Eureka Math

Grade 5

Module 5

Addition and Multiplication with Volume and Area

Lessons 1-5

You can access videos for these lessons on the SCSD Website

Learning at Home Link

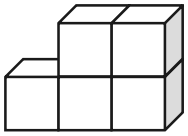
SYRACUSE CITY SCHOOL DISTRICT

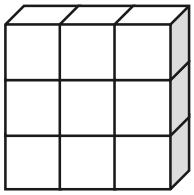
EUREKA MATH®

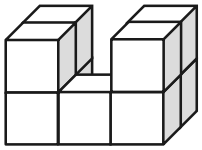
Name _____ Date _____

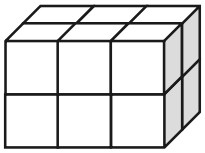
1. Use your centimeter cubes to build the figures pictured below on centimeter grid paper. Find the total volume of each figure you built, and explain how you counted the cubic units. Be sure to include units.

A. 

B. 

C. 

D. 

E. 

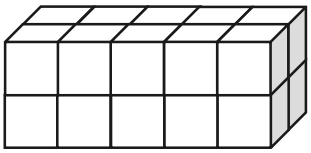
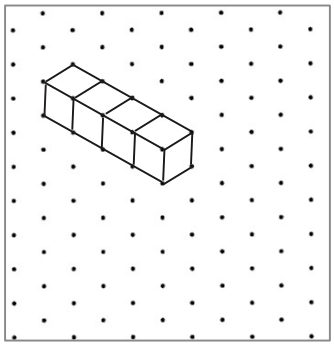
F. 

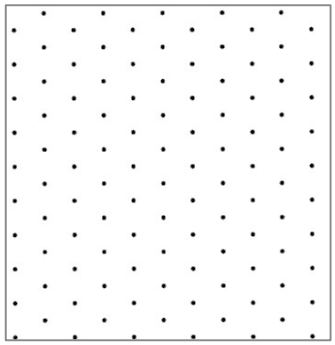
Figure	Volume	Explanation
A		
B		
C		
D		
E		
F		

2. Build 2 different structures with the following volumes using your unit cubes. Then, draw one of the figures on the dot paper. One example has been drawn for you.

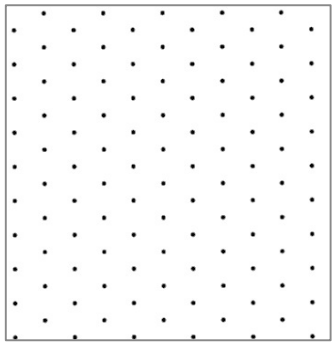
a. 4 cubic units



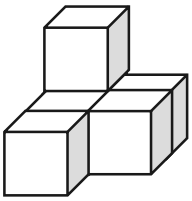
b. 7 cubic units



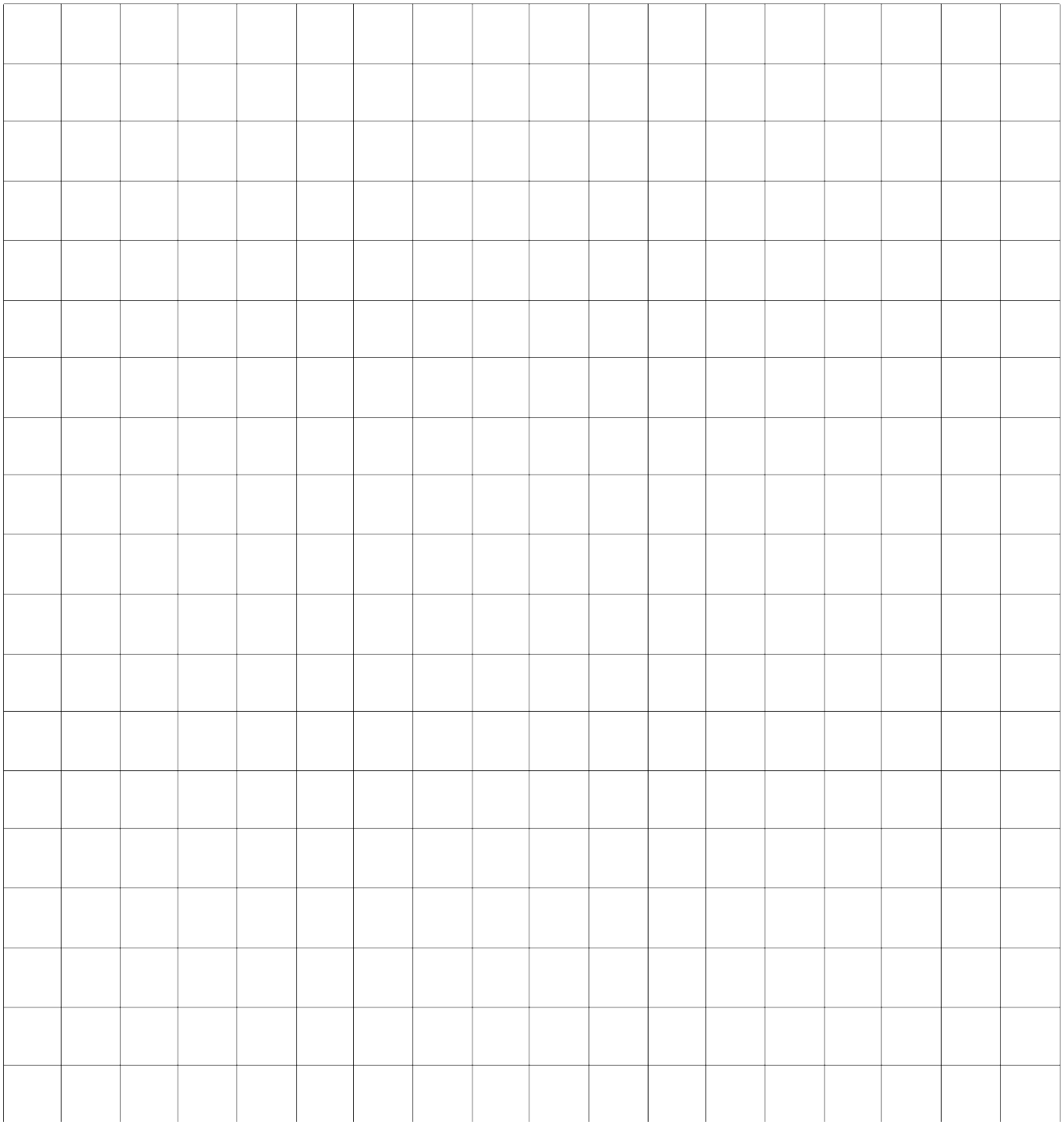
c. 8 cubic units



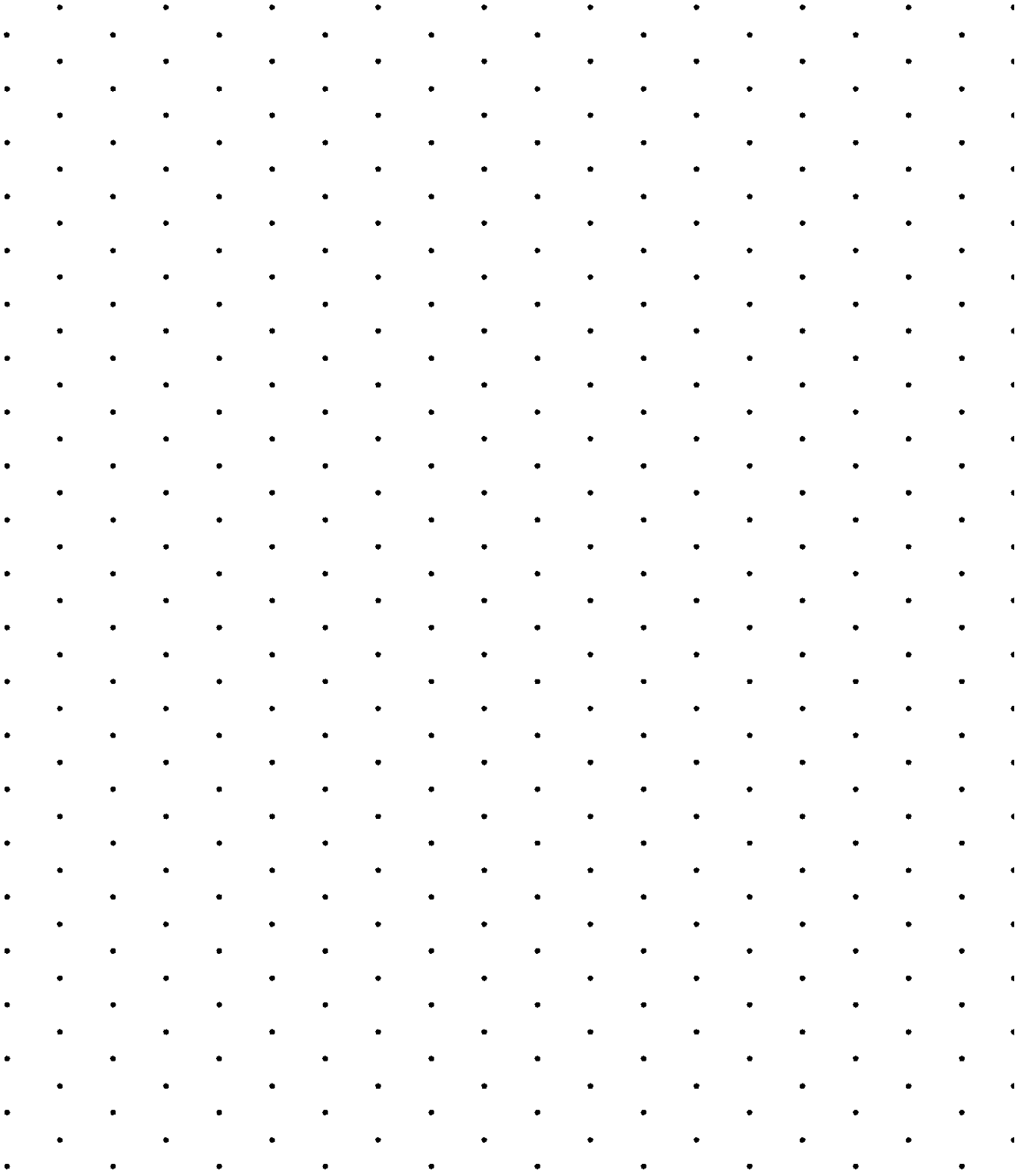
3. Joyce says that the figure below, made of 1 cm cubes, has a volume of 5 cubic centimeters.
   a. Explain her mistake.



