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Ministry of Education

New Vision
International School

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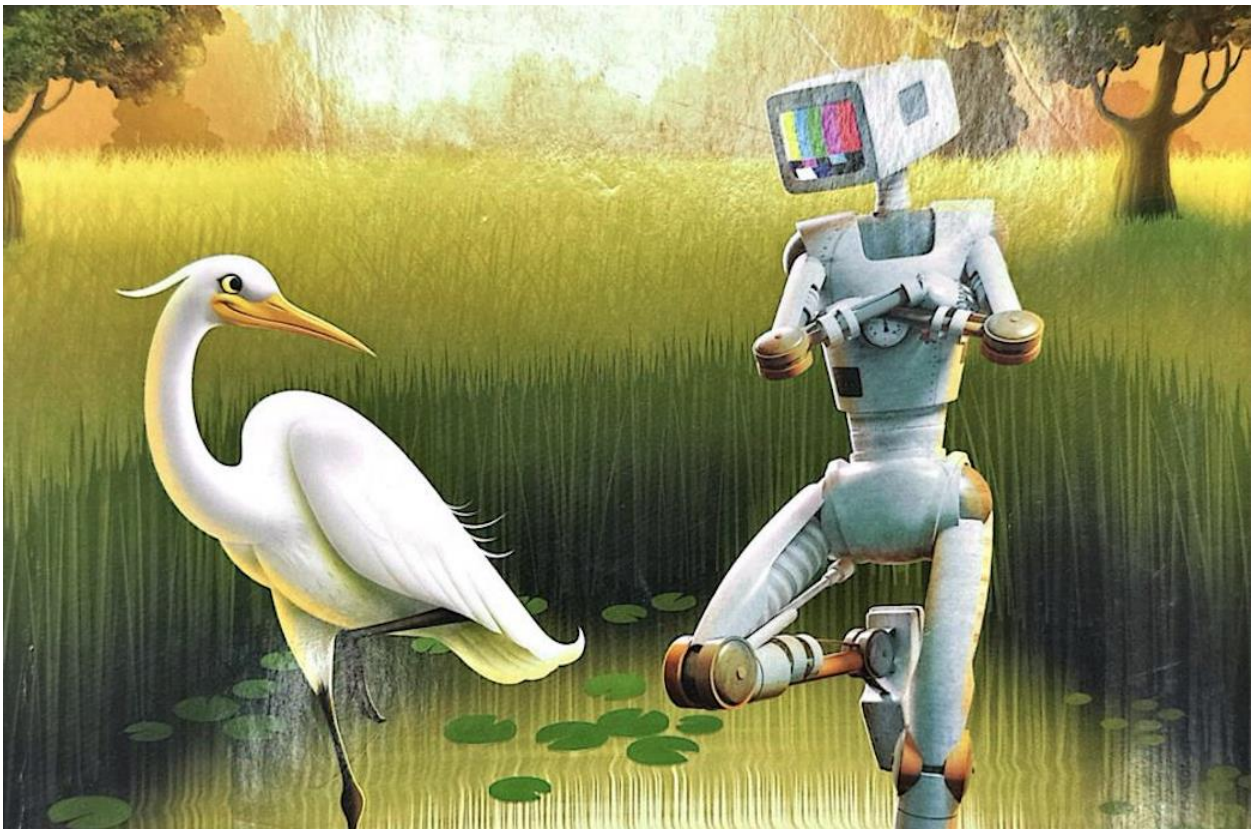

GRADE 5

MATHEMATICS PRACTICE WORKBOOK

2nd TRIMESTER

Academic Year

2024 – 2025

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Name _____

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Additional Practice 4-6

Multiply Decimals Using Partial Products

Another Look!

If a truck travels 9.5 miles on 1 gallon of fuel, how many miles will the truck travel on 5.6 gallons of fuel?

Step 1

First, estimate your product so you can check for reasonableness.

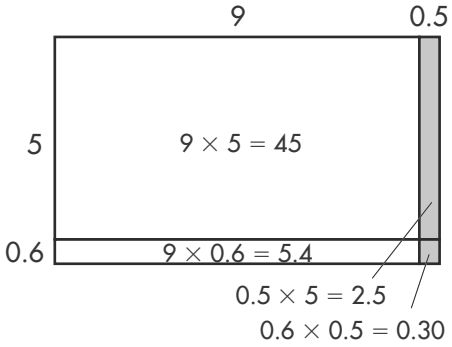
9.5×5.6

$10 \times 6 = 60$

Since 53.2 is close to the estimate 60, the answer is reasonable.

Step 2

Add all the partial products to find the answer. Use an area model if you need help keeping track of them.



$$\begin{array}{r} 9.5 \\ \times\ 5.6 \\ \hline \end{array}$$

$.6 \times .5 = .30$

$.6 \times 9 = 5.4$

$5 \times .5 = 2.5$

$5 \times 9 = 45$

53.20

The truck will travel 53.2 miles on 5.6 gallons of fuel.

1. If a truck travels 8.6 miles on 1 gallon of fuel, how many miles will the truck travel on 9.2 gallons of fuel? Estimate. Then, find the product. Is your answer is reasonable? Explain.

Estimate:

8.6×9.2

$\square \times \square = \square$

$$\begin{array}{r} 8.6 \\ \times\ 9.2 \\ \hline \square\square\square \\ \square\square\square \\ \square\square\square \\ +\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

In **2–9**, estimate first. Then multiply using partial products. Check that your answer is reasonable.

2. $\begin{array}{r} 0.2 \\ \times\ 4.6 \\ \hline \end{array}$

3. $\begin{array}{r} 3.9 \\ \times\ 7.1 \\ \hline \end{array}$

4. $\begin{array}{r} 5.4 \\ \times\ 0.1 \\ \hline \end{array}$

5. $\begin{array}{r} 15.3 \\ \times\ 6.4 \\ \hline \end{array}$

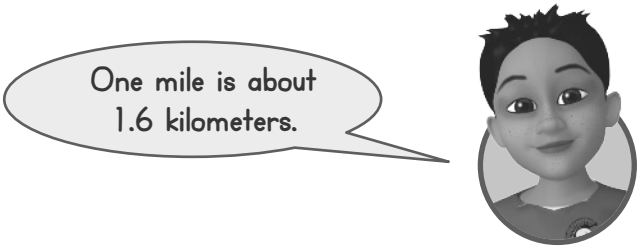
6. 9.3×5.8

7. 23.7×4.4

8. 0.8×0.5

9. 13.2×0.3

10. Find the approximate length of each highway in kilometers.



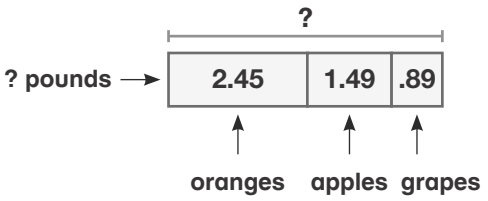
DATA

Highway	Length (miles)
A	11.9
B	46.2
C	121

11. Higher Order Thinking Why does multiplying numbers by 10 move the decimal point to the right, but multiplying by 0.10 moves the decimal point to the left?

12. Make Sense and Persevere A pick-your-own pecan farm charges $1.35 per pound of pecans plus $0.40 per pound to crack the pecans. Amelia picks 20 pounds of pecans. The farm cracks 5 pounds for her. How much does Amelia pay all together?

13. Adrian bought fruit to make a salad for a picnic. He bought 0.89 pound of grapes, 2.45 pounds of oranges, and 1.49 pounds of apples. What is the weight of the fruit?



14. In exercise 13, suppose grapes cost $2.35 per pound, oranges cost $0.99 per pound, and apples cost $1.65 per pound. Rounding to the nearest whole number, about how much did Adrian pay for all the fruit?

Assessment Practice

15. Karly used 3.5 cans of tomato sauce to make lasagna. Each can contains 10.5 ounces. How many ounces of tomato sauce is in the lasagna?

Ⓐ 24.00
Ⓑ 36.75
Ⓒ 52.50
Ⓓ 63.00

16. A bag of grass seed weighs 5.8 pounds. How many pounds would 2.5 bags weigh?

Ⓐ 14.5 pounds
Ⓑ 13.8 pounds
Ⓒ 8.3 pounds
Ⓓ 3.3 pounds

Name _____

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Additional Practice 5-2

Estimate Quotients with 2-Digit Divisors

Another Look!

Frog Trail is 1,976 meters long. Shondra walks 43 meters of the trail each minute. About how many minutes will it take Shondra to walk the trail?

Find compatible numbers. Think of a basic fact. Then use place-value patterns.

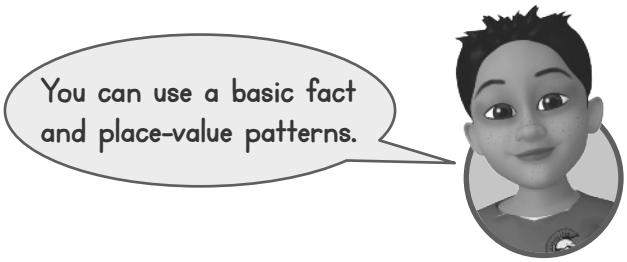
$1{,}976 \div 43$

$\downarrow \quad \downarrow$

$2{,}000 \div 40 = 50$

$2{,}000 \div 40 = 50$, so
$1{,}976 \div 43$ is about 50.

It would take Shondra about 50 minutes.



Leveled Practice In **1–3**, fill in the blanks to find the estimates.

1. $1{,}769 \div 23$

$\downarrow \quad \downarrow$

$1{,}800 \div \square = \square$

2. $516 \div 48$

$\downarrow \quad \downarrow$

$500 \div \square = \square$

3. $891 \div 32$

$\downarrow \quad \downarrow$

$\square \div \square = \square$

In **4–15**, estimate using compatible numbers.

4. $241 \div 34$

5. $705 \div 11$

6. $7{,}968 \div 22$

7. $5{,}624 \div 72$

8. $1{,}043 \div 23$

9. $986 \div 12$

10. $642 \div 94$

11. $4{,}870 \div 58$

12. $5{,}721 \div 79$

13. $148 \div 51$

14. $9{,}073 \div 11$

15. $3{,}514 \div 58$

16. **Critique Reasoning** Meredith says "Since 1 times 1 equals 1, then 0.1 times 0.1 equals 0.1." Do you agree? Explain your reasoning.

17. **enVision®** STEM A gray whale traveled 152 kilometers in one day. The whale swam between 7 and 8 kilometers each hour. About how many hours did it take the whale to swim the distance? Show two different ways that you can use compatible numbers to find an answer. Then solve.

18. Meg wants to find about how many phones the company activated in one minute. Explain why Meg can use 15,000 ÷ 50 to find the answer.

DATA

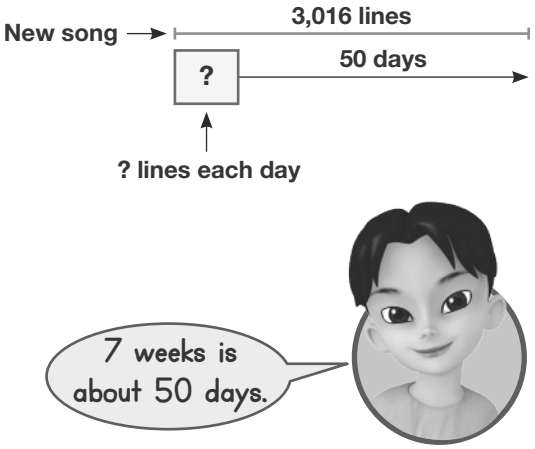
Clear Connect Company

phones activated: 14,270 in 50 minutes

calls made: 59,835

text messages sent: 2,063

19. **Higher Order Thinking** Ester's choir wants to learn a new song for the school concert in 7 weeks. The song has 3,016 lines. The choir learns an equal number of lines each day. About how many lines do they need to learn each day to learn the song in time for the concert? Explain.



