

Name \_\_\_\_\_

5<sup>th</sup> grade math

4 cubic units

Isometric Dot Paper

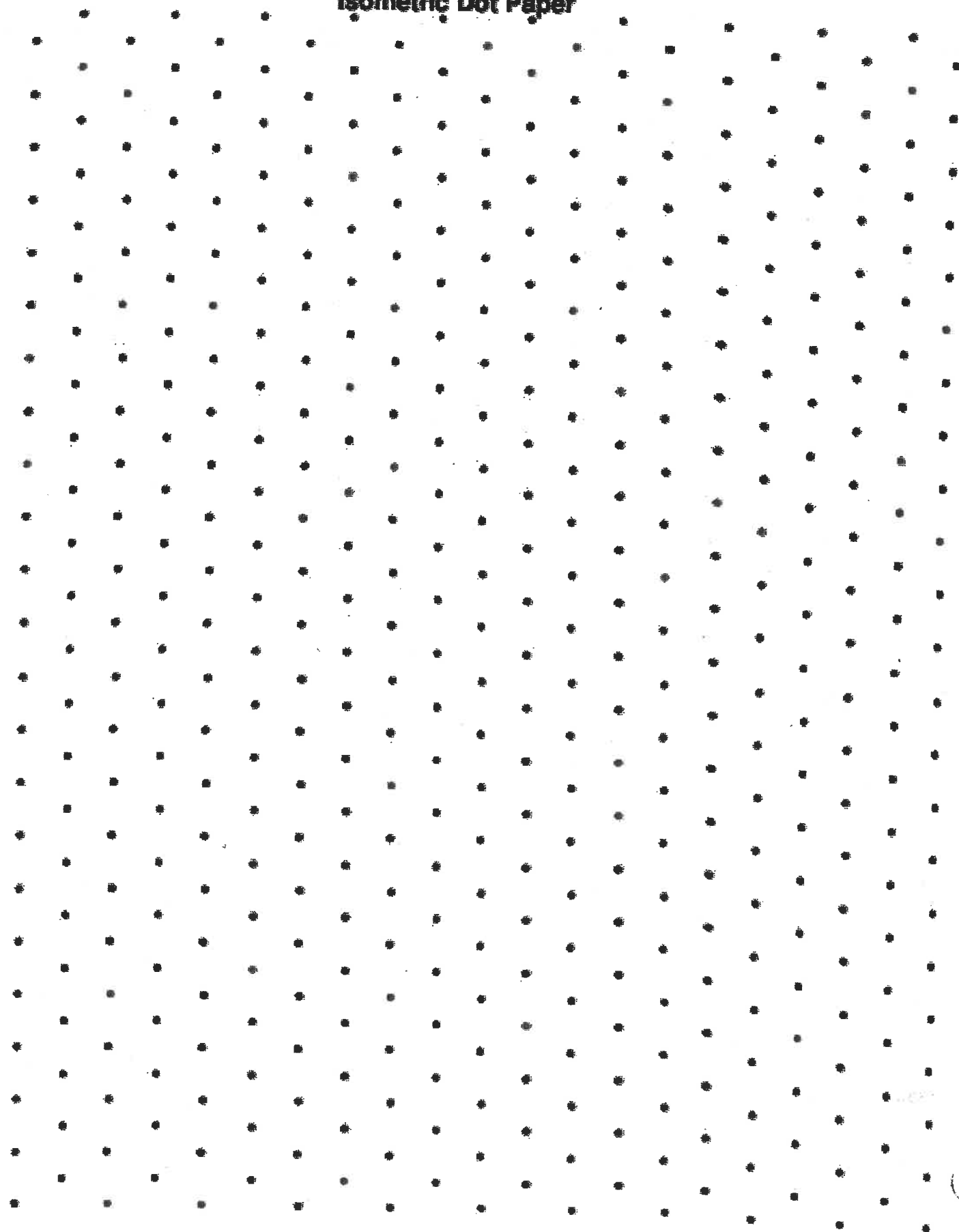
6 cubic units

9 cubic units

Draw the figures! 😊

11 cubic units

# Isometric Dot Paper

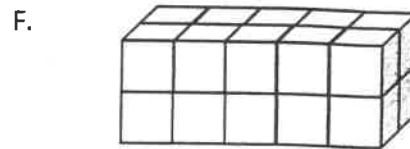
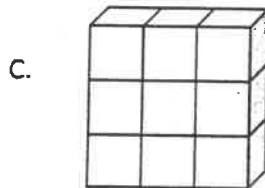
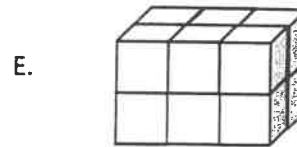
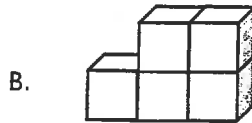
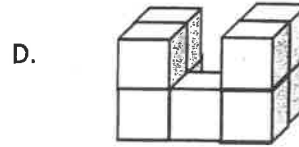


Extra! 😊

Name \_\_\_\_\_

Date \_\_\_\_\_

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

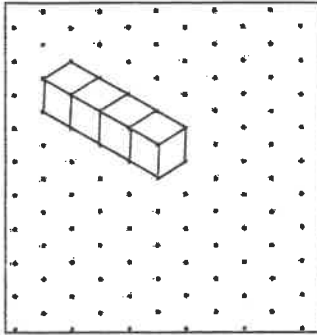


Example →      cm<sup>3</sup> ↓ How do you know?! How did you count?!

