

L.O. To find the perimeter of
rectilinear shapes

Starter



1. $5439 + 2394 =$

2. $7546 - 1956 =$

3. $9302 - 5847 =$

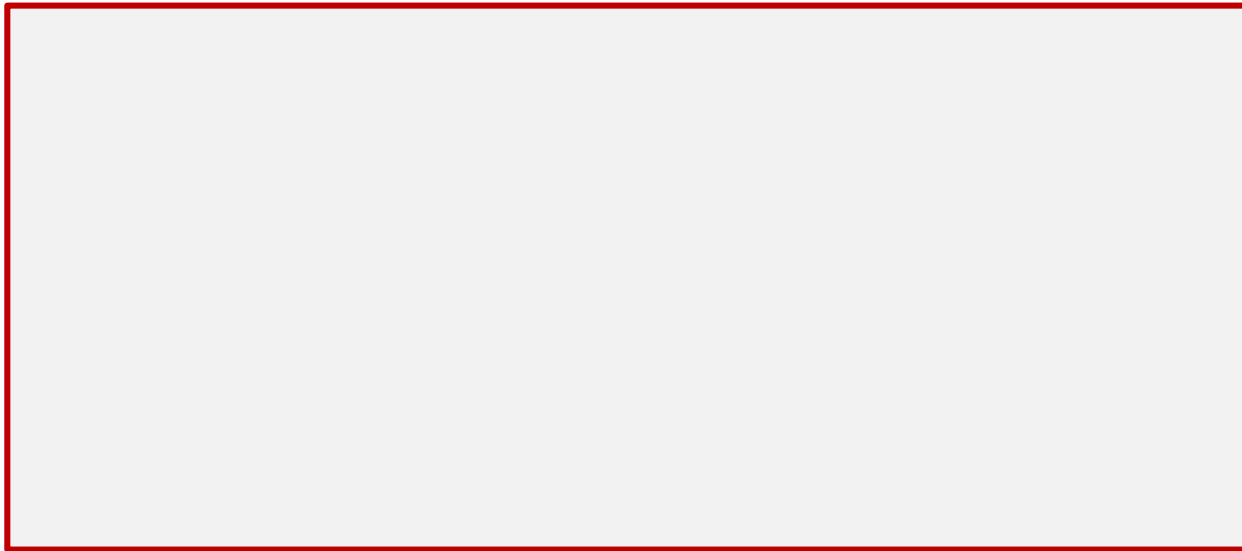
4. $7854 + 4669 =$

Starter - answers

1. $5439 + 2394 = 7833$
2. $7546 - 1956 = 5590$
3. $9302 - 5847 = 3455$
4. $7854 + 4669 = 12523$

What is perimeter?

Perimeter is the length all the way around the outside of a shape.



What units do we use for perimeter?

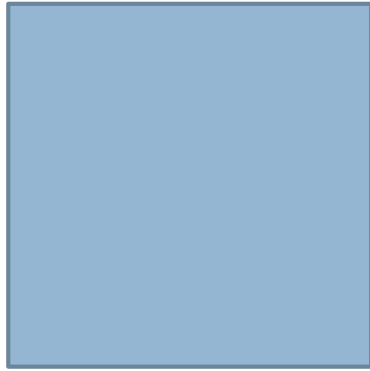
mm

cm

m

km

What are the properties of squares and rectangles?



Squares:

- Four straight sides
- Four right angles
- All sides are equal length



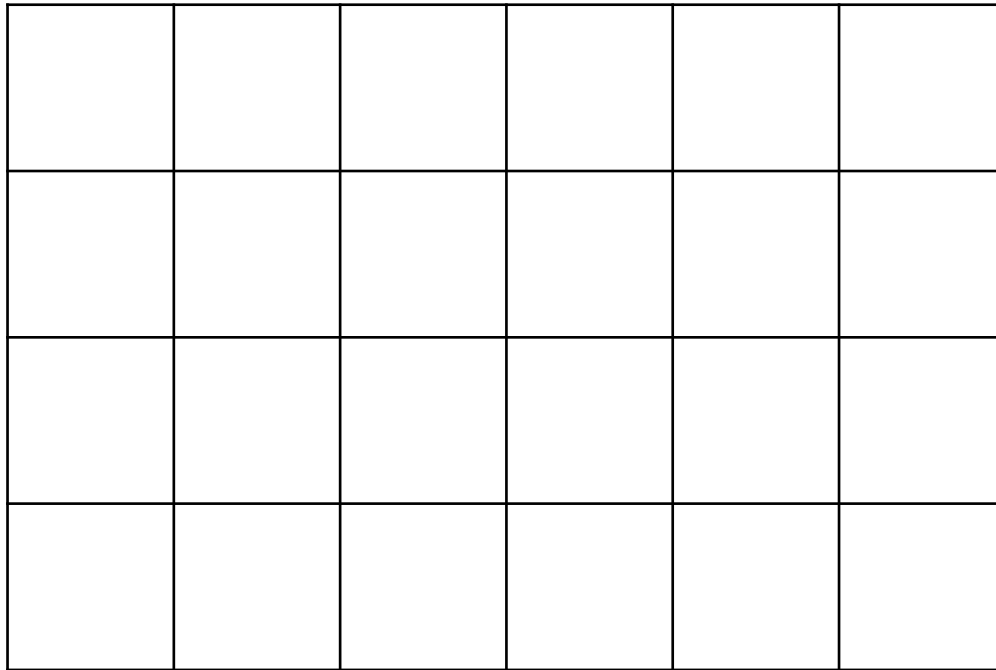
Rectangles:

- Four straight sides
- Four right angles
- Parallel sides are equal length

What is the perimeter of this rectangle?



