# LETTER HOME

Fractions and Ratios

Dear Family Member:

Fractions and ratios are used to describe the relationship between two numbers. Sometimes a fraction shows the relationship of a part to a whole, such as $\frac{3}{4}$ of a whole pizza or $\frac{1}{2}$ of all the students in a classroom. Other times, fractions—called ratios—are used to describe a relationship between two quantities.

In this unit, students explore these kinds of relationships using equivalent fractions, words, tables, and graphs. They will use ratios to describe a fair share of cookies, calculate the cost of muffins, and estimate the speed at which they walk. Students will also use ratios to convert between different-sized units of measure within a standard measurement system.
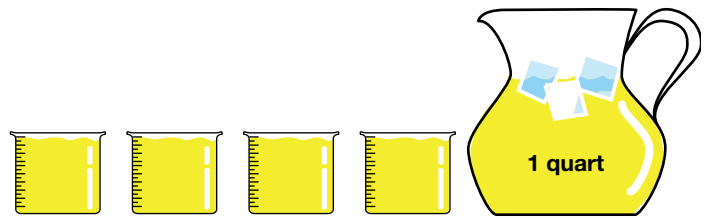
4 cups to 1 quart

$$\frac{4 \text{ cups}}{1 \text{ quart}}$$

You can help your child to learn more about fractions and ratios with the following activity:

Look for Fractions and Ratios. Point out places where ratios are used outside of school. Examples may include adding 1 cup of sugar for every two quarts of lemonade; or using the ratio $\frac{1 \text{ foot}}{12 \text{ inches}}$ will help you convert measurements between feet and inches.

Math Facts and Mental Math

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

Multiplication Facts. Students review the multiplication facts for square numbers to maintain and increase fluency and to 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 and focus only on those facts that your child needs to learn. 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. If there are many multiplication facts that your child still needs to learn, divide them into smaller groups of facts. Choose groups of facts that lend themselves to the use of the same strategy and focus on one group at a time.

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. You can also help your child extend and deepen their understanding by asking him or her to choose a multiplication fact that was difficult to learn and describe strategies used for learning the fact.

Division Facts. Students review the division facts for the square numbers to maintain and increase fluency and to learn and apply multiplication and division 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 into three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

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

<u>Turn-around facts.</u> To solve $36 \div 6$: I know $6 \times 6 = 36$, so $36 \div 6 = 6$.

<u>Reasoning from known facts.</u> To solve $64 \div 8$: $32 \div 8 = 4$, so $64 \div 8$ is double 4; $64 \div 8 = 8$.

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 divide 10s and 100s:

$$810 \div 9 = 90; 25{,}000 \div 500 = 50; 4900 \div 70 = 70.$$

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

Sincerely,

Unit 5: Home Practice

Part 1 Triangle Flash Cards: Square Numbers

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

Ask a family member to choose one flash card at a time. To quiz you on a multiplication fact, he or she should cover the corner containing the highest number. (The highest number on each card is lightly shaded.) This number will be the answer to the multiplication fact. Multiply the two uncovered numbers.

To quiz you on a division fact, your family member can cover one of the unshaded numbers. Then use the two uncovered numbers to solve a division fact.

Ask your family member to mix up the multiplication and division facts. He or she should sometimes cover the highest number and sometimes cover one of the smaller numbers.

Your teacher will tell you when the quiz on the square numbers will be given.

Part 2 Solving Problems

Solve the following problems. Choose an appropriate method for each: mental math, paper and pencil, or a calculator. Explain your solutions. Use a separate sheet of paper to show your work.

1. The Yum Yum Deli makes sandwich trays for parties.

   A. Twenty-four sandwiches come on a large tray. If a company orders 27 trays for a party, how many sandwiches are they ordering?

   B. There will be 527 people attending the company party. Can each person have more than one sandwich? Explain.

2. Each of the 527 guests eats one sandwich. Twenty-nine of the guests eat two sandwiches. How many sandwiches are left over?

3. **A.** Of the guests attending, $\frac{7}{12}$ are current employees. $\frac{1}{6}$ are retired employees. The rest are family members. What fraction of the guests are family members?

