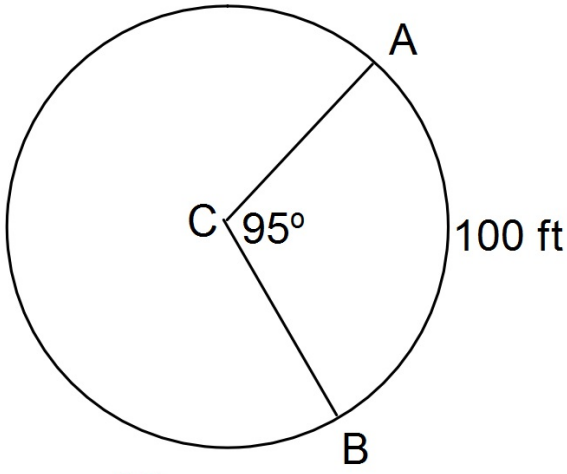
Bellwork

Solve for indicated measure:

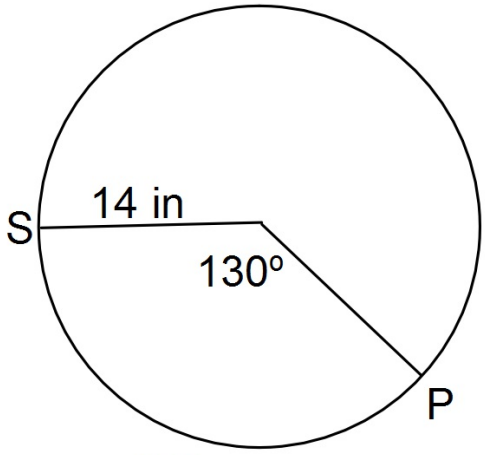
1. Circumference of C



$100 = \frac{95}{360} C$

$C = \frac{100(360)}{95} = \boxed{\frac{7200}{19} \approx 378.95}$

2. Length of $\overset{\frown}{SP}$



$L_{SP} = \frac{130}{360} \cdot 2\pi(14)$

$L_{SP} = \frac{130(2)(14)\pi}{360} = \frac{91\pi}{9} \approx \boxed{31.76}$

Area

What is Area?

The measurement of the surface covered by an object.

How do you find the area of a circle?

$A = \pi r^2$

Examples

Find the indicated measure:

1. The area of a circle is 105 m^2. Find the radius of the circle.

$A = \pi r^2$

$\frac{105}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{33.42} \approx \sqrt{r^2}$

$r \approx 5.78$

2. The area of a circle is 45 in^2. Find the diameter of the circle.

$A = \pi r^2$

$\frac{45}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{14.32} \approx \sqrt{r^2}$

$3.78 = r$

However the problem asks for the diameter...

$d = 2r = 2(3.78) = 7.56$

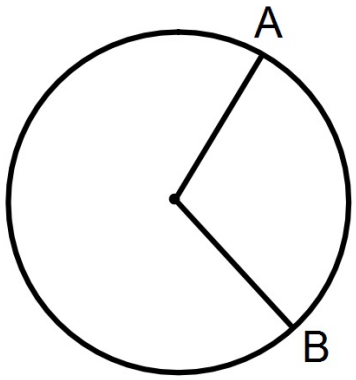
Area of a Sector

What is a sector?

A portion of the area of a circle.

How do you find the area of a sector?

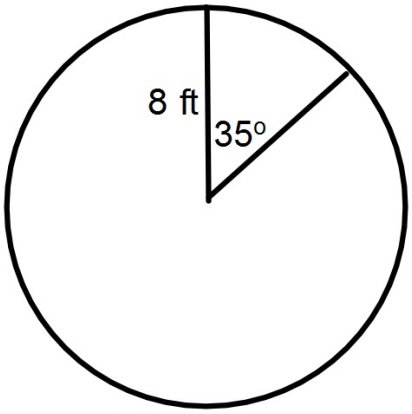
$$\text{Area of a Sector} = \frac{m\overset{\frown}{AB}}{360^{o}} \cdot \pi r^{2}$$



Examples

Find the Area of the sector :

1.

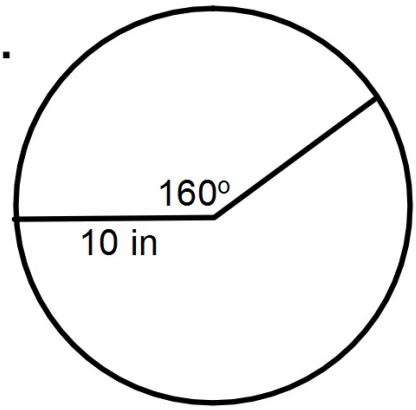


$$A_{Sector} = \frac{35}{360} \cdot \pi(8)^2$$

$$A_{Sector} = \frac{35(64)\pi}{360}$$

$$A_{Sector} = \boxed{\frac{56\pi}{9} \approx 19.55}$$

2.



$$A_{Sector} = \frac{160}{360} \cdot \pi(10)^2$$

$$A_{Sector} = \frac{160(100)\pi}{360}$$

$$A_{Sector} = \boxed{\frac{400\pi}{9} \approx 139.63}$$

Examples

Find the Area of the circle given the central angle and the area of a sector:

1. Sector Area = 125 in^2
   Central Angle = 55°

$$A_{Sector} = \frac{\text{Central Angle}}{360} \cdot A_{Circle}$$

$$125 = \frac{55}{360} A_{Circle}$$

$$\frac{125(360)}{55} = A_{Circle}$$

$$\boxed{A_{Circle} \approx 818.18}$$

2. Sector Area = 720 m^2
   Central Angle = 115°

$$A_{Sector} = \frac{\text{Central Angle}}{360} \cdot A_{Circle}$$

$$720 = \frac{115}{360} A_{Circle}$$

$$\frac{720(360)}{115} = A_{Circle}$$

$$\boxed{A_{Circle} \approx 2253.91}$$