6cm



4cm

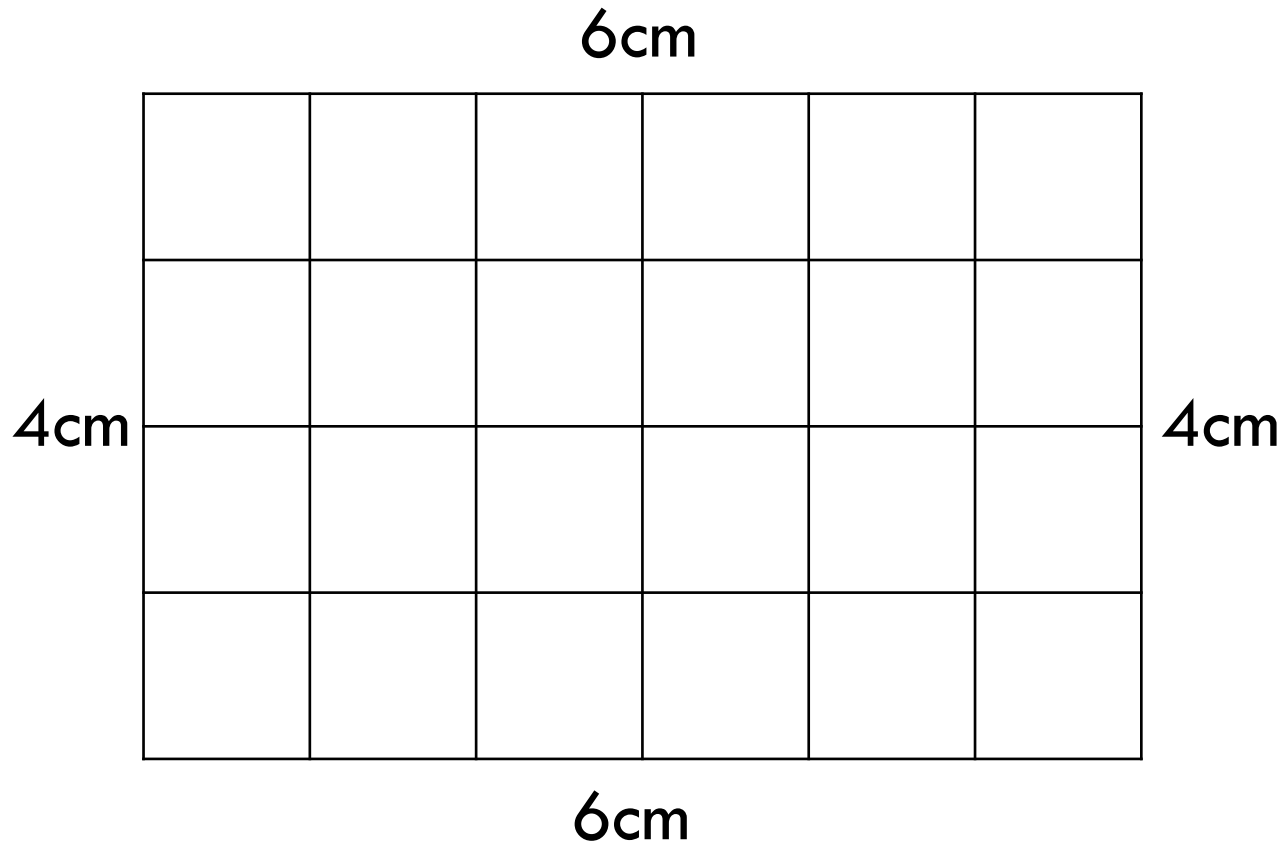
4cm

6cm

How did you work it out?

What is the perimeter of this rectangle?

Answer



$$\text{Perimeter} = 20\text{cm}$$

$$6+4+6+4 = \mathbf{20}$$

$$6+6+4+4 = \mathbf{20}$$

$$4 \times 2 = 8$$

$$6 \times 2 = 12$$

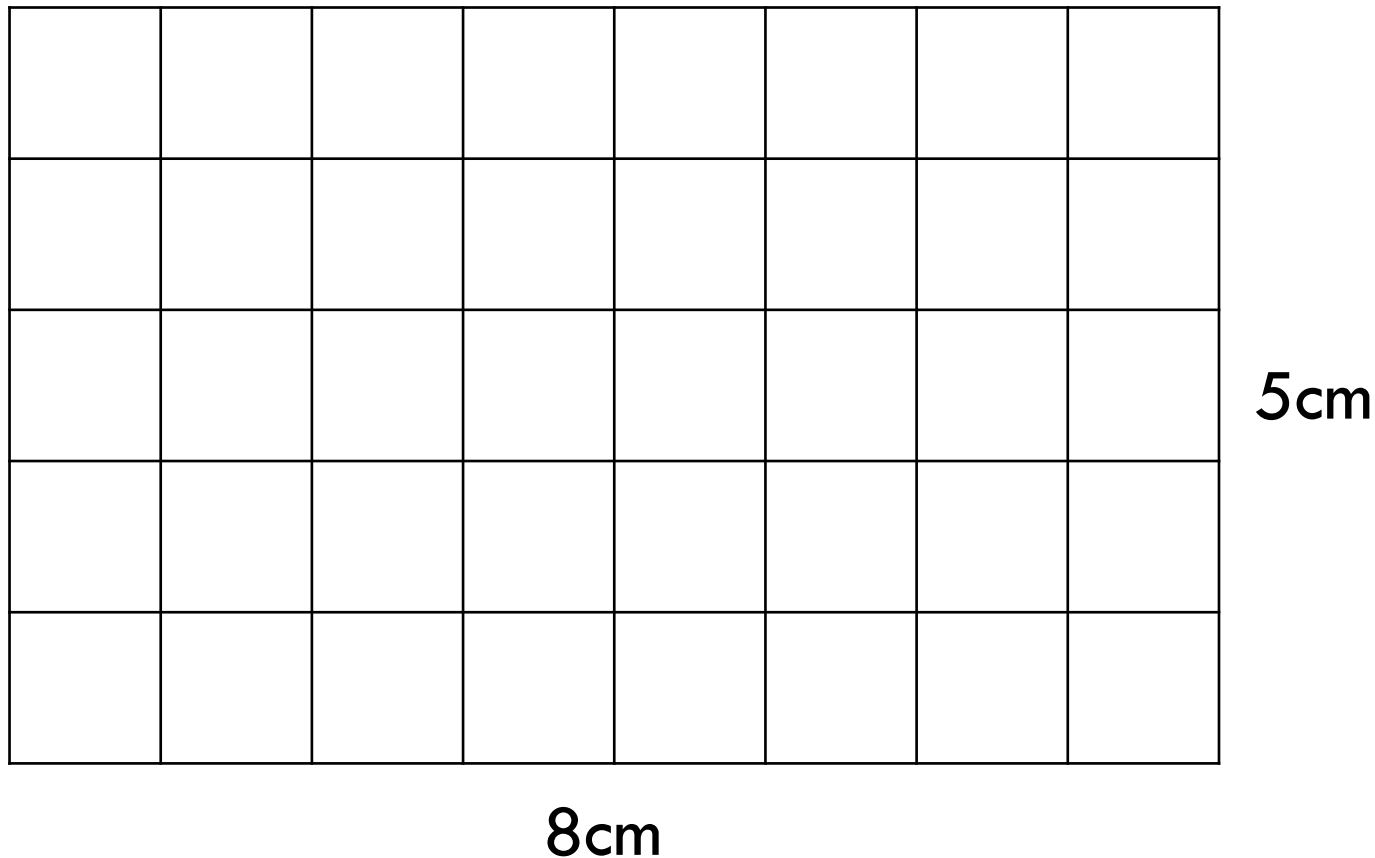
$$8+12 = \mathbf{20}$$

$$4+6=10$$

$$10 \times 2 = \mathbf{20}$$

How did you work it out?