   B. Show or tell how you found your answer.

Part 3 Practicing the Operations

Use the strategies menus for addition, subtraction, and multiplication in the
***Student Guide* Reference section.**

1. Solve the following problems in your head. Estimate the answers to
   Questions 1H and 1I.

   A. $240 + 60 =$ _____

   B. $2089 + 401 =$ _____

   C. $1250 - 300 =$ _____

   D. $10,000 - 6700 =$ _____

   E. $3800 + 1200 =$ _____

   F. $17,000 - 8800 =$ _____

   G. $5300 + 7700 =$ _____

   H. Estimate: 89×18

   I. Estimate: 1270×50

2. Solve the following problems using a paper-and-pencil method or mental
   math. Estimate to be sure your answers are reasonable.

   A. $473 + 1548 =$ _____

   B. $28 \times 59 =$ _____

   C. $7034 \times 9 =$ _____

   D. $3704 - 478 =$ _____

   E. $3678 + 2935 =$ _____

   F. $43 \times 69 =$ _____

   G. $47 \times 56 =$ _____

   H. $8635 - 7946 =$ _____

Part 4 Fraction Number Lines

You may use the fraction number lines to complete Questions 1–7.

1. Write three fractions that are between $\frac{1}{4}$ and $\frac{1}{2}$. _____ , _____ , _____

2. Write four fractions that are less than $\frac{1}{4}$. _____ , _____ , _____ , _____

3. Name a fraction equivalent to $\frac{1}{4}$. _____

4. Name two fractions that are equivalent to $\frac{2}{3}$. _____ , _____

5. Name three fractions between $\frac{1}{6}$ and $\frac{3}{8}$. _____ , _____ , _____

6. Name two fractions between $\frac{3}{4}$ and $\frac{11}{12}$. _____ , _____

7. Name three fractions that are equivalent to $\frac{1}{2}$. _____ , _____ , _____
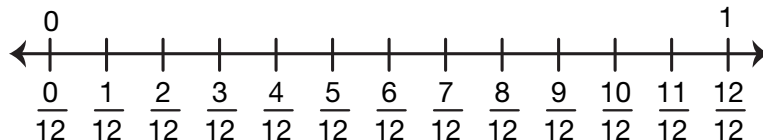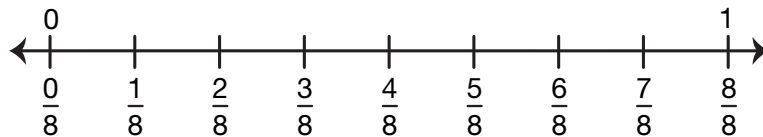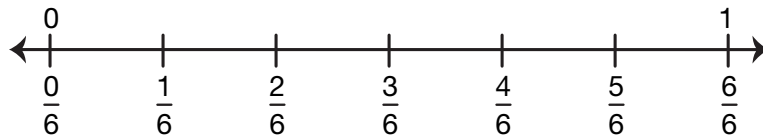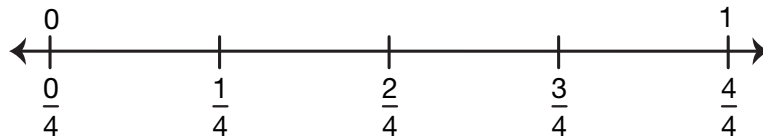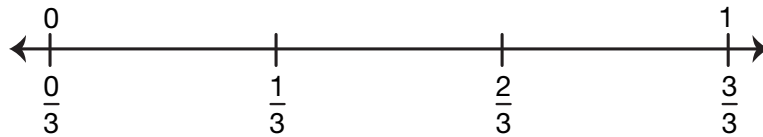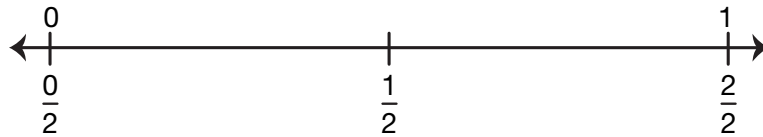
Part 5 Ratios

Leo made this graph. It shows the number of blocks and their total length in centimeters.

