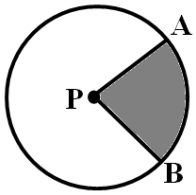
Geometry Note-Taking Guide **Name:**_____

Period:____

Section 10.5 – Areas of Circles and Sectors

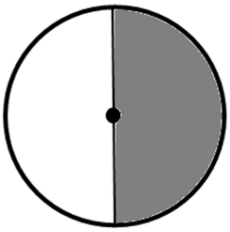
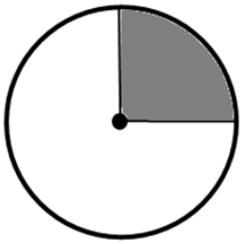
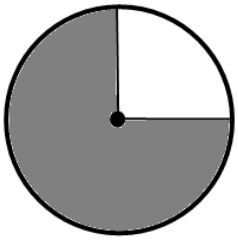
The area formula for a circle is _____.

A _____ of a circle is a portion of a circles area.
It is the region bounded by two radii of the circle and their intercepted arc.
In the diagram, the region bounded by the radii $\overline{AP}$, $\overline{BP}$, and
the intercepted arc $\overset{\frown}{AB}$, is called _____.



Deriving the Area of Sector Formula

Note: The shaded area is the sector.

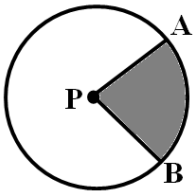
Diagram	$\frac{\textbf{Area of Sector}}{\textbf{Total Circle Area } (A = \pi r^2)}$	$\frac{\textbf{Measurement of Sector Arc}}{\textbf{Total Arc Measure } (360°)}$
		
		
		

What is the relationship between the ratio of the **measurement of a sector arc to 360°** and the ratio of the **area of the sector to the circles area**?

Area of a Sector Formula

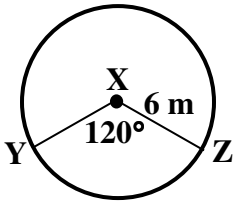
The ratio of the measure of the intercepted arc to 360° is equal to the ratio of the area of a sector (A_S) of a circle to the area of the circle (πr^2).

$$\frac{m\overset{\frown}{AB}}{360^\circ} = \frac{A_S}{\pi r^2}$$

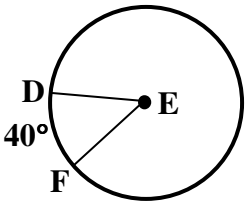


Ex 1:

a) Find the area of sector YXZ.

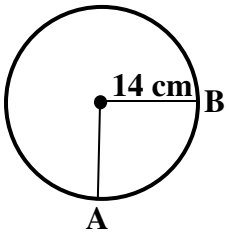


b) Find the radius of ⊙E given the area of sector DEF is 9π in.^{2}.



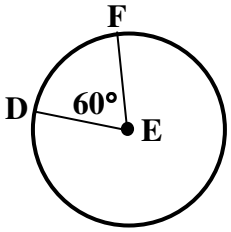
c) Find $m\overset{\frown}{AB}$

Note: Always use shorter measure.



$A_s = 49\pi$ cm^2

d) Find the area of ⊙E .

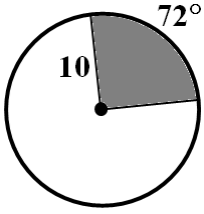


Area of Sector DEF = 24 ft^2

Ex 2:

Find the area of the shaded region.

a)



b)