GREENLAWNS SCHOOL, WORLI
Mathematics
Final Examination – 2025-26

STD: IX **Marks: 80**
Date:24/02/2026 **Time: 3hrs**

Attempt **all** questions from **Section A** and **any four** questions from **Section B** All *working, including rough work, must be clearly shown, and must be done on the same sheet as the rest of the answer.*
Omission of essential working will result in loss of marks. The intended marks for questions or parts of questions are given in brackets **[ ]**

SECTION A
(Attempt **all** questions from this Section)

Question 1. **[15]**

i. The value of Tan 45° + Cot 45° = _____.
a) $1/\sqrt{2}$ **b)** $3/\sqrt{2}$ **c)** 2 d) 1

ii. $\sqrt{6} \times \sqrt{15} = x\sqrt{10}$, then the value of x is
(**a)** 3 **(b)** ± 3 **(c)** $\sqrt{3}$ **(d)** $\sqrt{6}$

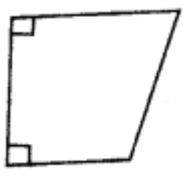
iii. One of the factors of $(x - 1) - (x^2 - 1)$ is
(**a)** $x^2 - 1$ (**b)** x + 1 **(c)** x – 1 **(d)** x + 4

iv. Which of the following problems could be solved by finding the solution of the given system? $2x + 2y = 56$, $y = \frac{1}{3}x$
(**a)** The area of a rectangle is 56 sq. unit. The width is one-third the length. Find the length of the rectangle.
(**b)** The area of a rectangle is 56 sq. unit. The length is one-third the perimeter. Find the length of the rectangle.
(c) The perimeter of a rectangle is 56 unit. The length is one-third more than the width. Find the length of the rectangle.
(d) The perimeter of a rectangle is 56 unit. The width is one-third the length. Find the length of the rectangle.

v. If $\log_{10}2 = 0.3010$, the value of $\log_{10}80$ is
(**a)** 1.6020 **(b)** 1.9030 **(c)** 3.9030 **(d)** None of these

vi. Two sides of a triangle are of lengths 6 cm and 2.6 cm. The lengths of the third side of the triangle cannot be
(**a)** 4.7 cm (**b)** 5 cm **(c)** 4.9 cm **(d)** 3.2 cm

vii. Which of the following terms best describes the figure below?
(**a)** Rhombus **(b)** Trapezium
(c) Quadrilateral **(d)** Square



viii. The following observations have been arranged in ascending order. If the median of the data is 63, the value of x is
29, 32, 48, 50, x, x + 2, 72, 78, 84, 95
(**a)** 63 (**b)** 62.5 **(c)** 62 **(d)** 70

ix. The mean of the factors of 36 is
(**a)** 11 (**b)** 12 **(c)** $10\frac{1}{8}$ **(d)** $10\frac{1}{9}$

x. The altitude of an equilateral triangle is √3 cm. What is its perimeter?
(**a)** 3 cm (**b)** 3√3 cm **(c)** 6 cm **(d)** 6√3 cm

xi. The areas of three consecutive faces of a cuboid are 12 cm^2, 20 cm^2 and 15 cm^2, then the volume (in cm^2) of the cuboid is
(**a)** 3600 (**b)** 100 **(c)** 80 **(d)** 60

xii. In a △ABC, ∠ABC = 90°, ∠ACB = 30°, AB = 5 cm. What is the length of AC?
(a) 10 cm (**b)** 5 cm **(c)** 5 √2 cm **(d)** 5 √3 cm

xiii. (- 2 – √3) (- 2 +√ 3) when simplified is
(**a)** positive and irrational **(b)** positive and rational
(c) negative and irrational **(d)** negative and rational

