

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Lesson 11-7 (pgs. 603-606)

## Three-Dimensional Figures

*Three-Dimensional Figure:*

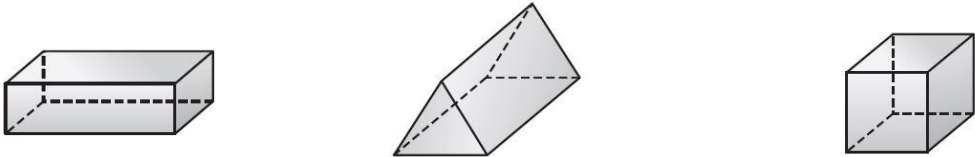

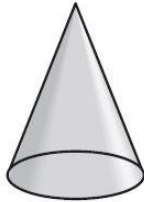
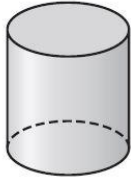

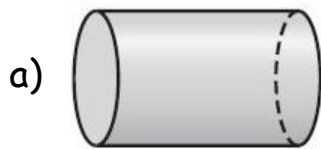
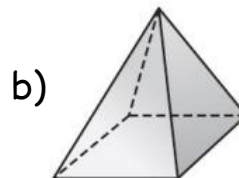
Figure	Properties
	 <p>A rectangular prism, a triangular prism, and a cube are shown in perspective. Each figure has hidden edges represented by dashed lines.</p>
	 <p>A square pyramid and a triangular pyramid are shown in perspective. Each figure has hidden edges represented by dashed lines.</p>

Figure	Properties
	
	
	

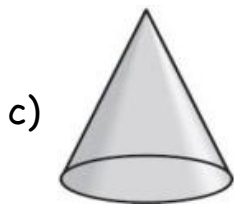
For each figure, identify the shape of the base(s). Then classify the figure.



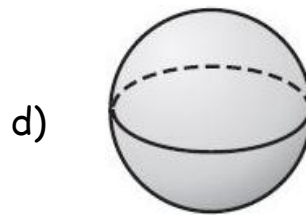
base(s): \_\_\_\_\_  
figure: \_\_\_\_\_



base(s): \_\_\_\_\_  
figure: \_\_\_\_\_



base(s): \_\_\_\_\_  
figure: \_\_\_\_\_

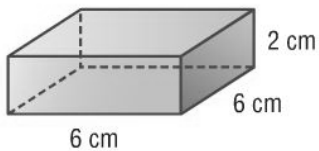


base(s): \_\_\_\_\_  
figure: \_\_\_\_\_

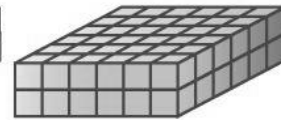
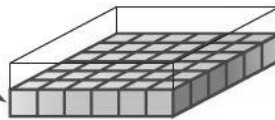
# Lesson 11-9 (pgs. 613-618)

## Volume of Prisms

*Volume:*



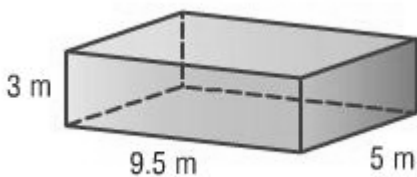
The bottom layer, or base, has  $6 \cdot 6$  or 36 cubes.



There are two layers.

### Formula for Volume of Rectangular Prism

*ex)*



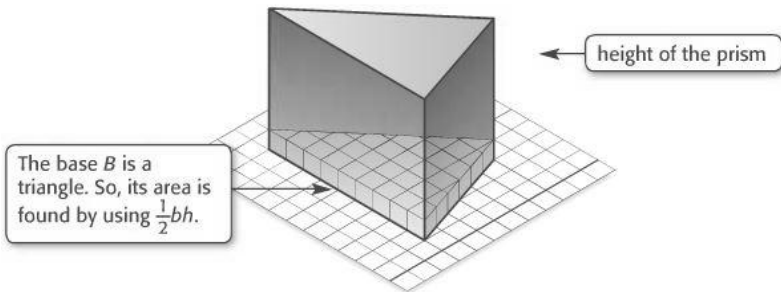
*ex)* Rectangular Prism:

length = 4.5 ft, width = 6 ft, height = 7.1 ft

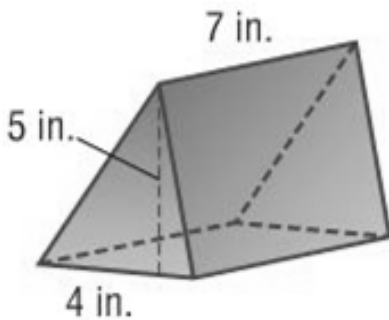
# Lesson 11-9 (pgs. 613-618)

