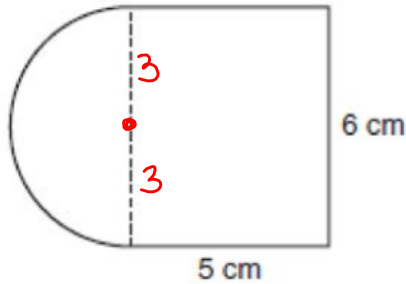


DO NOW

A figure is made up of a rectangle and a semicircle as shown in the diagram below.

What is the area of the figure, to the nearest tenth of a square centimeter?



$$A = b \cdot h$$

$$A = 5 \cdot 6$$

$$A = 30$$

$$A = \frac{1}{2} \pi r^2$$

$$A = \frac{1}{2} \pi (3)^2$$

$$A = 14.137\dots$$

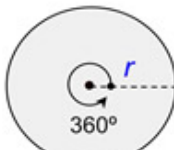
$$30 + 14.137\dots$$

$$44.1 \text{ cm}^2$$

$$44.137$$

Sector of a Circle

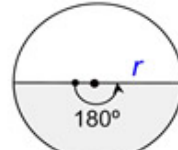
portion of a circle enclosed by two radii and an arc

Circle

MathBits.com

(full circle)

$$A_{\odot} = \pi r^2$$

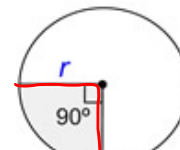
Semi-circle

MathBits.com

(half circle = half of area)

$$A = \frac{1}{2} \pi r^2$$

$$\frac{180}{360}$$

Quarter-circle

MathBits.com

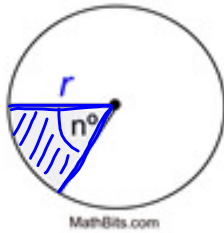
($\frac{1}{4}$ of circle = $\frac{1}{4}$ of area)

$$A = \frac{1}{4} \pi r^2$$

$$\frac{90}{360}$$

To find the area of a sector, you are finding a fractional part of the area of the entire circle

Any Sector



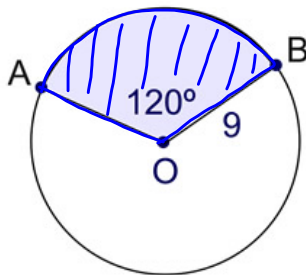
MathBits.com

(fractional part of circle)

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

where n = central angle

Find the area of the sector shown below. The radius of the circle is 9 cm. and the central angle of the sector is 120° . Express the answer to the *nearest tenth* of a square centimeter.



Sector AOB

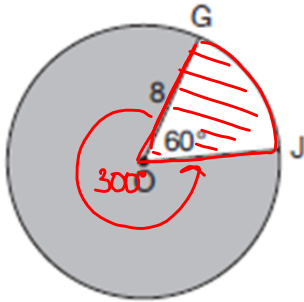
$$A = \frac{120}{360} \pi r^2$$

$$A = \frac{120}{360} \pi (9)^2$$

$$A = 84.823\dots$$

$$\boxed{84.8 \text{ cm}^2}$$

In the diagram below of circle O , $GO = 8$ and $m\angle GOJ = 60^\circ$. What is the area, in terms of π , of the shaded region?



$$A = \frac{300}{360} \pi (8)^2$$

$$A = \frac{160\pi}{3}$$

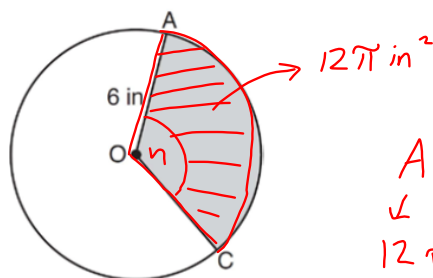
1) $\frac{4\pi}{3}$

2) $\frac{20\pi}{3}$

3) $\frac{32\pi}{3}$

4) $\frac{160\pi}{3}$

In the diagram below of circle O , the area of the shaded sector AOC is $12\pi \text{ in}^2$ and the length of OA is 6 inches. Determine and state $m\angle AOC$.



$$m\angle AOC = 120^\circ$$

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

$$12\pi = \frac{n}{360} \pi (6)^2$$

$$\frac{12\pi}{36\pi} = \frac{\frac{n}{360} \cdot 36\pi}{36\pi}$$

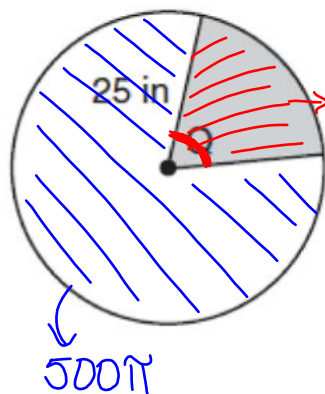
$$\frac{1}{3} = \frac{n}{360}$$

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

$$n = 120$$

In the diagram below, the circle has a radius of 25 inches. The area of the unshaded sector is 500π in².

Determine and state the degree measure of angle Q, the central angle of the shaded sector



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

$$125\pi = \frac{n}{360} \pi (25)^2$$

$$\frac{125\pi}{625\pi} = \frac{\frac{n}{360} \cdot 625\pi}{625\pi}$$

$$\frac{1}{5} = \frac{n}{360}$$

$$5n = 360$$

$$\boxed{n = 72^\circ}$$

$$A = \pi r^2$$

$$A = \pi (25)^2$$

$$A = 625\pi$$