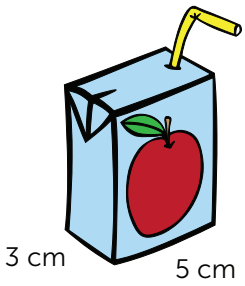
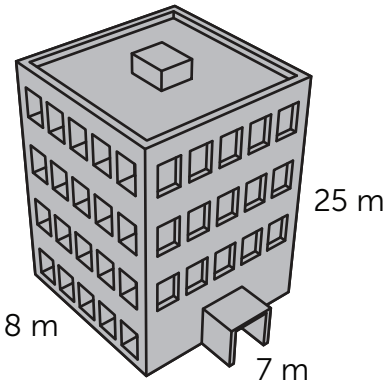
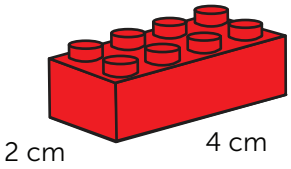
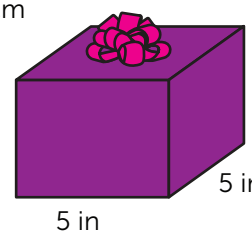
Pump Up the Volume

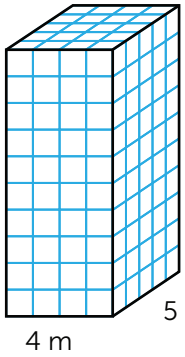
5th Grade

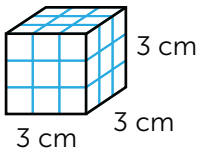


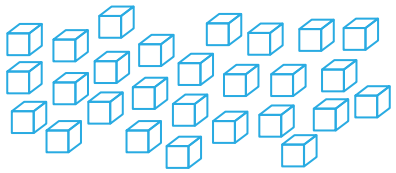












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Pump Up the Volume

* *Includes Answer Sheet*

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Name: _____ Date: _____

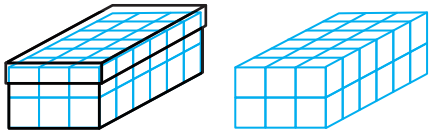
What Does Volume Mean?

Volume is the space taken up inside of something. Look inside a bottle of juice, a box of cereal, or a backpack. Volume is how much juice is in the bottle, how much cereal is in the box, or how many items can fit in your backpack.

Volume is the measurement of space occupied in three dimensions, or 3-D. If you measure around something, you measure perimeter. If you measure the surface of something, you measure area. When you measure inside of something, you measure volume.

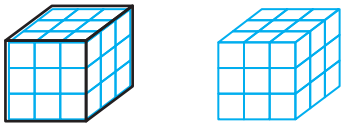
Directions: *Look at each object. Each object is filled up with the number of cubic units it can hold. Next to each object is the same number of cubic units that was inside the object. Count up how many cubic units fit inside each object. That is the* ***volume****!*

1.



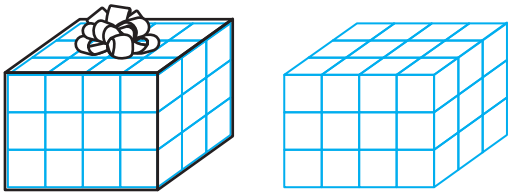
_____ units cubed

2.



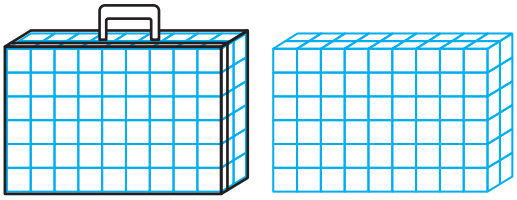
_____ units cubed

3.



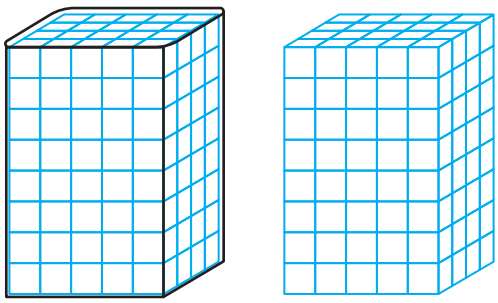
_____ units cubed

4.



_____ units cubed

5.



_____ units cubed

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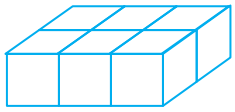
Model Volume for Yourself!

Directions: *Use sugar cubes, ice cubes or blocks to build each cube or rectangular prism. Then, count up the cubes and write down the volume.*

Example: *Build a figure with a length of 2 cubes, a width of 3 cubes, and a height of 1 cube.*



The volume of the figure is 6 units cubed.

---

1. Build a figure with a length of 1 cube, a width of 2 cubes, and a height of 4 cubes.

The volume of the figure is _____ units cubed.

2. Build a figure with a length of 3 cubes, a width of 2 cubes, and a height of 2 cubes.

The volume of the figure is _____ units cubed.

3. Build a figure with a length of 4 cubes, a width of 2 cubes, and a height of 1 cube.

The volume of the figure is _____ units cubed.

4. Build a figure with a length of 5 cubes, a width of 3 cubes, and a height of 2 cubes.

The volume of the figure is _____ units cubed.

5. Build a figure with a length of 2 cubes, a width of 1 cube, and a height of 5 cubes.

The volume of the figure is _____ units cubed.

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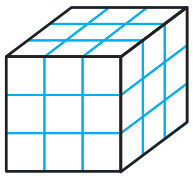
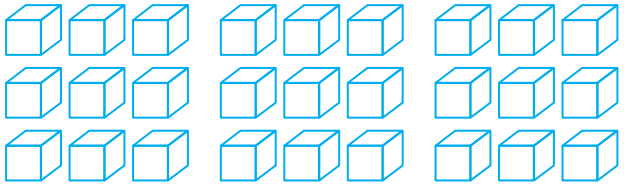
What Do Cubes Have to Do with Volume?

Volume: the amount of space occupied by a 3-D object, measured in cubic units. These units can be centimeters, inches, meters, or any other unit of distance.

 = 1 cubic unit

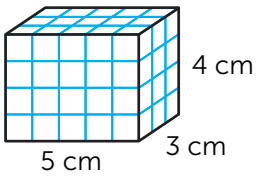
For this object, the height is 3 units, the length is 3 units, and the width is 3 units.

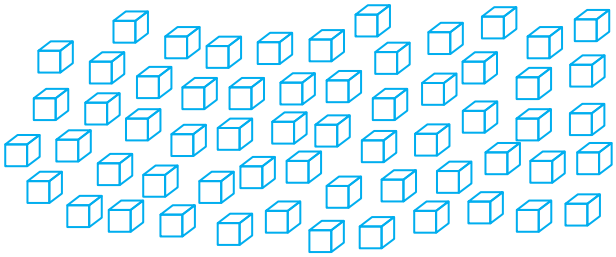




Directions: *Look at each 3-D figure. Next to each figure is the number of cubic units used to create the figure. Find the volume of each figure by counting up how many cubic units were used to make each figure.*

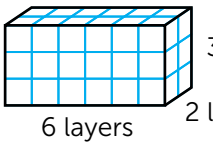
Example:



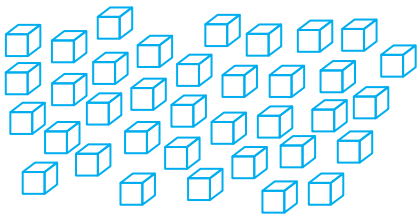


60 cm^3

1.



_____ $units^3$



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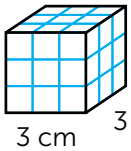
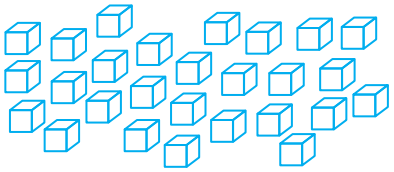


_____ cm^3



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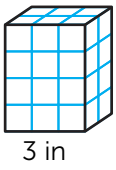
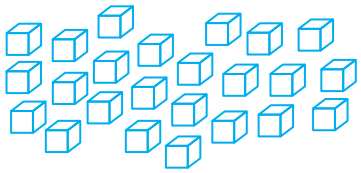


_____ in^3



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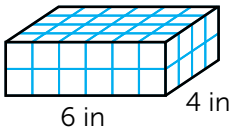
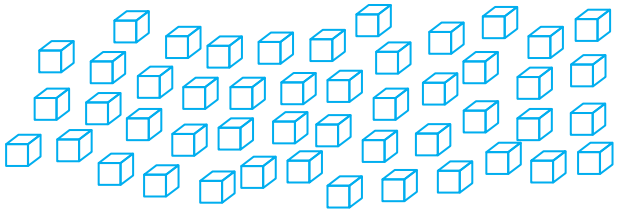


_____ in^3



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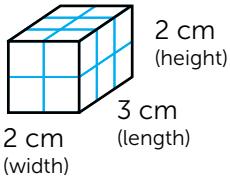
What's the Formula?

The mathematical formula for volume is **length** x **width** x **height**.

The short version of this is **V = l x w x h**

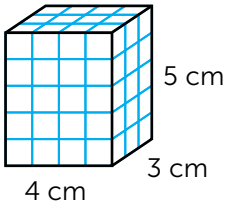
Directions: *Write the missing values for the length, width, and height of each cube.*

Example:



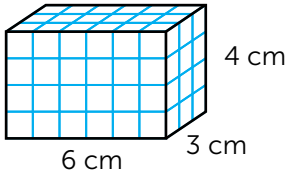
2 (length) cm x 3 (width) cm x 2 (height) cm = 12 cm³

1.



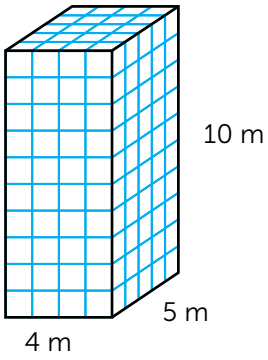
_____ (length) cm x _____ (width) cm x _____ (height) cm = 60 cm³

2.



