Roll No. | | | | | |

# INDIAN SCHOOL SALALAH

## FIRST TERM EXAMINATION – SEPTEMBER 2025

**Class: IX** **MATHEMATICS (041)** **Date: 28/09/2025**

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

**General Instructions**:

a) This Question Paper has 5 Sections A, B, C, D and E.

b) Section A has 20 MCQs carrying 1 mark each

c) Section B has 5 questions carrying 02 marks each.

d) Section C has 6 questions carrying 03 marks each.

e) Section D has 4 questions carrying 05 marks each.

f) Section E has 3 case based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.

g) All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3 marks and 2 Questions of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E

| NO | SECTION A | MARKS |
|---|---|---|
| 1 | Which of the following is an irrational number?<br>a) $\sqrt{16}$ b) $\sqrt{\frac{12}{3}}$ c) $\sqrt{12}$ d) $\sqrt{100}$ | 1 |
| 2 | If 3 + 5 – 8 = 0, then the value of $(3)^3 + (5)^3 - (8)^3$ is<br>a) 260 b) –360 c) –160 d) 160 | 1 |
| 3 | The solution of equation x – 2y = 4 is:<br>a) (0,2) b) (2,0) c) (0,4) d) (6,1) | 1 |
| 4 | Which of these statements do not satisfy Euclid's axiom?<br>a) Things which are equal to the same thing are equal to one another<br>b) If equals are added to equals, the wholes are equal.<br>c) If equals are subtracted from equals, the remainders are equal.<br>d) The whole is lesser than the part. | 1 |

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| 5 | If two parallel lines are intersected by a transversal, then the bisectors of any two corresponding angles are<br>a) perpendicular b) equal<br>c) Intersect d) parallel | 1 |
| 6 | If the coordinates of a point are (0, -4), then it lies in:<br>a) X-axis b) Y-axis<br>c) At origin d) Between x-axis and y-axis | 1 |
| 7 | $\sqrt{6} \times \sqrt{27}$ is equal to:<br>a) $9\sqrt{2}$ b) $3\sqrt{3}$ c) $2\sqrt{2}$ d) $9\sqrt{3}$ | 1 |
| 8 | The value of $\frac{(361)^3+(139)^3}{(361)^2-361\times139+(139)^2}$ is<br>a) 300 b) 500 c) 400 d) 600 | 1 |
| 9 | Signs of the abscissa and ordinate of a point in the second quadrant are respectively<br>a) (+, +) b) (+, –) c) (–, +) d) (–, –) | 1 |
| 10 | Euclid stated that all right angles are equal to each other in the form of<br>a) Definition b) Proof c) Postulate d) Axiom | 1 |
| 11 | $x + \frac{1}{x}$ is<br>a) a polynomial of degree 1 b) a polynomial of degree 2<br>c) a polynomial of degree 3 d) not a polynomial | 1 |
| 12 | Which one of the following statements is not false?<br>a) If two angles form a linear pair, then each of these angles is of measure 360°.<br>b) Angles forming a linear pair can both be acute angles.<br>c) One of the angles forming a linear pair can be obtuse angle.<br>d) Bisectors of the adjacent angles form a right angle. | 1 |
| 13 | Two quantities P and Q are such that P = Q. Which of these equations illustrates the Euclid's axiom "If equals are subtracted from equals, remainders are equal."?<br>a) $P - x = Q - x$ b) $P - x = Q + x$<br>c) $P - x = Q$ d) $P \times x = Q$ | 1 |

