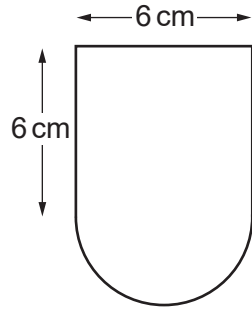**1 (a)** The shape of a badge on a school uniform is a square joined to a semi-circle.

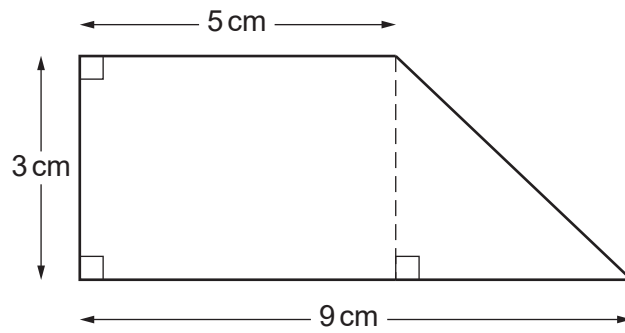←6 cm→

6 cm

Not to scale

Show that the area of material used to make this badge is 50.1 cm^2, correct to 3 significant figures. **[3]**

(b) A sign in front of the school has a picture of this badge.
The picture is an enlargement of the badge.
The area of the picture is 16232.4 cm^2.

Work out the linear scale factor of the enlargement.

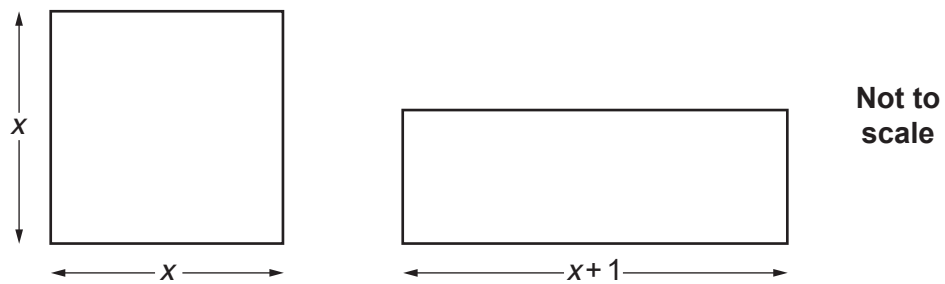**(b)** .... **[3]**

2   Work out the total area of this shape.

Not to scale

.... cm^2 **[3]**

3 In the diagram below, the perimeter of the square is equal to the perimeter of the rectangle.

Not to scale

x (square side)

x

$x+1$

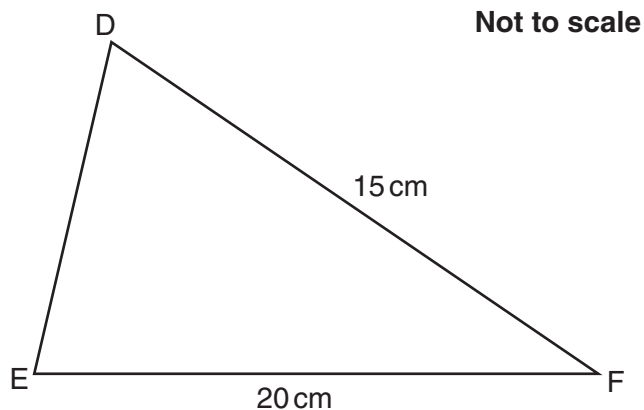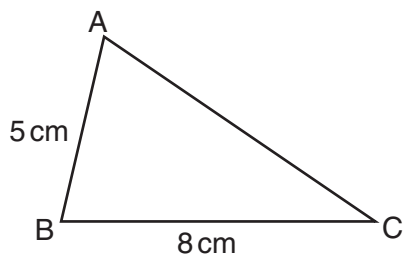Show algebraically that the area of the square is greater than the area of the rectangle. **[6]**

4 This is a parallelogram.
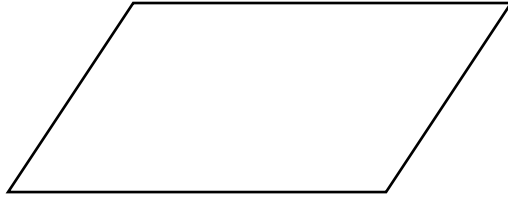
Using suitable measurements from the diagram, work out the area of the parallelogram.
Give the units of your answer.

_____ **[3]**

5 Triangle ABC is similar to triangle DEF.

Not to scale

(a) Calculate DE.

(a) _____ cm **[3]**

(b) Calculate AC.

(b) _____ cm **[2]**