विद्या सर्वार्थि साधिका

ANANDALAYA

PERIODIC TEST – 3

Class: IX

Subject: Mathematics (041) M.M: 40

Date : 08-01-2024 Time: 1 Hour 30 min

General Instructions:

1. This Question paper contains – four sections A, B, C and D. Each section is compulsory.
2. Section A has 8 MCQ's and 01 Assertion – Reason based question of 1 mark each.
3. Section B has 6 Very Short Answer (VSA) – type questions of 2 marks each.
4. Section C has 5 Short Answer (SA) – type questions of 3 marks each.
5. Section D has 1 source based/case based/passage based/integrated units of assessment of 4 marks each with sub-parts.
6. All Questions are compulsory. However, an internal choice in 2 Questions of 2 marks, 2 Questions of 3 marks has been provided. An internal choice has been provided in the 2 marks questions of Section D.

SECTION – A

1. In a circle with centre O, chords AB and CD are of lengths 5 cm each subtend angles $x°\ and\ y°$ at the centre of the circle respectively. Then _____. (1)

   (A) $x° > y°$ (B) $x° = y°$ (C) $x° < y°$ (D) cannot say

2. Two sides of a triangle are 8 cm and 11 cm and perimeter of triangle is 32 cm. What is the value of Semi perimeter 's'? (1)

   (A) 16 cm (B) 19 cm (C) 20 cm (D) 21.5 cm

3. If the angles of the quadrilateral ABCD are $3x, 7x, 3x, and\ 5x$ respectively. What is the value of $2x$? (1)

   (A) 10° (B) 20° (C) 30° (D) 40°

4. Slant height of a cone is 34 cm and base diameter is 32 cm, then find the height of the cone. (1)

   (A) 33 cm (B) 25 cm (C) 30 cm (D) 2√33 cm

5. Find the area of an equilateral triangle with side $2\sqrt{3}\ cm$. (1)

   (A) $3\sqrt{3}\ cm^2$ (B) $3\sqrt{6}\ cm^2$ (C) $6\sqrt{3}\ cm^2$ (D) $6\sqrt{6}\ cm^2$

6. Given a quadrilateral ABCD such that $\angle C = 90°$ and diagonal AC and BD bisect each other at O, then the quadrilateral is a _____. (1)

   (A) rhombus (B) trapezium (C) parallelogram (D) rectangle

7. A chord of a circle is equal to the radius of the circle. Then what is the angle subtended by the chord at the point of manjour arc? (1)

   (A) 120° (B) 30° (C) 60° (D) 150°

8. A gardener has to put double fence all around a triangular path with sides 120 m, 80 m and 60 m. In the middle of each sides, there is a gate of width 10 m. Find the length of the wire needed for the fence. (1)

   (A) 250 m (B) 230 m (C) 490 m (D) 460 m

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

9. Assertion (A) : Assertion: AB and CD are two parallel chords of a circle whose diameter is AC. Then $AB \neq CD$. (1)
Reason (R) : Reason: Perpendicular from the centre of a circle bisects the chord.

SECTION – B

10. Using heron's formula calculate the area of an isosceles triangle having base 4cm and length of one of equal sides as 8cm. (2)

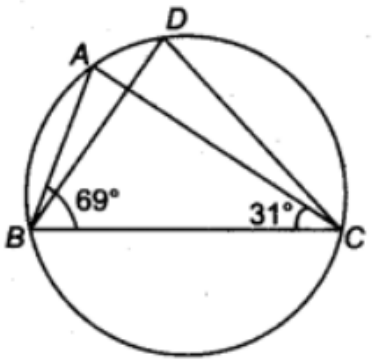
11. If the total surface area of sphere is 98.56 cm^2 , find the radius of the sphere. (2)

OR

There are 15 conical diyas, with red glittering polish surface. The radius of base is 7 cm and slant height is 10 cm. then calculate how much total area is polished?

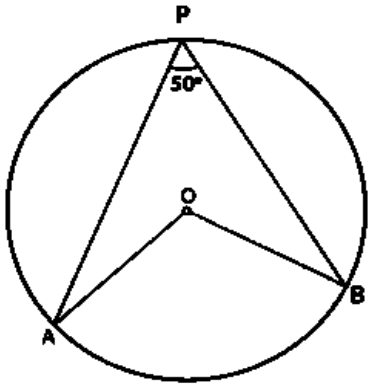
12. If one angle of a parallelogram is 36° less than twice its adjacent angle, then find the angles of parallelogram. (2)

13. In the given figure, ∠ABC = 69°, ∠ACB = 31°, find ∠BDC. (2)



OR

In the given figure ∠APB = 50°, Find the ∠AOB and reflex∠AOB.

