



ANANDALAYA
PERIODIC TEST – 3
Class: IX

Subject: Mathematics (041)

Date : 08-01-2025

M.M:40

Time: 1Hour 30 Minutes

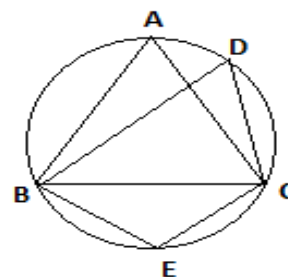
General Instructions:

1. The question paper consists of 21 questions divided into 4 sections A, B, C and D.
2. All questions are compulsory.
3. Section A comprises of 9 questions of 1 mark each.
4. Section B comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
5. Section C comprises of 5 questions of 3 marks each. Internal choice has been provided in two questions.
6. Section D has 1 source based/case based/passage based/integrated units of assessment of 4 marks. An internal choice has been provided in the 2 marks questions.
7. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

SECTION – A

1. The adjacent angles of a parallelogram are $(3x - 10)^\circ$ and $(5x + 30)^\circ$. Find the value of x. (1)
(A) 20 (B) 40 (C) 60 (D) 10

2. In the figure, $\triangle ABC$ is equilateral. Find $\angle BDC$ and $\angle BEC$. (1)



- (A) 60° & 110° (B) 50° & 120° (C) 60° & 120° (D) 70° & 130°

3. In a $\triangle ABC$, P, Q, R, are the midpoints of the sides BC, CA and AB respectively. If AC = 21cm, BC = 29 cm, AB = 30 cm. Find the perimeter of quadrilateral ARPQ. (1)

- (A) 20 cm (B) 52 cm (C) 51 cm (D) 80 cm

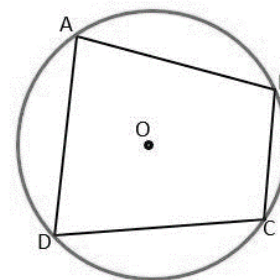
4. What is the total surface area of a cone of radius 7cm and height 24cm? (1)

- (A) 710 cm^2 (B) 704 cm^2 (C) 550 cm^2 (D) 750 cm^2

5. Vicky has 3 bamboo sticks of different measures. Now, he wants to increase the measurement to make a triangle by doubling its sides and then reconstructing the triangle. How many times a new perimeter becomes the previous? (1)

- (A) One time (B) Four times (C) Two times (D) Three times

6. In the figure, quadrilateral ABCD is cyclic. If $\angle A = 80^\circ$, then what is the value of $\angle C$? (1)



- (A) 30° (B) 40° (C) 100° (D) 60°

7. If the radius of the sphere is $2r$, then what will be the volume of it? (1)

- (A) $\frac{4}{3}\pi r^3$ (B) $\frac{8}{3}\pi r^3$ (C) $32\pi r^3$ (D) $\frac{32}{3}\pi r^3$

8. The diagonal of a rectangle is inclined to one side of the rectangle at 25° . Find the acute angle between the diagonals. (1)
- (A) 55° (B) 50° (C) 40° (D) 60°

In the following Q.9, 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. (A): If the sum of two sides of a triangle is 12 cm and the semi-perimeter of the triangle is 10 cm, then the third side of the triangle is 8 cm. (1)
- (R): Semi-perimeter of a triangle with sides a, b and c is $\frac{a+b+c}{2}$.

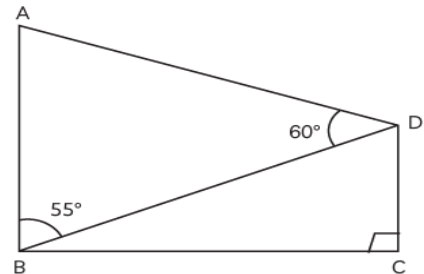
SECTION – B

10. The perimeter of an isosceles triangle is 32cm. The ratio of the equal side to base is 3:2. Find the area of the triangle. (2)

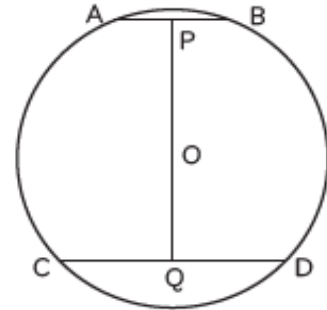
OR

Each side of an equilateral triangle is $2x$ cm. If $x\sqrt{3} = \sqrt{48}$, then find its area.