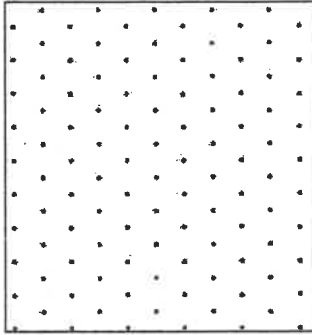
Figure	Volume	Explanation
A		
B		
C		
D		
E		
F		

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

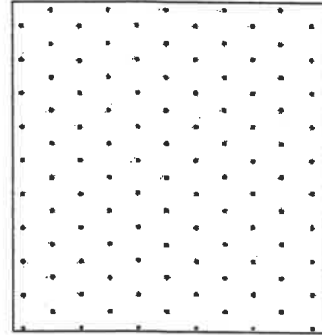
a. 4 cubic units



b. 7 cubic units

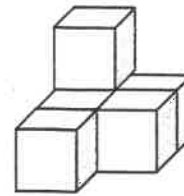


c. 8 cubic units



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

a. Explain her mistake.



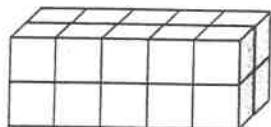
- b. Imagine if Joyce wants to build a second layer of the same structure identical to the figure above. What would its volume be then? Explain how you know.

Name \_\_\_\_\_

Date \_\_\_\_\_

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

a.



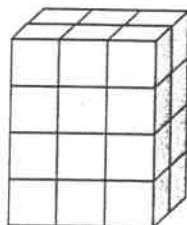
Length: \_\_\_\_\_ cm

Width: \_\_\_\_\_ cm

Height: \_\_\_\_\_ cm

Volume: \_\_\_\_\_  $\text{cm}^3$

b.



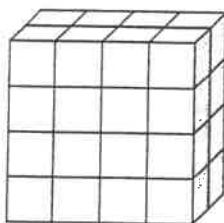
Length: \_\_\_\_\_ cm

Width: \_\_\_\_\_ cm

Height: \_\_\_\_\_ cm

Volume: \_\_\_\_\_  $\text{cm}^3$

c.



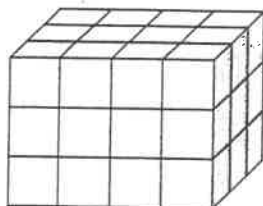
Length: \_\_\_\_\_ cm

Width: \_\_\_\_\_ cm

Height: \_\_\_\_\_ cm

Volume: \_\_\_\_\_  $\text{cm}^3$

d.

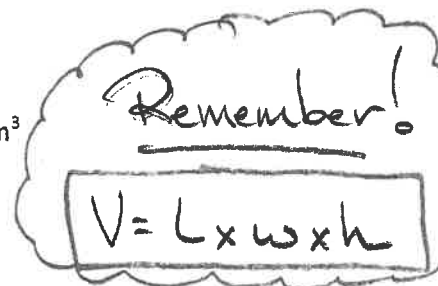


Length: \_\_\_\_\_ cm

Width: \_\_\_\_\_ cm

Height: \_\_\_\_\_ cm

Volume: \_\_\_\_\_  $\text{cm}^3$



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

a. \_\_\_\_\_

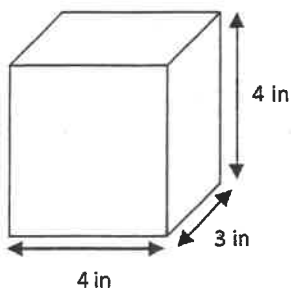
b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

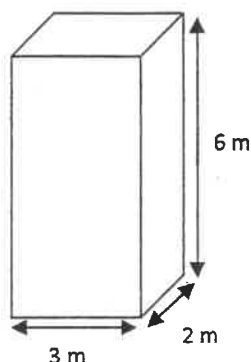
3. Calculate the volume of each rectangular prism. Include the units in your number sentences.

a.



$V =$  \_\_\_\_\_

b.

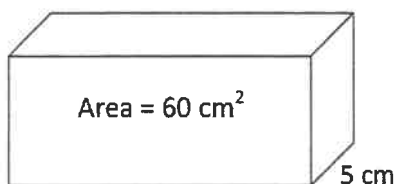


$V =$  \_\_\_\_\_

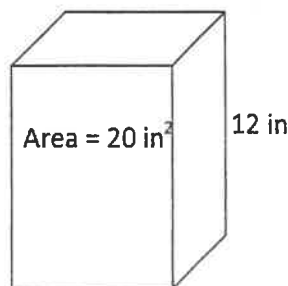
4. Tyron is constructing a box in the shape of a rectangular prism to store his baseball cards. It has a length of 10 centimeters, a width of 7 centimeters, and a height of 8 centimeters. What is the volume of the box?

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

a.



b.

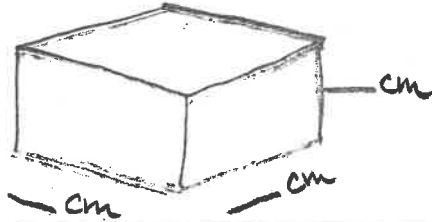


## ROLLING A RECTANGULAR PRISM

**Materials:** dice, recording sheet

**Directions:**

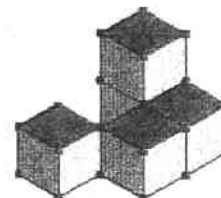
1. Draw a rectangular prism.
2. Roll a die three times to find the dimensions of the rectangular prism.
3. Label the dimensions.
4. Calculate the volume of the rectangular prism. Show your work.  $V = L \times W \times H$
5. Repeat steps 1-4 three times.

Picture	Length	Width	Height	Volume in cubic centimeters
				

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*GSE Volume and Measurement • Unit 6*

Name \_\_\_\_\_ Date \_\_\_\_\_

### How Many Ways?



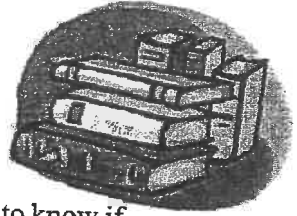
1. Count out 24 cubes.
2. Build all the rectangular prisms that can be made with the 24 cubes. For each rectangular prism, record the dimensions and volume in the table below.
3. What do you notice about the rectangular prisms you created?
4. How can you find the volume without building and counting the cubes?

Shape #	Area of the BASE of the Solid $A = \text{length} \times \text{width}$		Number of Layers of the Base (Height of Solid)	Volume in cubic centimeters
	length	width		
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				



Name \_\_\_\_\_ Date \_\_\_\_\_

## Books, Books, and More Books



**Directions:** Your teacher wants to take three boxes of books home from school. She needs to know if they will all fit in her truck, or if she needs to make two trips to get all the boxes home. Here is some information you will need:

- Two of the boxes are the same size. (2 ft. long, 3 ft. wide, and 2 ft. high)
- One box is larger than the others. (3 ft. long, 3 ft. wide, and 3 ft. high)
- Your teacher's truck has 60 cu. ft of space.

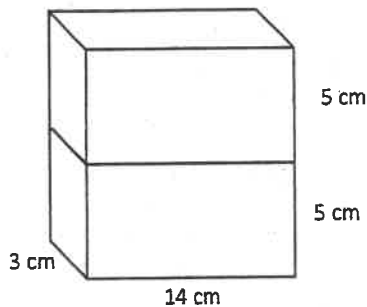
Can your teacher take all three boxes in one load? Show how you know with pictures, words, and numbers.

Name \_\_\_\_\_

Date \_\_\_\_\_

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

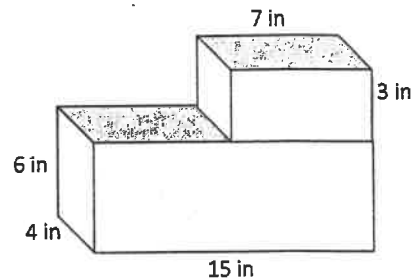
a.



Volume: \_\_\_\_\_

Solution Strategy:

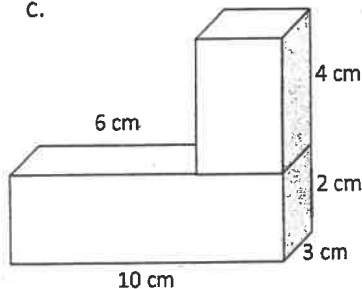
b.



Volume: \_\_\_\_\_

Solution Strategy:

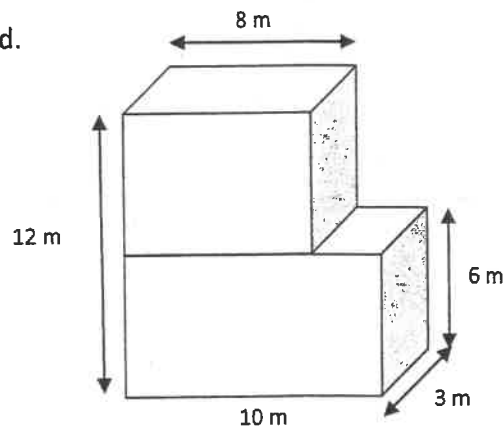
c.



Volume: \_\_\_\_\_

Solution Strategy:

d.

