


# Middle School Math Summer Class Topic 1

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

# Use Positive Rational Numbers

Topic Opener	2
<b>enVision®</b> STEM Project	4
Review What You Know	5
Math Literacy Activity	6
Pick a Project	7
<b>1-1</b> Fluently Add, Subtract, and Multiply Decimals	9
<b>1-2</b> Fluently Divide Whole Numbers and Decimals	15
<b>1-3</b> Multiply Fractions	21
Mid-Topic Checkpoint	27
Mid-Topic Performance Task	28
 <b>3-Act Mathematical Modeling: Stocking Up</b>	29
<b>1-4</b> Understand Division with Fractions	33
<b>1-5</b> Divide Fractions by Fractions	39
<b>1-6</b> Divide Mixed Numbers	45
<b>1-7</b> Solve Problems with Rational Numbers	51
Topic Review	57
Fluency Practice Activity	61

## GET READY!

## Review What You Know!

## Vocabulary

Choose the best term from the box to complete each definition.

1. Numbers that are easy to compute mentally are \_\_\_\_\_.
2. The number used to divide is the \_\_\_\_\_.
3. A(n) \_\_\_\_\_ is an approximate answer.
4. The result of a division problem is a(n) \_\_\_\_\_.

compatible numbers  
decimal  
divisor  
estimate  
quotient

## Whole Number Operations

Calculate each value.

5.  $4 \overline{)348}$

6.  $9,007 - 3,128$

7.  $35 \times 17$

8.  $7,964 + 3,872$

9.  $22 \overline{)4,638}$

10.  $181 \times 42$

## Mixed Numbers and Fractions

Write each mixed number as a fraction. Write each fraction as a mixed number.

11.  $8\frac{1}{3}$

12.  $5\frac{3}{5}$

13.  $2\frac{5}{8}$

14.  $3\frac{4}{9}$

15.  $\frac{24}{7}$

16.  $\frac{43}{9}$

17.  $\frac{59}{8}$

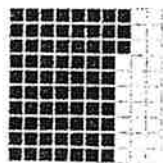
18.  $\frac{32}{5}$

## Verbal Expressions

19. How are the expressions " $\frac{1}{4}$  of 12" and "12 divided by 4" related?

## Decimals

20. What decimal does this model represent? Explain.



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



PRACTICE



TUTORIAL

# Practice & Problem Solving



Scan for  
Multimedia



In 19–27, find each sum or difference.

19.  $2.17 - 0.8$

20.  $4.3 + 4.16$

21.  $46.91 - 28.7$

22.  $4.815 + 2.17$

23.  $5.1 - 0.48$

24.  $27 + 0.185$

25.  $9.501 - 9.45$

26.  $14 + 9.8$

27.  $12.65 + 14.24$

In 28–33, find each product.

28.  $7 \times 0.5$

29.  $12 \times 0.08$

30.  $24 \times 0.17$

31.  $0.4 \times 0.17$

32.  $1.9 \times 0.46$

33.  $3.42 \times 5.15$

34. Write an equation that illustrates the following:  
A number with two decimal places multiplied by  
a number with one decimal place. The product  
has only two nonzero digits.

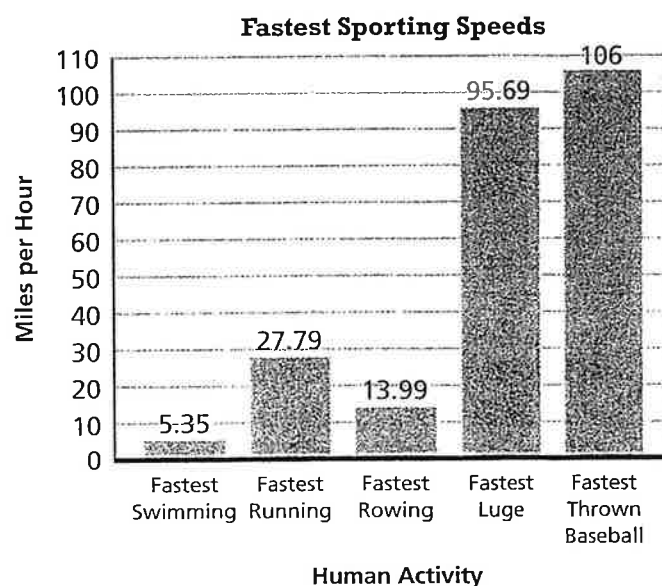
35. The Bright-O Shampoo Factory includes  
1.078 ounces of vanilla oil in a 6.35-ounce  
bottle of shampoo. How much of the bottle  
of shampoo is **NOT** vanilla oil?

In 36–38, use the graph to solve.

36. The fastest speed a table tennis ball has been  
hit is about 13.07 times as fast as the speed for  
the fastest swimming. What is the speed for the  
table tennis ball?

37. **Look for Relationships** How fast would  
1.5 times the fastest rowing speed be? Before  
you solve, tell the number of decimal places in  
your answer.

38. Which activity has a recorded speed about  
7 times as fast as the fastest rowing speed?



39. Matthew bought a jersey, a pennant, and a hat. He paid with a \$50 bill and some money he borrowed from his friend. If Matthew got \$6.01 in change from the cashier, how much did he borrow from his friend to pay for all the items?

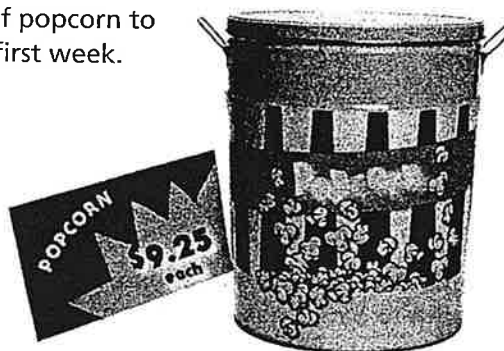


40. Anna's running time for a race was 23.1 seconds. Another runner's time was 5.86 seconds faster. Find the other runner's time.

41. **Higher Order Thinking** Explain why  $0.25 \times 0.4$  has only one decimal place in the product.