   b. Imagine if Joyce adds to the second layer so the cubes completely cover the first layer in the figure above. What would be the volume of the new structure? Explain how you know.



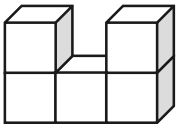
centimeter grid paper

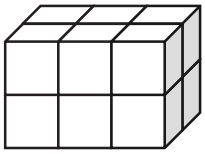


isometric dot paper

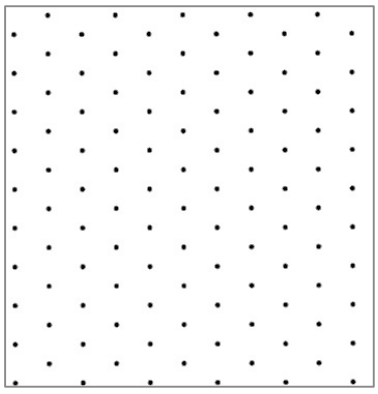
Name _____ Date _____

1. What is the volume of the figures pictured below?

a. 

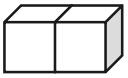
b. 

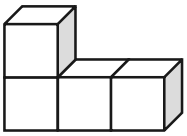
2. Draw a picture of a figure with a volume of 3 cubic units on the dot paper.

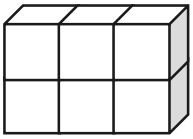


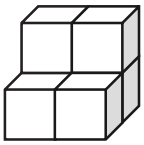
Name _____ Date _____

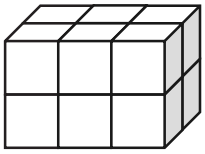
1. The following solids are made up of 1 cm cubes. Find the total volume of each figure, and write it in the chart below.

A. 

B. 

C. 

D. 

E. 

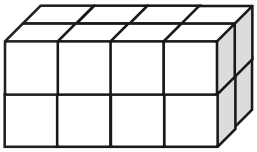
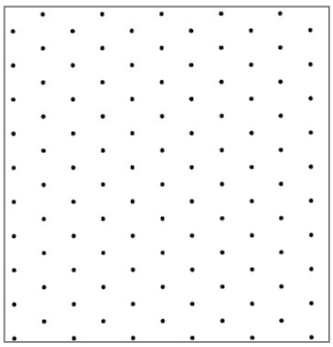
F. 

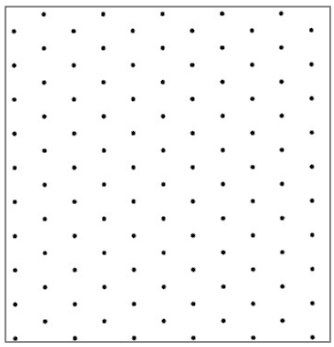
Figure	Volume	Explanation
A		
B		
C		
D		
E		
F		

2. Draw a figure with the given volume on the dot paper.

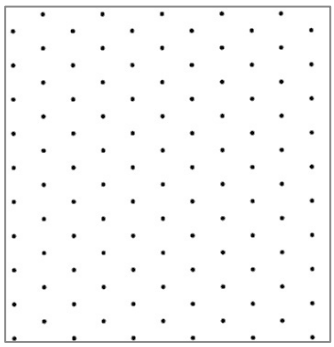
a. 3 cubic units



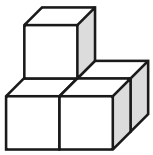
b. 6 cubic units



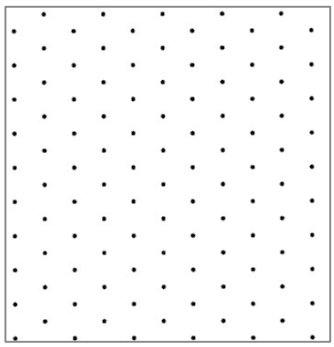
c. 12 cubic units



3. John built and drew a structure that has a volume of 5 cubic centimeters. His little brother tells him he made a mistake because he only drew 4 cubes. Help John explain to his brother why his drawing is accurate.



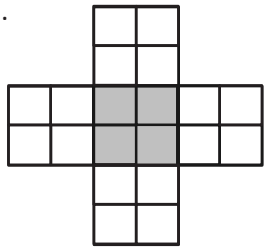
4. Draw another figure below that represents a structure with a volume of 5 cubic centimeters.



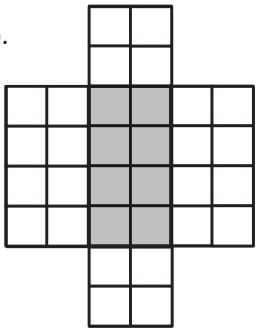
Name _____ Date _____

1. Shade the following figures on centimeter grid paper. Cut and fold each to make 3 open boxes, taping them so they hold their shapes. Pack each box with cubes. Write how many cubes fill each box.

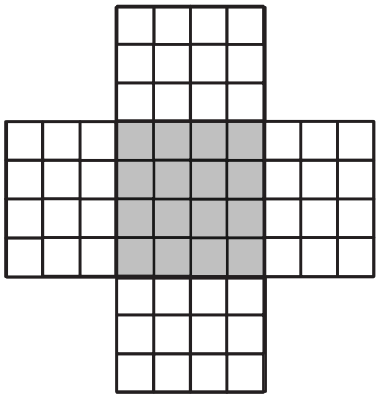
a. Number of cubes: _____



b. Number of cubes: _____



c. Number of cubes: _____

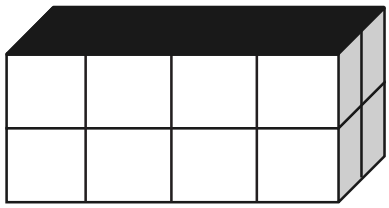


2. Predict how many centimeter cubes will fit in each box, and briefly explain your predictions. Use cubes to find the actual volume. (The figures are not drawn to scale.)

a.

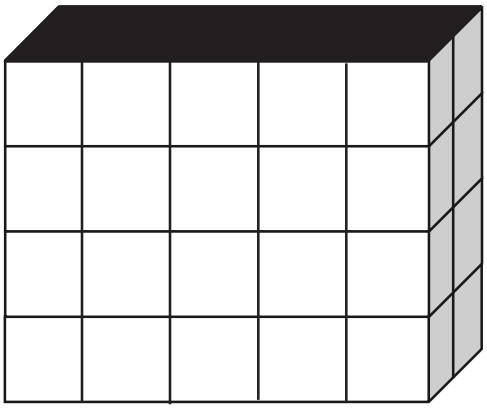
Prediction: _____

Actual: _____

b. 

Prediction: _____

Actual: _____

c. 

