

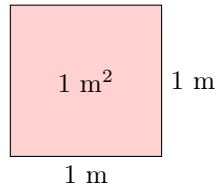
AREA

A AREA UNITS

Definition Square unit

The **square unit** is the area of the square which side is the unit length, that is to say the multiplication of unit length by it itself.

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



Definition Common units of area

The most common units of area are the squares of the length units:

- square millimetres (mm^2)
- square centimetres (cm^2)
- square metres (m^2)
- square kilometres (km^2)
- hectares (ha).

Ex: convertir 1 cm^2 en mm^2

Solution:

$$\begin{aligned} 1 \text{ cm}^2 &= 1 \text{ cm} \times 1 \text{ cm} \\ &= 10 \text{ mm} \times 10 \text{ mm} \quad \text{as } 1 \text{ cm} = 10 \text{ mm} \\ &= 10 \times 10 \times \text{mm} \times \text{mm} \\ &= 100 \text{ mm}^2 \end{aligned}$$

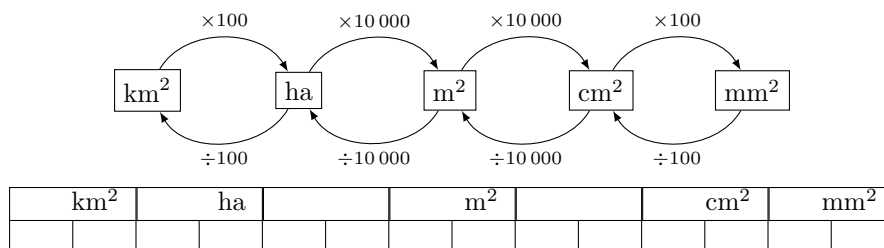
Proposition Table of conversion

$$1 \text{ cm}^2 = 10 \text{ mm} \times 10 \text{ mm} = 100 \text{ mm}^2$$

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

$$1 \text{ ha} = 100 \text{ m} \times 100 \text{ m} = 10\,000 \text{ m}^2$$

$$1 \text{ km}^2 = 1\,000 \text{ m} \times 1\,000 \text{ m} = 1\,000\,000 \text{ m}^2 \text{ or } 100 \text{ ha}$$



Ex: Convert 10.5 m^2 to cm^2

• **Solution 1:** $10.5 \text{ m}^2 = 10.5 \times 10\,000 \text{ cm}^2$
 $= 105\,000 \text{ cm}^2$

• **Solution 2:**

km^2	ha		m^2		cm^2	mm^2
			1 0, 5	0	0 0	

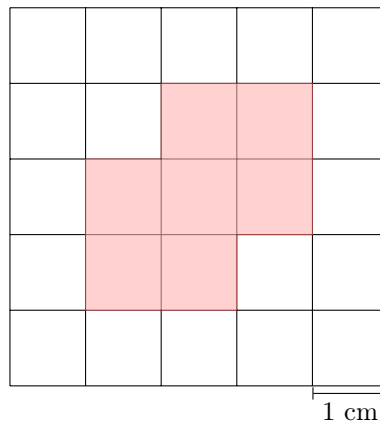
$$10,5 \text{ m}^2 = 105\,000 \text{ cm}^2$$

B DEFINITION

Definition Area

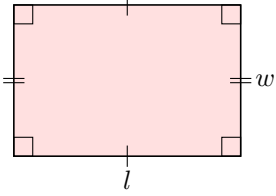
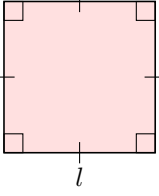
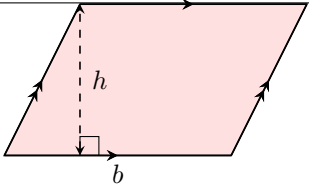
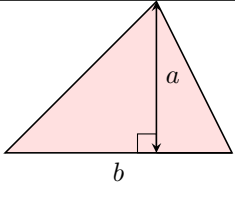
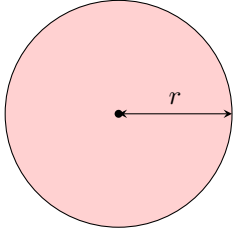
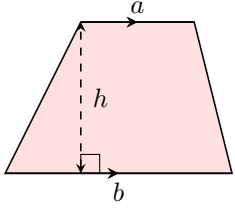
The area of a figure is the number of square units it contains.

Ex: Find the area of the red figure :



$$\begin{aligned} \text{Solution: } A &= 7 \times \blacksquare \\ &= 7 \times 1 \text{ cm}^2 \\ &= 7 \text{ cm}^2 \end{aligned}$$

C AREA OF USUAL FIGURES

Name	Shape	Area
Rectangle		$A = l \times w$
Square		$A = l^2$
Parallelogram		$A = b \times h$
Triangle		$A = \frac{b \times h}{2}$
Circle		$A = \pi r^2$
Trapezium		$A = \frac{a + b}{2} \times h$

D AREA OF COMPOSITE FIGURES

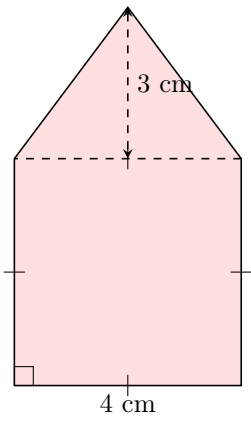
Definition Composite figure

A **composite figure** is made up of simple geometric shapes.

Method Find the area of a composite figure

To find the area of a composite figure,

1. divide it into simple, nonoverlapping figures
2. find the area of each simpler figure
3. add the areas together to find the total area of the composite figure



Ex:

Solution: $A = \text{Area of square} + \text{Area of triangle}$

$$\begin{aligned} &= c \times c + \frac{b \times h}{2} \\ &= 4 + \frac{3 \times 4}{2} \\ &= 22 \text{ cm}^2 \end{aligned}$$