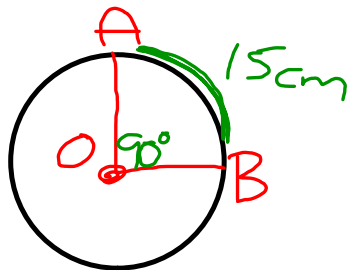


Lesson # 31

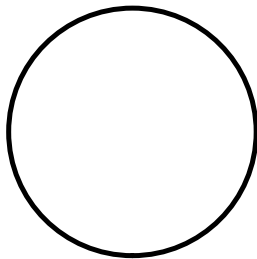
Relationship Between Central Angles / Arc / Circumference

The arc can be measured in degrees or in length:
example ~



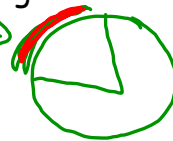
$AB \text{ Arc} = \widehat{AB}$
 Central angle = 90°
 $90^\circ = \widehat{AB} = 15\text{cm}$

A) In a circle, the measures of an arc in degrees is equal to the measure of the central angle that creates the arc.



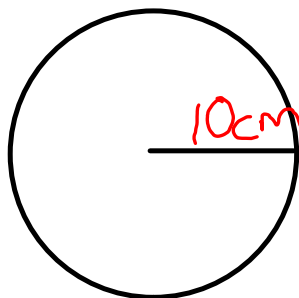
Intercepts corresponds goes with

B) In order to find the length of the arc, we use the relationship between the measure of the central angle and the circumference in a proportion.



example 1:

central angle = 90°
circumference = $2\pi r$



$c = 2\pi r$
 $c = 62.83$

$360^\circ = 62.83$
 $90^\circ = ?$

$\frac{90^\circ}{360^\circ} =$

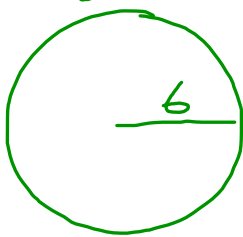
$\frac{?}{62.83}$

ARC = 15.7cm

Formula

	Angle	ARC
Sector	$\frac{\text{Central}}{360^\circ}$	$= \frac{\text{Arc}}{C}$
Circle		

example 2: A circle with a radius of 6cm. Find the measure of the arc created by a central angle of 45°.



Arc?
C.A. 45°

$$\frac{45^\circ}{360^\circ} = \frac{\text{Arc?}}{C = 2\pi r}$$

$$2\pi 6$$

37.7

Arc 4.71 cm

Ex. 3

arc 5
C = 25cm
Central angle?

$$\frac{?}{360} = \frac{5}{25}$$

72°