

# Maharashtra Board

## Class IX Mathematics - Algebra

### Sample Paper – 2

**Time: 2 hours**

**Total Marks: 40**

Note: - (1) All questions are compulsory.  
(2) Use of calculator is not allowed

**1. Attempt any five question from the following:**

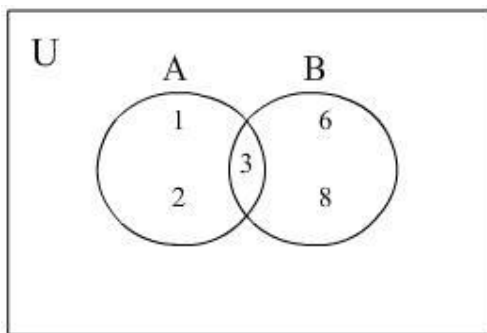
**5**

- What is the mode in the following data?  
19, 21, 18, 17, 18, 22, 46
- If the numbers 3, x, 6, 10 are in proportion, then find x.
- Is the set of integers finite or infinite?
- Verify the associative law:  $a + (b + c) = (a + b) + c$  for the rational numbers  $a = \frac{2}{3}$ ,  $b = \frac{4}{3}$  and  $c = \frac{1}{3}$ .
- What is the mean of the first four even numbers?
- Add:  $4x + 6$  and  $3x - 7$ .

**2. Attempt any four sub-questions from the following:**

**8**

- The mean of 15 observations is 14. If the mean of first 7 observations is 12 and that of last 7 observations is 16, then find the middle term.
- If in a group of goats and hens the number of legs is 24 more than the twice the number of heads, then find the number of goats in the group.
- If 24 men can do a piece of work in 28 hours, then in how many hours will 16 men do it?
- From the following Venn diagram determine  $A \cup B$ .

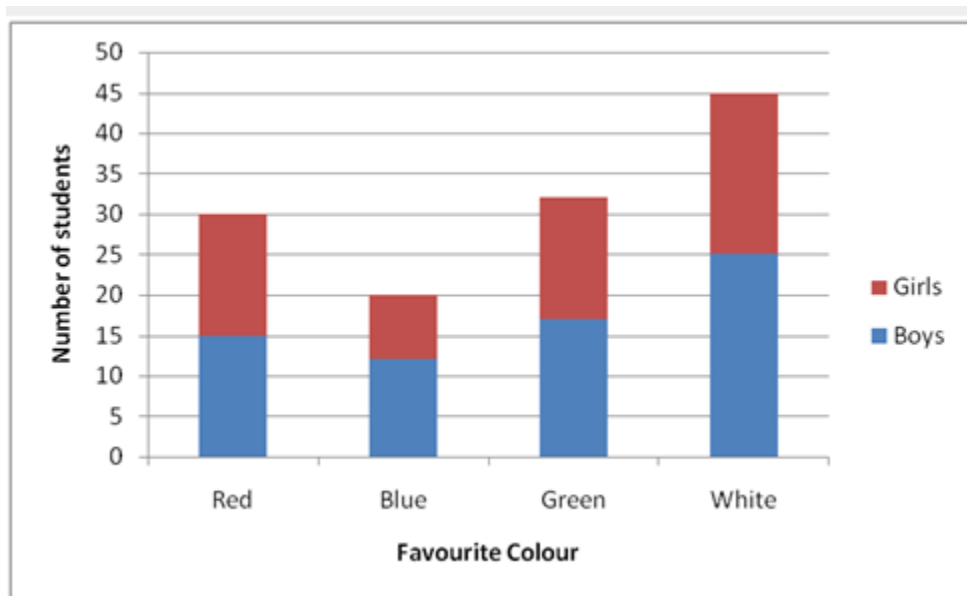


- Rs. 8100 is to be divided among A, B and C. If A receives thrice as much as B and B receives twice as much as C, then find the shares of A, B and C.
- Calculate mean for following data:  
23, 45, 46, 12, 34, 87, 78, 12, 65, 33, 19, 34, 55, 67, 81, 12, 56, 98, 11, 49

**3. Attempt any three of the following sub-questions:**

**9**

- i. The average (mean) of a list of 6 numbers is 20. If we remove one of the numbers, then the average of the remaining numbers is 15. Find the number that was removed.
- ii. Which of the following points do not lie on the line  $3y = 6 - 2x$ .  
(1) (3,0)  
(2) (2,2)  
(3) (0,2)
- iii. Laxmi purchases some bananas and some oranges. Each banana costs Rs. 2, while each orange costs Rs. 3. If the total amount paid by Laxmi was Rs. 30 and the number of oranges purchased by her was 6, then how many bananas did she purchase?
- iv. Let  $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$ ,  $A = \{5, 6, 7\}$ ,  $B = \{1, 4, 8\}$ ,  $C = \{1, 3, 5, 7\}$  and  $D = \{\text{prime numbers less than } 10\}$ . Find :  
1)  $A'$  2)  $B'$  3)  $C'$
- v. Observe the figure given below and answer the following questions:



- a. How many boys and girls liked white?
- b. How many boys and girls were checked for their favourite colour in all?
- c. Which colour was liked the most by the boys?

