MATHS

BOOKS - PEARSON IIT JEE FOUNDATION

Set theory

Example

1. If N=$\{\alpha, \beta, \gamma\}$ then find the number of all possible proper subsets of N.

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2. Given that $\mu =$ {Whole number up to 36 },A={3,6,9.....36} and B={4,8,12,.....36} Find $n(A \cap B)$

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3. If n(A)= 4 n(B)= 6,and $n(A \cup B) = 8$ then find $n(A \cup B)$

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4. If $n(A) = 8, n(B) = 6$ and the sets A and B are disjoint, then find $n(A \cup B)$.

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5. There are 40 presons in a group : four of them can speak neither Englis nor Hindi .The sum of the number of persons who can speak English and that of those who can speak Hindi is 44 Find the number of those who can speak both English and Hindi.

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6. There are 100 children in a colony. Of them, 70 watch Disney channel, 50 watch both Cartoon network and Disney channels, and 20 watch none of these. Find the number of children who watch only cartoon network.

A. 40

B. 30

C. 20

D. 10

Answer: D

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7. If

$n(\mu) = 40, n(A' \cap B') = 6, n(A \cap B') = 10$ and $n(B \cap A) = 16$, then fi

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8. X and y are disjoint sets. If n(X) = 40 and n(Y)= 28, then find n(X-y)+n(Y-X)

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9. If A = $\{2, 3, 7\}$, then find the number of all possible proper subsects of A .

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10. Given that $\mu =$ {Whole number up to 36 },A={3,6,9.....36} and B= {4,8,12,.....36} Find $n(A \cap B)$

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11. If n (A) = 4 , n (B) = 6 , and n $(A \cup B) = 8$, then find $n(A \cap B)$.

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12. If n (X) = 10 , n(Y) = 5 , and the sets X and Y are dijoint , then find $n(X \cup Y)$.

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13. There are 40 presons in a group : four of them can speak neither Englis nor Hindi .The sum of the number of persons who can speak English and that of those who can speak Hindi is 44 Find the number of those who can speak both English and Hindi.

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14. There are 100 children in a colony. Of them, 70 watch Disney channel, 50 watch both Cartoon network and Disney channels, and 20 watch none of these. Find the number of children who watch only cartoon network.

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15. If

$n(\mu) = 40, n(A' \cap B') = 6, n(A \cap B') = 10$ and $n(B \cap A) = 16$, then fi

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16. X and Y are disjoint sets , If n (X) = 40 and n(Y) = 28 , then find $n(X - Y) + n(Y - X)$.

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Very Short Answer Type Question

1. If A={ 2,3,4} and B ={3,5} and , then $A \cap B$ has only one element

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2. If A = {1,2,3,4,5} then $2 \in A$

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3. If $A = \{1, 2, 3, 4, 5\}$ and $B = \{3, 5\}$ then $A \cup B$ has 5 elements

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4. If $A \subset B$, then $A \cap B = ?$

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5. If A $\subseteq B$ and $B \subseteq A then A = B$

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6. Two sets having no element in common are called _____ sets.

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7. The set of whole number is a/an _____set . (finite / infinite)

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8. If X={1,3,5,7,9,} then the cardinal number of X is _____.

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9. If Y={ 2,4,6,8 } then the number of non-empty subets of Z is ____.

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10. All rich people in your city,

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11. All intelligent students in your school .

Watch Video Solution

12. All fat boys in your colony.

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13. All the boys of your class whose heigh exceeds 150 cm

Watch Video Solution

14. P={xx is a multiple of $4, x < 20$} and Q =(xx is a multiple of 6,$x < 30$ }

Find n(P) +n(Q) ={xx is a multiople of $6, x < 30$} Find n(P) + n(Q).

The following steps are involved in solving the above problem .Arrang them is sequential order .

(A) P={ 4,8,12,16 } and Q={6,12 , 18 24}

(B) $\Rightarrow n(P) = 4$ and $n(Q) = 4$

(C) n(p)+n(Q)=4+4 =8

A. CBA

B. ACB

C. BAC

D. ABC

Answer:

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15. If a set has 2 elements , then how many proper subsets are there for the given set?

A. 4

B. 3

C. 2

D. 1

Answer: B

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16. Which of the following is a null set ?

A. {1}

B. $\{\phi\}$

C. { x/x is a composite number less than 5 }

D. {x/x is an even prime number more than 2,}

Answer: D

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17. If A={a,e,I,o,u,a,e,i} then n (A) _____

A. 4

B. 8

C. 16

D. 5

Answer: D

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18. If A={x/x +10 = 10 } then n(A)=____.

A. 0

B. 1

C. 4

D. 2

Answer: B

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19. If A= { a,b,c} and X= {x,Y,Z} then $A \cap X$=____.

A. A

B. X

C. ϕ

D. μ

Answer: C

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20. If X={a,e,I,o,u} then which of the following is a correct statement

A. $e \in X$

B. $e \subset x$

C. $e \in X$

D. $e \not\in X$

Answer: A

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21. If Y={{ a,e},{I,o},u} then which of the following is a corrcet statements ?

A. $\{a, e\} \subset y$

B. $\{a, e\} \neq Y$

C. $\{\{a, e\}\} \neq Y$

D. $\{a, e\} \neq Y$

Answer: B

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22. If E=(x/x is a factor of 8 },F={x/x is a factor of ff16 },and G ={x/x is a factor of 13 }, then which of the following statements is true ?

A. $E \subset G$

B. $G \subset E$

C. $E \subset F$

D. $F \subset E$

Answer: C

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23. Write the difference of the sets containing the letters of the words MATHEMATICS and SOCIALAMAN

A. {M,A,T}

B. {L,M,N}

C. {T,H,E}

D. {I,C,S}

Answer: C

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24. If n(A) = 20 , n(B) = 30 and $n(A \cup B) = 45$ then find $n(A \cap B)$

A. 5

B. 10

C. 15

D. 20

Answer: A

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25. If A={a,e,I,o,u} and B={a,I,e,c,d } then $n(A - B)$ is _____.

A. 0

B. 1

C. 2

D. 3

Answer: C

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26. If A={1,2,3} then the number of elements in P(A) is

A. 3

B. 8

C. 4

D. 6

Answer: B

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27. The cardinal number of the set containing letters of the word MOONROCK

A. 8

B. 6

C. 4

D. 2

Answer: B

Watch Video Solution

28. If A and B are disjoint sets, then $n(A \cap B) = ?$

A. 4

B. 2

C. 1

D. 0

Answer: D

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Short Answer Type Question

1. Find the cardinal number of a set containg woman prime ministers of India.

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2. Write the set builder from for the given set in the above question .

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3. Write the cardinal nmnber of the set containing the letters of the word 'MATHEM.ATICS'.

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4. If Write the difference of the set containing the lettre of the words $STATISTICS'$ and ARITHMETIC `

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5. If $A \cap B = \phi$ then name what type of sets are A and B, and also give example.

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6. Suggest a universal set for the set given below.

A = {Even numbers less than 100}

B={Odd natural numbers less than 100 in natural numbers }

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7. Write $A \cup B$ in the set builder form for the above question

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8. Let the set of all natural numbers N be the uni- versal set and K = { x :x is an even prime number} . I Find K

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9. Write dovvn all the possible subsets of {x, y, z}

Watch Video Solution

10. Write do,vn all the possible subsets of {p, q}

Watch Video Solution

11. Write all the possible proper subsets of {0,-1,1}

Watch Video Solution

12. Write all the possible proper subets of $\left\{-\frac{1}{2}, \frac{1}{2}\right\}$

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13. A={xx is a multiple of 3, $x < 10$} and B ={xx is multiple of 5, $x < 15$ }

Find n(A) n-(B)

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14. If $n(\mu)$ = 200 and n$(A' \cap B)$ = 120, then find $n(A \cup B)$

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15. Write the roster form of

$X = \{x : x = n^2 + 2n + 1, n \in N \text{ and } n < 10\}$

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16. A set X has 255 proper subests .Find its cardinal number .

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17. A=$\{0, 1^2, 2^2, 3^2, 4^2, 5^2\}$ and B={0,1,4,9,16,25} Find $A \cap B$

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18. Find $A \cup B$ in the above question

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19. If A={2,3,5,7,11} and B={1,3,5,7,9} then find A-B and B-A

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20. If U={4,5,6,7,8,9,10,11,12} and C={4,6,8,10,12 } then find U-C .

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21. If O= {1} , then find the number of all possible proper subsets of O.

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22. If N={a,b,c,..z} then find the number of all possible subsets of N.

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23. If n(A)= 20 $n(A \cap B)$ = 10,and $n(A \cup B) = 70$then find n(B).

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24. If x={0,1,2,3,4,5,6,7,8,9,10} and Y={ 2,4,6,8,10} then find X-Y.

