

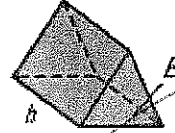
Volume of Triangular Prisms

KEY CONCEPT

Volume of a Triangular Prism

Words The volume V of a triangular prism is the area of the base B times the height.

Model

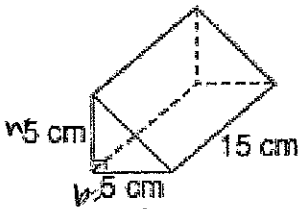


Symbols $V = Bh$

Find the volume. *First find Area of base = "B"*

3) *Make sure you highlight Base*

1)



$B = \text{Area of Triangle}$

$A = \frac{bh}{2}$

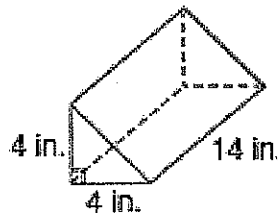
$A = \frac{5(5)}{2} = \frac{25}{2} = 12.5 \text{ cm}^2$

$B = 12.5 \text{ cm}^2$

$V = 187.5 \text{ cm}^3$

$V = Bh$
 $V = 12.5(15)$
 $V = 187.5 \text{ cm}^3$

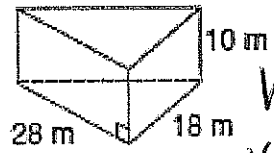
2)



$B = \underline{\hspace{2cm}}$

$V = \underline{\hspace{2cm}}$

3)



$B = \text{Area of triangle}$

$A = \frac{bh}{2}$

$A = \frac{28(18)}{2} = 252 \text{ m}^2$

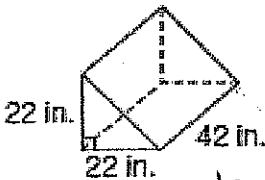
$B = 252 \text{ m}^2$

$V = 2520 \text{ m}^3$

$V = Bh$
 $V = 252(10)$
 $V = 2520 \text{ m}^3$

Independent Practice & HW - SWOOP!!!

1)



$B = \text{Area of triangle}$

$A = \frac{bh}{2}$

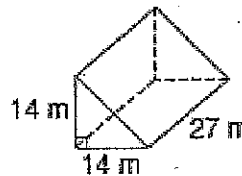
$A = \frac{22(22)}{2}$

$B = 242 \text{ in}^2$

$V = 10,164 \text{ in}^3$

$V = Bh$
 $V = 242(42)$
 $V = 10,164 \text{ in}^3$

2)



$B = \underline{\hspace{2cm}}$

$V = \underline{\hspace{2cm}}$

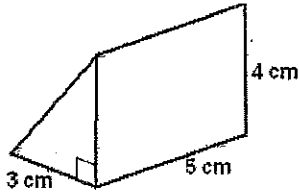
3)



B= _____

V= _____

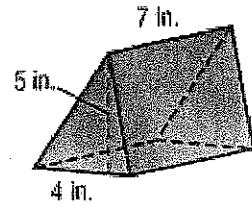
4)



B= _____

V= _____

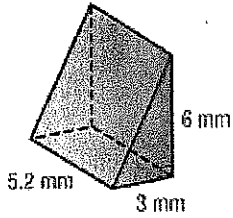
5)



B= _____

V= _____

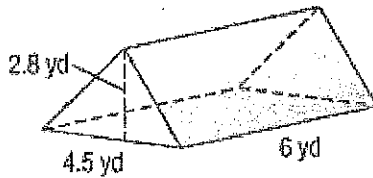
6)



B= _____

V= _____

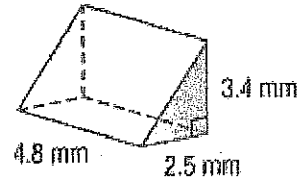
7)



B= _____

V= _____

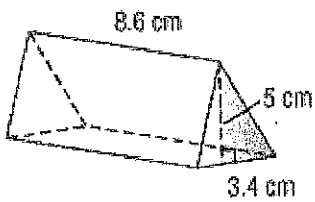
8)



