

Shelby County Schools  
Extended Learning Guide



**4th Grade**

**Prerequisite: Identify Equivalent Fractions**

**Study the example showing how to use a number line to find equivalent fractions. Then solve problems 1–8.**

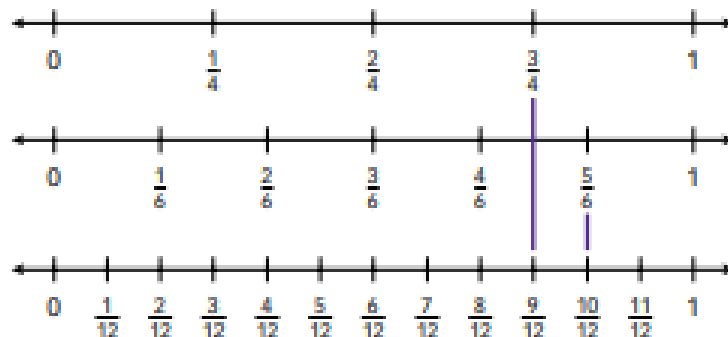
**Example**

Find a fraction equivalent to  $\frac{3}{4}$  and a fraction equivalent to  $\frac{5}{6}$ .

The number lines

show  $\frac{3}{4} = \frac{9}{12}$

and  $\frac{5}{6} = \frac{10}{12}$ .



- 1** Look at the number lines in the example above. Write each equivalent fraction.

$$\frac{8}{12} = \frac{\quad}{\quad} \quad \frac{2}{6} = \frac{\quad}{\quad} \quad \frac{3}{12} = \frac{\quad}{\quad} \quad \frac{1}{6} = \frac{\quad}{\quad}$$

- 2** Write three fractions equivalent to  $\frac{1}{2}$ . Use the number lines above to help you.

- 3** Fill in the missing numbers to find fractions equivalent to  $\frac{5}{4}$ .

$$\frac{5}{4} \times \frac{\square}{2} = \frac{\square}{8} \quad \frac{5}{4} \times \frac{\square}{\square} = \frac{\square}{16} \quad \frac{5}{4} \times \frac{10}{10} = \frac{\square}{40}$$

**Vocabulary****equivalent fractions**

two or more fractions that name the same part of a whole.



**Solve.**

- 4 Shade the model below to show  $\frac{2}{3}$ . Then divide the model to show  $\frac{2}{3} = \frac{4}{6}$ .



- 5 Look at problem 4. Explain how dividing the model shows the equivalent fractions  $\frac{2}{3} = \frac{4}{6}$ .

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- 6 Fill in the missing numbers to write equivalent fractions.

$$\frac{\square}{\square} \times \frac{2}{2} = \frac{2}{4} \quad \frac{\square}{3} \times \frac{\square}{\square} = \frac{8}{12} \quad \frac{\square}{\square} \times \frac{\square}{2} = \frac{10}{16}$$

- 7 Shade the model to show  $\frac{1}{2}$ . Then divide the model to show  $\frac{1}{2} = \frac{5}{10}$ .



- 8 Fill in the missing numbers to show that  $\frac{1}{2} = \frac{5}{10}$ .

$$\frac{1}{2} \times \frac{\square}{\square} = \frac{5}{10}$$

## Add Tenths and Hundredths Fractions

Study the example problem showing how to add tenths and hundredths fractions. Then solve problems 1–8.

**Example**

Jaden found  $\frac{8}{10}$  of a dollar in change in his backpack.

He found  $\frac{15}{100}$  of a dollar in change in his lunch bag.

What fraction of a dollar in change did he find altogether?

Multiply to find the hundredths fraction equivalent to  $\frac{8}{10}$ .

$$\frac{8}{10} = \left( \frac{8 \times 10}{10 \times 10} \right) = \frac{80}{100}$$

Add the hundredths fractions.

$$\frac{80}{100} + \frac{15}{100} = \frac{95}{100}$$

Jaden found  $\frac{95}{100}$  of a dollar in change.

- 1 Write  $\frac{2}{10}$  as an equivalent fraction with a denominator of 100.

$$\frac{2}{10} = \left( \frac{2 \times 10}{10 \times 10} \right) = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

- 2 Fill in the blanks to show how to find the sum of  $\frac{2}{10}$  and  $\frac{10}{100}$ .

$$\frac{\boxed{\phantom{00}}}{100} + \frac{10}{100} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

- 3 Look at problem 2.  $\frac{10}{100} = \frac{1}{10}$ . What is another way that you could show the sum of  $\frac{2}{10}$  and  $\frac{10}{100}$ ?

\_\_\_\_\_

- 4 Look at problems 2 and 3. Are the sums equivalent? Explain.

\_\_\_\_\_

\_\_\_\_\_



**Solve.**

Mila has 100 math problems to finish this week. She solved  $\frac{2}{10}$  of the problems on Monday and  $\frac{25}{100}$  of the problems on Tuesday.

- 5 Did Mila solve more problems on Monday or on Tuesday? Explain.

**Show your work.**

Solution: \_\_\_\_\_  
\_\_\_\_\_

- 6 What fraction of the math problems for the week did Mila solve on Monday and Tuesday?

**Show your work.**

Solution: \_\_\_\_\_

- 7 Look at problem 6. Is the sum you found greater or less than  $\frac{1}{2}$ ? Explain.

\_\_\_\_\_  
\_\_\_\_\_

- 8 Has Mila completed more than half of her math problems for the week? Explain.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Fractions as Tenths and Hundredths

Solve the problems.

- 1  $\frac{3}{10} + \frac{3}{100}$  is equal to which of the following?

Circle the letter for all that apply.

A  $\frac{33}{100}$

D  $\frac{30}{100} + \frac{3}{100}$

B  $\frac{6}{100}$

E  $\frac{3}{10} + \frac{3}{10}$

C  $\frac{60}{100}$

How many  
hundredths are in  
3 tenths?



- 2 Sylvia has \$100. She spent  $\frac{4}{10}$  of her money on a jacket and  $\frac{20}{100}$  of her money on jeans. What fraction of her money did Sylvia spend?

A  $\frac{60}{200}$

C  $\frac{6}{10}$

B  $\frac{24}{100}$

D  $\frac{6}{20}$

Josh chose **B** as the correct answer. How did he get that answer?

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There is more than  
one way to solve this  
problem.



- 3 Which is greater,  $\frac{6}{10}$  or  $\frac{6}{100}$ ? Explain.

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You can compare  
the numerators or  
draw a model to  
solve this problem.



**Solve.**

- 4** Tell whether each addition problem has a sum greater than  $\frac{1}{2}$ .

a.  $\frac{4}{10} + \frac{9}{100}$        Yes       No

b.  $\frac{1}{100} + \frac{5}{10}$        Yes       No

c.  $\frac{45}{100} + \frac{1}{10}$        Yes       No

d.  $\frac{25}{100} + \frac{3}{10}$        Yes       No

e.  $\frac{3}{10} + \frac{15}{100}$        Yes       No

What tenths and hundredths fractions are equivalent to  $\frac{1}{2}$ ?



- 5** Find the sum of  $\frac{2}{100} + \frac{20}{100} + \frac{2}{10}$ .

**Show your work.**

Solution: \_\_\_\_\_

Estimate the sum before solving this problem. Is the sum close to 1? Is it close to  $\frac{1}{2}$ ?



- 6** Owen received \$100 for his birthday. He wants to spend  $\frac{2}{10}$  of his money on a video game. He wants to spend  $\frac{55}{100}$  of his money on a skateboard. He wants to spend  $\frac{3}{10}$  of his money on comic books. What fraction of his birthday money does Owen want to spend? Does he have enough money? Explain.

**Show your work.**

Solution: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What fraction represents all the money that Owen received?



Ready® Center Activity 4.35 ★★

Tenths to Hundredths

What You Need

- 6 game markers in one color
- 6 game markers in a different color
- number cube
- Game Board



Check Understanding

What hundredths fraction is equivalent to  $\frac{7}{10}$ ?

What You Do

1. Take turns. Roll the number cube. Find the fraction next to that toss in the table. If you roll a 6, name any tenths fraction you like and find an equivalent hundredths fraction.
2. Mark one equivalent hundredths fraction on the **Game Board**. If there are no equivalent hundredths fractions for your fraction, your turn ends.
3. Your partner checks your work. If your answer is incorrect, remove your marker. Your turn ends.
4. The first player with three markers in a row wins.
5. Play again!

Toss	Fraction
1	$\frac{1}{10}$
2	$\frac{2}{10}$
3	$\frac{3}{10}$
4	$\frac{4}{10}$
5	$\frac{5}{10}$
6	Player's Choice

Go Further!

Write four different pairs of fractions from the **Game Board**, that have a sum of  $\frac{100}{100}$  or 1.





**Tenths to Hundredths**

$\frac{40}{100}$	$\frac{30}{100}$	$\frac{60}{100}$
$\frac{90}{100}$	$\frac{10}{100}$	$\frac{20}{100}$
$\frac{80}{100}$	$\frac{60}{100}$	$\frac{10}{100}$
$\frac{20}{100}$	$\frac{50}{100}$	$\frac{70}{100}$

I use multiplication to find a hundredths fraction that is equivalent to a tenths fraction.



**Ready® Mathematics**

**Lesson 20 Quiz**

**Solve the problems.**

**1** Tell whether each equation is *True* or *False*.

a.  $\frac{7}{10} + \frac{7}{100} = \frac{77}{100}$        True    False

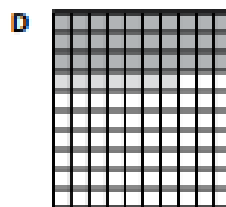
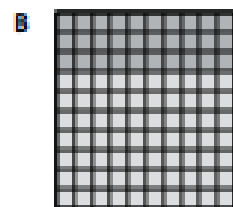
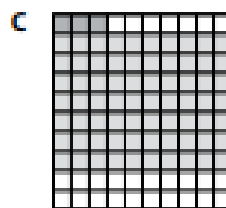
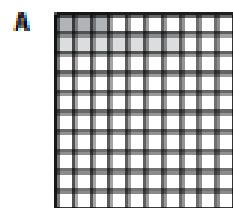
b.  $\frac{6}{100} + \frac{2}{10} = \frac{62}{100}$        True    False

c.  $\frac{9}{100} + \frac{3}{10} = \frac{93}{100}$        True    False

d.  $\frac{5}{10} + \frac{3}{100} = \frac{53}{110}$        True    False

**2** Alison buys  $\frac{3}{10}$  pound of cheese. Anthony buys  $\frac{70}{100}$  pound of cheese.

Which model represents the amount of cheese that Alison and Anthony buy altogether?