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Essay Type Question

1. From the given Venn diagram find (a) $P \cup Q$ $(b) P \cap Q$ and $(c) Universal Set$

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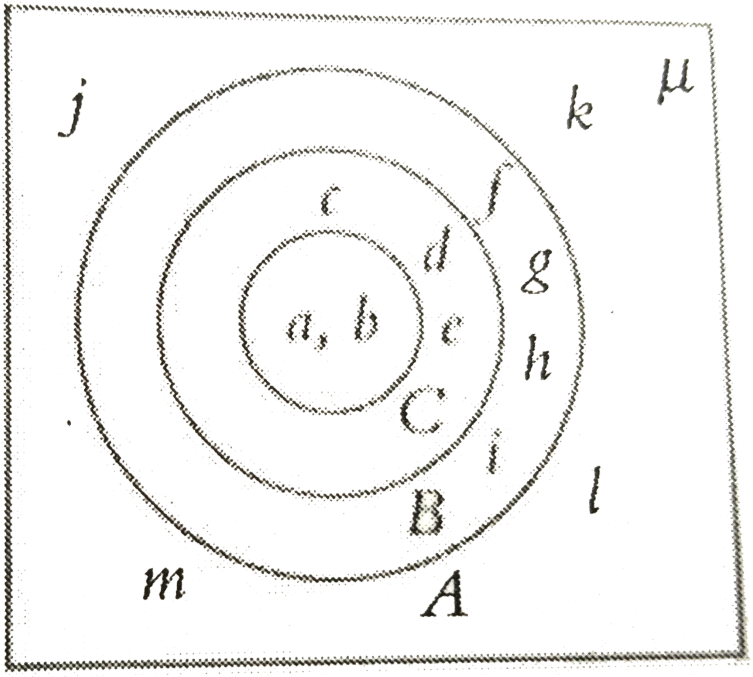
2. From the givenVenn diagram find (a) $A' \cup B (b) B' \cap C'$ and $(c) C - A$



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3. In a group of 36 students, 18 like volleyball, 12 like hockey, and 14 like neither of the games. How many like both games?

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4. In the question above, how many do not like volley ball and how many do not like hockey?

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5. Out of 100 persons, 45 drink tea and 35 drink coffee, if 10 persons drink both, how many drink neither tea nor coffee?

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6. In a class of 60 students, 30 passed in Physics ,24 passed in Biology and 24 passed in both. Find the number of students who could have failed in both the subjects

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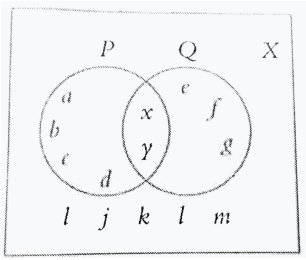
7. 

From above Venn diagram find $n(P-Q)+n(Q-P)$

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8. In a class of 70 students, each student passed Hindi or English. Of them, 15 students passed both Hindi and English, and 40 students passed Hindi. Find the number of students who passed English.

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9. In a school, there are 150 students. If 90 of them play chess, 70 of them play both chess and carrom and 40 play none of these games, then find the number of children who play only carrom.

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Concept Application Level 1

1. If μ ={1,2,3,4,5,6,7,8) and A={2,5,8} then find n(A)

A. 3

B. 5

C. 4

D. 6

Answer: B

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2. If x ={Non-prime numbers } and Y= {Non composite numbers },then $n(x \cap Y)$_____.

A. 0

B. 2

C. 1

D. 3

Answer: C

Watch Video Solution

3. If p= {Factors of 6 } and Q={Factors of 12 } then, $n(P \cup Q)$____.

A. 4

B. 8

C. 10

D. 6

Answer: D

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4. Which of the following is /are true ?

A. If M=N , then M'=N'

B. If M = N' then M=N

C. Both (a) and (b)

D. Neither (a) nor (b)

Answer: C

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5. If n(A)=10 n(B)=20 and $n(A \cup B) = 26 \text{then} \quad n(A \cup B)$=___.

A. 4

B. 2

C. 6

D. 8

Answer: A

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6. A={1,2,3,4,5,6,7,8,9 B={ 2,4,6,8 } C={1,3,5 7,9} $(A \cup (B \cup C))$=_____.

A. A

B. B

C. $B \cap C$

D. $A \cap C$

Answer: D

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7. $A \cup B$=_____.

A. B

B. C

C. $B \cap C$

D. $A \cap B$

Answer: A

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8. $A \cap C$=_____.

A. B

B. C

C. $B \cap C$

D. $A \cap B$

Answer: B

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9. $(A \cap B) \cup (A \cap C)$=_____`

A. A

B. $A \cup B$

C. $A \cup C$

D. All of these

Answer: D

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10. Which of the following is a singleton set ?

A. {0}

B. $\{\phi\}$

C. { xx is an even prime number }

D. All of these

Answer: D

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11. If A= {1,3,5,2,4,1,3,5,7,8,9,6,10}, then n(A) =_____.

A. 13

B. 8

C. 10

D. 9

Answer: C

Watch Video Solution

12. If A={ x:x +5=5}, then n(A) =_____.

A. 0

B. 1

C. 5

D. 2

Answer: B

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13. If X={1,2,3,4} then which of the following is a correct statement ?

A. $4 \in X$

B. $2 \subset X$

C. $4 \notin X$

D. $4 \not\subset X$

Answer: A

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14. P={x:x is a multiple of 4, $x < 20$ } and Q= {xx is a multiple of 6, $x < 30$}

Find n(P) +n(Q).

The following steps are involved in solving the above problem .Arrange them in sequential order .(A) P= {4,8,12,16} and Q={6,12 , 18,24}

(B) $\Rightarrow$ n(P) =4 and n(Q)=4

(C) n(P) = 4 and n (Q) =8

A. CBA

B. ACB

C. BAC

D. ABC

Answer: D

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15. In a group of 50 students ,30 like Basketball ,20 like football and 10 like neither of the games .How many like both the game ?

The following steps are involved in solving the above problem .Arrange them in sequential order.

(A) $n(B \cap F) = 50 - 40 = 10$

$\Rightarrow 40 = 50 - n(B \cap F)$

(C) Let n(B) = 30 ,n(F)=20 and $n(B \cup F) = 50 - 10 = 40$

We know that $n(B \cup F) = n(B) + n(F) - n(B \cap F)$

A. CDBA

B. CBDA

C. ADBC

D. BCDA

Answer: A

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16. Find the length of the wire (in m) required to fence a square field 6 times having its area 5.76 hectares.

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17. If A ={ T,I,G,E,R} and B={G,I,N,T,E,R} then $A \cup B$ has 6 elements .

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18. The cardinal number of the set containing letters of the word 'GINGERCOOK ' is 8.

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19. If $A \subset B$, then $A \cup B = ?$

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20. If X={1,2,3,{4,5},6,{7,8,9,10} then $\{4, 5\} \subset X$

A. 6

B. 5

C. 7

D. 8

Answer:

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Concept Application Level 2

1. If A={Positve perfect squares less than 100} and B={Positve perfect cuber less than 100} , then find $n(A \cap B)$

A. 1

B. 2

C. 3

D. 4

Answer: B

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2. If , $\mu = \{$All prime number $\}$ and O={all odd prime number },find n(O).

A. 1

B. 2

C. 3

D. more than 3

Answer: A

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3. μ={Two digit perfect squases for which sum of digits is a perfect square }

Y={Two digit perfect squases for which sum of digits is a perfect square }

Find $(X \cup Y)$

A. {49}

B. {35}

C. {36}

D. {64}

Answer: D

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4. If μ={0,1,2,3,4,,5,6,7,8,9} X{2,3,5,7} and y={2,5,8} Find $n(X' \cup Y')$

A. 8

B. 7

C. 6

D. 9

Answer: A

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5. A={1,2,3,4,5,6,7,8,9},

B={2,4,6,8}

C={1,3,5,7,8}

If P={Factor of 36} and Q={Factors of AB} then find $n(P \cap Q)$

A. 6

B. 5

C. 7

D. 8

Answer: A

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6. S=abcdef....z, μ = {Vowels in S} and B={ Vowels in even positions of S} .Find n(B')

A. 4

B. 5

C. 3

D. 2

Answer: B

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7. If N is natural number A= Factors of N} and B{Multiples of N} , then `n(A cap B)=____.

A. 2

B. 3

C. 4

D. 1

Answer: D

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8. If μ {Natural number up to 32 } ,C={2,5,8,11,.....32} and D={ 2,4,6,8,.....32} then find $n(C \cap D)$

A. 3

B. 4

C. 6

D. 5

Answer: D

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9. E= { Natural numbers up to 30 }

$X = \left\{ \frac{x}{x} = 4y + 2, y \in E \right\}$

Find $n(X \cap Y)$

A. 2

B. 5

C. 7

D. 9

Answer: C

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10. X= { The units digit of the sum of 10 consective natural numbers } Find X.

A. {5}

B. {2}

C. {3}

D. {0}

Answer: A

Watch Video Solution

11. If A=(1,2,3,4,8}, then which of the following can be concluded ?

A. $8 \in A$

B. $9 \notin A$

C. $\{2, 3\} \subset A$

D. all of these

Answer: D

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12. If A and B are two disjoint sets $n(A)+n(B)=24$ then find $n(A \cup B)$

A. 16

B. 18

C. 24

D. Cannot say

Answer: C

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13. If A= {1,2,3,4} and B={2,4,8,9} then $(A-B) \cup (B-A)$=____.

A. {1,3,8,9}

B. {2,4}

C. A

D. ϕ

Answer: A

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14. In the question above ,find $(A - B) \cap ((B - A)$

A. {2,4}

B. A

C. B

D. ϕ

Answer: D

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15. Which of the following is a/are false ?

A. $A - A = \phi$

B. $A \cup A' = \mu$

C. Both (a) and (b)

D. None of these

Answer: D

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16. Which of the following is /are true ?

A. $P \cup P' = \mu$

B. $P \cap P' = \phi$

C. Both (a) and (b)

D. None of these

Answer: C

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17. If two sets are disjoint , then _____.

