



POOJA MODEL SCHOOL
MID TERM PRACTICE WORKSHEET (2026-27)
SUBJECT: MATHEMATICS
CLASS: IX

MAX. MARKS : 80
DURATION: 3 hr

General Instructions

1. This Question Paper has **5 Sections A–E**.
2. Section A has **20 MCQs carrying 1 mark each**.
3. Section B has **5 questions carrying 2 marks each**.
4. Section C has **6 questions carrying 3 marks each**.
5. Section D has **4 questions carrying 5 marks each**.
6. Section E has **3 case-based integrated units of assessment carrying 4 marks each**.
7. All questions are compulsory. However, an internal choice in **2 questions of 5 marks, 2 questions of 3 marks and 2 questions of 2 marks** has been provided.
8. An internal choice has been provided in the **2-mark questions of Section E**.
9. Draw neat and properly labelled figures wherever required.
10. Take $\pi = \frac{22}{7}$, wherever required, if not stated.
11. Show all necessary steps clearly.

SECTION A

Multiple Choice Questions

20 × 1 = 20 Marks

Q1. The coordinates of the midpoint of the line segment joining $A(-, 24)$ and $B(6, 8)$ are:

- (a) (2, 6) (b) (4, 6) (c) (2, 4) (d) (6, 2)

Q2. The distance between the points $P(-, 12)$ and $Q(2, 6)$ is:

- (a) 3 units (b) 4 units (c) 5 units (d) 6 units

Q3. Which of the following is a linear polynomial?

- (a) $x^2 + 3$ (b) $2x - 7$ (c) $x^3 - 1$ (d) $5x^2 + 2x$

Q4. The y -intercept of the line $y = 4x - 7$ is:

- (a) 4 (b) -4 (c) 7 (d) -7

Q5. Which of the following is a rational number?

- (a) $\sqrt{5}$ (b) $\sqrt{7}$ (c) $\frac{7}{9}$ (d) π

Q6. The rational number exactly midway between $\frac{1}{4}$ and $\frac{3}{4}$ is:

- (a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{3}{8}$ (d) $\frac{5}{8}$

Q7. If $\sqrt{3} = 1.732$, $\sqrt{2} = 1.414$, then $\sqrt{3} + \sqrt{2}$ is approximately:

- (a) 2.146 (b) 3.146 (c) 3.154 (d) 1.318

Q8. The value of $(a - b)^2$ is:

- (a) $a^2 - b^2$ (b) $a^2 + 2ab + b^2$ (c) $a^2 - 2ab + b^2$ (d) $a^2 + ab + b^2$

Q9. The factorisation of $x^2 + 5x + 6$ is:

- (a) $(x + 1)(x + 6)$ (b) $(x + 2)(x + 3)$ (c) $(x - 2)(x - 3)$ (d) $(x + 5)(x + 1)$

Q10. The value of $(5x + 2)^2 - (5x - 2)^2$ is:

- (a) $20x$ (b) $40x$ (c) $25x^2 + 4$ (d) $10x$

Q11. The distance from the centre of a circle to any point on the circle is called:

- (a) Chord (b) Diameter (c) Radius (d) Arc

Q12. If two chords of a circle are equal, then their distances from the centre are:

- (a) unequal (b) equal (c) zero (d) double

Q13. The angle subtended by an arc at the centre is 100° . The angle subtended by the same arc at a point on the remaining part of the circle is:

- (a) 25° (b) 50° (c) 100° (d) 200°

Q14. Opposite angles of a cyclic quadrilateral are:

- (a) equal (b) complementary (c) supplementary (d) always right angles

Q15. The circumference of a circle of radius 14cm is:

- (a) 44cm (b) 88cm (c) 154cm (d) 176cm

Q16. If the sides of a triangle are 3cm, 4cm and 5cm, then its area is:

- (a) 5 cm^2 (b) 6 cm^2 (c) 7 cm^2 (d) 12 cm^2

Q17. The probability of an impossible event is:

- (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) 2

Q18. Which of the following is an AP?

- (a) 2,4,8,16, ... (b) 3,6,9,12, ... (c) 1,2,4,8, ... (d) 1,4,9,16, ...

Q19. The n^{th} term of an AP is given by:

- (a) $a + nd$ (b) $a + (n - 1)d$ (c) $a + (n + 1)d$ (d) $ad + n$

Q20. The common ratio of the GP 3, 6, 12, 24, ... is:

(a) 2

(b) 3

(c) 4

(d) 6

SECTION B

Very Short Answer Questions

5 × 2 = 10 Marks

Q21. Find the midpoint of the line segment joining $A(-, 45)$ and $B(8, -3)$.

