

# LETTER HOME

## Exploring Multiplication and Division

Dear Family Member:

During this unit your child will solve multiplication and division problems that come from real-world situations and connect to other areas of mathematics. For example, after reading a recipe, your child will use multiplication and a graph to figure out how many lemons are needed to make six pitchers of lemonade. Students will use division to determine how many cupcakes each person at a birthday party will get. These and other real-world problems help them see multiplication and division as part of their everyday lives.

You can provide additional support at home.

**Make Lemonade.** You and your child can make lemonade, following this recipe or one of your own. Ask your child what you would need to do to double or triple the recipe.



### Homemade Lemonade

#### Ingredients

Juice from 8 lemons  
2 quarts of cold water  
2 cups sugar

#### Instructions

1. Combine all ingredients in a large (2-quart) pitcher.
2. Stir well to dissolve the sugar completely.
3. Pour over ice cubes.

**Makes one 2-quart pitcher.**

**Cost Chart.** Tell your child the cost of one small item. For example, the cost of one small toy is 50¢. Ask them how much 4 or 10 would cost. Ask your child to make a table showing the cost of various numbers of the item.

## Math Facts and Mental Math

This unit continues the systematic review and assessment of the multiplication facts.

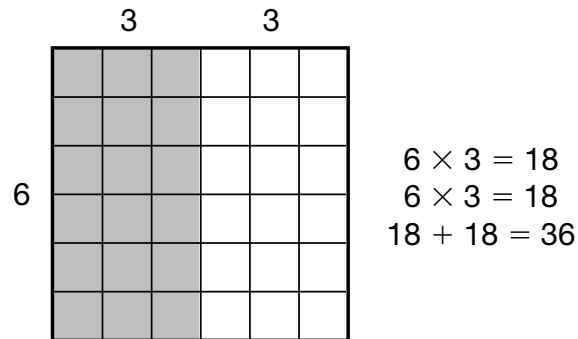
**Multiplication Facts.** Students review the square number to increase fluency and learn to apply multiplication strategies to larger numbers.

You can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study facts in small groups each night. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

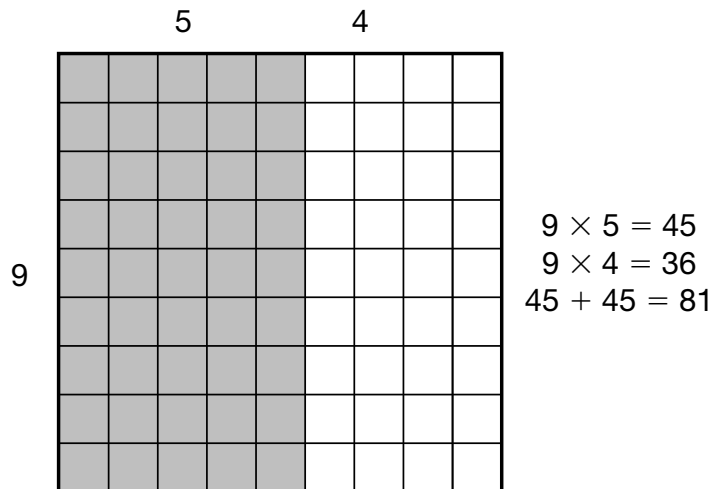
For Facts I Need to Learn, work on strategies for figuring them out. Good strategies include:

Skip counting. To solve  $5 \times 5$ , skip count: 5, 10, 15, 20, 25

Doubling. To solve  $6 \times 6$ , solve  $3 \times 6 = 18$  and  $18 + 18 = 36$  so  $6 \times 6 = 36$



Reasoning from known facts. To solve  $9 \times 9$ , solve  $9 \times 5 + 9 \times 4 = 81$ .



For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use mental math strategies to multiply 10s and 100s:

$$60 \times 600 = 36000, 40 \times 40 = 1600, 3 \times 300 = 900$$

Thank you for taking the time to talk with your child about what he or she is doing in math.

Sincerely,

# Unit 10: Home Practice

## Part 1 Triangle Flash Cards: Square Numbers

Study for the quiz on the multiplication facts for the square numbers. Take home your *Triangle Flash Cards: Square Numbers* and the list of facts you need to study.

Ask a family member to choose one flash card at a time. He or she should cover the largest number. Solve a multiplication fact with the two uncovered numbers. Your teacher will tell you when the quiz on the square numbers will be.

## Part 2 Using Addition and Subtraction Strategies

Choose an efficient method to solve these problems. Check to see if your answer is reasonable. Use the *Addition Strategies Menu* and *Subtraction Strategies Menu*.

- A.  $34 + 28 = \underline{\quad}$                       B.  $42 - 39 = \underline{\quad}$   
C.  $856 + 398 = \underline{\quad}$                       D.  $519 - 378 = \underline{\quad}$

E. Show how you decided your answer was reasonable for Question 1D.

- Jillian had forty-six animal cards in her collection. Her mother gave her 16 more cards for her birthday. How many cards does Jillian have in her collection now? Use two different methods to solve this problem.

A. First Method                      B. Second Method

**Part 3 More Addition and Subtraction Practice**

Choose an efficient method to solve these problems. Check to see if your answers are reasonable. Use the *Addition Strategies Menu* and *Subtraction Strategies Menu*.

1. **A.**  $60 - 38 = \underline{\hspace{2cm}}$

**B.**  $28 + 17 + 13 = \underline{\hspace{2cm}}$

**C.** 
$$\begin{array}{r} 92 \\ - 78 \\ \hline \end{array}$$

**D.**  $35 + 25 + 19 = \underline{\hspace{2cm}}$

**E.**  $180 - 90 = \underline{\hspace{2cm}}$

**F.**  $46 + 38 + 54 = \underline{\hspace{2cm}}$

**G.** Explain a way to solve Question 1A in your head.

- 2.** Bill makes \$2.50 a week helping his grandmother. How much will he make in 3 weeks? Show or tell how you found your answer.

**Part 4 Buttons for Costumes**

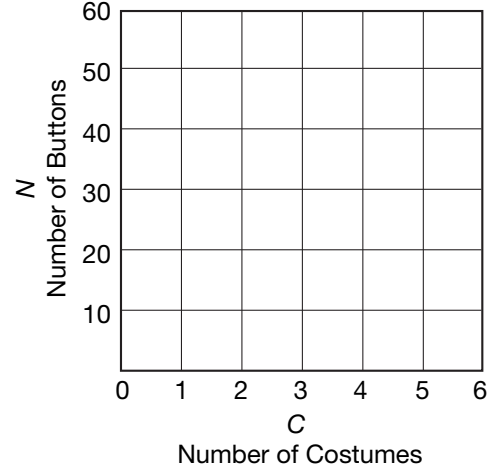
1. **A.** Mrs. Estrada is making costumes for her son’s class party. She needs 10 buttons for each costume. Complete the data table.
- B.** Use the data table to complete the graph.

Buttons Data Table

<b>C</b> Number of Costumes	<b>B</b> Number of Buttons
1	10
2	
4	

2. **A.** Use dotted lines to show how you can use the graph to find the number of buttons needed for 6 costumes.
- B.** Use the graph to show how you can find the number of costumes she can complete with 30 buttons.