Assessment Practice

20. Mr. Crane's farm is 593 acres. He divides the farm into 32 equal parts. Which is the best estimate of the number of acres in each part?

Ⓐ 10 acres

Ⓑ 20 acres

Ⓒ 100 acres

Ⓓ 200 acres

21. A scientist counted 3,921 total eggs in 49 sea turtle nests. Each nest had about the same number of eggs. Which is the best estimate of the number of eggs she counted in each nest?

Ⓐ 800 eggs

Ⓑ 100 eggs

Ⓒ 80 eggs

Ⓓ 10 eggs

Name _____

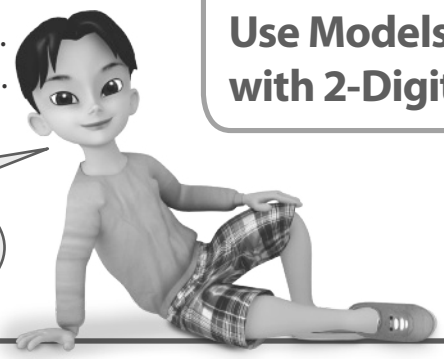
Practice Video Tools Games

Additional Practice 5-3

Use Models to Divide with 2-Digit Divisors

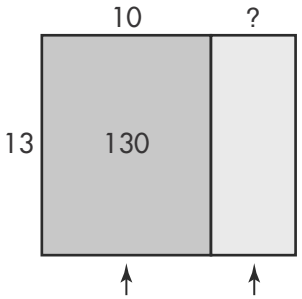
Another Look!

Hal's store just got a shipment of 195 cans of soup. Hal wants to divide the cans equally on 13 shelves. How many cans should he put on each shelf?



Step 1

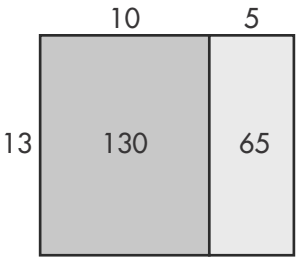
Divide the tens. Record.



$13 \times 10 = 130$ $195 - 130 = 65$

Step 2

Divide the ones. Record.



Multiply to check:

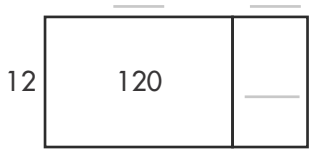
$13 \times 15 = 13 \times (10 + 5) = 130 + 65 = 195$

So $195 \div 13 = 15$

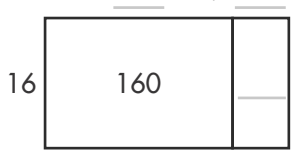
He should put 15 cans on each shelf.

In **1** and **2**, use the diagram to find each quotient.

1. $12\overline{)168}$



2. $16\overline{)208}$



In **3**–**8**, use grid paper or draw a picture to find each quotient.

3. $420 \div 14$

4. $385 \div 11$

5. $744 \div 24$

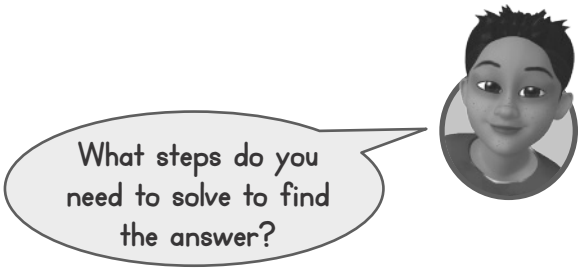
6. $675 \div 27$

7. $558 \div 18$

8. $228 \div 19$

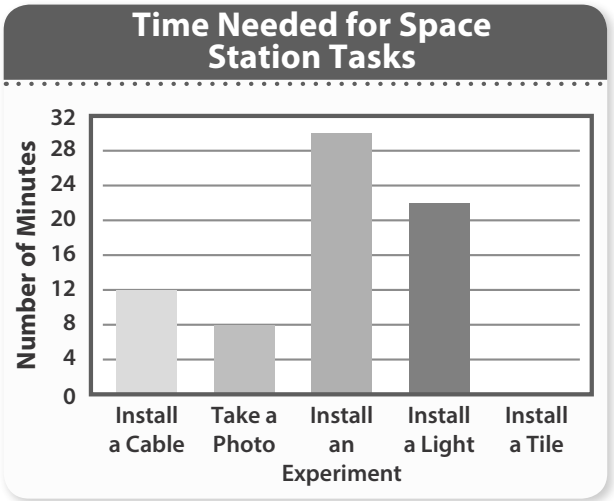
9. Anna has 10^2 quarters. Jazmin has 10^2 dimes. Who has more money, Anna or Jazmin? How much more? Explain your reasoning.

10. **Make Sense and Persevere**
A 208-yard-long road is divided into 16 parts of equal length. Mr. Ward paints a 4-yard-long strip in each part. How long is the unpainted strip of each part of the road?

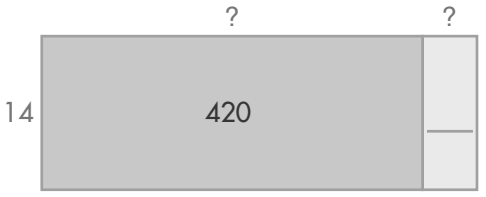


11. Use the bar graph. Astronauts installed 15 new tiles on the outside of the space station. They spent 390 minutes on the task. Each tile took the same amount of time to install. Draw a bar in the graph to show the time needed to install a tile. Explain.

12. How much longer does an astronaut take to install a light than to install a cable?



13. **Higher Order Thinking** A rectangular poster has an area of 504 square centimeters. The width of the poster is 14 centimeters. How long is the poster? Write equations to show your work.



Assessment Practice

14. Which is 540 divided by 30?

Ⓐ 17
Ⓑ 18
Ⓒ 170
Ⓓ 180

15. Which is 391 divided by 17?

Ⓐ 23
Ⓑ 24
Ⓒ 230
Ⓓ 240

Name _____

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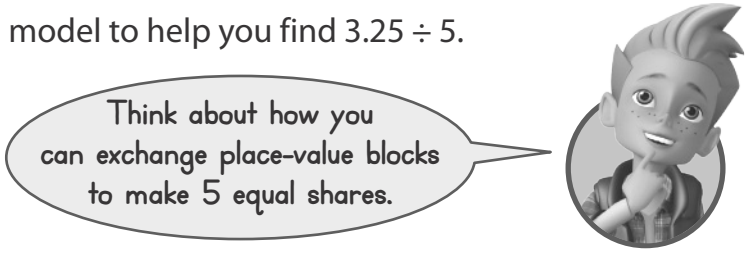
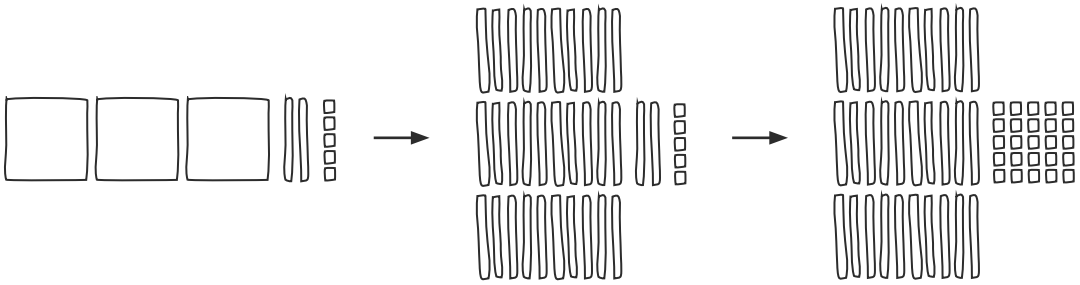
Additional Practice 6-3

Use Models to Divide by a 1-Digit Whole Number

Another Look!

Draw a model to help you find 3.25 ÷ 5.



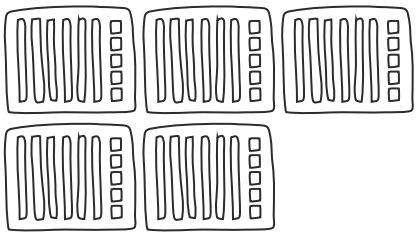


3 ones, 2 tenths, and 5 hundredths

32 tenths and 5 hundredths

30 tenths and 25 hundredths

What You Show



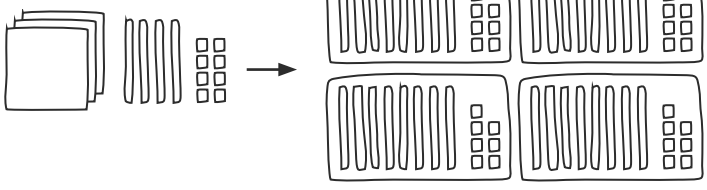
What You Write

$$\begin{array}{r} 0.6\,5 \\ 5\overline{)3.2\,5} \\ -\ 3.0\,0 \\ \hline .2\,5 \\ -\ .2\,5 \\ \hline 0 \end{array}$$

Think: Each equal share has 6 tenths and 5 hundredths.

Leveled Practice In **1–6**, divide. Use models to help.

1.
$$\begin{array}{r} 0.\square\square \\ 4\overline{)3.4\,8} \\ -\ \square.\square\square \\ \hline .2\,\square \\ -\ .\square\square \\ \hline 0 \end{array}$$



2.
$$\begin{array}{r} 1.\square\square \\ 8\overline{)9.6\,8} \\ -\ \square.\square\square \\ \hline 1.\square\square \\ -\ \square.\square\square \\ \hline .\square\square \\ -\ .\square\square \\ \hline \square \end{array}$$

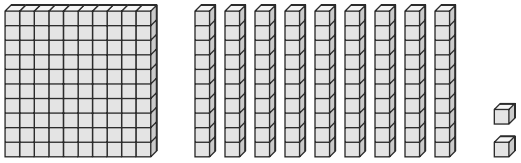
3. $3\overline{)2.91}$

4. $4\overline{)6.52}$

5. 7.02 ÷ 6

6. 4.75 ÷ 5

7. Critique Reasoning Janice is dividing 1.92 ÷ 6. Why does she exchange the place-value blocks shown for 18 tenths and 12 hundredths?



8. Keith has 7.8 ounces of tuna salad. If he makes 3 sandwiches with an equal amount of tuna on each, how much tuna does he put on each one?

9. Algebra A newspaper stand sold 1,000 copies of the city newspaper for $1,600. Write and solve an equation to find the price of one copy.

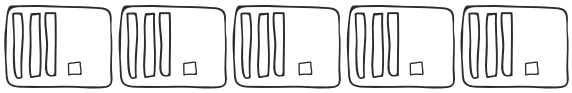
10. Higher Order Thinking Inez bought a package of wrapping paper and 4 bows. If she wrapped 4 identical gifts with the paper and bows, how much did it cost to wrap each gift?

11. Number Sense Without dividing, how can you decide whether the quotient 7.16 ÷ 4 will be less than or greater than 2?

12. Tina buys 5 pounds of potatoes for $4.35 and 3 pounds of carrots for $3.57. How much does one pound of potatoes cost?