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

**Lesson 20 Quiz** *continued*

- 3 Marcus plants daffodils in  $\frac{6}{10}$  of his garden and sunflowers in  $\frac{11}{100}$  of his garden.

Write an addition equation to show how to find the total fraction of the garden in which Marcus plants daffodils and sunflowers.

$$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} = \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$$

- 4 Aiden paints  $\frac{4}{10}$  of a fence. Drew paints  $\frac{4}{100}$  of the same fence.

**Part A**

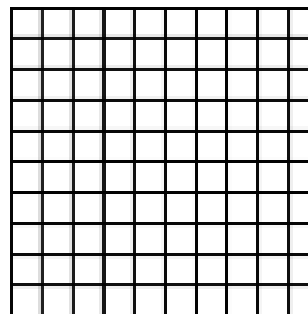
Drew says he paints more of the fence than Aiden. Which statement explains whether Drew is correct or not correct?

- A Drew is correct because  $\frac{4}{10}$  is less than  $\frac{4}{100}$  because the denominator 10 is less than the denominator 100.
- B Drew is correct because  $\frac{4}{100}$  is equivalent to  $\frac{40}{10}$  and  $\frac{40}{10}$  is more than  $\frac{4}{10}$ .
- C Drew is not correct because  $\frac{4}{10}$  is equivalent to  $\frac{4}{100}$ , so Drew and Aiden paint the same amount.
- D Drew is not correct because  $\frac{4}{10}$  is equivalent to  $\frac{40}{100}$  and  $\frac{40}{100}$  is more than  $\frac{4}{100}$ .

**Part B**

What fraction of the fence do Aiden and Drew paint in all?

Shade the model to show the fraction of the fence that they paint in all.



**Prerequisite:** Find Equivalent Fractions

Study the example showing how to identify equivalent fractions with denominators of 10 and 100. Then solve problems 1–5.

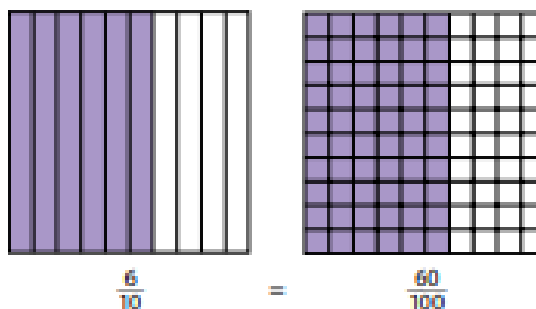
**Example**

Explain how  $\frac{6}{10} = \frac{60}{100}$ .

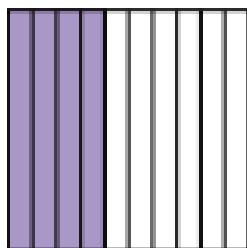
Use multiplication to find equivalent fractions.

$$\frac{6}{10} = \left( \frac{6 \times 10}{10 \times 10} \right) = \frac{60}{100}$$

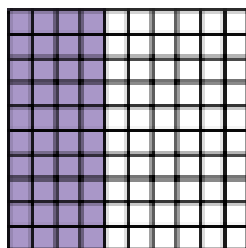
Use models to show equivalent fractions.



- 1 Write the fractions that the models below show.



\_\_\_\_\_



\_\_\_\_\_

- 2 Look at problem 1. Use multiplication to find the equivalent fractions.

\_\_\_\_\_

**Vocabulary****equivalent fractions**

two or more fractions that name the same part of a whole.



**Solve.**

- 3** Fill in the blanks with numbers and fractions to make true sentences.

a.  $\underline{\quad\quad} + \frac{15}{100} = \frac{55}{100}$

$\underline{\quad\quad}$  tenths +  $\underline{\quad\quad}$  hundredths = 55 hundredths.

b.  $\underline{\quad\quad} + \frac{4}{10} = \frac{55}{100}$

$\underline{\quad\quad}$  hundredths +  $\underline{\quad\quad}$  tenths = 55 hundredths.

c.  $\underline{\quad\quad} + \frac{5}{100} = \frac{55}{100}$

$\underline{\quad\quad}$  tenths +  $\underline{\quad\quad}$  hundredths = 55 hundredths.

d.  $\underline{\quad\quad} + \frac{25}{100} = \frac{55}{100}$

$\underline{\quad\quad}$  tenths +  $\underline{\quad\quad}$  hundredths = 55 hundredths.

Of the 100 students in the fourth grade, 70 students are girls.

- 4** Write a fraction in tenths and a fraction in hundredths to tell what fraction of the fourth-grade students are girls.

\_\_\_\_\_

- 5** Write a fraction in tenths and a fraction in hundredths to tell what fraction of the fourth-grade students are boys.

\_\_\_\_\_



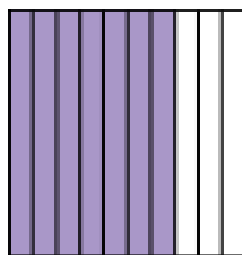
## Name the Same Amount

Study the example showing ways to name the same amount as a fraction and a decimal. Then solve problems 1–3.

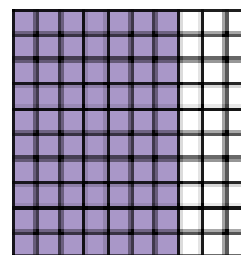
**Example**

How do you write decimals equivalent to  $\frac{7}{10}$  and  $\frac{70}{100}$ ?

The model shows  $\frac{7}{10}$ .



The model shows  $\frac{70}{100}$ .



A place-value chart shows the

value of  $\frac{7}{10}$  and  $\frac{70}{100}$ .

$$\frac{7}{10} = 0.7 \quad \frac{70}{100} = 0.70$$

Ones	.	Tenths	Hundredths
0	.	7	0

- 1 What decimal is equivalent to  $\frac{3}{10}$ ?

Fill in the place-value chart to show the decimal.

Ones	.	Tenths
	.	

- 2 What decimal is equivalent to  $\frac{55}{100}$ ?

Fill in the place-value chart to show the decimal.

Ones	.	Tenths	Hundredths
	.		

- 3 Write a decimal equivalent to  $\frac{75}{100}$ . \_\_\_\_\_

**Vocabulary**

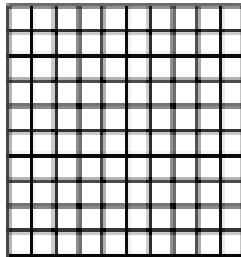
**decimal fraction (or decimal)** a number containing a decimal point that separates a whole from fractional place values, such as tenths and hundredths.

0.7 and 0.70 are decimals.



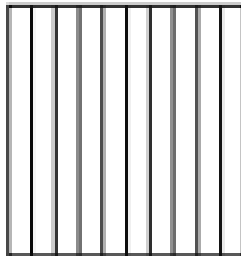
**Solve.**

- 4 What decimal is equivalent to  $\frac{80}{100}$ ? Shade the model below to show the fraction and the decimal. Then write the decimal.



$$\frac{80}{100} = \underline{\hspace{2cm}}$$

- 5 Look at problem 4. Shade the model below to show an equivalent tenths fraction and decimal. Then write the fraction and decimal.



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

- 6 Use what you know about equivalent fractions to explain why 0.8 and 0.80 are equivalent.

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- 7 Find the sum of  $\frac{80}{100}$  and  $\frac{20}{100}$ . Then use what you know about equivalent fractions to explain why  $0.8 + 0.2 = 1$ .

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## Write a Decimal as an Equivalent Fraction

Study the example problem showing how to write a decimal as an equivalent fraction. Then solve problems 1–8.

**Example**

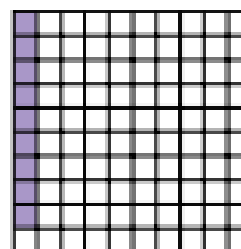
Alanna has an assortment of books in her bookcase. 0.09 of her books are comic books. What fraction of the books are comic books?

**Decimal:** 0.09

**Words:** 9 hundredths

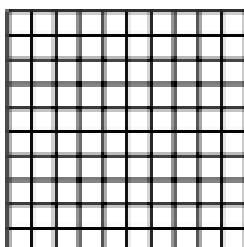
**Fraction:**  $\frac{9}{100}$

$\frac{9}{100}$  of the books are comic books.



Ones	.	Tenths	Hundredths
0	.	0	9

- 1 Shade the model below to show 0.34.



- 2 Show 0.34 in a place-value chart.

Ones	.	Tenths	Hundredths
	.		

- 3 Write 0.34 in words. \_\_\_\_\_

- 4 Write 0.34 as a fraction. \_\_\_\_\_





Solve.

5 Tell whether each number sentence is *True* or *False*.

a.  $0.3 = \frac{3}{100}$        True     False

b.  $0.03 = \frac{3}{100}$        True     False

c.  $0.3 = \frac{30}{100}$        True     False

d.  $0.3 = \frac{3}{10}$        True     False

6 Write two equivalent fractions to 0.3.

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7 Which of the following names the same number as 0.62? Circle the letter for all that apply.

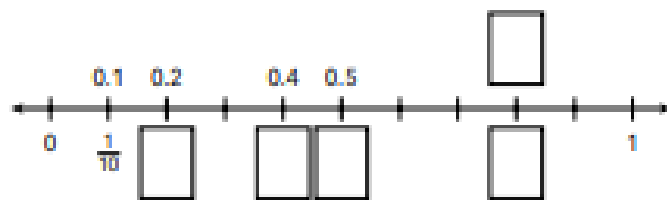
A sixty-two hundredths

B six tenths and 2 hundredths

C  $\frac{62}{10}$

D  $\frac{62}{100}$

8 The number line below shows 1 whole divided into tenths. Write numbers in the boxes to label the missing fractions and decimal. Explain how you know what numbers to write.



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## Relate Decimals and Fractions

Solve the problems.

- 1 What is 0.5 written as a fraction?  
Circle the letter for all that apply.

- A  $\frac{5}{100}$   
B  $\frac{5}{10}$   
C  $\frac{50}{100}$   
D  $\frac{50}{10}$

How can you say the decimal in words?



- 2 Rita correctly answered 9 questions out of 10 on a test. What fraction of the test questions did Rita answer incorrectly?

- A  $\frac{9}{10}$   
B  $\frac{9}{100}$   
C  $\frac{1}{10}$   
D  $\frac{1}{100}$

What fraction represents all the questions?



Patrick chose **A** as the correct answer. How did he get that answer?

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**Solve.**

- 3** Austin bought an eraser for 65 cents and a pencil for 20 cents. What fraction of a dollar did he spend? Write the fraction as a decimal.

**Show your work.**

What fraction of a dollar is 1 cent?



**Solution:** \_\_\_\_\_

- 4** Tell whether each number below is equivalent to  $\frac{15}{100}$ .