A. they have one element in common

B. they have 0 as one element in common

C. they have no element in common

D. they have two element in common

Answer: C

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18. If Y={a,e,{I,o} u} then which of the following is a correct statement ?

A. $\{I, o\} \subset Y$

B. $\{I, 0\} \in Y$

C. $\{i. o\} \in Y$

D. $\{\{I, o\}\} \in Y$

Answer: B

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19. If `U={ x:x is an alphabet } and C={x:x is a consonant } then C=___.

A. {a,e,i.o}

B. {a,e,i}

C. {I,o,u}

D. {a,e,I,ou}

Answer: D

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20. If =O={0} then the number of all possible subsets of O is __.

A. 2

B. 3

C. 1

D. 4

Answer: A

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21. If $n(A) = 10, n(A \cap B) = 5$ and $n(A \cup B)$=35 then n(B) =____.

A. 30

B. 10

C. 40

D. None of these

Answer: A

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22. If x={0,1,2,3,4,5,6,7,8,9,10} and Y={ 1,3,5,7,9} then X-Y=___.

A. {1,2,3,4,5}

B. {1,3,5,7,9 }

C. {0,2,4,6,8,10}

D. {2,4,6,8,10}

Answer: C

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23. Given that A= {Perfect cubes between 10 and 100} B={Perfect squares between 10 and 100} and B={Perfect squares between 10 and 100}.Find $n(A \cap B)$

A. 2

B. 1

C. 5

D. 3

Answer: B

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Concept Application Level 3

1. If μ={Natural number up to 30 },Q ={Multiples of 4 less than 30 } then find $n[(Q \cap R)]$

A. 27

B. 26

C. 29

D. 28

Answer: D

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2. A ={ Natural number less than 200 divisible by 9}

B={Natural numbers less than 200 divisible by 12 }

C= {Natural numbers less than 200 divisible by 15} .Then $(A \cap B \cap C) =$_ _ _.

A. {180}

B. {120}

C. { 105,150}

D. {120,180}

Answer: A

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3. In the pervious question find$((A \cap B)$

A. {60,120,180,}

B. {45,90,135,180}

C. {36,72,108,144,180}

D. {36,60,84}

Answer: C

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4. If P={Factors of 48 } and Q={Factiors of 60 } then find $n[(P-Q)\mu(Q-P)]$

A. 5

B. 7

C. 8

D. 10

Answer: D

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5. Given that E= { Natural number up to 30 }

$P = \left\{\frac{x}{x} = 4y + 1, x \in E\right\}$ and $Q = \left\{\frac{x}{x} = 6y + x \in E\right\}$ Find $n(P \cap Q)$

A. 0

B. 2

C. 1

D. 3

Answer: B

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6. A class has 50 student ,each student likes either cricket or football or both .Sixteen students like both the games .Find the number of students who like exactly one game .

A. 34

B. 32

C. 38

D. 36

Answer: A

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7. In a group of 36 persons ,20 take coffee but not tea. 16 take tea coffee .Find the number of persons who take niether tea nor coffee.

A. 2

B. 1

C. 0

D. 3

Answer: C

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8. In a locality there are 100 residents sixtty of them read The Times of India .The number of residents who read both newspapers must be _____.

A. more than number of those who red

B. less than the number of those who read neither newspaper

C. equal to the number of those who read niether newspaper

D. Cannot say

Answer: C

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9. In a class ,there are 80 students ,The ratio of the number of those who like only chocolates only ice creams ,both of these ,and neither of these is 4:3:2:1.How many like utmost one of the chocolates and ice creams ?

A. 72

B. 56

C. 64

D. 60

Answer: C

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10. In the question above how many do not like ice creams ?

A. 40

B. 44

C. 148

D. 36

Answer: A

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11. In a class each students plays chess or carom or both .The number of students who play chess carom ,and both are 11,12 and 3 respectively Find the percentage of those who play only chess.

A. 0.36

B. 0.4

C. 0.44

D. 0.48

Answer: B

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12. In the question above ,find the percentage of those who play only caroms

A. 0.45

B. 0.4

C. 0.5

D. 0.55

Answer: A

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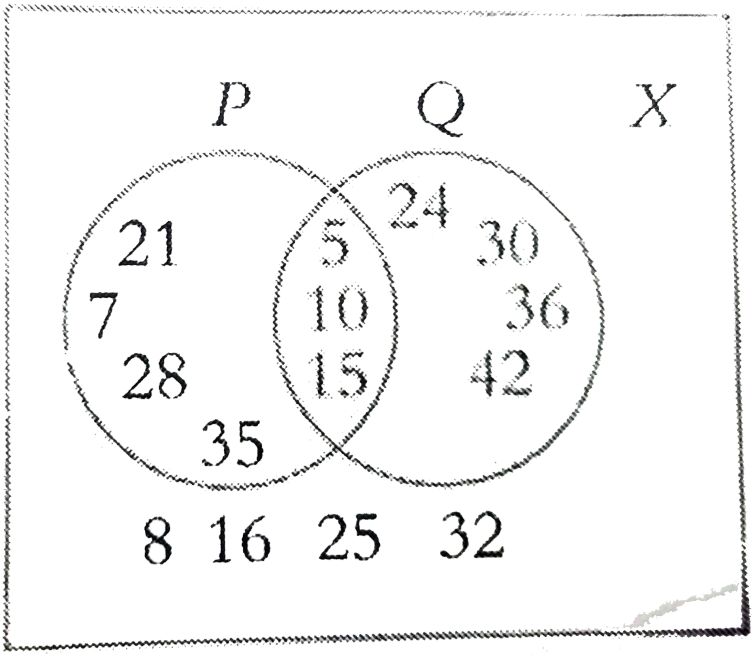
13.



From the above Venn diagram ,find n(P-Q)+n(Q-p)=____.

A. 10

B. 4

C. 6

D. 8

Answer: D

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14. In a class of 50 students ,each student passed Maths of English ,If 10 students passed Maths ,then find the number of students who passed English

A. 30

B. 20

C. 10

D. 40

Answer: A

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15. If A={x/x is a factor fof 4} B={x/x is a factor of 8} and C={x./x is a factor of 10 } then which of the following statements who passed English.

A. $A \subset$

B. $C \subset A$

C. $A \subset B$

D. $B \subset A$

Answer: C

Watch Video Solution

16. Given that X= { Natural number less than 100 divisible by 6} ,Y = {Natural number less than 100 divisible by 8} and Z= {Natural number less

than 100 divisibe by 18}

Find $n(X \cap Y \cap Z)$

A. 4

B. 1

C. 3

D. 2

Answer: B

Watch Video Solution

17. The strenght of a class is 96 .In it 56 students like cricket and 40 students like football .Which of the following can ve concluded ?

A. No student likes either crinket or football

B. Each stuedents likes either cricket or football

C. Netiher (a) or (b)

D. Both (a) and (b)

Answer: C

Watch Video Solution

18. In a office ,the ratio of the percentages of employees who like only tea, percentage of employees who like only coffee ,perscentage of employees who like neither of the drinks is 8 : 7: 6: 4 Find the percentage of employees who like neither of the deinks.

A. 0.12

B. 0.08

C. 0.2

D. 0.16

Answer: D

Watch Video Solution

19. In the pervious question ,If the number of employees in the office is 150 ,the find the number of employees who like only tea.

A. 48

B. 54

C. 120

D. 66

Answer: A

Watch Video Solution

Assessment Test Test 1

1. The mean of 36 observations is 22.If one observation 22 is deleted ,then find the new mean

The following steps are involved in solving the above problem .Arrange then in sequential order .

$\therefore$ New arithmetic mean $= \frac{770}{35} = 22$

(B) Arithemetic mean

$$= \frac{\text{The sum of the observations}}{\text{Total number of the observations}}$$

$$\Rightarrow 22 = \frac{\text{The sum of the observations}}{36}$$

(C) The sum of the observations 22 is deleted , the new sum = 792 -22 = 770 and the number of observations is 36 -1 ,i.e 35,.

A. BDCA

B. BCDA

C. DBAC

D. CBDA

Answer: B

Watch Video Solution

2.

$If = \{x : x \in W, x \leq 10\}$ and $B = \{x : x \in Nx \leq 10\}$ then find $n(A \cup$

The following steps are involved in solving the above problem.Arrange

them in sequential order

(A) $\Rightarrow n(A \cup B) = 11$

(B) $A \cup B$ = {0,1,2,3,4,5,6,7,8,9, 10 } cup {1,2,3,4,5,6,7,8,9,10}

Form the given data A={1,2,34,5,6,7,8,9,10} and B={1,2,3,4,5,6,7,8,9,10}

$\therefore A \cup B = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

A. CABD

B. CBDA

C. CBDA

D. DCBA

Answer: B

Watch Video Solution

3. If the mean of 4, x and y is 6 , then the mean of x, y and 10 is _____.

A. 8

B. 9

C. 12

D. 10

Answer: A

Watch Video Solution

4. A bar graph is drawn to the scale 1 cm = 4x units .The length of the bar represeting a quantity 1000 units is 1.25 cm . Find x

A. 200

B. 175

C. 250

D. 275

Answer: A

Watch Video Solution

5. In a pie grap h , a component is represnted as a sector with sector angle 180° .Find the percetage of the component value in total .

