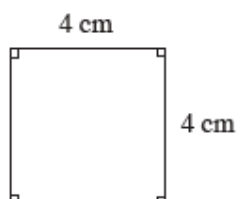


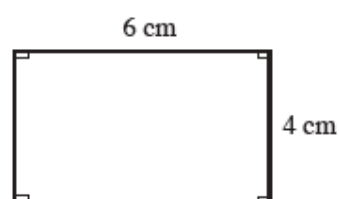
# Squares, Rectangles and Triangles

1. Find the area of each of the following shapes:

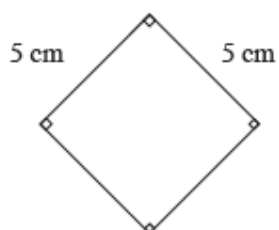
(a)



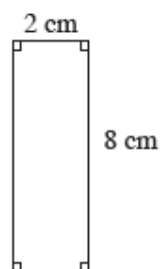
(b)



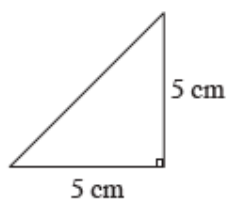
(c)



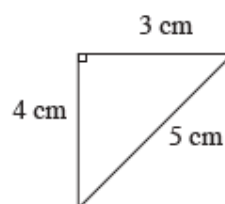
(d)



(e)

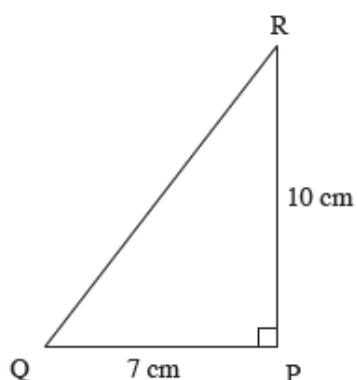


(f)

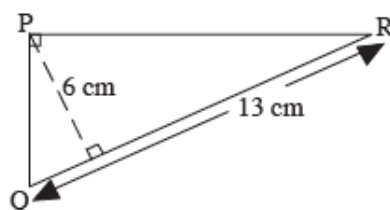


2. Find the area of the triangle PQR in the following cases:

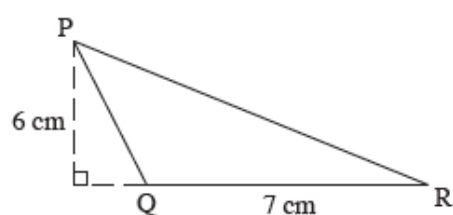
(a)



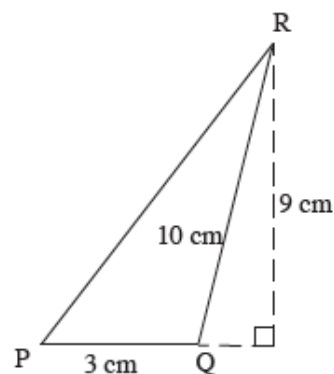
(b)

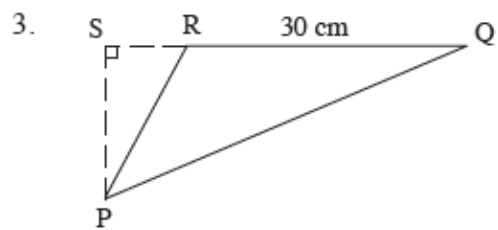


(c)



(d)





In the diagram the area of  $\Delta PQR$  is  $255 \text{ cm}^2$  and the length of  $QR$  is  $30 \text{ cm}$ . Find the length of  $PS$ .

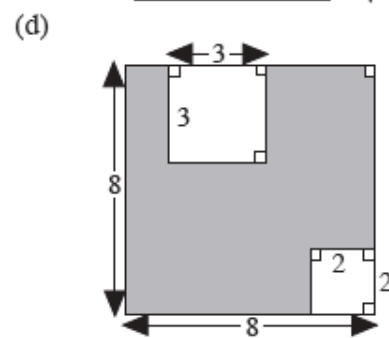
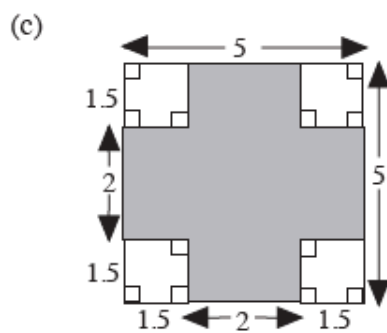
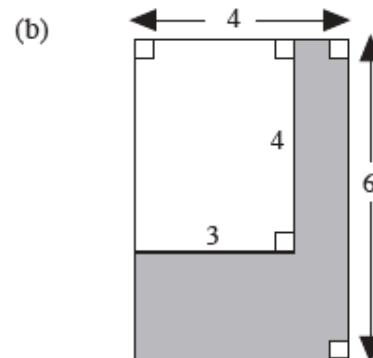
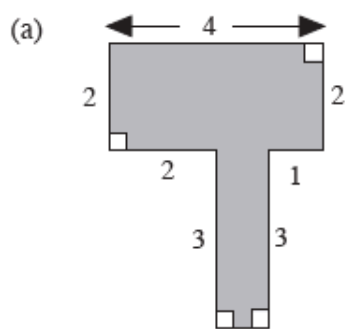
4. Find the base of each triangle when:

	<i>Area</i>	<i>Height</i>
(a)	$6 \text{ cm}^2$	$4 \text{ cm}$
(b)	$20 \text{ cm}^2$	$5 \text{ cm}$
(c)	$100 \text{ mm}^2$	$25 \text{ mm}$
(d)	$48 \text{ m}^2$	$160 \text{ cm}$

5. Copy and complete the table below for each given rectangle

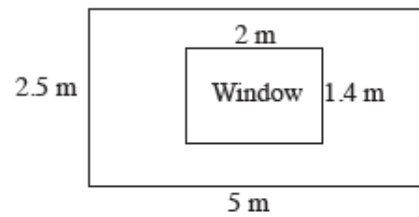
	<i>Length</i>	<i>Breadth</i>	<i>Perimeter</i>	<i>Area</i>
(a)	6 m	4 m		
(b)	8 m			$48 \text{ cm}^2$
(c)		2.2 m		$8.8 \text{ cm}^2$
(d)	4.5 m		23 m	
(e)		26 mm	98 mm	

6. Find the areas of the shaded regions. All dimensions are in cm.



7. A wedding photograph measures 250 mm by 150 mm and is mounted on a frame 300 mm by 200 mm. Find the area not covered by the photograph.

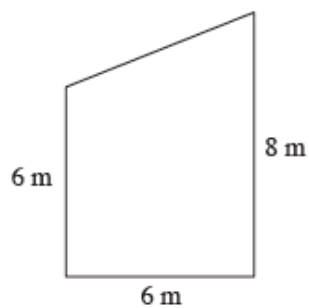
8. The wall of a room has one window.  
The diagram shows the dimensions of the wall and window.



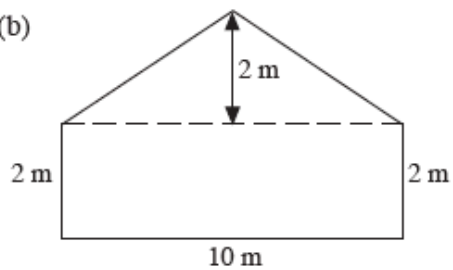
- (a) Find the area of wall;
- (b) If it costs £2 per  $\text{m}^2$  for painting, how much will it cost to paint the wall?
9. Find the number of 15-centimetre square tiles required to cover a floor 5.4 m long and 4.05 m wide.
10. Find the area, in square centimetres, of a rectangular strip of board 3.28 m long and 75 mm wide.
11. A square cardboard of side 20 m has a 4 m wide border round three of its sides. Find the area of the border.
12. A paper box without a lid is 25 cm long, 16 cm wide and 5 cm deep. How many square centimetres of paper have been used to make the box ?

13. Find the area of each of the following shapes:

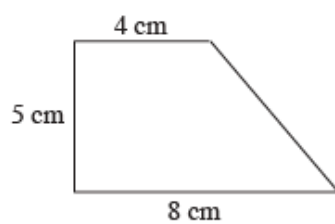
(a)



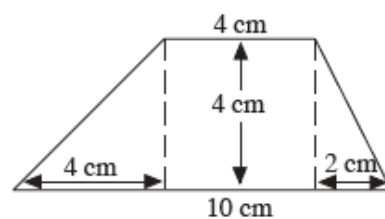
(b)



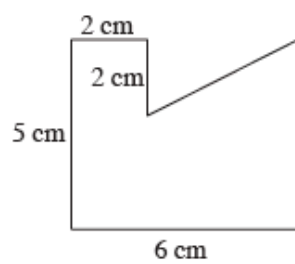
(c)



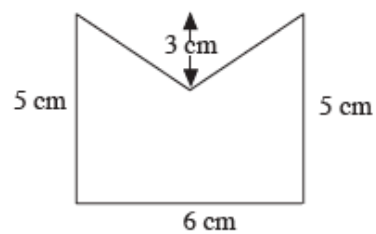
(d)



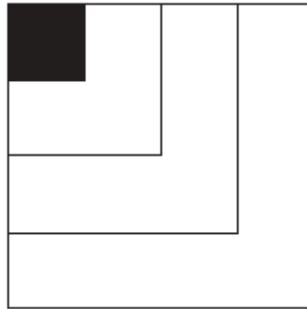
(e)



(f)



14. The shaded square has sides of length 1 cm.  
It is enlarged a number of times as shown.



- (a) Complete the table.


