Chapter 7

Name _____

Divide Decimals

Show What You Know

Division Facts Find the quotient.

1. $6\overline{)24}$ = _____
2. $7\overline{)56}$ = _____
3. $18 \div 9$ = _____
4. $35 \div 5$ = _____

Estimate with 1-Digit Divisors Estimate the quotient.

5. $6\overline{)253}$ _____
6. $4\overline{)1,165}$ _____
7. $7\overline{)1,504}$ _____

Division Divide.

8. $34\overline{)785}$
9. $27\overline{)1,581}$
10. $41\overline{)4,592}$

MATH in the Real World

Instead of telling Carmen her age, Sora gave her this clue. Find Sora's age.

Clue

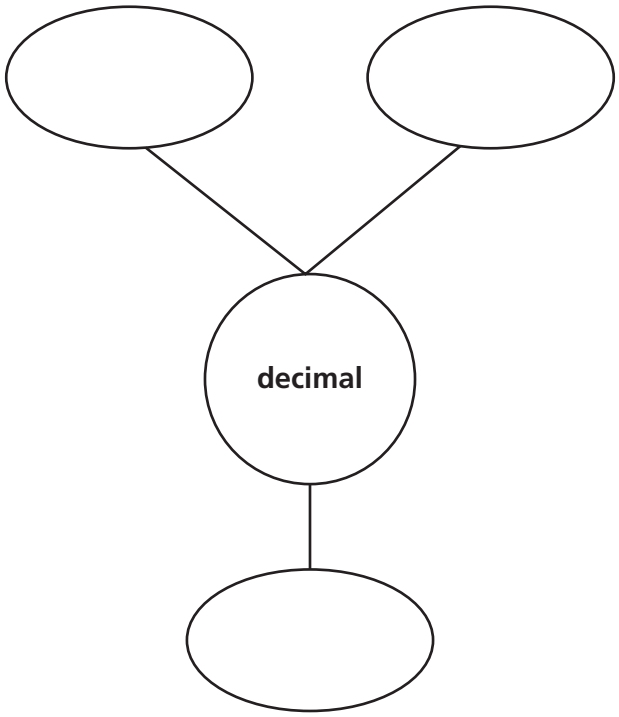
My age is 10 more than one-tenth of one-tenth of one-tenth of 3,000.

Vocabulary Builder

Go Online For more help

Visualize It

Complete the bubble map using review words.



Connect to Vocabulary

Review Words

- compatible numbers
- decimal
- decimal point
- dividend
- divisor
- equivalent fractions
- estimate
- exponent
- hundredth
- quotient
- remainder
- tenth

Understand Vocabulary

Complete the sentences using review words.

1. A _____ is a symbol used to separate the ones place from the tenths place in decimal numbers.
2. Numbers that are easy to compute with mentally are called _____.
3. A _____ is one of ten equal parts.
4. A number with one or more digits to the right of the decimal point is called a _____.
5. The _____ is the number that is to be divided in a division problem.
6. A _____ is one of one hundred equal parts.
7. You can _____ to find a number that is close to the exact amount.

Name _____

Understand Decimal Division Patterns

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can use patterns to help place the decimal point in a quotient.

UNLOCK the Problem

The Healthy Wheat Bakery uses 560 pounds of flour to make 1,000 loaves of bread. Each loaf contains the same amount of flour. How many pounds of flour does the bakery use in each loaf of bread?

- Underline the sentence that tells you what you are trying to find.
- Circle the numbers you need to use.

$560 \times 1 = 560$

$560 \times 0.1 = 56.0$

$560 \times 0.01 = 5.60$

$560 \times 0.001 = 0.560$

You can use place-value patterns to help you find quotients. Dividing by 10, 100, or 1,000 is the same as multiplying by 0.1, 0.01, or 0.001.

One Way Use place-value patterns.

Divide. 560 ÷ 1,000

Look for a pattern in these products and quotients.