**4. Attempt any two sub-questions from the following:**

- i. Given below are the marks obtained by 50 students of Class IX in a Hindi test.  
42, 21, 51, 37, 42, 37, 38, 42, 49, 52, 38, 53, 57, 47, 29, 59, 61, 33, 17, 71, 39, 43, 42, 39, 14, 7, 27, 19, 54, 51, 39, 43, 42, 16, 37, 67, 62, 39, 51, 53, 41, 53, 59, 37, 27, 33, 34, 42, 22, 31.

With this data, form a less than type cumulative frequency table.

(1) What is the range of marks?

(2) What can you conclude from the above data about the number of students who scored more than 35.

- ii. Two years ago a father was 5 times as old as his son, 2 years later, his age will be 8 years more than three times the age of son. Find their present ages.

- iii. Is  $\sqrt{x^2} + \sqrt{y^2} = \sqrt{5}$  a linear equation? If yes then find the value of y if  $x = \frac{\sqrt{5}}{\sqrt{5}+1}$ ?

**5. Attempt any two of the following sub-questions:**

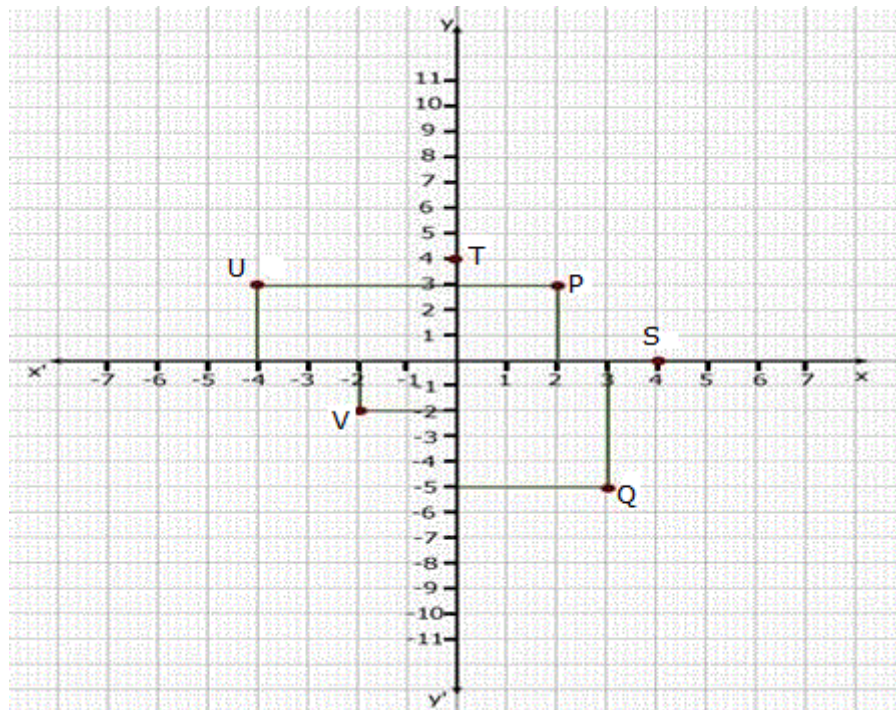
**10**

- i. Draw a histogram to represent the following table which presents the number of literate females in the age group 10-57 in a town.

Age group	Number of females
10-17	300
18-25	980
26-33	740
34-41	580
42-49	260
50-57	120
<b>Total</b>	<b>2980</b>

ii. Using the graph given below, find the following :

- (i) Abscissa of P
- (ii) Ordinate of Q
- (iii) Coordinate of V
- (iv) Point on X axis
- (v) Point of Y axis
- (vi) Point in I quadrant
- (vii) Point in II quadrant
- (viii) Point in III quadrant
- (ix) Point in IV quadrant



iii. 3 chairs and 2 tables costs Rs. 700 and 5 chairs and 3 tables costs Rs. 1100. What is the cost of 2 chairs and 2 tables?