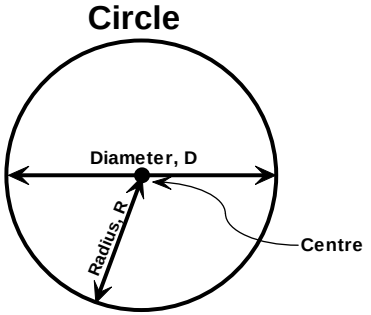
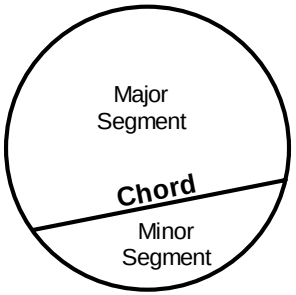


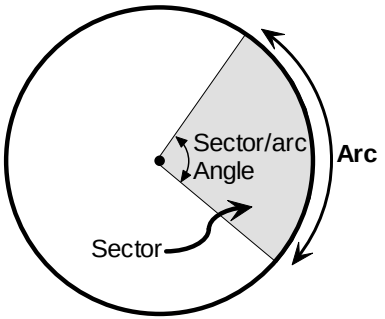
Chords and segments

A *chord* is a straight line that joins any two points on the boundary of a circle. When you draw a chord, you divide the circle into two areas. These areas are called *segments*. The smaller area is called a *minor segment*. The larger area is called a *major segment*.



Arcs

An *arc* is the part of the circle's circumference taken up by the sector:

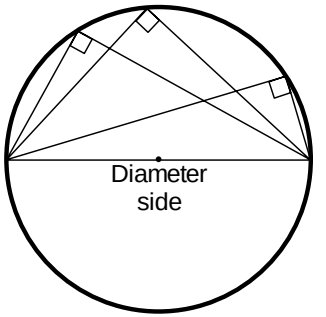


Circles

$$\text{Arc length} = \frac{\text{Arc angle}}{360°} \times 2\pi R$$

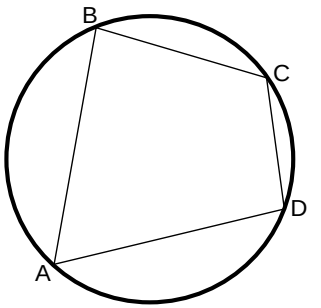
Triangles inside circles

A triangle drawn inside a circle with one side as the diameter of the circle and all corners touching the circumference has a special *property*. The angle in the triangle opposite the diameter side is always 90°:



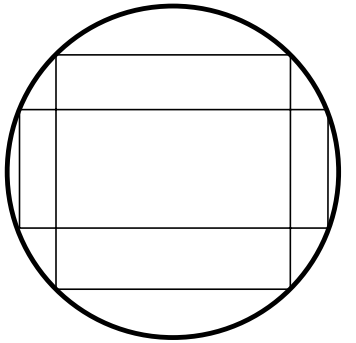
Cyclic quadrilaterals

You can fit four-sided shapes inside a circle – quadrilaterals. Not all quadrilaterals will have *all four* corners touching the circumference of the circle. Quadrilaterals that do however are known as *cyclic quadrilaterals*. Opposite angles in cyclic quadrilaterals are *supplementary* (add to 180°).

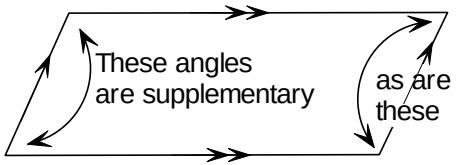


If both sets of opposite angles in a quadrilateral are supplementary, then you can draw a single circle that goes through all four corners of the quadrilateral. If they aren't supplementary, then you can't draw a single circle through all four corners.

Rectangles are cyclic quadrilaterals because all the angles inside a rectangle are 90°. Opposite angles obviously add up to 180° then. A square is a cyclic quadrilateral too for the same reason.



Parallelograms and trapeziums are *not* cyclic quadrilaterals because their opposite angles don't add to 180°. The only exception for parallelograms is when they are a rectangle.



Area of Circle

$$\text{Circle area} = \pi r^2$$

Circumference of Circle

$$\text{Circumference} = 2\pi R$$