Area of Composite Shapes

Prior Knowledge:

Before attempting this sheet, students need to be able to calculate the area of squares, rectangles and triangles.

The area of a shape is the measure of the **two-dimensional** space it covers. The units of measurement for area are **square units**, for example cm^2 or m^2.

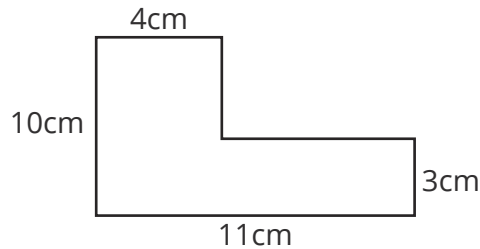There are a few area formulae you need to learn by heart:

> **Area of a rectangle = length × width**
>
> **Area of a square = length × width**
>
> **Area of a triangle = $\frac{1}{2}$ × base × height (perpendicular)**

Occasionally, you will need to find the area of a **composite shape**. This is a shape that is made up of two or more shapes.

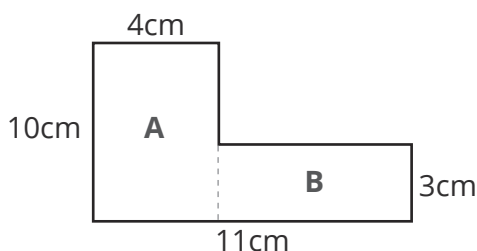**For example:** Work out the total area of the shape below.

To help you answer the question, split the composite shape into its individual shapes (if it hasn't already been done). Labelling them with letters might also help.
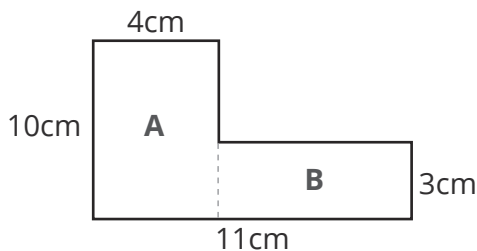
Shape A:

To calculate the area of **shape A**, simply multiply 10cm by 4cm.

$10 × 4 = 40cm^2$

Shape B:

It is slightly trickier to calculate the area of **shape B** because there is a missing measurement: its length.

You are told that the combined width of **shape A** and the length of **shape B** is 11cm. You also know that the width of **shape A** is 4cm. Therefore, you must **subtract** 4cm from 11cm to find the length of **shape B**.

11 – 4 = 7cm
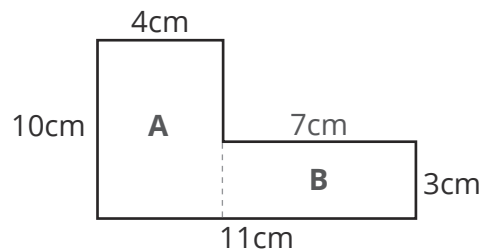
Now, calculate the area of **shape B**.

$7 × 3 = 21cm^2$

Finally, the **total area** is the **sum** of the 2 areas.

$40 + 21 = 61cm^2$

Give the units for your answers
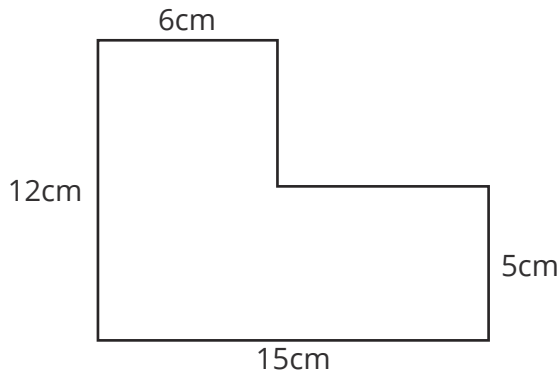
1. Calculate the total area of the shape.