Buttons for Costumes



**Part 5 More Costumes**

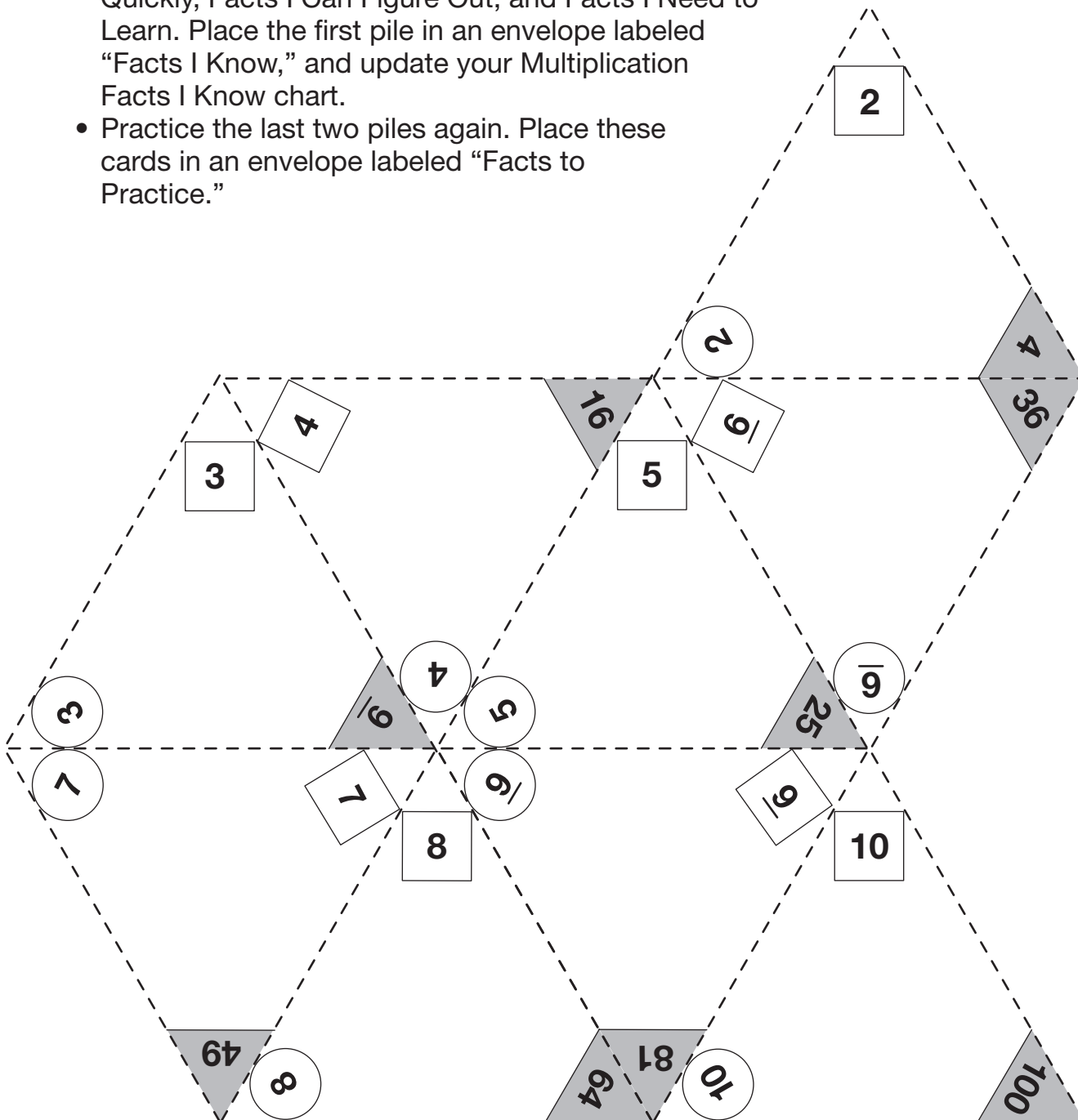
1. Mrs. Estrada needs 2 yards of fabric for each costume. Complete the table.
2. Mrs. Estrada needs to purchase fabric and buttons to make the costumes. Buttons cost 10¢ each and fabric is \$2.00 a yard. Mrs. Estrada has \$35.00 to spend. Will Mrs. Estrada have enough to make 4 costumes? Show or tell how you decided.

Fabric for Costumes

<b>C</b> Number of Costumes	<b>Y</b> Number of Yards
1	
2	
4	

# Triangle Flash Cards: Square Numbers

- Work with a partner. Each partner cuts out the flash cards.
- To quiz you on a multiplication fact, your partner covers the shaded number. Multiply the two uncovered numbers.
- Divide the used cards into three piles: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn. Place the first pile in an envelope labeled "Facts I Know," and update your Multiplication Facts I Know chart.
- Practice the last two piles again. Place these cards in an envelope labeled "Facts to Practice."

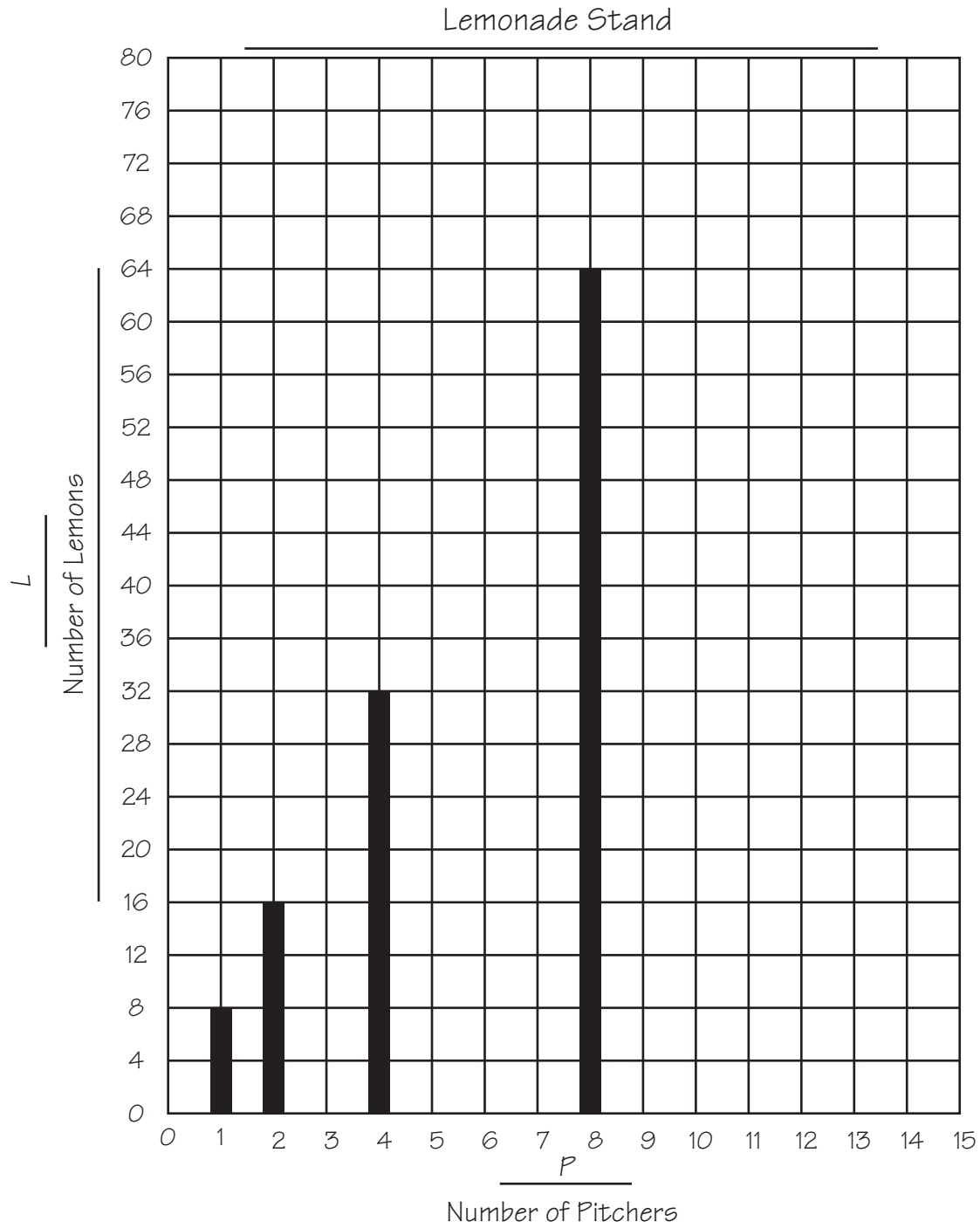


# Multiplication Facts I Know

- Circle the facts you know well.
- Keep this table and use it to help you multiply.
- As you learn more facts, you may circle them too.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

