MATHS

BOOKS - A N EXCEL PUBLICATION

SETS

Question Bank

1. Consider the set {x : x=2^n ,n is a natural number, $n \leq 5$} Write this set in roster form.

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2. Write the solution set of the equation$x^2 - 5x + 6 = 0$ in roster form

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3. Consider the set A ={1,4,9,16,25,..}. Write A in set-builder form

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4. Which of the following are sets? Justify your answer.

The collection of all the months of a year beginning with the letter J

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5. Which of the following are sets? Justify your answer.

The collection if ten most talented writers of india

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6. Which of the following are sets? Justify your answer.

A team of eleven best-cricket batsman of the world.

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7. Which of the following are sets? Justify your answer.

The collection of all boys in your class

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8. Which of the following are sets? Justify your answer.

The collection of all natural numbers less than 100

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9. Which of the following are sets? Justify your answer.

A collection of novels written by the writer Munshi Prem Chand.

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10. Check whether the following is a set? Justify your answer.

The collection of all even integers

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11. Which of the following are sets? Justify your answer.

The collection of questions in the chapter

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12. Which of the following are sets? Justify your answer.

A collection of most dangerous Animals of the world

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13. Let A = {1,2,3,4,5,6}. Insert the appropriate symbol $\in$ or $\notin$ in the blank spaces

5---A

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14. Let A = {1,2,3,4,5,6}. Insert the appropriate symbol $\in$ or $\notin$ in the blank spaces

8---A

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15. Let A = {1,2,3,4,5,6}. Insert the appropriate symbol $\in$ or $\notin$ in the blank spaces

0,---,A

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16. Let A = {1,2,3,4,5,6}. Insert the appropriate symbol $\in$ or $\notin$ in the blank spaces

4,---,A

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17. Let A = {1,2,3,4,5,6}. Insert the appropriate symbol $\in$ or $\notin$ in the blank spaces

2,---,A

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18. Let A = {1,2,3,4,5,6}. Insert the appropriate symbol $\in$ or $\notin$ in the blank spaces

10---A

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19. Write the following sets in roster form

A={x:x is an integer and $-3 < x < 7$}

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20. Write the following sets in roster form

B={x:x is a natural number less than 6}

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21. Write the following sets in roster form

C={x:x is a two-digit natural number such that the sum of its digits is 8}

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22. Write the following sets in roster form

D={x:x is a prime number which is a divisor of 60}

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23. Write the following sets in roster form

E= The set of all letters of the word TRIGONOMETRY

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24. Write the following sets in roster form

F= The set of all letters in the word BETTER.

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25. Write the following sets in Set builder form.

$A = \{3, 6, 9, 12\}$

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26. Write the following sets in Set builder form.

$B = \{2, 4, 8, 16, 32\}$

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27. Write the following sets in Set builder form.

$D = \{5, 25, 125, 625\}$

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28. Write the following sets in Set builder form.

$E = \{2, 4, 6, \ldots . \}$

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29. Write the following sets in the set-builderform

{1,4,9,------,100}

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30. List all the elements of the following sets:

A = {x:x is an odd natural number}

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31. Write the following sets in roster form.

$$E = \left\{x : x \in Z, -\frac{1}{2} < x < \frac{9}{2}\right\}$$

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32. List all the element of the following sets:

C = {x:x is an integer,$x^2 \leq 4$}

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33. List all the element of the following sets:

D = {x:x is a letter in the word "LOYAL"}

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34. List all the element of the following sets:

E = {x:x is a month of a year not having 31 days}

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35. List all the element of the following sets:

F = {x:x is a consonant in the English alphabet which precedes k}

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36. Match each of the sets on the left in the roster form with the same set on the right described in set-builer form

Column 1	Column II
(i) {1, 2, 3, 6}	(a) {x : x is a prime number and a divisor of 6}
(ii) {2, 3}	(b) {x : x is an odd natural number less than 10}
(iii) {M, A, T, H, E, I, C, S}	(c) {x : x is a natural number and divisor of 6}
(iv) {1, 3, 5, 7, 9}	(d) {x : x is a letter of the word MATHEMATICS}

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37. State which of the following sets are finite or infinite

{x:x $\in$ N and x^2-3x+2=0}

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38. State which of the following sets are finite or infinite

{x:x $\in$ N and x is even}

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39. State which of the following sets are finite or infinite

{x:x $\in$ N and x^2 = -2}

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40. Write the following sets in roster form and identify equal sets (if any)

A={x:x $\in$ R anfd x^2 = 25}

B= {x:x $\in$ N and x^2 = 25}

C = {x:x $\in$ R and x^2 - 10x+25 = 0}

D = {x:x $\in$ N and x^2 - 8x+15=0}

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41. Which of the following are examples of the null set

Set of odd natural number divisible by 2

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42. Which of the following are null set

Set of even prime numbers

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43. Which of the following are null set

{x:x is a natural number,$x < 5$ and $x > 7$}

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44. Which of the following are examples of the null set

{y:y is a point common to any two non-coincident parallel lines}

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45. Which of the folowinfg sets are finite or infinite?

The set of months of a year

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46. Which of the following sets are finite or infinite?

{1,2,3,...}

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47. Which of the following sets are finite or infinite?

{1,2,3,.....99,100}

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48. Which of the following sets are finite or infinite?