Assessment Practice

13. Glen drew the model shown below for 1.95 ÷ 5.



Part A

Explain the mistake Glen made.

Part B

Draw the correct model and find the quotient.

Name _____

Practice Video Tools Games

Additional Practice 6-4

Divide by a 2-Digit Whole Number

Another Look!

The area of a sketch pad is 93.5 square inches. The length of the sketch pad is 11 inches. What is the width of the sketch pad?

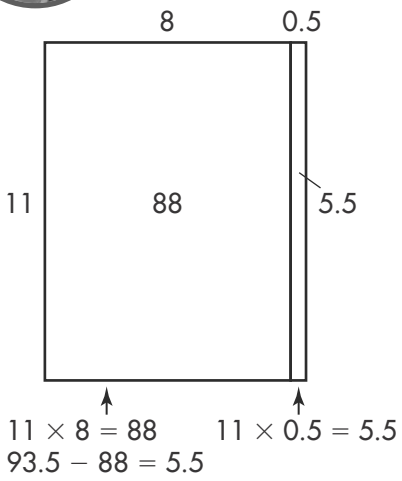
First, estimate the width:
93.5 ÷ 11 is about
90 ÷ 10 = 9.

Divide 93.5 by 11.

$$\begin{array}{r} 8.5 \\ 11\overline{)93.5} \\ -\ 88.0 \\ \hline 5.5 \\ -\ 5.5 \\ \hline 0 \end{array}$$

8.5 is close to the estimate of 9, so the answer is reasonable.

The width of the sketch pad is 8.5 inches.



Leveled Practice In **1–12**, find each quotient.

1. $23\overline{)71.3}$

$$\begin{array}{r} \square\,\square \\ 23\overline{)71.3} \\ -\ \square\square.\square \\ \hline \square\square.\square \\ -\ \square\square.\square \\ \hline 0 \end{array}$$

2. $80\overline{)192.0}$

$$\begin{array}{r} \square\,\square \\ 80\overline{)192.0} \\ -\ \square\square\square.\square \\ \hline \square\square.\square \\ -\ \square\square.\square \\ \hline 0 \end{array}$$

3. $42\overline{)23.94}$

$$\begin{array}{r} \square\,\square\square \\ 42\overline{)23.94} \\ -\ \square\square.\square\square \\ \hline \square.\square\square \\ -\ \square.\square\square \\ \hline 0 \end{array}$$

4. $18\overline{)40.50}$

$$\begin{array}{r} \square\,\square\square \\ 18\overline{)40.50} \\ -\ \square\square.\square\square \\ \hline \square.\square\square \\ -\ \square.\square\square \\ \hline .\square\square \\ -\ .\square\square \\ \hline 0 \end{array}$$

5. $26\overline{)98.8}$

6. $17\overline{)14.62}$

7. $25\overline{)157.5}$

8. $13\overline{)113.1}$

9. 83.2 ÷ 26

10. 25.6 ÷ 4

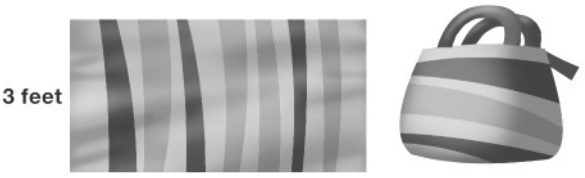
11. 90.54 ÷ 18

12. 2.25 ÷ 15

13. The longest spin of a basketball on one finger is 255 minutes. About how many hours is that?

14. Kara paid $24.64 to ship 11 packages. Each package was the same size and weight. How much did it cost to ship 1 package?

15. Higher Order Thinking Liza needs a total of 22.23 square feet of terry cloth to make a beach towel and a beach bag. The beach bag requires 5.13 square feet of cloth. What is the length of the beach towel? Explain.



16. In 1927, Charles Lindbergh had his first solo flight across the Atlantic Ocean. He flew 3,610 miles in 33.5 hours. If he flew about the same number of miles each hour, how many miles did he fly each hour?

17. Tiffany deposited the following amounts in her savings account last month: $6.74, $5.21, $5.53, and $3.52. Divide the sum by 30 to find the average amount she saved per day for the month. Show your work.

18. Make Sense and Persevere Susan bought 3 plants that cost $2.75 each. She wants to buy 3 clay pots that cost $4.15 each. If Susan had $20 to start, does she have enough money to also buy the clay pots? Explain.

19. Todd is saving for a vacation. The cost of his vacation is $1,089. Todd has a year to save the money. About how much does he need to save each month to reach his goal?

Assessment Practice

20. Which is equal to 78.2 divided by 17?

Ⓐ 0.46
Ⓑ 4.06
Ⓒ 4.6
Ⓓ 46

21. Which is equal to 12.74 divided by 13?

Ⓐ 0.09
Ⓑ 0.98
Ⓒ 9.08
Ⓓ 9.8

Name _____

Practice Video Tools Games

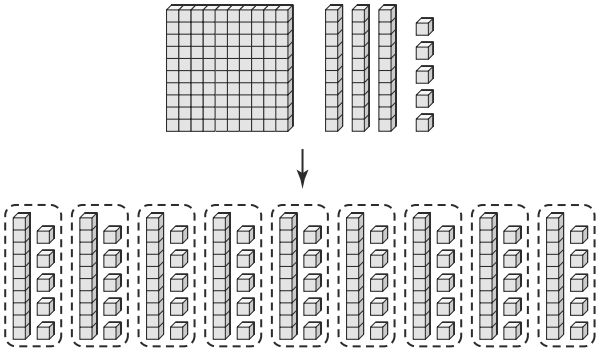
Additional Practice 6-5
Divide by a Decimal

Another Look!

Find 1.35 ÷ 0.15.

One Way

1.35 ÷ 0.15



1.35 shown in place-value blocks can be divided into 9 groups of blocks each showing 0.15.

So, 1.35 ÷ 0.15 = 9.

Another Way

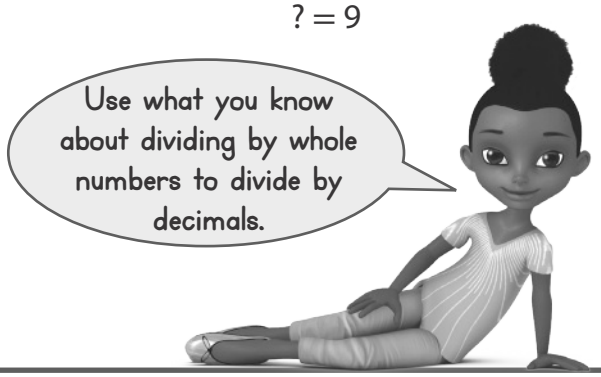
Think multiplication:

To find 1.35 ÷ 0.15, use the relationship between multiplication and division.

$0.15 \times ? = 1.35$

15 hundredths × ? = 135 hundredths

$? = 9$



In **1–4**, use what you know about multiplication and division, place value, and partial quotients to divide.

1. 4.55 ÷ 0.35

2. 45.5 ÷ 3.5

3. 455 ÷ 35

4. Describe the relationship among Problems 1, 2, and 3.

In **5–11**, find each quotient.

5. $0.32\overline{)1.92}$

6. $3.2\overline{)19.2}$

7. $0.01\overline{)8.64}$

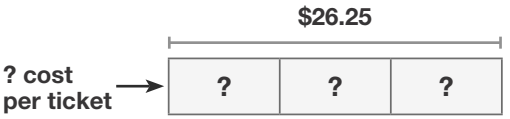
8. $0.1\overline{)86.4}$

9. $0.22\overline{)8.8}$

10. $2.2\overline{)8.8}$

11. $0.22\overline{)88.0}$

12. Three friends paid $26.25 to see a movie. How much did each ticket cost?



13. In a timed typing test, Lara typed 63 words per minute. Estimate the number of words she should be able to type in half an hour. Show your work.

14. A stack of sheets of tissue paper is about 2.5 inches high. Each sheet is about 0.01 inch thick. How many sheets are in the stack? Show your work.

15. Is the quotient for 41 ÷ 0.8 greater or less than 41? Explain.

16. **Construct Arguments** How does the quotient 10.5 ÷ 1.5 compare to the quotient 105 ÷ 15? Explain.

17. **Number Sense** The fence next to the creek near Adam's house leans a little more each year because the bank of the creek is eroding. If the fence leans about 3.7 degrees more each year, estimate how many more degrees the fence will lean after 5 years.

18. **Higher Order Thinking** The Clark family must pay $2,820 in property tax on their home this year. Their house payment is $752 per month. What is their payment each month with the tax? Assume that the tax is paid in equal monthly installments.

Assessment Practice

19. Select the expressions that have a quotient of 8.

- ☐ 0.56 ÷ 0.07
- ☐ 0.56 ÷ 0.7
- ☐ 5.6 ÷ 0.07
- ☐ 5.6 ÷ 0.7

20. Select the expressions that have a quotient of 4.

- ☐ 4.8 ÷ 0.12
- ☐ 4.8 ÷ 1.2
- ☐ 0.48 ÷ 1.2
- ☐ 0.48 ÷ 0.12

Name _____

Practice Video Tools Games

Additional Practice 7-2
Find Common Denominators

Another Look!

Rename $\frac{4}{10}$ and $\frac{3}{8}$ using a common denominator.

Step 1

Find a common denominator for $\frac{4}{10}$ and $\frac{3}{8}$.

List multiples of the denominators 10 and 8. Then look for a common multiple.

10: 10, 20, 30, 40
8: 8, 16, 24, 32, 40

The number 40 can be used as the common denominator.

Step 2

Rename $\frac{4}{10}$ and $\frac{3}{8}$ using 40 as the common denominator.

Multiply the numerator and denominator by the same nonzero number.

$\frac{4}{10}$ $\frac{4 \times 4}{10 \times 4} = \frac{16}{40}$ $\frac{3}{8}$ $\frac{3 \times 5}{8 \times 5} = \frac{15}{40}$

So, $\frac{16}{40}$ and $\frac{15}{40}$ is one way to rename $\frac{4}{10}$ and $\frac{3}{8}$ using a common denominator.

In **1–9**, find a common denominator for each pair of fractions. Then write equivalent fractions with the common denominator.

1. $\frac{1}{3}$ and $\frac{4}{9}$

$\frac{1}{3}$ Multiples of the denominator: _____ **Rename $\frac{1}{3}$:** _____

$\frac{4}{9}$ Multiples of the denominator: _____ **Rename $\frac{4}{9}$:** _____

Common Denominator: _____ **Rename.** $\frac{1 \times \square}{3 \times \square} = \frac{\square}{\square}$ $\frac{4 \times \square}{9 \times \square} = \frac{\square}{\square}$

2. $\frac{3}{4}$ and $\frac{2}{5}$

3. $\frac{4}{7}$ and $\frac{2}{3}$

4. $\frac{1}{2}$ and $\frac{7}{11}$

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

6. $\frac{5}{4}$ and $\frac{11}{16}$

7. $\frac{6}{7}$ and $\frac{1}{5}$

8. $\frac{9}{15}$ and $\frac{4}{9}$

9. $\frac{5}{6}$ and $\frac{8}{21}$

10. On the Dell River, a boat will pass the Colby drawbridge and then the Wave drawbridge. Rename each of the two drawbridge opening times. There are 60 minutes in an hour, so use 60 as a common denominator. Then, rename each opening time using another common denominator. Explain how you found your answers.