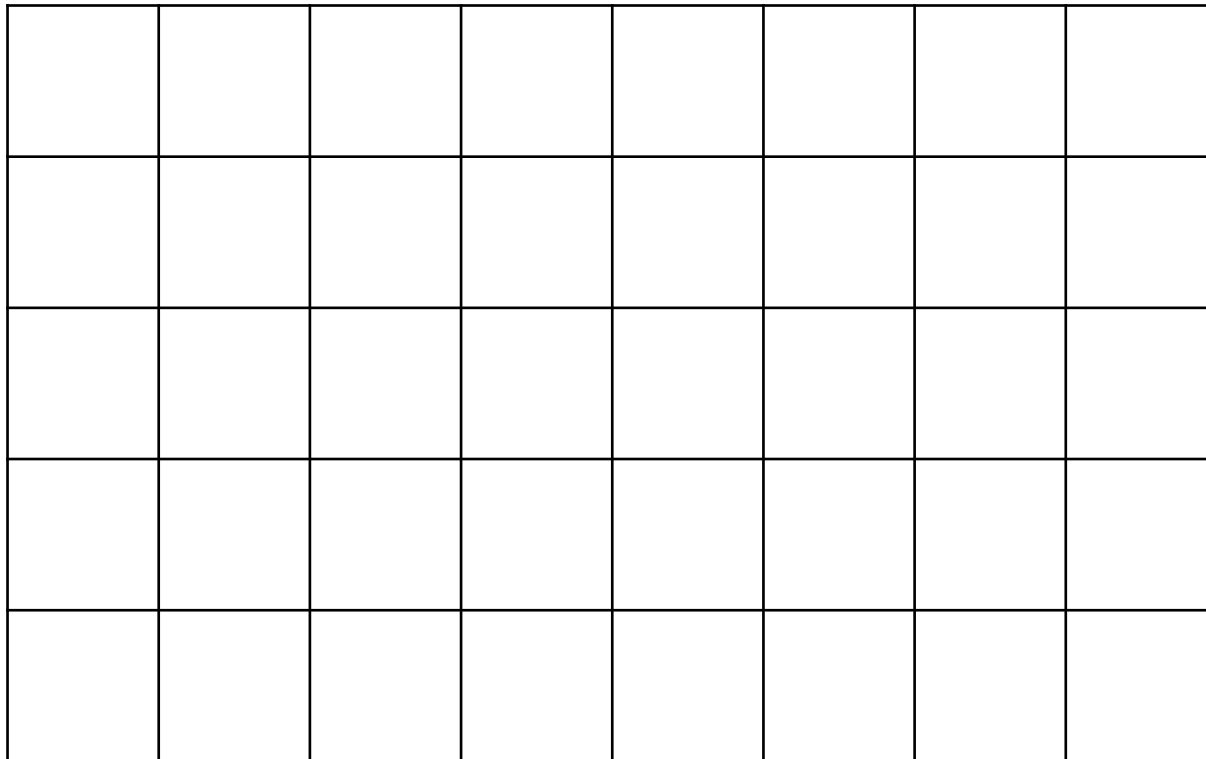
What is the perimeter of this rectangle?



How did you work it out?

What is the perimeter of this rectangle?

