



INDIAN SCHOOL SALALAH

FIRST TERM EXAMINATION – SEPTEMBER 2026



Roll No.

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Class: IX

MATHEMATICS (041)

Date: 20/09/2026

Time: 3 hours

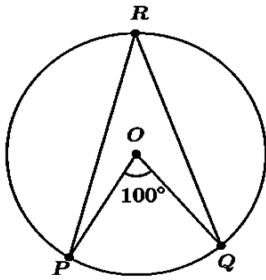
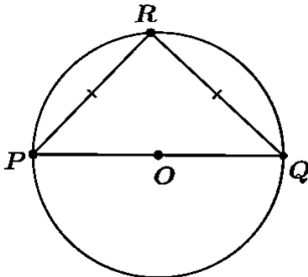
Maximum Marks: 80

General Instructions:

Read the following instructions very carefully and strictly follow them:

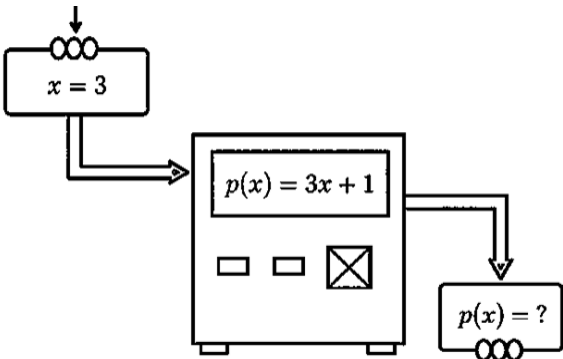
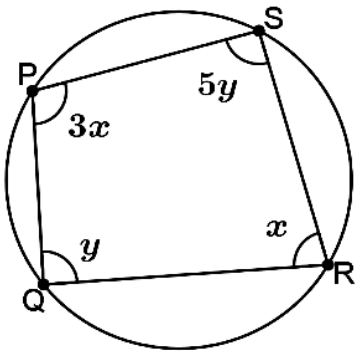
- This Question paper contains **38** questions. **All** questions are **compulsory**.
- This Question paper is divided into **five** Sections - **A, B, C, D** and **E**.
- In **Section A**, Questions no. **1** to **18** are multiple choice questions (MCQs) with only one correct option and Questions no. **19** and **20** are Assertion-Reason based questions of **1 mark** each.
- In **Section B**, Questions no. **21** to **25** are Very Short Answer (VSA)-type questions, carrying **2 marks** each.
- In **Section C**, Questions no. **26** to **31** are Short Answer (SA)-type questions, carrying **3 marks** each.
- In **Section D**, Questions no. **32** to **35** are Long Answer (LA)-type questions, carrying **5 marks** each.
- In **Section E**, Questions no. **36** to **38** are Case study-based questions, carrying **4 marks** each.
- There is no overall choice. However, an internal choice has been provided in 2 questions in Section B, 2 questions in Section C, 2 questions in Section D and one subpart each in 2 questions of Section E.
- Draw neat diagram wherever required. Take $\pi = \frac{22}{7}$ wherever required, if not stated.
- Use of calculator is **not** allowed.

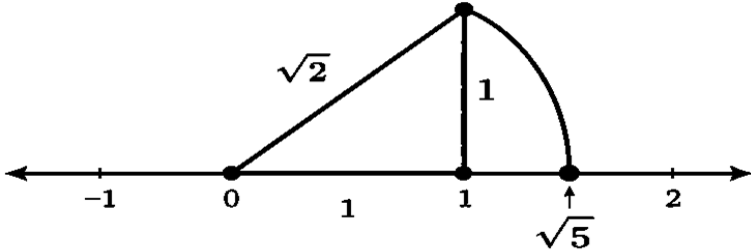
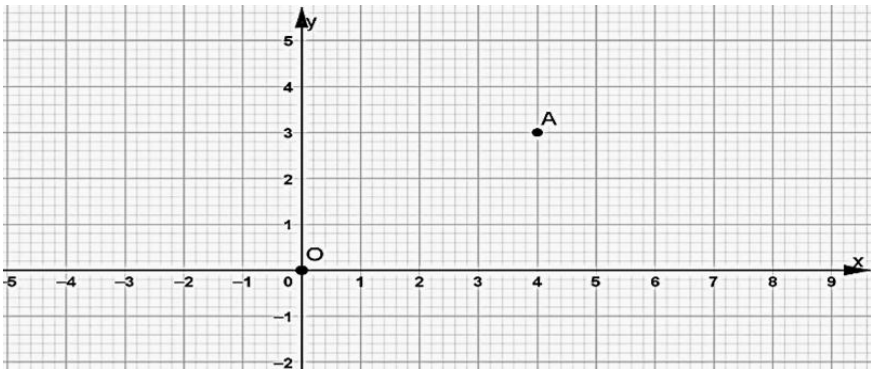
NO	SECTION A (Multiple Choice Questions)	MARKS
1	Degree of the polynomial $p(x) = 4x^4 + 0x^3 + 0x^2 + 5x + 7$ is: (A) 4 (B) 5 (C) 3 (D) 7	1

