

UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 4

Instruction

Direct Instruction

Measurement Cup Demonstration and Discussion

Tell students that you're going to show them a strategy for estimating a fraction or percent of something. Go through the following examples. In each case, fill or empty the cup, as far as is indicated, with colored water and show students (using your finger) that $1/2$ is halfway up the cup; then that $1/4$ is halfway up the $1/2$, and so on.

Look at the diagram below. Walk students through each example and discuss as you go.

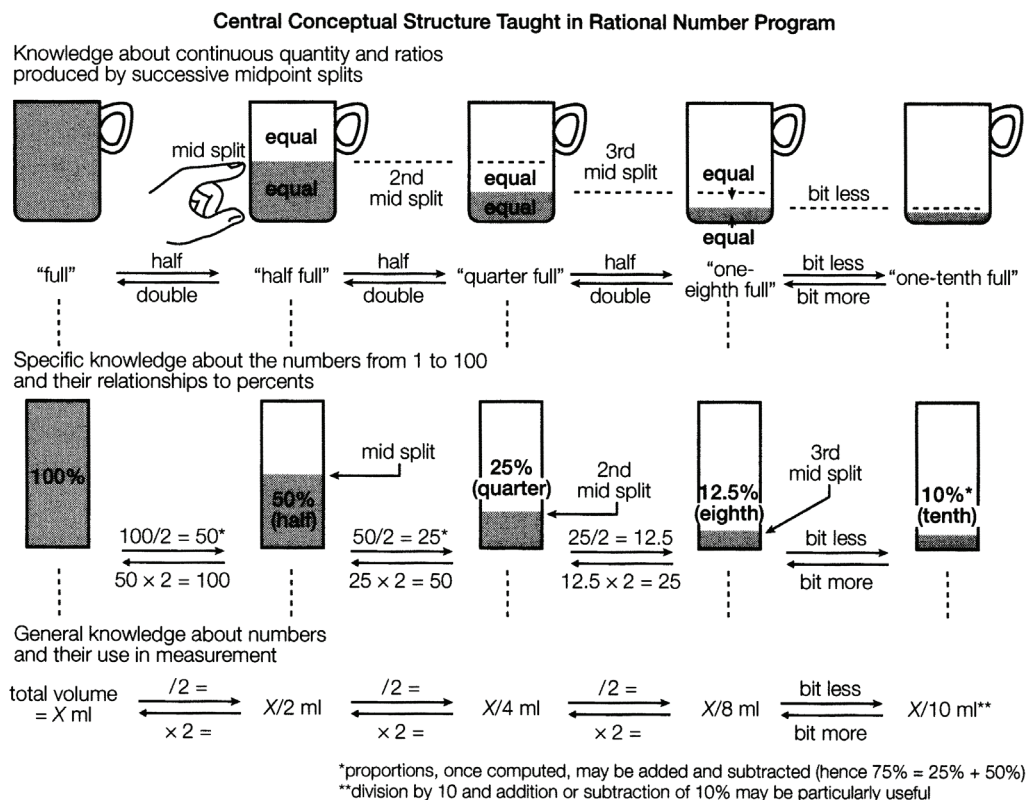


Figure 1. Central conceptual structure taught in the rational number program.

From: Developing Children's Understanding of the Rational Numbers: A New Model and Experimental Case

Joan Moss; Robbie Case

Journal for Research in Mathematics Education, Vol. 30, No. 2. (March, 1999), pp. 122-147



Example Dialogue

How Do Rational Numbers Work?

It is important that we become fluent with certain concepts in order to be really good at algebra. One of them is the idea of how rational numbers work. Up until now, most of the way you think about numbers has been with whole numbers, 1, 2, 3, 6, 8, 973, etc. When we work in algebra and higher math, we need to make sure we understand how rational numbers work.

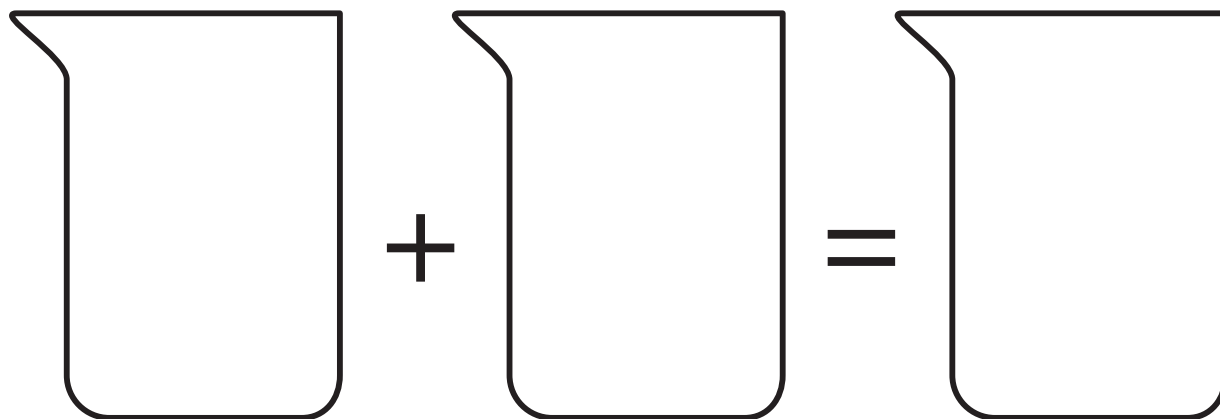
(continued)

NAME: _____

UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 4

Fill the Beakers



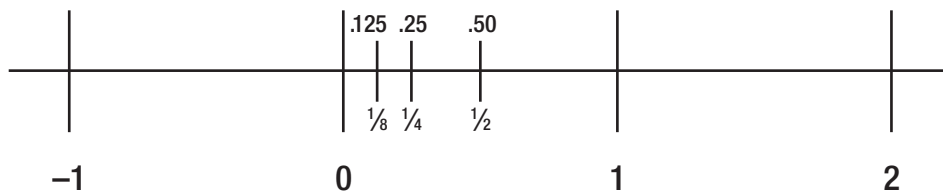
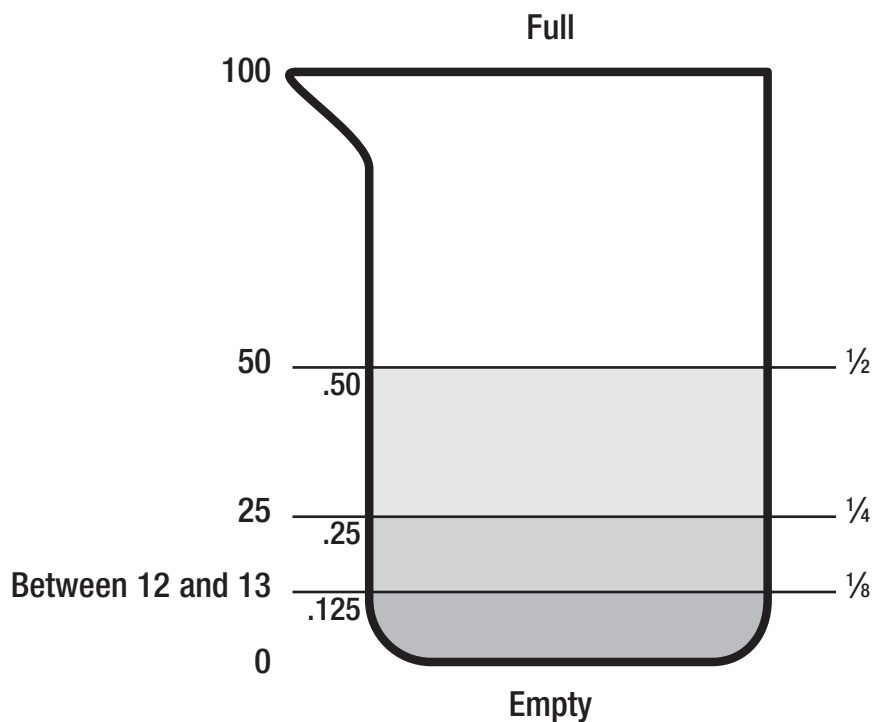
UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 4

Instruction

Fractions and Percents I

Draw the following on the board and model this as the lesson proceeds.



NAME: _____

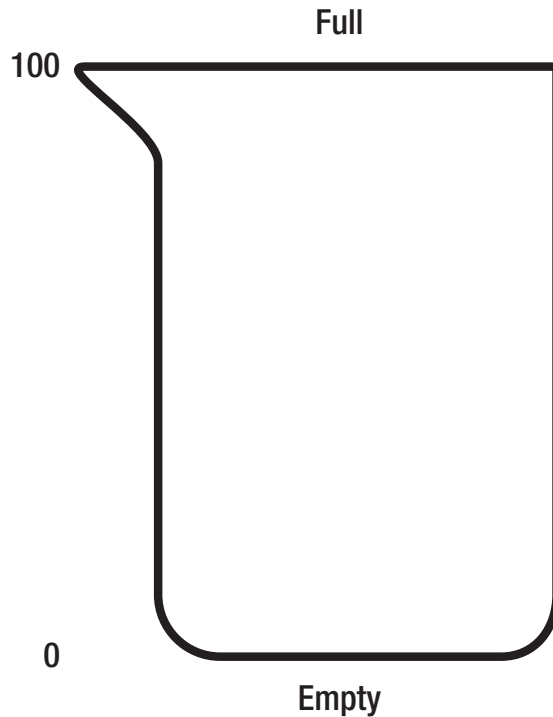
UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 4

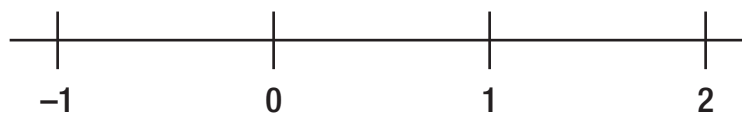
Day 4 Practice

Fractions and Percents I

1.



2.



3. Halfway up the beaker is: _____

4. Write three forms of that number.

5. Half of half

6. Half of half of half

continued

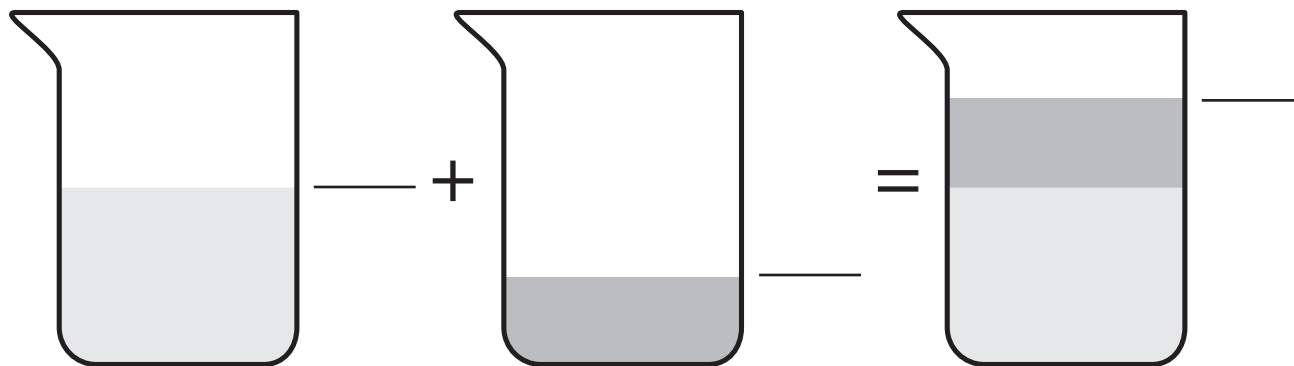
NAME: _____

UNIT 1 • DIFFERENT FORMS OF NUMBERS

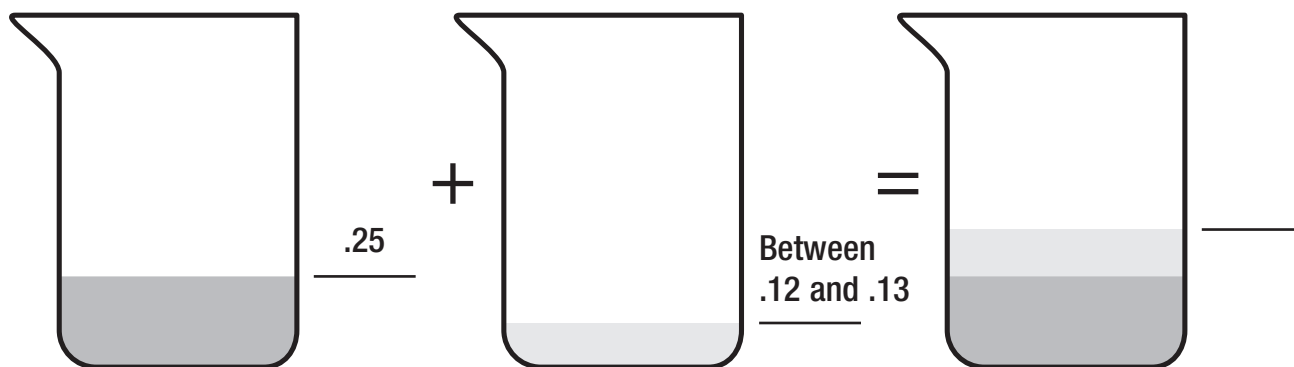
Day 4

Add the shaded portions of the beaker together. Write the shaded portion of the beakers on the lines provided.

7.



8.



