

Lesson 10.7 Areas of Circles & Sectors (Clickers)

Area of a Circle: $A = \pi r^2$

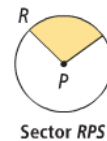
Ex. What is the area of the circular region on the wrestling mat?



- 1 What is the area of a circular wrestling region with a 42-ft diameter? Round to the nearest square foot.

- 2 If the radius of a circle is halved, how does its area change?

A sector of a circle is a region bounded by an arc of the circle and the two radii to the arc's endpoints. You name a sector using one arc endpoint, the center of the circle, and the other arc endpoint.

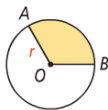


The area of the sector is a fraction of the area of the whole circle. So, what do you suppose the area of a sector will be?

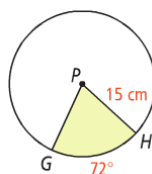
Theorem 10-12 Area of a Sector of a Circle

The area of a sector of a circle is the product of the ratio $\frac{\text{measure of the arc}}{360}$ and the area of the circle.

$$\text{Area of sector } AOB = \frac{m\widehat{AB}}{360} \cdot \pi r^2$$



Ex. What is the area of sector GPH ? Leave your answer in terms of pi.



- 3 A circle has a radius of 4 in. What is the area of a sector bounded by a 45 degree minor arc? Round to the nearest tenth.

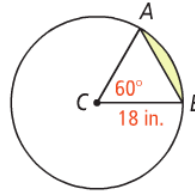
A part of a circle bounded by an arc and the segment joining its endpoints is a segment of a circle.

To find the area of a segment for a minor arc, draw radii to form a sector. The area of the segment equals the area of the sector minus the area of the triangle formed.

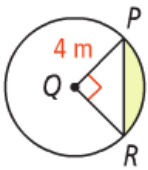
Key Concept Area of a Segment



Ex. What is the area of the shaded segment shown below? Round to the nearest tenth.



Ex. What is the area of the shaded segment shown below. Round to the nearest tenth.



4 What is the area of the shaded segment shown below. Round to the nearest whole number.

