

# Mathematics ICSE

## Mock Paper 1 (2026)

Time Allowed: 3 hours

Maximum Marks: 80

### General Instructions:

- Answers to this Paper must be written on the paper provided separately.
- You will not be allowed to write during the first 15 minutes.
- This time is to be spent reading the question paper.
- The time given at the head of this Paper is the time allowed for writing the answers.
- **Attempt all questions from Section A and any four questions from Section B.**
- All work, including rough work, must be clearly shown and must be done on the same sheet as the rest of the answers.
- Omission of essential work will result in a loss of marks.
- The intended marks for questions or parts of questions are given in brackets [ ]
- Mathematical tables are provided.

### Section A

1. **Question 1 Choose the correct answers to the questions from the given options:** [15]
  - A retailer purchases a fan for ₹1500 from a wholesaler and sells it to a consumer at 10% profit. If the sales are intra-state and the rate of GST is 12%, the selling price of the fan including tax (under GST) by the retailer is:
    - ₹1830
    - ₹1800
    - ₹1650
    - ₹1848
  - The roots of the quadratic equation  $x^2 - 2\sqrt{3}x - 22 = 0$  are
    - real, rational and equal
    - real, irrational and unequal
    - non-real
    - real, rational and unequal
  - If  $x + 1$  is a factor of the polynomial  $2x^2 + kx$ , then value of  $k$  is
    - 2
    - 4
    - 2
    - 3
  - If  $X$  and  $Y$  are the matrices of order  $2 \times 2$  each and  $2X - 3Y = \begin{bmatrix} -7 & 0 \\ 7 & -13 \end{bmatrix}$ ,  $3X + 2Y = \begin{bmatrix} 9 & 13 \\ 4 & 13 \end{bmatrix}$  then what is  $Y$  equal to?
    - 
    -

$$\begin{bmatrix} 1 & 3 \\ 2 & 1 \end{bmatrix}$$

$$\text{c) } \begin{bmatrix} 3 & 2 \\ -1 & 5 \end{bmatrix}$$

$$\begin{bmatrix} 3 & 2 \\ 1 & -5 \end{bmatrix}$$

$$\text{d) } \begin{bmatrix} 1 & 3 \\ -2 & 1 \end{bmatrix}$$

- (e) In a G.P., the ratio of the sum of the first 3 terms is to that of first 6 terms is 125 : 152. Find the common ratio of the G.P. [1]

a)  $\frac{3}{4}$

b)  $\frac{2}{3}$

c)  $\frac{4}{3}$

d)  $\frac{3}{5}$

- (f) If (4, 3) and (-4, -3) are opposite two vertices of a rectangle, then other two vertices are [1]

a) (-4, -3) and (-4, -3)

b) (4, -3) and (-3, 4)

c) (4, -3) and (-4, 3)

d) (-4, 4) and (-3, 4)

- (g) O is the point of intersection of the diagonals AC and BD of a trapezium ABCD with AB || DC. Through O, a line segment PQ is drawn parallel to AB meeting AD in P and BC in Q, then OP is equal to [1]

a)  $OQ = 2OP$

b)  $OP = \frac{1}{3}OQ$

c)  $OP = OQ$

d)  $OP = 2OQ$

- (h) A hollow cone of radius 6 cm and height 8 cm is vertical standing at the origin, such that the vertex of the cone is at the origin. Some pipes are hanging around the circular base of the cone, such that they touch the surface of the graph paper. Then, the total surface area of the formed by the figure will be [1]

a) 948.84  $\text{cm}^2$

b) 494.68  $\text{cm}^2$

c) 484.98  $\text{cm}^2$

d) 489.84  $\text{cm}^2$

- (i) Solve:  $-4x < -5x < 8$  [1]