B= _____

V= _____

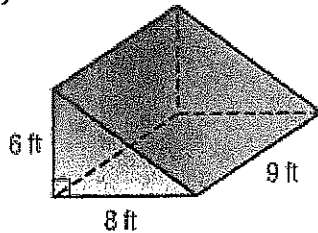
9)



B= _____

V= _____

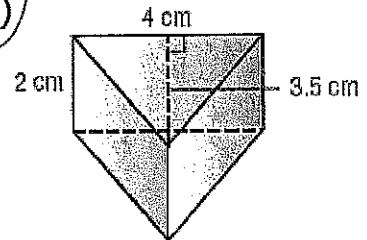
10)



B= _____

V= _____

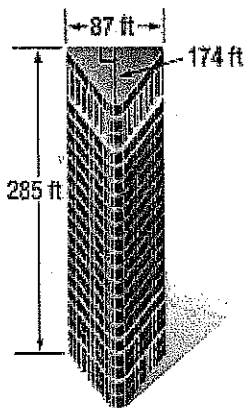
11)



B= _____

V= _____

12)



B= _____

V= _____

13)

A wooden wedge is used to prop open a door. The wedge is a right triangular solid that is 8 cm long, 6 cm high (those are the measures of the legs of the triangle) and has a depth of 2 cm. What is the volume of the wedge?

B= _____

V= _____

Name _____

VOLUME OF CYLINDERS

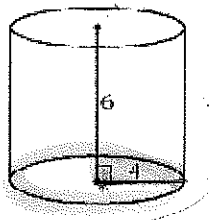
CW 4/4 Thurs ECL

Notes

CYLINDER	
Picture or sketch	1. Sketch the shape of the base.
	2. Predict how many cubes will fit on the bottom layer. _____ Show how you got your answer.
	3. How many cubes will fit in the bottom layer? This is also known as the
	4. How many identical layers of cubes can be stacked in the solid? This is also known as the
	5. Volume of the Cylinder = Area of the base x height $V = Bh$

$r = 4$
 $h = 6$

1)



$B = 50.24u^2$
 $v = 301.44u^3$

$B = \text{area of circle}$

$A = \pi \cdot r \cdot r$
 $A = 3.14(4)(4)$
 $A = 3.14(16)$
 $B = 50.24u^2$

$V = Bh$

$V = 50.24(6)$

$V = 301.44u^3$

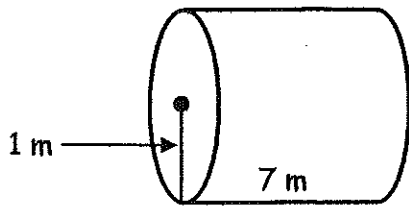
2) Emily decorated a cake for her mother's surprise birthday party. The bottom tier had a 12-in. diameter, the middle tier had an 8-in. diameter and the top tier had a 6-in. diameter. Each tier was 4 in. tall. What was the total volume of the cake?

3) Using the information in the question above, Emily calculated that each person invited to her mother's surprise party can have one piece of cake each. If each piece of cake has a volume of 16 in.³, how many people did Emily invite to the party?

TRY THIS

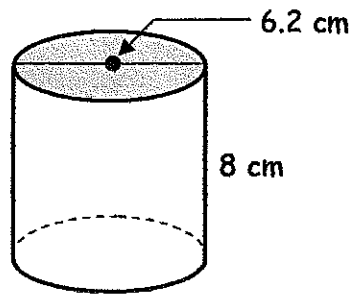
Find the volume.

1]



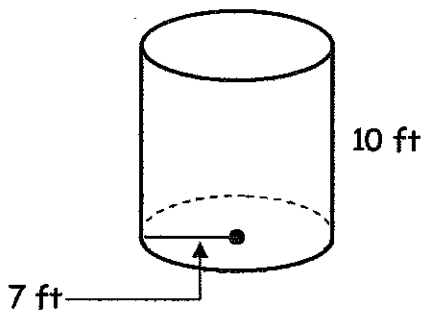
Shape of base _____
Area of base = _____
Height of cylinder _____
Formula for volume _____
Replace B _____
Substitution _____
Volume of cylinder = _____

2]



