

AREAS RELATED TO CIRCLES**Introduction**

* **Circle**: If 'r' is the radius and 'd' is the diameter of a circle, then

1. $r = d/2$
2. $d = 2r$
3. $A = \pi r^2$ (or) $\pi d^2/4$
4. $C = 2\pi r$ (or) πd

* **Semicircle**: If 'r' is the radius of a semicircle, then

1. $P = r(2 + \pi)$ (or) $36r/7$ (or) $18d/7$
2. $A = \pi r^2/2$ (or) $\pi d^2/8$

* **Quadrant of a circle**: If 'r' is the radius of a quadrant of a circle, then

1. $\text{Area} = \pi r^2/4$

* **Sector**: If 'r' is the radius 'θ' is the central angle (angle made by the corresponding arc at the centre) and 'l' being the length of the arc of a sector; then

1. $A = \theta/360^\circ \times \pi r^2$ (or) $lr/2$
2. $\text{Length of arc} = \theta/180^\circ \times \pi r$

* **Segment**: $\text{Ar}(\text{segment}) = \text{Ar}(\text{sector}) - \text{Ar}(\text{corresponding triangle})$.

* **Concentric circles (Ring)**: If 'R' and 'r' are the radii of the bigger and smaller circles respectively, then

$$A = \pi (R^2 - r^2)$$