$560 \div 1 = 560$

$560 \div 10 = 56.0$

$560 \div 100 = 5.60$

$560 \div 1{,}000 = 0.560$

$560 \div 0.1 = 5{,}600$

$560 \div 0.01 = 56{,}000$

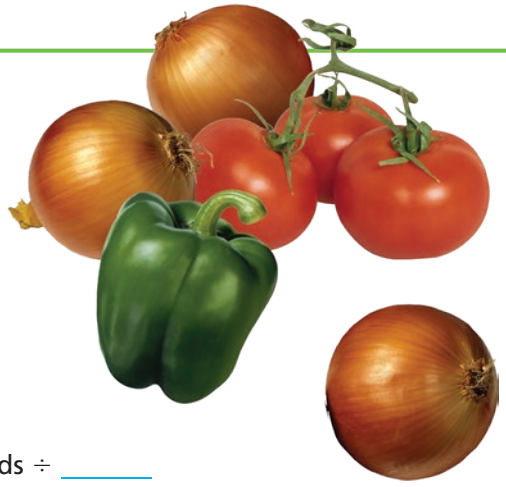
So, _____ pound of flour is used in each loaf of bread.

1. What do you notice about the quotients as you divide by 10, 100, and 1,000?

_____

CONNECT Dividing by 10 is the same as multiplying by 0.1 or finding $\frac{1}{10}$ of a number.

Example



Liang used 25.5 pounds of tomatoes to make a large batch of salsa. He used one-tenth as many pounds of onions as pounds of tomatoes. He used one-hundredth as many pounds of green peppers as pounds of tomatoes. How many pounds of each ingredient did Liang use?

Tomatoes: 25.5 pounds

Onions: 25.5 pounds ÷ _____

Think: 25.5 ÷ 1 = _____

25.5 ÷ 10 = _____

Green Peppers: 25.5 pounds ÷ _____

Think: _____ ÷ 1 = _____

_____ ÷ 10 = _____

_____ ÷ 100 = _____

So, Liang used 25.5 pounds of tomatoes, _____ pounds of onions,

and _____ pound of green peppers.

Try This! Complete the pattern.

A 32.6 ÷ 1 = _____

32.6 ÷ 10 = _____

32.6 ÷ 100 = _____

B 50.2 ÷ 1 = _____

50.2 ÷ 10 = _____

50.2 ÷ 100 = _____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How can you determine where to place the decimal point in the quotient 47.3 ÷ 100?

Share and Show Math Board

Complete the pattern.

1. 456 ÷ 1 = 456

456 ÷ 10 = 45.6

456 ÷ 100 = 4.56

456 ÷ 1,000 = _____

Think: The dividend is being divided by increasing place values, so the decimal point will move to the _____ 1 place for each increasing place value.

Name _____

Complete the pattern.

2. $225 \div 1 =$ _____
$225 \div 10 =$ _____
$225 \div 100 =$ _____
$225 \div 1{,}000 =$ _____

3. $605 \div 1 =$ _____
$605 \div 10 =$ _____
$605 \div 100 =$ _____
$605 \div 1{,}000 =$ _____

4. $74.3 \div 1 =$ _____
$74.3 \div 10 =$ _____
$74.3 \div 100 =$ _____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

What happens to the value of a number when you divide by 10, 100, or 1,000?

On Your Own

Complete the pattern.

5. $156 \div 1 =$ _____
$156 \div 10 =$ _____
$156 \div 100 =$ _____
$156 \div 1{,}000 =$ _____

6. $32 \div 1 =$ _____
$32 \div 10 =$ _____
$32 \div 100 =$ _____
$32 \div 1{,}000 =$ _____

7. $23 \div 1 =$ _____
$23 \div 10 =$ _____
$23 \div 100 =$ _____
$23 \div 1{,}000 =$ _____

8. $12.7 \div 1 =$ _____
$12.7 \div 10 =$ _____
$12.7 \div 100 =$ _____

9. $92.5 \div 1 =$ _____
$92.5 \div 10 =$ _____
$92.5 \div 100 =$ _____

10. $86.3 \div 1 =$ _____
$86.3 \div 10 =$ _____
$86.3 \div 100 =$ _____

MTR Find the value of *n*.

11. $268 \div n = 0.268$
$n =$ _____

12. $n \div 100 = 0.123$
$n =$ _____

13. $n \div 10 = 4.6$
$n =$ _____

14. Loretta is trying to build the largest taco in the world. She uses 2,000 pounds of ground beef, one-tenth as many pounds of cheese as beef, and one-hundredth as many pounds of lettuce as beef. How many pounds of lettuce and cheese combined did she use?

