

Chapter 11

Circumference, Area, and Volume

11.1 Circumference and Arc Length

11.2 Areas of Circles and Sectors

11.3 Areas of Polygons

11.4 Three-Dimensional Figures

11.5 Volumes of Prisms and Cylinders

11.6 Volumes of Pyramids

11.7 Surface Areas and Volumes of Cones

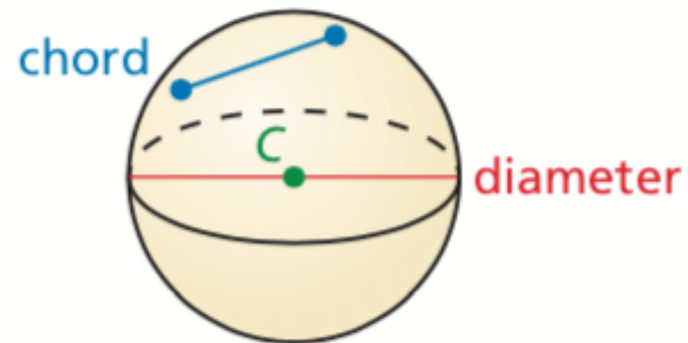
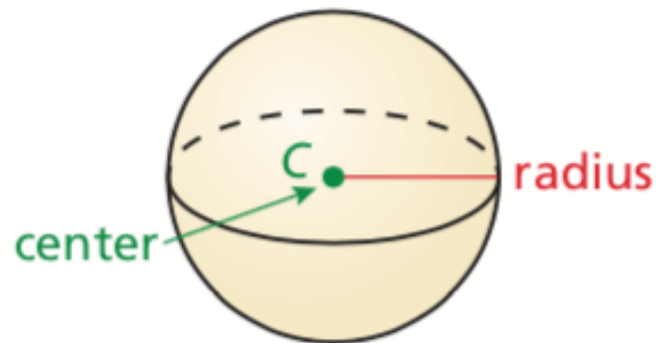
11.8 Surface Areas and Volumes of Spheres



11.8 Surface Areas and Volumes of Spheres

Sphere

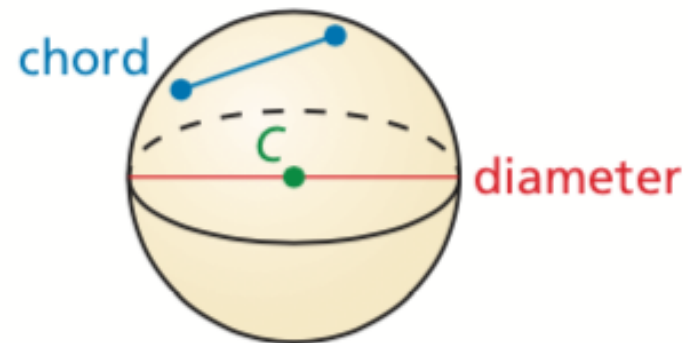
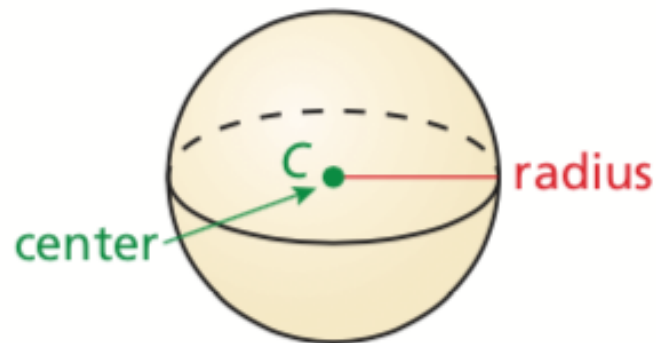
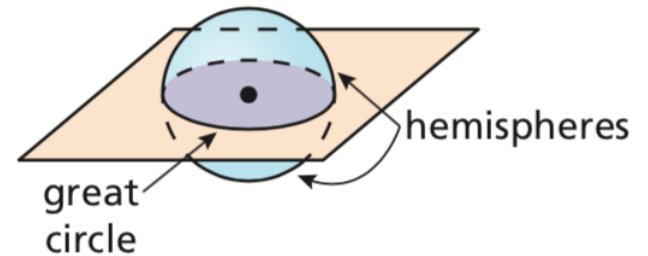
- **Center** - A point equidistant from all points on the sphere.
- **Radius** - The distance from the center to a point on the sphere.
- **Chord** - A segment with endpoints on the sphere.



11.8 Surface Areas and Volumes of Spheres

Sphere

- **Great circle** - The cross section created by a plane intersecting with the sphere through its center.
- **Hemisphere** - One of the two congruent halves of the sphere created by the great circle.



11.8 Surface Areas and Volumes of Spheres

Surface Area of a Sphere

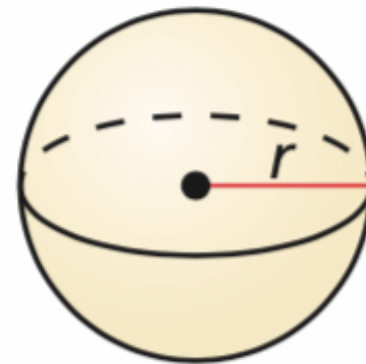
Surface Area of
a Sphere

$$S = 4\pi r^2$$

Volume of a Sphere

Volume of a
Sphere

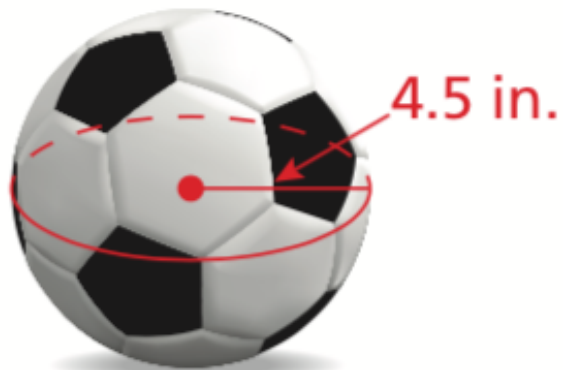
$$V = \frac{4}{3}\pi r^3$$



11.8 Surface Areas and Volumes of Spheres

Examples

a) Compute the surface area and volume of the soccer ball.



b) Compute the surface area and volume of the composite figure. (Cylinder with hemisphere cut out.)