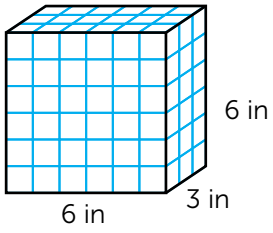
_____ (length) cm x _____ (width) cm x _____ (height) cm = 72 cm³

3.



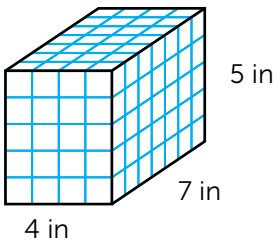
_____ (length) m x _____ (width) m x _____ (height) m = 200 m³

4.



_____ (length) in x _____ (width) in x _____ (height) in = 108 in³

5.



_____ (length) in x _____ (width) in x _____ (height) in = 140 in³

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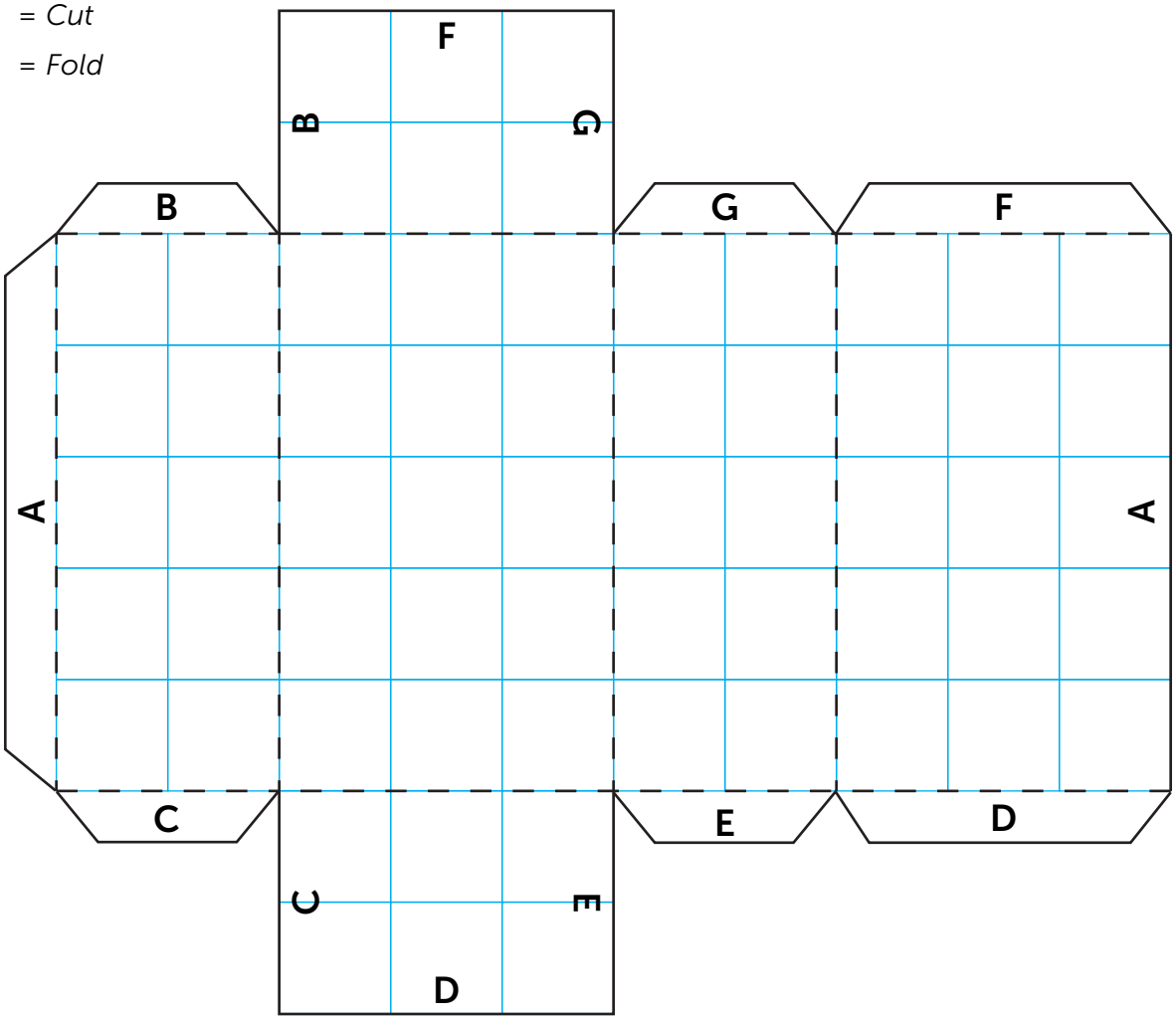
Create Shapes and Find the Volume

Part 1

Directions: *Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.*

_____ = *Cut*

- – – – - = *Fold*



Use the workspace below to figure out the volume of the shape.

A

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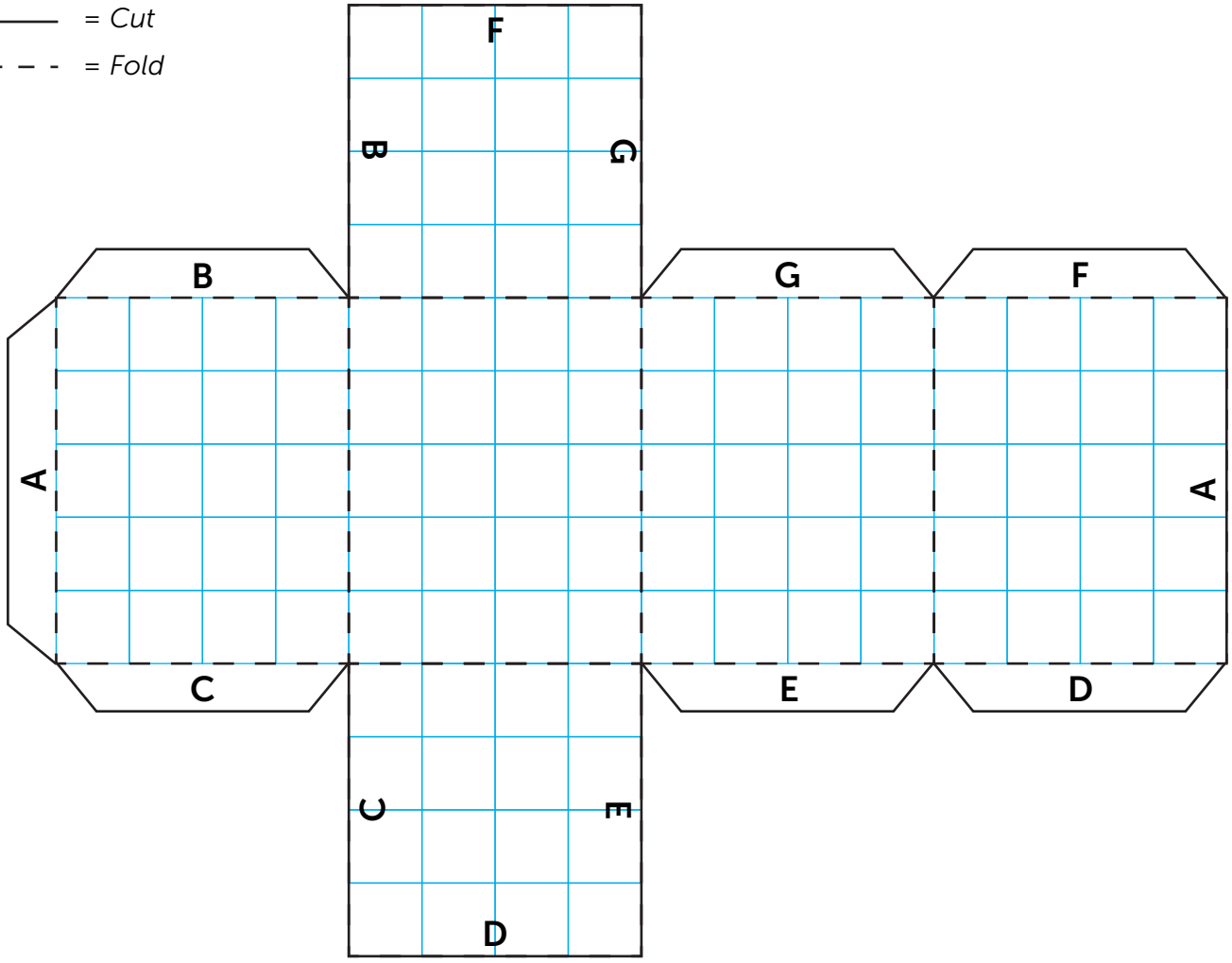
Create Shapes and Find the Volume Part 2

Directions: *Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.*

———— = *Cut*

- – – – - = *Fold*



Use the workspace below to figure out the volume of the shape.

