# حل الوحدة الثانية Volume الحجم من كتاب الطالب منهج ريفيل


موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف الخامس ⇦ رياضيات ⇦ الفصل الأول ⇦ حلول ⇦ الملف



تاريخ إضافة الملف على موقع المناهج: 2024-10-15 14:56:32



| المزيد من مادة رياضيات: | ملفات ا كتب للمعلم ا كتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس |
|---|


## التواصل الاجتماعي بحسب الصف الخامس

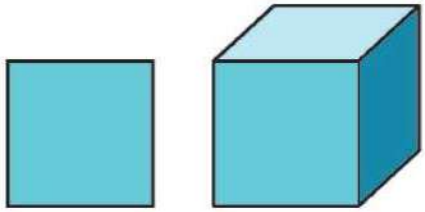

| صفحة المناهج الإماراتية على فيسبوك |  |  |  |  |  |
|---|---|---|---|---|---|
| المواد على تلغرام | التربية الاسلامية | اللغة العربية | اللغة الانجليزية | الرياضيات | |


## المزيد من الملفات بحسب الصف الخامس والمادة رياضيات في الفصل الأول

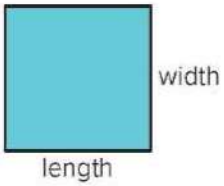

| | |
|---|---|
| 1 | حل أوراق عمل الوحدة الرابعة Decimals Subtract and Add جمع وطرح الأعداد العشرية |
| 2 | أوراق عمل الوحدة الرابعة Decimals Subtract and Add جمع وطرح الأعداد العشرية |
| 3 | حل أوراق عمل مراجعة الوحدة الأولى منهج ريفيل |
| 4 | أوراق عمل مراجعة الوحدة الأولى منهج ريفيل |
| 5 | أسئلة الاختبار التكويني الأول |

## Learn

**How are these figures the same?**
**How are they different?**

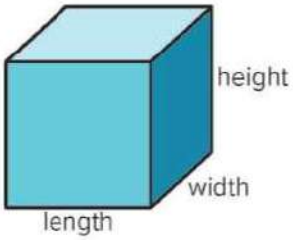


This figure has two dimensions.




Each dimension is a measureable edge length.

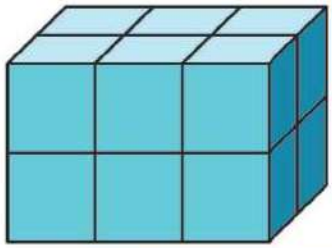
This figure has three dimensions.



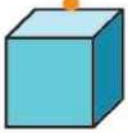

Each dimension is a measureable edge length.

The space occupied by a 3-dimensional figure is called **volume**.

You can pack **rectangular prisms** using **unit cubes** with no gaps or overlaps to establish volume.



A unit cube has edge lengths of 1 unit.

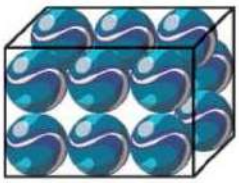


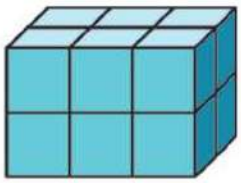
**Math is... Precision**

Does an empty box have volume? Does a filled box have volume? Explain why or why not.

## Work Together

One student used marbles to pack a rectangular prism. Another student used unit cubes.





What do you notice about these strategies?

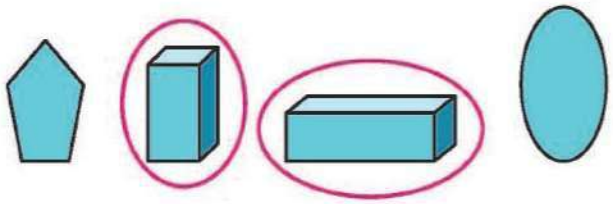
**Sample answer: The marbles do not completely fill the rectangular prism because there are gaps. The unit cubes fill the rectangular prism with no gaps.**

