Area of a sector

# Definition

The sector is basically a portion of a circle which could be defined based on these three points mentioned below:

A circular sector is the portion of a disk enclosed by two radii and an arc.

A sector divides the circle into two regions, namely Major and Minor Sector.

The smaller area is known as the Minor Sector, whereas the region having a greater area is known as Major Sector.

# Formula

In a circle with radius r and center at O, let ∠POQ = θ (in degrees) be the angle of the sector. Then, the area of a sector of circle formula is calculated using the unitary method.

For the given angle the area of a sector is represented by:

The angle of the sector is 360°, area of the sector, i.e. the Whole circle = πr2

When the Angle is 1°, area of sector = πr2/360°

So, when the angle is θ, area of sector, OPAQ, is defined as;

A = (θ/360°) × πr2

# EXAMPLE

Let a sector of a circle with an angle of 45 degrees and radius of circle is 5 unites:

A = (θ/360°) × πr2

Putting values

A = (45o/360o) \* π(5)2

A = 9. 8125 unites2

ARC LENGTH

# DEFINITION

Arc length is better defined as the distance along the part of the circumference of any circle or any curve (arc). Any distance along the curved line that makes up the arc is known as the arc length.

# FORMULA

Length = (θ/360°) × 2πr

# EXAMPLE

The length of the sector with radius 4 and angle 45 is:

L = (θ/360°)× 2πr

L = (45°/360°) × 2 × (22/7) × 4

L = 3.14