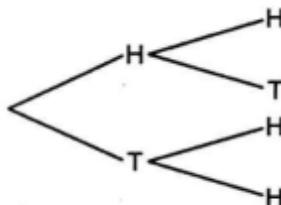
a)  $x \leq -8$

b)  $x > -8$

c)  $x < -8$

d)  $x < 8$

- (j) Two different coins are tossed simultaneously. The probability of getting at least one head is [1]



a)  $\frac{7}{8}$

b)  $\frac{1}{4}$

c)  $\frac{1}{8}$

d)  $\frac{3}{4}$

- (k) If  $\begin{bmatrix} a^x \\ a^{-x} \end{bmatrix} \begin{bmatrix} 1 & 2 \end{bmatrix} = \begin{bmatrix} p & a^{-2} \\ q & \log_2 2 \end{bmatrix}$ ,  $a > 0$ , then  $a^{p-q}$  is equal to [1]

a)  $2^{\frac{3}{2}}$

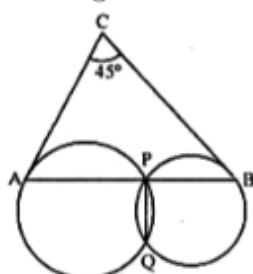
b) 1

c)  $2^{-\frac{3}{2}}$

d)  $4^{\frac{3}{2}}$

- (l) If (-4, 3) and (4, 3) are two vertices of an equilateral triangle and the origin lies in the interior of the triangle, then the coordinates of the third vertex will be [1]

- a)  $(1, 0)$   
 b)  $(0, 1)$   
 c)  $(0, 3 - 4\sqrt{3})$   
 d)  $(1, 3 - 4\sqrt{3})$
- (m) PQ is a common chord of two circles. APB is a secant line joining points A and B on the two circles. [1]  
 Two tangents AC and BC are drawn. If  $\angle ACB = 45^\circ$ , then what is  $\angle AQB$  equal to



- a)  $135^\circ$   
 b)  $75^\circ$   
 c)  $120^\circ$   
 d)  $90^\circ$
- (n) Which one of the following can be obtained from a histogram? [1]

- a) None of these  
 b) Median  
 c) Mean  
 d) Mode
- (o) Assertion (A): The sum of an arithmetic progression is found using the formula  
 $S_n = \frac{n}{2}(2a + (n - 1)d)$ . [1]

Reason (R): The formula is derived from adding the terms of the sequence in pairs.

- 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 but R is false.  
 d) A is false but R is true.

2. Question 2 [12]
- (a) Sanya has a Recurring Deposit Account in a bank of ₹2000 per month at the rate of 10% per annum. [4]  
 If she gets ₹83100 at the time of maturity, then find the total time for which the account was held.
- (b) If x, y, z and u are in proportion, then prove that  $(lx + my) : (lz + mu) :: (lx - my) : (lz - mu)$  [4]
- (c) Prove the identity:  $\left(\frac{1-\tan\theta}{1-\cot\theta}\right)^2 = \tan^2\theta$  [4]

3. Question 3 [13]
- (a) The volume of a conical tent is  $1232 \text{ m}^3$  and the area of the base floor is  $154 \text{ m}^2$ . Calculate the [4]  
 i. radius of the floor.  
 ii. height of the tent  
 iii. length of the canvas required to cover this conical tent, if its width is 2 m.
- (b) Find the equation of the line, which passes through the point (3, 4) and the sum of its intercepts on the axes is 14. [4]
- (c) Using a graph paper, plot the points A(6, 4) and B(0, 4) [5]  
 i. Reflect A and B in the origin to get the images A' and B'.  
 ii. Write the coordinates of A' and B'.  
 iii. State the geometrical name for the figure ABA'B'.  
 iv. Find its perimeter.

