NAME _____ DATE _____ PERIOD ____

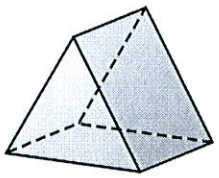
11-7 Study Guide and Intervention

Three-Dimensional Figures

Prisms	At least 3 rectangular lateral faces	Top and bottom bases are parallel	Shape of the base tells the name of the prism
Pyramids	At least three triangular lateral faces	One base shaped like any 3-sided closed figure	Shape of the base tells the name of the pyramid
Cones	Only one base	Base is a circle	One vertex and no edges
Cylinders	Only two bases	Bases are circles	No vertices and no edges
Spheres	All points are the same distance from the center	No faces or bases	No edges or vertices

Example **For each figure, name the shape of the base(s). Then classify each figure.**

A.



The figure has two parallel triangular bases and three rectangular faces. The figure is a triangular prism.

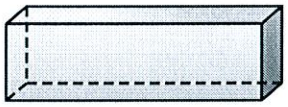
B.

The figure has two circular bases and no edges. The figure is a cylinder.

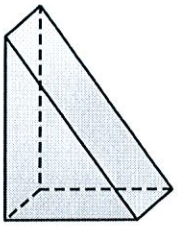
Exercises

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

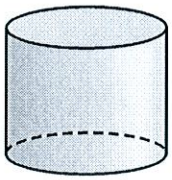
1.



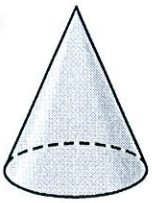
2.



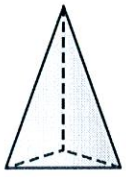
3.



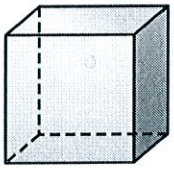
4.



5.



6.

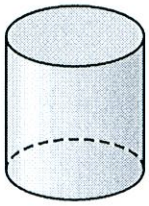


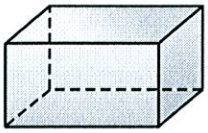
NAME _____ DATE _____ PERIOD ____

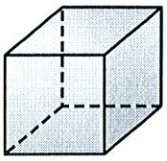
11-7 Skills Practice

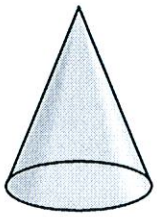
Three-Dimensional Figures

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

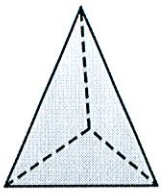
1. 

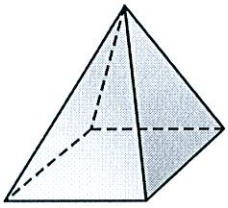
2. 

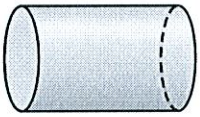
3. 

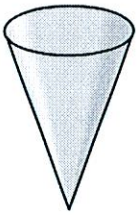
4. 

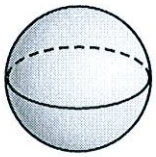
5. 

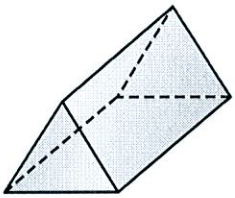
6. 

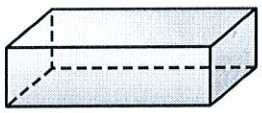
7. 

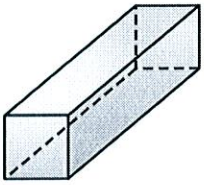
8. 

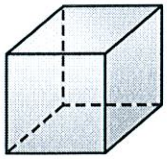
9. 

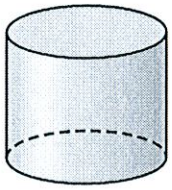
10. 

11. 

12. 

13. 

14. 

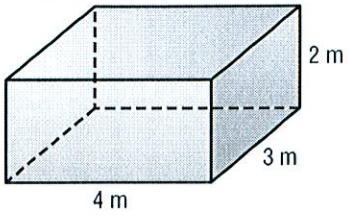
15. 

NAME _____ DATE _____ PERIOD _____

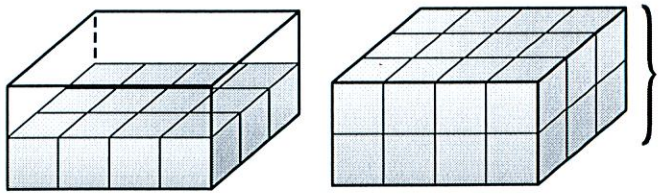
11-9 Study Guide and Intervention

Volume of Prisms

The **volume** of a three-dimensional figure is the measure of space occupied by it. It is measured in cubic units such as cubic centimeters (cm^3) or cubic inches (in^3). The volume of the figure at the right can be shown using cubes.



The bottom layer, or base, has $4 \cdot 3$ or 12 cubes. →



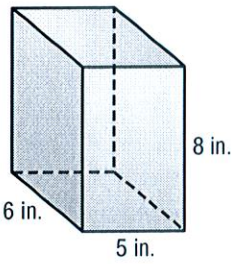
There are two layers.