_____

Problem Solving · Applications

Use the table to solve Problems 15–17.

Dry Ingredients for 1,000 Corn Muffins	
Ingredient	**Number of kilograms**
cornmeal	150
flour	110
sugar	66.7
baking powder	10
salt	4.17

15. How much more cornmeal than flour does each muffin contain?

_____

16. If each muffin contains the same amount of sugar, how many kilograms of sugar, to the nearest thousandth, are in each corn muffin?

MATH on the Spot

_____

17. MTR The bakery decides to make only 100 corn muffins on Tuesday. How many kilograms of sugar will be needed?

_____

18. WRITE *Math* Explain how you know that the quotient $47.3 \div 10$ is equal to the product 47.3×0.1,

_____

_____

_____

_____

_____

19. Use the numbers on the tiles to complete each number sentence.

$62.4 \div 1 =$ _____

$62.4 \div 10 =$ _____

$62.4 \div 100 =$ _____

.	0	2
	4	6

Name _____

Understand Decimal Division Patterns

Go Online
Interactive Examples

Complete the pattern.

1. $78.3 \div 1 =$ 78.3
$78.3 \div 10 =$ 7.83
$78.3 \div 100 =$ 0.783

2. $179 \div 1 =$ _____
$179 \div 10 =$ _____
$179 \div 100 =$ _____
$179 \div 1{,}000 =$ _____

3. $87.5 \div 1 =$ _____
$87.5 \div 10 =$ _____
$87.5 \div 100 =$ _____

4. $124 \div 1 =$ _____
$124 \div 10 =$ _____
$124 \div 100 =$ _____
$124 \div 1{,}000 =$ _____

5. $18 \div 1 =$ _____
$18 \div 10 =$ _____
$18 \div 100 =$ _____
$18 \div 1{,}000 =$ _____

6. $16 \div 1 =$ _____
$16 \div 10 =$ _____
$16 \div 100 =$ _____
$16 \div 1{,}000 =$ _____

7. $51.8 \div 1 =$ _____
$51.8 \div 10 =$ _____
$51.8 \div 100 =$ _____

8. $49.3 \div 1 =$ _____
$49.3 \div 10 =$ _____
$49.3 \div 100 =$ _____

9. $32.4 \div 1 =$ _____
$32.4 \div 10 =$ _____
$32.4 \div 100 =$ _____

Problem Solving Real World

10. The local café uses 510 cups of mixed vegetables to make 1,000 quarts of beef barley soup. Each quart of soup contains the same amount of vegetables. How many cups of vegetables are in each quart of soup?

_____

11. The same café uses 18.5 cups of flour to make 100 servings of pancakes. How many cups of flour are in one serving of pancakes?

_____

12. WRITE Math Explain how to use a pattern to find $35.6 \div 100$.

_____

_____

Lesson Check

13. The Statue of Liberty is 305.5 feet tall from the foundation of its pedestal to the top of its torch. Isla is building a model of the statue. The model will be one-hundredth times as tall as the actual statue. How tall will the model be?

14. Sue's teacher asked her to find $42.6 \div 100$. How many places and in what direction should Sue move the decimal point to get the correct quotient?

Spiral Review

15. In the number 956,783,529, how does the value of the digit 5 in the ten millions place compare to the digit 5 in the hundreds place?

16. Calista has $97.23 in her checking account. She uses her debit card to spend $29.74 and then deposits $118.08 into her account. What is Calista's new balance?

17. At the bank, Josiah exchanges $50 in bills for 50 one-dollar coins. The total mass of the coins is 405 grams. Estimate the mass of 1 one-dollar coin.

18. A commercial jetliner has 245 passenger seats. The seats are arranged in 49 equal rows. How many seats are in each row?

Name _____

Represent Division of Decimals by Whole Numbers

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can use a model to divide a decimal by a whole number.

Investigate

Materials ■ decimal models ■ color pencils

Angela has enough wood to make a picture frame with a perimeter of 2.4 meters. She wants the frame to be a square. What will be the length of each side of the frame?

A. Shade decimal models to show 2.4.

B. You need to share your model among _____ equal groups.

C. Since 2 wholes cannot be shared among 4 groups without regrouping, cut your model apart to show the tenths.

There are _____ tenths in 2.4.