42. The wings of some hummingbirds beat 52 times per second when hovering. If a hummingbird hovers for 35.5 seconds, how many times do its wings beat?

43. The students at Walden Middle School are selling tins of popcorn to raise money for new uniforms. They sold 42 tins in the first week. How much money did they make in the first week?



## ☒ Assessment Practice

44. Use the information in the table to solve each problem.

**Trails in Everglades National Park**

Trail	Length (kilometers)
Bayshore Loop	3.2
Coastal Prairie	12.1
Rowdy Bend	4.2
Snake Bight	2.6

### PART A

What is the combined length in kilometers of the Bayshore Loop trail and the Rowdy Bend trail?

### PART B

How many kilometers longer is the Coastal Prairie trail than the Snake Bight trail?



33. **Critique Reasoning** Henrieta divided 0.80 by 20 as shown. Is her work correct? If not, explain why and give a correct response.

$$\begin{array}{r} 0.40 \\ 20 \overline{)0.80} \\ \underline{-80} \\ 0 \end{array}$$

34. Which brand of fruit snacks costs less per pound? How much less?

Fruit Snacks	
Brand A 15 lb \$16.20	Brand B 25 lb \$22.25

35. **Be Precise** How many times as much does each item cost in 2010 as in 1960?



Item	1960 Cost	2010 Cost
Movie Ticket	\$0.75	\$9.75
Regular Popcorn	\$0.25	\$4.10
Regular Drink	\$0.35	\$3.08

Movie Ticket \_\_\_\_\_

Regular Popcorn \_\_\_\_\_

Regular Drink \_\_\_\_\_

36. **Higher Order Thinking** Kendra has 5.5 pounds of popcorn and wants to package it equally in 50 bags. How can she use place-value reasoning to find the amount of popcorn to put in each bag?

37. You and a friend are paid \$38.25 for doing yard work. You worked 2.5 hours and your friend worked 2 hours. You split the money according to the amount of time each of you worked. How much is your share of the money? Explain.

## Assessment Practice

38. What is the value of the expression  $1,248 \div 25$ ?

(A) 49  
(B) 49 R 9  
(C) 49.9  
(D) 49 R 23

39. Which expression has the same solution as  $3,157 \div 41$ ?

(A)  $1,852 \div 24$   
(B)  $1,928 \div 25$   
(C)  $2,079 \div 27$   
(D)  $2,184 \div 28$

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



PRACTICE



TUTORIAL

# Practice & Problem Solving



Scan for  
Multimedia

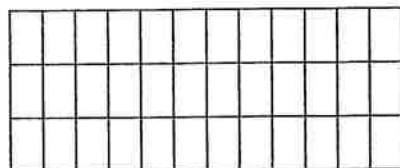


In 19 and 20, find each product. Shade the model to help solve.

19.  $\frac{1}{3} \times \frac{5}{6}$



20.  $\frac{2}{3} \times \frac{1}{12}$



In 21–28, find each product.

21.  $\frac{7}{8} \times \frac{1}{2}$

22.  $\frac{2}{5} \times \frac{1}{12}$

23.  $\frac{5}{7} \times \frac{7}{9}$

24.  $\frac{1}{2} \times \frac{3}{4}$

25.  $\frac{1}{4} \times \frac{7}{8}$

26.  $\frac{5}{6} \times \frac{9}{10}$

27.  $\frac{1}{4} \times \frac{1}{8}$

28.  $\frac{1}{3} \times \frac{3}{7}$

In 29–36, estimate the product. Then find each product.

29.  $2\frac{1}{6} \times 4\frac{1}{2}$

30.  $\frac{3}{4} \times 8\frac{1}{2}$

31.  $1\frac{1}{8} \times 3\frac{1}{3}$

32.  $3\frac{1}{5} \times \frac{2}{3}$

33.  $3\frac{1}{4} \times 6$

34.  $5\frac{1}{3} \times 3$

35.  $2\frac{3}{8} \times 4$

36.  $4\frac{1}{8} \times 5\frac{1}{2}$

In 37 and 38, use the diagram at the right.

37. Linda walked  $\frac{3}{4}$  of the length of the Tremont Trail before stopping for a rest. How far had Linda walked on the trail?

38. The city plans to extend the Wildflower Trail to make it  $2\frac{1}{2}$  times its current length in the next 5 years. How long will the Wildflower Trail be at the end of 5 years?





39. The world's smallest gecko is  $\frac{3}{4}$  inch long. An adult male Western Banded Gecko is  $7\frac{1}{3}$  times as long. How long is an adult male Western Banded Gecko?



40. **Higher Order Thinking** In Ms. Barclay's classroom,  $\frac{2}{5}$  of the students play chess. Of the students who play chess,  $\frac{5}{6}$  also play sudoku. If there are 30 students in Ms. Barclay's class, how many play chess and sudoku?

41. The Boca Grande Causeway in Florida is about  $1\frac{4}{9}$  times as long as the Golden Gate Bridge in San Francisco. The Golden Gate Bridge is about 9,000 feet long. About how long is the Boca Grande Causeway?

42. If  $\frac{7}{8}$  is multiplied by  $\frac{4}{5}$ , will the product be greater than either of the two factors? Explain.

43. **Be Precise** To amend the U.S. Constitution,  $\frac{3}{4}$  of the 50 states must approve the amendment. If 35 states approve an amendment, will the Constitution be amended?

44. A scientist had  $\frac{3}{4}$  of a bottle of a solution. She used  $\frac{1}{6}$  of the solution in an experiment. How much of the bottle did she use?



45. In the voting for City Council Precinct 5, only  $\frac{1}{2}$  of all eligible voters cast votes. What fraction of all eligible voters voted for Shelley? Morgan? Who received the most votes?