Prediction: _____

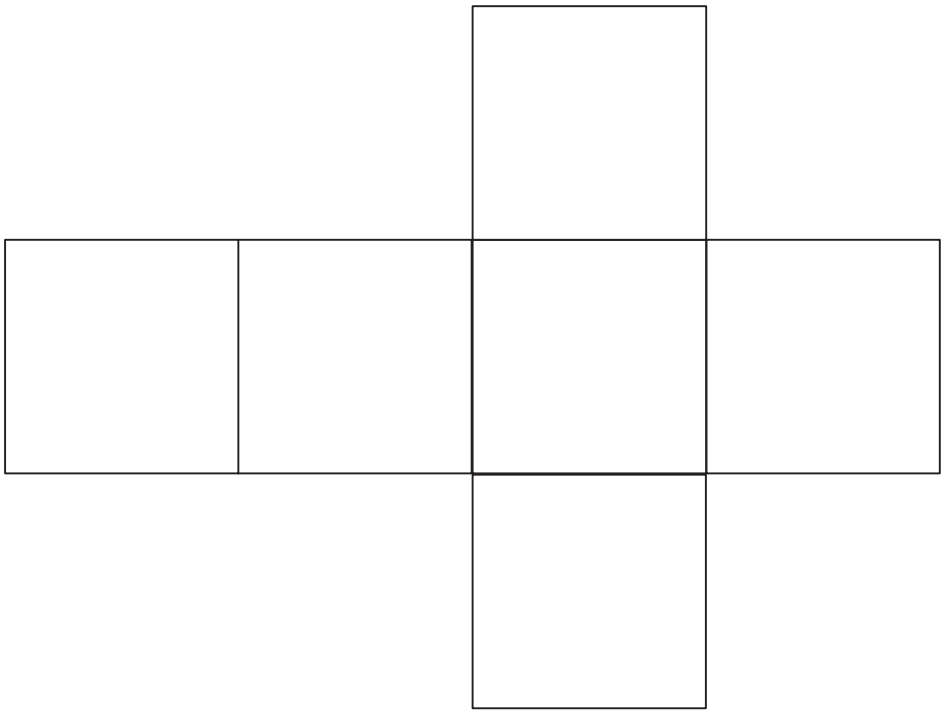
Actual: _____

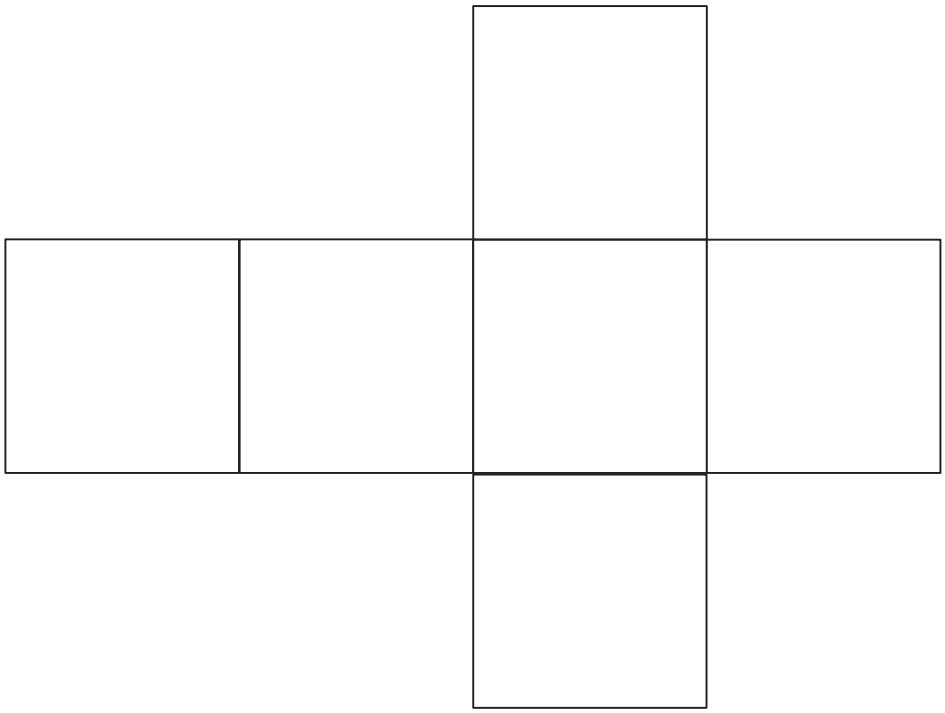
3. Cut out the net in the template, and fold it into a cube. Predict the number of 1-centimeter cubes that would be required to fill it.

   a. Prediction: _____

   b. Explain your thought process as you made your prediction.

   c. How many 1-centimeter cubes are used to fill the figure? Was your prediction accurate?

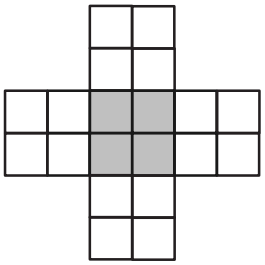




net

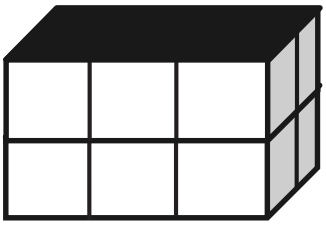
Name _____ Date _____

1. If this figure were to be folded into a box, how many cubes would fill it?



Number of cubes: _____

2. Predict how many centimeter cubes will fit in the box, and briefly explain your prediction. Use cubes to find the actual volume. (The figure is not drawn to scale.)

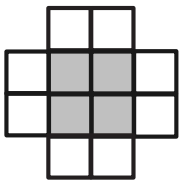


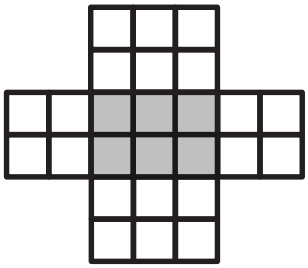
Prediction: _____

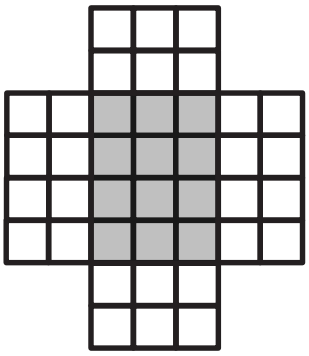
Actual: _____

Name _____ Date _____

1. Make the following boxes on centimeter grid paper. Cut and fold each to make 3 open boxes, taping them so they hold their shapes. How many cubes would fill each box? Explain how you found the number.

a.  Number of cubes: _____

b.  Number of cubes: _____

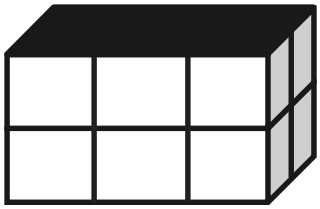
c.  Number of cubes: _____

2. How many centimeter cubes would fit inside each box? Explain your answer using words and diagrams on each box. (The figures are not drawn to scale.)

a. 

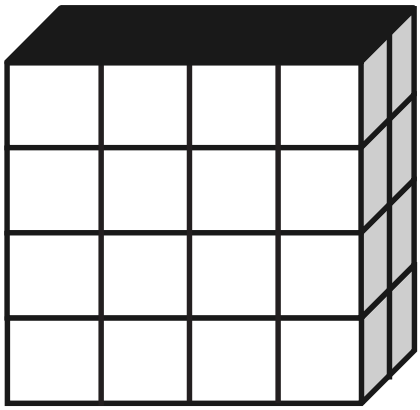
Number of cubes: _____

Explanation:

b. 

Number of cubes: _____

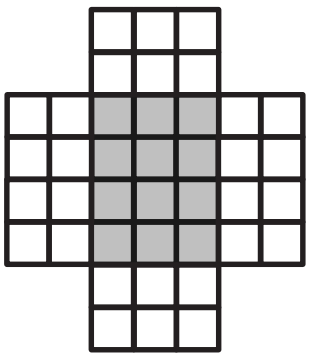
Explanation:

c. 

Number of cubes: _____

Explanation:

3. The box pattern below holds 24 1-centimeter cubes. Draw two different box patterns that would hold the same number of cubes.

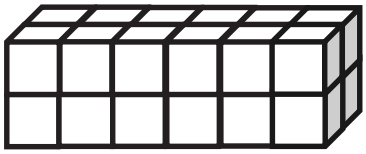


Name _____ Date _____

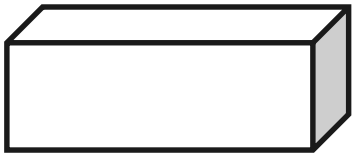
1. Use the prisms to find the volume.

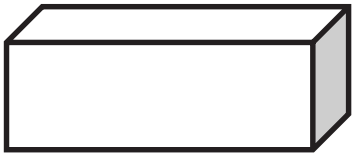
   - Build the rectangular prism pictured below to the left with your cubes, if necessary.
   - Decompose it into layers in three different ways, and show your thinking on the blank prisms.
   - Complete the missing information in the table.

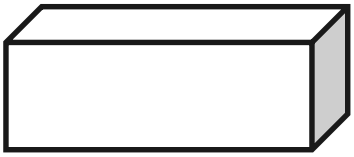
a.



