

WA7MMGTW1

Two-dimensional space

Core + Challenge

Perimeter and Area of Rectangles

I can find the perimeter and area of rectangles and squares, work backwards from area, and use the correct units.

Name: _____ Date: _____ Score: _____ / 58

Key idea

Perimeter is the distance around the outside: $P = 2 \times (l + w)$. A square: $P = 4 \times \text{side}$. Units: cm, m.

Area is the space inside: $A = l \times w$. A square: $A = \text{side} \times \text{side}$. Units: cm^2 , m^2 (square units).

Same units first: $0.8 \text{ m} \times 45 \text{ cm} \rightarrow 80 \text{ cm} \times 45 \text{ cm}$. $1 \text{ m}^2 = 100 \text{ cm} \times 100 \text{ cm} = 10\,000 \text{ cm}^2$.

Work backwards: area 48 cm^2 and length $8 \text{ cm} \rightarrow \text{width} = 48 \div 8 = 6 \text{ cm}$.

A

Fluency *practise the skill*

/ 16 marks

Work out each answer. 1 mark each.

1. Perimeter: $8 \text{ cm} \times 5 \text{ cm}$ rectangle _____
2. Area: $8 \text{ cm} \times 5 \text{ cm}$ rectangle _____
3. Area: square, side 9 m _____
4. Perimeter: square, side 7.5 cm _____
5. Area: $12 \text{ m} \times 3.5 \text{ m}$ _____
6. Perimeter: $12 \text{ m} \times 3.5 \text{ m}$ _____
7. Area: $2.4 \text{ cm} \times 5 \text{ cm}$ _____
8. Perimeter: $6.2 \text{ cm} \times 4.8 \text{ cm}$ _____
9. Width: area 48 cm^2 , length 8 cm _____
10. Side: square of area 64 m^2 _____
11. Width: perimeter 30 cm , length 9 cm _____
12. Area: square with perimeter 36 cm _____
13. Area: $15 \text{ mm} \times 20 \text{ mm}$ _____
14. Area: $1.5 \text{ m} \times 1.2 \text{ m}$ _____
15. Perimeter in cm: $0.8 \text{ m} \times 45 \text{ cm}$ _____
16. Area: $25 \text{ m} \times 4 \text{ m}$ _____

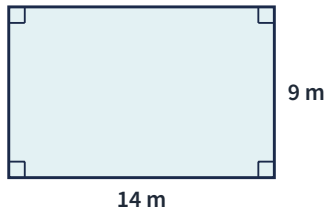
B

Core *apply the skill to problems*

/ 22 marks

- 1 Find the perimeter and the area of this rectangle.

[2 marks]



Answer: _____

- 2 A rectangular garden bed is 3.6 m long and 2.5 m wide. How much edging goes around it? What area of mulch covers it?

[2 marks]

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Answer: _____

- 3 A square photo has a perimeter of 60 cm. Find its area.

[2 marks]

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Answer: _____

- 4 Carpet costs \$38 per square metre. How much will it cost to carpet a room 4.5 m by 3.2 m?

[2 marks]

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Answer: _____

- 5 A netball court is 30.5 m long and 15.25 m wide. A basketball court is 28 m by 15 m. Find the area and perimeter of the basketball court.

[2 marks]

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Answer: _____

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- 6 Fencing costs \$24 per metre. How much does it cost to fence all the way around a yard 18 m by 12 m? [2 marks]

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Answer: _____

- 7 Square tiles measure 20 cm by 20 cm. How many tiles are needed to cover a floor 3 m by 2.4 m? [3 marks]

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Answer: _____

- 8 A rectangle has an area of 72 cm^2 and a length of 12 cm. Find its width and its perimeter. [2 marks]

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Answer: _____

- 9 A poster is 0.6 m by 0.9 m. Find its area in m^2 and in cm^2 . [2 marks]

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Answer: _____

- 10 A wall is 5.2 m wide and 2.7 m high. It has a window 1.5 m by 1.2 m. What area of wall needs painting? [3 marks]

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Answer: _____

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C**Reasoning** *explain, justify and check*

/ 9 marks

- 1 Explain the difference between perimeter and area, and why they use different units. [2 marks]

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- 2 Mia says, 'If I double the length and the width of a rectangle, the area doubles.' Test her claim with a 3 cm × 4 cm rectangle. [3 marks]

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- 3 Draw or describe two rectangles that both have a perimeter of 20 cm but different areas. [2 marks]

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- 4 Sam says $1 \text{ m}^2 = 100 \text{ cm}^2$. Explain his mistake. [2 marks]

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D**Challenge** *multi-step and problem-solving*

/ 11 marks

- 1 A rectangle has a perimeter of 24 cm and whole-number side lengths. What is the largest possible area? Show the options you tested. [3 marks]

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Answer: _____

- 2 A lawn 12 m by 8 m has a path 1 m wide all the way around the outside. Find the area of the path. [3 marks]

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Answer: _____

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- 3 A square has the same area as a $16\text{ cm} \times 4\text{ cm}$ rectangle. Which shape has the smaller perimeter, and by how much? [2 marks]

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Answer: _____

- 4 The length of a rectangle is 3 times its width. Its perimeter is 48 m. Find its area. [3 marks]

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Answer: _____

How did I go?

Fluency ____ / 16 Core ____ / 22 Reasoning ____ / 9 Challenge ____ / 11 **Total ____ / 58**

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