Mathematics

Practice Test Paper 7

(Ganita Prakash Part 2 | Chapter 4: Exploring Some Geometric Themes)

Class VIII | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. The paper has four sections: A, B, C and D.
2. Section A - 5 marks; Section B - 8 marks; Section C - 9 marks; Section D - 3 marks.
3. Choose one correct option in Section A. Show the necessary working in Sections B, C and D.
4. Study the diagrams carefully before answering the related questions.

SECTION A

(5 questions × 1 mark = 5 marks)

1. At each step of a Sierpiński carpet, what fraction of the area present just before that step is kept?

(A) $\frac{1}{9}$ (B) $\frac{1}{8}$

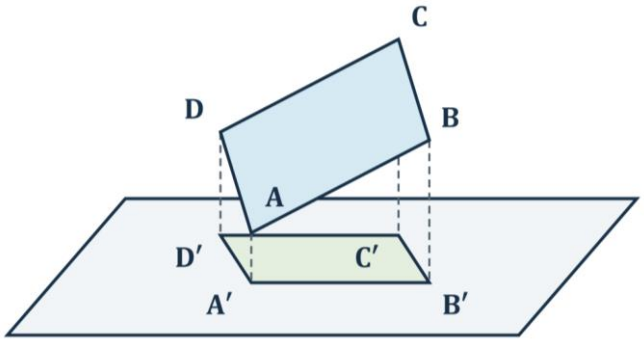
(C) $\frac{7}{8}$ (D) $\frac{8}{9}$

2. One Koch step multiplies a curve's length by 4/3. The increase is what fraction of its previous length?

(A) $\frac{2}{3}$ (B) $\frac{3}{4}$

(C) $\frac{1}{4}$ (D) $\frac{1}{3}$

3. ABCD is a square on a tilted sheet. Its orthogonal projection is A′B′C′D′. Which feature is preserved?



(A) Its area must stay the same

(B) All four sides stay equal

(C) Opposite sides stay parallel

(D) All four angles stay right angles

4. Which statement is true about a cube and a cuboid?

(A) Only a cube has eight vertices

(B) A cuboid always has twelve faces

(C) Both have eight vertices

(D) A cube has fewer edges

5. Which solid cannot be made exactly from a flat, unstretched net of plane pieces?

(A) Triangular prism

(B) Cube

(C) Square pyramid

(D) Sphere

SECTION B

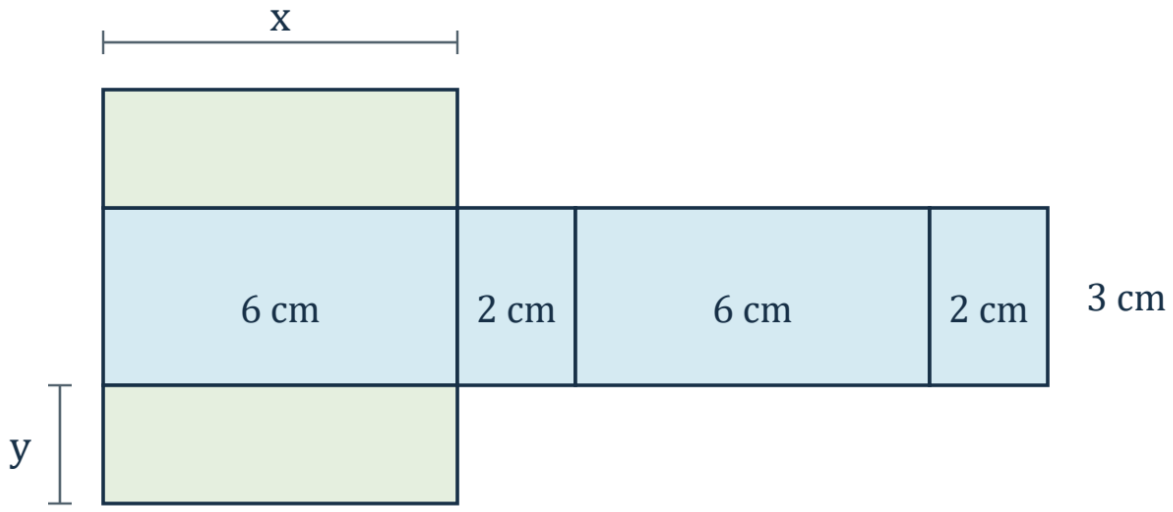
(4 questions × 2 marks = 8 marks)

6. At Step 1 of a Sierpiński triangle, one hole is removed. At Step 2, three more holes are removed. Compare the area of each new hole with the area of the first hole.

7. A square has side 10 cm. Joining its adjacent side midpoints cuts off four corner triangles. Find the length of one join and identify the type of a corner triangle.

8. Meena traces a cube net, turns the paper through a right angle and traces it again. Has she found a new net? Explain how she should count such copies.

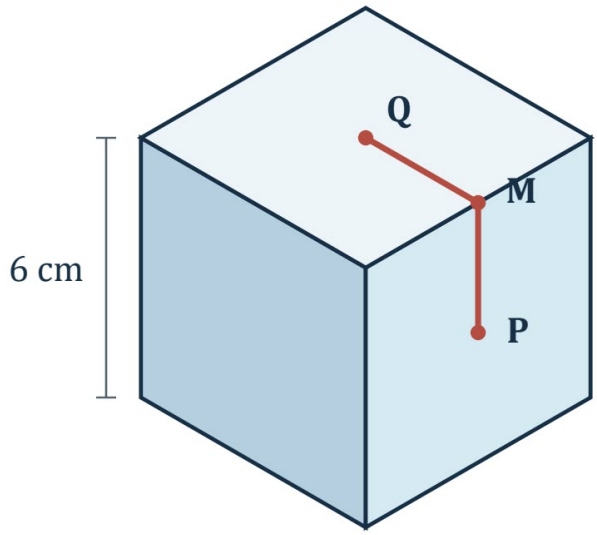
9. The diagram is a net of a cuboid. The four rectangles in the middle strip have height 3 cm, and their widths alternate 6 cm and 2 cm. Find x and y on the two attached faces.



SECTION C

(3 questions × 3 marks = 9 marks)

10. A cube has side 6 cm. P is the centre of its front face and Q is the centre of its top face. The marked route passes through M, the midpoint of their common edge. Find PM + MQ. Explain why this is the shortest route restricted to these two faces.



11. A pyramid has 14 edges. Find the number of sides of its base, its number of faces and its number of vertices. Show how the edges are grouped.

12. A sheet carrying a regular hexagon is tilted relative to a viewing plane. Must its orthogonal projection still be a regular hexagon? Discuss parallel sides, equal lengths and a limiting edge-on view.

SECTION D

(Application Based Question - 3 marks)

13. A right triangular prism has end triangles with side lengths 3 cm, 4 cm and 5 cm. The distance between its triangular ends is 7 cm.

(i) List the dimensions of its three rectangular side faces.

(ii) Find the combined area of those three rectangles.

(iii) How many triangular pieces are needed to close the net?