- a. fifteen hundredths  Yes  No
- b. 1.5  Yes  No
- c.  $\frac{15}{10}$   Yes  No
- d. 0.15  Yes  No

How do you write this fraction in words and as a decimal?



- 5** Mackenzie has 1 dollar, 2 dimes, and 3 pennies. Jorge has only dimes and pennies but has the same amount of money as Mackenzie. How many dimes and pennies could Jorge have?

**Show your work.**

Can you represent the value of a dollar, a dime, and a penny as fractions or decimals to help you solve this problem?



**Solution:** \_\_\_\_\_

## Modeling Decimals and Fractions

### What You Need

- Recording Sheet



### Check Understanding

What is 0.05 written as a fraction?

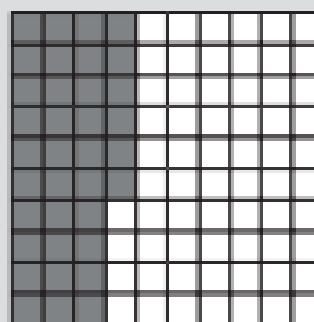
### What You Do

1. Take turns. Choose a decimal on the **Recording Sheet**. Read the decimal aloud.
2. Your partner shades the model to show the decimal.
3. Write the decimal as a fraction.
4. Your partner checks your work.
5. Continue until all the models on the **Recording Sheet** are complete.

### Example

0.36

Say: thirty-six hundredths



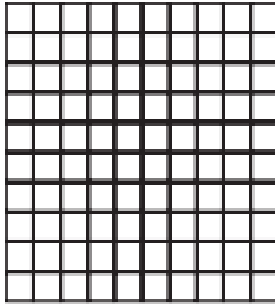
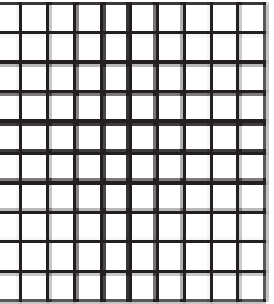
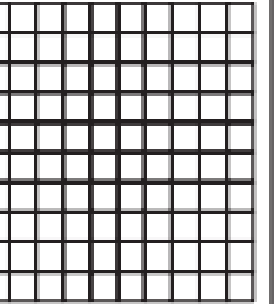
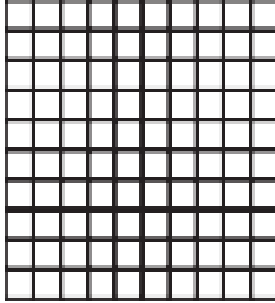
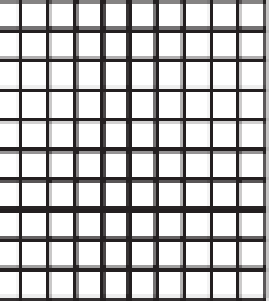
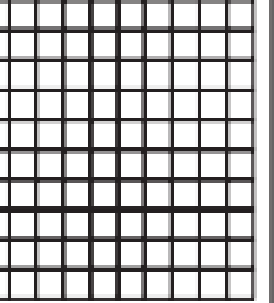
$\frac{36}{100}$

### Go Further!

Choose a model on the **Recording Sheet**. Shade more of the model to show a different decimal. Ask your partner to write the new decimal and the equivalent fraction.



**Modeling Decimals and Fractions**

<p><b>0.72</b></p>  <p>_____</p>	<p><b>0.8</b></p>  <p>_____</p>	<p><b>0.03</b></p>  <p>_____</p>
<p><b>0.1</b></p>  <p>_____</p>	<p><b>0.09</b></p>  <p>_____</p>	<p><b>0.65</b></p>  <p>_____</p>

Each small square on the model is one hundredth. That can be written as a decimal, 0.01, or as a fraction,  $\frac{1}{100}$ .



## Compare Decimals

Name: \_\_\_\_\_

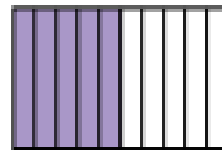
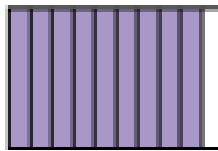
## Prerequisite: Compare Fractions

Study the example showing ways to compare fractions. Then solve problems 1–6.

**Example**Compare  $\frac{9}{10}$  and  $\frac{5}{10}$ .The model shows  $\frac{9}{10}$ .The model shows  $\frac{5}{10}$ .

Use models.

$$\frac{9}{10} > \frac{5}{10}$$

Use a number line and the fraction  $\frac{1}{2}$  as a benchmark.

$$\frac{9}{10} > \frac{5}{10}$$



$$\frac{9}{10} > \frac{1}{2} \text{ and } \frac{5}{10} = \frac{1}{2}$$

- 1 Label  $\frac{2}{10}$  and  $\frac{6}{10}$  on the number line below.

Write a symbol to compare the two fractions.

$$\frac{2}{10} \text{ — } \frac{6}{10}$$



- 2 Look at problem 1. Explain how to use the fraction  $\frac{1}{2}$  as a benchmark to compare  $\frac{2}{10}$  and  $\frac{6}{10}$ .

- 3 Label  $\frac{10}{10}$  and  $\frac{8}{10}$  on the number line below.

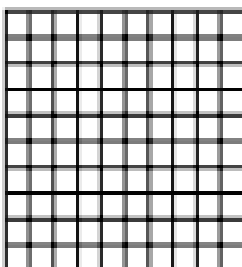
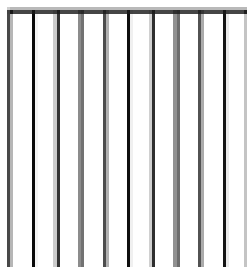
Write a symbol to compare the two fractions.

$$\frac{10}{10} \text{ — } \frac{8}{10}$$



**Solve.**

- 4 Shade and label the models below to show  $\frac{3}{10}$  and  $\frac{3}{100}$ .  
Write a symbol to compare the fractions.  $\frac{3}{10}$  \_\_\_\_\_  $\frac{3}{100}$



\_\_\_\_\_

\_\_\_\_\_

- 5 Use the symbols  $<$ ,  $>$ , and  $=$  to compare the fractions.

a.  $\frac{5}{10}$  \_\_\_\_\_  $\frac{50}{100}$

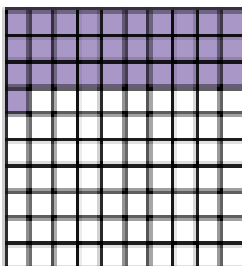
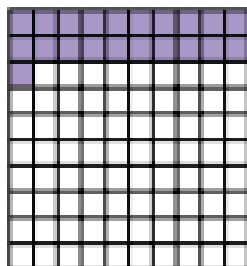
b.  $\frac{4}{10}$  \_\_\_\_\_  $\frac{4}{100}$

c.  $\frac{11}{10}$  \_\_\_\_\_  $\frac{12}{10}$

d.  $\frac{62}{100}$  \_\_\_\_\_  $\frac{6}{10}$

e.  $\frac{9}{100}$  \_\_\_\_\_  $\frac{9}{10}$

- 6 Write the fraction that each model shows. Explain which fraction is greater.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## Compare Hundredths Decimals

Study the example problem showing how to compare hundredths decimals to solve a problem. Then solve problems 1–7.

**Example**

Jacob bought an apple and a pear. The apple weighed 0.33 of a pound.

The pear weighed 0.35 of a pound. Which piece of fruit weighed less?

Write equivalent fractions.

The denominators are the same.

Compare numerators.  $33 < 35$ .

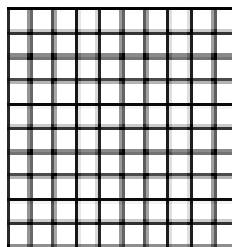
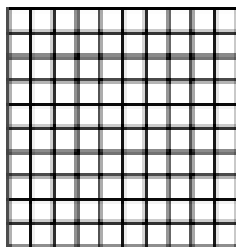
$0.33 < 0.35$

The apple weighed less than the pear.

$$0.33 = \frac{33}{100} \quad 0.35 = \frac{35}{100}$$

same denominator

- 1 Shade and label the models below to show 0.33 and 0.35.



- 2 Explain how the models show which decimal is less. \_\_\_\_\_
- \_\_\_\_\_

- 3 Complete the place-value chart to show 0.33 and 0.35.

Ones	.	Tenths	Hundredths
	.		
	.		

- 4 Explain how the place-value chart shows which decimal is less. \_\_\_\_\_
- \_\_\_\_\_





**Solve.**

- 5 Use the digits in the tiles below to create decimals that make each inequality true.

0 1 2 3 4 5

- a.  $0.21 > 0.2\boxed{\phantom{0}}$
- b.  $0.46 < 0.\boxed{\phantom{0}}6$
- c.  $0.99 < \boxed{\phantom{0}}.00$
- d.  $0.7\boxed{\phantom{0}} > 0.7\boxed{\phantom{0}}$
- 6 Write the symbol ( $>$ ,  $<$ ,  $=$ ) that makes each statement below true.
- a.  $0.85 \underline{\hspace{1cm}} 0.82$
- b.  $0.09 \underline{\hspace{1cm}} 0.10$
- c.  $0.45 \underline{\hspace{1cm}} 0.54$
- d.  $1.10 \underline{\hspace{1cm}} 1.01$
- e.  $0.30 \underline{\hspace{1cm}} 0.3$
- 7 Ryder bought 0.75 pound of turkey and 0.57 pound of cheese. Did he buy more turkey or cheese?  
**Show your work.**

Solution: \_\_\_\_\_

## Compare Tenths and Hundredths Decimals

Study the example problem showing how to compare tenths and hundredths decimals. Then solve problems 1–6.

**Example**

Colin lives 0.6 mile from school and 0.65 mile from the park. Which place is closer to his home?

Write each decimal as an equivalent fraction.

$$0.6 = \frac{6}{10} \quad 0.65 = \frac{65}{100}$$

Write the tenths fraction as a hundredths fraction.

$$\frac{6}{10} = \frac{60}{100}$$

Compare hundredths fractions.

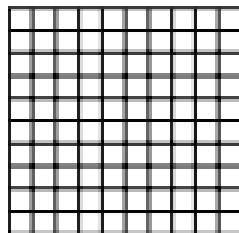
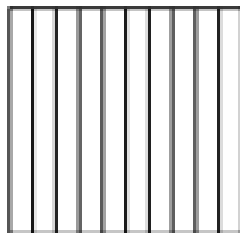
$$\frac{60}{100} < \frac{65}{100}$$

$$0.6 < 0.65$$

The school is closer to his home.

Lucas bought 0.6 pound of fish and 0.85 pound of shrimp to make a stew.

- 1 Shade the models below to compare 0.6 and 0.85.



