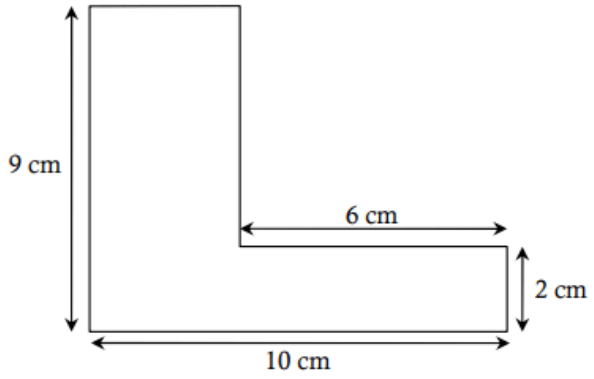
Area and Perimeter

Paper 1

8.

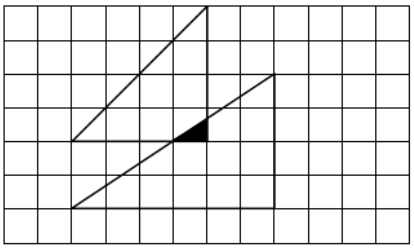


Area: ..... [1]

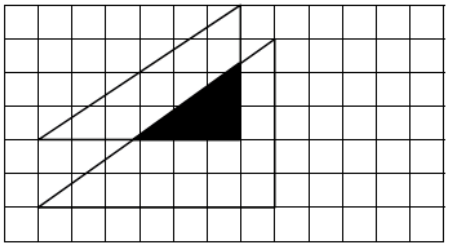
Perimeter: ..... [1]

Units [2]

26. Each of the diagrams below shows a pair of triangles drawn on a grid of squares of side length 1cm and a smaller shaded triangle where these overlap. Each corner of each of the large triangles lies exactly at the corner of a square on the grid. Work out the area of the shaded triangle in each case.

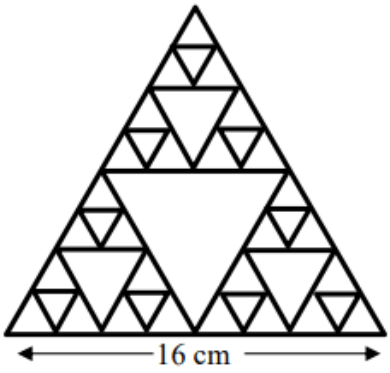


Answer: _____ cm^2 [2]



Answer: _____ cm^2 [3]

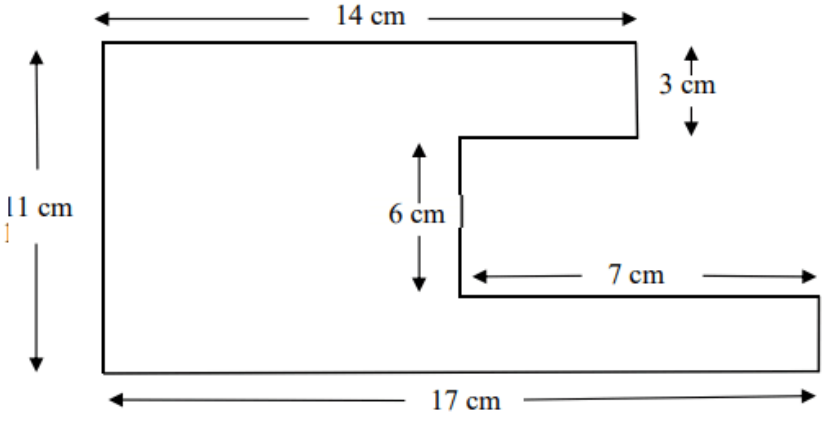
18. The shape below is made up of equilateral triangles. The side length of the largest triangle is 16 cm. Work out the total length of all of the lines used to draw the shape.