A. 0.28

B. 0.5

C. 0.32

D. 0.35

Answer: B

Watch Video Solution

6. Find the mode of the data 2, 4, 6, 4, 6, 7, 6, 7, aud 8

A. 4

B. 6

C. 7

D. 8

Answer: B

Watch Video Solution

7. The mean height of a group of 30 students is 150 cm. If a 150 cm tall student is included in the group , then the mean height of the new group is ___.

A. 151 cm

B. 149 cm

C. 150 cm

D. 152 cm

Answer: C

Watch Video Solution

8. If the mean of 2,3, x ,7 ,8 is x, then find the value of x .

A. 3

B. 5

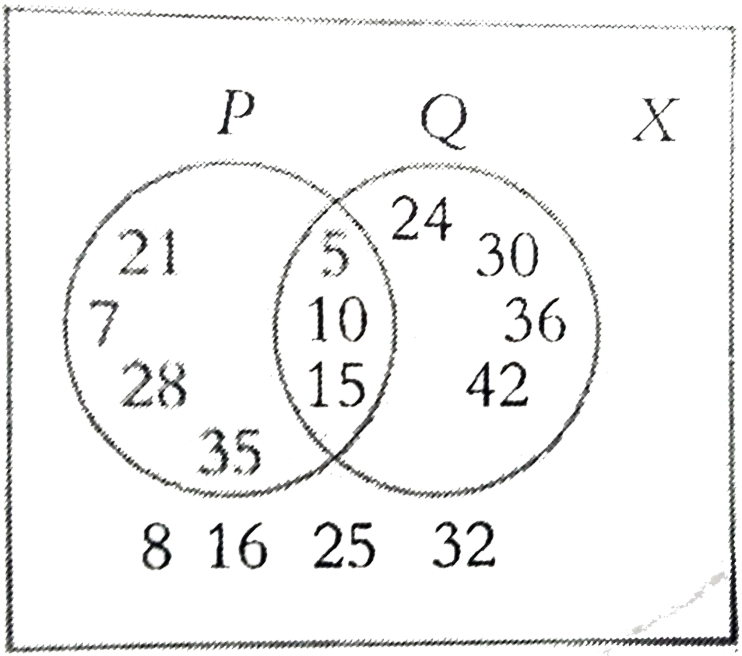
C. 4

D. 6

Answer: B

Watch Video Solution

9.



From the above Venn diagram ,find $n(P-Q)+n(Q-P)$=_____.

A. 10

B. 4

C. 6

D. 8

Answer: D

Watch Video Solution

10. In a class of 50 students, each student passed Maths or English. If 10 students passed both Maths and English, and 30 students passed Maths, the find the number of students who passed English.

A. 30

B. 20

C. 10

D. 40

Answer: A

Watch Video Solution

11. There are 100 children in a colony. Of them, 70 watch Disney channel, 50 watch both Cartoon network and Disney channels, and 20 watch none of these. Find the number of children who watch only cartoon network.

A. 40

B. 30

C. 20

D. 10

Answer: D

 Watch Video Solution

12. Match the following Column I to Column II

Column A	Column B
If $\mu = \{0, 1, 2, 3, 4, 5, 6\}$ and $A = \{0, 1, 4\}$, then $n(A') =$ _____ .	(a) 4
If $A = \{b, c, y, a, q, r\}$ and $B = \{a, x, p\}$, then $n(A - B) =$ _____ .	(b) 6
If $K = \{0, 1, 2, 3\}$, then the number of subsets of K is _____ .	(c) 8
If $X = \{x: x \text{ is even}, x \in N \text{ and } x \leq 12\}$ and $Y = \{x: x \text{ is a prime}, x \in N \text{ and } x \leq 12\}$, then $n(X \cup Y)$ is _____ .	(d) 10

View Text Solution

Assessment Test Test 2

1. The mean of 2, 12, x, 15, 20, and 17 is 16, then find the value of x .

The following steps are involved in solving the above problem. Arrange them in sequential order.

$(A)16 = 2 + 12 + x + 15, 20 + \frac{17}{6}$

(B) 96=66+x

(c) $\Rightarrow x = 96 - 66 = 30$

(D) We have,arithmetic mean

$= \frac{\text{The sum of observations}}{\text{Total number of observatons}}$

A. ADBC

B. DABC

C. CABD

D. DBAC

Answer: B

Watch Video Solution

2. In a class, there are 100 students. Of them, 60 students attend music classes, 40 students attend dance classes, and 20 students attend both the classes. Find the number of students who attend neither of the classes.

The following steps are involved in solving the above problem. Arrange them in sequential order

(A)

$n(M \cup D) = n(M) + n(D) - n(M \cup D) \rightarrow n(M \cap D) \rightarrow n(M \cup D) =$ 6

(B) $\therefore$ Number of students who attend neither of the classes = 100 - 80 = 20

(C) $n(M) = 60, n(D) = 40 \text{ and } n(M \cap D) = 20(\text{given})$

(D) Let n(M) be the number of students who attend music classes and n(D) be the number of students who attend dance classes.

A. DACB

B. DCBA

C. ACDB

D. DCAB

Answer: D

Watch Video Solution

3. The mean of p, q, and r is same as the mean of q, 2r, and s. then which of the following is correct ?

A. $p = q = r$

B. $q = r = s$

C. $q = r$

D. $p = r + s$

Answer: D

Watch Video Solution

4. A bar graph is drawn to the scale of 1 cm = 2 m units. The length of the bar representing a quanti ty of 875 units is 1.75 cm. Find m .

A. 125

B. 225

C. 250

D. 375

Answer: C

Watch Video Solution

5. In a pie graph , a component is represented as a sector with sector angle 72°. Find the percemage of the component value in total

A. 0.21

B. 27. 5 %

C. 22. 5 %

D. 0.2

Answer: D

Watch Video Solution

6. The mode of the unimodal data 7 , 8, 9, 8, 9, 10, 9 ,10, 11 , 10, 11, 12, and xis 10. Find the value of x.

A. 10

B. 9

C. 8

D. 11

Answer: A

Watch Video Solution

7. The mean weight of 21 students is 21 kg. If a student weighing 21 kg is removed from the group, then I what is the mean weight of the remaining students ?

A. 20 kg

B. 21 kg

C. 19 kg

D. 22 kg

Answer: B

Watch Video Solution

8. If the mean of 2, 4, p, 8, and 10 is p, then find the value of p?

A. 4

B. 5

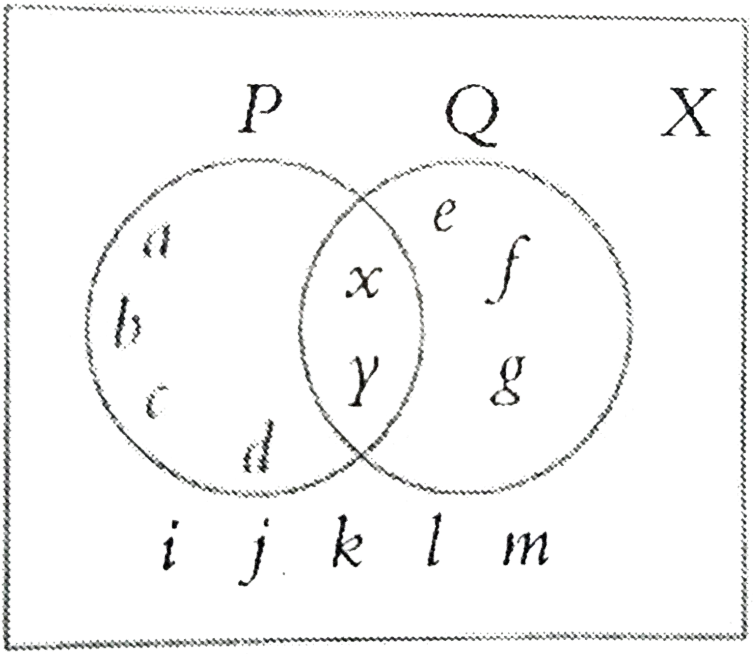
C. 8

D. 6

Answer: D

Watch Video Solution

9.



From the above Venn diagram ,Find $n(P-Q)+n(Q-P)$

A. 11

B. 9

C. 6

D. 7

Answer: D

Watch Video Solution

10. In a class of 70 students, each student passed Hindi or English. Of them, 15 students passed both Hindi and English, and 40 students passed Hindi. Find the number of students who passed English.

A. 35

B. 25

C. 55

D. 7

Answer: D

Watch Video Solution

11. In a school, there are 150 students. If 90 of them play chess, 70 of them play both chess and carrom and 40 play none of these games, then find the number of children who play only carrom.