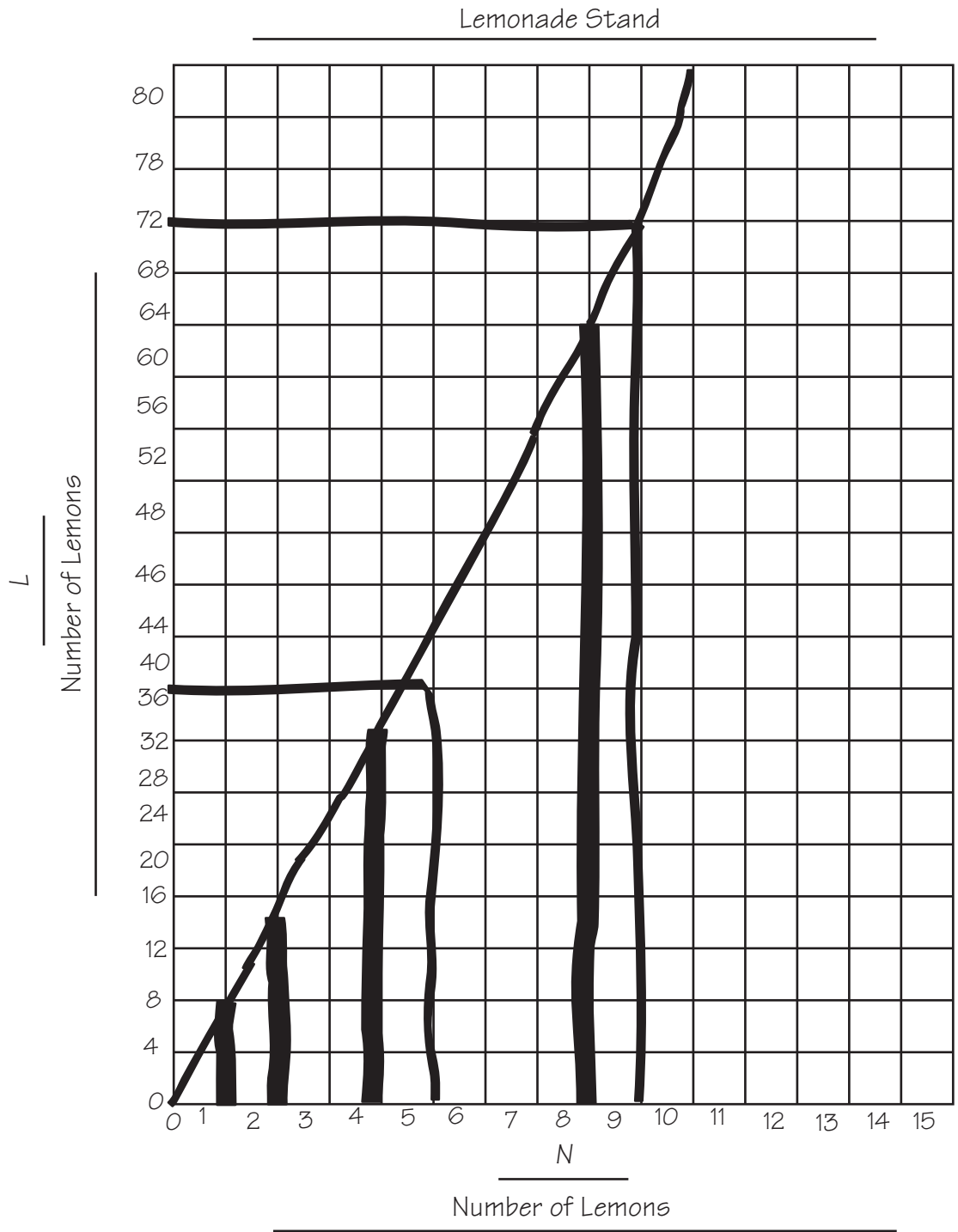
# Lemonade Stand Graph



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# What Went Wrong?



# Making Limeade

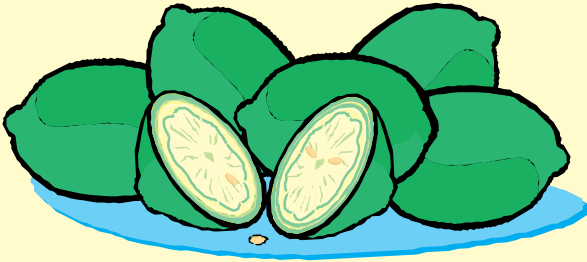
Limeade is a drink made with limes. It is like lemonade. Here is a recipe.

**Homemade Limeade**

Ingredients  
 Juice from 6 limes  
 2 quarts of cold water  
 1 $\frac{1}{3}$  cups sugar

Instructions  
 1. Mix together all ingredients in a large (2-quart) pitcher.  
 2. Stir well.

Makes one 2-quart pitcher



1. Complete the data table.

Making Limeade

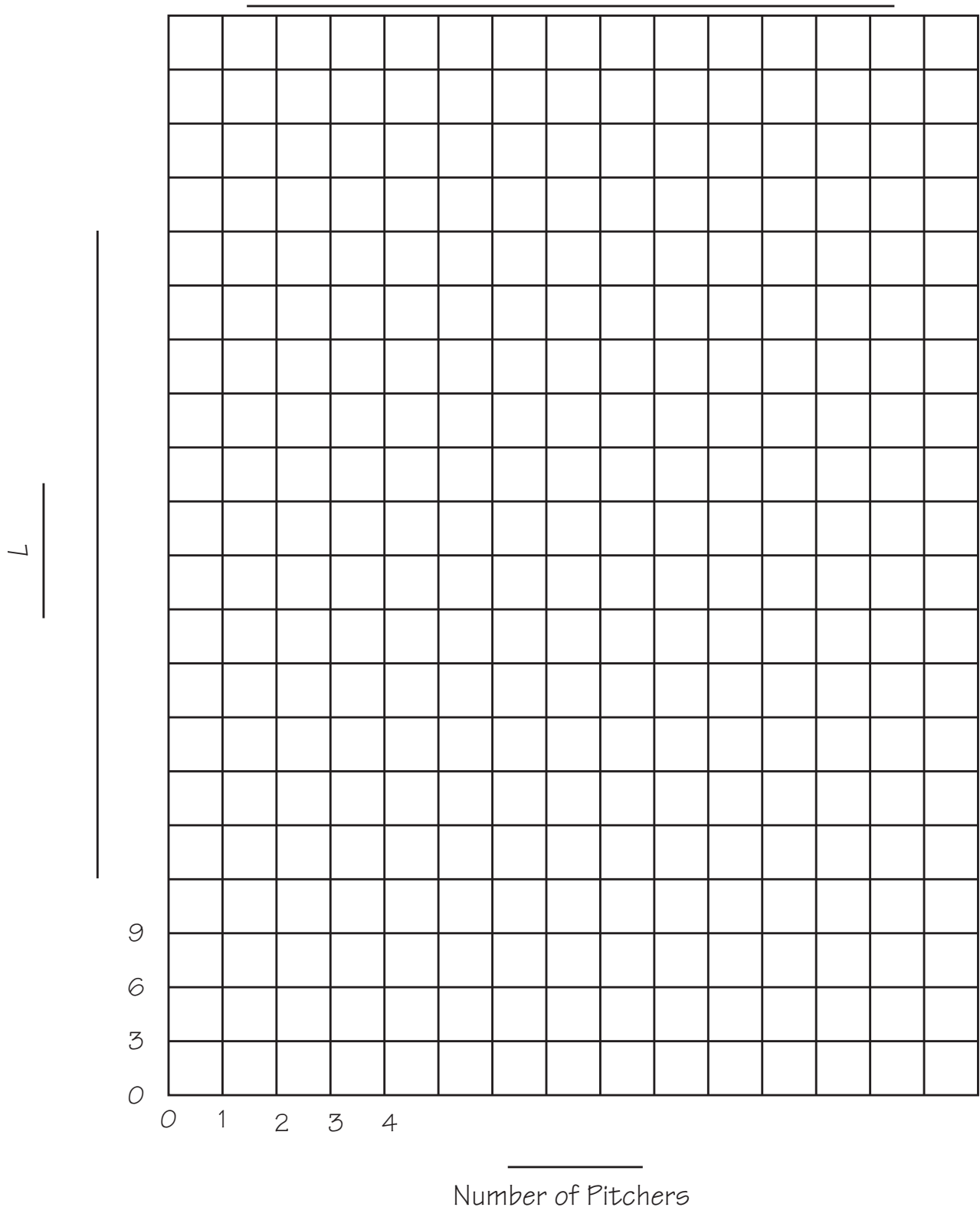
<i>P</i> Number of Pitchers	<i>L</i> Number of Limes
1	
2	
4	
8	

2. Make a point graph of your data. Use the Centimeter Graph Paper following Question 8.
- A. Finish numbering the axes.
  - B. Finish labeling the axes.
  - C. Title your graph.
  - D. Plot the data points.
3. Do the points form a line? If so, draw a line through the points with a ruler. Extend the line in both directions.

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**Solve Questions 4–7 in two ways. For one way, use your graph. Show how you used the graph by drawing dotted lines. Solve the problem another way to check your answer.**

- 4. A.** How many limes do you need for 7 pitchers of limeade?
- B.** Show or tell how you checked your answer using another strategy.
- 5. A.** How many limes do you need for 10 pitchers of limeade?
- B.** Show or tell how you checked your answer using another strategy.
- 6. A.** How many pitchers can you make with 54 limes?
- B.** Show or tell how you checked your answer using another strategy.
- 7. A.** How many pitchers can you make with 39 limes?
- B.** Show or tell how you checked your answer using another strategy.
- 8.** If limes cost 19¢ each, estimate the cost of limes for one pitcher. Show or tell how you found your answer.



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

### Making Limeade Feedback Box

Expect- ation	Check In	Comments
E2		
E4		
E5		
E6		
E7		

Represent multiplicative patterns in tables and graphs. [Q# 1–3]
Represent solution strategies for problems involving multiplication (e.g., models, drawings, number lines, number sentences, and graphs). [Q# 4–5, 8]
Represent solution strategies for problems involving division (e.g., models, drawings, number lines, number sentences, and graphs). [Q# 6–7]
Make a point graph to model real-world situations. [Q# 2]
Read a table or graph to find information about a data set. [Q# 4–7]

Yes . . .                      Yes, but . . .                      No, but . . .                      No . . .

<b>MPE3. Check for reason- ableness.</b> I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 4–7]			
<b>MPE5. Show my work.</b> I show or tell how I arrived at my answer so someone else can understand my thinking. [Q# 4–8]			

# Ice Cube Problem

Solve the following problem.

Frank helped his mother get ready for a party. He had 33 ice cubes to put into cups. If he put six cubes in each cup, how many cups did he fill?

The solutions below are from other third-graders. Discuss the following questions with your partner. Use the *Math Practices* page in the Reference section of the *Student Guide* as you answer each question.

1. Which solutions are correct? How do you know?
2. If any are incorrect, how can you correct them?
3. Can you see why their strategies make sense? If so, how did they solve the problem?
4. If you cannot understand any of the strategies, what questions would you ask? What could the students add so that you would understand?

