Races, Arrays, and Grids

NAME DATE

Running and Biking Distances

Solve each problem. Use a representation, and write an equation for each problem.

1. There is a $\frac{2}{3}$-mile loop around a pond near Renaldo's house. On Monday he ran around the loop 4 times. How many miles did he run?

2. It is $\frac{3}{4}$ of a mile from Tamira's house to her school. She rides that distance 10 times a week. How many miles does she ride in 1 week?

3. There is a $\frac{5}{8}$-mile trail in the woods that Hana runs on. One day she ran the trail 4 times. How many miles did she run?

NAME _____ DATE _____

Running and Biking Distances

Solve each problem. Use a representation, and write an equation for each problem.

4 Four people ran together in a relay race. Each person ran $\frac{4}{5}$ of a mile. How many miles did they run in all?

5 There is a $\frac{5}{6}$-mile trail around Lake Sharon. Nora ran around the trail 6 times. How many miles did she run?

6 Walter runs $\frac{9}{10}$ of a mile every day. How many miles does he run in one week? (He runs 7 days a week.)

NAME _____ DATE _____

Adding and Subtracting Decimals

Solve each problem and show how you solved it.

1. Alicia is running in a 10-mile race. So far, she has run 7.34 miles. How much farther does she have to run to complete the race?

2. Benito's family is going on a trip. They drive 65.89 miles and then stop for lunch. After lunch, they drive another 24.8 miles. How many miles did they drive in all?

3. $0.47 + 5.89 + 2.4 =$ _____

4. $8.25 - 4.98 =$ _____

5. $10.39 - 3.81 =$ _____

NOTE

Students solve addition and subtraction problems that involve decimals.
MWI **Adding Decimals; Subtracting Decimals**

NAME _____ DATE _____

Multiplying Fractions by Whole Numbers

Solve each problem. Use a representation and write an equation for each problem.

1. Janet is using a recipe for muffins that calls for $\frac{3}{4}$ cup of milk. She is going to make 3 times the recipe. How many cups of milk does she need?

2. Terrence went running on a $\frac{5}{6}$-mile trail. He ran it 5 times. How many miles did he run?

3. Each day Mitch's pet guinea pig eats $\frac{1}{3}$ cup of red pepper. How many cups of red pepper does Mitch's guinea pig eat in 5 days?

4. At the store Cecelia bought $\frac{2}{3}$ pound of 3 different cheeses. How many pounds of cheese did she buy?

NOTE

Students solve problems that involve multiplying a fraction by a whole number.
MWI **Multiplying a Fraction by a Whole Number**

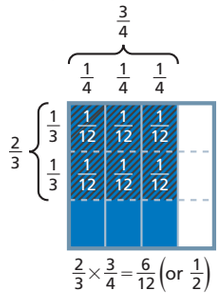
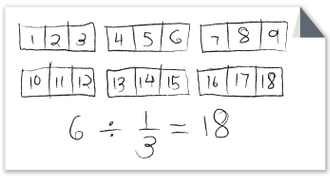
NAME DATE

About the Mathematics in This Unit

Dear Family,

Our class is starting a new mathematics unit about multiplication and division of fractions and decimals called *Races, Arrays, and Grids*. In this unit, students solve multiplication and division problems that involve fractions and decimals. They also convert measurements within the metric and U.S. standard measurement systems.

Throughout the unit, students work toward these goals:

Benchmarks/Goals	Examples
Multiply fractions, mixed numbers, and whole numbers.	*Alicia owns $\frac{3}{4}$ of a section of land. She plants pumpkins on $\frac{2}{3}$ of her land. What fraction of the entire section is planted with Alicia's pumpkins?*  $\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$ (or $\frac{1}{2}$)
Compare the size of the factors and the size of the product and explain their relationship.	*On Tuesday, Margaret biked $\frac{3}{4}$ of a bike path that is 32 miles long. Without finding out exactly how many miles she rode, did she ride more or less than 32 miles? How do you know?*
Divide a unit fraction by a whole number and a whole number by a unit fraction.	*Yumiko has 6 cups of flour. If she needs $\frac{1}{3}$ cup of flour for 1 jumbo muffin, how many jumbo muffins can she make?* 

NAME _____ DATE _____

About the Mathematics in This Unit

Benchmarks/Goals	Examples
Solve division problems with two whole numbers resulting in a fraction or a mixed number.	*7 people equally share 6 brownies. How much of a brownie does each person get?* $6 \div 7 = \frac{6}{7}$
Recognize and use place value relationships to explain patterns when multiplying or dividing by powers of 10, including placement of the decimal point.	$8 \times 0.01 =$ 0.08 $8 \times 0.1 =$ 0.8 $8 \times 1 =$ 8 $8 \times 10 =$ 80 $8 \times 100 =$ 800 What do you notice about the sets of problems above? Each time you multiply by 10 times more so that answer is 10 times bigger.
Multiply and divide decimals to hundredths.	$0.8 \times 12 \approx 12$ $1 \times 12 = 12$ $8 \times 12 = 96$ Ans. 9.6
Solve measurement conversion problems including multi-step word problems.	*Deon bought 36 cans of juice that each contained 300 milliliters of juice. How many liters of juice did he buy?* 300 × 36 1800 9000 10,800 mL 1 L = 1,000 mL 10,800 ÷ 1,000 = 10.800 L

In our math class, students spend time discussing problems in depth and are asked to share their reasoning and solutions. It is most important that children accurately and efficiently solve math problems in ways that make sense to them. At home, encourage your child to explain his or her math thinking to you. Please look for more information and activities about *Races, Arrays, and Grids* that will be sent home in the coming weeks.

NAME DATE

Big Bicycle Race

The Big Bicycle Race is 480 miles long. Participants cycle 6 hours each day. The table below shows the fraction of the race each participant cycled by the end of Day 1.

1 Use the fraction bars below to show the fraction of the race each person has cycled so far. Then complete the table.

Day 1

Name	Fraction of Race Cycled	Total Miles Completed
Nora	$\frac{1}{6}$	
Stuart	$\frac{1}{10}$	
Margaret	$\frac{1}{8}$	

Nora

Stuart

Margaret

NAME DATE

Big Bicycle Race

2 Use the fraction bars below to show the fraction of the race each person has cycled so far. Then complete the table. Remember, the race is 480 miles long.

Day 2

Name	Fraction of Race Cycled	Total Miles Completed
Nora	$\frac{1}{3}$	
Stuart	$\frac{3}{10}$	
Margaret	$\frac{1}{4}$	

Nora

Stuart

Margaret

NAME DATE

Big Bicycle Race

3 Use the fraction bars below to show the fraction of the race each person has cycled so far. Then complete the table. Remember, the race is 480 miles long.

Day 4

Name	Fraction of Race Cycled	Total Miles Completed
Nora	$\frac{5}{6}$	
Stuart	$\frac{7}{10}$	
Margaret	$\frac{9}{16}$	

Nora

Stuart

Margaret

NAME DATE

Comparing Batting Averages

Who had the better batting average? Circle the higher batting average.

1. Ted Williams: .344; or Lou Gehrig: .340

2. Joe DiMaggio: .325; or Willie Mays: .302

3. Hank Aaron: .305; or Babe Ruth: .342

4. Ty Cobb: .366; or Rogers Hornsby: .358

5. Rod Carew: .328; or Stan Musial: .331

6. Reggie Jackson: .262; or Yogi Berra: .285

7. Mickey Mantle: .298; or Johnny Bench: .267

8. Roberto Clemente: .317; or Jackie Robinson: .311

NOTE

Students review comparing decimals.
MWI **Comparing and Ordering Decimals**

NAME DATE

Take a Hike

Deon hiked the Green Mounds Trail, which is 16 miles long. The table shows Deon's progress during the hike.

Use the fraction bars below to show the fraction of the trail Deon had hiked at different times. (Each fraction bar represents 16 miles.) Then complete the table.

Time	Fraction of Trail Hiked	Total Miles Completed
10:00 A.M.	$\frac{1}{8}$	
Noon	$\frac{1}{2}$	
2:00 P.M.	$\frac{3}{4}$	

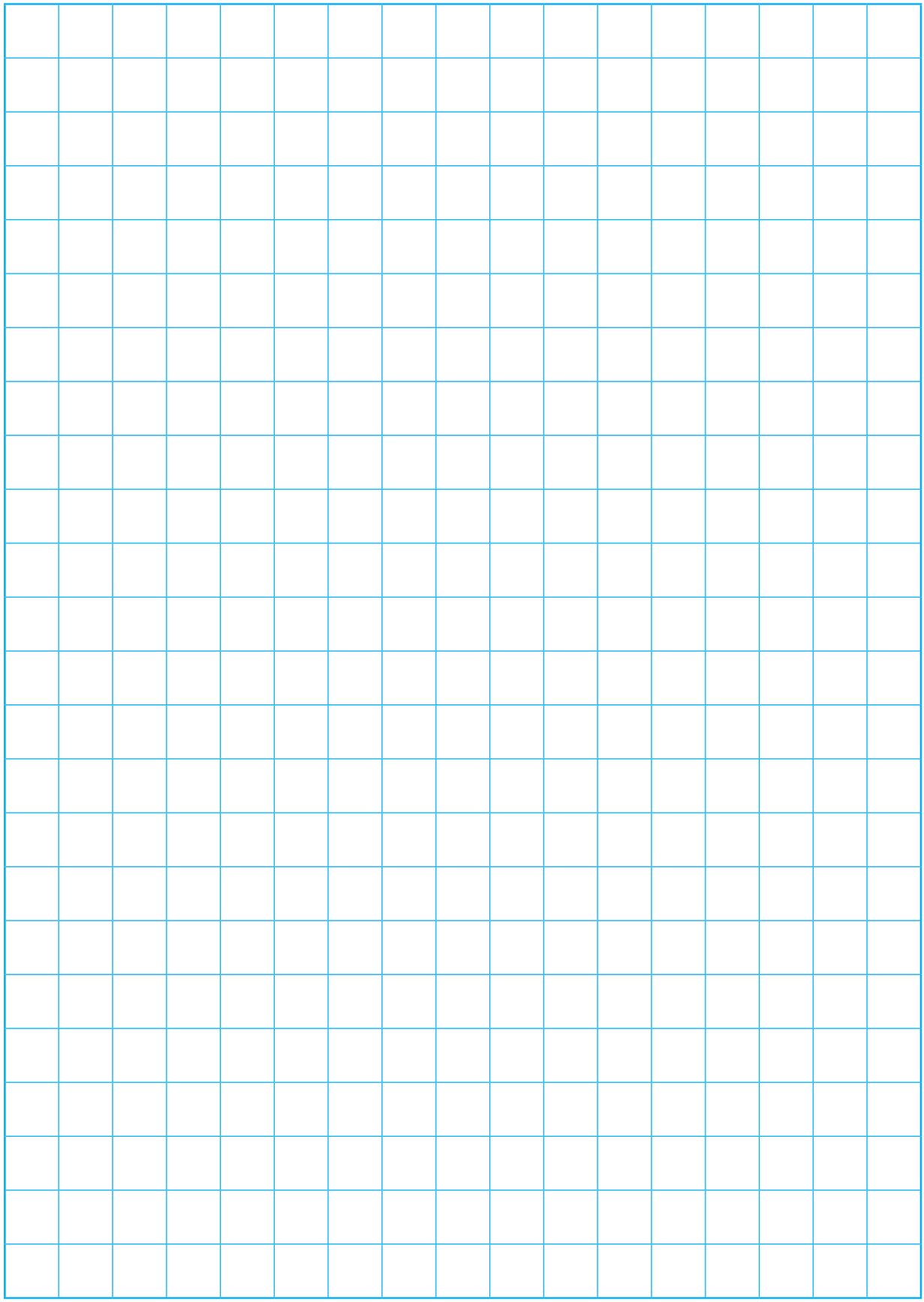
10:00 A.M.

Noon

2:00 P.M.

NOTE

Students use fraction bars to represent fractions of a distance.
MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers**



NAME DATE

Bicycle Race Training

Margaret rides on a bike path that is 32 miles long. Solve each problem about Margaret's bike ride. For Problems 3–5, use fraction bars to represent the problem, and write an equation.

1. On Tuesday, Margaret biked $\frac{3}{4}$ of the bike path. Without finding out exactly how many miles she rode, did she ride more or less than 32 miles? How do you know?

2. On Wednesday, Margaret biked $1\frac{1}{2}$ times the length of the bike path. Without finding out exactly how many miles she rode, did she ride more or less than 32 miles? How do you know?

3. On Thursday, Margaret biked $\frac{5}{8}$ of the bike path. How many miles did she ride?

4. On Friday, Margaret biked $1\frac{3}{8}$ times the length of the bike path. How many miles did she ride?

5. The next week, Margaret biked $5\frac{1}{4}$ times the length of the bike path. How many miles did she ride that week?

NAME _____ DATE _____

Bicycle Race Training

Stuart rides around a lake. The perimeter of the lake is 60 miles. Solve each problem about Stuart's bike ride. For Problems 8–10, use fraction bars to represent the problem, and write an equation.

6 On Monday, Stuart biked $\frac{3}{4}$ of the way around the lake. Without finding out exactly how many miles he rode, did he ride more or less than 60 miles? How do you know?

7 On Wednesday, Stuart biked $1\frac{1}{4}$ times the distance around the lake. Without finding out exactly how many miles he rode, did he ride more or less than 60 miles? How do you know?

8 On Thursday, Stuart only had a short time to bike, so he biked $\frac{1}{3}$ of the way around the lake. How many miles did he ride?

9 On Friday, Stuart biked $\frac{5}{6}$ of the way around the lake. How many miles did he ride?

10 The next week, Stuart biked $3\frac{2}{3}$ times the distance around the lake. How many miles did he ride?

NAME _____ DATE _____

Ordering Decimals

Place the decimals in order on the number line below.

1. 1.9
2. 0.284
3. 1.899
4. 0.16
5. 0.235
6. 0.773
7. 0.821
8. 2.045
9. 0.492
10. 2.16
11. 2.492
12. 1.3

NOTE

Students practice placing decimals in order on a number line.
MWI **Comparing and Ordering Decimals**

NAME _____ DATE _____

Another Bicycle Race

Use fraction bars to show your solution to each problem. Write an equation for each problem. The Super Bicycle Race is 120 miles long.