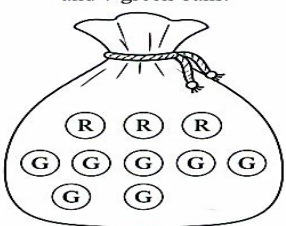
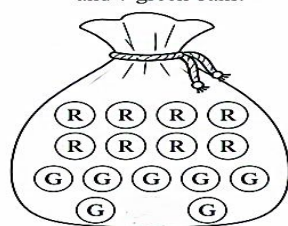
2	In the given figure, O is the centre of the circle then $\angle PRQ$ is equal to:  (A) 50° (B) 120° (C) 100° (D) 150°	1
3	Which of the following is an <i>irrational</i> number? (A) 0.14 (B) $0.14\overline{16}$ (C) $0.\overline{1416}$ (D) 0.4014001400014 ...	1
4	The value of $(a + b)^2 + (a - b)^2$ is: (A) $2a + 2b$ (B) $2a - 2b$ (C) $2a^2 + 2b^2$ (D) $2a^2 - 2b^2$	1
5	In the given figure below, if POQ is a diameter of the circle and R is a point on the circle then $\angle PQR$ is equal to:  (A) 30° (B) 60° (C) 90° (D) 45°	1
6	If $P(A)$ denotes the probability of an event A, then: (A) $P(A) < 0$ (B) $P(A) > 1$ (C) $0 \leq P(A) \leq 1$ (D) $-1 \leq P(A) \leq 1$	1
7	The perpendicular distance of the point A(3,4) from the y-axis is: (A) 3 (B) 4 (C) 5 (D) 7	1
8	Which of the following is a <i>linear</i> polynomial? (A) $x + x^2$ (B) $x + 1$ (C) $5x^2 - x + 3$ (D) $x + \frac{1}{x}$	1

9	If $x = \frac{7}{12}$, where x is a rational number, then which of the following are possible values of x? (A) Only $\frac{7}{12}$ (B) Only $-\frac{7}{12}$ (C) 0 (D) $\frac{7}{12}$ or $-\frac{7}{12}$	1
10	Which of the following is a <i>factor</i> of $x^2 - 4$? (A) $(x - 2), (x - 2)$ (B) $(x + 2), (x - 2)$ (C) $(x + 2), (x + 2)$ (D) $(x - 4), (x - 4)$	1
11	Which of the following is the probability of an <i>impossible</i> event? (A) 0 (B) 1 (C) 2 (D) None of these	1
12	If y coordinate of a point is zero, then this point always lies: (A) In I quadrant (B) In III quadrant (C) On x -axis (D) On y -axis	1
13	Points $A(-2,3)$, $B(2,3)$ and $C(2,-1)$ are the three vertices of a triangle, respectively, in the given order. Then Consider the three statements given below: I. The distance between A and B is $AB = 4$ units. II. The distance between B and C is $BC = 4$ units. III. Since $AB = BC$, ΔABC is an isosceles. Which of the above statements are <i>correct</i>? (A) I, II and III (B) I and II only (C) I and III only (D) II and III only	1
14	A linear pattern starts with 9 and increases by 6 each time. Which of the following represents the n^{th} pattern? (A) $6n + 3$ (B) $6n + 9$ (C) $9n + 6$ (D) $3n + 6$	1
15	If $\frac{5}{3} = \frac{x}{12}$, then the value of x is: (A) 10 (B) 20 (C) 25 (D) 30	1
16	The value of $(102)^2$ is: (A) 10404 (B) 10401 (C) 10020 (D) 10405	1

