Objective 1  Find the Areas of Circles, Sectors, and Segments of Circles

Area of a Circle

The area of a circle is the product of π and the square of the radius.

\[ A = \pi r^2 \]

Work Video Exercise 1 with me.

1. Find the area of the circle. Find the exact area and also a two-decimal-place approximation.

\[ \text{Area} = \pi \times (\text{radius})^2 \]

Pause and work Video Exercise 2.

2. The area of the surface of a circular pond is needed. A measure about the pond gives a circumference of about 38 feet. Find the area. Round the answer to two decimal places.

\[ \text{Area} = \pi \times (\text{radius})^2 \]

Play and check.
Section 10.6 Areas of Circles and Sectors

### Sector of a Circle
A sector of a circle is a region bound by an arc of the circle and the two radii to the arc’s endpoints. We name a sector using one arc endpoint, the center of the circle, and the other arc endpoint.

### Area of a Sector of a Circle
The area of a sector of a circle is the product of the ratio of the measure of the arc to $360^\circ$ and the area of the circle.

\[
\text{area of sector } AOB = \frac{m\overline{AB}}{360^\circ} \cdot \pi r^2
\]

### Work Video Exercise 3 with me.
3. Find the area of the shaded sector of the circle. Find the exact area and then a two-decimal-place approximation.

A part of a circle bound by an arc and the segment joining its endpoints is a(n) ________ of a circle.

### Area of a Segment
The area of a segment can be found by subtracting the area of the triangle from the area of the sector.
4. Find the area of the shaded segment. Round your answer to the nearest tenth.

5. Find the area of the shaded region. Leave your answer in terms of $\pi$ and in simplest radical form.