INDIAN SCHOOL AL WADI AL KABIR

WORKSHEET 2026-27

CLASS XI **SETS** **21.04.2026**

Questions of 1 mark each

Q.1 Let U = {x: x is a factor of 30}, A = {x: x is a multiple of 5, $x < 35$} and B = {x: x is odd natural number, x<31 } , then $(A \cup B)'$ is equal to:

A) {1,2,3,6,15, } B) {2,6} C){6,15} D) {2,3}

Q.2 The number of subsets of A= $\{\{1,2\},4\}$ is:

A)4 B)8 C)2 D)3

Q.3 If the sets A and B are given by $A = \{2,3,4\}, B = \{2,4,6\}$ and the universal set $U = \{1,2,3,4,5,6,7\}$, then:

A) (A ∪ B)' = {5, 7, 1} C) (A ∩ B)' = {5, 7, 1,3}

B) (A ∪ B)' = {2,3,4,6} C) (A ∩ B)' = {2,6}

Q.4 If $n(A) = 4$ and $n(B) = 5$, then the maximum number of elements in $A \cap B$ is:

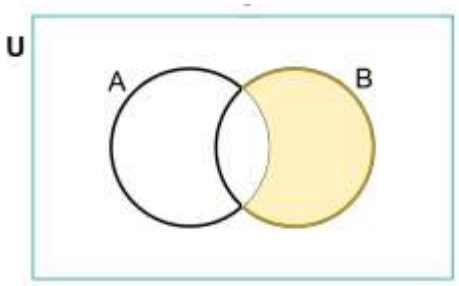
A) 5 B) 3 C) 4 D) 9

Q.5 If $A = \{x \in \mathbb{Z}: -3 \leq x < 4\}$ and $B = \{x \in \mathbb{Z}: x^2 < 9\}$, then $A \cup B$ is:

A) $\{-4,-3,-2,-1,0,1,2\}$ C) $\{-3,-2,-1,0,1,2,3,4\}$

B) $\{-2,-1,0,1,2\}$ D) $\{-3,-2,-1,0,1,2,3\}$

Q.6 The shaded region in the following Venn diagram represents:



A) A ∩ B' B) B ∩ A' C) A ∪ B' D) B'

Q.7 **Assertion:** If A is the set of letters of the word 'LISTEN' and B is the set of letters of the word 'SILENT', then A and B are equal sets.
Reason: Two sets are equal if they have equal number of elements

Questions of 2 mark each

Q.8 If $U = \{1,2,3 \ldots,10\}, A = \{1,2,3,5\}, B = \{2,4,6,7\}$, find $(A - B)'$.

Q.9 L = {x: x is a positive integer less than 6} and M = {x: x is a positive integer and multiple of 2}Find
(a) LUM
(b) L ∩ M

Q.10 If **A** and **B** are two given sets, then represent the set $(A - B)'$, using the Venn diagram.

Q.11 Write the set $\left\{\frac{1}{3}, \frac{3}{5}, \frac{5}{7}, \frac{7}{9}, \frac{9}{11}, \frac{11}{13}\right\}$ in set builder form.

Questions of 3 marks each

Q.12 Let $\mathrm{U} = \{1,2,3,4,5,6,8\}, \mathrm{A} = \{2,3,4\}, \mathrm{B} = \{3,4,5\}$. Show that
(i) $(\mathrm{A} \cup \mathrm{B})' = \mathrm{A}' \cap \mathrm{B}'$
(ii) $(\mathrm{A} \cap \mathrm{B})' = \mathrm{A}' \cup \mathrm{B}'$.

Q.13 In a group of 100 people, 50 plays cricket, 30 plays chess, and 15 plays both. Find:
(a) The number of people who play only chess.
(b) The number of people who plays neither cricket nor chess.

Q.14 Draw appropriate Venn diagrams for each of the following set expressions:

1. $\mathrm{A} \cap \mathrm{B}'$
2. $(\mathrm{A} \cup \mathrm{B})' \cap \mathrm{A}$
3. $(\mathrm{A} - \mathrm{B}) \cup (\mathrm{B} - \mathrm{A})$

Q.15 A survey shows that 84 percent of Indians like grapes, whereas 45 percent like pineapple. What percentage of Indians like both grapes and pineapple?