## Volume of Prisms (continued)

### Formula for Volume of Triangular Prism



ex)



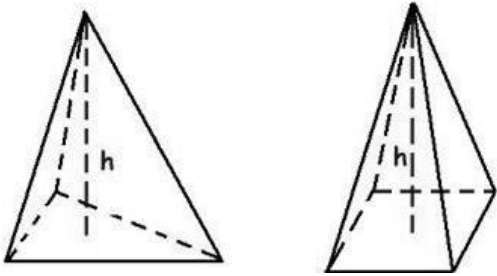
ex) Triangular Prism:

base = 3 mm, height of triangle = 6 mm, height of prism = 5.2 mm

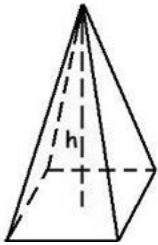
# Chapter 11 Supplemental Lesson

## Volume of Pyramids

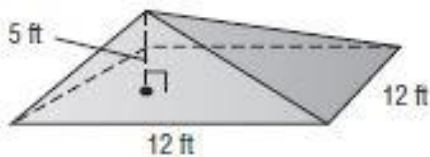
*Volume of Pyramid:*



Formula for Volume of Rectangular Pyramid



ex)



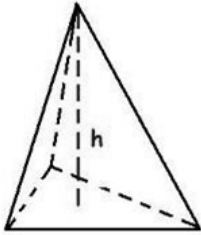
ex) Rectangular Pyramid:

length = 2.6 in, width = 3 in, height = 15 in

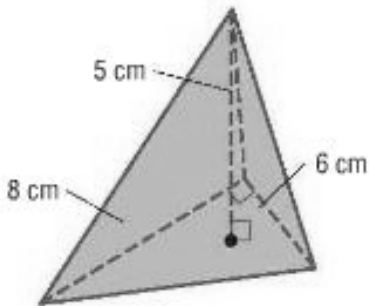
# Chapter 11 Supplemental Lesson

## Volume of Pyramids (continued)

### Formula for Volume of Triangular Pyramid



ex)



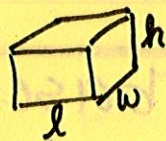
ex) Triangular Pyramid:

base = 13 mm, height of triangle = 9 mm, height of pyramid = 10 mm

# Lesson 11-7 (pgs. 603-606)

## Three-Dimensional Figures

Three-Dimensional Figure:



Has a length, width + height

□ Area 2D (drawing on paper)

▢ Volume 3D (sculpture)

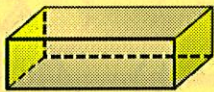
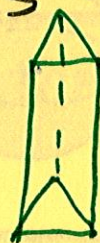
Figure

Properties

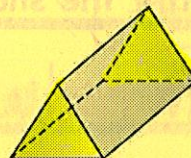
Prism

\* Has 2 bases that are  $\cong$  +  $\parallel$

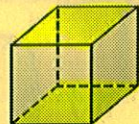
\* Lateral faces (sides)  $\rightarrow$  Are Always Rectangles



Rectangular Prism



Triangular Prism



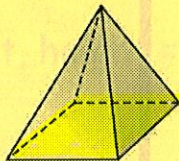
Square Prism or cube

Pyramid

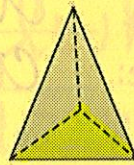
\* Has only one base

\* Lateral faces (sides)  $\rightarrow$  Are Always Triangles

\* Comes to a point



Rectangular/Square Pyramid

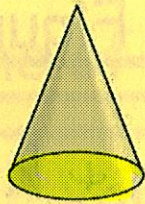


Triangular Pyramid

Figure

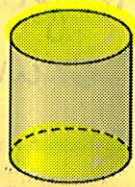
Properties

Cone



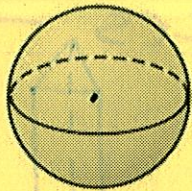
- \* Comes to a point
- \* Has a circular base