Answer



8cm

5cm

$$\text{Perimeter} = 26\text{cm}$$

$$5+8+5+8 = \mathbf{26}$$

$$5+5+8+8 = \mathbf{26}$$

$$8 \times 2 = 16$$

$$5 \times 2 = 10$$

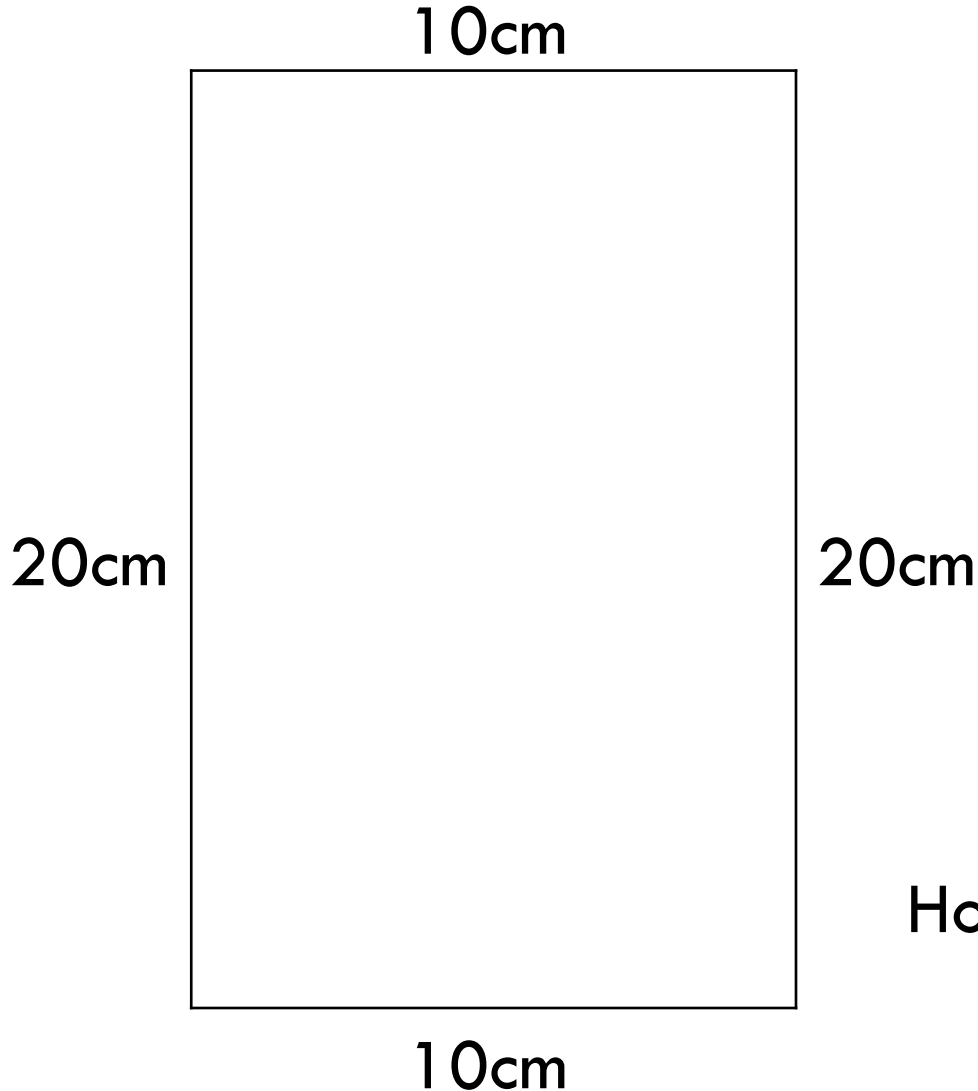
$$10+16 = \mathbf{26}$$

$$8+5=13$$

$$13 \times 2 = \mathbf{26}$$

How did you work it out?

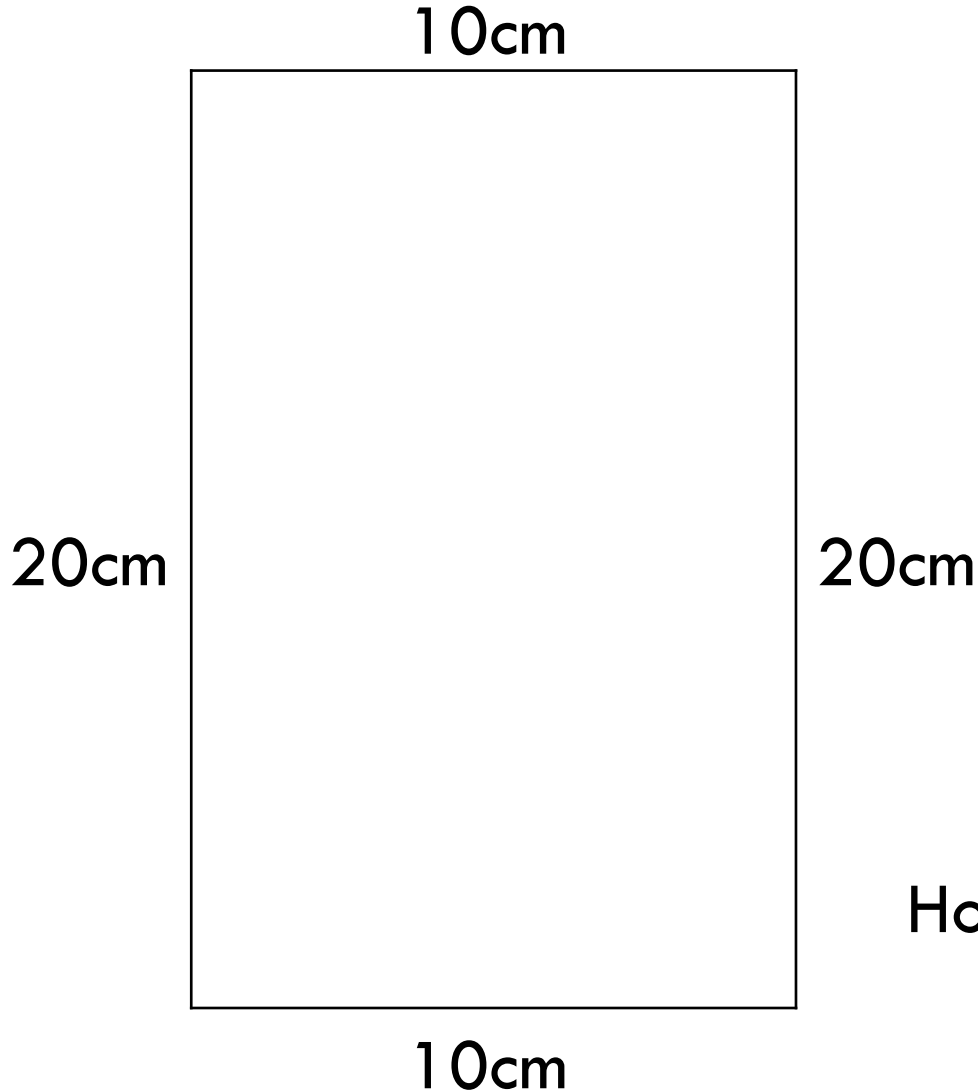
What is the perimeter of this rectangle?



How did you work it out?

What is the perimeter of this rectangle?

Answer



$$\text{Perimeter} = 60\text{cm}$$
$$10+20+10+20 = \mathbf{60}$$

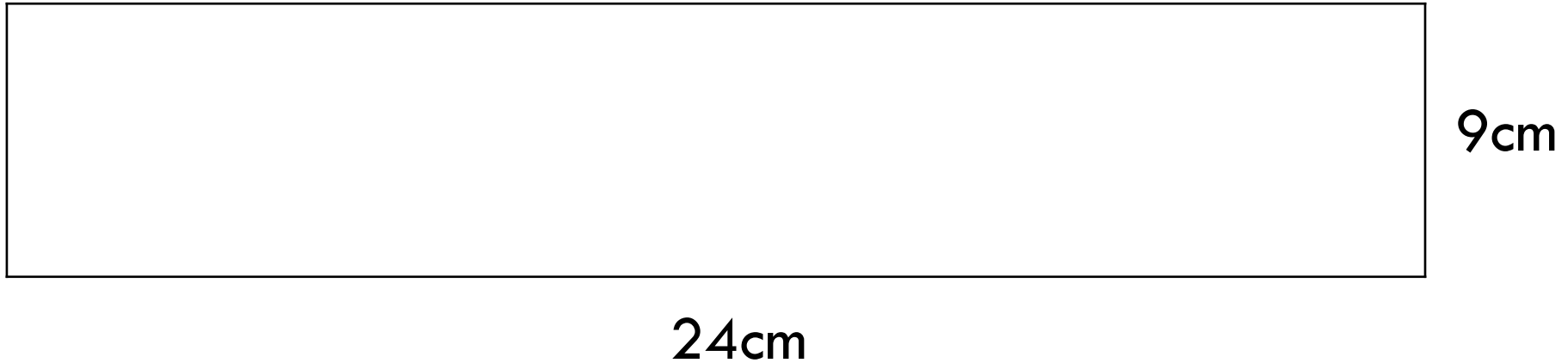
$$10+10+20+20 = \mathbf{60}$$

$$10 \times 2 = 20$$
$$20 \times 2 = 40$$
$$20 + 40 = \mathbf{60}$$

$$10 + 20 = 30$$
$$30 \times 2 = \mathbf{60}$$

How did you work it out?

