

Find missing lengths in rectilinear shapes

Notes and guidance

In this small step, children continue to look at rectilinear shapes, focusing on finding missing side lengths.

Children explore the relationship between the sides of a rectilinear shape, rather than finding the perimeter. They start by using addition to find the missing side lengths, then using subtraction and finally using both operations to find more than one missing side length. Part-whole models may be useful here.

Children may find it helpful to draw the shapes and measure them, enabling them to notice that the opposite sides of the shapes are related. They could cut pieces of string or thin strips of paper to see which parts of a side correspond to another side.

Things to look out for

- Children may need support to notice the relationships between the sides.
- Children may use the wrong operation to find the missing side length, for example adding two sides instead of subtracting them.
- The words “horizontal” and “vertical” may be unfamiliar.

Key questions

- What lengths do you know?
What lengths do you need to find out?
- What is the total horizontal length of the shape?
Which sides add together to give the same total?
- What is the total vertical length of the shape?
Which sides add together to give the same total?
- Do you need to add or subtract to find the missing length?
How do you know?
- Are you finding a part or a whole?

Possible sentence stems

- _____ + _____ = _____
- _____ = _____ - _____
- The missing side length is _____ because ...

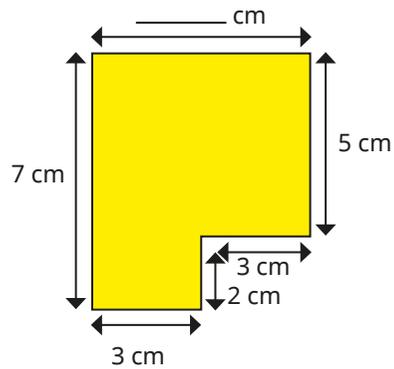
National Curriculum links

- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres

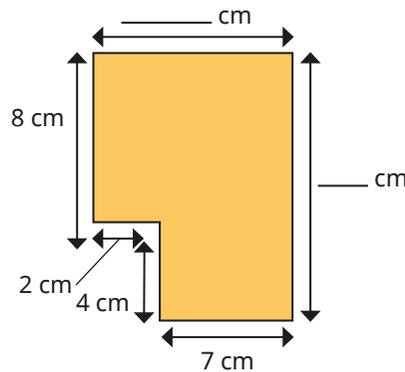
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Key learning

- Find the missing lengths on the shapes.

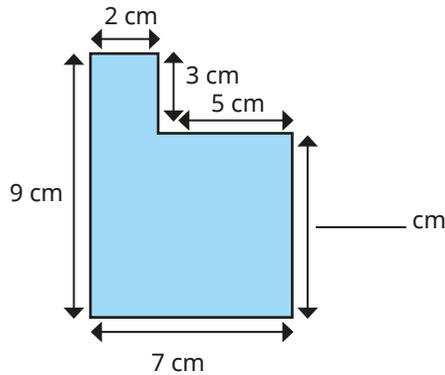


$$3 \text{ cm} + 3 \text{ cm} = \text{_____ cm}$$

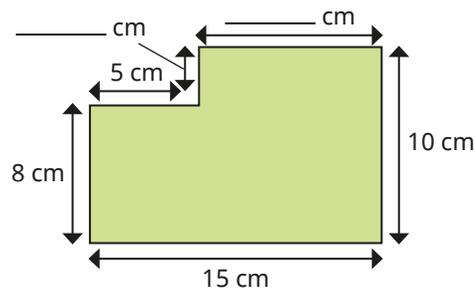


$$7 \text{ cm} + 2 \text{ cm} = \text{_____ cm}$$

$$8 \text{ cm} + 4 \text{ cm} = \text{_____ cm}$$



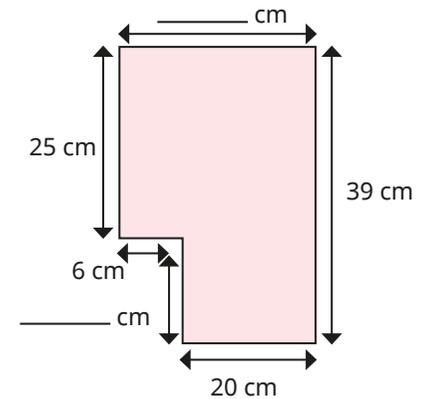
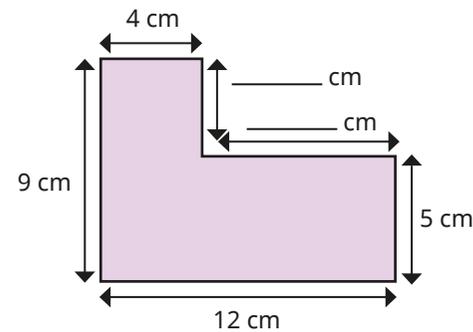
$$9 \text{ cm} - 3 \text{ cm} = \text{_____ cm}$$



$$15 \text{ cm} - 5 \text{ cm} = \text{_____ cm}$$

$$10 \text{ cm} - 8 \text{ cm} = \text{_____ cm}$$

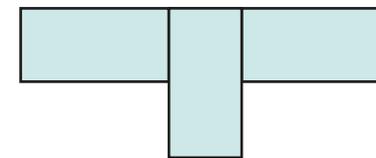
- Find the missing lengths on the shapes.



- Alex has made a shape with three identical rectangles.

Each rectangle is 20 cm long and 10 cm wide.

Work out the lengths of all eight sides of Alex's shape.



How would your answers change if the rectangles were 24 cm long and 12 cm wide?

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Reasoning and problem solving

The length of side  is equal to the total length of side  and side .

Is Tiny correct?
Explain your answer.

Yes

Mr Lee wants to wallpaper this room.

He knows the lengths of some walls, but not all of them.

left side: 4 m
top side: 5 m

Explain how Mr Lee can work out the unknown lengths.
What are the unknown lengths?

left side: 4 m
top side: 5 m