NAME: _____

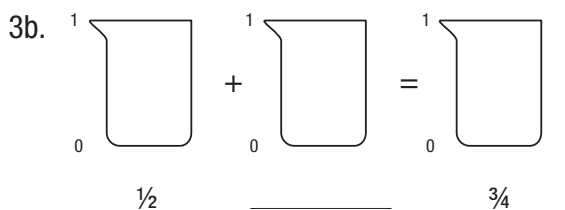
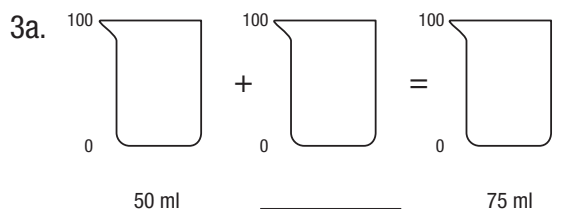
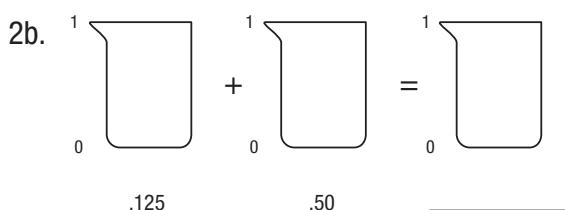
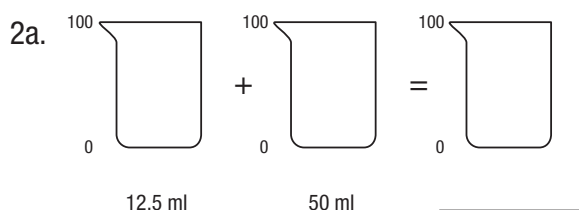
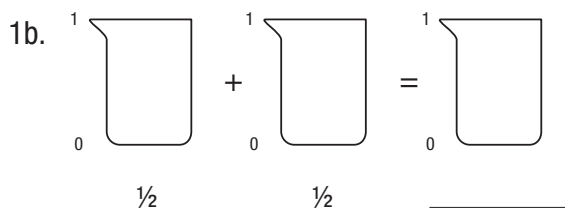
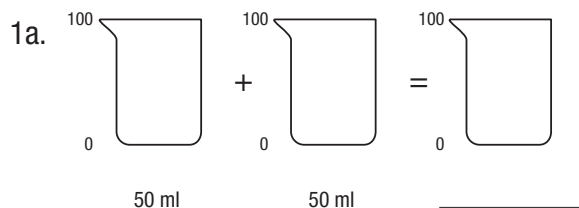
UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 4

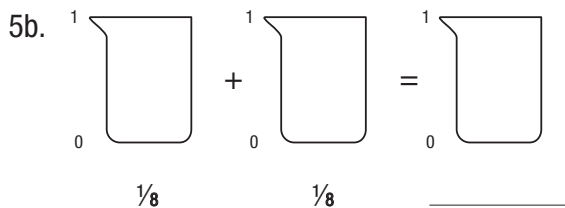
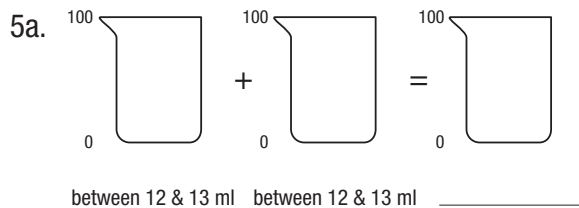
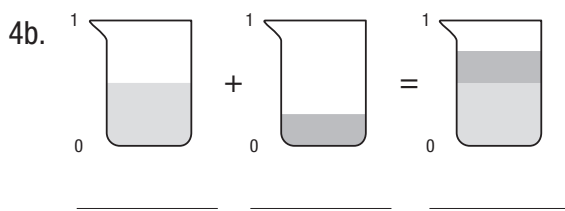
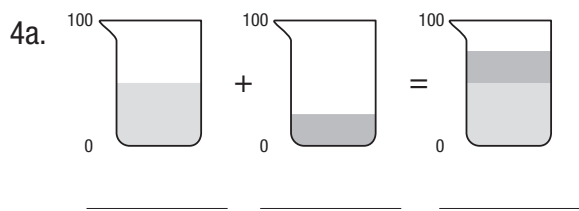
Day 4 Practice 2

Fractions and Percents I

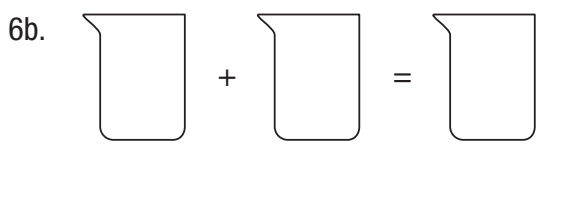
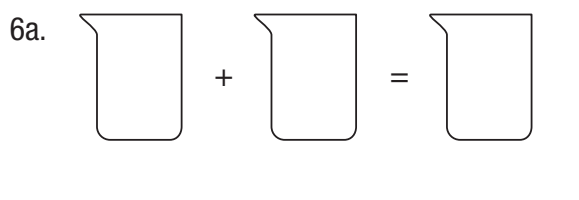
Draw a line to show how full the beaker is and fill in the blanks.



Fill in the lines beneath the beakers below. In 4a and 5a, use decimals to complete the equations. In 4b and 5b, use fractions to complete the equations.



Write some problems of your own.



NAME: _____

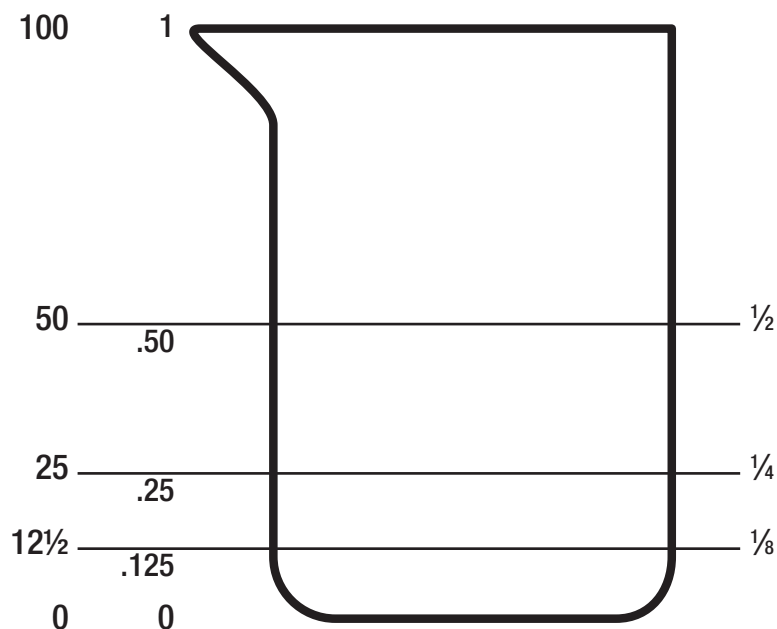
UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 5

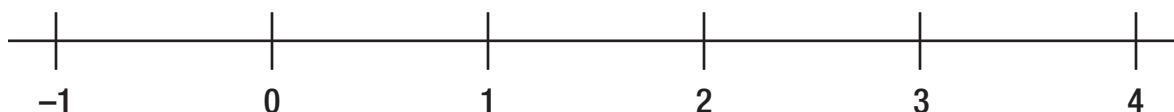
Day 5 Practice

Fractions and Percents II

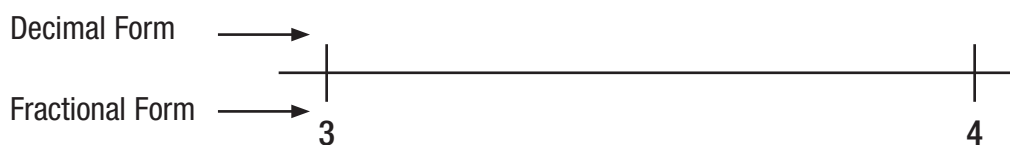
1. Where is $\frac{1}{10}$?



2. Where is 3.5?



3. Fill in the number line between 3 and 4. Use decimal form to label above the tick marks and use fractional form to label below the tick marks.



NAME: _____

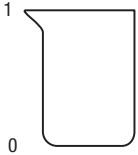
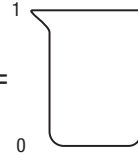
UNIT 1 • DIFFERENT FORMS OF NUMBERS

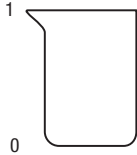
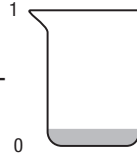
Day 5

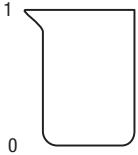
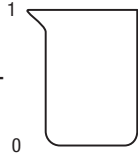
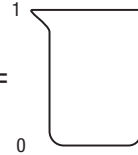
Day 5 Practice

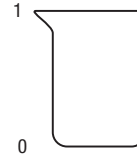
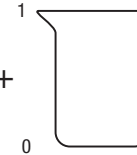
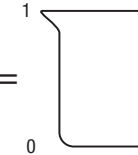
Fractions and Percents III

Complete these problems. Shade the beakers if needed and fill in the blanks.

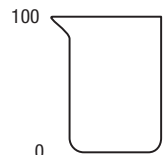
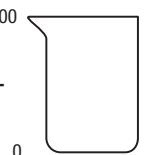
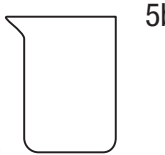
1.  +  = 
 $\frac{1}{2} + \frac{1}{4} = \underline{\hspace{2cm}}$

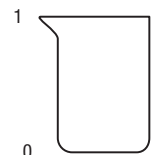
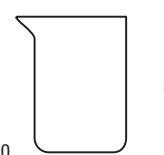
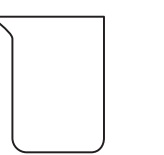
3.  +  = 
 $\underline{\hspace{2cm}} + \frac{1}{8} = \frac{1}{4}$

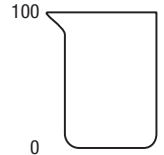
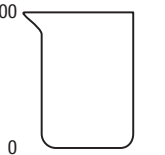
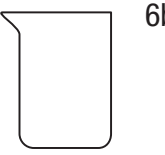
2.  +  = 
 $.50 + .25 = \underline{\hspace{2cm}}$

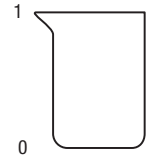
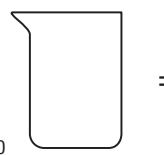
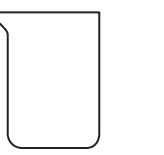
4.  +  = 
 $.25 + \underline{\hspace{2cm}} = .75$

Challenge Beakers!

5a.  +  = 
 $12.5 + \underline{\hspace{2cm}} = 50$

5b.  +  = 
 $\frac{1}{8} + \underline{\hspace{2cm}} = \frac{1}{2}$

6a.  +  = 
 $\underline{\hspace{2cm}} + 62.5 = 100$

6b.  +  = 
 $\underline{\hspace{2cm}} + \frac{5}{8} = 1$

NAME: _____

UNIT 1 • DIFFERENT FORMS OF NUMBERS

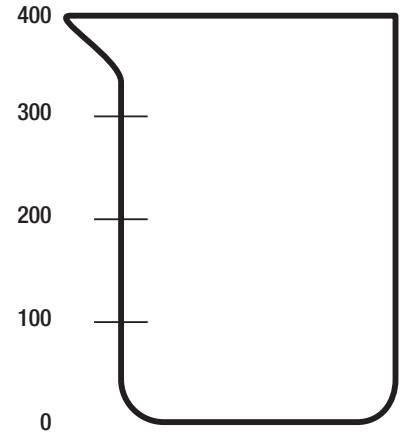
Day 5

Day 5 Practice

Fractions and Percents IV

The beaker shown below holds 400 milliliters. Mark off $\frac{1}{2}$ and $\frac{1}{4}$ on the beaker.

1. How much water will there be if we fill up the beaker halfway? _____
2. How much water will there be in the beaker if we fill the beaker $\frac{1}{4}$ of the way? _____



Use the beaker to answer the following:

3. What is 25% of 400? _____
4. What is 50% of 400? _____
5. What is $\frac{1}{8}$ of 400? _____
6. What is a good estimate of $\frac{1}{10}$ of 400? (Remember that $\frac{1}{10}$ is a little less than $\frac{1}{8}$.)
a. 75 b. 4 c. 40
7. What is 100% of 400? _____

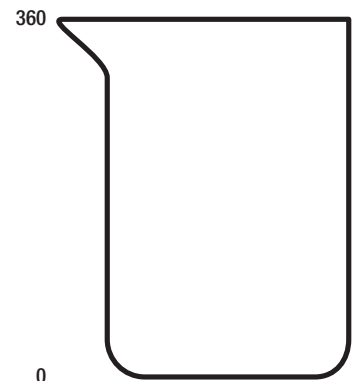
Challenge Problems

8. What do you think 125% of 400 would be?
a. 400 b. 450 c. 500

Explain your answer. _____

Use this beaker to answer the following questions.

9. What is 50% of 360? _____
10. What is 75% of 360? _____
11. What is 25% of 360? _____
12. What is 12.5% of 360? _____
13. What is 10% of 360? _____



NAME: _____

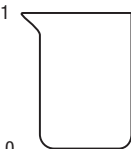
UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 5

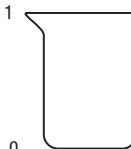
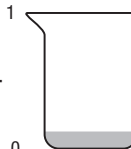
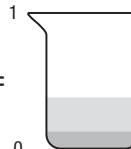
Day 5 Practice 2

Fractions and Percents V

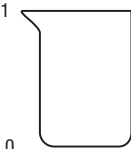
Complete these problems. Shade the beakers if needed and fill in the blanks.

1.  +  = 

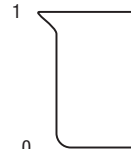
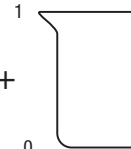
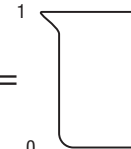
$\frac{1}{4}$ + $\frac{1}{2}$ = _____

3.  +  = 

_____ + $\frac{1}{8}$ = $\frac{3}{8}$

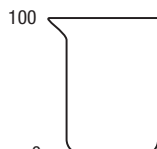
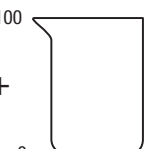
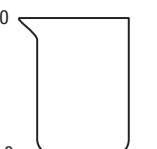
2.  +  = 

.25 + .50 = _____

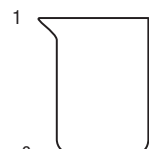
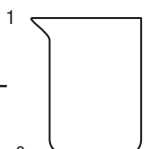
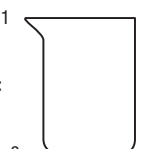
4.  +  = 

$\frac{1}{8}$ + _____ = $\frac{5}{8}$

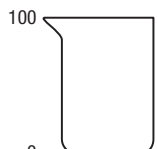
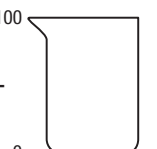
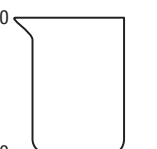
Challenge Beakers

5a.  +  = 

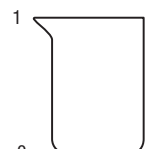
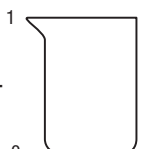
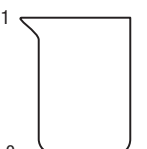
25 + _____ = 37.5

5b.  +  = 

$\frac{1}{4}$ + _____ = $\frac{3}{8}$

6a.  +  = 

_____ + 87.5 = 100

6b.  +  = 

_____ + $\frac{7}{8}$ = 1

continued

NAME: _____

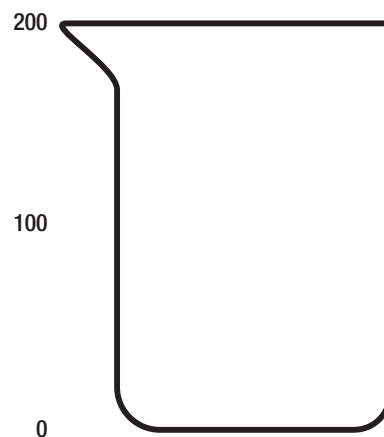
UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 5

7. This beaker holds 200 milliliters. Mark off $\frac{1}{2}$ and $\frac{1}{4}$ on the beaker.

8. How much water will there be in the beaker if we fill the beaker up halfway? _____

9. How much water will there be in the beaker if we fill the beaker $\frac{1}{4}$ of the way? _____



Use the same size beaker to answer the following problems.

10. What is 25% of 200? _____

11. What is 50% of 200? _____

12. What is $\frac{1}{8}$ of 200? _____

13. What is a good estimate of $\frac{1}{10}$ of 200? (Remember that $\frac{1}{10}$ is a little less than $\frac{1}{8}$.)

