विद्या सर्वार्थि साधिका

ANANDALAYA

PERIODC TEST – 3

Class: IX

Subject: Mathematics M.M : 40

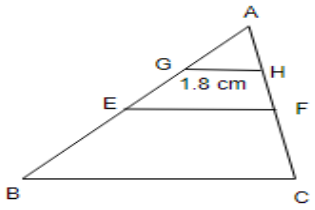
Date : 07 – 01 – 2023 Time : 1 Hr 30 Min

General Instructions:

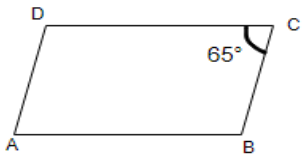
1. The question paper consists of 17 questions divided into 4 sections A, B, C and D
2. All questions are compulsory.
3. Section A comprises of 5 questions of 1 mark each. Internal choice has been provided in one question.
4. Section B comprises of 5 questions of 2 marks each. Internal choice has been provided in one question.
5. Section C comprises of 5 questions of 3 marks each. An internal choice has been provided in one question.
6. Section D comprises of 2 questions of 5 marks each.

SECTION - A

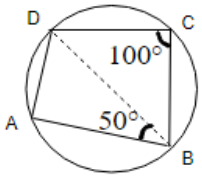
1. In the figure, E and F are the mid- points of the sides AB and AC respectively of the ΔABC. G and H are the mid- points of the sides AE and AF respectively ΔAEF. If GH = 1.8 cm, find BC. (1)



2. In the given figure, ABCD is a parallelogram. If $\angle C = 65°$, then $(\angle B + \angle D)$ = _____ (1)

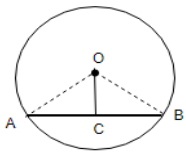


3. a) In the figure, ABCD is a cyclic quadrilateral in which ∠BCD = 100° and ∠ ABD = 50° find ∠ ADB. (1)



OR

b) Given that O is the centre, distance of the chord from the centre is 5 cm, radius of the circle = 13 cm. length of the chord AB =_____



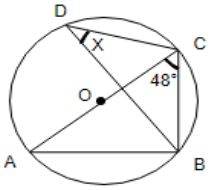
4. Two sides of a triangle are 13 cm and 14 cm and its semi-perimeter is 18 cm. Find the third side of this triangle. (1)

5. If the area of an equilateral triangle is $16\sqrt{3}cm^2$ then the perimeter of the triangle will be _____? (1)

SECTION - B

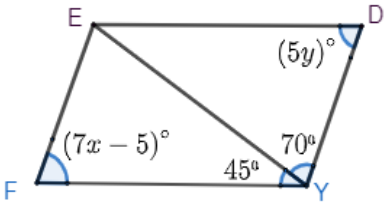
6. In quadrilateral ABCD, if $\angle A = 60°$ and $\angle B : \angle C : \angle D = 2:3:7$. Find $\angle B$ and $\angle D$. (2)

7. In the figure, O is the centre of the circle, AC is a diameter and $\angle ACB = 48°$. Find the value of x. (2)



8. Find the area of triangle whose sides are 18 cm, 24 cm and 30 cm. (2)

9. a) FEDY is a parallelogram. Find the value of x, y and $\angle F$ from the figure. (2)



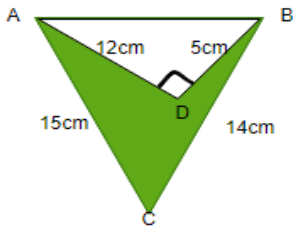
OR

b) A diagonal of a rectangle is inclined to one side of the rectangle at an angle $25°$. Find the obtuse and acute angles between the diagonals.

10. The base of an isosceles triangle is 10 cm and one of its equal sides is 13 cm. Find its area using Heron's formula. (2)

SECTION - C

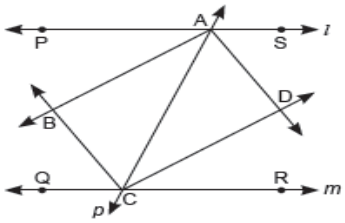
11 a) Find the area of the shaded region in the figure. Given $\angle ADB = 90°$ (3)



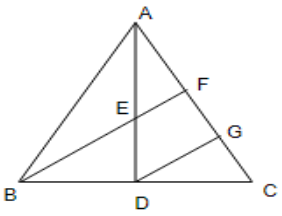
OR

b) The perimeter of a triangular garden is 900 cm and its sides are in the ratio 3 : 5 : 4. Using Heron's formula, find the area of triangular garden.

12. Two parallel lines l and m are intersected by a transversal. Show that the quadrilateral formed by the bisectors of interior angles is a rectangle. (3)

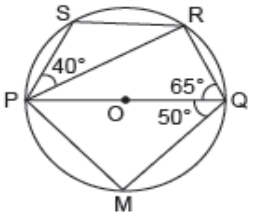


13. In $\Delta ABC, AD$ is the median through A and E is the mid-point of AD, BE produced meets AC in F Prove that, $AF = \frac{1}{3}AC$ (3)



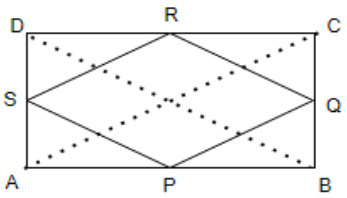
14. AB and CD are two parallel chords of a circle, lying on opposite side of the centre, such that AB = 10 cm, CD = 24 cm. If the distance between AB and CD is 17 cm, find the radius of the circle. (3)

15. In the given figure, PQ is a diameter of a circle with centre O. If $\angle$ PQR = 65°, $\angle$ SPR = 40°, $\angle$ PQM = 50°, find $\angle$ QPR, $\angle$ PRS and $\angle$ QPM. (3)



SECTION - D

16. Show that the quadrilateral formed by joining the midpoints of the consecutive sides of a rectangle is a rhombus. (5)



17 Prove that "The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle". (5)