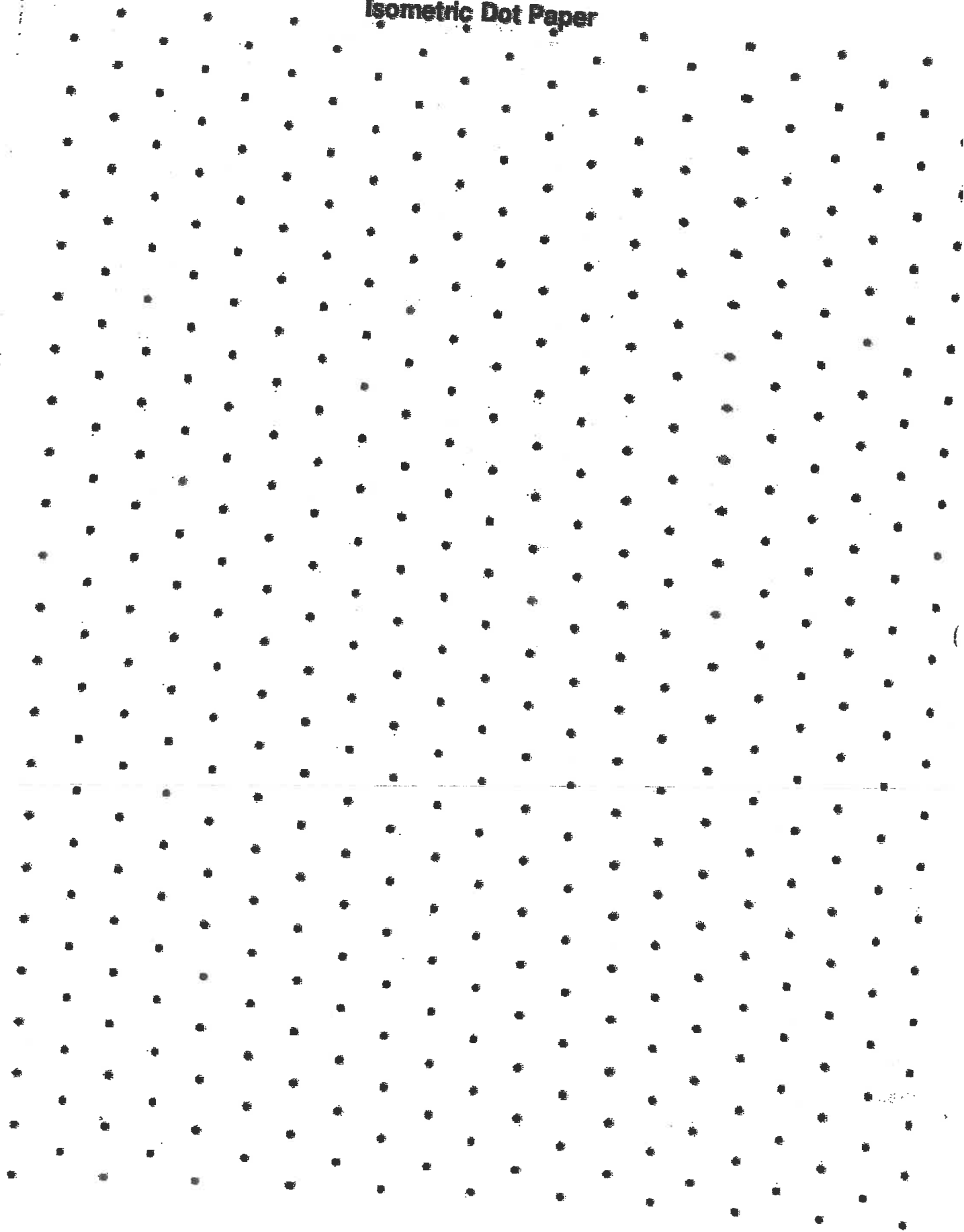


Volume: \_\_\_\_\_

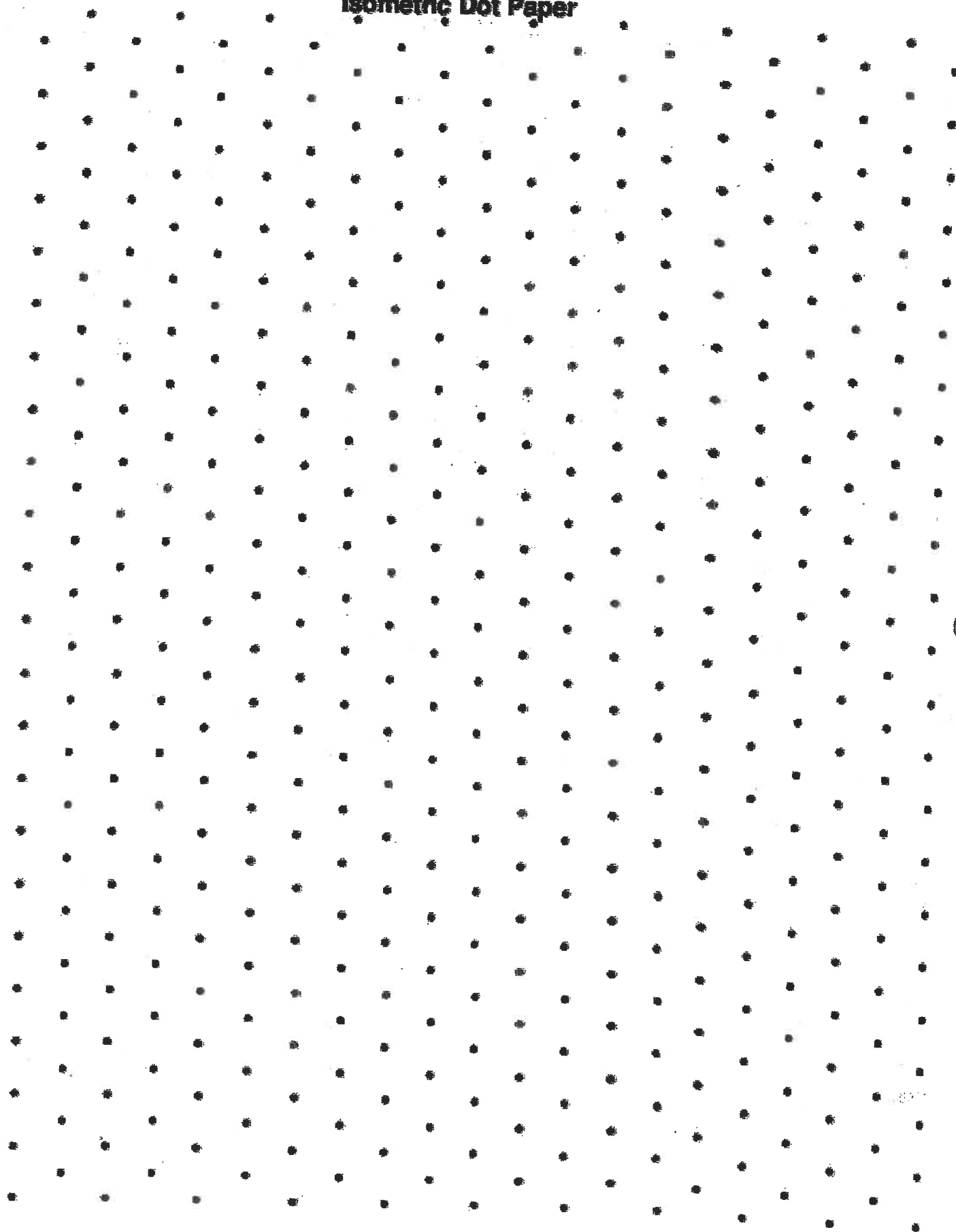
Solution Strategy:

\*More Dot Paper... Just for FUN!

Isometric Dot Paper



# Isometric Dot Paper



4 cubic units

Name

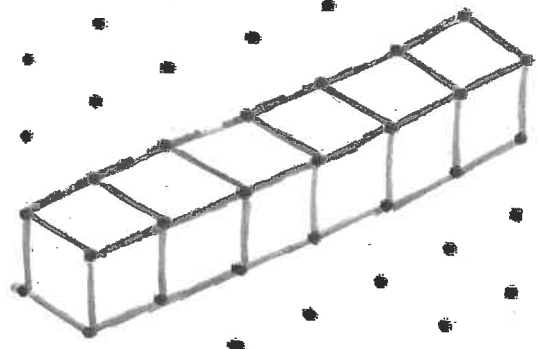
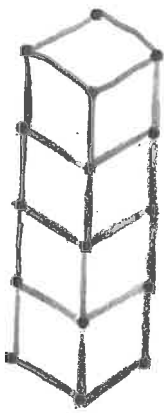
Answer Key!

5th grade

6 cubic units

Isometric Dot Paper

Results may vary.



etc.