1. At the end of Day 1, Nora has completed $\frac{1}{2}$ of the race. How many miles has she gone?

2. At the end of Day 1, Stuart has completed $\frac{1}{4}$ of the race. How many miles has he gone?

3. At the end of Day 2, Nora has completed $\frac{5}{6}$ of the race. How many miles has she gone?

4. At the end of Day 2, Stuart has completed $\frac{2}{3}$ of the race. How many miles has he gone?

NOTE

Students use fraction bars to solve problems that involve multiplying a whole number by a fraction.
MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers**

NAME _____ DATE _____

Related Activities to Try at Home

Dear Families,

The activities below are related to the mathematics in the multiplication and division of fractions and decimals unit, *Races, Arrays, and Grids*. You can use the activities to enrich your child's mathematical learning experience.

Multiplying and Dividing with Fractions In this unit, students multiply and divide with fractions. Look for familiar and interesting situations that you can use as a basis for exploring these types of problems with your child. For example, when you are cooking with your child, ask questions like these:

- This recipe calls for $\frac{3}{4}$ cup of flour. We are going to triple the recipe. How much flour do we need? $\left(3 \times \frac{3}{4} = \_\_\_\_\_\right)$
- We have 3 cups of milk. This recipe for muffins calls for $\frac{1}{4}$ cup of milk, how many batches of muffins can we make? $\left(3 \div \frac{1}{4} = \_\_\_\_\_\right)$
- This recipe calls for 2 cups of flour. We are going to make only $\frac{3}{4}$ of a recipe. How much flour do we need? $\left(\frac{3}{4} \times 2 = \_\_\_\_\_\right)$
- This recipe calls for $\frac{3}{4}$ cup of milk. We are going to make only half of a recipe. How much milk do we need? $\left(\frac{1}{2} \times \frac{3}{4} = \_\_\_\_\_\right)$

Encourage students to draw representations to solve these problems.

NAME _____ DATE _____

Related Activities to Try at Home

Multiplying and Dividing Decimals In this unit, students also multiply and divide with decimals. Look for familiar and interesting situations that you can use as a basis for exploring these types of problems with your child. Here are some examples:

- The box of crackers costs $2.35. We are going to buy 3 boxes. How much will 3 boxes of crackers cost? ($3 \times \$2.35 =$ _____)
- Our bill at the restaurant is $69.18. We are going to split the bill evenly among our 3 families. How much does each family have to pay? ($\$69.18 \div 3 =$ _____)

Converting Measurements In this unit, students convert measurements for distances, mass/weight, and capacity within the metric system and within the U.S. standard system. Have your child help you convert measurements that you use in your daily lives, such as converting meters to centimeters, ounces to pounds, inches to feet, quarts to gallons, and liters to milliliters.

How Did You Solve That? Ask your child to tell you about how he or she is solving problems. Also ask your child to record his or her work so that you can understand it. If some of the strategies your child is using are unfamiliar to you, ask your child to explain them carefully. Learning to clearly communicate one's thinking to others is an important emphasis in this unit.

NAME DATE

Cycling and Running

Solve the following problems. Write an equation for each problem.

1. The Astounding Race is a bicycle race that is 100 miles long. Lourdes is going to ride in the Monster Bicycle Race, which is $2\frac{4}{5}$ times as long as the Astounding Race. How long is the Monster Bicycle Race?

2. Martin is going to ride in the Great Bicycle Race, which is $\frac{7}{10}$ as long as the 100-mile Astounding Race. How long is the Great Bicycle Race?

3. Samantha is training to run in a long distance race. She runs $1\frac{1}{3}$ miles every day for a week (7 days). How many miles does she run in one week?

4. It is $\frac{7}{10}$ of a mile from Nora's house to the library. One week she biked this distance 8 times. How many miles did she bike that one week?

NAME DATE

Cycling and Running

Solve the following problems. Write an equation for each problem.

5 Tavon is training also and runs $2\frac{1}{4}$ miles each day for 5 days. How many miles does he run in 5 days?

6 The bike path near Hana's home is 15 miles long. She bikes $2\frac{1}{2}$ times the length of the path. How many miles does Hana ride?

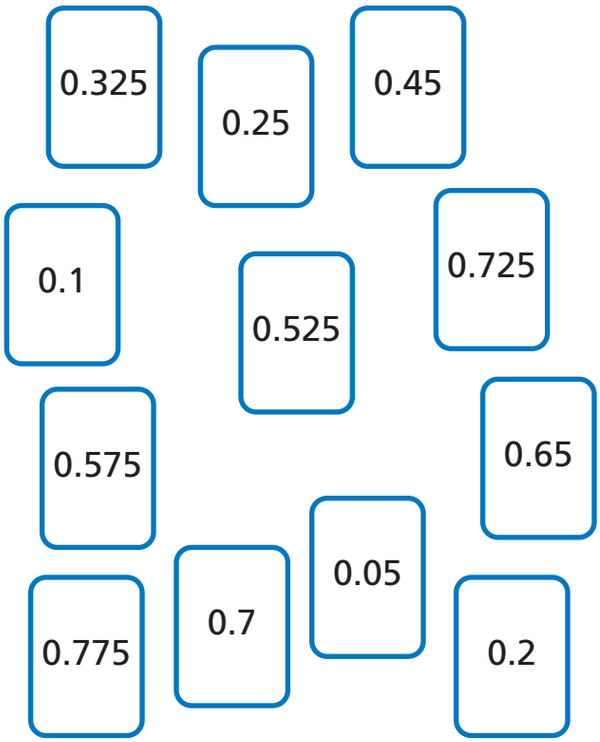
7 There is a running trail around Shining Pond that is $\frac{2}{3}$ of a mile long. Rachel runs around it 6 times. How far does she run?

NAME _____ DATE _____

Squeeze Between

Fit one of the decimals shown on the cards between the pair of decimals in each exercise. Two cards will be left over.

1. 0.6 _____ 0.7
2. 0.25 _____ 0.15
3. 0.425 _____ 0.475
4. 0.075 _____ 0.125
5. 0.55 _____ 0.5
6. 0.675 _____ 0.725
7. 0.275 _____ 0.225
8. 0.025 _____ 0.075
9. 0.735 _____ 0.8
10. 0.4 _____ 0.3



Ongoing Review

11. Which fraction is between 0 and $\frac{1}{2}$?

Ⓐ $\frac{3}{2}$ Ⓑ $\frac{6}{2}$ Ⓒ $\frac{4}{6}$ Ⓓ $\frac{3}{8}$

NOTE

Students practice ordering decimals.
MWI **Comparing and Ordering Decimals**

NAME _____ DATE _____

Training for a Race

Solve the following problems. Write an equation for each problem. You can draw fraction bars to help you.

Renaldo bikes around a lake that has a perimeter of 20 miles.

1. On Monday, Renaldo biked $\frac{1}{2}$ of the way around the lake. How many miles did he ride?

2. On Wednesday, Renaldo only had a short time to bike, so he biked $\frac{1}{4}$ of the way around the lake. How many miles did he ride?

3. On Thursday, Renaldo biked $\frac{1}{5}$ of the way around the lake. How many miles did he ride?

4. On Friday, Renaldo biked $\frac{3}{5}$ of the way around the lake. How many miles did he ride?

5. The next week, Renaldo biked $2\frac{1}{2}$ times the distance around the lake. How many miles did he ride?

NOTE

Students solve problems that involve multiplying a whole number by a fraction or a mixed number.

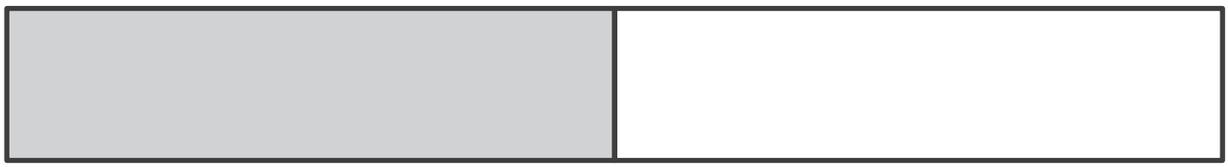
MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers**

NAME _____ DATE _____

Fractions of Fractions

For each problem, use the fraction bar to show your solution. Then write an equation. One half of each bar is shaded.

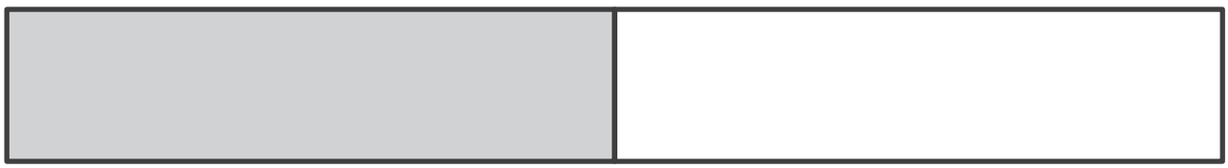
1 If $\frac{1}{3}$ of the shaded part is striped, how much of the bar is striped? Equation: _____



2 If $\frac{1}{4}$ of the shaded part is striped, how much of the bar is striped? Equation: _____

3 If $\frac{1}{5}$ of the shaded part is striped, how much of the bar is striped? Equation: _____

4 If $\frac{1}{8}$ of the shaded part is striped, how much of the bar is striped? Equation: _____



NAME _____ DATE _____

Fractions of Fractions

For each problem, use the fraction bar to show your solution. Then write an equation. One third of each bar is shaded.

5 If $\frac{1}{2}$ of the shaded part is striped, how much of the bar is striped? Equation: _____

6 If $\frac{1}{4}$ of the shaded part is striped, how much of the bar is striped? Equation: _____

7 If $\frac{1}{3}$ of the shaded part is striped, how much of the bar is striped? Equation: _____

8 If $\frac{1}{6}$ of the shaded part is striped, how much of the bar is striped? Equation: _____

NAME DATE

Fractions of Fractions

Answer each question without using a fraction bar. Explain your answer clearly.

9 $\frac{1}{2}$ of a fraction bar is shaded, and $\frac{1}{6}$ of the shaded part is striped. Without finding out exactly how much of the bar is striped, is more or less than $\frac{1}{2}$ of the bar striped? How do you know?

10 $\frac{1}{3}$ of a fraction bar is shaded, and $\frac{1}{8}$ of the shaded part is striped. Without finding out exactly how much of the bar is striped, is more or less than $\frac{1}{3}$ of the bar striped? How do you know?

NAME _____ DATE _____

Fraction Match

Write the letter of the fraction-bar diagram that matches each equation.

1. _____ $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

2. _____ $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

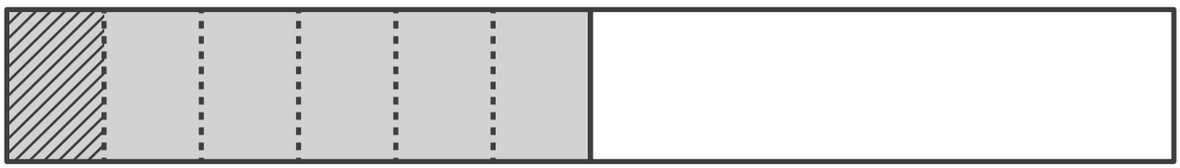
3. _____ $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

4. _____ $\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$

A.

B.

C.



D.

NOTE

Students match representations on fraction bars with equations that involve multiplying a fraction by a fraction.

MWI **Multiplying a Fraction by a Fraction**

NAME DATE

Canoe Trip

Cecilia and two friends went on a 36-mile canoe trip. The table shows their progress during the 3-day trip.

Use the fraction bars below to show the fraction of the canoe trip traveled each day. (Each fraction bar represents 36 miles.) Then complete the table.

Day	Fraction of Trip Traveled Each Day	Miles Traveled Each Day
Friday	$\frac{1}{4}$	
Saturday	$\frac{5}{12}$	
Sunday	$\frac{1}{3}$	

Friday

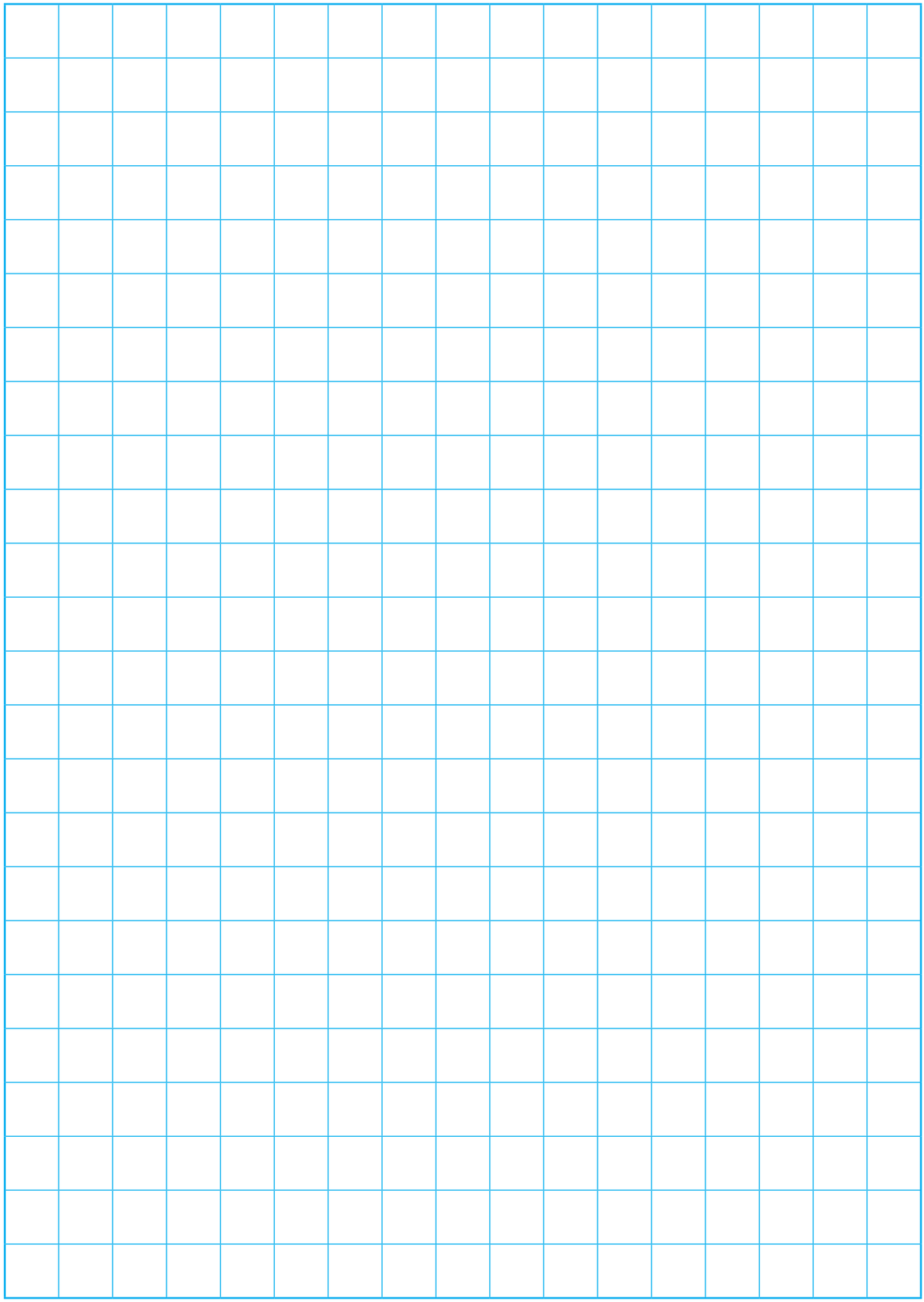
Saturday

Sunday

NOTE

Students use fraction bars to solve problems that involve multiplying a whole number by a fraction.

MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers**



NAME DATE

Multiplying Fractions

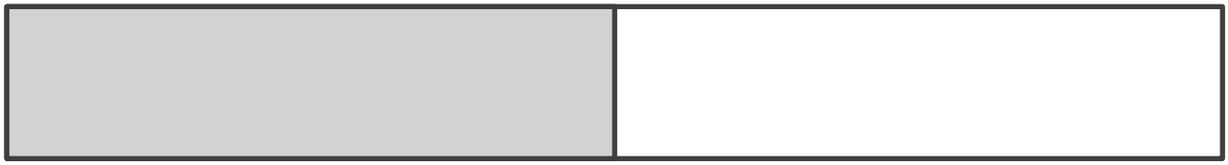
Solve each problem and write an equation. Use the fraction bar to show your solution. Then use your work to fill in the table on the next page.

1. $\frac{3}{4}$ of the bar is shaded. If $\frac{1}{2}$ of the shaded part is striped, how much of the bar is striped?

2. $\frac{1}{2}$ of the bar is shaded. If $\frac{2}{3}$ of the shaded part is striped, how much of the bar is striped?

3. $\frac{1}{3}$ of the bar is shaded. If $\frac{3}{4}$ of the shaded part is striped, how much of the bar is striped?

4. $\frac{1}{2}$ of the bar is shaded. If $\frac{5}{6}$ of the shaded part is striped, how much of the bar is striped?



NAME _____ DATE _____

Multiplying Fractions

For each problem, draw your own fraction bar. Solve each problem and write an equation. Use your work to fill in the table below.

5 $\frac{1}{2}$ of the bar is shaded. If $\frac{3}{5}$ of the shaded part is striped, how much of the bar is striped?

6 $\frac{1}{2}$ of the bar is shaded. If $\frac{4}{5}$ of the shaded part is striped, how much of the bar is striped?

How Much of the Bar Is Striped?

Problem	Using "of"	Expression	Product
1			
2			
3			
4			
5			
6			

7 Look at the table. You already have a rule for finding the denominator of the product by multiplying the denominators of the factors. Can you come up with a rule for finding the numerator of the product? Write it down. Talk to a partner about what your rule is and why you think it works.

NAME _____ DATE _____

Measuring Distance

Solve the problems below, showing your work so that anyone looking at it would know how you solved the problem.

1. On Monday, Margaret rollerbladed 4.55 miles. She rollerbladed 2.84 miles on Wednesday and 5.175 miles on Friday. What is the total number of miles she rollerbladed?

2. Renaldo ran 3.2 miles on Tuesday, 2.87 miles on Thursday, and 3.15 miles on Friday. What is the total number of miles he ran?

3. Terrence is preparing for a race. On Monday he bicycled 8.35 miles, and on Wednesday he bicycled 9.65 miles. What is the total number of miles he bicycled?

4. 0.69 mile + 0.041 mile + 2.03 miles = _____ miles

NOTE

Students solve story problems involving addition of decimals.
MWI **Adding Decimals**

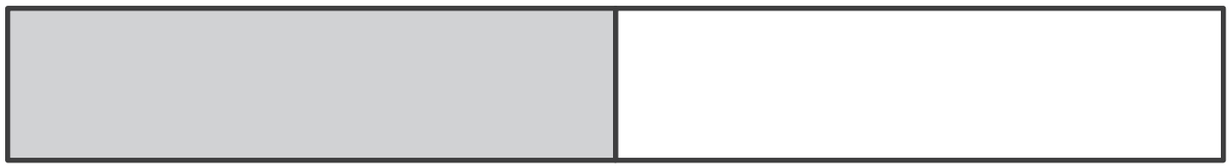
NAME _____ DATE _____

More Multiplying Fractions

One half of each fraction bar is shaded. For each problem, use the fraction bar to show your solution. Then write an equation.

1 If $\frac{1}{8}$ of the shaded part is striped, how much of the bar is striped?

2 If $\frac{5}{8}$ of the shaded part is striped, how much of the bar is striped?



3 If $\frac{1}{10}$ of the shaded part is striped, how much of the bar is striped?

4 If $\frac{3}{10}$ of the shaded part is striped, how much of the bar is striped?

NOTE

Students use fraction bars to solve problems that involve multiplying a fraction by a fraction.
MWI **Multiplying a Fraction by a Fraction**

NAME DATE

Using Arrays to Multiply Fractions

Solve the problems. For each problem, use the square to draw an array. Then write an equation.

1 Alicia owns $\frac{3}{4}$ of a section of land. She plants pumpkins on $\frac{2}{3}$ of her land. What fraction of the entire section is planted with Alicia's pumpkins?

2 Olivia owns $\frac{3}{4}$ of a section of land. She plants tomatoes on $\frac{1}{4}$ of her land. What fraction of the entire section is planted with Olivia's tomatoes?

3 Zachary owns $\frac{3}{4}$ of a section of land. He plants corn on $\frac{3}{4}$ of his land. What fraction of the entire section is planted with Zachary's corn?

NAME _____ DATE _____

Using Arrays to Multiply Fractions

Solve the problems. For each problem, use the square to draw an array. Then write an equation.

4 Yumiko owns $\frac{5}{6}$ of a section of land. She plants peanuts on $\frac{2}{3}$ of her land. What fraction of the entire section is planted with Yumiko's peanuts?

5 Walter owns $\frac{1}{3}$ of a section of land. He plants lettuce on $\frac{7}{8}$ of his land. What fraction of the entire section is planted with Walter's lettuce?

6 Terrence owns $\frac{2}{3}$ of a section of land. He plants peas on $\frac{2}{3}$ of his land. What fraction of the entire section is planted with Terrence's peas?

NAME _____ DATE _____

Planting Vegetables

Solve the problems. For each problem, use the square to draw an array. Then write an equation.

1 Samantha owns $\frac{1}{2}$ of a section of land. She plants squash on $\frac{1}{2}$ of her land. What fraction of the entire section is planted with Samantha's squash?

2 Cecilia owns $\frac{1}{3}$ of a section of land. She plants tomatoes on $\frac{1}{2}$ of her land. What fraction of the entire section is planted with Cecilia's tomatoes?

3 Renaldo owns $\frac{3}{4}$ of a section of land. He plants corn on $\frac{1}{2}$ of his land. What fraction of the entire section is planted with Renaldo's corn?

NOTE

Students use arrays to solve problems that involve multiplying a fraction by a fraction.
MWI **Multiplying a Fraction by a Fraction**

NAME _____ DATE _____

Hiking Trails

Solve the following problems, using fraction bars as necessary. Write an equation for each problem.

Mitch went on a hiking trip. On the first day, he hiked the 6-mile-long Wildflower Trail.

1. On the second day, Mitch hiked the Lake Point Trail. The Lake Point Trail is $\frac{2}{3}$ as long as the Wildflower Trail. How long is the Lake Point Trail?

2. On the third day, Mitch hiked the Pine Cone Trail. The Pine Cone Trail is $1\frac{1}{6}$ times as long as the Wildflower Trail. How long is the Pine Cone Trail?

3. On the fourth day, Mitch hiked the Big Timbers Trail. The Big Timbers Trail is $1\frac{1}{2}$ times as long as the Wildflower Trail. How long is the Big Timbers Trail?

4. On the fifth day, Mitch hiked the Golden Sands Trail. The Golden Sands Trail is $2\frac{2}{3}$ times as long as the Wildflower Trail. How long is the Golden Sands Trail?

NOTE

Students solve problems that involve multiplying a whole number by a fraction or a mixed number.

MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers**

NAME _____ DATE _____

Multiplying Fractions and Mixed Numbers Practice

Draw a representation for each problem. Solve each problem using whatever strategy makes the most sense to you and show how you solved it. Write equations for Problems 1 and 2.

1 Janet runs $\frac{1}{4}$ of a $\frac{1}{2}$-mile relay race. What fraction of a mile does Janet run?

2 Talisha owns $\frac{4}{5}$ of a section of land. She plants green beans on $\frac{3}{4}$ of her land. What fraction of the entire section is planted with Talisha's green beans?

3 $\frac{2}{3} \times \frac{3}{8} =$ _____

4 $\frac{5}{6} \times \frac{1}{4} =$ _____

NAME _____ DATE _____

Multiplying Fractions and Mixed Numbers Practice

Solve these problems using a strategy that makes sense to you. Show your work, including any representations you use. Write equations for Problems 5 and 6.

5 The Spectacular Bike Race is 400 miles long. Tyler has completed $\frac{5}{8}$ of the Spectacular Bike Race. How many miles has Tyler biked?

6 Talisha goes running on the Pine Trail Loop in the park, which is $\frac{7}{8}$ of a mile long. One day, she ran the loop 8 times. How many miles did she run?

7 $60 \times \frac{5}{6} =$ _____

8 $3\frac{1}{3} \times 240 =$ _____

NAME DATE

Practicing Multiplication of Fractions

Solve these problems using a strategy that makes sense to you. Show your work, including any representations you use. Write equations for Problems 1–3.

1. Rachel runs $\frac{2}{3}$ mile every day. How many miles does she run in 6 days?

2. The bike path near Margaret's house is 24 miles long. She rides $\frac{3}{8}$ of the way around the path. How many miles does she ride?

3. Martin runs $1\frac{1}{2}$ miles a day. How many miles does he run in 5 days?

4. $\frac{1}{3} \times \frac{3}{4} =$ _____

5. $\frac{5}{6} \times 12 =$ _____

NOTE

Students solve problems that involve multiplying fractions, whole numbers, and mixed numbers.
MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers; Multiplying a Fraction by a Fraction**

NAME DATE

Dividing a Whole Number by a Fraction

Solve each problem. Use a representation, and write an equation for each one.

A fifth-grade class is making holiday gift baskets. Some children are making bows for the baskets. The bows are different sizes.

1. Felix has 2 yards of ribbon. He needs $\frac{1}{4}$ yard to make 1 bow. How many bows can Felix make?

2. Georgia has 5 yards of ribbon. She needs $\frac{1}{3}$ yard to make 1 bow. How many bows can Georgia make?

3. Tyler has 3 yards of ribbon. He needs $\frac{1}{6}$ yard to make 1 bow. How many bows can Tyler make?

4. Olivia has 4 yards of ribbon. She needs $\frac{1}{5}$ yard to make 1 bow. How many bows can Olivia make?

NAME DATE

Dividing a Whole Number by a Fraction

Solve each problem. Use a representation, and write an equation for each one.

Some children are baking treats for the baskets.

5 Martin has 5 cups of flour. If he needs $\frac{1}{4}$ cup of flour for 1 jumbo cookie, how many jumbo cookies can he make?

6 Tamira has 9 cups of flour. If she needs $\frac{1}{2}$ cup of flour for 1 jumbo brownie, how many jumbo brownies can she make?

7 Joshua has 3 cups of flour. If he needs $\frac{1}{8}$ cup of flour for each chocolate chip cookie, how many cookies can he make?

8 Yumiko has 6 cups of flour. If she needs $\frac{1}{3}$ cup of flour for 1 jumbo muffin, how many jumbo muffins can she make?

NAME _____ DATE _____

Writing Numbers in Expanded Form

Write each number in expanded form.

1. 23.75 _____

2. 240.03 _____

3. 84.582 _____

Write each number in standard form.

4. $5 \times 10 + 7 \times 1 + 9 \times \frac{1}{10} + 2 \times \frac{1}{100}$ _____

5. $2 \times 100 + 3 \times 1 + 9 \times \frac{1}{100} + 2 \times \frac{1}{1000}$ _____

6. $1 \times 1{,}000 + 2 \times 100 + 3 \times 10 + 3 \times \frac{1}{100} + 5 \times \frac{1}{1000}$ _____

7. $3 \times 1{,}000 + 5 \times \frac{1}{10} + 9 \times \frac{1}{100} + 7 \times \frac{1}{1000}$ _____

NOTE

Students write decimals in expanded form.
MWI **Place Value: Decimals to Thousandths**

NAME DATE

Making Bows

Solve these problems. Use a representation, and write an equation for each one.

