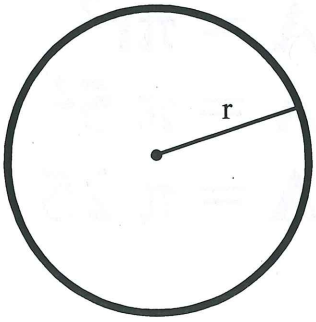
Warm-Up

1. **Find the circumference of a circle with a diameter of 10ft. Round your answer to the nearest tenth.**
2. **Find the circumference of ⊙A if the radius is 2.5. Round your answer to the nearest hundredth.**
3. **Find the radius of a circle with a circumference of 56.5 m.**

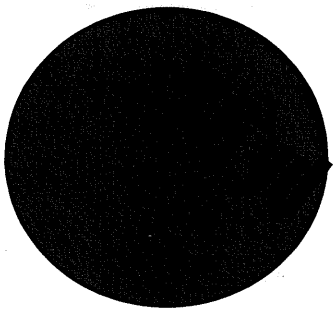
Area

The amount of space occupied.



$$A = \pi r^2$$

Find the area.



$A = \pi(7.6)^2$

$A \approx$

Example 1

If ⊙S has a circumference of 10π inches, find the area of the circle to the nearest hundredth.

$C = 2\pi r$

$10\pi = 2\pi r$

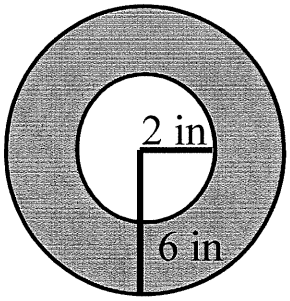
$5 = r$

$$C = 2\pi r$$
$$10\pi = 2\pi r$$
$$5 = r$$

$$A = \pi r^2$$
$$A = \pi\, 5^2$$
$$A = \pi\, 25$$

Example 2

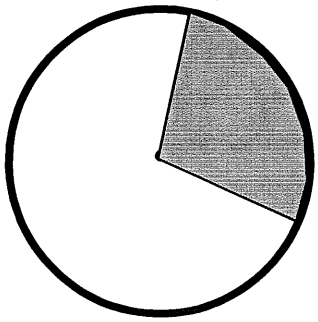
Find the area of the shaded region.



A

Sector

the region bounded by two radii of the circle and their intercepted arc.

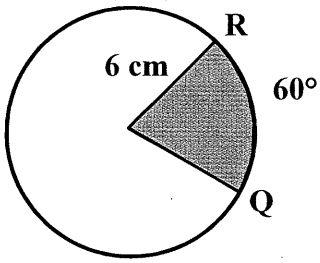


Area of a Sector

$$\frac{\text{measure of arc}}{360^\circ} = \frac{\text{area of sector}}{\pi r^2}$$

Example 3

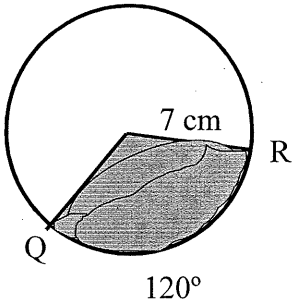
Find the area of the sector.



$$\frac{m\widehat{RQ}}{360^\circ} = \frac{\text{area of sector}}{\pi r^2}$$

Example 4

Find the area of the sector.

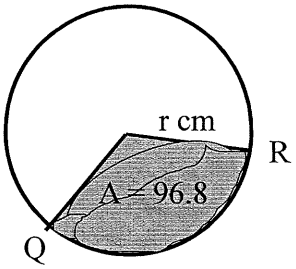


$$\frac{m\widehat{RQ}}{360^\circ} = \frac{\text{area of sector}}{\pi r^2}$$

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

Example 5

Find the radius if the area of the sector is 96.8.



mArc = 110°

$$\frac{m\widehat{RQ}}{360^\circ} = \frac{\text{area of sector}}{\pi r^2}$$