- 2 Write a symbol to compare the decimals.  $0.6$  \_\_\_\_\_  $0.85$

- 3 Did Lucas buy more fish or shrimp?

Use equivalent fractions to explain your answer.

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**Solve.**

- 4 Compare 0.2 and 0.25 using  $>$ ,  $=$ , or  $<$ . Use equivalent fractions to explain your answer.

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- 5 Compare 0.09 and 0.1 using  $>$ ,  $=$ , or  $<$ . Use a place-value chart to explain your answer.

Ones	.	Tenths	Hundredths
	.		
	.		

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- 6 Write the decimals 1.00, 0.20, and 0.03 in the place-value chart below. Which number is the greatest? Which number is the least? Use equivalent fractions to explain.

Ones	.	Tenths	Hundredths
	.		
	.		
	.		

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## Compare Decimals

Solve the problems.

- 1 Which decimal is less than 0.35?

A 0.5                      C 0.36  
 B 0.29                     D 0.53

Do you compare the tenths or hundredths place?



- 2 Which is the greatest—0.19, 1.00, 0.91, or 0.02?

A 0.02                      C 0.91  
 B 0.19                      D 1.00

Sadie chose **B** as the correct answer. How did she get that answer?

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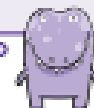


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A place-value chart can help you compare decimals.



- 3 Classify each decimal below as less than half, equal to half, or greater than half, by writing each decimal in the correct column of the chart.

0.05   0.52   0.25   0.48   0.9   0.50   0.6   1.05

Less than Half	Equal to Half	Greater than Half

You can think about half as the benchmark fraction  $\frac{1}{2}$  to help solve this problem.



**Solve.**

- 4** Milk costs \$0.50 and juice costs \$0.55. Which costs less, milk or juice?

**Show your work.**

Which place value do you compare first?



Solution: \_\_\_\_\_

- 5** Julie has 2 dollars to spend on lunch. A slice of pizza is \$2.25. A sandwich is \$2. A bowl of soup is \$1.95. What can Julie buy for lunch? Explain your answer.

**Show your work.**

Think of each price as a decimal. Then compare each price to the amount of money Julie has.



Solution: \_\_\_\_\_

\_\_\_\_\_

## Ready® Center Activity 4.39 ★★

### Comparing Decimals

#### What You Need

- grid paper (square)
- Recording Sheet



#### Check Understanding

Write  $<$ ,  $=$ , or  $>$  to compare the decimals and explain your answer.

0.5 \_\_\_\_\_ 0.53

#### What You Do

1. Take turns. Choose a pair of decimals on the **Recording Sheet**.
2. Use any method to compare the decimals. Use the grid paper if making decimal models to compare. Explain your answer to your partner.
3. Your partner uses a different method to check your work.
4. If your work is correct, you score 1 point, and write  $<$ ,  $=$ , or  $>$  on the **Recording Sheet**. If it is incorrect, your turn ends.
5. The player with the greater number of points after four rounds wins. If there is a tie, the player who compared the greatest decimal wins.

*Sometimes I draw a model to compare decimals. Other times I use a place-value chart or equivalent fractions.*



#### Go Further!

Write three different expressions comparing two decimals using  $<$ ,  $=$ , or  $>$  such as  $0.51 > 0.15$ . Your partner tells whether each expression is true or false. Check your partner's work.



**Comparing Decimals**

$0.02$ _____ $0.1$ _____	$0.73$ _____ $0.37$ _____
$9.90$ _____ $9.9$ _____	$0.8$ _____ $0.3$ _____
$0.49$ _____ $0.4$ _____	$5.63$ _____ $5.68$ _____
$0.79$ _____ $0.9$ _____	$3.6$ _____ $3.60$ _____

**Prerequisite:** Multiply with Measurements

**Study the example showing how to use multiplication to solve a measurement problem. Then solve problems 1–5.**

**Example**

Kian filled 5 pitchers with water. Each pitcher holds 2 liters. How many liters of water did Kian use to fill the pitchers?



The picture shows that  
 $2 + 2 + 2 + 2 + 2 = 10$ .

Kian used 10 liters of water.

1 pitcher

2

5 pitchers

2 2 2 2 2

10

The bar model shows multiplication  
 as a comparison,  $5 \times 2 = 10$ .

- 1** Yvonne's house has 4 bedrooms. It takes 1 gallon of paint to paint each bedroom. How many gallons of paint are needed to paint all 4 bedrooms? Show how to add or multiply to find the answer.

- 2** One granola bar has 5 grams of protein. A package has 6 granola bars. How many grams of protein are in a package? Draw a bar model to show how to find the answer.

Solution: \_\_\_\_\_





**Solve.**

- 3 Miranda's family brought 3 large coolers full of lemonade to the family picnic. Each cooler contains 8 liters of lemonade. How much lemonade did the family bring to the picnic?

**Show your work.**

*Solution:* The family brought \_\_\_\_\_ of lemonade.

- 4 The table below shows the number of grams of sugar in a 1-cup serving of each kind of fruit.

Fruit	Strawberries	Apples	Bananas
Grams of sugar in a 1-cup serving	7 g	13 g	18 g

- a. How many grams of sugar are in 3 cups of strawberries?

\_\_\_\_\_

- b. How many grams of sugar are in 2 cups of apples?

\_\_\_\_\_

- c. Are there more grams of sugar in 3 cups of strawberries or 2 cups of apples? Explain.

\_\_\_\_\_

\_\_\_\_\_

- 5 Look at the table in problem 4. Madeleine made a strawberry-banana smoothie to share with her friends. She put 4 cups of strawberries and 2 cups of bananas in a blender. How many total grams of sugar are in the smoothie?

**Show your work.**

*Solution:* \_\_\_\_\_

## Estimate with Units of Weight and Mass

Study the example showing how to find an approximate weight in grams. Then solve problems 1–6.

**Example**

A baker sells a kilogram of dinner rolls to a restaurant. The kilogram of rolls is packaged in 4 bags, with about 10 rolls in each bag. About how much does a dinner roll weigh, in grams?

There are 1,000 grams in a kilogram. If there are 4 bags of rolls and each bag holds about 10 rolls, there are about 40 rolls. Divide 1,000 grams by 40 to find the approximate the weight of one roll.

$$1,000 \div 40 = 25$$

Each roll weighs about 25 grams.

- 1 What other object can you think of that weighs about 25 grams?

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- 2 About how much does each bag of rolls weigh?

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- 3 Would you estimate that a full water bottle weighs closer to 1 kilogram, 250 grams, or 25 grams? Explain your answer.

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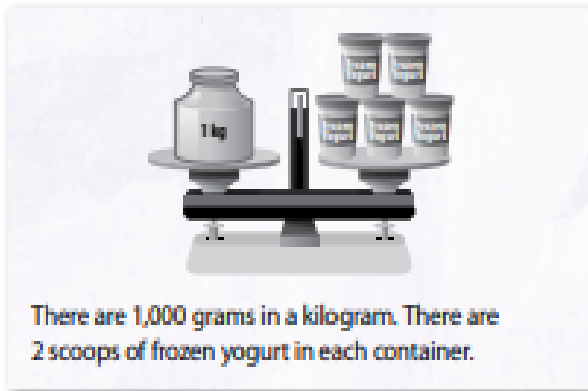
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**Solve.**



- 4 About how many grams are in each scoop of frozen yogurt? Explain your answer.

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- 5 How many kilograms would equal 30 scoops of frozen yogurt? Explain your answer.

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- 6 Four coins weigh about 1 ounce. There are 16 ounces in a pound. About how many coins equal 1 pound? Explain your answer.

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## Convert Units of Weight and Mass

Study the example showing how to convert from a larger unit to a smaller unit of weight and mass. Then solve problems 1–7.

**Example**

Eleanor bought a 3-pound watermelon and 32 ounces of strawberries. How much more does the watermelon weigh than the strawberries?

$$1 \text{ pound (lb)} = 16 \text{ ounces (oz)}$$

Write an expression to convert pounds to ounces.

$$p \times 16$$

Let  $p$  stand for the number of pounds.

Find the weight of the watermelon in ounces.

Substitute 3 for  $p$ .

The watermelon weighs 48 ounces.

$$3 \times 16 = 48$$

$$48 - 32 = 16$$

The watermelon weighs 16 ounces more than the strawberries.

- 1 John has a watermelon with a mass of 3 kilograms. Complete the bar model. Then write the mass of the watermelon in grams.

3 kilograms (kg)		
1 kg	1 kg	
1,000 g	1,000 g	

\_\_\_\_\_ grams (g)

- 2 Write an expression that shows how to convert kilograms to grams. Use  $K$  to stand for the number of kilograms.

\_\_\_\_\_

- 3 Convert the units of mass.

$$2 \text{ kg} = \text{_____ g} \quad 4 \text{ kg} = \text{_____ g}$$

**Vocabulary**

**convert** to change from one unit to another unit.

$$1 \text{ kilogram} = 1,000 \text{ grams}$$

↑  
unit

↑  
unit



**Solve.**

- 4 Complete the table to convert from a larger unit to a smaller unit of weight.

<b>Pounds (lb)</b>	1	2	3	4	5	6	7
<b>Ounces (oz)</b>	16		48				112

- 5 Neil brought 2 pounds of grapes for fruit salad at the class picnic. There are 8 ounces of grapes left. How many ounces of grapes were used? Look at the table in problem 4 to help you answer the question.

**Show your work.**

Solution: \_\_\_\_\_

- 6 Choose *Yes* or *No* to tell whether the given weight is equal to 6 pounds.

- a. 22 ounces       Yes     No
- b. 96 ounces       Yes     No
- c. 4 pounds, 32 ounces     Yes     No
- d. 5 pounds, 16 ounces     Yes     No

- 7 An adult bottlenose dolphin has a mass of 200 kilograms. What is the mass of an adult bottlenose dolphin in grams?

1 kilogram = 1,000 grams

**Show your work.**

Solution: \_\_\_\_\_

## Estimate with units of length and liquid volume.

Study the example showing how to estimate the number of feet in a yard. Then solve problems 1–7.

**Example**

Celeste has a belt that is 1 yard long. She wonders how many feet long the belt is. How can she find how many feet are in 1 yard?

(Note that the dollar, rulers, and belt are smaller than actual size.)

You can use the benchmark of a dollar bill to estimate how many feet long the belt is.

A dollar bill is about 6 inches, or  $\frac{1}{2}$  foot.



Two dollar bills are about 1 foot long. The 1-yard belt is about 6 dollar bills long.


One yard is 3 feet.