Candidate	Fraction of Votes Received
Shelley	$\frac{3}{10}$
Morgan	$\frac{5}{8}$

## Assessment Practice

46. Which of these equations is equivalent to  $1\frac{1}{2} \times 3\frac{1}{5} = 4\frac{1}{2}$ ?

- Ⓐ  $4\frac{1}{2} \div 3\frac{1}{5} = 1\frac{1}{2}$   
 Ⓑ  $1\frac{1}{2} \div 4\frac{1}{2} = 3\frac{1}{5}$   
 Ⓒ  $1\frac{1}{2} \div 3\frac{1}{5} = 4\frac{1}{2}$   
 Ⓓ  $3\frac{1}{5} \div 4\frac{1}{2} = 1\frac{1}{2}$

47. Which of these equations is equivalent to  $\frac{3}{4} \times 8\frac{1}{5} = 6\frac{3}{20}$ ? Select all that apply.

- ☐  $\frac{3}{4} \div 8\frac{1}{5} = 6\frac{3}{20}$   
☐  $6\frac{3}{20} \div \frac{3}{4} = 8\frac{1}{5}$   
☐  $6\frac{3}{20} \div 8\frac{1}{5} = \frac{3}{4}$   
☐  $\frac{3}{4} \div 6\frac{3}{20} = 8\frac{1}{5}$   
☐  $8\frac{1}{5} \div 6\frac{3}{20} = \frac{3}{4}$

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

## MID-TOPIC CHECKPOINT

TOPIC  
**1**

1. **Vocabulary** How can you use a *compatible number* to estimate a quotient when dividing a decimal by a whole number? *Lesson 1-2*

2. Keaton is building a rectangular tabletop and wants to put a metal border around the edge. The length of the tabletop is 1.83 meters and the width is 0.74 meter. Use the formula  $P = 2\ell + 2w$  to find the perimeter of the tabletop. *Lesson 1-1*

3. Norbert's Nursery is having a sale. Flats of flowers are priced as marked, including tax. Jake buys 2 flats of petunias, 3 flats of daisies, and 1 flat of begonias. If he pays with a \$50 bill, how much change should Jake receive? *Lesson 1-1*

Norbert's Nursery

Flower	Price per Flat
Petunia	\$5.25
Daisy	\$7.65
Begonia	\$8.40

4. Marguerite is selling space in an advertisement book for a community fund-raising event. Each  $\frac{1}{4}$  page in the book costs \$15.50. What is the cost for  $\frac{3}{4}$  page? *Lesson 1-1*

- (A) \$62.00                      (B) \$46.50  
(C) \$20.67                      (D) \$11.63

5. What is the value of  $170 \div (4 \times 5)$ ? *Lesson 1-2*

6. Lucia walks  $2\frac{3}{4}$  miles on Monday. On Monday, she walks  $1\frac{1}{2}$  times farther than on Tuesday. Which equation can be used to find how far Lucia walks on Tuesday? *Lesson 1-3*

- (A)  $2\frac{3}{4} \times 1\frac{1}{2} = 4\frac{1}{8}$                       (B)  $2\frac{3}{4} + 1\frac{1}{2} = 4\frac{1}{4}$   
(C)  $2\frac{3}{4} \div 1\frac{1}{2} = 1\frac{5}{6}$                       (D)  $1\frac{1}{2} \div 2\frac{3}{4} = \frac{6}{11}$

How well did you do on the mid-topic checkpoint? Fill in the stars.



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



PRACTICE



TUTORIAL

# Practice & Problem Solving

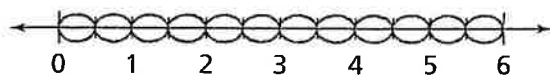


Scan for  
Multimedia



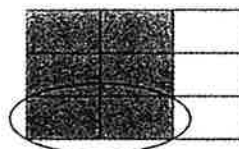
**Leveled Practice** In 23 and 24, complete each division sentence.

23.  $6 \div \boxed{\phantom{00}} = 12$



The number line shows 6 wholes.

24.  $\frac{2}{3} \div \boxed{\phantom{00}} = \frac{2}{9}$



In 25 and 26, find each quotient. Draw a diagram to help.

25.  $\frac{3}{5} \div 3$

26.  $2 \div \frac{2}{5}$

In 27–30, find each reciprocal.

27.  $\frac{3}{10}$

28. 6

29.  $\frac{1}{15}$

30. 3

In 31–38, find each quotient.

31.  $36 \div \frac{3}{4}$

32.  $2 \div \frac{3}{8}$

33.  $18 \div \frac{2}{3}$

34.  $9 \div \frac{4}{5}$

35.  $\frac{1}{6} \div 2$

36.  $\frac{2}{3} \div 3$

37.  $\frac{3}{5} \div 2$

38.  $\frac{1}{4} \div 4$

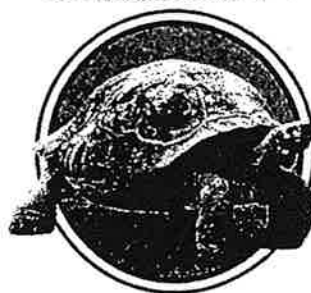
39. A worker is pouring 3 quarts of liquid into  $\frac{3}{8}$ -quart containers. How many of the containers can she fill? Write and solve a division equation.



In 40–43, use the given information.



A snail can move  
120 ft in  $\frac{3}{4}$  h.



A tortoise can  
move 600 ft in  $\frac{2}{3}$  h.



A sloth can move  
250 ft in  $\frac{5}{8}$  h.

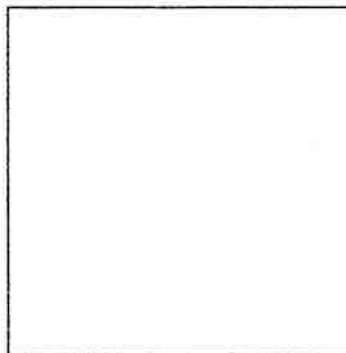
40. **Higher Order Thinking** Without doing any calculations, how can you use the information given to tell which animal moves the fastest?

41. **Reasoning** The quotient  $250 \div \frac{5}{8}$  tells about how far a sloth may move in one hour. How far can a sloth go in 90 minutes? Justify your reasoning.

42. The quotient  $600 \div \frac{2}{3}$  tells about how far a tortoise may move in one hour. Find that distance.

43. Write and solve an equation to find how far a snail can go in one hour.

44. A waitress pours  $\frac{3}{4}$  gallon of orange juice equally into 5 pitchers. What fraction of a gallon of orange juice is in each pitcher? Use the rectangle to represent the problem. Then write an equation to show the solution.



