

Notes: VOLUME OF PYRAMIDS, CONES, AND SPHERES

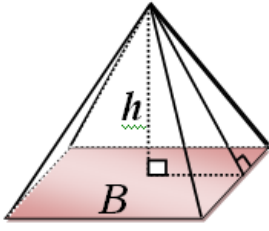
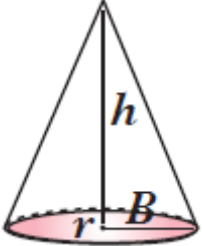
TERM	DESCRIPTION	FORMULA
VOLUME	The amount of CUBIC UNITS__ enclosed in the interior of a three-dimensional object. For a pyramid and a cone the volume is <u>1/3</u> the product of the area of the <u>BASE</u> and the <u>HEIGHT</u> .	 

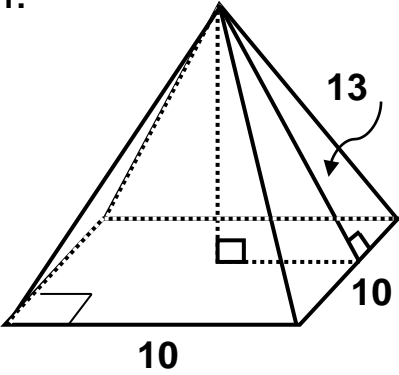
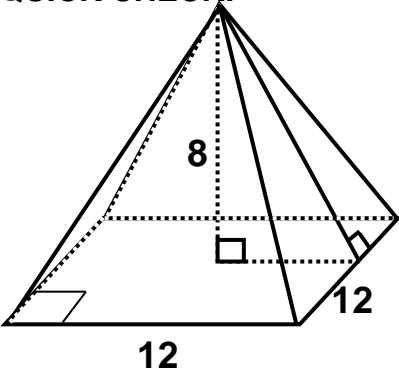
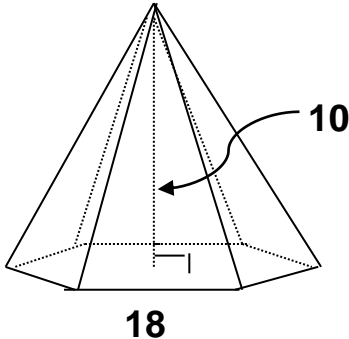
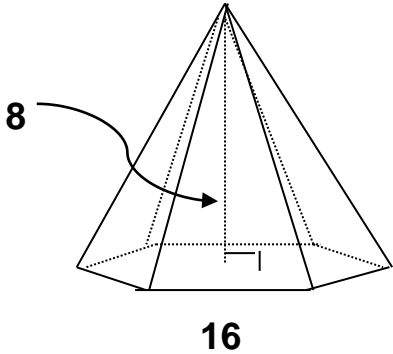
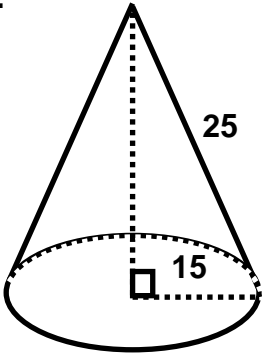
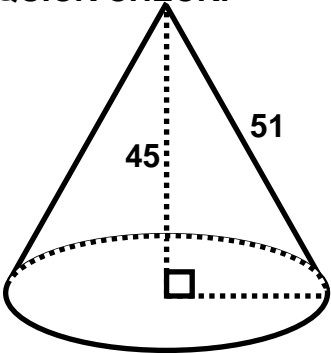
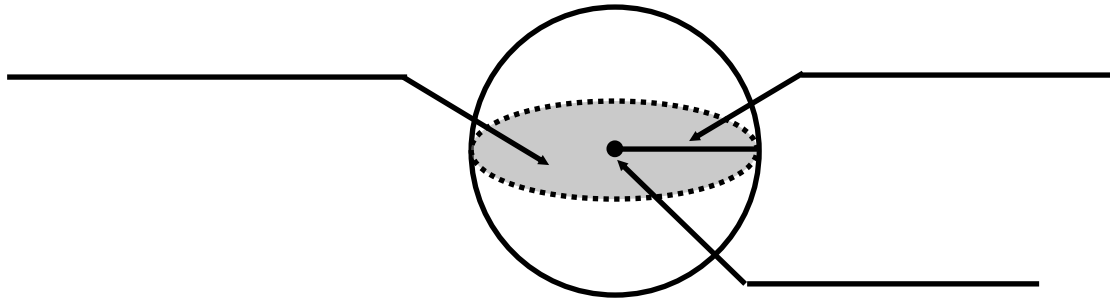
FIGURE	BASE CALCULATIONS	VOLUME
<p>1.</p> 	<p>NAME: SQUARE PYRAMID</p> <p>B: $l \times w$</p>	<p>FORMULA:</p> <p>$V = \frac{1}{3} Bh$</p>
<p>QUICK CHECK:</p> 	<p>NAME: SQUARE PYRAMID</p> <p>B: $l \times w$</p>	<p>FORMULA:</p>
<p>2.</p> 	<p>NAME: Hexagonal Pyramid</p> <p>B: $\frac{3\sqrt{3}(s^2)}{2}$</p>	<p>FORMULA:</p>