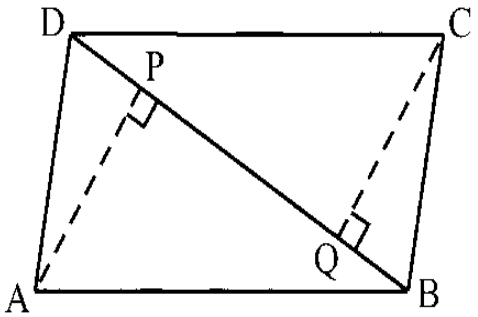


14. In parallelogram ABCD, AB || CD and AD = 8cm. If the perimeter of the parallelogram is 36 cm, what is the length of AB? (2)

15. Find the area of the triangle using Heron's formula whose sides are 13cm, 14cm and 15cm. (2)

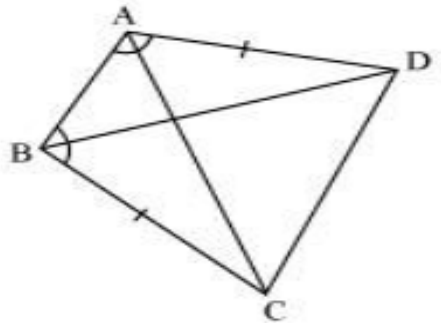
SECTION – C

16. ABCD is a parallelogram and AP and CQ are perpendiculars from vertices A and C on diagonal BD (see the figure), Show that (i) $\Delta APB \cong \Delta CQD$ (ii) $AP = CQ$. (3)



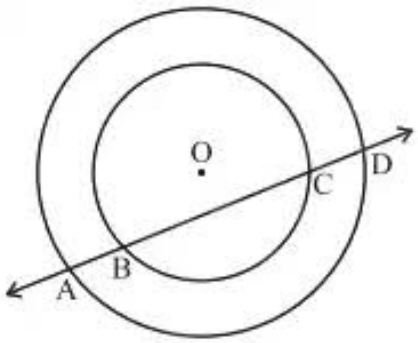
OR

In the given figure, ABCD is a quadrilateral in which AD = BC and ∠DAB = ∠CBA. Prove that ΔABD≅ΔBAC and ∠ABD=∠BAC.



17. A hemispherical bowl of internal diameter 36cm contains a liquid. This is to be filled in conical bottles of radius 3cm and height 6 cm. How many bottles are required to empty the bowl? (3)

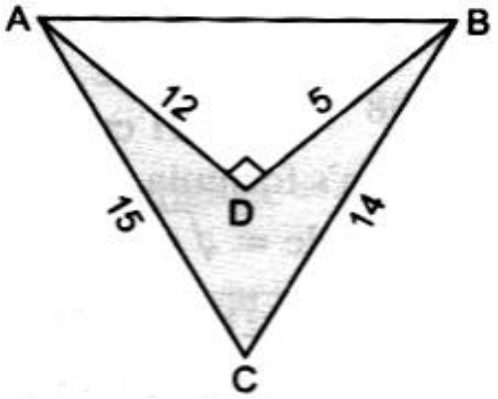
18. If a line intersects two concentric circles (circles with the same centre) with centre O at A, B, C and D.
Prove that AB = CD. (3)



19. The sides of triangle are 100 m, 120 m and 140 m. Find its area. (Use √6 = 2.45) (3)

OR

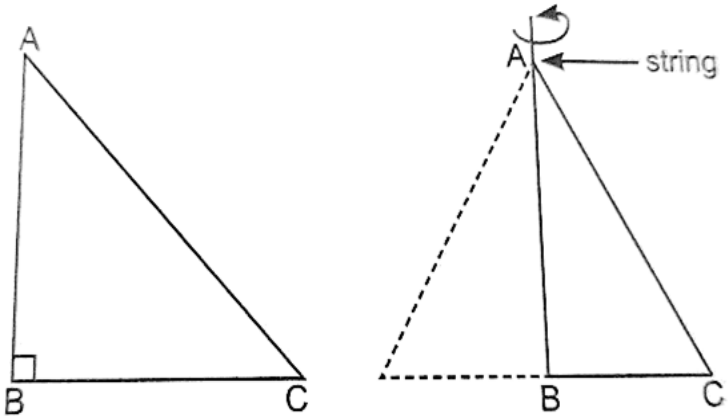
Find the area of shaded region in the given figure.
(All measurements are in cm)



20. PQ and RS are two parallel chords of a circle on the same side of centre O and radius is 10 cm. If PQ = 16 cm and RS = 12 cm, find the distance between the chords. (3)

SECTION – D

21. Cut out a right-angled triangle ABC right angled at B from a thick paper sheet. Paste a long thick stick/string along one of the perpendicular side of the triangle cut out. Now rotate the triangle about the string that acts as a vertical axis, a number of times.
Now answer the following questions:



(i) What shape do you recognize that the triangle is forming as it rotates around the string? (1)

(ii) What is the side BC and AC called in the recognized shape? (1)

(iii) There are two right circular cone. The curved surface area of one is twice that of the other. If the ratio of their slant height is 1:2, find the ratio of their radii. (2)

OR

(iii) The sides of a right-angled triangle containing the right angles are 5 cm and 12 cm in length. Now triangle is rotated about the side with the measure 12 cm. Find the volume of the solid, thus generated.