Leo's Blocks
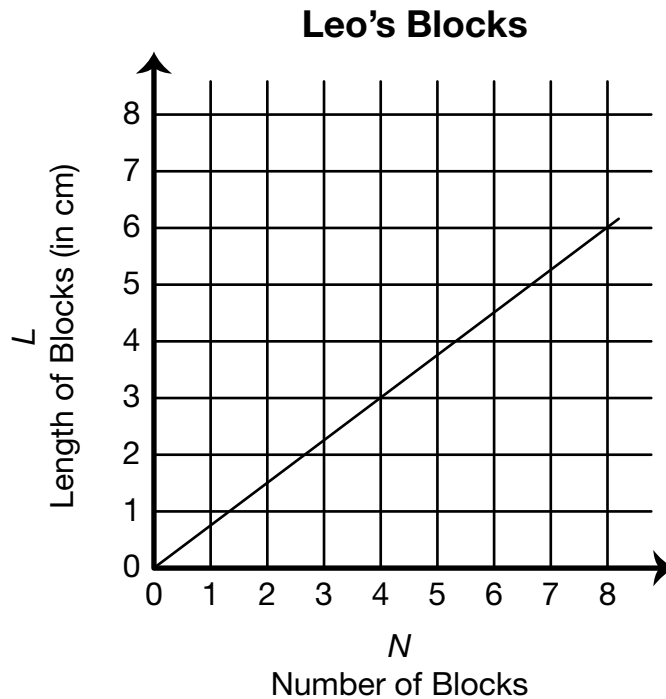
Use the graph to answer the following questions. Show or tell how you solved each problem. If you find more than one way to solve the problem, describe each method. You may write on the graph.