The rectangle represents 1 whole gallon. Draw lines to represent  $\frac{3}{4}$  gallon first. Then divide that into 5 equal parts.

## Assessment Practice

45. Select all the math statements that have the same quotient.

- ☐  $12 \div \frac{2}{3}$   
☐  $\frac{2}{3} \div \frac{1}{27}$   
☐  $16 \div \frac{4}{5}$   
☐  $12 \div \frac{3}{2}$   
☐  $24 \div \frac{4}{3}$

46. Select all the math statements that are true.

- ☐  $\frac{1}{3} \div 3$  is  $\frac{1}{3} \div \frac{3}{1} = \frac{1}{3} \times \frac{1}{3}$   
☐  $\frac{4}{5} \div 5$  is  $\frac{4}{5} \div \frac{5}{1} = \frac{4}{5} \times \frac{1}{5}$   
☐  $\frac{7}{8} \div 8$  is  $\frac{7}{8} \div \frac{8}{1} = \frac{7}{8} \times \frac{8}{1}$   
☐  $\frac{2}{3} \div 6$  is  $\frac{2}{3} \div \frac{6}{1} = \frac{2}{3} \times \frac{1}{6}$   
☐  $\frac{4}{9} \div 4$  is  $\frac{4}{9} \div \frac{4}{1} = \frac{4}{9} \times \frac{4}{1}$

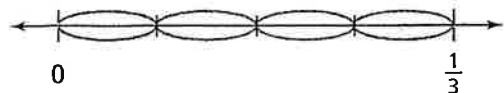


# Practice & Problem Solving

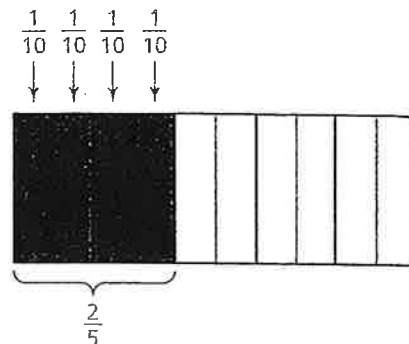
Scan for  
Multimedia

In 12 and 13, complete each division sentence using the models provided.

12.  $\frac{1}{3} \div \frac{1}{12} = \boxed{\phantom{00}}$



13.  $\frac{2}{5} \div \frac{1}{10} = \boxed{\phantom{00}}$



In 14–25, find each quotient.

14.  $\frac{2}{3} \div \frac{1}{3}$

15.  $\frac{1}{2} \div \frac{1}{16}$

16.  $\frac{1}{4} \div \frac{1}{12}$

17.  $\frac{6}{7} \div \frac{3}{7}$

18.  $\frac{5}{14} \div \frac{4}{7}$

19.  $\frac{5}{8} \div \frac{1}{2}$

20.  $\frac{7}{12} \div \frac{3}{4}$

21.  $\frac{2}{7} \div \frac{1}{2}$

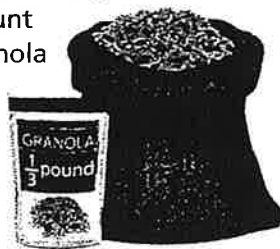
22.  $\frac{4}{9} \div \frac{2}{3}$

23.  $\frac{7}{12} \div \frac{1}{8}$

24.  $\frac{3}{10} \div \frac{3}{5}$

25.  $\frac{2}{5} \div \frac{1}{8}$

26. **Be Precise** A large bag contains  $\frac{12}{15}$  pound of granola. How many  $\frac{1}{3}$ -pound bags can be filled with this amount of granola? How much granola is left over?



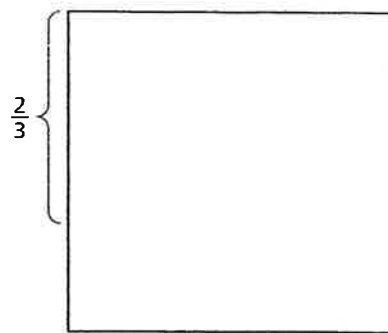
27. **Higher Order Thinking** Find  $\frac{3}{4} \div \frac{2}{3}$ . Then draw a picture and write an explanation describing how to get the answer.

28. The area of a rectangular painting is  $\frac{1}{6}$  square yard. The width is  $\frac{2}{3}$  yard. What is the length of the painting? Use the formula  $A = \ell \times w$ .

29. Solve for  $n$  in the equation  $\frac{13}{16} \div \frac{1}{6} = n$ .

**30. Model with Math** A cafeteria uses  $\frac{1}{6}$  pound of coffee to fill a large coffee dispenser. The cafeteria has  $\frac{2}{3}$  pound of coffee to use.

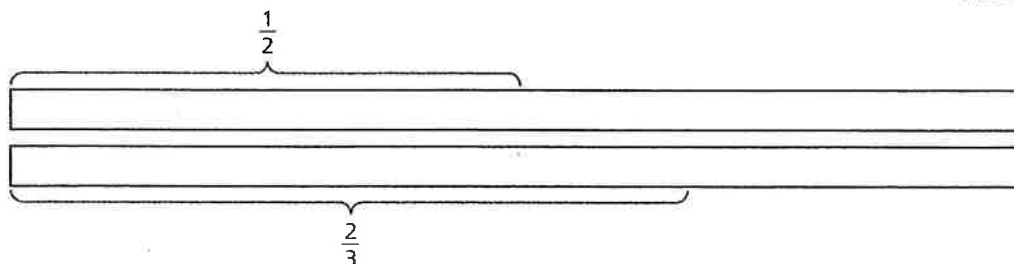
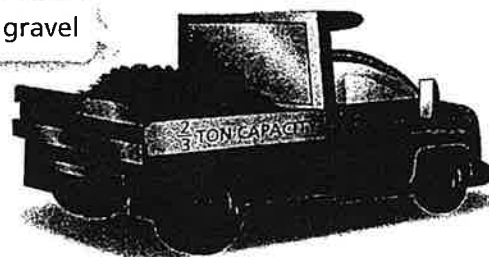
- Complete the model at the right to find how many coffee dispensers the cafeteria can fill.
- Write a division sentence that describes the model and tells how many dispensers can be filled.