The set of positive integers greater than 100

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49. Which of the following sets are finite or infinite?

The set of prime number less than 99

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50. State whether each of the following sets in finite or infinite

The set of lines which are parallel to x-axis

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51. State whether each of the following sets in finite or infinite

The set of letters in the English Alphabet

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52. State whether the following set is finite or infinite

The set of numbers which are multiples of 5

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53. State whether the following set is finite or infinite

The set of animals living on the earth

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54. State whether the following set is finite or infinite

The set of circles passing through the origin (0,0)

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55. In the following, state whether A=B or not

A={a,b,c,d}, B={d,c,b,a}

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56. In the following, state whether A=B or not

A={4,8,12,16}, B={8,4,16,18}

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57. In the following, state whether A=B or not

A={2,4,6,8,10}, B={x:x is a positive even integer ≤ 10}

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58. In the following, state whether A=B or not

A={x:x is a multiple of 10} B={10,15,20,25,30,.....}

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59. Are the following pair of sets equal? Give reasons

A={2,3},B={x:x is a solution of x^2+5x+6=0}

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60. Are the following pair of sets equal? Give reasons

A={x:x is a letter in the word FOLLOW}

B= {y:y is a letter in the word WORLD}

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61. From the sets given below, select equal sets:

A={2,4,8,12}, B={1,2,3,4}, C={4,8,12,14},

D={3,1,4,2}, E={-1,1} F={0,a}

G={1,-1} H={0,1}

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62. Make correct statement by filling the blanks by the symbols $\subset$ or $\not\subset$

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

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63. Make correct statement by filling the blanks by the symbols $\subset$ or $\not\subset$

{a,b,c}.....{b,c,d}

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64. Make correct statement by filling the blanks by the symbols $\subset$ or $\not\subset$

{x:x is a student of class XI of your school}....{x:x is a student of your school}

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65. Make correct statement by filling the blanks by the symbols $\subset$ or $\not\subset$

{x:x is a circle in the plane}....{x:x is a circle in the same plane with redius 1 unit}

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66. Make correct statement by filling the blanks by the symbols $\subset$ or $\not\subset$

{x:x is a triangle in a plane}.....{x:x is a rectangle in the plane}

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67. Make correct statement by filling the blanks by the symbols $\subset$ or $\not\subset$

{x:x is a equilateral triangle in a plane}....{x:x is a triangle in the same plane}

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68. Make correct statement by filling the blanks by the symbols $\subset$ or $\not\subset$

{x:x is an even natural number}....{x:x is an integer}

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69. Examine whether the following statement are true or false

{a,b} $\not\subset$ {b,c,a}

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70. Examine whether the following statement are true or false

$\{a,e\} \subset \{x:x \text{ is a vowel in the English alphabet}\}$

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71. Examine whether the following statement are true or false

$\{1,2,3\} \subset \{1,3,5\}$

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72. Examine whether the following statement are true or false

$\{a\} \subset \{a,b,c\}$

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73. Examine whether the following statement are true or false

$\{a\} \in \{a,b,c\}$

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74. Examine whether the following statement are true or false

{x:x is an even natural number les than 6} $\subset$ {x:x is a natural number which divides 36}

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75. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

{3,4} $\subset$ A

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76. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

{3,4} $\in$ A

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77. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

$\{\{3,4\}\} \subset A$

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78. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

$1 \in A$

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79. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

$1 \subset A$

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80. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

{1,2,5} $\subset$ A

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81. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

{1,2,5} $\in$ A

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82. Let $A = \{1, 2, \{3, 4\}, s, d, \theta\}$, which of the following statements are true/false and why?

$\{1, 2, 3\} \subset A$

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83. Let $A = \{1, 2, \{3, 4\}, s, d, \theta\}$, which of the following statements are true/false and why?

$\emptyset \in A$

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84. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

$\phi \subset A$

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85. Let A={1,2,{3,4},5}. Which of the following statement are incorrect and why?

$\{\phi\} \subset A$

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86. Write down all the subsets of the following sets

{a}

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87. Write down all the subsets of the following sets

{a,b}

Watch Video Solution

88. Write down all the subsets of the following sets

{1,2,3}

Watch Video Solution

89. Write all subset of the following.

$\emptyset$

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90. How many elements has P(A), if A=ϕ?

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91. Write the following in interval form.

$\{x : x \in R, \ -4 < x \leq 6\}$

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92. Write the following as intervals:

$\{x : x \in R, \ -12 < x < \ -10\}$

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93. Write the following in interval form.

$\{x : x \in R, 0 \leq x < 7\}$

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94. Write the following in interval form.

$\{x : x \in R, 3 \leq x \leq 4\}$

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95. Write the following intervals in set-builder form:

(-3,0)

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96. Write the following intervals in set-builder form:

[6,12]

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97. Write the following intervals in set-builder form:

(6,12]

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98. Write the following intervals in set-builder form:

[-23,5)

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99. What universal set(s) would you propose for each of the following:

The set of right triangles

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100. What universal set(s) would you propose for each of the following:

The set of isoseles triangles.