1. Write the ratio of length to the number of blocks as a fraction. _____

2. Find the length of four blocks. _____

3. How many blocks will measure six centimeters? _____

4. Find the length of 40 blocks. _____

5. **A.** Find the length of 60 blocks. _____

   B. Show or tell how you solved Question 5A.

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.
- To quiz you on a division fact, your partner covers the number in the square or the number in the circle. Solve a division fact with 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."
- Practice the last two piles again. Place these cards in an envelope labeled "Facts to Practice."
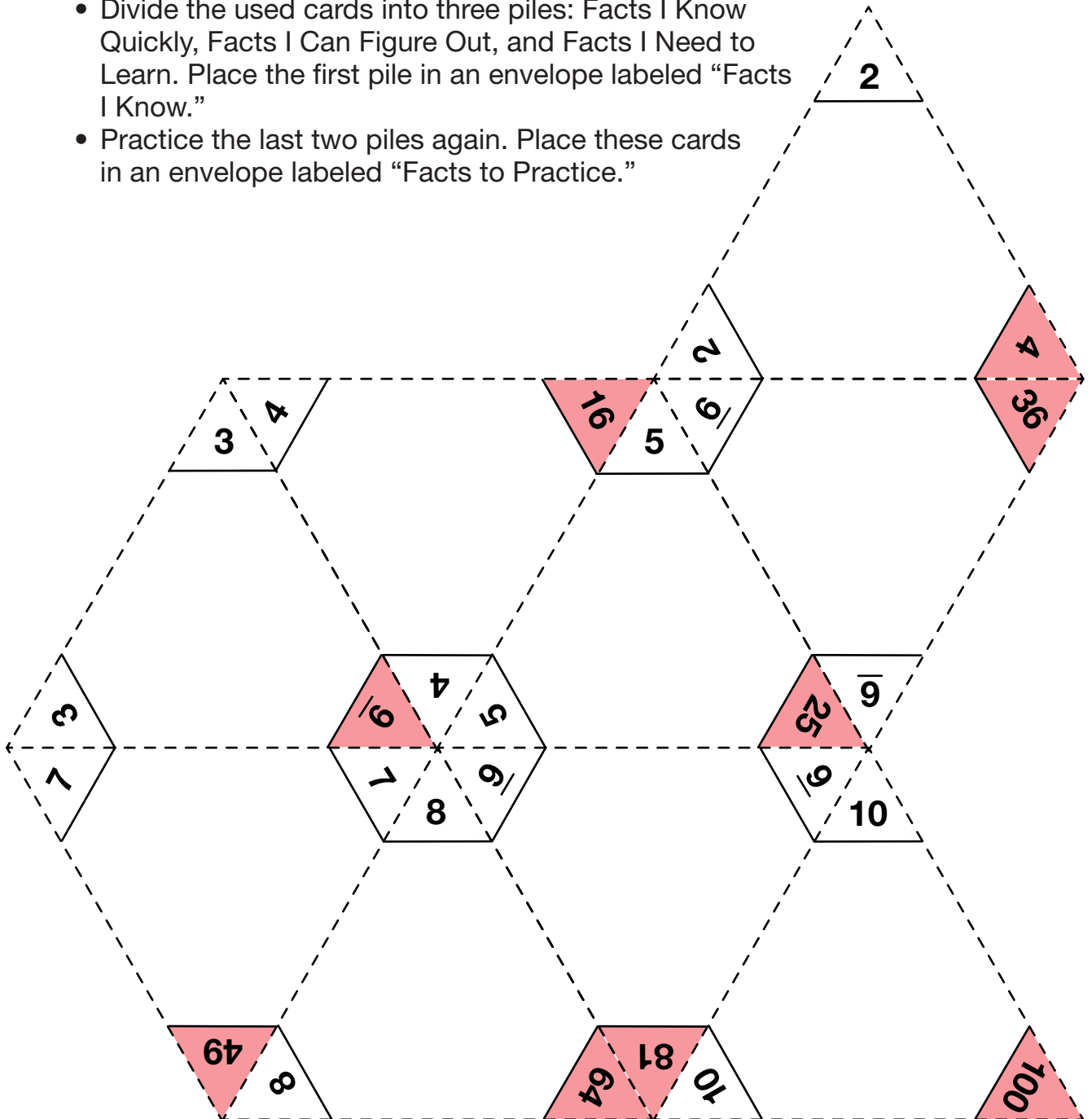
Multiplication Facts I Know