What is the perimeter of this rectangle?



How did you work it out?

What is the perimeter of this rectangle?

Answer



9cm

24cm

Perimeter = **66**cm

$$24 + 9 + 24 + 9 = \mathbf{66}$$

$$24 + 24 + 9 + 9 = \mathbf{66}$$

$$24 \times 2 = 48$$

$$9 \times 2 = 18$$

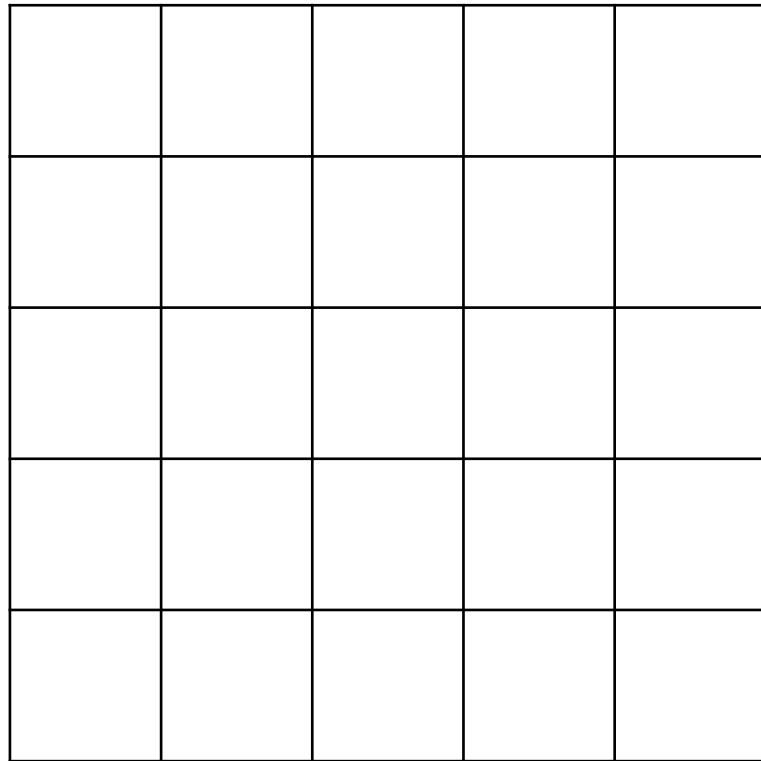
$$48 + 18 = \mathbf{66}$$

$$24 + 9 = 33$$

$$33 \times 2 = \mathbf{66}$$

How did you work it out?

What is the perimeter of this square?



5cm

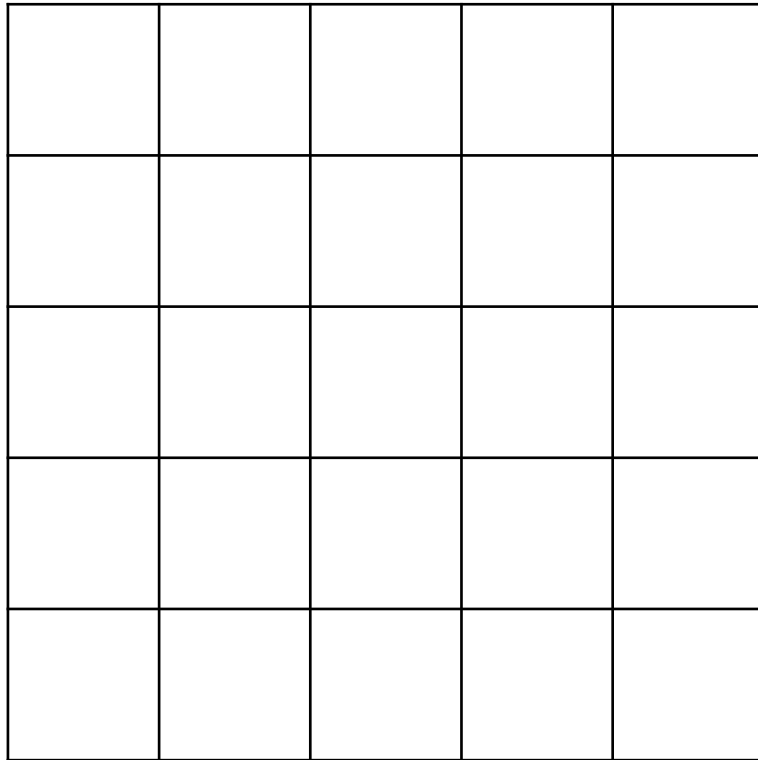
5cm

Is there an easy way to work this out?

Why does this method only work with squares?

What is the perimeter of this square?

Answer



5cm

5cm

Is there an easy way to work this out?