A. 90

B. 10

C. 20

D. 30

Answer: C

Watch Video Solution

12. Match the following Column A to Column B

Column A	Column B
If $\mu = \{p, q, r,\}$ and $A = \{p\}$, then $n(A') =$ _____ .	(a) 0
If $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $B = \{2, 4, 6, 8, 10\}$, then $n(A - B)$ is _____ .	(b) 1
If $X = \{a, e, I, o, u\}$, then the number of improper subsets of X is _____ .	(c) 2
If $A = \{x: x$ is an even prime, $x \in N\}$ and $B = \{x: x$ is an odd natural number, $x < 10\}$, then $n(A \cap B) =$ _____ .	(d) 5

Watch Video Solution

Test Your Concepts Very Short Type Questions

1. IF A = {8,7,9} and B ={9,6,3,} , then $A \cap B$ has only one element .

Watch Video Solution

2. If A = {1,2,3,4,5}, then $9 \in A$

Watch Video Solution

3. IF A = {1,2,3} and B = {2,4} , then $A \cup B$ has 5 elements .

Watch Video Solution

4. If $A \subset B$, then $A \cap B = ?$

Watch Video Solution

5. If $\subseteq B$ and $B \subseteq AthenA = B$

Watch Video Solution

6. Two sets having no element in common are called _____ sets.

Watch Video Solution

7. The set of whole number is a/an _____set . (finite / infinite)

Watch Video Solution

8. If X = {2,4,6,8,10,12} , then the cardinal number of X is _____.

Watch Video Solution

9. If Y ={2,4,6,8} , theen the number of proper subsets of X is _____.

Watch Video Solution

10. If Z = {a,b,c} , then the number of non - empty subsets of Z is _____.

Watch Video Solution

11. All rich people in your city,

Watch Video Solution

12. All intelligent students in your school .

Watch Video Solution

13. All fat boys in your colony.

Watch Video Solution

14. State whether following is a set or not

Even numbers less than 100 .

Watch Video Solution

15. If a set has 4 elements , then how many subsets are there for the given set ?

A. 10

B. 16

C. 12

D. 11

Answer: b

Watch Video Solution

16. Which of the following is a null set?

A. $\{1\}$

B. $\{\phi\}$

C. {x/x is a composite number less than 5 .}

D. {x/x is an even number more than 2 }

Answer: d

Watch Video Solution

17. If A={a,e,I,o,u,a,e,i} then n (A) _____

A. 4

B. 8

C. 16

D. 5

Answer: d

Watch Video Solution

18. If A={x/x +10 = 10 } then n(A)=_____.

A. 0

B. 1

C. 4

D. 2

Answer: b

Watch Video Solution

19. If A = {a,b,c} and X = {a,b,c} , then $A \cap X$ = _____.

A. A

B. A'

C. ϕ

D. μ

Answer: c

Watch Video Solution

20. If X={a,e,I,o,u} then which of the following is a correct statement

A. $e \in X$

B. $e \subset X$

C. $e \not\in X$

D. $e \not X$

Answer: a

Watch Video Solution

21. If Y={{ a,e},{I,o},u} then which of the following is a corrcet statements ?

A. $\{a, e\} \subset Y$

B. $\{a, e\} \in Y$

C. $\{\{a, e\}\} \in Y$

D. $\{a, e\} \not\in Y$

Answer: b

Watch Video Solution

22. If E=(x/x is a factor of 8 },F={x/x is a factor of ff16 },and G ={x/x is a factor of 13 }, then which of the following statements is true ?

A. $E \subset G$

B. $G \subset E$

C. $E \subset F$

D. $F \subset E$

Answer: c

Watch Video Solution

23. Write the intersection of the sets containing the letters of the words 'MATHEMATICS ' and 'SOCIALMAN' .

Watch Video Solution

24. If n(A) = 10 ,n(B) = 20 and $n(A \cup B) = 15$, then find $n(A \cap B)$.

A. 5

B. 10

C. 15

D. 20

Answer: c

Watch Video Solution

25. If A = {4,6,9,2,7 } and B = {8,2,4,6,9} , then $A - B$ is _____.

Watch Video Solution

26. If A = {1,2,3,4} , then n(P(A)) is _____.

A. 3

B. 8

C. 4

D. 16

Answer: d

Watch Video Solution

27. The cardinal number of the set containing letters of the word 'ROCKSTAR' .

A. 7

B. 6

C. 4

D. 2

Answer: a

Watch Video Solution

28. If A and B are disjoint sets, then $n(A \cap B) = ?$

A. 4

B. 2

C. 1

D. 0

Answer: d

Watch Video Solution

29. Find the cardinal number of a set containg woman prime ministers of India.

Watch Video Solution

30. Write the set builder from for the given set in the above question .

Watch Video Solution

31. Write the cardinal number of the set containing the letters of the word 'CHEMISTRY '

Watch Video Solution

32. If Write the difference of the set containing the lettre of the words $STATISTICS'$ and ARITHMETIC `

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33. If $A \cap B = \phi$ then name what type of sets are A and B, and also give example.

Watch Video Solution

34. Suggest a universal set for the set given below.

A = {Even numbers less than 100}

B={Odd natural numbers less than 100 in natural numbers }

Watch Video Solution

35. If $A = \{2, 4, 6, 8, 10\}$ and $B = \{1, 3, 5, 7, 9\}$ then write $A \cup B$ in the set builder form .

Watch Video Solution

36. Let U = {set of all natural numbers} A = { x: x is an even prime number }

, Find A ' .

Watch Video Solution

37. Write dovvn all the possible subsets of {x, y, z}

Watch Video Solution

38. Write down all the possible subsets of {1,3}

Watch Video Solution

39. Write all the possible proper subsets of {0,-1,1}

Watch Video Solution

Test Your Concepts Short Answer Type Questions

1. Write all the possible proper subsets of $\{3, 10\}$

Watch Video Solution

2. A={xx is a multiple of 3, $x < 10$} and B ={xx is multiple of 5, $x < 15$ }

Find n(A) n-(B)

Watch Video Solution

3. If $n(\mu)$ = 200 and n($A' \cap B$) = 120, then find $n(A \cup B)$

Watch Video Solution

4. Write the roster form of

$X = \{x : x = n^2 + 2n + 1, n \in N \text{ and } n < 10\}$

Watch Video Solution

Watch Video Solution

5. A set X has 255 proper subests .Find its cardinal number .

Watch Video Solution

6. A=$\{0, 1^2, 2^2, 3^2, 4^2, 5^2\}$ and B={0,1,4,9,16,25} Find $A \cap B$

Watch Video Solution

7. Find $A \cup B$ in the above question

Watch Video Solution

8. If A={2,3,5,7,11} and B={1,3,5,7,9} then find A-B and B-A

Watch Video Solution

9. If U = {set of natural numbers} and A = {set of even natural numbers} , then find A' .

Watch Video Solution

10. If O= {1} , then find the number of all possible proper subsets of O.

Watch Video Solution

11. If A =$\{1, 2, 3, 4, 5, \ldots . 10\}$, then the number of all possible subsets of A .

Watch Video Solution

12. If n(A)= 20 $n(A \cap B)$ = 10,and $n(A \cup B) = 70$then find n(B).

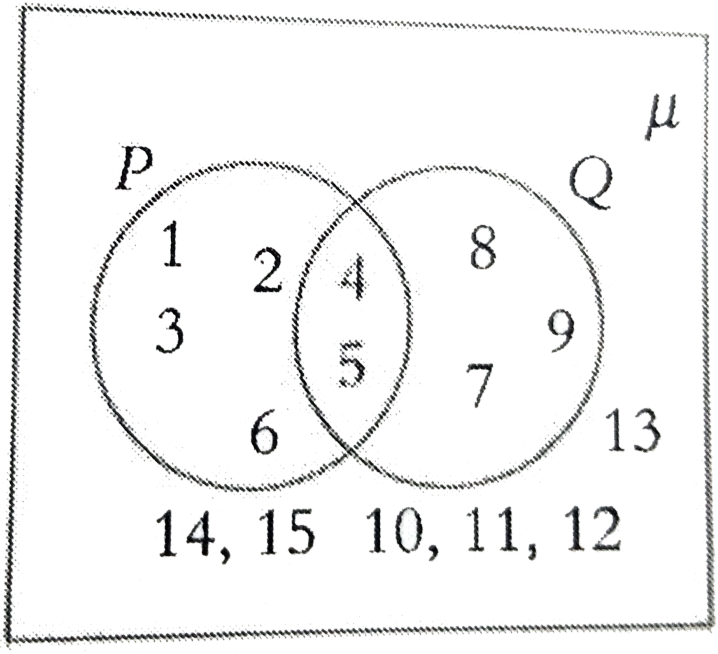
Watch Video Solution

13. If x={0,1,2,3,4,5,6,7,8,9,10} and Y={ 2,4,6,8,10} then find X-Y.

Watch Video Solution

Test Your Concepts Essay Type Questions

1. From the given Venn diagram find (a) $P \cup Q (b) p \cap Q$ and $(c) P \cap Q$



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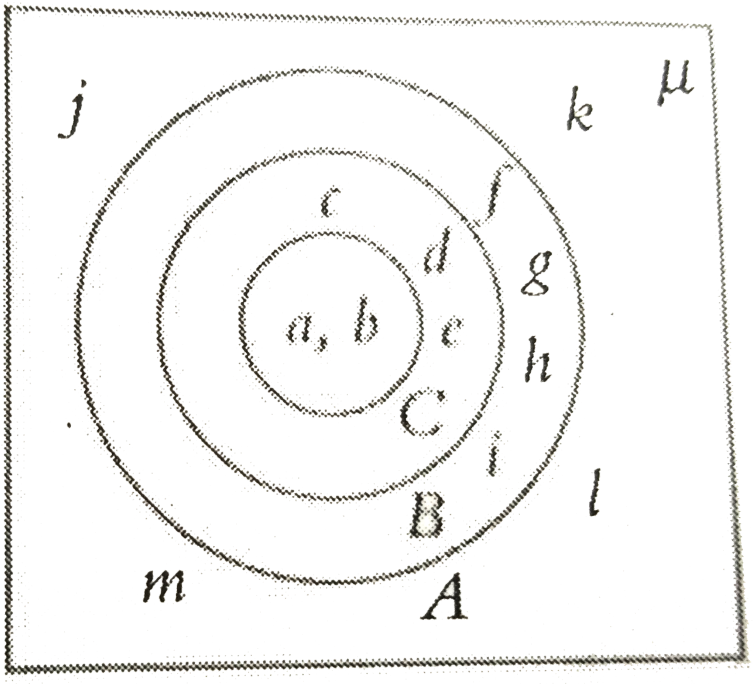
2. From the givenVenn diagram find (a) $A' \cup B (b) B' \cap C'$ and $(c) C - A$



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3. In a group of 36 students, 18 like volleyball, 12 like hockey, and 14 like neither of the games. How many like both games?