- **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.**

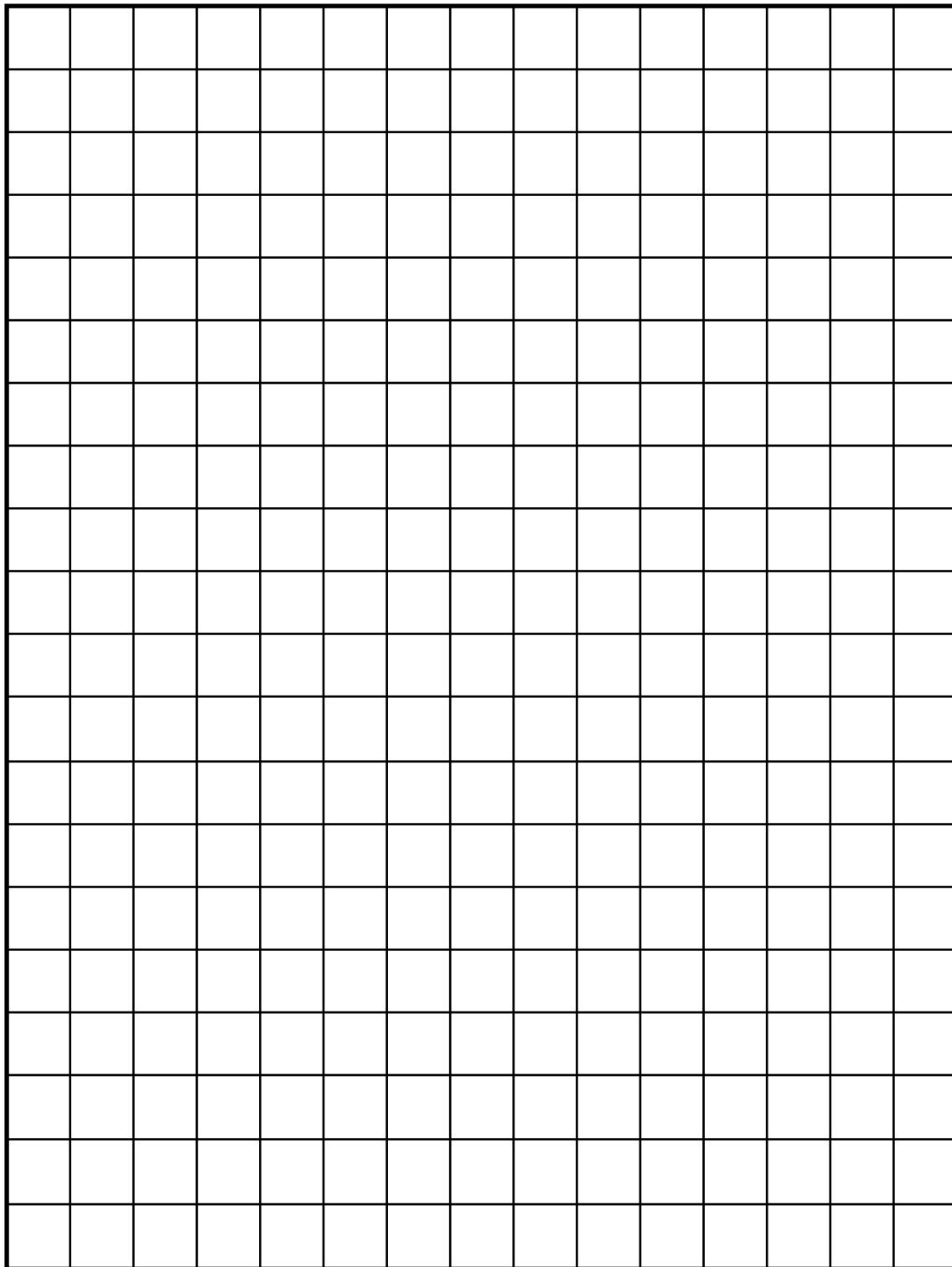| ×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80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

Division Facts I Know

- **Circle the facts you know well.**
- **Keep this table and use it to help you divide.**
- **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

Divisor

Cost of Muffins Data Table

Cost of Muffins

Number of Muffins	Cost
1	30¢
2	60¢
3	90¢
4	$1.20

Cost of Muffins Graph

Cost of Muffins

(Graph plotting Number of Muffins (N) on the x-axis from 0 to 10 against Cost (C) on the y-axis from $0.00 to $2.50. Red data points plotted at approximately: (1, $0.30), (2, $0.60), (3, $0.90), (4, $1.20).)