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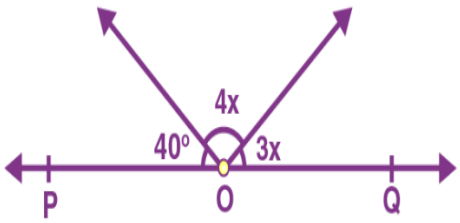
| 14 | What is the product of a rational and an irrational number?<br>a) Always an integer b) Always an irrational number<br>c) Always a rational number d) May be rational | 1 |
| 15 | If one of the factor of $x^2 + x - 20$ is $(x + 5)$. Find the other<br>a) $x - 4$ b) $x + 2$ c) $x + 4$ d) $x - 5$ | 1 |
| 16 | Abscissa of all the points on the x-axis is<br>a) 0 b) 1 c) 2 d) Any number | 1 |
| 17 | The linear equation $2x - 5y = 7$ has<br>a) No solution b) One solution<br>c) Two solutions d) Infinitely many solutions | 1 |
| 18 | In the given figure, POQ is a line. The value of x is<br>  <br>a) 20 b) 25 c) 30 d) 35 | 1 |
| | **In the following questions (19 & 20), a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:**<br>a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).<br>b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).<br>c) Assertion (A) is true but reason (R) is false.<br>d) Assertion (A) is false but reason (R) is true. | |
| 19 | **Assertion:** If $x = 2$, $y = 1$ is a solution of the equation $2x + 3y = k$, then the value of k is 7.<br>**Reason:** The solution of the line will satisfy the equation of the line. | 1 |
| 20 | **Assertion:** Rational number lying between two rational numbers x and y is $\frac{x+y}{2}$.<br>**Reason:** There is one and only one rational number lying between any two rational numbers. | 1 |

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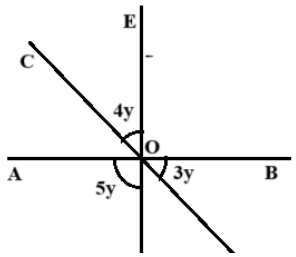
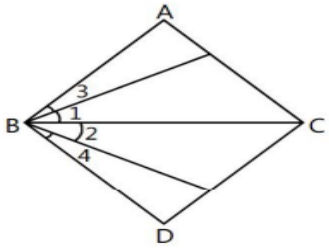
| | **SECTION B** | |
| 21 | Find two different irrational numbers between the rational numbers $\frac{5}{7}$ and $\frac{9}{11}$. | 2 |
| 22 | If $x - \frac{1}{x} = 4$, then evaluate $x^2 + \frac{1}{x^2}$ .<br>**OR**<br>If $x + y = 5$, $xy = 4$ and $x \geq y$, find $x - y$, using suitable identities. | 2 |
| 23 | If (p, 2p + 1) is the solution of the linear equation 4x + 3y = 23. Find the value of p.<br>**OR**<br>If (3, 4) is the solution of the linear equation 3y = kx + 7, then find the value of k | 2 |
| 24 | In the figure, find the value of y.<br>  <br> | 2 |
| 25 | In the given figure, we have $\angle 1 = \angle 2$, $\angle 3 = \angle 4$. Show that $\angle ABC = \angle DBC$. State the Euclid's axiom used.<br>  <br> | 2 |
| | **SECTION C** | |
| 26 | Which of the following point lie (i) on x-axis? (ii) on y-axis?<br>$A(0,2), B(5,0), C(23,0), D(0,-12), E(0,9), F(6,0)$.<br>**OR**<br>Find the value of x and y, if<br>a) (x + 4 , 5) = (5 , y)<br>b) (-6 , 2y – 3) = (x , 11)<br>c) (3x +5, -8) = (11, y+1) | 3 |
| 27 | Given the equation, 2x + y = 7<br>a) What is the value of x, when the value of y is 7?<br>b) What is the value of y, when the value of x is −4?<br>c) Find one more solution of the above equation? | 3 |