Cylinder



- \* Has 2 circular bases that are  $\cong$  and  $\parallel$

Sphere



- \* NO base
- \* All pts are equidistant to the center

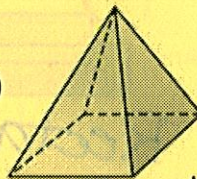
For each figure, identify the shape of the base(s). Then classify the figure.

a)



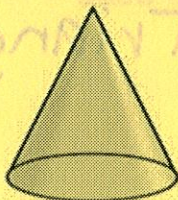
base(s): circles  
figure: cylinder

b)



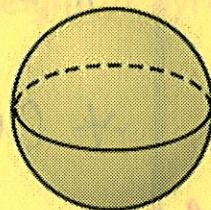
base(s): rect/square  
figure: square/rect. pyramid

c)



base(s): circle  
figure: cone

d)



base(s): none  
figure: sphere



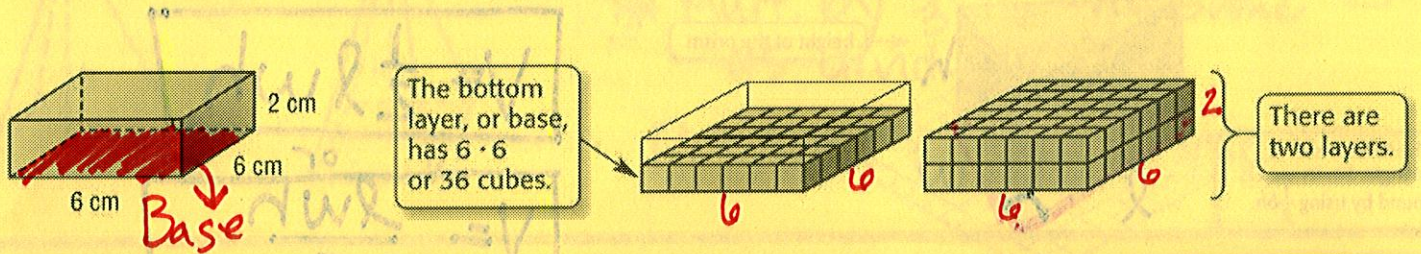
base(s) triangles  
figure triangular prism



# Lesson 11-9 (pgs. 613-618)

## Volume of Prisms

**Volume:** The measure of space occupied by a 3-Dimensional Figure.



### Formula for Volume of Rectangular Prism



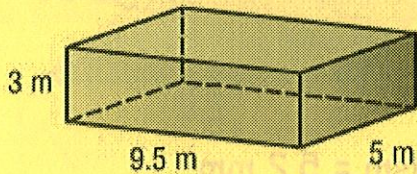
$$V = lwh$$

label:  $un^3$

\*Order does not matter

-when multiplying or adding

ex)



$$V = lwh$$

$$V = 3 * 9.5 * 5$$

$$V = 142.5 m^3$$

+ 1/2 Formula

+ 1/2 work

+ 1 Answer  $un^3$

ex) Rectangular Prism:

length = 4.5 ft, width = 6 ft, height = 7.1 ft

$$V = lwh$$

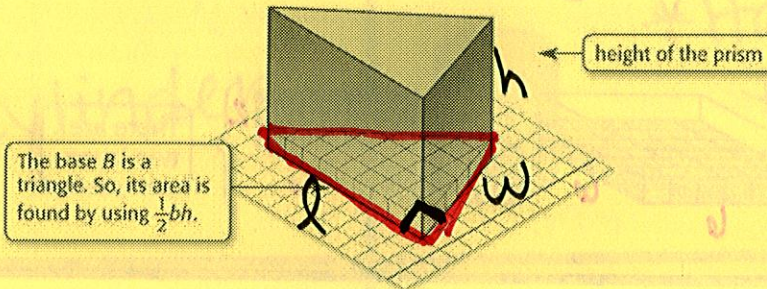
$$V = 4.5 * 6 * 7.1$$

$$V = 191.7 ft^3$$

# Lesson 11-9 (pgs. 613-618)

## Volume of Prisms (continued)

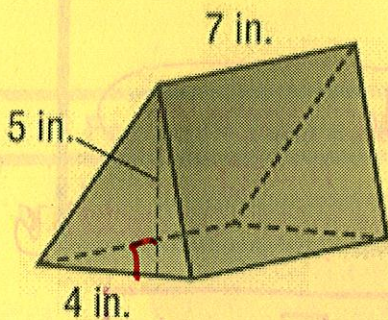
### Formula for Volume of Triangular Prism



