

**Year 6**



# Mathematics

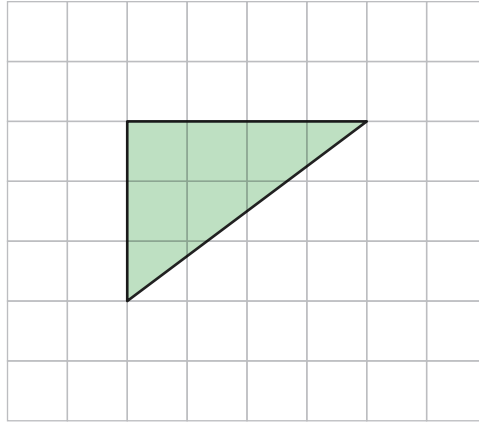
## Reasoning - measurement

Perimeter and area

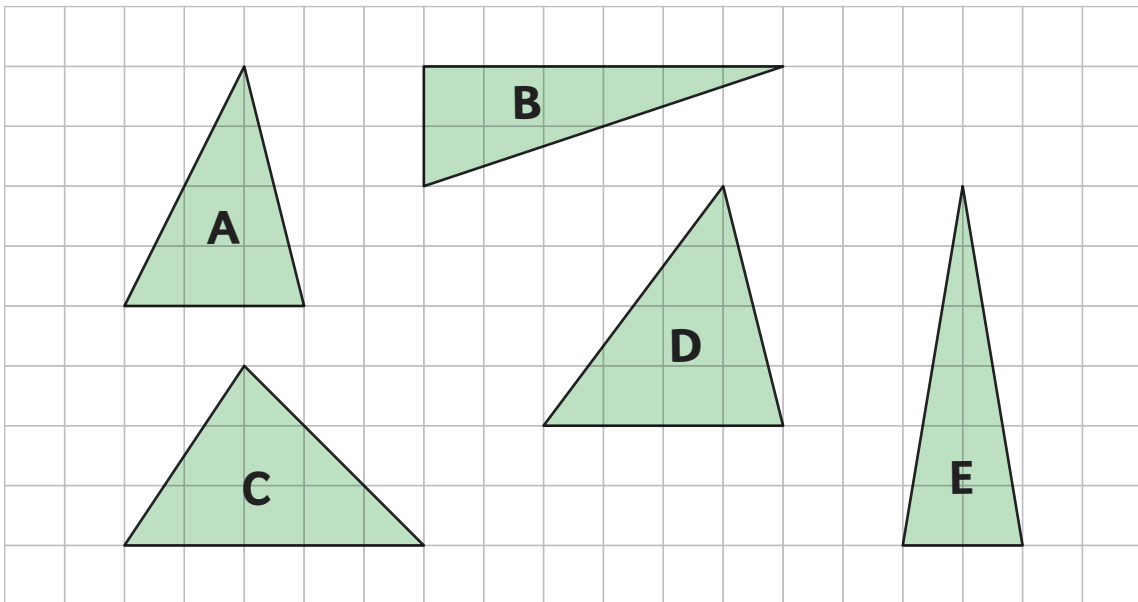
<b>First name</b>						
<b>Middle name</b>						
<b>Last name</b>						
<b>Date of birth</b>	<b>Day</b>		<b>Month</b>		<b>Year</b>	
<b>School name</b>						

1

Shen draws a triangle on the grid.



Write the letters of **all** the triangles that have a **different** area to Shen's triangle.



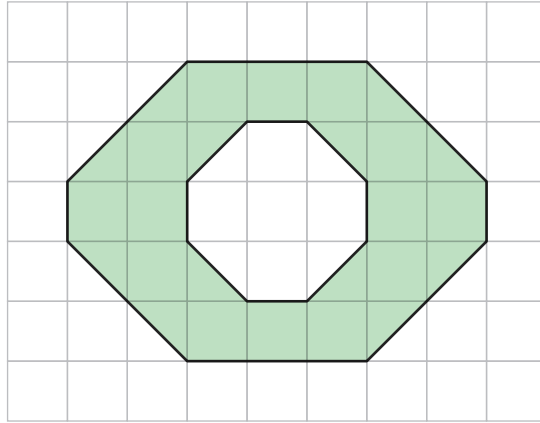
\_\_\_\_\_



1 mark

2

A shape is shaded on the 1cm square grid below.



What is the area that is shaded?

