April 17, 2014

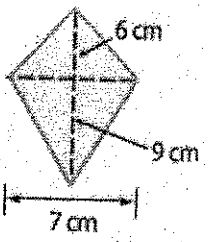
11.3 Warm-Up

1. 

$8+8=16$

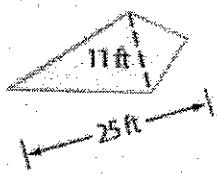
$\frac{16 \cdot 7}{2}$

$A = 136\ in^2$

2. 

$A = \frac{15(7)}{2}$

$A = 52.5\ cm^2$

3. 

$A = \frac{25 \cdot 11}{2}$

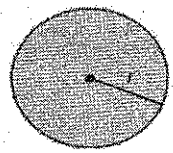
$A = 137.5\ ft^2$

11.3 Areas of Circles and Sectors

Target: Use properties of circles to find area and sector area.

KeyConcept Area of a Circle

Words	The area A of a circle is equal to π times the square of the radius r.
Symbols	$A = \pi r^2$



Real-World Example 1 Area of a Circle

SPORTS What is the area of the circular putting green shown to the nearest square foot?

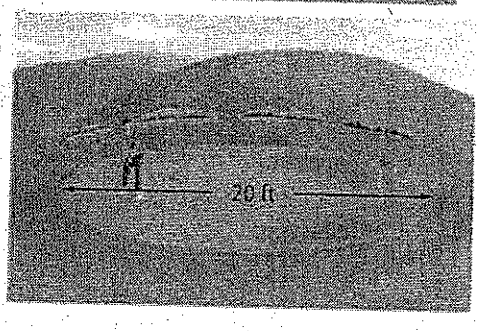
The diameter is 20 feet, so the radius is 10 feet.

$A = \pi r^2$ Area of a circle

$= \pi(10)^2$ $r = 10$

≈ 314 Use a calculator.

So, the area is about 314 square feet.



GuidedPractice

1. **SPORTS** An archery target has a radius of 12 inches. What is the area of the target to the nearest square inch?

$A = \pi(12)^2$

$A = 452\ in^2$

Example 2 Use the Area of a Circle to Find a Missing Measure

ALGEBRA Find the radius of a circle with an area of 95 square centimeters.

$A = \pi r^2$	Area of a circle
$95 = \pi r^2$	$A = 95$
$\frac{95}{\pi} = r^2$	Divide each side by π.
$5.5 \approx r$	Use a calculator. Take the positive square root of each side.

The radius of the circle is about 5.5 centimeters.

GuidedPractice

2. ALGEBRA The area of a circle is 196π square yards. Find the diameter.

$\frac{196\pi}{\pi} = \frac{\pi r^2}{\pi}$ $\sqrt{196} = \sqrt{r^2}$ $r = 14$

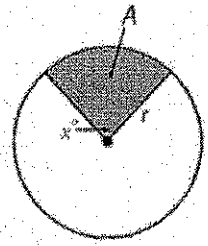
$d = 14 \cdot 2$

$d = 28$ yds

KeyConcept Area of a Sector

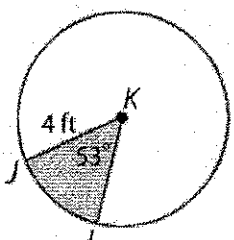
The ratio of the area A of a sector to the area of the whole circle, πr^2, is equal to the ratio of the degree measure of the intercepted arc x to 360.

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



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

3A.

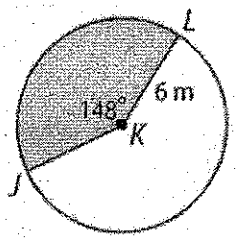


$\frac{53}{360} \cdot \pi(4^2)$

$0.14 \cdot \pi(4^2)$

$A = 7.0 \text{ ft}^2$

3B.

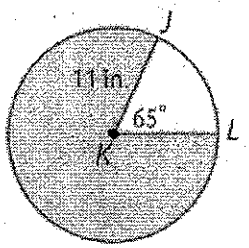


$\frac{148}{360} \cdot \pi(6^2)$

$0.41 \cdot \pi(6^2)$

$A = 46.4 \text{ m}^2$

3C.



$360 - 65 = 295$

$\frac{295}{360} \cdot \pi(11^2)$

$0.819 \cdot \pi(11^2)$

$A = 311.3 \text{ in}^2$