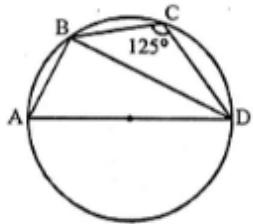
## Section B

**Attempt any 4 questions**

- 4. Question 4** [10]
- (a) The marked price of the goods is ₹5000 and rate of GST on it 18%. A shopkeeper buys the goods at a reduced price and sells it at its marked price. If the shopkeeper paid ₹144 as CGST to the government, find the amount (inclusive of GST) paid by the shopkeeper. [3]
- (b) Solve:  $\frac{x}{5} + \frac{28}{x+2} = 5$  [3]
- (c) The mean of the following distribution is 49. Find the missing frequency  $a$ . [4]
- |                |      |       |       |       |         |
|----------------|------|-------|-------|-------|---------|
| Class Interval | 0-20 | 20-40 | 40-60 | 60-80 | 80 -100 |
| Frequency      | 15   | 20    | 30    | a     | 10      |
- 5. Question 5** [10]
- (a) Evaluate,  $\begin{bmatrix} 4\sin 30^\circ & 2\cos 60^\circ \\ \sin 90^\circ & 2\cos 0^\circ \end{bmatrix} \begin{bmatrix} 4 & 5 \\ 5 & 4 \end{bmatrix}$ . [3]
- (b) There are two concentric circles, each with centre O and of radii 10 cm and 26 cm, respectively. Find the length of the chord AB of the outer circle, which touches the inner circle at P. [3]
- (c) Using factor theorem, check whether the polynomial  $g(x) = x - 2$  is a factor of  $f(x) = x^3 - 4x^2 + x + 6$  or not. [4]
- 6. Question 6** [10]
- (a) Find the coordinates of the points of trisection of the line segment joining (2, -3) and (4, -1). [3]
- (b) If A, B and C are interior angles of  $\triangle ABC$ , then show that  $\tan^2\left(\frac{B+C}{2}\right) = \operatorname{cosec}^2\frac{A}{2} - 1$ . [3]
- (c) In an Arithmetic Progression (A.E) the fourth and sixth terms are 8 and 14 respectively. Find the:
- first term
  - common difference
  - sum of the first 20 terms.
- 7. Question 7** [10]
- (a) The sum of a number and its positive square root is  $\frac{6}{25}$ . Find the number. [5]
- (b) Use graph paper for this question. [5]
- The marks obtained by 120 students in an English test are given below:
- | Marks           | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 | 50 - 60 | 60 - 70 | 70 - 80 | 80 - 90 | 90 - 100 |
|-----------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| No. of students | 5      | 9       | 16      | 22      | 26      | 18      | 11      | 6       | 4       | 3        |
- Draw the ogive and hence, estimate:
- the median marks.
  - the number of students who did not pass the test if the pass percentage was 50.
  - the upper quartile marks.
- 8. Question 8** [10]
- (a) A die is thrown once. Find the probability of getting
- a prime number.
  - a number lying between 2 and 6.
  - an odd number.

- (b) If the height of a cone is doubled, then find its increased volume in percentage. [3]  
 (c) In figure, if  $\angle BCD = 125^\circ$  and AD is the diameter of the circle, calculate [4]

- i.  $\angle DAB$   
 ii.  $\angle ADB$



9. **Question 9** [10]

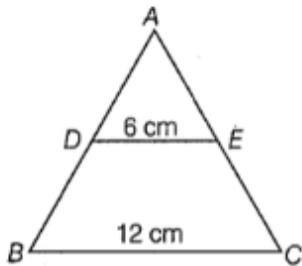
- (a) Solve the following inequation and represent the solution set on the number line. [3]

$$-2\frac{2}{3} \leq x + \frac{1}{3} < 3\frac{1}{3}, x \in R$$

- (b) Draw a cumulative frequency curve for the following data: [3]

Class interval	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69
Frequency	10	15	20	25	30	35

- (c) In the given figure, if  $DE \parallel BC$ , find the ratio of  $\text{ar}(\triangle ADE)$  and  $\text{ar}(\triangle DECB)$ . [4]



10. **Question 10** [10]

- (a) If  $x = \frac{4\sqrt{6}}{\sqrt{2}+\sqrt{3}}$ , then find the value of  $\frac{x+2\sqrt{2}}{x-2\sqrt{2}} + \frac{x+2\sqrt{3}}{x-2\sqrt{3}}$ . [3]

- (b) Draw a circle of radius 4 cm. Mark a point A outside the circle. Draw the tangents to the circle from point A, without using the centre of the circle. [3]

- (c) From two points A and B on the same side of a building, the angles of elevation of the top of the building are  $30^\circ$  and  $60^\circ$ , respectively. If the height of the building is 10 m, then find the distance between A and B correct to two decimal places. [4]