DATA

Dell River Drawbridge Openings

Bridge Name	Time of Opening
Asher Cross	On the hour
Colby	On the $\frac{3}{4}$ hour
Rainbow	On the $\frac{2}{3}$ hour
Red Bank	On the $\frac{1}{4}$ hour
Wave	On the $\frac{1}{6}$ hour

11. Higher Order Thinking Phil baked two kinds of pies. Each pie pan was the same size. He served $\frac{1}{2}$ of the blueberry pie. He served $\frac{1}{4}$ of the apple pie. If each pie had 8 pieces to start, what fraction in eighths of the apple pie did he serve? How many more pieces of the blueberry pie than the apple pie did he serve?

12. Look for Relationships Shelly is trying to improve her running time for a track race. She ran the first race in 43.13 seconds. Her time was 43.1 seconds in the second race and 43.07 seconds in the third race. If this pattern continues, what will Shelly's time be in the fourth race?

13. Alicia measured $\frac{1}{4}$ yard of the Blue Diamonds fabric and $\frac{5}{6}$ yard of the Yellow Bonnets fabric to make a quilt. Rename each length of fabric. Use the number of inches in a yard as a common denominator.
HINT: 1 yard = 3 feet; 1 foot = 12 inches

Assessment Practice

14. Choose all the numbers that could be common denominators for $\frac{2}{3}$ and $\frac{7}{9}$.

- ☐ 6
- ☐ 9
- ☐ 18
- ☐ 27
- ☐ 30

15. Choose all the numbers that could be common denominators for $\frac{1}{9}$ and $\frac{1}{2}$.

- ☐ 11
- ☐ 16
- ☐ 18
- ☐ 36
- ☐ 45

Name _____

Practice Video Tools Games

Additional Practice 7-3

Add Fractions with Unlike Denominators

Another Look!

Find $\frac{1}{6} + \frac{5}{8}$.

Remember: A multiple is a product of the number and any nonzero whole number.

Step 1

List multiples of the denominators.

Look for a multiple that is the same in both lists. Choose the least one.

6: 6, 12, 18, 24, 30, 36, 42, 48
8: 8, 16, 24, 32, 40, 48

24 and 48 are common multiples of 6 and 8. 24 is the lesser of the two.

Step 2

Write equivalent fractions using the common multiple as the denominator.

$\frac{1}{6} \quad \frac{1 \times 4}{6 \times 4} = \frac{4}{24}$

$\frac{5}{8} \quad \frac{5 \times 3}{8 \times 3} = \frac{15}{24}$

Step 3

Add the fractions to find the total number of twenty-fourths.

$\frac{4}{24} + \frac{15}{24} =$

$\frac{4 + 15}{24} = \frac{19}{24}$

So, $\frac{1}{6} + \frac{5}{8} = \frac{19}{24}$.

In **1–4**, find each sum.

1. $\frac{1}{2} + \frac{1}{6}$

Least multiple that is the same: ____

Add using renamed fractions:

____ + ____ = ____ or $\frac{\square}{\square}$

2. $\frac{1}{9} + \frac{5}{6}$

Least multiple that is the same: ____

Add using renamed fractions:

____ + ____ = ____

3. $\frac{4}{5} + \frac{1}{15}$

Least multiple that is the same: ____

Add using renamed fractions:

____ + ____ = ____

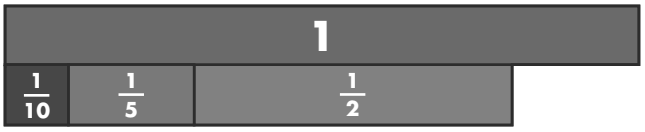
4. $\frac{2}{8} + \frac{1}{2}$

Least multiple that is the same: ____

Add using renamed fractions:

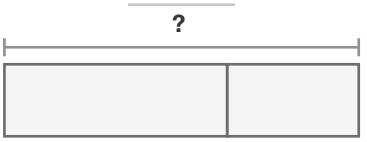
____ + ____ = ____ or $\frac{\square}{\square}$

5. Model with Math Before school, Janine spends $\frac{1}{10}$ hour making the bed, $\frac{1}{5}$ hour getting dressed, and $\frac{1}{2}$ hour eating breakfast. What fraction of an hour does she spend doing these activities? Complete the drawing of fraction strips to show the solution.



6. enVision® STEM Hair color is an inherited trait. In Marci's family, her mother has brown hair. Her father has blond hair. The family has 6 children in all. Of the 6 children, $\frac{1}{3}$ of them have blond hair, $\frac{1}{6}$ of them have red hair, and $\frac{1}{2}$ of them have brown hair. What fraction of the children have red or brown hair?

7. Abdul bought a loaf of bread for $1.59 and a package of cheese for $2.69. How much did Abdul spend? Complete the diagram below.



8. Higher Order Thinking Robert wants to walk one mile for exercise each day. He made a table to show the distance from his home to each of four different places. What is the total distance from home to the store and back home, and from home to the library and back home? If Robert walks this total distance, will he walk one mile? Explain how you found your answer.

DATA

Walking Distances from Home to Each Place

Place	Distance
Bank	$\frac{1}{5}$ mile
Library	$\frac{1}{10}$ mile
Park	$\frac{1}{2}$ mile
Store	$\frac{1}{4}$ mile

Assessment Practice

9. Which equations are true when $\frac{2}{3}$ is placed in the box?

- ☐ $\frac{1}{3}+\frac{1}{3}=\square$
- ☐ $\frac{1}{6}+\frac{1}{6}=\square$
- ☐ $\square+\frac{6}{9}=\frac{4}{3}$
- ☐ $\frac{2}{5}+\square=\frac{14}{15}$

10. Which equations are true when $\frac{4}{5}$ is placed in the box?

- ☐ $\frac{1}{5}+\square=1$
- ☐ $\frac{1}{2}+\frac{3}{10}=\square$
- ☐ $\frac{7}{10}+\frac{1}{10}=\square$
- ☐ $\square+\frac{1}{15}=\frac{14}{15}$

Name _____

Practice Video Tools Games

Additional Practice 7-4

Subtract Fractions with Unlike Denominators

Another Look!

Beth wants to exercise for $\frac{4}{5}$ hour. So far, she has exercised for $\frac{2}{3}$ hour. What fraction of an hour does she have left to exercise?

Step 1

Find a common multiple.

Multiples of 5:
5, 10, 15, 20

Multiples of 3:
3, 6, 9, 12, 15

Since 15 is a multiple of both 5 and 3, use 15 as a common denominator.

Step 2

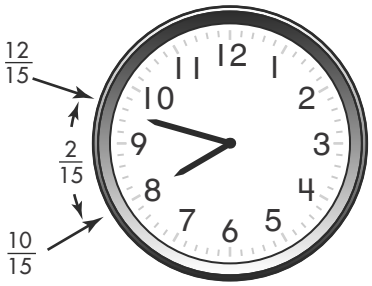
Write equivalent fractions.

$$\frac{4}{5} \times \frac{3}{3} = \frac{12}{15}$$
$$\frac{4}{5} = \frac{12}{15}$$

$$\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}$$
$$\frac{2}{3} = \frac{10}{15}$$

Step 3

Subtract the numerators.



$$\frac{12}{15} - \frac{10}{15} = \frac{2}{15}$$

Beth has $\frac{2}{15}$ hour left.

In **1–8**, find each difference.

1.
$$\frac{1}{3} = \frac{\square}{6}$$
$$-\frac{1}{6} = \frac{\square}{6}$$
$$\frac{\square}{\square}$$

2.
$$\frac{2}{3} = \frac{\square}{12}$$
$$-\frac{5}{12} = \frac{\square}{12}$$

3.
$$\frac{3}{5} = \frac{\square}{15}$$
$$-\frac{1}{3} = \frac{\square}{15}$$

4.
$$\frac{2}{9} = \frac{\square}{72}$$
$$-\frac{1}{8} = \frac{\square}{72}$$

5.
$$\frac{3}{4}$$
$$-\frac{2}{5}$$

6.
$$\frac{4}{3}$$
$$-\frac{2}{5}$$

7.
$$\frac{8}{8}$$
$$-\frac{4}{9}$$

8.
$$\frac{17}{18}$$
$$-\frac{2}{3}$$

Use the table for **9** and **10**. The trail around Mirror Lake in Yosemite National Park is 5 miles long.

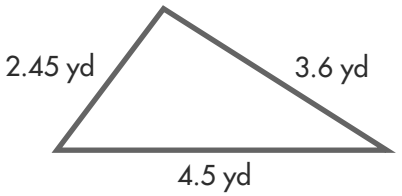
DATA

Hiker	Fraction of Trail Hiked
Andrea	$\frac{2}{5}$
Jon	$\frac{1}{2}$
Callie	$\frac{4}{5}$

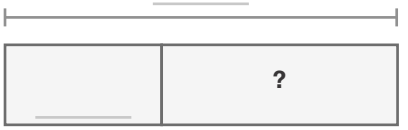
9. What fraction describes how much more of the trail Jon hiked than Andrea hiked?

10. What fraction describes how much more of the trail Callie hiked than Jon hiked?

11. **Critique Reasoning** Amy said that the perimeter of the triangle below is less than 10 yards. Do you agree with her? Why or why not?



12. Eva had $\frac{7}{8}$ gallon of paint. Her brother Ivan used $\frac{1}{4}$ gallon to paint his model boat. Eva needs at least $\frac{1}{2}$ gallon to paint her bookshelf. Did Ivan leave her enough paint? Write an equation and fill in the bar diagram to solve.



13. Paul's dad made a turkey pot pie for dinner on Wednesday. The family ate $\frac{4}{8}$ of the pie. On Thursday after school, Paul ate $\frac{2}{16}$ of the pie for a snack. What fraction of the pie remained?

14. **Higher Order Thinking** Write a real-world problem in which you would subtract fractions with unlike denominators. Then, solve your problem.

Assessment Practice

15. Choose the correct numbers from the box below to complete the subtraction sentence that follows.

$\frac{1}{2}$	$\frac{5}{14}$	$\frac{3}{7}$	$\frac{1}{7}$	$\frac{1}{14}$

$\square - \frac{3}{7} = \square$

16. Choose the correct numbers from the box below to complete the subtraction sentence that follows.

$\frac{3}{20}$	$\frac{3}{5}$	$\frac{1}{20}$	$\frac{4}{5}$	$\frac{7}{9}$

$\square - \frac{3}{4} = \square$

Name _____

Practice Video Tools Games

Additional Practice 7-5

Add and Subtract Fractions

Another Look!

Carla wants to make a Veggie Toss using eggplant, green peppers, spring onions, and mushrooms. She already has eggplant at home. How many pounds of the other ingredients does she need in all? Use data from the recipe.

Veggie Toss Recipe

Eggplant	$\frac{3}{4}$ pound (lb)
Green peppers	$\frac{1}{3}$ pound (lb)
Spring onions	$\frac{1}{4}$ pound (lb)
Mushrooms	$\frac{3}{8}$ pound (lb)

Step 1

List the amounts of green peppers, spring onions, and mushrooms. Then, find a common denominator and rename each fraction.

$$\left(\frac{1}{3}+\frac{1}{4}\right)+\frac{3}{8}=\left(\frac{8}{24}+\frac{6}{24}\right)+\frac{9}{24}$$

Step 2

Add the renamed fraction amounts.

$$\frac{14}{24}+\frac{9}{24}=\frac{23}{24}$$

Carla needs $\frac{23}{24}$ pound of the other veggies in all.

