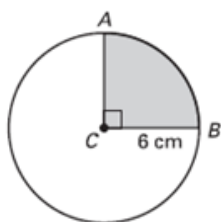


Geometry 5/7/18

- IDs on and Phones put away.
- Students will check in Arc Length Day 2 assignment.
- Students will complete the notes for Areas of Circles and Sectors.
- Assignment - Students will complete the Day 1 assignment. Assignment is Due 5/7/18.



How can you find the shaded area of the circle?

Geometry 1.2

Name _____

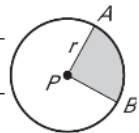
Class-notes

Date _____ Period _____

11.5: Areas of Circles and Sectors

Goal • Find the areas of circles and sectors.

Sector of a circle The region bounded by two radii of a circle and their intercepted arc.



AREA OF A CIRCLE

The area of a circle is π times the square of the radius.

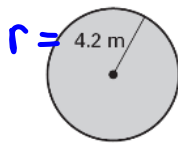
$$A = \pi r^2$$



Example 1: Use the formula for area of a circle

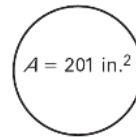
Find the indicated measure.

a. Area



$$\begin{aligned} A &= \pi r^2 \\ A &= \pi (4.2\text{m})^2 \\ A &= 17.64\pi\text{m}^2 \\ A &\approx 55.42\text{m}^2 \end{aligned}$$

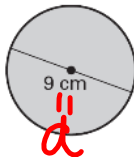
b. Diameter = $2 \cdot r = 2 \cdot 8 = 16\text{m}$



$$\begin{aligned} \frac{201\text{in}^2}{\pi} &= \frac{\pi r^2}{\pi} \\ \sqrt{63.98\text{m}^2} &= \sqrt{r^2} \\ 7.998 &\approx r \\ 8.0\text{m} &\approx r \end{aligned}$$

Checkpoint: In Exercises 1 and 2, use the diagram to find the indicated measure.

1. Area



$$\begin{aligned} r &= \frac{d}{2} = \frac{9}{2} = 4.5\text{cm} \\ A &= \pi (4.5\text{cm})^2 \approx 63.62\text{cm}^2 \end{aligned}$$

2. Radius

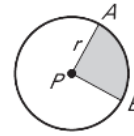


$$\begin{aligned} \frac{154\text{ft}^2}{\pi} &= \frac{\pi r^2}{\pi} \\ \sqrt{49.02} &= \sqrt{r^2} \\ 7.00\text{ft} &\approx r \end{aligned}$$

AofS

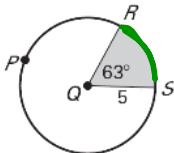
AREA OF A SECTOR: The ratio of the area of a sector of a circle to the area of the whole circle (πr^2) is equal to the ratio of the measure of the intercepted arc to 360° .

$$\frac{\text{AofS}}{\pi r^2} = \frac{m\widehat{AB}}{360^\circ}$$



Example 2: Find area of sectors

1. Find the areas of the sectors formed by $\angle RQS$.

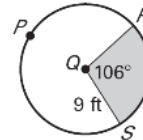


$$\frac{\text{AofS}}{\pi(5u)^2} = \frac{63^\circ}{360^\circ}$$

$$360(\text{AofS}) = \frac{63 \cdot 25 \cdot \pi}{360}$$

$$\text{AofS} = 13.74 u^2$$

2. Find the areas of the sectors formed by $\angle RQS$.



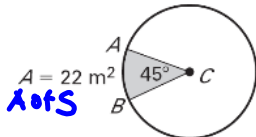
$$\frac{\text{AofS}}{\pi(9\text{ft})^2} = \frac{106}{360}$$

$$\frac{360(\text{AofS})}{360} = \frac{106 \cdot 81 \text{ft}^2 \cdot \pi}{360}$$

$$\text{AofS} = 74.93 \text{ft}^2$$

Example 3: Use the Area Sector Theorem

1. Use the diagram to find the area of $\odot C$

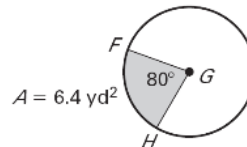


$$\frac{22 \text{m}^2}{\pi r^2} = \frac{45}{360}$$

$$\frac{45(\pi r^2)}{45} = \frac{360(22 \text{m}^2)}{45}$$

$$\pi r^2 = A = 176 \text{m}^2$$

2. Find the area of $\odot G$.



$$\frac{6.4 \text{yd}^2}{\pi r^2} = \frac{80}{360}$$

$$8(\pi r^2) = \frac{36 \cdot 6.4 \text{yd}^2}{8}$$

$$\pi r^2 = 28.8 \text{yd}^2$$

Homework: 11.5: Practice A Worksheet