- y-axis label: *C* Cost
- x-axis label: *N* Number of Muffins
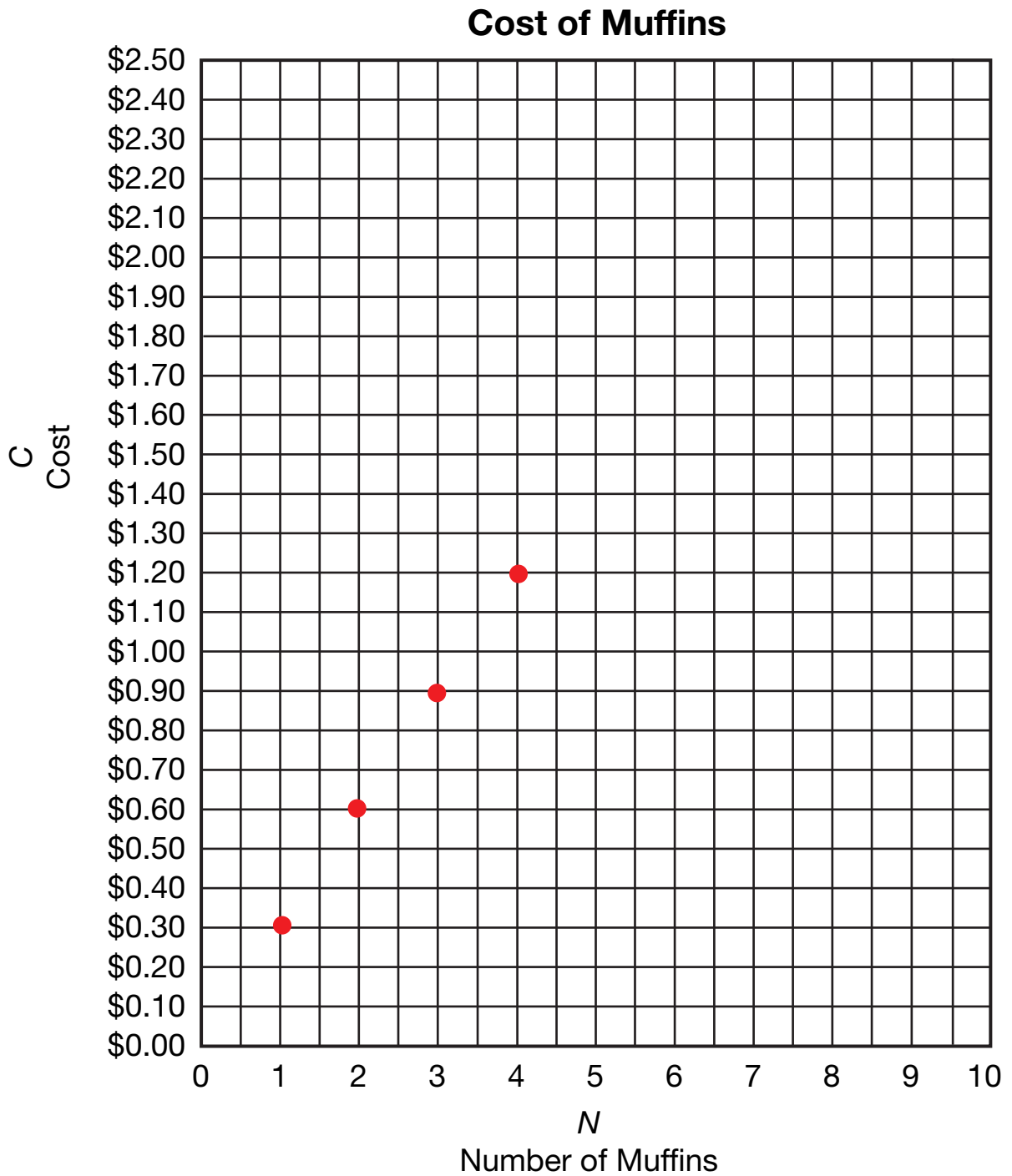
Using Ratios to Convert Between Yards and Feet