In **1–12**, find the sum or difference.

1. $\frac{1}{12}+\frac{7}{9}$

2. $\frac{4}{18}+\frac{2}{9}$

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

4. $\frac{5}{15}+\frac{3}{5}$

5. $\frac{1}{2}-\left(\frac{1}{8}+\frac{1}{8}\right)$

6. $\frac{3}{4}+\left(\frac{1}{4}-\frac{1}{6}\right)$

7. $\left(\frac{1}{2}+\frac{3}{20}\right)-\frac{2}{20}$

8. $\left(\frac{2}{5}+\frac{1}{5}\right)-\frac{3}{10}$

9. $\frac{5}{4}-\frac{5}{8}$

10. $\frac{2}{3}-\frac{2}{7}$

11. $\frac{12}{15}-\frac{1}{6}$

12. $\frac{5}{9}-\frac{3}{8}$

13. The table shows the amounts of two ingredients Tara used to make a snack mix. She ate $\frac{5}{8}$ cup of the snack mix for lunch. How much of the mix is left? Show how you solved.

DATA

Ingredient	Amount
Rice Crackers	$\frac{3}{4}$ c
Pretzels	$\frac{2}{3}$ c

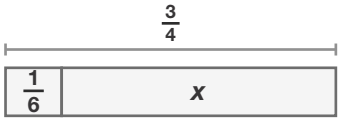
14. Samantha is making soup. To make the broth, she combines $\frac{2}{5}$ cup of vegetable stock and $\frac{2}{3}$ cup of chicken stock. Boiling the broth causes $\frac{1}{4}$ cup of the liquid to evaporate. How much broth is left after it is boiled? Show how you solved.

15. Number Sense Mary has three lengths of cable, $\frac{3}{6}$ yard long, $\frac{1}{4}$ yard long, and $\frac{1}{3}$ yard long. Which two pieces together make a length of $\frac{20}{24}$ yard?

16. A kitten's heartbeat can be as fast as 240 beats per minute. To find the number of times a kitten's heart beats in 30 seconds, Aiden says divide 240 by 30. Do you agree with him? Why or why not?

17. Use Structure Explain how you know the quotients 540 ÷ 90 and 5,400 ÷ 900 are equal without doing any computation.

18. Higher Order Thinking Write an addition and subtraction problem and equation for the diagram. Then find the missing value.



Assessment Practice

19. What fraction is missing from the following equation?

$$\frac{5}{6} - \square = \frac{3}{12}$$

Ⓐ $\frac{1}{3}$
Ⓑ $\frac{4}{9}$
Ⓒ $\frac{7}{12}$
Ⓓ $\frac{13}{12}$

20. What number is missing from the following equation?

$$\square - \frac{3}{4} = \frac{2}{12}$$

Ⓐ $\frac{11}{12}$
Ⓑ $\frac{8}{16}$
Ⓒ $\frac{2}{12}$
Ⓓ 1

Name _____

Practice Video Tools Games

Additional Practice 7-8
Add Mixed Numbers

Another Look!

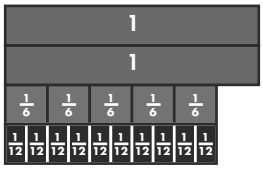
Randy did homework for $2\frac{5}{6}$ hours. Then he played soccer for $1\frac{3}{4}$ hours. How many hours did he spend on the two activities?

Before you add, you need to write equivalent fractions.

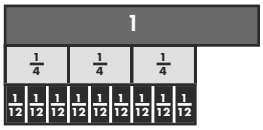
Step 1

Write equivalent fractions with a common denominator. You can use fraction strips to show the equivalent fractions.

$2\frac{5}{6} = 2\frac{10}{12}$



$1\frac{3}{4} = 1\frac{9}{12}$



Step 2

Add the fraction part of the mixed numbers first. Then add the whole numbers.

$\frac{9}{12} + \frac{10}{12} = \frac{19}{12}$

$1 + 2 = 3$

$\frac{19}{12} + 3 = 3\frac{19}{12}$

Step 3

Regroup $\frac{19}{12}$ as $1\frac{7}{12}$. Find the sum.

$3\frac{19}{12} = 3 + 1\frac{7}{12} = 4\frac{7}{12}$

Randy spent $4\frac{7}{12}$ hours on the two activities.

In **1–12**, find each sum.

Remember to use an estimate to check that your answer is reasonable.

1. $2\frac{5}{6} = 2\frac{\square\square}{12}$
$+ 3\frac{1}{4} = 3\frac{\square}{12}$

2. $5\frac{2}{5} = 5\frac{\square}{10}$
$+ 4\frac{1}{2} = 4\frac{\square}{10}$

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

4. $10\frac{1}{3} + \frac{7}{9}$

5. $3\frac{1}{4} + 6\frac{2}{3}$

6. $2\frac{1}{2} + 2\frac{1}{6}$

7. $3\frac{7}{8} + 5\frac{2}{3}$

8. $4\frac{5}{6} + 9\frac{5}{9}$

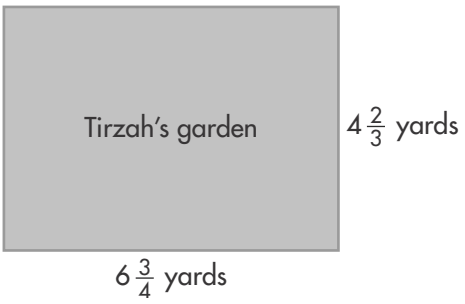
9. $15\frac{1}{3} + 1\frac{5}{12}$

10. $12\frac{3}{4} + 6\frac{3}{8}$

11. $14\frac{7}{10} + 3\frac{3}{5}$

12. $8\frac{5}{8} + 7\frac{7}{16}$

13. Tirzah wants to put a fence around her garden. She has 22 yards of fence material. Does she have enough to go all the way around the garden? Explain why or why not.



14. Higher Order Thinking Lake Trail is $4\frac{3}{5}$ miles long. Outlook Trail is $5\frac{5}{6}$ miles long. Pinewoods Trail is $1\frac{3}{10}$ miles longer than Lake Trail. Which trail is longer, Pinewoods Trail or Outlook Trail? Explain.

15. Reasoning Can the sum of two mixed numbers be equal to 2? Explain.

Use the data table for **16–18**.

DATA

Vital Organ Measures

Average woman's brain	$1\frac{3}{10}$ kg	$2\frac{4}{5}$ lb
Average man's brain	$1\frac{2}{5}$ kg	3 lb
Average human heart	$\frac{3}{10}$ kg	$\frac{7}{10}$ lb

16. Joan reads that the mass of an average elephant's brain is $3\frac{4}{10}$ kilograms greater than an average man's brain. How many kilograms is an average elephant's brain?

17. What is the total mass of an average man's brain and heart in kilograms (kg)?

18. What is the total weight of an average woman's brain and heart in pounds (lb)?

Assessment Practice

19. What is the missing number in the following equation?

$$1\frac{4}{9} + \frac{1}{\square} = 1\frac{7}{9}$$

20. Trish drove $18\frac{1}{8}$ miles yesterday. She drove $13\frac{2}{3}$ miles today. Write an addition sentence to show how many miles Trish drove in all.

Name _____

Practice Video Tools Games

Additional Practice 7-10
Subtract Mixed Numbers

Another Look!

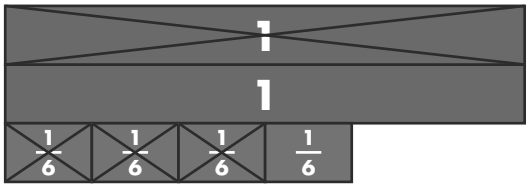
The Plainville Zoo has had elephants for $2\frac{2}{3}$ years. The zoo has had zebras for $1\frac{1}{2}$ years. How many more years has the zoo had elephants?

Remember: You need a common denominator to subtract fractions.

Step 1

Write equivalent fractions with a common denominator. You can use fraction strips.

$2\frac{2}{3} = 2\frac{4}{6}$



$1\frac{1}{2} = 1\frac{3}{6}$

Step 2

Find the difference $2\frac{4}{6} - 1\frac{3}{6}$. Subtract the fractions. Then subtract the whole numbers.

$\frac{4}{6} - \frac{3}{6} = \frac{1}{6}$ $\qquad 2 - 1 = 1$

So, $2\frac{2}{3} - 1\frac{1}{2} = 1\frac{1}{6}$.

The zoo has had the elephants $1\frac{1}{6}$ years longer.

In **1–9**, find each difference.

1. $4\frac{3}{5} = 4\frac{\square}{15}$
$-\ 2\frac{1}{3} = 2\frac{\square}{15}$

2. $5 - 3\frac{5}{6}$

3. $10\frac{5}{8} - 5\frac{3}{4}$

4. $5\frac{6}{7} - 1\frac{1}{2}$

5. $3 - 1\frac{3}{4}$

6. $6\frac{5}{6} - 5\frac{1}{2}$

7. $7\frac{3}{10} - 2\frac{1}{5}$

8. $9\frac{2}{3} - 6\frac{1}{2}$

9. $8\frac{1}{4} - \frac{7}{8}$

10. To find the difference of $7 - 3\frac{5}{12}$, how do you rename the 7?

11. Higher Order Thinking Is it necessary to rename $4\frac{1}{4}$ to subtract $\frac{3}{4}$? Explain.

Use the table for **12–15**. The table shows the length and width of different bird eggs.

DATA

Egg Sizes in Inches (in.)

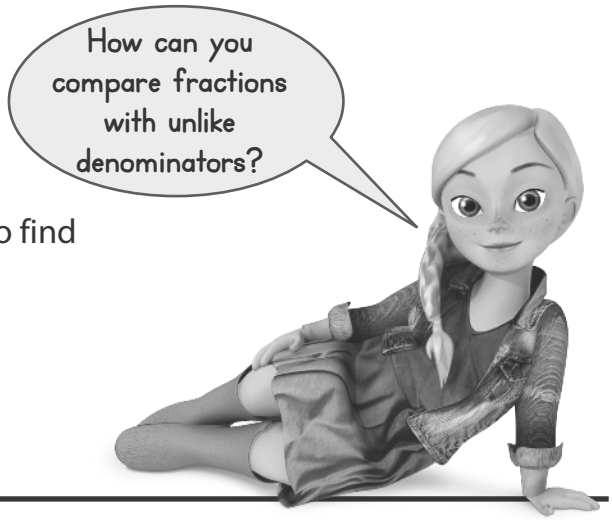
Bird	Length	Width
Canada goose	$3\frac{2}{5}$	$2\frac{3}{10}$
Robin	$\frac{3}{4}$	$\frac{3}{5}$
Turtle dove	$1\frac{1}{5}$	$\frac{9}{10}$
Raven	$1\frac{9}{10}$	$1\frac{3}{10}$

12. How much longer is the Canada goose egg than the raven egg?

13. How much wider is the turtle-dove egg than the robin egg?

14. Write the birds in order from the shortest egg to the longest egg.

15. Model with Math Write and solve an equation to find the difference between the length and width of a turtle-dove egg.



Assessment Practice

16. Choose the correct number from the box below to complete the subtraction sentence that follows.

1	2	6	8	12	18

$1\frac{5}{6} - \frac{4}{9} = 1\frac{7}{\square}$

17. Choose the correct number from the box below to complete the subtraction sentence that follows.

1	2	3	4	5	6

$9\frac{5}{12} - 3\frac{2}{3} = 5\frac{\square}{4}$

Name _____

Practice Video Tools Games

Additional Practice 8-3

Multiply Fractions and Whole Numbers

Another Look!