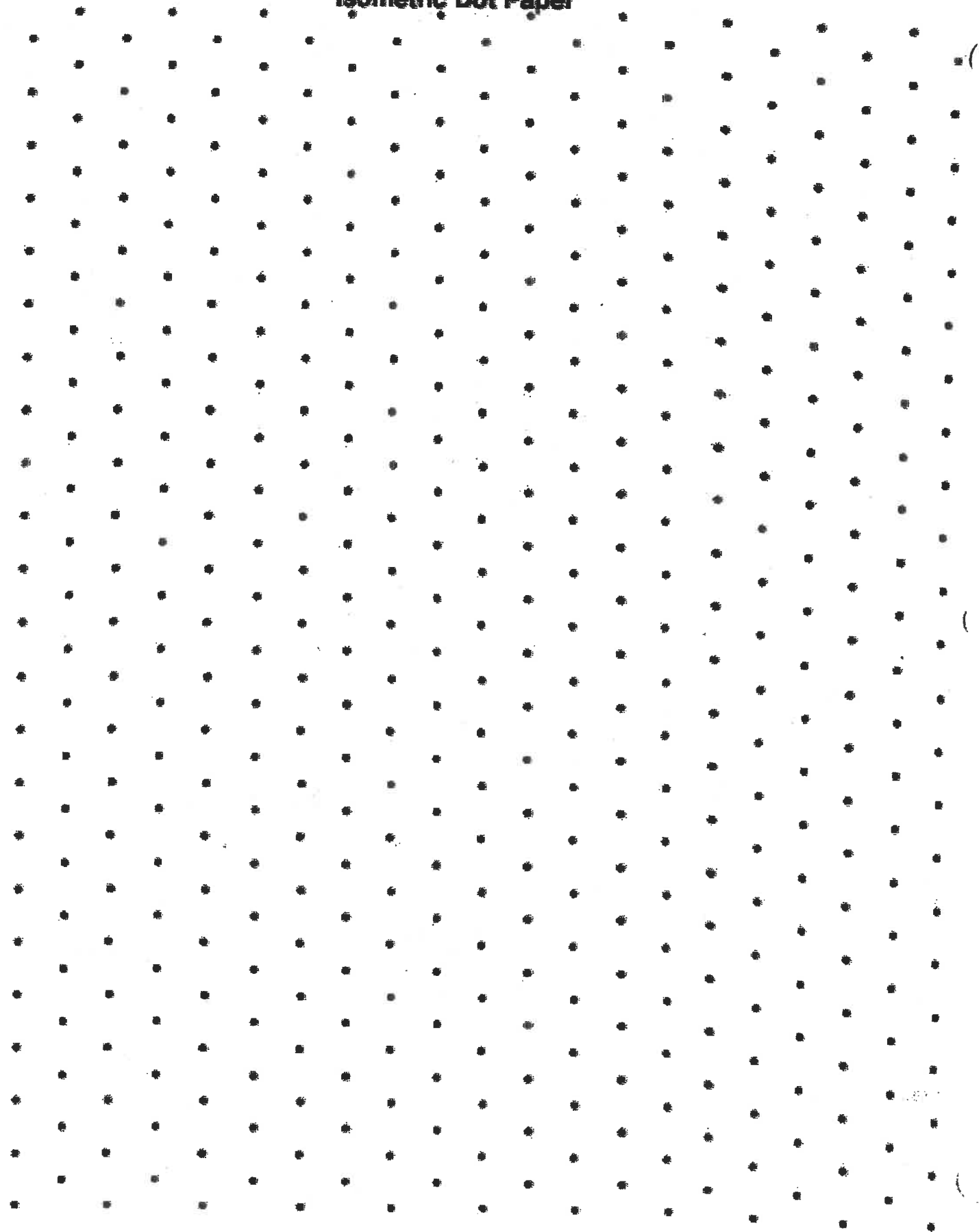
etc.

9 cubic units

Draw the figures! 😊

11 cubic units

# Isometric Dot Paper

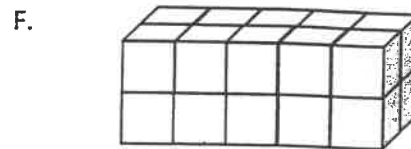
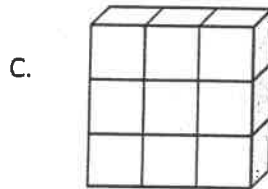
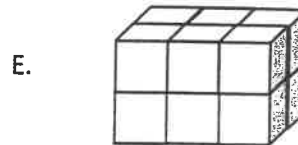
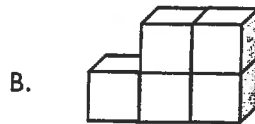
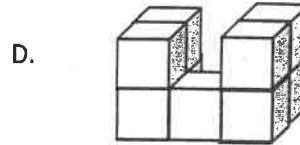


Extra! 😊

Name \_\_\_\_\_

Date \_\_\_\_\_

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



Example →

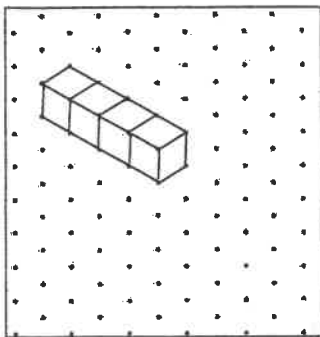
1 cm<sup>3</sup>

↓ How do you know?! How did you count?!

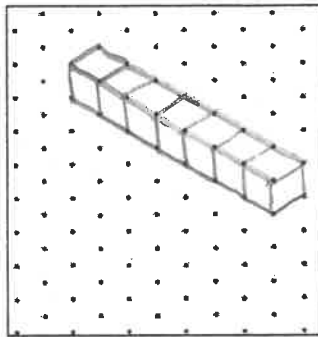
Figure	Volume	Explanation
A	1 cm <sup>3</sup>	I counted one block...
B	5 cm <sup>3</sup>	I counted 2 on top / 3 on bottom...
C	9 cm <sup>3</sup>	I counted 3 layers of 3 blocks...
D	9 cm <sup>3</sup>	I counted 2 groups of 4 plus one middle...
E	12 cm <sup>3</sup>	I counted 2 layers of 6 each...
F	20 cm <sup>3</sup>	I counted 2 layers of 10 each...

