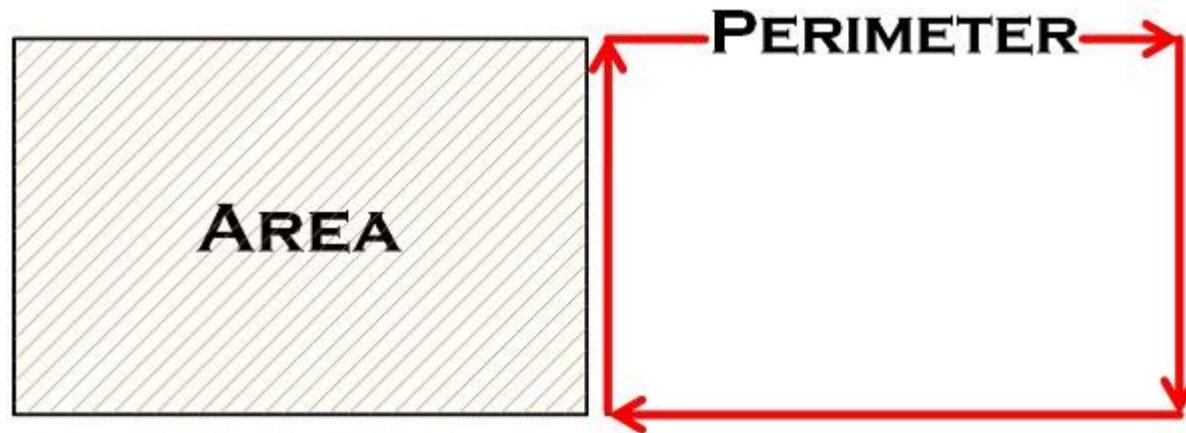


# Year 6 – Area and Perimeter

# What are area and perimeter?

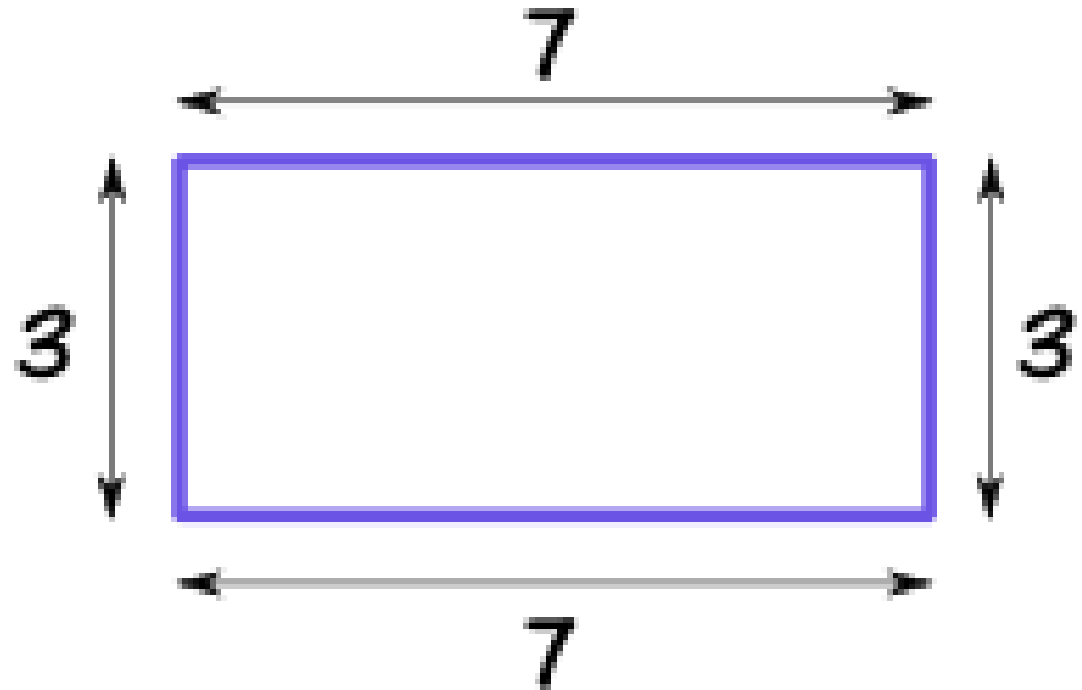
- Area measures the space **inside** a shape (we often do this in squares)