- 1 Kenny estimates that his kitchen table is about as long as 8 dollar bills. About how long is his table?  
\_\_\_\_\_ feet
- 2 What object can you think of that measures about 1 yard?  
\_\_\_\_\_
- 3 About how many dollar bills could you line up along the length of your pillow? What is the approximate length of the pillow?  
\_\_\_\_\_



**Solve.**

A large water bottle holds about a quart. A large water glass holds about a pint. A juice glass holds about a cup.



1 quart      1 pint      1 cup

Use the benchmark measures to answer questions 4–6.

- 4** There are \_\_\_\_\_ cups in a pint.  
There are \_\_\_\_\_ pints in a quart.  
There are \_\_\_\_\_ cups in a quart.
- 5** How many cups are in 2 quarts? Explain your answer.

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- 6** A pint holds 16 ounces of liquid. How many ounces are in a quart? How many ounces are in a cup?

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- 7** Farmer Jen bottle-feeds the new goat 2 quarts of milk each day.
- a** How many cups of milk does the goat drink in 4 days? \_\_\_\_\_
- b** How many pints does the goat drink in 1 week? Explain your answer.

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## Convert Units of Liquid Volume

Study the example showing how to convert from a larger unit to a smaller unit of liquid volume. Then solve problems 1–7.

**Example**

Josie made 4 quarts of iced tea for a family picnic.

Her sister made 14 cups of punch for the picnic.

Who made a greater amount of beverages?

Use a table to convert

quarts to cups.

Josie made 4 quarts, or 16 cups of iced tea.

$16 > 14$

Josie made a greater amount of beverages.

<b>Quarts</b>	1	2	3	4	5
<b>Cups</b>	4	8	12	16	20

1 quart = 4 cups

- 1 The soccer coach has a container that holds 5 liters of water. How many milliliters of water does the container hold?

Fill in the table to answer the question.

<b>Liters (L)</b>	1	2	3	4	5
<b>Milliliters (mL)</b>	1,000		3,000		

The container holds \_\_\_\_\_ of water.

- 2 Write an expression that shows how to convert liters to milliliters. Use  $L$  to stand for the number of liters.

\_\_\_\_\_

- 3 Convert the units of liquid volume.

$$6 \text{ L} = \underline{\hspace{2cm}} \text{ mL} \quad \frac{1}{2} \text{ L} = \underline{\hspace{2cm}} \text{ mL}$$

**Vocabulary**

**convert** to change from one unit to another unit.

1 liter = 1,000 milliliters

↑  
unit

↑  
unit





**Solve.**

- 4 Carla had 2 liters of juice to share. She and her 3 friends each drank an equal amount of the juice. How many milliliters of juice did each friend have?

1 liter = 1,000 milliliters

**Show your work.**

Solution: \_\_\_\_\_

- 5 Theo filled up a 3-liter watering can to water the garden. He has 750 milliliters of water left in the watering can. How many milliliters of water did Theo use?

**Show your work.**

Solution: \_\_\_\_\_

- 6 A small bottle contains 2 cups of juice. Do 5 small bottles of juice have a greater amount of juice than a 1-quart bottle of juice? Explain.

1 quart = 4 cups

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- 7 Rachel has a 4-liter jug of water. She fills 3 small vases each with 900 mL of water. How much water does she use? How much water is left in the jug?

**Show your work.**

Solution: \_\_\_\_\_



## Convert Measurements

Solve the problems.

**1** How many weeks are in 2 years?

- A** 26 weeks                      **C** 54 weeks  
**B** 52 weeks                      **D** 104 weeks

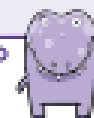
There are 52 weeks  
in a year.

**2** How many cups of milk are in 8 quarts?

- A** 2 cups  
**B** 12 cups  
**C** 16 cups  
**D** 32 cups

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

Which is the larger  
unit, quarts or cups?



Jeff chose **A** as the correct answer. How did he get that answer?

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**3** Stacia buys 6 yards of ribbon to make a costume. She has 2 feet of ribbon left over. How many feet of ribbon did Stacia use to make the costume?**Show your work.**

$$1 \text{ yard} = 3 \text{ feet}$$

You can write an  
equation to show the  
relationship between  
yards and feet.



**Solution:** \_\_\_\_\_



**Solve.**

- 4 Each stick of butter is 4 ounces. A bakery's cookie recipe calls for 3 cups of butter. How many sticks of butter do they need for the recipe?

- A 5 sticks of butter      C 7 sticks of butter  
B 6 sticks of butter      D 8 sticks of butter

8 ounces = 1 cup



- 5 Jason is 5 foot 11 inches tall. Amy is 63 inches tall. Who is taller and by how much?

1 foot = 12 inches

**Show your work.**

Do you compare the heights in inches or feet?



Solution: \_\_\_\_\_

- 6 How many 250 mL glasses can be filled with 2 L of water?

1 liter = 1,000 milliliters

**Show your work.**

A picture or a table can help you understand and solve this problem.



Solution: \_\_\_\_\_

## Using Tables to Convert Measurements

### What You Need

- Recording Sheet

### Check Understanding

A pumpkin has a mass of 4 kilograms. What is the mass of the pumpkin in grams?

(1 kilogram = 1,000 grams)

### What You Do

1. Take turns. Choose a problem on the **Recording Sheet**.
2. Complete the table to show how many smaller measurement units are equivalent to the number of larger units.
3. Use the table to convert the measurement from the larger unit to the smaller unit.
4. Your partner checks your work.
5. Repeat until all the conversions problems are complete.

*Converting a measurement from a larger unit to a smaller unit gives me more units. Knowing this helps me decide what operation to use.*



### Go Further!

On a separate sheet of paper, write a problem about converting minutes to seconds (1 minute = 60 seconds). Your partner makes a table to solve the problem. Check each other's work.



**Using Tables to Convert Measurements**

5 liters = \_\_\_\_\_ milliliters

Liters (L)	1	2	3	4	5	6	7
Milliliters (mL)	1,000						

7 feet = \_\_\_\_\_ inches

Feet (ft)	1	2	3	4	5	6	7
Inches (in.)	12						

6 hours = \_\_\_\_\_ minutes

Hours (hr)	1	2	3	4	5	6	7
Minutes (min)	60						

7 meters = \_\_\_\_\_ centimeters

Meters (m)	1	2	3	4	5	6	7
Centimeters (cm)	100						

**Prerequisite:** Solve Problems About Money and Time

Study the example showing how to solve a word problem about money. Then solve problems 1–5.

**Example**

Ronan has 2 dollar bills, 2 quarters, 3 dimes, 2 nickels, and 2 pennies in his wallet. How much money does Ronan have in his wallet?



\$2.00

+

Skip count to find the value of the coins.



Or use multiplication and addition to find the value of the coins.

$$50¢ + 30¢ + 10¢ + 2¢ = 92¢$$

92¢

$$\left\{ \begin{array}{l} 2 \text{ quarters: } 2 \times 25¢ = 50¢ \\ 3 \text{ dimes: } 3 \times 10¢ = 30¢ \\ 2 \text{ nickels: } 2 \times 5¢ = 10¢ \\ 2 \text{ pennies: } 2 \times 1¢ = 2¢ \end{array} \right.$$

$$\$2.00 + 92¢$$

Ronan has \$2.92 in his wallet.

- 1 Fill in the blanks below with numbers to show different ways to make 50 cents with quarters, dimes, and nickels.



$$\underline{\quad}¢ + \underline{\quad}¢ = 50¢ \quad \underline{\quad} \times 10¢ = 50¢$$



$$\underline{\quad} \times 5¢ = 50¢$$

$$50¢ = \underline{\quad} \text{ quarters} = \underline{\quad} \text{ dimes} = \underline{\quad} \text{ nickels}$$

- 2 Look at problem 1. Use words and numbers to explain a different way to make 50 cents with a quarter, dimes, and nickels.

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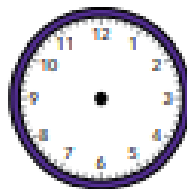


**Solve.**

- 3 Daphne woke up at 7:15. It took her 15 minutes to dress and brush her teeth. She ate breakfast for 20 minutes. Then it took 5 minutes for her to walk to the bus stop and wait for the bus to arrive. What time did the bus arrive?

The clock below shows the start time at 7:15 when Daphne woke up. Draw and label arrows on the clock to show how to find the end time when the bus arrived.

Draw hands on the clock below to show the end time when the bus arrived.



- 4 Evan got to the practice field at 8:00. He stretched for 15 minutes. He did sprints for 30 minutes. Then he did practice drills for 25 minutes. What time did Evan finish practice drills? Complete and label the jumps on the number line to find the end time.

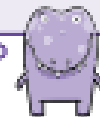


Evan finished practice drills at \_\_\_\_\_.

- 5 Kurt got home at 4:00. He did homework for 25 minutes and played outside for 20 minutes. Then he read a book for 15 minutes before dinner. What time was dinner?

**Show your work.**

There are 60 minutes in 1 hour.



**Solution:** \_\_\_\_\_

## Solve Problems About Time

Study the example showing how to solve a problem about time. Then solve problems 1–6.

**Example**

Amy had 1 hour to do activities. She talked on the phone for 5 minutes. She rode her bike for 15 minutes. She played a game with her brother for 25 minutes. How much time did Amy have left to spend painting a picture?

Amy had 60 minutes to do activities.

$$1 \text{ hour} = 60 \text{ minutes}$$

Add the minutes for the known activities.

$$5 + 15 + 25 = 45 \text{ minutes}$$

Write an equation to find how much time

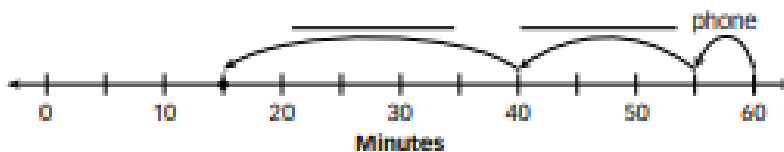
$$45 + P = 60 \text{ or } P = 60 - 45$$

Amy had left to paint a picture.

$$P = 15 \quad P = 15$$

Amy had 15 minutes left to paint a picture.

- 1 Complete the labels on the number line to represent the example problem.



- 2 Look at the number line in problem 1. What does the dot at 15 represent?

- 3 Milo visited an amusement park for 3 hours. He rode rides for 50 minutes, played carnival games for 40 minutes, and ate food for 30 minutes. He spent the rest of the time waiting in lines. How much time did Milo spend waiting in lines? Write and solve an equation to find the answer.

$$3 \text{ hours} = \underline{\hspace{2cm}} \text{ minutes}$$

$$\text{Known activities} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ minutes}$$

$$\text{Equation: } \underline{\hspace{4cm}}$$

Milo spent  $\underline{\hspace{2cm}}$  minutes waiting in lines.