$$\text{Perimeter} = \mathbf{20\text{cm}}$$

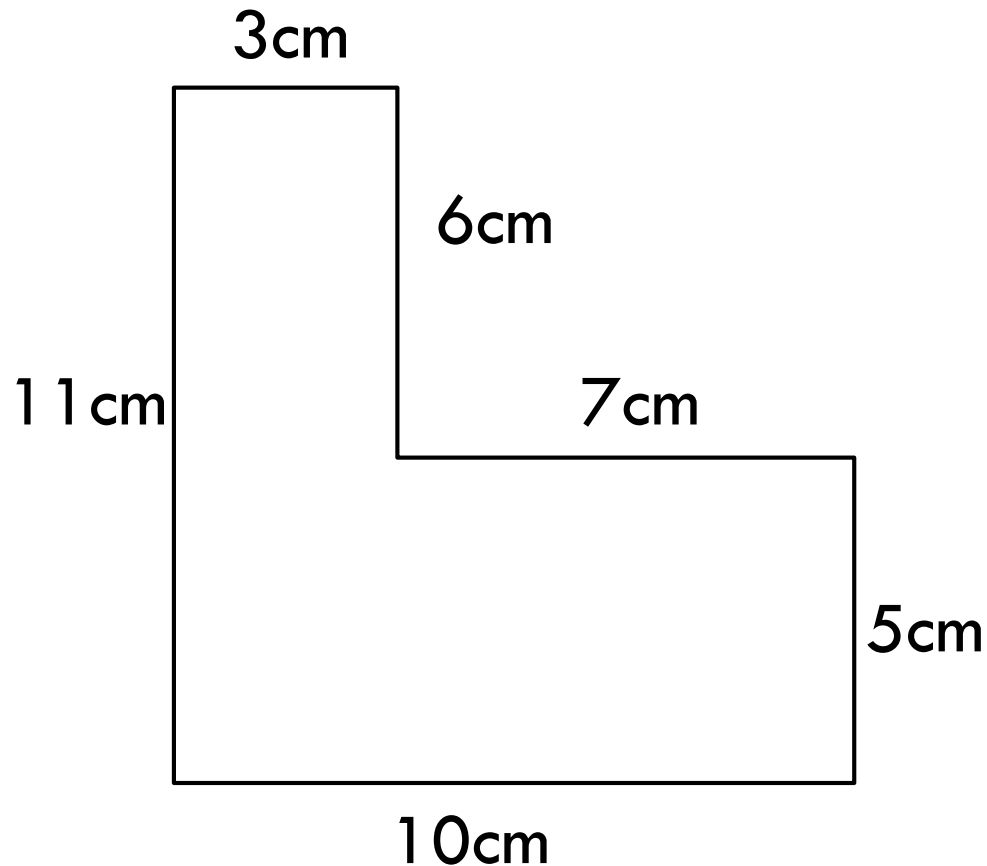
$$5+5+5+5 = \mathbf{20}$$

$$5 \times 4 = \mathbf{20}$$

Why does this method only work with squares?

This only works with squares because squares have 4 **equal** sides, but rectangles don't.

What is the perimeter of this shape?

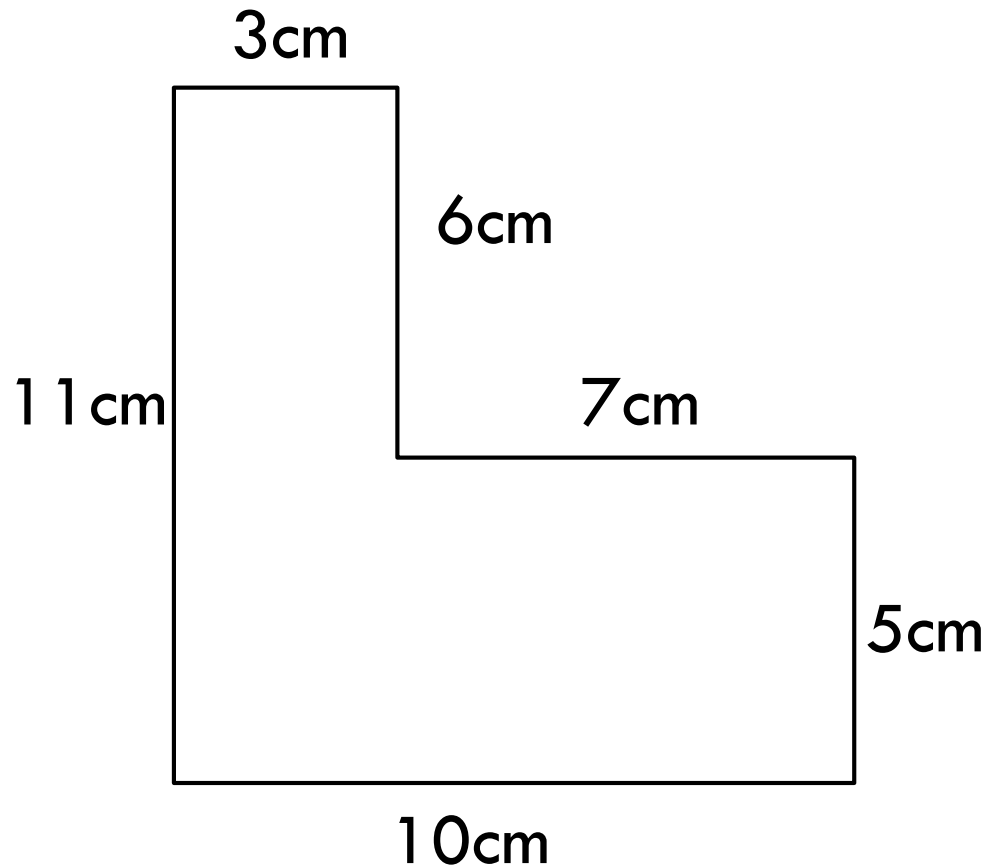


How can you work this out?

What can you do to check you have included all the sides?

What is the perimeter of this shape?

Answer



How can you work this out?

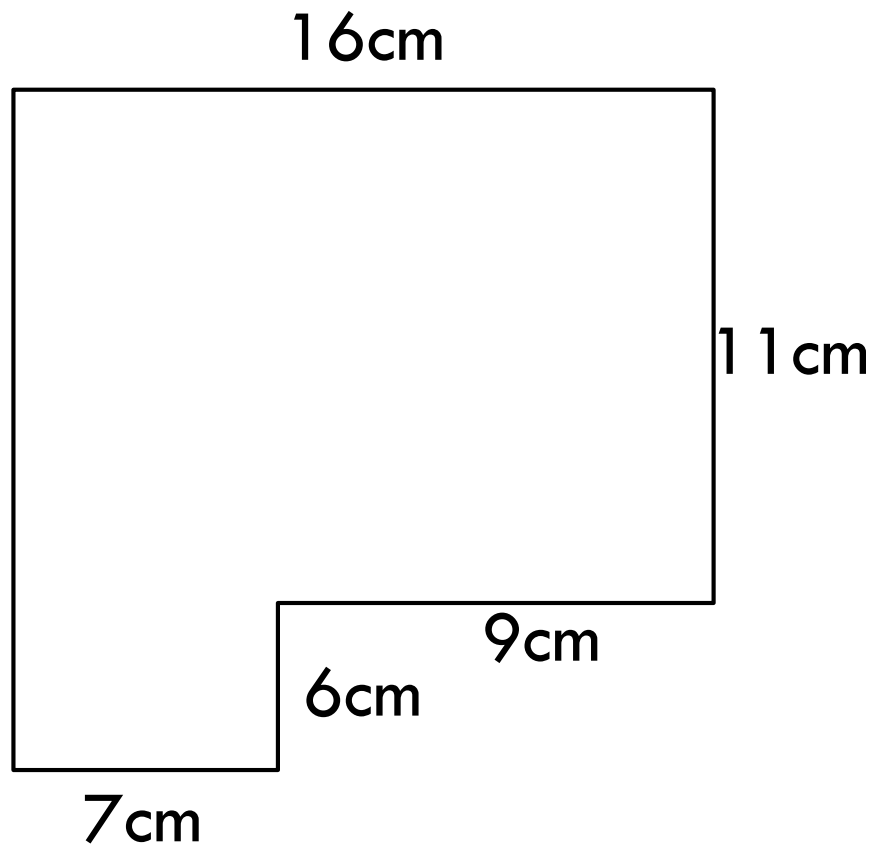
What can you do to check you have included all the sides?