cm<sup>2</sup>



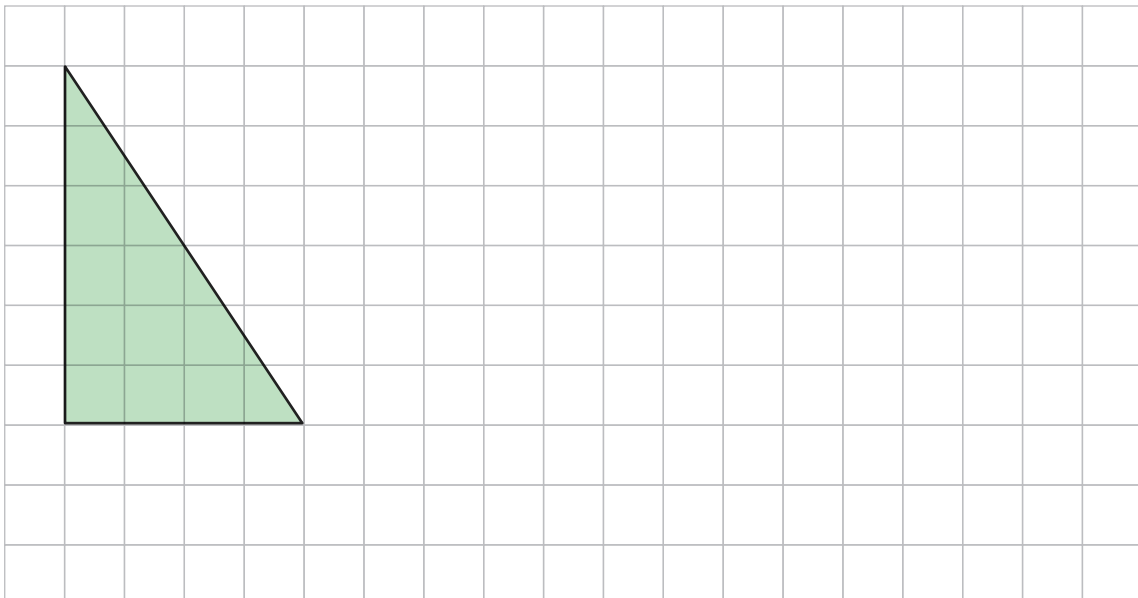
1 mark

3

Here is a triangle drawn on a square grid.

Draw a **rectangle** on the grid with the **same area** as the triangle.

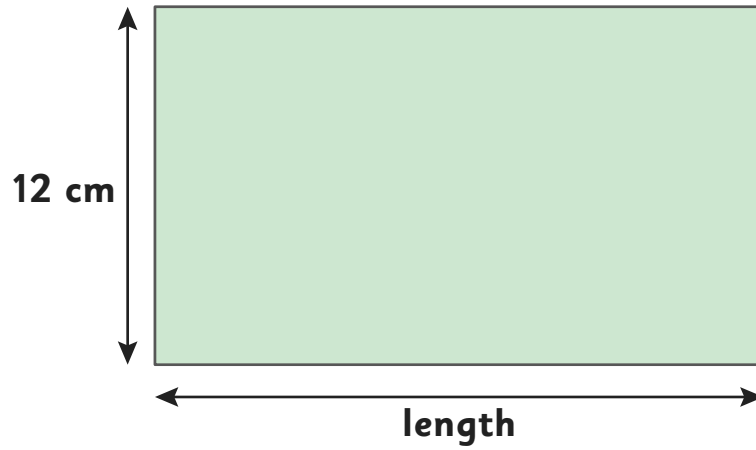
Use a ruler.



1 mark

4

The area of this rectangle is  $180\text{cm}^2$

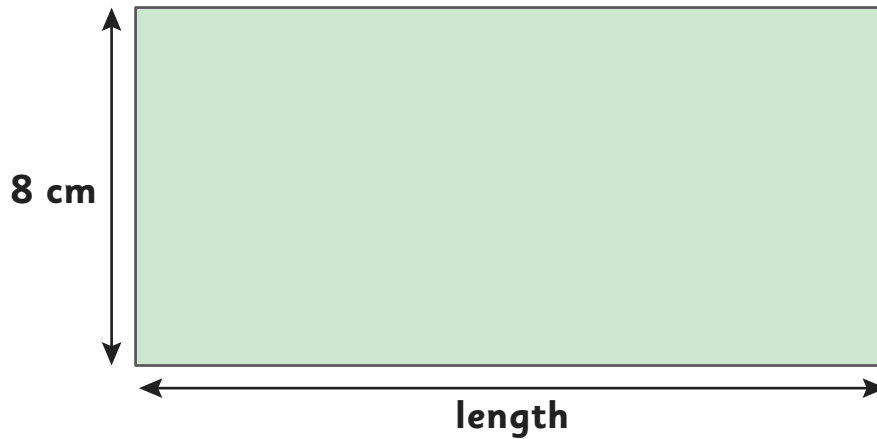


Calculate the **perimeter** of the shape.



1 mark

The perimeter of this rectangle is 42 cm.



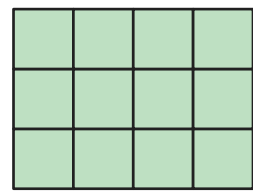
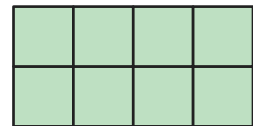
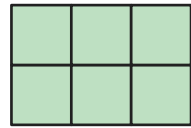
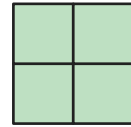
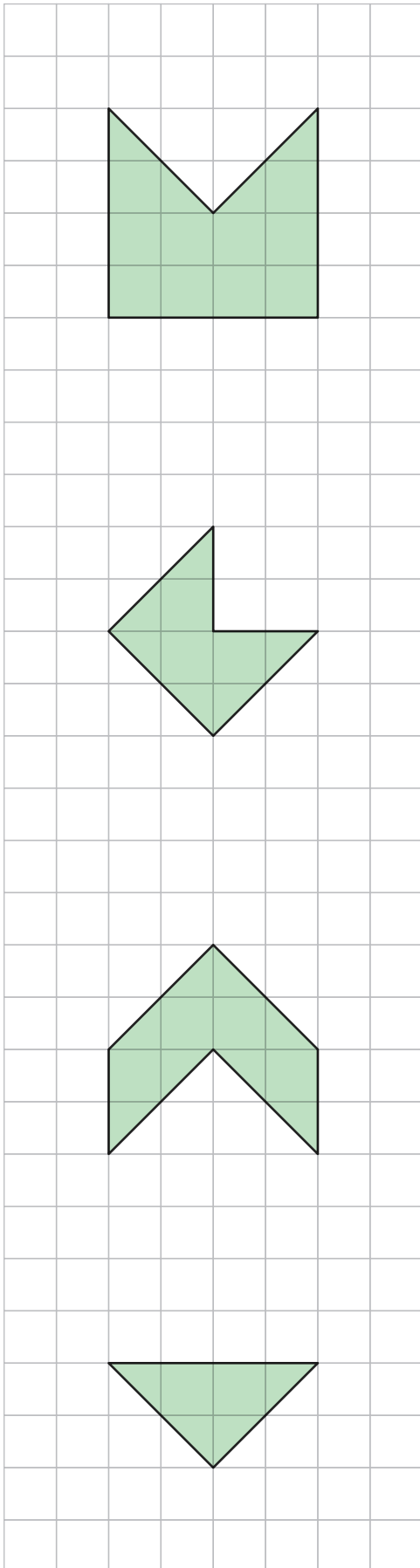
Calculate the **length** of the rectangle.