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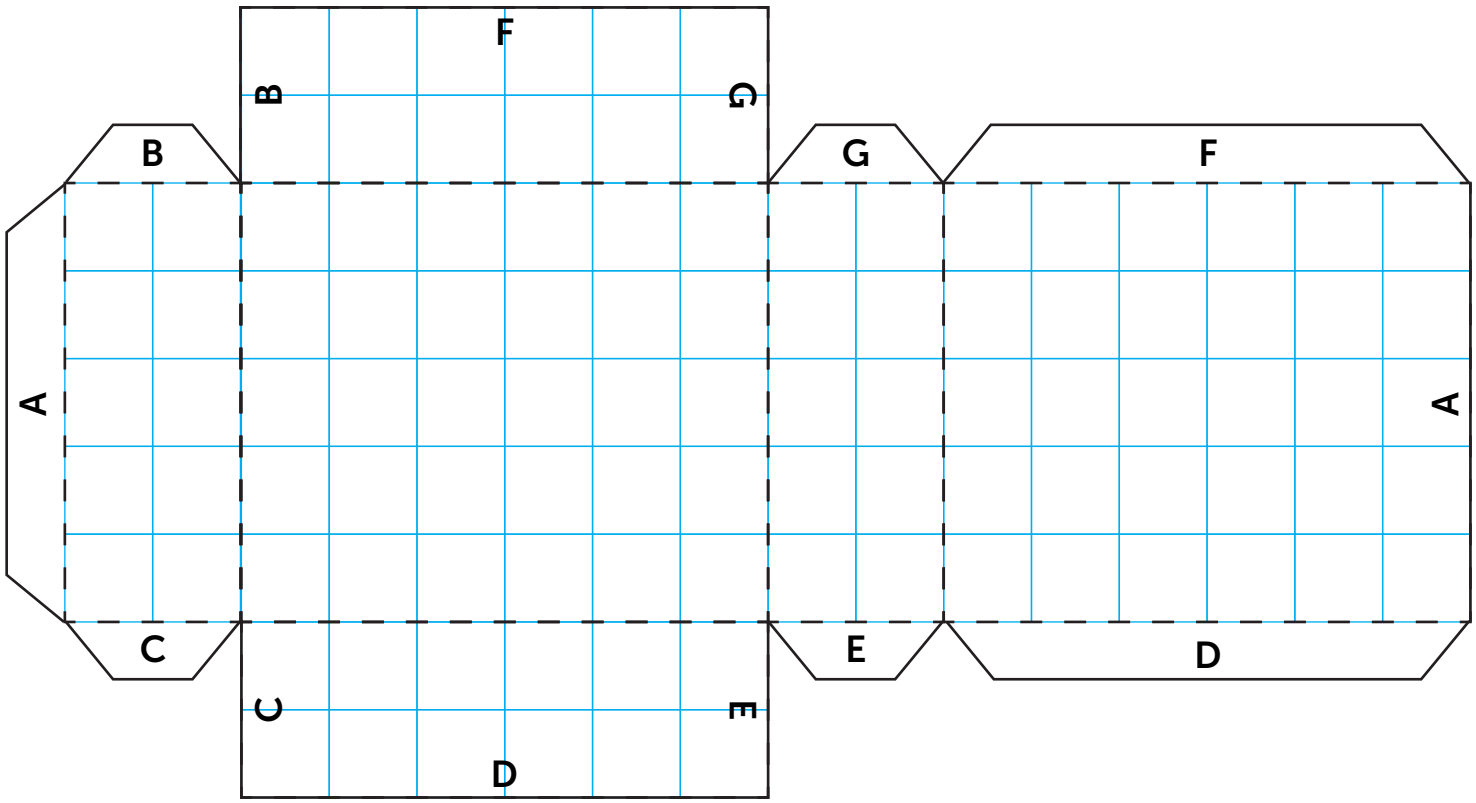
Create Shapes and Find the Volume Part 3

Directions: *Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.*

_____ = *Cut*

- – – – - = *Fold*



Use the workspace below to figure out the volume of the shape.

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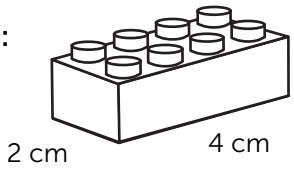
Name: _____ Date: _____

How Much Space is There?

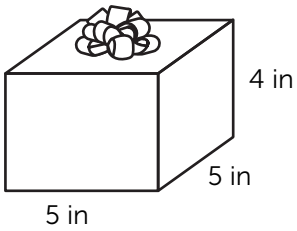
Directions: *Find out how much you can fit in each space. Find the volume for each item.*

Example:



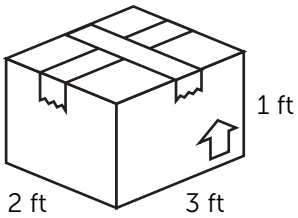
4 cm (length) x 2 cm (width) x 2 cm (height) = 16 cm³

1.



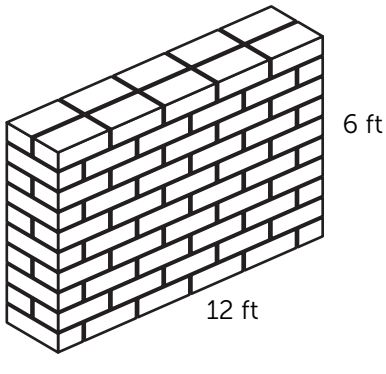
_____ (length) x _____ (width) x _____ (height) = _____³

2.



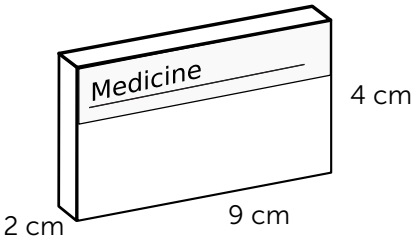
_____ (length) x _____ (width) x _____ (height) = _____³

3.



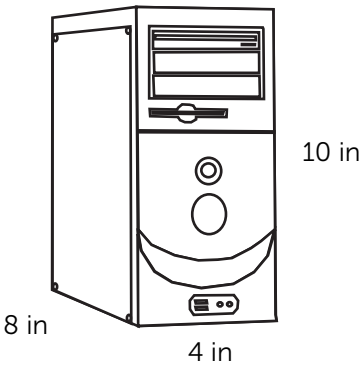
_____ (length) x _____ (width) x _____ (height) = _____³

4.



_____ (length) x _____ (width) x _____ (height) = _____³

5.



_____ (length) x _____ (width) x _____ (height) = _____³

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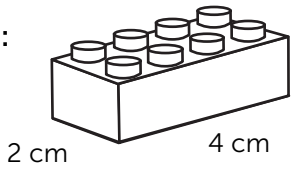
Name: _____ Date: _____

How Much Space is There?

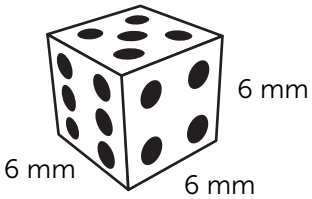
Directions: *Find out how much you can fit in each space. Find the volume for each item.*

Example:



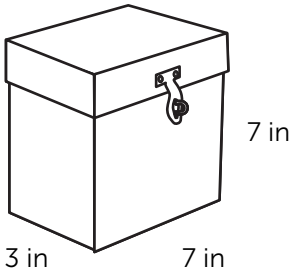
4 cm (length) x 2 cm (width) x 2 cm (height) = 16 cm³

1.



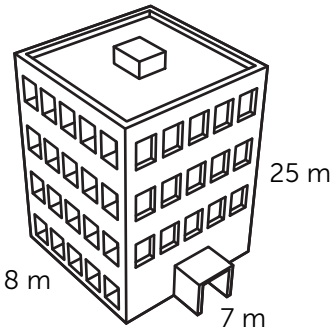
_____ (length) x _____ (width) x _____ (height) = _____³

2.



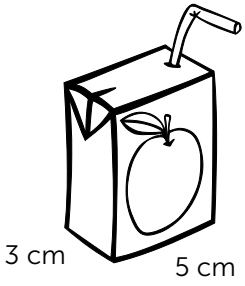
_____ (length) x _____ (width) x _____ (height) = _____³

3.



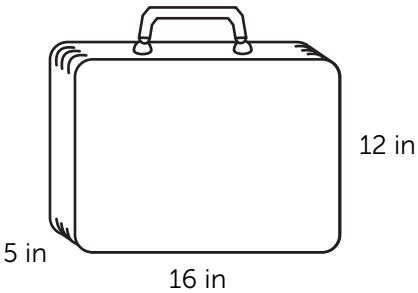
_____ (length) x _____ (width) x _____ (height) = _____³

4.



_____ (length) x _____ (width) x _____ (height) = _____³

5.



_____ (length) x _____ (width) x _____ (height) = _____³

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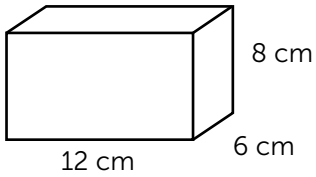
Base and Volume

Sometimes the length and width have already been multiplied together for you. When this happens, it is called the **base**. When you know the value of the base, all you have to do is multiply the base times the height to find the volume of the object.

base = length x width
volume = base x height

Directions: *Find the volume of each object using the base and height.*

Example:

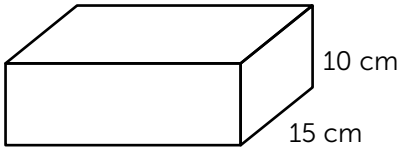


base = 12 x 6 =, so the base is **72 cm²**

To find the volume, multiple the base times the height.

V = base x height **V** = 72 x 8 **V** = **576 cm³**

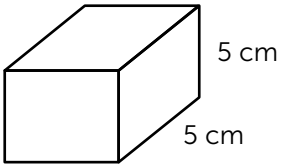
1.



base = 300 cm²

_____ (base) x _____ (height) = _____ (volume)

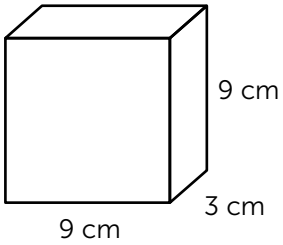
2.



base = 20 cm²

_____ (base) x _____ (height) = _____ (volume)

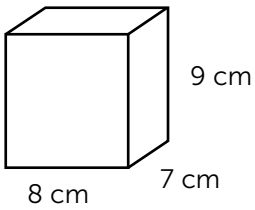
3.



base = 27 cm²

_____ (base) x _____ (height) = _____ (volume)

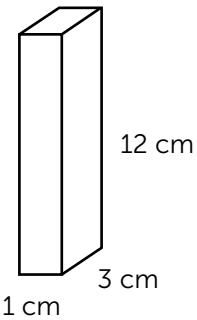
4.



base = 56 cm²

_____ (base) x _____ (height) = _____ (volume)

5.



base = 3 cm²

_____ (base) x _____ (height) = _____ (volume)

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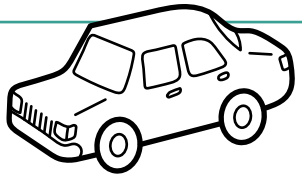
Name: _____ Date: _____

Base, Volume, and Word Problems, Oh My!