Share the tenths equally among the 4 groups.

There are _____ ones and _____ tenths in each group.

Write a decimal for the amount in each group. _____

D. Use your visual model to complete the number sentence.

$2.4 \div 4 =$ _____

So, the length of each side of the frame will be _____ meter.

Draw Conclusions

1. MTR Explain why you needed to cut apart the model in Step C.

_____

_____

2. Explain how your model would be different if the perimeter were 4.8 meters.

_____

_____

Make Connections

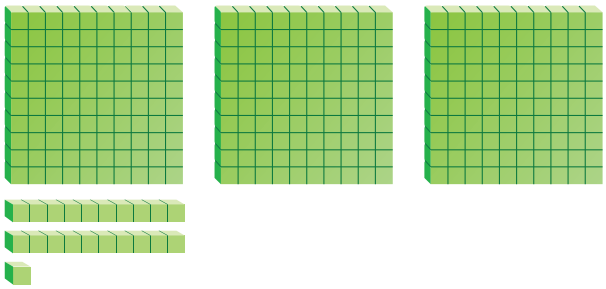
You can also use base-ten blocks to model division of a decimal by a whole number.

Materials ■ base-ten blocks

Kyle has a roll of ribbon 3.21 yards long. He cuts the ribbon into 3 equal lengths. How long is each piece of ribbon?

Divide. 3.21 ÷ 3

STEP 1 Use base-ten blocks to show 3.21.



Remember that a flat represents one, a long represents one tenth, and a small cube represents one hundredth.

There are _____ one(s), _____ tenth(s), and

_____ hundredth(s).

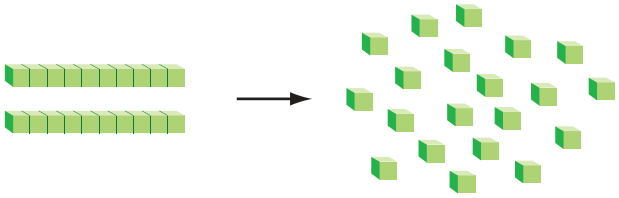
STEP 2 Share the ones.

Share the ones equally among 3 groups.

There is _____ one(s) shared in each group and _____ one(s) left over.

STEP 3 Share the tenths.

Two tenths cannot be shared among 3 groups without regrouping. Regroup the tenths by replacing them with hundredths.



There are _____ tenth(s) shared in each group and

_____ tenth(s) left over.

There are now _____ hundredth(s).

STEP 4 Share the hundredths.

Share the 21 hundredths equally among the 3 groups.

There are _____ hundredth(s) shared in each group

and _____ hundredth(s) left over.

So, each piece of ribbon is _____ yards long.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

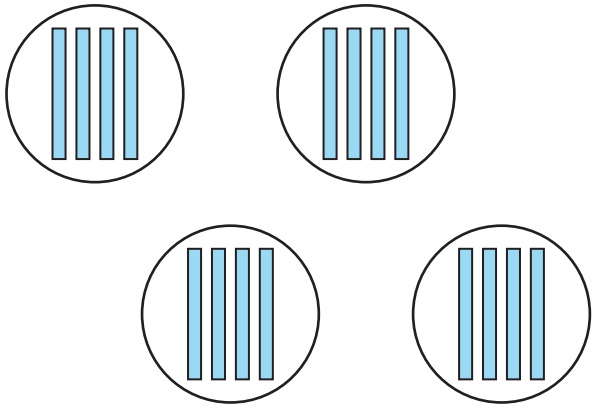
Explain why your answer makes sense.

Name _____

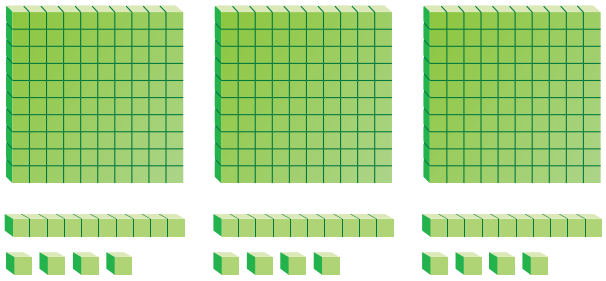
Share and Show Math Board

Use the model to complete the number sentence.

