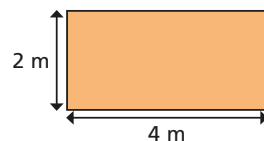


# Convert metric units of area

- 1 a) Work out the area of the rectangle in  $\text{m}^2$

area = 8  $\text{m}^2$



- b) Convert the lengths of the sides to cm.

length = 400 cm      width = 200 cm

- c) Now work out the area of the rectangle in  $\text{cm}^2$

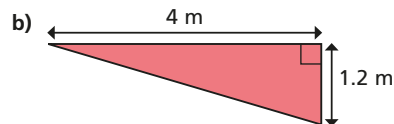
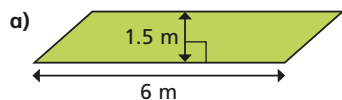
area = 80,000  $\text{cm}^2$

- d) Use your workings to complete the sentences.

8  $\text{m}^2$  = 80,000  $\text{cm}^2$

So 1  $\text{m}^2$  = 10,000  $\text{cm}^2$

- 2 Work out the areas of the shapes. Give your answers in both  $\text{m}^2$  and  $\text{cm}^2$



area = 9  $\text{m}^2$   
area = 90,000  $\text{cm}^2$

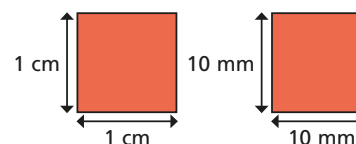
area = 2.4  $\text{m}^2$   
area = 24,000  $\text{cm}^2$

3



1 cm = 10 mm, so 1  $\text{cm}^2$  = 10  $\text{mm}^2$

Use the diagrams to explain why Amir is wrong.



$1 \text{ cm} \times 1 \text{ cm} = 1 \text{ cm}^2$

$10 \text{ mm} \times 10 \text{ mm} = 100 \text{ mm}^2$

so  $1 \text{ cm}^2 = 100 \text{ mm}^2$

4

Complete the conversions.

a) 1  $\text{cm}^2$  = 100  $\text{mm}^2$       6  $\text{cm}^2$  = 600  $\text{mm}^2$

b) 3  $\text{cm}^2$  = 300  $\text{mm}^2$       30  $\text{cm}^2$  = 3,000  $\text{mm}^2$

c) 0.3  $\text{cm}^2$  = 30  $\text{mm}^2$       0.35  $\text{cm}^2$  = 35  $\text{mm}^2$

d) 600  $\text{mm}^2$  = 6  $\text{cm}^2$       720  $\text{mm}^2$  = 7.2  $\text{cm}^2$

e) 500  $\text{mm}^2$  = 5  $\text{cm}^2$       5,000  $\text{mm}^2$  = 50  $\text{cm}^2$

f) 50  $\text{mm}^2$  = 0.5  $\text{cm}^2$       5  $\text{mm}^2$  = 0.05  $\text{cm}^2$

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?

576 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)  $4 \text{ m}^2 = 40,000 \text{ cm}^2$        $40 \text{ m}^2 = 400,000 \text{ cm}^2$

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

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

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

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

- 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  $\text{m}^2$ ?

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.

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

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

$$\begin{array}{l} \times 8 \quad 10,000 \text{ cm}^2 = 1 \text{ m}^2 \\ \quad \quad 80,000 \text{ cm}^2 = 8 \text{ m}^2 \\ \div 100 \quad 800 \text{ cm}^2 = 0.08 \text{ m}^2 \end{array}$$

- 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.



$2.1 \times 10^7 \text{ m}^2$

- 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?

$$480 \text{ mm}^2 = 4.8 \text{ cm}^2$$

$$0.062 \text{ m}^2 = 620 \text{ cm}^2$$

$$620 \div 4.8 = 129.1666 \dots$$

129

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

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