

When you calculate the circumference and area of a circle, leave your answers in terms of  $\pi$  unless you are told to replace  $\pi$  by an approximation.

**Example 1** Find the circumference and area of a circle with radius 6 cm.

**Solution**  $C = 2\pi r = 2\pi \cdot 6 = 12\pi$  (cm)  
 $A = \pi r^2 = \pi \cdot 6^2 = 36\pi$  (cm<sup>2</sup>)

**Example 2** The photograph shows land that is supplied with water by an irrigation system. This system consists of a moving arm that sprinkles water over a circular region. If the arm is 430 m long, what is the area, correct to the nearest thousand square meters, of the irrigated region?  
 (Use  $\pi \approx 3.14$ .)



**Solution**  $A = \pi r^2 = \pi \cdot 430^2$   
 $A \approx 3.14 \cdot 184,900 = 580,586$   
 $A \approx 581,000$  m<sup>2</sup> (to the nearest 1000 m<sup>2</sup>)

**Example 3** Find the circumference of a circle if the area is  $25\pi$ .

**Solution** Since  $\pi r^2 = 25\pi$ ,  $r^2 = 25$  and  $r = 5$ .  
 Then  $C = 2\pi r = 2\pi \cdot 5 = 10\pi$ .

## Classroom Exercises

Complete the table. Leave answers in terms of  $\pi$ .

	1.	2.	3.	4.	5.	6.	7.	8.
Radius	3	4	0.8	?	?	?	?	?
Circumference	?	?	?	$10\pi$	$18\pi$	?	?	?
Area	?	?	?	?	?	$36\pi$	$49\pi$	$144\pi$

Find the circumference and area to the nearest tenth. Use  $\pi \approx 3.14$ .

9.  $r = 2$

10.  $r = 6$

11.  $r = \frac{3}{2}$

12.  $r = 1.2$