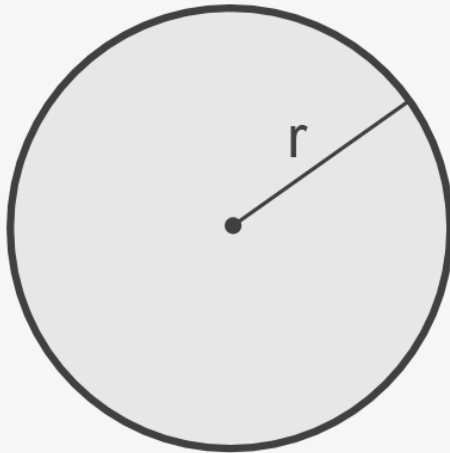


UNIT 8 Lesson 3 [Section 11-3] Areas of Circles and Sectors

Objectives: To find areas of Circles and Sectors of Circles.



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

$$A = \pi r^2$$

[Remember to use the " π " button on your calculator!]



Example 1:

A.) Find the exact area of the circle.

$$A = \pi (6)^2 \Rightarrow A = 36\pi \text{ in}^2$$

B.) Find the area of the circle to the nearest tenth

$$A \approx 113.1 \text{ in}^2$$

UNIT 8 Lesson 3 [Section 11-3] Areas of Circles and Sectors

Objectives: To find areas of Circles and Sectors of Circles.

Example 2 Find the area of the circle to the nearest tenth.



$$d = 14 \text{ in}$$

$$r = 7 \text{ in}$$

$$A = \pi r^2$$

$$A = \pi (7)^2$$

$$A = 49\pi \approx \boxed{153.9 \text{ in}^2}$$

Example 3 $d =$

Find the diameter of a circle with an area of 490.9 mm².

Find r , mult. by 2

$$\boxed{d = 25.0 \text{ mm}}$$

$$A = \pi r^2$$

$$\frac{490.9}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{\frac{490.9}{\pi}} = \sqrt{r^2}$$

$$r \approx 12.5 \dots$$

$$\times 2$$

UNIT 8 Lesson 3 [Section 11-3] Areas of Circles and Sectors

Objectives: To find areas of Circles and Sectors of Circles.

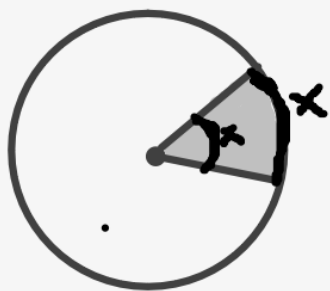
Example 4 The area of a circle is 907.9 in^2 . Find the radius.

$$\begin{aligned} A &= \pi r^2 \\ \frac{907.9}{\pi} &= \frac{\pi r^2}{\pi} \\ \sqrt{\frac{907.9}{\pi}} &= \sqrt{r^2} \\ \boxed{17.0 \text{ in}} &\approx r \end{aligned}$$

UNIT 8 Lesson 3 [Section 11-3] Areas of Circles and Sectors

Objectives: To find areas of Circles and Sectors of Circles.

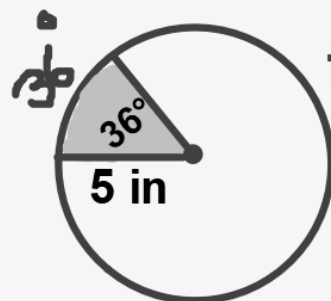
A **SECTOR** of a circle is a region bounded by a central angle and its intercepted arc.



If a sector of a circle has an area of A square units, a central angle measuring x° , and a radius of r units, then

$$A = \frac{x}{360} \pi r^2 \quad \text{or} \quad \frac{A}{\pi r^2} = \frac{x}{360}$$

Example 5



Find the area of the shaded sector to the nearest tenth.