Directions: *Find the volume for each word problem.*

Example: My mom bought a car that has a base of 30 square feet and a height of 5 feet. What is the volume?

$$\underset{\text{(base)}}{30\ ft} \times \underset{\text{(height)}}{5\ ft} = \underset{\text{(volume)}}{150\ ft^3}$$



1. I have a house that has a base of 130 square feet and a height of 20 feet. What is the volume?

2. My hamster's cage has a base of 28 square inches and a height of 9 inches. What is the volume?

3. The space under my bed has a base of 24 square feet and a height of 1 foot. What is the volume?

4. The fireplace in the living room has a base of 3 square feet and a height of 2 feet. What is the volume?

5. My closet has a base of 6 square meters and a height of 8 meters. What is the volume?

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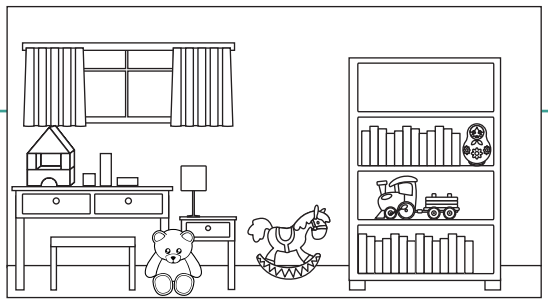
Name: _____ Date: _____

Volume and Word Problems

Directions: *Find the volume for each word problem.*



1. If you have a box of candy that is 8 inches long, 5 inches wide, and 2 inches tall, how much space do you have for candy?

2. If you have a toy bin that is 6 feet long, 4 feet wide, and 3 feet high, how much space do you have for toys?

3. If your toy car's trunk is 8 feet long, 6 feet wide, and 4 feet tall, how much room do you have in your trunk?

4. If you have a dresser that is 7 meters high, 2 meters wide, and 4 meters long, how much room do you have for your clothes?

5. If you have a bookcase that is 3 feet tall, 1 foot wide, and 4 feet long, how much space do you have for books?

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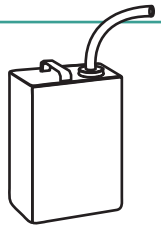
Name: _____ Date: _____

More than One: Addition

What happens when you need to find the total volume for multiple items? You must find the sum of all of the different volumes. See the example below.

Directions: *Read the problems below. Find the total volume for each problem.*

Example: A gasoline container measures 3 inches by 6 inches by 18 inches. If there are two gasoline containers, what is the total volume of these two containers?



$\underset{\text{(length)}}{3\text{ in}} \times \underset{\text{(width)}}{6\text{ in}} \times \underset{\text{(height)}}{18\text{ in}} = 324\text{ in}^3$

Now, find the sum of the volume of two gas cans.

$324\text{ in}^3 + 324\text{ in}^3 = 648\text{ in}^3$

1. Three ice cream cartons that measure 2 inches by 1 inch by 8 inches.

2. Four cookie packages that measure 8 centimeters by 11 centimeters by 3 centimeters.

3. Two filing cabinets that measure 2 meters by 1 meter by 3 meters.

4. Five tissue boxes that measure 4 inches by 5 inches by 7 inches.

5. Seven pudding containers that measure 50 millimeters by 20 millimeters by 10 millimeters.

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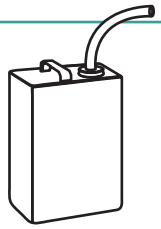
Name: _____ Date: _____

More than One: Multiplication

What happens when you need to find the volume for more than one item? You can use multiplication to find the volume of multiple containers. See the example below.

Directions: *Read the problems below. Find the total volume for each problem.*

Example: A gasoline container measures 3 inches by 6 inches by 18 inches. If there are two gasoline containers, what is the total volume of these two containers?



3 in (length) x 6 in (width) x 18 in (height) = 324 in^3

Now, take the volume (answer) from above and multiply it by 2 since there are 2 gas cans.

324 in^3 x 2 = 648 in^3

1. Eight jewelry boxes that measure 6 inches long, 3 inches wide, and 5 inches tall.

2. Three dishes that measure 8 inches by 8 inches by 4 inches.

3. Two hat boxes that measure 7 inches by 9 inches by 8 inches.

4. Five cereal boxes that are 8 inches long, 3 inches wide, and 12 inches tall.

5. Four suitcases that are 4 feet long, 1 foot wide, and 5 feet tall.

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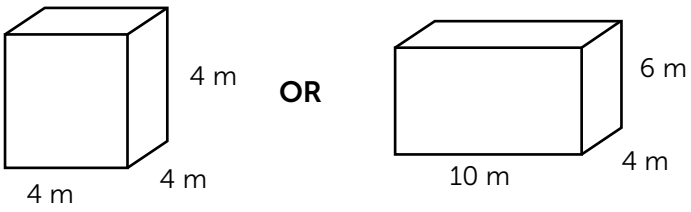
Name: _____ Date: _____

Smallest or Biggest?

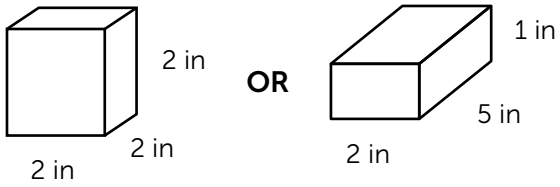
Directions: *Find the volume for each box. Use greater than and less than symbols to show which box is bigger.*

Example:



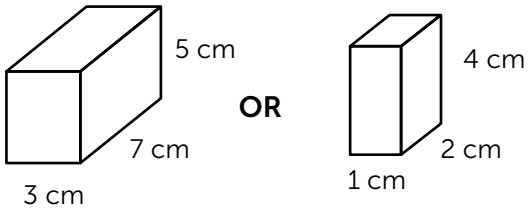
V = 64 m³ < V = 240 m³

1.



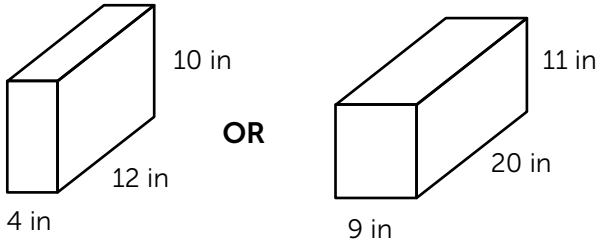
V = _____ ▭ V = _____

2.



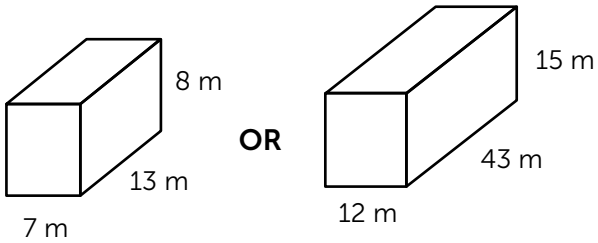
V = _____ ▭ V = _____

3.



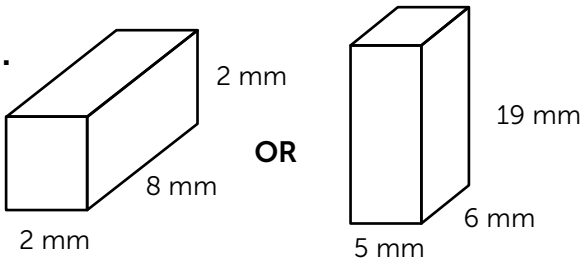
V = _____ ▭ V = _____

4.



V = _____ ▭ V = _____

5.



V = _____ ▭ V = _____

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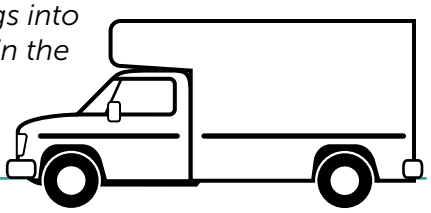
Name: _____ Date: _____

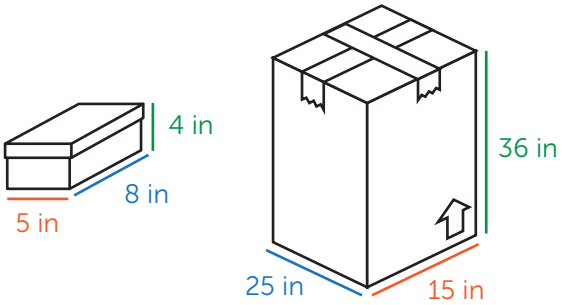
Applying Volume to Real Life: Moving

Directions: *You are moving and need to figure out how to fit all your belongings into a bigger box. Figure out how many of each item will fit into the bigger box. Fill in the maximum number of each item that will fit into the bigger box. Show your calculations.*



Example:

How many shoeboxes will fit into the larger cardboard box?



Maximum number of shoe boxes: 81

Explanation:

If the **length** of the bigger box is **25 inches**, that means I can fit **three shoe boxes** along the length of the big box.

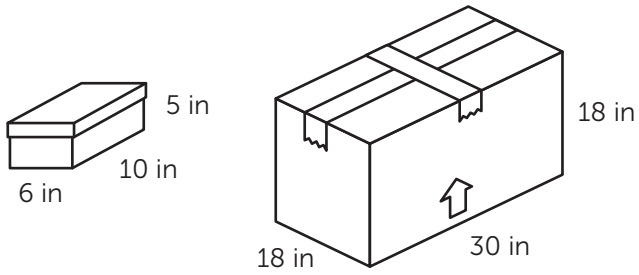
If the maximum **width** is **15 inches**, I can fit **three shoe boxes** wide along the width of the big box.

If the bigger box **height** is **36 inches**, I can fit **nine shoe boxes** high in the bigger box.

I will have 9 layers, of three shoe boxes times three shoe boxes (**3 x 3 = 9** shoe boxes in a layer). So, 9 shoe boxes per layer, times 9 layers high = (**9 x 9 = 81**) shoe boxes all together.

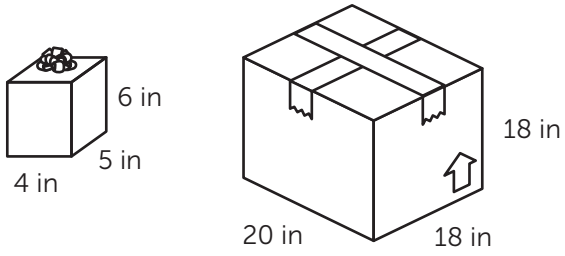
Therefore, **81 shoe boxes** will fit in the bigger box!