- Perimeter is the distance around the **outside** of a shape

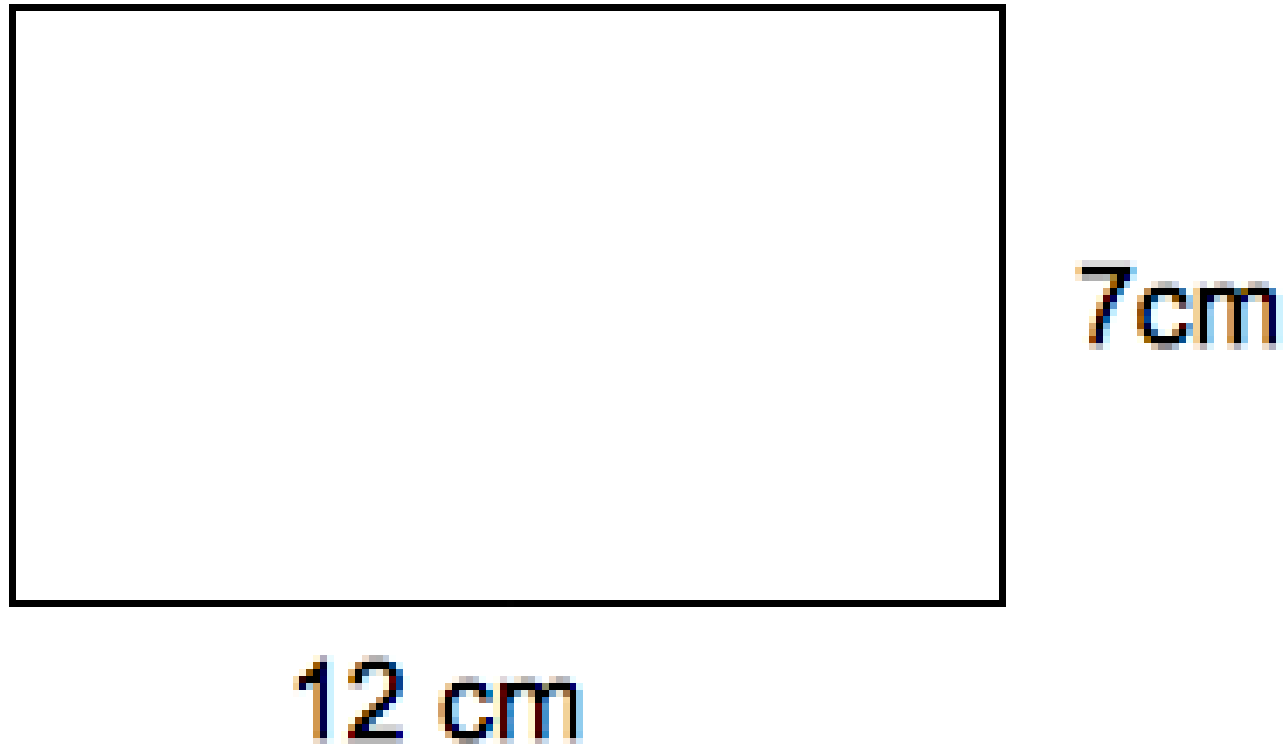
I do

- For the area of a rectangle, I **multiply** the width and height
- $7 \times 3 = 21$
- If the units were cm, the answer would be  $21 \text{ cm}^2$
- For the perimeter, you simply add up **all** of the edges
- $7 + 3 + 7 + 3 = 20(\text{cm})$



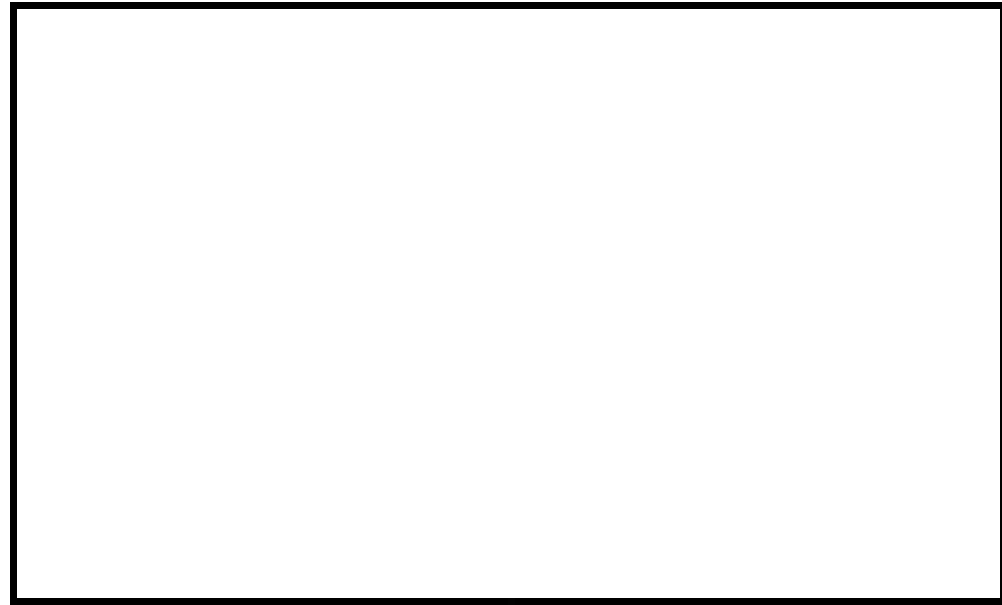
You do

- Hint: how do you know the values of the blank edges?



# You do

- Hint: how do you know the values of the blank edges?
- Area =  $84\text{cm}^2$
- Perimeter =  $38\text{cm}$



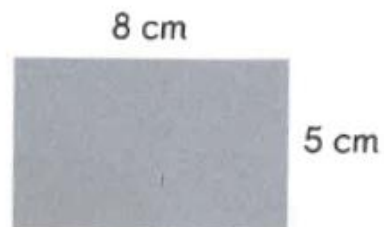
12 cm

7 cm

You do

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

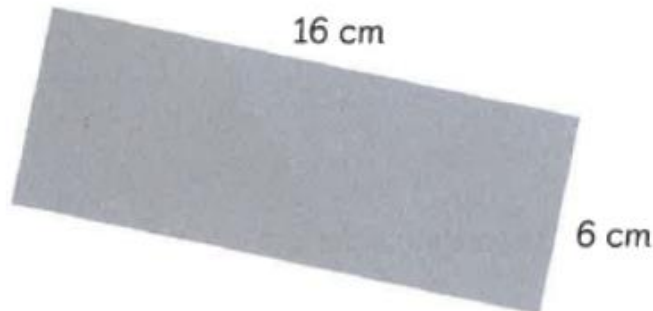
(a)



area =

perimeter =

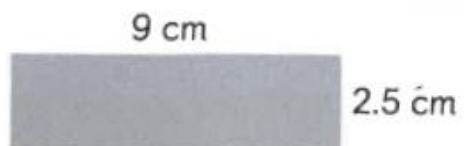
(b)



area =

perimeter =

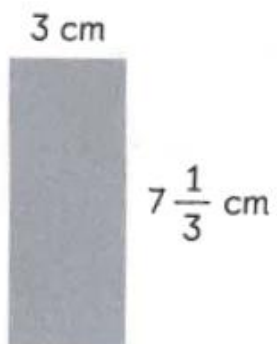
(c)



area =

perimeter =

(d)