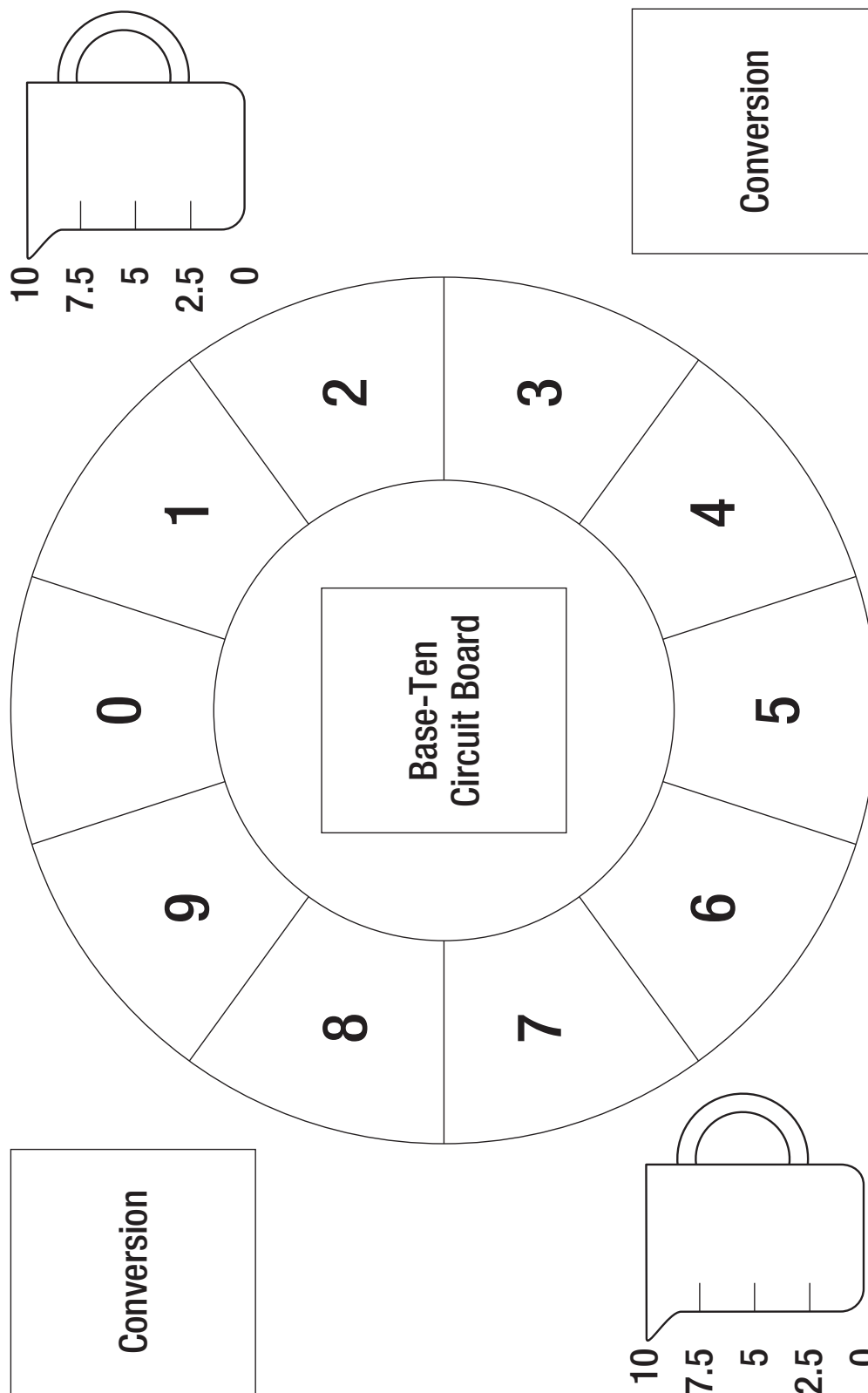
14. What is 100% of 200? _____

UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 6

Instruction

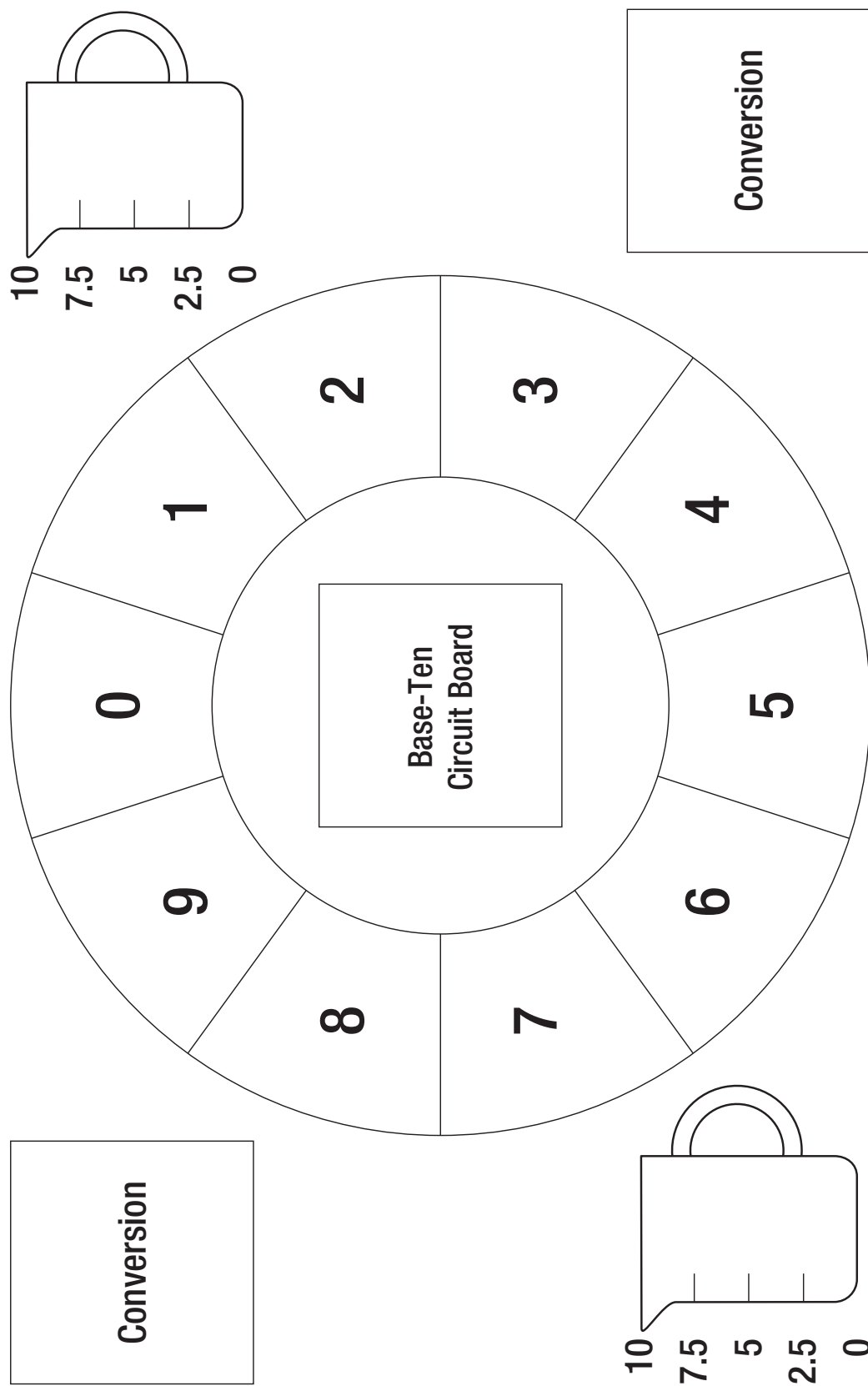
Conversion Board Transparency



UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 6

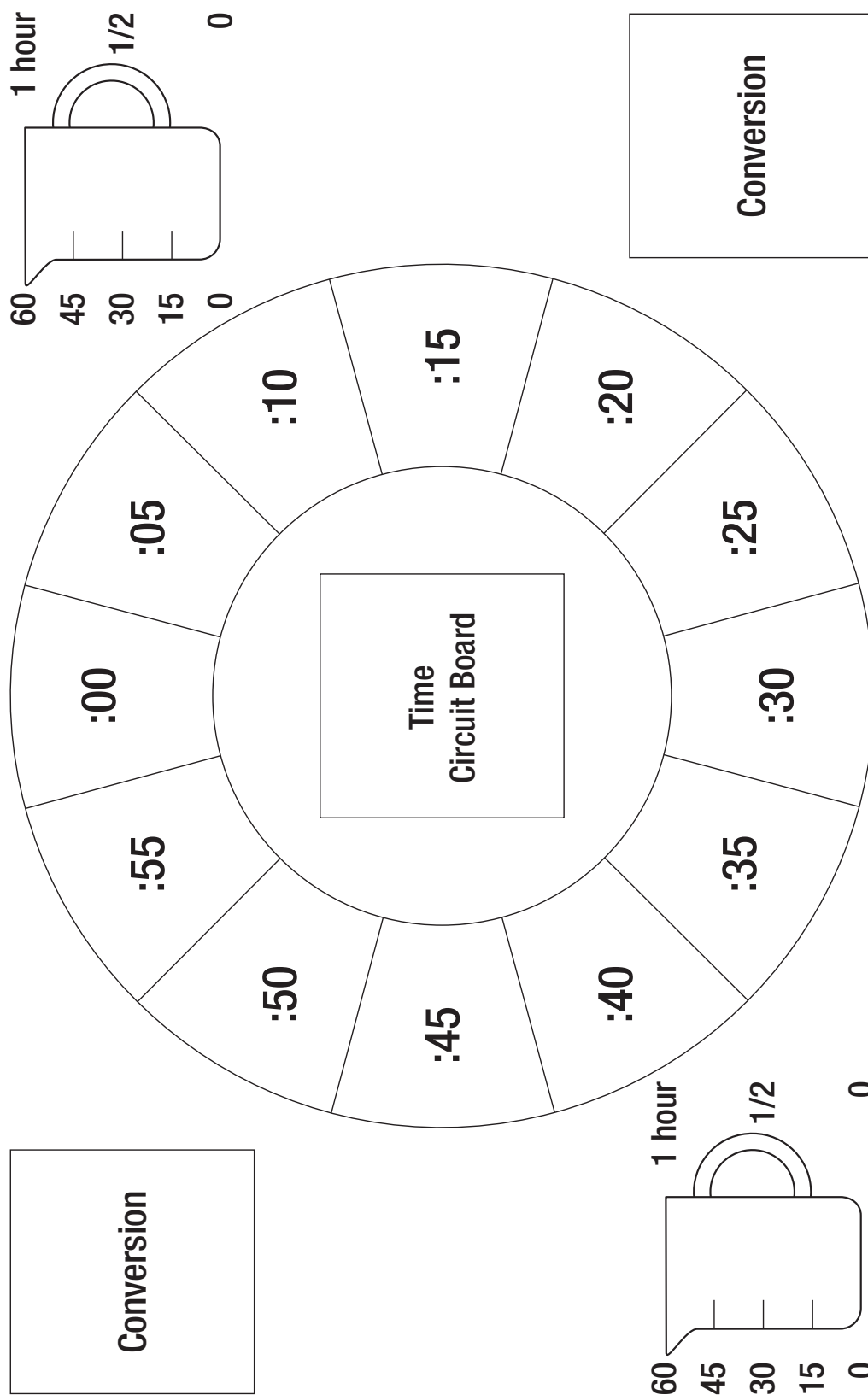
Instruction



UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 6

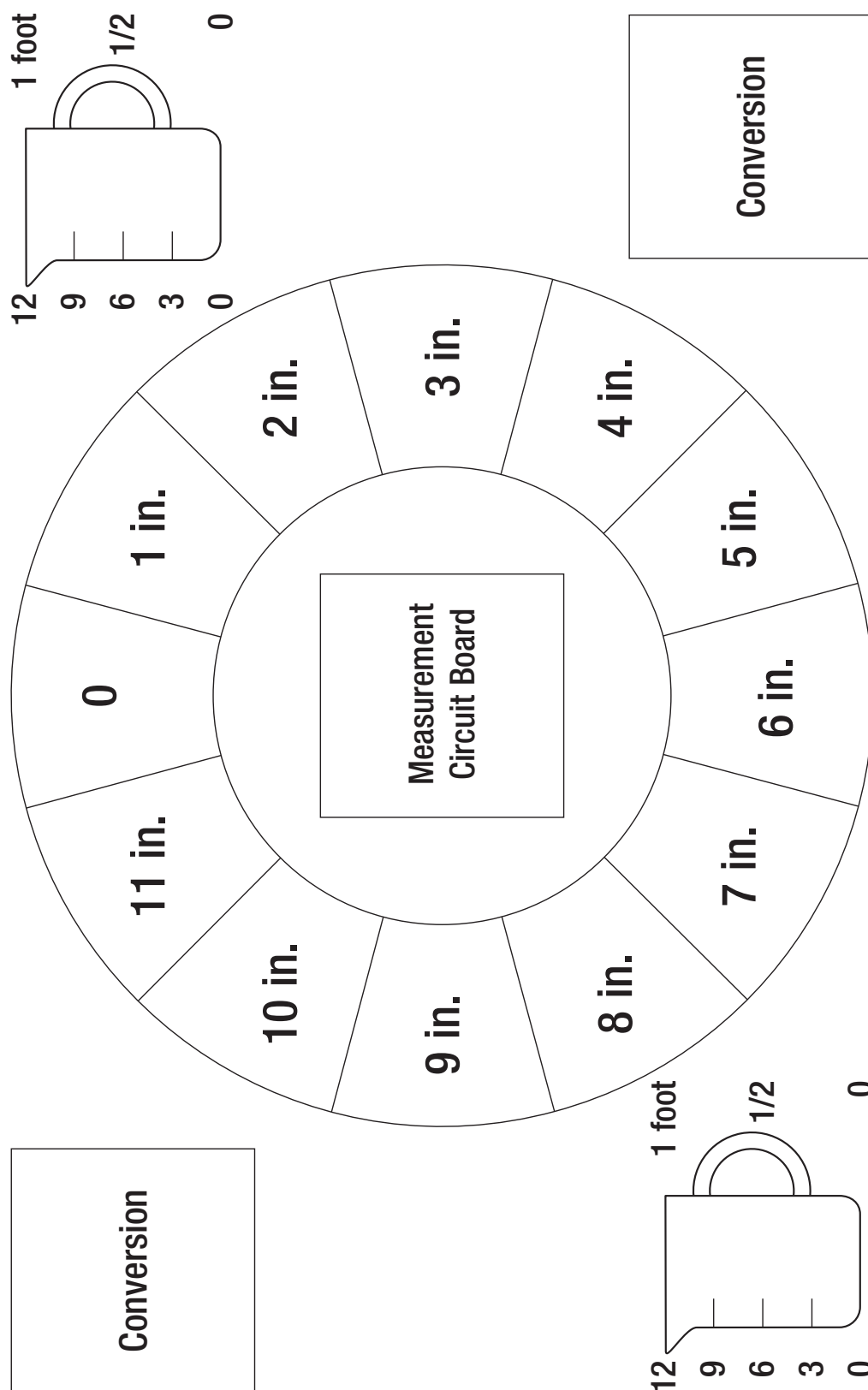
Instruction



UNIT 1 • DIFFERENT FORMS OF NUMBERS

Day 6

Instruction

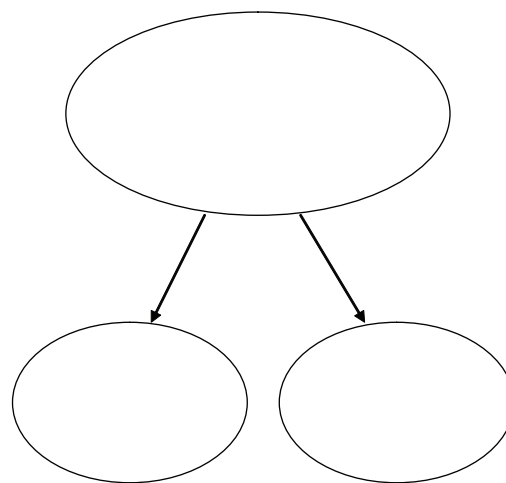


UNIT 2 • EVERYTHING BASED ON TENS

Day 10

Instruction

Making Tens Transparency



Makes 10

Left over

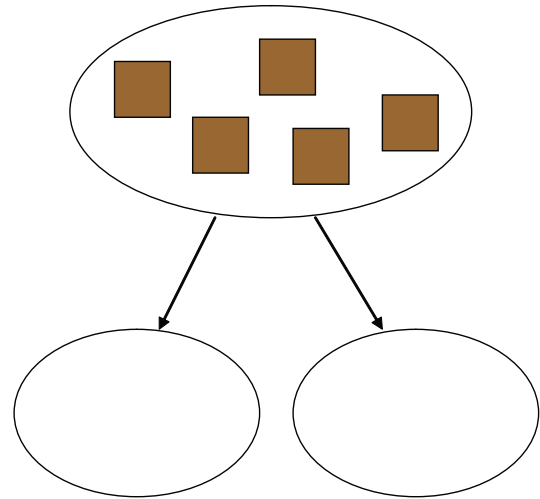
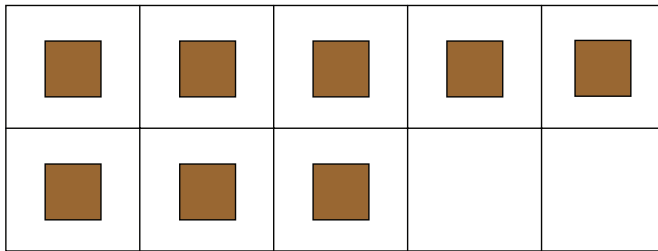
_____ + _____ = _____

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

Day 10

Making Tens



$$\underline{\quad 8 \quad} + \underline{\quad 5 \quad} = \underline{\quad \quad}$$

$$8 + 5$$

$$8 + (\underline{\quad} + \underline{\quad})$$

$$(8 + \underline{\quad}) + \underline{\quad}$$

$$(\underline{\quad}) + \underline{\quad}$$

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

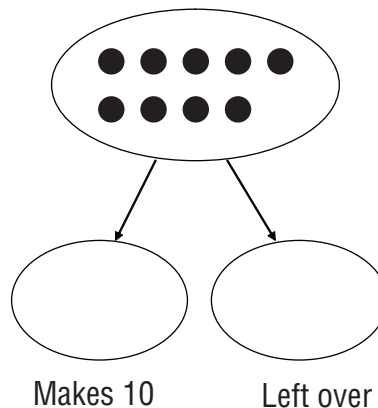
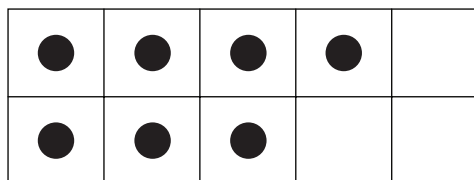
Day 10

Day 10 Practice

Making Tens I

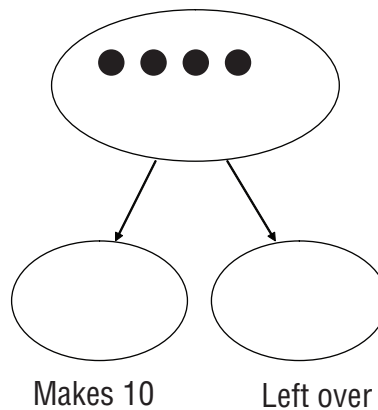
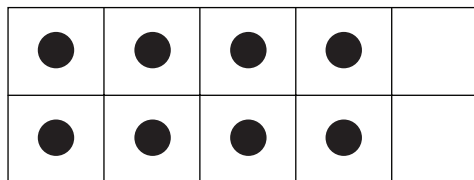
Use the graphic organizers to solve these problems. Decompose the second addend first to make a ten.

1. $7 + 9$



_____ + _____ = _____

2. $8 + 4$



_____ + _____ = _____

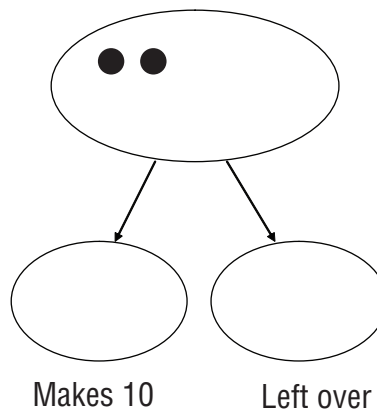
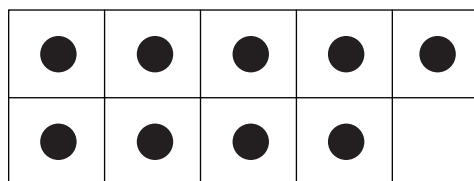
continued

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

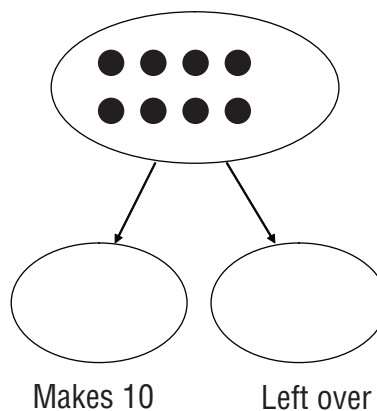
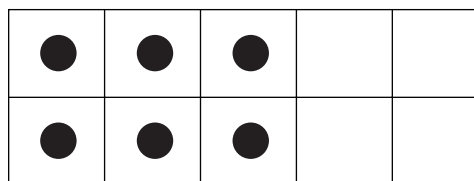
Day 10

3. $9 + 2$



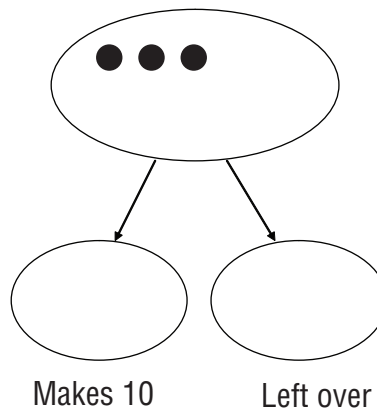
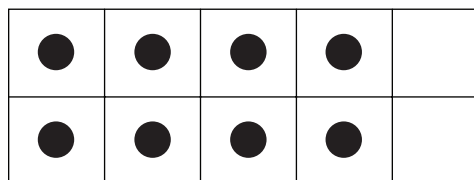
_____ + _____ = _____

4. $6 + 8$



_____ + _____ = _____

5. $8 + 3$



_____ + _____ = _____

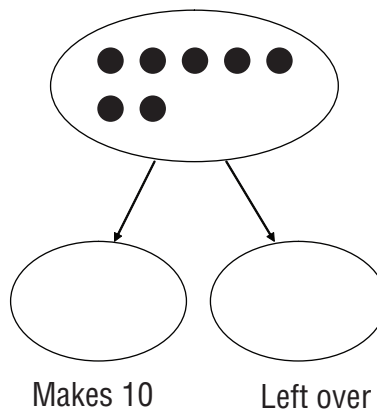
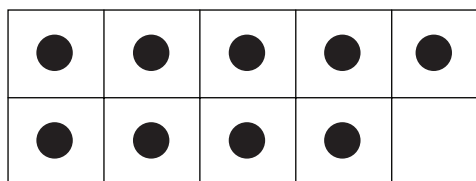
continued

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