## On My Own

MATH REPLAY | GO ONLINE

Name _____

1. Which of these figures have volume? Justify your reasoning.



**Sample answer:**
**Only 3-dimensional figures have volume.**

**For the situation, would you measure the *length*, *area*, or *volume*? Explain.**

2. the amount of soil needed to fill a flower pot

**volume; Sample answer: You are filling a 3-dimensional figure.**

3. the distance of a bike ride

**length; Sample answer: Distance is length.**

4. the amount of wall space covered by a poster

**area; Sample answer: You are covering a 2-dimensional figure.**

5. the amount of concrete needed to fill a patio

**volume; Sample answer: The concrete is filling a 3-dimensional figure.**

6. the space inside a moving truck

**volume; Sample answer: You are packing a 3-dimensional figure.**

7. the distance around a building

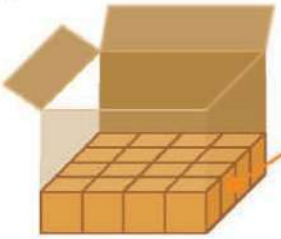
**length; Sample answer: Perimeter is length.**

## Learn

**How can you determine the volume of this box?**

You can pack the box with unit cubes to determine the volume. A unit cube has a volume of one **cubic unit**.

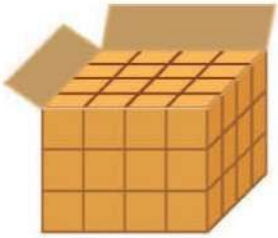
Sixteen cubes fill the bottom of the box.



16 unit cubes

Are there gaps or overlaps?

There are 3 layers of unit cubes.



$3 \times 16 = 48$

The volume of the box is 48 cubic units.

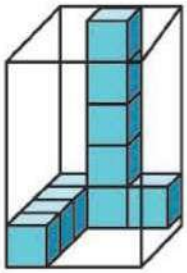
**Math is... Structure**

Why can you use addition or multiplication to determine the number of unit cubes?

One way to determine the volume of a 3-dimensional figure is to pack it with unit cubes and count the cubes.

### Work Together

How can you determine the volume of this box?



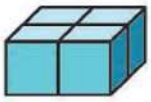
**Sample answer: There are 4 × 3, or 12, unit cubes in each layer. There are 5 layers and 12 × 5 = 60.**

## On My Own

MATH REPLAY | GO ONLINE

Name _____

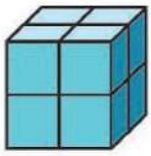
**Determine the volume of the figure.**

1. 

Number of layers: 1

Number in each layer: 4

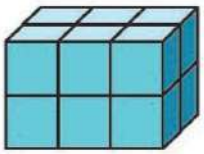
Volume: 4 cubic units

2. 

Number of layers: 2

Number in each layer: 4

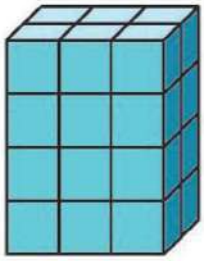
Volume: 8 cubic units

3. 

Number of layers: 2

Number in each layer: 6

Volume: 12 cubic units

4. 

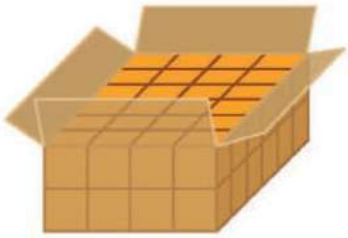
Number of layers: 4

Number in each layer: 6

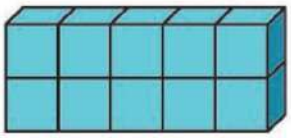
Volume: 24 cubic units

5. How can you determine the volume of the box?

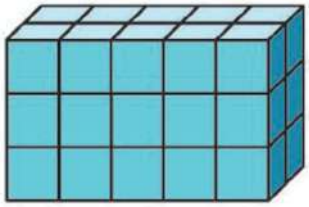
**Sample answer: There are 4 × 6 unit cubes in a layer and 2 layers; 4 × 6 × 2 = 48.**



**What is the volume of the figure?**

6. 

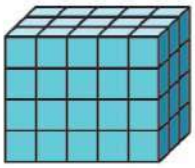
10 cubic units

7. 

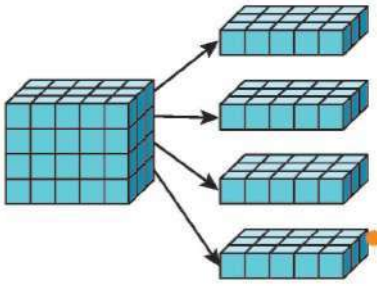
30 cubic units

## Learn

**What are some ways to determine the volume of this rectangular prism?**



**One Way** Multiply to find the number of cubes in one layer. Then, multiply by the number of layers.



base layer

$3 \times 5 = 15$

Volume = *Base* × *height*

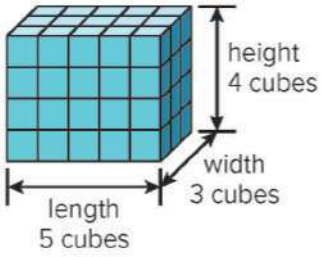
$V = B \times h$

$V = 15 \times 4$

$V = 60$ cubic units

A **formula** is a rule that uses math symbols.