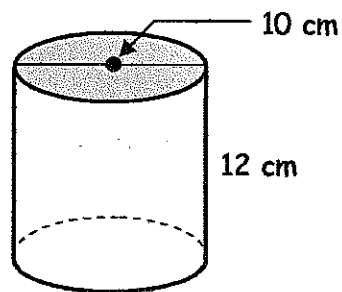
Shape of base _____
Area of base = _____
Height of cylinder _____
Formula for volume _____
Replace B _____
Substitution _____
Volume of cylinder = _____

3]



Shape of base _____
Area of base = _____
Height of cylinder _____
Formula for volume _____
Replace B _____
Substitution _____
Volume of cylinder = _____

4]



Shape of base _____
Area of base = _____
Height of cylinder _____
Formula for volume _____
Replace B _____
Substitution _____
Volume of cylinder = _____

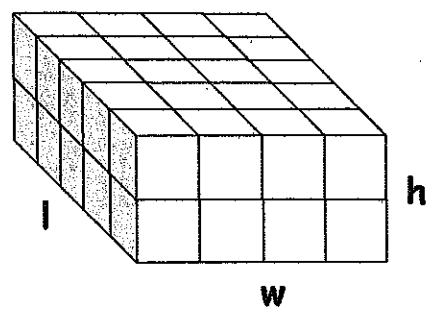
Name: _____

Date: 4/1 Mon
Wednesday Night

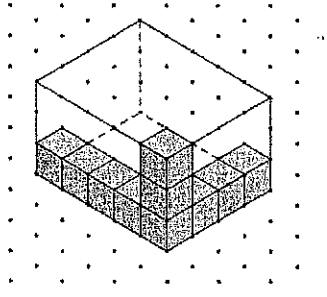
VOLUME OF RECTANGULAR AND TRIANGULAR PRISMS - HW — you can complete it

1] In the rectangular prism below, what are the length, width, and height of the prism? What is the volume of the prism? Describe how you found the volume?

Length _____
Width _____
Height _____
Volume _____

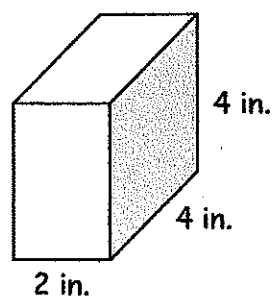


2] How many total cubes are needed to fill the closed box below?

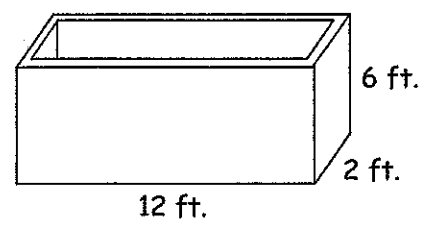


Find the volume of each rectangular prism below.

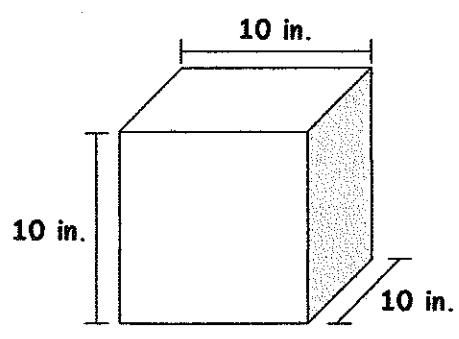
3]



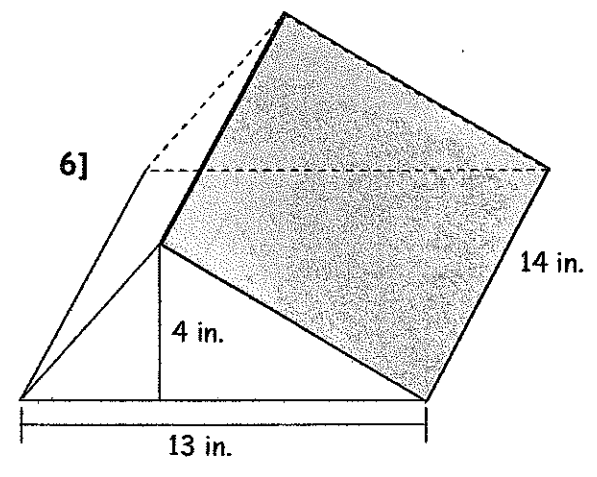
4]