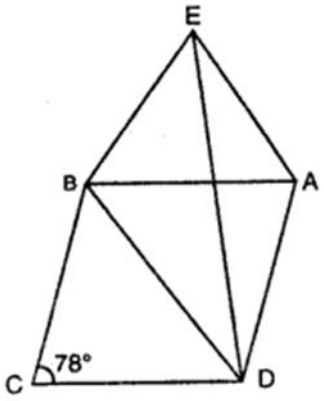
xiv. If $3x^4 + kx^2 – 8 = (3x^2 – 2)(x^2 + 4)$ for all x, then the value of k is:
(**a)** – 2 (**b)** 12 **(c)** 10 **(d)** – 8

xv. A wire is in the form of a circle of radius 42 cm. If it is bent into a square, then what is the side of the square?
(a) 66 cm (**b)** 42 cm **(c)** 36 cm **(d)** 33 cm

Question 2.

a. Seven times a given two-digit number is equal to four times the number obtained by reversing the order of digits. The sum of the digits of the number is 3. Find the number. **[4]**

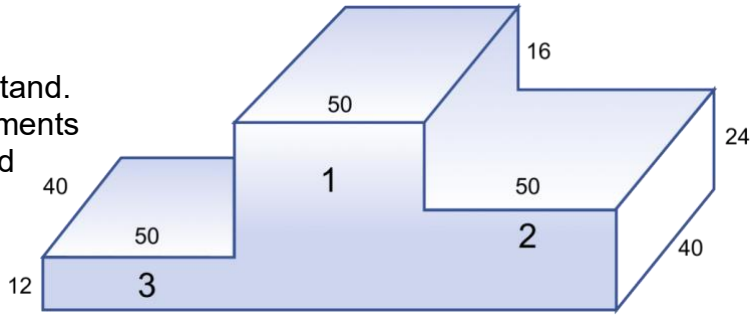
b. In the figure, ABCD is a rhombus and ABE is an equilateral triangle ∠BCD = 78°. Calculate ∠ADE, ∠BDE and ∠BED. **[4]**



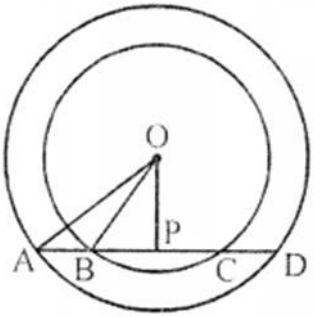
c. Construct a parallelogram ABCD such as AB = 6 cm, AD = 3 cm and ∠DAB = 45°. Bisect ∠DAB and which meet DC at P. And measure the ∠APB **[4]**

Question 3.

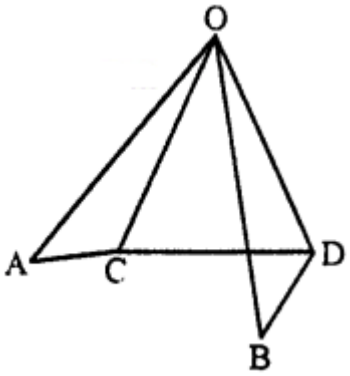
a. The adjoining figure shows a victory stand. each face is rectangular. All measurements are in centimetres. Find its volume and surface area
(the bottom of the stand is open).



b. In the given figure, AD is a straight line. OP ⊥ AD and O is the centre of both circles. If OA = 20 cm, OB = 15 cm and OP = 12 cm, what is AB equal to?



c. In the figure, OA = OB, OC = OD,
∠AOB = ∠COD,
prove that AC = BD. **[4]**



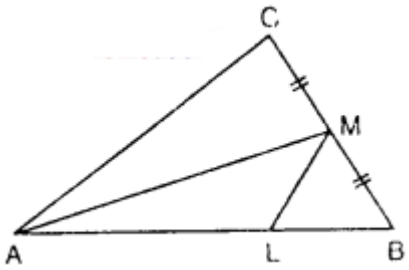
SECTION B

(*Attempt **any four** questions from this section)*

Question 4.

a. Without using trigonometric tables, evaluate **[3]**
tan 35° tan 40° tan 45° tan 50° tan 55°

b. In the figure, the area of the triangle ABC = 7.2 cm²,
CM = MB, and AL = 2 LB.
Find the area of the triangle ALM. **[3]**



c. Two trees are standing on flat ground. The height of the smaller tree is 7 m. The distance between the top of the smaller tree and the base of the taller tree is 15 m. The distance between the top of the taller tree and the base of the smaller tree is 20 m. Calculate

(i) the horizontal distance between the two trees.