1. $1.6 \div 4 =$ _____



2. $3.42 \div 3 =$ _____



Divide. Use base-ten blocks.

3. $1.8 \div 3 =$ _____

4. $3.6 \div 4 =$ _____

5. $2.5 \div 5 =$ _____

6. $2.4 \div 8 =$ _____

7. $3.78 \div 3 =$ _____

8. $1.33 \div 7 =$ _____

9. $4.72 \div 4 =$ _____

10. $2.52 \div 9 =$ _____

11. $6.25 \div 5 =$ _____

Math Talk

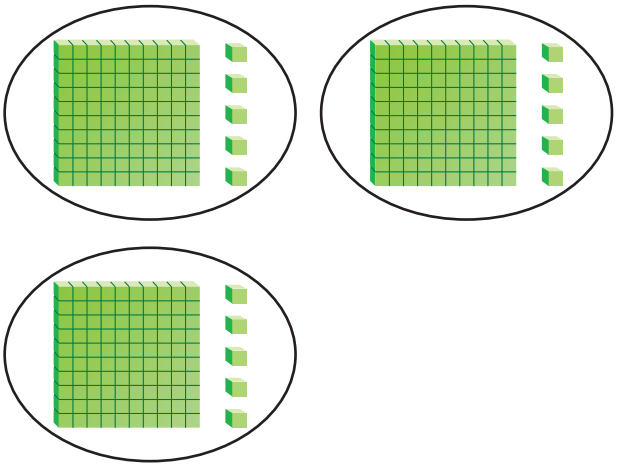
MTR 4.1 Engage in discussions on mathematical thinking.

Explain how you can use inverse operations to find $2.4 \div 4$.

On Your Own

12. Aida is making banners from a roll of paper that is 4.05 meters long. She will cut the paper into 3 equal lengths. She uses base-ten blocks to model how long each piece will be. Describe Aida's error.

MATH on the Spot



_____

_____

_____

_____

_____

13. Sam can ride a bike 4.5 kilometers in 9 minutes, and Amanda can ride a bike 3.6 kilometers in 6 minutes. Which rider might go farther in 1 minute?

_____

14. MTR Explain how you can use inverse operations to find $1.8 \div 3$.

_____

_____

15. Draw a model to show $4.8 \div 4$ and solve.

$4.8 \div 4 =$ _____

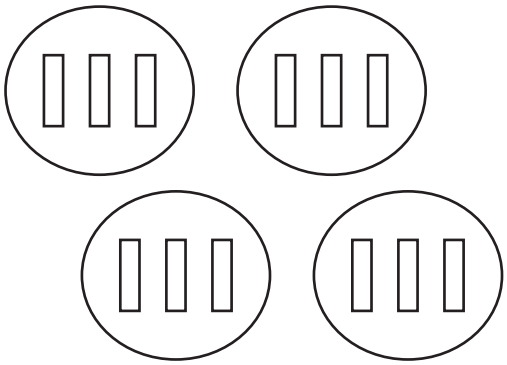
Name _____

Represent Division of Decimals by Whole Numbers

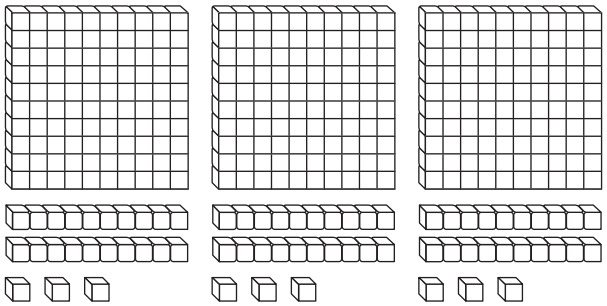
Go Online
Interactive Examples

Use the model to complete the number sentence.

1. $1.2 \div 4 =$ 0.3



2. $3.69 \div 3 =$ _____



Divide. Use base-ten blocks.