1. How many shoeboxes will fit into the larger cardboard box?



Maximum number of shoe boxes: _____

2. How many gift boxes will fit into the larger cardboard box?



Maximum number of gift boxes: _____

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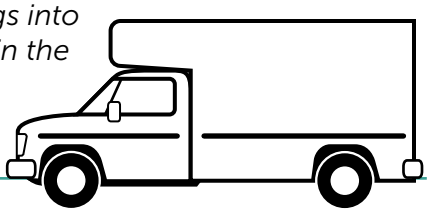
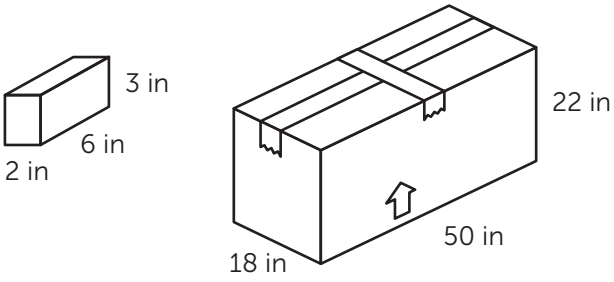
Name: _____ Date: _____

Applying Volume to Real Life: Moving

Directions: *You are moving and need to figure out how to fit all your belongings into a bigger box. Figure out how many of each item will fit into the bigger box. Fill in the maximum number of each item that will fit into the bigger box. Show your calculations.*

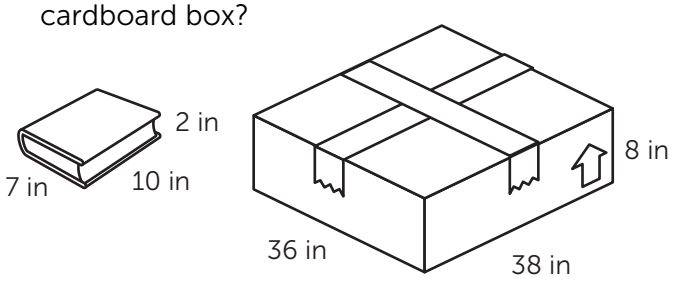


3. How many boxes of toothpaste will fit into the larger cardboard box?



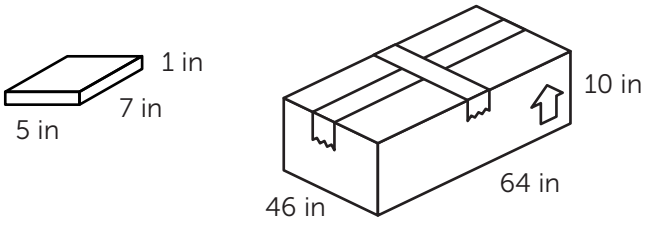
Maximum number of toothpaste boxes: _____

4. How many books will fit into the larger cardboard box?



Maximum number of books: _____

5. How many video game cases will fit into the larger cardboard box?



Maximum number of video game cases: _____

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DIPLOMA

Hereby bestowed upon

_____

for excellence in
completion of

_____

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Answer Sheets

Pump Up the Volume

What Does Volume Mean?
Model Volume for Yourself!
What Do Cubes Have to Do with Volume?
What's the Formula?
Create Shapes and Find the Volume
How Much Space Is There? (Part One)
How Much Space Is There? (Part Two)
Base and Volume
Base, Volume, and Word Problems, Oh My!
Volume and Word Problems
More than One: Addition
More than One: Multiplication
Smallest or Biggest?
Applying Volume to Real Life: Moving

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Answer Sheet

Name: _____ Date: _____

Answers

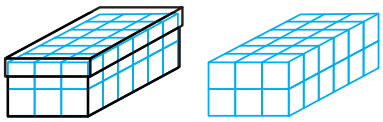
What Does Volume Mean?

Volume is the space taken up inside of something. Look inside a bottle of juice, a box of cereal, or a backpack. Volume is how much juice is in the bottle, how much cereal is in the box, or how many items can fit in your backpack.

Volume is the measurement of space occupied in three dimensions, or 3-D. If you measure around something, you measure perimeter. If you measure the surface of something, you measure area. When you measure inside of something, you measure volume.

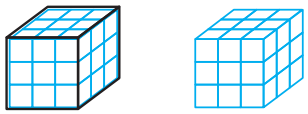
Directions: *Look at each object. Each object is filled up with the number of cubic units it can hold. Next to each object is the same number of cubic units that was inside the object. Count up how many cubic units fit inside each object. That is the* ***volume****!*

1.



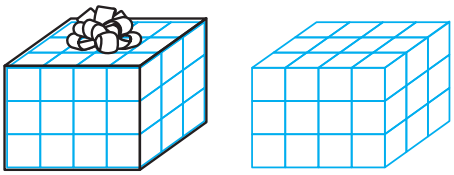
36 units cubed

2.



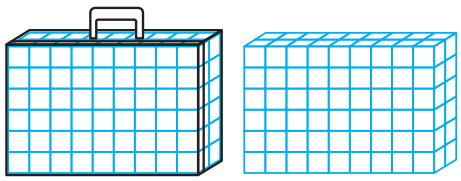
27 units cubed

3.



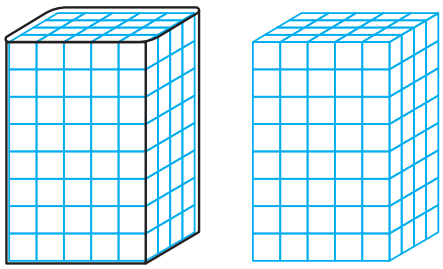
36 units cubed

4.



108 units cubed

5.



160 units cubed

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Answer Sheet

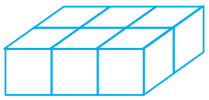
Name: _____ Date: _____

Answers

Model Volume for Yourself!

Directions: *Use sugar cubes, ice cubes or blocks to build each cube or rectangular prism. Then, count up the cubes and write down the volume.*

Example: *Build a figure with a length of 2 cubes, a width of 3 cubes, and a height of 1 cube.*



The volume of the figure is 6 units cubed.

---

1. Build a figure with a length of 1 cube, a width of 2 cubes, and a height of 4 cubes.

The volume of the figure is 8 units cubed.

2. Build a figure with a length of 3 cubes, a width of 2 cubes, and a height of 2 cubes.

The volume of the figure is 12 units cubed.

3. Build a figure with a length of 4 cubes, a width of 2 cubes, and a height of 1 cube.

The volume of the figure is 8 units cubed.

4. Build a figure with a length of 5 cubes, a width of 3 cubes, and a height of 2 cubes.

The volume of the figure is 30 units cubed.

5. Build a figure with a length of 2 cubes, a width of 1 cube, and a height of 5 cubes.

The volume of the figure is 10 units cubed.

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Answer Sheet

Name: _____ Date: _____

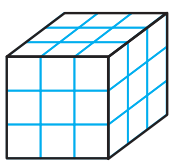
Answers

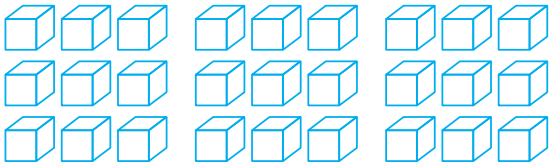
What Do Cubes Have to Do with Volume?

Volume: the amount of space occupied by a 3-D object, measured in cubic units. These units can be centimeters, inches, meters, or any other unit of distance.

 = 1 cubic unit

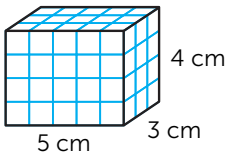
For this object, the height is 3 units, the length is 3 units, and the width is 3 units.

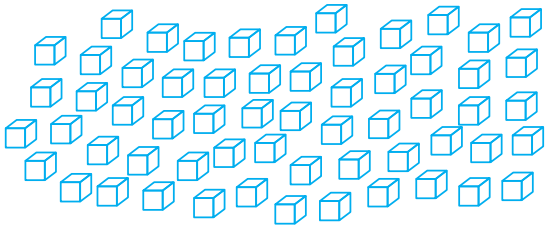




Directions: *Look at each 3-D figure. Next to each figure is the number of cubic units used to create the figure. Find the volume of each figure by counting up how many cubic units were used to make each figure.*

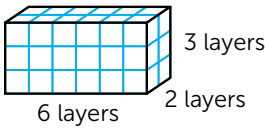
Example:



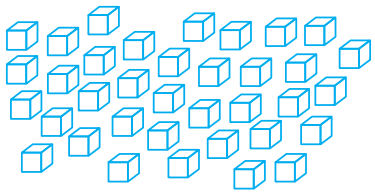


60 cm^3

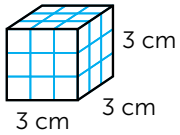
1.



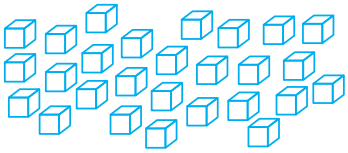
36 $units^3$



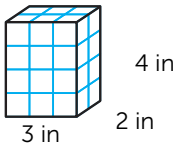
2.



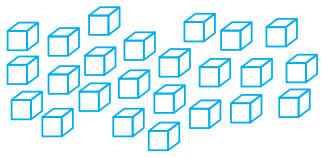
27 cm^3



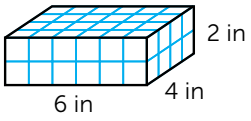
3.



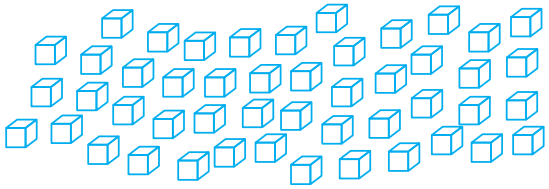
24 in^3



4.



48 in^3



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Answer Sheet

Name: _____ Date: _____

Answers

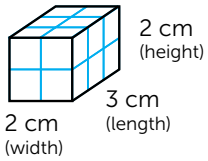
What's the Formula?

The mathematical formula for volume is **length** x **width** x **height**.

The short version of this is **V = l x w x h**

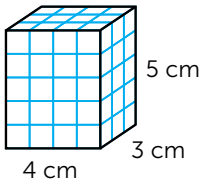
Directions: *Write the missing values for the length, width, and height of each cube.*

Example:



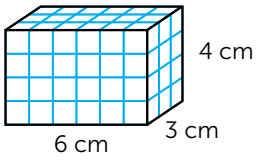
2 cm x 3 cm x 2 cm = 12 cm³

1.