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101. Given the set A={1,3,5},B={2,4,6} and C={0,2,4,6,8}, which of the following may be considered as universal set(s) for all the three sets A,B and C

{0,1,2,3,4,5,6}

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102. Given the set A={1,3,5},B={2,4,6} and C={0,2,4,6,8}, which of the following may be considered as universal set(s) for all the three sets A,B and C

ϕ

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103. Given the set A={1,3,5},B={2,4,6} and C={0,2,4,6,8}, which of the following may be considered as universal set(s) for all the three sets A,B

and C

{0,1,2,3,4,5,6,7,8,9,10}

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104. Given the set A={1,3,5},B={2,4,6} and C={0,2,4,6,8}, which of the following may be considered as universal set(s) for all the three sets A,B and C

{1,2,3,4,5,6,7,8}

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105. Find the union of each of the following pairs of sets:

X = {1,3,5} Y = {1,2,3}

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106. Find the union of each of the following pairs of sets:

A = {a,e,i,o,u} B = {a,b,c}

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107. Find the union of each of the following pairs of sets:

A = {x:x is a natural number and multiple of 3}

B = {x:x is a natural number less than 6}

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108. Find the union of each of the following pairs of sets:

A = {x:x is a natural number and $1 < x \leq 6$}

B = {x:x is a natural number and $6 < x < 10$}

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109. Find the union of each of the following pairs of sets:

A = {1,2,3},B=ϕ

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110. Let A = {a,b}, B = {a,b,c}. is $A \subset B$? What is $A \cup B$?

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111. If A and B are two sets such that $A \subset B$,then $A \cup B$ is a)A b)Null set

c)B

d)$\{\emptyset\}$

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112. If A = {1,2,3,4},B={3,4,5,6},C = {5,6,7,8} and D = {7,8,9,10}, find

$A \cup B$

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113. If A = {1,2,3,4},B={3,4,5,6},C = {5,6,7,8} and D = {7,8,9,10}, find

$A \cup C$

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114. If A = {1,2,3,4},B={3,4,5,6},C = {5,6,7,8} and D = {7,8,9,10}, find

$B \cup C$

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115. If A = {1,2,3,4},B={3,4,5,6},C = {5,6,7,8} and D = {7,8,9,10}, find

$B \cup D$

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116. If A = {1,2,3,4},B={3,4,5,6},C = {5,6,7,8} and D = {7,8,9,10}, find

$A \cup B \cup C$

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117. If A = {1,2,3,4},B={3,4,5,6},C = {5,6,7,8} and D = {7,8,9,10}, find

$A \cup B \cup D$

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118. If A = {1,2,3,4},B={3,4,5,6},C = {5,6,7,8} and D = {7,8,9,10}, find

$B \cup C \cup D$

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119. If A = {3,5,7,9,11}, B = {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$A \cap B$

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120. If A = {3,5,7,9,11}, B = {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$B \cap C$

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121. If A = {3,5,7,9,11},B= {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$A \cap C \cap D$

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122. If A = {3,5,7,9,11},B = {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$A \cap C$

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123. If A = {3,5,7,9,11}, B = {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$B \cap D$

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124. If A = {3,5,7,9,11}, B= {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$A \cap (B \cup C)$

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125. If A = {3,5,7,9,11}, B= {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$A \cap D$

Watch Video Solution

126. If A = {3,5,7,9,11}, B= {7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$A \cap (B \cup D)$

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127. If A = {3,5,7,9,11}, B ={7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$(A \cap B) \cap (B \cup C)$

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128. If A = {3,5,7,9,11}, B ={7,9,11,13}, C = {11,13,15} and D = {15,17}, find

$(A \cup D) \cap (B \cup C)$

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129. If A = {x:x is a natural number},B = {x:x is an even natural number},

C = {x:x is an odd natural number} and D = {x:x is a prime number}, find

$A \cap B$

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130. If A = {x:x is a natural number},B = {x:x is an even natural number},

C = {x:x is an odd natural number} and D = {x:x is a prime number}, find

$A \cap C$

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131. If A = {x:x is a natural number},B = {x:x is an even natural number},

C = {x:x is an odd natural number} and D = {x:x is a prime number}, find

$A \cap D$

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132. If A = {x:x is a natural number},B = {x:x is an even natural number},

C = {x:x is an odd natural number} and D = {x:x is a prime number}, find

$B \cap C$

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133. If A = {x:x is a natural number},B = {x:x is an even natural number},

C = {x:x is an odd natural number} and D = {x:x is a prime number}, find

$B \cap D$

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134. If A = {x:x is a natural number},B = {x:x is an even natural number},

C = {x:x is an odd natural number} and D = {x:x is a prime number}, find

$C \cap D$

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135. Which of the following pairs of sets are disjoint

{1,2,3,4} and {x:x is a natural number and $4 \leq x \leq 6$}

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136. Which of the following pairs of sets are disjoint

{a,e,i,o,u} and {c,d,e,f}

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137. Which of the following pairs of sets are disjoint

{x:x is an even integer} and {x:x is an odd integer}

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138. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

A - B

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139. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

A - C

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140. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

A - D

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141. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

B - A

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142. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

C - A

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143. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

D - A

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144. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

B - C

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145. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

B - D

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146. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

C - B

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147. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

D - B

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148. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

C - D

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149. If A = {3,6,9,12,15,18,21},B = {4,8,12,16,20},C = {2,4,6,8,10,12,14,16}, D = {5,10,15,20}, find

D - C

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150. If X = {a,b,c,d} and Y = {f,b,d,g}, find

X - Y

Watch Video Solution

151. If X = {a,b,c,d} and Y = {f,b,d,g}, find

Y - X

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152. If X = {a,b,c,d} and Y = {f,b,d,g}, find

$X \cap Y$

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153. If R is the set of all real number and Q is the set of all rational numbers, then what is R - Q?