<i>Length of side of square</i>	1 cm	2 cm	3 cm	4 cm
<i>Perimeter of square</i>	4 cm	8 cm	12 cm	
<i>Area of square</i>	1 cm <sup>2</sup>	4 cm <sup>2</sup>		16 cm <sup>2</sup>

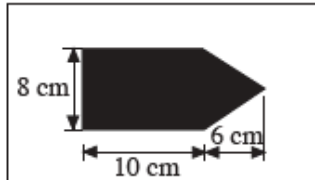
The shaded square continues to be enlarged.

- (b) Complete the following table.

<i>Length of side of square</i>	
<i>Perimeter of square</i>	
<i>Area of square</i>	64 cm <sup>2</sup>

(SEG)

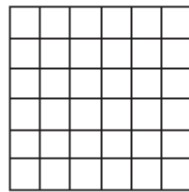
15. (a)  The area of each small square on the chequered flag is 64 cm<sup>2</sup>.  
What is the area of the flag

- (b)  The design on this flag consists of a rectangle and a triangle.  
Calculate the area of the design

(NEAB)

NOT TO SCALE

16. Debbie wants to make a rectangular paved area in her garden. She uses 36 square paving tiles. One possible arrangement is shown.



NOT TO SCALE

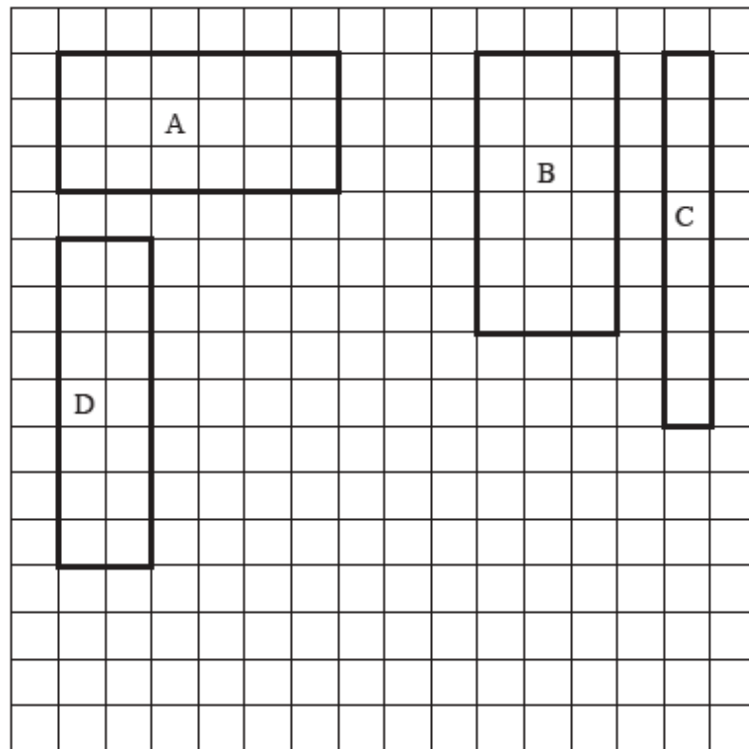
Each tile is 50 cm by 50 cm.

- (a) What is the perimeter of this arrangement? Give your answer in metres.
- (b) Four other rectangular paved areas can be made from the 36 tiles.  
One of the other areas is 9 by 4.  
Note that a rectangle 9 by 4 is the same as one 4 by 9.  
Write down in the table the length and breadth of each of the remaining three of these rectangles.

<i>length</i>	6	<i>breadth</i>	6
<i>length</i>	9	<i>breadth</i>	4
<i>length</i>		<i>breadth</i>	
<i>length</i>		<i>breadth</i>	
<i>length</i>		<i>breadth</i>	

(SEG)

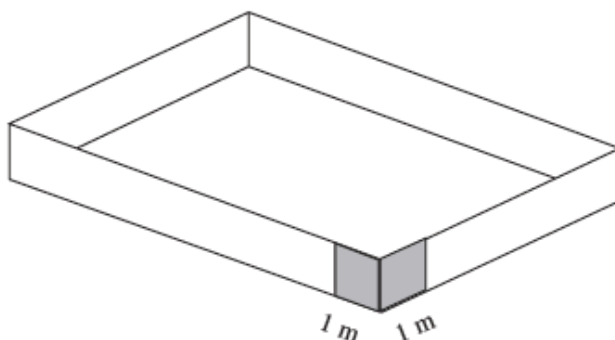
17. Terry is told to draw four different rectangles, each with a perimeter of 18 cm. He draws these shapes.