1. Joshua has 3 yards of ribbon. He needs $\frac{1}{4}$ yard to make 1 bow. How many bows can Joshua make?

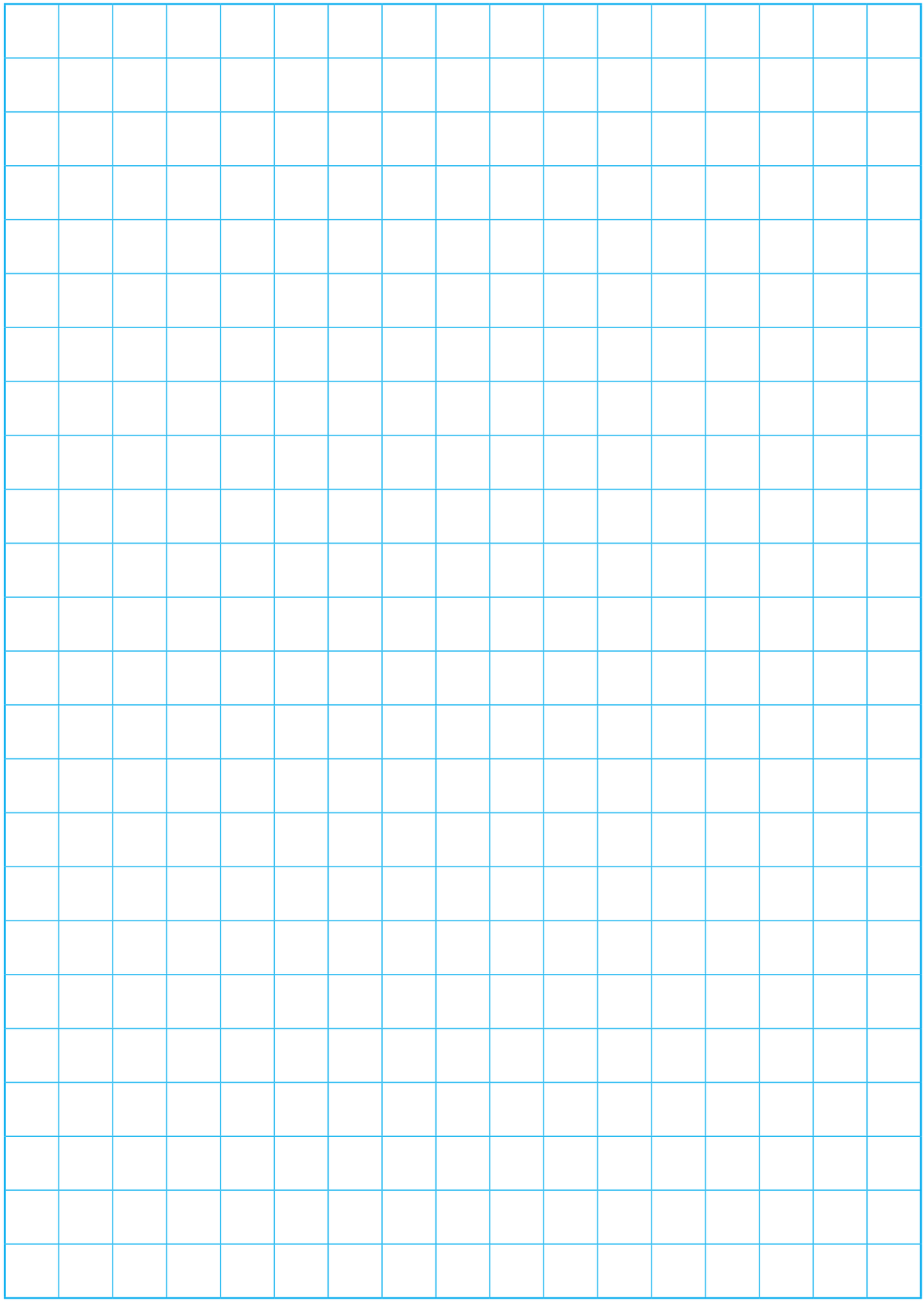
2. Alicia has 4 yards of ribbon. She needs $\frac{1}{3}$ yard to make 1 bow. How many bows can Alicia make?

3. Tavon has 5 yards of ribbon. He needs $\frac{1}{6}$ yard to make 1 bow. How many bows can Tavon make?

4. Yumiko has 6 yards of ribbon. She needs $\frac{1}{5}$ yard to make 1 bow. How many bows can Yumiko make?

NOTE

Students use representations to solve problems that involve dividing a whole number by a unit fraction. (A unit fraction is a fraction in which the numerator is 1.)
MWI **Dividing a Whole Number by a Unit Fraction**



NAME _____ DATE _____

Dividing a Fraction by a Whole Number

Solve these problems. Use a representation, and write an equation for each one.

1. Four students equally shared $\frac{1}{2}$ of a pan of brownies. What fraction of the whole pan of brownies did each student eat?

2. Three brothers equally shared $\frac{1}{4}$ of a pan of brownies. What fraction of the whole pan of brownies did each brother eat?

3. 5 friends equally shared $\frac{1}{3}$ of a cake. What fraction of the whole cake did each friend eat?

4. 6 friends equally shared $\frac{1}{5}$ of a cake. What fraction of the whole cake did each friend eat?

NAME DATE

Dividing a Fraction by a Whole Number

Solve these problems. Use a representation, and write an equation for each one.

5 How much popcorn would each person get if 3 people shared $\frac{1}{2}$ of a bag of popcorn equally?

6 How much popcorn would each person get if 3 people shared $\frac{1}{3}$ of a bag of popcorn equally?

7 How much popcorn would each person get if 2 people shared $\frac{1}{5}$ of a bag of popcorn equally?

8 How much popcorn would each person get if 4 people shared $\frac{1}{4}$ of a bag of popcorn equally?

NAME _____ DATE _____

Biking to the Park

Solve the following problems, drawing your own fraction bars as needed. Write an equation for each problem.

Eight students rode their bikes to the park during spring vacation. The table shows the round-trip distances and the number of trips to the park each student made. Complete the table to show how many miles each student rode in all.

Name	Roundtrip distance (miles)	Number of round trips	Equation	Total distance (miles)
Rachel	$\frac{3}{4}$	3		
Terrence	$\frac{1}{2}$	5		
Zachary	$1\frac{1}{4}$	4		
Talisha	$\frac{7}{8}$	2		
Georgia	$2\frac{1}{3}$	6		
Benito	$\frac{9}{10}$	2		
Martin	$3\frac{2}{3}$	3		
Janet	$2\frac{5}{8}$	4		

NOTE

Students solve problems that involve multiplying a fraction or mixed number by a whole number. They also write an equation for each problem.
MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers; Multiplying a Fraction by a Whole Number**

NAME DATE

Dividing It All Up

Solve these problems. Use a representation, and write an equation for each one.

1. Benito has 2 pounds of ground turkey. He needs $\frac{1}{4}$ pound to make 1 turkey burger. How many turkey burgers can Benito make?

2. Four people equally shared $\frac{1}{2}$ of a meat loaf. What fraction of the whole meat loaf did each person eat?

3. Three people equally shared $\frac{1}{4}$ of a pizza. What fraction of the whole pizza did each person eat?

4. Rachel has 5 cups of flour. She needs $\frac{1}{3}$ cup of flour for one jumbo muffin. How many jumbo muffins can she make?

5. Four friends equally share $\frac{1}{4}$ pound of raisins. How much of a pound is each person's share?

NOTE

Students use representations to solve problems that involve dividing whole numbers and unit fractions. (A unit fraction is a fraction in which the numerator is 1.)
MWI **Dividing a Whole Number by a Unit Fraction; Dividing a Fraction by a Whole Number**

NAME DATE

Dividing with Fractions

Solve these problems. Use a representation, and write an equation for each one.

1. Deon has 4 yards of ribbon. He needs $\frac{1}{3}$ yard to make 1 bow. How many bows can Deon make?

2. Tamira has 7 yards of ribbon. She needs $\frac{1}{3}$ yard to make 1 bow. How many bows can Tamira make?

3. Five students equally share $\frac{1}{2}$ of a pizza. How much of a whole pizza did each student eat?

4. Hana has 6 cups of flour. She needs $\frac{1}{6}$ cup of flour to make 1 cupcake. How many cupcakes can she make?

NAME _____ DATE _____

Dividing with Fractions

Solve these problems. Use a representation, and write an equation for each one.

5 Four students equally share $\frac{1}{4}$ pound of peanuts. How much of a pound of peanuts did each student get?

6 Stuart has 8 cups of flour. He needs $\frac{1}{8}$ cup of flour to make 1 cupcake. How many cupcakes can he make?

7 Three friends equally share $\frac{1}{3}$ bag of popcorn. How much of a bag of popcorn will each friend get?

8 Four people equally share $\frac{1}{5}$ pound of raisins. How much of a pound of raisins does each person get?

NAME _____ DATE _____

Multiplying Fractions Problems

Solve these problems using a strategy that makes sense to you. Show your work, including any representations you use. Write equations for Problems 1–3.

1. Charles is training for a race. He runs $\frac{4}{5}$ of a mile every day. How many miles does he run in 8 days?

2. Samantha and Felix are hiking a trail that is 36 miles long. On the first day, they hiked $\frac{1}{3}$ of the trail. How many miles did they hike?

3. Shandra bikes $\frac{1}{4}$ of a trail that is $4\frac{1}{2}$ miles long. How many miles does she bike?

4. $\frac{3}{8} \times \frac{1}{5} =$ _____

5. $\frac{6}{10} \times \frac{3}{4} =$ _____

NOTE

Students solve problems that involve multiplying fractions, whole numbers, and mixed numbers.
MWI **Multiplying Whole Numbers, Fractions, and Mixed Numbers; Multiplying a Fraction by a Whole Number**

NAME _____ DATE _____

Popcorn Problems

Solve these problems. Use a representation, and write an equation for each one.

1. How much popcorn would each person get if 2 people shared $\frac{1}{2}$ of a bag of popcorn equally?

2. Mitch has 2 cups of unpopped popcorn. He uses $\frac{1}{4}$ cup to make 1 bowl of popcorn. How many bowls of popcorn can he make?

3. How much popcorn would each person get if 3 people shared $\frac{1}{4}$ of a bag of popcorn equally?

4. Samantha has 3 cups of unpopped popcorn. She uses $\frac{1}{8}$ cup to make 1 serving. How many servings of popcorn can she make?

NOTE

Students use representations to solve problems that involve dividing whole numbers and unit fractions. (A unit fraction is a fraction in which the numerator is 1.)
MWI **Dividing a Whole Number by a Unit Fraction; Dividing a Fraction by a Whole Number**

NAME DATE

Brownie Problems

Solve each problem and draw a representation as part of your solution. Write an equation for each problem.

1. 4 people equally share 5 brownies. How much of a brownie does each person get?

2. 7 people equally share 6 brownies. How much of a brownie does each person get?

3. 8 people equally share 3 brownies. How much of a brownie does each person get?

4. 10 people equally share 7 brownies. How much of a brownie does each person get?

5. 4 people equally share 9 brownies. How much of a brownie does each person get?

NAME _____ DATE _____

Brownie Problems

6 5 people equally share 8 brownies. How much of a brownie does each person get?

7 Complete the following table with an expression that represents how you solved each problem and the answer to each problem. The first one has been done for you.

Problem	Expression	Answer
1	$5 \div 4$	$\frac{5}{4}$ or $1\frac{1}{4}$
2		
3		
4		
5		
6		

8 What pattern or patterns do you notice in the table? Why do you think this pattern is happening?

NAME DATE

Practice Dividing Fractions

Solve these problems. Use a representation and write an equation for each one.

1. 4 friends equally share half of a pizza. How much of the whole pizza does each friend get?

2. 3 people equally share $\frac{1}{5}$ of a pan of brownies. How much of the whole pan of brownies does each person get?

3. Mitch has 6 cups of unpopped popcorn. He uses $\frac{1}{3}$ of a cup to make one serving of popcorn. How many servings of popcorn can he make?

4. Georgia has 9 cups of flour. She needs $\frac{1}{5}$ of a cup of flour to make 1 muffin. How many muffins can she make?

NOTE

Students solve division problems involving unit fractions and whole numbers.
MWI **Dividing a Whole Number by a Unit Fraction; Dividing a Fraction by a Whole Number**

NAME _____ DATE _____

Sharing Food

Solve each problem and show how you solved it.

1. 2 friends equally share 5 cookies. How many cookies does each friend get?

2. 3 people equally share 4 oranges. How many oranges does each person get?

3. 9 people equally share 5 brownies. How much brownie does each person get?

4. 12 students equally share 20 apples. How many apples does each student get?

5. 15 students equally share 7 pizzas. How much pizza does each student get?

NOTE

Students solve problems by dividing whole numbers that result in a fraction or a mixed number.
MWI **Fractions as Division**

NAME _____ DATE _____

Win/Loss Records

Find the records for each set of teams. Rank them in order, from the team with the best record to the team with the worst record. Write the decimal record to the nearest thousandth.

1

Team	Number of Wins	Number of Losses	Record (fraction)	Record (decimal)	Rank
Bluebirds	20	5			
Cardinals	12	12			
Orioles	16	9			
Penguins	10	15			
Robins	19	6			

2

Team	Number of Wins	Number of Losses	Record (fraction)	Record (decimal)	Rank
Cheetahs	20	20			
Leopards	10	30			
Jaguars	18	23			
Tigers	35	5			
Lions	34	5			

NAME DATE

Teams

Solve the problems below. Your work should be clear enough so that anyone looking at it will know how you solved the problem.

1. There are 44 teams in the youth football league. Each team has 28 players. How many football players are there?

2. 435 people signed up for a city soccer league. The league places 15 people on each team. How many teams are there?

3. There are 1,020 students at Field Day, organized into 34 teams. Each team has the same number of students. How many students are on each team?

4. There are 107 teams and 19 people on each team. How many people are on teams?

NOTE

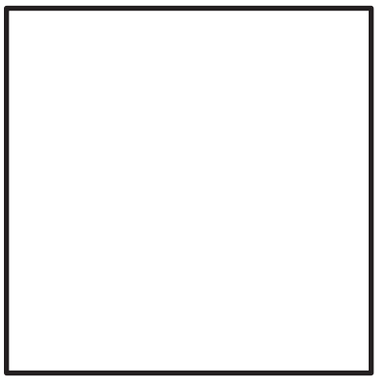
Students practice solving multiplication and division problems in story contexts.
MWI **Multiplication Strategies; Division Strategies**

NAME DATE

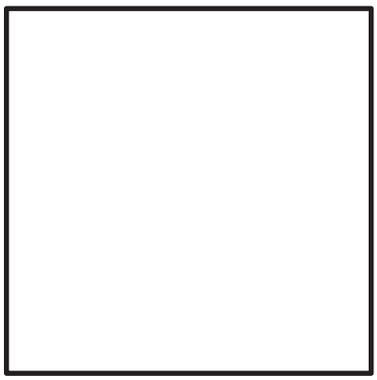
Multiplying Fractions Practice

Solve the problems. For each problem, use the square to draw an array.

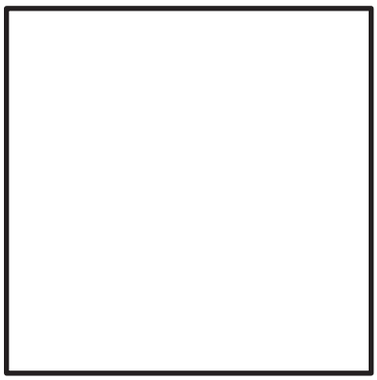
1. Martin owns $\frac{5}{8}$ of a section of land. He plants corn on $\frac{1}{3}$ of his land. What fraction of the entire section is planted with corn?



2. Cecilia owns $\frac{3}{4}$ of a section of land. She plants beans on $\frac{1}{5}$ of her land. What fraction of the entire section is planted with Cecilia's beans?