**Another Way** Multiply the three attributes.




Volume = length × width × height

$V = l \times w \times h$

$V = 5 \times 3 \times 4$

$V = 60$ cubic units

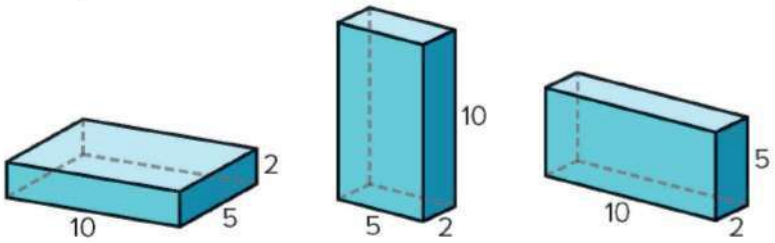
You can use a volume formula to determine the volume of a rectangular prism.

**Math is... Modeling**

How are the two formulas related?

## Work Together

What do you notice about the volumes of the rectangular prisms? Explain why this occurs.




**They all have the same volume. Sample explanation: They all have the same dimensions; $10 \times 5 \times 2 = 100$**

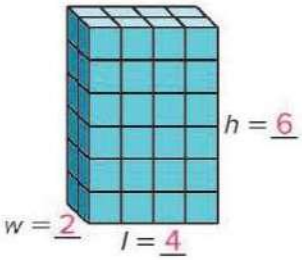
## On My Own

MATH REPLAY | GO ONLINE

Name _____

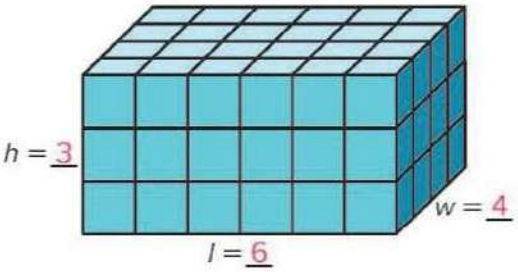
**Label the dimensions and then determine the volume of the figure.**

**1.**




$V =$ **48** cubic units

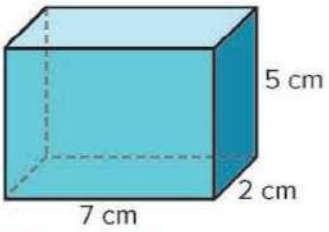
**2.**




$V =$ **72** cubic units

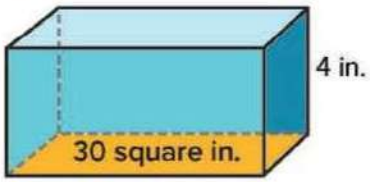
**What is the volume of the figure? Tell which volume formula you used and why.** **Check students' explanations.**

**3.**



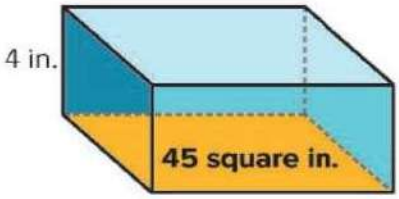

**70 cubic cm**

**4.**



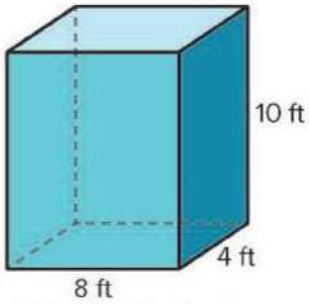

**120 cubic in.**

**5.**



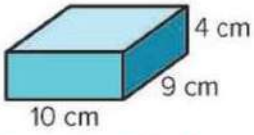

**180 cubic in.**

**6.**




**320 cubic ft**

**7.** Explain how the Associative Property can be used to mentally find the volume of this figure.




**Sample answer: It is easier to mentally multiply 9 × 4, then by 10.**

8. A freezer, shaped like a rectangular prism, is 6 feet long, 2 feet wide, and 3 feet tall. What is the volume of the freezer?

