MATHEMATICS · GRADES 7-9

Area of Triangles and Quadrilaterals

Difficulty level: Intermediate

Mathematics: Grades 7-9

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Overview of the concept

This is how you work out how much paint you need for a triangular wall or how much turf a four-sided field needs. Each shape has its own short calculation, so the skill is matching the shape to the right one. Once you can tell a triangle from a quadrilateral at a glance, you can measure almost any flat surface you meet.



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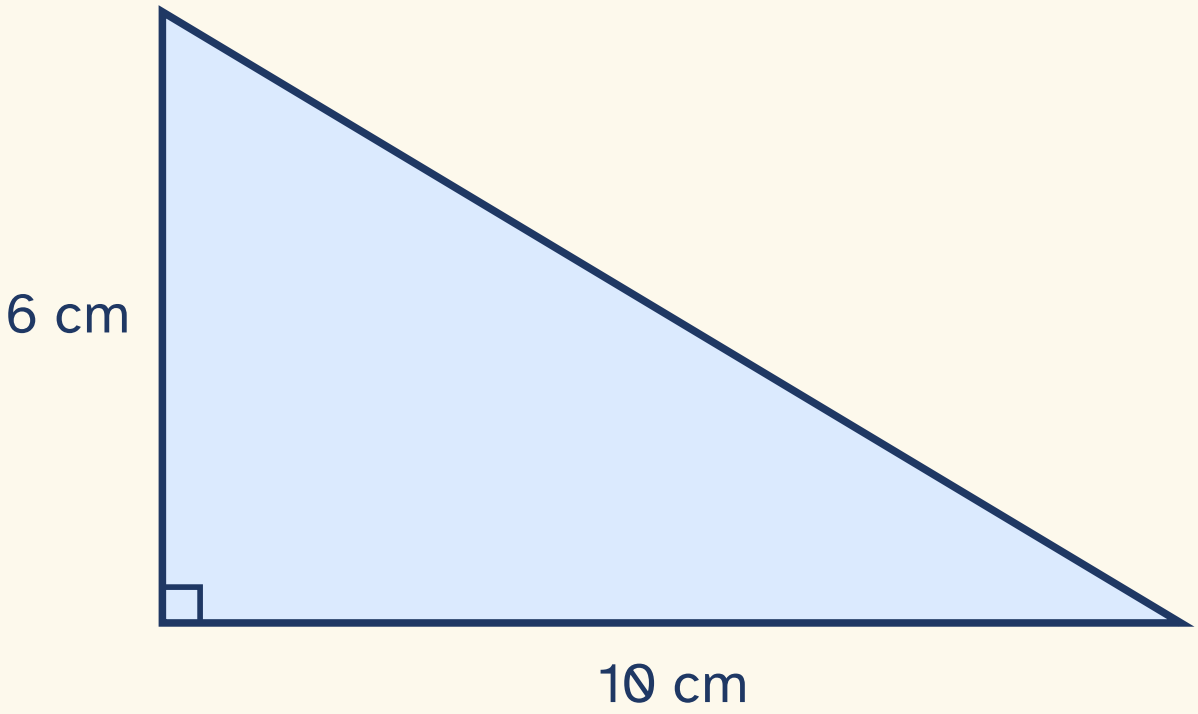
Worked examples

EXAMPLE 1

Q Find the area of a triangle with base 10 cm and height 6 cm



SOLUTION

Area of a triangle = $\frac{1}{2}$ × base × height.

$\frac{1}{2}$ × 10 × 6 = 30

The area is 30 cm^2

Note: Area of a parallelogram = base x height, and area of a trapezoid = $\frac{1}{2}$ x (base1 + base2) x height.

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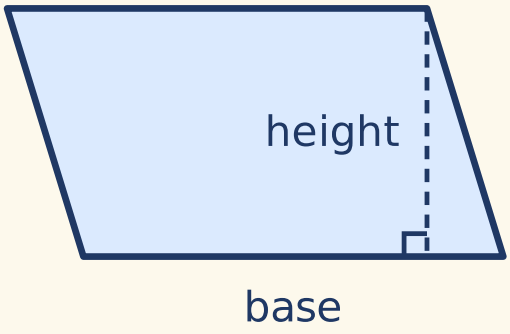
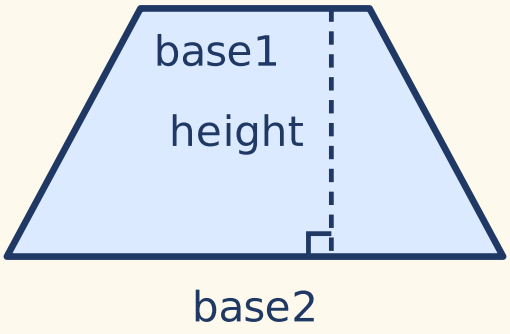
Parallelogram