**31. Model with Math** A full load for a small truck to haul is  $\frac{2}{3}$  ton of gravel. The truck is hauling  $\frac{1}{2}$  ton of gravel.

- Complete the model below to find how much of a full load the truck is hauling.
- Write a division sentence that describes the model and tells how much of a full load the truck is hauling.

$\frac{1}{2}$  ton gravel



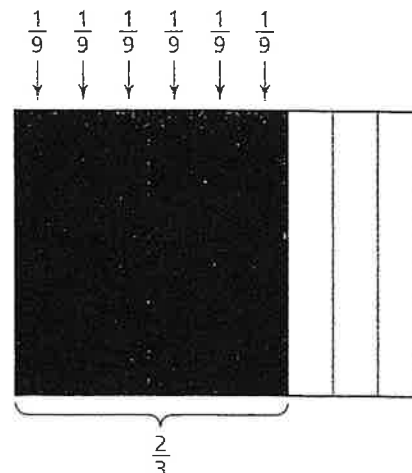
**32. Use Structure** How many  $\frac{1}{4}$ -inch pieces can be cut from a piece of metal  $\frac{5}{8}$  inch long?

**33. Write a problem** that could be solved by finding  $\frac{5}{8} \div \frac{2}{5}$ .

## Assessment Practice

**34. Which division sentence is shown by the model at the right?**

- $\frac{2}{3} \div \frac{1}{9} = 6$
- $\frac{1}{9} \div \frac{2}{3} = \frac{1}{6}$
- $6 \div \frac{1}{9} = 54$
- $6 \div \frac{2}{3} = 9$



# Practice & Problem Solving

Scan for  
Multimedia

Leveled Practice In 14–25, find each quotient.

$$14. 10 \div 2\frac{1}{4} = \frac{10}{1} \div \boxed{\phantom{000}}$$

$$= \frac{10}{1} \times \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}}$$

$$15. 9\frac{1}{3} \div 6 = \frac{28}{3} \div \boxed{\phantom{000}}$$

$$= \frac{28}{3} \times \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}}$$

$$16. 1\frac{3}{8} \div 4\frac{1}{8} = \frac{11}{8} \div \boxed{\phantom{000}}$$

$$= \frac{11}{8} \times \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}}$$

$$17. 2\frac{2}{3} \div 8 = \frac{8}{3} \div \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}} \times \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}}$$

$$18. 4\frac{1}{3} \div 3\frac{1}{4} = \frac{13}{3} \div \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}} \times \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}}$$

$$19. 1 \div 8\frac{5}{9} = \frac{1}{1} \div \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}} \times \boxed{\phantom{000}}$$

$$= \boxed{\phantom{000}}$$

$$20. 3\frac{5}{6} \div 9\frac{5}{6}$$

$$21. 16 \div 2\frac{2}{3}$$

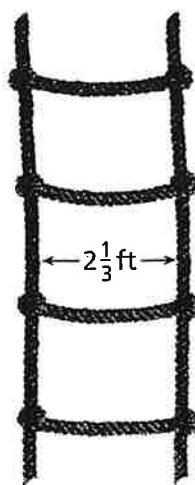
$$22. 2\frac{5}{8} \div 13$$

$$23. 3\frac{6}{7} \div 6\frac{3}{4}$$

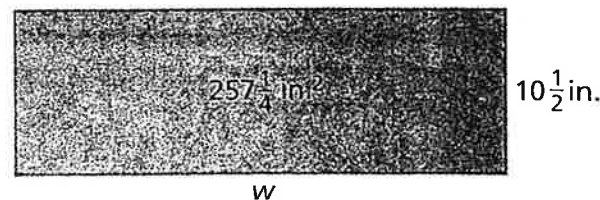
$$24. 2\frac{1}{3} \div 1\frac{1}{3}$$

$$25. 3\frac{3}{4} \div 1\frac{1}{2}$$

26. Beth is making a rope ladder. Each step of the ladder is  $2\frac{1}{3}$  feet wide. Beth has a rope that is 21 feet long. How many steps can she make from the rope?



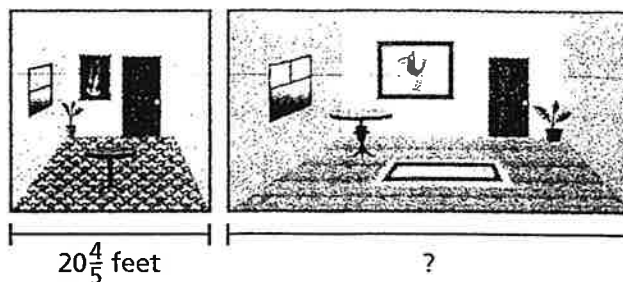
27. The area of this rectangle is  $257\frac{1}{4}$  in.<sup>2</sup>. Find side length  $w$ .



In 28 and 29, use the picture.

28. The larger room is twice as long as the smaller room. How long is the larger room?

29. If the length of the smaller room is divided into 4 equal parts, how long is each part?



30. **Make Sense and Persevere** Luis has 3 pounds of ground turkey to make turkey burgers. He uses  $\frac{3}{8}$  pound per burger to make 6 burgers. How many  $\frac{1}{4}$ -pound burgers can Luis make with the remaining turkey?

31. **Higher Order Thinking** If  $9 \times \frac{n}{5} = 9 \div \frac{n}{5}$ , then what does  $n$  equal? Explain.

32. Margaret uses  $1\frac{3}{4}$  teaspoons of key lime zest to make 12 key lime cupcakes. She wants to make 30 cupcakes. How much key lime zest will Margaret use?

33. **Use Structure** A gem store in Fort Lauderdale received a shipment of  $1\frac{1}{2}$  pounds of moonstone crystals. If these moonstone crystals were separated into 6 equal bags, how much would each bag weigh?