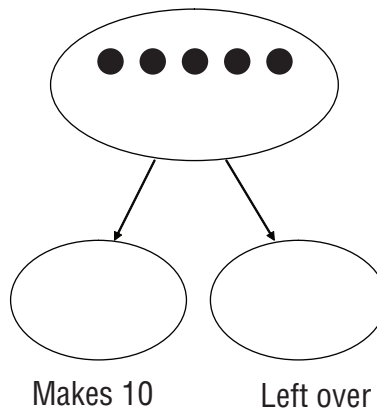
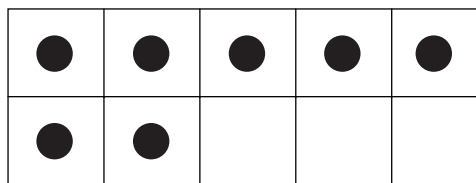
Day 10

6. $9 + 7$



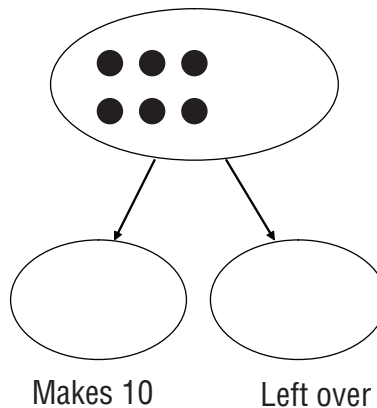
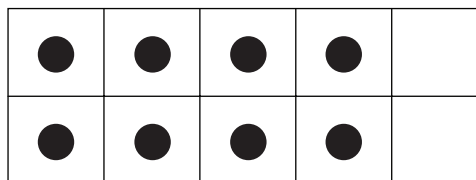
_____ + _____ = _____

7. $7 + 5$



_____ + _____ = _____

8. $8 + 6$



_____ + _____ = _____

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

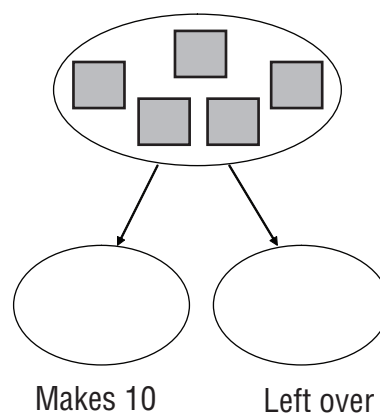
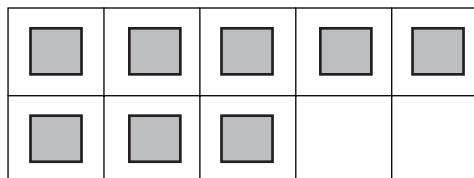
Day 11

Day 11 Practice

Making Tens II

Solve the following problems by decomposing the second addend and making tens. Fill in the steps in the graphic organizer for each problem. The first one is started for you.

1. $8 + 5$



$$\underline{\quad 8 \quad} + \underline{\quad 5 \quad} = \underline{\quad \quad}$$

$$8 + 5$$

$$8 + (\underline{\quad} + \underline{\quad})$$

$$(8 + \underline{\quad}) + \underline{\quad}$$

$$(\underline{\quad}) + \underline{\quad}$$

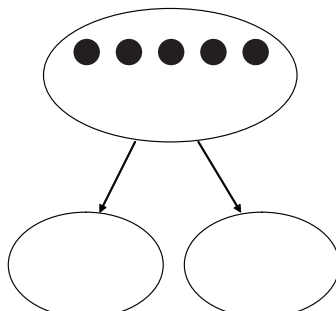
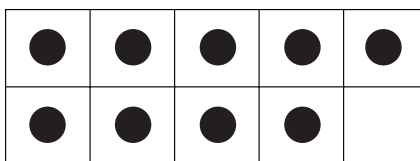
continued

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

Day 11

2. $9 + 5$



Makes 10

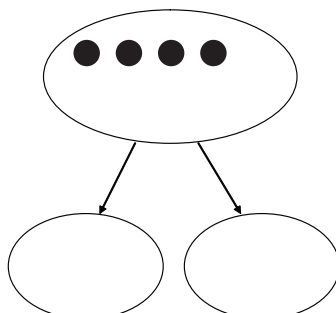
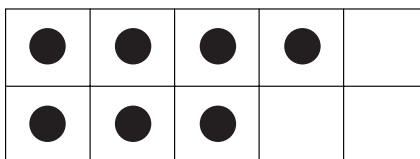
Left over

_____ + (_____ + _____)

(_____ + _____) + _____

(_____) + _____

3. $7 + 4$



Makes 10

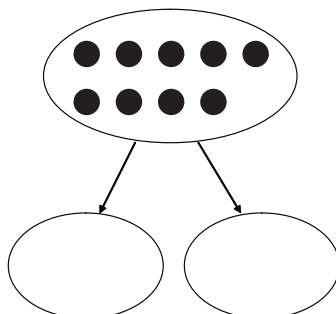
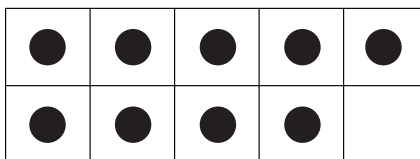
Left over

_____ + (_____ + _____)

(_____ + _____) + _____

(_____) + _____

4. $9 + 9$



Makes 10

Left over

_____ + (_____ + _____)

(_____ + _____) + _____

(_____) + _____

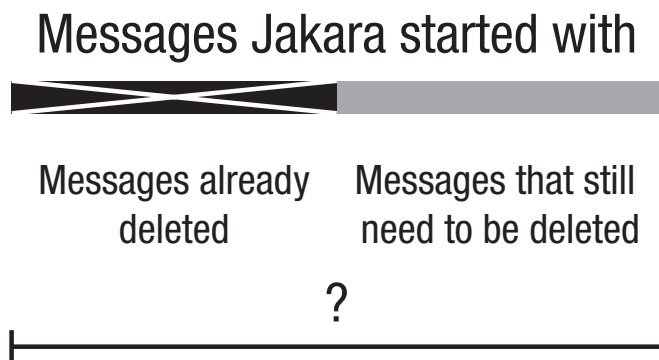
continued

UNIT 2 • EVERYTHING BASED ON TENS

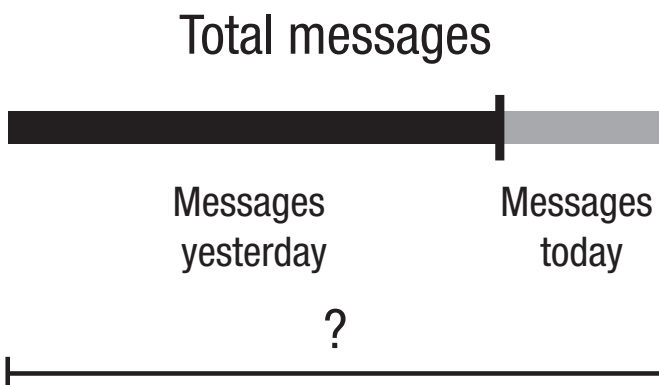
Day 14

Bar Model Examples

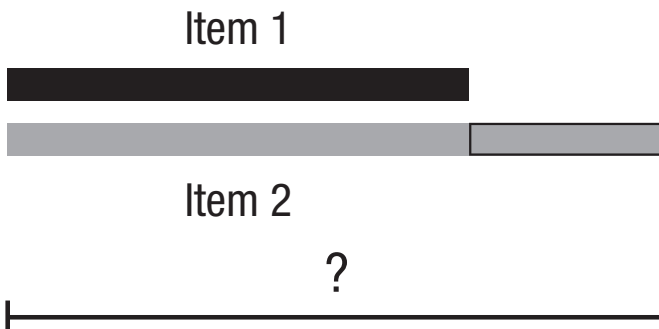
Example 1:



Example 2:



Example 3:



UNIT 2 • EVERYTHING BASED ON TENS**Day 14****Day 14 Guided Practice****Models of Addition I**

Decide if the following problems are a type of addition problem. Check the appropriate box. If the problem is one of the addition types, create the bar model and write an equation for the problem.

