

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2. If $U = \{x : x \in \mathbb{N}, x \leq 10\}$, A = {2, 3, 4, 8, 10} and B = {1, 2, 5, 8, 10}, then verify that $n(A \cup B) = n(A) + n(B) - n(A \cap B)$

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3. Verify $n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(B \cap C) - n(A \cap$ for the following sets.

(i) A{a, c, e, f, h}, B = {c, d, e, f} and C = {a, b, c, f}

(ii) A = {1, 3, 5} B = {2, 3, 5, 6} and C = {1, 5, 6, 7}.

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4. In a class, all students take part in either music or drama or both. 25 students take part in music, 30 students take part in drama and 8 students take part in both music and drama. Find

(i) The number of students who take part in only music.

(ii) The number of students who take part in only drama.

(iii) The total number of students in the class.

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5. In a party of 45 people, each one likes tea or coffee or both. 35 people like tea and 20 people like coffee. Find the number of people who

(i) like both tea and coffee.

(ii) do not like tea.

(iii) do not like coffee.

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6. In an examination 50% of the students passed in Mathematics and 70% of students passed in Science while 10% students failed in both subjects. 300 students passed in atleast one subjects. Find the total number of students who appeared in the examination, if they took examination in only two subjects.

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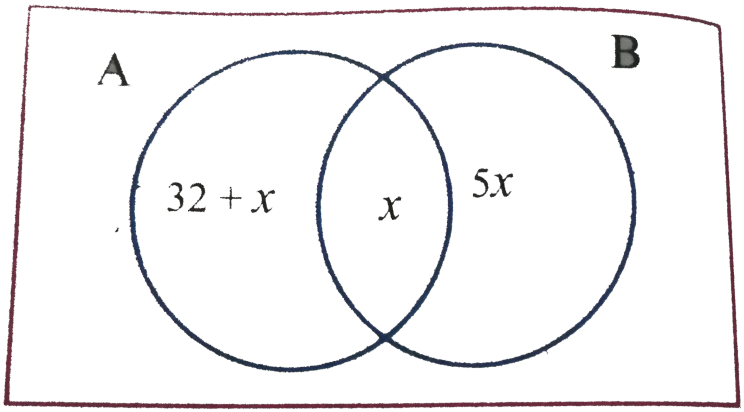
7. A and B are two sets such that n(A - B) = 32 + x, n(B - A) = 5x and $n(A \cap B) = x$. Illustrate the information by means of a venn diagram.

Given that n(A) = n(B), calculate the value of x.



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8. Out of 500 car owners investigated, 400 owned car A and 200 owned car B, 50 owned both A and B cars. Is this data correct?

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9. In a colony, 275 families buy Tamil newspaper, 150 families buy English newspaper, 45 families buy Hindi newspaper, 125 families buy Tamil and English newspapers, 17 families buy English and Hindi newspapers, 5

families buy Tamil and Hindi newspapers and 3 families buy all the three newspapers. If each family buy atleast one of these newspapers then find

(i) Number of families buy only one newspaper

(ii) Number of families buy atleast two newspapers

(iii) Total number of families in the colony.

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10. A survey of 1000 farmers found that 600 grew paddy, 350 grew ragi, 280 grew corn, 120 grew paddy and ragi, 100 grew ragi and corn, 80 grew paddy and corn. If each farmer grew atleast any one of the above three, then find the number of farmers who grew all the three.

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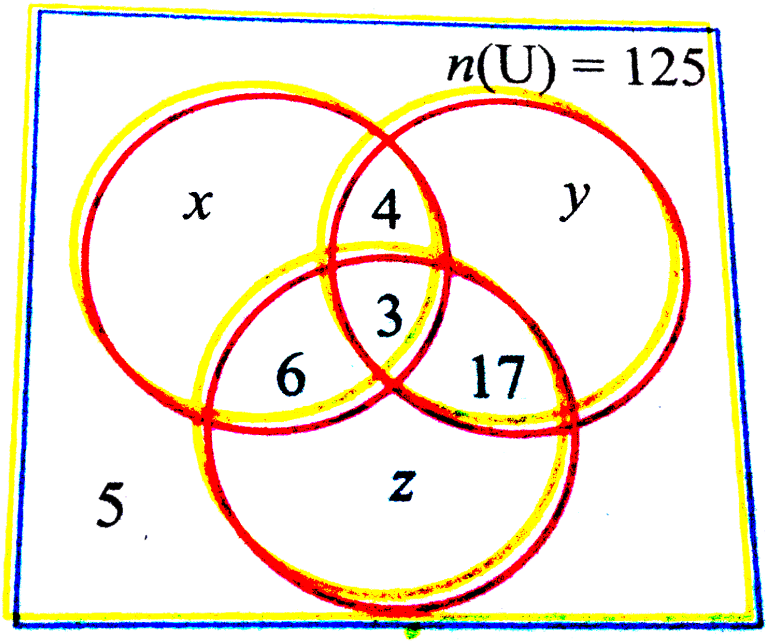
11. In the adjacent diagram, if n(U) = 125, y is two times of x and z is 10 more than x, then find the value of x, y and z.