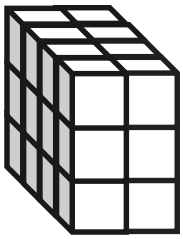
Number of Layers	Number of Cubes in Each Layer	Volume of the Prism
		cubic cm
		cubic cm
		cubic cm



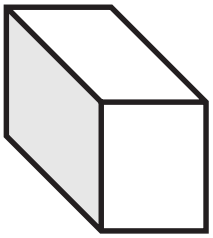


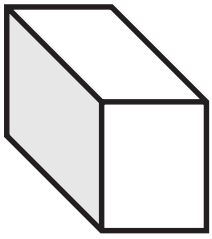


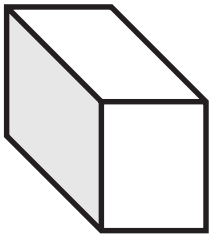
b.



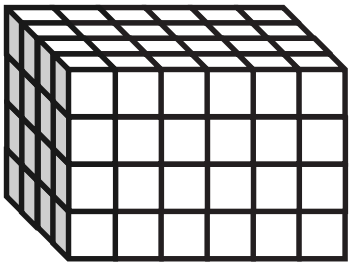
Number of Layers	Number of Cubes in Each Layer	Volume of the Prism
		cubic cm
		cubic cm
		cubic cm







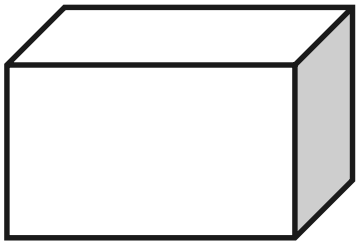
2. Josh and Jonah were finding the volume of the prism to the right. The boys agree that 4 layers can be added together to find the volume. Josh says that he can see on the end of the prism that each layer will have 16 cubes in it. Jonah says that each layer has 24 cubes in it. Who is right? Explain how you know using words, numbers, and/or pictures.



3. Marcos makes a prism 1 inch by 5 inches by 5 inches. He then decides to create layers equal to his first one. Fill in the chart below, and explain how you know the volume of each new prism.

Number of Layers	Volume	Explanation
2		
4		
7		

4. Imagine the rectangular prism below is 6 meters long, 4 meters tall, and 2 meters wide. Draw horizontal lines to show how the prism could be decomposed into layers that are 1 meter in height.



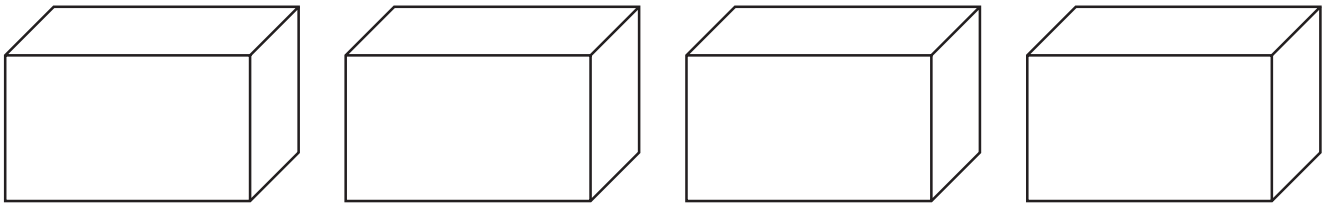
It has _____ layers from bottom to top.

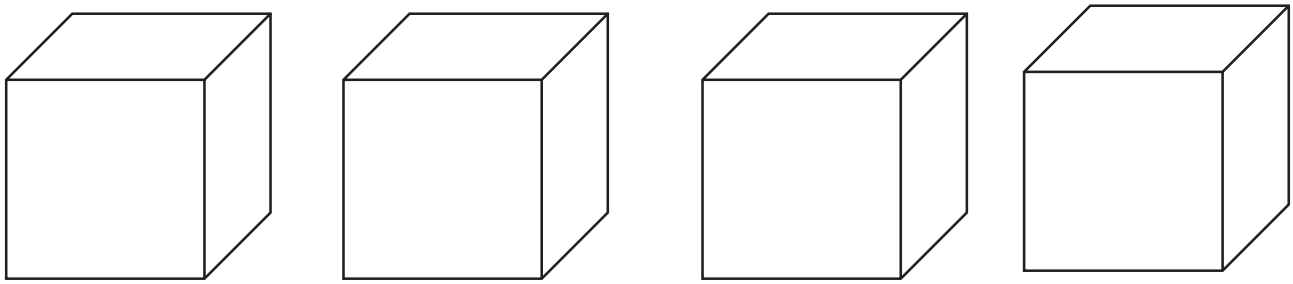
Each horizontal layer contains _____ cubic meters.

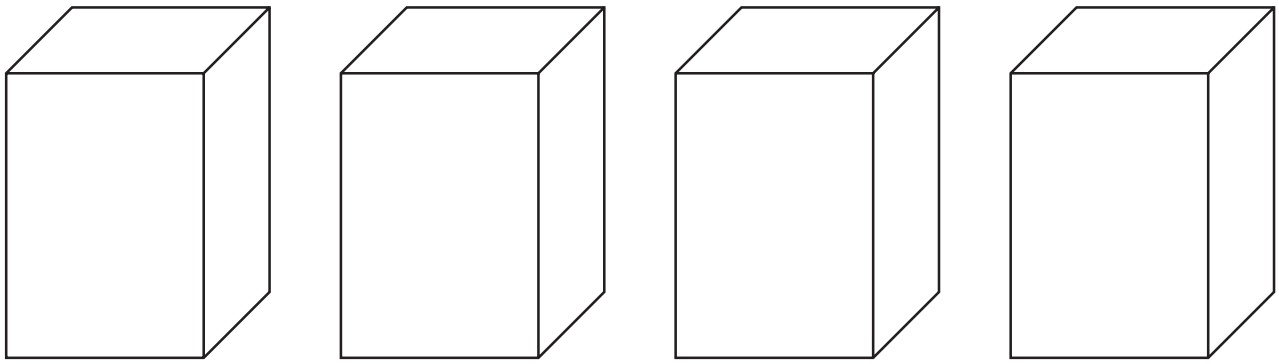
The volume of this prism is _____.

Name _____ Date _____

Use these rectangular prisms to record the layers that you count.







rectangular prism recording sheet

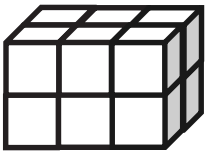
Name _____ Date _____

1. Use unit cubes to build the figure to the right, and fill in the missing information.

   Number of layers: _____

   Number of cubes in each layer: _____

   Volume: _____ cubic centimeters

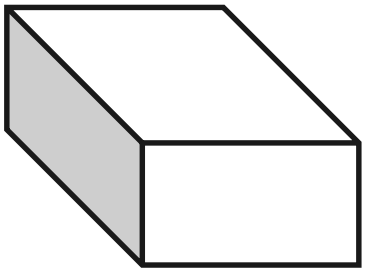


2. This prism measures 3 units by 4 units by 2 units. Draw the layers as indicated.

   Number of layers: 4

   Number of cubic units in each layer: 6

   Volume: _____ cubic centimeters



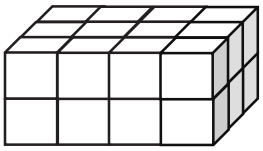
Name _____ Date _____

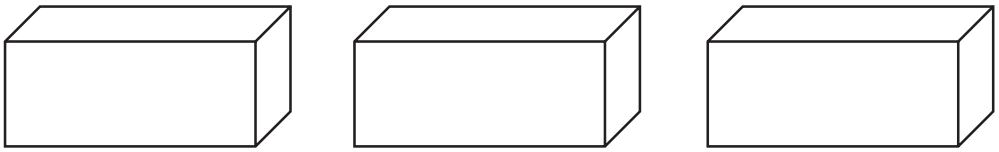
1. Use the prisms to find the volume.

   - The rectangular prisms pictured below were constructed with 1 cm cubes.
   - Decompose each prism into layers in three different ways, and show your thinking on the blank prisms.
   - Complete each table.

a.

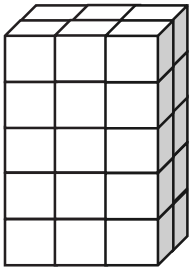
Number of Layers	Number of Cubes in Each Layer	Volume of the Prism
		cubic cm
		cubic cm
		cubic cm

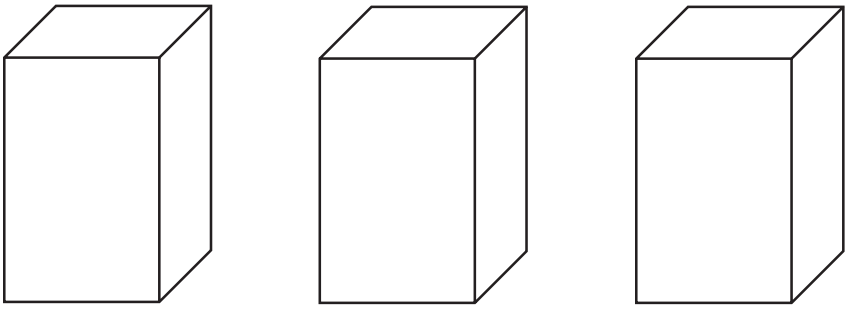




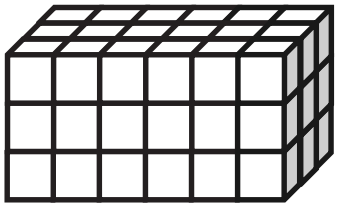
b.

Number of Layers	Number of Cubes in Each Layer	Volume of the Prism
		cubic cm
		cubic cm
		cubic cm





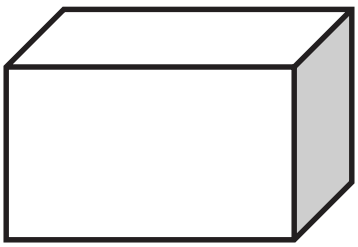
2. Stephen and Chelsea want to increase the volume of this prism by 72 cubic centimeters. Chelsea wants to add eight layers, and Stephen says they only need to add four layers. Their teacher tells them they are both correct. Explain how this is possible.



3. Juliana makes a prism 4 inches across and 4 inches wide but only 1 inch tall. She then decides to create layers equal to her first one. Fill in the chart below, and explain how you know the volume of each new prism.

Number of Layers	Volume	Explanation
3		
5		
7		

4. Imagine the rectangular prism below is 4 meters long, 3 meters tall, and 2 meters wide. Draw horizontal lines to show how the prism could be decomposed into layers that are 1 meter in height.



It has _____ layers from top to bottom.

Each horizontal layer contains _____ cubic meters.

The volume of this prism is _____

Number Correct: _____

A

Multiply a Fraction and a Whole Number

1.	$\frac{1}{5} \times 2 =$	
2.	$\frac{1}{5} \times 3 =$	
3.	$\frac{1}{5} \times 4 =$	
4.	$4 \times \frac{1}{5} =$	
5.	$\frac{1}{8} \times 3 =$	
6.	$\frac{1}{8} \times 5 =$	
7.	$\frac{1}{8} \times 7 =$	
8.	$7 \times \frac{1}{8} =$	
9.	$3 \times \frac{1}{10} =$	
10.	$7 \times \frac{1}{10} =$	
11.	$\frac{1}{10} \times 7 =$	
12.	$4 \div 2 =$	
13.	$4 \times \frac{1}{2} =$	
14.	$6 \div 3 =$	
15.	$\frac{1}{3} \times 6 =$	
16.	$10 \div 5 =$	
17.	$10 \times \frac{1}{5} =$	
18.	$\frac{1}{3} \times 9 =$	
19.	$\frac{2}{3} \times 9 =$	
20.	$\frac{1}{4} \times 8 =$	
21.	$\frac{3}{4} \times 8 =$	
22.	$\frac{1}{6} \times 12 =$	

23.	$\frac{5}{6} \times 12 =$	
24.	$\frac{1}{3} \times 15 =$	
25.	$\frac{2}{3} \times 15 =$	
26.	$15 \times \frac{2}{3} =$	
27.	$\frac{1}{5} \times 15 =$	
28.	$\frac{2}{5} \times 15 =$	
29.	$\frac{4}{5} \times 15 =$	
30.	$\frac{3}{5} \times 15 =$	
31.	$15 \times \frac{3}{5} =$	
32.	$18 \times \frac{1}{6} =$	
33.	$18 \times \frac{5}{6} =$	
34.	$\frac{5}{6} \times 18 =$	
35.	$24 \times \frac{1}{4} =$	
36.	$\frac{3}{4} \times 24 =$	
37.	$32 \times \frac{1}{8} =$	
38.	$32 \times \frac{3}{8} =$	
39.	$\frac{5}{8} \times 32 =$	
40.	$32 \times \frac{7}{8} =$	
41.	$\frac{5}{9} \times 54 =$	
42.	$63 \times \frac{7}{9} =$	
43.	$56 \times \frac{3}{7} =$	
44.	$\frac{6}{7} \times 49 =$	

B

Number Correct: _____

Improvement: _____

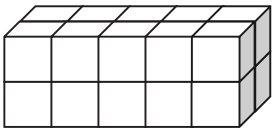
Multiply a Fraction and a Whole Number

1.	$\frac{1}{7} \times 2 =$	
2.	$\frac{1}{7} \times 3 =$	
3.	$\frac{1}{7} \times 4 =$	
4.	$4 \times \frac{1}{7} =$	
5.	$\frac{1}{10} \times 3 =$	
6.	$\frac{1}{10} \times 7 =$	
7.	$\frac{1}{10} \times 9 =$	
8.	$9 \times \frac{1}{10} =$	
9.	$3 \times \frac{1}{8} =$	
10.	$5 \times \frac{1}{8} =$	
11.	$\frac{1}{8} \times 5 =$	
12.	$10 \div 5 =$	
13.	$10 \times \frac{1}{5} =$	
14.	$9 \div 3 =$	
15.	$\frac{1}{3} \times 9 =$	
16.	$10 \div 2 =$	
17.	$10 \times \frac{1}{2} =$	
18.	$\frac{1}{3} \times 6 =$	
19.	$\frac{2}{3} \times 6 =$	
20.	$\frac{1}{6} \times 12 =$	
21.	$\frac{5}{6} \times 12 =$	
22.	$\frac{1}{4} \times 8 =$	

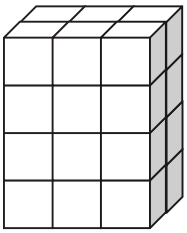
23.	$\frac{3}{4} \times 8 =$	
24.	$\frac{1}{5} \times 15 =$	
25.	$\frac{2}{5} \times 15 =$	
26.	$\frac{4}{5} \times 15 =$	
27.	$\frac{3}{5} \times 15 =$	
28.	$15 \times \frac{3}{5} =$	
29.	$\frac{1}{3} \times 15 =$	
30.	$\frac{2}{3} \times 15 =$	
31.	$15 \times \frac{2}{3} =$	
32.	$24 \times \frac{1}{6} =$	
33.	$24 \times \frac{5}{6} =$	
34.	$\frac{5}{6} \times 24 =$	
35.	$20 \times \frac{1}{4} =$	
36.	$\frac{3}{4} \times 20 =$	
37.	$24 \times \frac{1}{8} =$	
38.	$24 \times \frac{3}{8} =$	
39.	$\frac{5}{8} \times 24 =$	
40.	$24 \times \frac{7}{8} =$	
41.	$\frac{5}{9} \times 63 =$	
42.	$54 \times \frac{7}{9} =$	
43.	$49 \times \frac{3}{7} =$	
44.	$\frac{6}{7} \times 56 =$	

Name _____ Date _____

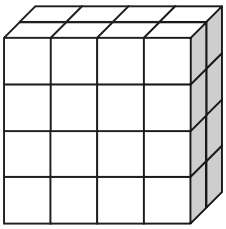
1. Each rectangular prism is built from centimeter cubes. State the dimensions, and find the volume.

a. 

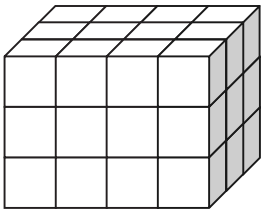
Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

b. 

Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

c. 

Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

d. 

Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

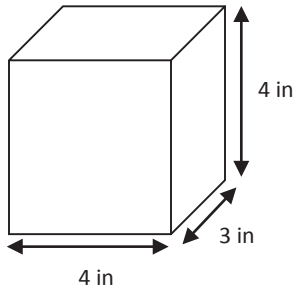
2. Write a multiplication sentence that you could use to calculate the volume for each rectangular prism in Problem 1. Include the units in your sentences.

a. _____ b. _____

c. _____ d. _____

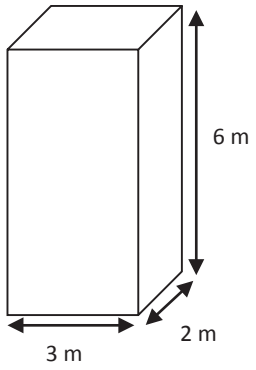
3. Calculate the volume of each rectangular prism. Include the units in your number sentences.

a.



V = _____

b.

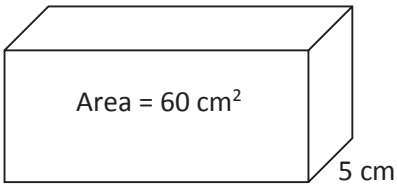


V = _____

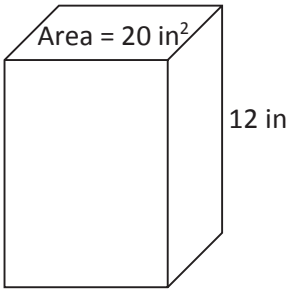
4. Tyron is constructing a box in the shape of a rectangular prism to store his baseball cards. It has a length of 10 centimeters, a width of 7 centimeters, and a height of 8 centimeters. What is the volume of the box?