Perimeter = **42cm**

$$3+6+7+5+10+11 = \mathbf{42}$$

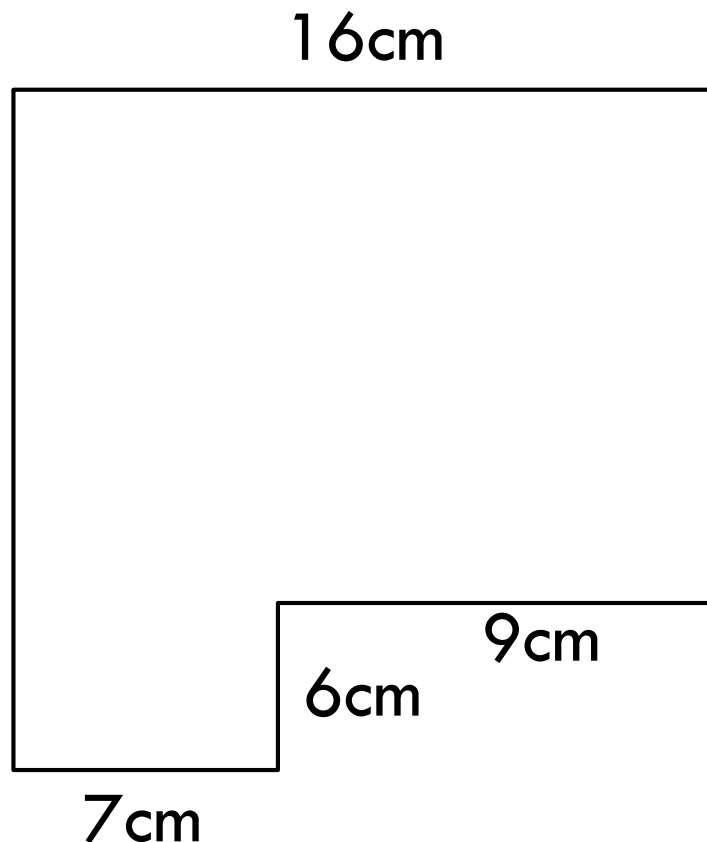
The shape has **6** sides so I know I must add together **6** lengths to find the perimeter.

What is the perimeter of this shape?



Do you have all the information you need?

What is the perimeter of this shape?



Do you have all the information you need?

No – there are 6 sides but only 5 lengths.

How can you find the missing side?

What is the perimeter of this shape?

Answer

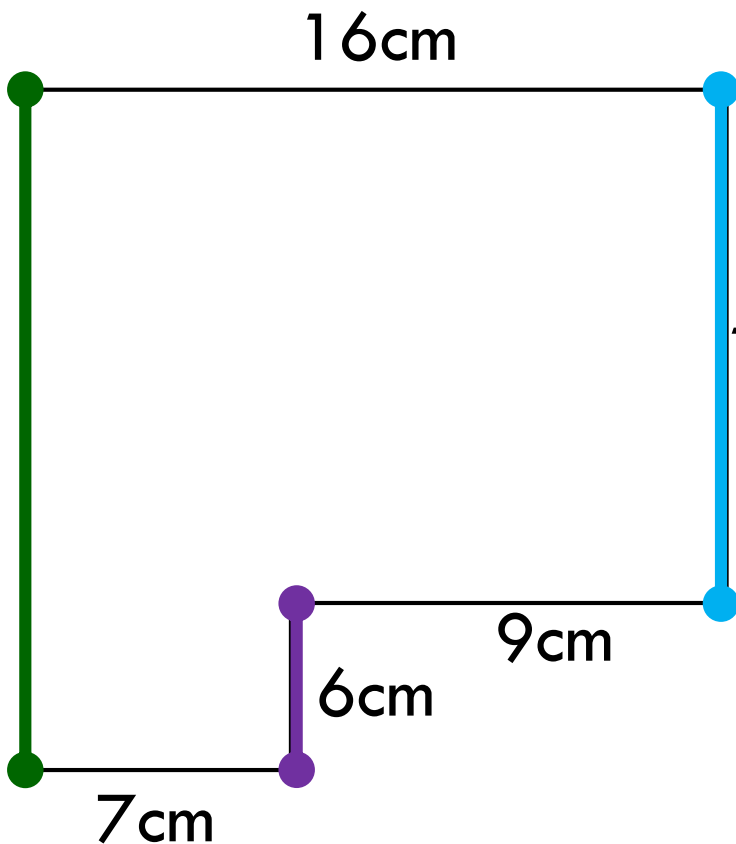
Do you have all the information you need?

No – there are 6 sides but only 5 lengths.

How can you find the missing side?

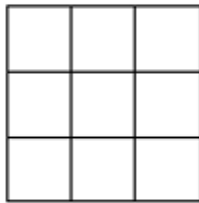
The missing side (green) is the same length as the two parallel (blue and purple) sides added together. So the missing side is 17cm.