3. $4.9 \div 7 =$ _____

4. $3.6 \div 9 =$ _____

5. $2.4 \div 8 =$ _____

6. $6.48 \div 4 =$ _____

7. $3.01 \div 7 =$ _____

8. $4.26 \div 3 =$ _____

Problem Solving Real World

9. In PE class, Carl runs a distance of 1.17 miles in 9 minutes. At that rate, how far does Carl run in one minute?

_____

10. Marianne spends $9.45 on 5 greeting cards. Each card costs the same amount. What is the cost of one greeting card?

_____

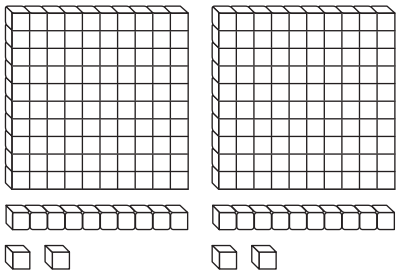
11. WRITE Math Explain how you can use base-ten blocks or other decimal models to find $3.15 \div 3$. Include pictures to support your explanation.

_____

_____

Lesson Check

12. Write a division sentence that tells what the model represents.



13. A bunch of 4 bananas contains a total of 5.92 grams of protein. Suppose each banana contains the same amount of protein. How much protein is in one banana?

Spiral Review

14. At the deli, one pound of turkey costs $7.98. Mr. Ponce buys 3 pounds of turkey. How much will the turkey cost?

15. Mrs. Cho drives 45 miles in 1 hour. If her speed stays constant, how many hours will it take for her to drive 405 miles?

16. Write the following numbers in order from least to greatest.

1.23; 1.2; 2.31; 3.2

17. Over the weekend, Aiden spent 15 minutes on his math homework. He spent three times as much time on his science homework. How much time did Aiden spend on his science homework?

Name _____

Estimate Quotients

I Can estimate decimal quotients.

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

UNLOCK the Problem

Carmen likes to ski. The ski resort where she goes to ski got 3.2 feet of snow during a 5-day period. The *average* daily snowfall for a given number of days is the quotient of the total amount of snow and the number of days. Estimate the average daily snowfall.

You can estimate decimal quotients by using compatible numbers. When choosing compatible numbers, you can look at the whole-number part of a decimal dividend or rename the decimal dividend as tenths or hundredths.

Estimate. 3.2 ÷ 5

Suki and her friend Marco each find an estimate. Since the divisor is greater than the dividend, they both first rename 3.2 as tenths.

3.2 is _____ tenths.

SUKI'S ESTIMATE

30 tenths is close to 32 tenths and divides easily by 5. Use a basic fact to find 30 tenths ÷ 5.

30 tenths ÷ 5 is _____ tenths or _____.

So, the average daily snowfall is about

_____ foot.

MARCO'S ESTIMATE

35 tenths is close to 32 tenths and divides easily by 5. Use a basic fact to find 35 tenths ÷ 5.

35 tenths ÷ 5 is _____ tenths or _____.

So, the average daily snowfall is about

_____ foot.

1. MTR Whose estimate do you think is closer to the exact quotient?

Explain your reasoning. _____

2. Explain how you would rename the dividend in 29.7 ÷ 40 to choose compatible numbers and estimate the quotient.

Estimate with 2-Digit Divisors

When you estimate quotients with compatible numbers, the number you use for the dividend can be greater than the dividend or less than the dividend.

Example

A group of 31 students is going to visit the museum. The total cost for the tickets is $144.15. About how much money will each student need to pay for a ticket?

Estimate. $144.15 ÷ 31

A **Use a whole number greater than the dividend.**

Use 30 for the divisor. Then find a number close to and greater than $144.15 that divides easily by 30.

$144.15 ÷ 31
↓ ↓
$150 ÷ 30 = $ _____

So, each student will pay about $ _____ for a ticket.

B **Use a whole number less than the dividend.**

Use 30 for the divisor. Then find a number close to and less than $144.15 that divides easily by 30.

$144.15 ÷ 31
↓ ↓
$120 ÷ 30 = $ _____

So, each student will pay about $ _____ for a ticket.

3. MTR Which estimate do you think will be a better estimate of the cost of a ticket? Explain your reasoning. _____

_____

_____

Share and Show Math Board

Use compatible numbers to estimate the quotient.

1. 28.8 ÷ 9

_____ ÷ _____ = _____

2. 393.5 ÷ 41

_____ ÷ _____ = _____

Name _____

Estimate the quotient.

3. 161.7 ÷ 7

4. 17.9 ÷ 9

5. 145.4 ÷ 21

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Why might you want to find an estimate for a quotient?

