

**Class: X****MODEL PAPER EXAMINATION 2026****SUBJECT: MATHEMATICS****Q1:****(SECTION "A")****Marks: 15**

Note: Attempt all questions from section 'A'. Each question carries **ONE** mark.

- 1 If 1, 9, x and 45 are in proportion, then $x =$
 - A. 27
 - B. 0.2
 - C. 5
 - D. 45
- 2 An improper fraction can be reduced into a proper fraction by:
 - A. Addition
 - B. Multiplication
 - C. Subtraction
 - D. Division
- 3 The angle between the radial segment and tangent at its outer end point is:
 - A. 45°
 - B. 60°
 - C. 90°
 - D. 120°
- 4 If m denotes the number of rows and n denotes the number of column such that $m=n$, then matrix is called _____ matrix
 - A. Rectangular
 - B. Equal
 - C. Square
 - D. null
- 5 The A.M. of (0, 90, k , 10, 100) is 40, then $k =$
 - A. 0
 - B. 90
 - C. 10
 - D. 100
- 6 If the ratio of two corresponding sides of similar triangles is 5:7, then the ratio of their areas is:
 - A. 5:7
 - B. 7:5
 - C. 25:7
 - D. 25:49
- 7 The fourth proportional to 3, 5, 12 is:
 - A. 15
 - B. 20
 - C. 36
 - D. 60
- 8 $\text{Cosec}\theta \cdot \text{Sin}\theta =$
 - A. 1
 - B. 0
 - C. -1
 - D. 2
- 9 The angle 135° in radians is:
 - A. $\frac{5\pi}{4}$
 - B. $\frac{3\pi}{4}$
 - C. $\frac{2\pi}{4}$
 - D. 135π
- 10 A line intersecting a circle at 2 points is called a:
 - A. Chord
 - B. Diameter
 - C. Secant
 - D. Tangent
- 11 Which one is a function?
 - A. $\{(2,5),(2,7),(3,8)\}$
 - B. $\{(6,7),(7,6),(6,8)\}$
 - C. $\{(0,5),(6,0),(5,6)\}$
 - D. None of these
- 12 $\text{Cosec}^2\theta - 1 =$ _____
 - A. $\text{Cos}^2\theta$
 - B. $\text{Cot}^2\theta$
 - C. $\text{Sin}^2\theta$
 - D. $\text{Sec}^2\theta$
- 13 Diagonal of a rectangle measures 6.5cm. If its width is 2.5cm, its length is:
 - A. 6cm
 - B. 9cm
 - C. 12cm
 - D. 4cm
- 14 Tangents drawn at the end points of the diameter of a circle are:
 - A. Perpendicular
 - B. Intersecting
 - C. Parallel
 - D. None of these
- 15 If $A \supseteq B$, then $A \cup B =$
 - A. B
 - B. θ
 - C. \mathbb{U}
 - D. A

END OF SECTION A

**Class: X****MODEL PAPER EXAMINATION 2026**
Time: 2 hours 40 minutes SUBJECT: MATHEMATICS (SECTION "B" AND SECTION "C") Total Marks 60
SECTION "B" (SHORT ANSWER QUESTIONS) 30 Marks
Q2: Answer any SIX questions from this section.

i. If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 3, 5, 7, 9\}$ and $B = \{2, 4, 6, 8\}$, prove that $(A \cup B)' = A' \cap B'$

ii. Solve the following equation by using componendo-dividendo theorem.

$$\frac{\sqrt{(x+1) + (x-1)}}{\sqrt{(x+1) - (x-1)}} = \frac{1}{2}$$

iii. Resolve into partial fraction

$$\frac{5x^2 - 30x + 44}{(x+3)^3}$$

iv. Show that tangents drawn at the ends of a chord in a circle make equal angles with the chord.

v. Find remaining trigonometric functions /ratios if $\sec \theta = \operatorname{cosec} \theta = \sqrt{2}$ and θ lies in first quadrant.

vi. If the length of the segment joining two congruent circles touching externally is 12cm, find their radii and circumferences.

vii. Prove that $\frac{\cot \theta + \operatorname{cosec} \theta}{\sin \theta + \tan \theta} = \operatorname{cosec} \theta \cot \theta$

viii. If $\begin{bmatrix} a & b \\ c & d \end{bmatrix} + \begin{bmatrix} 3 & -1 \\ 1 & 0 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then find a, b, c and d

ix. Determine the value of in the following quadratic equation such that it will make the roots equal

$$9x^2 + mx + 16 = 0$$

x. A 25-meter-long ladder is leaning against a vertical wall, with its base positioned 7 meters away from the wall. How high will the ladder reach on the wall?

SECTION "C" DETAILED ANSWER QUESTIONS

30 Marks

Q3: Attempt any THREE questions from this section.

i. Find the invers of $A = \begin{bmatrix} 1 & 0 & 1 \\ -4 & 1 & -1 \\ 6 & -2 & 1 \end{bmatrix}$ by adjoint method.

ii. If a line segment intersects the two sides of a triangle in the same ratio, then it is parallel to the third side. Prove it.

iii. In a race, 8 runners completed the race in the following times (in minutes)

Minutes	10-12	13-15	16-18	19-21	22-24
Runners	2	3	1	1	1

(a) Find the Mean.

(b) Find the Median

vi. Solve the following systems of equations:

$$\frac{4}{x} + \frac{3}{y} = 2 \text{ and } 4x + 3y = 25$$

v. Find A.M., G.M., H.M., Median and Mode of 51, 52, 52, 52, 54, 55, 57, 58, 60, 61, 62, 64.

END OF PAPER