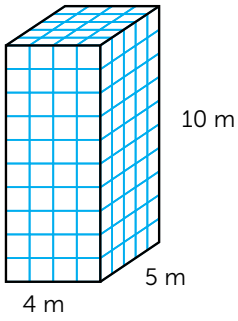
4 (length) cm x 3 (width) cm x 5 (height) cm = 60 cm³

2.



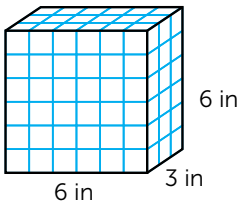
6 (length) cm x 3 (width) cm x 4 (height) cm = 72 cm³

3.



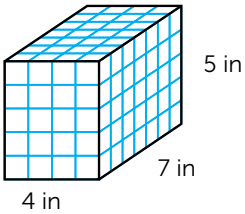
4 (length) m x 5 (width) m x 10 (height) m = 200 m³

4.



6 (length) in x 3 (width) in x 6 (height) in = 108 in³

5.



4 (length) in x 7 (width) in x 5 (height) in = 140 in³

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Answer Sheet

Name: _____ Date: _____

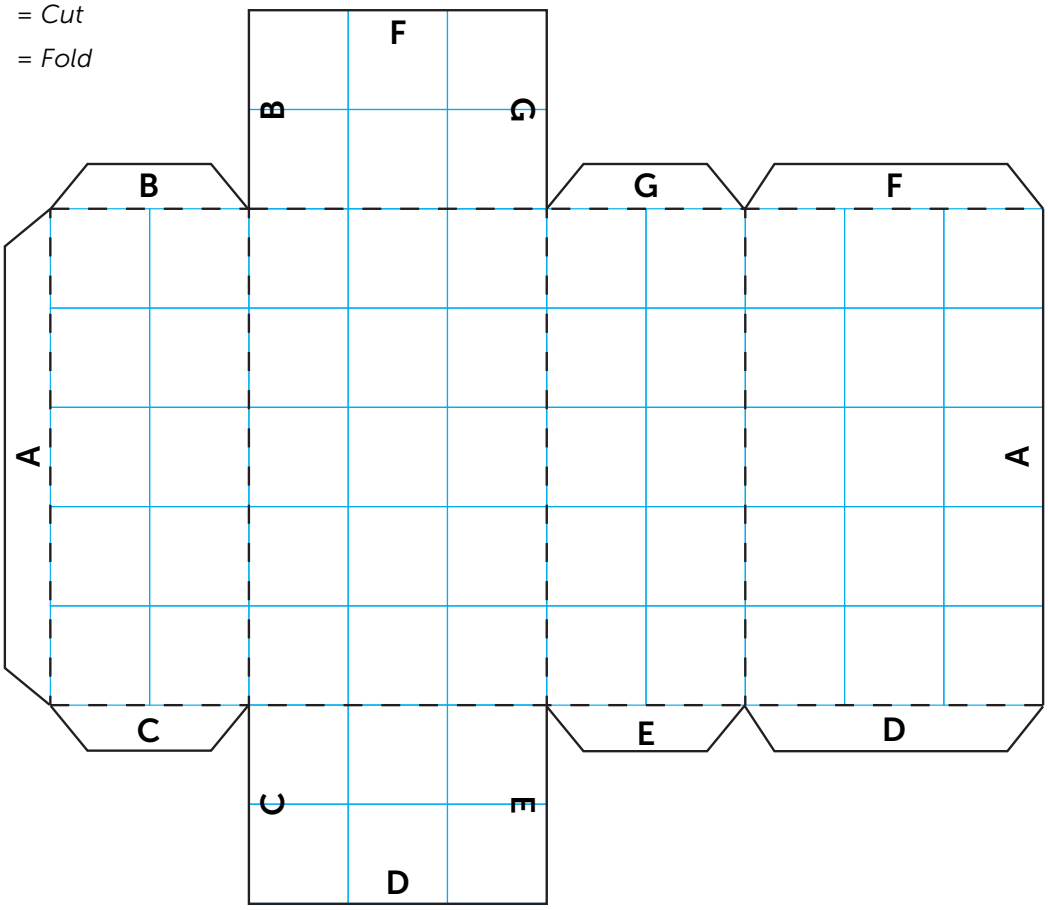
Answers

Create Shapes and Find the Volume Part 1

Directions: *Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.*

——— = Cut

- - - - - = Fold



Use the workspace below to figure out the volume of the shape.

$V = l \times w \times h$

$V = 5 \times 2 \times 3$

$V = 30$

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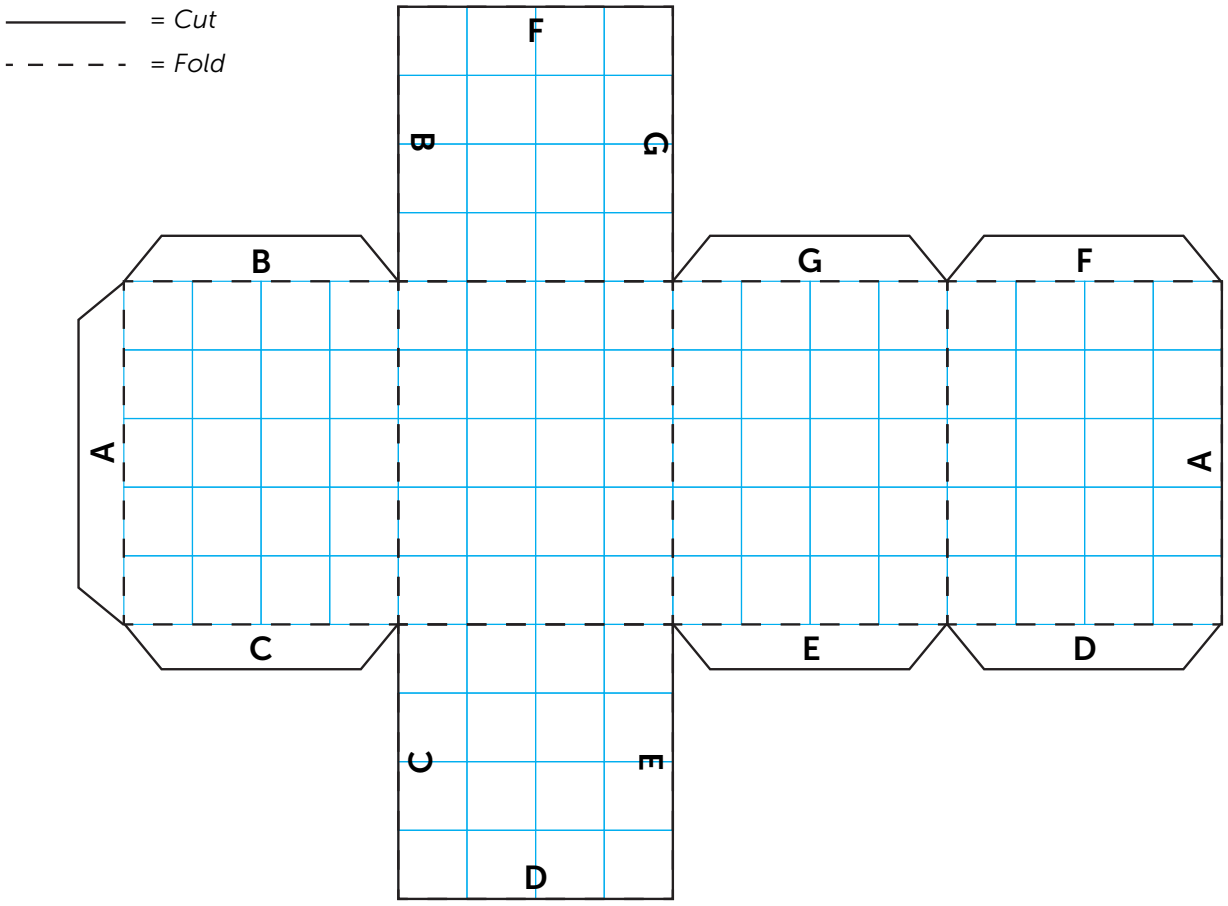
Answer Sheet

Name: _____ Date: _____

Answers

Create Shapes and Find the Volume Part 2

Directions: *Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.*



Use the workspace below to figure out the volume of the shape.