1 mark

5

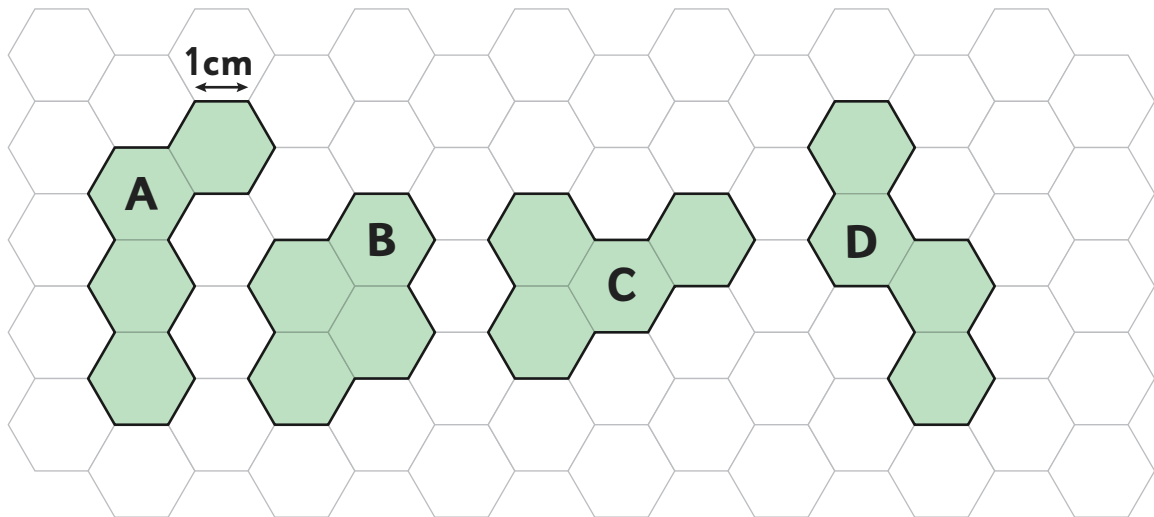
Match each shape on the grid to a rectangle with an **equal area**.



1 mark

6

Here are some shapes made of 4 regular hexagons.



Which two shapes have the **same perimeter**?

