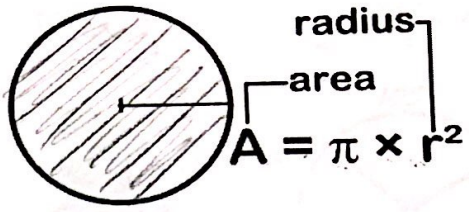
Geometry
Area of a Sector

Name: _____
Date: _____

Review

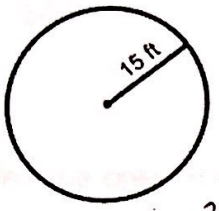


The area of a circle is the number of square units inside the circle.

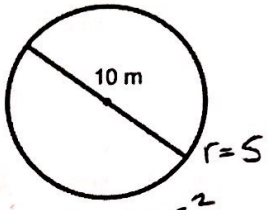
Area of a Circle = πr^2

Examples

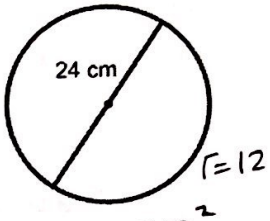
1. Area = $225\pi\ ft^2$
2. Area = $25\pi\ m^2$
3. Area = $144\pi\ cm^2$
4. Area = $.0625\pi\ in^2$



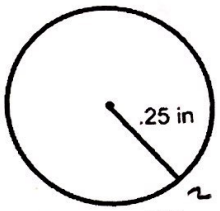
$A = \pi 15^2$



$A = \pi 5^2$



$A = \pi 12^2$



$A = \pi .25^2$

5. In terms of π, find the area of a circle whose diameter is 16. $r = 8$

$$A = \pi r^2$$
$$= \pi 8^2$$
$$= \boxed{64\pi \text{ units}^2}$$

6. Find the area of a circle whose circumference is 24π. Leave your answer in terms of π.

Step 1

$$C = 2\pi r$$
$$\frac{24\pi}{2\pi} = \frac{2\pi r}{2\pi}$$
$$12 = r$$

Step 2

$$\text{Area} = \pi r^2$$
$$= \pi 12^2$$
$$= \boxed{144\pi \text{ units}^2}$$

Area of a Sector of a Circle

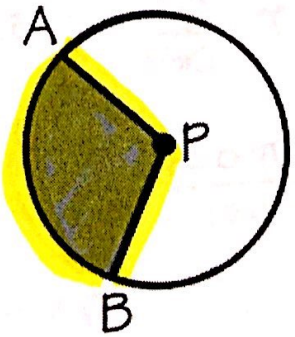
A sector is the region bounded by two radii and their intercepted arc.

Area of a Sector =

$$\frac{\theta}{360} \cdot \pi r^2$$

Arc length

$$\frac{\theta}{360} \cdot 2\pi r$$



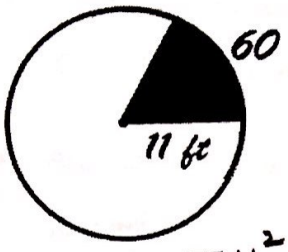
Sector APB is shaded in ⊙P.

The unshaded region is also a sector.

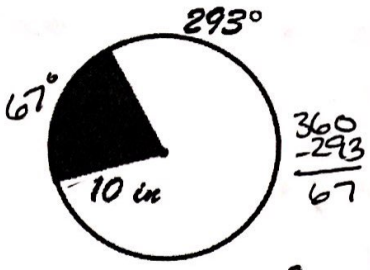
Examples $A = \frac{\theta}{360} \cdot \pi r^2$

Find the area of the sector of the circle. Leave in terms of π.

1. $\frac{121\pi}{6}$ ft^2 2. $\frac{335\pi}{18}$ m^2 3. $\frac{16\pi}{3}$ cm^2 4. $\frac{112\pi}{3}$ m^2

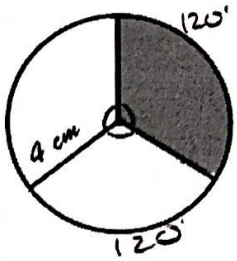


$A = \frac{60}{360} \cdot \pi 11^2$



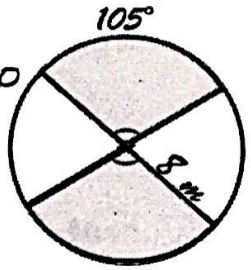
$360 - 293 = 67$

$A = \frac{67}{360} \cdot \pi 10^2$



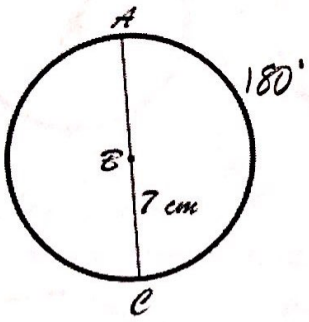
$\frac{360}{3} = 120$

$A = \frac{120}{360} \cdot \pi 4^2$



$A = \frac{105}{360} \cdot \pi 8^2$

5. Find the area of sector ABC. Round to the nearest hundredth.



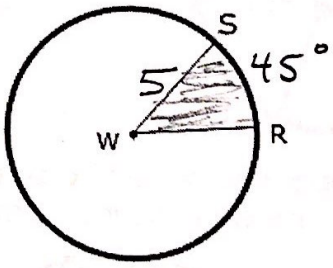
$A = \frac{180}{360} \cdot \pi 7^2$

$\approx \boxed{76.97\ cm^2}$

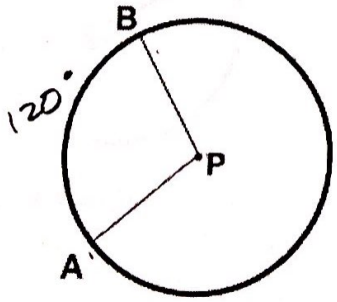
6. S and R are two points on $\odot W$ with radius 5 m and $m\angle SWR = 45°$. Find the area of the sector SWR. Round to the nearest hundredth.

$A = \frac{45}{360} \cdot \pi 5^2$

$\boxed{A = 9.82\ m^2}$



7. Find the radius of $\odot P$ if the area of sector APB is 108π square feet and $m\angle APB = 120°$.



$(360)\ 108\pi = \frac{120}{360} \cdot \pi r^2\ (360)$

$\frac{38,880\pi}{120\pi} = \frac{120\pi r^2}{120\pi}$

$324 = r^2$

$\boxed{r = 18\ Feet}$