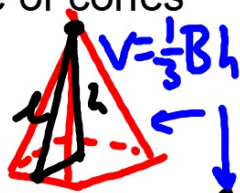


Geometry 12.5

Find volume of pyramids

Find volume of cones*

altitude
slant height
units
pyramidium
oblique



*8th grade standard

Poster project (next week)...supplies



Activ: Rice volume
Geometric shapes

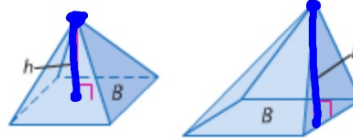


KeyConcept Volume of a Pyramid

Words The volume of a pyramid is $V = \frac{1}{3}Bh$, where B is the area of the base and h is the height of the pyramid.

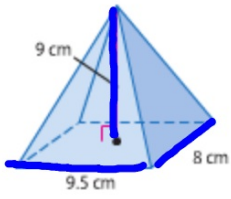
Symbols $V = \frac{1}{3}Bh$

Models



Note: both right & oblique

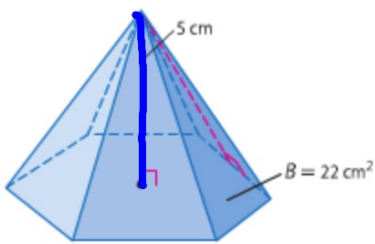
h (altitude) is floor to ceiling distance



$$V = \frac{1}{3}(76)(9) \\ = 228 \text{ cm}^3$$

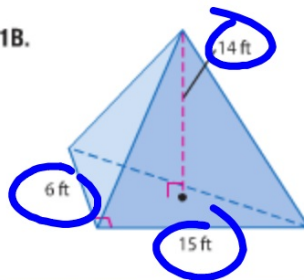
Guided Practice

1A.

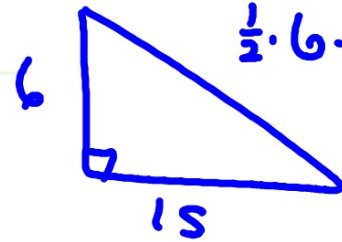


$$V = \frac{1}{3}(22)(5)$$
$$= 36.7 \text{ cm}^3$$

1B.



$$V = \frac{1}{3}(45)(14)$$
$$= 210 \text{ ft}^3$$
$$\frac{1}{2} \cdot 6 \cdot 15$$



right & oblique

WatchOut!

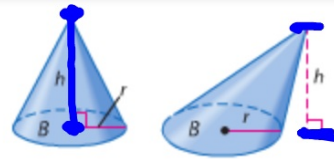
Volumes of Cones

The formula for the surface area of a cone only applies to right cones. However, the formula for volume applies to oblique cones as well as right cones.

KeyConcept Volume of a Cone

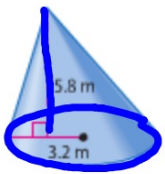
Words The volume of a circular cone is $V = \frac{1}{3}Bh$, or $V = \frac{1}{3}\pi r^2h$, where B is the area of the base, h is the height of the cone, and r is the radius of the base.

Models



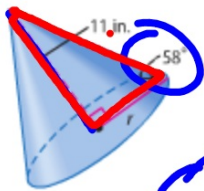
Symbols $V = \frac{1}{3}Bh$ or $V = \frac{1}{3}\pi r^2h$

Both right & oblique

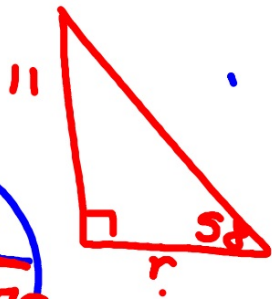


$$V = \frac{1}{3} B h$$

$$= \frac{1}{3} (32.7) (5.8) = 62.2 \text{ m}^3$$



$$544.5 \text{ in}^3$$



$$V = \frac{1}{3} (148.49) (11)$$

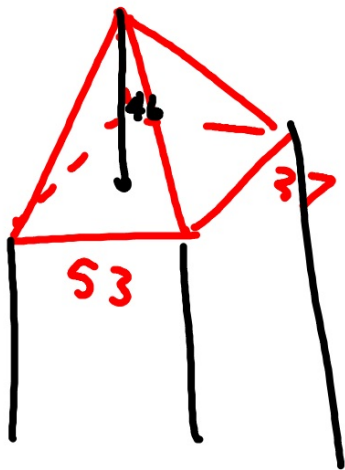
SohCahToa

$$\tan 58 = \frac{11}{r}$$

$$1.600r = 11$$

Guided Practice

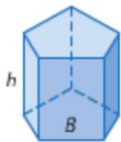
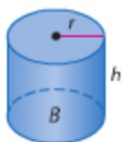
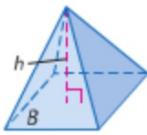
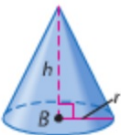
3. **ARCHAEOLOGY** A pyramidion that was discovered in Saqqara, Egypt, in 1992 has a rectangular base 53 centimeters by 37 centimeters. It is 46 centimeters high. What is the volume of this pyramidion? Round to the nearest tenth.



$$V = \frac{1}{3}(1961) \cdot 46$$
$$= 3008.7 \text{ cm}^3$$

ConceptSummary Volumes of Solids



Solid	prism	cylinder	pyramid	cone
Model				
Volume	$V = Bh$	$V = Bh$	$V = \frac{1}{3}Bh$	$V = \frac{1}{3}Bh$

12.5
11-290
41-510