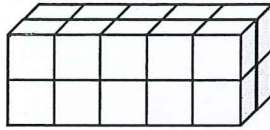


Name _____

Date _____

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

a.



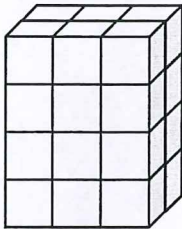
Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

b.



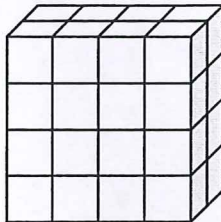
Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

c.



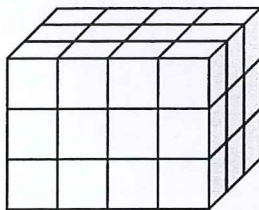
Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

d.



Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

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

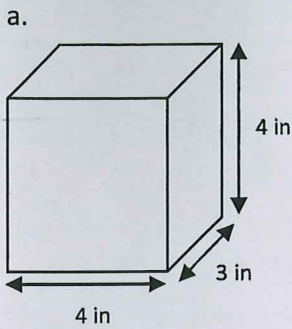
a. _____

b. _____

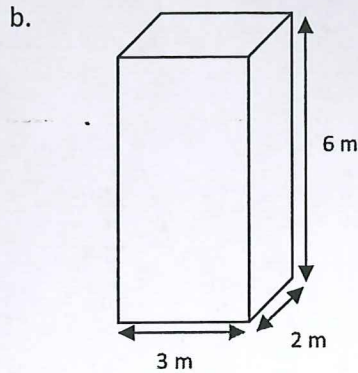
c. _____

d. _____

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



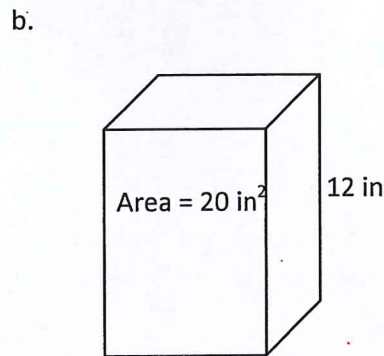
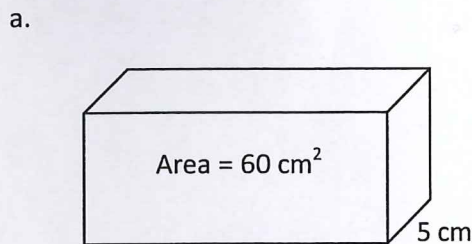
V = _____



V = _____

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

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

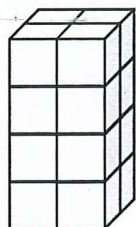


Name _____

Date _____

Calculate the volume of each prism.

a.



Length: _____ mm

Width: _____ mm

Height: _____ mm

Volume: _____ mm³

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

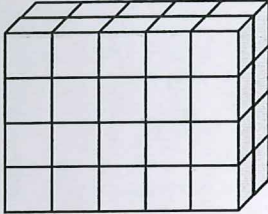
b. A rectangular prism has a top face with an area of 20 ft² and a height of 5 ft. What is the volume of this rectangular prism?

Name _____

Date _____

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

a.



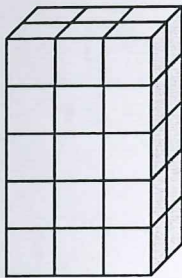
Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

b.



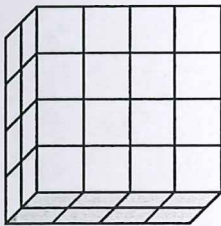
Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

c.



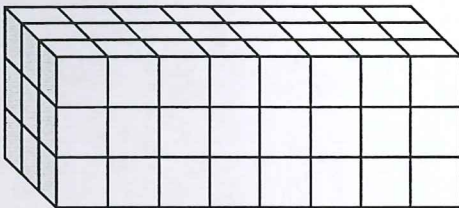
Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

d.



Length: _____ cm

Width: _____ cm

Height: _____ cm

Volume: _____ cm^3

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

a. _____

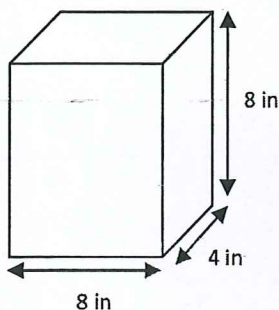
b. _____

c. _____

d. _____

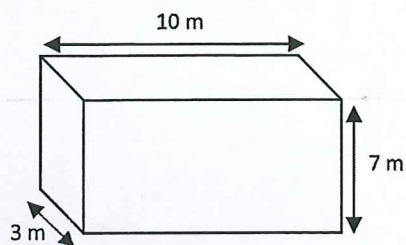
3. Calculate the volume of each rectangular prism. Include the units in your number sentences.

a.



Volume: _____

b.



Volume: _____

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

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

a. Face area: 56 square meters

Height: 4 meters

b. Face area: 169 square inches

Height: 14 inches

Name _____

Date _____

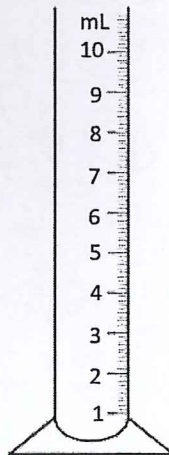
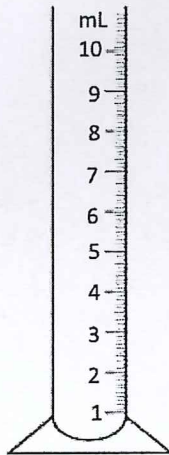
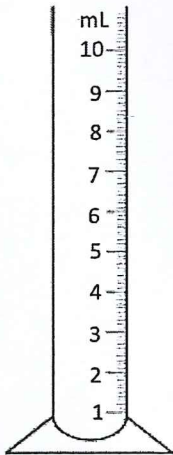
1. Determine the volume of two boxes on the table using cubes, and then confirm by measuring and multiplying.