Answer: _____ cm [3]

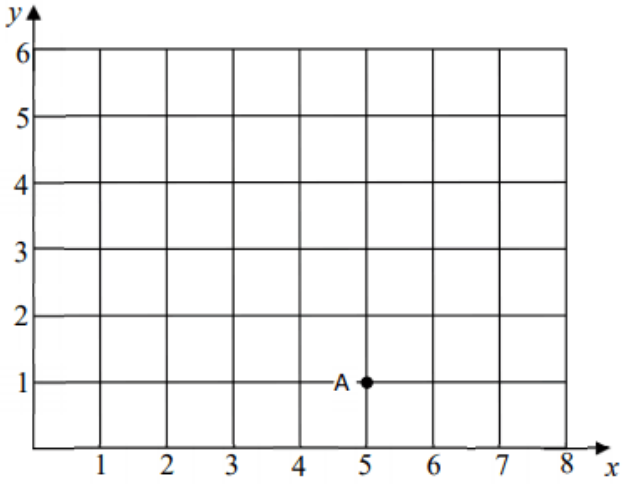
14. Work out the perimeter of this shape.

Note: all angles are right angles but the diagram has not been drawn to scale.



Answer: _____ cm [3]

12. A, B and C and D are 4 points on a grid. A is at (5, 1), B is at (1, 1) and C is at (1, 3) and D is at (5, 4).



(a) Plot the points B, C and D and then connect them to form the quadrilateral ABCD.

[1]

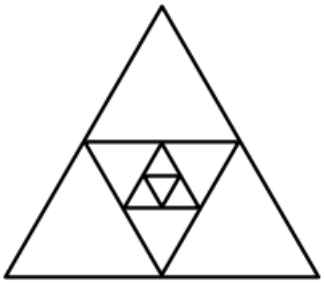
(b) State what type of quadrilateral has been formed.

Answer: _____ [1]

(c) The side length of each small square in the grid is 1 cm. Work out the area of the quadrilateral ABCD.

Answer: _____ cm^2 [2]

20. Four equilateral triangles have been drawn, one inside the other, as shown in the diagram below.

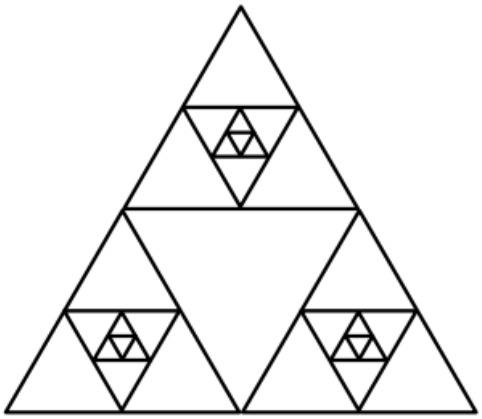


The area of the smallest triangle is 1 cm^2.

(b) Work out how many triangles there are in total in the diagram above.

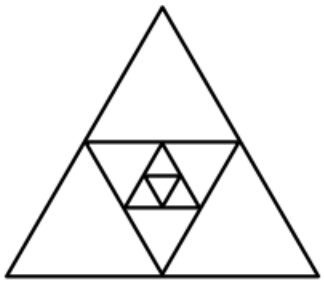
Answer: _____ [2]

Three copies of the triangle above are put together to form the diagram below. Work out how many triangles there are in total in this diagram.



Answer: _____ [2]

20. Four equilateral triangles have been drawn, one inside the other, as shown in the diagram below.

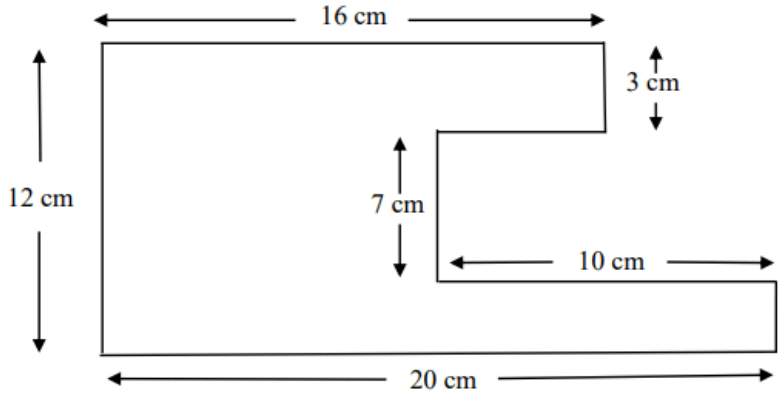


The area of the smallest triangle is 1 cm^2.