Comparison of Yards to Feet

F
Number of Feet

Y
Number of Yards
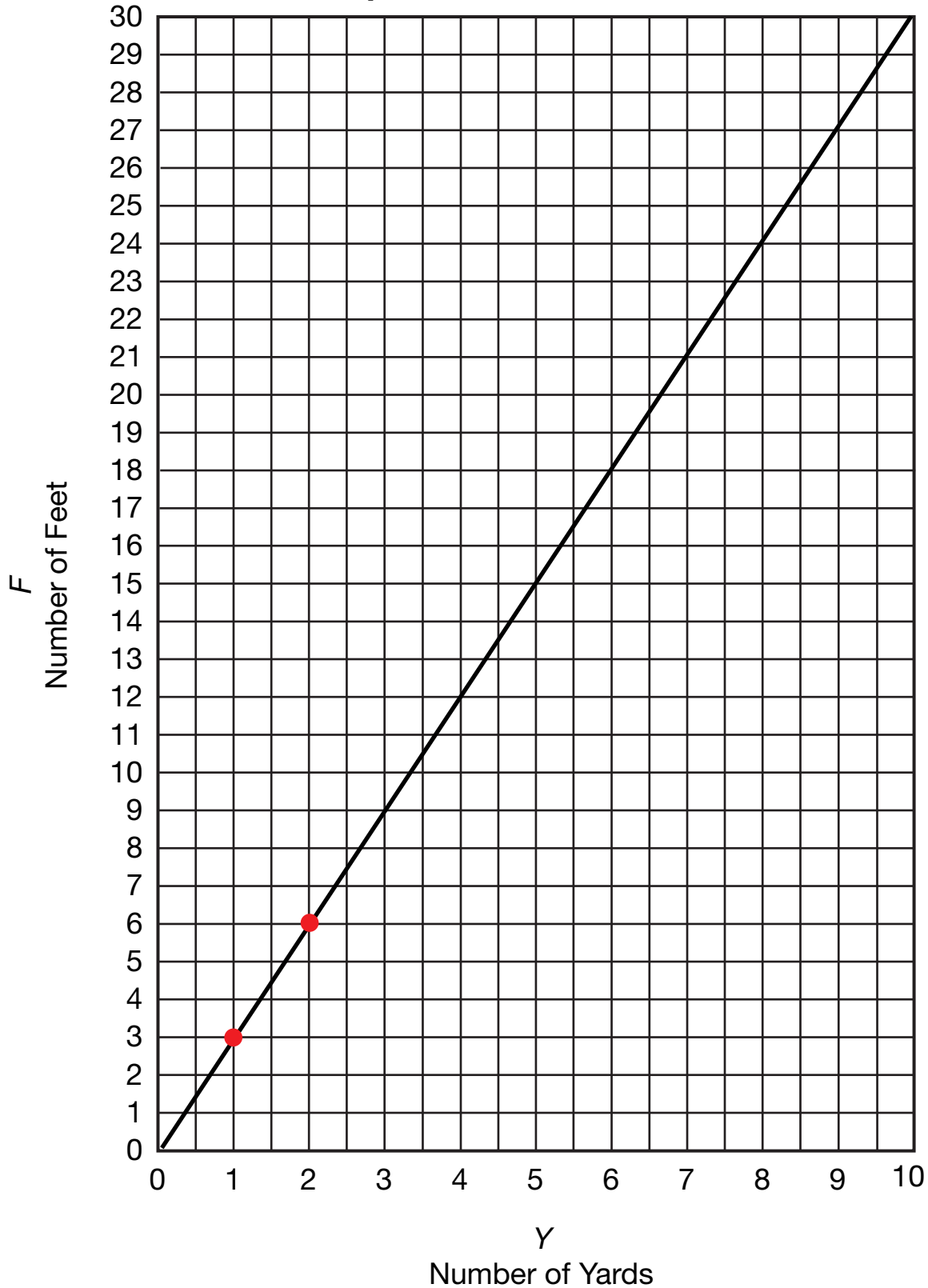
How Can the Graph Be Improved
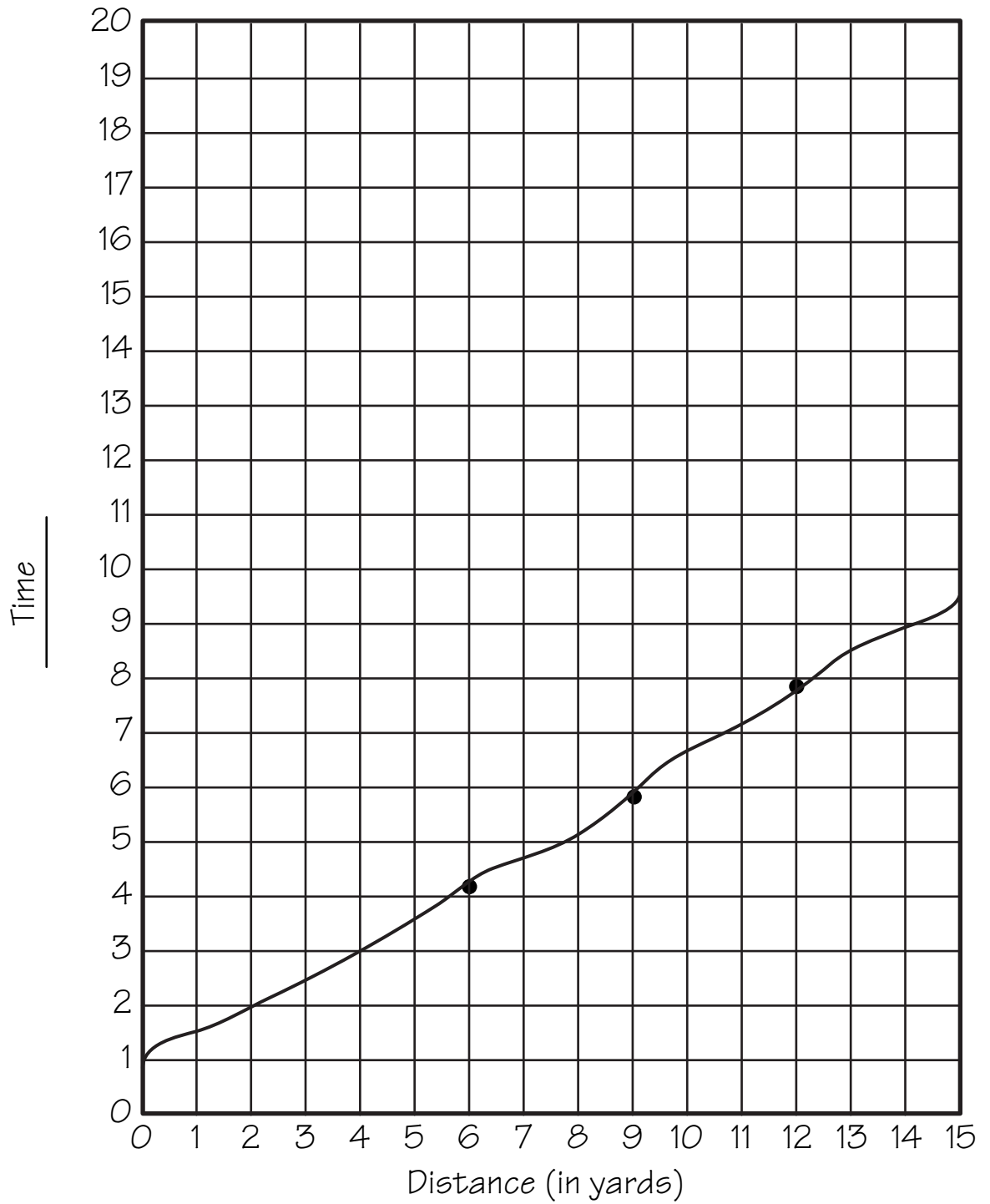
Distance vs. Time
Check-In: Question #16 Feedback Box