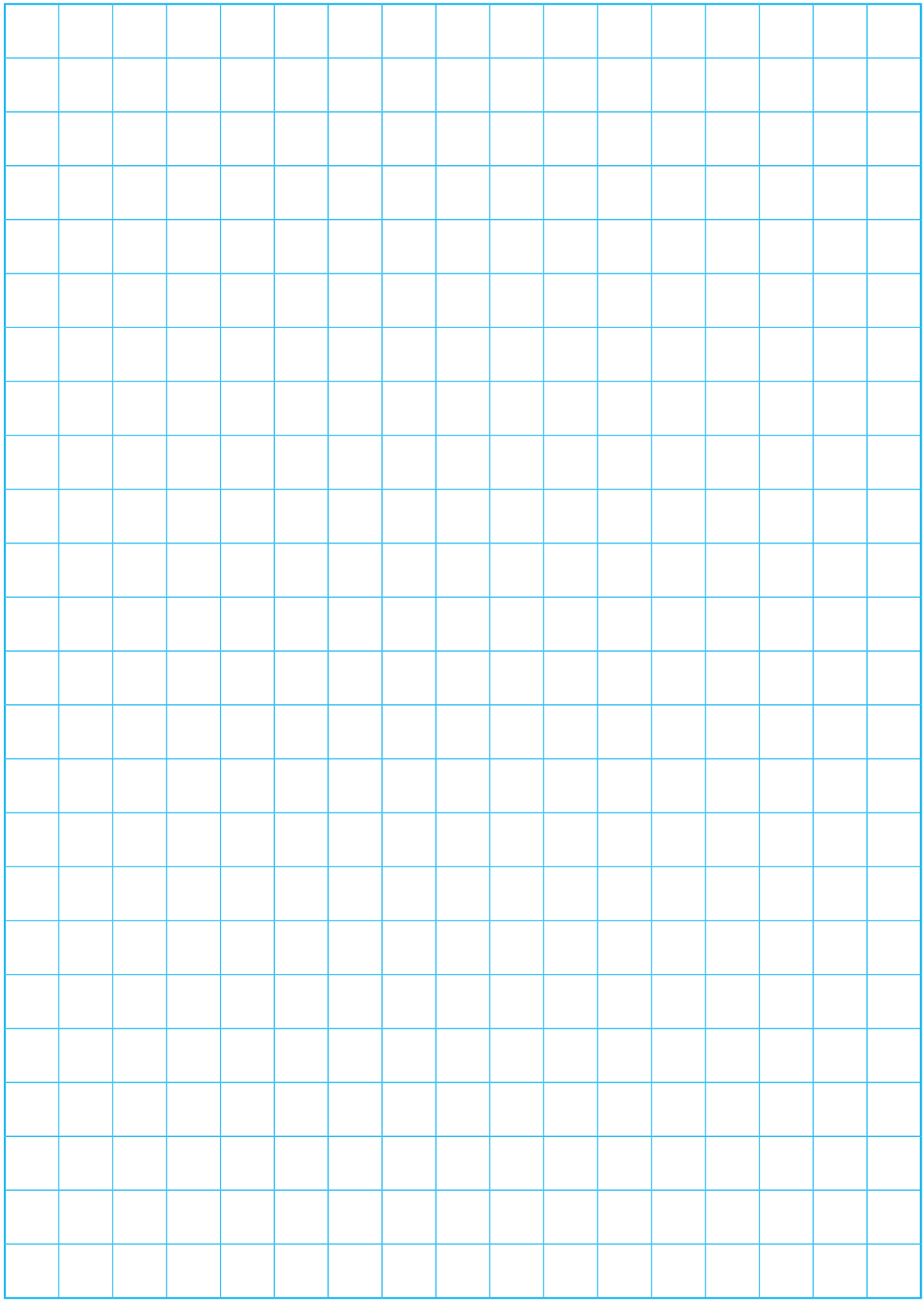


3. Yumiko owns $\frac{7}{9}$ of a section of land. She plants lettuce on $\frac{1}{4}$ of her land. What fraction of the entire section is planted with Yumiko's lettuce?



NOTE

Students practice multiplying two fractions.
MWI **Multiplying a Fraction by a Fraction**



NAME _____ DATE _____

Fraction-to-Decimal Division Table

N/D	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

NAME _____ DATE _____

Practicing Division

Solve each problem. Show your work. Use clear and concise notation.

1. 598 ÷ 23 _____

2. 744 ÷ 8 _____

3. $57\overline{)1{,}710}$ _____

4. 1,128 ÷ 12 _____

NOTE

Students solve division problems.
MWI **Division Strategies**

NAME _____ DATE _____

Comparing Decimals

Compare each pair of decimals. Use $<$, $>$, or $=$. Explain how you determined which decimal is greater.

1. 0.567 _____ 0.68

2. 0.74 _____ 0.709

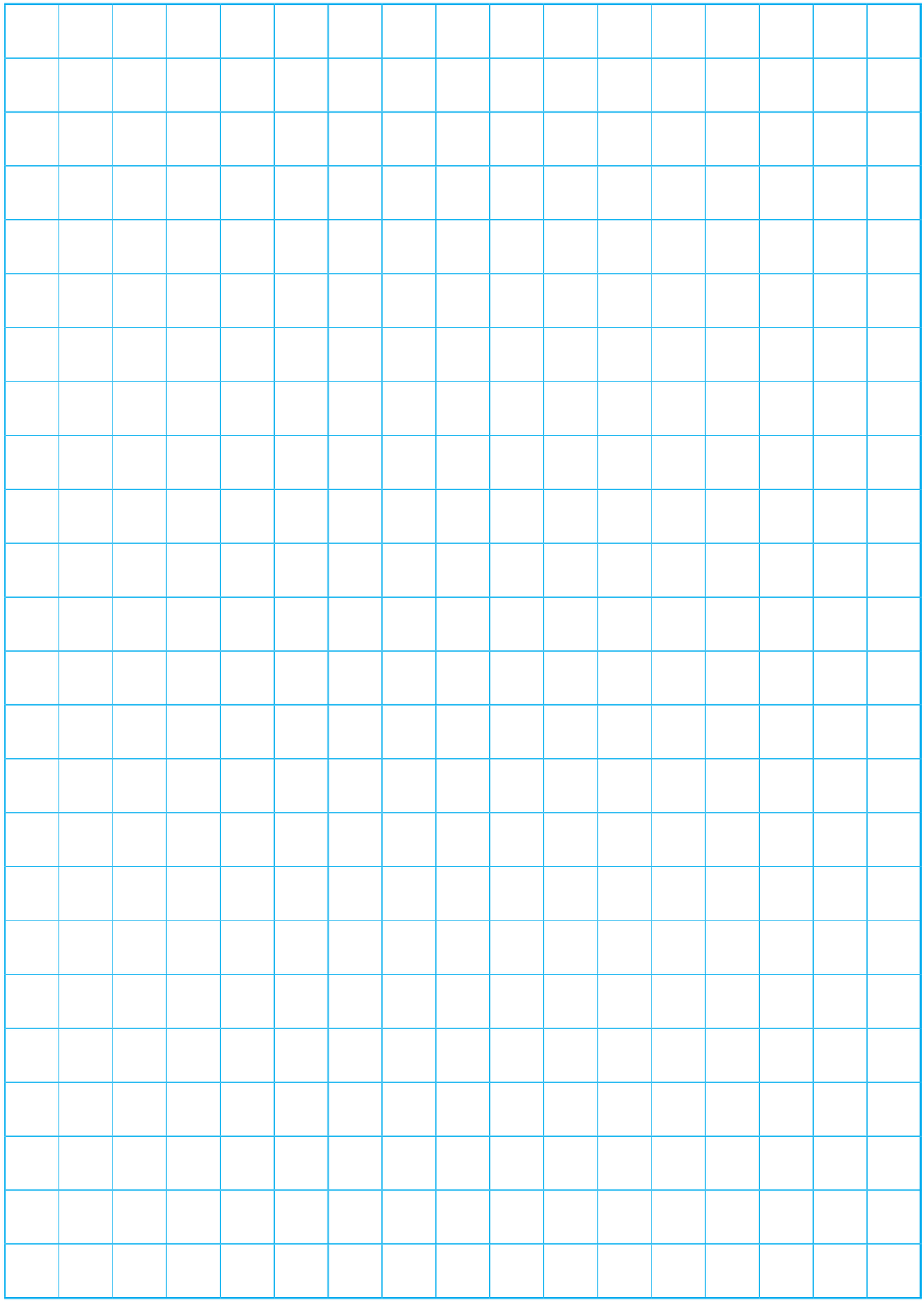
3. 1.45 _____ 1.286

4. 3.54 _____ 2.98

5. 1.236 _____ 1.24

NOTE

Students compare decimals.
MWI **Comparing and Ordering Decimals**



NAME DATE

Division Problems

Write an equation for each problem. Solve each problem using a representation and show your solution clearly.

1. Joshua picked 11 apples, which he shared equally among his 3 friends and himself. How many apples did each person get?

2. There are 4 cups of flour. If 7 people are going to share the flour equally to do some baking, how much flour will each person get?

3. Tavon has 15 feet of fabric, which he wants to cut into equally-sized pieces to make 8 napkins. How many feet of fabric will he use for each napkin?

4. There are 4 granola bars to be shared equally among 9 students. How many granola bars will each student get?

5. 20 gallons of water was shared equally among 6 families. How many gallons of water did each family get?

NAME DATE

Division Problems with Fractions

Solve each problem. Show how you solved it.

1. A dog eats $\frac{1}{2}$ of a cup of dog food per meal. How many meals are in a 6-cup bag of dog food?

2. Nora has 9 yards of ribbon. She needs $\frac{1}{5}$ of a yard of ribbon to make one bow. How many bows can Nora make?

3. 4 friends equally share $\frac{1}{3}$ of a pan of brownies. How much of the whole pan of brownies does each friend get?

4. Martin has 6 yards of fabric, which he wants to use to make curtains. Each curtain will be $\frac{3}{4}$ of a yard long. How many curtains can Martin make?

NOTE

Students solve division problems with fractions.
MWI **Dividing a Whole Number by a Unit Fraction; Dividing a Fraction by a Whole Number**

NAME _____ DATE _____

Multiplying by Powers of 10

Solve the following sets of problems.

1

$8 \times 0.01 =$

$8 \times 0.1 =$

$8 \times 1 =$

$8 \times 10 =$

$8 \times 100 =$

2

$14 \times 0.01 =$

$14 \times 0.1 =$

$14 \times 1 =$

$14 \times 10 =$

$14 \times 100 =$

3

$25 \times 0.01 =$

$25 \times 0.1 =$

$25 \times 1 =$

$25 \times 10 =$

$25 \times 100 =$

4

$138 \times 0.01 =$

$138 \times 0.1 =$

$138 \times 1 =$

$138 \times 10 =$

$138 \times 100 =$

5 Look at the sets of problems above. Write three statements about what you notice, including any patterns you might see.

NAME _____ DATE _____

Money and Powers of 10

Charles is a cashier. When he was cashing out one day, he noticed something strange. All of the money in his cash register was either pennies, dimes, $1 bills, $10 bills, or $100 bills! He also noticed there was the exact same number of each. This happened 3 days in a row.

1 Complete the table below. Write equations for Day 2 and Day 3. Then find the products. As you work, think about what patterns you notice.

	Day 1: 6 of each	Day 2: 18 of each	Day 3: 125 of each
Bills or Coins	**Equation and Product**	**Equation and Product**	**Equation and Product**
$100 bills	$6 \times 100 =$	$18 \times 100 =$	
$10 bills	$6 \times 10 =$		
$1 bills	$6 \times 1 =$		
Dimes	$6 \times 0.1 =$		
Pennies	$6 \times 0.01 =$		

2 Look at the products in the table. What pattern(s) do you notice?

NOTE

Students solve multiplication problems involving decimals and powers of 10.
MWI **Multiplying by Powers of 10**

HOMEWORK

NAME _____ DATE _____

Adding and Subtracting with Decimals

Solve each problem and show your solutions.

1. Zachary just got a new bike. On Wednesday, he rode 3.85 miles, on Thursday he rode 4.2 miles, and on Friday he rode 3.29 miles. How many miles did he ride in all?

2. $2.67 + 5.286 =$ _____

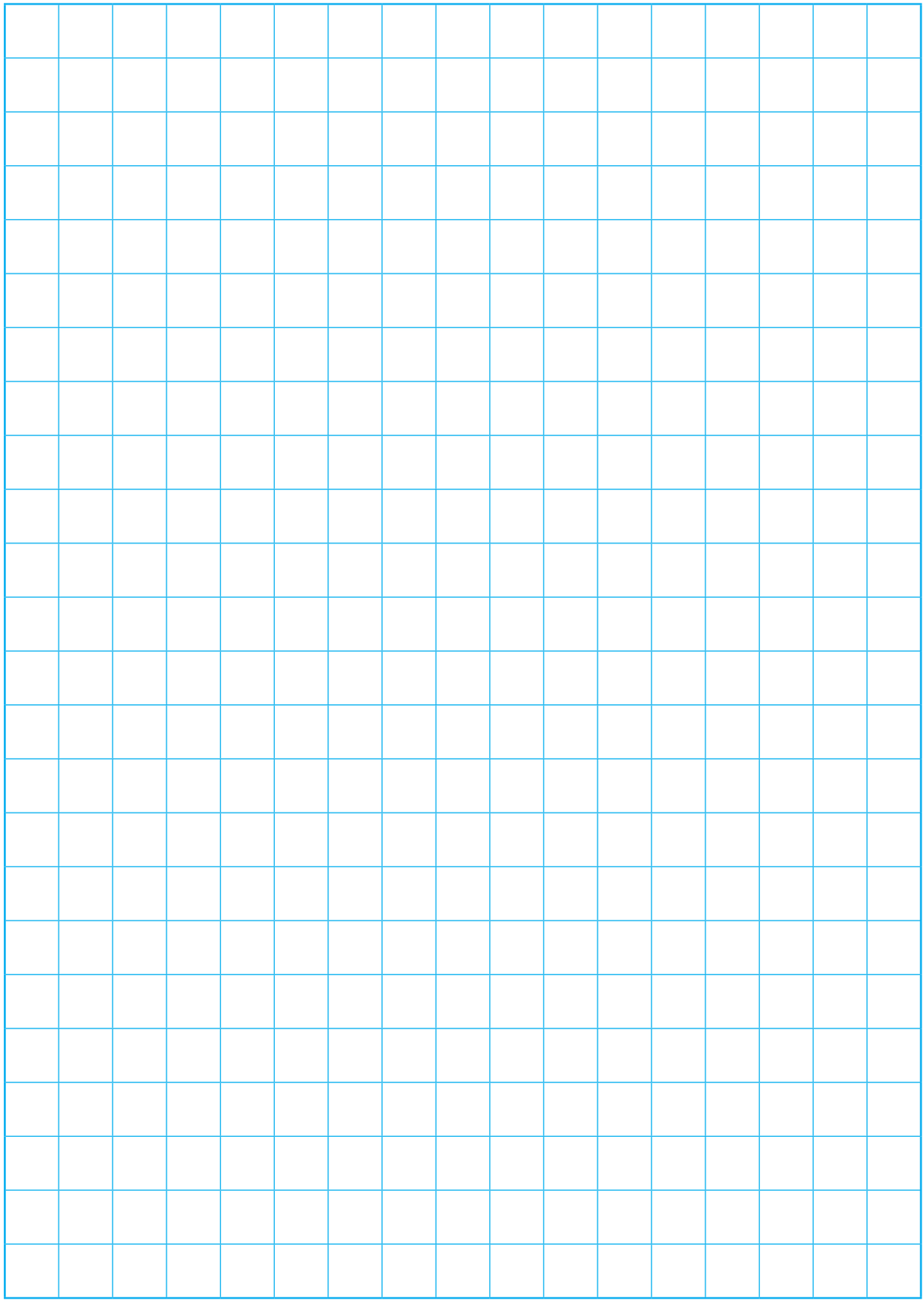
3. Shandra's family is going to visit her grandparents. Her grandparents live 60.23 miles away. The family drove 38.5 miles before they stopped to get gas. How much farther do they have to drive?