**36 cubic ft**

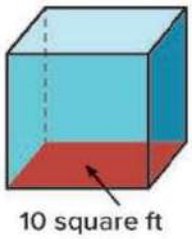
9. An Olympic swimming pool is 2 meters deep. What is the volume of the swimming pool? **2,500 cubic m**


10. **Extend Your Thinking** Do you agree or disagree with this statement? Justify your reasoning. When the edge lengths of a rectangular prism are doubled, the volume is also doubled.

**Disagree; Sample answer: When the edge lengths are doubled the volume is 8 times as much because $2 \times 2 \times 2 = 8$.**

11. **Error Analysis** Colton says that he does not have enough information to find the volume of the figure. Do you agree? Explain.

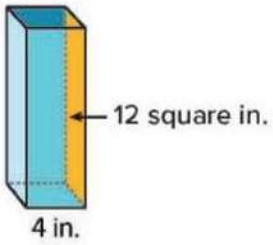
**Yes. Sample answer: You also need to know the height of the figure to find the volume.**




## Reflect

Can you use a formula to find the volume of this rectangular prism? Explain why or why not.

**Answers may vary.**

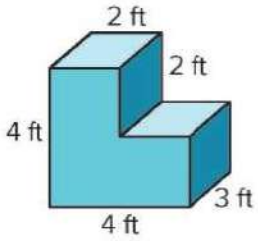



**Math is... Mindset**

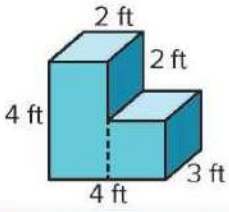
How did you stay focused on your work?

## Learn

**How can you determine the volume of this figure?**



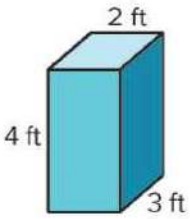

Look for a way to make two rectangular prisms.



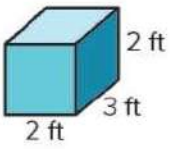

**Math is... Connections**

Why should the volume be the same whichever way you decompose a composite figure?

Determine the volume of each rectangular prism.



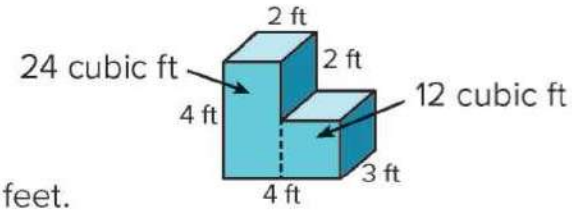

$V = 2 \times 3 \times 4$
$V = 24$ cubic ft




$V = 2 \times 3 \times 2$
$V = 12$ cubic ft

Add the volumes.

$24 + 12 = 36$



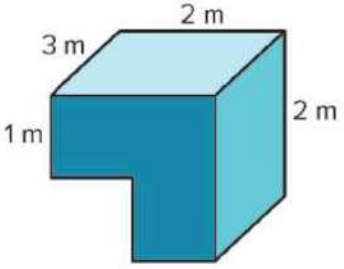

The volume of the figure is 36 cubic feet.

You can determine the volume of the **composite solid figure** by adding the volumes of the rectangular prisms that compose it.

## Work Together

Draw lines to show how you could decompose the solid. What is the volume of the figure?

**9 cubic meters**

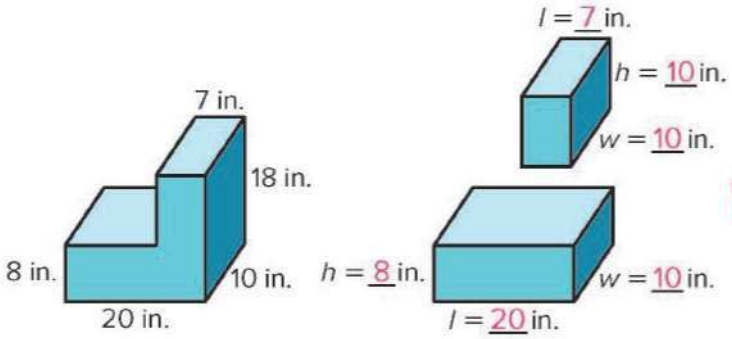


## On My Own

MATH REPLAY | GO ONLINE

Name _____

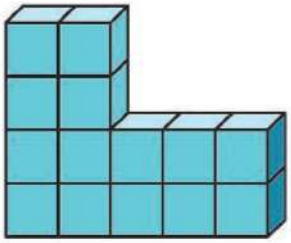
**1.** Label the unknown dimensions of the decomposed figure and then find the volume of the composite solid figure.