Box Number	Number of Cubes Packed	Measurements			Volume
		Length	Width	Height	

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

Box Number	Liquid the Box Can Hold
	mL
	mL

3. Shade to show the water in the beaker.



At first:

_____ mL

After 1 mL water added:

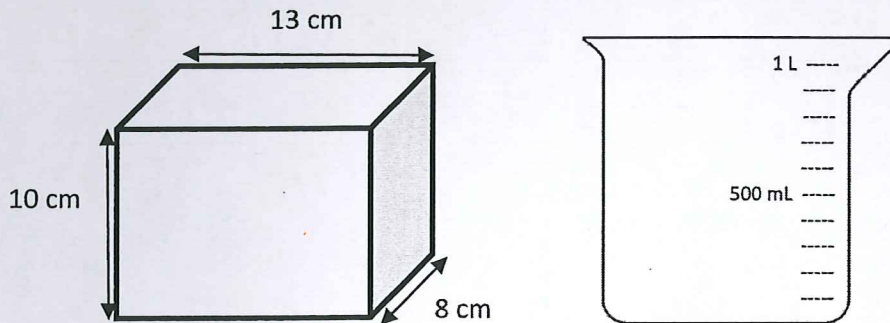
_____ mL

After 1 cm cube added:

_____ mL

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

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



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

6. A rectangular fish tank measures 26 cm by 20 cm by 18 cm.

The tank is filled with water to a depth of 15 cm.

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

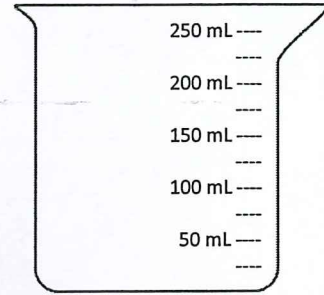
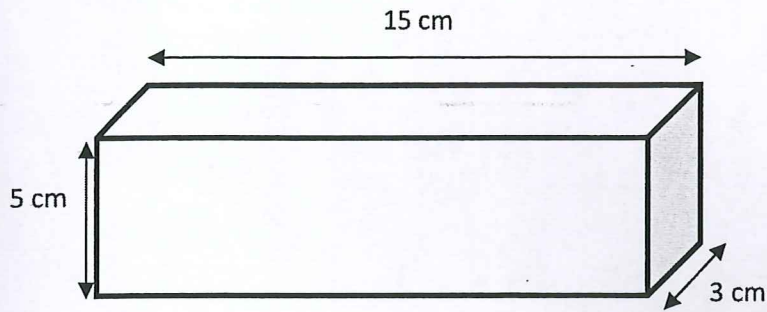
b. How many liters is that?

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

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

Name _____

Date _____



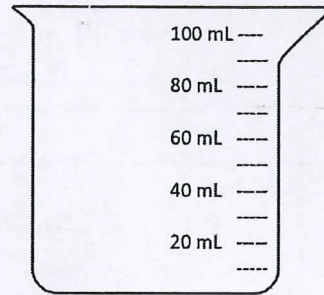
- a. Find the volume of the prism.

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

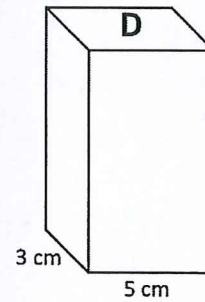
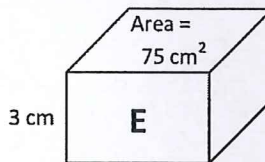
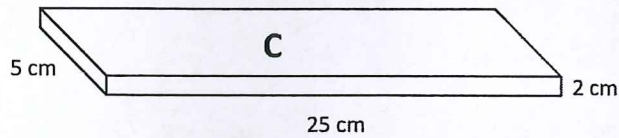
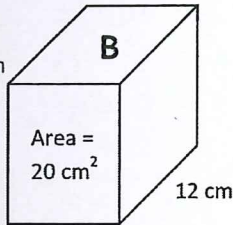
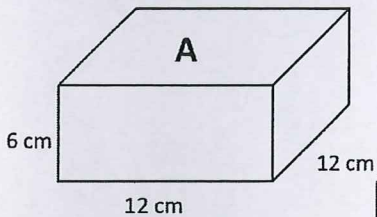
Name _____

Date _____

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



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

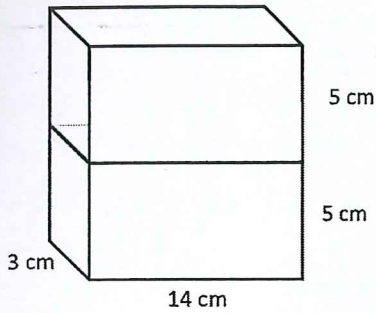


3. On the back of this paper, describe the details of the activities you did in class today. Include what you learned about cubic centimeters and milliliters. Give an example of a problem you solved with an illustration.

Name _____ Date _____

1. Find the total volume of the figures, and record your solution strategy.

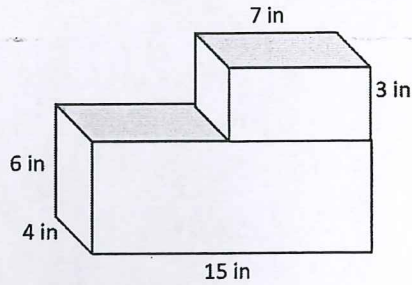
a.



