GREENLAWNS HIGH SCHOOL

DATE: 09/03/2026 | **STD. IX (FINAL EXAM)** | **MARKS: 80**

DAY: MONDAY | **MATHEMATICS** | **TIME: 3 hours**

[FIGURES TO THE RIGHT INDICATE FULL MARKS]

1. Attempt all questions from **Section A** and any 4 from **Section B**.
2. All working including rough work must be clearly shown and done on the same page as the rest of the answer.
3. Omission of essential steps will result in loss of marks.

Section-A

(Attempt all questions from this section)

Question - 1 **15m**

Choose the correct answers to the questions from the given options.
(Do not copy the questions, write the correct answers only.)

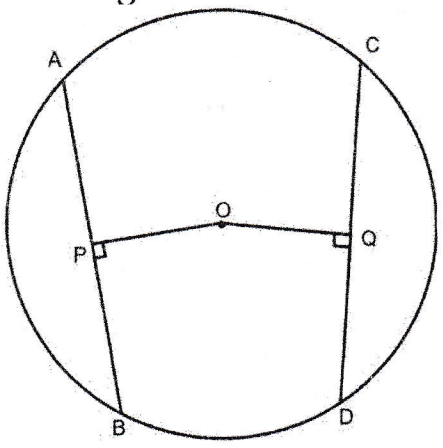
i. On factorizing $18xy + 42xyz$
   a. $6y(3x + 7z)$
   b. $6(3xy + 7z)$
   c. $6xy(3 + 7z)$
   d. $6xy(3z + 7)$

ii. The value of $\sin 90° + \tan 45°$ is
   a. 2
   b. 1
   c. 0
   d. -1

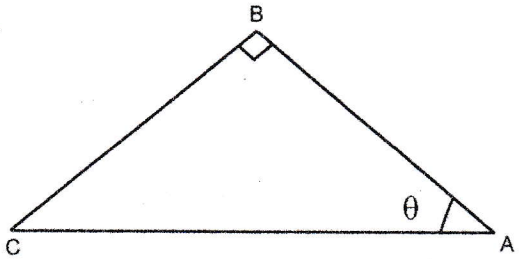
iii. The simple interest on a sum for 1 year at 10% is ₹ 200, what is the compound interest for the same period and rate?
   a. ₹ 180
   b. ₹ 200
   c. ₹ 220
   d. ₹ 240

iv. If the side of the square is 6 cm, then the length of its diagonal is
   a. $5\sqrt{2}$
   b. $6\sqrt{2}$
   c. $2\sqrt{6}$
   d. $6\sqrt{3}$

v. In the given figure, chord AB = chord CD, if OP = 7 cm then OQ =
   a. 6 cm
   b. 5 cm
   c. 7 cm
   d. 2 cm



vi. In ΔABC $\angle ABC = 90°, AC = 10\ cm,\ BC = 8\ cm$ then $\cos\theta =$
   a. 4/5
   b. 5/4
   c. 5/3
   d. 3/5



vii. The factors of $a^2 - 36$ are
   a. $(a+2)(a-6)$
   b. $(a+6)(a-2)$
   c. $(a+6)(a-6)$
   d. $(a+3)(a+6)$

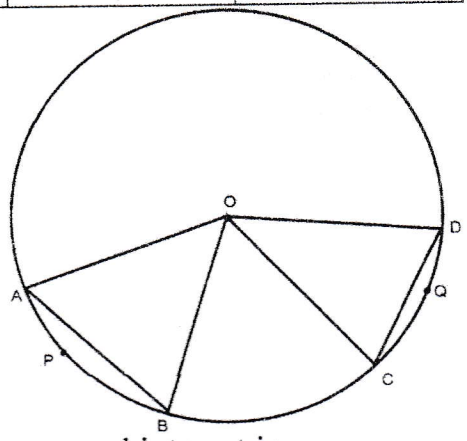
viii. If the side of an equilateral triangle is doubled, its area becomes _____ times the original area.
   a. halved
   b. four times
   c. one-fifth
   d. unaltered

ix. The adjustment factor for the following data is

CI	5-15	21-31	37-47	53-63
F	6	9	7	8

   a. 0.5
   b. 5
   c. 3
   d. 0

x. In the given figure $\angle AOB = 66°$, if arc APB = arc CQD, then $\angle OCD =$
   a. 27°
   b. 47°
   c. 57°
   d. 37°



xi. A sum of ₹7500 amounts to ₹ 8427 then the compound interest is
   a. ₹926
   b. ₹927
   c. ₹925
   d. ₹921

xii. A cubical petrol tank has an inner side of 2 m, if the cost of 1 cubic metre of petrol is ₹10,000, find the total cost of petrol required to fill the tank,
   a. ₹ 80,000
   b. ₹ 40,000
   c. ₹ 20,000
   d. ₹ 60,000

xiii. An isosceles triangle has sides 13 cm, 13 cm and 10 cm, then its height is
   a. 5 cm
   b. 10 cm
   c. 12 cm
   d. 13 cm

xiv. Find the class boundaries of the third class in the following data.