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154. State whether each of the following statements is true or false. Justify your answer.

{2,3,4,5} and {3,6} are disjoint sets

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155. State whether each of the following statements is true or false. Justify your answer.

{a,e,i,o,u} and {a,b,c,d} are disjoint sets

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156. State whether each of the following statements is true or false. Justify your answer.

{2,6,10,14} and {3,7,11,15} are disjoint sets

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157. State whether each of the following statements is true or false. Justify your answer.

{2,6,10} and {3,7,11} are disjoint sets

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158. Let U = {1,2,3,4,5,6,7,8,9}, A = {1,2,3,4}, B ={2,4,6,8} and C = {3,4,5,6}. Find A'

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159. Let U = {1,2,3,4,5,6,7,8,9}, A = {1,2,3,4}, B ={2,4,6,8} and C = {3,4,5,6}. Find B'

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160. Let U = {1,2,3,4,5,6,7,8,9}, A = {1,2,3,4}, B ={2,4,6,8} and C = {3,4,5,6}. Find $(A \cup C)'$

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161. Let U = {1,2,3,4,5,6,7,8,9}, A = {1,2,3,4}, B ={2,4,6,8} and C = {3,4,5,6}. Find $(A \cup B)'$

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162. Let U = {1,2,3,4,5,6,7,8,9}, A = {1,2,3,4}, B ={2,4,6,8} and C = {3,4,5,6}. Find (A')'

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163. Let U = {1,2,3,4,5,6,7,8,9}, A = {1,2,3,4}, B ={2,4,6,8} and C = {3,4,5,6}. Find (B - C)'

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164. If U = {a,b,c,d,e,f,g,h}, find the complements of the following sets:A = {a,b,c}

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165. If U = {a,b,c,d,e,f,g,h}, find the complements of the following sets:B = {d,e,f,g}

Watch Video Solution

166. If U = {a,b,c,d,e,f,g,h}, find the complements of the following sets:C= {a,c,e,g}

Watch Video Solution

167. If U = {a,b,c,d,e,f,g,h}, find the complements of the following sets:D = {f,g,h,a}

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168. Taking the set of natural number as the universal set, write down the complements of the following sets:

{x:x is an even natural number }

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169. Taking the set of natural number as the universal set, write down the complements of the following sets:{x:x is an odd natural number}

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170. Taking the set of natural number as the universal set, write down the complements of the following sets:{x:x is a positive multiple of 3}

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171. Taking the set of natural number as the universal set, write down the complements of the following sets:

{x:x is a prime number}

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172. Taking the set of natural number as the universal set, write down the complements of the following sets:{x:x is a natural number divisible by 3 and 5}

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173. Taking the set of natural number as the universal set, write down the complements of the following sets:{x:x is a perfect square}

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174. Taking the set of natural number as the universal set, write down the complements of the following sets:

{x:x is a perfect cube}

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175. Taking the set of natural number as the universal set, write down the complements of the following sets:

{x:x+5 = 8}

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176. Taking the set of natural number as the universal set, write down the complements of the following sets:{x: 2x + 5 =9}

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177. Taking the set of natural number as the universal set, write down the complements of the following sets:$\{x : x \geq 7\}$

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178. Taking the set of natural number as the universal set, write down the complements of the following sets:$\{x : x \in N \text{ and } 2x + 1 > 10\}$

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179. If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{2, 4, 6, 8\}$, $B = \{2, 3, 5, 7\}$. Verify $\left(A \bigcup B\right)' = A' \bigcap B'$

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180. If $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$, $A = \{2, 4, 6, 8\}$ and $B = \{2, 4, 8\}$ then: Check whether $\left(A \bigcap B\right)' = A' \bigcup B'$

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181. Draw appropriate Venn diagram for each of the following

$(A \cup B)'$

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182. Draw appropriate Venn diagram for each of the following $A' \cap B'$

Watch Video Solution

183. Draw appropriate Venn diagram for each of the following $(A \cap B)'$

Watch Video Solution

184. Draw appropriate Venn diagram for each of the following A' $\cup$ B'

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185. Let U be the set of all triangles in a plane. If A is the set of all triangles with atleast one angle different from 60°, what is A'?

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186. Fill in the blanks to make each of the following a true statement:

$A \cup A' =$

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187. Fill in the blanks to make each of the following a true statement:

$\phi \cap A =$

Watch Video Solution

188. Fill in the blanks to make each of the following a true statement:

$A \cap A' =$

Watch Video Solution

189. Fill in the blanks to make each of the following a true statement: $U' \cap A =$

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190. If X and Y are two sets such that n (X) = 17, n (Y) = 23 and n $(X \cup Y)$ =38, find n $(X \cap Y)$

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191. If X and Y are two sets such that $X \cup Y$ has 18 elements, X has 8 elements and Y has 15 elements, how many elements does $X \cap Y$ have?

