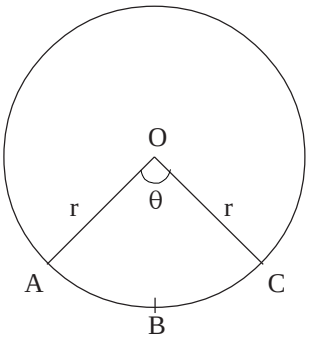
CIRCLES



Basic Formulae

Circumference = $2\pi r$

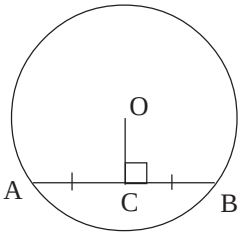
Area = πr^2

Length of arc = $2\pi r\,\theta / 360$

Area of sector = $\pi r^2\,\theta / 360$

where r $\Rightarrow$ radius of the circle
π $\Rightarrow$ pi, approximated as 22/7 or 3.14
θ $\Rightarrow$ angle formed by the arc

Chords



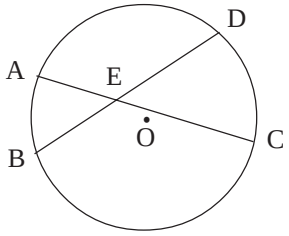
A line joining any two points on the circle forms a chord

Two chords of equal length are equidistant from the centre

The diameter is the longest chord

A line joining the centre of the circle to the mid-point of a chord is perpendicular to the chord, and vice-versa

Intersecting Chords

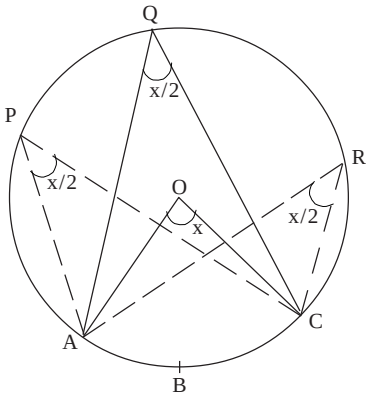


When two chords intersect as shown in the figure alongside,

$AE \times EC = BE \times ED$

(Note : Point 'E' need not be the centre of the circle)

Angle subtended by an Arc



In the figure alongside,
$\angle$ AOC ($\angle x$) is called the angle subtended by the arc ABC at the centre of the circle.

Similarly,
$\angle$ APC , $\angle$ AQC , $\angle$ ARC are angles subtended by the same arc on the circumference of the circle.

The angle subtended by an arc at the circumference is half the angle subtended at the centre. Also, all angles subtended by the same arc at various points on the circumference are equal.
$\therefore \angle APC = \angle AQC = \angle ARC = \angle AOC / 2 = x/2$

Remember,
a semi-circle subtends an angle of 90^0 on the circumference.