Roll No. | | | | | |

INDIAN SCHOOL SALALAH

FINAL EXAMINATION - FEBRUARY 2026 (AY 2025-26)

MATHEMATICS (041)

Class: IX **Date: 08 – 02 – 2026**

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

General Instructions:

a) This Question paper contains 38 questions. All questions are compulsory.

b) This Question paper is divided into five Sections - A, B, C, D and E.

c) 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.

d) In Section B, Questions no. 21 to 25 are Very Short Answer (VSA)-type questions, carrying 2 marks each.

e) In Section C, Questions no. 26 to 31 are Short Answer (SA)-type questions, carrying 3 marks each.

f) In Section D, Questions no. 32 to 35 are Long Answer (LA)-type questions, carrying 5 marks each.

g) In Section E, Questions no. 36 to 38 are Case study-based questions, carrying 4 marks each.

h) 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.

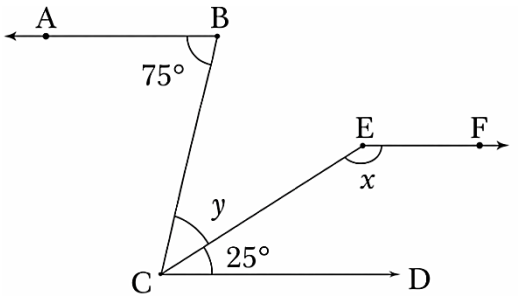
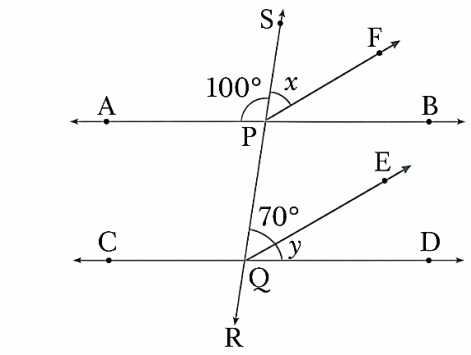
i) Use of calculator is not allowed.

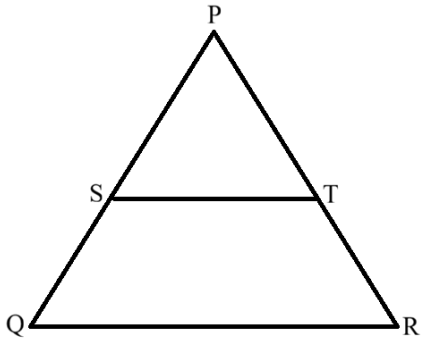
NO	SECTION A	MARKS
1	Which of these statements do not satisfy Euclid's axiom? (a) Things which are equal to the same thing are equal to one another. (b) If equals are added to equals, the wholes are equal. (c) If equals are subtracted from equals, the remainders are equal. (d) The whole is lesser than the part.	1
2	The class mark for the class interval 20 – 25 is (a) 22.5 (b) 45 (c) 2.5 (d) 5	1