Volume: _____

Solution Strategy:

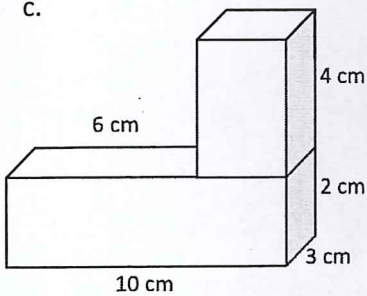
b.



Volume: _____

Solution Strategy:

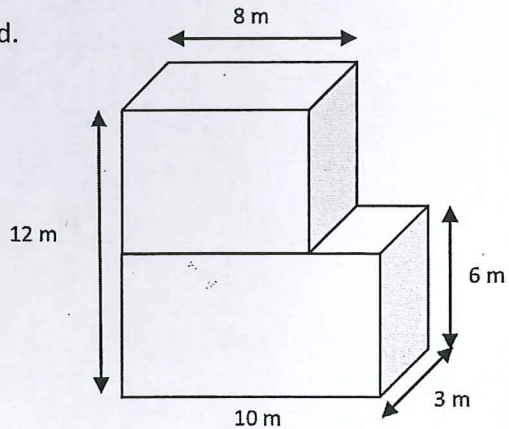
c.



Volume: _____

Solution Strategy:

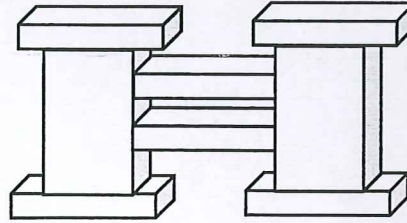
d.



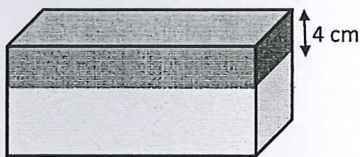
Volume: _____

Solution Strategy:

2. A sculpture (pictured below) is made of two sizes of rectangular prisms. One size measures 13 in by 8 in by 2 in. The other size measures 9 in by 8 in by 18 in. What is the total volume of the sculpture?



3. The combined volume of two identical cubes is 128 cubic centimeters. What is the side length of each cube?
4. A rectangular tank with a base area of 24 cm^2 is filled with water and oil to a depth of 9 cm. The oil and water separate into two layers when the oil rises to the top. If the thickness of the oil layer is 4 cm, what is the volume of the water?

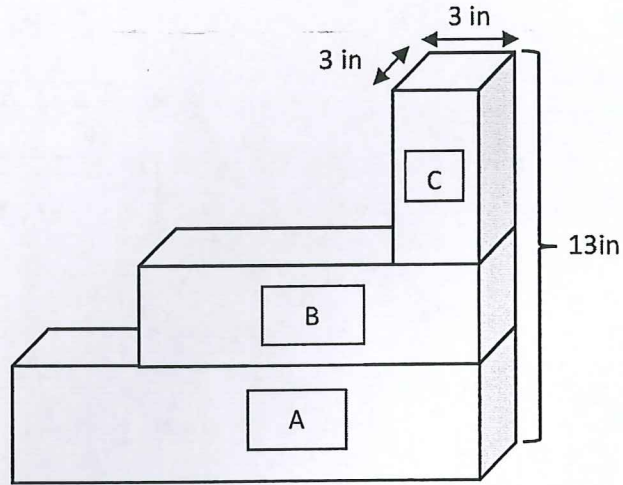


5. Two rectangular prisms have a combined volume of 432 cubic feet. Prism A has half the volume of Prism B.
- What is the volume of Prism A? Prism B?
 - If Prism A has a base area of 24 ft^2 , what is the height of Prism A?
 - If Prism B's base is $\frac{2}{3}$ the area of Prism A's base, what is the height of Prism B?

Name _____

Date _____

Find the total volume of soil in the three planters. Planter A is 14 inches by 3 inches by 4 inches. Planter B is 9 inches by 3 inches by 3 inches.

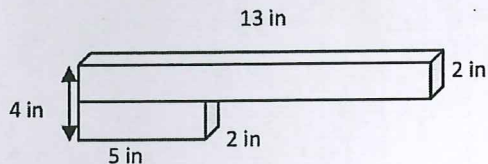


Name _____

Date _____

1. Find the total volume of the figures, and record your solution strategy.

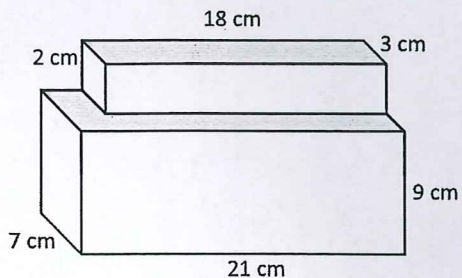
a.



Volume: _____

Solution Strategy:

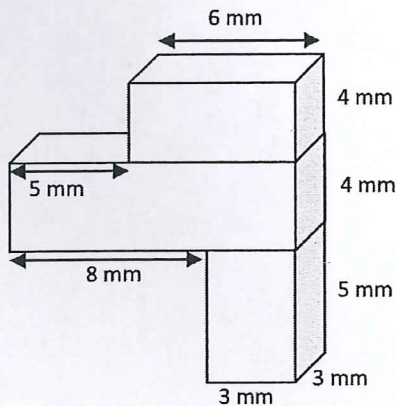
b.