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

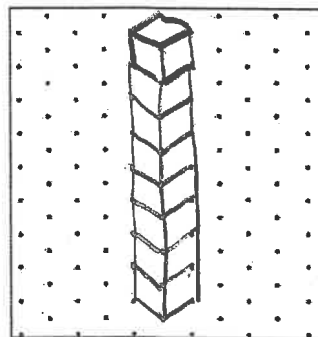
a. 4 cubic units



b. 7 cubic units



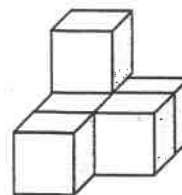
c. 8 cubic units



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

a. Explain her mistake.

The answer is  $6\text{ cm}^3$ .  
There must be a block underneath the one block that is on the top layer!



- b. Imagine if Joyce wants to build a second layer of the same structure identical to the figure above. What would its volume be then? Explain how you know.

The volume would be  $11\text{ cm}^3$ .  
The bottom layer has  $5\text{ cm}^3$ , so adding another layer would make it  $10\text{ cm}^3$ , plus the one block on the top...

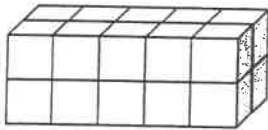


Name \_\_\_\_\_

Date \_\_\_\_\_

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

a.



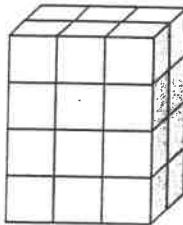
Length: 5 cm

Width: 2 cm

Height: 2 cm

Volume: 20 cm<sup>3</sup>

b.

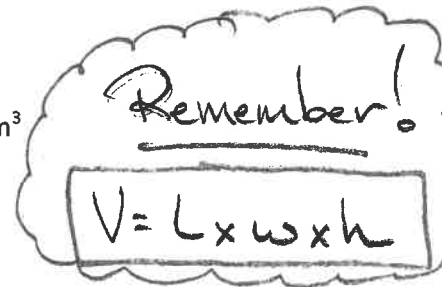


Length: 3 cm

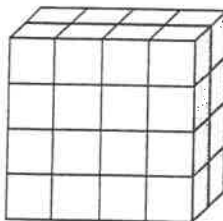
Width: 2 cm

Height: 4 cm

Volume: 24 cm<sup>3</sup>



c.



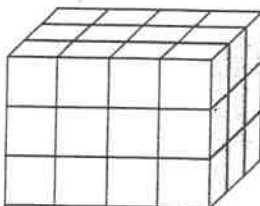
Length: 4 cm

Width: 2 cm

Height: 4 cm

Volume: 32 cm<sup>3</sup>

d.



Length: 4 cm

Width: 3 cm

Height: 3 cm

Volume: 36 cm<sup>3</sup>

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. 5cm x 2cm x 2cm = 20cm<sup>3</sup>

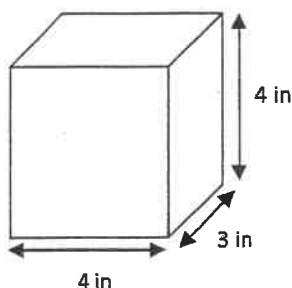
b. 3cm x 2cm x 4cm = 24cm<sup>3</sup>

c. 4cm x 2cm x 4cm = 32cm<sup>3</sup>

d. 4cm x 3cm x 3cm = 36cm<sup>3</sup>

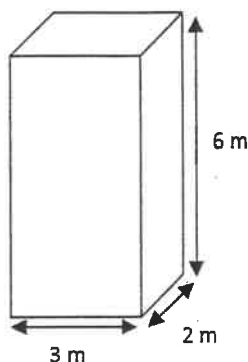
3. Calculate the volume of each rectangular prism. Include the units in your number sentences.

a.



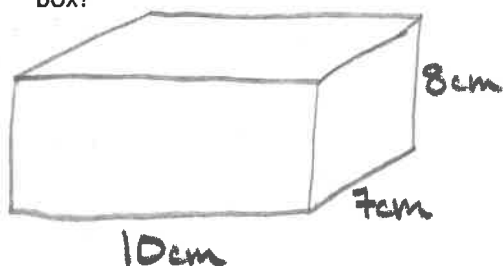
$$V = 4 \text{ in} \times 3 \text{ in} \times 4 \text{ in} = 48 \text{ in}^3$$

b.



$$V = 3 \text{ m} \times 2 \text{ m} \times 6 \text{ m} = 36 \text{ m}^3$$

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?



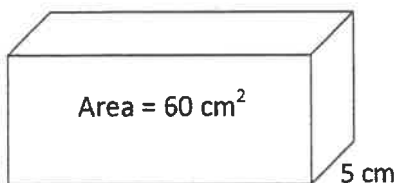
$$8 \text{ cm} \times 7 \text{ cm} \times 10 \text{ cm}$$

$$56 \text{ cm}^2 \times 10 \text{ cm}$$

$$= 560 \text{ cm}^3$$

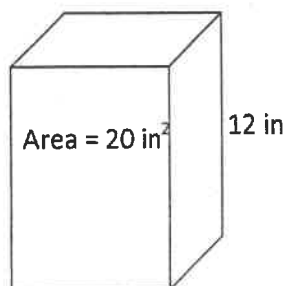
5. Aaron says more information is needed to find the volume of the prisms. Explain why Aaron is mistaken, and calculate the volume of the prisms.

a.  $60 \text{ cm}^2 \times 5 \text{ cm} = 300 \text{ cm}^3$



b.

$$20 \text{ in}^2 \times 12 \text{ in} = 240 \text{ in}^3$$



We have 2 dimensions tied into the Area! So we can multiply the Area  $\times$  3<sup>rd</sup> dimension to find the volume!