Nisha's Solution:

$$\begin{array}{c} 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ \hline 36 \end{array} \quad 5 \text{ r}3 \quad 33 \div 6 = 5 \text{ r}3$$

Sam's Solution:

$$6 \times 5 = 30$$

Jason's Solution:

$$\begin{array}{l} 6 \times 5 = 30 \\ 33 - 30 = 3 \\ \text{left overs} \end{array}$$

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

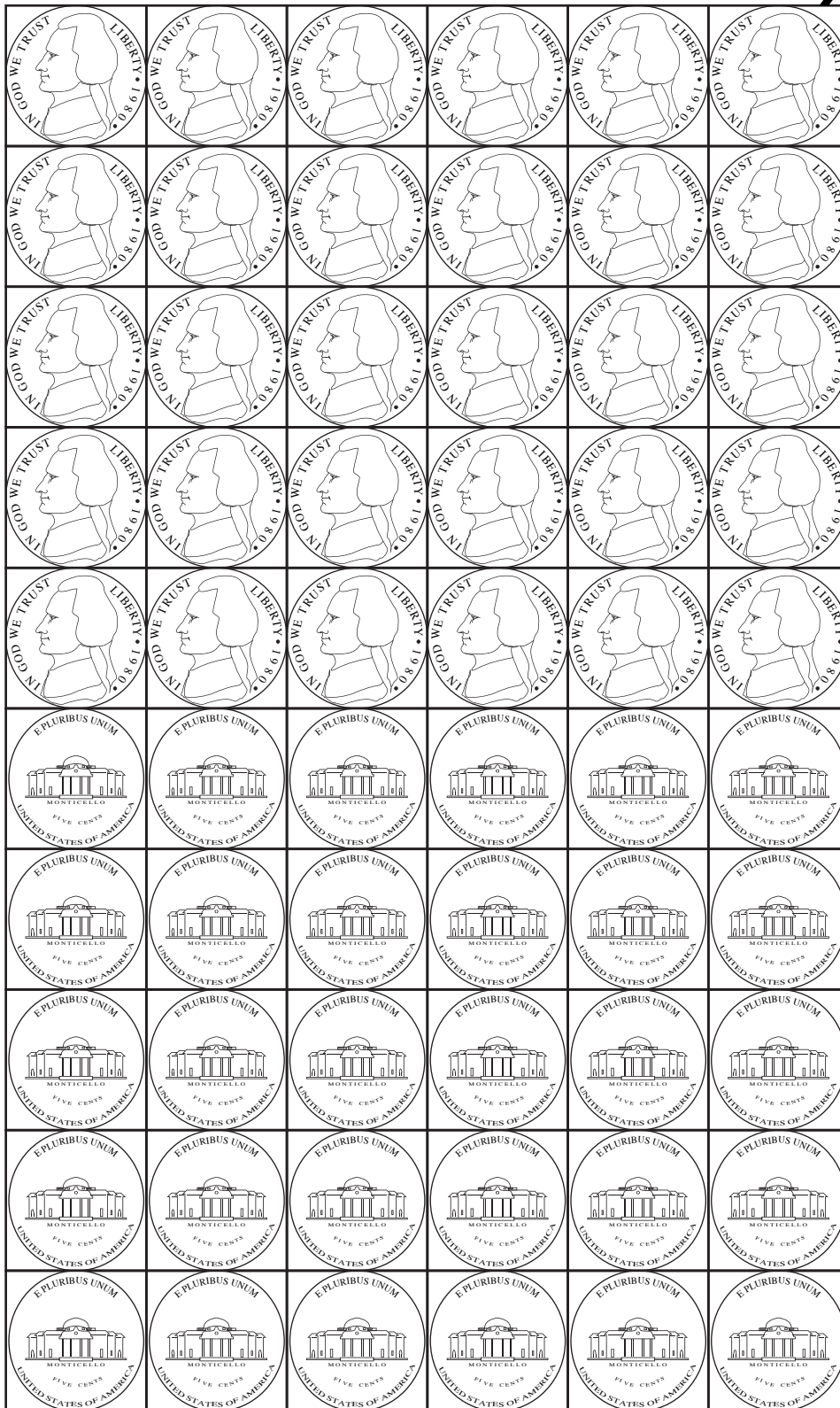
<b>Money Jar Check-In: Questions 11–12 Feedback Box</b>	<b>Expectation</b>	<b>Check In</b>	<b>Comments</b>
Multiply and divide using mental math strategies. [Q# 11–12]	<b>E3</b>		
Represent solutions strategies for problems involving multiplication. [Q# 11–12]	<b>E4</b>		
Represent solution strategies for problems involving division including interpreting remainders. [Q# 11–12]	<b>E5</b>		

	Yes ...	Yes, but ...	No, but ...	No ...
<b>MPE1. Know the problem.</b> I read the problem carefully. I know the questions to answer and what information is important.				
<b>MPE2. Find a strategy.</b> I choose good tools and an efficient strategy for solving the problem.				
<b>MPE3. Check for reasonableness.</b> I look back at my solution to see if my answer makes sense. If it does not, I try again.				
<b>MPE5. Show my work.</b> I show or tell how I arrived at my answer so someone else can understand my thinking.				
<b>MPE6. Use labels.</b> I use labels to show what numbers mean.				