1. Jakara likes to text her friends as often as possible. Unfortunately, she has an old phone and has to delete the messages one at a time. So far she has deleted 64 messages. She has 37 more messages to delete. How many messages were in her outbox to start?

☐ Join/part-part whole☐ Start unknown☐ Compare-total unknown☐ Not an addition problem

If you checked an addition type, draw the addition bar model and label the parts:

Write an equation for the problem: _____

2. Jakara sent 43 texts yesterday and 81 today. How many texts has she sent in the last 2 days?

☐ Join/part-part whole☐ Start unknown☐ Compare-total unknown☐ Not an addition problem

If you checked an addition type, draw the addition bar model and label the parts:

Write an equation for the problem: _____

continued

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

Day 14

3. Jakara's friend Susan has 93 messages in her inbox right now. She knows she received 23 of those messages today and has not cleaned any messages out. How many messages were in her inbox yesterday?

☐ Join/part-part whole

☐ Start unknown

☐ Compare-total unknown

☐ Not an addition problem

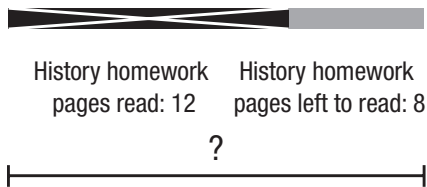
If you checked an addition type, draw the addition bar model and label the parts:

Write an equation for the problem: _____

UNIT 2 • EVERYTHING BASED ON TENS**Day 14****Day 14 Practice****Models of Addition II**

For the following bar models, first identify the type of addition problem—join/part-part whole, start unknown, total unknown. Then write a story problem using the information given. Finally, write an equation for the problem.

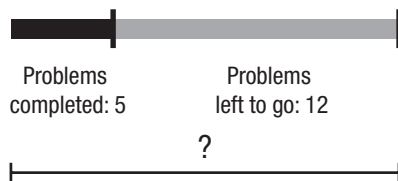
1. Total length of history homework assignment



- a. What type of problem is this? _____
- b. Write a story problem.

- c. Write an equation for the problem: _____

2. Total number of math homework problems: ?



- a. What type of problem is this? _____
- b. Write a story problem.

- c. Write an equation for the problem: _____

continued

NAME: _____

UNIT 2 • EVERYTHING BASED ON TENS

Day 14

3. Defined sample size—number of students to survey in all: ?



Students left to
be surveyed for
data project: 11

Students surveyed
for data project: 14

?

a. What type of problem is this? _____

b. Write a story problem.

c. Write an equation for the problem: _____

4.

? 5
Pants



Skirts: 6

?

a. What type of problem is this? _____

b. Write a story problem.

c. Write an equation for the problem: _____

NAME: _____

UNIT 3 • WORKING WITH INTEGERS

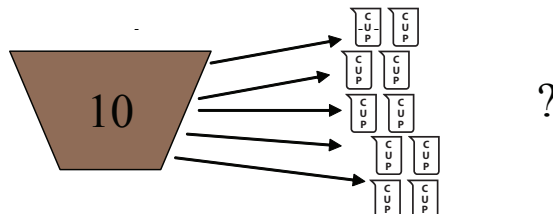
Day 22

3 Types of Division

Repeated Subtraction

How many 2s can I get out of 10?

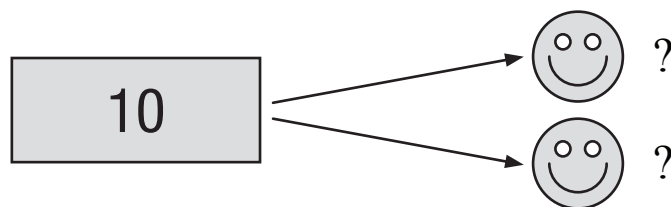
If I have 10 cups of beans and I give out 2 cup portions, how many servings will that provide?



Unit Rate/Fair Shares

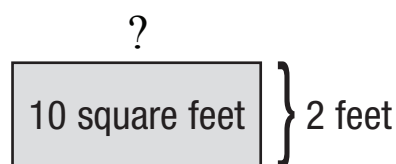
How many would 1 person get? Or what would that mean in relation to 1?

If 2 people find \$10, how much will each person get?



Product/Factor

If I have an area of 10 and one side is 2, how long is the other side?



Division types adapted from Ma, *Knowing and Teaching Elementary Mathematics*, 1999

UNIT 3 • WORKING WITH INTEGERS**Day 22****Day 22 Practice****Number Theory: Modeling Division**

For each example below, circle the type of division and find the answer. Show your work and record the answer in the space provided.

1. A cooking instructor has 12 cups of flour. He needs to give out 3-cup portions. How many portions can he give out?

Repeated subtraction

Unit rate/Fair shares

Product/Factor

2. The area of a rectangular sandbox is 24 square feet. The width of the sandbox is 4 feet. How long is the sandbox?

Repeated subtraction

Unit rate/Fair shares

Product/Factor

3. A bag of candy contains 36 pieces. You want to give 4 people the same amount each. How many pieces of candy will each person get?

Repeated subtraction

Unit rate/Fair shares

Product/Factor

continued

NAME: _____

UNIT 3 • WORKING WITH INTEGERS

Day 22

4. The area of a rectangular wall is 40 square feet. The length of the wall is 5 feet. How high is the wall?

Repeated subtraction

Unit rate/Fair shares

Product/Factor

5. Huey, Dewey, and Louie came across 18 quarters laying on the ground. If they agree to split them equally, how many should each duck get?

Repeated subtraction

Unit rate/Fair shares

Product/Factor

6. There are 28 yards of fabric. If a project requires 4 yards of fabric, how many projects can be made from the fabric?

Repeated subtraction

Unit rate/Fair shares

Product/Factor

UNIT 3 • WORKING WITH INTEGERS**Day 30**

14. If there are 20 members on a volleyball team and each member gives \$5 toward the coach's gift, how much money will the team have to buy the gift?

Multiplication:

Repeated addition

Array/Row-column

Fundamental counting principle

Division:

Repeated subtraction

Unit rate/Fair shares

Product/Factor

15. In an apartment building, there are 3 different sizes of apartments (1 bedroom, 2 bedrooms, and 3 bedrooms). There are 4 different floors to live on. How many different types of apartments are there to choose from?

Multiplication:

Repeated addition

Array/Row-column

Fundamental counting principle

Division:

Repeated subtraction

Unit rate/Fair shares

Product/Factor

16. A teacher has 45 flash cards. He gave each student 3 flash cards. How many students are in the class?

Multiplication:

Repeated addition

Array/Row-column

Fundamental counting principle

Division:

Repeated subtraction

Unit rate/Fair shares

Product/Factor

continued

UNIT 3 • WORKING WITH INTEGERS

Day 22

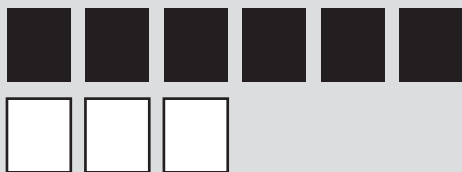
Instruction



Example Dialogue (*continued*)

(Get students used to seeing numbers with zero pairs and evaluating that this does not change the value.)

$$6 + (-3) = 3$$

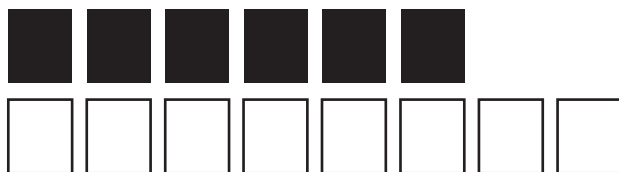


Work through the following examples with students. Draw them on the board or use a projector to show them the examples. Come up with some examples of your own if you feel more are necessary.

$$4 + (-2) = 2$$



$$6 + (-8) = -2$$



Have students complete problems 7–11. Check answers with a shoulder buddy.

Do NOT teach the “trick” that when you add a positive and a negative number you subtract the numbers and take the larger number’s sign. Only affirm it for students who notice it themselves. You can point out to them that this will always work and ask them to figure out why.

Moving to this “rule” without having students understand the operations with integers will turn the lesson into one more trick that makes no sense. Avoid this. It seems tempting and “easy,” but it just muddies the central constructs that underlie WHY integers behave as they do that you are developing with the students.

UNIT 3 • WORKING WITH INTEGERS

Day 26

Day 26 Practice**Associative Property and Addition**

Complete the addition problems below using the associative property to reach zero. Fill in the charts for each problem.

1. $-4 + 9 =$ _____

$-4 + 9$
$-4 + (\quad + \quad)$
$(-4 + \quad) + \quad$
$(0) + \quad$

3. $-2 + 11 =$ _____

$-2 + 11$
$-2 + (\quad + \quad)$
$(-2 + \quad) + \quad$
$(0) + \quad$

2. $-6 + 8 =$ _____

$-6 + 8$
$-6 + (\quad + \quad)$
$(-6 + \quad) + \quad$
$(0) + \quad$

4. $-8 + 12 =$ _____

$-8 + 12$
$-8 + (\quad + \quad)$
$(-8 + \quad) + \quad$
$(0) + \quad$

continued

NAME: _____

UNIT 3 • WORKING WITH INTEGERS

Day 26

5. $-3 + 7 =$ _____

$-3 + 7$
 $-3 + (\quad + \quad)$
 $(-3 + \quad) + \quad$
 $(0) + \quad$

8. $-6 + 13 =$ _____

$-6 + 13$
 $-6 + (\quad + \quad)$
 $(-6 + \quad) + \quad$
 $(0) + \quad$

6. $-5 + 8 =$ _____

$-5 + 8$
 $-5 + (\quad + \quad)$
 $(-5 + \quad) + \quad$
 $(0) + \quad$

9. $-5 + 6 =$ _____

$-5 + 6$
 $-5 + (\quad + \quad)$
 $(-5 + \quad) + \quad$
 $(0) + \quad$

7. $-3 + 9 =$ _____

$-3 + 9$
 $-3 + (\quad + \quad)$
 $(-3 + \quad) + \quad$
 $(0) + \quad$

10. $-9 + 16 =$ _____

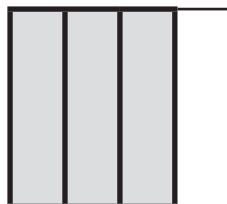
$-9 + 16$
 $-9 + (\quad + \quad)$
 $(-9 + \quad) + \quad$
 $(0) + \quad$

UNIT 4 • SIMPLIFYING NUMERICAL EXPRESSIONS

Day 36

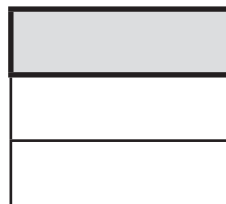
Instruction

Fractions with Unit Squares



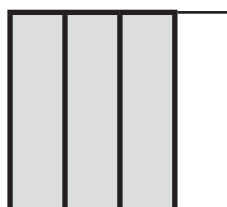
$\frac{3}{4}$

+



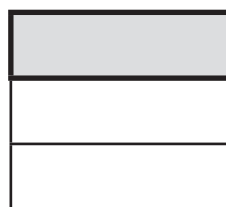
$\frac{1}{3}$

We've got a problem in this form, because we need the same size pieces to add things...



$\frac{3}{4}$

+



$\frac{1}{3}$

$\frac{9}{12}$

+

$\frac{4}{12}$

Chop up the vertical by the horizontal and the horizontal by the vertical. Don't change the value, just the piece size.

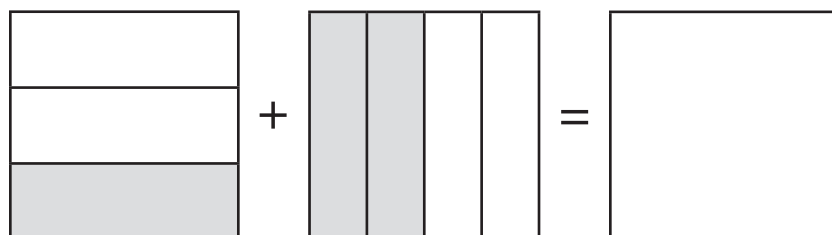
Stiff, L. V. & Creighton, L. (2006). *Adding and Subtracting Fractions: Is It How Much or How Many?* Centroid, 32(1), 15–19.

UNIT 4 • SIMPLIFYING NUMERICAL EXPRESSIONS

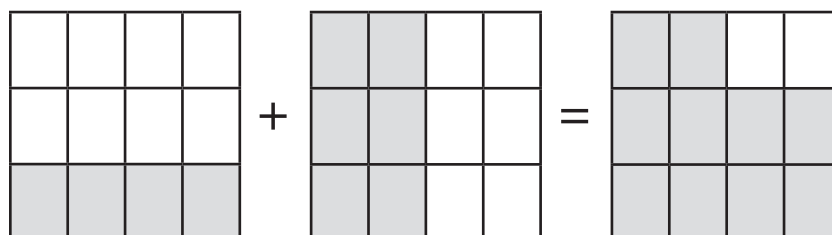
Day 36

Day 36 Guided Practice**Fractions with Unit Squares I**

Read each addition problem and shade the first two boxes according to the fractions shown. Rewrite each fraction using the lowest common denominator (unit whole). Add the fractions and shade the answer boxes. Then write your answer in simplified form on the line.

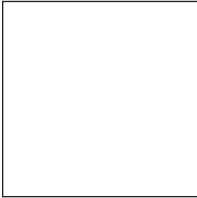
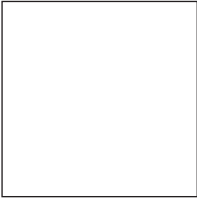
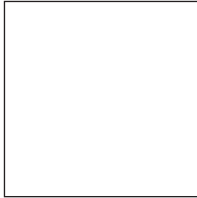
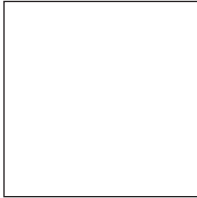
Example:

$$\frac{1}{3} + \frac{2}{4} = \underline{\hspace{2cm}}$$



$$\frac{4}{12} + \frac{6}{12} = \frac{10}{12}$$

Simplified form: $\frac{5}{6}$

1.  +  =  

$$\frac{1}{4} + \frac{1}{2} =$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Simplified form: _____

continued

NAME: _____

UNIT 4 • SIMPLIFYING NUMERICAL EXPRESSIONS

Day 36

2. $\boxed{} + \boxed{} = \boxed{} \boxed{}$

$\frac{1}{4} + \frac{3}{5} =$

_____ + _____ = _____

Simplified form: _____

3. $\boxed{} + \boxed{} = \boxed{} \boxed{}$

$\frac{1}{5} + \frac{1}{2} =$

_____ + _____ = _____

Simplified form: _____

4. $\boxed{} + \boxed{} = \boxed{} \boxed{}$

$\frac{4}{6} + \frac{2}{5} =$

_____ + _____ = _____

Simplified form: _____

continued

NAME: _____

UNIT 4 • SIMPLIFYING NUMERICAL EXPRESSIONS

Day 36

5.