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12. In a class of 50 students, each one come to school by bus or by bicycle or on foot. 25 by bus, 20 by bicycle, 30 on foot and 10 students by all the three. Now how many students come to school exactly by two modes of transport?

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Exercise 1 7 Mcq

1. Which of the following is correct?

A. $\{7\} \in \{1, 2, 3, 5, 6, 7, 8, 9, 10\}$

B. $7 \neg \in \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

C. $7 \in \{1, 2, 3, 4, 5, 6, 7, 8, 910\}$

D. $\{7\} \neg \subseteq \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

Answer: B

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2. The set $P = \{x \mid x \in \mathbb{Z}, \ -1 < x < 1\}$ is a

A. Singleton set

B. Power set

C. Null set

D. Subset

Answer: A

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3. If $U = \{x \mid x \in \mathbb{N}, x < 10\}$ and $A = \{x \mid x \in \mathbb{N}, 2 \leq x < 6\}$ then (A')' is

A. {1, 6,7,8,9}

B. {1,2,3,4}

C. {2,3,4,5}

D. {.}

Answer: C

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4. If $B \subseteq A$ then $n(A \cap B)$ is .....

A. n(A-B)

B. n(B)

C. n(B-A)

D. n(A)

Answer: B

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5. If A = {x,y,z} then the number of non-empty subsets of A is

A. 8

B. 5

C. 6

D. 7

Answer: D

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6. Which of the following is correct

A. $\phi \subseteq \{a, b\}$

B. $\phi \in \{a, b\}$

C. $\{a\} \in \{a, b\}$

D. $\{a\} \subseteq \{a, b\}$

Answer: A

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7. Is W subset of N or Z?

A. $A \neq B$

B. A=B

C. $A \subset B$

D. $B \subset A$

Answer: B

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8. If B - A is B, then $A \cap B$ is

A. A

B. B

C. U

D. ϕ

Answer: D

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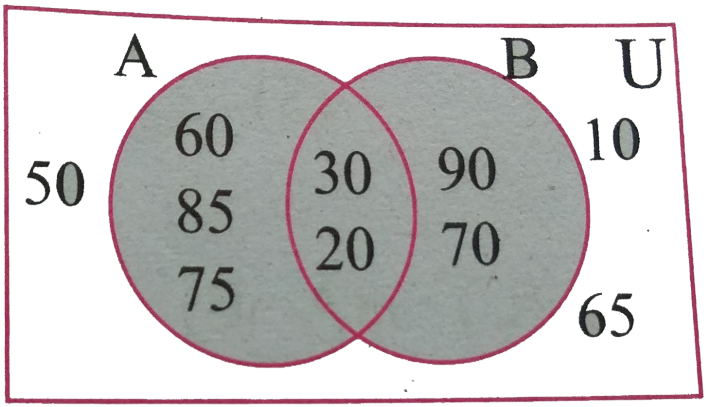
9. From the adjacent diagram $n[P(A\Delta B)]$ is



A. 8

B. 16

C. 32

D. 64

Answer: C

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10. If $n(A) = 10$ and $n(B) = 15$ then the minimum and maximum number of elements in $A \cap B$ is

A. (10,15)

B. (15,10)

C. (10,0)

D. (0,10)

Answer: D

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11. Let A = {Ø} and B = P(A) then $A \cap B$ is

A. $\{\phi, \{\phi\}\}$

B. $\{\phi\}$

C. ϕ

D. {0}

Answer: B

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12. In a class of 50 boys, 35 boys play carom and 20 boys play chess then the number of boys play both games is

A. 5

B. 30

C. 15

D. 10

Answer: A

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13. If $U = \{x : x \in N \text{ and } x < 10\}, A = \{1, 2, 3, 5, 8\}$ and $B = \{2, 5, 6, 7, 9\}$,

A. 1

B. 2

C. 4

D. 8

Answer: A

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14. For any three sets P, Q and R, $P - (Q \cap R)$ is

A. $P - (Q \cup R)$

B. $(P \cap Q) - R$

C. $(P - Q) \cup (P - R)$

D. $(P - Q) \cap (P - R)$

Answer:

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15. Which of the following is true?

