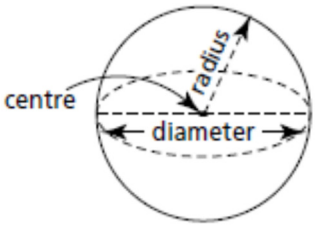
Lesson 5 Surface Area and Volume of a Sphere

Surface Area of a Sphere



Surface Area of a Sphere

The surface area, SA, of a sphere with radius r is:

$SA = 4\pi r^2$

Example 1

The diameter of a softball is approximately 4 in. Determine the surface area of a softball to the nearest square inch.

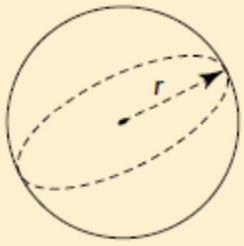
Example 2
The surface area of a soccer ball is approximately 250 square inches. Determine the length of the diameter of a soccer ball.

Volume of a Sphere

Volume of a Sphere

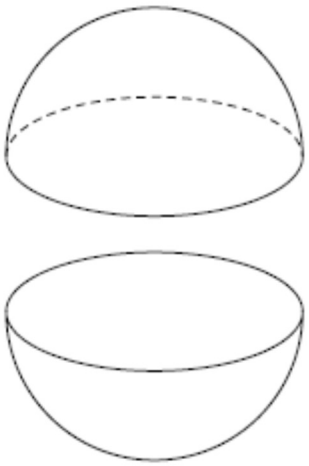
The volume, V, of a sphere with radius r is:

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



Example 3
The moon approximates a sphere with diameter 2160 mi. Determine the approximate volume of the moon.

When a sphere is cut in half, two *hemispheres* are formed.



hemispheres

Example 4

A hemisphere has radius 5.0 cm.

a) Determine the surface area of the hemisphere.

b) Determine the volume of the hemisphere.