

Area and Perimeter

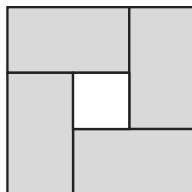
1

(4 marks)

Four identical rectangles are arranged around a small square to make a large square, as shown.

The large square has sides of 20 cm. The small square has an area of 36 cm^2 .

What is the area of one rectangle?



Let the rectangle be a by b . Large side: $a + b = 20$

Small square side = $a - b = \sqrt{36} = 6$

So $a = 13$ and $b = 7$

Area = $13 \times 7 = \underline{91 \text{ cm}^2}$

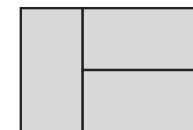
2

(4 marks)

Three identical rectangles fit together to make a larger rectangle, as shown.

The perimeter of the larger rectangle is 60 cm.

What is the area of one small rectangle?



Each small rectangle is $2w$ long and w wide

Large rectangle is $3w$ by $2w$, so perimeter = $10w = 60$

$w = 6$, so each rectangle is 12 cm by 6 cm

Area = 72 cm^2

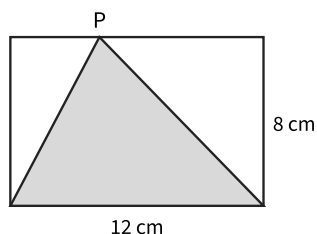
3

(3 marks)

P is any point on the top edge of a 12 cm by 8 cm rectangle.

(a) What fraction of the rectangle is shaded?

(b) Explain why it does not matter where P is.



(a) Triangle: base 12, height 8, area = $\frac{1}{2} \times 12 \times 8 = 48$

Rectangle = 96, so the shaded part is $\frac{1}{2}$

(b) Wherever P is, the base and the height stay the same, so the area of the triangle never changes

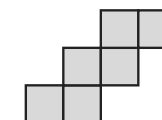
4

(3 marks)

This shape is made from six identical squares.

The perimeter of the shape is 70 cm.

What is the area of the shape?



Count the edges around the outside: 14

Each edge = $70 \div 14 = 5 \text{ cm}$

Each square = 25 cm^2

Area = $6 \times 25 = \underline{150 \text{ cm}^2}$