A. $A - B = A \cap B$

B. $A - B = B - A$

C. $(A \cup B)' = A' \cup B'$

D. $(A \cap B)' = A' \cup B'$

Answer:

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16. If $n(A \cup B \cup C) = 100, n(A) = 4x, n(B) = 6x, n(C) = 5x, n(A \cap B) = 20$ and $n(A \cap B \cap C) = 10$ then the value of x is .

A. 10

B. 15

C. 25

D. 30

Answer: B

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17. For any three sets A, B and C, $(A - B) \cap (B - C)$ is equal to

A. A only

B. B only

C. C only

D. ϕ

Answer: D

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18. If J = Set of three sided shapes, K = Set of shapes with two equal sides and L = Set of shapes with right angle, then $J \cap K \cap L$ is

A. Set of isosceles triangles

B. Set of equilateral triangles

C. Set fo isosceles right triangles

D. Set of right angled triangles

Answer: C

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19. The shaded region in the Venn diagram is

A. $Z - (X \cup Y)$

B. $(X \cup Y) \cap Z$

C. $Z - (X \cap Y)$

D. $Z \cup (X \cap Y)$

Answer:

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20. In a city, 40% people like only one fruit, 35% people like only two fruits, 20% people like all three fruits. How many percentage of people do not like any one of the above three fruits?

A. 5

B. 8

C. 10

D. 15

Answer: A

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Text Book Activities

1. Discuss and give as many examples of collections from your daily life situations, which are sets and which are not sets.

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2. Write the following sets in respective forms.

S.No.	Descriptive Form	Set Builder Form	Roster Form
1	The set of all natural numbers less than 10		
2		$\{x : x$ is a multiple of $3, x \in N\}$	
3			$\{2,4,6,8,10\}$
4	The set of all days in a week.		
5			$\{\ldots -3,-2,-1,0,1,2,3\ldots\}$

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3. Discuss with your friends and give examples of subsets of sets from your daily situation.

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4. Fill in the blanks with appropriate cardinal numbers.

S.No.	$n(A)$	$n(B)$	$n(A \cup B)$	$n(A \cap B)$	$n(A-B)$	$n(B-A)$
1	30	45	65			
2	20		55	10		
3	50	65		25		
4	30	43	70			

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Additional Questions I Choose The Correct Option

1. A ={set of odd natural numbers}, B={sets of even natural numbers}, then A and B are

A. equal set

B. equivalent sets

C. overlapping sets

D. disjoint sets

Answer: D

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2. Number of subsets in set A={1,2,3} is .....

A. 3

B. 6

C. 8

D. 9

Answer: C

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3. The set does not have proper subset is

A. Finite set

B. Infinite set

C. Null set

D. Singleton set

Answer: C

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4. Sets having the same number of elements are called.....

A. overlapping sets

B. disjoint sets

C. equivalent sets

D. equal sets

Answer: C

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5. The set $(A - B) \cup (B - A)$ is .....

A. $A \triangle B$

B. $A \cup B$

C. $A \cap B$

D. $A' \cap B'$

Answer: A

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6. The set of $(A \cup B) - (A \cap B)$ is .....

A. $(A \cup B)'$

B. $A \triangle B$

C. $(A \cap B)'$

D. $A' \cup B'$

Answer: B

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7. The set $\{x : x \in A, x \in B, x \in A \cap B\}$ is .....

A. $A \cap B$

B. $A \cup B$

C. A-B

D. $A \triangle B$

Answer: D

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8. The number of elements of the set $\{x : x \in Z, x^2 = 1\}$ is .....

A. 0

B. 1

C. 2

D. 3

Answer: C

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9. If A is a proper subset of B, then $A \cap B =$ ..... .