FIGURE	BASE CALCULATIONS	VOLUME
<p>QUICK CHECK:</p>  <p>The diagram shows a hexagonal pyramid. A vertical dashed line from the apex to the center of the base is labeled '8'. A horizontal dashed line from the center to one of the base edges is labeled '16'. A right-angle symbol is shown at the base of the height line.</p>	<p>NAME: HEXAGONAL PYRAMID</p> <hr/> <p>B:</p>	<p>FORMULA:</p>
<p>3.</p>  <p>The diagram shows a cone. A vertical dashed line from the apex to the center of the circular base is labeled '15'. A solid line representing the slant height is labeled '25'. A right-angle symbol is shown at the base of the height line.</p>	<p>NAME: CONE</p> <hr/> <p>B: πR^2</p>	<p>FORMULA:</p>
<p>QUICK CHECK:</p>  <p>The diagram shows a cone. A vertical dashed line from the apex to the center of the circular base is labeled '45'. A solid line representing the slant height is labeled '51'. A right-angle symbol is shown at the base of the height line.</p>	<p>NAME:</p> <hr/> <p>B:</p>	<p>FORMULA:</p>

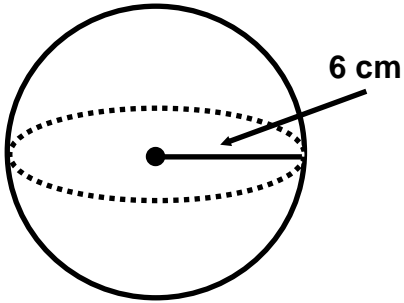
center	great circle	radius
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Using the Word Bank above, label the parts of the sphere shown below.



TERM	DEFINITION	FORMULA
AREA	A <u>GREAT CIRCLE</u> of a sphere that has the same radius and center as the sphere.	$A = \pi r^2$
SURFACE AREA	The amount of <u>AREA</u> on the <u>SURFACE</u> of a sphere.	$SA = 4\pi r^2$
VOLUME	The amount of _____ contained in the interior of a three-dimensional object	$V = \frac{4}{3}\pi r^3$

FIGURE	SURFACE AREA	VOLUME
<p>4.</p>	EXACT AREA =	EXACT VOLUME =
	APPROXIMATE AREA =	APPROXIMATE VOLUME =

QUICK CHECK: 	EXACT AREA =	EXACT VOLUME =
	APPROXIMATE AREA =	APPROXIMATE VOLUME =

EXAMPLE 5:

If a sphere has a volume of $\frac{4000\pi}{3}$ cubic units what is its surface area?

Exact SA = _____

QUICK CHECK:

If a sphere has a volume of $\frac{32\pi}{3}$ cubic units what is its surface area?

Exact SA = _____

EXAMPLE 6:

If a sphere has a surface area of 100π square units find its volume,

Exact V = _____

QUICK CHECK:

If a sphere has a surface area of 36π square units, find its volume.

Exact V = _____