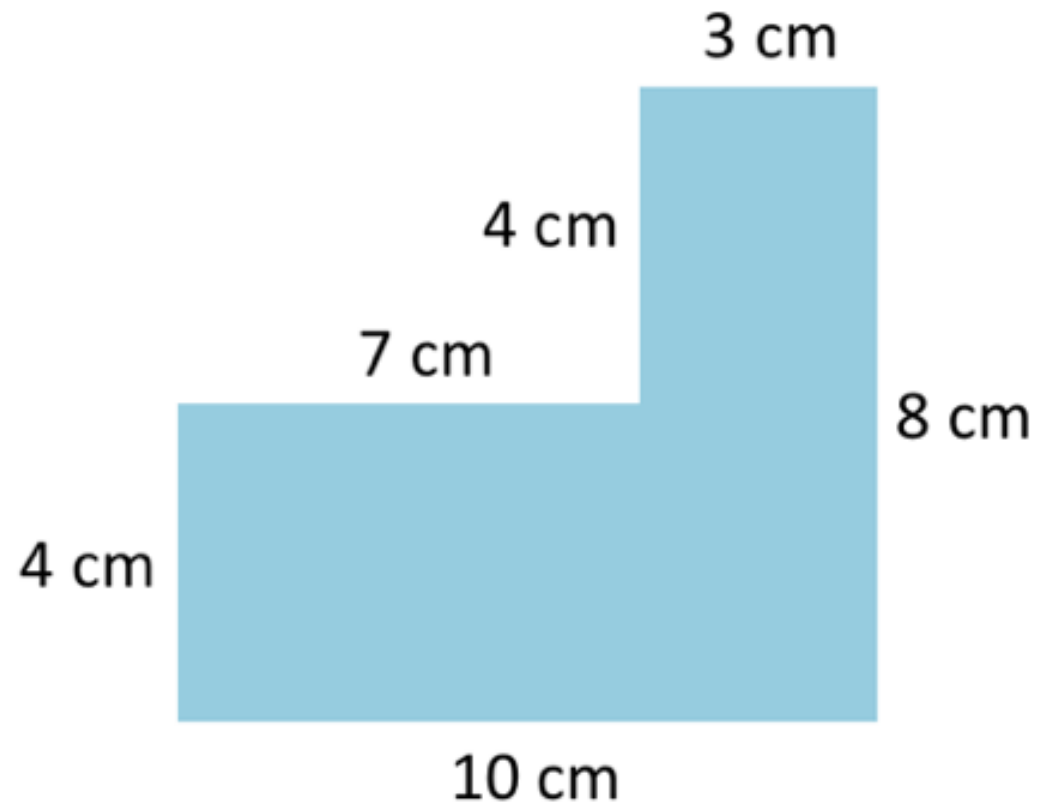


area =

perimeter =

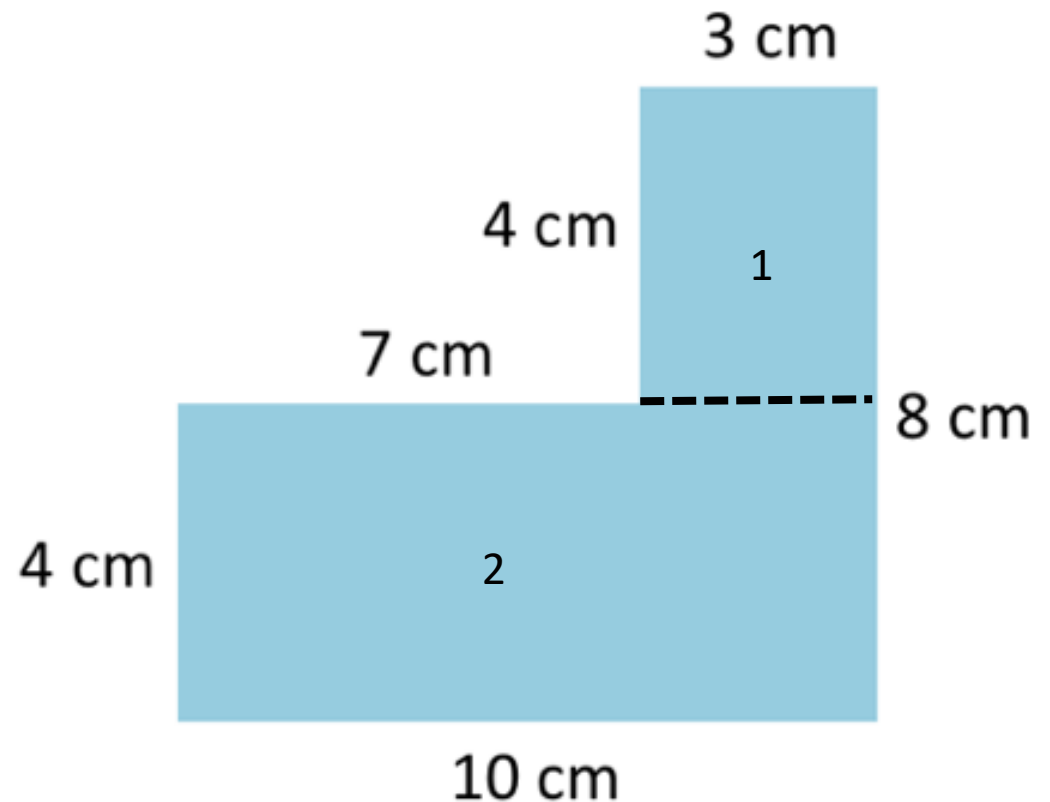
# Area and perimeter of compound shapes

- Compound shapes means the shape can be broken up into simpler more familiar shapes
- How could you work out the area and perimeter of this shape?



