Extra Maths Harder Questions for practice for entrance

Here is a pattern of shapes made from centimetre squares.

Shape number 1 | Shape number 2 | Shape number 3

This rule can be used to find the perimeter of a shape in this pattern.

Add 1 to the Shape number and then multiply your answer by 2

P cm is the perimeter of Shape number n.

(a) Write down a formula for P in terms of n.

1 .....

2

Here are some patterns made from sticks.

Pattern number 1 | Pattern number 2 | Pattern number 3

This rule can be used to find the number of sticks in one of these patterns.

Multiply the pattern number by 2 and then add 1

(a) n is the number of sticks in Pattern number p.
Write down a formula for n in terms of p.

3

The table shows the first three terms of a sequence.

Term number	1	2	3		
Term	2	5	10		

The rule for this sequence is

$$\text{Term} = (\text{Term number})^2 + 1$$

(a) Work out the next two terms of this sequence.

....., ...

4.

Illustration **NOT** drawn to scale

This rule is used to find how far apart to plant two bushes.

Add the heights of the bushes. Divide your answer by 3.

The heights of two bushes are a cm and b cm.
The two bushes should be planted d cm apart.

Write down a formula for d in terms of a and b.

.....

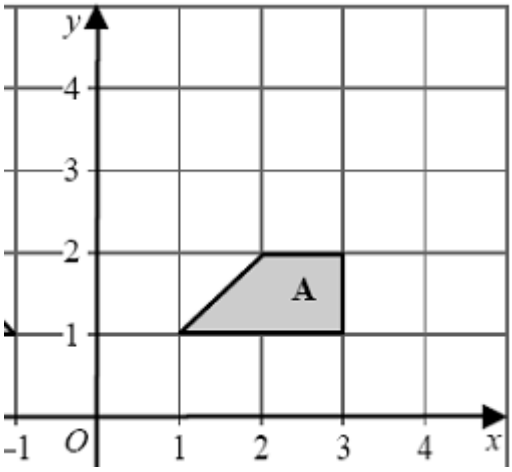
5 The cost of hiring a bike is £4.50 plus £1.50 per hour.

a. Find the cost of hiring the bike for 7 hours.

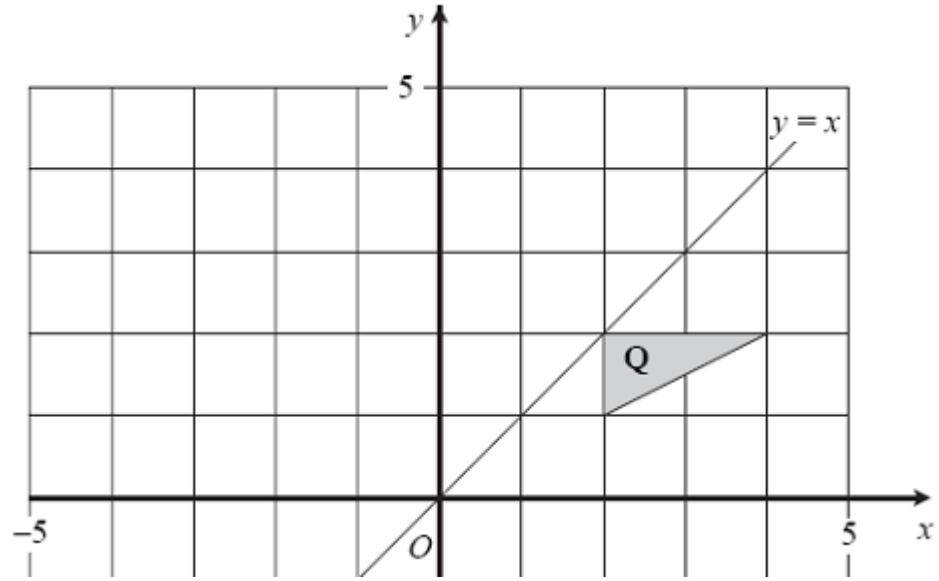
b. Find how many hours the bike was hired for if it cost £18.

c.
If the exchange rate is 1.34 euros to the pound find how many euro it would cost to hire the bike for 2 hours.

6. Reflect A in the X axis



7. Reflect Q in the line given



8.

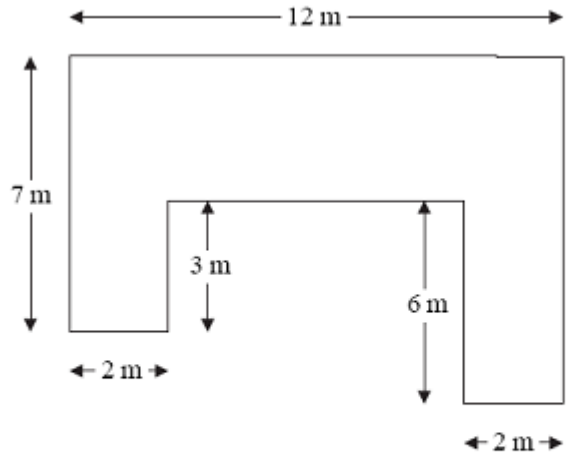


Diagram **NOT** accurately drawn

The diagram shows a paved surface.
All the corners are right angles.
Work out the area of the paved surface.
State the units of your answer.

9

Work out the area of the shape.

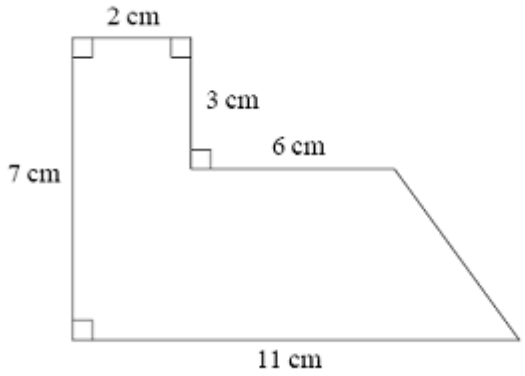


Diagram **NOT** accurately drawn

10.

The diagram shows a wall.

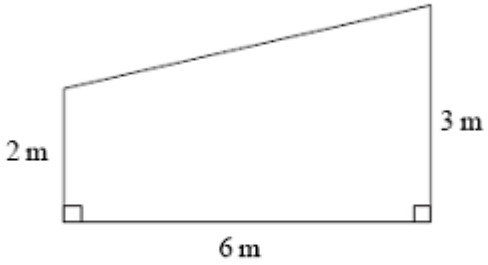


Diagram **NOT** accurately drawn

(a) Calculate the area of the wall.