

# Problems with Area

The problems to follow will all use triangle, rectangles, squares or a trapezium.

You will need to know the geometric facts and formulae for these shapes.

Remember that a picture will nearly always help!

# 1

A rectangular field 50m by 20m is enclosed by a fence.

The fencing is rearranged so that the enclosure is now a square.

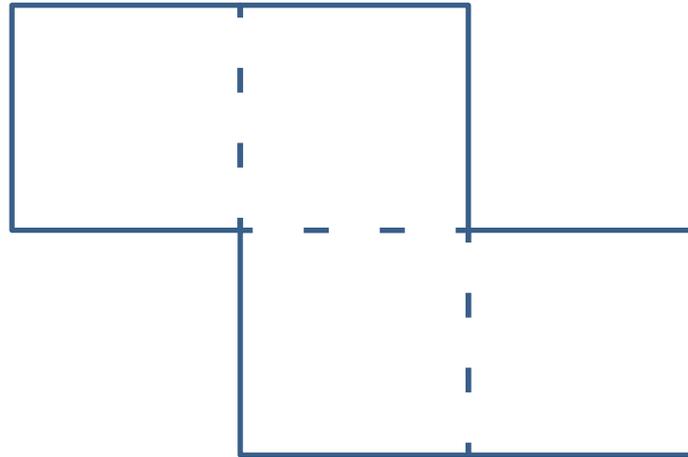
By how much has the area increased?

2



All three shapes are squares. The yellow square has an area of  $9\text{cm}^2$  and the red square has a perimeter of  $24\text{cm}$ . What is the area of the blue square?

3

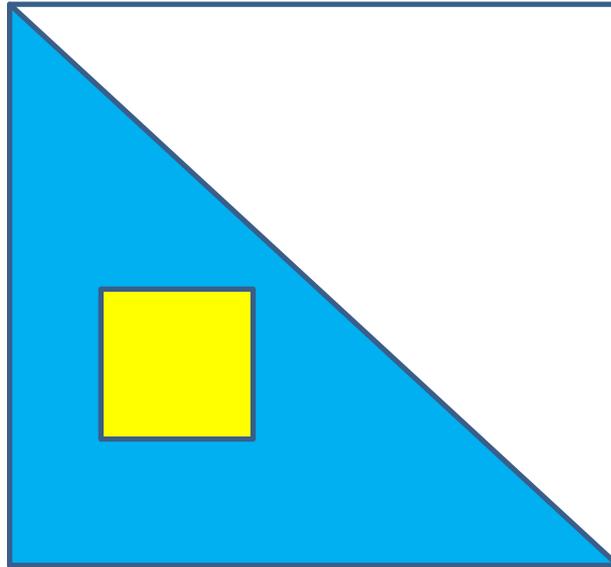


The shape is made up of 4 squares and has an area of  $100\text{cm}^2$ . What is the perimeter of the shape.

# 4

James has a rectangular garden. If he wants to walk 1km, he needs to walk the length of his garden 25 times. If he walks around the perimeter, he will need to walk round it 10 times. What is the area of the garden?

5

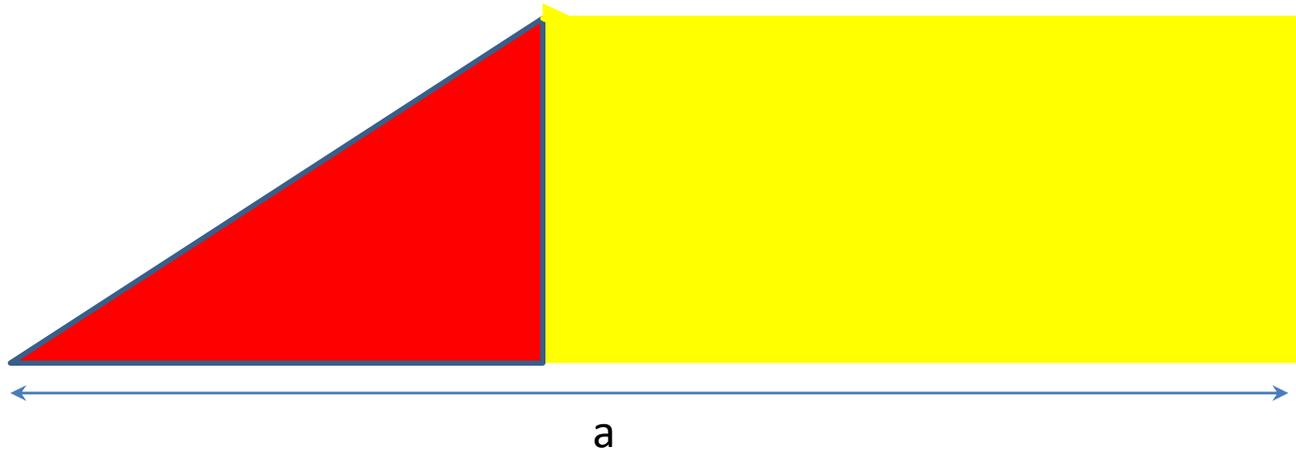


The big square has a perimeter of 16cm. The yellow square has a perimeter of 4cm. What is the area of the part shaded blue?