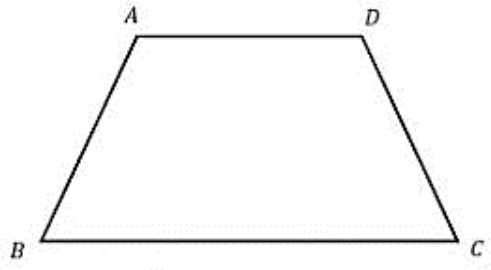
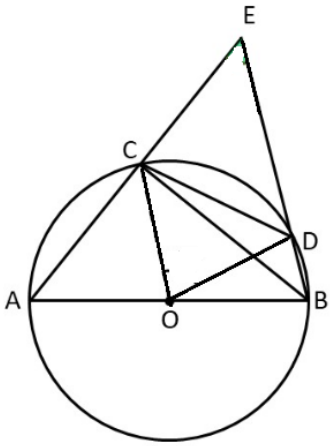
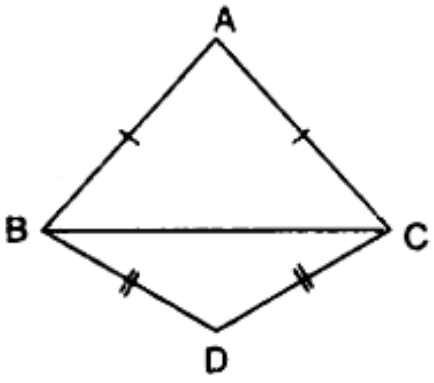
3	The volume of a sphere is numerically equal to its surface area. The radius of the sphere is (a) 1 unit (b) 3 units (c) 2 units (d) 6 units	1
4	Value of $\left(5\frac{1}{16}\right)^{\frac{-3}{4}}$ is (a) $\frac{4}{9}$ (b) $\frac{9}{4}$ (c) $\frac{8}{27}$ (d) $\frac{27}{8}$	1
5	For any two positive integers x and y, which of the following statements are true: (i) $\sqrt{x}+\sqrt{y}$ is irrational if x and y are prime numbers. (ii) $\sqrt{xy}$ is always irrational. (iii) $\sqrt{xy}$ is always rational. (iv) $\sqrt{x}+\sqrt{y}$ may be rational if x and y are any two composite numbers. (a) (i) and (ii) (b) (i) and (iv) (c) (i) and (iii) (d) (ii) and (iv)	1
6	Euclid's axiom states that 'things which are double of the same things are (a) halves of the same thing (b) double of the same thing (c) equal to one another. (d) four times of the same thing.	1
7	Which of the following is not a linear equation in two variables. (a) 3x = 2y (b) $\frac{2}{x} = x - \frac{y}{x}$ (c) 2x + 3y = 3x + 5 (d) $5x^2 + 7y = x(5x + 2)$	1
8	An angle is equal to one – eighth of its supplement. Its measure is (a) 25° (b) 40° (c) 35° (d) 20°	1
9	A right-angled triangle has two sides measuring 24 cm and 7 cm. If the perimeter of the triangle is 56 cm, what is its area? (a) 84 sq.cm (b) 300 sq.cm (c) 87.5 sq.cm (d) 28 sq.cm	1

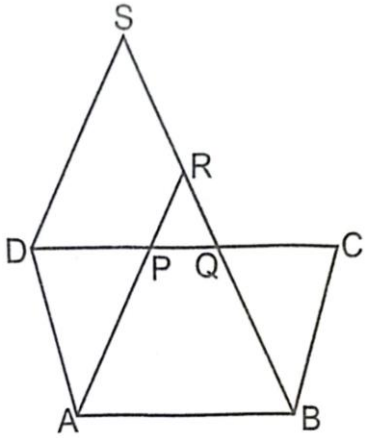
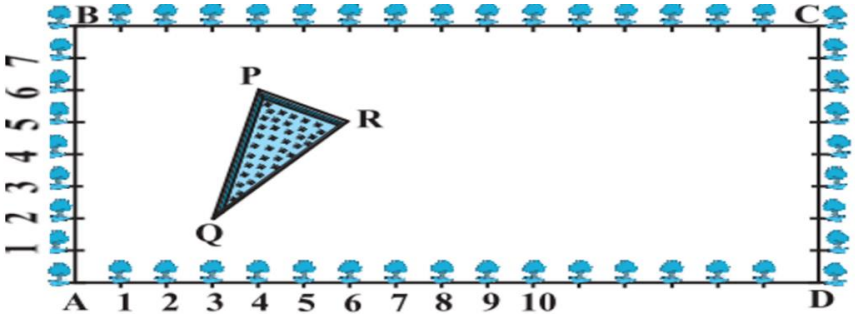
10	If $\frac{x}{y} + \frac{y}{x} = -1$ $(x, y \neq 0)$,then value of $x^3 - y^3$ is : (a) 1 (b) 0 (c) $\frac{1}{2}$ (d) – 1	1
11	Consider the following frequency distribution table: To draw a histogram to represent the above frequency distribution, the adjusted frequency for the class 25 – 45 is (a) 6 (b) 5 (c) 3 (d) 2	1
12	The equation 5 x – 7 y = 9 has (a) exactly one solution (b) two solutions (c) less than three solutions (d) more than three solutions	1
13	The area of an equilateral triangle is $36\sqrt{3}$ cm^2.The length of its altitude is (a) $6\sqrt{3}$ cm (b) $12\sqrt{3}$ cm (c) $8\sqrt{3}$ cm (d) $4\sqrt{3}$ cm	1
14	Frequency polygon is constructed by plotting frequency of the class interval and the (a) upper limit of the class (b) lower limit of the class (c) class mark (d) any value of the class	1
15	Zero of the zero polynomial is : (a) 0 (b) 1 (c) any real number (d) not defined	1
16	Which of the following is not a solution of the equation 2x + y = 7? (a) (1,5) (b) (3,1) (c) (1,3) (d) (0, 7)	1
17	If Δ ABC ≅ Δ PQR, then which of the following is not true ? (a) AC = PR (b) ∠BCA = ∠PRQ (c) AB = PQ (d) BC = PQ	1
18	The total surface area of a cone having diameter D and slant height L is (a) π D (D + L) (b) $\frac{\pi}{4}$ D (D + 2L) (c) $\frac{\pi}{4}$ D (2D + L) (d) $\frac{\pi}{8}$ D (D + 2L)	1