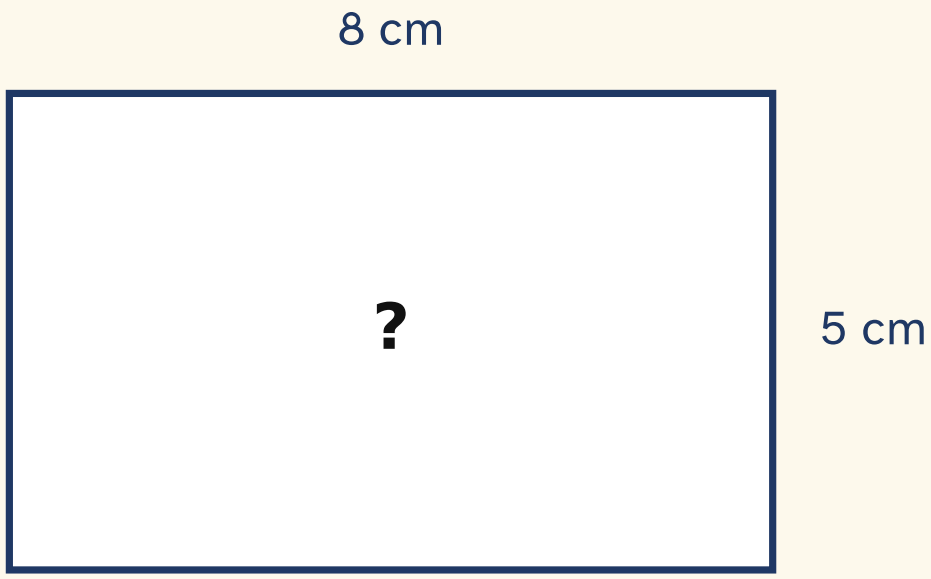


Trapezoid



EXAMPLE 2

Q Find the area of a rectangle 8 cm by 5 cm



SOLUTION

Area of a rectangle = length × width.

$8 \times 5 = 40$

The area is 40 cm^2

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Practice questions

1 A triangular flag has base 12 cm and height 4 cm. Find its area.

- **A** 12 square cm
- **B** 48 square cm
- **C** 24 square cm
- **D** 16 square cm

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2 A parallelogram has base 9 cm and height 6 cm. Find its area.

- **A** 15 square cm
- **B** 27 square cm
- **C** 54 square cm
- **D** 30 square cm

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3 **A rectangular bookmark is 7 cm by 3 cm. Find its area.**

- A 10 square cm
- B 21 square cm
- C 14 square cm
- D 42 square cm

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4 **A trapezoid has bases 10 cm and 6 cm and height 4 cm. Find its area.**

- A 64 square cm
- B 32 square cm
- C 40 square cm
- D 16 square cm

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5 A triangle has area 40 square cm and base 10 cm. What is its height?

- **A** 4 cm
- **B** 5 cm
- **C** 80 cm
- **D** 8 cm

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6 A parallelogram has area 48 square cm and height 6 cm. What is its base?

- **A** 8 cm
- **B** 6 cm
- **C** 12 cm
- **D** 288 cm

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7 A trapezoid has bases 8 cm and 12 cm and height 5 cm. Find its area.

- A 100 square cm
- B 60 square cm
- C 50 square cm
- D 25 square cm

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8 A square napkin has side 9 cm. Find its area.

- A 18 square cm
- B 36 square cm
- C 81 square cm
- D 72 square cm

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9 A rectangle has area 60 square cm and length 12 cm. What is its width?

- **A** 5 cm
- **B** 6 cm
- **C** 10 cm
- **D** 72 cm

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10 A triangle has area 35 square cm and height 7 cm. What is its base?

- **A** 5 cm
- **B** 7 cm
- **C** 70 cm
- **D** 10 cm

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ANSWER KEY

1. 24 square cm

2. 54 square cm

3. 21 square cm

4. 32 square cm

5. 8 cm

6. 8 cm

7. 50 square cm

8. 81 square cm

9. 5 cm

10. 10 cm

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