- (a) His teacher says two of these are really the same. Which two?
- (b) What is the mathematical name given to two shapes which are exactly the same?
- (c) On the grid draw another rectangle with a perimeter of 18 cm which is not exactly the same as A, B, C or D.
- (d) What is the area of rectangle D?

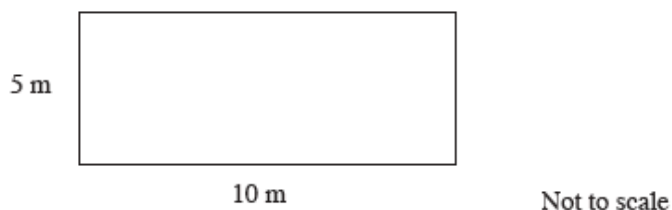
(SEG)

18. A farmer plans to fence off a rectangular part of a field using fence panels. The width of each panel is 1 m.



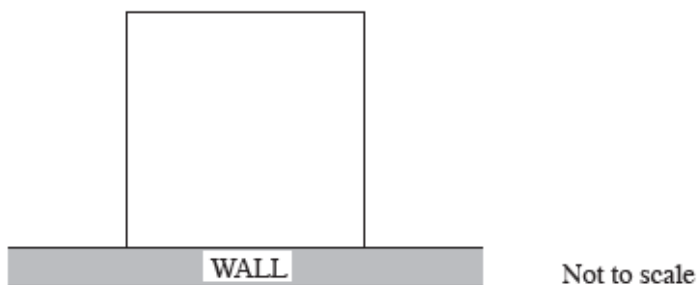
He needs to fence off an area of  $50 \text{ m}^2$

- (a) One rectangle he can fence off is 5 m by 10 m.



- (i) Write down the dimensions of the other two rectangles he can make, each with an area of  $50 \text{ m}^2$ .
- (ii) Which rectangle uses the smallest number of panels?

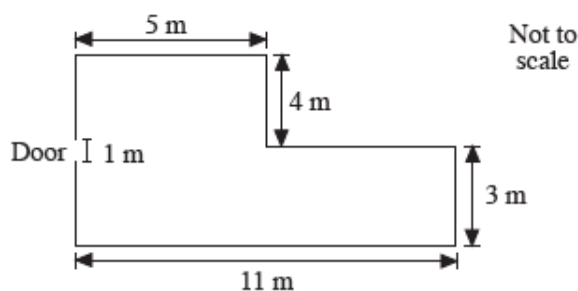
The farmer changes his mind because he wants to use fewer panels. He decides to use an existing wall for one side of the rectangle, and fence panels for the other three sides.



- (b) What is the smallest number of panels he can now use to make an area of  $50 \text{ m}^2$ ?

(SEG)

19.

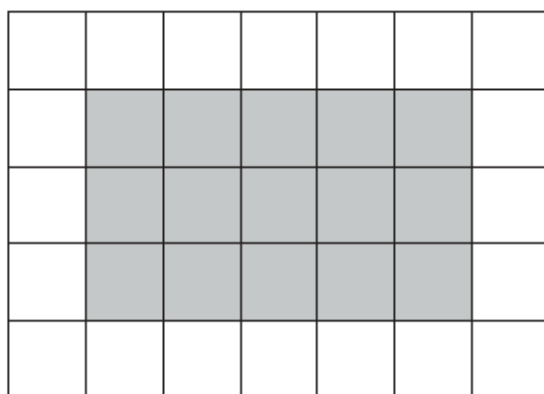


The diagram shows the plan of the floor of a room.

- Calculate the perimeter of the room.
- Wooden skirting board is fitted around the perimeter, but not across the doorway.  
It costs 83 p per metre.  
Calculate the cost of the skirting board needed for this room.
- Calculate the area of the floor of the room.
- Carpet tiles measure 1 m by 1 m.  
They are sold in boxes each containing 12 tiles.  
Each box costs £103.50.
  - How many boxes are needed to carpet this floor area?
  - What is their total cost?