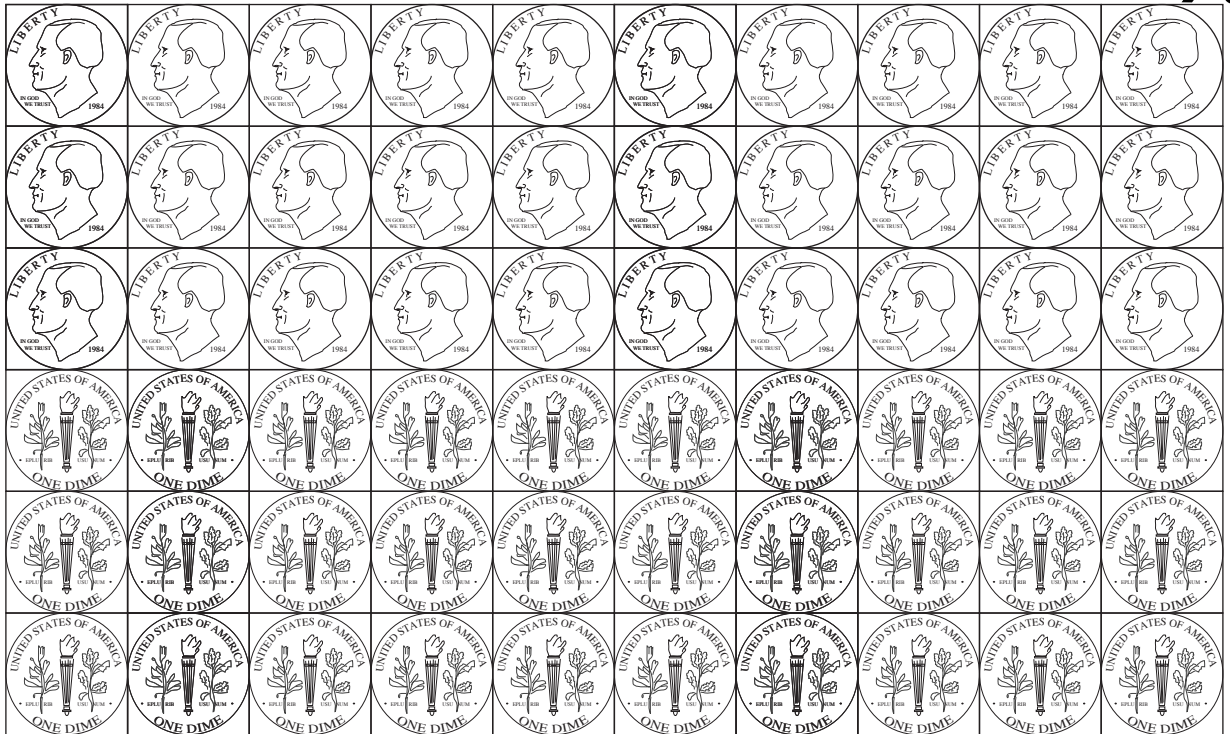


# Nickels

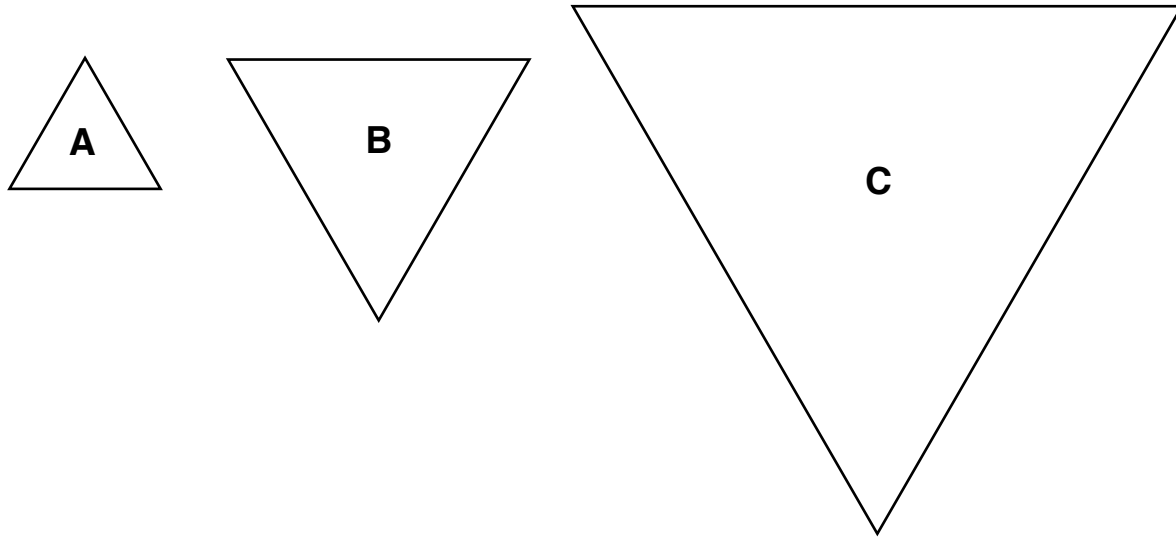


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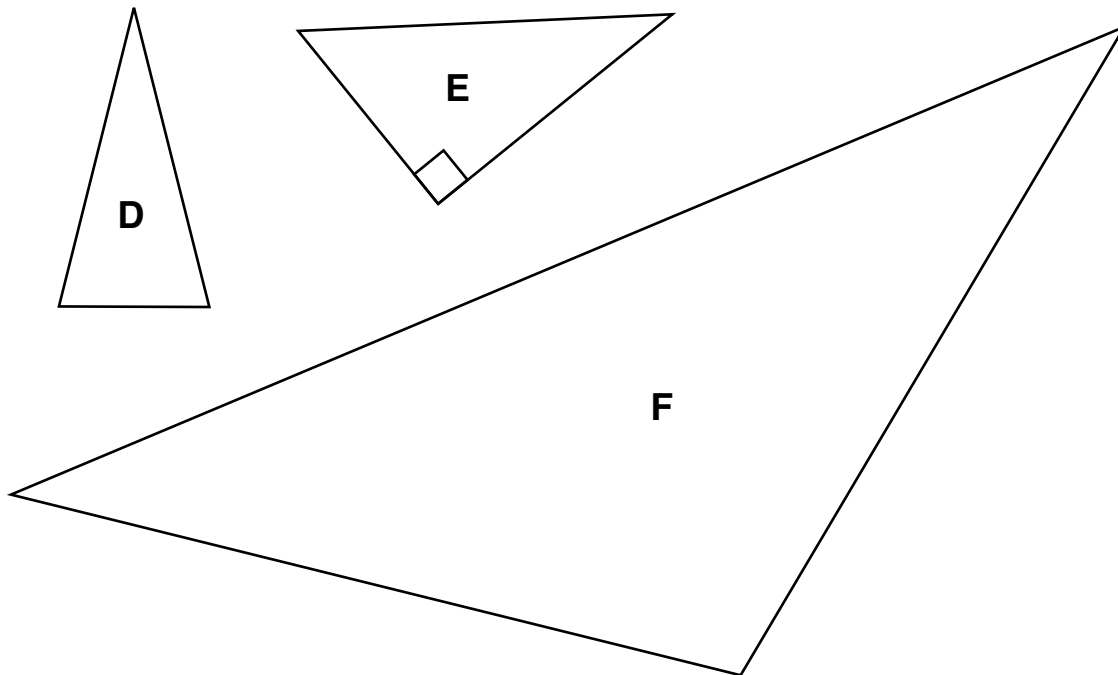
# Dimes