(a) Work out the area of the largest triangle.

Answer: _____ cm^2 [2]

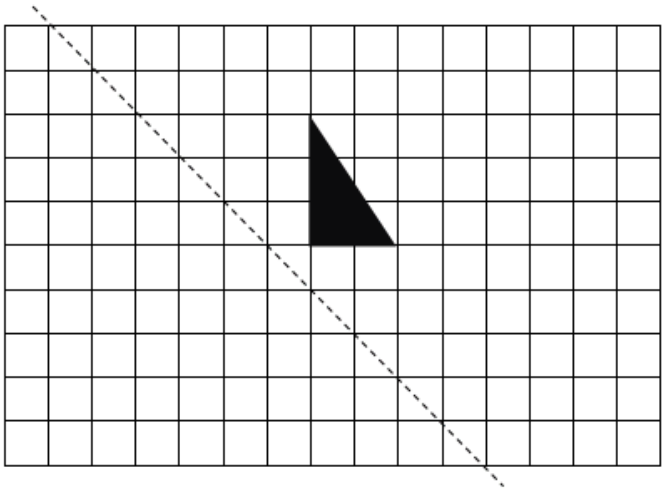
15. Work out the area and perimeter of this shape.
Note: all angles are right angles but the diagram has not been drawn to scale.



Answer: Area = _____ cm^2 [3]

Answer: Perimeter = _____ cm [3]

12. (a) Draw the reflection of this triangle in the mirror line shown.



Mirror line

[2]

(b) If the side of each square on the grid represents 1 metre, work out the area of the triangle.

Answer: _____ m^2 [2]

(c) Work out the percentage of the total area of the grid that the original triangle covers.

Answer: _____% [3]

3. A group of children are cutting squares off one corner of rectangular sheets of paper, as shown in the diagram.

(a) Ahmed's sheet of paper is 8 cm by 7 cm. He cuts out a square with sides of length 5 cm. What area of paper is remaining when he has cut out his square?

3a ____ cm^2

(b) Bella's sheet of paper is 11 cm by 12 cm. After her square is cut out, the area of paper she is left with is 68 cm^2. What is the length of each side of the square she cuts out?

3b ____ cm

(c) Chris has an area of 23 cm^2 of paper left when he cuts a square with sides of 7 cm from his sheet of paper. If his rectangular sheet of paper is 8 cm wide, how long is it?

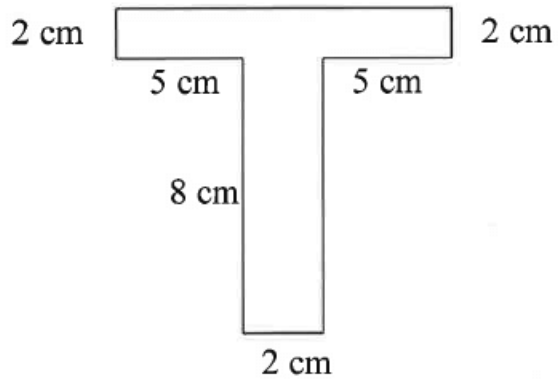
3c ____ cm

[5 marks]

12. A rectangle has an area of 70cm^2 and a perimeter of 38cm. What is the length of the **shortest** side of the rectangle?

12 ____ cm

A21 The diagram shows a T shape.
The diagram is not accurately drawn to scale.



a) Write the two remaining lengths on the diagram. **[2]**

b) Find the **perimeter** of the T shape. State the units.

Answer: **[2]**

c) Find the **area** of the T shape, showing how you did it.
State the units.

Answer: **[3]**

11. Nigel folds a **square** piece of paper in half to give a rectangle which has a perimeter of 36 cm. What is the area of the original square?

11 ____ cm^2

23. Mrs Suzie needs to cover a floor measuring 3m by 2m. There are three possible options:

Acorn Tiles	Beeching Tiles	Carpet
50 cm × 50 cm	60 cm × 40 cm	£14 per square metre Fitting cost £30
Cost £4 each.	Cost £3 each.	