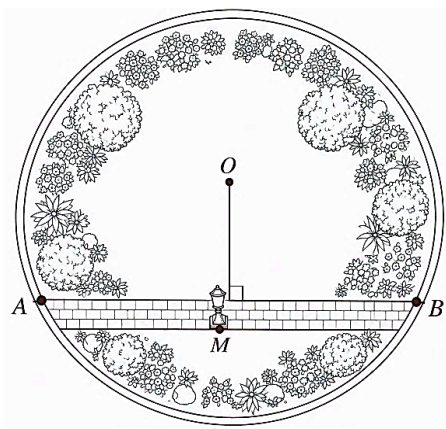
17	Through three non-collinear points, how many circles can be drawn? (A) One (B) Two (C) Three (D) Infinitely many	1
18	The given figure shows a set of 10 cards, numbered from 1 to 10, each carrying a letter. Soniya picks one card at random from the given cards. Which of the following is the <i>probability</i> of getting a ‘Y’ card? R 1 Y 2 Y 3 R 4 B 5 B 6 G 7 Y 8 R 9 G 10 (A) $\frac{1}{5}$ (B) $\frac{3}{10}$ (C) $\frac{3}{5}$ (D) $\frac{4}{5}$	1
	(Assertion-Reason Type Questions) Directions: Question number 19 and 20 are Assertion and Reason based question. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answers from the codes (A), (B), (C) and (D) as given below. (A) Both A and R are true and R is the correct explanation of A. (B) Both A and R are true but R is not the correct explanation of A. (C) A is true and R is false. (D) A is false and R is true.	
19	Assertion (A): $45^2 = (45 + 5)(45 - 5) + 5^2 = 50 \times 40 + 25 = 2025$ Reason (R): $a^2 = (a + b)(a - b) + b^2$	1
20	Assertion (A): Every rectangle is a cyclic. Reason (R): Opposite angles of a rectangle are supplementary.	1
	SECTION B (Very Short Answer Type Questions)	
21	a) Factorise the algebraic expression: $9y^2 + 24yz + 16z^2$. (OR) b) By using suitable identity, find the product of $(2x - 3y)(2x - 3y)$	2
22	Find four rational numbers lying between $\frac{2}{5}$ and $\frac{3}{4}$.	2

23	a) The figure given below represents the process of input-output machine for linear expression. An input value $x = 3$ is passed into a machine that applies the rule $p(x) = 3x + 1$, then produces an output $p(x)$.  i) Using the linear expression $p(x) = 3x + 1$, Evaluate $p(3)$ and $p(1)$. ii) Write the coefficient of x in $p(x)$. (OR) b) If $p(y) = 2y^2 - 5y + 3$, then find the value of $p(0) + p(1)$.	2
24	In the given figure, PQRS is a cyclic quadrilateral. Find the measures of x and y. 	2
25	A die is thrown once. What is the probability of getting a prime number?	2
	SECTION C (Short Answer Type Questions)	
26	Write the <i>sample space</i> for the following information. i) Two coins are tossed at the same time. ii) Three coins tossed simultaneously. iii) Rolling a die and tossing a coin together.	3
27	Expand $(x + 3y + 7z)^2$ by using suitable identity. Using the same identity, Evaluate $(119)^2$.	3

28	a) Prove that $\sqrt{3}$ is an <i>irrational</i> number. (OR) b) A student attempts to locate $\sqrt{5}$ on the number line using a geometric construction, as shown in the figure given below.  i) In the above figure, some mistakes exist in the construction. Identify the mistake(s). ii) Draw the correct construction to locate $\sqrt{5}$ on the number line.	3
29	A learning platform charges a fixed monthly fee and an additional cost for each digital learning module accessed. The monthly bill y depends linearly on the number of modules x, and is given by $y = ax + b$. A student observes that: • For 10 modules, the monthly bill is ₹ 400 • For 14 modules, the monthly bill is ₹ 500 Find the values of a and b.	3
30	In the cartesian plane shown below, a child is standing at point A and his mother is standing at point O.  i) What are the coordinates of the child? ii) What is the <i>distance</i> between the child and his mother?	3
31	a) Draw $\triangle ABC$ with $AB = 5$ cm, $\angle A = 70^\circ$ and $\angle B = 60^\circ$. Draw its circumcircle of $\triangle ABC$. Is the centre inside or outside of the triangle? (OR) b) Prove that angle in a semicircle is 90°.	3