Volume: _____

Solution Strategy:

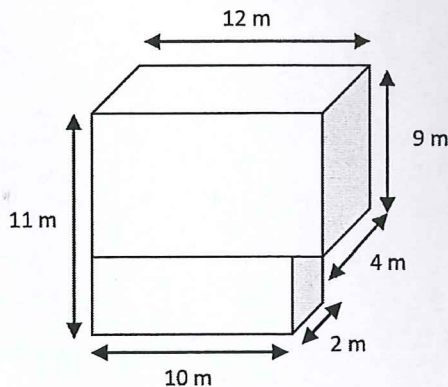
c.



Volume: _____

Solution Strategy:

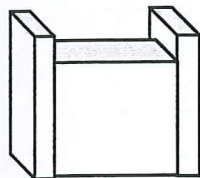
d.



Volume: _____

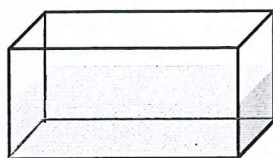
Solution Strategy:

2. A planting box (pictured below) is made of two sizes of rectangular prisms. One type of prism measures 3 inches by 6 inches by 14 inches. The other type measures 15 inches by 5 inches by 10 inches. What is the total volume of three such boxes?



3. The combined volume of two identical cubes is 250 cubic centimeters. What is the measure of one cube's edge?

4. A fish tank has a base area of 45 cm^2 and is filled with water to a depth of 12 cm. If the height of the tank is 25 cm, how much more water will be needed to fill the tank to the brim?



5. Three rectangular prisms have a combined volume of 518 cubic feet. Prism A has one-third the volume of Prism B, and Prisms B and C have equal volume. What is the volume of each prism?

Name _____

Date _____

Geoffrey builds rectangular planters.

1. Geoffrey's first planter is 8 feet long and 2 feet wide. The container is filled with soil to a height of 3 feet in the planter. What is the volume of soil in the planter? Explain your work using a diagram.

2. Geoffrey wants to grow some tomatoes in four large planters. He wants each planter to have a volume of 320 cubic feet, but he wants them all to be different. Show four different ways Geoffrey can make these planters, and draw diagrams with the planters' measurements on them.

Planter A	Planter B
Planter C	Planter D

3. Geoffrey wants to make one planter that extends from the ground to just below his back window. The window starts 3 feet off the ground. If he wants the planter to hold 36 cubic feet of soil, name one way he could build the planter so it is not taller than 3 feet. Explain how you know.
4. After all of this gardening work, Geoffrey decides he needs a new shed to replace the old one. His current shed is a rectangular prism that measures 6 feet long by 5 feet wide by 8 feet high. He realizes he needs a shed with 480 cubic feet of storage.
- Will he achieve his goal if he doubles each dimension? Why or why not?
 - If he wants to keep the height the same, what could the other dimensions be for him to get the volume he wants?
 - If he uses the dimensions in Part (b), what could be the area of the new shed's floor?

Name _____

Date _____

A storage shed is a rectangular prism and has dimensions of 6 meters by 5 meters by 12 meters. If Jean were to double these dimensions, she believes she would only double the volume. Is she correct? Explain why or why not. Include a drawing in your explanation.

Name _____

Date _____

Wren makes some rectangular display boxes.

1. Wren’s first display box is 6 inches long, 9 inches wide, and 4 inches high. What is the volume of the display box? Explain your work using a diagram.

2. Wren wants to put some artwork into three shadow boxes. She knows they all need a volume of 60 cubic inches, but she wants them all to be different. Show three different ways Wren can make these boxes by drawing diagrams and labeling the measurements.

Shadow Box A	Shadow Box B
Shadow Box C	

3. Wren wants to build a box to organize her scrapbook supplies. She has a stencil set that is 12 inches wide that needs to lay flat in the bottom of the box. The supply box must also be no taller than 2 feet. Name one way she could build a supply box with a volume of 72 cubic inches.
4. After all of this organizing, Wren decides she also needs more storage for her soccer equipment. Her current storage box measures 1 foot long by 2 feet wide by 2 feet high. She realizes she needs to replace it with a box with 12 cubic feet of storage, so she doubles the width.
- Will she achieve her goal if she does this? Why or why not?
 - If she wants to keep the height the same, what could the other dimensions be for a 12-cubic-foot storage box?
 - If she uses the dimensions in Part (b), what is the area of the new storage box's floor?
 - How has the area of the bottom in her new storage box changed? Explain how you know.

Name _____

Date _____

Using the box patterns, construct a sculpture containing at least 5, but not more than 7, rectangular prisms that meets the following requirements in the table below.

1.	My sculpture has 5 to 7 rectangular prisms.	Number of prisms: _____
2.	Each prism is labeled with a letter, dimensions, and volume.	
	Prism A _____ by _____ by _____	Volume = _____
	Prism B _____ by _____ by _____	Volume = _____
	Prism C _____ by _____ by _____	Volume = _____
	Prism D _____ by _____ by _____	Volume = _____
	Prism E _____ by _____ by _____	Volume = _____
	Prism _____ by _____ by _____	Volume = _____
	Prism _____ by _____ by _____	Volume = _____
3.	Prism D has $\frac{1}{2}$ the volume of prism _____.	Prism D Volume = _____ Prism _____ Volume = _____
4.	Prism E has $\frac{1}{3}$ the volume of prism _____.	Prism E Volume = _____ Prism _____ Volume = _____
5.	The total volume of all the prisms is 1,000 cubic centimeters or less.	Total volume: _____ Show calculations:

Name _____

Date _____

Sketch a rectangular prism that has a volume of 36 cubic cm. Label the dimensions of each side on the prism.
Fill in the blanks that follow.

