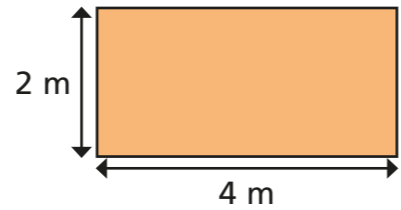


# Convert metric units of area

1

a) Work out the area of the rectangle in  $m^2$

area =   $m^2$



b) Convert the lengths of the sides to cm.

length =  cm      width =  cm

c) Now work out the area of the rectangle in  $cm^2$

area =   $cm^2$

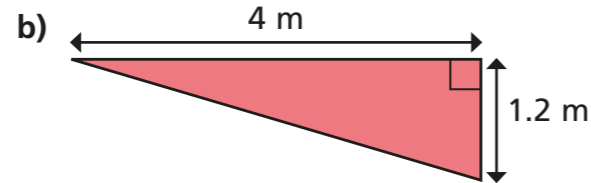
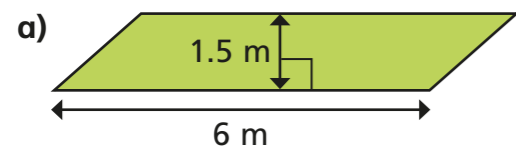
d) Use your workings to complete the sentences.

$m^2 =$    $cm^2$

So 1  $m^2 =$    $cm^2$

2

Work out the areas of the shapes. Give your answers in both  $m^2$  and  $cm^2$



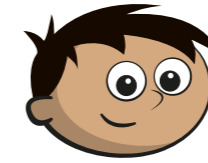
area =   $m^2$

area =   $cm^2$

area =   $m^2$

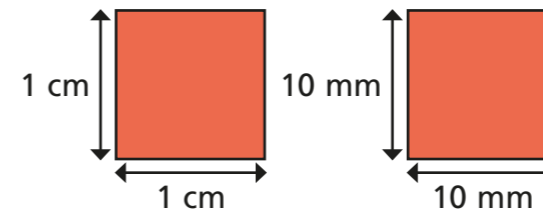
area =   $cm^2$

3



1 cm = 10 mm, so 1  $cm^2 = 10 mm^2$

Use the diagrams to explain why Amir is wrong.



$1 cm \times 1 cm = 1 cm^2$   
 $10 mm \times 10 mm = 100 mm^2$   
 so  $1 cm^2 = 100 mm^2$

4

Complete the conversions.

a) 1  $cm^2 =$    $mm^2$

6  $cm^2 =$    $mm^2$

b) 3  $cm^2 =$    $mm^2$

30  $cm^2 =$    $mm^2$

c) 0.3  $cm^2 =$    $mm^2$

0.35  $cm^2 =$    $mm^2$

d) 600  $mm^2 =$    $cm^2$

720  $mm^2 =$    $cm^2$

e) 500  $mm^2 =$    $cm^2$

5,000  $mm^2 =$    $cm^2$

f) 50  $mm^2 =$    $cm^2$

5  $mm^2 =$    $cm^2$

5

Dora says you can cut out 36 squares that are 5 mm by 5 mm from a piece of card measuring 3 cm by 3 cm.

a) Is Dora correct? yes

Show your workings.

b) How many 5 mm by 5 mm squares can be cut from a piece of card measuring 12 cm by 12 cm?

squares

6 Tick the measure that is equal to  $1 \text{ m}^2$

$100 \text{ cm}^2$      
   $1,000 \text{ cm}^2$      
   $10,000 \text{ cm}^2$

Complete the conversions.

a)  $4 \text{ m}^2 = \boxed{40,000} \text{ cm}^2$        $40 \text{ m}^2 = \boxed{400,000} \text{ cm}^2$

b)  $45 \text{ m}^2 = \boxed{450,000} \text{ cm}^2$        $0.45 \text{ m}^2 = \boxed{4,500} \text{ cm}^2$

c)  $4.5 \text{ m}^2 = \boxed{45,000} \text{ cm}^2$        $0.0045 \text{ m}^2 = \boxed{45} \text{ cm}^2$

d)  $60,000 \text{ cm}^2 = \boxed{6} \text{ m}^2$        $600,000 \text{ cm}^2 = \boxed{60} \text{ m}^2$

e)  $6,000 \text{ cm}^2 = \boxed{0.6} \text{ m}^2$        $500 \text{ cm}^2 = \boxed{0.05} \text{ m}^2$

7 A hectare is a unit of measure of land, roughly the size of a football pitch.  
 1 hectare =  $10,000 \text{ m}^2$

The average farm in the UK is 54 hectares.

a) What is the area of the average farm in the UK in  $\text{m}^2$ ?

$\boxed{540,000} \text{ m}^2$

b) What is the area of the average farm in the UK in  $\text{cm}^2$ ?  
 Give your answer in standard form.

$\underline{5.4 \times 10^9} \text{ cm}^2$

8 Show that  $800 \text{ cm}^2$  is the same as  $0.08 \text{ m}^2$

$$\begin{aligned}
 & \times 8 \left( \begin{array}{l} 10,000 \text{ cm}^2 = 1 \text{ m}^2 \\ 80,000 \text{ cm}^2 = 8 \text{ m}^2 \end{array} \right) \times 8 \\
 & \div 100 \left( \begin{array}{l} 800 \text{ cm}^2 = 0.08 \text{ m}^2 \end{array} \right) \div 100
 \end{aligned}$$

9 An army base measures 3 km by 7 km.  
 What is the area of the base in  $\text{m}^2$ ? Give your answer in standard form.



10 A UK postage stamp has an area of  $480 \text{ mm}^2$   
 The area of an A4 sheet is  $0.062 \text{ m}^2$

a) Approximately how many postage stamps cover an A4 sheet of paper without overlap?

$$\begin{aligned}
 480 \text{ mm}^2 &= 4.8 \text{ cm}^2 \\
 0.062 \text{ m}^2 &= 620 \text{ cm}^2 \\
 620 \div 4.8 &= 129.1666 \dots
 \end{aligned}$$

$\boxed{129}$

b) Why can you not give an exact answer to part a)?

It depends on the dimensions of the paper and the stamp.

\_\_\_\_\_

\_\_\_\_\_