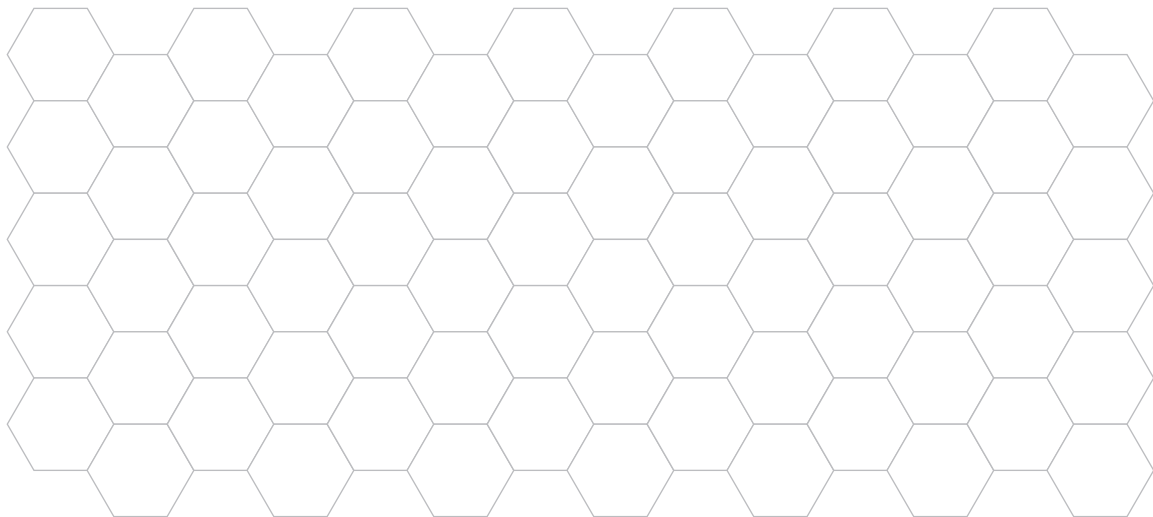


\_\_\_\_\_ and \_\_\_\_\_



1 mark

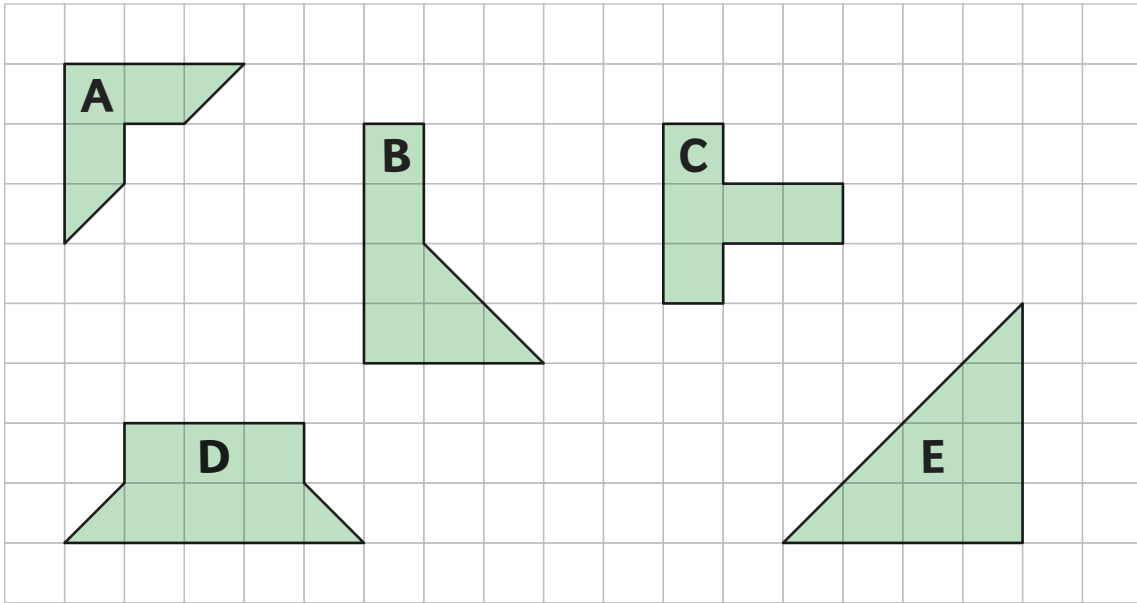
On the grid below, draw a **different** shape with an area of 4 hexagons and a perimeter of 18cm.



1 mark

7

Here are some shapes on a 1cm grid.



What is the **perimeter** of shape C?



1 mark

Write the letter of the shape that has the **greatest** area.



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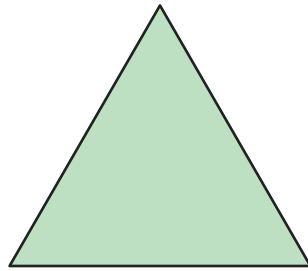


1 mark

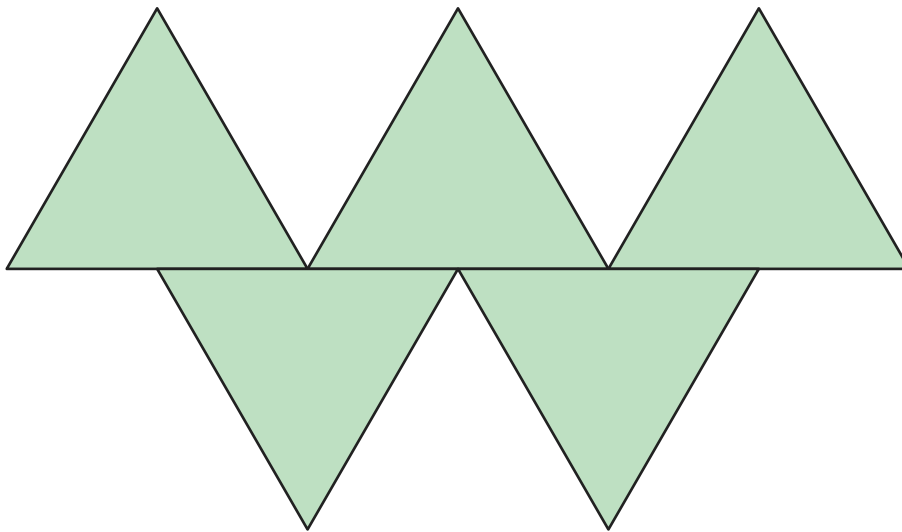
8

Sarah has some equilateral triangle tiles.

The perimeter of each equilateral triangle is 24 cm.

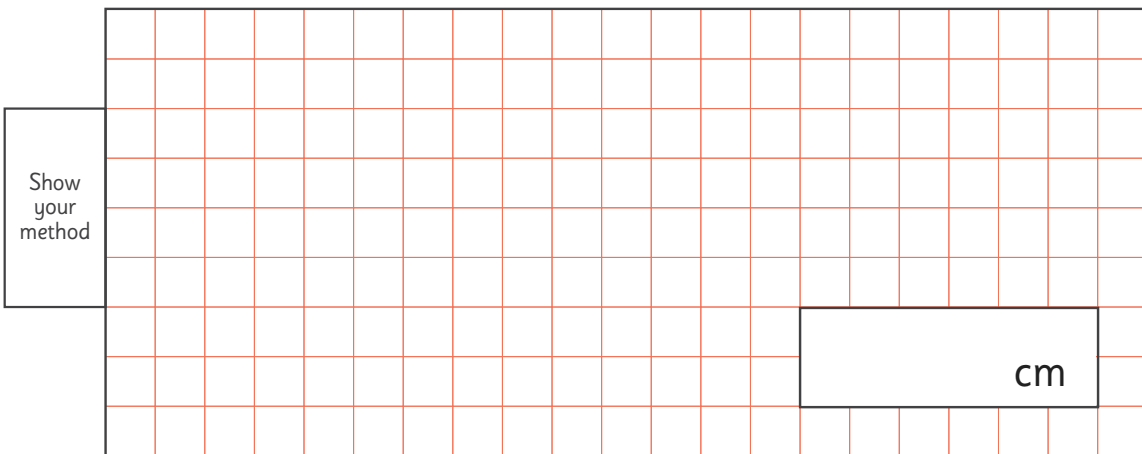


She arranges them in a pattern.