$V = l \times w \times h$

$V = 5 \times 4 \times 4$

$V = 80$

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Answer Sheet

Name: _____ Date: _____

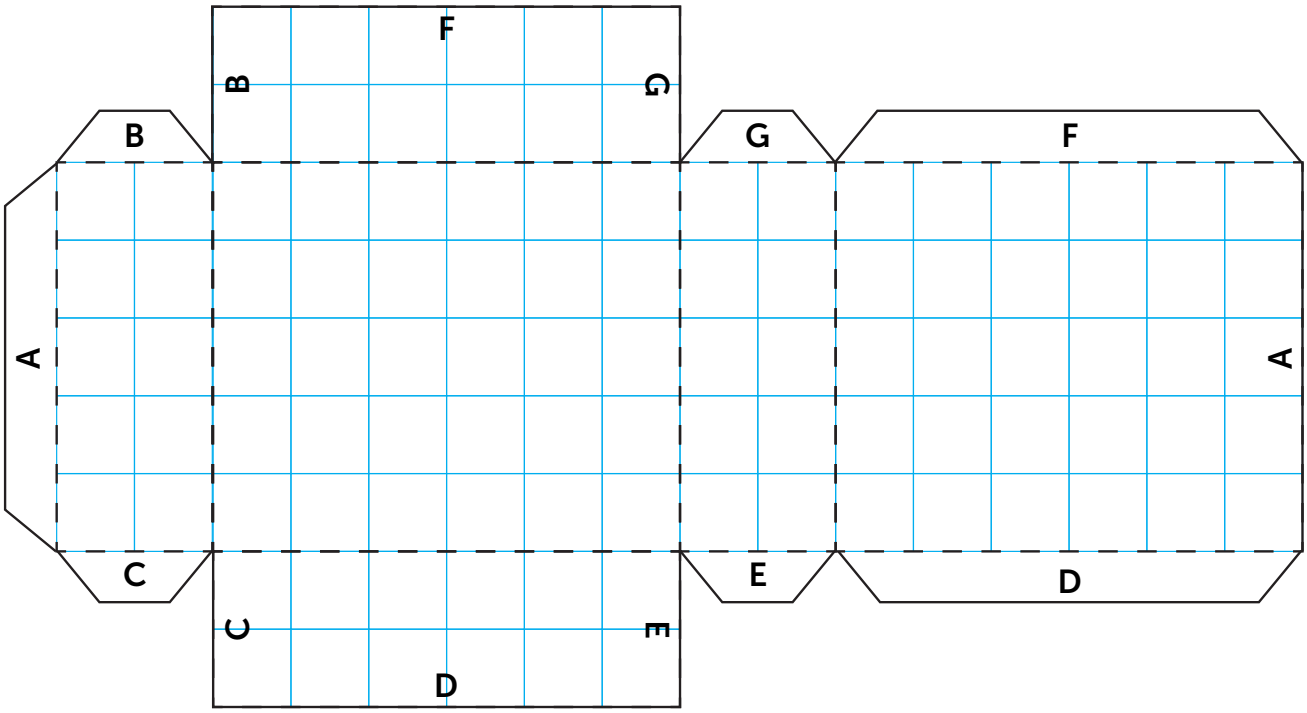
Answers

Create Shapes and Find the Volume Part 3

Directions: *Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.*

_____ = *Cut*

- - - - - = *Fold*



Use the workspace below to figure out the volume of the shape.

$V = l \times w \times h$

$V = 5 \times 6 \times 2$

$V = 60$

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Answer Sheet

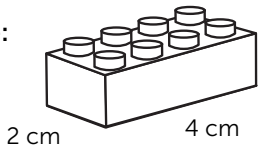
Name: _____ Date: _____

Answers

How Much Space is There?

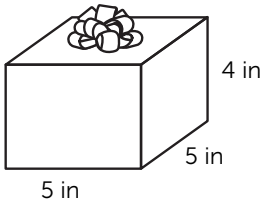
Directions: *Find out how much you can fit in each space. Find the volume for each item.*

Example:



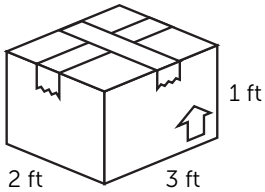
4 cm (length) x 2 cm (width) x 2 cm (height) = 16 cm³

1.



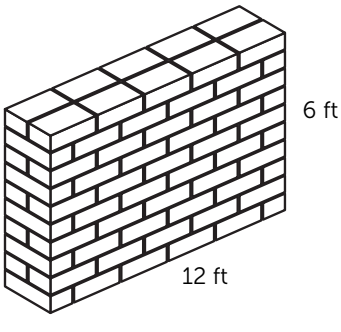
5 in (length) x 5 in (width) x 4 in (height) = 100 in³

2.



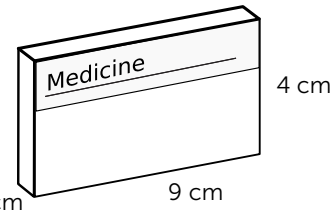
2 ft (length) x 3 ft (width) x 1 ft (height) = 6 ft³

3.



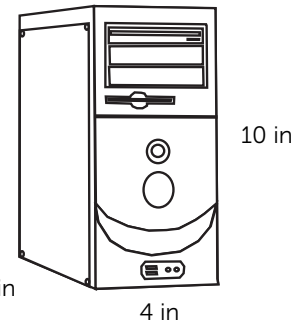
1 ft (length) x 12 ft (width) x 6 ft (height) = 72 ft³

4.



2 cm (length) x 9 cm (width) x 4 cm (height) = 72 cm³

5.



8 in (length) x 4 in (width) x 10 in (height) = 320 in³

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Answer Sheet

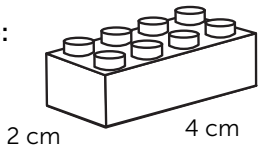
Name: _____ Date: _____

Answers

How Much Space is There?

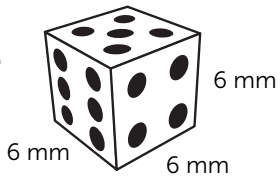
Directions: *Find out how much you can fit in each space. Find the volume for each item.*

Example:



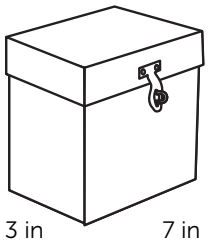
4 cm (length) x 2 cm (width) x 2 cm (height) = 16 cm^3

1.



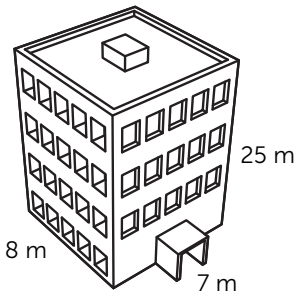
6 mm (length) x 6 mm (width) x 6 mm (height) = 216 mm^3

2.



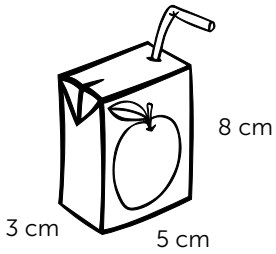
3 in (length) x 7 in (width) x 7 in (height) = 147 in^3

3.



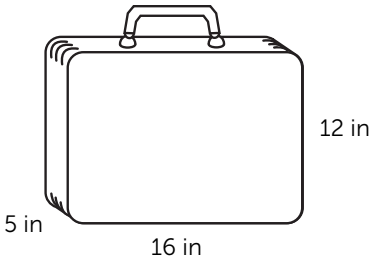
8 m (length) x 7 m (width) x 25 m (height) = 1400 m^3

4.



3 cm (length) x 5 cm (width) x 8 cm (height) = 120 cm^3

5.



5 in (length) x 16 in (width) x 12 in (height) = 960 in^3

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Answer Sheet

Name: _____ Date: _____

Answers

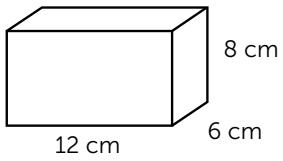
Base and Volume

Sometimes the length and width have already been multiplied together for you. When this happens, it is called the **base**. When you know the value of the base, all you have to do is multiply the base times the height to find the volume of the object.

base = length x width
volume = base x height

Directions: *Find the volume of each object using the base and height.*

Example:

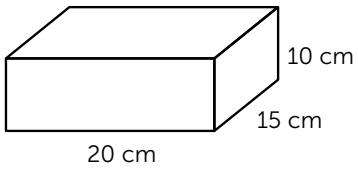


base = 12 x 6 =, so the base is **72 cm²**

To find the volume, multiple the base times the height.

V = base x height **V** = 72 x 8 **V** = **576 cm³**

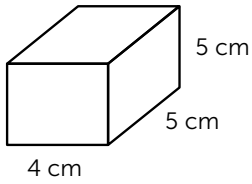
1.



base = 300 cm²

300 (base) x 10 (height) = 3000 cm³ (volume)

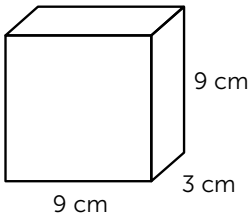
2.



base = 20 cm²

20 (base) x 5 (height) = 100 cm³ (volume)

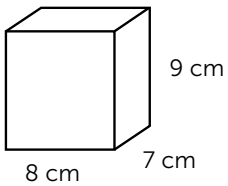
3.



base = 27 cm²

27 (base) x 9 (height) = 243 cm³ (volume)

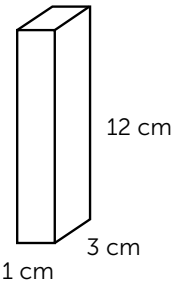
4.



base = 56 cm²

56 (base) x 9 (height) = 504 cm³ (volume)

5.



base = 3 cm²

3 (base) x 12 (height) = 36 cm³ (volume)

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Answer Sheet

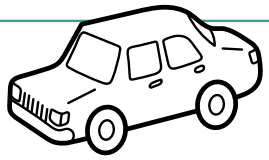
Name: _____ Date: _____

Answers Base, Volume, and Word Problems, Oh My!

Directions: *Find the volume for each word problem.*

Example: My mom bought a car that has a base of 30 square feet and a height of 5 feet. What is the volume?

$\underset{\text{(base)}}{30\text{ ft}} \times \underset{\text{(height)}}{5\text{ ft}} = \underset{\text{(volume)}}{150\text{ ft}^3}$



1. I have a house that has a base of 130 square feet and a height of 20 feet. What is the volume?

2600 ft^3

2. My hamster's cage has a base of 28 square inches and a height of 9 inches. What is the volume?

252 in^3

3. The space under my bed has a base of 24 square feet and a height of 1 foot. What is the volume?

24 ft^3

4. The fireplace in the living room has a base of 3 square feet and a height of 2 feet. What is the volume?

6 ft^3

5. My closet has a base of 6 square meters and a height of 8 meters. What is the volume?

48 m^3

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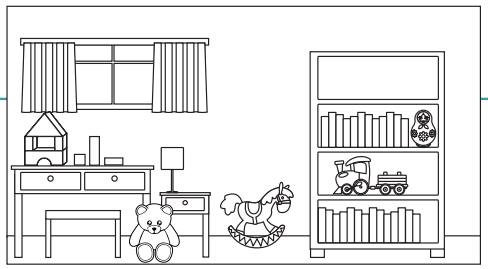
Answer Sheet

Name: _____ Date: _____

Answers

Volume and Word Problems

Directions: *Find the volume for each word problem.*



1. If you have a box of candy that is 8 inches long, 5 inches wide, and 2 inches tall, how much space do you have for candy?

80 in^3

2. If you have a toy bin that is 6 feet long, 4 feet wide, and 3 feet high, how much space do you have for toys?

72 ft^3

3. If your toy car's trunk is 8 feet long, 6 feet wide, and 4 feet tall, how much room do you have in your trunk?

192 ft^3

4. If you have a dresser that is 7 meters high, 2 meters wide, and 4 meters long, how much room do you have for your clothes?