It takes $12 \cdot 2$ or 24 cubes to fill the box. So, the volume of the box is 24 cubic meters.

A **rectangular prism** is a three-dimensional figure that has two parallel and congruent sides, or bases, that are rectangles. To find the volume of a rectangular prism, multiply the area of the base and the height, or find the product of the length ℓ, the width w, and the height h.

$V = Bh$ or $V = \ell wh$

Example **Find the volume of the rectangular prism.**



$V = \ell wh$ Volume of a rectangular prism

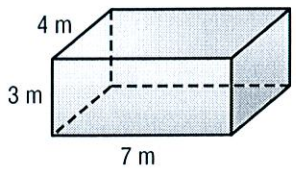
$V = 5 \cdot 6 \cdot 8$ Replace ℓ with 5, w with 6, and h with 8.

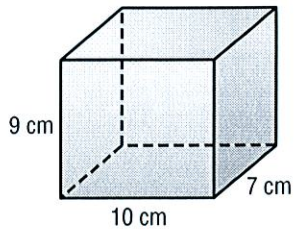
$V = 240$ Multiply.

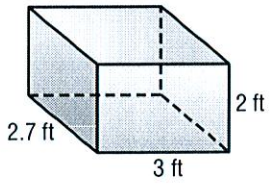
The volume is 240 cubic inches.

Exercises

Find the volume of each rectangular prism. Round to the nearest tenth if necessary.

1. 

2. 

3. 

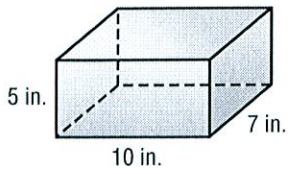
Lesson 11–9

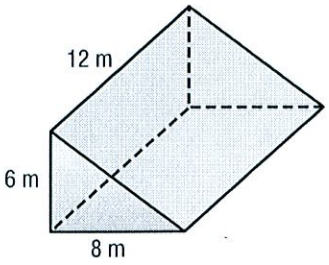
NAME _____ DATE _____ PERIOD _____

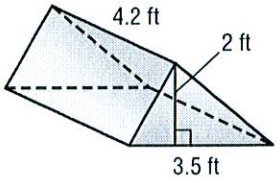
11-9 Practice

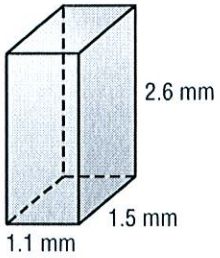
Volume of Prisms

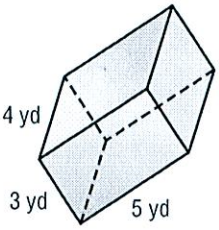
Find the volume of each prism. Round to the nearest tenth if necessary.

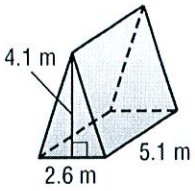
1. 

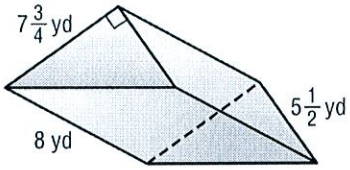
2. 

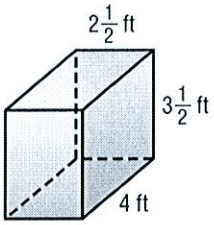
3. 

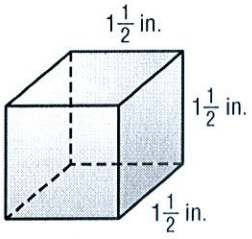
4. 

5. 

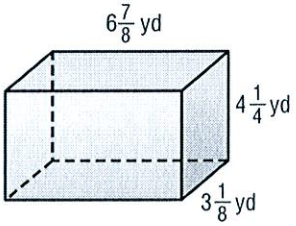
6. 

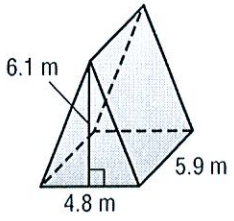
7. 

8. 

9. 

ESTIMATION Estimate to find the approximate volume of each prism.

10. 

11. 

12. **ALGEBRA** The base of a rectangular prism has an area of 15.3 square inches and a volume of 185.13 cubic inches. Write an equation that can be used to find the height h of the prism. Then find the height of the prism.

13. **MAIL** The United States Post Office has two different priority mail flat rate boxes. Which box has the greater volume? Justify your answer. Box 1: $6\frac{1}{2}$ in. $\times$ $8\frac{1}{2}$ in. $\times$ 11 in. Box 2: $3\frac{3}{8}$ in. $\times$ $11\frac{7}{8}$ in. $\times$ $13\frac{5}{8}$ in.