5. Aaron says more information is needed to find the volume of the prisms. Explain why Aaron is mistaken, and calculate the volume of the prisms.

a.

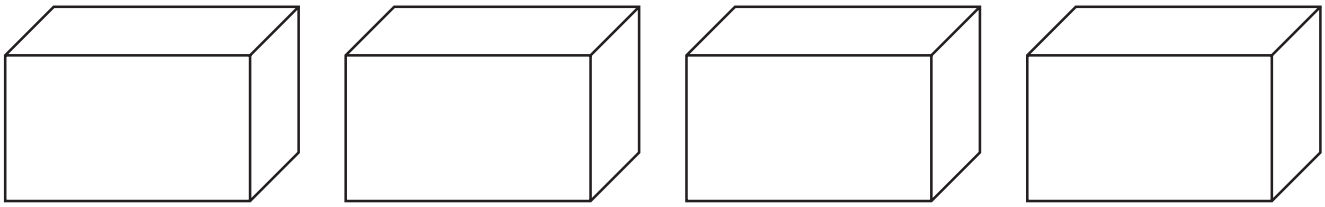


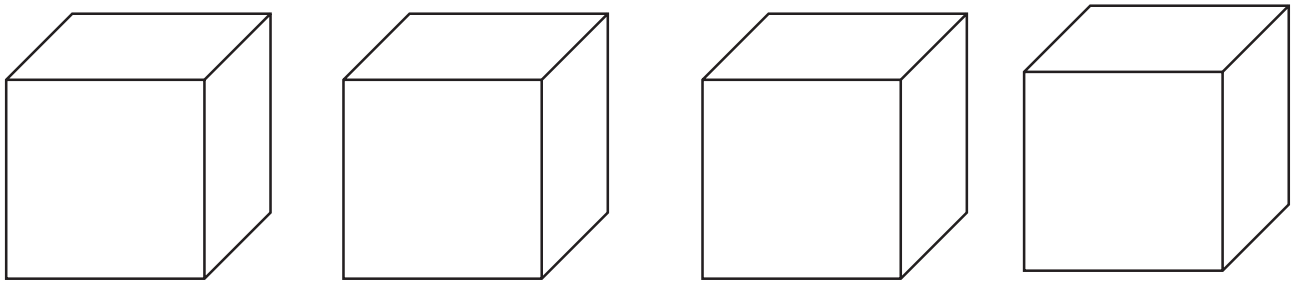
b.

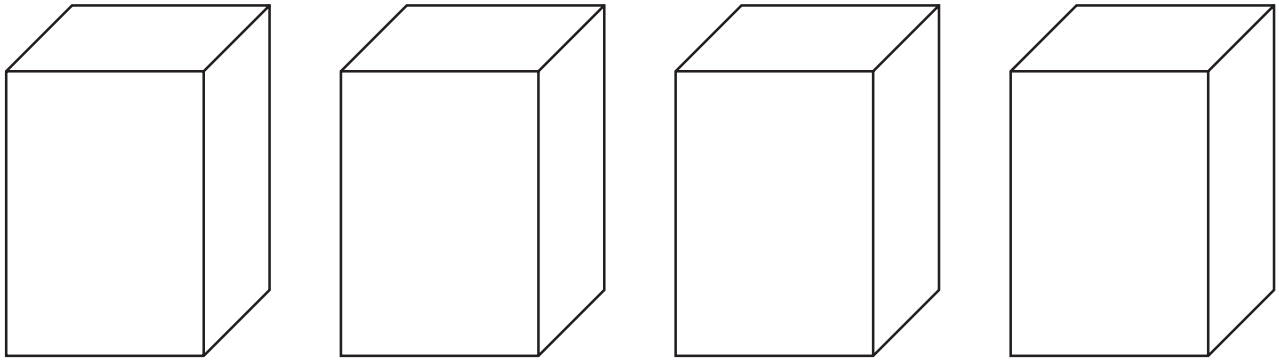


Name _____ Date _____

Use these rectangular prisms to record the layers that you count.





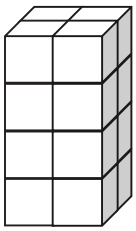


_____

rectangular prism recording sheet (from Lesson 3)

Name _____ Date _____

1. Calculate the volume of prism.



Length: _____ mm

Width: _____ mm

Height: _____ mm

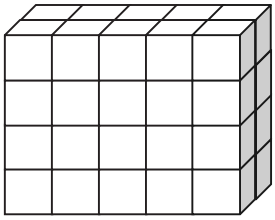
Volume: _____ mm^3

Write the multiplication sentence that shows how you calculated the volume. Be sure to include the units.

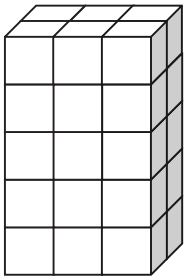
2. A rectangular prism has a top face with an area of 20 ft^2 and a height of 5 ft. What is the volume of this rectangular prism?

Name _____ Date _____

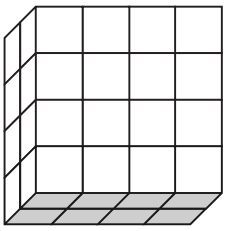
1. Each rectangular prism is built from centimeter cubes. State the dimensions, and find the volume.

a. 

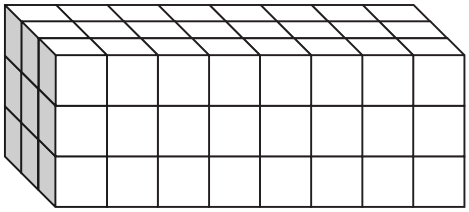
Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

b. 

Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

c. 

Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

d. 

Length: _____ cm
Width: _____ cm
Height: _____ cm
Volume: _____ cm^3

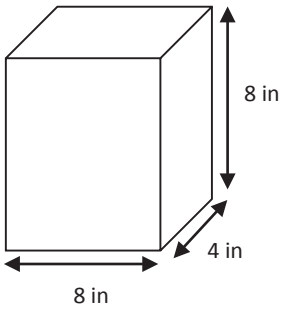
2. Write a multiplication sentence that you could use to calculate the volume for each rectangular prism in Problem 1. Include the units in your sentences.

a. _____ b. _____

c. _____ d. _____

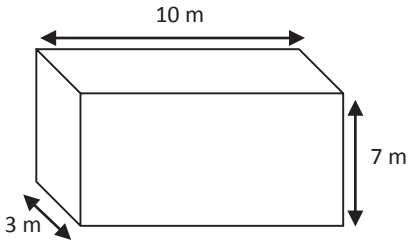
3. Calculate the volume of each rectangular prism. Include the units in your number sentences.

a.



Volume: _____

b.



Volume: _____

4. Mrs. Johnson is constructing a box in the shape of a rectangular prism to store clothes for the summer. It has a length of 28 inches, a width of 24 inches, and a height of 30 inches. What is the volume of the box?

5. Calculate the volume of each rectangular prism using the information that is provided.

a. Face area: 56 square meters

Height: 4 meters

b. Face area: 169 square inches

Height: 14 inches

Name _____ Date _____

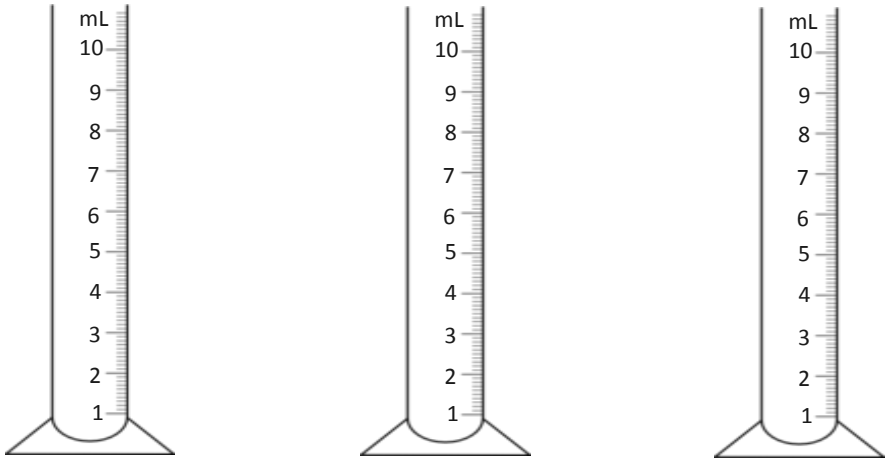
1. Determine the volume of two boxes on the table using cubes, and then confirm by measuring and multiplying.