6cm

12cm

5cm

15cm

_____
_____
_____
_____
_____
_____
_____

2. Calculate the total area of the shape.
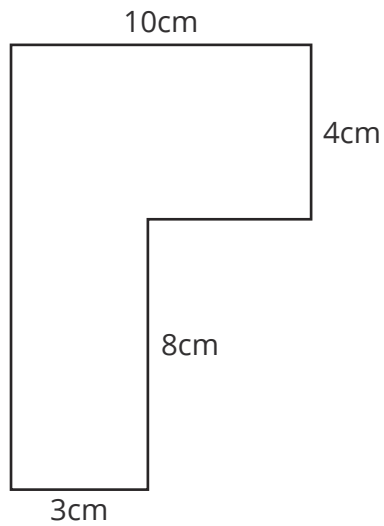
10cm

4cm

8cm

3cm

_____
_____
_____
_____
_____
_____
_____
_____

3. Calculate the total area of the shape.
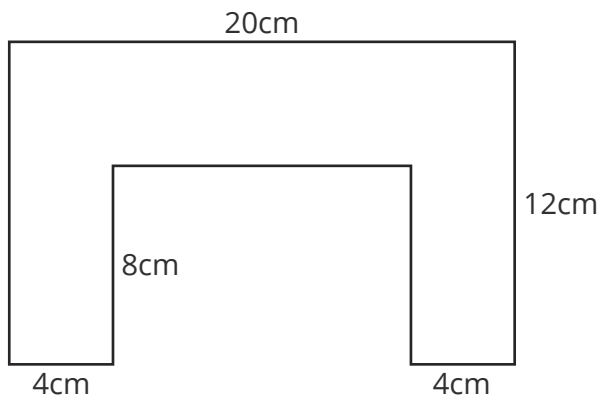
20cm

12cm

8cm

4cm   4cm

_____
_____
_____
_____
_____
_____
_____
_____

4. Calculate the total area of the shape.

2cm

10cm

15cm

_____

_____

_____

_____

_____

_____

_____

5. Calculate the total area of the shape.

6cm

10cm

_____

_____

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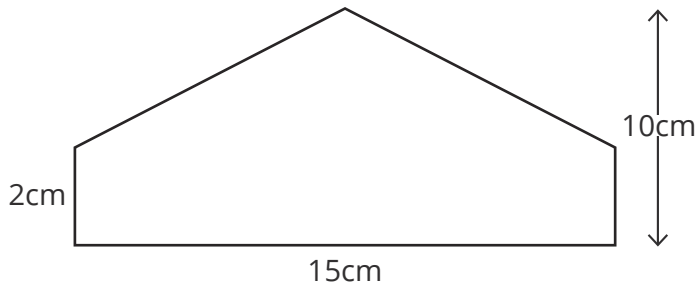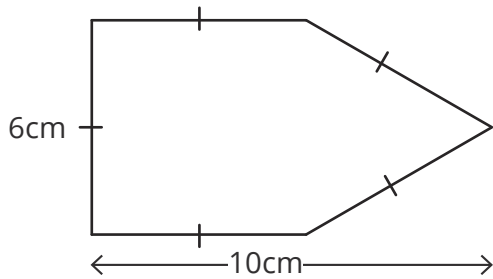
6. Calculate the total area of the shape.

4cm

3cm   3cm

6cm

4cm

_____

_____

_____

_____

_____

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_____

_____
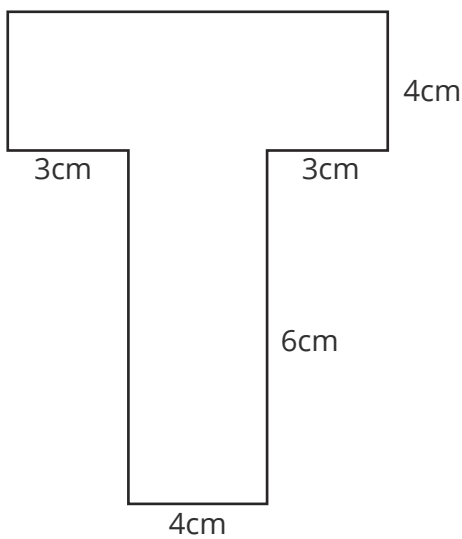
7. Work out the shaded area.

18m

4.5m

8m

5m

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_____

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_____
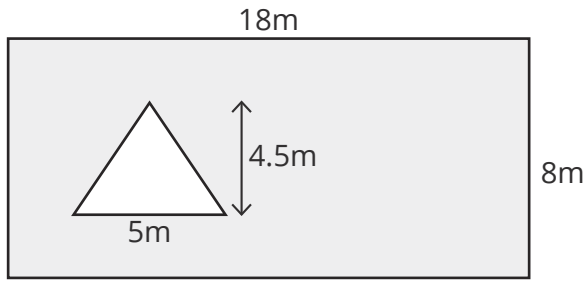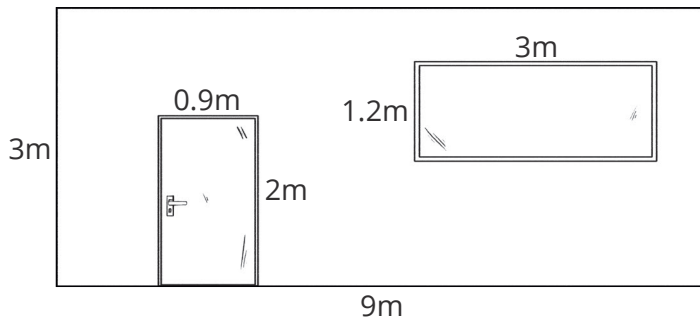
8. Kyra is painting the front of a house and buys one tin of paint. The one tin of paint will cover 20m². Does Kyra have enough paint to cover the front of the house, excluding the door and window? You must show your calculations.
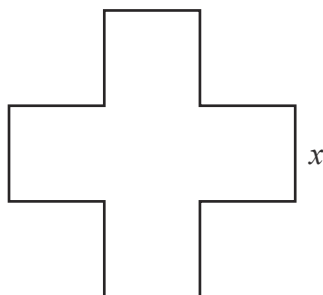
3m

0.9m

1.2m

3m

2m

9m

_____

_____

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_____

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_____

Challenge

The shape below is made from 5 identical squares. The area of the shape is 125cm². Work out the length marked x.

x

_____

_____

_____

_____

_____

_____

_____

BEYOND MATHS