$$V = \frac{1}{2} lwh$$

$$V = \frac{lwh}{2}$$

ex)



$$V = \frac{lwh}{2}$$

$$V = \frac{4 * 5 * 7}{2}$$

$$V = 70 \text{ in}^3$$

ex) Triangular Prism:

base = 3 mm, height of triangle = 6 mm, height of prism = 5.2 mm

$$V = \frac{lwh}{2}$$

$$V = \frac{3 * 6 * 5.2}{2}$$

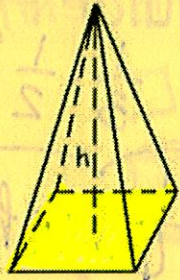
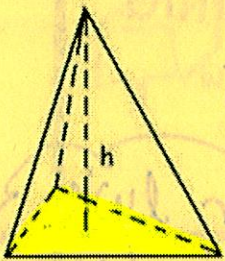
$$V = 46.8 \text{ mm}^3$$

# Chapter 11 Supplemental Lesson

## Volume of Pyramids

Volume of Pyramid:

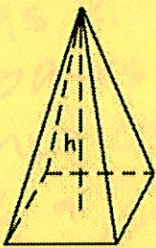
$$V = \frac{1}{3} Bh \text{ or } V = \frac{Bh}{3}$$



\* Mult. by  $\frac{1}{3}$  is the same as divid. by 3

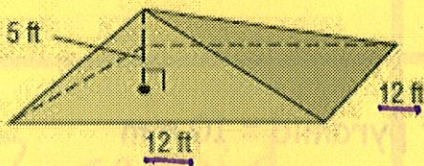
B = Area of the base

\* Formula for Volume of Rectangular Pyramid



$$V = \frac{1}{3} lwh \text{ or } V = \frac{lwh}{3}$$

ex)



$$V = \frac{lwh}{3}$$

$$V = \frac{12 \cdot 12 \cdot 5}{3}$$

$$V = 240 \text{ ft}^3$$

ex) Rectangular Pyramid:

length = 2.6 in, width = 3 in, height = 15 in

$$V = \frac{lwh}{3}$$

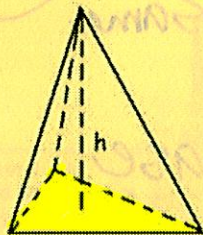
$$V = \frac{2.6 \times 3 \times 15}{3}$$

$$V = 39 \text{ in}^3$$

# Chapter 11 Supplemental Lesson

## Volume of Pyramids (continued)

Formula for Volume of Triangular Pyramid

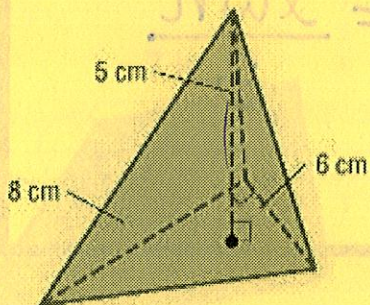


$$V = \frac{Bh}{3} \text{ or } V = \frac{1}{3} B h \quad \frac{1}{3} \cdot \frac{1}{2} = \frac{1}{6}$$

$$B = \frac{1}{2} b h$$

$$V = \frac{1}{6} l w h \text{ or } \frac{l w h}{6}$$

ex)



$$V = \frac{l w h}{6}$$

$$V = \frac{8 \cdot 6 \cdot 5}{6}$$

$$V = 40 \text{ cm}^3$$

ex) Triangular Pyramid:

base = 13 mm, height of triangle = 9 mm, height of pyramid = 10 mm

$$V = \frac{l w h}{6}$$

$$V = \frac{13 \cdot 9 \cdot 10}{6}$$

$$V = 195 \text{ mm}^3$$