Box Number	Number of Cubes Packed	Measurements Length	Width	Height	Volume

2. Using the same boxes from Problem 1, record the amount of liquid that your box can hold.

Box Number	Liquid the Box Can Hold
	mL
	mL

3. Shade to show the water in the beaker.



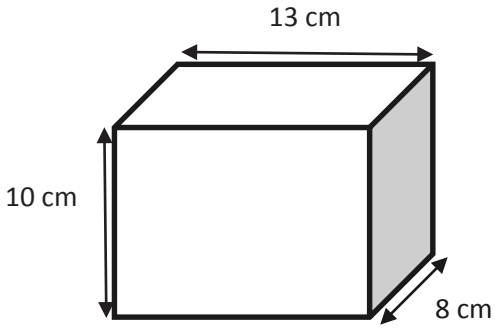
At first: _____ mL

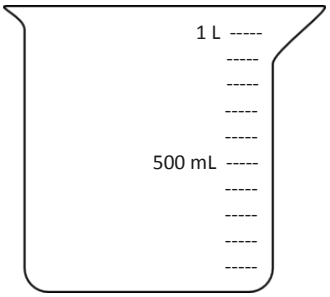
After 1 mL water added: _____ mL

After 1 cm cube added: _____ mL

4. What conclusion can you draw about 1 cubic centimeter and 1 mL?

5. The tank, shaped like a rectangular prism, is filled to the top with water.





Will the graduated cylinder hold all the water in the tank? If yes, how much more will the beaker hold? If no, how much more will the tank hold than the beaker? Explain how you know.

6. A rectangular fish tank measures 26 cm by 20 cm by 18 cm. The tank is filled with water to a depth of 15 cm.

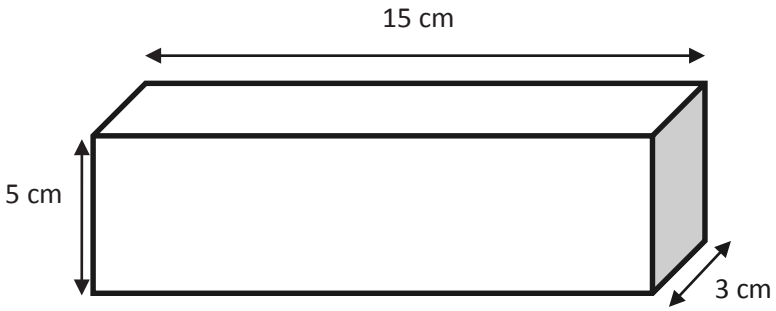
   a. What is the volume of the water in mL?

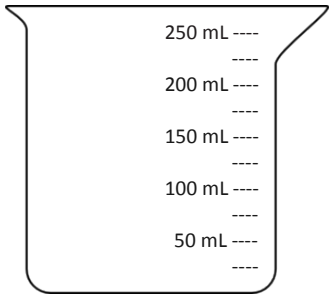
   b. How many liters is that?

   c. How many more mL of water will be needed to fill the tank to the top? Explain how you know.

7. A rectangular container is 25 cm long and 20 cm wide. If it holds 1 liter of water when full, what is its height?

Name _____ Date _____



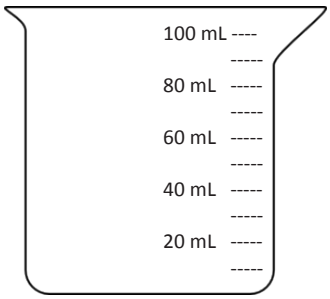


a. Find the volume of the prism.

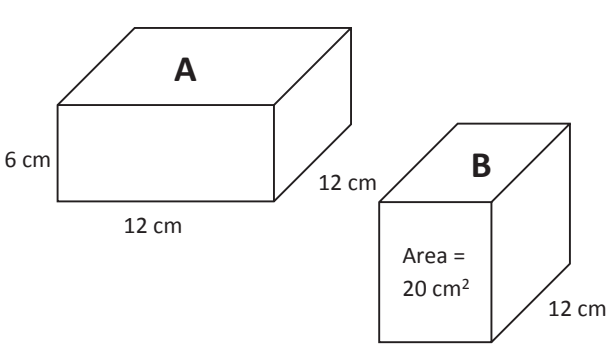
b. Shade the beaker to show how much liquid would fill the box.

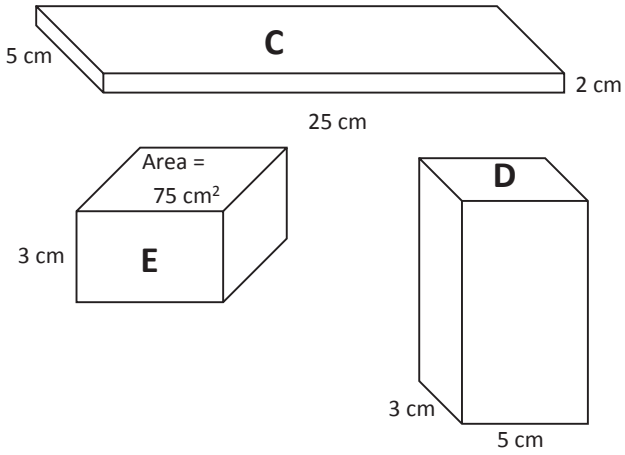
Name _____ Date _____

1. Johnny filled a container with 30 centimeter cubes. Shade the beaker to show how much water the container will hold. Explain how you know.



2. A beaker contains 250 mL of water. Jack wants to pour the water into a container that will hold the water. Which of the containers pictured below could he use? Explain your choices.





3. On the back of this paper, describe the details of the activities you did in class today. Include what you learned about cubic centimeters and milliliters. Give an example of a problem you solved with an illustration.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

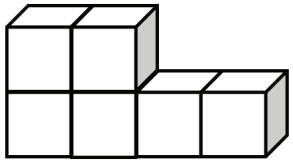
In Lessons 1 through 3, students explore the concept of volume by using cubes. They also apply their skills in real-world contexts.

You can expect to see homework that asks your child to do the following:

- Find the **volume of a solid** by counting the cubes and by applying other strategies.
- Draw cubic units on **isometric dot paper**.
- Solve word problems involving volume.

SAMPLE PROBLEM *(From Lesson 1)*

The solid below is made up of 1 cm cubes. Find the total volume of the figure and write it in the chart below.



Volume	Explanation
6 cm^3	***I counted 2 cubes on the top and 4 cubes on the bottom. There are 6 total cubes. 2 + 4 = 6. Since each cube is 1 cubic centimeter, the total volume of the figure is 6 cubic centimeters.***

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Ask your child to define perimeter, **area**, and volume. Have him explain how the three terms are different and name the units used to measure perimeter, area, and volume. Then ask him to match the equations below with each term.
  - $2 \text{ m} + 4 \text{ m} + 2 \text{ m} + 4 \text{ m} = 12 \text{ m}$

    This is perimeter, and it is measured in regular units (e.g., m, ft, yd).
  - $6 \text{ m} \times 8 \text{ m} = 48 \text{ m}^2$

    This is area, and it is measured in square units (e.g., m^2, ft^2, yd^2).
  - $3 \text{ m} \times 5 \text{ m} \times 9 \text{ m} = 135 \text{ m}^3$

    This is volume, and it is measured in cubic units (e.g., m^3, ft^3, yd^3).
- Together, practice drawing cubic units on either centimeter grid paper or isometric dot paper.

TERMS

Area: The amount of space inside a two-dimensional shape. For example, in rectangles, Area = length × width.

Volume of a solid: The amount of space inside a three-dimensional solid. For example, in rectangular prisms, Volume = length × width × height.

MODELS

Isometric Dot Paper

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

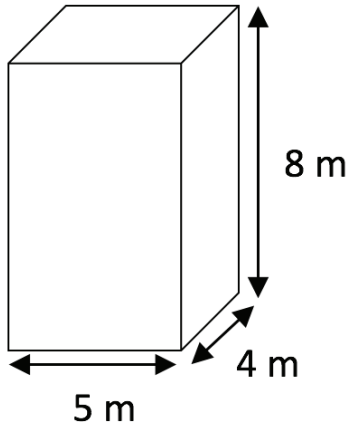
In Lessons 4 through 9, students continue to work with volume as they learn to find the volume of a **rectangular prism**. Additionally, students apply their skills in real-world contexts.

You can expect to see homework that asks your child to do the following:

- Find the volume of a rectangular prism by using volume formulas:
  - Volume of a rectangular prism = length × width × height.
  - Volume of a rectangular prism = area of the base × height.
- Solve problems by using the equation 1 cm^3 = 1 mL.
- Solve word problems involving volume.

SAMPLE PROBLEM *(From Lesson 4)*

Calculate the volume of the rectangular prism. Include the units in your number sentence.