CI	10-18	20-28	30-38	40-48
f	5	11	7	6

   a. 30 and 38
   b. 29 and 39
   c. 29.5 and 38.5
   d. 30.5 and 38.5

xv. **Assertion(A):** If each observation of a data set is multiplied by a constant k, then the mean of the new data is also multiplied by k

Reason (R): When each observation is multiplied by k, the total sum of observation becomes k times the original sum, while the number of observations remains the same.

a. Both A and R are true and R is the correct explanation of A
b. Both A and R are true and R is NOT the correct explanation of A
c. A is true, R is false
d. A is false, R is true

Question - 2

i. A person invests ₹8000 for 2 years of a certain rate of interest, compounded annually. At the end of 1 year, this sum amounts to ₹ 8800. **4m**
Calculate:
a) The rate of interest per annum
b) The amount at the end of the second year.

ii. A glass aquarium has external dimensions of $80\ cm \times 50\ cm \times 40\ cm$. The glass used is 1cm thick on all sides and the top is open. **4m**
Find:
a) Internal capacity of the aquarium
b) If the cost of polishing the outer surface is ₹0.80per cm^2, find the total cost of polishing.

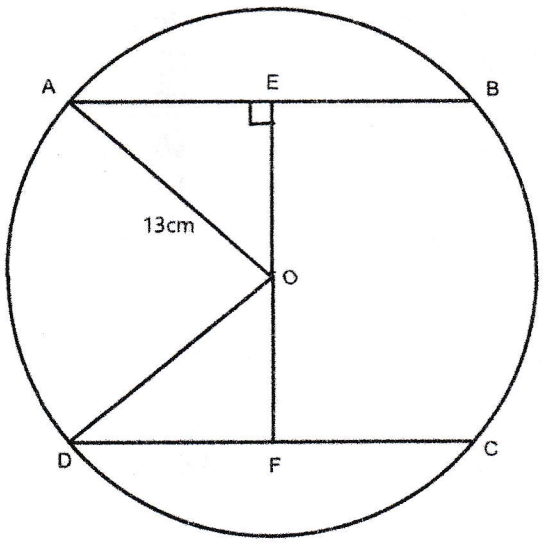
iii. The table shows the number of mobile calls made per day by office employees. (Take $2\ cm = 10\ units$ on both the axis) **4m**

Calls per day	60-70	70-80	80-90	90-100	100-110	110-120
No of employees	7	14	28	52	73	65

Draw a frequency polygon for the above data.

Question – 3

i. In the circle with center O and radius 13cm, two equal chords AB and CD are at a distance of 5 cm from the centre. **4m**
a) Find the length of each chord.
b) If DC is a side of a regular pentagon the find $\angle DOC$
c) Find $\angle OCF$



ii. Factorise
$a^4 - 5a^2 + 4$ **4m**

iii. The mean of 10 observation is 1.5. the observation are
0.5, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 1.3, x, 1.7
a) Find the value of x.
b) If each observation is increased by 0.5, find the new mean. **5m**
c) If the original mean is decreased by 20% find the resulting mean.
d) If one of the observation is removed, the mean of the remaining observation become $\frac{13}{9}$, find the observation that was removed.

SECTION – B
(Solve any 4 questions out of 5)

Question – 4

i. Factorize **3m**
$6x^3 + 7x^2 - 3x$

ii. Two towers stand vertically on level ground. One tower is **18 *m*** high and the other is **30 *m*** high. The distance between their tops (tips) is **20 *m***. Find the horizontal distance between their bases. **3m**

iii. In a Triangular field the base is twice its height. The cost of cultivating the field at ₹36 per m^2 is ₹1,29,600. Find **4m**
a) The area of the field
b) Its base and height

Question - 5

i. A mobile company launches a saving account plan, where customers can invest money and earn compound interest compounded annually. Maya invests ₹10,000 in this plan. After some years she receives a total of ₹12,100 at the rate of 10% interest per annum offered in this plan, find the number of years she invested in this plan. **3m**

ii. If $2\,sin\,2A = 1$, **3m**
Find
a) A
b) $cos\,3A$
c) $sin^2(60 - A) + cos^2(30 + A)$

iii. The marks obtained by 40 students are given below. **4m**

12, 35, 48, 06, 18, 29, 41, 50, 27, 14
22, 38, 45, 19, 33, 47, 09, 26, 31, 40
15, 28, 34, 21, 24, 37, 42, 46, 30, 17
08, 11, 25, 39, 44, 20, 32, 10, 49, 16

a) Taking intervals 0-10, 10-20 & so on construct a frequency distribution table.
b) Write the class mark of 3rd class.
c) Write the class size of the 4th class.

Question – 6

i. Three cubes, whose edges are x *cm*, 3 *cm* and 4 *cm* are melted and recast into a single cube of edge 6 *cm*. **3m**

Find

a) x

b) Find the Total surface area of the cube with edge $x\ cm$

ii. A ladder $25\ m$ long is leaning against a vertical wall and reaches a height of $20\ m$ on the wall. The foot of the ladder is then slid $9\ m$ further away from its initial position, while the top of the ladder slids down the wall. Find the new height reached by the ladder on the wall. **3m**

iii. The following data (arranged in ascending order) shows the number of minutes spent on exercise by 13 people on a particular day. **4m**

$$18, 22, 30, 34, 38, 42, x, x+6, 55, 60, 65, 70, 75, 90$$

a) If the median time is 50 minutes, find the value of x and $x+6$

b) Later, the person who exercised for 90 minutes is replaced by another person who exercised for 36 minutes, find the new median time.

Question - 7

i. Evaluate **3m**

$$\left(\frac{\cos 38°}{\sin 52°}\right)^2 + \left(\frac{\sin 63°}{\cos 27°}\right)^2 - 2\ \sin^2 45°$$

ii. Factorise **3m**

$6x^2 - y^2 - 5xy + 8x - 8y$

iii A certain sum becomes ₹13,500 in 1 year and ₹14,580 in 2 years at compound interest, compound annually. Find the principal. **4m**

Question - 8

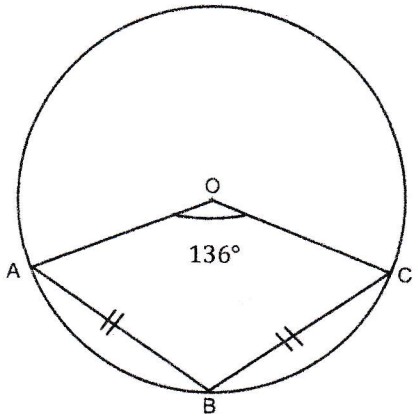
i. In the adjoining, o is the centre of the given circle, chord AB = chord BC and $\angle AOC = 136°$ **3m**

Find:

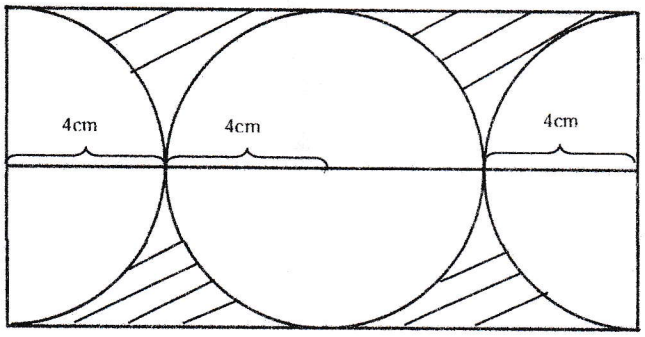
a) $\angle OAC$

b) $\angle AOB$

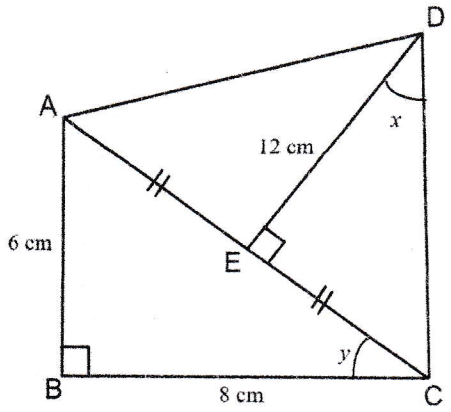
c) $\angle OAB$



ii. In the given figure, find the area of the shade portion within the rectangle. (Take $\pi = 3.14$) **3m**



iii. In the given figure E is midpoint of AC, DE ⊥ AC
Find the value of
$cosec\ x + sec\ y$



4m