Height: _____ cm

Length: _____ cm

Width: _____ cm

Volume: _____ cubic cm

Name _____

Date _____

1. I have a prism with the dimensions of 6 cm by 12 cm by 15 cm. Calculate the volume of the prism, and then give the dimensions of three different prisms that each have $\frac{1}{3}$ of the volume.

	Length	Width	Height	Volume
Original Prism	6 cm	12 cm	15 cm	
Prism 1				
Prism 2				
Prism 3				

2. Sunni's bedroom has the dimensions of 11 ft by 10 ft by 10 ft. Her den has the same height but double the volume. Give two sets of the possible dimensions of the den and the volume of the den.

Project Requirements

1. Each project must include 5 to 7 rectangular prisms.
 2. All prisms must be labeled with a letter (beginning with A), dimensions, and volume.
 3. Prism D must be $\frac{1}{2}$ the volume of another prism.
 4. Prism E must be $\frac{1}{3}$ the volume of another prism.
 5. The total volume of all of the prisms must be 1,000 cubic centimeters or less.
-

Project Requirements

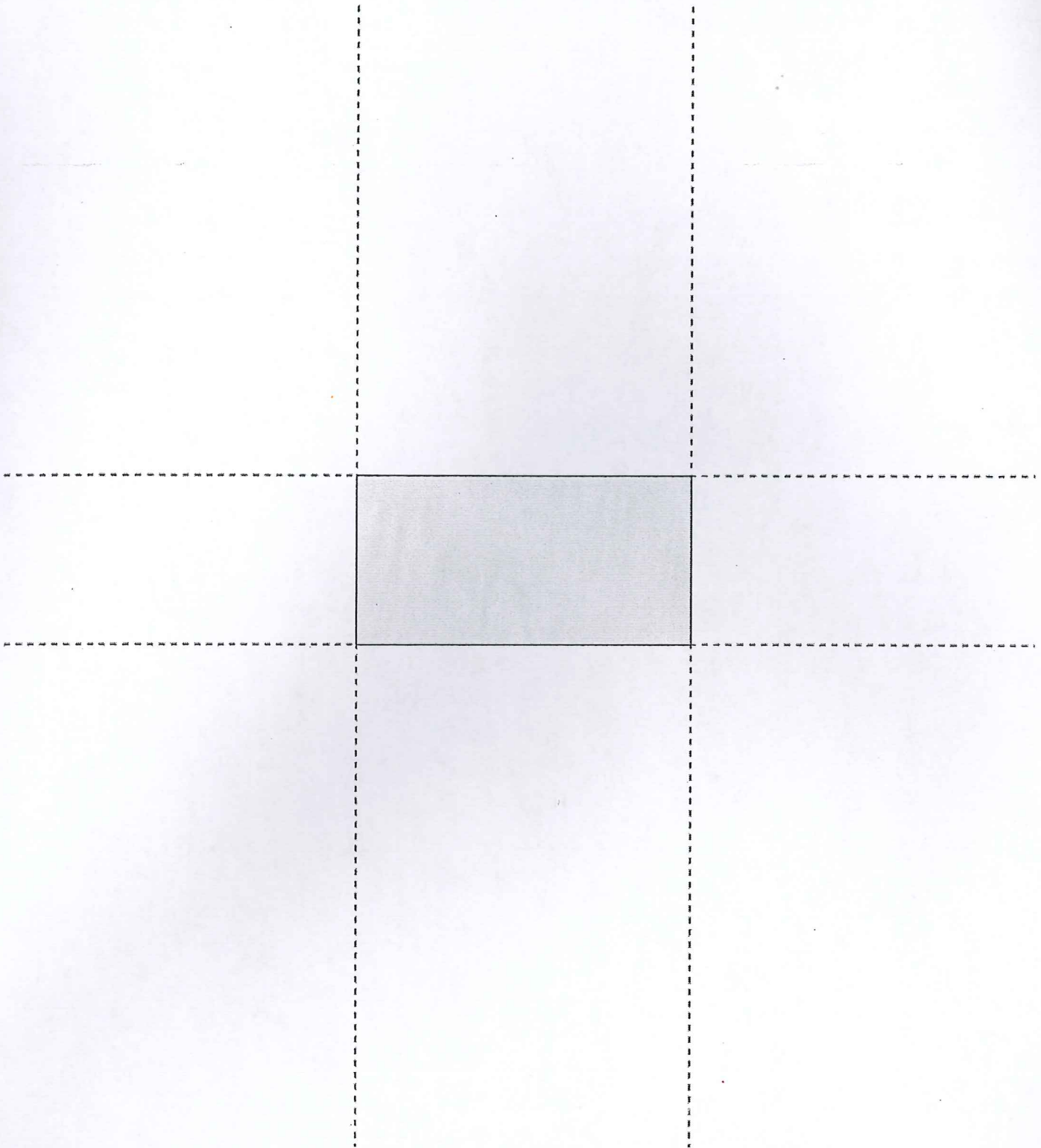
1. Each project must include 5 to 7 rectangular prisms.
 2. All prisms must be labeled with a letter (beginning with A), dimensions, and volume.
 3. Prism D must be $\frac{1}{2}$ the volume of another prism.
 4. Prism E must be $\frac{1}{3}$ the volume of another prism.
 5. The total volume of all of the prisms must be 1,000 cubic centimeters or less.
-

Project Requirements

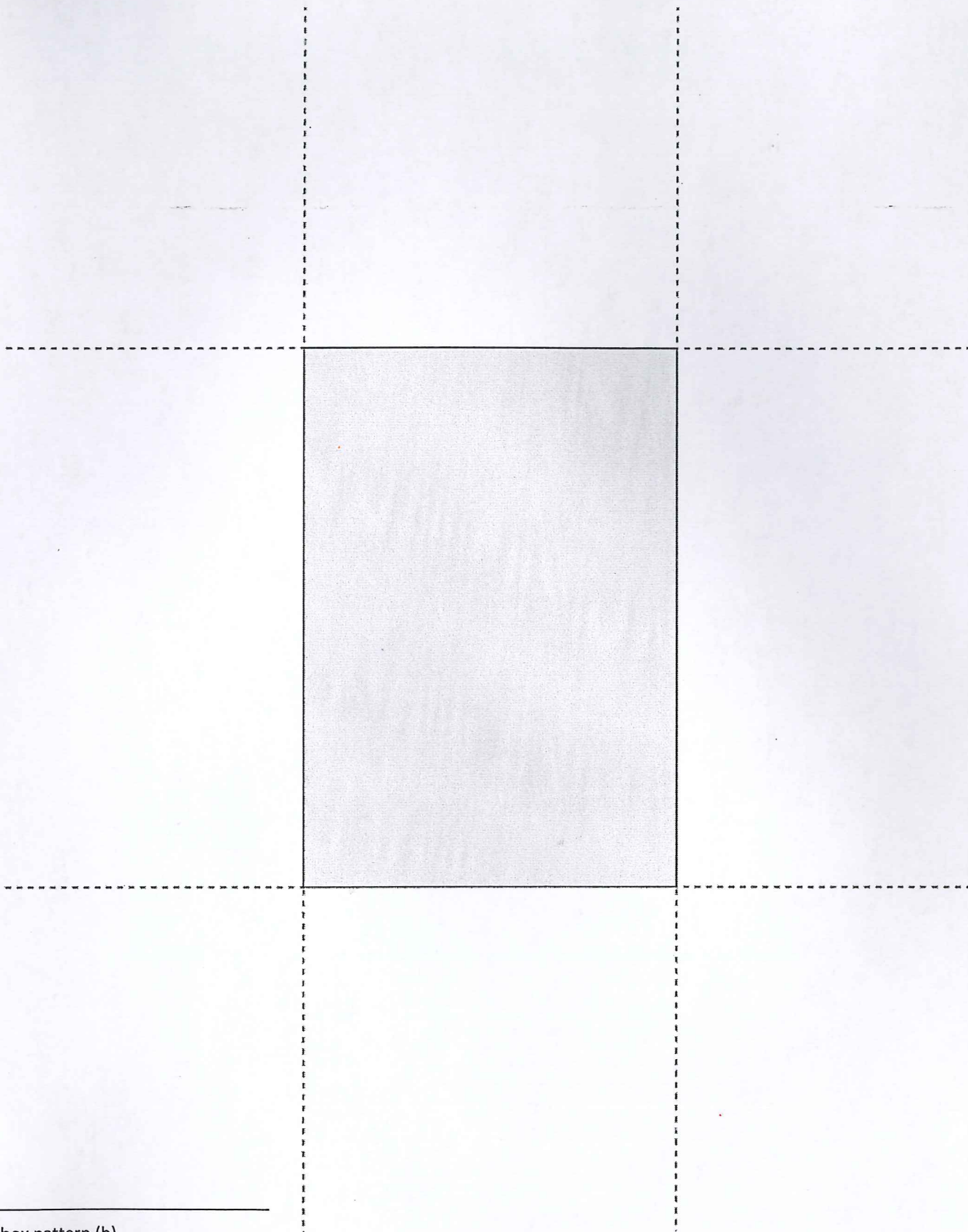
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3. Prism D must be $\frac{1}{2}$ the volume of another prism.
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5. The total volume of all of the prisms must be 1,000 cubic centimeters or less.