Volume = 5 m × 4 m × 8 m = 160 m^3

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

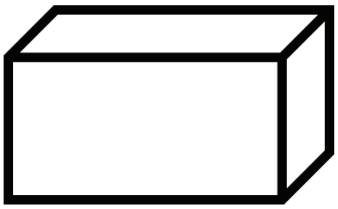
HOW YOU CAN HELP AT HOME

- Help your child practice finding the volumes of rectangular prisms. Find rectangular prisms in your home. Use a ruler to measure the length, width, and height of each prism to the nearest centimeter or inch, and then find the volume of the prism. For example, if a cereal box measures a length of 9 inches, a width of 3 inches, and a height of 13 inches, then the volume of this cereal box is 351 cubic inches.
- Play the Find the Volume card game with your child.
    1. Remove the jacks, queens, kings, aces, and jokers from a deck of cards.
    2. Put the stack of remaining cards facedown.
    3. Flip over three cards.
    4. The number on each card represents a dimension of a rectangular prism. Let the first card represent the length, the second the width, and the third the height.
    5. Choose a unit of measure for the dimensions of the rectangular prism, such as inches, feet, centimeters, or meters.
    6. Write the multiplication expression for the volume of the rectangular prism, and ask your child to find the volume.

  For example, you flip cards with the numbers 9, 7, and 4, and you decide to use feet as the unit. The number 9 represents the length of 9 feet. The number 7 represents the width of 7 feet. The number 4 represents the height of 4 feet. You write $9 \text{ ft} \times 7 \text{ ft} \times 4 \text{ ft}$. Your child writes $9 \text{ ft} \times 7 \text{ ft} \times 4 \text{ ft} = 252 \text{ cubic ft}$.
  NOTE: For rectangular prisms, you can assign any of the three numbers to be the length, width, or height. The multiplication yields the same answer regardless of measurement assignment.

TERMS

Rectangular prism: A three-dimensional figure with six rectangular sides. See sample image below.



EUREKA MATH™ CONSEJOS PARA PADRES

RESUMEN DE CONCEPTOS CLAVE

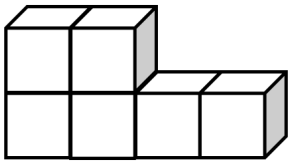
En las Lecciones 1 a 3, los estudiantes exploran el concepto de volumen usando cubos. También aplican sus habilidades en contextos del mundo real.

Espere ver tareas que le pidan a su hijo/a que haga lo siguiente:

- Encontrar el **volumen de un sólido geométrico** contando cubos y aplicando otras estrategias.
- Dibujar unidades cúbicas en **papel de puntos isométricos**.
- Resolver problemas narrados que involucran el volumen.

MUESTRA DE UN PROBLEMA *(Tomado de la Lección 1)*

Cubos de 1 cm forman el sólido geométrico a continuación. Encuentra el volumen total de la figura y escríbelo en el cuadro de abajo.



Volumen	Explicación
$6\ cm^3$	***Conté 2 cubos arriba y 4 cubos abajo. Hay un total de 6 cubos. 2 + 4 = 6. Ya que cada cubo mide 1 centímetro cúbico, el volumen total de la figura es 6 centímetros cúbicos.***

Puede encontrar ejemplos adicionales de problemas con pasos de respuesta detallados en los libros de *Eureka Math Homework Helpers*. Obtenga más información en GreatMinds.org.

CÓMO PUEDE AYUDAR EN CASA

- Pídale a su hijo/a que defina perímetro, **área** y volumen. Haga que explique la diferencia entre los tres términos y que nombre las unidades usadas para medir perímetro, área y volumen. Después pídale que relacione las ecuaciones de abajo con cada término.
  - $2 \text{ m} + 4 \text{ m} + 2 \text{ m} + 4 \text{ m} = 12 \text{ m}$

    Este es el perímetro y se mide en unidades regulares (m, ft, yd).
  - $6 \text{ m} \times 8 \text{ m} = 48 \text{ m}^2$

    Este es el área y se mide en unidades cuadradas (m^2, ft^2, yd^2).
  - $3 \text{ m} \times 5 \text{ m} \times 9 \text{ m} = 135 \text{ m}^3$

    Este es el volumen y se mide en unidades cúbicas (m^3, ft^3, yd^3).
- Juntos, practiquen dibujar unidades cúbicas en una hoja cuadriculada de un centímetro o en papel de puntos isométricos.

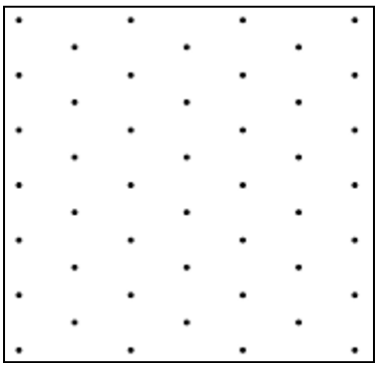
VOCABULARIO

Área: la cantidad de espacio dentro de una figura bidimensional. Por ejemplo, en rectángulos, Área = longitud × ancho.

Volumen de un sólido geométrico: la cantidad de espacio dentro de un sólido geométrico tridimensional. Por ejemplo, en prismas rectangulares, Volumen = longitud × ancho × altura.

REPRESENTACIONES

Papel de puntos isométricos



EUREKA MATH™ CONSEJOS PARA PADRES

RESUMEN DE CONCEPTOS CLAVE

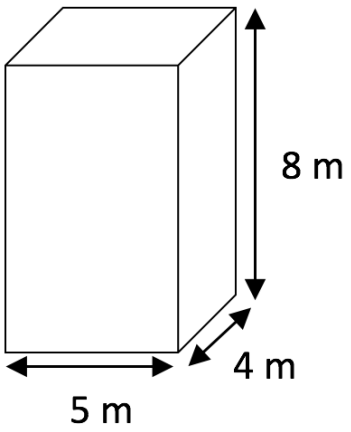
En las Lecciones 4 a 9, los estudiantes continúan trabajando con volumen a medida que aprenden a encontrar el volumen de un **prisma rectangular**. Además, los estudiantes aplican sus habilidades a contextos del mundo real.

Espere ver tareas que le pidan a su hijo/a que haga lo siguiente:

- Encontrar el volumen de un prisma rectangular usando fórmulas de volumen.
  - Volumen de un prisma rectangular = longitud × ancho × altura.
  - Volumen de un prisma rectangular = área de la base × altura.
- Resolver problemas usando la ecuación 1 cm^3 = 1 ml.
- Resolver problemas narrados que involucran el volumen.

MUESTRA DE UN PROBLEMA *(Tomado de la Lección 4)*

Calcula el volumen de un prisma rectangular. Incluye las unidades en tu enunciado numérico.



Volumen = 5 m × 4 m × 8 m = 160 m^3

Puede encontrar ejemplos adicionales de problemas con pasos de respuesta detallados en los libros de *Eureka Math Homework Helpers*. Obtenga más información en GreatMinds.org.

CÓMO PUEDE AYUDAR EN CASA

- Ayúdele a su hijo/a a practicar cómo encontrar el volumen de prismas rectangulares. Encuentre prismas rectangulares en su casa. Use una regla para medir la longitud, el ancho y la altura de cada prisma hasta el centímetro o pulgada más cercana y después encuentre el volumen de cada prisma. Por ejemplo, si una caja de cereal mide 9 pulgadas de largo, 3 pulgadas de ancho y 13 pulgadas de alto, entonces el volumen de esta caja de cereal es 351 pulgadas cúbicas.
- Juegue el juego de cartas Encuentra el volumen con su hijo/a.
    1. Saque las jotas, reinas, reyes, ases y comodines de la baraja.
    2. Ponga el resto de las cartas boca abajo.
    3. Voltee tres cartas.
    4. El número en cada carta representa una dimensión de un prisma rectangular. Deje que la primera carta represente la longitud, la segunda, el ancho y la tercera, la altura.
    5. Escoja una unidad de medida para las dimensiones del prisma rectangular, como pulgadas, pies, centímetros o metros.
    6. Escriba la expresión de multiplicación para el volumen del prisma rectangular y pídale a su hijo/a que encuentre el volumen.

  Por ejemplo, usted voltea las cartas con los números 9, 7 y 4 y decide usar pies como la unidad. El número 9 representa la longitud de 9 pies. El número 7 representa el ancho de 7 pies. El número 4 representa la altura de 4 pies. Usted escribe $9 \text{ ft} \times 7 \text{ ft} \times 4 \text{ ft}$. Su hijo/a escribe $9 \text{ ft} \times 7 \text{ ft} \times 4 \text{ ft} = 252$ pies cúbicos.

  NOTA: para los prismas rectangulares, puede asignar cualquiera de los tres números a la longitud, ancho o altura. La multiplicación da el mismo resultado independientemente de cómo se asignen las medidas.

VOCABULARIO

Prisma rectangular: una figura tridimensional con seis lados rectangulares. Vea la muestra de una imagen a continuación.