Calculate the **perimeter** of the shape.

Show your method

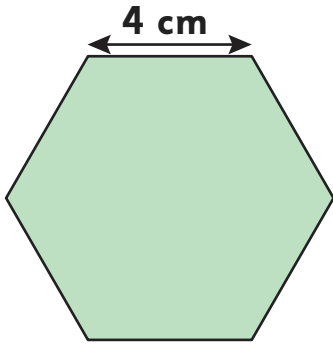


cm

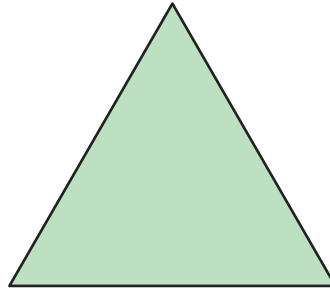
2 marks

9

Here are three shapes with the **same perimeter**.



Regular hexagon



Equilateral triangle



Rectangle

Calculate the **length** of each side of the **equilateral triangle**.

cm



1 mark

The rectangle has the same length as each side of the equilateral triangle.

Calculate the **area** of the **rectangle**.

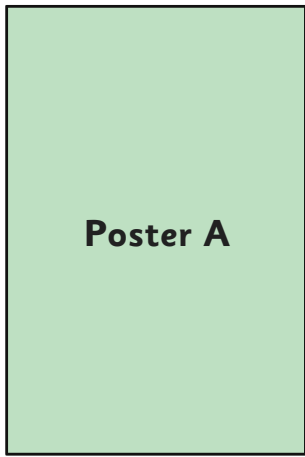
Show your method

A grid for showing the method to calculate the area of the rectangle. The grid is 10 units wide and 10 units high. A rectangle is drawn on the grid, with a length of 4 units and a width of 2 units. The rectangle is shaded light blue. The text "Show your method" is written in a box on the left side of the grid. The text "cm<sup>2</sup>" is written in a box on the right side of the grid.

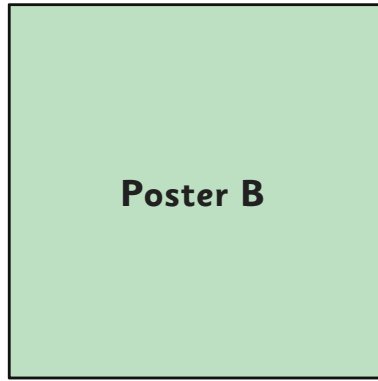
2 marks

10

A shop sells three different sizes of poster.



20 cm x 30 cm



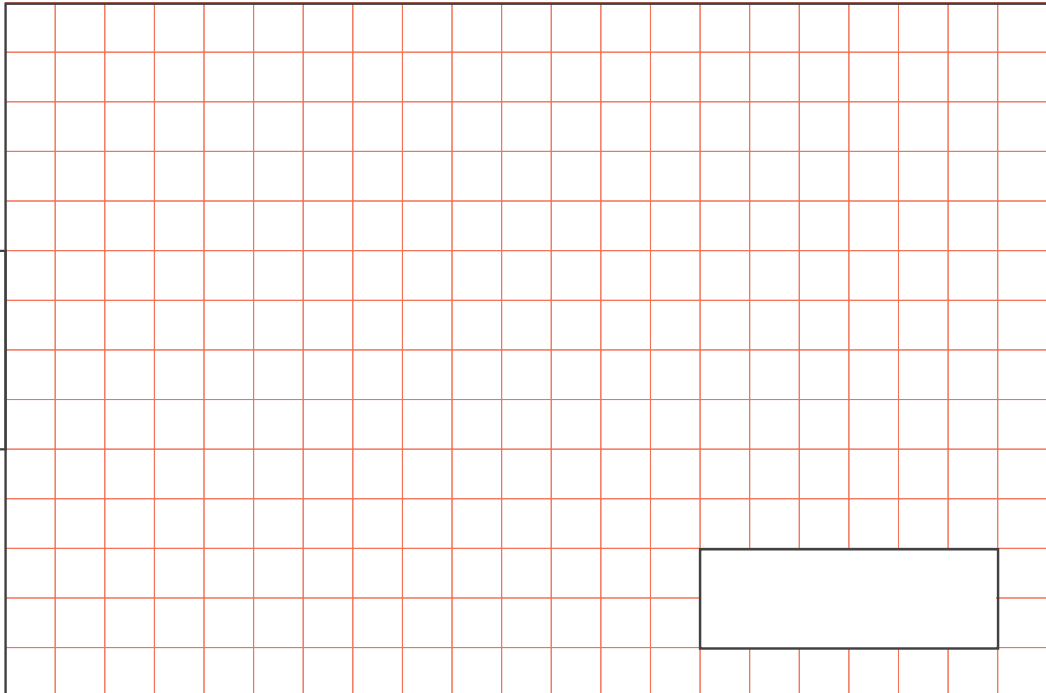
25 cm x 25cm



35 cm x 15 cm

Which poster has the greatest **area**?