34. The owner of an aquatic store used  $17\frac{1}{2}$  gallons of water to fill aquariums. He put  $5\frac{5}{6}$  gallons of water in each aquarium. How many aquariums did he fill?

35. Write an explanation to a friend about how you would estimate  $17\frac{1}{5} \div 3\frac{4}{5}$ .

## Assessment Practice

36. A restaurant has  $15\frac{1}{5}$  pounds of alligator meat to make tasty alligator dishes.

### PART A

Each pot of alligator stew requires  $2\frac{3}{8}$  pounds of alligator meat. Which solution shows how many pots of alligator stew can be made?

- (A) 36 pots;  $15\frac{1}{5} \times 2\frac{3}{8}$
- (B)  $\frac{5}{32}$  pot;  $2\frac{3}{8} \div 15\frac{1}{5}$
- (C) 7 pots;  $15\frac{1}{5} \div 2\frac{3}{8}$
- (D) 6 pots;  $15\frac{1}{5} \div 2\frac{3}{8}$

### PART B

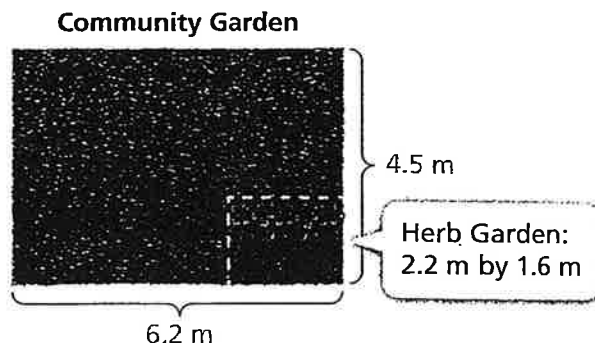
The restaurant could make a smaller pot of alligator stew that uses  $1\frac{3}{5}$  pounds of alligator meat. How many more smaller pots of alligator stew can be made than the larger pots?



In 11 and 12, use the diagram.

A community garden is made up of three gardens: a vegetable garden, an herb garden, and a flower garden.

11. The area of the vegetable garden is 0.4 of the area of the community garden. What is the area of the vegetable garden?
12. The area of the flower garden is 9.7 square meters greater than the herb garden. What is the area of the flower garden?



13. **Reasoning** At the end of a party,  $\frac{3}{4}$  cup of smoked fish dip is left. Jim divides  $\frac{4}{5}$  of the leftover smoked fish dip equally between 2 friends. How much dip does each friend get?

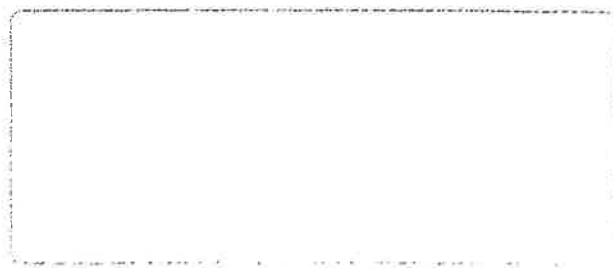
14. Students are planning a 3-day hiking trip in the Everglades. The hike covers a distance of 18.5 kilometers. The students hike 0.28 of the total distance the first day. If they split the remaining distance equally between the second and third days, how far will they hike on day 3?

15. **Higher Order Thinking** Kelly buys three containers of potato salad at the deli. She brings  $\frac{4}{5}$  of the potato salad to a picnic. How many pounds of potato salad does Kelly bring to the picnic? Describe two different ways to solve the problem.



## ☒ Assessment Practice

16. Students make  $84\frac{1}{2}$  ounces of liquid soap for a craft fair. They put the soap in  $6\frac{1}{2}$ -ounce bottles and sell each bottle for \$5.50. Which expression shows how much students earn if they sell all the bottles of liquid soap?
  - (A) \$71.50;  $(84\frac{1}{2} \div 6\frac{1}{2}) \times 5.50$
  - (B) \$92.18;  $(84\frac{1}{2} \div 5.50) \times 6$
  - (C) \$18.50;  $(84\frac{1}{2} \div 6\frac{1}{2}) + 5.50$
  - (D) \$99.86;  $(84\frac{1}{2} \times 6\frac{1}{2}) \div 5.50$
17. Claire mowed 5 lawns last week. She mowed each lawn in  $\frac{7}{12}$  hour. She mowed the same lawns this week in  $\frac{5}{12}$  hour each using her new lawn mower. How many times longer was Claire's time to mow all the lawns last week than this week?



# Practice & Problem Solving

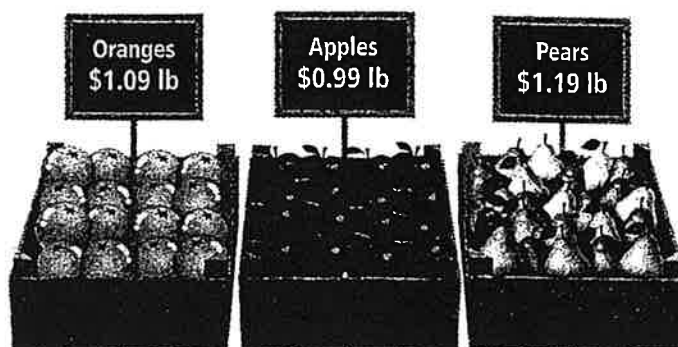


Scan for  
Multimedia



In 6–8, use the picture at the right.

6. You buy 3.17 pounds of apples, 1.25 pounds of pears, and 2.56 pounds of oranges. What is your total bill rounded to the nearest cent?



7. A student pays for 8.9 pounds of apples with a \$10 bill. How much change does the student receive?

8. A customer pays \$3.27 for oranges and \$4.76 for pears. How many pounds of fruit does the customer buy?

a. What do you do first to solve the problem?

a. What do you do first to solve the problem?

b. What do you do next?

b. What do you do next?

9. **Critique Reasoning** Students put  $2\frac{1}{4}$  pounds of trail mix into bags that each weigh  $\frac{3}{8}$  pound. They bring  $\frac{2}{3}$  of the bags of trail mix on a hiking trip. Can you determine how many bags of trail mix are left by completing just one step? Explain.