# Collection of Shapes 1

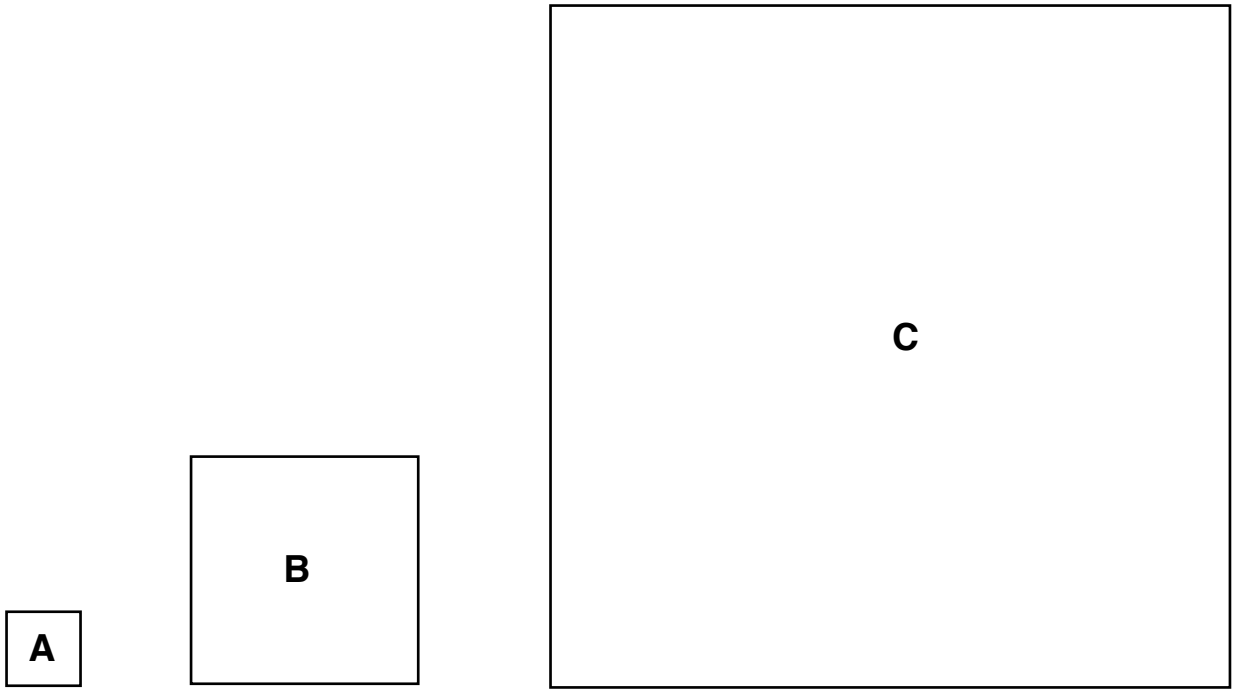


These shapes are called \_\_\_\_\_

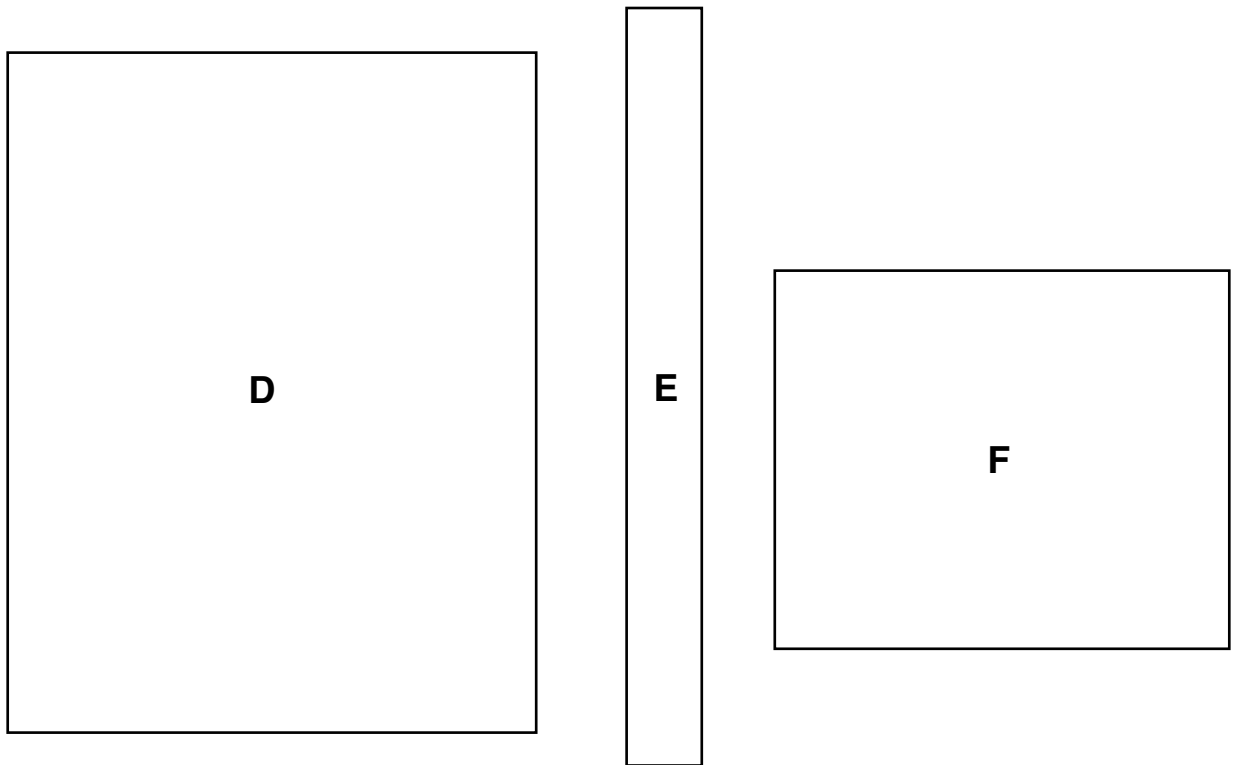


These shapes are called \_\_\_\_\_

# Collection of Shapes 2

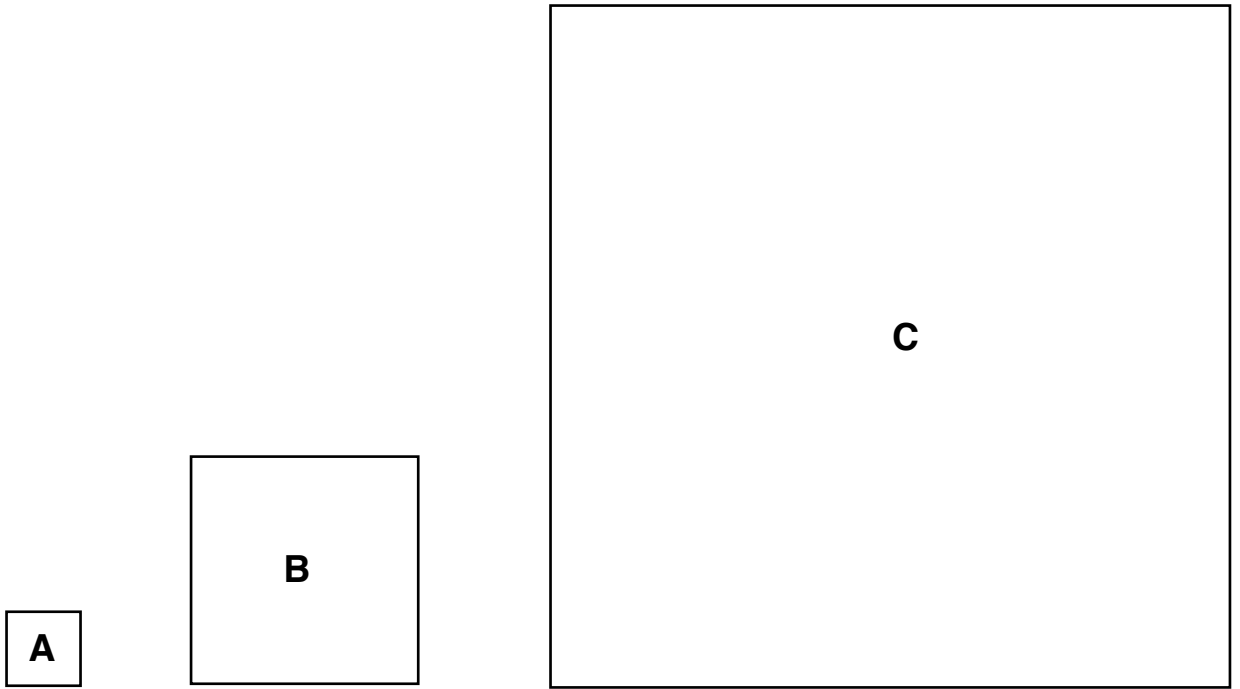


These shapes are called \_\_\_\_\_

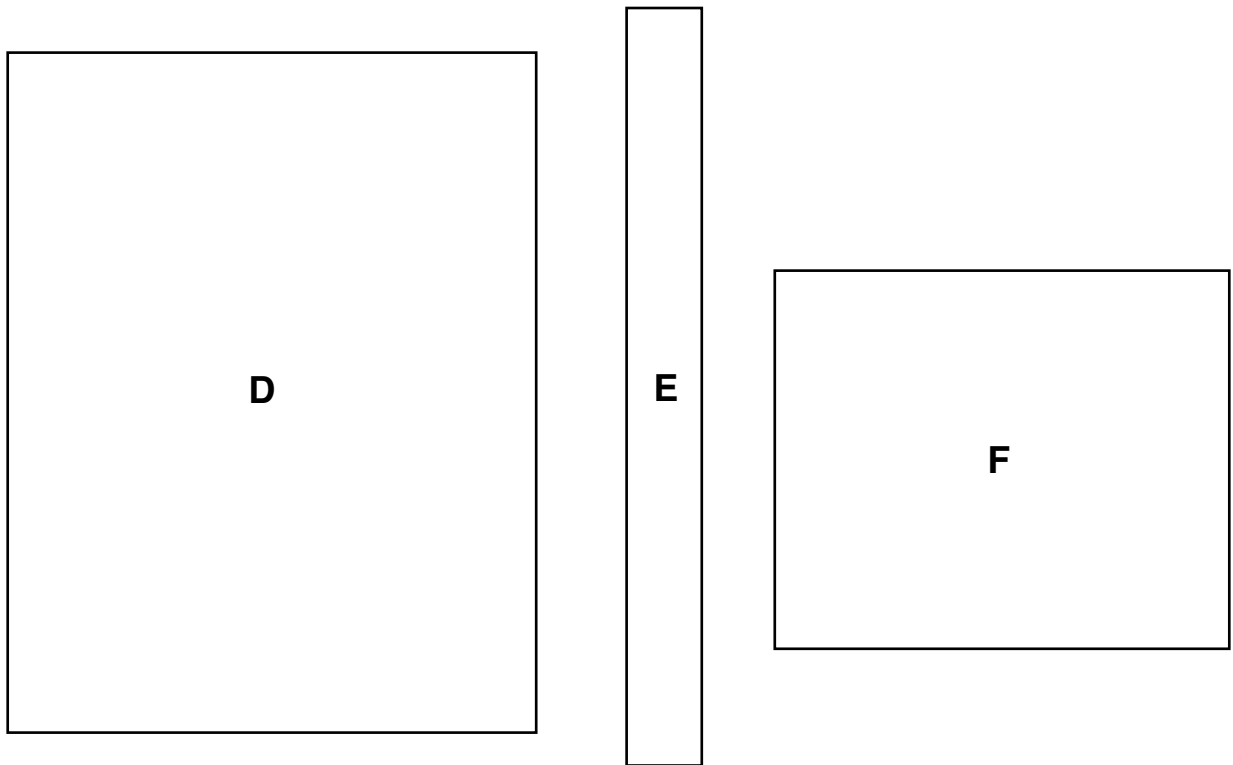


These shapes are called \_\_\_\_\_

# Collection of Shapes 2

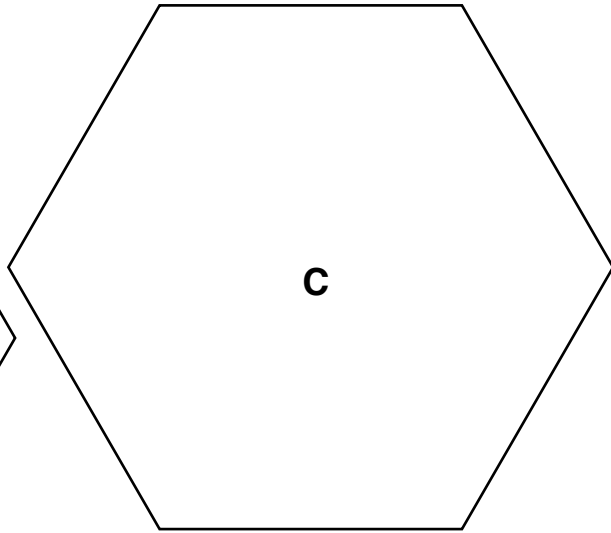
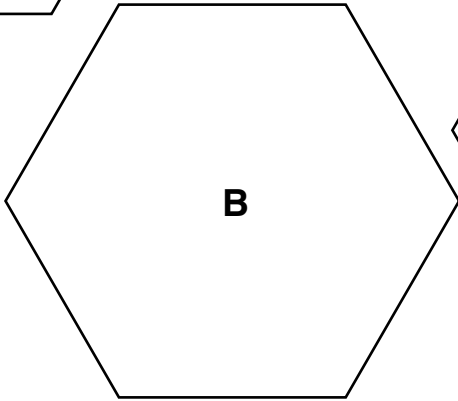
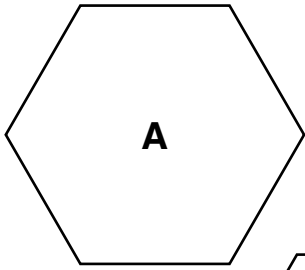


These shapes are called \_\_\_\_\_

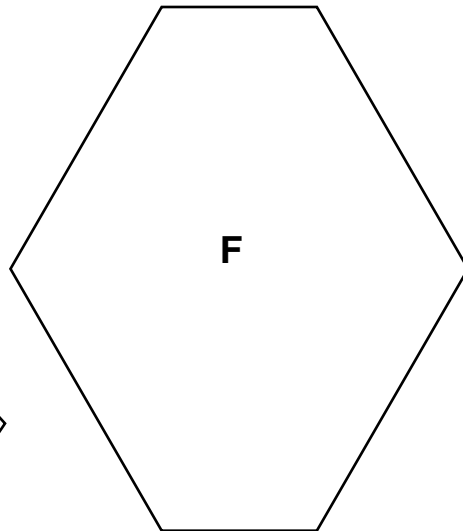
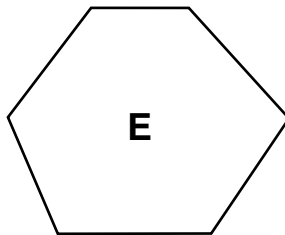
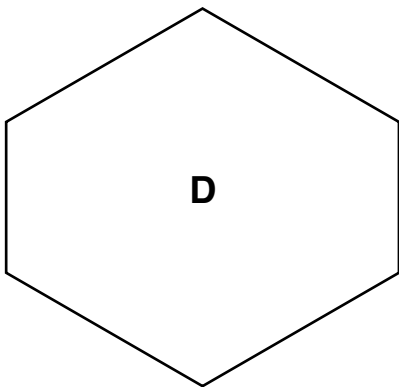


