Student ID | | | | | | | | | | | |

Directorate of Education, GNCT of Delhi
Practice Paper (Mid-Term)
Session: 2025-26
Class – IX
Subject-Mathematics

Time Allowed: 3 hours **Maximum Marks: 80**

GENERAL INSTRUCTIONS:

Read the following instructions carefully and follow them:

1. This question paper contains 38 questions. All questions are compulsory.
2. Question paper is divided into FIVE sections – Section A, B, C, D and E.
3. In Section-A, question number 1 to 18 are multiple choice questions (MCQs) and question number 19 and 20 are Assertion-Reason based questions of 01 mark each.
4. In Section-B, question numbers 21 to 25 are Very Short Answer (VSA) type questions carrying 02 marks each.
5. In Section-C, question numbers 26 to 31 are Short Answer (SA) type questions carrying 03 marks each.
6. In Section-D, question numbers 32 to 35 are Long Answer (LA) type questions carrying 05 marks each.
7. In Section-E, question numbers 36 to 38 are Case-Based questions carrying 04 marks each. Internal choice is provided in 2 marks questions in each case study.
8. There is no overall choice. However, an internal choice has been provided in 2 questions in the Section-B, 2 questions in Section-C, 2 questions in Section-D and 3 questions in Section-D.
9. Draw neat figures wherever required.
10. Take $\pi = \frac{22}{7}$ wherever required, if not stated.
11. **Use of calculator is NOT permitted.**
12. **Please write down the serial number of questions before attempting it.**

SECTION-A

Q 1-20 are multiple choice questions. Each question is of 1 mark. $(\mathbf{20 \times 1 = 20})$

1. Which of the following is irrational?

(a) 0.14 (b) $0.14\overline{16}$

(c) $0.\overline{1416}$ (d) 0.4014001400014...

2. $\sqrt{2}$ is a polynomial of degree:

(a) 2 (b) 0

(c) 1 (d) 4

3. Signs of the abscissa and ordinate of a point in the second quadrant are respectively:

(a) (+, +) (b) (–, –)

(c) (–, +) (d) (+, –)

4. After rationalising the denominator of $\frac{7}{3\sqrt{3}-2\sqrt{2}}$, we get the denominator as:

(a) 13 (b) 19

(c) 5 (d) 35

5. Degree of the zero polynomial is:

(a) 0 (b) 0

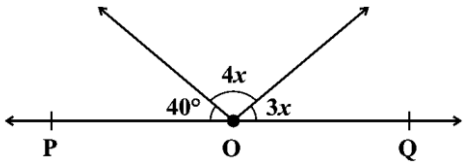
(c) Any natural number (d) Not defined

6. In a frequency distribution, the mid value of a class is 10 and the width of the class is 6. The lower limit of the class is:

(a) 6 (b) 7

(c) 8 (d) 12

7. In the figure given below, POQ is a line. The value of x is:



(a) 20° (b) 25°

(c) 30° (d) 35°

8. The class-mark of the class 130-150 is:

(a) 130 (b) 135

(c) 140 (d) 145

9. The value of the polynomial $5x - 4x^2 + 3$, when $x = -1$ is:

(a) –6 (b) 6

(c) 2 (d) –2

10. The angles of a triangle are in the ratio 5 : 3 : 7. The triangle is:

(a) An acute angled triangle (b) An obtuse angled triangle

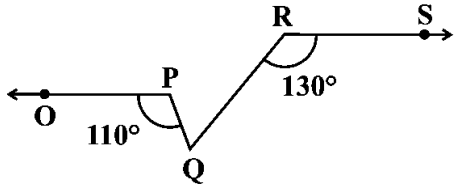
(c) A right triangle (d) An isosceles triangle