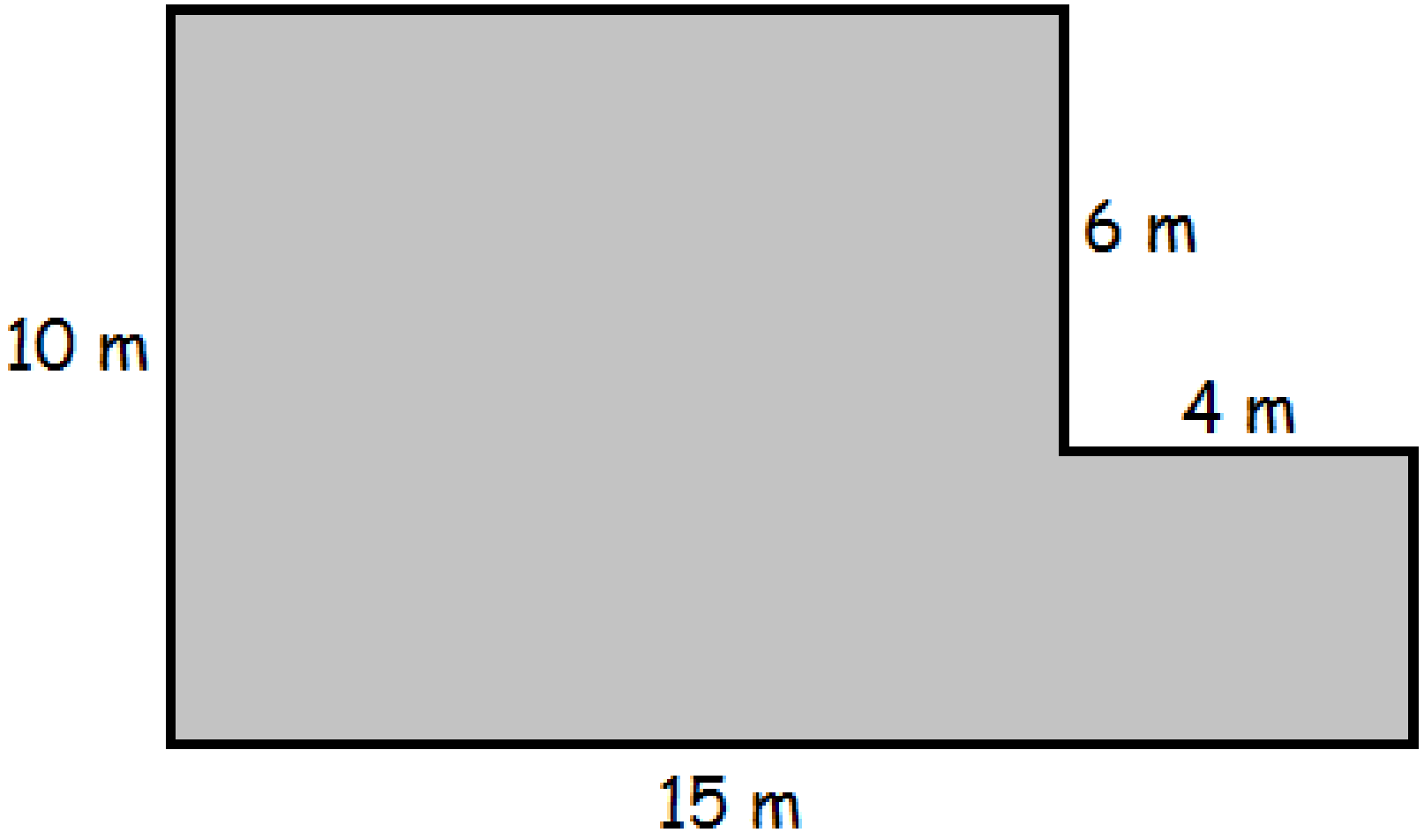
# Area and perimeter of compound shapes

- Compound shapes means the shape can be broken up into simpler more familiar shapes
- We can break this irregular hexagon into 2 regular rectangles.
- Rectangle 1: Area =  $4 \times 3 = 12\text{cm}^2$
- Rectangle 2: Area =  $4 \times 10 = 40\text{cm}^2$
- Total area:  $52\text{cm}^2$
- Perimeter:  $7 + 4 + 3 + 8 + 10 + 4 = 36\text{cm}$
- The perimeter is still the outside of the whole shape, but it helps to divide into 2 parts to calculate the areas





You do

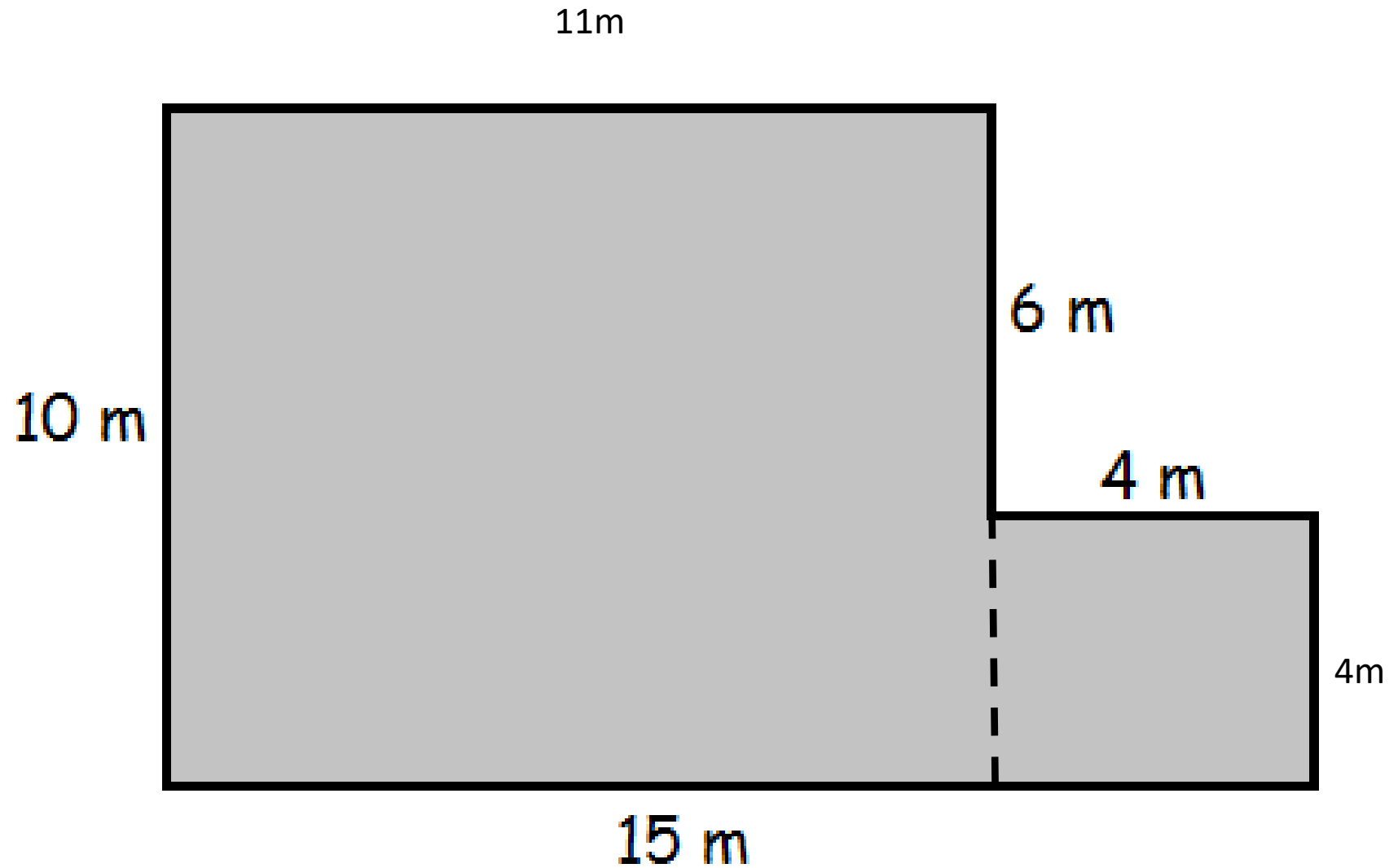


You do

- $\text{Area} = 4 \times 4 = 16\text{m}^2$
- $11 \times 10 = 110\text{m}^2$
- $\text{Total area} = 126\text{m}^2$