On Your Own

Estimate the quotient.

6. 15.5 ÷ 4

7. 394.8 ÷ 7

8. 410.5 ÷ 18

9. 72.1 ÷ 7

10. 32.4 ÷ 52

11. $134.42 ÷ 28

12. MTR Shayne has a total of $135.22 to spend on souvenirs at the science center. He wants to buy 9 of the same souvenir for his friends. Choose a method of estimation to find about how much Shayne can spend on each souvenir. Explain how you used the method to reach your estimation.

13. One week, Ms. Territo ran 12 miles in 131.25 minutes. The next week, Ms. Territo ran 12 miles in 119.5 minutes. If she ran a constant pace during each run, about how much faster did she run each mile in the second week than in the first week?

Problem Solving · Applications

Use the table to solve Problems 14 and 15.

Greatest 7-Day Snowfall	
State	**Amount of snow (in inches)**
Alaska	186.9
Wyoming	84.5
South Dakota	112.7

14. How does the estimate of the average daily snowfall for Wyoming's greatest 7-day snowfall compare to the estimate of the average daily snowfall for South Dakota's greatest 7-day snowfall?

15. The greatest monthly snowfall total in Alaska is 297.9 inches. This happened in February, 1953. Compare the daily average snowfall for February, 1953, with the average daily snowfall for Alaska's greatest 7-day snowfall. Use estimation.

MATH on the Spot

16. WRITE Math During a 3-hour storm, it snowed 2.5 inches. Jacob said that it snowed an average of about 8 inches per hour. What is Jacob's error?

17. Juliette will cut a piece of string that is 45.1 feet long into 7 smaller pieces. Each of the 7 pieces will be the same length. Write a division sentence using compatible numbers to estimate the quotient.

Show the Math

Demonstrate Your Thinking

Name _____

Estimate Quotients

Go Online
Interactive Examples

Use compatible numbers to estimate the quotient.

1. 19.7 ÷ 3

18 ÷ 3 = 6

2. 394.6 ÷ 9

3. 308.3 ÷ 15

Estimate the quotient.

4. 63.5 ÷ 5

5. 57.8 ÷ 81

6. 172.6 ÷ 39

7. 43.6 ÷ 8

8. 2.8 ÷ 6

9. 467.6 ÷ 8

10. 209.3 ÷ 48

11. 737.5 ÷ 9

12. 256.1 ÷ 82

Problem Solving Real World

13. Taylor uses 645.6 gallons of water in 7 days. Suppose Taylor uses the same amount of water each day. About how much water does Taylor use each day?

14. On a road trip, Sandy drives 368.7 miles. Her car uses a total of 18 gallons of gas. About how many miles per gallon does Sandy's car get?

15. WRITE Math Explain how to find an estimate for the quotient 3.4 ÷ 6.

Lesson Check

16. Terry bicycled 64.8 miles in 7 hours. What is the best estimate of the average number of miles she bicycled each hour?

17. What is the best estimate for the following quotient?

$$891.3 \div 28$$

Spiral Review

18. An object that weighs 1 pound on Earth weighs 1.19 pounds on Neptune. Suppose a dog weighs 9 pounds on Earth. How much would the same dog weigh on Neptune?

19. A bookstore orders 200 books. The books are packaged in boxes that hold 24 books each. All the boxes the bookstore receives are full, except one. How many boxes does the bookstore receive?

20. Tara has $2,000 in her savings account. David has one-tenth as much as Tara in his savings account. How much does David have in his savings account?

21. Which symbol makes the statement true? Write $>$, $<$, or $=$.

$$7.63 \bigcirc 7.629$$

Name _____

Divide Decimals by Whole Numbers

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can divide decimals by whole numbers.