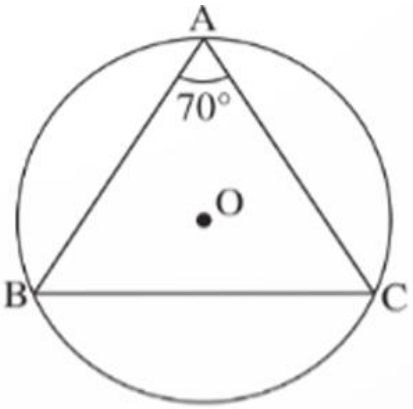
Class interval	5 – 10	10 - 15	15 – 25	25 – 45	45 – 75
Frequency	6	12	10	8	15

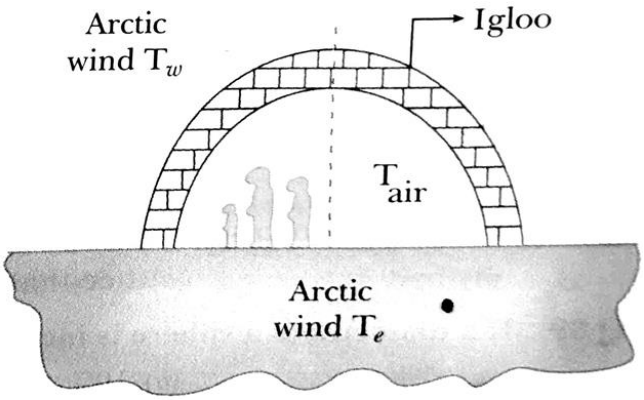
	Question numbers 19 and 20 are Assertion and Reason based questions. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answers from the codes A, B, C and D as given below. (a) Both A and R are true and R is the correct explanation of A. (b) Both 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:** If two chords AB and CD of a circle are each at a distance of 4 cm from the centre, then AB = CD **Reason:** Equal chords of a circle are equidistant from the centre of the circle.	1
20	**Assertion:** Two opposite angles of a parallelogram are $(3x - 2)^0$ and $(50 - x)^0$. The measure of one of the angles is 37^0. **Reason**: The sum of opposite angles of a quadrilateral is complementary.	1
	SECTION B	
21	A) In the figure given,$\angle ABC = 75^0$ and $\angle ECD = 25^0$. If AB // CD and CD // EF, find the measure of the angles marked as x and y.  **OR** B) In the figure given below, AB // CD and PF // QE. Find the values of x and y. 	2

<table>
<tr><td>22</td><td>If $a + b + c = 3$, $a^2 + b^2 + c^2 = 5$ and $a^3 + b^3 + c^3 = 9$, then find the value of abc.</td><td>2</td></tr>
<tr><td>23</td><td>Find the area of a triangle with side lengths 52 cm, 20 cm and 48cm.</td><td>2</td></tr>
<tr><td>24</td><td>In the given figure PQR is a triangle in which PQ = PR and S is any point on the side PQ. Through S, a line is drawn parallel to QR intersecting PR at T. Prove that PS = PT.
 
</td><td>2</td></tr>
<tr><td>25</td><td>A) Find the value of p if the equation $(p + 1) x – (2p + 3) y – 1 = 0$ has (2,3) as one of its solutions.
OR
B) Express the following statement as a linear equation in two variables taking numerator as x and denominator as y.
A fraction becomes $\frac{9}{11}$, if 2 is added to both the numerator and the denominator.</td><td>2</td></tr>
<tr><td></td><td>SECTION C</td><td></td></tr>
<tr><td>26</td><td>Represent $\sqrt{8.7}$ on a number line.</td><td>3</td></tr>
<tr><td>27</td><td>A) Find the capacity in litres of a conical vessel with height 12 cm and slant height 13 cm.
OR
B) Twenty-seven solid iron spheres, each of radius 3.5 cm, are melted to form a sphere. Find the surface area of the new sphere formed.</td><td>3</td></tr>
<tr><td>28</td><td>The table below shows the weights of watermelon at a store.
<table>
<tr><td>Weights of watermelon (in kg)</td><td>3 – 5</td><td>5 – 7</td><td>7 – 9</td><td>9 – 11</td></tr>
<tr><td>Number of watermelons</td><td>2</td><td>3</td><td>5</td><td>9</td></tr>
</table>
Draw a histogram to represent the above data:</td><td>3</td></tr>
<tr><td>29</td><td>Express the equation $2x – (y + 5) = y + 2x – 3$ in the form $ax + by + c = 0$ and hence identify the values of a, b and c.</td><td>3</td></tr>
</table>