These shapes are called \_\_\_\_\_

# Collection of Shapes 3



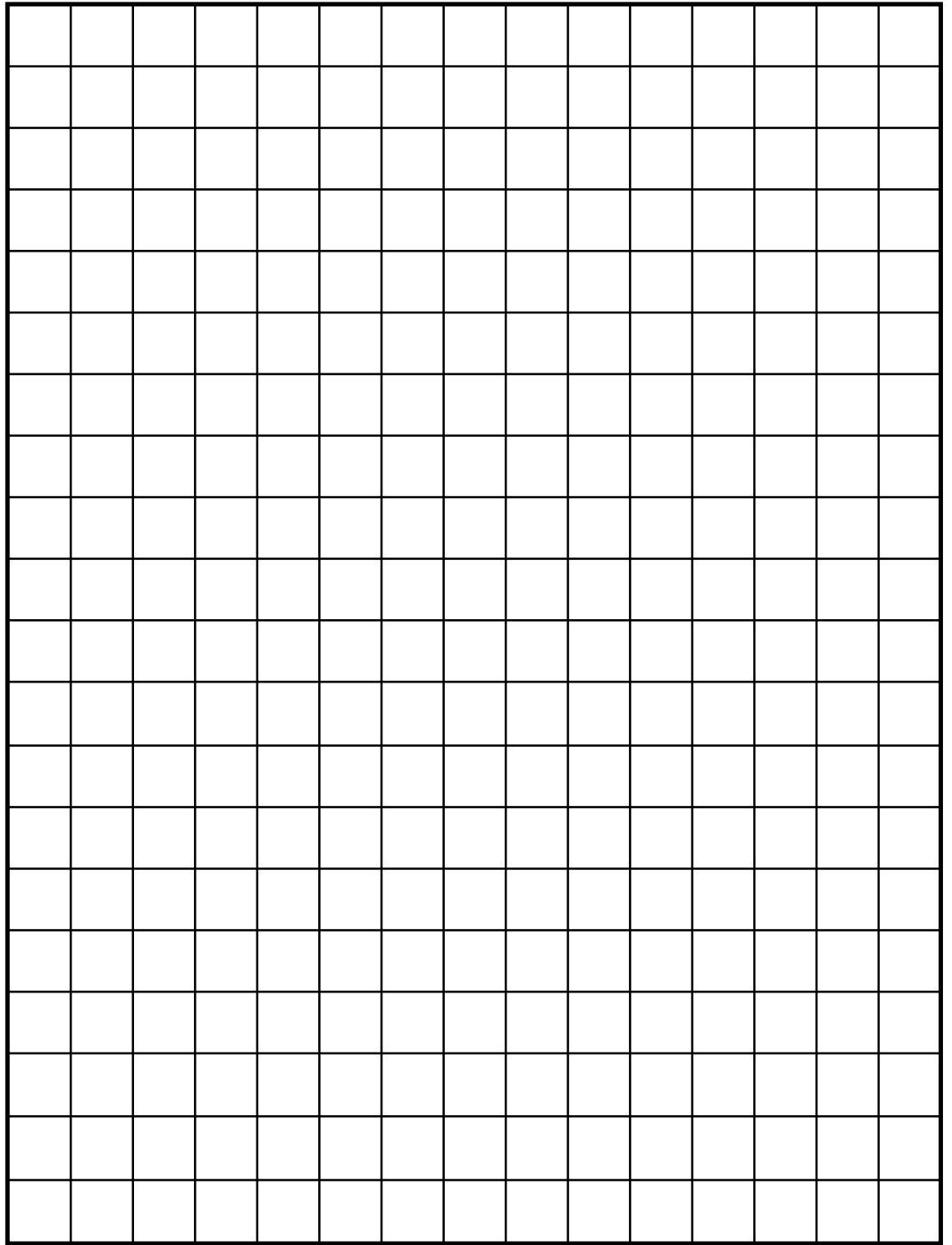
These shapes are called \_\_\_\_\_



These shapes are called \_\_\_\_\_

Name \_\_\_\_\_

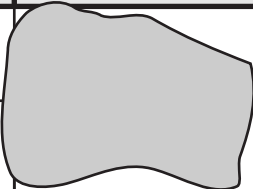





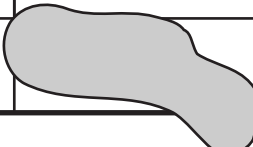

Date \_\_\_\_\_



# Professor Peabody's Shapes Data

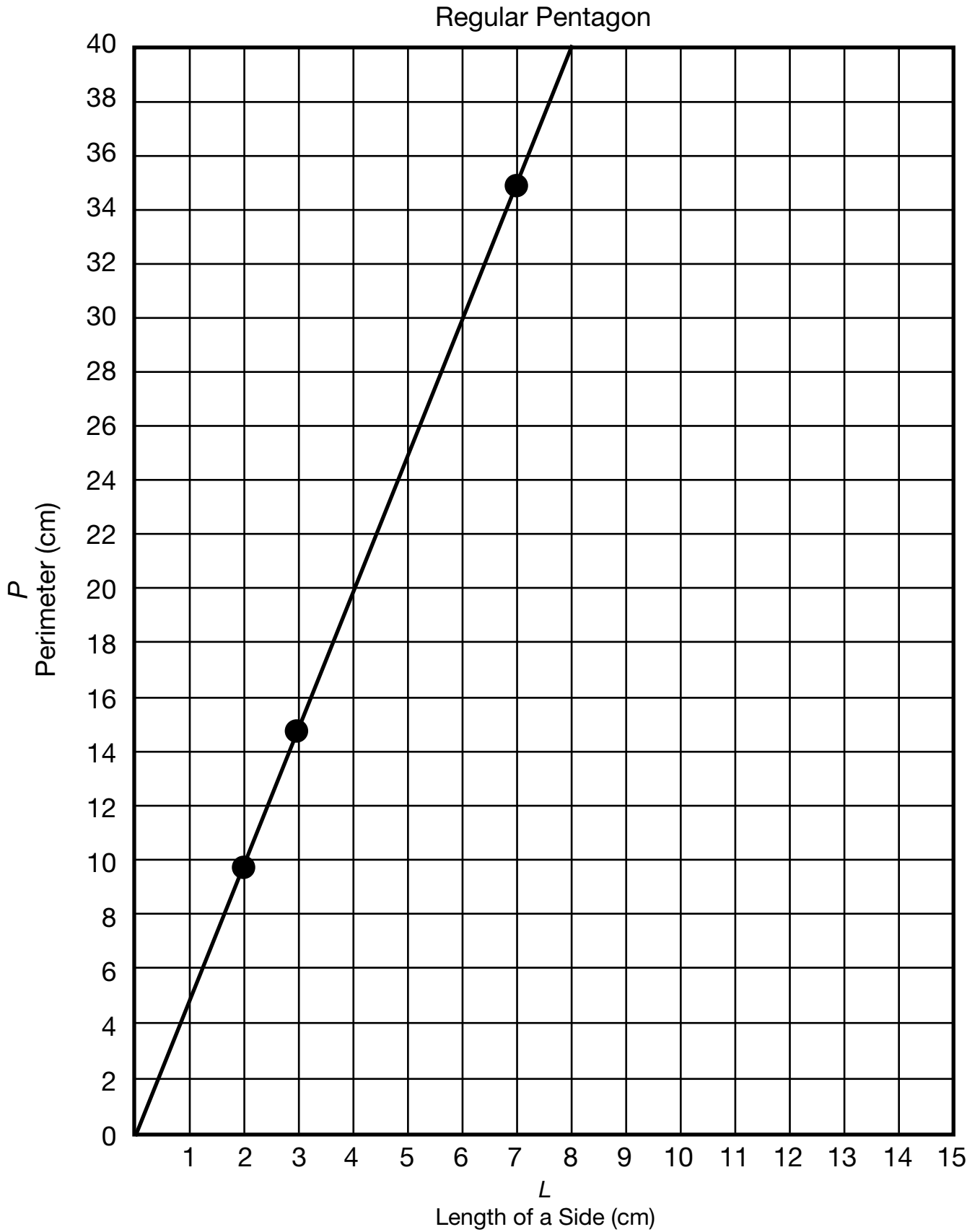
1. Professor Peabody studied the side length and the perimeter of different regular shapes. He spilled ink on one of his data tables but not his graph. Help him fill in the missing data.

