

WA7MMGTW2

Two-dimensional space

Core + Challenge

Area and Perimeter of Composite Shapes

I can find the area and perimeter of composite shapes made from rectangles by splitting, subtracting and finding missing lengths.

Name: _____ Date: _____ Score: _____ / 59

Key idea

A **composite shape** is made of simpler shapes. Find its area by **adding** the parts or **subtracting** a gap from a whole rectangle.

Missing lengths: opposite sides must balance. In shape A, the right side $5 + a = 8$, so $a = 3$; the top $6 + b = 10$, so $b = 4$.

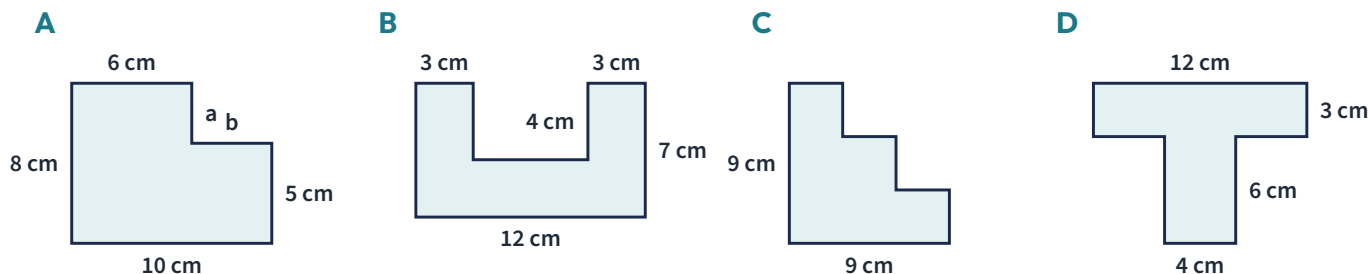
Perimeter: add every outside edge (label them all first). Don't include lines you drew to split the shape.

Cutting a rectangle from a **corner** keeps the perimeter the same; cutting from the **middle of a side** makes it longer.

A Fluency *practise the skill*

/ 16 marks

Use shapes A–D below. Each step on shape C is 3 cm. 1 mark each.



1. Shape A: length a _____

9. Shape C: area of the bottom strip _____

2. Shape A: length b _____

10. Shape C: area of the middle strip _____

3. Shape A: area _____

11. Shape C: area _____

4. Shape A: perimeter _____

12. Shape C: perimeter _____

5. Shape B: area of the whole 12×7 rectangle _____

13. Shape D: area of the stem _____

6. Shape B: area of the gap _____

14. Shape D: area of the top bar _____

Area and Perimeter of Composite Shapes · WA7MMGTW2

7. Shape B: area _____

15. Shape D: area _____

8. Shape B: perimeter _____

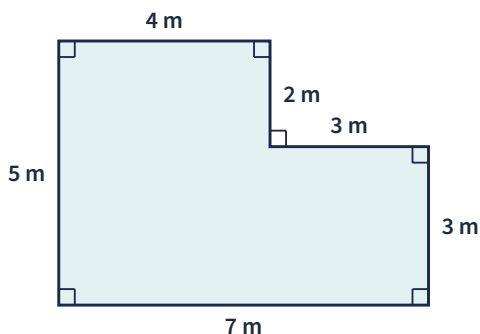
16. Shape D: perimeter _____

B

Core *apply the skill to problems*

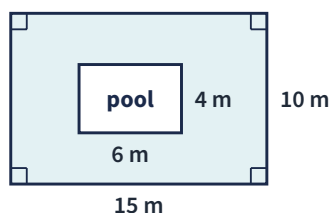
/ 23 marks

- 1 This L-shaped room is to be carpeted. Carpet costs \$45 per m^2 . Find the area and the cost. [3 marks]



Answer: _____

- 2 A garden is 15 m by 10 m. It has a rectangular pool 6 m by 4 m. Find the area of lawn. [2 marks]