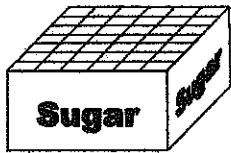
5]



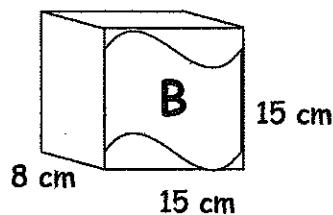
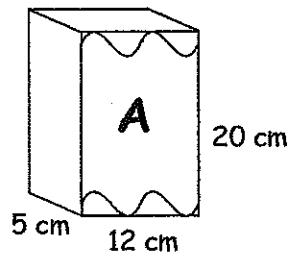
6]



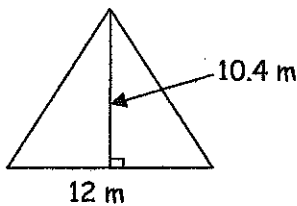
- 7] When sugar cubes are produced, they are put into tightly packed boxes for purchasing. If the box of sugar cubes shown is 3 cubes high, how many sugar cubes are in the box?



- 8] The two boxes of sugar are the same price. Which one is the better buy? Explain your answer.

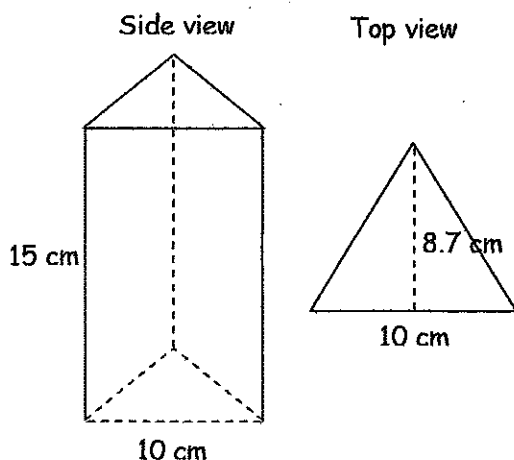


- 9] What is the volume of a prism with a height of 9 and the base shown below?

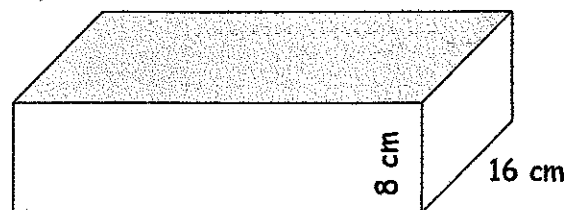
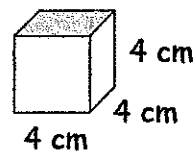


- 10] What is the volume of a $1.5 \text{ m} \times 1.5 \text{ m} \times 3 \text{ m}$ box?

- 11] Find the volume of the box below, given the side and top views.



- 12] Find the exact number of cubes measuring 4 centimeters on an edge that will fill a box shaped like a rectangular prism that measures 28 cm by 16 cm by 8 cm.



Name: _____

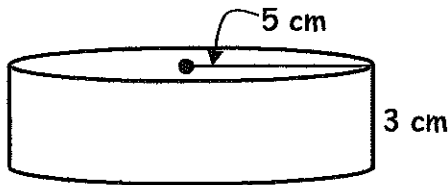
Date: _____

4/4 THURS ^{GL}

VOLUME OF CYLINDERS - HW

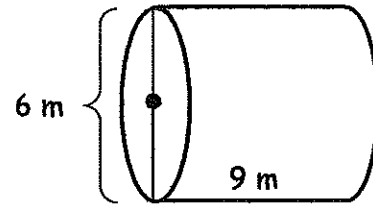
Find the volume.

1]



Shape of base _____
Area of base = _____
Height of cylinder _____
Formula for volume _____
Replace B _____
Substitution _____
Volume of cylinder = _____

2]



Shape of base _____
Area of base = _____
Height of cylinder _____
Formula for volume _____
Replace B _____
Substitution _____
Volume of cylinder = _____

3] A cylinder has a radius of 3 cm. Sand is poured into the cylinder to form a layer 1 cm deep.

A] What is the volume of the sand in the cylinder?

