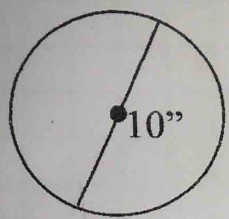## Circumference

The circumference of a circle is the "perimeter" or __distance__ around the circle.

* LENGTH... one dimensional

Formulas: $C = \pi d$ OR $C = 2\pi r$

Example: Determine the circumference.

$C = \pi d$ (Justify)

$C = \pi \cdot 10$ (plug in)

$C = 10\pi$ inches (exact answer)

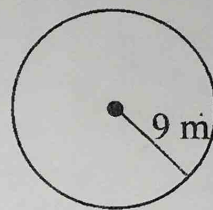$C \approx 31.42$ inches (approx answer)

Area

The area of a circle is __the region inside__ the circle.

Formula: $A = \pi r^2$

* TWO DIMENSIONAL measurement!!

Example: Determine the area.

$A = \pi r^2$ (Justify)

$A = \pi 9^2$ (plug in)

$A = 81\pi$ m^2 (exact)
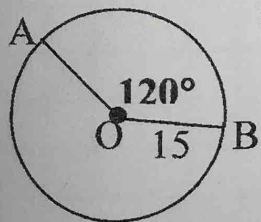
$A \approx 254.47$ m^2 (approx)

Arc Length

Length of an arc __or distance__ from one end to the other (measured in ft, cm, in, etc... a portion of __circumference__)

Formulas:

$$\text{length of arc} = \frac{\text{arc measure}}{360°} \cdot \text{Circumference}$$

portion

Example: Determine the length of AB.

$\text{length of } \overarc{AB} = \frac{120}{360} \cdot (2\pi \cdot 15)$
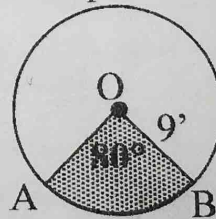
$= \frac{1}{3}(30\pi)$

$= 10\pi$ units

≈ 31.42 units

Area of a sector

The __sector__, or piece of a circle, formed by the two radii of a central angle and the arc between their endpoints on the circle. *Portion of Area!

Formulas:

$$A_{sector} = \frac{\text{arc measure}}{360°} \cdot A_{circle}$$

portion

Example: Determine the area of sector AOB.

$A_{sector\,AOB} = \frac{80°}{360°} \cdot (\pi 9^2)$

$= \frac{2}{9}(81\pi)$

$= 18\pi$ ft^2

≈ 56.55 ft^2