Mathematics — Ganita Manjari

Chapter 6 Test 8

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)

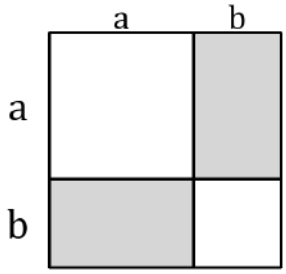
1. A triangle's circumcircle passes through:

(A) Its three side midpoints
(B) Its three vertices
(C) Its three altitude feet
(D) Its three incircle contact points

2. A triangle's base is doubled and its height is halved. Its area:

(A) Doubles
(B) Halves
(C) Remains unchanged
(D) Quadruples

3. The large square has side a + b. Find the total area of the two shaded rectangles.



(A) ab
(B) $a^2 + b^2$
(C) $2ab$
(D) $(a - b)^2$

4. The decimal expansion of π is:

(A) Terminating
(B) Eventually repeating
(C) An integer
(D) Non-terminating and non-repeating

5. If two discs have areas in the ratio 49:81, their radii are in the ratio:

(A) 7:9
(B) 49:81
(C) 9:7
(D) 2401:6561

SECTION B

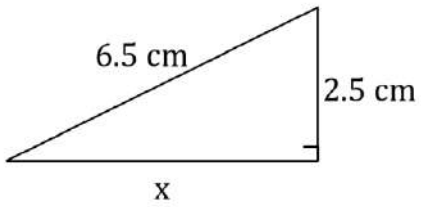
(4 questions × 2 marks = 8 marks)

6. A chord subtends 60° at the centre of a circle of radius 9 cm. Find the difference between the major and minor arc lengths.

7. For a circle, the numerical ratio area ÷ circumference is 3 cm. Find its radius and circumference.

8. A triangular field has base 250 m and height 160 m. Find its area in hectares. (1 hectare = 10,000 m^2.)

9. A right triangle used to square a 9 cm by 4 cm rectangle has hypotenuse 6.5 cm and one leg 2.5 cm. Find x and verify that a square of side x has the required area.

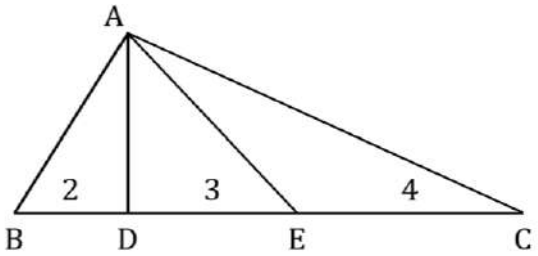


SECTION C

(3 questions × 3 marks = 9 marks)

10. A cyclic quadrilateral has side lengths in the ratio 1:2:3:4 and perimeter 40 cm. Find its exact area.

11. D and E divide BC so that BD:DE:EC = 2:3:4. Triangle ABC has area 180 cm^2. Find the areas of triangles ABD, ADE and AEC.



12. An equilateral triangle is inscribed in a circle of radius r. Show that its area divided by the disc's area is $3\sqrt{3}/(4\pi)$.

SECTION D

(1 application question × 3 marks = 3 marks)

13. Adjacent lanes differ in bend radius by 1.2 m. Compare their required staggers for a 400 m race run as one lap of a 400 m track or two laps of a 200 m track. Assume each lap has two semicircular bends and equal straights.