	+		=		
$\frac{2}{3}$		$\frac{3}{4}$			

_____ + _____ = _____

Simplified form: _____

6.

	+		=		
$\frac{2}{3}$		$\frac{2}{5}$			

_____ + _____ = _____

Simplified form: _____

7.

	+		=		
$\frac{2}{4}$		$\frac{2}{6}$			

_____ + _____ = _____

Simplified form: _____

continued

NAME: _____

UNIT 5 • SIMPLIFYING ALGEBRAIC EXPRESSIONS AND SOLVING EQUATIONS

Day 48

Day 48 Practice

Distributive Property with Whole Numbers IV

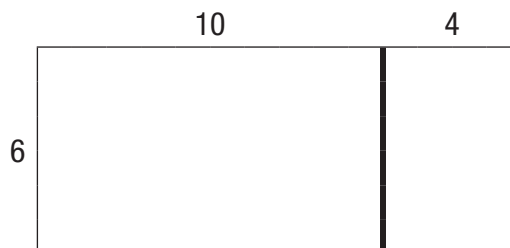
Use the distributive property to solve each problem. Leave the last line blank if there are no like terms to combine.

1. $6 \cdot 14$

$$6 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad}$$

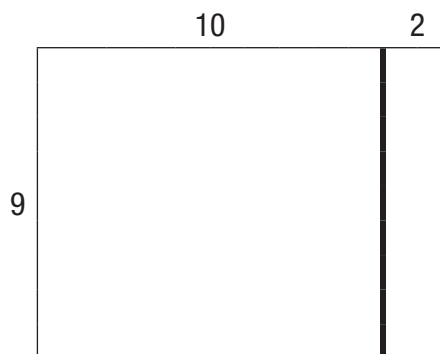


2. $9 \cdot 12$

$$9 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad}$$

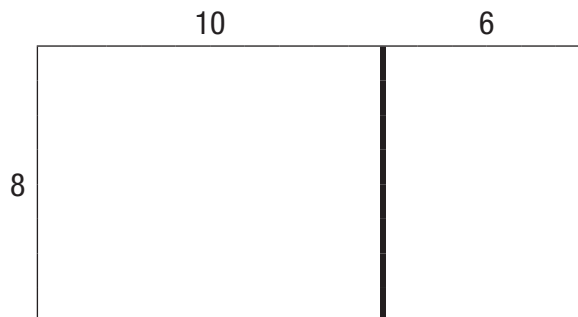


3. $8 \cdot 16$

$$8 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad}$$



4. $5 \cdot 18$

$$5 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad}$$



continued

NAME: _____

UNIT 5 • SIMPLIFYING ALGEBRAIC EXPRESSIONS AND SOLVING EQUATIONS

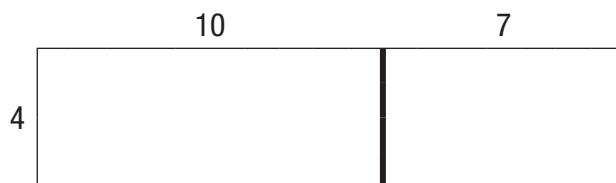
Day 48

5. $4 \cdot 17$

$$4 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad}$$

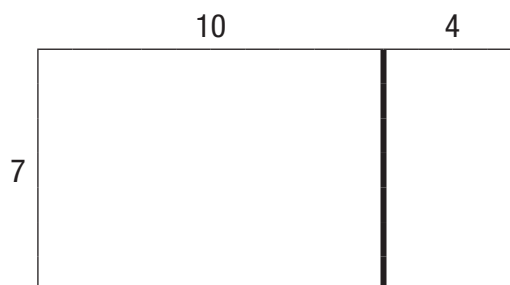


6. $7 \cdot 14$

$$7 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad}$$



7. $3 \cdot 41$

$$3 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad}$$



8. $6 \cdot 52$

$$6 \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

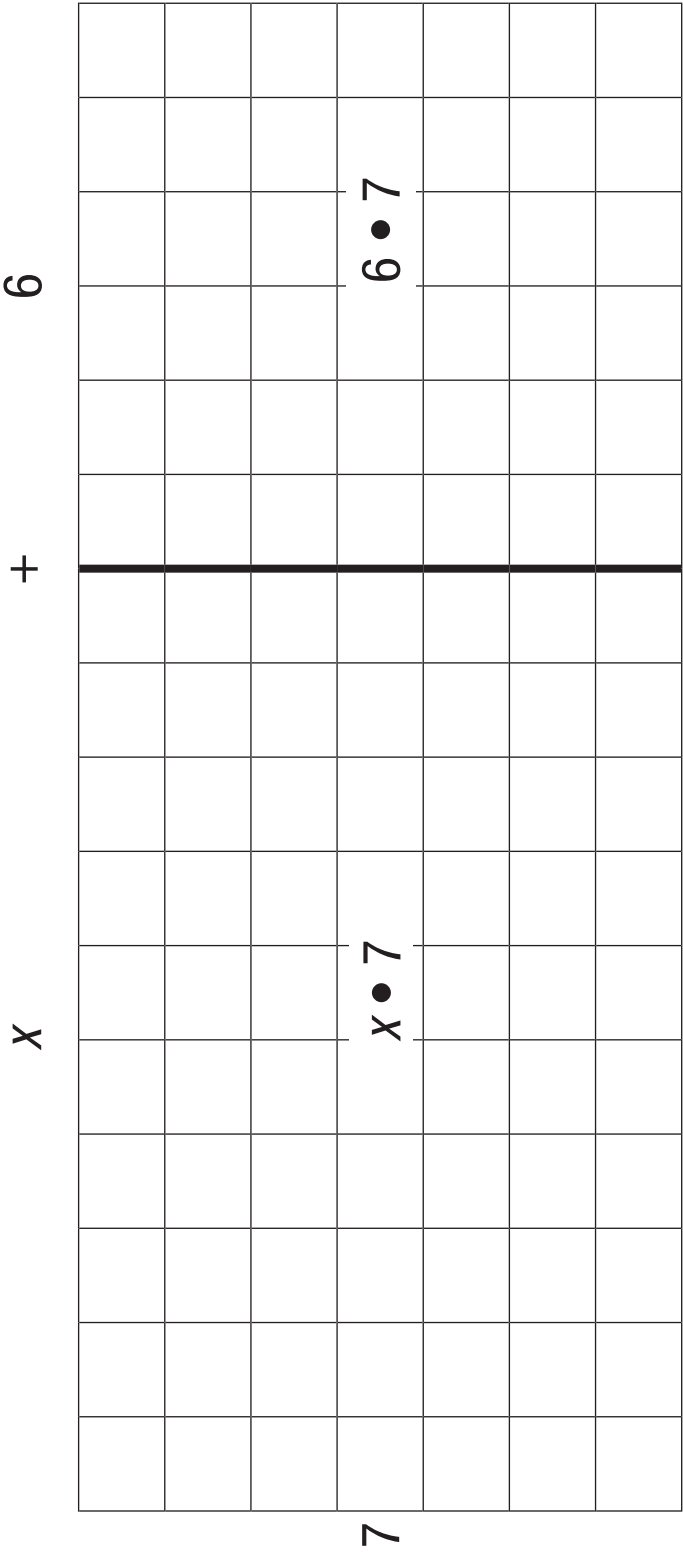
$$\underline{\quad} + \underline{\quad}$$



UNIT 5 • SIMPLIFYING ALGEBRAIC EXPRESSIONS AND SOLVING EQUATIONS
Day 55

Instruction

Day 30 Transparency
Distributive Property and Variables



$$7(x + 6)$$

$$7(x) + 7(6)$$

$$7x + 42$$

UNIT 5 • SIMPLIFYING ALGEBRAIC EXPRESSIONS AND SOLVING EQUATIONS**Day 49****Day 49 Practice****Distributive Property with Whole Numbers V**

Use the distributive property to solve each problem. Leave the last line blank if there are no like terms to combine.

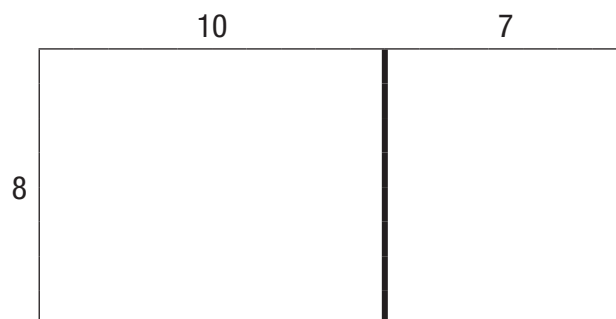
1. $8 \cdot 17$

$8 \cdot (\underline{\quad} + \underline{\quad})$

$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$

$\underline{\quad} + \underline{\quad}$

$\underline{\quad}$



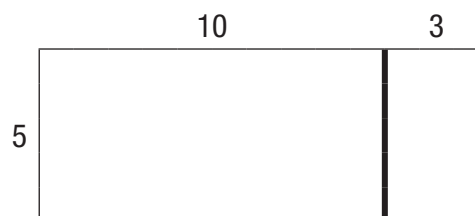
2. $5 \cdot 13$

$5 \cdot (\underline{\quad} + \underline{\quad})$

$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$

$\underline{\quad} + \underline{\quad}$

$\underline{\quad}$



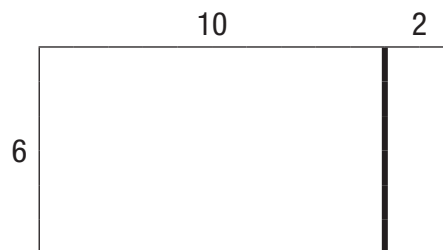
3. $6 \cdot 12$

$6 \cdot (\underline{\quad} + \underline{\quad})$

$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$

$\underline{\quad} + \underline{\quad}$

$\underline{\quad}$



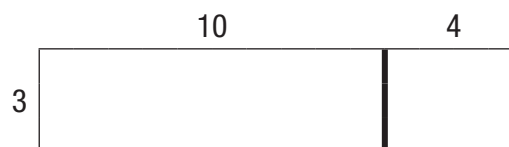
4. $3 \cdot 14$

$3 \cdot (\underline{\quad} + \underline{\quad})$

$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$

$\underline{\quad} + \underline{\quad}$

$\underline{\quad}$

***continued***

NAME: _____

UNIT 5 • SIMPLIFYING ALGEBRAIC EXPRESSIONS AND SOLVING EQUATIONS

Day 52

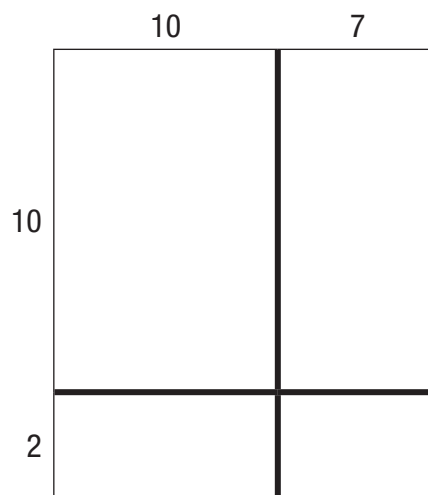
Challenge

7. $12 \cdot 17$

$$(\underline{\quad} + \underline{\quad}) \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$$

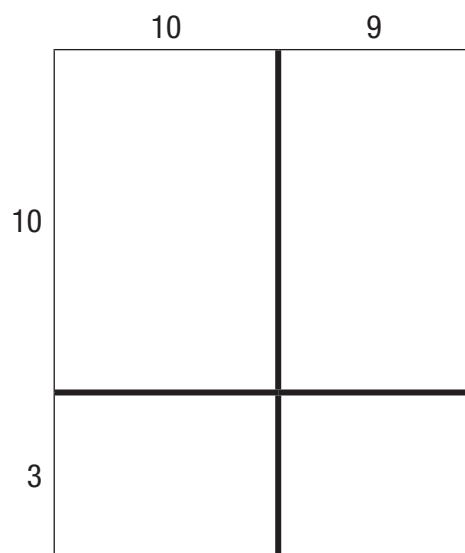


8. $13 \cdot 19$

$$(\underline{\quad} + \underline{\quad}) \cdot (\underline{\quad} + \underline{\quad})$$

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad})$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$$



NAME: _____

UNIT 5 • SIMPLIFYING ALGEBRAIC EXPRESSIONS AND SOLVING EQUATIONS

Day 55

Day 55 Practice

Distributive Property with Variables I

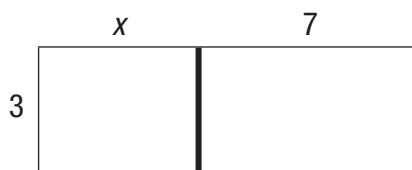
Use the distributive property to solve each problem. Leave the last line blank if there are no like terms to combine.

1. $3(x + 7)$

$(\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}})$

$\underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$\underline{\hspace{1cm}}$

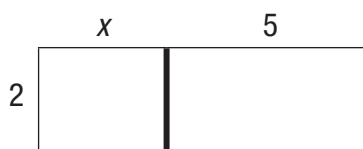


2. $2(x + 5)$

$(\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}})$

$\underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$\underline{\hspace{1cm}}$

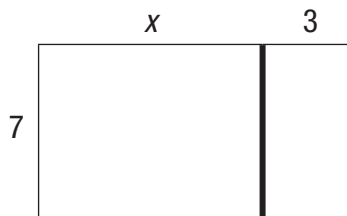


3. $7(x + 3)$

$(\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}})$

$\underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$\underline{\hspace{1cm}}$

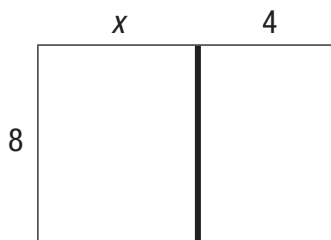


4. $8(x + 4)$

$(\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \cdot \underline{\hspace{1cm}})$

$\underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$\underline{\hspace{1cm}}$



continued

NAME: _____

UNIT 5 • SIMPLIFYING ALGEBRAIC EXPRESSIONS AND SOLVING EQUATIONS

Day 56

Day 56 Practice

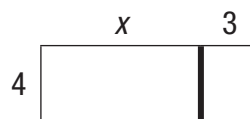
Distributive Property with Variables II

Use the distributive property to solve each problem. Leave the last line blank if there are no like terms to combine.

