BRAINYCHALKS
INSTITUTE FOR CBSE | JEE | NEET | OLYMPIAD

CBSE CLASS IX – MATHEMATICS

Date : 21st Nov 2026

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

GENERAL INSTRUCTIONS

1. All questions are compulsory.
2. The question paper consists of five sections: A, B, C, D and E.
3. Section A consists of 20 questions of 1 mark each.
4. Section B consists of 5 questions of 2 marks each.
5. Section C consists of 6 questions of 3 marks each.
6. Section D consists of 4 questions of 5 marks each.
7. Section E consists of 3 case-study-based questions of 4 marks each.
8. Internal choices are provided in selected questions.
9. Use $\pi = 22/7$ wherever necessary, unless otherwise specified.
10. Show all necessary steps for calculations.

SECTION A

Multiple Choice Questions (20 × 1 = 20 Marks)

Choose the correct answer.

1. The degree of the polynomial $5x^3 - 4x^2 + 7x - 9$ is:

(a) 1 (c) 3

(b) 2 (d) 4

2. The coefficient of x^2 in $3x^3 - 7x^2 + 5x - 8$ is:

(a) 3 (c) 5

(b) –7 (d) –8

3. Which of the following is a linear polynomial?

(a) $x^2 + 3x + 2$ (c) $x^3 + 2$

(b) $5x - 7$ (d) $4x^2 - 1$

4. If $p(x) = 3x + 5$, then $p(2)$ is:

(a) 8 (c) 11

(b) 10 (d) 15

5. The perimeter of a square of side x cm is:

(a) x^2 (c) 3x

(b) 2x (d) 4x

6. The expansion of $(a + b)^2$ is:

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

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

(a) $x^2 - 25$
(c) $x^2 + 10x + 25$
(b) $x^2 - 10x + 25$
(d) $x^2 - 5x + 25$

8. The factorisation of $x^2 - 16$ is:

(a) $(x - 4)^2$
(c) $(x - 4)(x + 4)$
(b) $(x + 4)^2$
(d) $(x - 8)(x + 2)$

9. The value of 99^2 is:

(a) 9801
(c) 9701
(b) 9901
(d) 9999

10. The coefficient of x in $(x + 3)(x + 5)$ is:

(a) 3
(c) 8
(b) 5
(d) 15

11. The circumference of a circle of radius r is:

(a) πr^2
(c) πr
(b) $2\pi r$
(d) $4\pi r^2$

12. The area of a circle of radius 7 cm is:

(a) 44 cm^2
(c) 49 cm^2
(b) 154 cm^2
(d) 308 cm^2

13. The semi-perimeter of a triangle having sides 5 cm, 6 cm and 7 cm is:

(a) 9 cm
(c) 12 cm
(b) 18 cm
(d) 10 cm

14. The area of a sector of angle 90° and radius r is:

(a) πr^2
(c) $\pi r^2/4$
(b) $\pi r^2/2$
(d) $2\pi r$

15. The value of π is approximately:

(a) 2.14
(c) 4.13
(b) 3.14
(d) 3.41

16. The next term of the sequence 3, 7, 11, 15, ... is:

(a) 17
(c) 19
(b) 18
(d) 20

17. The common difference of the AP 12, 9, 6, 3, ... is:

(a) 3
(c) –6
(b) –3
(d) 6

18. The nth term of an AP is:

(a) $a + nd$ (c) $a - nd$

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

19. The common ratio of the GP 2, 6, 18, 54, ... is:

(a) 2 (c) 4

(b) 3 (d) 6

20. The 10th term of the sequence given by $t_n = 2n + 3$ is:

(a) 20 (c) 23

(b) 21 (d) 25

SECTION B

Very Short Answer Questions (5 × 2 = 10 Marks)

21. Find the degree, coefficient of x and constant term of the polynomial:

$p(x) = 7x^3 - 5x^2 + 9x - 12$.