(ii) the height of the taller tree. **[4]**

Question 5.

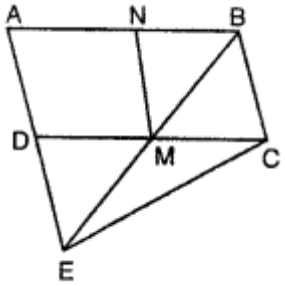
a. Draw a frequency polygon of the data given below. **[4]**

Class Interval	10-20	20-30	30-40	40 -50	50-60
Frequency	25	12	10	15	8

b. Solve for x: $2^3 (5° + 3^{2x}) = 8$ **[2]**

c. If an angle of rhombus is 50°, find the size of the angles of one of the triangles which are formed by diagonals. **[2]**

d. In the figure, M and N are the mid-points of the sides DC and AB of the parallelogram ABCD and the area of the parallelogram ABCD is 36 cm².
Find the area of the triangle BEC. **[2]**

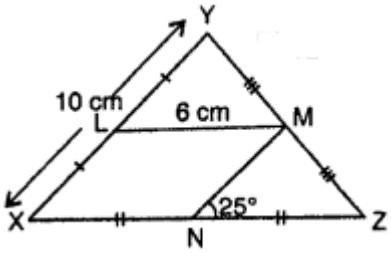


Question 6.

a. Solve:3x – 7y + 10 = 0, y – 2x – 3 = 0. **[3]**

b. Find If $\log_{10} 5 + \log_{10}(5x + 1) = \log_{10}(x + 5) + 1$ **[3]**

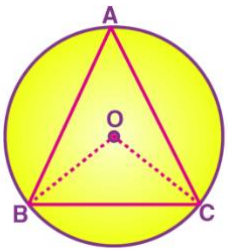
c. With help of information given in adjacent figure answer the following:
(**a)** XZ
(**b)** NZ
(c) ∠LMN
(d) ∠XLM **[4]**



Question 7.

a. Factorize: $(x^2 – 3x)^2 – 8(x^2 – 3x) – 20$ **[3]**

b. In the given figure, an equilateral triangle ABC is inscribed in a circle with centre O.
Find: **(i)** ∠ BOC
(ii) ∠ OBC **[3]**



c. A (-2, 4), C (4, 10) and D (-2, 10) are the vertices of a square ABCD. Use graphical method to find the coordinates of the fourth vertex B. Also, find
(i) the coordinates of the mid-point of BC,
(ii) the coordinates of the mid-point of CD and
(iii) the coordinates of the point of intersection of the diagonals of the square ABCD. **[4]**

Question 8.

a. The following are the monthly rents (in rupees) of 30 shops :
42, 49, 37, 82, 37, 75, 62, 54, 79, 84, 75, 63, 44, 74, 44, 36, 69, 54, 48, 74, 39, 48, 45,61,71,47,38, 80,51,31.
construct a frequency table for the above data. **[3]**

b. The sides of a triangle are in the ratio 2 : 3 : 4. and perimeter of the triangle is 18 cm. Find the area (in cm^2) of the triangle. **[3]**

c. Find the value of x such that AB = BC, where the coordinates of A, B and C are (-5, 2), (1, -2) and (x, 4 **)** **[4]**

Question 9.

a. A room is 12 m by 10 m by 10 m. Find the cost of covering its floor with bricks 20 cm by 6 cm, if the cost of one thousand bricks is Rs. 300. **[3]**

b. Given that tan θ = 5/12 and angle θ is an acute angle, find sin θ and cos θ. **[3]**

c. Solve graphically the simultaneous equations,
x – 2y = 1; x + y = 4.
Use 2 cm = 1 unit on both axes and plot only three points per line. **[4]**

Question 10.

a. Evaluate:(cos 0° + sin 45° + sin 30°) × (sin 90° – cos 45° + cos 60°) **[3]**

b. evaluate a = 3 + b, prove that $a^3 – b^3 – 9ab = 27$. **[3]**

c. For the following data, draw a histogram. **[4]**

Age (in years)	0-6	6-12	12-18	18-24	24-30
No. of persons	6	11	25	35	18

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