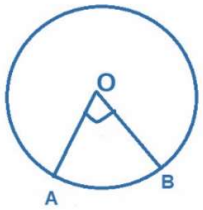
Circumference or perimeter of the circle:

The length of a path described by the circle in one complete rotation is known as its Circumference.

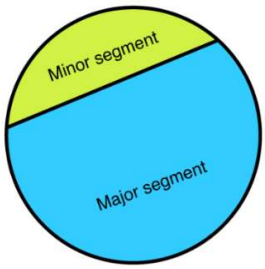


Sector:

A part of a circle enclosed between two bounding radii and compounding arc is known as a sector.

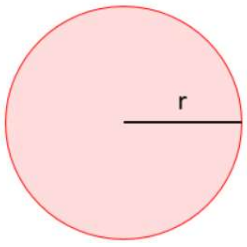
Segment:

A part of a circle enclosed between a chord and its corresponding arc is known as a segment. If the art major as shown in (i) case, then the segment is minor and if the arc is major as shown in case (ii), then the segment is known as a major segment.



Area of a circle

Area of a circle $= \pi r^2$



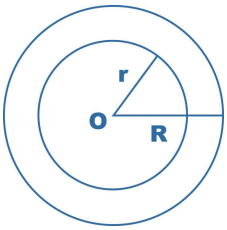
Area of semicircle:

Area of semicircle $= \frac{1}{2}\pi r^2$

Area of a quadrant:

Area of a quadrant (quarter circle) $= \frac{\pi r^2}{4}$

Area of the ring:



Area of the ring or an annulus

$$= \pi R^2 - \pi r^2$$

$$= \pi\left(R^2 - r^2\right)$$

$$= \pi(R + r)(R - r)$$

Area of segment:

(i) Area of minor segment ACBA

= Area of sector OACBO

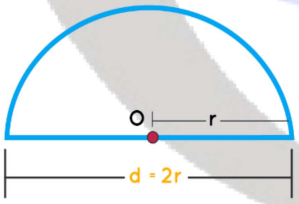
$$\text{Area of } \Delta OAB = \frac{\pi r^2 \theta}{360^\circ} - \frac{1}{2} r^2 \sin\theta$$

(ii) Area of major segment BDAB = Area of the circle - Area of minor segment

Perimeter of semicircle:

Perimeter of a semicircle

or protractor $= \pi r + 2r$



Length of arc

$$\text{Length of arc AB} = \frac{2\pi r\theta}{360^\circ}$$

or $\dfrac{\theta}{360} \times 211$

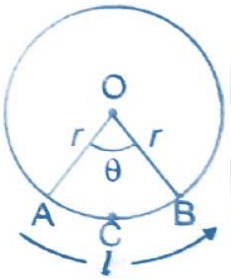
Area of sector:

$$\text{Area of sector OACBO} = \frac{\pi r^2 \theta}{360^\circ}$$

or

Area of sector

$$\text{OACBO} = \frac{1}{2}(r \times l)$$



Perimeter of sector:

Perimeter of sector OACBO

= Length of arc AB + 2r

Other important formulae :

(i) Distance moved by a wheel in 1 revolution
= Circumference of the wheel

(ii) Number of revolutions in one minute

$$= \frac{\text{Distance moved in 1 minute}}{\text{Circumference}}$$

(iii) Angle described by the minute hand in 60 minutes $= 360^\circ$

(iv) Angle described by the hour hand in 12 hours $= 360^\circ$