project requirements

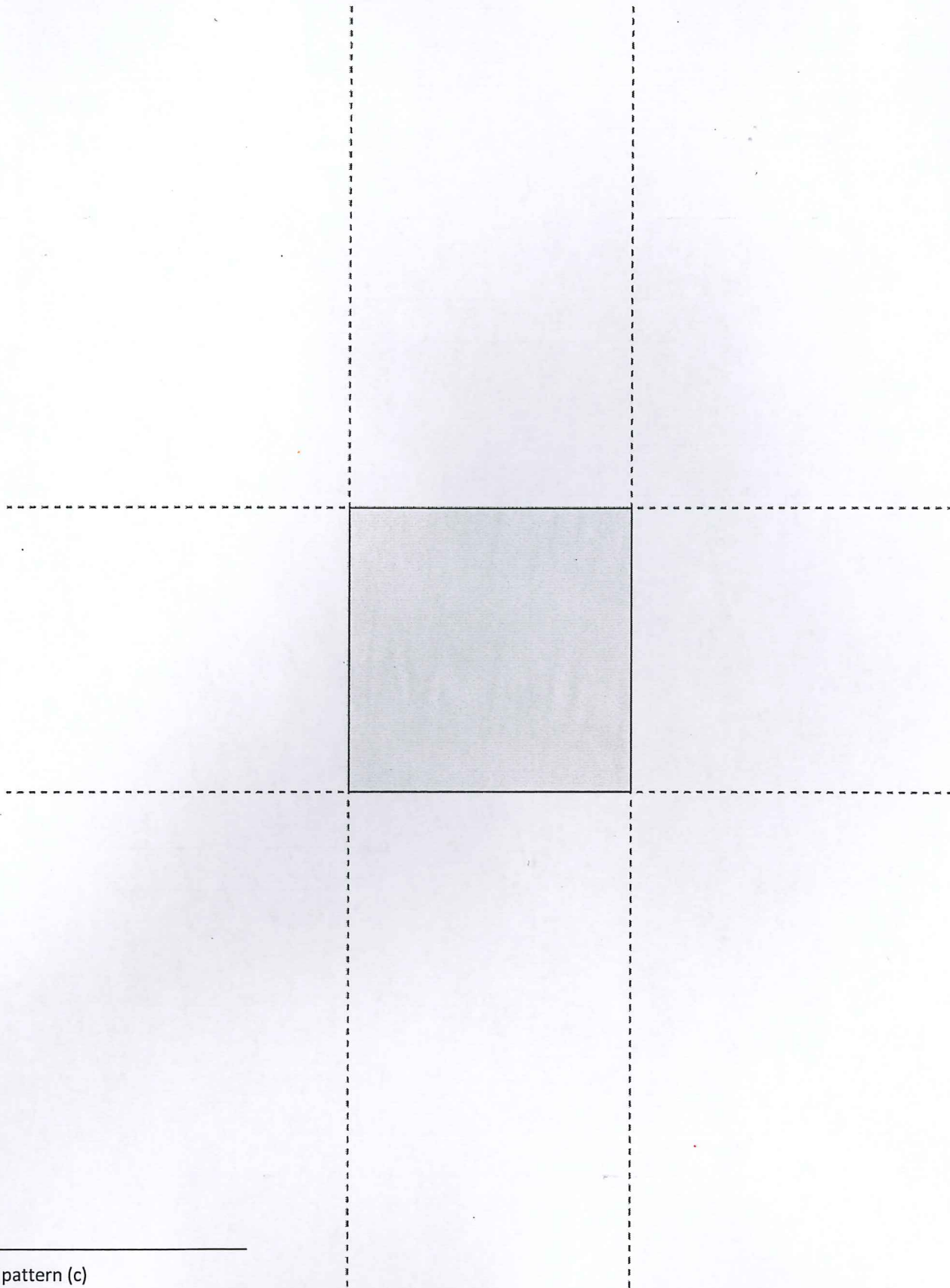
Note: Be sure to set printer to *Actual Size* before printing.



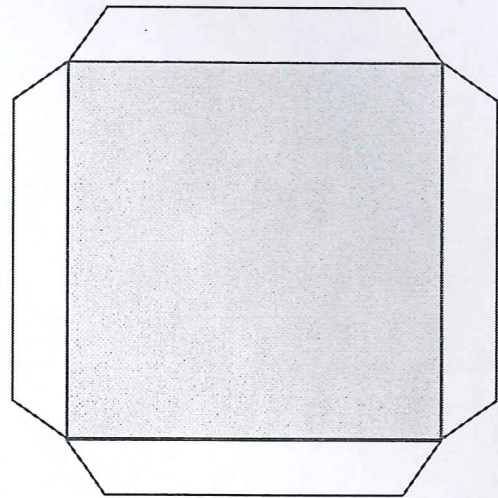
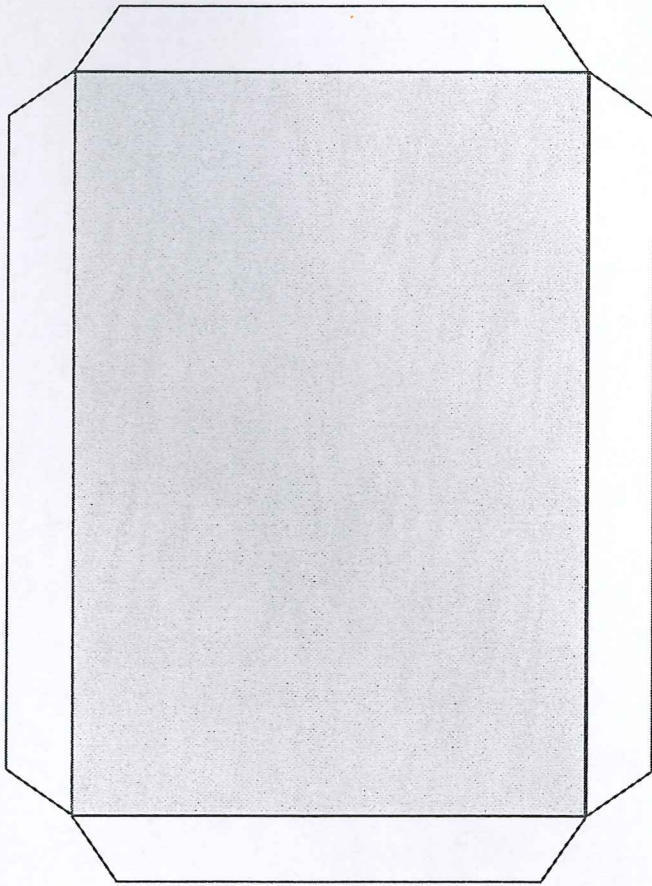
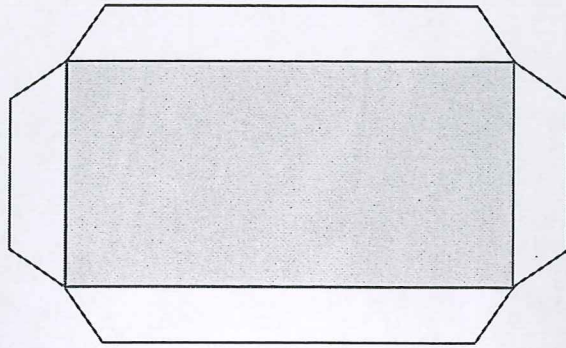
box pattern (a)