Which option is the cheapest? Show all your workings & explain clearly.

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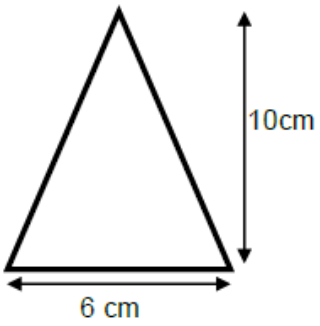
5 marks

12. Calculate the area of the triangle (remember to write down the correct units)

(a)



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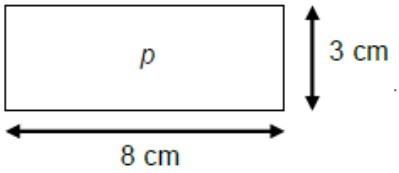
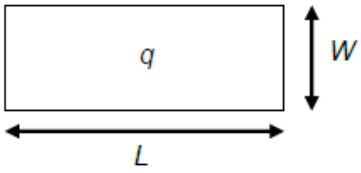
(b) Find the perimeter of the rectangles *p* and *q*

(i)



(ii)



p.....

.....

.....

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q.....

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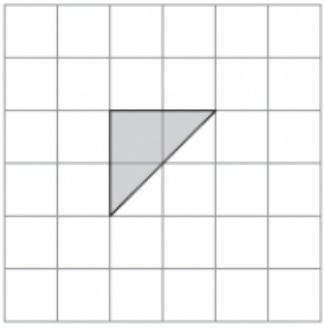
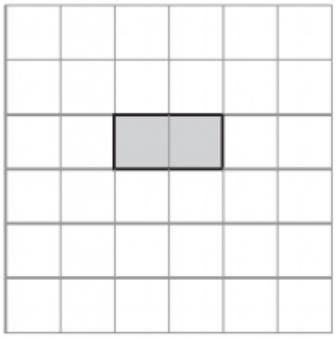
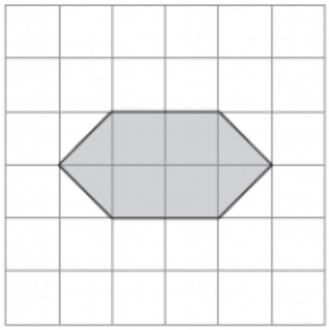
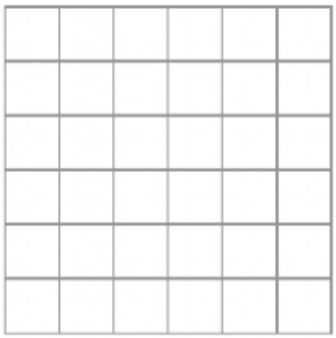
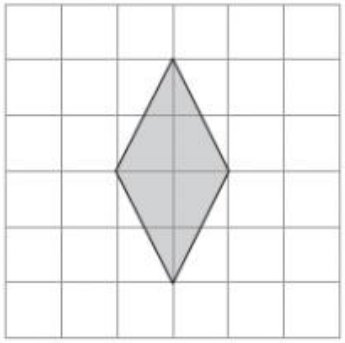
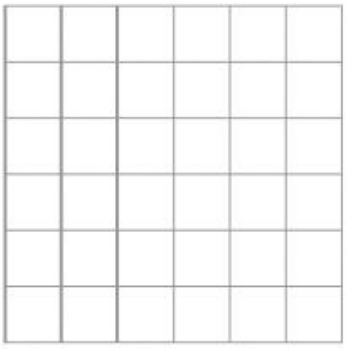
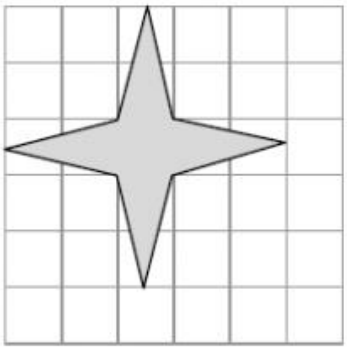
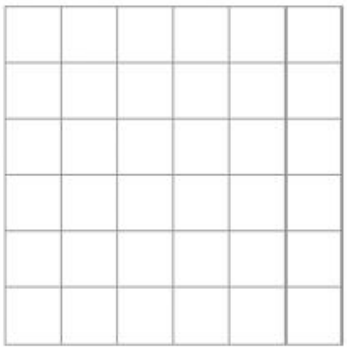
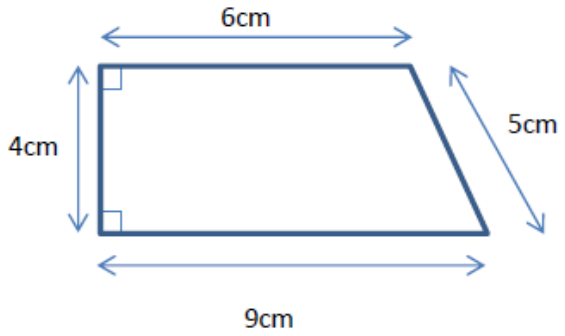
.....