**Solve.**

- 4 Tell whether each amount of time is equivalent to 2 hours and 10 minutes.
- a. 210 minutes       Yes     No
- b. 130 minutes       Yes     No
- c. 1 hour, 70 minutes     Yes     No
- 5 One of the fastest times for a 1,500-meter race is 3 minutes and 34 seconds. How many seconds is this time?

**Show your work.**

Solution: \_\_\_\_\_

- 6 Bennett spent 4 hours at school today. He attended three 70-minute classes. There is a 5-minute break between classes. Then he ate lunch before going home. How long did Bennett spend eating lunch?

**Show your work.**

Solution: \_\_\_\_\_

## Solve Problems About Money

**Study the example showing how to solve a problem about money. Then solve problems 1–7.**

**Example**

Rita bought milk for \$0.50, a sandwich for \$2.50, and a fruit salad for \$1.25. She paid for her lunch with a \$5.00 bill. How much change did Rita get?

$$\$1.00 = 100 \text{ cents}$$

$$\$5.00 = 500 \text{ cents}$$

Rita spent:  $50 + 250 + 125 = 425$  cents

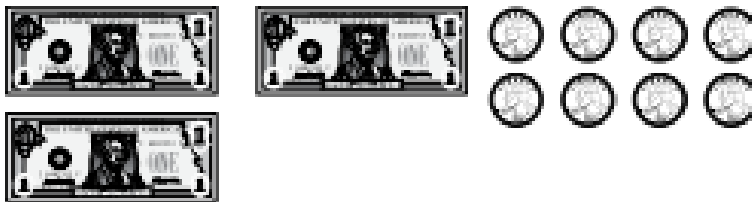
$500 \text{ cents} - 425 \text{ cents} = 75 \text{ cents}$

Rita got 75 cents, or \$0.75, in change.

- 1** The picture below shows that \$5.00 is the same as \$3.00 in bills plus 8 quarters. Cross out the bills and coins to show the amount that Rita spent on lunch in the example above.

$$1 \text{ dollar} = 4 \text{ quarters}$$

$$1 \text{ quarter} = 25 \text{ cents}$$



- 2** How can you find the change Rita gets by looking at the picture above? Explain. \_\_\_\_\_

\_\_\_\_\_

- 3** Josh bought 4 movie tickets and 2 large popcorns. Each movie ticket is \$8. Each popcorn is \$5. How much money did Josh spend?

Tickets: \_\_\_\_\_ Popcorn: \_\_\_\_\_

Tickets and popcorn: \_\_\_\_\_

Josh spent \_\_\_\_\_.



**Solve.**

- 4 Mandy has a total of \$2.00 in change in her purse. Complete each set of coins below to show amounts equivalent to \$2.00.
- a. 4 quarters, 5 dimes, \_\_\_\_\_ nickels
  - b. 10 pennies, \_\_\_\_\_ dimes, 3 quarters, 5 nickels
  - c. 2 quarters, 12 dimes, 3 nickels, \_\_\_\_\_ pennies
  - d. \_\_\_\_\_ quarters, 4 dimes, 6 nickels, 5 pennies
- 5 A pound of apples costs \$1.30. Sawyer bought  $2\frac{1}{2}$  pounds of apples. How much did Sawyer pay?  
**Show your work.**

Solution: \_\_\_\_\_

- 6 Brie earns \$3,000 a month. Every month, she spends \$1,400 on rent and bills, \$700 on groceries, \$200 on a car payment, and \$100 on gas. She saves the rest. How much money does Brie save?  
**Show your work.**

Solution: \_\_\_\_\_

- 7 Regular bananas cost \$0.20 each at the supermarket. Organic bananas cost \$0.30 each. If you have \$3.00, how many more regular bananas than organic bananas can you buy?  
**Show your work.**

Solution: \_\_\_\_\_

## Time and Money

Solve the problems.

1 How many days are in 1 year and 5 weeks?

- A 372 days  
 B 378 days  
 C 400 days  
 D 1,825 days

There are 365 days  
 in a year. There are  
 7 days in a week.



2 Rowan bought 2 comic books for \$2.50 each, a fiction book for \$7, and a poster for \$1.25 at the book fair. Rowan paid with a \$20.00 bill. How much change did he get?

- A \$6.75                      C \$13.25  
 B \$12.75                     D \$17.75

What operation do  
 you use to represent  
 the cost of the  
 2 comic books?



Courtney chose C as the correct answer. How did she get that answer?

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3 How many minutes are there in one day?

**Show your work.**

There are 24 hours  
 in one day.



Solution: \_\_\_\_\_



**Solve.**

- 4 A private music lesson at Parker Music costs \$40 for 1 hour. A private music lesson at Joelle Music costs \$25 for 30 minutes. How much more does a 1-hour private lesson cost at Joelle Music than at Parker Music?

**Show your work.**

What is the cost for 60 minutes of lessons at each store?

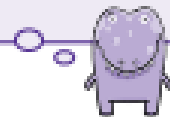


Solution: \_\_\_\_\_

- 5 Susan bought 4 boxes of granola bars and 2 cartons of milk. Each box of granola bars cost \$2.50 and each carton of milk cost \$2.75, including tax. Susan gave the clerk a \$20.00 bill. What did she get in change? List two different ways Susan could have received change.

**Show your work.**

What coins are equal in value to 1 dollar?



Solution: bills: \_\_\_\_\_ coins: \_\_\_\_\_

bills: \_\_\_\_\_ coins: \_\_\_\_\_

**Ready® Center Activity 4.43 ★★**

**Multi-Step Money Problems**

**What You Need**

- Recording Sheet

**Check Understanding**

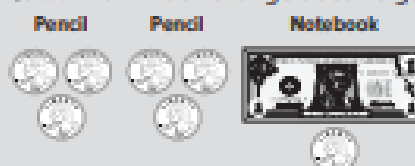
Sweatshirts cost \$25.00 each. Jacob buys 3 sweatshirts. He uses a coupon for \$10.00 off. Jacob gives the clerk a \$100.00 bill. How much change does he get?

**What You Do**

1. Take turns. Choose a problem on the **Recording Sheet**. Read the problem aloud.
2. Draw bills and coins to help you solve the problem.
3. Your partner uses a different method to solve the problem.
4. If your answers don't match, work together to correct the mistakes.
5. Continue until all the problems on the **Recording Sheet** are complete.

**Example**

Mario buys 2 pencils for \$0.75 each and a notebook for \$1.25. He gives the clerk \$3.00. How much change does he get?



Give the clerk \$3.00, using one \$1.00 bill and 8 quarters. Spend \$1.00 and 7 quarters.



Mario gets 1 quarter, or \$0.25, in change.

**Go Further!**

Write a multi-step money problem for your partner to solve. Exchange papers with your partner to solve. Check each other's work.



## Multi-Step Money Problems

Ashley buys 3 yogurt bars for \$1.50 each and 2 granola bars for \$1.75 each. How much does Ashley pay altogether?

\_\_\_\_\_

Letisha receives two \$20 gift cards for her birthday. She buys a backpack for \$16.00, a magazine for \$2.00, and a hat for \$9.00. What is the total amount left on Letisha's gift cards?

\_\_\_\_\_

One yard of ribbon costs \$2.50. Naveen buys  $1\frac{1}{2}$  yards of ribbon. She gives the clerk a \$5.00 bill. How much change does Naveen get?

\_\_\_\_\_

Andrew buys a paintbrush for \$3.00 and 2 cards for \$1.25 each. How much money does he give the clerk if he gets \$0.50 in change?

\_\_\_\_\_

You can represent an amount of money with different combinations of coins and bills. Try to choose a combination that makes it easier to solve the problem.



## Multiplication and Division in Word Problems

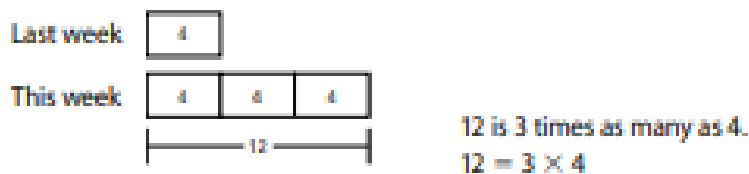
Name: \_\_\_\_\_

### Prerequisite: Model Multiplication

Study the example showing how to use a model to solve a multiplication problem. Then solve problems 1–6.

#### Example

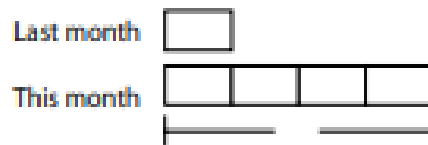
Lauren worked 4 hours last week. She worked 3 times as many hours this week as last week. How many hours did Lauren work this week?



Lauren worked 12 hours this week.

- 1 Nina picked 8 tomatoes last month. She picked 4 times as many tomatoes this month. How many tomatoes did Nina pick this month?

Label the bar model and complete the sentences.



\_\_\_\_\_ is \_\_\_\_\_ times as many as \_\_\_\_\_.

\_\_\_\_\_ = \_\_\_\_\_  $\times$  \_\_\_\_\_

Nina picked \_\_\_\_\_ tomatoes this month.

- 2 Ben has 6 marbles. Tom has 3 times as many marbles as Ben. How many marbles does Tom have?



\_\_\_\_\_  $\times$  \_\_\_\_\_ = 18

Tom has \_\_\_\_\_ marbles.

#### Vocabulary

**multiplication** an operation used to find the total number of items in equal-sized groups.





**Solve.**

- 3 Yesterday Ruth scored 2 points at the game. Today she scored 8 times as many points as she did yesterday. How many points did Ruth score today?

**Show your work.**

Solution: \_\_\_\_\_

- 4 Matt planted 5 times as many flowers on Sunday as he planted on Saturday. Matt planted 7 flowers on Saturday. How many flowers did Matt plant on Sunday?

**Show your work.**

Solution: \_\_\_\_\_

- 5 Mr. Ash has 7 students in art class. Mr. Trent has double the number of students in his class as Mr. Ash. How many students does Mr. Trent have in his class?

**Show your work.**

Solution: \_\_\_\_\_

- 6 Which is more: 2 times as many as a number or 5 times as many as the same number? Explain. Choose any number to show how you know.

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## Use Multiplication in Word Problems

Study the example showing one way to use multiplication to solve a word problem. Then solve problems 1–5.

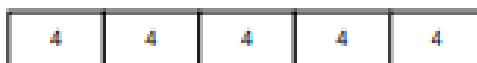
**Example**

Sue swam 4 laps in a pool. Andy swam 5 times as many laps as Sue. How many laps did Andy swim?

Number of laps Sue swam

4
---

Number of laps Andy swam



$$5 \times 4 = \square$$

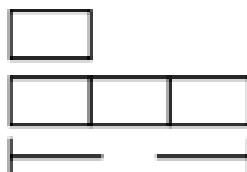
$$5 \times 4 = 20$$

Andy swam 20 laps.



