

Lesson 11.6 Warm Up

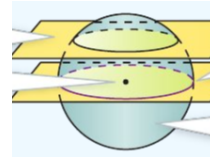
1. What is the surface area and volume of a rectangular prism with dimensions 12 ft by 3 ft by 9 ft?
2. What is the volume of a cone that has a slant height of 5 and a diameter of 6?

Lesson 11.6 SA & V of Spheres

When a plane and a sphere intersect in more than one point, the intersection is a circle. If the center of the circle is also the center of the sphere, it is called a great circle.

The circumference of a great circle is the circumference of the sphere.

A great circle divides the sphere into two hemispheres.

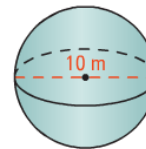


A baseball can model a sphere. To approximate its surface area, you can take apart its covering. Each of the two pieces suggests a pair of circles with radius r , which is approximately the radius of the ball. The area of the four circles, $4\pi r^2$, suggests the surface area of the ball.



Surface Area of a Sphere: $SA = 4\pi r^2$, where r is radius.

Ex. What is the surface area of the sphere in terms of π ?



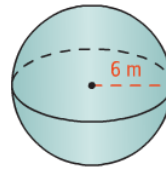
- 1 What is the surface area of a sphere with a diameter of 14 in.? Round to the nearest square inch.

Ex. Earth's equator is about 24,902 mi long. What is the approximate surface of Earth? Round to the nearest square miles.

- 2 What is the surface area of a melon with circumference 18 in.? Round your answer to the nearest ten square inches.

Volume of a Sphere: $V = \frac{4}{3}\pi r^3$ where r is the radius.

Ex. What is the volume of the sphere in terms of π ?



- 3 A sphere has a diameter of 60 in. What is its volume to the nearest cubic inch?

Ex. The volume of a sphere is 5000 m^3 . What is its surface area to the nearest square meter?

- 4 The volume of a sphere is 4200 cubic feet. What is its surface area to the nearest tenth?