10. Three fifths of the T-shirts in a T-shirt shop are blue. Five eighths of those T-shirts are on sale. One third of the blue T-shirts that are on sale are size medium. What fraction of the shop's T-shirts are blue T-shirts that are on sale and are size medium? Explain.

## ? Topic Essential Question

How can you fluently add, subtract, multiply, and divide decimals?  
How can you multiply and divide fractions?

## Vocabulary Review

Complete each definition and then provide an example of each vocabulary word.

### Vocabulary

reciprocal

dividend

fraction

product

Definition	Example
1. The answer to a multiplication problem is called a _____.	
2. The _____ is the quantity to be divided.	
3. To write a division expression as multiplication, you multiply by the _____ of the divisor.	

### Use Vocabulary in Writing

Explain how to use multiplication to find the value of  $\frac{1}{3} \div \frac{9}{5}$ . Use the words *multiplication*, *divisor*, *quotient*, and *reciprocal* in your explanation.

# Concepts and Skills Review

## LESSON 1-1 Fluently Add, Subtract, and Multiply Decimals

### Quick Review

To add or subtract decimals, line up the decimal points so that place-value positions correspond. Add or subtract as you would with whole numbers, and place the decimal point in the answer. To multiply decimals, multiply as you would with whole numbers, then place the decimal point in the product by starting at the right and counting the number of places equal to the sum of the number of decimal places in each factor.

### Example

Add, subtract, or multiply.

$\begin{array}{r} 22.6 \\ + 12.4 \\ \hline 35.0 \end{array}$	$\begin{array}{r} 22.6 \\ - 12.4 \\ \hline 10.2 \end{array}$	$\begin{array}{r} 22.6 \\ \times 12.4 \\ \hline 904 \\ 4520 \\ + 22600 \\ \hline 280.24 \end{array}$	1 decimal place 1 decimal place 2 decimal places
--	--	--	--

### Practice

Add, subtract, or multiply.

- |                         |                      |
|-------------------------|----------------------|
| 1. $91.2 + 89.9$        | 2. $902.3 - 8.8$     |
| 3. $5 \times 98.2$      | 4. $4 \times 0.21$   |
| 5. $62.99 - 10.83$      | 6. $423.22 + 98.30$  |
| 7. $4.4 \times 6$       | 8. $7 \times 21.6$   |
| 9. $24.52 - 9.6$        | 10. $369.45 + 32.42$ |
| 11. $12.5 \times 163.2$ | 12. $16 \times 52.3$ |
| 13. $121.3 + 435.7$     | 14. $201.7 - 104.6$  |

## LESSON 1-2 Fluently Divide Whole Numbers and Decimals

### Quick Review

To divide decimals, multiply the divisor and the dividend by the same power of 10 so that the divisor is a whole number. Then use an algorithm for whole-number division.

### Example

Find  $2.75 \div 0.05$ .

55.

$\begin{array}{r} 5 \overline{)275} \\ - 25 \\ \hline 25 \\ - 25 \\ \hline 0 \end{array}$	Multiply the divisor and the dividend by the same power of 10 to divide with whole numbers.
	Place the decimal point in the quotient and divide.

### Practice

Divide.

- |                      |                       |
|----------------------|-----------------------|
| 1. $9.6 \div 1.6$    | 2. $48.4 \div 0.4$    |
| 3. $13.2 \div 0.006$ | 4. $10.8 \div 0.09$   |
| 5. $45 \div 4.5$     | 6. $1,008 \div 1.8$   |
| 7. $1.26 \div 0.2$   | 8. $2.24 \div 3.2$    |
| 9. $35.75 \div 55$   | 10. $120.4 \div 602$  |
| 11. $330 \div 5.5$   | 12. $1.08 \div 0.027$ |

# LESSON 1-3 Multiply Fractions

## Quick Review

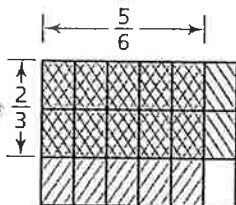
Multiply the numerators to find the numerator of the product. Multiply the denominators to find the denominator of the product.

### Example

Find  $\frac{2}{3} \times \frac{5}{6}$ .

For  $\frac{2}{3}$ , shade 2 rows.

For  $\frac{5}{6}$ , shade 5 columns.



10 of the 18 rectangles are in the overlap area. So,  $\frac{2}{3} \times \frac{5}{6} = \frac{10}{18}$  or  $\frac{5}{9}$ .

## Practice

Find each product.

1.  $\frac{2}{3} \times \frac{3}{8}$

2.  $\frac{1}{4} \times \frac{3}{5}$

3.  $\frac{1}{6} \times \frac{1}{8}$

4.  $\frac{4}{7} \times \frac{4}{7}$

5.  $\frac{6}{7} \times \frac{1}{2}$

6.  $\frac{3}{8} \times \frac{8}{3}$

7.  $\frac{2}{3} \times \frac{1}{3}$

8.  $\frac{7}{8} \times \frac{3}{2}$

9.  $2\frac{1}{3} \times 4\frac{1}{5}$

10.  $4\frac{1}{2} \times 6\frac{2}{3}$

11.  $3\frac{3}{5} \times 2\frac{5}{7}$

12.  $14\frac{2}{7} \times 4\frac{3}{10}$

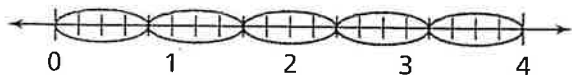
# LESSONS 1-4 AND 1-5 Understand and Divide with Fractions

## Quick Review

To divide by a fraction, use the reciprocal of the divisor to rewrite the problem as a multiplication problem.

### Example

Find  $4 \div \frac{4}{5}$ .

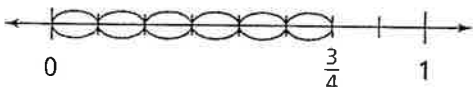


$4 \div \frac{4}{5} = 4 \times \frac{5}{4}$

$\frac{4}{1} \times \frac{5}{4} = \frac{20}{4}$  or 5

Use the reciprocal of the divisor.

