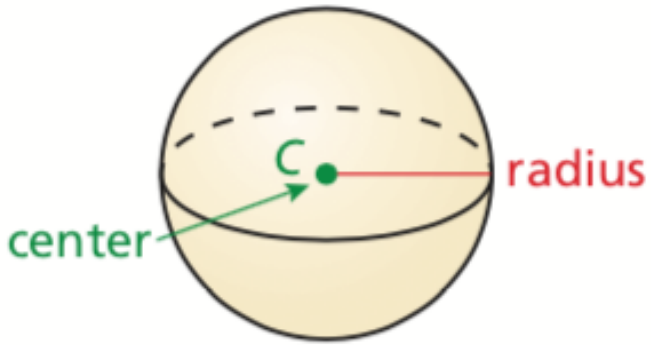
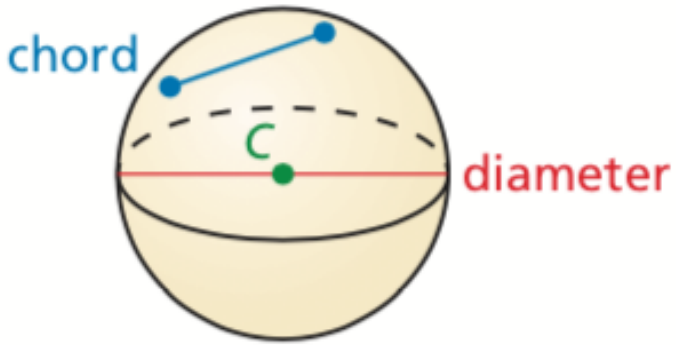
Chapter 11
Circumference, Area, and Volume

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.





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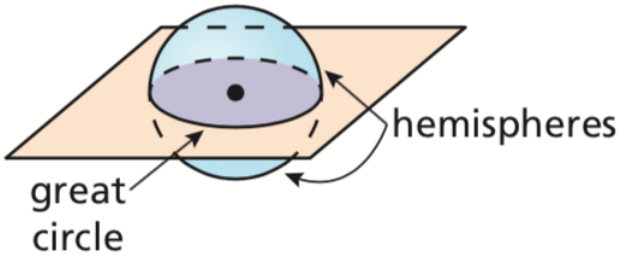
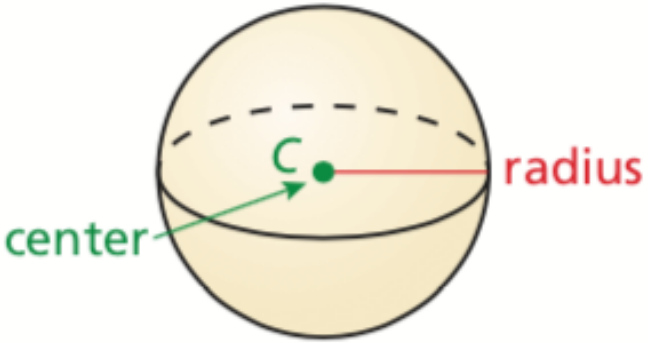
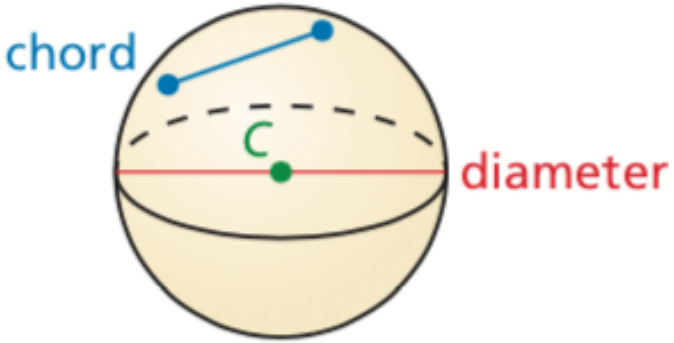
Sphere

- **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

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

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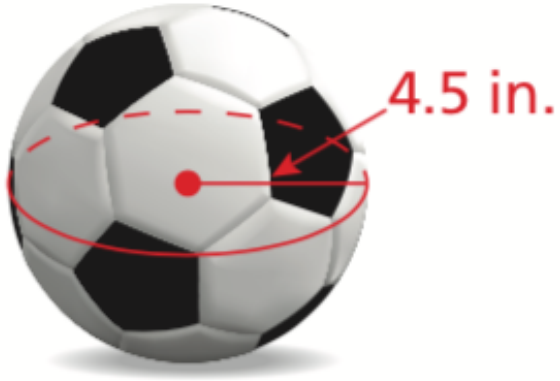
Examples

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.)