56 m^3

5. If you have a bookcase that is 3 feet tall, 1 foot wide, and 4 feet long, how much space do you have for books?

12 ft^3

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Answer Sheet

Name: _____ Date: _____

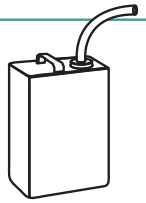
Answers

More than One: Addition

What happens when you need to find the total volume for multiple items? You must find the sum of all of the different volumes. See the example below.

Directions: *Read the problems below. Find the total volume for each problem.*

Example: A gasoline container measures 3 inches by 6 inches by 18 inches. If there are two gasoline containers, what is the total volume of these two containers?



3 in (length) x 6 in (width) x 18 in (height) = 324 in^3

Now, find the sum of the volume of two gas cans.

324 in^3 + 324 in^3 = 648 in^3

1. Three ice cream cartons that measure 2 inches by 1 inch by 8 inches.

48 in^3

2. Four cookie packages that measure 8 centimeters by 11 centimeters by 3 centimeters.

1056 in^3

3. Two filing cabinets that measure 2 meters by 1 meter by 3 meters.

12 m^3

4. Five tissue boxes that measure 4 inches by 5 inches by 7 inches.

700 in^3

5. Seven pudding containers that measure 50 millimeters by 20 millimeters by 10 millimeters.

70000 mm^3

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Answer Sheet

Name: _____ Date: _____

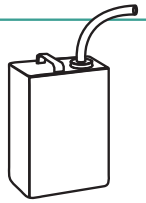
Answers

More than One: Multiplication

What happens when you need to find the volume for more than one item? You can use multiplication to find the volume of multiple containers. See the example below.

Directions: *Read the problems below. Find the total volume for each problem.*

Example: A gasoline container measures 3 inches by 6 inches by 18 inches. If there are two gasoline containers, what is the total volume of these two containers?



3 in (length) x 6 in (width) x 18 in (height) = 324 in^3

Now, take the volume (answer) from above and multiply it by 2 since there are 2 gas cans.

324 in^3 x 2 = 648 in^3

1. Eight jewelry boxes that measure 6 inches long, 3 inches wide, and 5 inches tall.

720 in^3

2. Three dishes that measure 8 inches by 8 inches by 4 inches.

768 in^3

3. Two hat boxes that measure 7 inches by 9 inches by 8 inches.

1008 in^3

4. Five cereal boxes that are 8 inches long, 3 inches wide, and 12 inches tall.

1440 in^3

5. Four suitcases that are 4 feet long, 1 foot wide, and 5 feet tall.

80 ft^3

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Answer Sheet

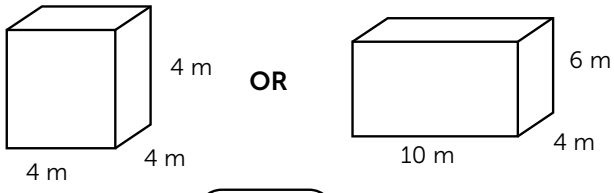
Name: _____ Date: _____

Answers

Smallest or Biggest?

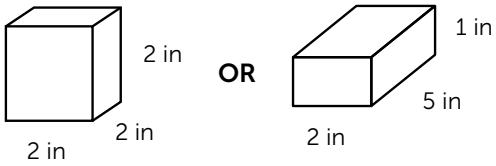
Directions: *Find the volume for each box. Use greater than and less than symbols to show which box is bigger.*

Example:



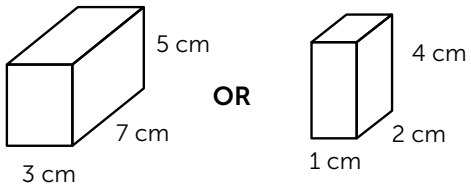
V = 64 m³ < V = 240 m³

1.



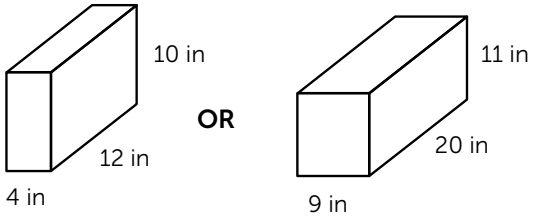
V = 8 in³ < V = 10 in³

2.



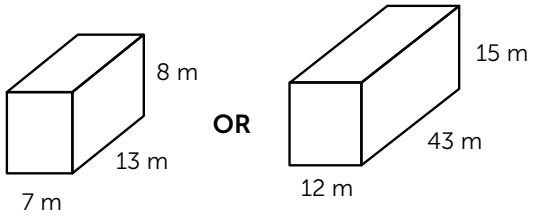
V = 105 in³ > V = 8 in³

3.



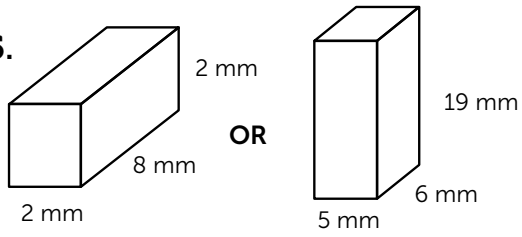
V = 480 in³ < V = 1980 in³

4.



V = 728 in³ < V = 7740 in³

5.



V = 32 in³ < V = 570 in³

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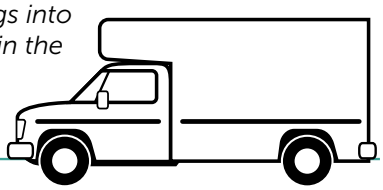
Answer Sheet

Name: _____ Date: _____

Answers

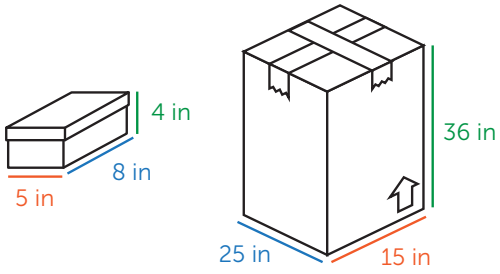
Applying Volume to Real Life: Moving

Directions: *You are moving and need to figure out how to fit all your belongings into a bigger box. Figure out how many of each item will fit into the bigger box. Fill in the maximum number of each item that will fit into the bigger box. Show your calculations.*



Example:

How many shoeboxes will fit into the larger cardboard box?



Maximum number of shoe boxes: 81

Explanation:

If the **length** of the bigger box is **25 inches**, that means I can fit **three shoe boxes** along the length of the big box.

If the maximum **width** is **15 inches**, I can fit **three shoe boxes** wide along the width of the big box.

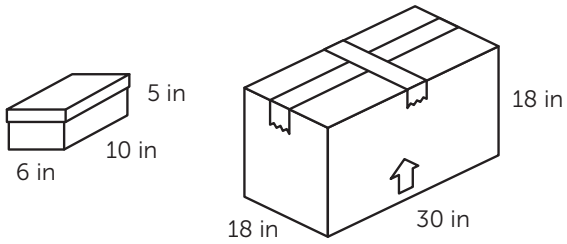
If the bigger box **height** is **36 inches**, I can fit **nine shoe boxes** high in the bigger box.

I will have 9 layers, of three shoe boxes times three shoe boxes (**3 x 3 = 9** shoe boxes in a layer). So, 9 shoe boxes per layer, times 9 layers high = (**9 x 9 = 81**) shoe boxes all together.

Therefore, **81 shoe boxes** will fit in the bigger box!

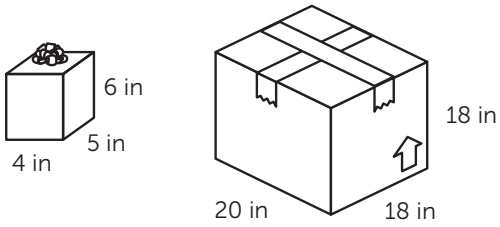
---

1. How many shoeboxes will fit into the larger cardboard box?



Maximum number of shoe boxes: 27

2. How many gift boxes will fit into the larger cardboard box?



Maximum number of gift boxes: 45

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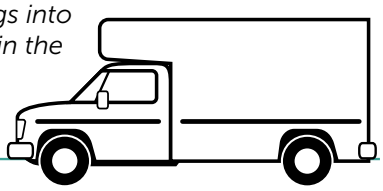
Answer Sheet

Name: _____ Date: _____

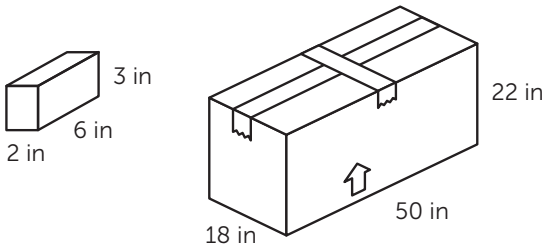
Answers

Applying Volume to Real Life: Moving

Directions: *You are moving and need to figure out how to fit all your belongings into a bigger box. Figure out how many of each item will fit into the bigger box. Fill in the maximum number of each item that will fit into the bigger box. Show your calculations.*

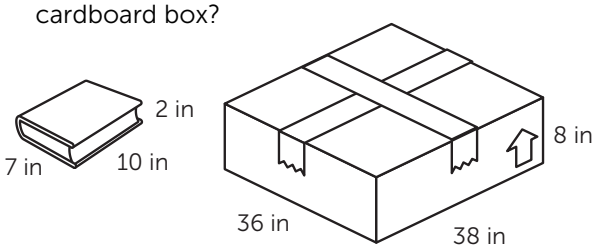


3. How many boxes of toothpaste will fit into the larger cardboard box?



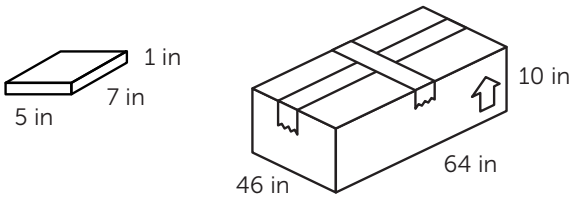
Maximum number of toothpaste boxes: 504

4. How many books will fit into the larger cardboard box?



Maximum number of books: 60

5. How many video game cases will fit into the larger cardboard box?



Maximum number of video game cases: 810

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