box pattern (b)



box pattern (c)



lid patterns

Name _____

Date _____

Evaluation Rubric

CATEGORY	4	3	2	1	Subtotal
Completeness of Personal Project and Classmate Evaluation	All components of the project are present and correct, and a detailed evaluation of a classmate's project has been completed.	Project is missing 1 component, and a detailed evaluation of a classmate's project has been completed.	Project is missing 2 components, and an evaluation of a classmate's project has been completed.	Project is missing 3 or more components, and an evaluation of a classmate's project has been completed.	(× 4) _____/16
Accuracy of Calculations	Volume calculations for all prisms are correct.	Volume calculations include 1 error.	Volume calculations include 2–3 errors.	Volume calculations include 4 or more errors.	(× 5) _____/20
Neatness and Use of Color	All elements of the project are carefully and colorfully constructed.	Some elements of the project are carefully and colorfully constructed	Project lacks color or is not carefully constructed.	Project lacks color and is not carefully constructed.	(× 2) _____/4
					TOTAL: _____/40

evaluation rubric

Name _____

Date _____

I reviewed project number _____.

Use the rubric below to evaluate your friend’s project. Ask questions and measure the parts to determine whether your friend has all the required elements. Respond to the prompt in italics in the third column. The final column can be used to write something you find interesting about that element if you like.

Space is provided beneath the rubric for your calculations.

	Requirement	Element present? (✓)	Specifics of Element	Notes
1.	Sculpture has 5 to 7 prisms.		<i># of prisms:</i>	
2.	All prisms are labeled with a letter.		<i>Write letters used:</i>	
3.	All prisms have correct dimensions with units written on the top.		<i>List any prisms with incorrect dimensions or units:</i>	
4.	All prisms have correct volume with units written on top.		<i>List any prism with incorrect dimensions or units:</i>	
5.	Prism D has $\frac{1}{2}$ the volume of another prism.		<i>Record on next page:</i>	
6.	Prism E has $\frac{1}{3}$ the volume of another prism.		<i>Record on next page:</i>	
7.	The total volume of all the parts together is 1,000 cubic units or less.		<i>Total volume:</i>	

Calculations:

8. Measure the dimensions of each prism. Calculate the volume of each prism and the total volume. Record that information in the table below. If your measurements or volume differ from those listed on the project, put a star by the prism label in the table below, and record on the rubric.

Prism	Dimensions	Volume
A	_____ by _____ by _____	
B	_____ by _____ by _____	
C	_____ by _____ by _____	
D	_____ by _____ by _____	
E	_____ by _____ by _____	
	_____ by _____ by _____	
	_____ by _____ by _____	

9. Prism D's volume is $\frac{1}{2}$ that of Prism _____.
Show calculations below.

10. Prism E's volume is $\frac{1}{3}$ that of Prism _____.
Show calculations below.

11. Total volume of sculpture: _____.
Show calculations below.

Name _____

Date _____

A student designed this sculpture. Using the dimensions on the sculpture, find the dimensions of each rectangular prism. Then, calculate the volume of each prism.

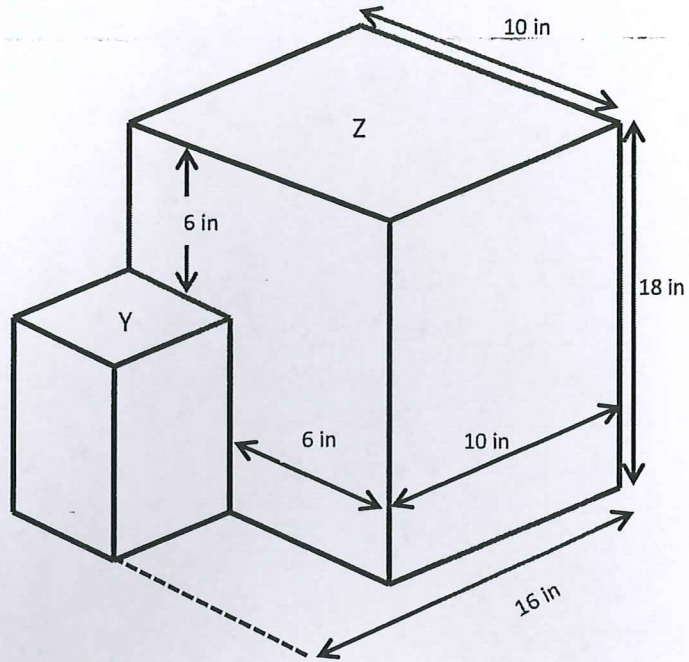
a. Rectangular Prism Y

Height: _____ inches

Length: _____ inches

Width: _____ inches

Volume: _____ cubic inches



b. Rectangular Prism Z

Height: _____ inches

Length: _____ inches

Width: _____ inches

Volume: _____ cubic inches

c. Find the total volume of the sculpture. Label the answer.

Name _____

Date _____

1. Find three rectangular prisms around your house. Describe the item you are measuring (cereal box, tissue box, etc.), and then measure each dimension to the nearest whole inch and calculate the volume.

a. Rectangular Prism A

Item: _____

Height: _____ inches

Length: _____ inches

Width: _____ inches

Volume: _____ cubic inches

b. Rectangular Prism B

Item: _____

Height: _____ inches

Length: _____ inches

Width: _____ inches

Volume: _____ cubic inches

c. Rectangular Prism C

Item: _____

Height: _____ inches

Length: _____ inches

Width: _____ inches

Volume: _____ cubic inches