1. $4(x + 3)$

(•) + (•)

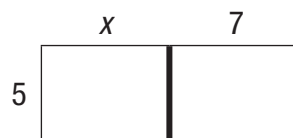
 +



2. $5(x + 7)$

(•) + (•)

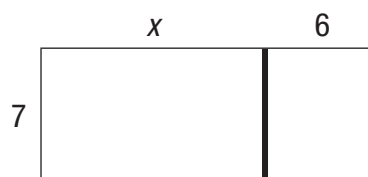
 +



3. $7(x + 6)$

(•) + (•)

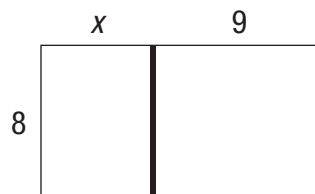
 +



4. $8(x + 9)$

(•) + (•)

 +



continued

NAME: _____

UNIT 6 • LINEAR RELATIONSHIPS

Day 61

Day 61 Guided Practice

Filling Out Our Function Table I

Fill in the missing information in the function table below. Then answer the questions at the bottom of the page.

Number of items (x)	Dollar Deals function ($\$1 \bullet x$)	Total cost (y)
1	$\$1 \bullet 1$	\$1
		\$2
3		
		\$4
5	$\$1 \bullet 5$	

1. Explain why the equation $x = y$ is the same as the equations $1 \bullet x = y$ and $1 \bullet x + 0 = y$.

2. If $\$1 \bullet x$ is the function in this function table, then which column shows the outcome? Why?

NAME: _____

UNIT 6 • LINEAR RELATIONSHIPS

Day 61

Day 61 Practice

Filling Out Our Function Table II

Fill in the missing information in the function table below. Then answer the questions at the bottom of the page.

Number of items (x)	Dollar Deals function ($\$1 \bullet x$)	Total cost (y)
1	$\$1 \bullet 1$	
	$\$1 \bullet 3$	
5		\$5
	$\$1 \bullet 7$	
9		\$9

1. Why is the equation $x = y$ called the identity function?

2. If your friend spent \$13, then how many items did he buy? How do you know?

NAME: _____

UNIT 6 • LINEAR RELATIONSHIPS

Day 61

Day 61 Practice 2

Filling Out Our Function Table III

Fill in the missing information in the function table below. Make sure to follow the pattern! Then answer the questions at the bottom of the page.

Number of items (x)	Dollar Deals function ($\$1 \cdot x$)	Total cost (y)
1	$\$1 \cdot 1$	
5		\$5
	$\$1 \cdot 10$	\$10
15		
20		\$20
		\$35

1. Explain how you decided what to put in the blank spaces on the function table.

2. Could you use this table to predict how much 40 items would cost? How about 400? Explain why or why not.

UNIT 6 • LINEAR RELATIONSHIPS**Day 62****Day 62 Guided Practice****What's Wrong with the Function Table? I**

A new cashier at Dollar Deals tracked her first day's sales in a function table. She made some mistakes in her table. For each line, list any numbers from the table that are wrong. Explain why these numbers are mistakes, and what the correct number should be.

	Number of items (x)	Dollar Deals function ($\$1 \bullet x$)	Total cost (y)
Line 1	1	$\$1 \bullet 1$	\$1
Line 2	2	$\$1 \bullet 2$	\$3
Line 3	4	$\$4 \bullet 4$	\$16
Line 4	7	$\$1 \bullet 4$	\$7
Line 5	16	$\$1 \bullet 15$	\$5

1. Line 1:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

2. Line 2:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

3. Line 3:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

4. Line 4:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

5. Line 5:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

UNIT 6 • LINEAR RELATIONSHIPS**Day 62****Day 62 Practice****What's Wrong with the Function Table? II**

It's the second day on the job for the new cashier at Dollar Deals, and she's still having some trouble with her function table. For each line, list any numbers from the table that are wrong. Explain why these numbers are mistakes, and what the correct number should be.

	Number of items (x)	Dollar Deals function ($\$1 \cdot x$)	Total cost (y)
Line 1	2	$\$1 \cdot 1$	\$1
Line 2	3	$\$3 \cdot 3$	\$9
Line 3	5	$\$1 \cdot 3$	\$3
Line 4	10	$\$1 \cdot 5$	\$50
Line 5	20	$\$20 \cdot 1$	\$20

1. Line 1:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

2. Line 2:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

3. Line 3:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

4. Line 4:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

5. Line 5:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

6. Does the identity function always work? Why or why not?

UNIT 6 • LINEAR RELATIONSHIPS

Day 62

Day 62 Practice 2**What's Wrong with the Function Table? III**

The new cashier at Dollar Deals has one last chance to get it right, but she's nervous. She wants you to check her function table before her manager sees it. For each line, list any numbers from the table that are wrong. Explain why these numbers are mistakes, and what the correct number should be.

	Number of items (x)	Dollar Deals function (\$1 • x)	Total cost (y)
Line 1	5	\$1 • 1	\$1
Line 2	2	\$2 • 2	\$2
Line 3	10	\$3 • 10	\$30
Line 4	20	\$1 • 4	\$4
Line 5	30	\$30 • 1	\$30

1. Line 1:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

2. Line 2:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

3. Line 3:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

4. Line 4:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

5. Line 5:

Are any numbers wrong? If so, which one(s)? _____

What should any wrong number(s) be instead? _____

6. In Dollar Deals, what does the cost depend on? Why is this factor called the Dependent Variable?

NAME: _____

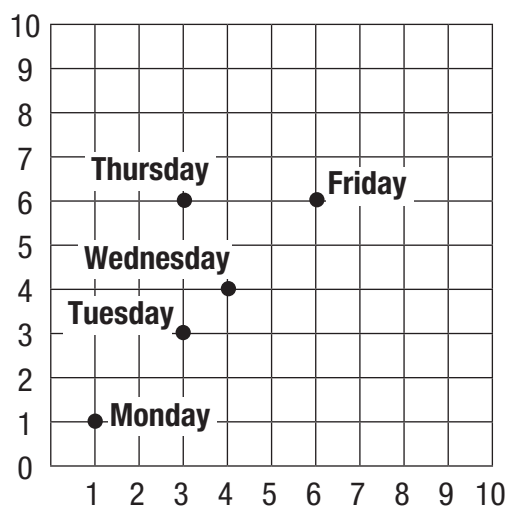
UNIT 6 • LINEAR RELATIONSHIPS

Day 64

Day 64 Guided Practice

Dollar Deals or No Deal?

Tonio had to track his spending for five days for a class project. He usually stops by Dollar Deals every day after school to pick up snacks and school supplies. One day, he went to Bud's Bargains instead. Look at the graph to find out which day Tonio shopped at Bud's Bargains, and how much he paid for his items.



1. Which day did Tonio shop at Bud's Bargains? _____
2. How many items did he buy? _____
3. How much did he pay for each item? _____
4. How much did he pay total? _____

NAME: _____

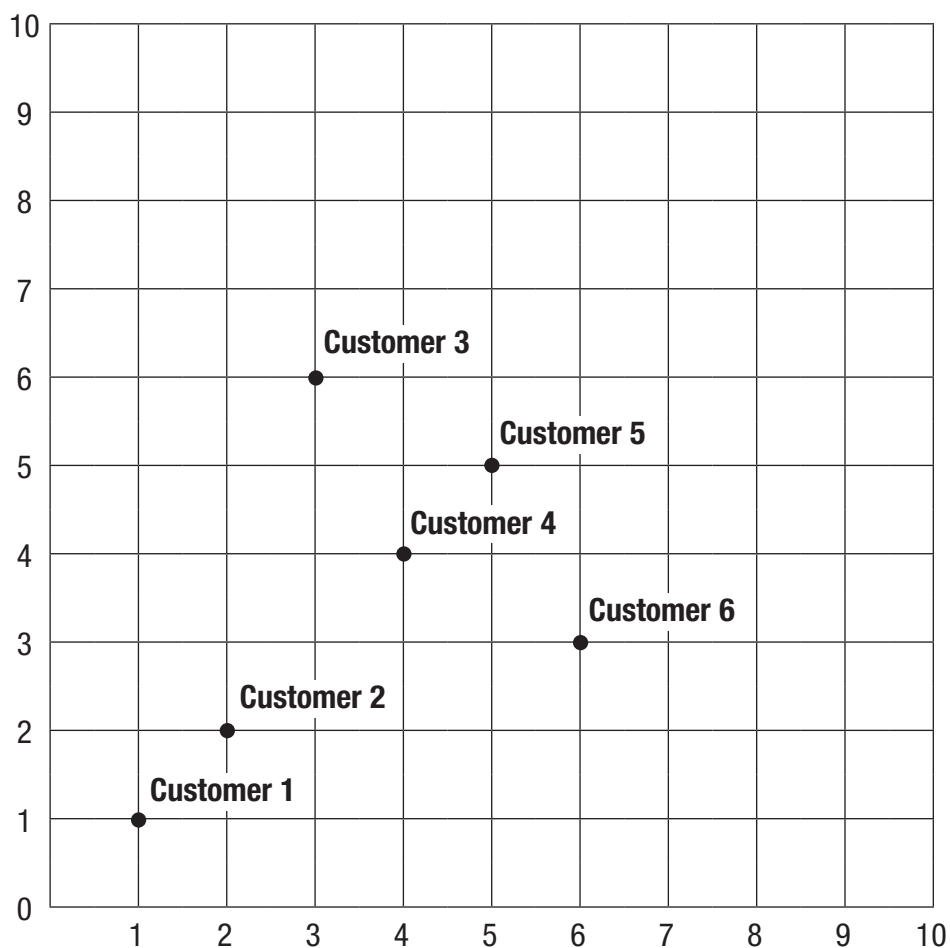
UNIT 6 • LINEAR RELATIONSHIPS

Day 64

Day 64 Practice

Who Shopped Where?

At Dollar Deals, everything costs \$1. But not everyone shops at Dollar Deals. Use this graph to answer questions 1–3.



1. Which customer(s) shopped at Dollar Deals? _____

2. Which customer(s) shopped somewhere else? _____

3. What did he/she/they pay? _____

continued

NAME: _____

UNIT 6 • LINEAR RELATIONSHIPS

Day 64

Read the following scenario. Use it to answer questions 4–6.

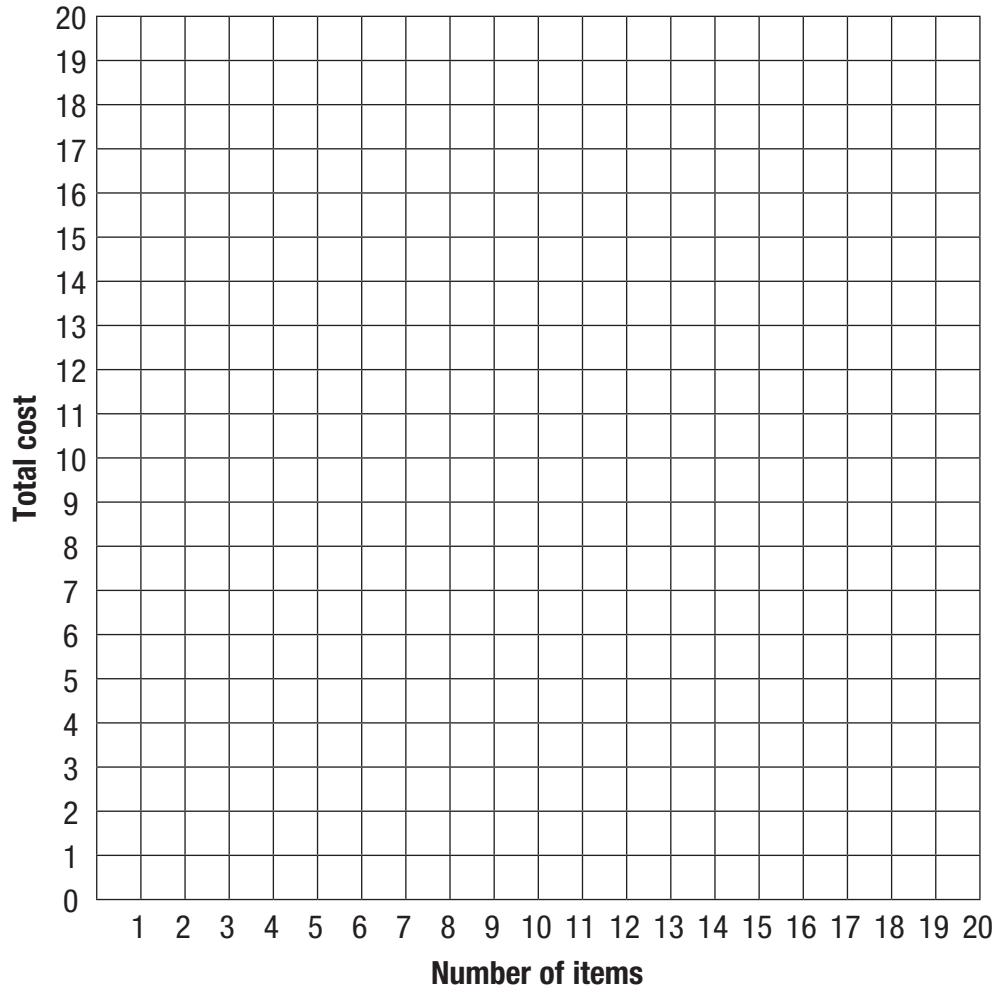
Becka, Tasha, and Sonia had to track their spending for five days. Becka shops at Dollar Deals. Tasha shops at Penny Pinchers, and Sonia shops at Cheapy Chucks. At Dollar Deals, everything costs \$1. Penny Pinchers and Cheapy Chucks also charge one price per item, but their prices are different from Dollar Deals.

Graph the ordered pairs that represent each girl's shopping trips. Then, answer questions 4–6. x = the number of items; y = the total price paid.