**V = 2,300 cubic in.**

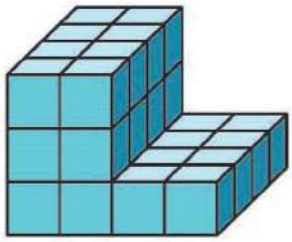
**What is the volume of the figure?**

**2.**



$V =$ **14** cubic units

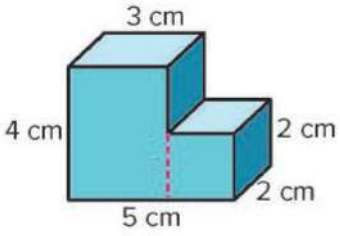
**3.**



$V =$ **32** cubic units

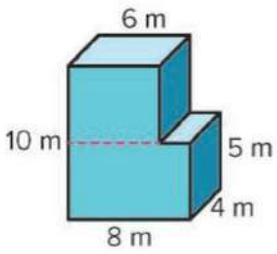
**Draw line(s) to show how you decomposed the figure.**
**What is the volume of the figure? Sample lines shown.**

**4.**




$V =$ **32 cubic cm**

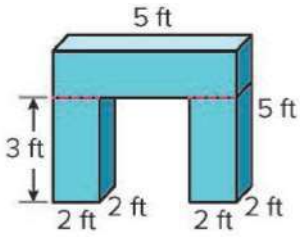
**5.**




$V =$ **280 cubic m**

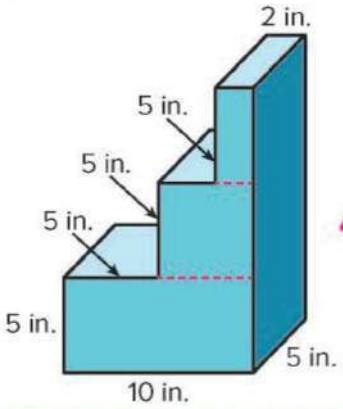
**Draw line(s) to show how you decomposed the figure.**
**What is the volume of the figure?** Sample lines shown.

**6.**



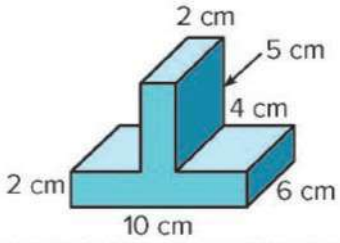

44 cubic ft

**7.**



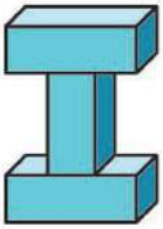

425 cubic in.

**8. STEM Connection** An ocean engineer is designing an underwater robot. The robot will have two pieces like the one shown. What is the volume of the robot?




360 cubic cm

**9.** A sign company made this letter using rectangular prisms. Each prism is 12 inches by 4 inches by 4 inches. What is the volume of the letter? Explain.



576 cubic in.; Check students' explanations.

**10. Extend Your Thinking** Two rectangular prisms have a combined volume of 18 cubic feet. The volume of one prism is twice the volume of the other prism. What is the volume of each prism? Record your thinking.

6 cubic ft and 12 cubic ft; Check students' work.

## Reflect

How is finding the volume of composite figures similar to finding the area of composite figures?

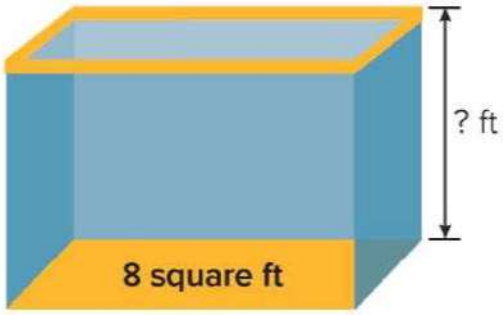
Answers may vary.

**Math is... Mindset**

What did you do today to build a better relationship with a classmate?

## Learn

A fish tank has a volume of 24 cubic feet.
**How can you determine the height of the fish tank?**




**Math is... Quantities**

How can you describe the relationship between the given quantities?

