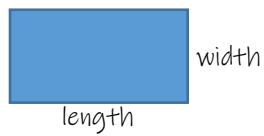


Y10 Maths Knowledge Organiser Foundation Tier: Perimeter and Area

What must I be able to do? New content: <ul style="list-style-type: none"> □ Calculate the length of an arc ➤ Sparx U221 □ Calculate the area of a sector ➤ Sparx U373 	Key vocabulary Sector A fraction of a circle, cut from the centre like a slice of pizza. The two straight sides will be the radius of the circle. <hr/> Arc A section of the circumference of a circle.
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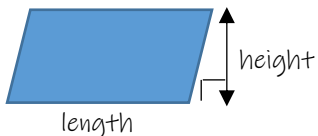
Area formulae

Rectangle/Square



Area = Length x width

Parallelogram



Area = length x perpendicular height

Perpendicular means at right angles to the base (not the sloping side!)

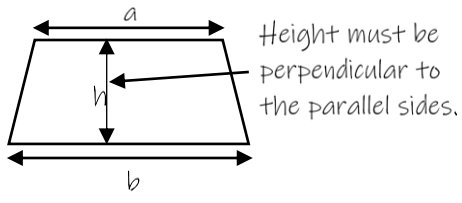
Triangles



Area = Base x perpendicular height ÷ 2

A triangle is half the area of a rectangle

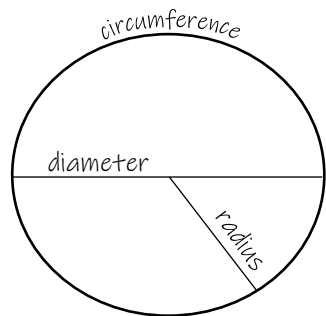
Trapezium



Area = $\frac{1}{2}(a + b)h$

$\frac{1}{2}(a + b)$ finds the average length of the parallel sides. This essentially turns the formula into the same as for the area of a parallelogram!

Circles



The **area** of a circle is equal to π multiplied by the radius squared:

$A = \pi r^2$

Note that just the r is squared, not π

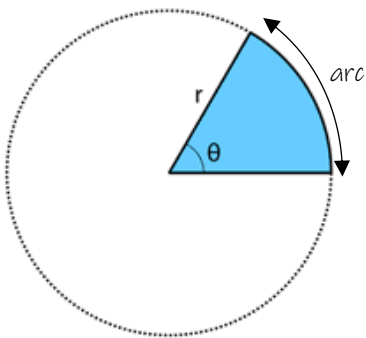
Rearranging this gives us:

$r = \sqrt{\frac{A}{\pi}}$

The **circumference** of a circle is equal to π multiplied by the diameter:

$C = \pi d$

Arcs and sectors



Area of a sector = fraction of a full circle x area of a circle

$= \frac{\theta}{360} \pi r^2$

Arc length = fraction of a full circle x circumference

$= \frac{\theta}{360} \pi d$

On Foundation, these will usually be restricted to simple fractions of circles e.g. a semi circle ($\frac{1}{2}$) or quarter circle.

GLUE

HERE