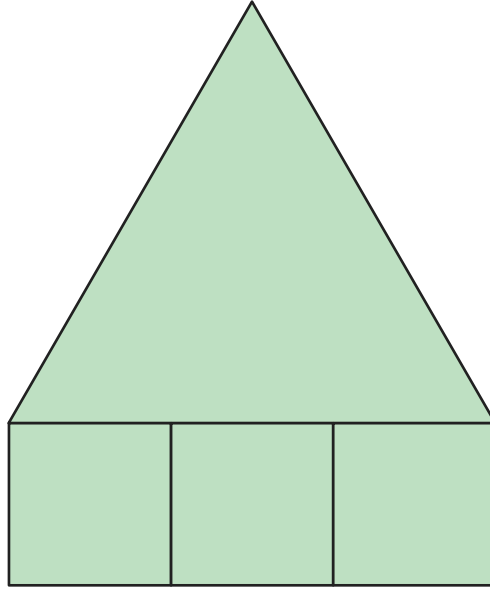
Show  
your  
method



2 marks

11

Here is a diagram made from one equilateral triangle and three squares.  
The area of the square is  $16\text{cm}^2$ .



Calculate the **perimeter** of the shape.

Show your method

cm



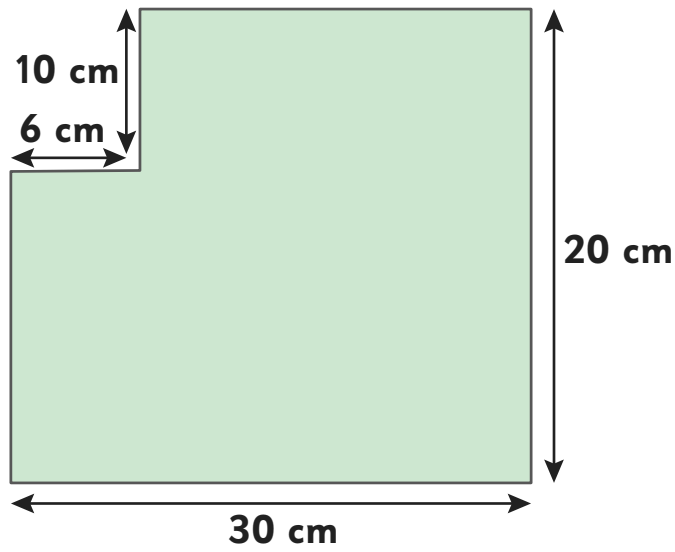
1 mark

12

Abdul is laying a floor tile.

Each tile is 20cm x 30cm.

He cuts a piece out of one tile. The removed piece is 6cm x 10cm.



Calculate the **perimeter** of the shape.

Show your method

A large grid is provided for showing the method. A small box on the right side of the grid is labeled "cm".



1 mark

Calculate the **area** of the shape.

Show your method

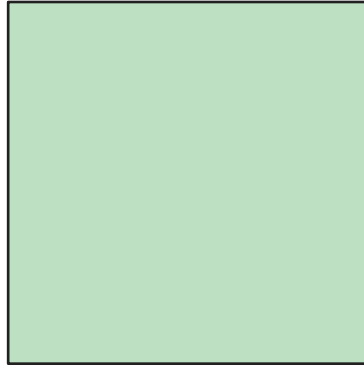
A large grid is provided for showing the method. A small box on the right side of the grid is labeled "cm<sup>2</sup>".



1 mark

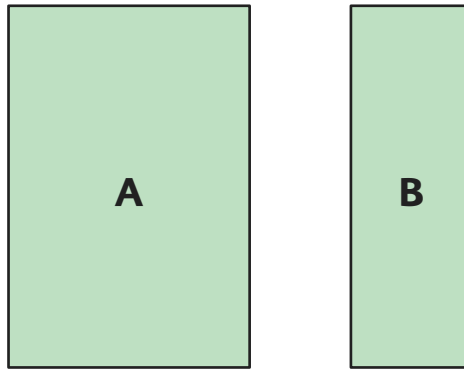
13

The area of a square is  $81 \text{ cm}^2$ .



The square is cut into 2 rectangles.

Rectangle **A** has an area twice the size of rectangle **B**



Calculate the **perimeter** of each rectangle shape.

Show your method

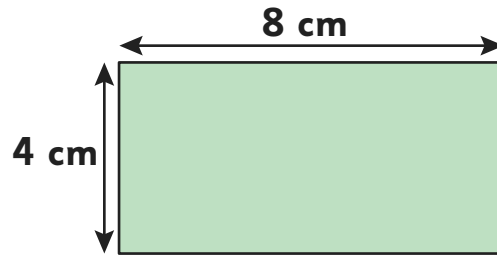
Rectangle **A**:  cm      Rectangle **B**:  cm



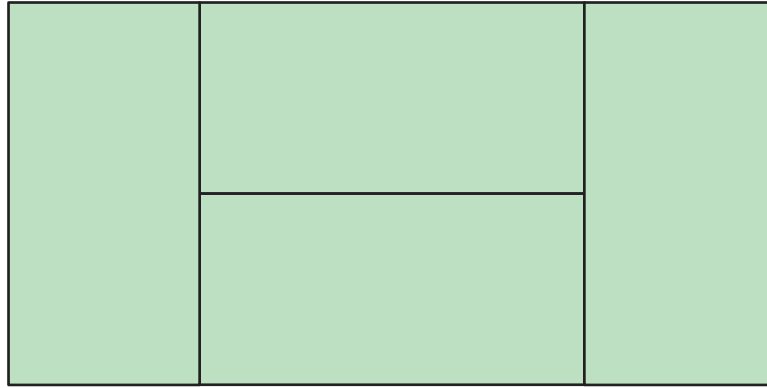
2 marks

14

Abdul has some rectangular tiles.