30	Simplify: $(2x + p – c)^2 + (2x – p + c)^2$	3
31	A) In quadrilateral ABCD, the sides AD and BC are parallel. If the non-parallel sides AB and DC are equal in length, prove that the quadrilateral ABCD is cyclic.  **OR** B) In the Figure given below, AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that ∠AEB = 60°.  	3
	SECTION D	
32	In the figure given below ABC and DBC are two isosceles triangles lying on the common base BC such that AB = AC and DC = DB. Show that AD is the perpendicular bisector of BC.  	5

33	If $\sqrt{2} = 1.414$ and $\sqrt{3} = 1.732$,then find the value of $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} - \frac{\sqrt{6}}{\sqrt{3}-\sqrt{2}}$	5
34	A) Factorise: $6a^3 - 5a^2 - 13a + 12$ **OR** B) Find the values of a and b such that (x+1) and (x – 3) are the factors of the polynomial $x^3 + ax^2 + 5x + b$.	5
35	A) A, B, C and D are the midpoints of the sides PQ, QR, RS and PS respectively of a rhombus PQRS. Prove that quadrilateral ABCD is a rectangle. **OR** B) A point Q is taken on side CP of a parallelogram ABCP and CP is produced to D such that PD = CQ. The line through D parallel to AR meets BQ produced at S and AP produced meets BS at R. Prove that ARSD is a parallelogram. 	5
	SECTION E	
36	**Case Study.1** The Class IX students of Indian School Salalah have been allotted a rectangular plot of land ABCD for their gardening activity. Saplings of Gulmohar trees are planted along the boundary of the plot at regular intervals of 1 metre. Inside the plot, there is a triangular lawn PQR, as shown in the given diagram. 	

	Based on the above information answer the following questions: (i) What are the co–ordinates of P taking A as origin? (ii) Find the perpendicular distance of R from y−axis taking A as origin. (iii) (a) What are the coordinates of point Q taking A as origin? Also write the mirror image of point Q with respect to AD axis taking A as origin? **(OR)** (b) Find the value of ordinate of R – abscissa of point Q.	1 1 2
37	**Case Study.2** The Melbourne Cricket Ground (MCG) is situated in Melbourne, Australia. It is one of the largest and most iconic cricket stadiums in the world, with a seating capacity of about 1,00,000 spectators. In a cricket match played at the MCG, the field has two ends known as the bowler's end and the striker's end. Geometrically, O is the centre of a circle, ∠ BAC = 70°, which is shown in figure.   Based on the above information answer the following questions: (i) Find the angle subtended by the chord BC at the centre. (ii) Find ∠OBC +∠OCB. (iii) (a) If OB = 5 cm and BC = 6 cm, then find the distance from centre O to the chord BC. **OR** (b) D and E are any two points on the circle such that D lies on the minor arc BC and E lies on the major arc BC. Determine the measures of $\angle BDC$ and ∠BEC.	1 1 2

38	**Case Study.3** In the Arctic region hemispherical houses called Igloos are made of ice. It is possible to maintain a temperature inside an Igloo as high as 20 because ice has low thermal conductivity.  An Igloo is built in the shape of a hemisphere, with inner diameter of 4.2 m and walls of compacted snow that are 0.7 m thick. Based on the above information, answer the following questions: Observe the spinner carefully and answer the following questions: (i) Find the volume of air (in cub.m) in the Igloo. (ii) What is the outer diameter of the Igloo? (iii) (a) What is the maximum number of people who can sit comfortably in the Igloo if each person needs 2.1 m^2? **OR** (b) Find the outer surface area of the hemispherical part of the Igloo, given that the area of the door is 6.28 m^2.	1 1 2

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