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192. In a group of 400 people, 250 can speak Hindi and 200 can speak English. How many people can speak both Hindi and English?

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193. If S and T are two sets such that S has 21 elements, T has 32 elements, and $S \cap T$ has 11 elements, how many elements does $S \cup T$ have?

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194. If X and Y are two sets such that X has 40 elements,$X \cup Y$ has 60 elements and $X \cap Y$ has 10 elements, how many elements does Y have?

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195. In a group of 70 people, 37 like coffee, 52 like tea and each person likes at least one of the two drinks. How many people like both coffee and

tea?

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196. In a group of 65 people, 40 like cricket, 10 like both cricket and tennis. How many like tennis only and not cricket?How many like tennis?

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197. In a commifiee, 50 people speak French, 20 speak Spanish and 10 speak both Spanish and French. How many speaks at least one of these two languages?

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198. Consider the sets A = {x:x is an integer and $-3 \leq x < 1$) and B = {x:x is a letter in the word INDIA}

Write A and B in Roster form

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199. Consider the sets A = {x:x is an integer and $-3 \leq x < 1$) and B = {x:x is a letter in the word INDIA}

How many subsets does A have? Write all possible subsets of A. Hence, construct the power set of A

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200. Choose the correct answer from the bracket and fill in the blank. If A contains 3 objects, then the number of possible subsets of A=...(4,16,8,32)

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201. Match the following

Column I	Column II
$\{x : x$ is a positive prime that divides 8$\}$	$\{1,2,3\}$
$\{x : x \in N$ and $x<4\}$	$\{A,P,L,E\}$
$\{x : x$ is a letter of the word APPLE$\}$	$\{A,P,L,Y\}$
$\{x : x$ is a letter of the word APPLY$\}$	$\{A,P,P,L,E\}$
	$\{2\}$
	$\{1,2,4,8\}$

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202. Consider the sets A = {1,2,4,5},B ={2,4,6,8} and C = {4,6,8,9}

Find $B \cap C$. Hence, find $A \cup (B \cap C)$

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203. Consider the sets A = {1,2,4,5},B ={2,4,6,8} and C = {4,6,8,9} Find $A \cup B$ and $A \cup C$.Hence, verify that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

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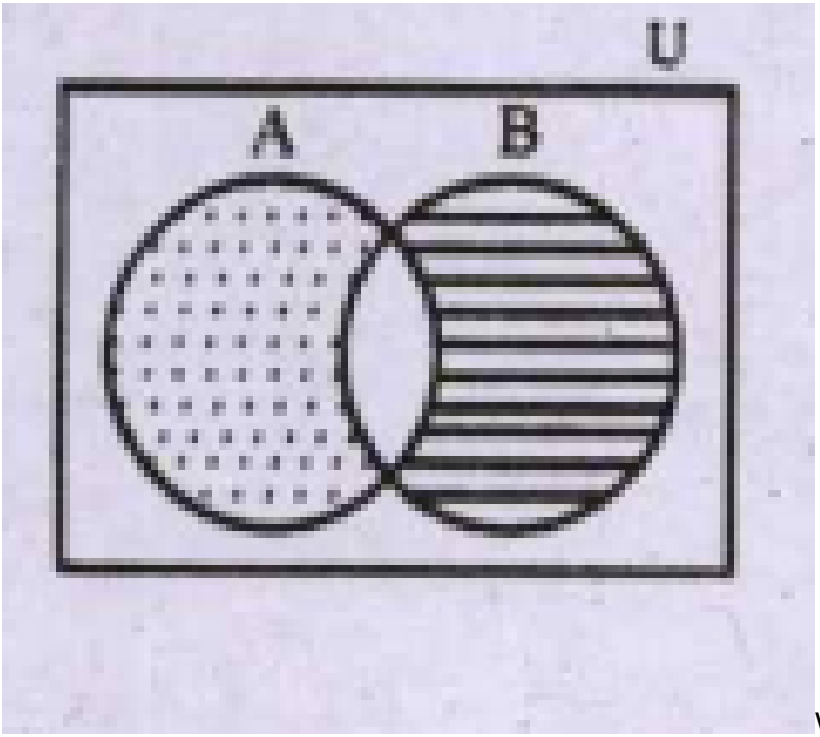
204. Consider the following venn diagram



What is the region represented by the shading?

