



9. Which of the following algebraic expressions is not a monomial?  
(a)  $3x \times y \times z$  (b)  $-5pq$  (c)  $8m^2n + 3r$  (d)  $7x + y - z$
10. The sum of all exterior angles of a pentagon is:  
(a)  $270^\circ$  (b)  $360^\circ$  (c)  $180^\circ$  (d) none of these
11. The value of variable for which LHS = RHS of a linear equation is called:  
(a) Value (b) root (c) solution (d) both (b) & (c)
12. The literal coefficient of  $-9xyz^2$  is:  
(a) -9 (b)  $xy$  (c)  $xyz^2$  (d)  $-9xy$
13. The point (8, -7) lies in the:  
(a) Quadrant-I (b) Quadrant-II (c) Quadrant-III (d) Quadrant-IV
14. Multiplicative inverse of  $\frac{-3}{7}$  is:  
(a)  $\frac{7}{3}$  (b)  $\frac{-7}{3}$  (c)  $\frac{3}{7}$  (d) none of these
15. The x- coordinate of every point on the y-axis is:  
(a) 0 (b) 1 (c) -1 (d) none of these
16. Probability of an event always lies from:  
(a) 0 to 1 (b) 1 to 10 (c) 1 to 2 (d) -1 to 1
17. Value of  $5x^{92} \times x^{42} \times x^{-82} \times 0$  is:  
(a)  $5x^{50}$  (b) 1 (c)  $x^0$  (d) 0
18. Which of the following points lie on the x-axis?  
(a) (0,4) (b) (4,0) (c) (4,4) (d) (-4, -4)
19. Rational numbers are not closed under  
(a) Addition (b) subtraction (c) multiplication (d) division
20. Which of the following is not a linear equation in one variable?  
(a)  $3x + 2 = 0$  (b)  $2y - 4 = y$   
(c)  $x + 2y = 7$  (d)  $2(x - 3) + 7 = 0$

**SECTION-B (2 MARKS EACH)**

21. Find the product:  $(x + 7y)(7x - y)$

22. Multiply:  $\frac{6}{13}$  by the reciprocal of  $\frac{-7}{16}$ .

23. The shoppers who come to a departmental store are marked as man (M), woman (W), boy (B) or girl (G). The following list gives the shoppers who came during the first hour of the morning.

W, W, W, G, B, W, W, M, G, G, M, M, W, W, W, W, G, B, M, W, B, G, G, M, W, W,  
M, M, W, W, W, M, W, B, W, G, M, W, W, W, W, G, W, M, M, W, M, W, G, W, M, G,  
W, M, M, B, G, G, W.

Make a frequency distribution table using tally marks.

24. Express the following numbers in standard form.

(i) 0.000085

(ii) 602000000000

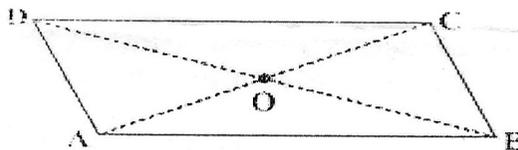
25. State whether True or False. Correct those that are False.

(i) A point whose y-coordinate is zero and x-coordinate is 5 will lie on the y-axis.

(ii) The coordinates of the origin are (0, 1).

**SECTION -C (3 MARKS EACH)**

26. Given a parallelogram ABCD. Complete each statement along with the definition or property used.



(i)  $AD = \dots\dots$

(ii)  $\angle DCB = \dots\dots$

(iii)  $m \angle DAB + m \angle CDA = \dots\dots$

27. (a) Is  $\frac{8}{9}$  the multiplicative inverse of  $-1\frac{1}{8}$ ? Why or why not?

(b) Write (i) The rational number that does not have a reciprocal.