(MEG)

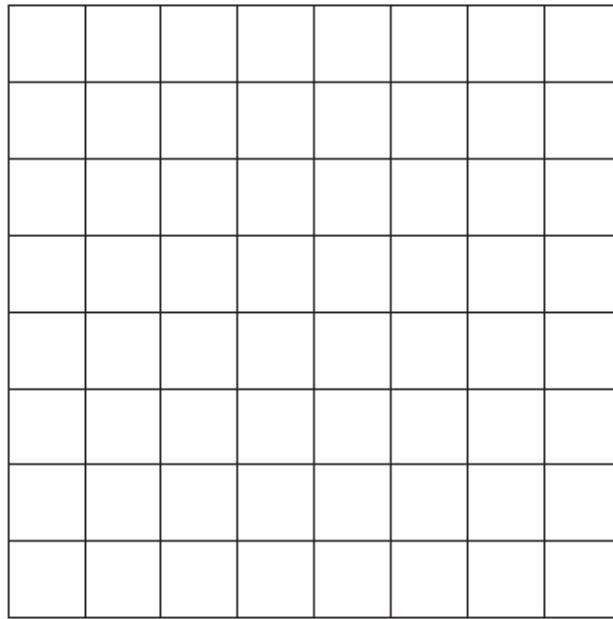
20. (a) A shaded rectangle is drawn on a centimetre square grid.



Work out the area of the shaded rectangle.

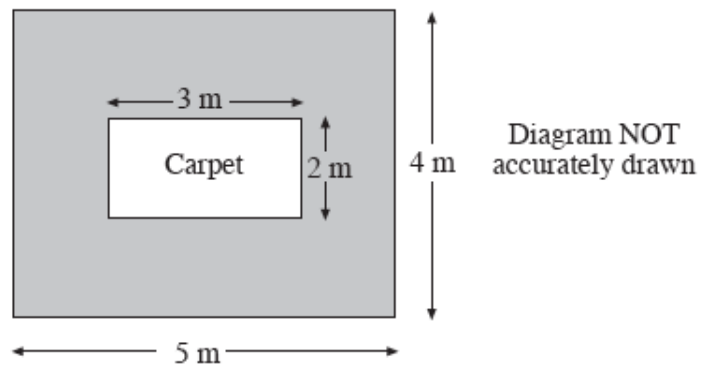
State the units of your answer.

- On a copy of the centimetre square grid below draw a rectangle with a **perimeter** of 10 cm.



(AQA)

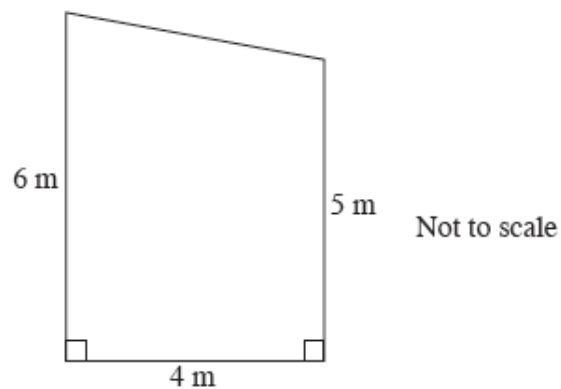
21. The diagram shows the plan of a floor.  
There is a carpet in the middle of the floor.



Work out the shaded area. Write down all the stages in your working.

(Edexcel)

22. The diagram shows the side wall of a building.

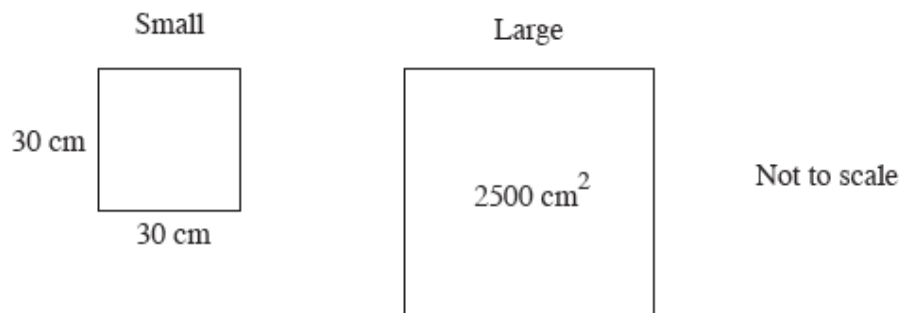


Calculate the area of the wall.

You **must** show all your working.

(AQA)

23. A shop sells square carpet tiles in two different sizes.



- (a) What is the area of a small carpet tile?
- (b) What is the length of a side of a large carpet tile?
- (c) The floor of a rectangular room is 300 cm long and 180 cm wide.  
How many **small tiles** are needed to carpet the floor?

(AQA)