MATHEMATICS · GRADES 4-6

Area of triangles

Difficulty level: Intermediate

Mathematics: Grades 4-6

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Overview of the concept

This is how you work out the surface of a triangular shape, like a sail, a roof section, or a slice of land. A triangle is half a rectangle with the same base and height, so its area is half of that rectangle. That one fact is enough to work out the material for any triangular surface, from a sail to a garden bed.



Rule

Area of a triangle: $A = \frac{1}{2} \times b \times h$

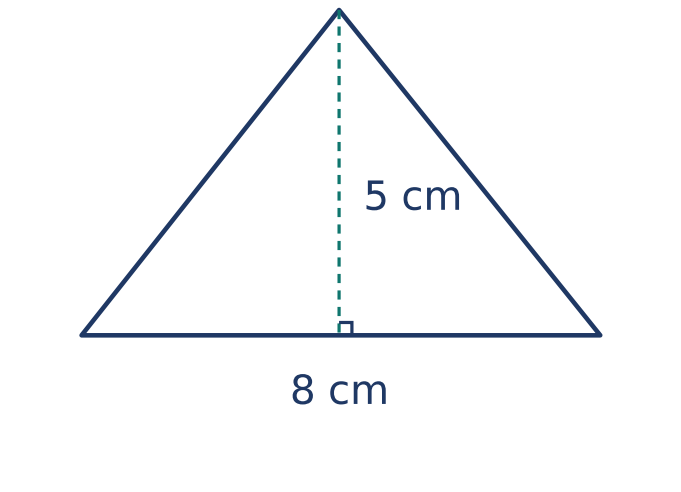
A triangle is half of a rectangle with the same base and height.

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Worked examples

EXAMPLE 1

Q What is the area of a triangle with base 8 cm and height 5 cm?



SOLUTION

Multiply base by height: 8 × 5 = 40

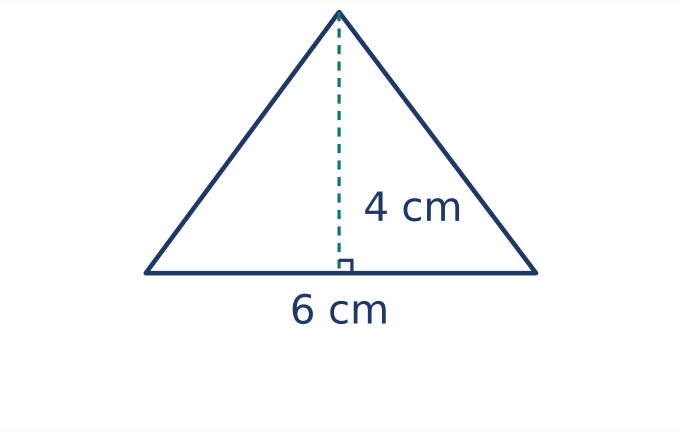
Halve the rectangle with the same base and height and you get the triangle, so halve it: 40 ÷ 2 = 20

The area is 20 cm^2

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EXAMPLE 2

Q What is the area of a triangle with base 6 cm and height 4 cm?



SOLUTION

Multiply base by height: $6 \times 4 = 24$

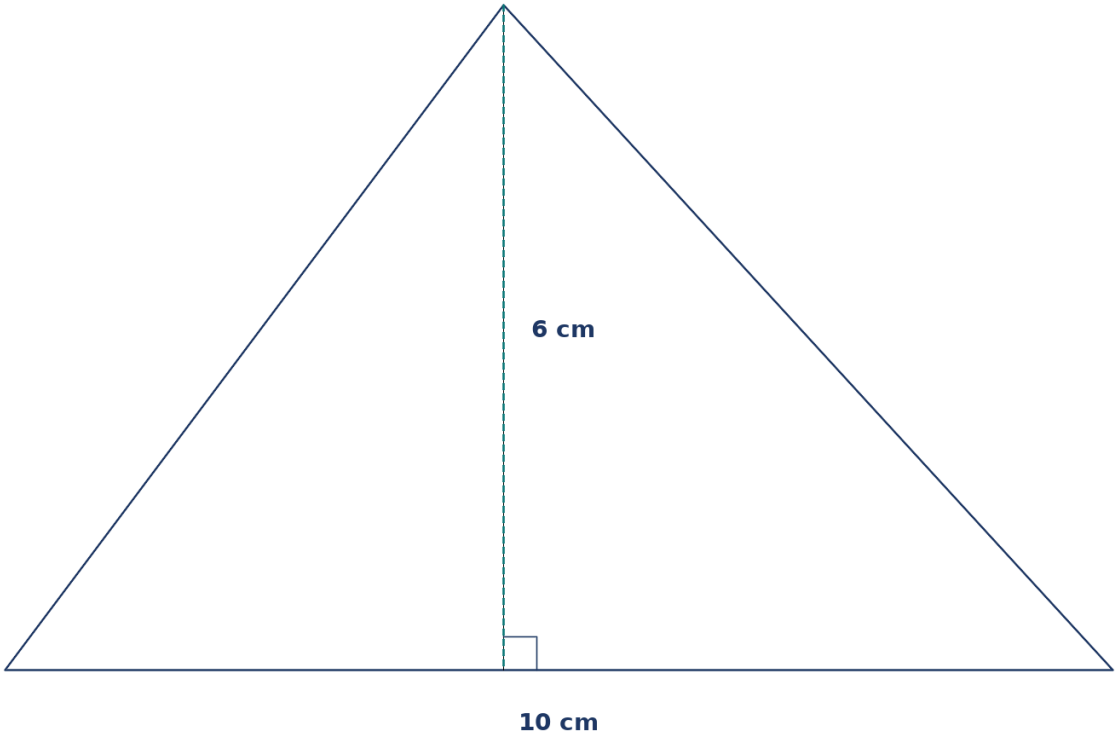
Halve it: $24 \div 2 = 12$

The area is $12\ cm^2$

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Practice questions

1 What is the area of the shape in the picture?



A 16 cm^2

B 30 cm^2

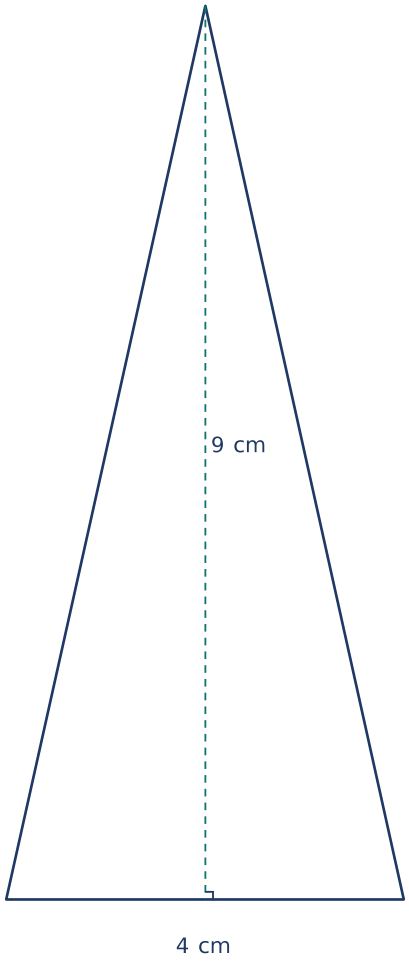
C 36 cm^2

D 60 cm^2

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2 The triangle in the picture has base 4 cm and height 9 cm. What is the area of a rectangle with the same base and height?



A 36 cm^2

B 18 cm^2

C 13 cm^2

D 72 cm^2

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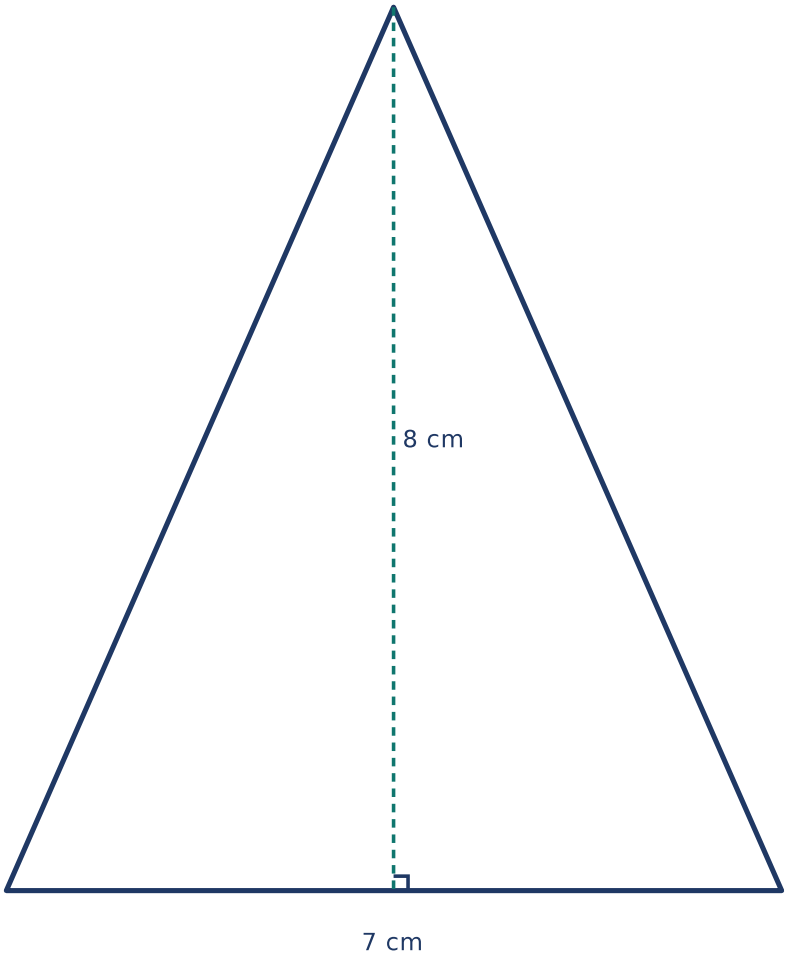
3 A triangle has base 12 cm and height 5 cm. Its base is doubled. What is the new area?

- **A** 60 cm^2
- **B** 30 cm^2
- **C** 35 cm^2
- **D** 120 cm^2

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4 The triangle in the picture has area 28 cm². What is its area in mm²?



A 2800 mm²

B 280 mm²

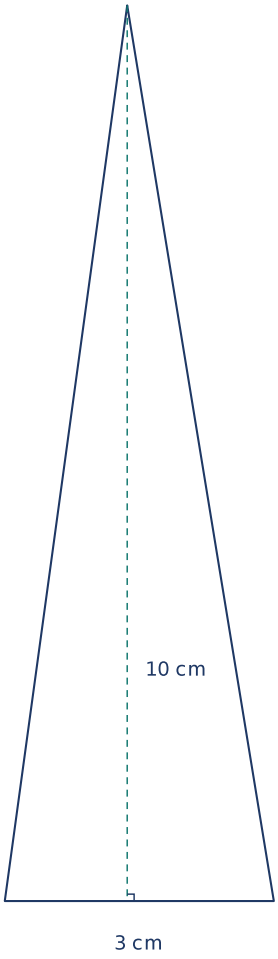
C 28,000 mm²

D 2.8 mm²

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5 **Which has the larger area: the triangle in the picture, or a triangle with base 5 cm and height 6 cm?**



A The triangle in the picture

B The other triangle

C They are equal

D Cannot tell

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6 What is the area of a triangle with base 12 m and height 4 m?

- **A** 16 m^2
- **B** 24 m^2
- **C** 28 m^2
- **D** 48 m^2

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7 A triangle has an area of 24 cm^2. Its base is 8 cm. What is its height?

_____

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8 A triangle has base 8 cm and height 6 cm. Pat says the area is 48 cm² because 8 × 6 is 48. What is the correct area?

- **A** 14 cm²
- **B** 30 cm²
- **C** 48 cm²
- **D** 24 cm²

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9

The table shows three triangles. Which triangle has the smallest area?

Triangle	Base	Height
A	10 cm	6 cm
B	8 cm	8 cm
C	6 cm	6 cm

A A

B B

C C

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10 **Four triangles have these bases and heights. Which one has a different area from the other three?**

- **A** base 6 cm, height 8 cm
- **B** base 8 cm, height 6 cm
- **C** base 12 cm, height 4 cm
- **D** base 5 cm, height 10 cm

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ANSWER KEY

1. 30 cm^2

2. 36 cm^2

3. 60 cm^2

4. 2800 mm^2

5. They are equal

6. 24 m^2

7. 6 cm

8. 24 cm^2

9. C

10. base 5 cm height 10 cm

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