Lorena has a 16-inch long scarf, and $\frac{2}{3}$ of its length is red. How many inches long is the red section of the scarf?

Step 1

Multiply.

$\frac{2}{3} \times 16 = \frac{2 \times 16}{3} = \frac{32}{3}$

Step 2

Rewrite as a mixed number.

$\frac{32}{3} = 10\frac{2}{3}$

Step 3

Answer the question.

The red section of the scarf is $10\frac{2}{3}$ inches long.

Leveled Practice In **1–16**, find each product. Write each product as a mixed number.

1. $26 \times \frac{3}{4} = \frac{\square \times \square}{\square} = \frac{\square}{\square} = \square\frac{\square}{\square}$

2. $9 \times \frac{7}{10} = \frac{\square \times \square}{\square} = \frac{\square}{\square} = \square\frac{\square}{\square}$

3. $\frac{2}{5} \times 32 = \frac{\square \times \square}{\square} = \frac{\square}{\square} = \square\frac{\square}{\square}$

4. $\frac{1}{8} \times 400 = \frac{\square \times \square}{\square} = \frac{\square}{\square} = \square$

5. $15 \times \frac{4}{5}$

6. $\frac{3}{11} \times 66$

7. $45 \times \frac{3}{8}$

8. $\frac{3}{10} \times 12$

9. $55 \times \frac{2}{5}$

10. $\frac{5}{6} \times 40$

11. $\frac{7}{9} \times 54$

12. $600 \times \frac{5}{12}$

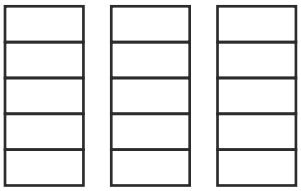
13. $\frac{2}{3} \times 21$

14. $500 \times \frac{3}{5}$

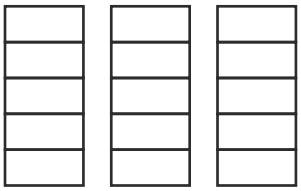
15. $72 \times \frac{5}{8}$

16. $\frac{2}{9} \times 35$

17. Find $6 \times \frac{3}{5}$. Use the model at the right to find the product.



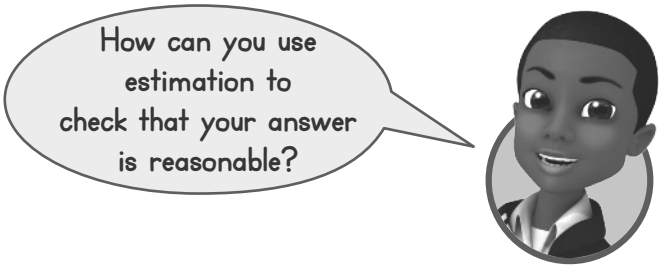
18. What mixed number represents the part of the model you did **NOT** shade for Exercise 17?



19. Without multiplying, tell which is greater: 0.75×81 or 0.9×81. Explain.

20. **Use Structure** Without multiplying, tell which is greater: $\frac{4}{5} \times 45$ or $\frac{2}{3} \times 45$. Explain.

21. **Higher Order Thinking** The school library has 2,469 books. Two-thirds of the books are paperbacks. How many books are paperbacks?



22. The table shows the amount of apple sauce made from one apple of each size. Patrice has 17 medium apples and 23 large apples. What is the total amount of applesauce that she can make with these apples?

DATA

Apple Size	Amount of Applesauce
Small	$\frac{1}{3}$ cup
Medium	$\frac{1}{2}$ cup
Large	$\frac{3}{4}$ cup

Assessment Practice

23. Select all that are true.

- ☐ $\frac{4}{9} \times 3 = \frac{4}{27}$
- ☐ $72 \times \frac{4}{9} = 32$
- ☐ $14 \times \frac{2}{7} = \frac{1}{49}$
- ☐ $15 \times \frac{3}{5} = 9$

24. Select all that are true.

- ☐ $6 \times \frac{3}{5} = \frac{1}{10}$
- ☐ $\frac{7}{8} \times 13 = \frac{7}{104}$
- ☐ $\frac{7}{8} \times 28 = 24\frac{1}{2}$
- ☐ $56 \times \frac{5}{9} = 31\frac{1}{9}$

Name _____

Practice Video Tools Games

Additional Practice 8-5
Multiply Two Fractions

Another Look!

Find $\frac{3}{4} \times \frac{2}{3}$.

Step 1

Multiply the numerators, and then multiply the denominators.

$\frac{3 \times 2}{4 \times 3} = \frac{6}{12} = \frac{1}{2}$

Step 2

Check that the answer is reasonable.

Since $\frac{1}{2}$ is less than 1, the answer is reasonable.

Leveled Practice In **1–24**, find each product.

1. $\frac{7}{8} \times \frac{2}{3} = \frac{\square \times 2}{8 \times \square} = \frac{\square}{24} = \frac{\square}{\square}$

2. $\frac{3}{4} \times \frac{5}{9} = \frac{\square \times 5}{4 \times \square} = \frac{15}{\square} = \frac{\square}{\square}$

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

4. $\frac{4}{7} \times \frac{1}{2} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square} = \frac{\square}{\square}$

5. $\frac{3}{5} \times \frac{3}{7} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

6. $\frac{4}{9} \times \frac{2}{3} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

7. $\frac{11}{12} \times \frac{2}{5}$

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

9. $\frac{1}{6} \times \frac{2}{3}$

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

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

12. $\frac{2}{3} \times \frac{5}{9}$

13. $\frac{1}{3}$ of $\frac{3}{10}$

14. $\frac{4}{5}$ of $\frac{5}{6}$

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

16. $\frac{1}{2}$ of $\frac{2}{3}$

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

18. $\frac{3}{10} \times \frac{3}{10}$

19. $\left(\frac{1}{2} + \frac{1}{3}\right) \times \frac{8}{9}$

20. $\left(\frac{2}{3} - \frac{1}{6}\right) \times \frac{11}{12}$

21. $\left(\frac{3}{5} + \frac{1}{4}\right) \times \frac{2}{3}$

22. $\frac{7}{8} \times \left(\frac{1}{3} + \frac{1}{3}\right)$

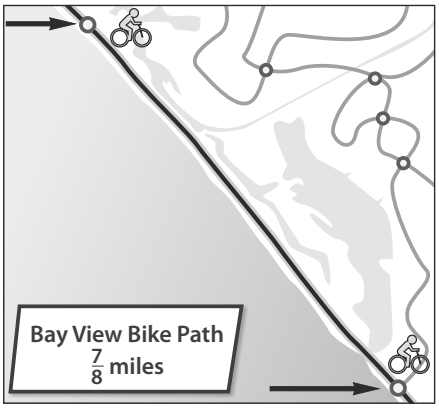
23. $\left(\frac{11}{12} - \frac{5}{6}\right) \times \frac{3}{4}$

24. $\frac{1}{3} \times \left(\frac{9}{10} - \frac{3}{5}\right)$

25. A full bottle holds $\frac{1}{4}$ gallon of juice. If $\frac{3}{5}$ of the juice has been poured out, how much juice is left in the bottle?

26. Natasha has 3 pounds of apples and $2\frac{1}{2}$ pounds of grapes. If she gives $\frac{1}{3}$ of her apples to Silvie, how many pounds of apples does she have left?

27. Keyshia is riding her bike on Bay View bike path. Keyshia's bike got a flat tire $\frac{2}{3}$ of the way down the path and she had to stop. How far did Keyshia ride?



28. Of the apps on Juan's tablet, $\frac{3}{4}$ are gaming apps, and $\frac{5}{7}$ of the gaming apps are action games. What fraction of the apps on Juan's tablet are action games?

29. Higher Order Thinking In Mrs. Hu's classroom, $\frac{4}{5}$ of the students have a dog as a pet. Of the students who have a dog as a pet, $\frac{2}{3}$ also have a cat as a pet. If there are 45 students in her class, how many have both a dog and a cat as pets?

30. Patrick walks $\frac{9}{10}$ mile to the gym. How far has he walked when he has covered $\frac{2}{3}$ of the distance to the gym?

31. Construct Arguments Which is greater, $\frac{4}{7} \times \frac{1}{4}$ or $\frac{4}{7} \times \frac{1}{6}$? Explain.

Assessment Practice

32. Choose all the multiplication sentences that have $\frac{5}{6}$ as the missing part.

- ☐ $\square \times \frac{2}{3} = \frac{5}{9}$
- ☐ $\frac{2}{3} \times \square = \frac{7}{9}$
- ☐ $\frac{11}{12} \times \frac{10}{11} = \square$
- ☐ $\square \times \frac{1}{5} = \frac{1}{6}$
- ☐ $\frac{3}{4} \times \square = \frac{5}{8}$

33. Choose all the expressions that have $\frac{8}{15}$ as a product.

- ☐ $\frac{2}{3} \times \frac{4}{5}$
- ☐ $\frac{8}{9} \times \frac{3}{5}$
- ☐ $\frac{3}{15} \times \frac{5}{15}$
- ☐ $\frac{7}{10} \times \frac{1}{5}$
- ☐ $\frac{11}{15} \times \frac{8}{11}$

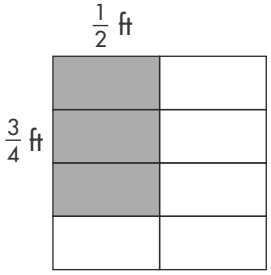
Name _____

Practice Video Tools Games

Additional Practice 8-6
Area of a Rectangle

Another Look!

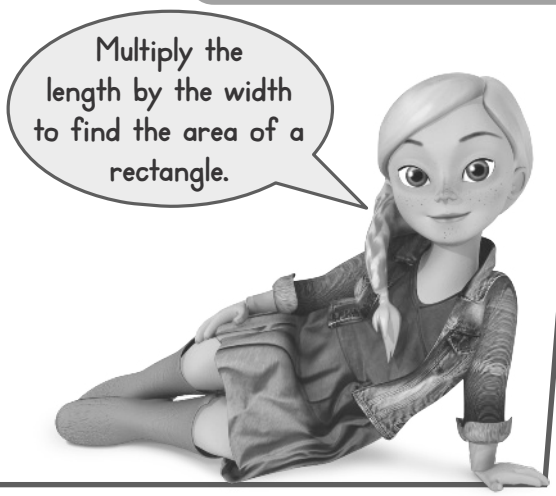
Cole wants to cover the back of a picture frame with colorful paper. What is the area of the back of Cole's picture frame?



Multiply to find the area of the back of the picture frame.

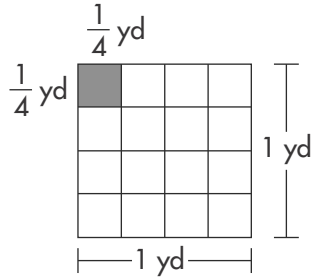
$A = \frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$

The area of the back of Cole's picture frame is $\frac{3}{8}$ square foot.



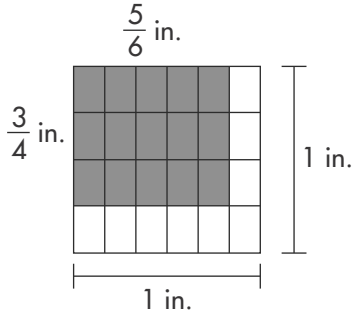
In **1–5**, find each area.