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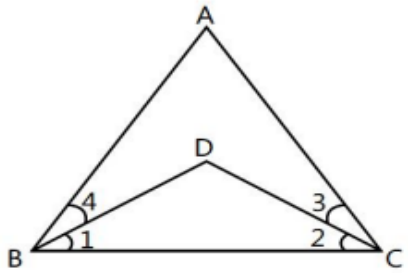
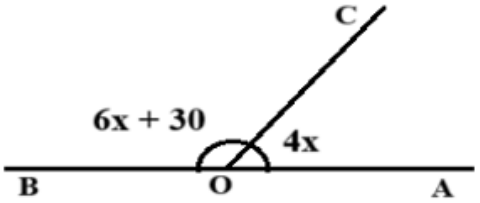
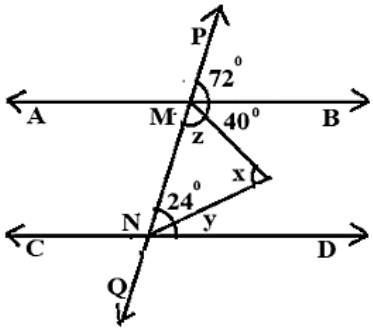
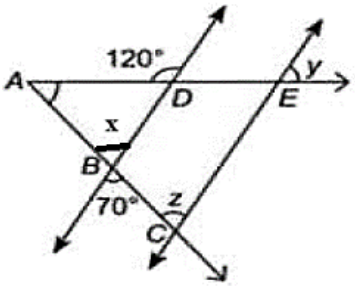
| 28 | Find the value of $x^3 + y^3 + z^3 - 3xyz$, if $x^2 + y^2 + z^2 = 83$ and $x + y + z = 15$ | 3 |
| 29 | In the given figure, we have $\angle ABC = \angle ACB$, $\angle 3 = \angle 4$. Show that<br>a) $\angle 1 = \angle 2$ (Using Euclid's Axiom)<br>b) BD = DC<br>  <br><br>**OR**<br>Prove that every line segment has one and only one mid-point. | 3 |
| 30 | What value of x would make AOB a line in the figure, If $\angle AOC = 4x$ and $\angle BOC = 6x + 30^0$. Also find $m\angle BOC$.<br>  <br> | 3 |
| 31 | Locate $\sqrt{3}$ on the number line. | 3 |
| | **SECTION D** | |
| 32 | In the figure, AB ‖ CD, and PQ is a transversal. Find the values of x, y and z. Also find $\angle AMP$ and $\angle CNM$.<br>  <br><br>**OR**<br>In the figure BD // CE. Find x, y and z. Also find $m\angle BDA$ and $m\angle BAD$.<br>  <br> | 5 |
| 33 | Factorise: $x^3 + 13x^2 + 31x - 45$. | 5 |

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| 34 | Determine rational numbers p and q, if $\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = p - 7\sqrt{5}\, q$.<br>**OR**<br>Simplify: a. $\sqrt{45} - 3\sqrt{20} + \sqrt{80}$<br>b. $\frac{(9)^{\frac{1}{3}}}{(3)^{\frac{1}{6}}} \times \frac{(27)^{\frac{-1}{2}}}{(3)^{\frac{-2}{3}}}$ | 5 |
| 35 | Check and verify whether the following points are the solutions of the linear equation $\frac{x}{4} + \frac{y}{6} = 1$ or not.<br>a) (2, 3), b)(4, 0), c) (8, – 6), d) (0, 6), c) (1, 1) | 5 |
| | **SECTION E** | |
| 36 | **Case Study.1**<br>Mrs. Raji lives in an undeveloped area where there is no facility of proper education. But one thing is available in that area i.e, network. Since she was very keen to take education, so she decided to complete her education through e-learning.<br>One day she was studying number system, where she learnt about rational numbers, Irrational numbers and decimal numbers, etc.<br>  <br>On the basis of the above information, solve the following questions:<br>a) Convert the rational number $\frac{2}{15}$ into decimal number.<br>b) Write one irrational number between 2.365 and 3.125.<br>c) (i) If $x + \sqrt{2} = 3$, then find the value of $\frac{1}{x}$.<br>**OR**<br>c) (i) Find the product of two irrational numbers $(7 + 3\sqrt{2})(7 - 3\sqrt{2})$. | <br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br>1<br>1<br>2 |