	SECTION D (Long Answer Type Questions)	
32	a) Draw the <i>graph</i> of the linear equation $y = 2x + 1$ in the coordinate plane on a graph paper and identify its <i>slope</i> and <i>y-intercept</i>. (OR) b) Draw the <i>graph</i> of the linear relationship represented by the points $(-1, -3), (0, 0), (1, 3), (3, 9), (4, 12)$ on a graph paper and join the points using a ruler. Write the equation of this line by looking at the relationship between the x and y coordinates of each point.	5
33	i) State the <i>two</i> types of decimal expansions that represent a rational number. ii) If $x = 0.\overline{34}$ and $y = 3.\overline{14}$ then express x and y in the form $\frac{p}{q}$ and $q \neq 0$. Hence, Find the value of $x + y$.	5
34	a) Simplify the rational expression: $\frac{(x^2+x-6)(x^2-7x+12)}{(x^2-6x+8)(x^2-9)}$, Assume that $(x^2 - 6x + 8)(x^2 - 9) \neq 0$ (OR) b) Three number x, y and z satisfy $x + y + z = 10$, $x^2 + y^2 + z^2 = 38$ and $xyz = 25$ then find the value of $x^3 + y^3 + z^3$.	5
35	The given figure shows two bags containing coloured balls as follows: Bag I contains 3 red balls and 7 green balls. Bag II contains 8 red balls and 7 green balls. BAG I Bag I contains 3 red balls and 7 green balls.  BAG II Bag II contains 8 red balls and 7 green balls.  i) What is the probability of getting a red ball from the first bag? ii) What is the probability of getting a red ball from the second bag? iii) What is the probability of getting a green ball from the first bag? iv) If all the balls are put in a single bag, what is the probability of getting a red ball from it?	5

	SECTION E (Case study-based questions)																					
36	Case Study.1 Saira is designing a rectangular art board using different geometric pieces. As shown in the diagram, she uses: one square of side x units, Seven rectangular strips each of length x units and width 1 unit, and 12 small squares each of side unit. Based on the above information, answer the following questions: <table><tr><td>x^2</td><td>x</td><td>x</td><td>x</td></tr><tr><td>x</td><td>1</td><td>1</td><td>1</td></tr><tr><td>x</td><td>1</td><td>1</td><td>1</td></tr><tr><td>x</td><td>1</td><td>1</td><td>1</td></tr><tr><td>x</td><td>1</td><td>1</td><td>1</td></tr></table> i) Express the length and breadth of the larger rectangle in terms of x. ii) From the given arrangement, Write the algebraic expression representing the total area of the larger rectangle and write it in simplified form. iii) (a) Factorise the area expression obtained in part (ii) by using the method of splitting the middle term. (OR) (b) From the above given figure, the area of the larger rectangle can be found by using the formula Area = length $\times$ Breath. Is the equality obtained an identity? Justify.	x^2	x	x	x	x	1	1	1	x	1	1	1	x	1	1	1	x	1	1	1	1 1 2 2
x^2	x	x	x																			
x	1	1	1																			
x	1	1	1																			
x	1	1	1																			
x	1	1	1																			
37	Case Study.2 On World Environment Day, Class IX students planted five saplings—Mango, Silver Oak, Orange, Banyan, and Amla—in the school botanical garden. To map their exact positions, the mathematics club represented the garden as a Cartesian plane with the main entrance as the origin $(0,0)$. The coordinates of each tree are shown in the adjoining figure:																					

	<i>Based on the above information, answer the following questions:</i> i) Write the coordinates of the location of the orange tree and state the quadrant in which it lies. ii) Write the coordinates of the banyan tree and specify its y – coordinate. iii) (a) Name the tree located on the y – axis and write its x coordinate. Also, name the two trees that lie on the x axis. (OR) (b) Find the <i>distance</i> between Banyan tree and the orange tree.	1 1 2
38	Case Study.3 A landscape designer is planning a circular garden with centre O. A straight walking path is laid across the garden, joining two points A and B on the boundary, forming a chord AB. To install a decorative light pole exactly at the midpoint M of the path AB, the designer draws a line from the centre O to the midpoint M. The designer observes that this line appears to make a right angle with the path.  <i>Based on the above information, answer the following questions:</i> i) What is meant by a <i>chord</i> of a circle? ii) State the <i>theorem</i> related to the line joining the center of a circle and the midpoint of a chord. iii) (a) The length of the path $AB = 10$ m. The distance from the center to the midpoint $OM = 12$ m. Find the <i>radius</i> of the circular garden. (OR) (b) If the length of chord $AB = 10$ m, what will be the lengths of AM and MB?	1 1 2