11. In the figure, $AB \parallel CD$, $\angle ABD = 55^\circ$, $\angle ADB = 60^\circ$ and $\angle BCD = 90^\circ$, what will be the measure of $\angle ADC$? (2)



12. If the radius of a circle with centre O is 5 cm, $AB = 6$ cm and $CD = 8$ cm, then determine PQ. (2)

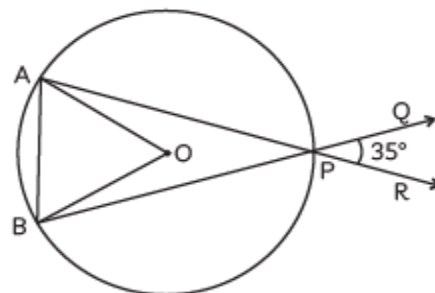


13. The area of the circular base of a right circular cone is 78.5 cm^2 . If its height is 12 cm then find its volume. (2)
14. The angles of a quadrilateral are $(x + 20)^\circ$, $(x - 20)^\circ$, $(2x + 5)^\circ$, $(2x - 5)^\circ$. Find the value of x. (2)

OR

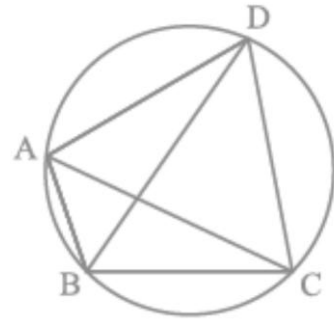
During Math Lab Activity each student was given four broomsticks of lengths 10cm, 10cm, 6cm, 6cm to make different types of quadrilaterals. How many quadrilaterals can be formed using these sticks, also name the quadrilaterals.

15. In the given figure, O is the centre of circle and AB chord. $\angle QAR = 35^\circ$. Find $\angle AOB$. (2)



SECTION – C

16. How many cubic centimetres of water can a conical vessel of base diameter 42 cm and slant height 29 cm hold? (3)
17. In the given figure, ABCD is a cyclic quadrilateral in which AC and BD are its diagonals. If $\angle DBC = 55^\circ$ and $\angle BAC = 45^\circ$, find $\angle BCD$. (3)



OR

Prove that equal chords of a circle subtend equal angles at the centre.

18. A teacher brings some clay in the classroom to teach the topic mensuration. First she forms a cone of radius 10 cm and height 5 cm and then she moulds that cone into a sphere. (3)
(i) Find the volume of the conical shape. (Leave the answer in terms of π)
(ii) Find the radius of the sphere.
19. The diagonals of a rectangle ABCD meet at O. If $\angle BOC = 50^\circ$, then find $\angle ODA$. (3)
20. The volume of a right circular cone is 9856 cm^3 . If the diameter of the base is 28 cm, (3)
Find: (i) height of the cone.
(ii) slant height of the cone.
(iii) curved surface area of the cone.

OR

Find the volume of a sphere whose surface area is 154 cm^2 .

SECTION – D

21. Ram has shifted from a flat to a bungalow and planted a rose garden in his bungalow's triangular field. The sides of a triangular field are 82m, 80m and 18m. In the garden, each rose bed occupies 20 m^2 area of the field.



- (i) Determine the length of boundary of the triangular field. (1)
(ii) Determine the semi-perimeter of the triangular field. (1)
(iii) Find the area of the triangular field. (2)

OR

- (iii) If each rose bed occupies 20 m^2 area of the field, then find the number of rose beds in the garden.