• Perimeter:

- $11 + 6 + 4 + 4 + 15 + 10 = 50\text{m}$



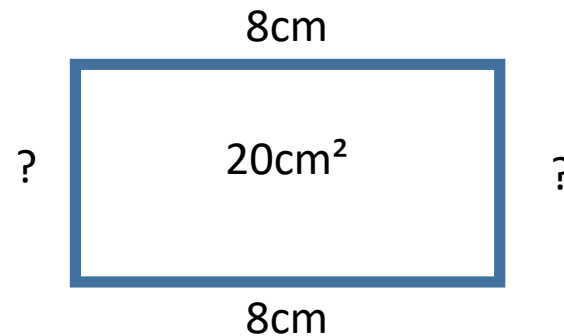
# I do

3

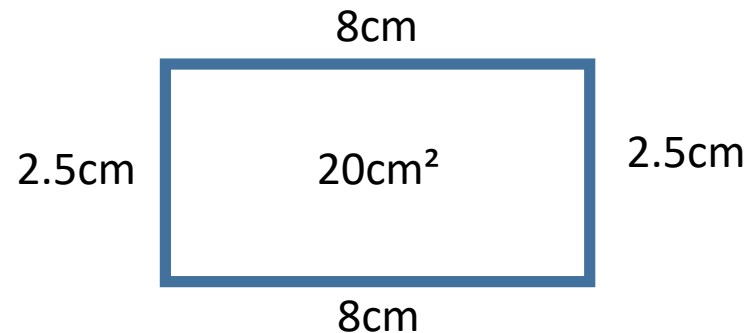
A rectangle has an area of  $20 \text{ cm}^2$ . Its longer side is  $8 \text{ cm}$ .

- (a) Find the length of the other side.
- (b) Calculate its perimeter.

- With questions like these, we have to work backwards. It can be helpful to draw/label what we know.



- To calculate the area, we have to do  $8 \times ? = 20$  so we can work backwards.  $20 \div 8 = 2.5 \text{ cm}$



Finally, to work out the perimeter, we have to add up **all** the edges.  
 $8 + 2.5 + 2.5 + 8 = 21 \text{ cm}$

You do

4

A square has an area of  $25 \text{ cm}^2$ . Find its perimeter.

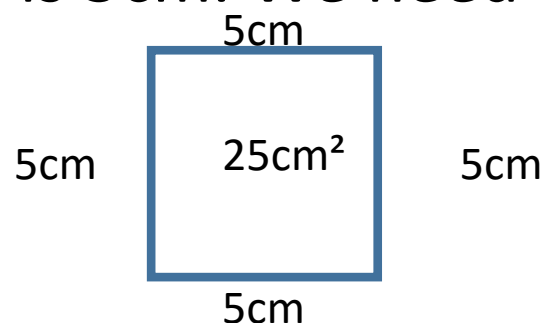
- Hint: what rules do you know about squares?
- Answer on next page

You do

4

A square has an area of  $25 \text{ cm}^2$ . Find its perimeter.

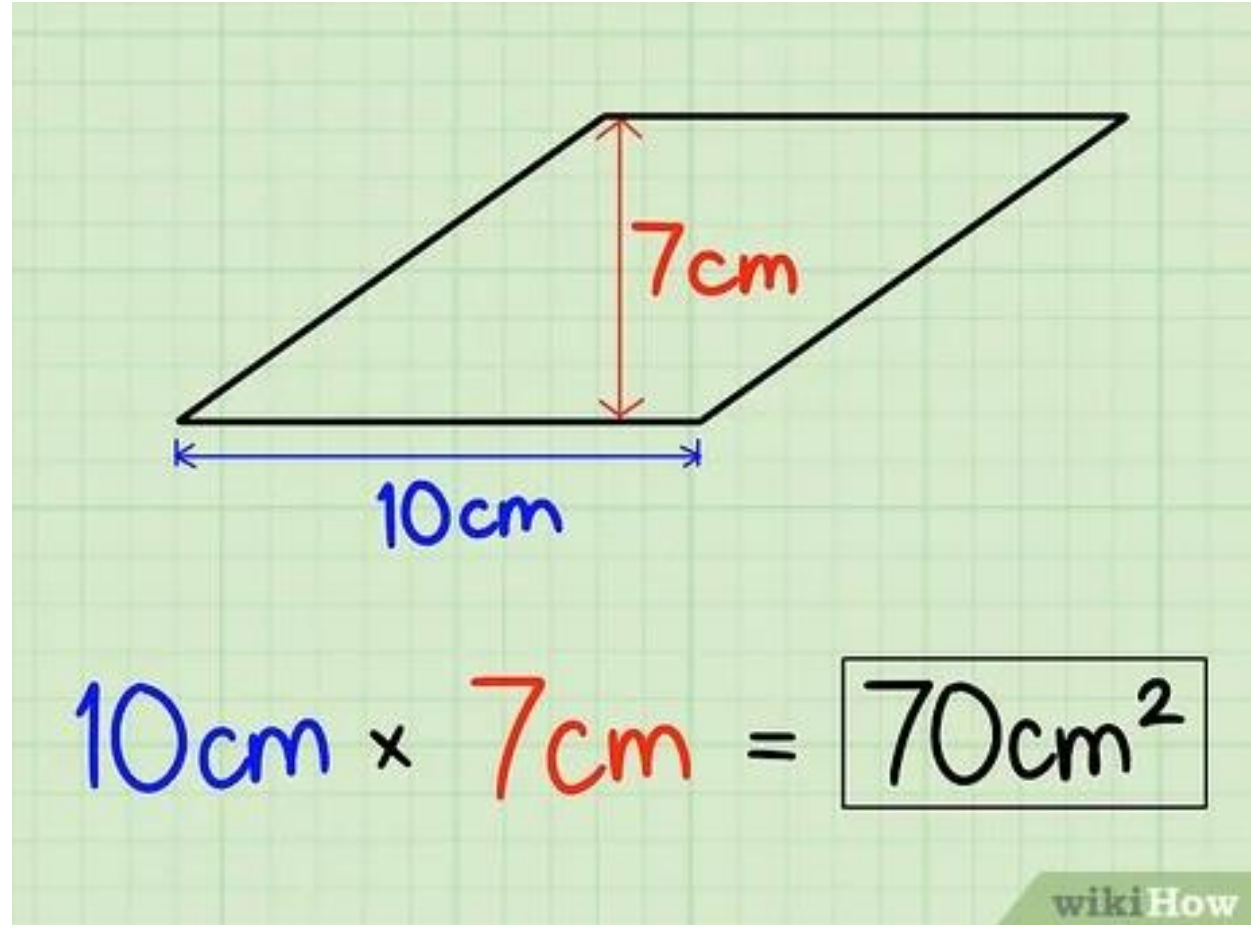
- In a square, all the sides must be the same length.
- Conveniently, 25 is a square number, meaning there is a whole number which multiplies by itself to make 25.
- $5 \times 5 = 25$
- Therefore, each side is 5cm. We need to find the perimeter.



