Mathematics — Ganita Manjari

Chapter 6 Test 5

Measuring Space: Perimeter and Area

Class IX | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. Choose one option in A; show working in B–D.
2. No calculators. Leave π and square roots exact unless directed otherwise.
3. Figures are schematic. Use the stated dimensions and show your working.

SECTION A

(5 questions × 1 mark = 5 marks)

1. Which symbol correctly completes $\pi \square 22/7$ when stating an approximation?

(A) = (B) < only
(C) ≈ (D) ≥ only

2. The area of a circle in terms of its diameter d is:

(A) πd^2 (B) $\pi d^2/4$
(C) $\pi d/2$ (D) $2\pi d^2$

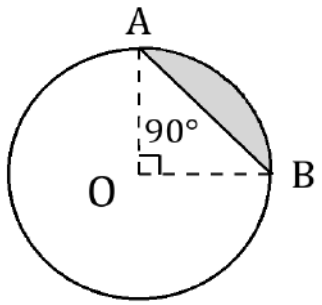
3. A triangle and a parallelogram have the same base and perpendicular height. Their areas are in the ratio:

(A) 1:2 (B) 2:1
(C) 1:1 (D) 1:4

4. To "square a rectangle" means to construct a square with the same:

(A) Perimeter (B) Diagonal
(C) Side lengths (D) Area

5. The shaded region is bounded by a chord and its arc. It is a:

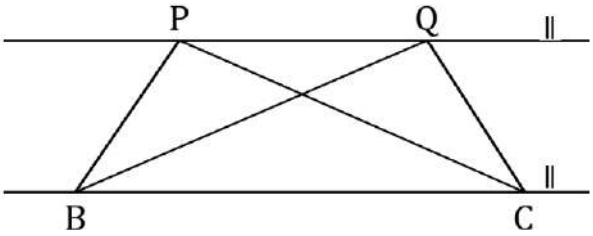


(A) Sector (B) Segment
(C) Radius (D) Diameter

SECTION B

(4 questions × 2 marks = 8 marks)

6. P and Q lie on a line parallel to BC. Compare the areas of triangles PBC and QBC, giving a reason.



7. A triangle's sides are in the ratio 3:4:5 and its perimeter is 60 cm. Find its area.

8. A wheel of radius 28 cm rolls 880 m without slipping. Find the number of complete revolutions, using $\pi \approx 22/7$.

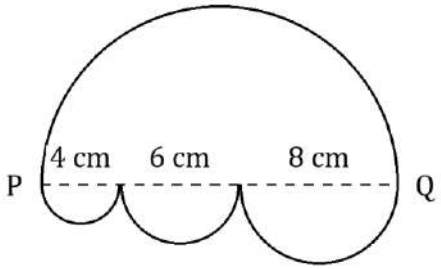
9. For a circle of radius 50 cm, find the difference between circumference estimates using π = 22/7 and π = 3.14.

SECTION C

(3 questions × 3 marks = 9 marks)

10. Explain algebraically how Heron's formula arises from Brahmagupta's formula when a fourth side has length zero.

11. The large semicircle has diameter 18 cm. The three smaller semicircles have consecutive diameters 4, 6 and 8 cm along the same line. Compare the two curved path lengths.



12. A circle has circumference 18π cm. Find its radius and area, then express area in terms of circumference C alone.

SECTION D

(1 application question × 3 marks = 3 marks)

13. Adjacent running lanes differ in radius by 1.2 m on each semicircular bend. Their straight portions have equal lengths. Find the one-lap stagger between lanes 1 and 4. Does shortening the straights change it?