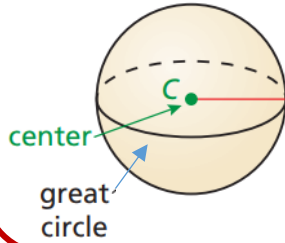
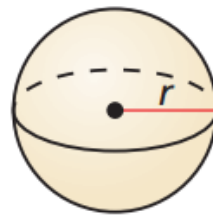


# Core Concept

A sphere is the set of all points in space equidistant from a given point called the center.

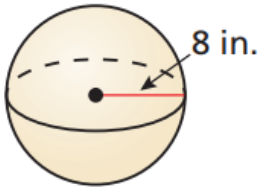
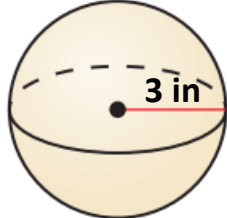
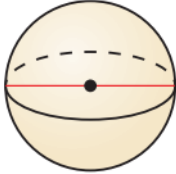
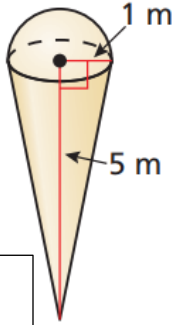
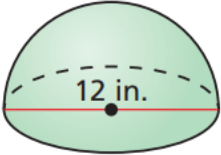
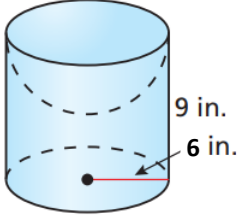


A *great circle* of a sphere separates the sphere into two congruent halves called *hemispheres*.



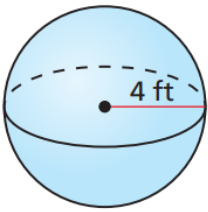
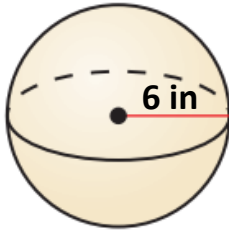

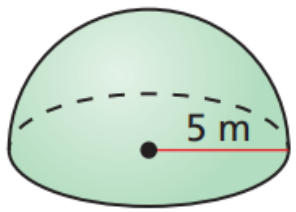
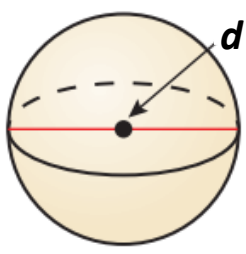
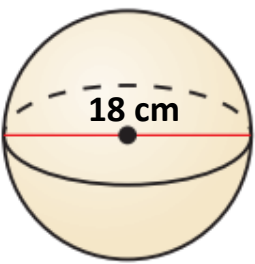
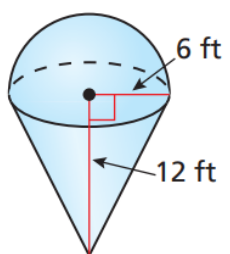
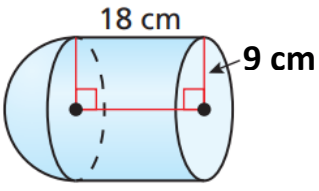
**Volume:**  $V = \frac{4}{3}\pi r^3$

**Surface Area:**  $S = 4\pi r^2$

<p>1) Find the surface area:</p>  <p style="text-align: center;"><math>S =</math> <input type="text"/></p>	<p>2) Find the volume:</p>  <p style="text-align: center;"><math>V =</math> <input type="text"/></p>
<p>3) Find the diameter of the sphere if the surface area is <math>81\pi</math> square inches.</p>  <p style="text-align: center;"><math>r =</math> <math>d =</math></p>	<p>4) Find the volume:</p>  <p style="text-align: center;"><math>V =</math> <input type="text"/></p>
<p>5) Find the surface area of the hemisphere:</p>  <p style="text-align: center;"><math>S =</math> <input type="text"/></p>	<p>6) Find the volume: Challenge: Find the surface area.</p>  <p style="text-align: center;"><math>V =</math> <math>S =</math></p>

HW #10 Surface area and volume of spheres.

Find the indicated value:

<p>1) Find the surface area.</p> 	<p>2) Find the volume of the sphere.</p> 	<p>3) Find the radius of the sphere if the surface area is <math>196\pi</math> square inches:</p> 
<p>4) Find the surface area of the hemisphere.</p> 	<p>5) Find the diameter of a sphere with a surface area of <math>900\pi</math> square inches. (Hint: first find the radius)</p> 	<p>6) Find the volume if the diameter is 18 cm.</p> 
<p>7) Find the volume.</p> 	<p>8) Find the volume</p> 	<p>9) *Optional Challenge:</p> <p>a) Find the surface area of solid from problem 7.</p> <p>b) Find the surface area of solid from problem 8.</p>

Jumbled Answers: 7, 15,  $64\pi$ ,  $75\pi$ ,  $288\pi$ ,  $288\pi$ ,  $567\pi$ ,  $72\pi + 36\pi\sqrt{5} \approx 479.09$ ,  $972\pi$ ,  $1944\pi$

\*If you think you want to take honors, you should do the challenge problems and keep working until you get them right.