1.



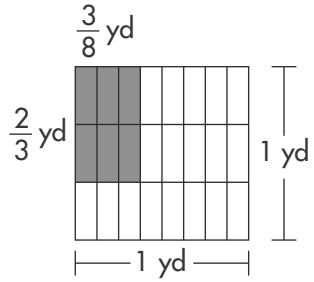
$\frac{1}{4} \times \frac{1}{4} = \frac{\square}{\square}$ sq yd

2.



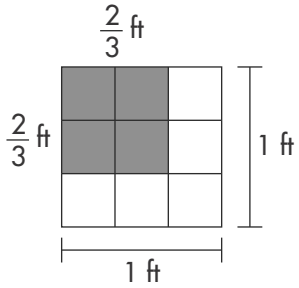
$\frac{\square}{\square} \times \frac{\square}{\square} = \frac{\square}{\square} = \frac{\square}{\square}$ sq in.

3.

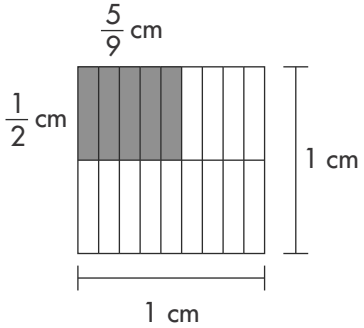


$\frac{\square}{\square} \times \frac{\square}{\square} = \frac{\square}{\square} = \frac{\square}{\square}$ sq yd

4.



5.



6. Find the area of a square with side length $\frac{3}{4}$ yard.

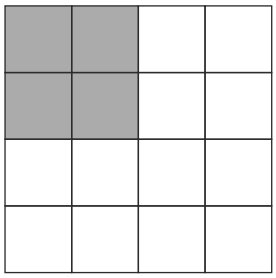
7. Find the area of a rectangle with side lengths $\frac{5}{4}$ feet and $\frac{5}{3}$ feet.

8. Find the area of a square with side length $\frac{7}{12}$ inch.

9. A crate is $\frac{3}{4}$ yard long and $\frac{2}{3}$ yard wide. The crate is also 2 feet tall. What is the area of the top of the crate?

10. Mike is making macaroni salad. For each bowl of macaroni salad, he needs $\frac{1}{3}$ cup of macaroni. How many cups of macaroni will he use if he makes 27 bowls of macaroni salad?

11. Higher Order Thinking Dorothy is installing purple and white tile in her kitchen. She made a diagram of the layout showing the area of both colors. Write two expressions that describe the area of the purple tile.



12. Construct Arguments Corey and Veronica each multiplied $\frac{1}{2} \times \frac{5}{2}$. Corey got $\frac{6}{4}$ and Veronica got $\frac{5}{4}$. Which student found the correct answer? Explain.

13. Colby attends barber school. So far, he has completed 612 hours. If Colby attended school the same number of hours each day for a total of 68 days, how many hours did he attend school each day?

Assessment Practice

14. Tomás found the area of a rectangle to be $\frac{1}{6}$ square inch. Which could be the side lengths of the rectangle?

Ⓐ $\frac{1}{4}$ inch and $\frac{2}{3}$ inch

Ⓑ $\frac{1}{3}$ inch and $\frac{1}{3}$ inch

Ⓒ $\frac{1}{6}$ inch and $\frac{1}{6}$ inch

Ⓓ $\frac{1}{2}$ inch and $\frac{1}{12}$ inch

15. Jackie found the area of a square to be $\frac{25}{16}$ square feet. Which shows the side length of the square?

Ⓐ $\frac{5}{4}$ feet

Ⓑ $\frac{5}{8}$ foot

Ⓒ $\frac{5}{16}$ foot

Ⓓ $\frac{25}{4}$ feet

Name _____

Practice Video Tools Games

Additional Practice 8-7
Multiply Mixed Numbers

Another Look!

Millwood City is constructing a new highway through town. The construction crew can complete $5\frac{3}{5}$ miles of road each month. How many miles will they complete in $6\frac{1}{2}$ months?

Step 1

Round the mixed numbers to whole numbers to estimate the product.

$5\frac{3}{5} \times 6\frac{1}{2}$

$\downarrow \quad \downarrow$

$6 \times 7 = 42$

So, they can complete about 42 miles.

Step 2

Rename the mixed numbers.

$5\frac{3}{5} \times 6\frac{1}{2} = \frac{28}{5} \times \frac{13}{2}$

Step 3

Multiply the numerators and the denominators.

$\frac{28}{5} \times \frac{13}{2} = \frac{364}{10} = 36\frac{2}{5}$

The construction crew will complete $36\frac{2}{5}$ miles of highway in $6\frac{1}{2}$ months.

Step 4

Check for reasonableness.

Compare your product to your estimate.

$36\frac{2}{5}$ is close to 42, so the answer is reasonable.

In **1–4**, estimate the product. Then complete the multiplication.

1. $1\frac{1}{4} \times 2\frac{1}{4} = \frac{\square}{4} \times \frac{9}{\square} = \frac{5 \times \square}{\square \times 4} = \frac{45}{\square} = \square\frac{\square}{16}$

2. $3\frac{1}{2} \times 2\frac{2}{3} = \frac{7}{\square} \times \frac{\square}{3} = \frac{\square \times 8}{2 \times \square} = \frac{\square}{6} = \square\frac{1}{\square}$

3. $5\frac{1}{3} \times 2\frac{3}{4} = \frac{\square}{3} \times \frac{11}{\square} = \square$

4. $4\frac{1}{5} \times 2\frac{1}{4} = \frac{\square}{5} \times \frac{\square}{4} = \square$

In **5–12**, estimate the product. Then find each product.

5. $4 \times 6\frac{1}{4}$

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

7. $\frac{7}{8} \times 4\frac{1}{6}$

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

9. $8\frac{1}{10} \times \frac{2}{3}$

10. $4\frac{1}{12} \times 7$

11. $3\frac{4}{5} \times 7\frac{1}{2}$

12. $6\frac{2}{3} \times 4\frac{4}{5}$

13. How can you use estimation to find $9\frac{1}{2} + 9\frac{1}{2} + 9\frac{1}{2} + 9\frac{1}{2} + 9\frac{1}{2}$?

14. A model of a house is built on a base that measures $7\frac{3}{4}$ in. wide and $9\frac{1}{5}$ in. long. What is the area of the model house's base?

15. Algebra Write a mixed number for t so that $2\frac{3}{4} \times t$ is more than $2\frac{3}{4}$.

16. Vocabulary Give an example of a benchmark fraction and an example of a mixed number.

17. Make Sense and Persevere Leon and Marisol biked the Brookside Trail to the end and back. Then they biked the Forest Glen Trail to the end and back before stopping to eat. How far did they bike before they stopped to eat?

18. The One World Trade Center in New York City is about $3\frac{1}{5}$ times as tall as the Washington Monument in Washington, D.C. The Washington Monument is 555 feet tall. About how tall is the One World Trade Center?

19. Higher Order Thinking Lucie can walk about $3\frac{4}{5}$ miles each hour. About how far can she walk in 2 hours 45 minutes?

Assessment Practice

20. Choose all that are true.

- ☐ $\frac{1}{4} \times 1\frac{7}{8} = \frac{15}{32}$
- ☐ $2\frac{1}{2} \times 2\frac{1}{2} = 5\frac{1}{2}$
- ☐ $3\frac{1}{5} \times 2\frac{1}{4} = 6\frac{2}{5}$
- ☐ $4\frac{1}{2} \times 1\frac{1}{3} = 6$
- ☐ $5\frac{1}{4} \times \frac{1}{2} = 2\frac{5}{8}$

21. Choose all that are true.

- ☐ $4\frac{1}{12} \times \frac{3}{4} = \frac{49}{16}$
- ☐ $8\frac{5}{6} \times 2 = 17\frac{2}{3}$
- ☐ $5\frac{1}{2} \times 5\frac{1}{2} = 30\frac{1}{4}$
- ☐ $9\frac{1}{5} \times \frac{3}{5} = 9\frac{4}{5}$
- ☐ $6\frac{3}{4} \times 3\frac{1}{4} = 19$

Name _____

Practice Video Tools Games

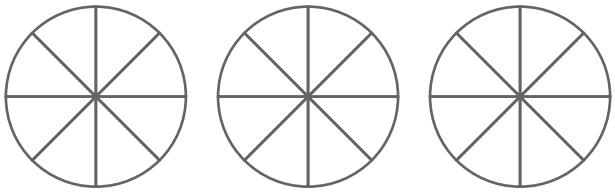
Additional Practice 9-1
Fractions and Division

Another Look!

If 3 pizzas are shared equally among 8 people, what fraction of a pizza will each person get?

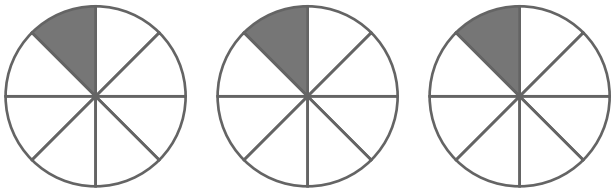
Step 1

Partition each pizza into 8 equal pieces. Each piece is $\frac{1}{8}$ of the whole.



Step 2

Each person gets 1 piece of each pizza. This is the same as $\frac{3}{8}$ of one pizza.



So, $3 \div 8 = \frac{3}{8}$. Each person gets $\frac{3}{8}$ of a pizza.

In **1–5**, write a division expression for each fraction.

1. $\frac{1}{2}$ **2.** $\frac{5}{6}$ **3.** $\frac{9}{15}$ **4.** $\frac{10}{25}$ **5.** $\frac{16}{31}$

In **6–10**, write each division expression as a fraction.

6. $5 \div 9$ **7.** $1 \div 12$ **8.** $4 \div 21$ **9.** $8 \div 30$ **10.** $15 \div 45$

In **11–14**, tell what fraction each person gets when they share equally.

11. 6 friends share 3 apples.

12. 8 people share 1 pizza.

13. 10 students share 1 hour to give their science reports.

14. 5 women each run an equal part of a 3-mile relay.

Use the table for **15** and **16**. The table shows the weights of different materials used to build a bridge.

15. **Model with Math** Write a division expression that represents the weight of the steel structure divided by the total weight of the bridge's materials.

16. Write a fraction that represents the weight of glass and granite in the bridge compared to the total weight of the materials in the bridge.

DATA

Bridge	Materials
Concrete	1,000 tons
Steel structure	400 tons
Glass and granite	200 tons

17. **Higher Order Thinking** A group of students shared 3 rolls of clay equally. If each student got $\frac{1}{2}$ of a roll of clay, how many students were in the group? Explain.

18. **Vocabulary** Write a division equation. Identify the dividend, divisor, and quotient.

19. One lap around the school track is $\frac{1}{4}$ of a mile. If Patrick runs 7 laps around the track and then runs $1\frac{1}{2}$ miles to get home, how far will he run in all?