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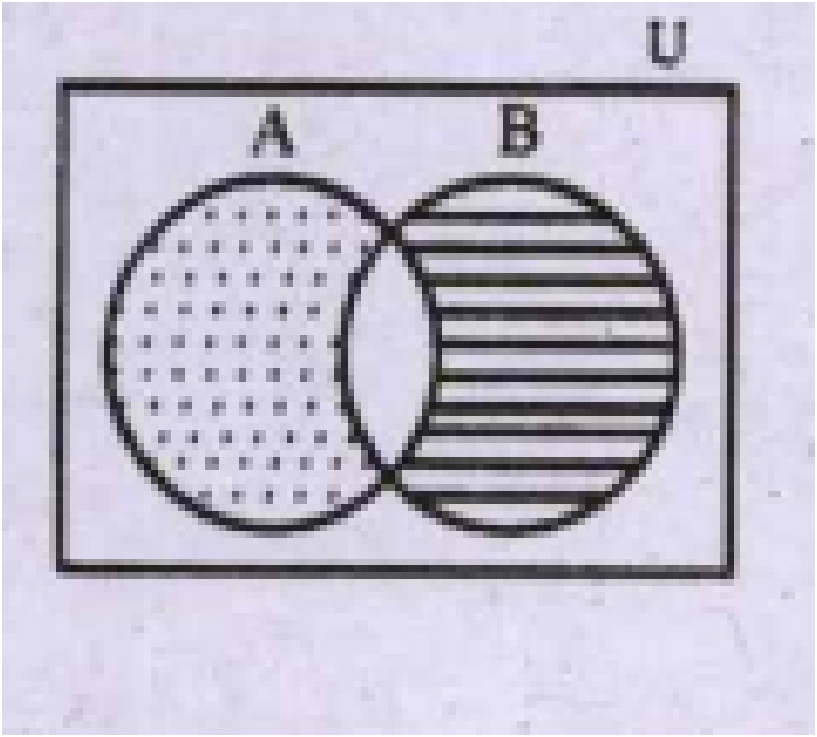
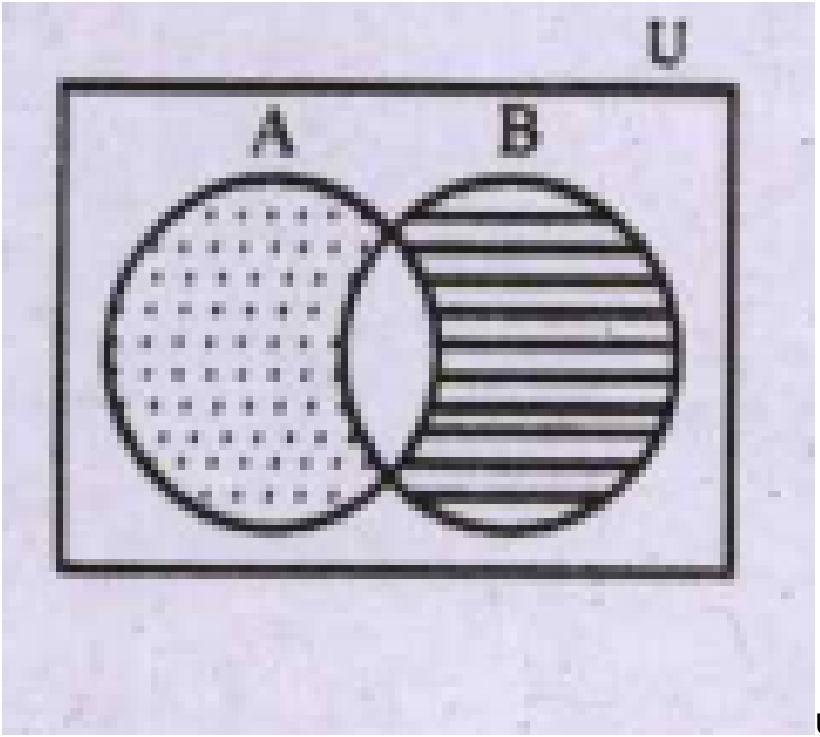
205. Consider the following venn diagram



What is the set represented by the shading region?

Watch Video Solution

206. Consider the following venn diagram



Using the Venn diagram, fill in the blanks by choosing correct answer from the bracket

$(A-B)\cup(A\cap B)=-\ -\ -\ -\ -\ ,(A-B)\cup(A\cap B)\cup(B-A_{=}-$

,

$A\cup(B-A)=-\ -\ -\ -\ ,A-(A-B)=-\ -\ -\ -\ -[B,A,A\cap$

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207. Two finite sets have m and n elements, The total number of subsets of the first set is 56 more than the total number of subsets of the second set. Find the values of m and n.

Watch Video Solution

208. Suppose in a group of 100 persons 80 take tea, 30 take coffee and 20 take both tea and coffee. Suppose T denotes the set of all persons in the group taking tea and C denotes the set of all persons in the group taking coffee.

Fill in the blanks

n(T) = -----, n(C) = -----, $n(T \cap C)$ = -----

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209. A T.V survey gives the following data for T.V viewing:

60% see programme A, 50% programme B,50% programma C,30% programmes A and B,20% programmes B and C,30% programmes A and

C, 10% do not view any programme.

What percent view all the three programmes A,B and C?

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210. A T.V survey gives the following data for T.V viewing:

60% see programme A, 50% programme B,50% programme C,30% programmes A and B,20% programmes B and C,30% programmes A and C, 10% do not view any programme.

What percent view exactly two programmes?

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211. Consider the following sets:

A = {x:x is a natural number and $1 < x \leq 4$}

B ={x:x is a natural number and $4 < x \leq 8$}

Represent these sets on Roster form

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212. Consider the following sets:

A = {x:x is a natural number and $1 < x \leq 4$}

B ={x:x is a natural number and $4 < x \leq 8$}

Find P(A)

Watch Video Solution

213. Consider the following sets:

A = {x:x is a natural number and $1 < x \leq 4$}

B ={x:x is a natural number and $4 < x \leq 8$}

Find $A \cup B$

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214. Consider the following sets: A = {x:x is a natural number and $1 < x \leq 4$}

B ={x:x is a natural number and $4 < x \leq 8$} Are the given sets disjoint?