Work by _____

Reviewed by _____

Student to Student	Yes . . .	Yes, but . . .	No, but . . .	No. . .
MPE1. Know the problem. I read the problem carefully. I know the questions to answer and what information is important.				
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				
MPE6. Use labels. I use labels to show what numbers mean.				

Problems of Scale Feedback Box	Expec-tation	Check In	Comments
Find equivalent fractions and ratios using tools (e.g., area models, number lines, tables, graphs) and multiplication and division strategies. [Q# 2–5]	E3		
Use ratios to solve problems. [Q# 2–5]	E4		
Convert among different-sized standard measurement units within a given measure-ment system (e.g., second to hours and feet to yards). [Q# 2–5]	E6		

	Yes . . .	Yes, but . . .	No, but . . .	No. . .
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				
MPE6. Use labels. I use labels to show what numbers mean.				

Crossing the Gym

As part of fitness day, Mr. Smith, the gym teacher decided to plan a special activity for Mr. Moreno's fifth-grade class. He showed students a card with the following ratio:

$$\frac{18 \text{ steps}}{6 \text{ hops}}$$

He told students to find an equivalent ratio and use it to move from one side of the gym to the other.

A. Name three equivalent ratios to show how students can move across the gym.

B. What is the fewest number of steps students can take before they have to hop?

C. Maya decided to use this ratio to plan her moves: $\frac{30 \text{ steps}}{20 \text{ hops}}$. Is her ratio equal to Mr. Smith's ratio?