- 1 Adam has 9 pennies. Ryan has 3 times as many pennies as Adam. How many pennies does Ryan have?

Label the bar model.



Write an equation.

Use  $\square$  for the unknown.  $\square \times \square = \square$

Solve the equation.

\_\_\_\_\_

Write the answer.

Ryan has \_\_\_\_\_ pennies.

- 2 Jade picked 5 pounds of berries. She needs 3 times that amount to make jam. How many pounds of berries does Jade need to make jam?

Skip count to find the amount Jade needs:

5, \_\_\_\_\_, \_\_\_\_\_

Jade needs \_\_\_\_\_.

**Vocabulary**

**unknown** a missing number in an equation.

$$\square = 5 \times 4$$

$\square$  is the unknown.

$$6 \times 7 = P$$

$P$  is the unknown.

**equation** a mathematical sentence that uses an equal sign (=) to show that two expressions have the same value.

$$5 \times 4 = 20$$



**Solve.**

- 3** Look at how a student solved the problem below.

A cook used 12 eggs at lunch. He used 3 times as many eggs at breakfast. How many eggs did the cook use at breakfast?

Skip count: 12, 24, 36, 48

The cook used 48 eggs at breakfast.

What did the student do wrong?

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- 4** Look at problem 3. Draw a bar model. Use the model to write and solve an equation to find the correct answer.

*Solution:* The cook used \_\_\_\_\_ at breakfast.

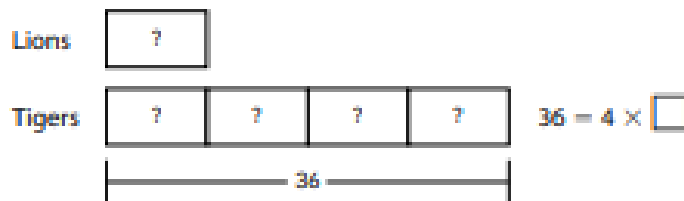
- 5** Which problems can be solved using the equation  $B \times 2 = A$ ? Circle the letter of all that apply.
- A** In June, Ali read 8 books. In July, she read half as many books. How many books did Ali read in July?
  - B** Cal is twice as old as his sister. Cal's sister is 8 years old. How old is Cal?
  - C** A muffin costs \$2. Dylan bought 8 muffins. How much did Dylan spend on muffins?
  - D** Jordan has 8 apples and 2 oranges. How many pieces of fruit does she have altogether?

## Use Division in Word Problems

Study the example showing a way to use division to solve a word problem. Then solve problems 1–5.

**Example**

The Tigers scored 36 points. They scored 4 times as many points as the Lions. How many points did the Lions score?



$$36 \div 4 = \square$$

$$36 \div 4 = 9$$

The Lions scored 9 points.

- 1 Charlie and Gabe collected cans to recycle. Charlie collected 5 times as many cans as Gabe. Charlie collected 50 cans. Draw a bar model you could use to compare the number of cans each boy collected.

- 2 Look at the model you drew in problem 1. Write and solve an equation to show how many cans Gabe collected.

**Show your work.**

Solution: \_\_\_\_\_

**Vocabulary**

**division** an operation used to separate a number of items into equal-sized groups.

**equation** a mathematical sentence that uses an equal sign (=) to show that two expressions have the same value.

$$36 \div 4 = 9$$



**Solve.**

- 3 Choose *Yes* or *No* to tell whether each equation is solved correctly.

a.  $6 = 2 \times \square$     $\square = 12$     Yes    No

b.  $7 \times H = 28$     $H = 4$     Yes    No

c.  $2 = p \div 5$     $p = 10$     Yes    No

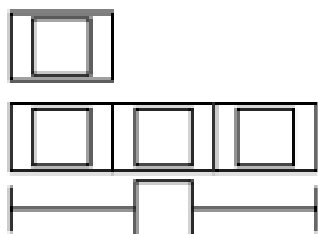
- 4 James and Chris are in the school play. James has 42 lines to memorize. That is 6 times as many lines as Chris. Write and solve an equation to find the number of lines Chris has to memorize.

**Show your work.**

Solution: \_\_\_\_\_

- 5 Choose numbers from the tiles below to fill in the bar model. Then write and solve an equation using the model.

24 12 8 6 4 3 2 1



Equation: \_\_\_\_\_

Solution: \_\_\_\_\_



## Multiplication and Division in Word Problems

Solve the problems.

- 1 Lin and Karla are planning a party. Lin spent \$20 on invitations and decorations. Karla spent 4 times that amount on food and entertainment. How much did they spend altogether on the party?

A \$20                      C \$100  
B \$80                      D \$120

Do you need to use more than one operation to find the answer?



- 2 Write and solve an equation for each problem below.

Darcy earned \$5. Samantha earned \$30.  
Samantha earned \_\_\_\_\_ times as much as Darcy.

Equation: \_\_\_\_\_

Solution: \_\_\_\_\_

Carey teaches twice as many fitness classes as Fran.  
If Fran teaches 7 classes, how many classes does Carey teach?

Equation: \_\_\_\_\_

Solution: \_\_\_\_\_

Joelle practices piano for 3 times as many minutes a day as Tran. Tran practices for 20 minutes a day. How many minutes a day does Joelle practice?

Equation: \_\_\_\_\_

Solution: \_\_\_\_\_

You can write either a multiplication equation or a division equation for each problem.





## Multiplication and Division Word Problems

### What You Need

- Recording Sheet

### Check Understanding

Kelly picks 21 peaches. She picks 3 times as many peaches as Ron. How many peaches does Ron pick?

### What You Do

1. Take turns. Pick a letter.
2. Read the word problem aloud.
3. Draw a bar model on the **Recording Sheet** to model the problem. Then write an equation to solve the problem.
4. Your partner checks your work and reads the answer aloud.
5. Repeat until all the letters are used.

<b>A</b>	Flora buys 6 apples and 24 oranges. How many times as many oranges as apples does Flora buy?
<b>B</b>	Beth has 2 times as many stickers as Kim. Beth has 18 stickers. How many stickers does Kim have?
<b>C</b>	Mr. Cruz orders 4 small pizzas. He orders 3 times as many large pizzas as small pizzas. How many large pizzas does Mr. Cruz order?
<b>D</b>	A chef makes 20 sandwiches and 5 salads. How many times as many sandwiches as salads does the chef make?

### *Go Further!*

For each problem on the **Recording Sheet**, write a different equation that can be used to solve the problem.





**Multiplication and Division Word Problems**

	Bar Model	Equation
<b>A</b>	Apples Oranges	
<b>B</b>	Kim Beth	
<b>C</b>	Small pizzas Large pizzas	
<b>D</b>	Sandwiches Salads	

I can use the bar model to identify the factors and the product of my multiplication equation.



## Model Multi-Step Problems

Name: \_\_\_\_\_

## Prerequisite: Model Two-Step Problems

Study the example showing how to model a two-step word problem. Then solve problems 1–9.

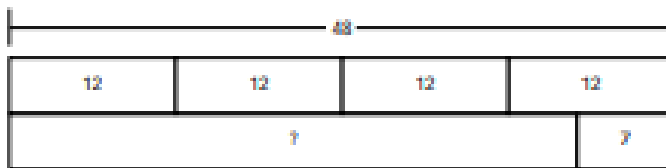
**Example**

Mr. Norman's fourth grade class held a pancake breakfast fundraiser. They bought 4 cartons of eggs to use for the pancakes. Each carton has 12 eggs. They have 7 eggs left over. How many eggs were used?

4 groups of 12 is 48.

$$4 \times 12 = 48$$

7 eggs are left over.



Subtract 7 from 48 to find how many eggs were used.

$$48 - 7 = 41$$

41 eggs were used.

- 1 Fiona has 6 garden boxes. She wants to plant 3 vegetable seeds and 3 flower seeds in each garden box. How many seeds does Fiona need in all? Draw a picture to model the problem. Then solve the problem.

Solution: Fiona needs \_\_\_\_\_ seeds in all.

- 2 Zander bought 3 hats for \$7 each and 2 shirts for \$9 each. How much did Zander spend? Draw and label jumps on the number line below to show how much Zander spent.

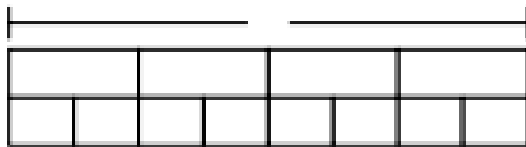


Zander spent \_\_\_\_\_.

**Solve.**

Nadia bought 4 bags of popcorn at the movies. She shared the popcorn with her 7 friends. Each bag held 6 cups of popcorn. If everyone had an equal amount, how many cups of popcorn did each person have?

- 3** Complete the bar model below to solve the problem.



- 4** What do the parts of the top bar represent?

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- 5** What do the parts of the bottom bar represent?

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- 6** Why are there more than 7 parts in the bottom bar?

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- 7** Explain how to find the number of cups of popcorn each person had. \_\_\_\_\_

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Tom buys 5 packs of juice boxes for the class picnic. Each pack has 6 juice boxes.

- 8** At the picnic, 18 students take a juice box. How many juice boxes are left?

**Show your work.**

**Solution:** \_\_\_\_\_

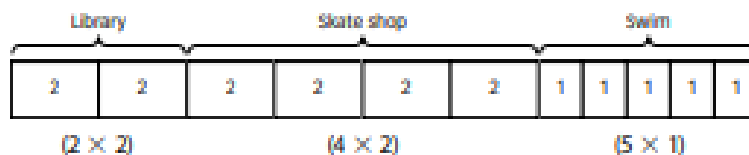
## Write Equations

Study the example showing how to model a multi-step problem and write an equation. Then solve problems 1–4.

## Example

The table shows Eli's after-school activities. Write an equation to show how many hours a week Eli spends doing activities.

Activity	How long?	How often?
Volunteer at the library	2 hours	2 times a week
Work at the skate shop	2 hours	4 times a week
Swim practice	1 hour	5 times a week

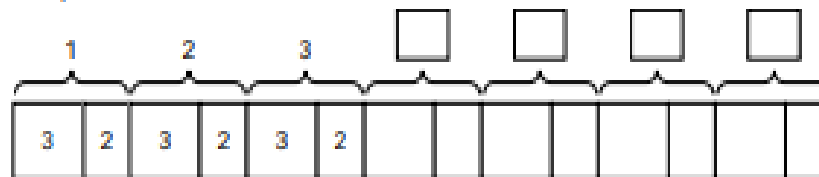


$$A = (2 \times 2) + (4 \times 2) + (5 \times 1)$$

Mia volunteered at the animal shelter on 7 weekends. On Saturdays, she volunteered for 3 hours. On Sundays, she volunteered for 2 hours.