Watch Video Solution

4. In the question above, how many do not like volley ball and how many do not like hockey?

Watch Video Solution

5. In a group of persons , the number of persons who like only tea is half that of those who like only coffe , or one -third of that of those who like neither tea nor coffee, or one - fourth of that of those who like both tea and coffee . If there are 100 persons in the group , then find the number of persons who like both tea and coffee.

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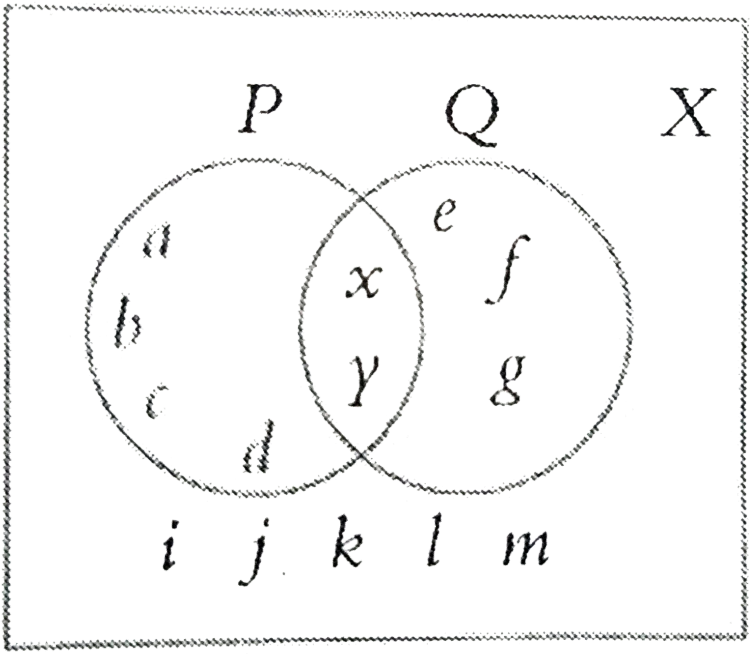
6. In a class of 60 students, 30 passed in Physics and 24 passed in Biology. Find the maximum number of students who could have failed in both the subjects

Watch Video Solution

7.



From the above Venn diagram ,Find $n(P-Q)+n(Q-P)$

Watch Video Solution

8. In a class of 70 students, each student passed Hindi or English. Of them, 15 students passed both Hindi and English, and 40 students passed Hindi. Find the number of students who passed English.

Watch Video Solution

9. In a school, there are 150 students. If 90 of them play chess, 70 of them play both chess and carrom and 40 play none of these games, then find the number of children who play only carrom.

Watch Video Solution

Concept Application Level 1

1. If μ ={1,2,3,4,5,6,7,8) and A={2,5,8} then find n(A)

A. 3

B. 5

C. 4

D. 6

Answer: b

Watch Video Solution

2. If x ={Non-prime numbers } and Y= {Non composite numbers },then $n(x \cap Y)$_____.

A. 0

B. 2

C. 1

D. 3

Answer: c

Watch Video Solution

3. If p= {Factors of 6 } and Q={Factors of 12 } then, $n(P \cup Q)$____.

A. 4

B. 8

C. 10

D. 6

Answer: d

Watch Video Solution

4. Which of the following is/are true ?

A. If M=N , then M' = N'

B. If M' = N' , then M = N .

C. Both (a) and (b)

D. Neither (a) nor (b)

Answer: c

Watch Video Solution

5. If n(A)=10 n(B)=20 and $n(A \cup B) = 26 \text{then} \quad n(A \cup B)$=___.

A. 4

B. 2

C. 6

D. 8

Answer: a

Watch Video Solution

6. A={1,2,3,4,5,6,7,8,9

B={ 2,4,6,8 }

C={1,3,5 7,9}

$(A \cup (B \cup))$=_____.

A. A

B. B

C. $B \cup C$

D. Both (a) and (c)

Answer: d

Watch Video Solution

7. A={1,2,3,4,5,6,7,8,9

B={ 2,4,6,8 }

C={1,3,5 7,9}

$(A \cup (B \cup))$=____.

A. B

B. C

C. $B \cap C$

D. $A \cap C$

Answer: a

Watch Video Solution

8. $A \cap C$=_____.

A. B

B. C

C. $B \cap C$

D. $A \cap B$

Answer: b

Watch Video Solution

9. A={1,2,3,4,5,6,7,8,9

B={ 2,4,6,8 }

C={1,3,5 7,9}

$(A \cup (B \cup))$=_____.

A. A

B. $A \cup B$

C. $A \cup C$

D. All of these

Answer: d

Watch Video Solution

10. Which of the following is a singleton set ?

A. {0}

B. $\{\phi\}$

C. {x:x is an prime number }

D. All of these

Answer: d

Watch Video Solution

11. IF A ={1,3,5,2,4,1,3,5,7,8,9,6,10} , then n(P(A)) = _____.

Watch Video Solution

12. If A = $\{x : x + 5 = 5\}$, then n(A) = _____.

A. 0

B. 1

C. 5

D. 2

Answer: b

Watch Video Solution

13. If X={1,2,3,4} then which of the following is a correct statement ?

A. $4 \in X$

B. $4 \subset X$

C. $4 \in X$

D. $4 \not\in X$

Answer: a

Watch Video Solution

14. P={x:x is a multiple of 4, $x < 20$ } and Q= {xx is a multiple of 6, $x < 30$}

Find n(P) +n(Q).

The following steps are involved in solving the above problem .Arrange them in sequential order .(A) P= {4,8,12,16} and Q={6,12 , 18,24}

(B) $\Rightarrow$ n(P) =4 and n(Q)=4

(C) n(P) = 4 and n (Q) =8

A. CBA

B. ACB

C. BAC

D. ABC

Answer: d

Watch Video Solution

15. In a group of 50 students ,30 like Basketball ,20 like football and 10 like neither of the games .How many like both the game ?

The following steps are involved in solving the above problem .Arrange them in sequential order.

(A) $n(B \cap F) = 50 - 40 = 10$

$\Rightarrow 40 = 50 - n(B \cap F)$

(C) Let n(B) = 30 ,n(F)=20 and $n(B \cup F) = 50 - 10 = 40$

We know that $n(B \cup F) = n(B) + n(F) - n(B \cap F)$

A. CDBA

B. CBDA

C. ADBC

D. BCDA

Answer: a

Watch Video Solution

16.

	Column A
a	If A $= \{x : x < 11,\ x \in W\}$ and $B = \{x : x < 11,\ x \in N\}$
b	$If x = \{\}$, then $n(Px)$
c	The cardinal number of the set containing the letter of the word 'GOOC
d	$If A \subset B$ then $A \cap B$

Watch Video Solution

17. If A ={ T,I,G,E,R} and B={G,I,N,T,E,R} then $A \cup B$ has 6 elements .

Watch Video Solution

18. The cardinal number of the set containing letters of the word 'GINGERCOOK ' is 8.

Watch Video Solution

19. Find true or false:

if $A \subseteq B$ then $A \cup B = A$.

Watch Video Solution

20. If X={1,2,3,{4,5},6,{7,8,9,10} then $\{4, 5\} \subset X$

Watch Video Solution

Concept Application Level 2

1. If A={Positve perfect squares less than 100} and B={Positve perfect cuber less than 100} , then find $n(A \cap B)$

Watch Video Solution

2. If , $\mu = \{$All prime number $\}$ and O={all odd prime number },find n(O).

A. 1

B. 2

C. 3

D. More than 3

Answer: a

Watch Video Solution

3. μ={Two digit perfect squases for which sum of digits is a perfect square }

Y={Two digit perfect squases for which sum of digits is a perfect square }

Find $(X \cup Y)$

A. $\{49\}$

B. $\{25\}$

C. $\{36\}$

D. $\{64\}$

Answer: d

Watch Video Solution

4. If $\mu = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$, X = {2,3,5,7} and Y = {2,5,8} . Find n $(X \cup Y)$.

A. 5

B. 7

C. 6

D. 9

Answer: a

Watch Video Solution

5. A={1,2,3,4,5,6,7,8,9},

B={2,4,6,8}

C={1,3,5,7,8}

If P={Factor of 36} and Q={Factors of AB} then find $n(P \cap Q)$

A. 6

B. 5

C. 7

D. 8

Answer: a

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6. S=abcdef....z, μ = {Vowels in S} and B={ Vowels in even positions of S} .Find n(B')