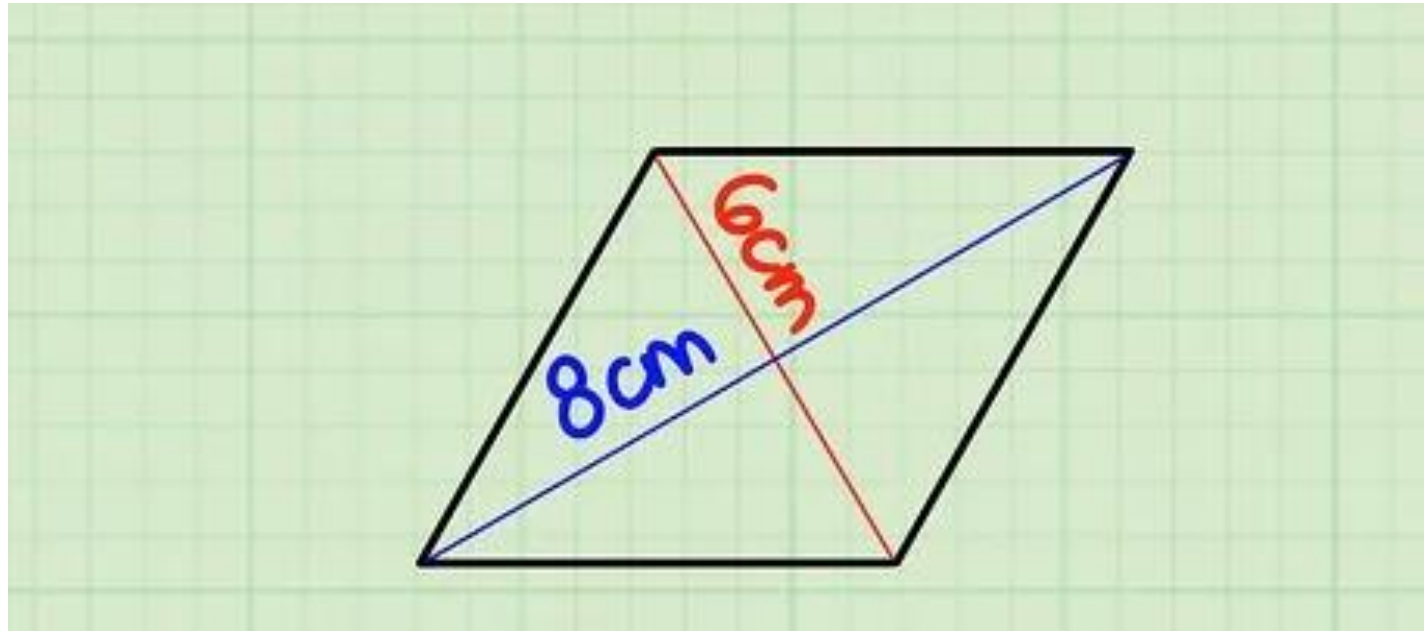
- A square has 4 sides, each of 5cm so the perimeter = 20cm

# Area of a rhombus

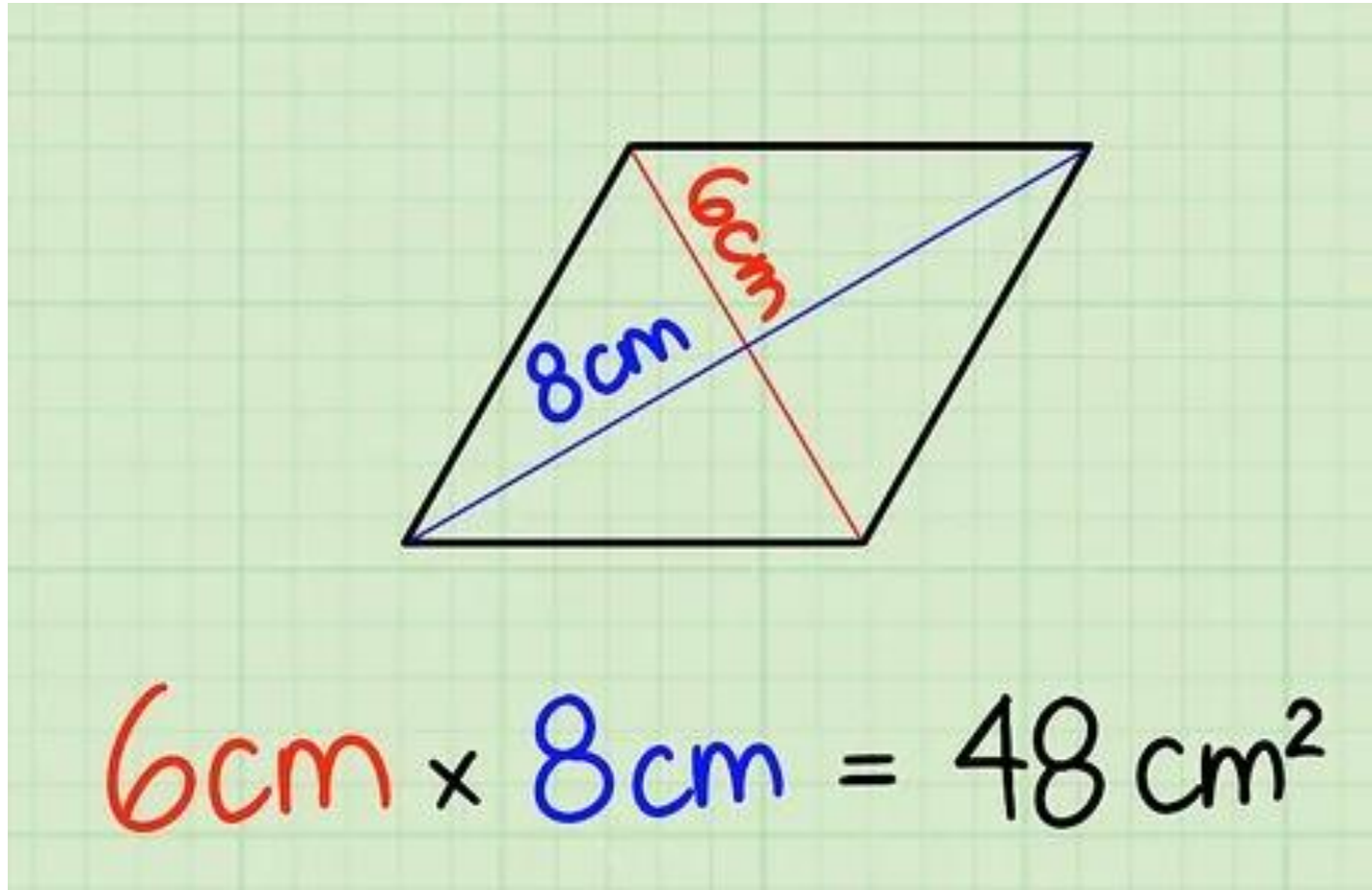
- In a rhombus, all of the sides are the same length, but they are at an angle. As a result, we can just calculate the area as if it was a normal rectangle, but using the measurements given.