$$A = \frac{36}{360} \pi (5)^2$$

$$A \approx 7.9 \text{ in}^2$$

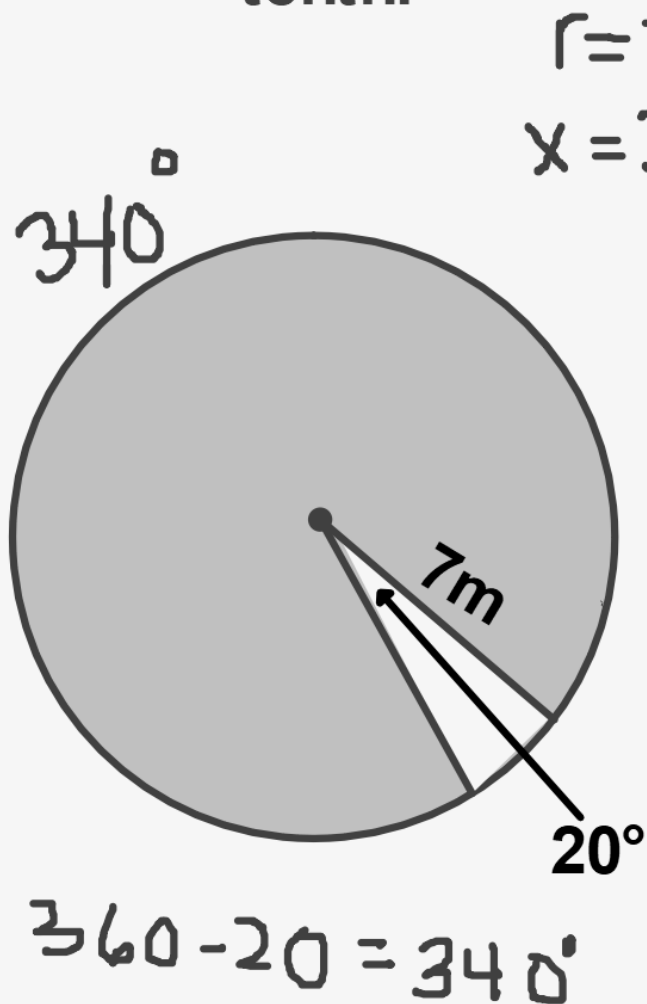
$$\frac{A}{\pi (5)^2} = \frac{36}{360}$$
$$\frac{360A}{360} = \frac{25\pi \cdot 36}{360}$$

$$A \approx 7.9 \text{ in}^2$$

UNIT 8 Lesson 3 [Section 11-3] Areas of Circles and Sectors

Objectives: To find areas of Circles and Sectors of Circles.

Example 6 Find the area of the shaded sector to the nearest tenth.



$$r = 7\text{m}$$
$$x = 340$$

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

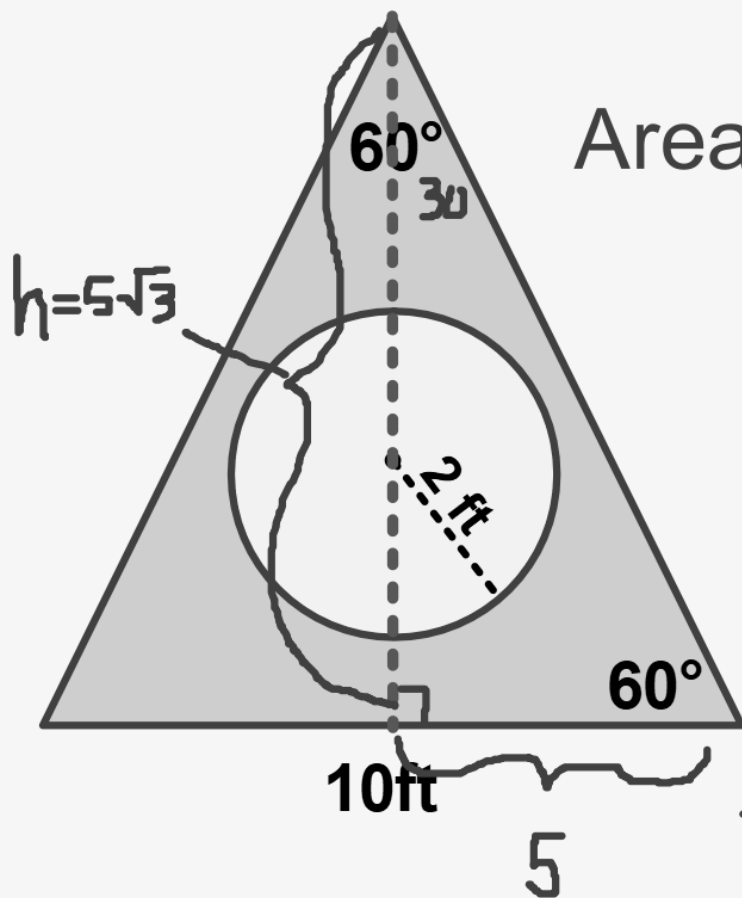
$$A = \frac{340}{360} \pi (7)^2$$

$$A \approx 145.4 \text{ m}^2$$

UNIT 8 Lesson 3 [Section 11-3] Areas of Circles and Sectors

Objectives: To find areas of Circles and Sectors of Circles.

Example 7 Find the area of the shaded region. Round to the nearest tenth.



$$\text{Area}_{\text{Whole Triangle}} - \text{Area}_{\text{Circle}} = \text{Area}_{\text{Shaded Region}}$$



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

$$\frac{1}{2}(10)(5\sqrt{3}) - \pi(2)^2 \approx \boxed{30.7 \text{ ft}^2}$$