Q.16 If $A = \{3,5,7,9,11\}, B = \{7,9,11,13\}, C = \{11,13,15\}, D = \{15,17\}$, Find

i. $(A \cup B) \cap C$
ii. C – D
iii. $((A \cap B) \cap (B \cup C)$

Q.17 If $n(A - B) = 18, n(A \cup B) = 70$ and $n(A \cap B) = 25$, then find $n(B)$.

Q.18 In a group of students ,100 students know Hindi, 50 know English and 25 know both. Each of the students know either Hindi or English. How many students are there in the group.

Q.19 In a survey of 100 students, 60 students like Mathematics, 45 students like Physics, and 25 students like both Mathematics and Physics.
Find the number of students who like:

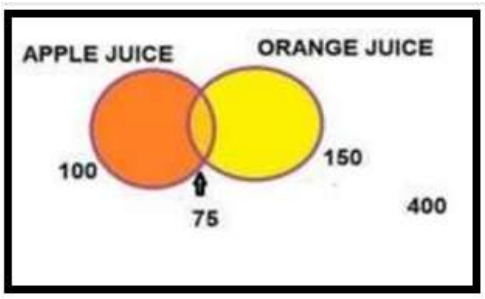
1. Mathematics or physics
2. Mathematics only
3. Physics only

Q.20 A survey of 100 students recorded their interest in Mathematics (M) and Biology (B). 60 like Math, 45 like Biology, and 25 like both.

i. Find the number of students who like neither subject.
ii. Find the number of students who like only Math.
iii. Find the number of students who like at least one subject.

CASE STUDY QUESTION (4 MARK)

Q.21 In D.A.V School, Bahadurgarh, a survey was done on 400 students it was found that 100 likes to take apple juice, 150 like to take orange juice and 75 like both apple as well as orange juice. Based on this answer the following



i. Number of students who like either of the drink
ii. Number of students who likes neither apple juice nor orange juice
iii. Number of students who likes only apple juice:
iv. Number of students who likes only orange juice

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ANSWER KEY

Q.1 B) {2,6}

Q.2 A)4

Q.3 A) (A ∪ B)' = {5, 7, 1}

Q.4 C) 4

Q.5 D) $\{-3,-2,-1,0,1,2,3\}$

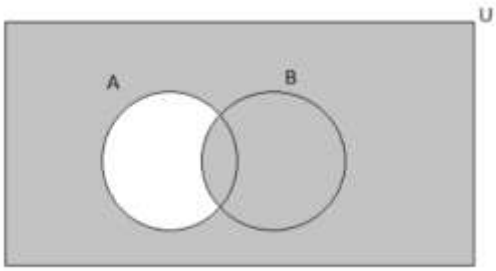
Q.6 B) B ∩ A'

Q.7 C)

Q.8 {2,4,6,7,8,9,10}

Q.9 (a){1,2,3,4,5,6,8,10, ... }
(b) {2,4}

Q.10

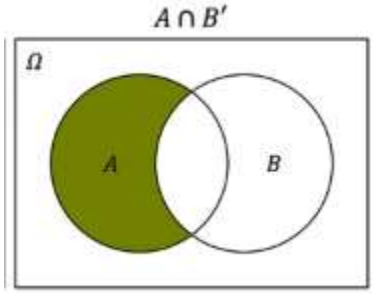


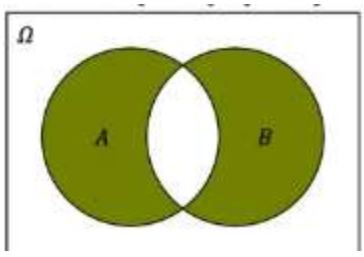
Q.11 $\left\{\frac{2n-1}{2n+1} : n \text{ is a natural number less than } 7\right\}$

Q.12 PROOF

Q.13 i. 15
ii. 35

Q.14





Q.15 29%

Q.16 $(A \cup B) \cap C = \{11, 13\}$
$C - D = \{11, 13\}$
$((A \cap B) \cap (B \cup C)) = \{7, 9, 11\}$

Q.17 52

Q.18 125

Q.19 (i) 80 (ii) 35 (iii) 20

Q.20 (i) 20, (ii) 35 (iii) 80

Q.21 (i) 175, (ii) 225, (iii) 25, (iv) 75

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