22. Expand using a suitable algebraic identity: $(3x + 2y)^2$.

23. Find the circumference of a circle whose diameter is 28 cm.

24. Find the 15th term of the AP: 4, 9, 14, 19, ...

25. Find the first five terms of the sequence whose nth term is given by: $t_n = 3n - 2$.

SECTION C

Short Answer Questions (6 × 3 = 18 Marks)

26. Consider the polynomial: $P(x) = 4x^2 - 7x + 3$. Answer the following:

(a) Find the degree of the polynomial. (1)

(b) Find the coefficient of x. (1)

(c) Find P(2). (1)

27. Using suitable algebraic identities, factorise:

(a) $x^2 + 10x + 25$ (b) $25a^2 - 16b^2$

28. Using a suitable algebraic identity, evaluate:

(a) 103^2 (b) 98^2 (c) 47×53

29. A circular garden has a radius of 14 m. Find:

(a) Its circumference.

(b) Its area.

(c) The cost of fencing the garden at ₹25 per metre.

30. The sides of a triangular field are 13 m, 14 m and 15 m.Find its area using Heron's formula.

31. Consider the AP: 7, 12, 17, 22, ... Find:

(a) The first term and common difference.

(b) The nth term.

(c) The 25th term.

SECTION D

Long Answer Questions (4 × 5 = 20 Marks)

32. Answer the following questions:

(a) Find the degree, coefficient of x^2 and constant term of: $P(x) = 5x^3 - 4x^2 + 7x - 9$. (2)

(b) A chess club charges a joining fee of ₹200 and ₹50 for every match played. Form a linear polynomial representing the total amount paid after playing x matches. Also find the amount paid after playing 12 matches. (3)

33. Using suitable algebraic identities, answer the following:

(a) Expand and simplify: $(2x + 3y + 4z)^2$. (2)

(b) Factorise: $36x^2 - 60xy + 25y^2$. (1)

(c) Factorise: $x^2 + 9x + 20$. (2)

OR

(a) Expand:$(3x - 2y)^3$. (2)

(b) Factorise: $64a^3 + 125b^3$. (3)

34. An isosceles triangle has a perimeter of 40 cm. Its two equal sides are each 15 cm.

Find:

(a) The length of the base. (1)

(b) The semi-perimeter of the triangle. (1)

(c) The area of the triangle using Heron's formula. (3)

35. A sequence is given by: 5, 9, 13, 17, ...

Answer the following:

(a) Identify the first term and common difference. (1)

(b) Find the nth term of the AP. (2)

(c) Which term of the AP is 101? (2)

OR

A GP is given by: 3, 6, 12, 24, ...

(a) Find the common ratio. (1)

(b) Write the explicit formula for the nth term. (2)

(c) Find the 8th term of the GP. (2)

SECTION E

Case Study-Based Questions (3 × 4 = 12 Marks)

36. Case Study – Circular Garden

A school has a circular garden of radius 14 m. The school management plans to fence the garden and plant grass throughout its area.

Based on the above information, answer the following:

(a) Find the diameter of the garden. (1)

(b) Calculate the circumference of the garden. (1)

(c) Find the total area of the garden. (2)

OR

Calculate the cost of fencing the garden at ₹30 per metre.

37. Case Study – Algebraic Identities

A student is asked to calculate the square of 102 using algebraic identities instead of direct multiplication.

The student writes:

$102^2 = (100 + 2)^2$

Using the identity $(a + b)^2 = a^2 + 2ab + b^2$, answer the following:

(a) Identify the values of a and b. (1)

(b) Write the expansion of $(a + b)^2$. (1)

(c) Calculate 102^2 using the identity. (2)

OR

Factorise:$x^2 + 12x + 36$.

38. Case Study – School Auditorium Seating

A school auditorium has seats arranged in rows. The first row contains 12 seats, the second row contains 15 seats, the third row contains 18 seats and the pattern continues.

Based on the above information, answer the following:

(a) Identify the first term of the AP. (1)

(b) Find the common difference. (1)

(c) Find the number of seats in the 20th row. (2)

OR

Find the number of seats in the 15th row.

END OF QUESTION PAPER