(ii) The property under multiplication used in  $\frac{-3}{4} \times \frac{4}{-3} = 1$

28. Evaluate:  $\frac{8^{-1} \times 5^3}{2^{-4}}$

29. Subtract:  $3xy + 5yz - 7zx$  from  $5xy - 2yz - 2zx + 10xyz$

30. Solve:  $5x + \frac{7}{2} = \frac{3}{2}x - 14$

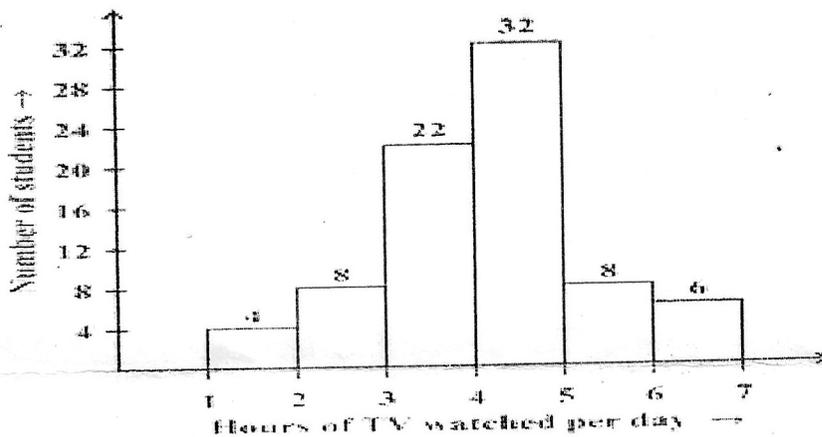
31. The number of hours for which students of a particular class watched television during holidays are shown in the given graph.

Answer the following:

(i) For how many hours did the maximum number of students watch TV?

(ii) How many students watched TV for less than 4 hours?

(iii) How many students spent more than 5 hours watching TV?



**SECTION -D (5 MARKS EACH)**

32. (a) Simplify:  $3x(4x - 5) + 3$  and find its values for  $x = 3$

(b) Find the value of  $m$  for which  $5^m \div 5^{-3} = 5^5$

33. The number of students in a hostel speaking different languages is given below.

Display the data in a pie chart.

Language	Hindi	English	Marathi	Tamil	Bengali	Total
Number of students	40	12	9	7	4	72

34. Solve the following equation and check your results.

$$2y + \frac{5}{3} = \frac{26}{3} - y$$

35. (a) The measures of two adjacent angles of a parallelogram are in the ratio 3: 2. Find

the measure of each of the angles of the parallelogram.

(b) Is it possible to have a regular polygon with measure of each exterior angle as  $22^\circ$ ?

Give reason.

### SECTION-E (4 MARKS EACH)

#### Case Study Based Questions:

36. In a park, four friends A, B, C and D noticed an interesting formation of a Quadrilateral on the ground made with colourful tiles. They measured some of its properties and tried to identify its type.

A: "The opposite sides of the quadrilateral are equal in length".

B: "Two consecutive angles of the quadrilateral measure 90 degrees each".

C: "The diagonals of the quadrilateral bisect each other."

D: "The quadrilateral has exactly one pair of parallel sides."

Based on the above information given by each friend, determine the type of Quadrilateral they observed:

Q1. Which property defines a parallelogram?

- (a) All sides are equal.                      (c) Opposite sides are parallel and equal.  
(b) All angles are equal.                    (d) Exactly one pair of parallel sides.

Q2. In a rectangle, what are the measures of consecutive angles?

- (a) 90 degrees                                      (c) 180 degrees  
(b) 60 degrees                                      (d) 45 degrees

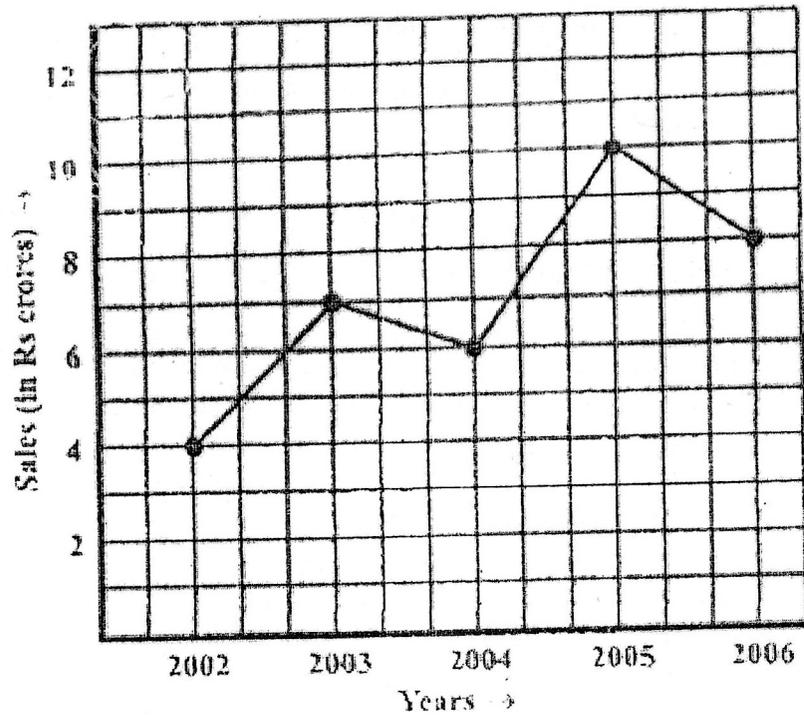
Q3. Which statement correctly describes a trapezium?

