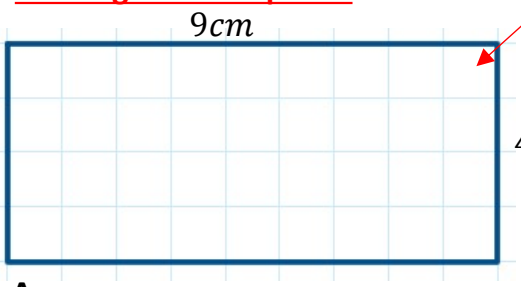
# Level 2 Functional Skills Maths Knowledge Organiser

## Module 14 – Area and Perimeter

Calculator usually Allowed

### Rectangles and Squares




$1cm$ $1cm$ Each square is 1cm by 1cm so they each have an area of $1cm^2$

**Perimeter**

The total length around the outside of the shape. Add each side together, or use the formula:

Perimeter = $(2 \times length) + (2 \times width)$

**Area**

$= length \times width$

$= 9cm \times 4cm$

$= 36cm^2$

**Perimeter**

$= 9cm + 9cm + 4cm + 4cm$

$= 26cm$

**Area**

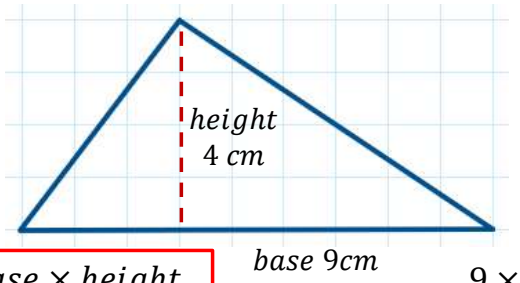
The area is the number of $1cm^2$ inside the shape. For rectangles and squares you can calculate this by doing $length \times width$

**Units**

Units for **Area** are always of the form $cm^2, mm^2, m^2, km^2$ *or square inches*

Units for **Perimeter** are always of the form $cm, m, mm, km,$ *miles or inches*

### Area of a Triangles




$$Area = \frac{base \times height}{2}$$

$$Area = \frac{9 \times 4}{2}$$

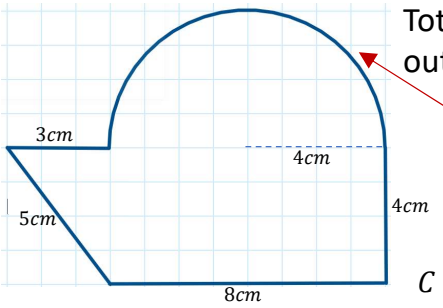
$$Area = \frac{36}{2}$$

$36 \div 2 = 18$

$\boldsymbol{Area = 18\ cm^2}$

Students often forget to divide by 2 when working out the area of a triangle, so make sure you remember this.

### Composite Shapes




**Perimeter**

Total length around the outside

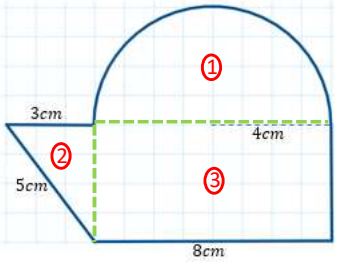
This is half a circle so find the circumference and divide by 2.

$C = 2 \times 3.14 \times 4 = 25.12$

$12 \div 2 = 12.56\ cm$

Perimeter = $12.56\ cm + 4cm + 8cm + 5cm + 3cm = \mathbf{32.56cm}$

**Area** Split the shape up.



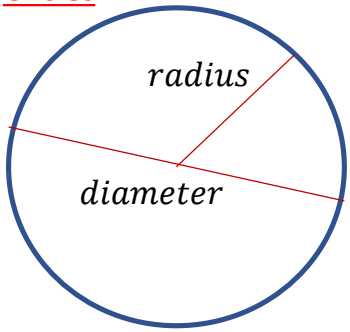

1. Half the area of a circle of radius 4.
Area = $\pi \times r^2 \div 2$
Area = $3.14 \times 4 \times 4 \div 2 = 25.12cm^2$

2. Area of a triangle
Area = $\frac{base \times height}{2} = \frac{3 \times 4}{2} = 6\ cm^2$

3. Area of rectangle
Area = $8cm \times 4cm = 32cm^2$

Area = $25.12cm^2 + 6cm^2 + 32cm^2$
$= \mathbf{63.12cm^2}$

### Circles




**Radius**

The distance from the centre to the edge.

**Diameter**

The distance right across the circle through the centre.

$diameter = 2 \times radius$

$\pi$ (pronounced pi) is a special number associated with circles. In Functional skills, you use 3.14 as the approximate value for $\pi$. You do not need to remember this, the questions will remind you.

**Circumference**

Length around the outside. (Perimeter)

2 Formulas:

$C = \pi \times diameter$

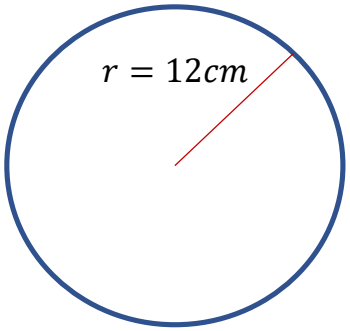
Or

$C = 2 \times \pi \times radius$

**Area**

Space on inside

$A = \pi \times r^2$




**Area**

$A = \pi \times r^2$

$A = 3.14 \times 12 \times 12$

$A = 452.16\ cm^2$

**Circumference**

$C = 2 \times \pi \times r$

$C = 2 \times 3.14 \times 12$

$C = 75.36\ cm$