Q22. Find the degree, coefficient of x , and constant term of the polynomial $7x - 11$.

Q23. Simplify using a suitable identity: $(3x + 5)^2 - (3x - 5)^2$.

OR

Factorise: $a^2 - 16b^2$.

Q24. Find the area of a circle whose radius is 14cm.

Q25. A bag contains 5 red balls and 3 blue balls. One ball is drawn at random. Find the probability of getting a blue ball.

OR

A die is thrown once. Find the probability of getting a number greater than 4.

SECTION C

Short Answer Questions

6 × 3 = 18 Marks

Q26. Find the distance between the points $A(-, 34)$ and $B(5, -2)$.

Q27. Find three rational numbers between $\frac{2}{5}$ and $\frac{3}{5}$.

Q28. Factorise completely: $4x^2 - 12xy + 9y^2$.

OR

Simplify: $(x + y)^2 - (x - y)^2 + 2xy$.

Q29. In a circle with centre O , AB is a chord and $OM \perp AB$. Prove that $AM = MB$.

Q30. The sides of a triangular field are 10m, 17m and 21m. Find its area using Heron's formula.

OR

Find the area of a sector of a circle of radius 21cm and angle 60° .

Q31. Find the 18th term of the AP 7, 11, 15, 19, ... Also find its 25th term.

SECTION D

Long Answer Questions

4 × 5 = 20 Marks

Q32. The points $A(1, 2)$, $B(7, 2)$, $C(7, 10)$ form a triangle.

- (i) Find AB .
- (ii) Find BC .
- (iii) Find AC .
- (iv) Verify whether $\triangle ABC$ is right-angled.
- (v) State the angle which is 90° .

Q33. (i) Prove that $(a - b)^2 = a^2 - 2ab + b^2$.
(ii) Hence, find 98^2 .

OR

- (i) Factorise: $x^2 - 7x + 12$.
- (ii) Factorise: $25a^2 - 40ab + 16b^2$.
- (iii) Simplify: $\frac{x^2-16}{x+4}$, $x \neq -4$.

Q34. In a circle with centre O , AB is a chord and C is a point on the remaining part of the circle. If $\angle AOB = 120^\circ$, find:

- (i) $\angle ACB$
- (ii) the angle subtended by the same chord at another point D on the same segment
- (iii) the relationship between the angles in the same segment
- (iv) explain why the diameter is the longest chord
- (v) draw a neat labelled figure.

OR

$ABCD$ is a cyclic quadrilateral in which $\angle A = 82^\circ$, $\angle B = 68^\circ$. Find:

- (i) $\angle C$
- (ii) $\angle D$
- (iii) state the property used
- (iv) verify the sum of the four angles of the quadrilateral.

Q35. A triangular garden has sides 13m, 14m and 15m.

- (i) Find its semi-perimeter.
- (ii) Find its area using Heron's formula.
- (iii) Find the cost of covering the garden with grass at ₹20 per square metre.
- (iv) Find the perimeter of the garden.

OR

A circular park has radius 28m.

- (i) Find its circumference.
- (ii) Find its area.

- (iii) Find the area of a sector of angle 45° .
(iv) Find the length of the corresponding arc.

SECTION E

Case-Based Integrated Units of Assessment

$3 \times 4 = 12$ Marks

Q36. COORDINATE GEOMETRY

A rectangular playground is represented on a coordinate plane. Three of its points are $P(-, 21)$, $Q(6, 1)$, $R(6, 7)$. Students use these coordinates to calculate the lengths of the sides and verify the shape.

- (a) Find the length of PQ . (1 mark)
(b) Find the length of QR . (1 mark)
(c) Using the distance formula, determine whether $\triangle PQR$ is right-angled. (2 marks)

OR

Find the midpoint of PR . (2 marks)

Q37. CIRCLE AND MENSURATION

A circular fountain in a park has radius 21m. A sector of the fountain measuring 120° is decorated with flowers.

- (a) Find the circumference of the fountain. (1 mark)
(b) Find the area of the complete fountain. (1 mark)
(c) Find the area of the 120° sector. (2 marks)

OR

Find the length of the arc corresponding to the 120° sector. (2 marks)

Take $\pi = \frac{22}{7}$.

Q38. SEQUENCES AND PROGRESSIONS

A student saves money every week according to the pattern ₹50, ₹70, ₹90, ₹110, ₹130, ...

The amount saved each week forms a mathematical sequence.

- (a) Identify whether the sequence is an AP. (1 mark)
(b) Find its common difference. (1 mark)
(c) Find the amount saved in the 15th week. (2 marks)

OR

Find the amount saved in the 20th week. (2 marks)

END OF QUESTION PAPER