7 marks

9. For each shape draw a rectangle that has the same area as the shape on the left. The first one is done for you.

	Shape	Rectangle
eg.		
		
		
		

2. Find the perimeter and area of this shape:

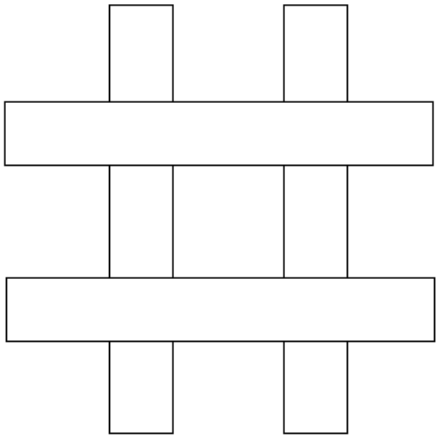


Perimeter = _____cm

Area = _____cm^2

[5]

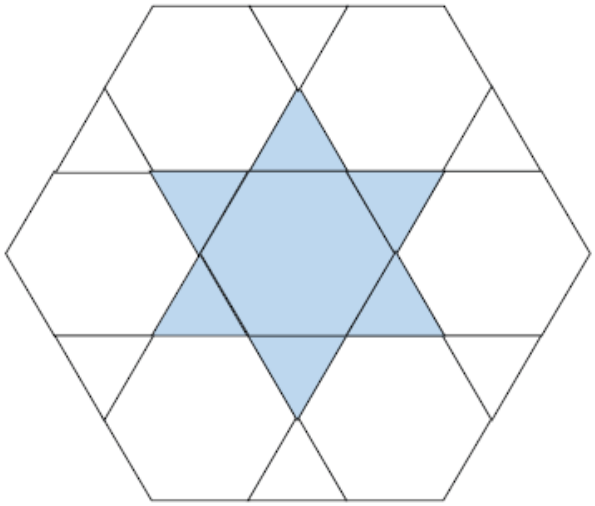
30. Four strips of paper are stuck on a table as shown. Each one is a rectangle that is 12cm long and 2cm wide.



What area of the table is covered?

Answer: .....cm^2 (2 marks)

17.



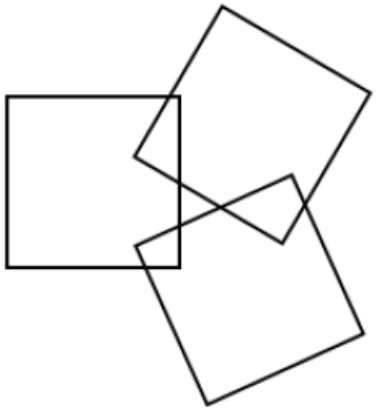
This diagram is made up of 7 identical regular hexagons and 12 identical equilateral triangles.

Note: the sides of the triangles are the same length as the sides of the hexagons.

Find the fraction of the diagram that is shaded.

Answer: .....(3 marks)

16. Here are three squares that overlap.



The non-overlapping parts of the squares have a total area of $90cm^2$

The areas of overlapping parts are $2cm^2$, $3cm^2$ and $4cm^2$

Work out the area of one of the squares.

Answer: .....(3 marks)