# 6

A rectangular room has an area of  $24\text{m}^2$ . Its length is 2m longer than the width.  
What is the perimeter of the room?

7



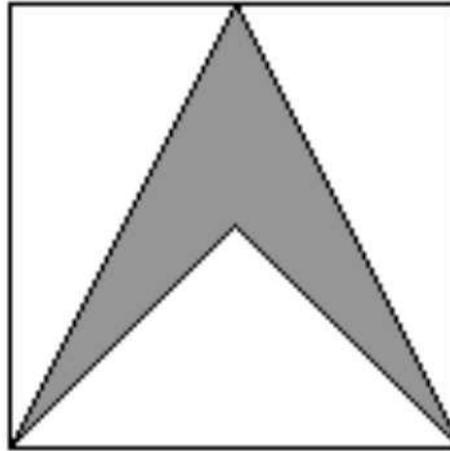
A trapezium of area  $30\text{cm}^2$  is made up of a rectangle and a right angled triangle. The rectangle has area  $18\text{cm}^2$  and perimeter  $18\text{cm}$ . What is the value of  $a$ ?

# 8

A rectangle's length is 3 times its width. If it were 3m shorter and 3 m wider it would be a square.

What is the length and width of the rectangle?

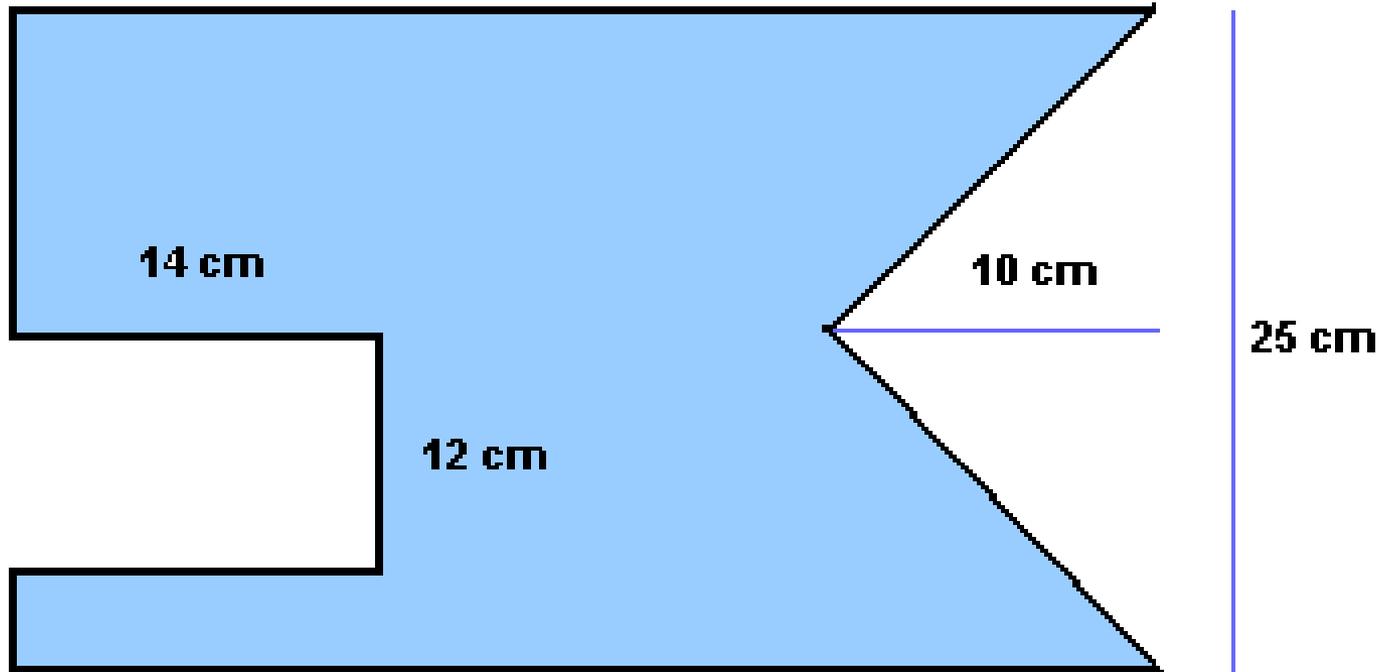
9



An arrow is formed in a 2cm x 2cm square by joining the bottom corners to the midpoint of the top edge and the centre of the square.  
What is the area of the arrow?

10

40 cm



Find the area of the shape

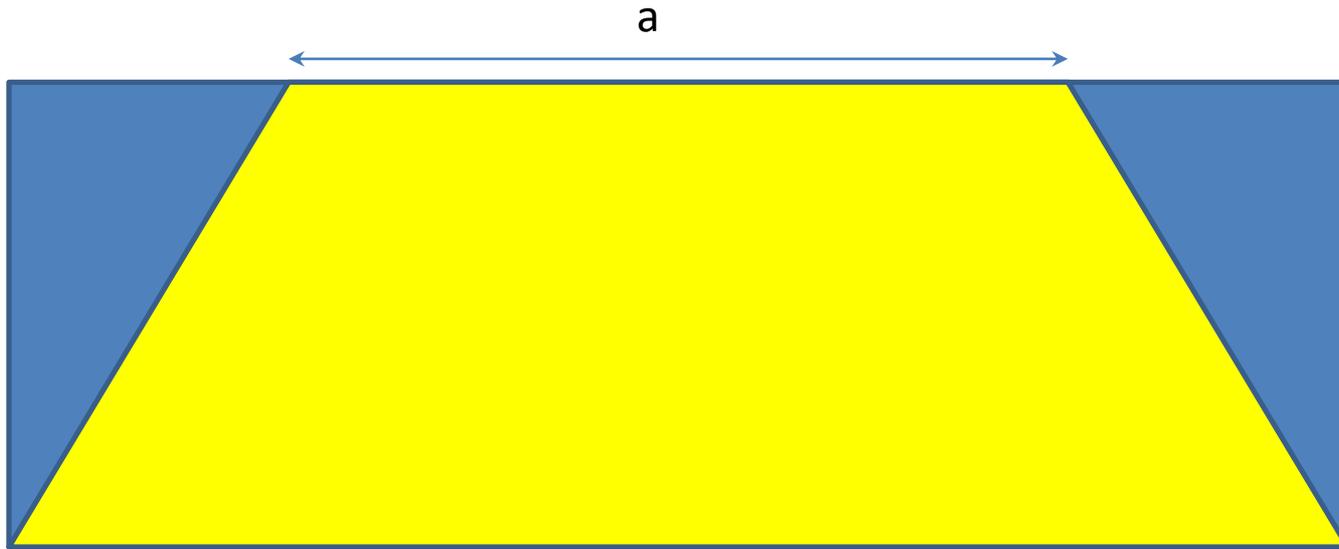
# 11

The length of a rectangle is four times its width.  
If the area is  $100 \text{ m}^2$  what is the length of the rectangle?

# 12

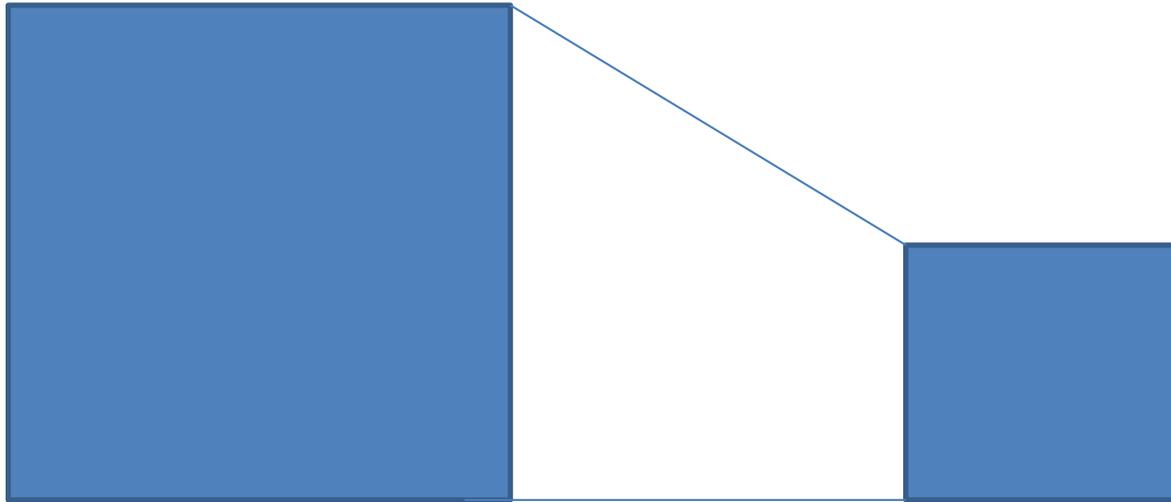
The length of a rectangle is increased to 2 times its original size and its width is increased to 3 times its original size. If the area of the new rectangle is equal to 1800 square metres, what is the area of the original rectangle?

# 13



A trapezium is placed in a rectangle of length 7cm and width 5cm. The combined area of the two blue triangles is  $10\text{cm}^2$ . What is the length of  $a$ ?

14



The area of the big square is  $36\text{cm}^2$ . The small square has a perimeter of  $16\text{cm}$ . The area of the trapezium between the squares is  $45\text{cm}^2$ . What is the distance between the two squares?