- 1 Write an equation to find how many hours Mia volunteered.

- a. Complete the bar model.



- b. What do the numbers above the bar represent?

\_\_\_\_\_

- c. What do the numbers in each part of the bar represent?

\_\_\_\_\_

- d. Write an equation. \_\_\_\_\_

**Solve.**

- 2 A bike rental is \$20 for a day and \$3 for an hour. Caroline rented a bike for 2 days and 2 hours. Which equation could you use to find how much money,  $M$ , Caroline spent? Circle the letter for all that apply.

A  $M = (2 \times 20) + (2 \times 3)$

B  $M = (3 \times 20) + (2 \times 2)$

C  $M = (20 \times 2) \times (3 \times 2)$

D  $M = (20 \times 2) + (3 \times 2)$

- 3 Zara went to the book fair and bought 3 comic books for \$5 each, 2 chapter books for \$9 each, 4 posters for \$2 each, and 1 picture book for \$7. Write an equation that can be used to find how much Zara spent at the book fair.


*Show your work.*

Solution: \_\_\_\_\_

- 4 The table below shows clothing sales at a school fair. Use the information in the table to write an expression that equals  $T$ , the total amount of money spent on clothing.

Item	Price	Number sold
T-shirts	\$12	100
Sweatshirts	\$20	50

Solution: \_\_\_\_\_



**Vocabulary**

**equation** a mathematical sentence that uses an equal sign (=) to show that two expressions have the same value.

$$R = (6 \times 3) + 4$$

**expression** a group of one or more numbers, unknowns and operations that represents a quantity.

$$5 \times h$$

## Model Multi-Step Problems

Solve the problems.

- 1 Phillip earns \$15 an hour at his tutoring job and \$10 an hour babysitting. Last week, he worked 10 hours tutoring and 4 hours babysitting. Which equation shows how much Phillip earned,  $E$ ?

- A  $E = (15 \times 10) + (10 \times 4)$   
 B  $E = (15 + 10) \times (10 + 4)$   
 C  $E = (15 \times 10) \times (10 \times 4)$   
 D  $E = (15 \times 4) + (10 \times 10)$

Remember that parentheses tell what to do first.



- 2 The table below shows a cell phone plan.

	Cost per month
Phone	\$22 each
Unlimited texting	\$30 for a family
Unlimited data	\$80 for a family
Insurance	\$3 for each phone

Lola's family has 4 cell phones. They want to have insurance on each phone. They also want to have texting and data on each phone. Write an equation to show the monthly cost for Lola's family.

**Show your work.**

What expressions can you write to show the cost of 4 phones and the cost of insurance for 4 phones?



Solution: \_\_\_\_\_

\_\_\_\_\_

**Solve.**

- 3** There are 6 friends sharing 3 pizzas. Each pizza is cut into 8 slices. Which equation could be used to find the total number of slices,  $P$ , each friend will get?

- A**  $(6 \times 3) \div 8 = P$
- B**  $(3 \times 8) \div 6 = P$
- C**  $8 \times (6 \div 3) = P$
- D**  $(8 \times 6) \div 3 = P$

Sadie chose **B** as the correct answer. How did she get that answer?

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First, how do you find how many slices there are in all?



- 4** Margaret received \$20 each from 3 relatives and \$50 from her parents at graduation. She spent \$30. She saved half of the remaining money and donated the other half. Which equation(s) could you use to find how much money,  $S$ , she saved? Circle the letter of all that apply.

- A**  $S = (3 \times 20 - 50) - 30 \div 2$
- B**  $S = (3 \times 20 + 50) - 30 \div 2$
- C**  $S = (20 + 20 + 20 + 50 - 30) \div 2$
- D**  $S = (3 \times 20 - 50 + 30) \div 2$
- E**  $S = (3 \times 20 + 50 - 30) \div 2$

Another way to think of "half" is to think of dividing by 2.



## Modeling Multistep Problems

### What You Need

- Recording Sheet



### Check Understanding

A book has 4 poems on each of 7 pages. Joe read 3 poems every day for 5 days. How many poems are left to read?

### What You Do

1. Read aloud the first problem on the **Recording Sheet**.
2. Your partner draws a model of the problem.
3. Use the model to write and solve an equation for the problem.
4. Your partner checks your work and uses mental math or estimation to explain why the answer is reasonable or not.
5. Change roles and repeat the steps above for the second problem.

### Example

Pablo earns \$6 for mowing each of 3 lawns. He spends \$2 for a snack and \$4 for a notebook. How much money does Pablo have left?



$$L = (3 \times 6) - (2 + 4)$$

$$L = 12$$

Pablo has \$12 left.

### Go Further!

Write and solve a different equation for the problem in the example. Exchange papers with your partner to check your work.





**Modeling Multistep Problems**

<p><b>Problem</b></p> <p>Keisha puts 4 oranges into each of 5 baskets. She puts 6 lemons into each of 2 baskets. What is the total number of oranges and lemons in the baskets?</p> <hr/>	<p><b>Problem</b></p> <p>Dave has 5 stamps from Asia, 4 stamps from Europe, and 10 stamps from Africa. He can fit 8 stamps on each page of his stamp book. How many pages of the book can he fill?</p> <hr/>
<p><b>Model</b></p>          <hr/>	<p><b>Model</b></p>          <hr/>
<p><b>Equation</b></p> <hr/>	<p><b>Equation</b></p> <hr/>

*I can draw a bar model, a number line, or an array to represent multistep problems.*



Ready® Center Activity 4.5 ★★★

Modeling Multistep Problems

What You Need

- Recording Sheet



Check Understanding

A book has 4 poems on each of 7 pages. Joe read 3 poems every day for 5 days. How many poems are left to read?

What You Do

1. Read the first problem on the **Recording Sheet** aloud.
2. Your partner draws a model of the problem.
3. Use the model to write and solve two different equations for the problem.
4. Your partner checks your work and uses mental math or estimation to explain why the answer is reasonable or not.
5. Change roles and repeat the steps above for the second problem.

Example

Pablo earns \$6 for mowing each of 3 lawns. He spends \$2 for a snack and \$4 for a notebook. How much money does Pablo have left?



$$L = (3 \times 6) - (2 + 4)$$

$$L = 12$$

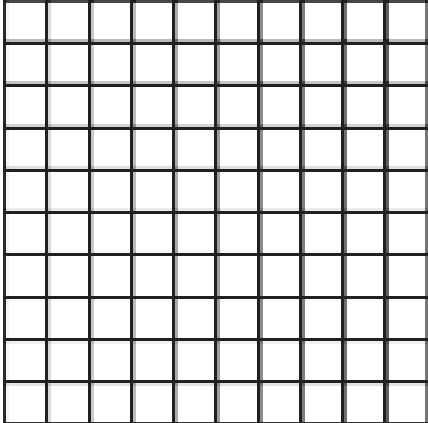
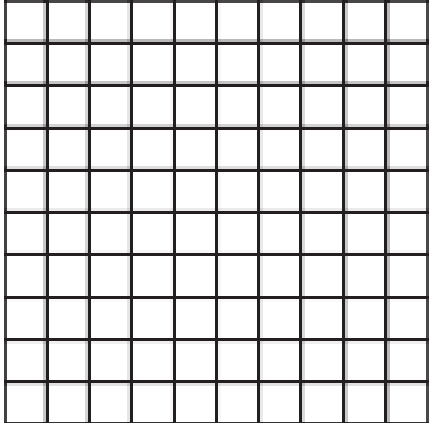
Pablo has \$12 left.

Go Further!

Write a different multistep word problem that can be solved using the equation in the example. Exchange problems with your partner to solve.



**Modeling Multistep Problems**

<p>Keisha puts 4 oranges into each of 5 baskets. She puts 6 lemons into each of 2 baskets. What is the total number of oranges and lemons in the baskets?</p>	<p>Dave has 5 stamps from Asia, 4 stamps from Europe, and 10 stamps from Africa. He can fit 8 stamps on each page of his stamp book. How many pages of the stamp book can he fill?</p>
	
<p>_____</p>	<p>_____</p>

I can draw a bar model, a number line, or an array to represent multistep problems.



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

**Ready® Mathematics**

**Lesson 9 Quiz**

**Solve the problems.**

- 1** Emma charges \$7 for every hour she babysits. She babysat for a total of 6 hours last week. With the money she earned, Emma spent \$8 to buy a gift and \$4 for lunch. This bar model could be used to find the amount of money Emma has left.

\$7	\$7	\$7	\$7	\$7	\$7
\$8	\$4	?			

Which equation could be used to find  $M$ , the amount of money Emma has left?

- A**  $M = (6 + 7) - (8 - 4)$       **C**  $M = (6 \times 7) - (8 - 4)$   
**B**  $M = (6 + 7) - (8 + 4)$       **D**  $M = (6 \times 7) - (8 + 4)$

- 2** Ricardo cooks pizzas at a restaurant. He cooks 5 pizzas on Wednesday, 9 pizzas on Thursday, and 4 times as many pizzas on Friday as on Thursday. Complete the equation to show  $P$ , the total number of pizzas Ricardo cooks on Wednesday, Thursday, and Friday.

\_\_\_\_\_ + \_\_\_\_\_ + ( \_\_\_\_\_  $\times$  \_\_\_\_\_ ) =  $P$

- 3** Scarlett has 3 erasers. Nick has 2 times as many erasers as Scarlett. David has 5 more erasers than Nick. Can each equation be used to find how many erasers,  $E$ , David has?

Choose Yes or No for each equation.

- a.**  $E = (3 \times 2) + 5$        Yes    No  
**b.**  $E = 3 \times (2 + 5)$        Yes    No  
**c.**  $E = (5 + 2) \times 3$        Yes    No  
**d.**  $E = 5 + (2 \times 3)$        Yes    No  
**e.**  $E = (3 + 5) \times 2$        Yes    No



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

**Lesson 9 Quiz** *continued*

- 4 Tonya counts 14 robins and 18 sparrows in her neighborhood. Lucas counts 4 times as many birds as Tonya at the wildlife center.

**Part A**

Let  $T$  be the total number of birds Tonya counts and  $B$  be the total number of birds both Tonya and Lucas count. Which pair of equations could be used to find the total number of birds Tonya and Lucas count?

A  $T = 4 \times (14 + 18)$   
 $B = 4 \times T$

B  $T = 14 + 18$   
 $B = 4 \times T$

C  $T = 14 + 18$   
 $B = T + (14 \times 4)$

D  $T = 14 + 18$   
 $B = T + (4 \times T)$

**Part B**

Lucas says that  $B = 5 \times (14 + 18)$  could be used to find the total number of birds Tonya and Lucas count.

Is Lucas correct? Explain.

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