A. 4

B. 5

C. 3

D. 2

Answer: b

Watch Video Solution

7. If N is natural number A= Factors of N} and B{Multiples of N} , then `n(A cap B)=____.

A. 2

B. 3

C. 4

D. 1

Answer: d

Watch Video Solution

8. If μ {Natural number up to 32 } ,C={2,5,8,11,.....32} and D={ 2,4,6,8,.....32} then find $n(C \cap D)$

A. 3

B. 4

C. 6

D. 5

Answer: d

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9. A = { set of natural numbers }

B = { set of odd natural numbers}

then find $(A \cap B)$

Watch Video Solution

10. X= { The units digit of the sum of 10 consective natural numbers } Find X.

A. $\{5\}$

B. $\{2\}$

C. $\{3\}$

D. $\{0\}$

Answer: a

Watch Video Solution

11. If A=(1,2,3,4,8}, then which of the following can be concluded ?

A. $8 \in A$

B. $9 \notin A$

C. $\{2, 3\} \subset a$

D. All of these

Answer: d

Watch Video Solution

12. If A and B are two disjoint sets $n(A) + n(B) = 16$, then find $n(A \cup B)$.

A. 16

B. 18

C. 24

D. Cannot say

Answer: a

Watch Video Solution

13. If A = {1,2,3,4} and B = {1,3,5,7} , then $(A - B) \cup (B - A)$= _____.

Watch Video Solution

14. A = {1,2,3,4} and B = {1,3,5,7} find $(A - B) \cap (B - A)$

Watch Video Solution

15. Which of the following is/are true ?

A. $P \cup P = \mu$

B. $P \cap P = \phi$

C. Both (a) and (b)

D. None of these

Answer: d

Watch Video Solution

16. Which of the following is/are true ?

A. $P \cup P = \mu$

B. $P \cap P = \phi$

C. Both (a) and (b)

D. None of these

Answer: c

Watch Video Solution

17. If two sets are disjoint , then _____.

A. they have one element in common

B. they have 0 as the common element

C. they have two element in common

D. they have two elements in common

Answer: c

Watch Video Solution

18. If $A = \{5, 7, 12, 16, 1\}$, then which of the following is a correct statement ?

A. $\{1, 7\} \in A$

B. $\{1, 7\} \subset A$

C. $\{5, 8\} \subset A$

D. $16 \not\in A$

Answer: b

Watch Video Solution

19. If `U={ x:x is an alphabet } and C={x:x is a consonant } then C=___.

A. $\{a, e, i, o, u\}$

B. $\{a, e, i\}$

C. $\{i, o, u\}$

D. $\{a, e, I, o, u\}$

Answer: d

Watch Video Solution

20. If =O={0} then the number of all possible subsets of O is __.

A. 2

B. 3

C. 1

D. 4

Answer: a

Watch Video Solution

21. If $n(A) = 10, n(A \cap B) = 5$ and $n(A \cup B)$=35 then n(B) =____.

A. 30

B. 10

C. 40

D. None of these

Answer: a

Watch Video Solution

22. If x={0,1,2,3,4,5,6,7,8,9,10} and Y={ 1,3,5,7,9} then X-Y=___.

A. $\{1, 2, 3, 4, 5\}$

B. $\{1, 3, 5, 7, 9\}$

C. $\{0, 2, 4, 6, 8, 10\}$

D. $\{2, 4, 6, 8, 10\}$

Answer: c

Watch Video Solution

23. Given that A= {Perfect cubes between 10 and 100} B={Perfect squares between 10 and 100} and B={Perfect squares between 10 and 100}.Find $n(A \cap B)$

A. 2

B. 1

C. 5

D. 3

Answer: b

Watch Video Solution

Concept Application Level 3

1. If μ={Natural number up to 30 },Q ={Multiples of 4 less than 30 } then find $n[(Q \cap R)]$

A. 27

B. 26

C. 29

D. 28

Answer: d

Watch Video Solution

2. A ={ Natural number less than 200 divisible by 9}

B={Natural numbers less than 200 divisible by 12 }

C= {Natural numbers less than 200 divisible by 15} .Then $(A \cap B \cap C) =$_ _ _.

A. $\{180\}$

B. $\{120\}$

C. $\{105, 150\}$

D. $\{120, 180\}$

Answer: a

Watch Video Solution

3. In the previous question,

A. $\{60, 120, 180\}$

B. $\{45, 90, 135, 180\}$

C. $\{36, 72, 108, 144, 180\}$

D. $\{36, 60, 84\}$

Answer: c

Watch Video Solution

4. If P={Factors of 48 } and Q={Factiors of 60 } then find $n[(P-Q)\mu(Q-P)]$

A. 5

B. 7

C. 8

D. 10

Answer: d

Watch Video Solution

5. Given that E= { Natural number up to 30 }

$P = \left\{\frac{x}{x} = 4y + 1, x \in E\right\}$ and $Q = \left\{\frac{x}{x} = 6y + x \in E\right\}$ Find $n(P \cap Q)$

A. 0

B. 2

C. 1

D. 3

Answer: b

Watch Video Solution

6. A class has 50 student ,each student likes either cricket or football or both .Sixteen students like both the games .Find the number of students who like exactly one game .

A. 34

B. 32

C. 38

D. 36

Answer: a

Watch Video Solution

7. In a group of 36 persons ,20 take coffee but not tea. 16 take tea coffee .Find the number of persons who take niether tea nor coffee.

A. 2

B. 1

C. 0

D. 3

Answer: c

Watch Video Solution

8. In a locality there are 100 residents sixtty of them read The Times of India .The number of residents who read both newspapers must be _____.

A. more than the number of those who neither newspaper

B. less than the number of those who read neither newspaper

C. equal to the number of those who read naither newspaper

D. Cannot say

Answer: c

Watch Video Solution

9. In a class ,there are 80 students ,The ratio of the number of those who like only chocolates only ice creams ,both of these ,and neither of these is 4:3:2:1.How many like utmost one of the chocolates and ice creams ?

A. 72

B. 56

C. 64

D. 60

Answer: c

Watch Video Solution

10. In the question above how many do not like ice creams ?

A. 40

B. 44

C. 148

D. 36

Answer: a

Watch Video Solution

11. In a class each students plays chess or carom or both .The number of students who play chess carom ,and both are 11,12 and 3 respectively Find the percentage of those who play only chess.

A. 0.36

B. 0.4

C. 0.44

D. 0.48

Answer: b

Watch Video Solution

12. In the question above ,find the percentage of those who play only caroms

A. 0.45

B. 0.4

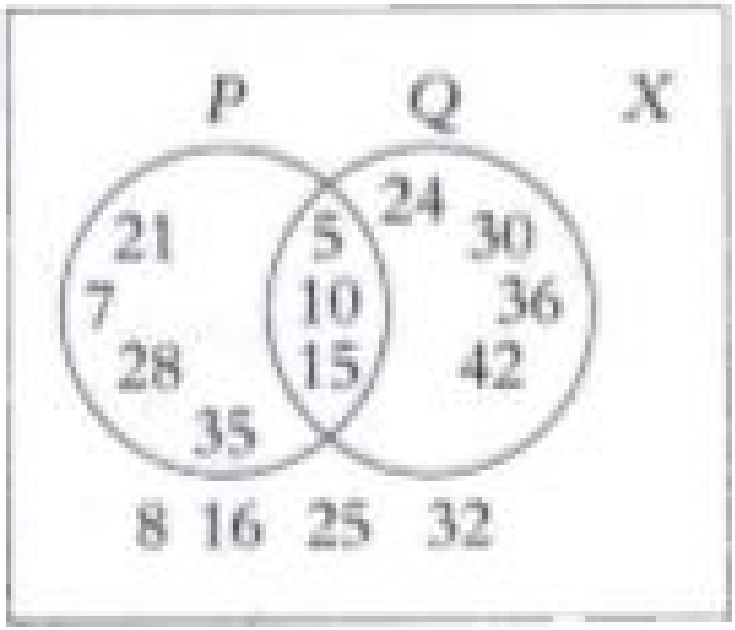
C. 0.5

D. 0.55

Answer: a

Watch Video Solution

13.



From the above Venn diagram , find $n(P \cap Q) =$ _____.

A. 8

B. 3

C. 5

D. 4

Answer: B

Watch Video Solution

14. In a class of 50 students, each student passed Maths or English. If 10 students passed both Maths and English, and 30 students passed Maths, the find the number of students who passed English.

A. 30

B. 20

C. 10

D. 40

Answer: a

Watch Video Solution

15. If A={x/x is a factor fof 4} B={x/x is a factor of 8} and C={x./x is a factor of 10 } then which of the following statements who passed English.

A. $A \subset C$

B. $C \subset A$

C. $A \subset B$

D. $B \subset A$

Answer: c

Watch Video Solution

16. Given that X= { Natural number less than 100 divisible by 6} ,Y = {Natural number less than 100 divisible by 8} and Z= {Natural number less than 100 divisibe by 18}

Find $n(X \cap Y \cap Z)$

A. 4

B. 1

C. 3

D. 2

Answer: b

Watch Video Solution

17. The strenght of a class is 96 .In it 56 students like cricket and 40 students like football .Which of the following can ve concluded ?

A. No student likes either cricket or footbaal.

B. Each student likes cricket or football.

C. Neither (a) nor (b)

D. Both (a) and (b)

Answer: c

Watch Video Solution

18. In a office ,the ratio of the percentages of employees who like only tea, percentage of employees who like only coffee ,perscentage of employees who like neither of the drinks is 8 : 7: 6: 4 Find the percentage of employees who like neither of the deinks.