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215. Consider the following collections

(a) Collection of all even integers

(b) Collection of all best student in your town

(c) Collection of all boys in your town

Then , which of the following is true? Justify your Answer.

(a) and (b) are sets and (c) is not a set

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216. Consider the following collections

(a) Collection of all even integers

(b) Collection of all best student in your town

(c) Collection of all boys in your town

Then , which of the following is true? Justify your Answer.

(a) and (c) are sets and (b) is not a set

Watch Video Solution

217. Consider the following collections

(a) Collection of all even integers

(b) Collection of all best student in your town

(c) Collection of all boys in your town

Then , which of the following is true? Justify your Answer.

(b) and (c) are sets and (a) is not a set

Watch Video Solution

218. Consider the following collections

(a) Collection of all even integers

(b) Collection of all best student in your town

(c) Collection of all boys in your town

Then , which of the following is true? Justify your Answer.

(a) , (b) and (c) are all sets

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219. Let U = {1,2,3,4,5,6,7}, A = {1,5,6} and B = {1,2,6,7}.Find A' and B'

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220. Let U = {1,2,3,4,5,6,7}, A = {1,5,6} and B = {1,2,6,7}Find $A \cup B$

Watch Video Solution

221. Let U = {1,2,3,4,5,6,7}, A = {1,5,6} and B = {1,2,6,7}Find $A \cap B$

Watch Video Solution

222. Let U = {1,2,3,4,5,6,7}, A = {1,5,6} and B = {1,2,6,7}.Verify the De Morgan's laws

Watch Video Solution

223. If A = {4,5,6,8,9}, B = {4,5,8} and C = {3,4,8,9} Find $A \cap B$ and $B \cap C$

Watch Video Solution

224. If A = {4,5,6,8,9}, B = {4,5,8} and C = {3,4,8,9} Find $A \cup B$ and $B \cup C$

Watch Video Solution

225. If A = {4,5,6,8,9}, B = {4,5,8} and C = {3,4,8,9}.Verify the following result,

$(A \cap B) \cap C = A \cap (B \cap C)$

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226. If A = {4,5,6,8,9}, B = {4,5,8} and C = {3,4,8,9}.Verify the following result,

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

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227. If A = {4,5,6,8,9}, B = {4,5,8} and C = {3,4,8,9}.Verify the following results,

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

Watch Video Solution

228. Consider the sets A = {1,2,3,4} and B = {3,4,5,6} Match the following

Column I	Column II
$A \cup B$	$\{3,4\}$
$A \cap B$	$\{1,2,3,4,5,6\}$
$A - B$	$\{1,2,3\}$
$B - A$	$\{1,2\}$ $\{5,6\}$

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229. Consider the sets A = {1,2,3,4} and B = {3,4,5,6} .Are A and B equivalent?

Column I	Column II
$A \cup B$	$\{3, 4\}$
$A \cap B$	$\{1, 2, 3, 4, 5, 6\}$
$A - B$	$\{1, 2, 3\}$
$B - A$	$\{1,2\}$ $\{5, 6\}$

Justify.

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230. Consider the sets A = {1,2,3,4} and B = {3,4,5,6}.Find all possible subsets of A and B count the number of subsets of A. Verify the following

result.If A contains n elements , then A will have 2^n subsets'.

Column I	Column II
$A \cup B$	$\{3,4\}$
$A \cap B$	$\{1,2,3,4,5,6\}$
$A-B$	$\{1,2,3\}$
$B-A$	$\{1,2\}$ $\{5,6\}$

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231. Fill in the blanks

Roster form	Set builder form
$\{3,6,9,12,---\}$	---
---	$\{x : x$ is a letter of the word BETTER$\}$
$\{5,25,125,---\}$	---
---	$\{x : x$ is an integer, $-\frac{1}{2}<x<\frac{9}{2}$

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232. Given the following result " The dual of any result in set theory will be another result, where the dual is obtained by changing $'\cup \rightarrow \cap'$, $'\cap \rightarrow \cup'$, $'\phi \rightarrow U'$ and $'U \rightarrow \phi'$ Write the dual results of the following results $A \cup A = A$

Watch Video Solution

233. Given the following result " The dual of any result in set theory will be another result, where the dual is obtained by changing $'\cup \rightarrow \cap'$, $'\cap \rightarrow \cup'$, $'\phi \rightarrow U'$ and $'U \rightarrow \phi'$ Write the dual results of the following results $A \cap U = A$

Watch Video Solution

234. Given the following result " The dual of any result in set theory will be another result, where the dual is obtained by changing $'\cup \rightarrow \cap'$, $'\cap \rightarrow \cup'$, $'\phi \rightarrow U'$ and $'U \rightarrow \phi'$ Write the dual results of the following results $(A \cup B)' = A' \cap B'$

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235. Given the following result " The dual of any result in set theory will be another result, where the dual is obtained by changing $'\cup \to \cap', '\cap \to \cup', '\phi \to U'$ and $'U \to \phi'$ Write the dual results of the following results $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

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236. Given the following result" The dual of any result in set theory will be another result, where the dual is obtained by changing $'\cup \to \cap', '\cap \to \cup', '\phi \to U'$ and $'U \to \phi'$ Write the dual results of the following results $A \cup A' = U$

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237. Suppose X and Y are two sets Prove that n $(X \cup Y)$ = n (X) +n(Y)-n $(X \cap Y)$

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238. Suppose X and Y are two sets If $n(X \cup Y)$ = 50, n (X) = 28 and n (Y) = 32, find n $(X \cap Y)$

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239. In a group of 50 persons, 14 drink tea but not coffee and 30 drink tea. Let T and C denote the sets of persons drinking tea and coffee respectively.What is the value of n (T - C)?