A. A

B. B

C. ϕ

D. $A \cup B$

Answer: A

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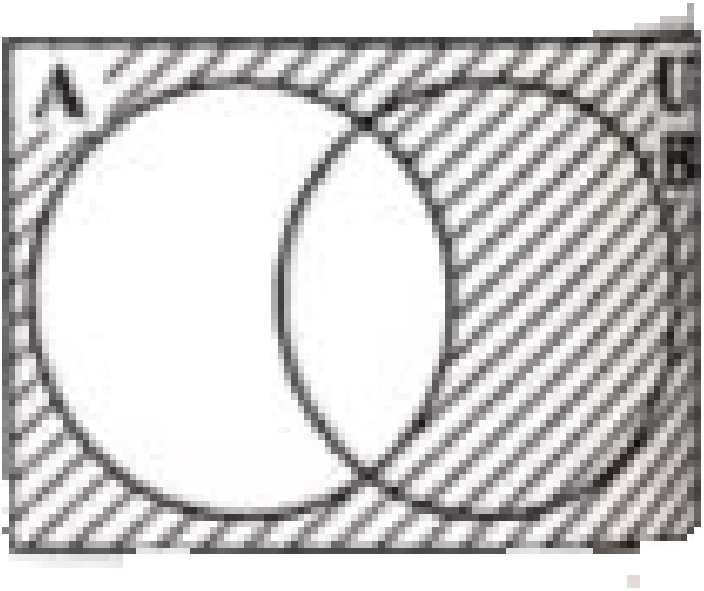
10. The shaded region with adjoint diagram represents .....



A. A-B

B. B-A

C. A'

D. B'

Answer: C

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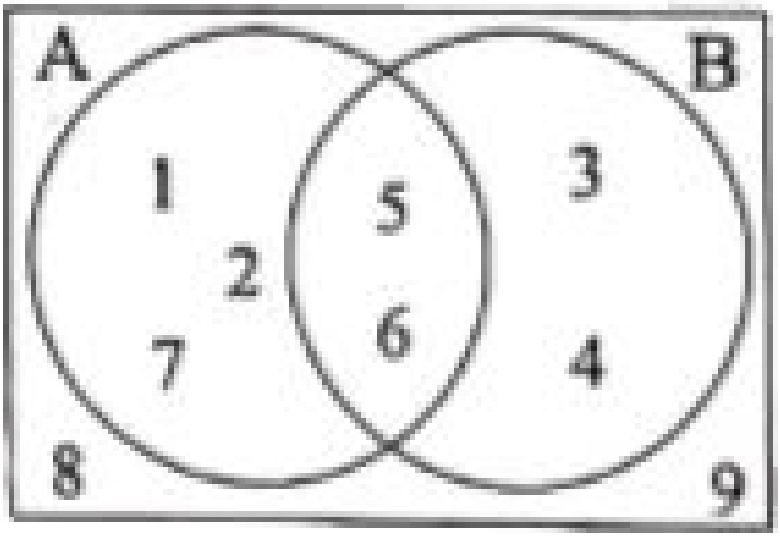
11. From the given Venn digram $(A \cup B)'$ is



A. {5,6}

B. {1,2,3,4,7}

C. {1,2,3,4,5,6,7}

D. {8,9}

Answer: D

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12. If $n(A \cup B \cup C) = 73, n(A) = 2x, n(B) = 3x, n(C) = 5x, n(A \cap B) = 10,$, then the value of x is .....

A. 9

B. 10

C. 5

D. 18

Answer: B

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13. For any three sets $n(A \cup B \cup C) = 60, n(A) = 25, n(B) = 20, n(C) = 15, n(A \cap B) = 10, n$ is.....

A. 10

B. 15

C. 20

D. 25

Answer: C

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14. If $n(U) = 70, n(A) = 25, n(B) = 30, n(A \cap B) = 5, \quad \text{then} \quad n(A \cup B)'$ is.....

A. 5

B. 10

C. 15

D. 20

Answer: D

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15. Which of the following is not correct?

A. $A-(B \cup C)=(A-B) \cap(A-C)$

B. $A-(B \cap C)=(A-B) \cup(A-C)$

C. $(A \cup B)'=A' \cup B'$

D. $A' \cup B'=(A-B)'$

Answer: D

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Additional Questions Ii Answer The Following Questions

1. Write the following in "Roaster" form?

(a) A=set of the months having 31 days.