11. A linear equation in two variables is of the form ax + by + c = 0, where:

(a) $a \neq 0, b \neq 0$ (b) $a = 0, b \neq 0$

(c) $a \neq 0, b = 0$ (d) $a = 0, b = 0$

12. In figure given below, if OP||RS, ∠OPQ = 110° and ∠QRS = 130°, then ∠ PQR is equal to:



(a) 60° (b) 40°

(c) 80° (d) 20°

13. If y coordinate of a point is zero, then this point always lies:

(a) in I quadrant (b) in II quadrant

(c) on x-axis (d) on y-axis

14. If p(x) = x + 3, then p(x) + p(–x) is equal to:

(a)	3	(b)	2x
(c)	0	(d)	6

15. If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2 : 3, then the greater of the two angles is

(a)	54°	(b)	108°
(c)	120°	(d)	136°

16. The linear equation 3x – y = x – 1 has:

(a)	A unique solution	(b)	Two solutions
(c)	Infinitely many solutions	(d)	No solutions

17. Abscissa of all the points on the x-axis is:

(a)	0	(b)	1
(c)	2	(d)	Any number

18. $2\sqrt{3} + \sqrt{3}$ is equal to:

(a)	$2\sqrt{6}$	(b)	6
(c)	$3\sqrt{3}$	(d)	$4\sqrt{6}$

Directions for Q 19 & 20: -

There is one Assertion (A) and one Reason (R). Choose the correct answer of these questions from the four options (a), (b), (c) and (d) given below:

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of the assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

19. **Assertion:** 0.329 is a terminating decimal.

    Reason: A decimal in which a digit or a set of digits is repeated periodically, is called a repeating, or a recurring decimal.

20. **Assertion:** There are infinite number of lines which passes through (3, 2).

    Reason: A linear equation in two variables has infinitely many solutions.

SECTION-B

Q 21-25 are very short (VSA) type questions. Each question is of 2 marks. $(5 \times 2 = 10)$

21. Insert a rational number and an irrational number between 2 and 3.

OR

Insert two rational numbers between 0.1 and 0.11.

22. The angles of a triangle are in the ratio 2 : 3 : 4. Find the angles of the triangle.

23. Find the value of the polynomial $3x^3 - 4x^2 + 7x - 5$, when x = 3.

24. Simplify: $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$.

25. For what value of m is $x^3 - 2mx^2 + 16$ divisible by x + 2?

SECTION-C

Q26-31 are short answer (SA) type questions. Each question is of 3 marks. $(6 \times 3 = 18)$

26. Factorise: $x^2 + 9x + 18$.

OR

Using suitable identity, evaluate 101 × 102.

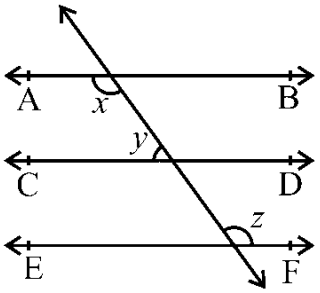
27. Find the coordinates of the point

(i) which lies on x and y axes both.

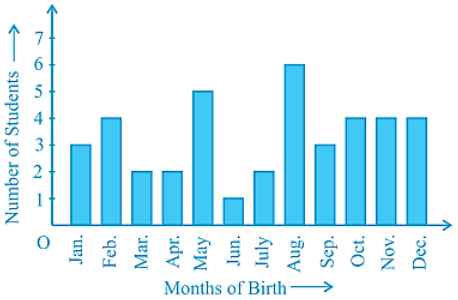
(ii) whose ordinate is – 4 and which lies on y-axis.

(iii) whose abscissa is 5 and which lies on x-axis.

28. In the figure given below if AB || CD, CD || EF and y : z = 3 : 7, find x.



29. In a particular section of Class IX, 40 students were asked about the months of their birth and the following graph was prepared for the data so obtained. Study the graph and answer the following questions:

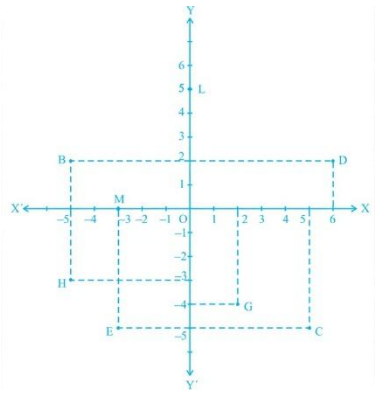


(i) How many students were born in the month of November?