Shape: Regular Pentagon 

Regular Pentagon	<i>L</i> Length of a Side (in cm)	<i>P</i> Perimeter (in cm)	Number Sentence
A	3		$3 + 3 + 3$ 
B	4		$5 \times 4 \text{ cm} =$
C		30	
D			$8 \text{ cm} \times$ 

2. Show how you use the graph to find the perimeter of Regular Pentagon B. Draw dotted lines.
3. Show or tell how you found the side length of Regular Pentagon C.





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

**Professor Peabody's  
Shapes Data  
Feedback Box**

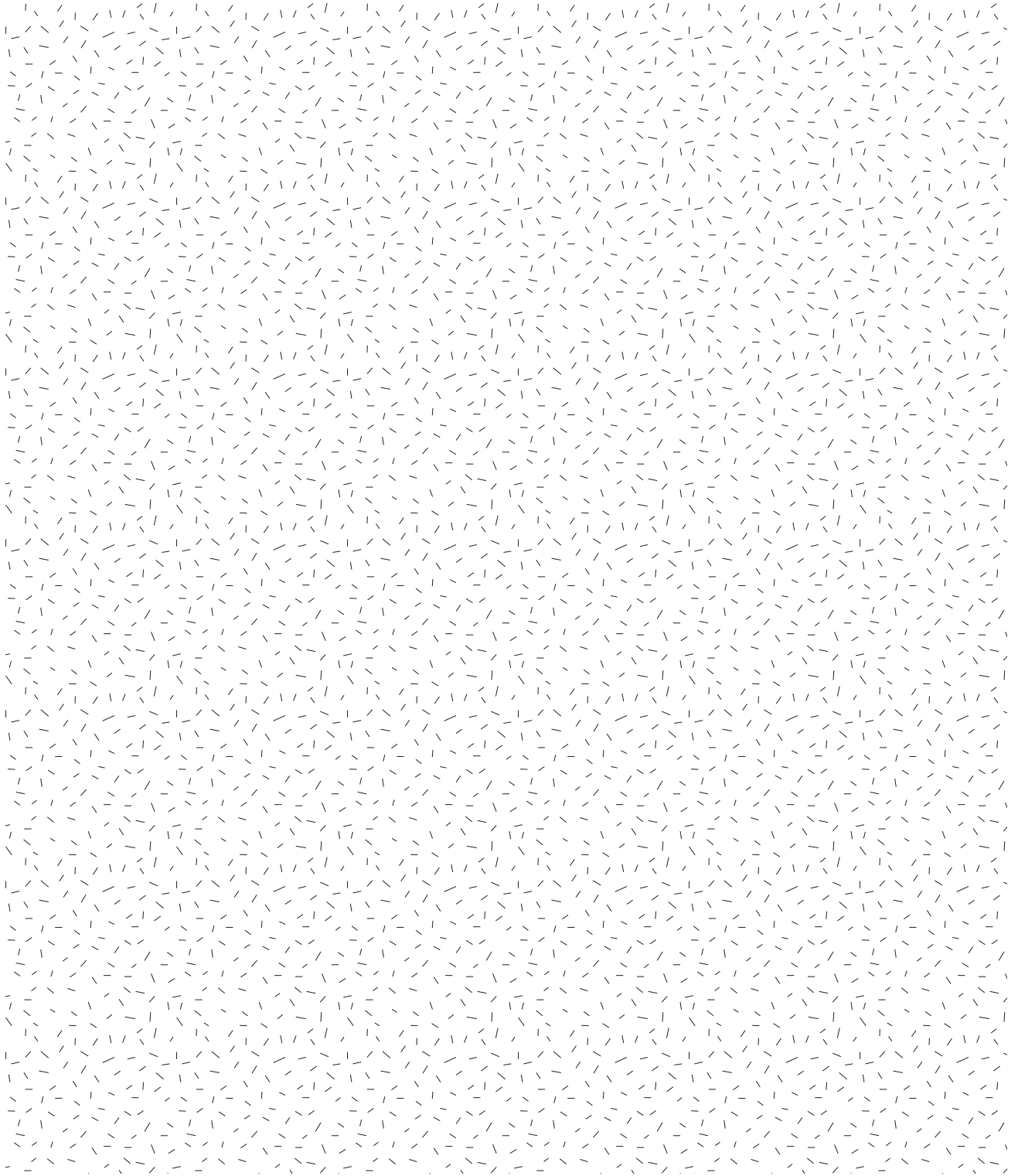
	Expectation	Check In	Comments
Identify multiplicative patterns in tables, graphs, and number sentences. [Q# 1–2]	<b>E1</b>		
Represent multiplicative patterns in tables and graphs. [Q# 1]	<b>E2</b>		
Use mental math strategies to multiply and divide. [Q# 1, 3]	<b>E3</b>		
Represent solution strategies for multiplication problems with number sentences, tables, and graphs. [Q# 1–3]	<b>E4</b>		
Represent solution strategies for division problems with number sentences, tables, and graphs. [Q# 1, 3]	<b>E5</b>		
Read a table or a point graph. [Q# 1–3]	<b>E7</b>		

# Digit Cards 0-9

4	9
3	8
2	7
1	6
0	5

Name \_\_\_\_\_

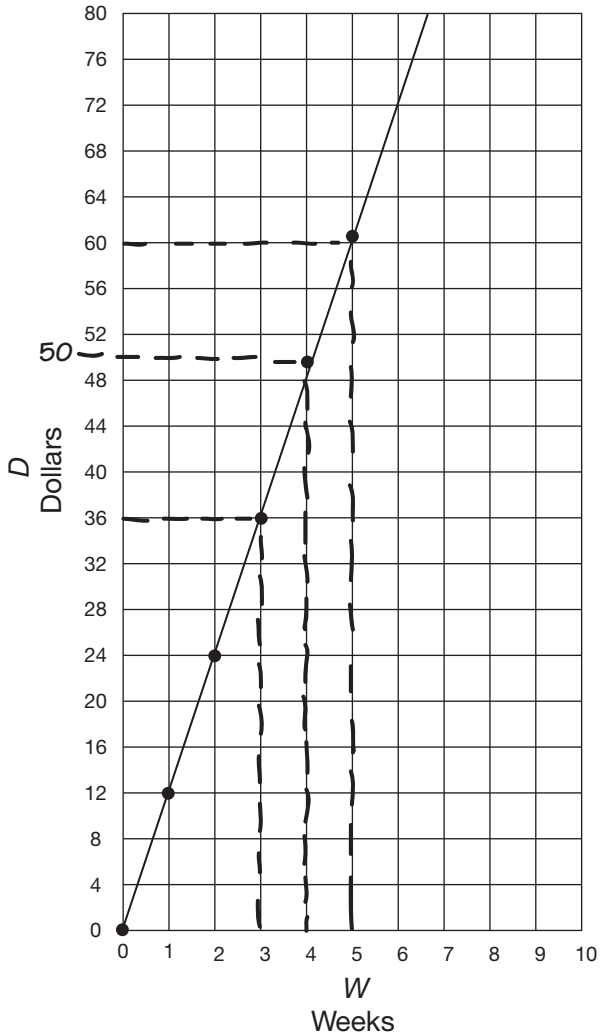
Date \_\_\_\_\_



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# Colleen's Work

Paper Route Earnings



4 weeks and a day  
 Katie will have to work about 4 weeks because  
 there are 4 12s in 48

$$\begin{array}{r}
 4 \\
 12 \overline{)50} \\
 \underline{48} \\
 2
 \end{array}$$

	Yes ...	Yes, but ...	No, but ...	No ...
<b>MPE2. Find a strategy.</b> I choose good tools and an efficient strategy for solving the problem.				
<b>MPE3. Check for reasonableness.</b> I look back at my solution to see if my answer makes sense. If it does not, I try again.				
<b>MPE5. Show my work.</b> I show or tell how I arrived at my answer so someone else can understand my thinking.				
<b>MPE6. Use labels.</b> I use labels to show what numbers mean.				

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

## Marta's Work

*I divided forty-eight by twelve and got four remainder of two. so its better to have to more than to little so I said she would have the work five weeks.*

$$50 \div 12 = 4 \text{ R } 2$$

	Yes ...	Yes, but ...	No, but ...	No ...
<b>MPE2. Find a strategy.</b> I choose good tools and an efficient strategy for solving the problem.				
<b>MPE3. Check for reasonable-ness.</b> I look back at my solution to see if my answer makes sense. If it does not, I try again.				
<b>MPE5. Show my work.</b> I show or tell how I arrived at my answer so someone else can understand my thinking.				
<b>MPE6. Use labels.</b> I use labels to show what numbers mean.				

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

# David's Work

## Four weeks

	Yes ...	Yes, but ...	No, but ...	No ...
<b>MPE2. Find a strategy.</b> I choose good tools and an efficient strategy for solving the problem.				
<b>MPE3. Check for reasonableness.</b> I look back at my solution to see if my answer makes sense. If it does not, I try again.				
<b>MPE5. Show my work.</b> I show or tell how I arrived at my answer so someone else can understand my thinking.				
<b>MPE6. Use labels.</b> I use labels to show what numbers mean.				

# Lemonade Sales Graph

Lemonade Sales