Find  $\frac{3}{4} \div \frac{1}{8}$ .



$\frac{3}{4} \div \frac{1}{8} = \frac{3}{4} \times \frac{8}{1}$

$\frac{3}{4} \times \frac{8}{1} = \frac{24}{4}$  or 6

Rewrite the problem as a multiplication problem.

## Practice

Find each quotient.

1.  $7 \div \frac{1}{2}$

2.  $6 \div \frac{2}{5}$

3.  $2 \div \frac{1}{8}$

4.  $8 \div \frac{4}{9}$

5.  $\frac{1}{2} \div \frac{1}{4}$

6.  $\frac{8}{10} \div \frac{1}{5}$

7.  $\frac{5}{6} \div \frac{3}{8}$

8.  $\frac{1}{3} \div \frac{1}{2}$

9.  $5 \div \frac{5}{16}$

10.  $\frac{7}{12} \div \frac{3}{4}$

11.  $20 \div \frac{5}{6}$

12.  $16 \div \frac{1}{4}$

13.  $\frac{4}{5} \div \frac{1}{8}$

14.  $5 \div \frac{1}{10}$

15.  $\frac{7}{11} \div \frac{1}{11}$

16.  $4 \div \frac{2}{8}$

**LESSON 1-6****Divide Mixed Numbers****Quick Review**

To divide by a mixed number, rename each mixed number as a fraction. Then use the reciprocal of the divisor to rewrite the problem as a multiplication problem.

**Example**

$$6\frac{1}{2} \div 1\frac{1}{6} = \frac{13}{2} \div \frac{7}{6}$$

Rename the mixed numbers as fractions.

$$\frac{13}{2} \div \frac{7}{6} = \frac{13}{2} \times \frac{6}{7}$$

Write the problem as a multiplication problem using the reciprocal of the divisor.

$$\frac{13}{2} \times \frac{6}{7} = \frac{78}{14} \text{ or } 5\frac{4}{7}$$

Multiply. Rename the fraction quotient as a mixed number.

**Practice**

Find each quotient.

$$1. 6\frac{3}{8} \div 4\frac{1}{4}$$

$$2. 9 \div 2\frac{2}{7}$$

$$3. 3\frac{3}{5} \div 1\frac{1}{5}$$

$$4. 5\frac{1}{2} \div 3\frac{3}{8}$$

$$5. 3\frac{2}{5} \div 1\frac{1}{5}$$

$$6. 12\frac{1}{6} \div 3$$

$$7. 12 \div 1\frac{1}{2}$$

$$8. 3\frac{1}{2} \div 2\frac{1}{4}$$

$$9. 8 \div 1\frac{1}{4}$$

$$10. 10\frac{1}{2} \div 1\frac{3}{4}$$

$$11. 3\frac{3}{4} \div 2\frac{1}{2}$$

$$12. 60 \div 3\frac{1}{3}$$

**LESSON 1-7****Solve Problems with Rational Numbers****Quick Review**

When solving multistep problems:

- decide the steps to solve the problem.
- choose the correct operations.
- identify the information you need from the problem.
- correctly use the information.
- calculate accurately.
- check if the answer is reasonable.

**Example**

Jane's garden is 3.4 meters by 6.5 meters. If fencing costs \$2.25 per meter, how much will it cost to enclose Jane's garden?

**Step 1: Find how much fence is needed.**

$$3.4 + 3.4 + 6.5 + 6.5 = 19.8 \text{ meters}$$

**Step 2: Multiply to find the cost.**

$$19.8 \times 2.25 = \$44.55$$

**Step 3: Estimate to check.**

$$3 + 3 + 7 + 7 = 20 \text{ meters}$$

$$20 \times 2.00 = \$40.00$$

\$40 is close to \$44.55, so the answer is reasonable.

**Practice**

Daisy has one cucumber that is 3 inches long and another cucumber that is 5 inches long. She cuts the cucumbers into  $\frac{3}{8}$ -inch-thick slices and adds them to a salad. How many  $\frac{3}{8}$ -inch-thick slices does Daisy have?

1. Write division expressions to represent the first steps in the problem.

2. Solve. Then explain your answer.

## Pathfinder

Shade a path from START to FINISH. Follow the solutions in which the digit in the hundredths place is greater than the digit in the tenths place. You can only move up, down, right, or left.

**I can...**  
multiply and divide decimals.

**START**



$$\begin{array}{r} 22.04 \\ \times \quad 9 \\ \hline \end{array}$$

$$7.2 \overline{)42.12}$$

$$\begin{array}{r} 53.08 \\ \times \quad 2.4 \\ \hline \end{array}$$

$$\begin{array}{r} 0.18 \\ \times \quad 1.5 \\ \hline \end{array}$$

$$7 \overline{)0.28}$$

$$25 \overline{)28}$$

$$\begin{array}{r} 3.71 \\ \times \quad 0.6 \\ \hline \end{array}$$

$$2.5 \overline{)23.35}$$

$$9 \overline{)0.954}$$

$$\begin{array}{r} 0.9 \\ \times 0.27 \\ \hline \end{array}$$

$$\begin{array}{r} 12.4 \\ \times 14.6 \\ \hline \end{array}$$

$$1.3 \overline{)2.314}$$

$$\begin{array}{r} 86.35 \\ \times \quad 7 \\ \hline \end{array}$$

$$0.4 \overline{)1.06}$$

$$6 \overline{)72.72}$$

$$1.2 \overline{)0.9}$$

$$\begin{array}{r} 1.05 \\ \times 1.05 \\ \hline \end{array}$$

$$2.4 \overline{)8.7}$$

$$\begin{array}{r} 7.2 \\ \times 0.06 \\ \hline \end{array}$$

$$75 \overline{)18}$$

$$\begin{array}{r} 86.3 \\ \times 0.4 \\ \hline \end{array}$$

$$16 \overline{)0.04}$$

$$8 \overline{)4.4}$$

$$\begin{array}{r} 5.2 \\ \times 3.8 \\ \hline \end{array}$$

$$\begin{array}{r} 22.3 \\ \times 1.8 \\ \hline \end{array}$$



**FINISH**