B] If the height of the cylinder is 20 cm, how many layers of sand - each 1 cm deep - are needed to fill the cylinder?

C] What is the volume of the whole cylinder?

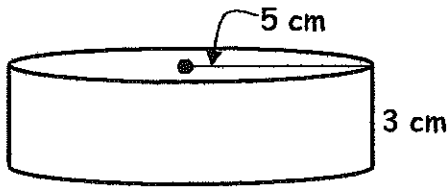
- 4] A cylindrical storage tank has a diameter of 10 ft and a height of 30 ft.
- A] Make a sketch of the tank and label its dimensions.
- B] What is the volume of the tank?
- 5] How is finding the area of a circle related to finding the volume of a cylinder?
- 6] Explain what the TAKS formula chart means when it shows $V = Bh$ for volume of cylinders.
- 7] Which has the greater volume: a cylinder whose height is 2 in. and radius is 4 in. or a cylinder whose height is 32 in. and whose diameter is 2 in.? Justify your answer.

**Volume of Cylinders, and Prisms
Assignment**

Name _____
Date 4-5-2013/Friday Period _____

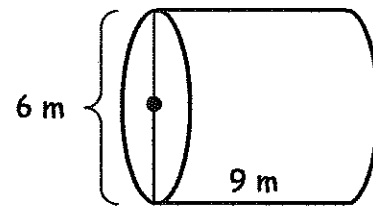
Find the volume.

1]



Shape of base _____
 Area of base = _____
 Height of cylinder _____
 Formula for volume _____
 Replace B _____
 Substitution _____
 Volume of cylinder = _____

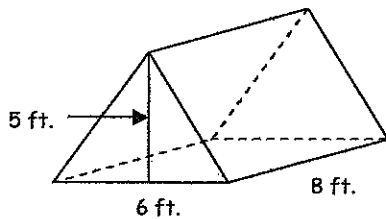
2]



Shape of base _____
 Area of base = _____
 Height of cylinder _____
 Formula for volume _____
 Replace B _____
 Substitution _____
 Volume of cylinder = _____

3] Which has the greater volume: a cylinder whose height is 2 in. and radius is 4 in. or a cylinder whose height is 32 in. and whose diameter is 2 in.? Justify your answer.

4] A camping tent has the shape of a triangular prism. Find the volume inside the tent.



- A. 120 ft^3
- B. 174 ft^3
- C. 240 ft^3
- D. 1331 ft^3

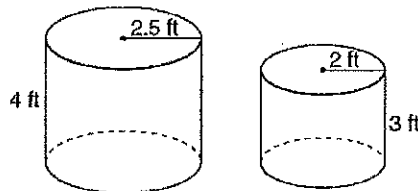
5] What is the difference in volume between a 7-inch tall cylinder with an 8-inch diameter and a rectangular prism with dimensions 10 inches, 10 inches, and 6 inches? Give your answer to the nearest cubic inch.

- A. 179 in.^3
- B. 248 in.^3
- C. 273 in.^3
- D. Not here

- 6] Susan wants to fill a triangular Prism with sand. The prism has a base that is an isosceles triangle with a base of 6 inches and a height of 4 inches. The height of the Prism is 6 inches. How much sand is needed to fill the prism?
- 7] A cylindrical water tank has a radius of 2.8 feet and a height of 5.6 feet. The water tank is filled to the top. If water can be pumped out at a rate of 36 cubic feet per minute, about how long will it take to empty the water tank?

A. 3 h B. 2 h C. 4 min D. 1 min

- 8] An office complex has hired a landscape designer to design a plan for its outdoor courtyard. The plan includes 14 concrete pillars: 6 large and 8 small. The dimensions of the two pillar sizes are shown below. What is the approximate volume of concrete needed to construct all the pillars?