4. It has been a rainy week. On Monday, it rained 4.2 inches, on Tuesday it rained 3.5 inches, and on Thursday it rained 5.12 inches. How many inches did it rain in all?

5. $9.38 - 2.6 =$ _____

NOTE

Students solve addition and subtraction problems that involve decimals.
MWI **Adding Decimals; Subtracting Decimals**



NAME DATE

Multiplying Decimals

In Problems 1–3, circle the correct answer and explain your thinking.

1. $19 \times 0.5 =$ 0.95 9.5 95

2. $2.5 \times 7 =$ 0.175 1.75 17.5

3. $120 \times 0.3 =$ 3.6 36 360

Solve Problems 4–5 and show your work. Use estimation and number sense to determine the magnitude (size) of the answer.

4. Yumiko ran 0.35 mile a day for 9 days. How far did she run in 9 days?

5. A marathon is 26.2 miles. How far did Benito run if he completed 3 marathons?

NAME DATE

Multiplying Decimals

Solve Problems 6–9 and show your work. Use estimation and number sense to determine the magnitude (size) of the answer.

6 $0.8 \times 12 =$

7 $4.3 \times 4 =$

8 $185 \times 0.4 =$

9 $0.7 \times 8.4 =$

10 Look at your work for Problems 4–9. How is multiplying with decimals the same as, or different from, multiplying with whole numbers?

NAME _____ DATE _____

Reasoning about Decimals

Use reasoning about multiplication and place value to solve these problems mentally. Circle the correct answer and explain your thinking.

1	$0.5 \times 45 =$	2.25	22.5	225
2	$92 \times 0.07 =$	6.44	64.4	644
3	$0.6 \times 248 =$	1.488	14.88	148.8
4	$0.38 \times 19 =$	0.722	7.22	72.2
5	$68 \times 0.24 =$	16.32	163.2	1,632

NOTE

Students use reasoning about multiplication and decimals to choose the correct product among a choice of three possibilities.
MWI **Multiplying Decimals**

NAME _____ DATE _____

Powers of 10 and Multiplication

Solve the following problems.

1. $4 \times 100 =$ _____

2. $10 \times 16 =$ _____

3. $925 \times 0.01 =$ _____

4. $84 \times 0.1 =$ _____

5. $27 \times 1 =$ _____

6. $675 \times 10 =$ _____

7. $19 \times 0.1 =$ _____

8. $45 \times 0.01 =$ _____

9. $0.01 \times 655 =$ _____

10. $20 \times 100 =$ _____

NOTE

Students solve multiplication problems involving powers of 10.
MWI **Multiplying by Powers of 10**

NAME DATE

Buying School Supplies

Solve Problems 1–3 and show your work. Write an equation for each problem.

1. Lourdes buys 24 boxes of paper that cost $16.00 each. What is the total cost?

2. Lourdes buys 24 notebooks that cost $1.60 each. What is the total cost?

3. Lourdes buys 24 pencils that cost $0.16 each. What is the total cost?

4. Look at your equations for Problems 1–3. Write three things you notice.

NAME _____ DATE _____

A Strategy for Multiplying Decimals

In Problems 1–3, circle the correct answer and explain your thinking.

1. $1.56 \times 9 =$ 1.404 14.04 140.4

2. $0.28 \times 48 =$ 0.1344 1.344 13.44

3. $2.4 \times 1.5 =$ 0.36 3.6 36

Solve Problems 4–8 and show your work.

4. $84 \times 0.25 =$ _____

5. $6.4 \times 6.5 =$ _____

6. $93 \times 0.08 =$ _____

7. $1.3 \times 1.05 =$ _____

8. A fourth grader asks you how to multiply when some of the numbers are decimals. What would you say? Write your strategy for multiplying decimals.

NAME _____ DATE _____

Decimal Multiplication

In Problems 1–8, the correct digits for each product are given. Place the decimal point in the correct place so that the equation is true.

1. $0.7 \times 61 = 4\,2\,7$

2. $53 \times 0.08 = 4\,2\,4$

3. $652 \times 0.3 = 1\,9\,5\,6$

4. $0.48 \times 32 = 1\,5\,3\,6$

5. $94 \times 0.25 = 2\,3\,5\,0$

6. $2.7 \times 56 = 1\,5\,1\,2$

7. $6 \times 21.4 = 1\,2\,8\,4$

8. $0.03 \times 14 = 4\,2$

9. Choose one of the problems above. Explain how you knew where to place the decimal point.

NOTE

Students use reasoning about multiplication and decimals to place the decimal point in the product of a whole number and a decimal. They solve these problems mentally.
MWI **Multiplying Decimals**

NAME _____ DATE _____

Adding and Subtracting Decimals Practice

Solve each problem and show how you solved it.

1. Joshua bought a variety of peppers at the market. He bought 2.35 pounds of red peppers, 3.2 pounds of green peppers, and 4.37 pounds of yellow peppers. How many pounds of peppers did he buy in all?

2. Mercedes is learning to knit. She has 6.37 meters of yarn. She wants to knit a heart that requires 1.5 meters of yarn. How much yarn will she have left after she knits the heart?

3. $15.36 + 2.89 + 10.6 =$ _____

4. $30.51 - 15.73 =$ _____

5. $16.23 + 5.9 + 9.23 =$ _____

NOTE

Students solve addition and subtraction problems that involve decimals.
MWI **Adding Decimals; Subtracting Decimals**

NAME DATE

Animal Speeds

Solve the problems. Show your work.

1. If a sea otter swam 5.6 miles per hour for 1.5 hours, how many miles did the sea otter swim?

2. If a three-toed sloth moved 0.15 mile per hour for 7 hours, how far did it go?

3. If a humpback whale swam 16.8 miles per hour for 4.5 hours, how far did it swim?

4. If a garden snail moved 0.03 mile per hour for 3 hours, how far did it get?

5. If an American eel swam 2.4 miles per hour for 3.5 hours, how far did it swim?

6. If a great white shark swam 24.9 miles per hour for 8 hours, how far did it swim?

NAME DATE

How Far?

Solve the problems. Show your work.

1. If a greyhound ran 39.4 miles per hour for 4 hours, how many miles did it run?

2. If a bluefin tuna swam 43.5 miles per hour for 7 hours, how many miles did it swim?

3. If a California sea lion moved 13.4 miles per hour for 3 hours, how far did it go?

4. If a tiger shark swam 19.9 miles per hour for 5 hours, how far did it swim?

5. If a spider moved 1.2 miles per hour for 2.5 hours, how far did it go?

6. If a striped marlin swam 50.3 miles per hour for 4.5 hours, how far did it swim?

NOTE

Students solve problems involving multiplication of decimals.
MWI **Multiplying Decimals**

NAME _____ DATE _____

Multiplication with Decimals

Solve each problem and show your work. Once you have your answer, remember to look back at the numbers in the problem to make certain your answer makes sense.

1. $0.6 \times 215 =$ _____

2. $57 \times 0.35 =$ _____

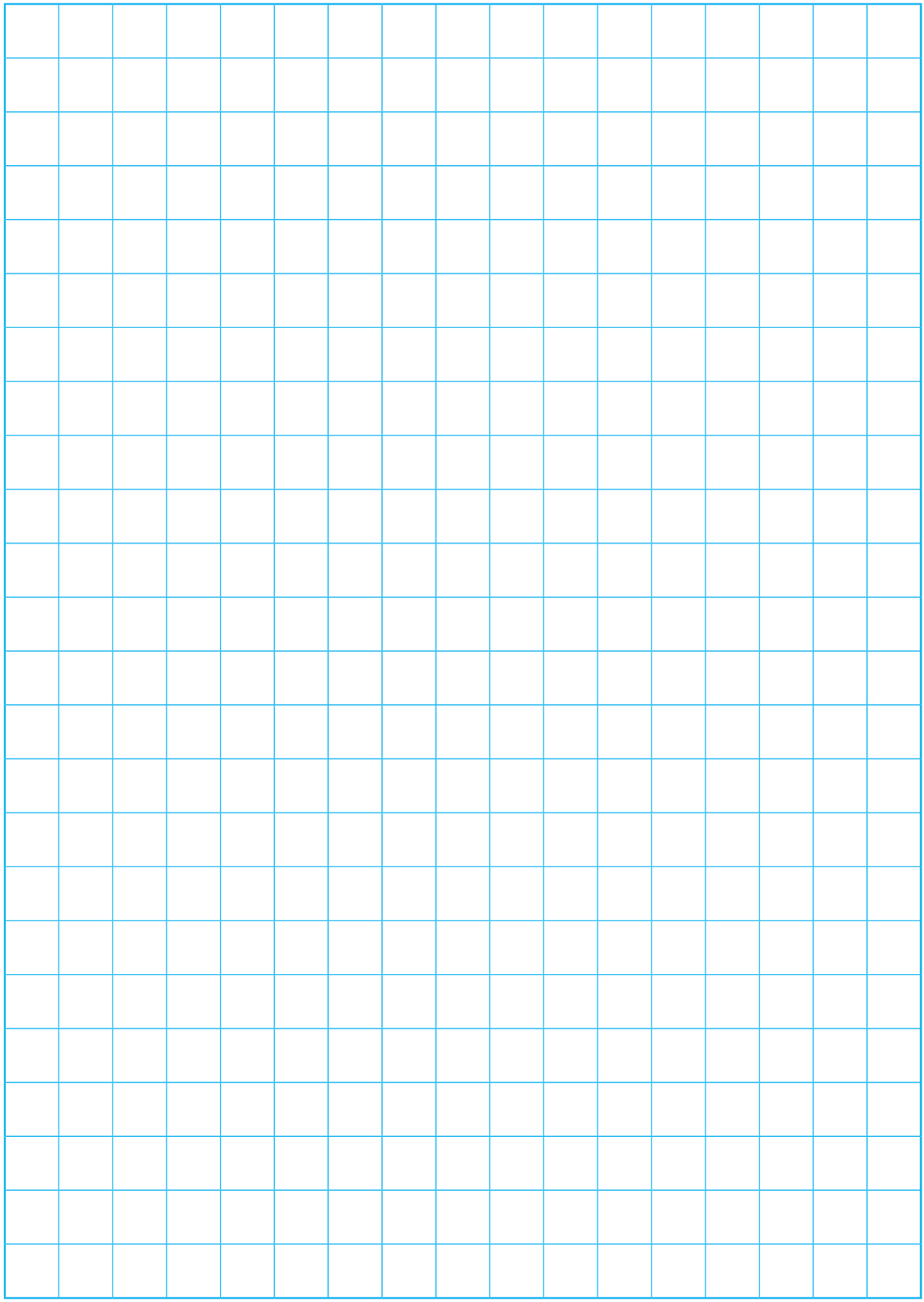
3. Lourdes rides to and from school each day. The round-trip distance is 2.6 miles. How far does she ride in 5 days?

4. Renaldo runs 0.88 mile each day. How far does he run in 7 days?

5. A cat eats 1.5 cans of cat food each day. How many cans of cat food does the cat eat in 14 days?

NOTE

Students solve problems involving multiplication of decimals.
MWI **Multiplying Decimals**



NAME DATE

Animal Speeds and Jumps

Solve the following problems and show your solutions.

1. If a sea otter swam 5.6 miles per hour for 7 hours, how many miles did the sea otter swim?

2. If a humpback whale swam 16.8 miles per hour for 6.5 hours, how far did it swim?

3. If a striped marlin swam 50.3 miles per hour for 4.5 hours, how far did it swim?

4. If a three-toed sloth moved 0.15 mile per hour for 9.5 hours, how far did it go?

5. If a great white shark swam 24.9 miles per hour for 12 hours, how far did it swim?

NAME _____ DATE _____

Animal Speeds and Jumps

On the imaginary planet Rhomaar, animals jump exactly the same distance each time they jump.

Animal	Length of Jump
Flickerbill	0.45 cm
Spiraltail	5.2 cm
Krink	13.6 cm
Trifoot	30.9 cm
Fastwalker	7.8 cm

Solve the following problems and show your solutions.

6 The Fastwalker jumped 7 times to meet its friend, the Trifoot. How far did the Fastwalker jump?

7 If a Spiraltail took 9 jumps, how far would it go?

8 If a Krink took 16 jumps, how far would it go?

9 A Flickerbill jumped 87 times across a field. How far did it jump?

10 A Trifoot was chased by another animal. The Trifoot jumped 37 times before it was safe. How far did it jump?

NAME _____ DATE _____

Decimal Multiplication Problems

Solve each problem and show your work. Once you have your answer, remember to look back at the numbers in the problem to make certain your answer makes sense.

1. $0.8 \times 729 =$ _____

2. $43 \times 0.62 =$ _____

3. Charles is baking 14 loaves of bread. Each loaf of bread requires 3.5 cups of flour. How much flour does he need to make all 14 loaves of bread?

4. A pack of pencils costs $1.29. Nora buys 5 packs of pencils. How much do they cost?

5. Martin runs around the same lake every day. The distance around the lake is 3.86 miles. How many miles does he run in 4 days?

NOTE

Students solve problems involving multiplication of decimals.
MWI **Multiplying Decimals**

NAME _____ DATE _____

Dividing by Powers of 10

1 $6 \div 1 =$ _____

$6 \div 0.1 =$ _____

$6 \div 0.01 =$ _____

2 $17 \div 1 =$ _____

$17 \div 0.1 =$ _____

$17 \div 0.01 =$ _____

3 $25 \div 1 =$ _____

$25 \div 0.1 =$ _____

$25 \div 0.01 =$ _____

4 $145 \div 1 =$ _____

$145 \div 0.1 =$ _____

$145 \div 0.01 =$ _____

5 Look at the sets of problems above. Write three statements about what you notice, including any patterns you see.

NAME _____ DATE _____

Hana's Money

Hana likes trading in her paper money (bills) for coins. Determine the number of pennies, nickels, and dimes she would have for each amount shown.