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240. In a group of 50 persons, 14 drink tea but not coffee and 30 drink tea. Let T and C denote the sets of persons drinking tea and coffee respectively.What is the value of n (T)?

Watch Video Solution

241. In a group of 50 persons, 14 drink tea but not coffee and 30 drink tea. Let T and C denote the sets of persons drinking tea and coffee respectively.How many drink tea and coffee both?

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242. In a group of 50 persons, 14 drink tea but not coffee and 30 drink tea. Let T and C denote the sets of persons drinking tea and coffee respectively.How many drink coffee but not tea?

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243. In a group of people 50 speak French, 20 speak Spanish and 10 speak both Spanish and French.Find the number of people speaking only French

Watch Video Solution

244. In a group of people 50 speak French, 20 speak Spanish and 10 speak both Spanish and French.Find the number of people speaking only Spanish

Watch Video Solution

245. In a group of people 50 speak French, 20 speak Spanish and 10 speak both Spanish and French.Find the number of people speaking at least one of these two languages.

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246. A T.V. survey gives the following data for T.V. viewing,60% see programme x, 50% programme y, 50% programme z,30% programmes x and y, 20% programmes y and z,30% programmes x and z,5% do not view any programme

What percent view at least one of the programmes?

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Watch Video Solution

247. A T.V survey gives the following data for T.V viewing:

60% see programme A, 50% programme B,50% programma C,30% programmes A and B,20% programmes B and C,30% programmes A and C, 10% do not view any programme.

What percent view all the three programmes A,B and C?

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248. A T.V. survey gives the following data for T.V. viewing,60% see programme x, 50% programme y, 50% programme z,30% programmes x and y, 20% programmes y and z,30% programmes x and z,5% do not view any programme

What percent view exactly two programmes?

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249. Decide, among the following sets, which sets are subsets of one and another:A = {x:x $\in$ R and x satisfy x^2-8x + 12 = 0} B = {2,4,6}, C = {2,4,6,8,..}, D = {6}

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250. In each of the following , determine whether the statement is true or false. If it is true, prove it. If it is false, give an example.

If $x \in A$ and $A \in B$then $x \in B$

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251. In each of the following , determine whether the statement is true or false. If it is true, prove it. If it is false, give an example.

If$A \subset B$ and $B \in C$, then$A \in C$

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252. In each of the following , determine whether the statement is true or false. If it is true, prove it. If it is false, give an example.

If $A \subset B$ and $B \subset C$, then $A \subset C$

Watch Video Solution

253. In each of the following , determine whether the statement is true or false. If it is true, prove it. If it is false, give an example.

If $A \not\subset B$ and $B \not\subset C$, then $A \not\subset C$

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254. In each of the following , determine whether the statement is true or false. If it is true, prove it. If it is false, give an example.

If $x \in A$ and $A \not\subset B$, then $x \in B$

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255. In each of the following , determine whether the statement is true or false. If it is true, prove it. If it is false, give an example.

If $A \subset B$ and $x \notin B$, then $x \notin A$

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256. Let A,B and C be the sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$. Show that B = C.

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257. Show that if $A \subset B$, then $C - B \subset C - A$

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258. Assume that P (A) = P (B).Show that A = B

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259. Is it true that for any sets A and B, $P(A) \cup P(B) = P(A \cup B)$?

Justify your answer

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260. Show that for any sets A and B. A=$(A \cap B) \cup (A - B)$ and $A \cup (B - A) = (A \cup B)$

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261. Show that $A \cap B = A \cap C$ need not imply B = C

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262. Let A and B be sets. If $A \cap X = B \cap X = \phi$ and $A \cup X = B \cup X$ for some set X, show that A = B

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263. Find sets A,B and C such that $A \cap B, B \cap C$ and $A \cap C$ are non-empty sets and $A \cap B \cap C = \phi$

Watch Video Solution

264. In a survey of 600 students in a school,150 students were found to be taking tea and 225 students were taking coffee.100 were taking both tea and coffee. Find how many students were taking neither tea nor coffee.

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265. In a group of students, 100 students know Hindi, 50 know English and 33 know both. Each of the students knows either Hindi or English. How many students are there in the group?

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266. In survey of 60 people, it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper I, 9 read H and I, 11 read both H and T, 8 read both T and I,3 read all three newspapers. Find:the number of people who read at least one of the newspapers

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267. In survery of 60 perople, it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper I, 9 read H and I, 11 read both H and T, 8 read both T and I,3 read all three newspapers. Find:

the number of people who read exactly one newspaper

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268. In a survey it was found that 21 people liked product A,26 liked product B and 29 liked product C.If 14 people liked products A and B ,12 people liked products C and A. 14 people liked products B and C and 8 liked all the three products. Find how many liked product C only.

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