(ii) In which month were the maximum number of students born?

(iii) In which month were the minimum number of students born?

30. With the help of adjacent figure and answer the following questions:



(i) The coordinates of B.

(ii) The coordinates of C.

(iii) The point identified by the coordinates (–3, –5).

31. The blood groups of 30 students are recorded as follows:

A, B, O, A, AB, O, A, O, B, A, O, B, A, AB, B, A, AB, B, A, A, O, A, AB, B, A, O, B, A, B, A

Prepare a frequency distribution table for the data.

SECTION-D

Q 32-35 are long answer (LA) type questions. Each question is of 5 marks. $\mathbf{4 \times 5 = 20}$

32. Find the values of a and b in the following:

$$\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$$

OR

Find the value of $\frac{4}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{2}{(243)^{-\frac{1}{5}}}$

33. Find the value of $x^3 + y^3 - 12xy + 64$, when $x + y = -4$.
34. Write any five solutions for equation $2x + y = 7$.
35. Prove that if two straight lines intersect, vertically opposite angles are equal.

SECTION-E

Q 36-38 are case-based questions. Each question is of 4 marks. $\mathbf{3 \times 4 = 12}$

36. A polynomial $p(x)=6x^2+17x+5$ is given to a group of students. They are asked to apply their knowledge of **Factor Theorem** and **splitting the middle term method** to solve problems related to this polynomial.

Based on the above information, answer the following questions:

(i) Find the degree of the polynomial p(x). 1

(ii) Identify whether p(x) is linear, quadratic, or cubic polynomial. 1

(iii) Factorize p(x) using the splitting the middle term method. 2

OR

Find the value of $p(-3) + p(3)$.

37. A teacher recorded the number of hours spent by 40 students in a week on watching television. The data collected is given below:

2, 3, 5, 1, 6, 2, 3, 4, 5, 2, 1, 4, 3, 2, 6, 5, 4, 3, 2, 1, 3, 4, 2, 5, 6, 2, 3, 4, 5, 2, 1, 4, 3, 6, 5, 4, 3, 2, 6, 5.

Based on the above information, answer the following questions:

(i) How many students watched the TV for exactly 2 hours? 1

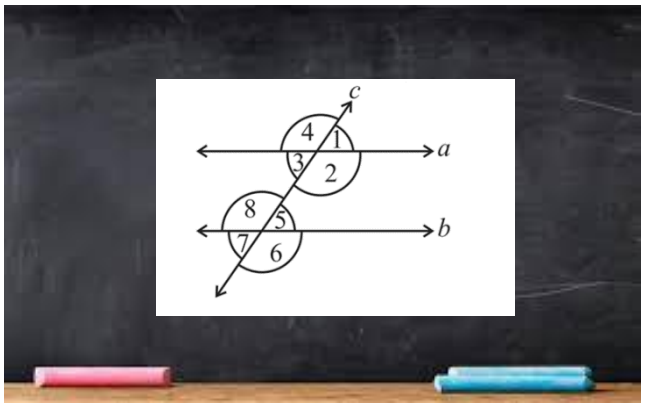
(ii) How many students watched the TV for exactly 4 hours? 1

(iii) Construct a frequency table the above data. 2

OR

How many students watched the TV for at most 4 hours?

38. Ms. Jigyasa was teaching students about parallel lines and transversal. She drew the following figure on the black board:



Based on the above information, answer the following questions:

(i) If $\angle 1 = 75^o$, find the value of $\angle 5$. 1

(ii) If $\angle 3 = 75^o$, find the value of $\angle 7$. 1

(iii) If $\angle 4 = 105^o$, find the value of $\angle 3 + \angle 8$. 2

OR

Find the value of $\angle 5 + \angle 6 + \angle 7 + \angle 8$.