1 Complete the table below. Each cell should have a division equation and a related missing-factor equation. As you work, think about what patterns you notice.

	Hana has a $1 bill.	Hana has a $5 bill.	Hana has a $10 bill.
Coins	**Equations**	**Equations**	**Equations**
Pennies	$1 \div 0.01 =$ _____ or _____ $\times 0.01 = 1$	$5 \div 0.01 =$ _____ or _____ $\times 0.01 = 5$	
Nickels	$1 \div 0.05 =$ _____ or _____ $\times 0.05 = 1$		
Dimes	$1 \div 0.1 =$ _____ or _____ $\times 0.1 = 1$		

2 Look at your answers above. What pattern(s) do you notice?

NOTE

Students solve division problems involving decimals.
MWI **Dividing by Powers of 10; Dividing Decimals**

NAME _____ DATE _____

Miles and Miles

The table shows the distances four runners run every day. Use the data in the table to answer the questions. Show your work.

Runner	Miles Run Each Day	Runner	Miles Run Each Day
Hana	12.5	Deon	10.4
Margaret	8.7	Felix	7.8

1. How many miles does Margaret run in 4 days?

2. How many miles does Felix run in 10 days?

3. How many miles does Deon run in 7 days?

4. How many miles does Hana run in 30 days?

5. Margaret plans to increase her daily run to 1.2 times the distance she currently runs. How far would that be?

6. Someday, Deon would like to run in a race that is 2.5 times the distance he runs each day. How many miles long is the race?

NOTE

Students solve problems involving multiplication of decimals.
MWI **Multiplying Decimals**

NAME _____ DATE _____

Dividing Decimals

In Problems 1–4, circle the correct answer and explain your thinking.

1. $121 \div 1.1 =$ 11 110 1,100

2. $35 \div 0.07 =$ 5 50 500

3. $9\overline{)7.2}$ 0.8 8 80

4. $28.8 \div 24 =$ 0.12 1.2 12

Solve Problems 5–8 and show your work. Use estimation and number sense to determine the size of the answer.

5. $3\overline{)45.6}$

6. $140 \div 3.5 =$ _____

7. $97.5 \div 6.5 =$ _____

8. $0.8\overline{)21.52}$

9. Look at your work for problems 5–8. How is dividing with decimal numbers the same as, or different from, dividing with whole numbers?

NAME _____ DATE _____

Division Problems with Decimals

Circle the correct answer, and explain your thinking.

1	$84.7 \div 7 =$	1.21	12.1	121
2	$5.6\overline{)168}$	3	30	300
3	$73.6 \div 23 =$	3.2	32	320
4	$816 \div 5.1 =$	16	160	1,600
5	$3.2\overline{)86.4}$	0.27	2.7	27

NOTE

Students use reasoning about division and decimals to determine the correct quotient. They solve these problems mentally.

MWI **Dividing Decimals**

NAME _____ DATE _____

Solving Decimal Problems

Solve each problem and show your work. Once you have your answer, remember to look back at the numbers in the problem to make certain your answer makes sense.

1. Walter walks 0.3 mile each day. How far does he walk in 18 days?

2. Janet runs 0.72 mile each day. How far does she run in 8 days?

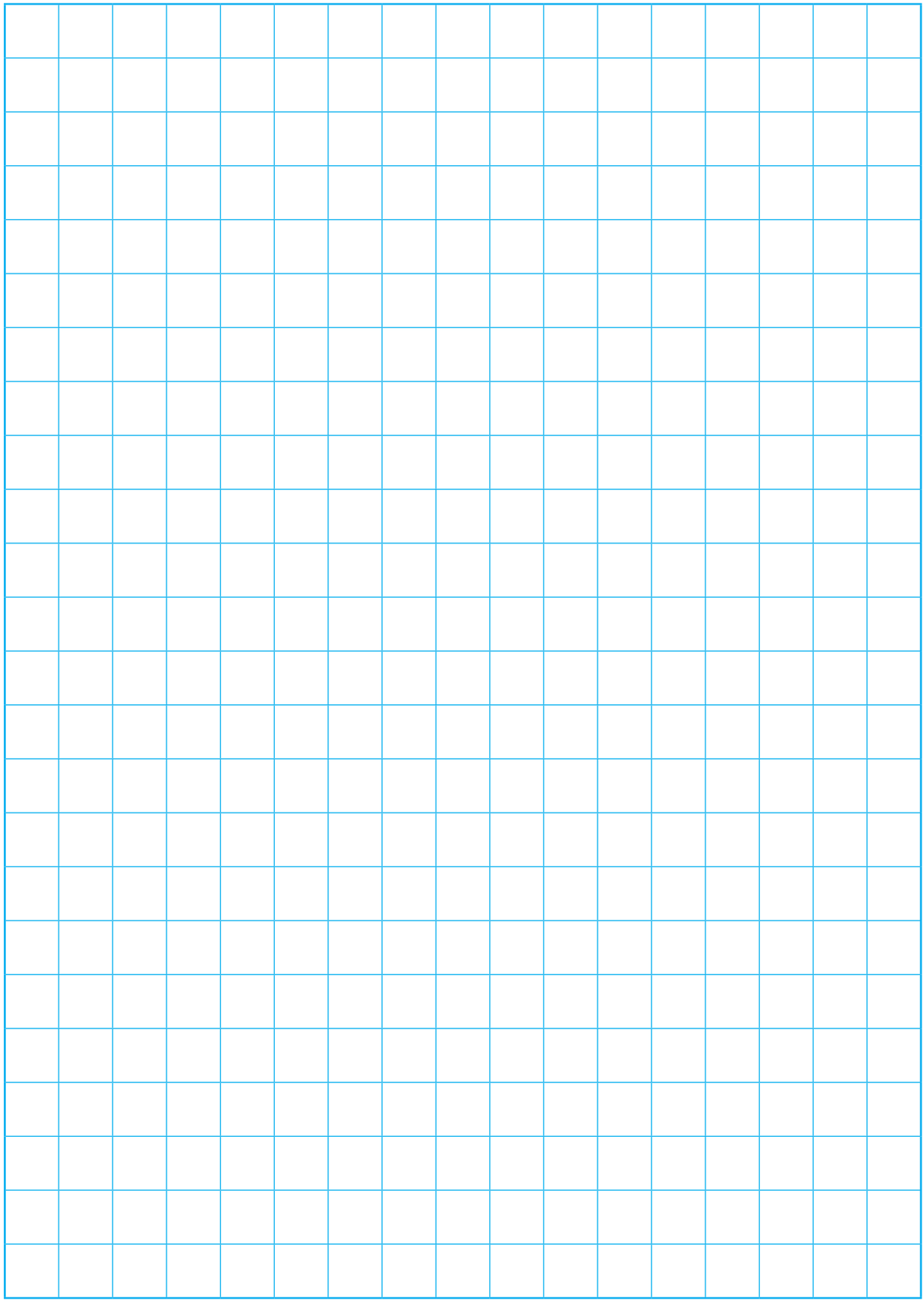
3. A dog eats 1.5 cups of food each day. How many cups of food does the dog eat in 28 days?

4. $0.63 \times 17 =$ _____

5. $146 \times 0.4 =$ _____

NOTE

Students solve problems involving multiplication of decimals.
MWI **Multiplying Decimals**



NAME _____ DATE _____

Converting Length, Mass, and Capacity (Metric)

Convert each of these metric measurements. Show your work.

1. 6 km = _____ m

2. 35 cm = _____ mm

3. _____ m = 2,716 cm

4. 9.18 km = _____ m

5. 47.5 cm = _____ m

6. _____ g = 9 kg

7. _____ kg = 27,418 g

8. 540 g = _____ kg

9. 9,000 mL = _____ L

10. _____ mL = 182.54 L

11. Martin uses clay to make vases. He uses 750 grams of clay for each vase. How many kilograms of clay does he need to make 10 vases?

12. Hana is training for a race. She runs 3.2 kilometers six days each week. How many meters does she run each week?

NAME _____ DATE _____

Decimal Division Problems

Solve each problem and show your work. Once you have your answer, remember to look back at the numbers in the problem to make certain your answer makes sense.

1. $132 \div 1.2 =$ _____

2. $32.4 \div 9 =$ _____

3. $5.6 \div 8 =$ _____

4. Margaret rode her bike the same distance every day for 5 days. In total, she rode her bike 21.85 miles. How many miles did she ride each day?

5. Deon went to the bookstore and spent $114.75. If he purchased 9 books that each cost the same amount, how much did each book cost?

NOTE

Students solve problems involving division with decimals.
MWI **Dividing Decimals**

HOMEWORK

NAME _____ DATE _____

Metric Measurement Conversions

Convert each measurement. Show your work.

1. 25 m = _____ km

2. _____ m = 5,365 cm

3. 48.75 mL = _____ L

4. 8,532 g = _____ kg

5. 924 cm = _____ mm

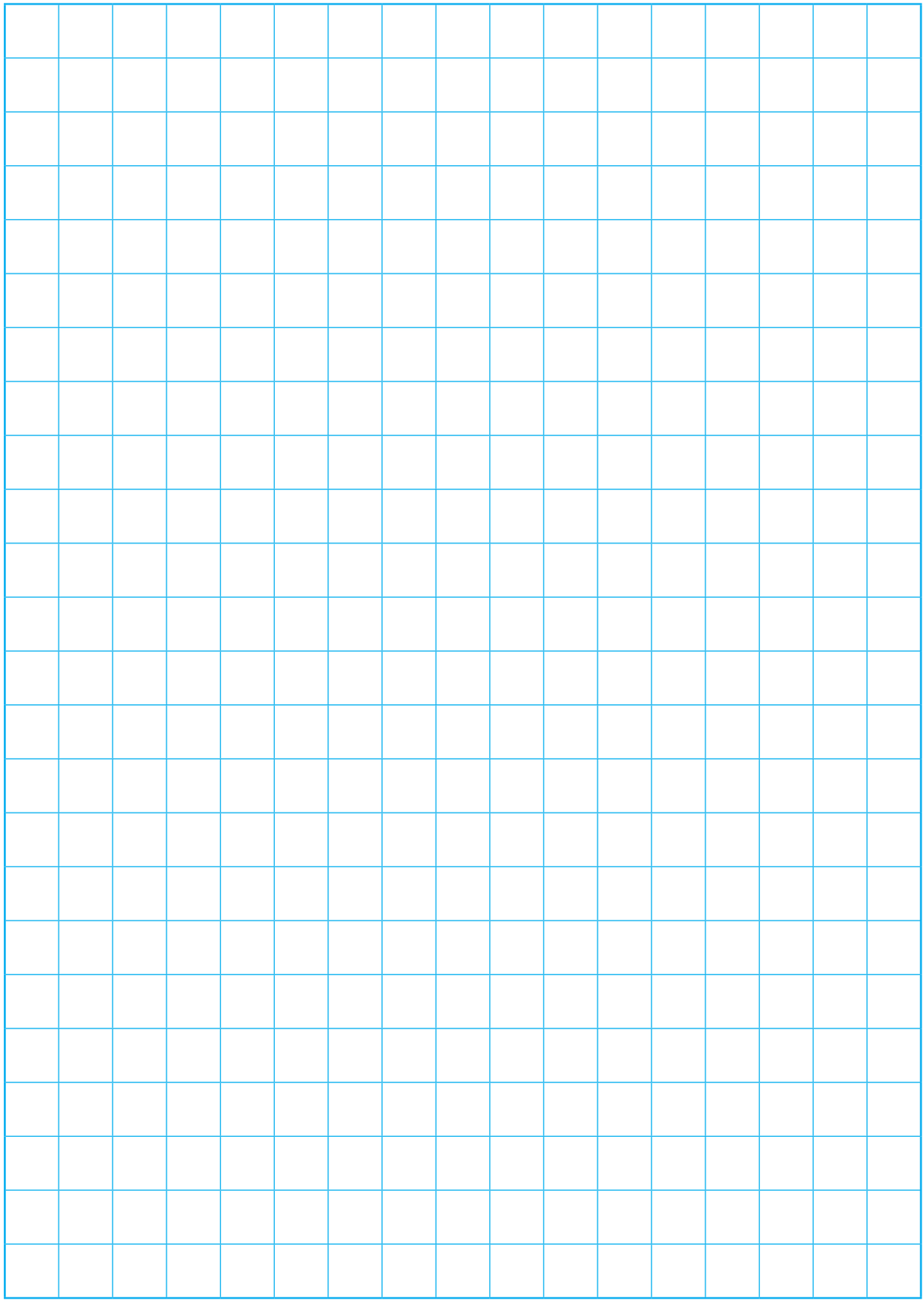
6. _____ cm = 785 mm

7. Mr. Silva bought 5 watermelons for a school party. Each watermelon weighs 9 kilograms. How many grams do all 5 watermelons weigh?

8. Mercedes rides her bike 3.85 kilometers every day. How many meters does she ride in 5 days?

NOTE

Students solve problems involving metric measurement conversions.
MWI **Converting Metric Measurements**



NAME _____ DATE _____

Converting Length and Weight (U.S.)

Convert each measurement. Show your work.

1. 15 ft = _____ yd

2. _____ in. = 10 ft

3. 162 in. = _____ ft

4. 3 mi = _____ ft

5. $5\frac{1}{3}$ yd = _____ ft

6. _____ in. = 6 ft 3 in.

7. _____ lb = 32 oz

8. _____ lb = 7 T

9. $2\frac{1}{2}$ T = _____ lb

10. 12 lb 10 oz = _____ oz

11. Avery uses 2 feet of ribbon to make a bow. She has 8 yards of ribbon. How many bows can she make?

12. Mitch's father needs $1\frac{1}{2}$ tons of gravel. He bought 1,750 pounds of gravel. How many more pounds of gravel does he need?

NAME _____ DATE _____

Rhomaar Animal Jumps

On the imaginary planet Rhomaar, animals jump exactly the same distance each time they jump.

Animal	Length of Jump
Flickerbill	0.45 cm
Spiraltail	5.2 cm
Krink	13.6 cm
Trifoot	30.9 cm
Fastwalker	7.8 cm

Solve the following problems and show how you solved them.

1. How many jumps would it take the Spiraltail to go 46.8 cm?

2. How many jumps would it take the Flickerbill to go 8.1 cm?

3. How many jumps would it take for a Fastwalker to go 265.2 cm?

4. The Flickerbill jumped 135 cm to find some food. How many jumps did it make?

NAME DATE

Rhomaar Animal Jumps

Solve the following problems and show how you solved them. Refer to the table on the previous page.