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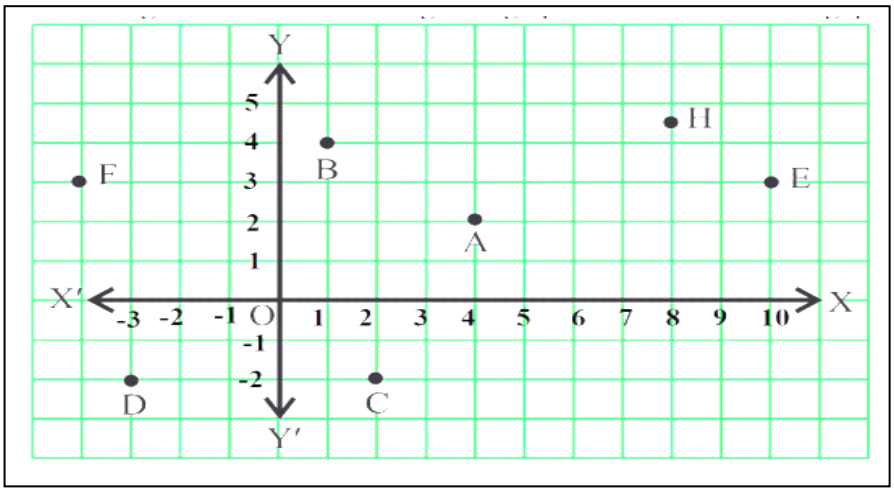
| 37 | **Case Study.2**<br>Students of class IX are on visit of Sansad Bhawan (Parliament house). Teacher assigns them the activity to observe and take some pictures to analyses the seating arrangement between various MP and speaker based on coordinate geometry. The staff tour guide explained various facts related to Math's of Sansad Bhawan to the students, students were surprised when teacher ask them you need to apply coordinate geometry on the seating arrangement of MP's and speaker.<br>  <br>Calculate the following, refer to the below image and graph: Answer the following questions:<br>  <br><br>a) What are the coordinates of position F?<br>b) What are the coordinates of position D?<br>c) (i) Find (abscissa of H – ordinate of E).<br>**OR**<br>c) (ii) Find (the perpendicular distance of the point A from the y-axis + abscissa of B) | 1<br>1<br>2 |

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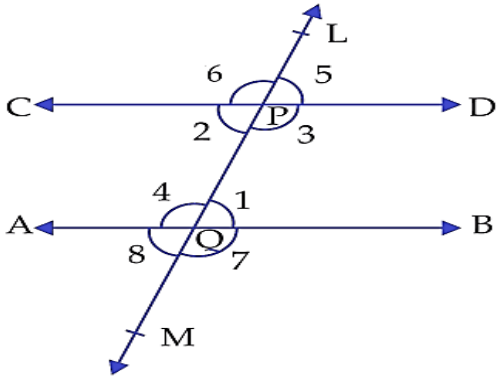
| 38 | **Case Study.3**<br>Two lines are parallel to each other, if the distance between these 2 lines always remains constant throughout and they never meet. There are various examples of parallel lines that we see in our daily life like railway line, 2 steps of ladder, opposite sides of a table etc. A lime which cuts a pair of parallel lines is called a transversal as shown in the figure.<br>  <br><br>On the basis of the above information, solve the following questions:<br>a) If $\angle 5 = 75^0$, then what is $\angle 1$?<br>b) If $\angle 3 = 105^0$, then what is $\angle 4$?<br>c) (i) If $\angle 7 = 2x$ and $\angle 2 = 60^0$, then find the value of $x$.<br>**OR**<br>c) (ii) If $\angle 2 : \angle 3 = 5 : 7$, then find the value of $\angle 4$. | 1<br>1<br>2 |

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