

CLASS 9

MATHEMATICS

EXTRA QUESTIONS

Class 9 Mathematics Chapter 6 Measuring Space: Perimeter and Area – Extra Questions with Answers

Extra practice questions for Class 9 Maths Chapter 6 (Measuring Space: Perimeter and Area), beyond the textbook. These Class 9 Mathematics Chapter 6 important questions are handy for last-minute exam practice.

Contents

- Very Short Answer Questions (1 mark)
- Short Answer Questions (2–3 marks)
- Higher-Order Thinking / Application Questions
- Class 9 Mathematics Chapter 6 – Solutions and Notes

Extra practice questions for Class 9 Maths Chapter 6 (Measuring Space: Perimeter and Area), beyond the textbook. These Class 9 Mathematics Chapter 6 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Write Heron's formula for the area of a triangle.

Ans: Area = $\sqrt{s(s-a)(s-b)(s-c)}$, where $s = (a+b+c)/2$.

Q2. Find the semi-perimeter of a triangle with sides 5 cm, 6 cm, and 7 cm.

Ans: $s = (5+6+7)/2 = 9$ cm.

Q3. What is the area formula for a parallelogram?

Ans: Area = base $\times$ height.

Q4. When is Heron's formula especially useful?

Ans: When only the three side lengths of a triangle are known and the height is not directly given.

Q5. How is the area of a quadrilateral found using a diagonal?

Ans: By splitting it into two triangles along the diagonal and adding their individual areas.

Short Answer Questions (2–3 marks)

Q6. Find the area of a triangle with sides 3 cm, 4 cm, and 5 cm using Heron's formula.

Ans: $s = (3+4+5)/2 = 6$. Area = $\sqrt{6(6-3)(6-4)(6-5)} = \sqrt{6 \times 3 \times 2 \times 1} = \sqrt{36} = 6$ cm².

Q7. A triangular park has sides 30 m, 40 m, and 50 m. Find its area using Heron's formula, and verify using the base-height formula (noting this is a right triangle).

Ans: Heron's: $s = 60$, Area = $\sqrt{60(60-30)(60-40)(60-50)} = \sqrt{60 \times 30 \times 20 \times 10} = \sqrt{360000} = 600$ m².

Verification: since $30^2 + 40^2 = 50^2$ ($900 + 1600 = 2500$), it's a right triangle with legs 30, 40; Area = $\frac{1}{2} \times 30 \times 40 = 600$ m². Matches.

Q8. Explain why Heron's formula is more versatile than the $\frac{1}{2} \times \text{base} \times \text{height}$ formula for finding a triangle's area in real-world surveying.

Ans: In real-world surveying, it is often easier to directly measure the three sides of a triangular plot than to measure a perpendicular height accurately (which requires knowing the exact right-angle direction).

Heron's formula only needs the three side lengths, making it more practical and versatile for field measurements.

Higher-Order Thinking / Application Questions

Q9. A quadrilateral field ABCD has diagonal AC = 20 m, splitting it into triangle ABC (sides AB=9m, BC=12m, AC=20m... wait, use realistic values) with sides 9m, 40m, and 41m in triangle 1, and 20m, 15m, 25m in triangle 2 (sharing diagonal 25m). Find the total area of the field using Heron's formula for each triangle.

Ans: Triangle 1 (sides 9, 40, 41): $s=45$, Area= $\sqrt{45(45-9)(45-40)(45-41)} = \sqrt{45 \times 36 \times 5 \times 4} = \sqrt{32400} = 180$ m².

Triangle 2 (sides 20, 15, 25): $s=30$, Area= $\sqrt{30(30-20)(30-15)(30-25)} = \sqrt{30 \times 10 \times 15 \times 5} = \sqrt{22500} = 150$ m².

Total area = $180 + 150 = 330$ m².

Q10. Two triangles have the same perimeter but different side length combinations. Explain, using Heron's formula conceptually, why they can have different areas despite having the same

perimeter.

Ans: Heron's formula depends not just on the semi-perimeter s , but on the individual differences $(s-a)$, $(s-b)$, $(s-c)$ for each specific side. Even with the same total perimeter (and thus the same s), different combinations of individual side lengths change these difference terms, which changes the product under the square root, and therefore changes the resulting area — showing that perimeter alone does not determine a triangle's area.

Class 9 Mathematics Chapter 6 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 9 Mathematics Chapter 6 Solutions](#) and [Class 9 Mathematics Chapter 6 Revision Notes](#).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#)

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