You can use a volume formula to solve problems.

The volume of the tank is 24 cubic feet. The base is 8 square feet.

$$V = B \times h$$

$$24 = 8 \times h$$

To solve the equation, write a related division equation.

$$24 = 8 \times h$$

$$24 \div 8 = h$$

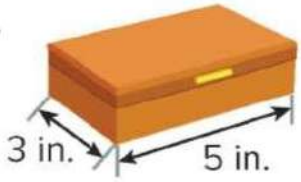
$$24 \div 8 = 3$$

The fish tank has a height of 3 feet.

When solving problems involving volume, you can use the given information to help you determine which volume formula to use.

## Work Together

A jewelry box has a volume of 30 cubic inches. What is the height of the jewelry box? Show your work.




**2 inches; Sample answer:**
**$30 = 5 \times 3 \times h$;**
**$30 = 15 \times h$;**
**$30 \div 15 = h$; $h = 2$**

# Unit Review Name _____

## Vocabulary Review

**Choose the correct word(s) to complete each sentence.**

| | |
|---|---|
| composite solid figure | cubic unit |
| formula | rectangular prism |
| unit cube | volume |

1. A **composite solid figure** is a solid figure that is made up of two or more solids. (Lesson 2–4)

2. The space occupied by a 3-dimensional figure, or solid figure, is called **volume**. (Lesson 2–1)

3. A cube with edge lengths of one unit is called a **unit cube**. (Lesson 2–1)

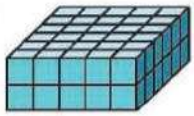
4. A **cubic unit** is a unit for measuring volume. (Lesson 2–2)

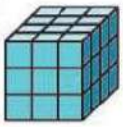
5. A **formula** is an equation that describes the relationship between two or more quantities. (Lesson 2–3)

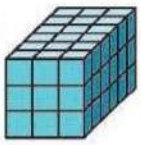
6. A 3-dimensional figure with six rectangular faces is called a **rectangular prism**. (Lesson 2–1)

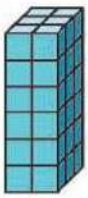
## Review

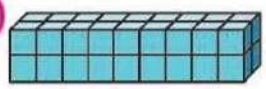
**7.** Which rectangular prisms have a volume of 36 cubic units? Select all that apply. (Lesson 2–3)

**A.** 

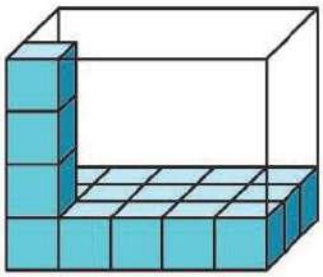
**B.** 

**C.** 

**D.** 

**E.** 

**8.** The figure shows a rectangular prism partially filled with unit cubes. (Lesson 2–2)

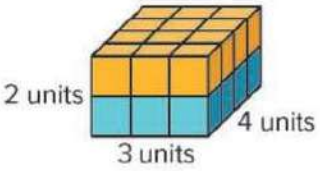


What is the volume of the rectangular prism?

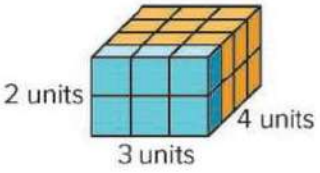
60 cubic units

**9.** Which equation represents the different ways to find the volume of these figures? (Lesson 2–3)

Prism A:




Prism B:




**A.** $(4 \times 3) \times 2 = 4 \times (3 \times 2)$

**B.** $(3 \times 4) \times 2 = (4 \times 3) + 2$

**C.** $3 \times (4 \times 2) = (3 \times 4) \times (3 \times 2)$

**D.** $3 \times (4 + 2) = (3 \times 4) + (3 \times 2)$

**10.** A rectangular pool is 42 feet long, 15 feet wide, and 4 feet high. It is filled with water to a depth of 3 feet. What is the volume of the water in the pool? (Lesson 2–5)

**A.** 4,410 cubic feet

**B.** 2,520 cubic feet

**C.** 630 cubic feet

**D.** 1,890 cubic feet

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**11.** The volume of a rectangular prism is 48 cubic inches. Which could be the dimensions of the prism? Select all that apply. (Lesson 2–3)