Perimeter = 66cm



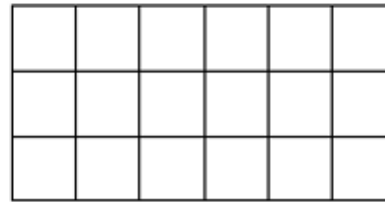
Task – part 1

Find the perimeter of each of these shapes:



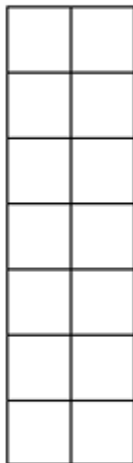
3 cm

3 cm



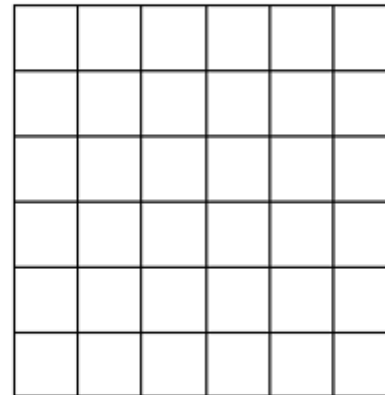
3 cm

5 cm



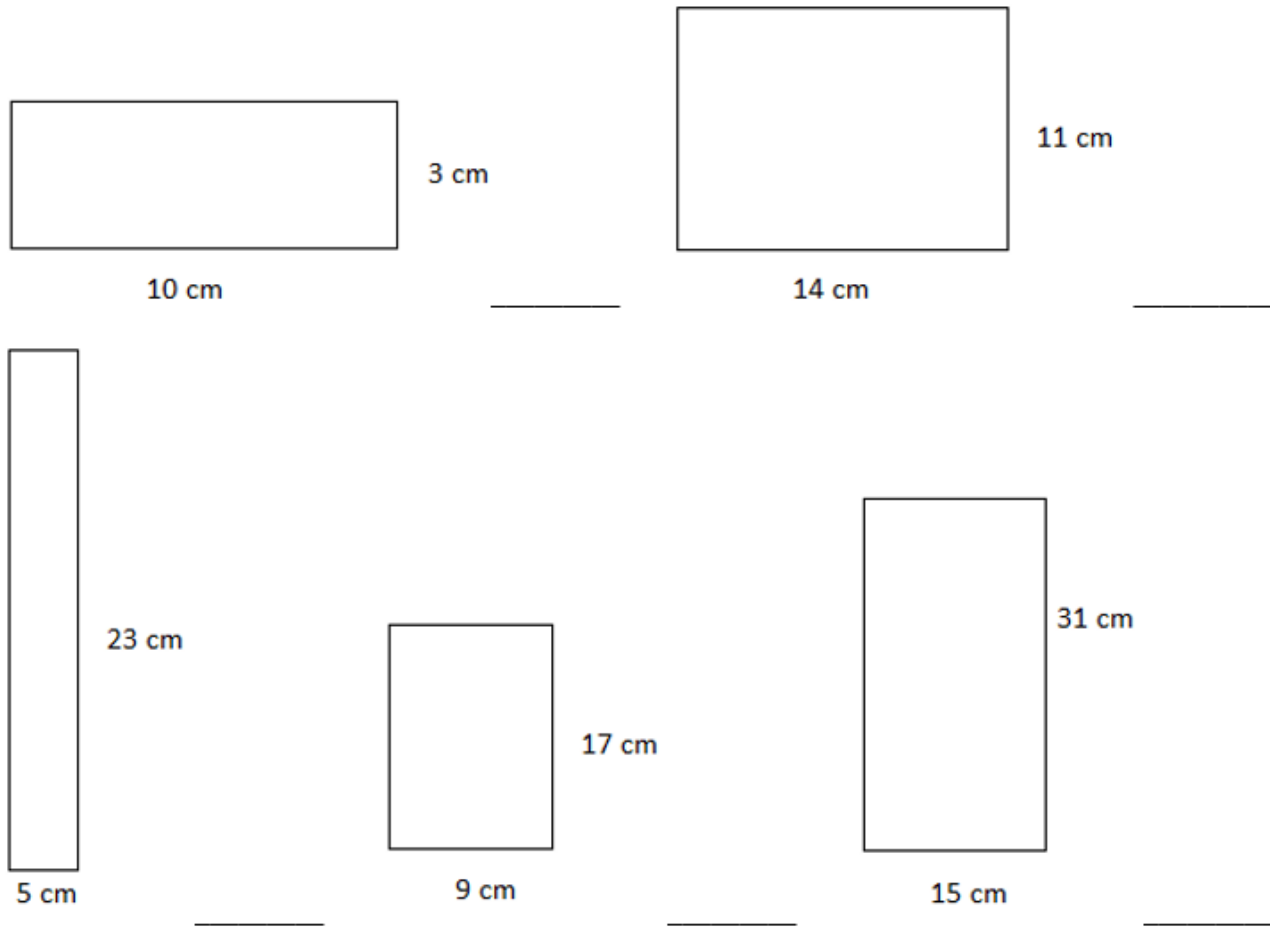
14 cm

4 cm



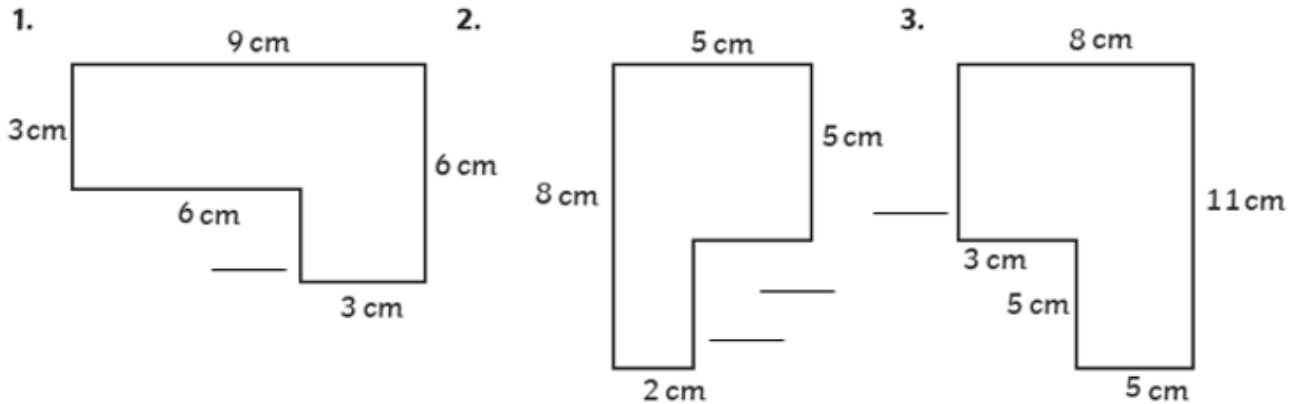
12 cm

Task – part 2



Task – challenge

(Remember that each shape should have 6 lengths marked.)



Plenary

- A square has sides that are whole centimetres in length.
- Spot the perimeters that can't be true:
 - ▣ 8cm, 18cm, 20cm, 24cm, 25cm, 28cm
- Prove your answer