He makes a pattern out of the tiles.



Calculate the **perimeter** of the new shape.

Show your method

A large grid with a red border and orange grid lines. A small white box is placed on the grid, containing the text "cm".



1 mark

Calculate the **area** of the new shape.

Show your method

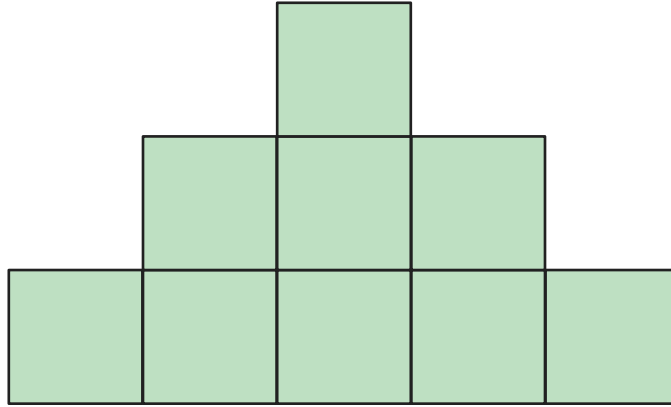
A large grid with a red border and orange grid lines. A small white box is placed on the grid, containing the text "cm<sup>2</sup>".



1 mark

15

Here are some identical square tiles which have been joined to make a shape.



The perimeter of the shape is 112 cm.

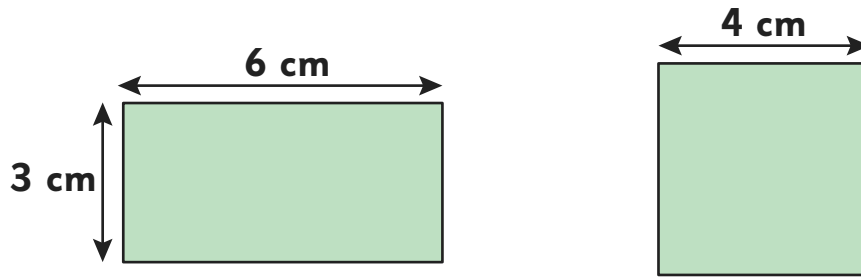
Calculate the **area** of **one square tile**.

Show your method

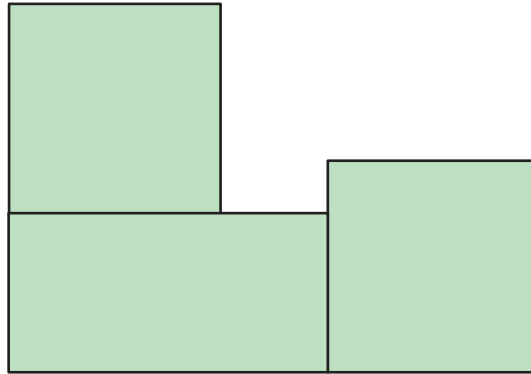
cm<sup>2</sup>

1 mark

Sarah has some square tiles and some rectangular tiles.



She makes a pattern out of the tiles.



Calculate the **perimeter** of the new shape.

Show your method



1 mark

Calculate the **area** of the new shape.

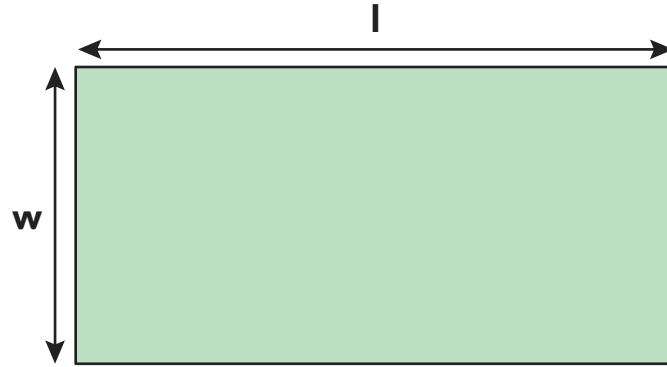
Show your method



1 mark

17

The length of this rectangle is  $l$  and its width is  $w$ .



Draw lines to correct the methods, showing whether they would find the **area** of the rectangle, the **perimeter** of the rectangle or neither.