20. There were 16 teams at a gymnastics meet. Each team had 12 members. How many gymnasts participated in the meet?

Assessment Practice

21. Which equation would be made true with the number 4?

Ⓐ $4 \div 5 = \square$

Ⓑ $\square \div 4 = \frac{3}{4}$

Ⓒ $1 \div \square = 4$

Ⓓ $\square \div 5 = \frac{4}{5}$

22. Which equation would be made true with the number 10?

Ⓐ $\square \div 10 = \frac{1}{10}$

Ⓑ $3 \div \square = \frac{3}{10}$

Ⓒ $4 \div 40 = \square$

Ⓓ $\square \div 21 = \frac{21}{10}$

Name _____

Practice Video Tools Games

Additional Practice 9-3

Use Multiplication to Divide

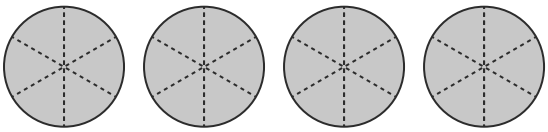
Another Look!

How many sixths are in 4?

Find $4 \div \frac{1}{6}$. Use a model to help.

There are 6 sixths in each whole, so 4 wholes contain $4 \times 6 = 24$ sixths.

$4 \div \frac{1}{6} = 24$



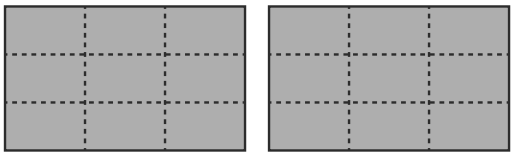
Check your answer.

$24 \times \frac{1}{6} = \frac{24}{6} = 4$

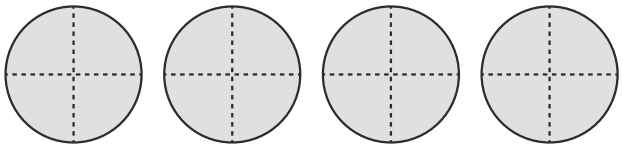
The answer checks.

In **1–4**, use the model to find each quotient. Use multiplication to check your answer.

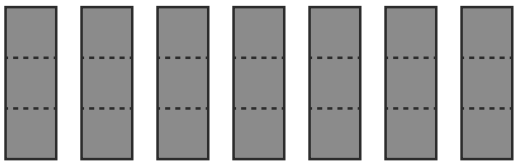
1. $2 \div \frac{1}{9}$



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



3. $7 \div \frac{1}{3}$



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

In **5–7**, draw a model to find each quotient. Use multiplication to check your answer.

5. $4 \div \frac{1}{6}$

6. $2 \div \frac{1}{8}$

7. $3 \div \frac{1}{12}$

8. Use Structure Use the numbers in the multiplication equation $45 \times \frac{1}{9} = 5$ to write a division equation involving division by a fraction.

9. A square has a side length of 6.2 centimeters. What is the perimeter of the square?

10. Denise makes beaded bracelets for a craft fair. She uses $\frac{1}{4}$ yard of yarn for each bracelet. How many bracelets can she make from 10 yards of yarn?

11. Arthur paid $0.84 for 0.25 pound of potato salad. How much does one pound cost?

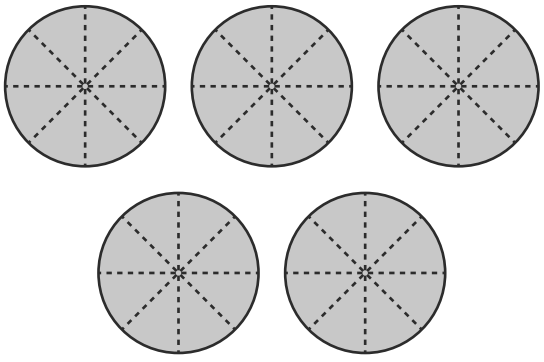
12. Higher Order Thinking A company donated 5 acres of land to the city. How many more small garden plots would fit on the land than medium garden plots? Explain.

DATA

Community Garden Plots	Size (fraction of an acre)
Small	$\frac{1}{6}$
Medium	$\frac{1}{4}$
Large	$\frac{1}{3}$

Assessment Practice

13. Audrey drew a model to determine how many eighths are in 5.



Part A

Describe Audrey's work by writing a division equation that includes a fraction.

Part B

Check your answer by using the numbers in your division equation to write a multiplication equation.

Name _____

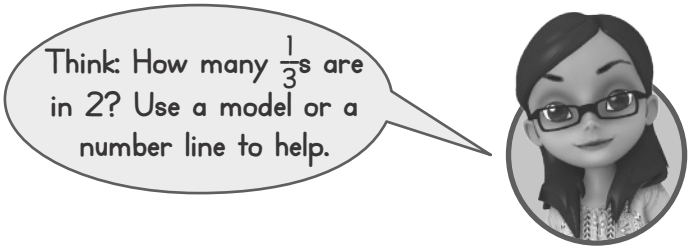
Practice Video Tools Games

Additional Practice 9-4

Divide Whole Numbers by Unit Fractions

Another Look!

Ned has a 2-foot-long piece of rope. He cuts the rope into $\frac{1}{3}$-foot pieces. How many pieces of rope does Ned have now?



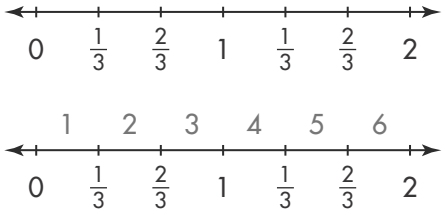
Count how many $\frac{1}{3}$s there are in 2. There are three $\frac{1}{3}$s in 1, so there are six $\frac{1}{3}$s in 2.

$2 \div \frac{1}{3} = 6$

You can use multiplication to check your answer.

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

Ned has 6 pieces of rope.



In **1** and **2**, use the picture to find each quotient.

1. How many $\frac{1}{5}$s are in 1? ____

$1 \div \frac{1}{5} =$ ____

2. How many $\frac{1}{5}$s are in 4? ____

$4 \div \frac{1}{5} =$ ____

In **3–10**, find each quotient. You may draw a picture or use a number line to help.

3. $12 \div \frac{1}{2} =$

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

5. $3 \div \frac{1}{7} =$

6. $10 \div \frac{1}{10} =$

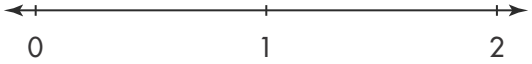
7. $20 \div \frac{1}{3} =$

8. $7 \div \frac{1}{5} =$

9. $6 \div \frac{1}{6} =$

10. $15 \div \frac{1}{2} =$

11. Use the number line. How many $\frac{1}{4}$-yard long pieces of pipe can be cut from two 1-yard long pieces of pipe?



12. **Vocabulary** Define a unit fraction and then give an example.

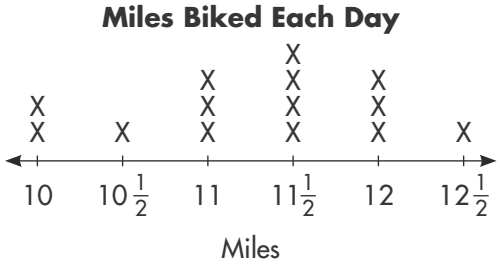
13. Built in 2005, the world's largest leather work boot is 16 feet tall. A typical men's work boot is $\frac{1}{2}$ foot tall. How many times as tall as a typical work boot is the largest boot?

14. **Higher Order Thinking** When you divide a whole number by a unit fraction, explain how you can find the quotient.

15. **Number Sense** Look for a pattern in the table. Find the missing addends and sums.

Addends	$\frac{1}{8}+\frac{1}{4}$	$\frac{1}{4}+\frac{1}{4}$	$\frac{3}{8}+\frac{1}{4}$	
Sum	$\frac{3}{8}$	$\frac{1}{2}$		

16. **Make Sense and Persevere** David made a line plot of how many miles he biked each day for two weeks. How many miles did he bike in all?



Assessment Practice

17. Omar has 8 cups of cornmeal. How many batches of corn muffins can he make?

Ⓐ 4 batches

Ⓑ 6 batches

Ⓒ 16 batches

Ⓓ 32 batches

DATA

Cornmeal Recipes

Item	Amount Needed
Cornbread	$\frac{3}{4}$ cup per loaf
Corn Muffins	$\frac{1}{2}$ cup per batch
Hush Puppies	$\frac{5}{8}$ cup per batch

Name _____

Practice Video Tools Games

Additional Practice 9-6

Divide Whole Numbers and Unit Fractions

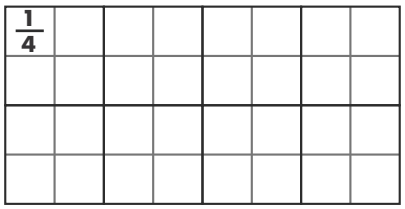
Another Look!

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

You can use an area model to solve the problem.

First, draw a rectangle and divide it into 8 equal parts to represent 8 wholes.

Then use another color to divide each of the 8 parts into fourths and count the total number of fraction parts.



There are 32 small squares, so you know that $8 \div \frac{1}{4} = 32$.

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

You can also divide unit fractions by whole numbers.

Think: the quotient times the divisor must equal the dividend.

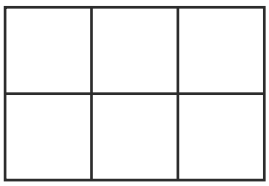
What times 8 equals $\frac{1}{4}$?

$\frac{1}{32} \times 8 = \frac{1}{4}$

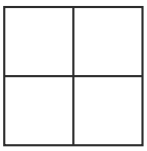
So, $\frac{1}{4} \div 8 = \frac{1}{32}$.

In **1–12**, find each quotient. Use a number line or model to help.

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



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



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

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

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

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

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

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

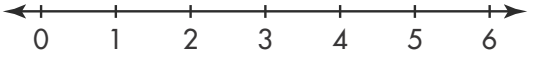
9. $\frac{1}{3} \div 9$

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

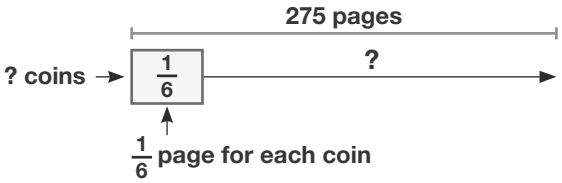
11. $6 \div \frac{1}{7}$

12. $\frac{1}{6} \div 5$

13. Cynthia has a piece of wood that is 6 feet long. She cuts it into $\frac{1}{2}$-foot pieces. How many pieces does she have? Use the number line to help you solve the problem.

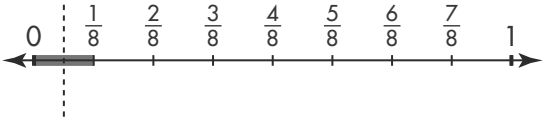


14. Gregg has a coin collection album with 275 pages. Each coin is displayed on $\frac{1}{6}$ of a page. How many coins will fit in the album?



15. **enVision®** STEM Suppose a wind turbine requires $\frac{1}{6}$ square mile of land. How many turbines can be built on 8 square miles of land?

16. **Reasoning** Meredith modeled a division problem on the number line. What division problem did she model? Find the quotient.



17. **Higher Order Thinking** Millie has 5 yards of blue fabric and 7 yards of pink fabric. How many quilt squares can she make with the fabric she has if both colors are needed to make one square? Explain your reasoning.

DATA

Amount of Fabric Needed for One Quilt Square

Fabric Color	Amount Needed
Blue	$\frac{1}{4}$ yard
Pink	$\frac{1}{3}$ yard

Assessment Practice

18. Cindy says that $\frac{1}{4} \div 12 = 3$. Is she correct? If not, justify your reasoning and give the correct quotient.