Answer: _____

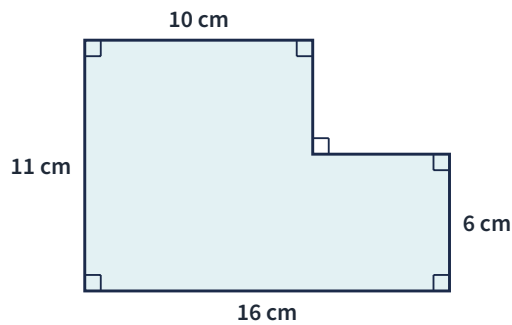
- 3 A patio is made from two rectangles joined along an edge: one $8\text{ m} \times 3\text{ m}$ and one $4\text{ m} \times 5\text{ m}$. Find the area of the patio. [2 marks]

Answer: _____

Area and Perimeter of Composite Shapes · WA7MMGTW2

- 4 Find the two missing lengths, then the perimeter and area of this shape.

[3 marks]



Answer: _____

- 5 A picture frame has outer measurements $40\text{ cm} \times 30\text{ cm}$. The opening is $32\text{ cm} \times 22\text{ cm}$. Find the area of the frame.

[2 marks]

Answer: _____

- 6 A bedroom floor is $6\text{ m} \times 4.5\text{ m}$, but a cupboard $1.5\text{ m} \times 1.2\text{ m}$ fills one corner. What area of floor is left?

[2 marks]

Answer: _____

- 7 Skirting board goes around the edge of the L-shaped room in Core Q1, except for a 0.9 m doorway. How much skirting board is needed?

[2 marks]

Answer: _____

- 8 This cross is made from five 3 cm squares. Find its area and perimeter.

[2 marks]



Answer: _____

Area and Perimeter of Composite Shapes · WA7MMGTW2

- 9 A driveway is a $12\text{ m} \times 3\text{ m}$ strip leading to a $5\text{ m} \times 6\text{ m}$ parking area. Concrete costs \$55 per m^2 . Find the cost. [3 marks]

.....

.....

Answer:

- 10 An L-shaped bathroom floor is made of a $3\text{ m} \times 2\text{ m}$ rectangle and a $1\text{ m} \times 1.5\text{ m}$ rectangle. Each tile covers 0.25 m^2 . How many tiles are needed? [2 marks]

.....

.....

Answer:

C Reasoning *explain, justify and check*

/ 9 marks

- 1 Show two different ways to find the area of shape A (one by adding, one by subtracting). Do they agree? [2 marks]

.....

.....

- 2 Explain why the 'staircase' shape C has the same perimeter as a $9\text{ cm} \times 9\text{ cm}$ square. [2 marks]

.....

.....

- 3 Jo says, 'Cutting a rectangle out of a shape always makes the perimeter smaller.' Use shapes A and B to show she is wrong. [3 marks]

.....

.....

- 4 Shapes B and D both have an area of 60 cm^2 . Do they have the same perimeter? What does this show? [2 marks]

.....

.....

Area and Perimeter of Composite Shapes · WA7MMGTW2

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

/ 11 marks

- 1 A $20\text{ m} \times 14\text{ m}$ field has two paths 2 m wide crossing in the middle, one running the length and one the width. Find the area of grass. [3 marks]

.....

.....

Answer: _____

- 2 An L-shape is made by cutting a $4\text{ cm} \times 3\text{ cm}$ rectangle from the corner of a rectangle 8 cm long. The L-shape has an area of 52 cm^2 . Find the width of the original rectangle and the perimeter of the L-shape. [3 marks]

.....

.....

Answer: _____

- 3 An L-shaped yard is $18\text{ m} \times 15\text{ m}$ with a $6\text{ m} \times 5\text{ m}$ corner cut out. Fencing costs $\$30$ per metre. An existing 8 m wall does not need fencing. Find the cost. [2 marks]

.....

.....

Answer: _____

- 4 Six 1 cm squares are placed in a row. Rearrange them (edges touching fully) to make the smallest possible perimeter. Explain. [3 marks]

.....

.....

Answer: _____

How did I go?Fluency ____ / 16 Core ____ / 23 Reasoning ____ / 9 Challenge ____ / 11 **Total ____ / 59**

Stuck on a section? Our Year 7 tutors can show you exactly what to practise next. **Book a free trial class at**
edulift.com.au