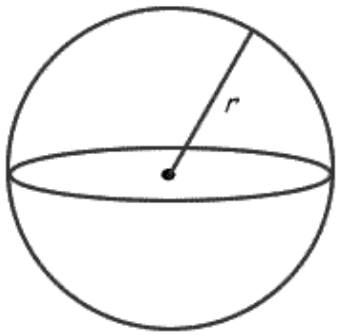
Sphere

Surface Area

$A = 4\pi r^2$



Volume

$V = \frac{4}{3}\pi r^3$

Example 1 Determining the Surface Area of a Sphere

The diameter of a baseball is approximately 3 in.
Determine the surface area of a baseball to the nearest square inch.

$A = 4\pi r^2$

$= 4\pi(1.5)^2$

$= 28.27 \text{ in}^2$

Example 2 Determining the Diameter of a Sphere

The surface area of a lacrosse ball is approximately 20 square inches. What is the diameter of the lacrosse ball to the nearest tenth of an inch?

$A = 4\pi r^2$

$\frac{20}{4} = \frac{4\pi r^2}{4}$

$\frac{5}{\pi} = \frac{\pi r^2}{\pi}$

$\frac{5}{\pi} = r^2$

$r^2 = \frac{5}{\pi}$

$r = \sqrt{\frac{5}{\pi}}$

$= 1.26$

$d = 2(1.26)$

$= 2.52 \text{ in}$

Formula

$A = 4\pi r^2$

$\frac{4\pi r^2}{4\pi} = \frac{A}{4\pi}$

$r^2 = \frac{A}{4\pi}$

$r = \sqrt{\frac{A}{4\pi}}$

CHECK YOUR UNDERSTANDING

The surface area of a soccer ball is approximately 250 square inches. What is the diameter of a soccer ball to the nearest tenth of an inch?

$A = 4\pi r^2$

$4\pi r^2 = A$

$r^2 = \frac{A}{4\pi}$

$r = \sqrt{\frac{A}{4\pi}}$

$= \sqrt{\frac{250}{4\pi}}$

$= 4.46$

$d = 2(4.46)$

$= 8.92$

$= 8.9 \text{ in}$

#1 $\sqrt{(250/4/\pi)}$

#2 $250/4/\pi$ $\sqrt{}$

Class / Homework

Worksheet

Surface Area of Cones and Spheres