(b) B={x : x is a natural number of 2 digits divisible by 13}

(c) C={set of vowels in the word "father"}

(d) $D = \{x : 5 < x \leq 10, x \in N\}$

E={x : x is a square natural number less than 16}

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2. Given that A={1,3,5,7}, B={1,2,4,6,8}. Find (i) $A \triangle B$ and $(ii) B \triangle A$

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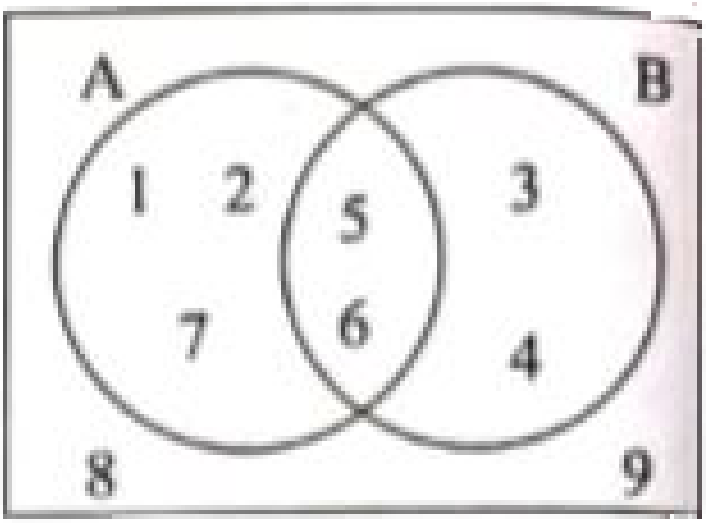
3. From the venn -diagram, list the following

(i) A (ii) B

(iii) $A \cap B$ (iv) $A \cup B$

(v) A-B (vi) B-A

(vii) $(A - B) \cap (B - A)$



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4. In a class there are 40 students, 26 have opted for Mathematics and 24 have opted Science. How many student have opted for Mathematics and Science.

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5. If U={1,2,3,4,5,6,7,8,9}, A={4,5,7,9}, B={1,3,5,7,8}, Verify De Morgan's Law for complementation.

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Assignment I Fill In The Blanks

1. A is a proper subset of B, then $A \cup B =$ .....

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2. If $A \subseteq B, \quad \text{then} \quad A - B is$.....

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3. Sets having atleast one element in common are called.....

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4. If n(A)=50, n(B)=35, $n(A \cap B) = 5, then$n(A cup B) is equal to ....."`

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5. If A and B are two finite sets such that n(A-B)=30, $n(A \cup B) = 180$, n(A cap B)= 60, then n(B) is "`

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Assignment Ii Choose The Correct Answer

1. If $P \cup Q = \{5, 11, 14, 17, 19, 20\}$, P cap Q={14} and P={5,11,14,17}` then Q=.....

A. {17,19,20}

B. {14,17,19,20}

C. {5,14,17,19,20}

D. {14,19,20}

Answer: A::B::D

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2. If X,Y,Z are any three sets, then $Y - (X \cup Z) =$ .....

A. $(Y - X) \cup (Y - Z)$

B. $(Y - X) \cap (Y - Z)$

C. $(Y \cup X) - (Y \cup Z)$

D. $(Y - X) \cup Z$

Answer: A::B::C

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3. If A={p,q,r,s}, B={r,s,t,u} and C={p,q,r}, then (A-B)-C is .....

A. {p,q}

B. {r,s}

C. {t,u,r}

D. {t,u}

Answer: C

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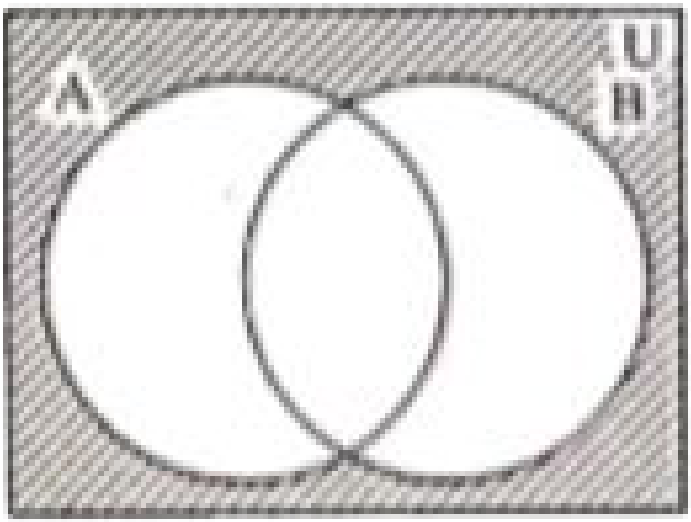
4. The shaded protion in the Venn diagram represents.....



A. $(A \cup B)'$

B. $(A \cap B)'$

C. $A' \cap B'$

D. $(B - A)'$

Answer: A::B::C

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5. For any three sets A,B and C, $(A - B) \cup (A - C)$ is .....