- (a) All sides are equal.                      (c) Exactly two pairs of parallel sides  
(b) Has no parallel side                      (d) Exactly one pair of parallel side

Q4. What is the sum of interior angles in any quadrilateral?

- (a) 90 degrees                                      (c) 180 degrees  
(b) 360 degrees                                      (d) 270 degrees

37. The following line graph shows the yearly sales figures for a manufacturing company.



Q1. What were the sales in (i) 2002 (ii) 2006?

Q2. What were the sales in (i) 2003 (ii) 2005?

Q3. Compute the difference between the sales in 2002 and 2006.

Q4. In which year was there the greatest difference between the sales as compared to the previous year?

38. During a math club meeting, students were discussing the different properties of rational numbers. Their teacher presented them with a challenge to explore these properties through various operations. The students were asked to verify the closure, commutative, associative, and distributive properties of rational numbers using the following pairs:

$\frac{5}{6}$  and  $\frac{2}{3}$

(ii)  $\frac{-4}{7}$  and  $\frac{3}{14}$

(iii)  $\frac{1}{2}$  and  $\frac{-5}{8}$

Q1. Which of the following statements correctly verifies the closure property for

addition using  $\frac{5}{6}$  and  $\frac{2}{3}$ ?

(a)  $\frac{5}{6} + \frac{2}{3} = \frac{7}{6}$

(b)  $\frac{5}{6} + \frac{2}{3} = \frac{1}{2}$

(c)  $\frac{5}{6} + \frac{2}{3} = \frac{9}{6}$

(d)  $\frac{5}{6} + \frac{2}{3} = \frac{11}{18}$

Q2. Which of the following operations demonstrates the commutative property of multiplication using  $\frac{-4}{7}$  and  $\frac{3}{14}$ ?

(a)  $\frac{-4}{7} \times \frac{3}{14} = \frac{3}{14} \times \frac{-4}{7}$

(b)  $\frac{-4}{7} \times \frac{3}{14} = \frac{-12}{98}$

(c)  $\frac{3}{14} \times \frac{-4}{7} = \frac{-12}{49}$

(d)  $\frac{-4}{7} \times \frac{3}{14} = \frac{-12}{89}$

Q3. Which of the following shows the associative property of addition

for  $\frac{1}{2}$ ,  $\frac{-5}{8}$  and  $\frac{2}{3}$  ?

(a)  $(\frac{1}{2} + \frac{-5}{8}) + \frac{2}{3} = \frac{1}{2} + (\frac{-5}{8} + \frac{2}{3})$

(b)  $\frac{1}{2} + (\frac{-5}{8} \text{ and } \frac{2}{3}) = \frac{1}{2} + \frac{5}{8} + \frac{2}{3}$

(c)  $(\frac{1}{2} \times \frac{-5}{8}) + \frac{2}{3} = \frac{1}{2} \times (\frac{-5}{8} \times \frac{2}{3})$

(d)  $\frac{1}{2} + \frac{-5}{8} + \frac{2}{3}$

Q4. Which of the following verifies the distributive property of multiplication over

addition for  $\frac{5}{6} \times (\frac{1}{2} + \frac{2}{3})$

(a)  $\frac{5}{6} \times (\frac{1}{2} + \frac{2}{3}) = (\frac{5}{6} \times \frac{1}{2}) + (\frac{5}{6} \times \frac{2}{3})$

(b)  $\frac{5}{6} \times (\frac{1}{2} + \frac{2}{3}) = \frac{5}{12} + \frac{10}{9}$

(c)  $(\frac{5}{6} \times \frac{1}{2}) + (\frac{5}{6} \times \frac{2}{3}) = \frac{5}{10} + \frac{12}{9}$

(d) none of these