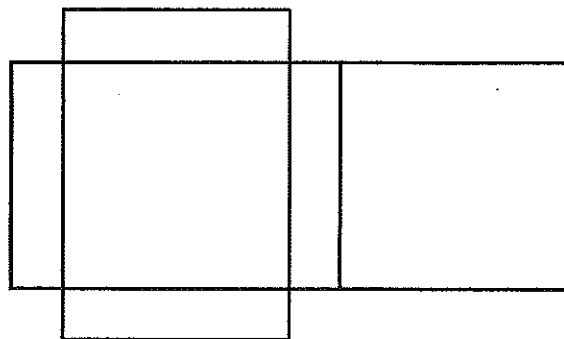
A. 116.2 cubic feet C. 854.5 cubic feet
 B. 772.8 cubic feet D. 1627.3 cubic feet

- 9] An aboveground pool shaped like a cylinder has a diameter of 18 feet. The pool needs to be filled with water to a height of 5 feet. What is the approximate volume of water that will fill the pool?

A. 1272 ft³ C. 1414 ft³
 B. 5089 ft³ D. 792 ft³

- 10] Identify the three-dimensional figure that can be formed from this net.

A Cube
 B Rectangular pyramid
 C Triangular prism
 D Rectangular prism



11] Which of these statements best describes a triangular prism?

- A It has 4 triangular faces.
- B It has a pair of parallel triangular faces.
- C It has a pair of parallel rectangular faces.
- D It has fewer than 6 vertices.

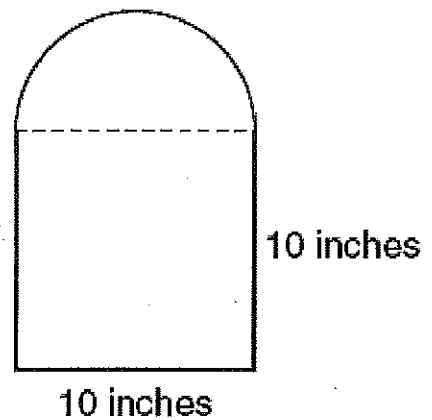
12] A triangle has 2 angles that measure 60° each. Which of the following best describes this triangle?

- A Right isosceles triangle
- B Equilateral triangle
- C Obtuse isosceles triangle
- D Acute scalene triangle

13] The front face of a clock is made up of a square and a semicircle, as shown below.

If a clock maker is making the front face out of glass, which is closest to the total area of the front face?

Front Face



- A 31.4 square inches
- B 131.4 square inches
- C 39.25 square inches
- D 139.25 square inches

14] Lucinda is building a patio with a floor shaped like a square. The perimeter of the floor is 90 feet. What is the area of the patio floor in square feet?

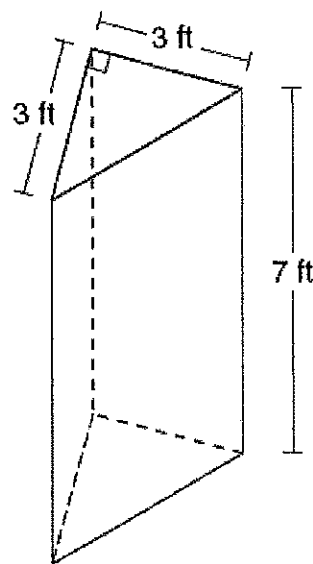
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

Ⓐ	Ⓑ	Ⓒ	Ⓓ		Ⓔ	Ⓕ
①	②	③	④		⑤	⑥
⑦	⑧	⑨	⑩		⑪	⑫
⑬	⑭	⑮	⑯		⑰	⑱
⑲	⑳	㉑	㉒		㉓	㉔
㉕	㉖	㉗	㉘		㉙	㉚
㉛	㉜	㉝	㉞		㉟	㊱
㊲	㊳	㊴	㊵		㊶	㊷
㊸	㊹	㊺	㊻		㊼	㊽

- 15) A triangular prism is shown.

What is the volume in cubic feet of this triangular prism?

- A 31.5 ft^3
- B 63 ft^3
- C 73.5 ft^3
- D 220.5 ft^3



- 16) A trailer carries a cylindrical tank with a diameter of 6 feet and a height of 24 feet. Which is closest to the volume of the tank?

- A $2,713 \text{ ft}^3$
- B 678 ft^3
- C 864 ft^3
- D 509 ft^3

- 17) The diagram below shows a rectangular prism.

In the formula for the volume of a rectangular prism $V = Bh$, which equation best represents B , the area of the base of this rectangular prism?

- A $B = \pi r^2$
- B $B = lw$
- C $B = 2\pi r$
- D $B = lwh$