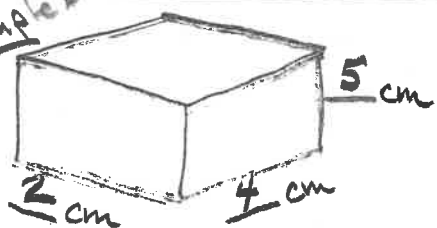
## ROLLING A RECTANGULAR PRISM

Materials: dice, recording sheet

### Directions:

1. Draw a rectangular prism.
2. Roll a die three times to find the dimensions of the rectangular prism.
3. Label the dimensions.
4. Calculate the volume of the rectangular prism. Show your work.  $V = L \times W \times h$
5. Repeat steps 1-4 three times.

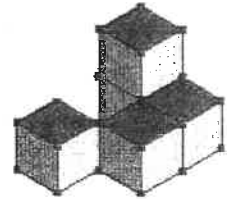
*\*Results may vary!*

Picture	Length	Width	Height	Volume in cubic centimeters
<i>*Example*</i> 	2cm	4cm	5cm	40cm <sup>3</sup>

**Georgia Department of Education**  
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*GSE Volume and Measurement • Unit 6*

Name \_\_\_\_\_ Date \_\_\_\_\_

### How Many Ways?



1. Count out 24 cubes.
2. Build all the rectangular prisms that can be made with the 24 cubes. For each rectangular prism, record the dimensions and volume in the table below.
3. What do you notice about the rectangular prisms you created?
4. How can you find the volume without building and counting the cubes?

\* Order may vary!  
 ↳

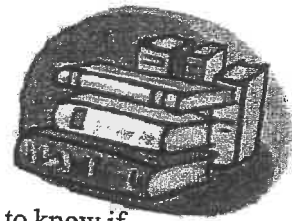
Shape #	Area of the BASE of the Solid $A = L \times w$		Number of Layers of the Base (Height of Solid)	Volume in cubic centimeters
	length	width		
1	1 cm	1 cm	24 cm	$24 \text{ cm}^3$
2	1 cm	2 cm	12 cm	$24 \text{ cm}^3$
3	1 cm	3 cm	8 cm	$24 \text{ cm}^3$
4	1 cm	4 cm	6 cm	$24 \text{ cm}^3$
5	2 cm	2 cm	6 cm	$24 \text{ cm}^3$
6	2 cm	3 cm	4 cm	$24 \text{ cm}^3$
7				
8				
9				
10				

#3 - Answers will vary!

#4 - Answers will vary!

Name \_\_\_\_\_ Date \_\_\_\_\_

## Books, Books, and More Books



**Directions:** Your teacher wants to take three boxes of books home from school. She needs to know if they will all fit in her truck, or if she needs to make two trips to get all the boxes home. Here is some information you will need:

- Two of the boxes are the same size. (2 ft. long, 3 ft. wide, and 2 ft. high)
- One box is larger than the others. (3 ft. long, 3 ft. wide, and 3 ft. high)
- Your teacher's truck has 60 cu. ft of space.

Can your teacher take all three boxes in one load? Show how you know with pictures, words, and numbers.

Two Smaller boxes:

$$2 \text{ ft} \times 3 \text{ ft} \times 2 \text{ ft} = 12 \text{ ft}^3$$

$$\begin{array}{r} 12 \text{ ft}^3 \\ \times 2 \\ \hline 24 \text{ ft}^3 \end{array}$$

One Bigger box:

$$3 \text{ ft} \times 3 \text{ ft} \times 3 \text{ ft} = 27 \text{ ft}^3$$

$$\begin{array}{r} 27 \text{ ft}^3 \\ + 24 \text{ ft}^3 \\ \hline 51 \text{ ft}^3 \end{array}$$

or

$$\begin{array}{r} 27 \text{ ft}^3 \\ 12 \text{ ft}^3 \\ + 12 \text{ ft}^3 \\ \hline 51 \text{ ft}^3 \end{array}$$

$$\begin{array}{r} \text{Teacher's} \\ \text{Truck} \\ \hline = 60 \text{ ft}^3 \end{array}$$

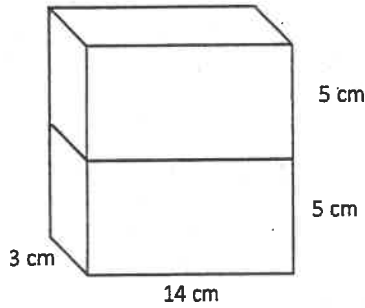
Yes, you can haul all 3 boxes  
in one load!

Name \_\_\_\_\_

Date \_\_\_\_\_

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

a.



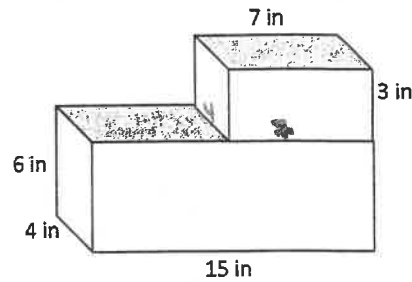
Volume:  $420 \text{ cm}^3$

Solution Strategy:

$$3 \text{ cm} \times 14 \text{ cm} = 42 \text{ cm}^2 \times 5 \text{ cm} = 210 \text{ cm}^3$$

$$210 \text{ cm}^3 \times 2 = 420 \text{ cm}^3$$

b.



