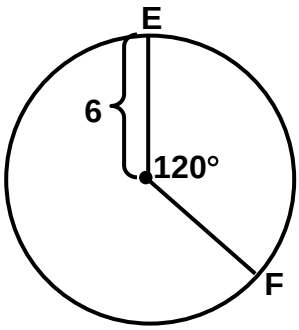
TOPIC 16-4: ARC LENGTH & AREA OF SECTORS

ARC LENGTH is a "piece" of the _____ of the circle.

Since you are finding a part of the circumference, you can set up a proportion to find the arc length:

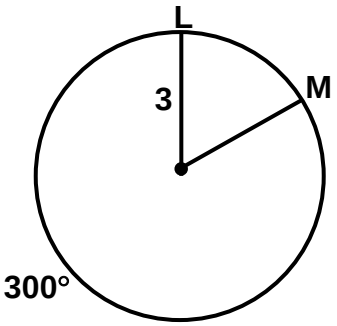
$$\frac{\text{arc length}}{\text{circumference}} = \frac{x^\circ}{360^\circ}$$

EXAMPLE 1: Find the EXACT length of $\overset{\frown}{EF}$ below.



$\overset{\frown}{EF}$ = _____

EXAMPLE 2: Find the length of $\overset{\frown}{LM}$ below, rounded to the nearest thousandth.



$\overset{\frown}{LM}$ = _____

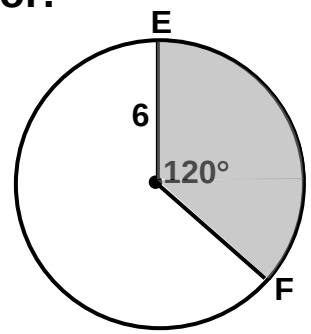
A ***SECTOR*** is a "slice" of the circle bounded by _____

_____ and an _____. When finding the area of a sector, you are finding part of the area of the circle.

Since you are finding a part of the area, you can set up a proportion to find the sector:

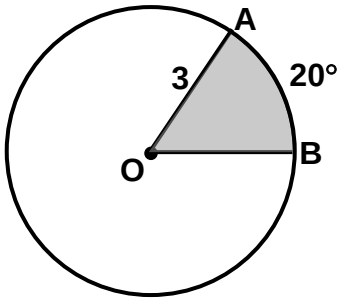
$$\frac{\text{sector area}}{\text{circle area}} = \frac{x^\circ}{360^\circ}$$

EXAMPLE 3: Find the EXACT area of the sector:



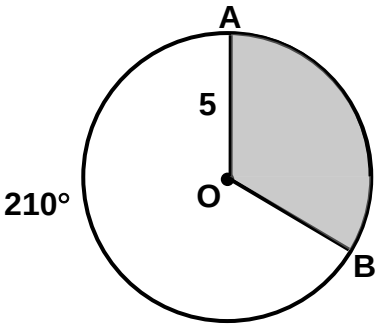
Sector Area = _____

EXAMPLE 4: Find the area of the sector to the nearest hundredth.



Sector Area = _____

EXAMPLE 5: Find the EXACT length of $\overset{\frown}{AB}$ and area of the sector.



Length of $\overset{\frown}{AB}$ = _____

Sector Area = _____

Arc Length and Area of a Sector

Degree of Central Angle	Arc length measured with yarn in cm.	where x is the ARC LENGTH $\frac{x}{d\pi} = \frac{central\ angle}{360}$	where x is the AREA OF SECTOR $\frac{x}{\pi r^2} = \frac{central\ angle}{360}$
60°			
90°			
120°			
180°			
260°			
300°			