Becka (Dollar Deals): (1, 1); (9, 9); (3, 3)

Tasha (Penny Pinchers): (2, 6); (3, 9); (4, 12)

Sonia (Cheapy Chucks): (2, 4); (8, 16); (12, 12)



4. How much did items cost at Penny Pinchers? _____
5. How much did items cost at Cheapy Chucks? _____
6. Which girl switched to Dollar Deals on Friday instead of her usual store? _____
How much did she save? _____

NAME: _____

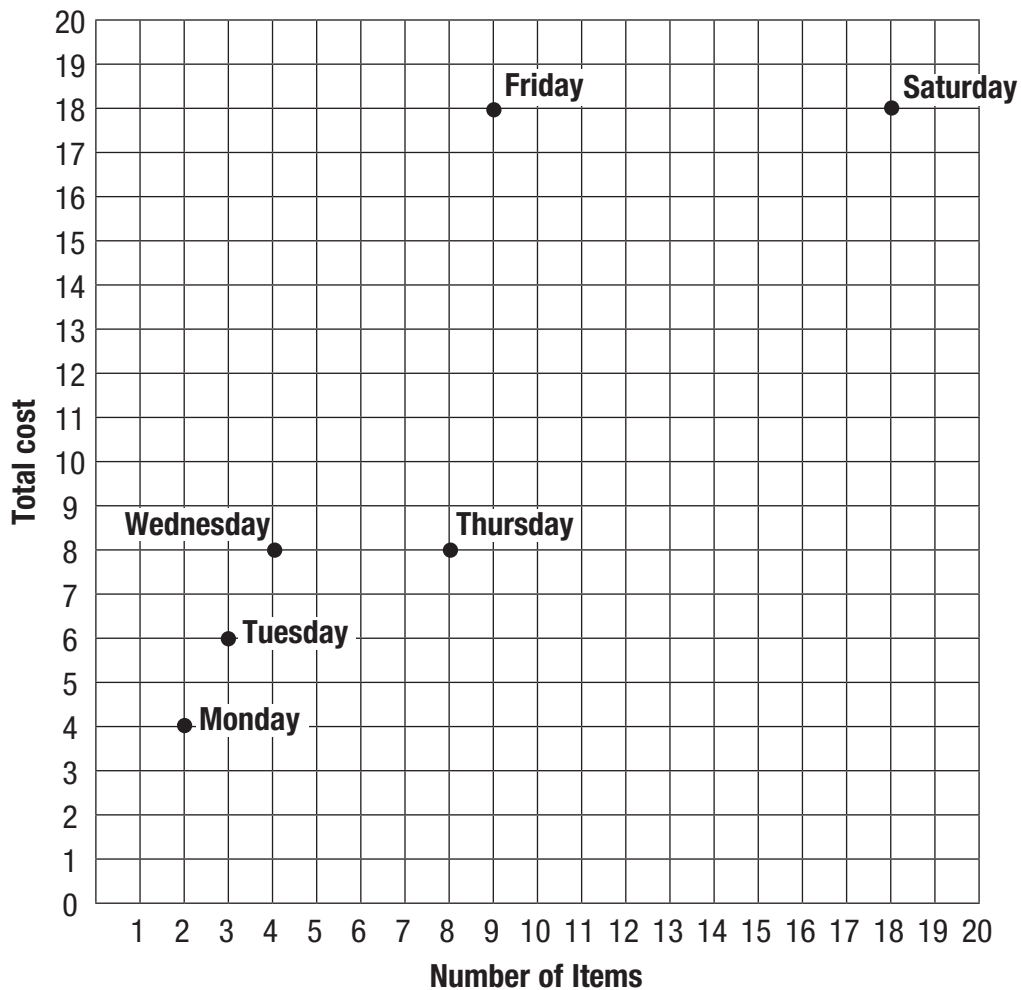
UNIT 6 • LINEAR RELATIONSHIPS

Day 65

Day 65 Practice

Analyzing Graphs I

At Two Good Two Be Twoo, everything is \$2. The manager was out sick for a couple of days, and a new cashier charged \$1 for everything. Look at the sales graph below, and then answer questions 1–2.



1. What are the ordered pairs for each day shown on the graph?

Monday: _____ Wednesday: _____ Friday: _____

Tuesday: _____ Thursday: _____ Saturday: _____

2. Which day or days was the manager out sick? _____

continued

NAME: _____

UNIT 6 • LINEAR RELATIONSHIPS

Day 65

3. At Fivealicious, everything is \$5. A new manager had trouble keeping track of sales his first day. Use the function table below to answer the question.

Customer	Number of items (x)	Cost (y)
1	2	\$10
2	3	\$6
3	4	\$8
4	5	\$25
5	9	\$45

With which customers did the new manager make a mistake?

4. What is the **correct** cost of Customer 3's items? _____

5. List the **correct** ordered pairs for a graph of sales at Fivealicious.

UNIT 6 • LINEAR RELATIONSHIPS**Day 72****Day 72 Practice****Graphing $y = mx + b$**

Use the given values of m and b and the equation $y = mx + b$ to fill in the table for each problem. Then graph the line for each problem on the next page. Use a different color for each problem. The table and graph for the first problem are done for you.

1. $m = 1; b = 0$

$y = \underline{1}x + \underline{0}$

x	$1x + 0$	y
0	$1(0) + 0$	0
1	$1(1) + 0$	1
2	$1(2) + 0$	2
3	$1(3) + 0$	3
4	$1(4) + 0$	4
5	$1(5) + 0$	5

Line color: black

3. $m = 2; b = 3$

$y = \underline{\quad}x + \underline{\quad}$

x	$\underline{\quad}x + \underline{\quad}$	y
0		
1		
2		
3		
4		
5		

Line color: _____

5. $m = 3; b = 4$

$y = \underline{\quad}x + \underline{\quad}$

x	$\underline{\quad}x + \underline{\quad}$	y
0		
1		
2		
3		
4		
5		

Line color: _____

2. $m = 2; b = 4$

$y = \underline{\quad}x + \underline{\quad}$

x	$\underline{\quad}x + \underline{\quad}$	y
0		
1		
2		
3		
4		
5		

Line color: _____

4. $m = 3; b = 1$

$y = \underline{\quad}x + \underline{\quad}$

x	$\underline{\quad}x + \underline{\quad}$	y
0		
1		
2		
3		
4		
5		

Line color: _____

6. $m = 0; b = 5$

$y = \underline{\quad}x + \underline{\quad}$

x	$\underline{\quad}x + \underline{\quad}$	y
0		
1		
2		
3		
4		
5		

Line color: _____

continued

UNIT 6 • LINEAR RELATIONSHIPS

Day 75

Instruction

Four Forms of a Problem Transparency

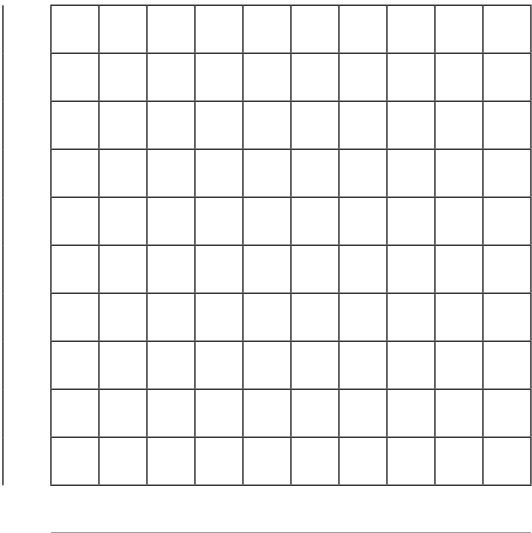
Verbal:

Algebraic: _____

Table:

_____ (x)	Function: _____	_____ (y)

Graph:



UNIT 6 • LINEAR RELATIONSHIPS

Day 75

Instruction

Day 75 Transparency—Four Forms of a Problem: Dollar Deals

Verbal:

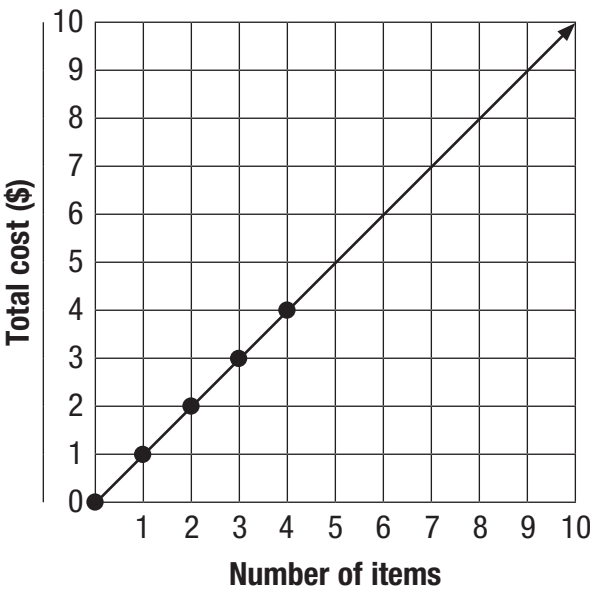
Welcome to Dollar Deals, where EVERYTHING is just \$1! No tax, no tricks, just \$1 per item. Let's go shopping!

Algebraic: $1 \cdot x = y$ OR $y = 1 \cdot x$ OR $y = x$ OR $y = 1 \cdot x + 0$

Table:

Number of items (x)	Function: _____	Total cost (y)
0		0
1		1
2		2
3		3
4		4

Graph:



UNIT 6 • LINEAR RELATIONSHIPS
Day 75

Day 75 Guided Practice

Four Forms of a Problem I

1. Use the information from the scenario to complete the remaining forms and answer the question.

Verbal:

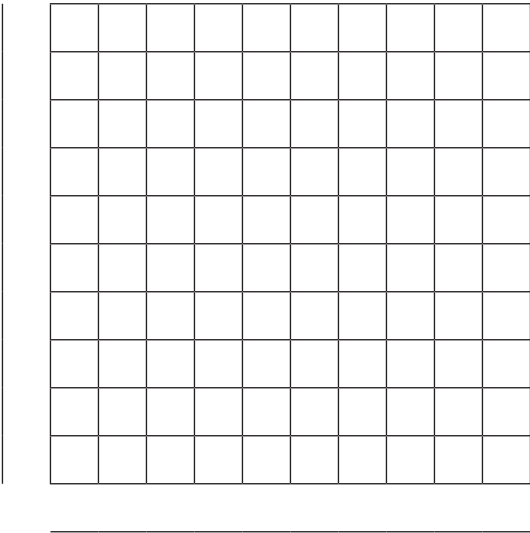
You and your friends are in a band and want to record a CD of your music. The company you want to hire charges \$300 for making the master and designing the art for the cover. It charges \$2.50 for burning each CD copy. How much will it cost you if you want to burn 5 copies?

Algebraic: _____

Table:

_____ (x)	Function: _____	_____ (y)

Graph:



Answer the question from the scenario in a complete sentence: _____

continued

NAME: _____

UNIT 6 • LINEAR RELATIONSHIPS

Day 75

2. Use the information from the scenario to complete the remaining forms and answer the questions.

Verbal:

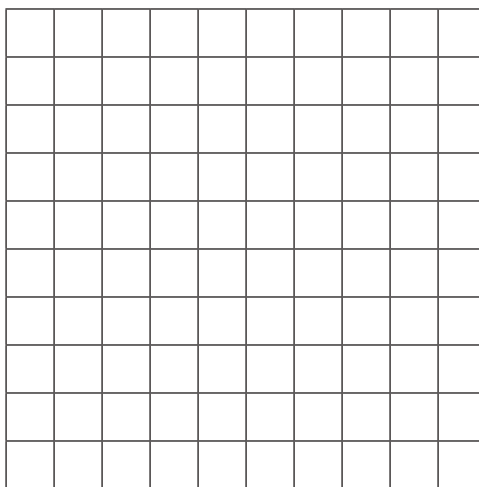
Larry is a creature of habit. Every day for lunch, he buys a cheeseburger, fries, and a soda. He spends \$4.75 on his lunch each day. How much does he spend each week? Each month?

Algebraic: _____

Table:

_____ (x)	Function: _____	_____ (y)

Graph:



Answer the questions from the scenario in a complete sentence: _____

continued

UNIT 6 • LINEAR RELATIONSHIPS
Day 75

3. Use the information from the scenario to complete the remaining forms and answer the question.

Verbal:

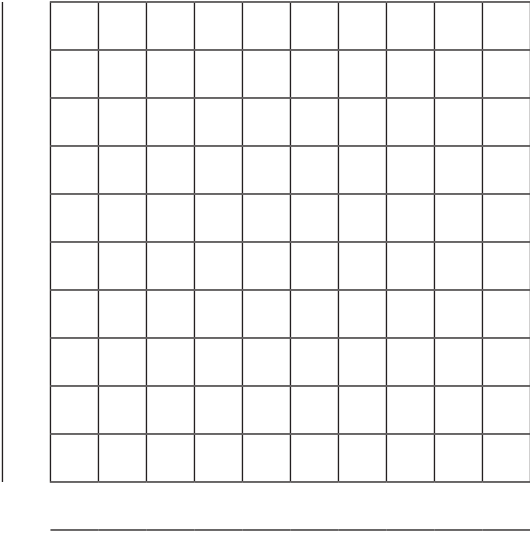
Tony’s mom gives him \$10 a week to spend on gas. Tony’s school is 5 miles from his house, and his truck gets about 15 miles to the gallon. With gas costing \$2.50 per gallon, Tony figures that he spends about \$1.50 each day driving to school and back. Does he have enough money to make it through the week without running out of gas?

Algebraic: _____

Table:

_____ (x)	Function: _____	_____ (y)

Graph:



Answer the question from the scenario in a complete sentence: _____

UNIT 6 • LINEAR RELATIONSHIPS
Day 75

Day 75 Group Activity

Missing Pieces, Set A, Problem 1

Use the information from the table to write a word problem, fill in the graph, and find the algebraic form.

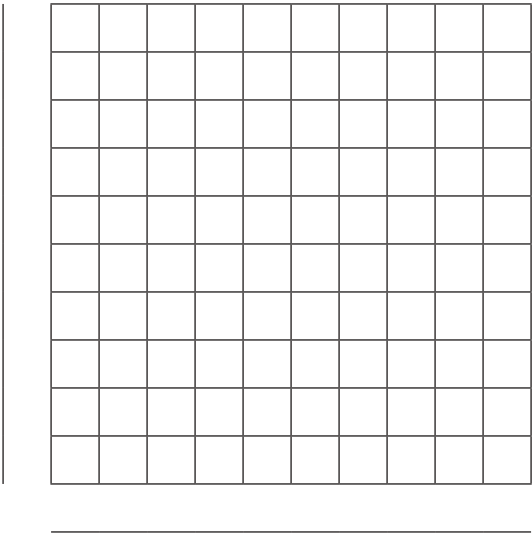
Verbal:

Algebraic: _____

Table:

_____ (x)	Function: _____	_____ (y)
0		2
2		6
4		10
6		14
8		18

Graph:



UNIT 6 • LINEAR RELATIONSHIPS
Day 75

Day 75 Group Activity

Missing Pieces, Set A, Problem 2

Use the algebraic form to write a word problem, fill in the table, and fill in the graph.

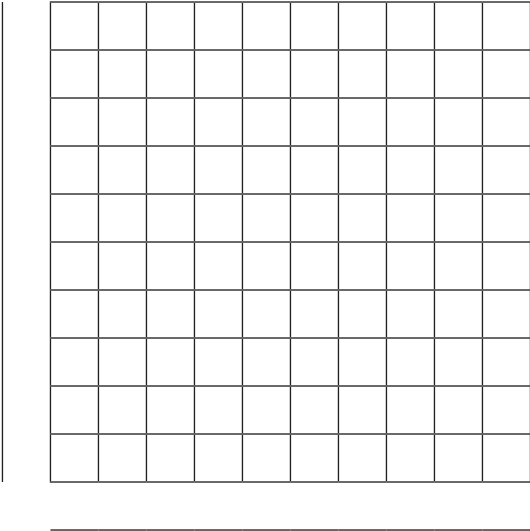
Verbal:

Algebraic: $y = x + 4$ _____

Table:

_____ (x)	Function: $y = x + 4$	_____ (y)

Graph:



UNIT 6 • LINEAR RELATIONSHIPS
Day 75

Day 75 Group Activity

Missing Pieces, Set A, Problem 3

Use the graph to write a word problem, write the algebraic form, and fill in the table.

Verbal:

Algebraic: _____

Table:

_____ (x)	Function: _____	_____ (y)

Graph:

