



# Silver Grove School

## SAMPLE PAPER -I (2025-26)

### Mathematics

IX-A

### Time-3hrs.

### **Maximum Marks-80**

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## Instructions:

- 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 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 [ ]

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**SECTION A [40 MARKS]**

Q1 Choose the right option only. [15 marks]

1A If  $a^2 - 5a + 1 = 0$  then  $a + \frac{1}{a} = \dots$

1B If  $x^2 + \frac{1}{x^2} = 2$  then value of  $x + \frac{1}{x}$  ..... .

(I)4 (ii) 2 (iii) 6 (iv) 0

1C If value of  $a+b+c = 0$  then value of  $a^3 + b^3 + c^3 - 3abc$  is .......

1D An altitude divide each other in ratio of

(i) 2:1      (ii) 1:2      (iii) 2:3      (iv) none of these

1E Sum of exterior angles of a polygon is

(i)  $360^\circ$       (ii)  $180^\circ$       (iii) vary as no. of sides vary      (iv) Can not be calculated

1F If the number of sides in a regular polygon is 12, then what will be the measure of each of its exterior angles?

(I).  $30^\circ$       (ii)  $48^\circ$       (iii)  $40^\circ$       (iv)  $36^\circ$

1G. If the measure of each interior angle of a regular polygon is  $150^\circ$ , then the number of its diagonals will be

1H If E, F, G and H are the mid-points of the sides of a parallelogram ABCD, respectively, then  $\text{ar (EFGH)}$  is equal to:

(I)  $1/2 \text{ ar(ABCD)}$     (ii).  $1/3 \text{ ar (ABCD)}$     (iii)  $2 \text{ ar(ABCD)}$     (iv).  $\text{ar(ABCD)}$

11 A median of a triangle divides it into two

1J In a triangle ABC, E is the mid-point of median AD. Then:

(I).  $\text{ar}(\text{BED}) = 1/4 \text{ ar}(\text{ABC})$       (ii).  $\text{ar}(\text{BED}) = \text{ar}(\text{ABC})$   
(iii).  $\text{ar}(\text{BED}) = 1/2 \text{ ar}(\text{ABC})$       (iv)  $\text{ar}(\text{BED}) = 2 \text{ ar}(\text{ABC})$

1K If a triangle and a parallelogram are on the same base and between same parallels, then the ratio of the area of the triangle to the area of the parallelogram will be:

1 LThe distance between the origin and the point:  $(-8, 6)$  (I) 10 units (II) 15 units (III) 20 units (IV) 25 units

1M Value of  $\tan 10^\circ \tan 15^\circ \tan 75^\circ \tan 80^\circ$  is

(I) 10 (II) 75 (III) 1 (IV) 15

1N If the median of the following observations, arranged in ascending order, is 20. Then what is the value of  $x$ . 3, 4, 7, 8, 10, 18,  $x + 2$ ,  $x + 4$ , 26, 28, 31, 36, 38 and 40.

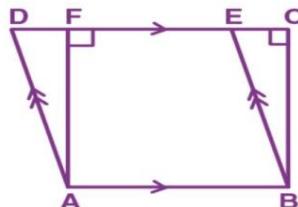
1 O. Total sum of angle of a polygon of 10 sides will be

(I) 1260 ° (II) 1230 ° (III) 1200 ° (IV) none

**Q2 A..** In a polygon there are 5 right angle and the remaining angles are equal to  $195^\circ$  each. Find the number of sides in the polygon. [4]

.Q2.B. In the given figure, if area of triangle ADE is 60 cm<sup>2</sup>, state, given reason, the area of: [4]

(i) Parallelogram ABED      (ii) Rectangle ABCF      (iii) Triangle ABE



Q 2 C. Find the compound interest, on ₹2,400 for 2 years at 5 per cent per annum. [4]

Q3 A If  $a^2 + b^2 + c^2 = 50$  and  $ab + bc + ca = 47$ , find  $a + b + c$ . [4]

Q3 B factories the following [4]

I  $3x^2 + x - 10$

II Insert 5 irrational numbers between  $2\sqrt{5}$  and  $3\sqrt{3}$ .

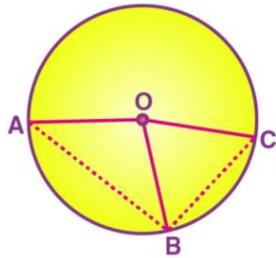
Q 3 C .A ladder 13 m long rests against a vertical wall. If the foot of the ladder is 5 m from the foot of the wall, find the distance of the other end of the ladder from the ground. [5]

SECTION B [ 40 MARKS]

(Attempt any four)

4 A. In the given figure, the lengths of arcs AB and BC are in the ratio 3:2. If  $\angle AOB = 960$ , find: [3]

(i)  $\angle BOC$       (ii)  $\angle ABC$



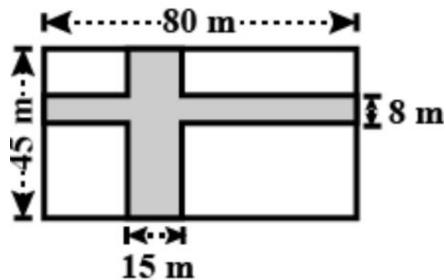
4B. Construct a frequency polygon for the following distribution: [3]

Class intervals	Frequency
0 – 4	4
4 – 8	7
8 – 12	10
12 – 16	15
16 – 20	11
20 – 24	6

4C. The diagonals of a rhombus are 16 cm and 12 cm, in length. Find the side of the rhombus in cm.

[4]

5 A. The diagram, given below, shows two paths drawn inside a rectangular field 80 m long and 45 m wide. The widths of the two paths are 8 m and 15 m as shown. Find the area of the shaded portion. [3]



5 B. Given:  $5\cos A - 12\sin A = 0$  evaluate:  $\frac{(\sin A + \cos A)}{(2\cos A - \sin A)}$  [3]

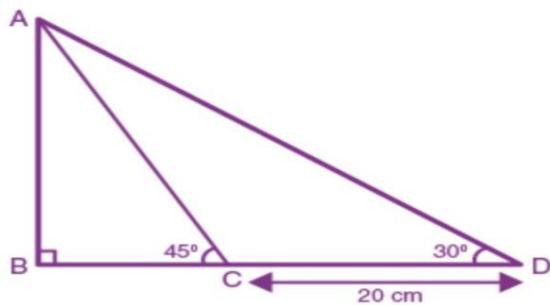
5C. Find the magnitude of angle A, if: [4]

(i)  $2\sin A \cos A - \cos A - 2\sin A + 1 = 0$

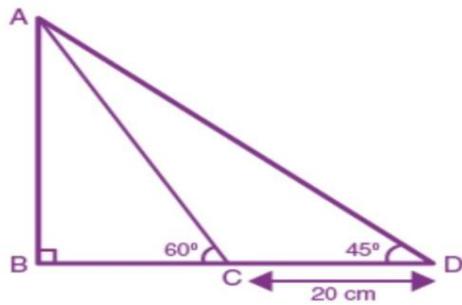
(ii)  $2\tan 3A \cos 3A - \tan 3A + 1 = 2\cos 3A$

6 A. Find AB and BC [3]

(i)



(iii)



6B. Find the slope and the y-intercept of the lines: [3]

(i)  $4x - 3y = 2$

(ii)  $3x + 2y = 6$

6C Solve the given equations graphically:  $3x - 2y = 4$  and  $5x - 2y = 0$

[4]

7 A. Find the co-ordinates of the points on the y-axis, which are at a distance of 10 units from the point  $(-8, 4)$

[3]

7B Evaluate: [3]

. Evaluate :

$$(I) \quad \frac{2\tan 57^\circ}{\cot 23^\circ} - \frac{\cot 70^\circ}{\tan 20^\circ} - \sqrt{2} \cos 45^\circ$$

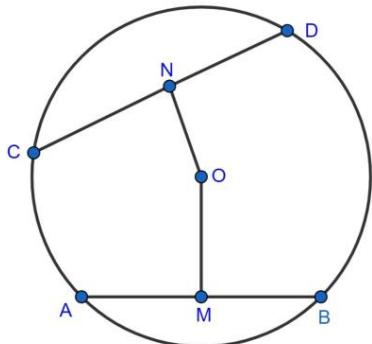
$$(II) \quad \frac{\cos 70^\circ}{\sin 20^\circ} - \frac{\cos 59^\circ}{\sin 31^\circ} - 8 \sin^2 30^\circ$$

7 C. In the given figure, O is the centre of the circle. AB and CD are two chords of the circle. OM is perpendicular to AB and ON is perpendicular to CD.  $AB = 24 \text{ cm}$ ,  $OM = 5 \text{ cm}$ ,  $ON = 12 \text{ cm}$ . Find the :

[4]

(i) radius of the circle.

(ii) length of chord CD.



8A. The ratio between exterior and interior angle of a regular polygon is 2:3 find the number of sides in a polygon. [3]

8B Give graphical solution of given a pair equation in two variables  $y = 2x + 1$  and  $x + 2y + 3 = 0$  [3]

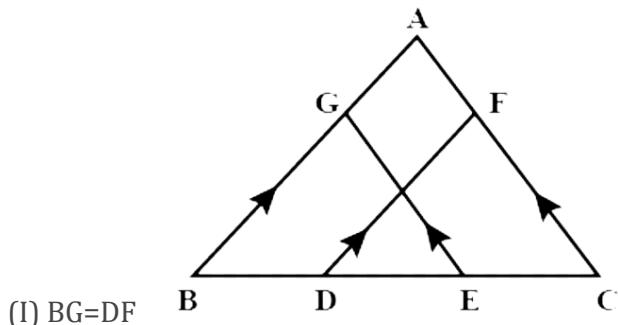
8C A In a parallelogram ABCD, point P lies in DC such that  $DP:PC = 3:2$  if area of triangle DPB is 30 sq cm, find the area of parallelogram ABCD [4]

9A. If  $X = 5 - 2\sqrt{6}$  then find the value of  $x^2 - 1/x^2$

[3]

9B In given figure :  $AB \parallel FD$ ,  $AC \parallel GF$  and  $BD = CE$  prove that

[3]



(I)  $BG = DF$

(II)  $CF = EG$

9C If 75 persons can sleep in a room 25 m by 9.6 m. If each person requires  $16 \text{ m}^3$  of air; find the height of the room.

[4]

10 A. Prove that the points  $A(-5, 4)$ ,  $B(-1, -2)$  and  $C(5, 2)$  are the vertices of an isosceles right-angled triangle.

[3]

10 B. The median of observations  $10, 11, 13, 17, x + 5, 20, 22, 24$  and  $53$ -(arranged in ascending order) is  $18$ ; find the value of  $x$ .

[3]

10 C Find the value of  $m$  and  $n$ : if:

[4]

$$(i) \frac{3+\sqrt{2}}{3-\sqrt{2}} = m+n\sqrt{2}$$