A. 0.12

B. 0.08

C. 0.2

D. 0.16

Answer: d

Watch Video Solution

19. If X = {set of children liking football} then X' represents?

Watch Video Solution

Assessment Test 1

1. The mean of 36 observations is 22.If one observation 22 is deleted ,then find the new mean

The following steps are involved in solving the above problem .Arrange

then in sequential order .

$\therefore$ New arithmetic mean $= \frac{770}{35} = 22$

(B) Arithemetic mean

$$= \frac{\text{The sum of the observations}}{\text{Total number of the observations}}$$

$$\Rightarrow 22 = \frac{\text{The sum of the observations}}{36}$$

(C) The sum of the observations 22 is deleted , the new sum = 792 -22 = 770 and the number of observations is 36 -1 ,i.e 35,.

A. BDCA

B. BCDA

C. DBAC

D. CBDA

Answer: b

Watch Video Solution

2.

$If = \{x : x \in W, x \leq 10\}$ and $B = \{x : x \in Nx \leq 10\}$ then find $n(A \cup$

The following steps are involved in solving the above problem.Arrange them in sequential order

(A) $\Rightarrow n(A \cup B) = 11$

(B) $A \cup B$ = {0,1,2,3,4,5,6,7,8,9, 10 } cup {1,2,3,4,5,6,7,8,9,10}

Form the given data A={1,2,34,5,6,7,8,9,10} and B={1,2,3,4,5,6,7,8,9,10}

$\therefore A \cup B = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

A. CABD

B. CBDA

C. DCBA

D. BCDA

Answer: b

Watch Video Solution

3. If the mean of 4, x and y is 6 , then the mean of x, y and 10 is _____.

A. 8

B. 9

C. 12

D. 10

Answer: a

Watch Video Solution

4. A bar graph is drawn to the scale 1 cm = 4x units .The length of the bar represeting a quantity 1000 units is 1.25 cm . Find x

A. 200

B. 175

C. 250

D. 275

Answer: A

Watch Video Solution

5. In a pie grap h , a component is represnted as a sector with sector angle 180° .Find the percetage of the component value in total .

A. 0.28

B. 0.3

C. 0.32

D. 0.35

Answer: b

Watch Video Solution

6. Find the mode of the data 2,4,6,7,6,7 and 8 .

A. 4

B. 6

C. 7

D. 8

Answer: b

Watch Video Solution

7. The mean height of a group of 30 students is 150 cm. If a 150 cm tall student is included in the group , then the mean height of the new group is ___.

A. 151 cm

B. 149 cm

C. 150 cm

D. 152 cm

Answer: c

Watch Video Solution

8. If the mean of 2,3, x ,7 ,8 is x, then find the value of x .

A. 3

B. 5

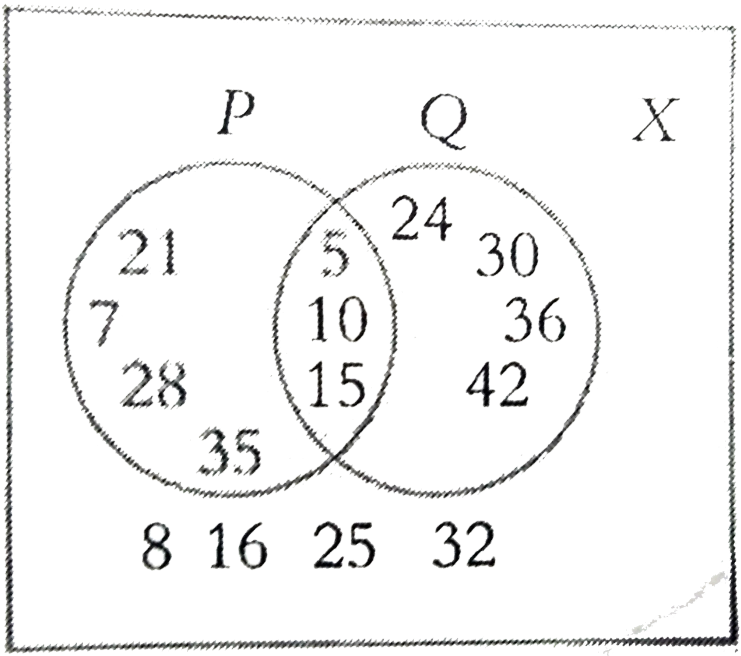
C. 4

D. 6

Answer: b

Watch Video Solution

9.



From the above Venn diagram ,find $n(P-Q)+n(Q-P)$=_____.

A. 10

B. 4

C. 6

D. 8

Answer: d

Watch Video Solution

10. In a class of 50 students, each student passed Maths or English. If 10 students passed both Maths and English, and 30 students passed Maths, the find the number of students who passed English.

A. 30

B. 20

C. 10

D. 40

Answer: a

Watch Video Solution

11. There are 100 children in a colony. Of them, 70 watch Disney channel, 50 watch both Cartoon network and Disney channels, and 20 watch none of these. Find the number of children who watch only cartoon network.

A. 40

B. 30

C. 20

D. 10

Answer: d

Watch Video Solution

12. If $U = \{0, 1, 2, 3, 4, 5, 6\}$ and A = {0,1,4}, then $n(A') =$ _ _

Watch Video Solution

13. If $A = \{b, c, y, a, q, r\}$ and $B = \{a, x, p\}$, then n (A-B) =_____

Watch Video Solution

14. If $K = \{0, 1, 2, 3\}$,then the number of subset =_____

Watch Video Solution

Watch Video Solution

15. If $X = \{x : xiseven, x \in N \text{ and } x \leq 12\}$ and $Y = \{\text{x is a prime }, x \in N \text{ and } x \leq 12\}$, then $n(X \cup Y)$ is _____ .

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Assessment Test 2

1. The mean of 2, 12, x, 15, 20, and 17 is 16, then find the value of x .

The following steps are involved in solving the above problem. Arrange them in sequential order.

$(A) 16 = 2 + 12 + x + 15, 20 + \frac{17}{6}$

(B) 96=66+x

(c) $\Rightarrow x = 96 - 66 = 30$

(D) We have,arithmetic mean

$= \frac{\text{The sum of observations}}{\text{Total number of observatons}}$

A. ADBC

B. DABC

C. CABD

D. DABC

Answer: b

Watch Video Solution

2. In a class, there are 100 students. Of them, 60 students attend music classes, 40 students attend dance classes, and 20 students attend both the classes. Find the number of students who attend neither of the classes.

The following steps are involved in solving the above problem. Arrange them in sequential order

(A)

$n(M \cup D) = n(M) + n(D) - n(M \cup D) \rightarrow n(M \cap D) \rightarrow n(M \cup D) = 6$

(B) $\therefore$ Number of students who attend neither of the classes = 100 - 80 = 20

(C) $n(M) = 60, n(D) = 40$ and $n(M \cap D) = 20(\text{given})$

(D) Let n(M) be the number of students who attend music classes and n(D) be the number of students who attend dance classes.

A. DACB

B. DCBA

C. ACDB

D. DCAB

Answer: d

Watch Video Solution

3. The mean of p, q, and r is same as the mean of q, 2r, and s. then which of the following is correct ?

A. p = q = r

B. q = r = s

C. q=r

D. $p = r + s$

Answer: d

Watch Video Solution

4. A bar graph is drawn to the scale of 1 cm = 2 m units. The length of the bar representing a quanti ty of 875 units is 1.75 cm. Find m .

A. 125

B. 225

C. 250

D. 375

Answer: c

Watch Video Solution

5. In a pie graph , a component is represented as a sector with sector angle 72°. Find the percemage of the component value in total

A. 0.21

B. $27.5\ \%$

C. 22.5%

D. $20\ \%$

Answer: d

Watch Video Solution

6. The mode of the unimodal data 7, 8, 9, 8, 9, 10, 9, 10, 11, 10, 11, 12 and x is 10. Find the value of x.

A. 10

B. 9

C. 8

D. 11

Answer: a

Watch Video Solution

7. The mean weight of 21 students is 21 kg. If a student weighing 21 kg is removed from the group, then what is the mean weight of the remaining students ?

A. 20 kg

B. 21 kg

C. 19 kg

D. 22 kg

Answer: b

Watch Video Solution

8. If the mean of 10,14,7,9 and x is x, then find the value of x ?

A. 4

B. 5

C. 8

D. 10

Answer: d

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9.

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A. 11

B. 9

C. 6

D. 7

Answer: d

Watch Video Solution

10. In a class of 70 students, each student passed Hindi or English. Of them, 15 students passed both Hindi and English, and 40 students passed Hindi. Find the number of students who passed English.

A. 35

B. 25

C. 55

D. 45

Answer: d

Watch Video Solution

11. In a school, there are 150 students. If 90 of them play chess, 70 of them play both chess and carrom and 40 play none of these games, then find the number of children who play only carrom.

A. 90

B. 10

C. 20

D. 30

Answer: c

Watch Video Solution

12. If $U = \{p, q, r\}$ and $A = \{p\}$ then $n(A')$ =_____

Watch Video Solution

13. If $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $B = \{2, 4, 6, 8, 10\}$, then $n(A - B)$ is _____

Watch Video Solution

14. If $A = \{5, 10, 15, 20, 25\}$,then the number of subsets of A are_____.

Watch Video Solution

15. If $A = \{$ x:x is an even prime $x \in N\}$ and $B = \{$x :x is an odd natural number $x < 10\}$then n $(A \cap B)$= _____

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