Area of a rhombus – You do



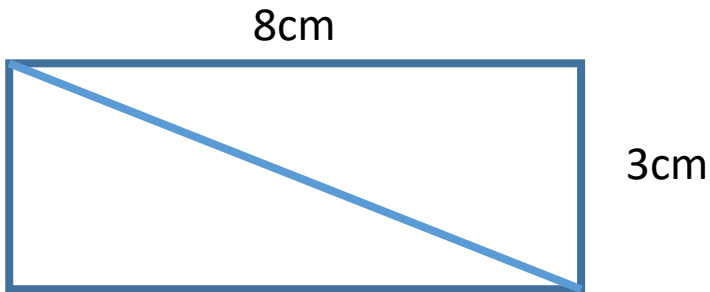
Area of a rhombus – You do



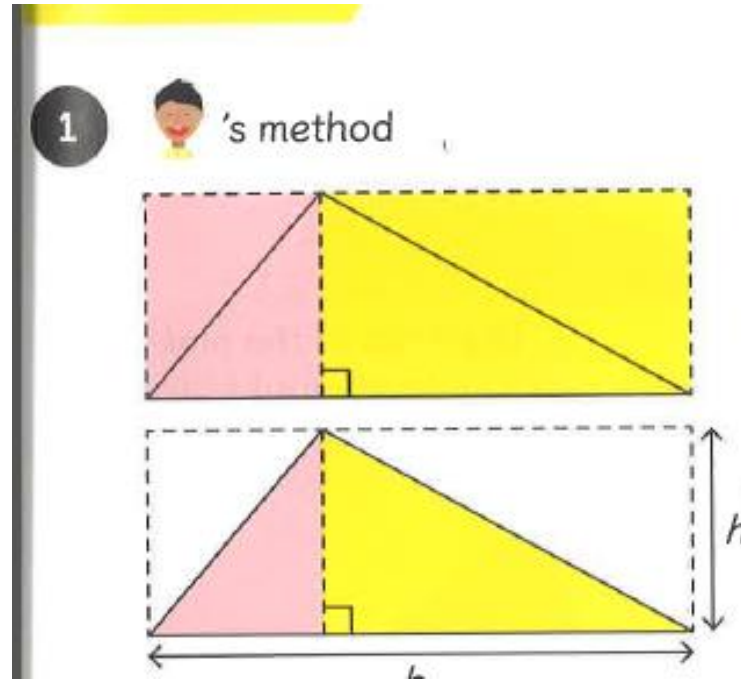


# Area of a triangle

- A triangle has half the area of a rectangle with the same measurements



- In this example, the area of the rectangle would be  $24\text{cm}^2$
- The area of the triangle is  $12\text{cm}^2$



The area of the triangle is half the area of the large rectangle.

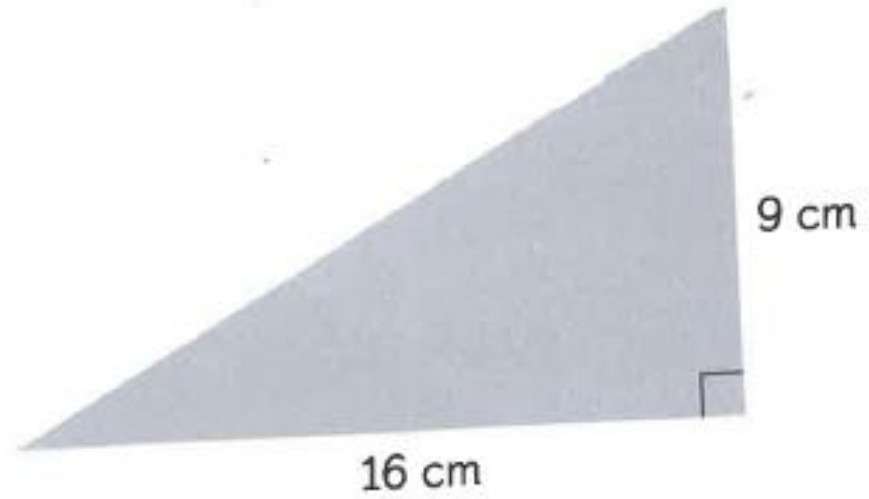
area of rectangle  
 $= (b \times h) \text{ cm}^2$



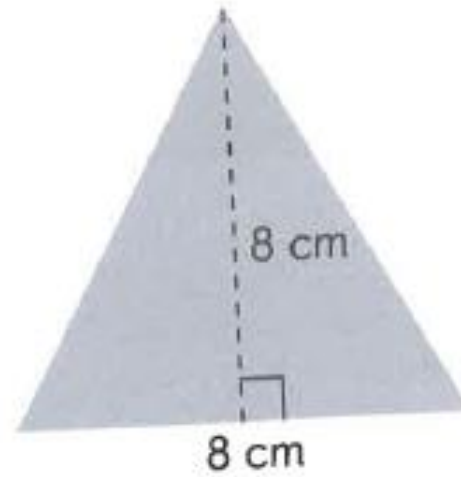
You do

1 Find the area of each triangle.

(a)