Volume:  $444 \text{ in}^3$

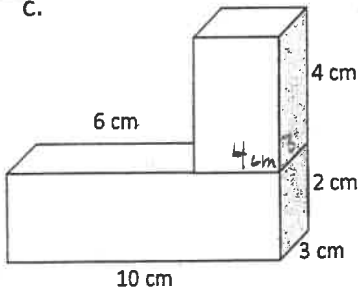
Solution Strategy:

Top:  $4 \text{ in} \times 7 \text{ in} \times 3 \text{ in} = 84 \text{ in}^3$

Bottom:  $6 \text{ in} \times 4 \text{ in} \times 15 \text{ in} = 360 \text{ in}^3$

Handwritten:  $360 \text{ in}^3 + 84 \text{ in}^3 = 444$

c.



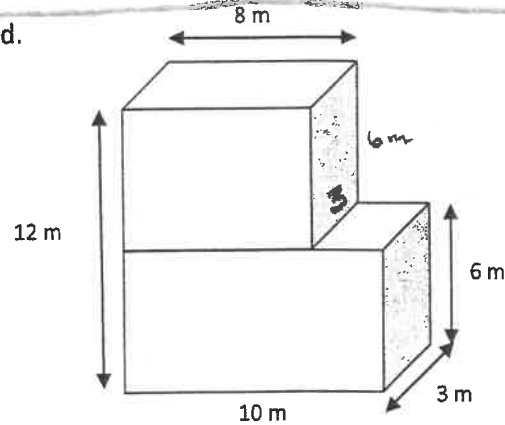
Volume:  $108 \text{ cm}^3$

Solution Strategy:

Top:  $4 \text{ cm} \times 3 \text{ cm} \times 4 \text{ cm} = 48 \text{ cm}^3$

Bottom:  $2 \text{ cm} \times 3 \text{ cm} \times 10 \text{ cm} = 60 \text{ cm}^3$

d.



Volume:  $324 \text{ m}^3$

Solution Strategy:

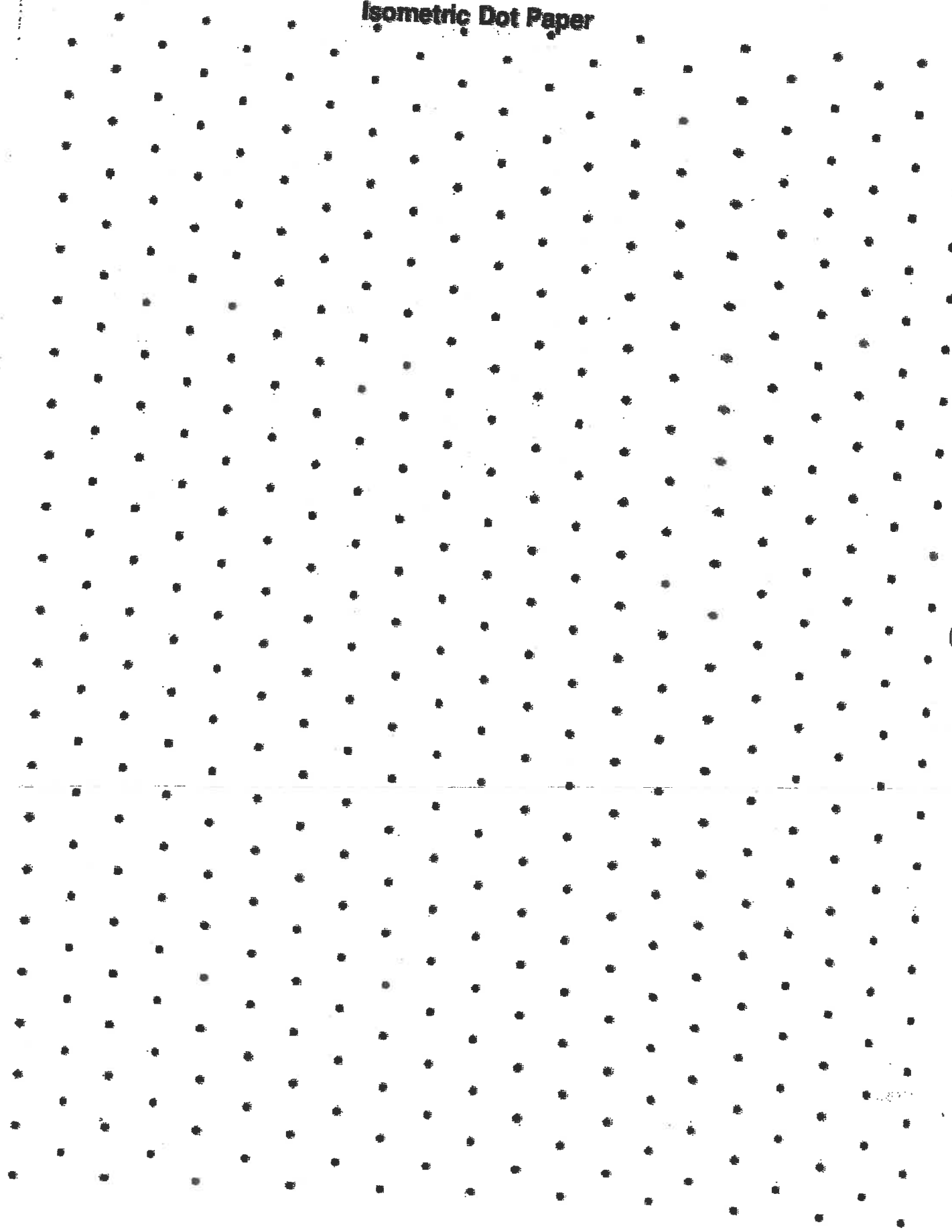
Top:  $6 \text{ m} \times 3 \text{ m} \times 10 \text{ m} = 180 \text{ m}^3$

Bottom:  $6 \text{ m} \times 3 \text{ m} \times 10 \text{ m} = 144 \text{ m}^3$

Handwritten:  $180 \text{ m}^3 + 144 \text{ m}^3 = 324 \text{ m}^3$

\*More Dot Paper... Just for FUN!

**Isometric Dot Paper**



# Isometric Dot Paper