5 The Fastwalker jumped 187.2 cm to get away from the Krink. How many jumps did the Fastwalker make?

6 A Spiraltail jumped 332.8 cm to get to a tree. How many jumps did the Spiraltail make?

7 How many jumps would it take a Fastwalker to jump 390 cm?

8 How many jumps would it take a Flickerbill to jump 35.1 cm?

NAME _____ DATE _____

U.S. Measurement Conversions

Convert each measurement. Show your work.

U.S. Length Equivalents	U.S. Weight Equivalents
1 foot (ft) = 12 inches (in.)	1 pound (lb) = 16 ounces (oz)
1 yard (yd) = 3 feet (ft)	1 ton (T) = 2,000 pounds (lb)
1 mile (mi) = 5,280 feet (ft)	

1. $10\frac{2}{3}$ yd = _____ ft

2. 48 in. = _____ ft

3. 186 in. = _____ ft

4. _____ ft = 5 mi

5. 48 oz = _____ lb

6. 8,000 lb = _____ T

7. _____ lb = $4\frac{1}{2}$ T

8. 248 oz = _____ lb

9. Nora runs $2\frac{1}{2}$ miles every day. How many feet does she run in 3 days?

10. An adult elephant weighs 3 tons. Four baby elephants each weigh 200 lbs. How many pounds do the adult elephant and baby elephants weigh in total?

NOTE

Students solve problems involving U.S. standard measurement conversions.
MWI **Converting U.S. Standard Measurements**

NAME _____ DATE _____

More Dividing with Decimals

Solve each problem and show your work. Once you have your answer, remember to look back at the numbers in the problem to make certain your answer makes sense.

1. $195 \div 1.3 =$ _____

2. $75.6 \div 14 =$ _____

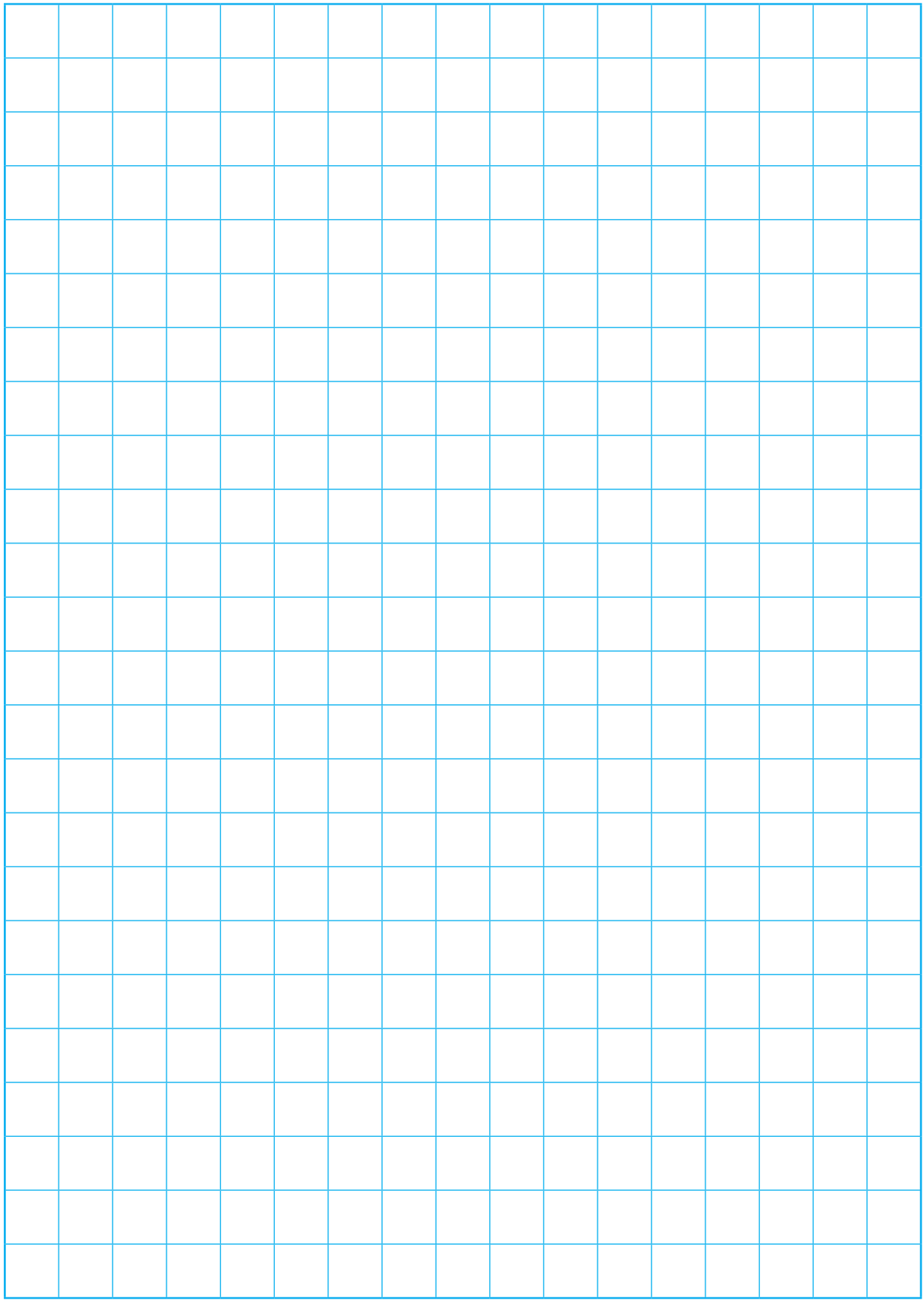
3. $83.2 \div 8 =$ _____

4. Nora has 42 meters of ribbon. She uses 0.6 meter of ribbon to make a bow. How many bows can she make?

5. Martin rides his bike the same distance each day for 6 days. If he rides a total of 32.4 kilometers, how many kilometers does he ride each day?

NOTE

Students solve problems involving division with decimals.
MWI **Dividing Decimals**



NAME _____ DATE _____

Converting Capacity (U.S.)

Convert each capacity measurement. Show your work.

1. 72 fl oz = _____ c

2. _____ pt = 12 c

3. _____ gal = 84 qt

4. 22 pt = _____ qt

5. $9\frac{1}{2}$ gal = _____ qt

6. _____ fl oz = $8\frac{1}{2}$ c

7. 144 fl oz = _____ c

8. $14\frac{1}{2}$ qt = _____ pt

9. _____ pt = 3 gal

10. 218 qt = _____ gal

11. A chef made 12 gallons of soup. How many 2-quart containers can the chef fill with soup?

12. Ms. Florez used 2 gallons of juice and 3 quarts of seltzer water to make punch for a class party. How many cups of punch did she make?

NAME _____ DATE _____

Converting Measurements

Convert each measurement. Show your work.

1. _____ m = 7.35 km

2. 356 g = _____ kg

3. 7,500 mL = _____ L

4. _____ yd = 100 ft

5. 166 oz = _____ lb

6. 40.87 kg = _____ g

7. To ride the Daring Dipper Roller Coaster, you need to be 42 inches tall. Terrence's little sister is 3 feet 4 inches. Is she tall enough to go on the ride? Explain.

8. Alicia's aunt is 1.72 meters tall. Alicia's mother is 175 centimeters tall. Who is taller? Explain.

9. Joshua bought a 4-pound sack of flour. How many ounces of flour did he buy?

10. A chunk of cheddar cheese weighs 30 ounces. A chunk of Parmesan cheese weighs 1 pound 10 ounces. Which chunk of cheese is heavier? Explain.

NAME _____ DATE _____

Converting Measurements

Convert each measurement. Show your work.

11 _____ in. = 18 ft 7 in.

12 821 L = _____ mL

13 19,000 lb = _____ T

14 _____ oz = 25 lb 8 oz

15 Georgia has 9 meters of ribbon and wants to make 80 spirit ribbons that are each 12 cm long. Does she have enough ribbon? Explain how you know.

16 Tamira has 8 pounds of clay. How many 4-ounce bowls can she make with the clay?

17 Deon bought 36 cans of juice that each contained 300 milliliters of juice. How many liters of juice did he buy?

18 Terrence uses pieces of wood that are 10 inches long to make whistles. He has a piece of wood that is $12\frac{1}{2}$ feet long. How many whistles can he make?

NAME _____ DATE _____

Jumping Animals

On the imaginary planet Rhomaar, animals jump exactly the same distance each time they jump.

Animal	Length of Jump
Flickerbill	0.45 cm
Spiraltail	5.2 cm
Krink	13.6 cm
Trifoot	30.9 cm
Fastwalker	7.8 cm

Solve the following problems. Write an equation and show how you solved each problem.

1. The Flickerbill made 24 jumps to cross a bridge. How far did it jump?

2. How far does the Krink go if it makes 8 jumps?

3. The Spiraltail made 36 jumps searching for food. How far did it jump?

4. How far does the Fastwalker jump if it makes 29 jumps?

5. How far does the Flickerbill go if it makes 62 jumps?

NOTE

Students solve multiplication problems involving decimals.
MWI **Multiplying Decimals**

NAME _____ DATE _____

Equivalent Lengths

In Problems 1–8, convert each length. Show your work.

1. 4.5 km = _____ m
2. 8 cm = _____ mm
3. 45 ft = _____ yd
4. 96 in. = _____ ft
5. $7\frac{1}{2}$ ft = _____ in.
6. 2,716 cm = _____ m
7. 815 m = _____ km
8. $1\frac{1}{2}$ mi = _____ ft

In Problems 9–12, circle the longer length.

9. 8,000 mm 80 cm
10. 11 ft 4 in. 135 in.
11. 21 ft 17 yd
12. 0.3 km 2,000 m

Length Equivalents

U.S. Standard Units

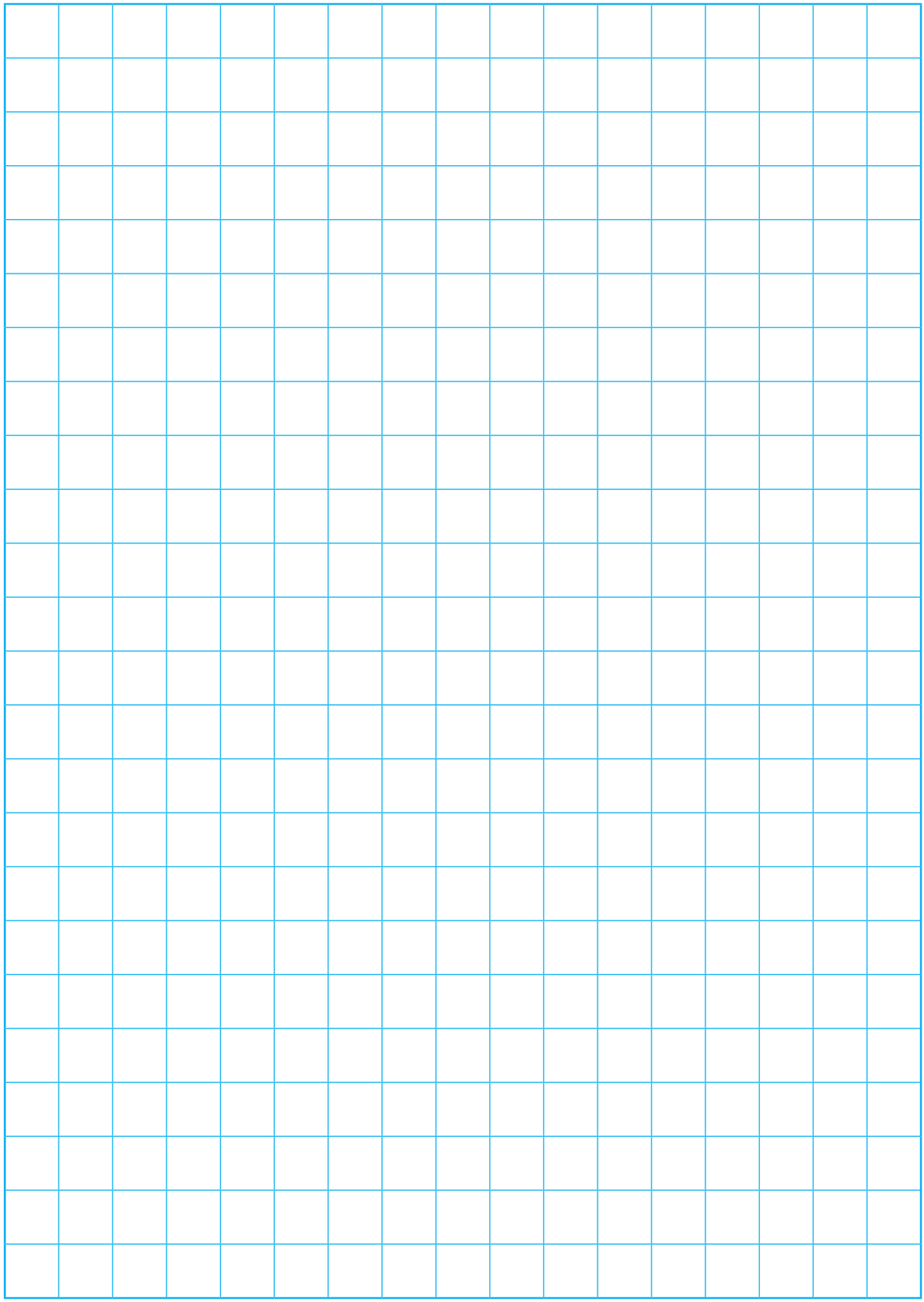
1 foot (ft) = 12 inches (in.)
1 yard (yd) = 3 feet (ft)
1 mile (mi) = 5,280 feet (ft)

Metric Units

1 centimeter (cm) = 10 millimeters (mm)
1 meter (m) = 100 centimeters (cm)
1 kilometer (km) = 1,000 meters (m)

NOTE

Students convert lengths within the metric and U.S. standard systems.
MWI **Converting Metric Measurements; Converting U.S. Standard Measurements**



NAME _____ DATE _____

Metric and U.S. Measurement Conversions

Solve these measurement conversion problems. Show your work. You may use Measurement Equivalents Chart (T80).

1. 4 c = _____ fl oz

2. 8 pt = _____ c

3. $7\frac{1}{2}$ qt = _____ pt

4. $8\frac{2}{3}$ yd = _____ ft

5. _____ cm = 9.5 m

6. 6,438 mL = _____ L

7. $12\frac{3}{4}$ gal = _____ qt

8. _____ c = 28 fl oz

9. Alicia has 20 cups of soup. She wants to put the soup into 1-quart containers. How many containers does she need?

10. Martin made $4\frac{3}{4}$ gallons of lemonade. He sells the lemonade in 1-pint containers. How many containers can he fill?

NOTE

Students solve problems involving measurement conversions.
MWI **Converting Metric Measurements; Converting U.S. Standard Measurements**