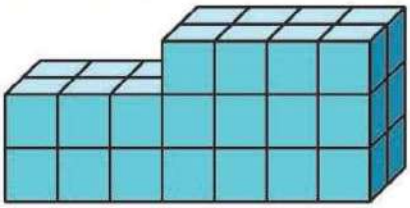
**A.** length = 24 inches
width = 1 inch
height = 2 inches

**B.** length = 6 inches
width = 6 inches
height = 4 inches

**C.** length = 16 inches
width = 16 inches
height = 16 inches

**D.** length = 12 inches
width = 2 inches
height = 2 inches

**12.** What is the volume of this figure? (Lesson 2–4)



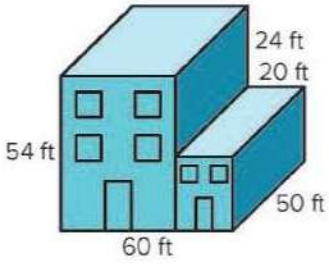
**A.** 32 cubic units

**B.** 38 cubic units

**C.** 34 cubic units

**D.** 36 cubic units

**13.** The figure shows the plans for a warehouse.




What will be the volume of the warehouse? (Lesson 2–4)

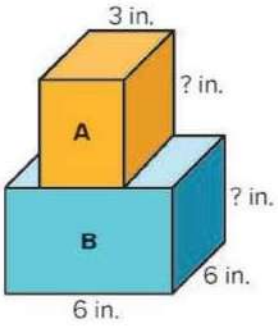
**A.** 72,000 cubic feet

**B.** 210,000 cubic feet

**C.** 138,000 cubic feet

**D.** 162,000 cubic feet

**14.** The combined volume of the two boxes shown is 270 cubic inches. Box A and Box B have the same width and height. Box B has twice the volume of Box A. (Lesson 2–4)




Fill in the height and volume of each box.

| | Height (in.) | Volume (cubic in.) |
|---|---|---|
| Box A | 5 | 90 |
| Box B | 5 | 180 |

Unit 2

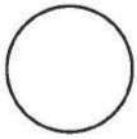
# Unit 2 Assessment, Form A

Name _____

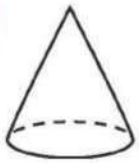


**1.** Which of these figures has volume? Choose all that apply.

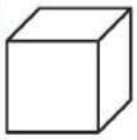
**A.**



**B.**



**C.**



**D.**

**2.** For which situation would you measure using unit cubes?

**A.** the amount of floor space covered by a carpet

**B.** the distance between two classrooms

**C.** the amount of wall space taken up by a window

**D.** the amount of space inside a box

**3.** Mya is filling a jumping pit with foam blocks. The area of the bottom of the pit is 168 square feet. If the height of the jumping pit is 4 feet, what is the volume of the pit?

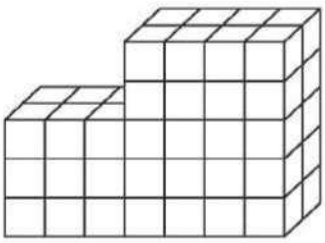
**A.** 172 cubic feet

**B.** 672 cubic feet

**C.** 1,344 cubic feet

**D.** 2,688 cubic feet

**4.** What is the volume of the figure?



**A.** 54 cubic units

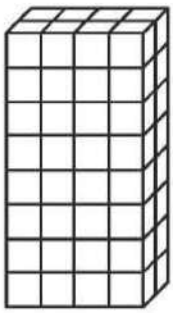
**B.** 56 cubic units

**C.** 58 cubic units

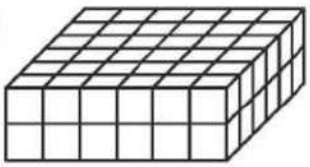
**D.** 60 cubic units

**5.** Which rectangular prisms have a volume of 72 cubic units? Choose all that apply.

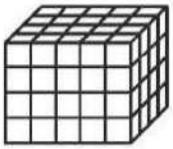
**A.**



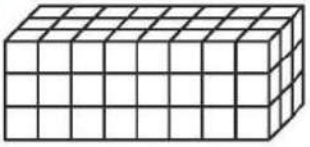
**B.**



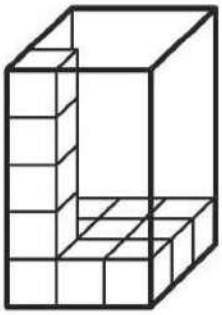
**C.**



**D.**



**6.** Seth partially fills a rectangular prism with unit cubes, as shown.



The volume of the rectangular prism is **45** cubic units.