A. $A - (B \cup C)$

B. $(B \cap C) - A$

C. $(A - B) \cap (A - C)$

D. $A - (B \cap C)$

Answer: A::B::C

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Assignment Iii Answer The Following Questions

1. In a class of 50 students, each of the students passed either in mathematics or in a science or in both 10 students passed in both and 28 passed in science. Find how many students passed in mathematics only.

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2. In a class there are 50 students who are offered either History, geography or both. 35 were offered History and 10 were offered History and geography both. How many students were offered Geography?

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3. Represent U={1,2,3,4,5,6,7,8,9,10} A={1,2,4,6,8,10} and B={3,6,7,10} in venn-diagram. Then find (i) $(A \cup B)'$ (ii) $(A \cap B)'$

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4. If A={1,2,3} B={3,5,6} C={3,4,7}. Find (i) $A - (B \cup C)$ (ii) $B \triangle C$ (iii) $A \triangle B$

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5. Let

$U = \{x : -3 \leq x \leq 4) A = \{1, 2, 3\}, b = \{0, 1, 2\} C = \{-3, -2, -1, 10$

Find (i) $A' \cup B'$ (ii) $(A \cap B)'$ (iii) $(A \cap C)'$

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6. If A={a,b,c,d}, B={e,f,g,d} and C={e,f,c,d} then verify that associative property of intersection of sets.

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7. If A={2,3,5,7,9}, B={1,2,3,7,8} and C={2,3,6,8} find $(A - B) \cup (A - C)$

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8. If A,B and C are overlapping sets then draw venn diagram for $(A - B) \cap (A - C)$

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9. If U={13,15,16,17,18,19,20}, A={13,15,17,20}, B={15,18,19,20}, verify $(A \cap B)' = A' \cup B'$

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10. Verify $n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(B \cap C) - n(A \cap$

IF A={4,6,7,8,9,10}, B={3,4,8,10} and C={6,7,8,9}

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11. Given A={-9,-7,-6,-3, 0,2}, B={-7,-3,0,4,5,6}, C={-9,-6,2,-7,8}, verify De Morgan's Law of set difference.

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12. In a city it found that 100 play Cricket, 70 play Hockey, 60 play Basket ball, 41 play Cricket and Hockey, 33 play Basket Ball and Hockey. 27 paly Basket ball and Cricket. In total 140 play either one of these games. Find the number of people who play all these three games.

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13. If $A = \{a : a \in N, 2 \leq a < 6\}, B = \{b : b \in N, b < 10\}, C = \{x : x^2 - 7x +$, then verify that $A - (B \cup C) = (A - B) \cap (A - C)$

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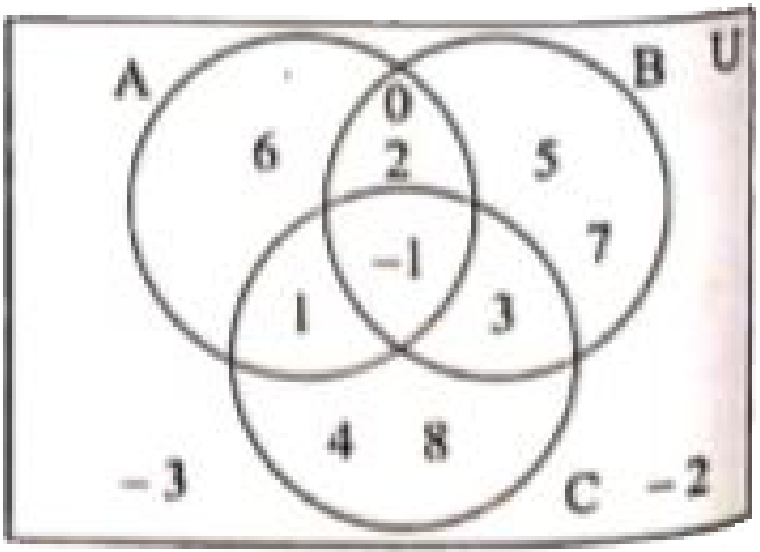
14. Using the adjacent venn diagram, find the following sets

(A-B)-C (b) $(B \cup C) - A$

(c) A-(B-C) (d) $(A \cup B)' - C$

(e) $(A \cap B) - (A - C)$



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15. In a school of 4000 students, 2000 know French, 3000 know Tamil and 500 know Hindi, 1500 know French and Tamil, 300 know French and Hindi, 200 know Tamil and Hindi and 50 know all the three languages.

(i) How many of them do not know any of the three languages?

(ii) How many know atleast one language

(iii) How many know only two languages.

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