Lesson 11–9

Name:_____ Date:_____ Period:_____

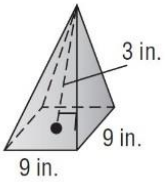
A calculator is allowed ☺

WS "Chapter 11 Supplemental Lesson"

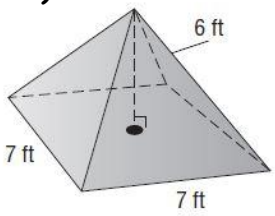
Find the volume of each pyramid.

Show your formula, work, and answer. Be sure to label! ☺

1)



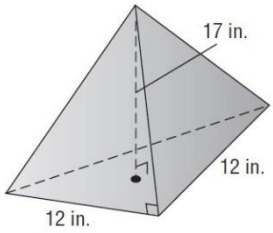
2)



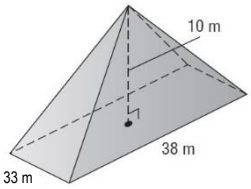
3) Square Pyramid:

Length 21 centimeters, height 5 centimeters

4)



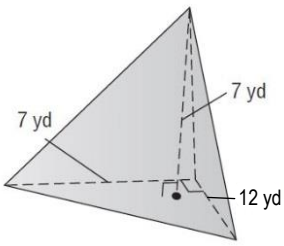
5)



6) Rectangular Pyramid:

Length 14 feet, width 12 feet, height 9 feet

7)



8) Although the Eiffel Tower in Paris is not solid pyramid, its shape approximates that of a pyramid with a square base measuring 120 feet on a side and a height of 980 feet. If it were a solid pyramid, what would be the Eiffel Tower's volume, in cubic feet?

BONUS OPPORTUNITY: Make a sketch of the Eiffel Tower ☺

A calculator is allowed ☺

Name:_____ Date:_____ Period:_____

Chapter 11: 3D Figures and Volume
Bringing It All Together #1

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

1) 

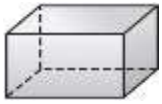
base(s): _____

figure: _____

2) 

base(s): _____

figure: _____

3) 

base(s): _____

figure: _____

4) 

base(s): _____

figure: _____

5) 

base(s): _____

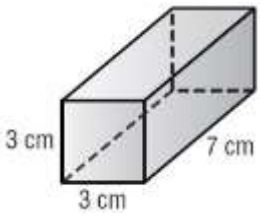
figure: _____

6) 

base(s): _____

figure: _____

Find the volume of each figure. Show your formula, work, and answer. Be sure to label☺

7) 

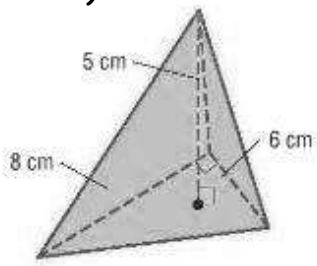
8) Rectangular Pyramid:

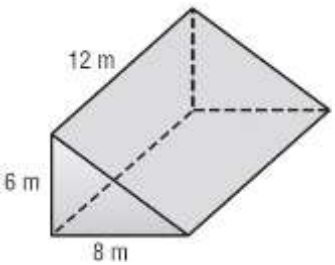
Length = 21 in, width = 18 in, height = 12 in

9) Triangular Prism:

base = 7 yd, height of triangle = 12 yd

height of prism = 31 yd

10) 

11) 

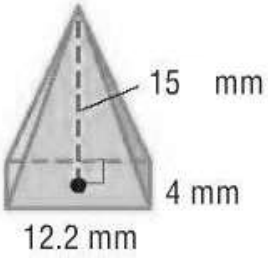
12) Rectangular Prism:

Length = 22.5 cm, width = 12.5 cm, height = 1.8 cm

OVER ⟶

Find the volume of each figure. Show your formula, work, and answer. Be sure to label☺

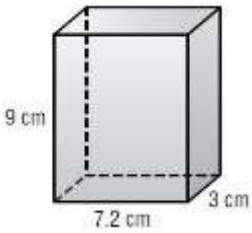
13)



14) Triangular Pyramid:
base = 7 yd, height of triangle = 12 yd
height of pyramid = 34 yd

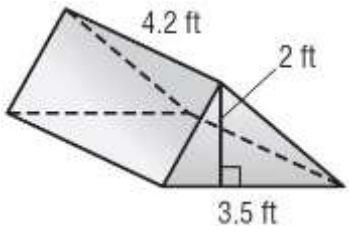
15) Rectangular Pyramid:
Length = 16 m, width = 10 m, height = 9 m

16)

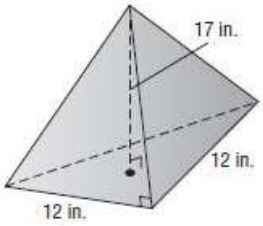


17) Triangular Pyramid:
base = 7 yd, height of triangle = 12 yd
height of pyramid = 30 yd

18)

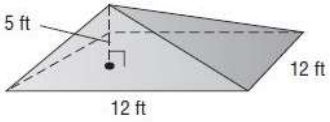


19)



20) Triangular Prism:
base = 17 mi, height of triangle = 3.5 mi
height of prism = 10.25 mi

21)



22) Rectangular Prism:
Length = 9 cm, width = 30 cm, height = 19 cm