$$l \times w$$

$$l + l + w + w$$

$$2l + 2w$$

$$w \times l$$

$$w \times l + w \times l$$

area

perimeter

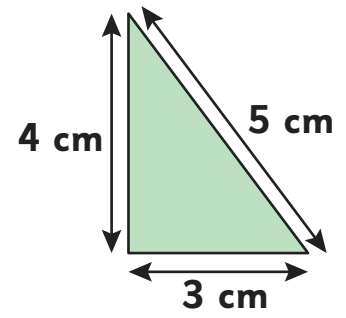
neither



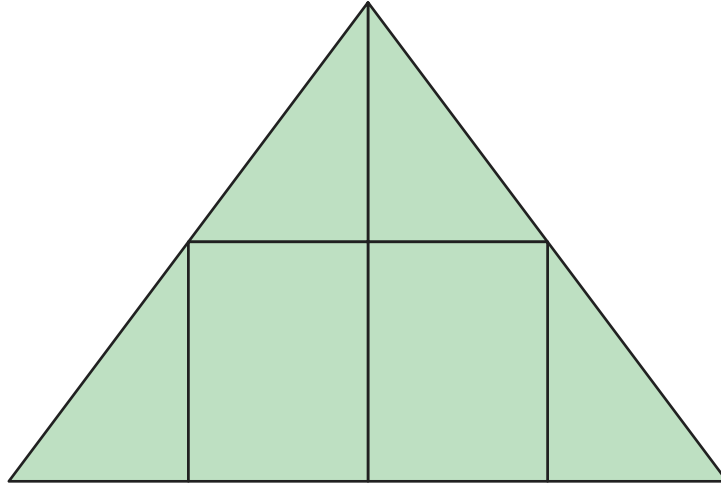
1 mark

18

Amy has some rectangular tiles and some triangular tiles.  
These are the measurements of the triangular tiles:



She use the tiles to make a large triangle.



Calculate the **perimeter** of the shape.

Show your method											<input style="width: 80px; height: 20px;" type="text"/> cm
------------------------	--	--	--	--	--	--	--	--	--	--	--

1 mark

Calculate the **area** of the shape.

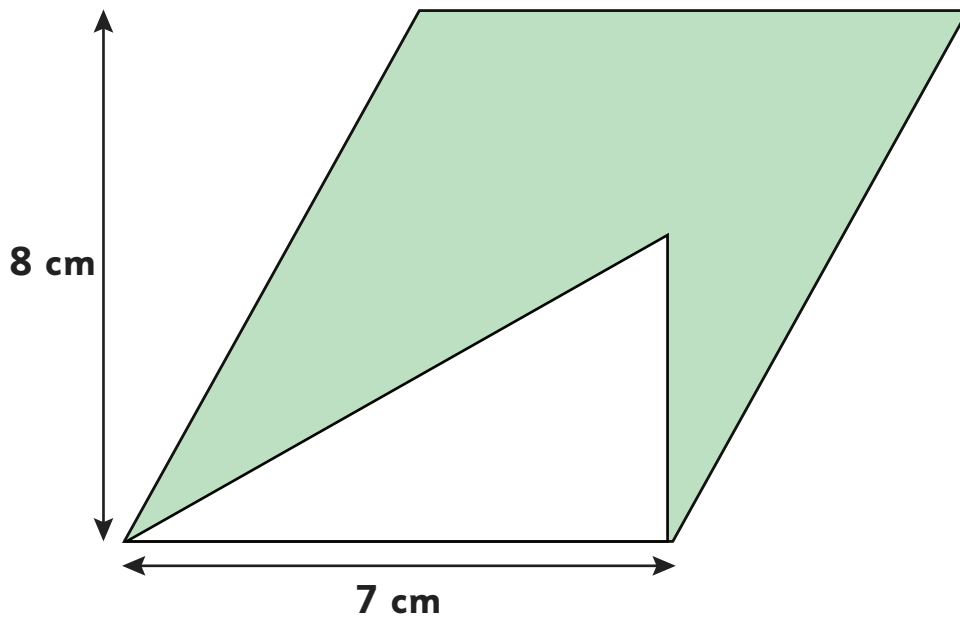
Show your method											<input style="width: 80px; height: 20px;" type="text"/> cm <sup>2</sup>
------------------------	--	--	--	--	--	--	--	--	--	--	---

1 mark

19

Here is a right-angled triangle inside a parallelogram.

The right-angled triangle is half the height of the parallelogram.



Calculate the **area** of the shaded part of the shape.

Show your method

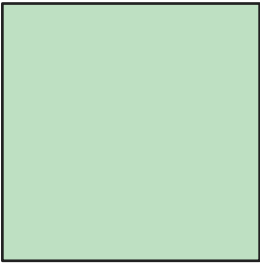
cm<sup>2</sup>

The diagram shows a grid for showing the method to calculate the area of the shaded part of the shape. The grid is 10 units wide and 10 units high. A box on the left contains the text "Show your method". A box on the right contains the text "cm<sup>2</sup>".

1 mark

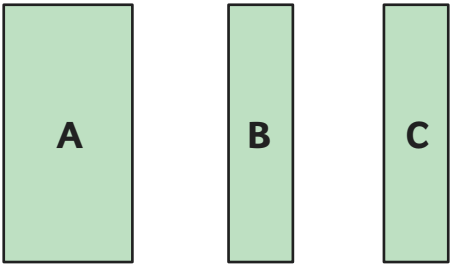
20

The area of a square is  $64 \text{ cm}^2$ .

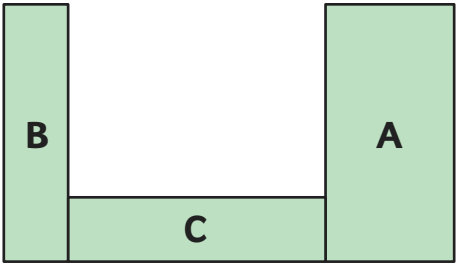


The square is cut into 3 rectangles.

Rectangle **B** and **C** are have an area **half** the size of rectangle **A**



Rectangles **A**, **B** and **C** are used to make a new shape.



Calculate the **perimeter** of the new shape.

Show your method

cm

2 marks