(b)



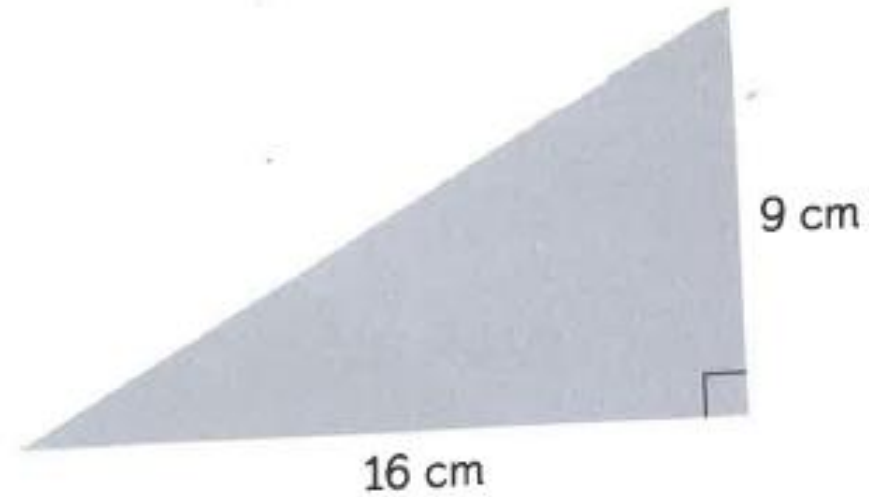
# You do

- A)  $72\text{cm}^2$

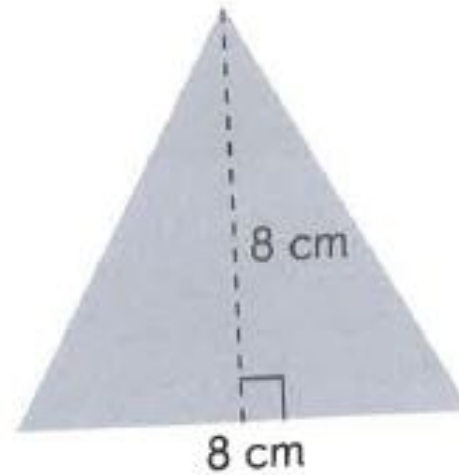
- B)  $32\text{cm}^2$

1 Find the area of each triangle.

(a)



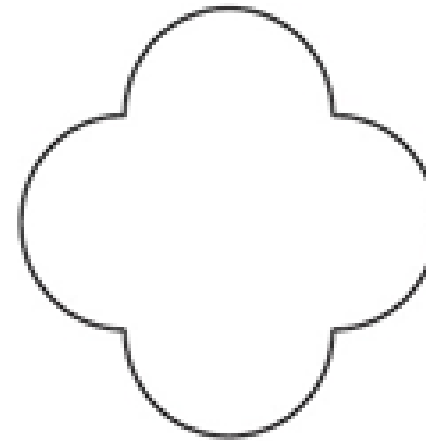
(b)



# Reasoning

Q1.

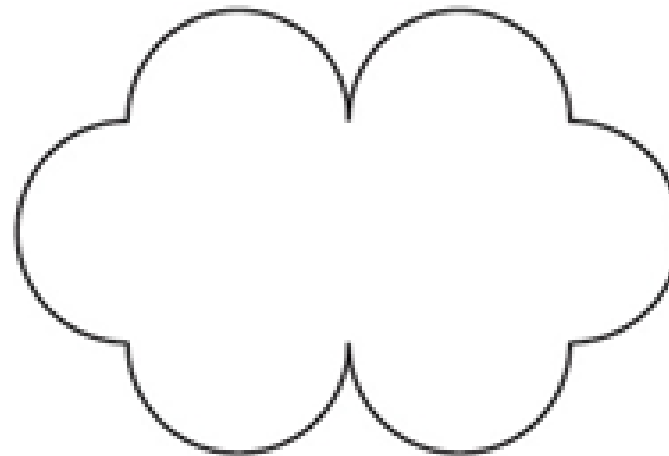
This shape is made out of four identical curves.



Not  
actual  
size

The perimeter of the shape is 28 centimetres.

A new shape is made out of curves of the same size.



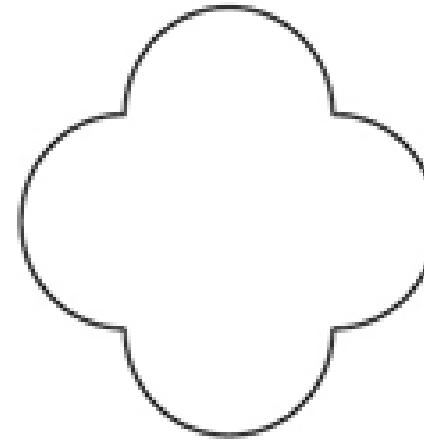
What is the perimeter of the new shape?

# Reasoning

- 4 curves = 28cm
- 1 curve = 7 cm
- The new shape has 6 curves
- $6 \times 7\text{cm} = 42\text{cm}$

Q1.

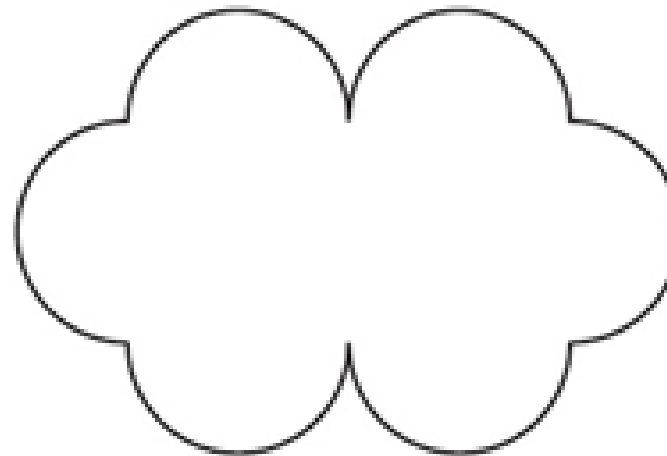
This shape is made out of four identical curves.



Not  
actual  
size

The perimeter of the shape is 28 centimetres.

A new shape is made out of curves of the same size.



What is the perimeter of the new shape?