**7.** The volume of a rectangular prism is 80 cubic inches. Which could be the dimensions of the prism? Choose all that apply.

**A.** length = 40 inches, width = 15 inches, height = 25 inches

**B.** length = 8 inches, width = 5 inches, height = 2 inches

**C.** length = 10 inches, width = 2 inches, height = 4 inches

**D.** length = 30 inches, width = 20 inches, height = 30 inches

**E.** length = 20 inches, width = 4 inches, height = 1 inch

## Unit 2 Assessment, Form A (continued)

Name _____



**8.** Lydia's school box is 10 inches long, 8 inches wide, and 4 inches high. What is the volume of the school box?

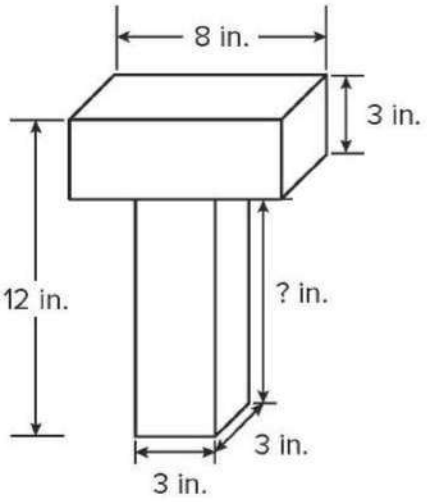
**A.** 22 cubic inches

**B.** 24 cubic inches

**C.** 320 cubic inches

**D.** 480 cubic inches

**9.** What is the volume of the T?



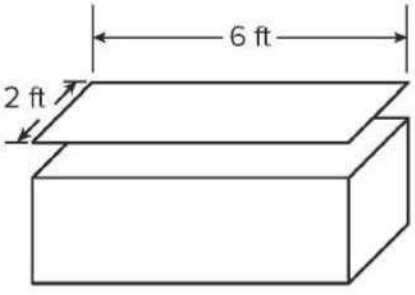

**A.** 288 cubic inches

**B.** 153 cubic inches

**C.** 105 cubic inches

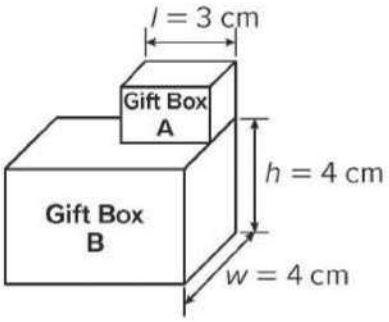
**D.** 288 cubic inches

**10.** A toy chest has a volume of 48 cubic feet. How tall is the toy chest?




The toy chest is 4 feet tall

**11.** The two gift boxes have a combined volume of 108 cubic centimeters. The dimensions of Gift Box A are half the dimensions of Gift Box B.




Which statement about the gift boxes is true?

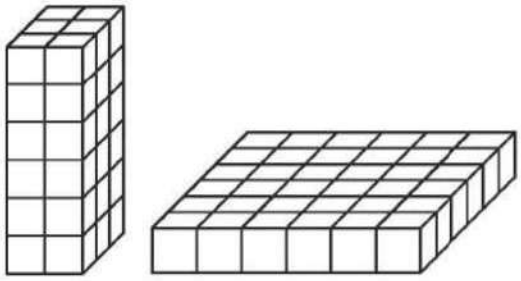
**A.** The volume of Gift Box A is 7 cubic cm, and the volume of Gift Box B is 14 cubic cm.

**B.** The volume of Gift Box A is 12 cubic cm, and the volume of Gift Box B is 64 cubic cm.

**C.** The volume of Gift Box A is 12 cubic cm, and the volume of Gift Box B is 96 cubic cm.

**D.** The volume of Gift Box A is 36 cubic cm, and the volume of Gift Box B is 72 cubic cm.

**12.** Janelle and Robert each build a figure using centimeter cubes.



Janelle's figure

Robert's figure

Janelle says that her figure has greater volume than Robert's figure because it is taller. Is Janelle correct? Explain.

**No. Both figures have the same volume. Sample answer: Janelle's figure is 2 × 6 × 3 = 36 cubic cm. Robert's figure is 6 × 6 × 1 = 36 cubic cm. Even though Janelle's figure is taller, it has the same volume as Robert's figure.**