UNLOCK the Problem Real World

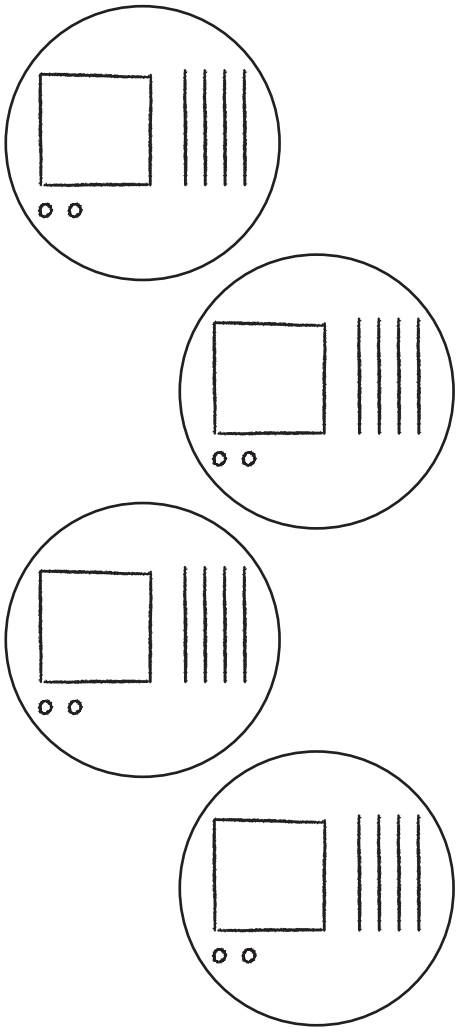
In a swimming relay, each swimmer swims an equal part of the total distance. Brianna and 3 other swimmers won a relay in 5.68 minutes. What is the average time each relay team member swam?

- How many swimmers are part of the relay team?

_____

One Way Use place value.

MODEL



THINK AND RECORD

STEP 1 Divide the ones.

$$\begin{array}{r} 1 \\ 4\overline{)5.68} \\ -4 \\ \hline \end{array}$$

Divide. 5 ones ÷ 4

Multiply. 4 × 1 one

Subtract. 5 ones − 4 ones

Check. _____ one(s) cannot be shared among 4 groups without regrouping.

STEP 2 Divide the tenths.

$$\begin{array}{r} 1\square \\ 4\overline{)5.68} \\ -4\downarrow \\ \hline \square \\ -\square \\ \hline \square \end{array}$$

Divide. _____ tenths ÷ 4

Multiply. 4 × _____ tenths

Subtract. _____ tenths − _____ tenths

Check. _____ tenth(s) cannot be shared among 4 groups.

STEP 3 Divide the hundredths.

$$\begin{array}{r} 1\square \\ 4\overline{)5.68} \\ -4 \\ \hline 16 \\ -16\downarrow \\ \hline \square \\ -\square \\ \hline \square \end{array}$$

Divide. 8 hundredths ÷ 4

Multiply. 4 × _____ hundredths

Subtract. _____ hundredths − _____ hundredths

Check. _____ hundredth(s) cannot be shared among 4 groups.

Place the decimal point in the quotient to separate the ones and the tenths.

So, each girl swam an average of _____ minutes.

Another Way Use an estimate.

Divide as you would with whole numbers.

Divide. $40.89 ÷ 47

- Estimate the quotient. 4,000 hundredths ÷ 50 = 80 hundredths, or $0.80
- Divide the tenths.
- Divide the hundredths. When the remainder is zero and there are no more digits in the dividend, the division is complete.
- Use your estimate to place the decimal point. Place a zero to show there are no ones.

47)40.89

So, $40.89 ÷ 47 is _____.

- MTR Explain how you used the estimate to place the decimal point in the quotient.

_____

_____

Try This! Divide. Use multiplication to check your work.

23)79.35

Check.

× 23

+

Share and Show Math Board

Write the quotient with the decimal point placed correctly.

1. 4.92 ÷ 2 = 246 _____

2. 50.16 ÷ 38 = 132 _____

Name _____

Divide.

3. $8\overline{)\$8.24}$

4. $3\overline{)2.52}$

5. $27\overline{)97.2}$

Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

How can you check that the decimal point is placed correctly in the quotient?

On Your Own

Divide.

6. $3\overline{)\$7.71}$

7. $14\overline{)79.8}$

8. $33\overline{)25.41}$

9. $7\overline{)15.61}$

10. $14\overline{)137.2}$

11. $34\overline{)523.6}$

MTR **Write the unknown number for each ■.**

12. ■ ÷ 5 = 1.21

■ = _____

13. 46.8 ÷ 39 = ■

■ = _____

14. 34.1 ÷ ■ = 22

■ = _____

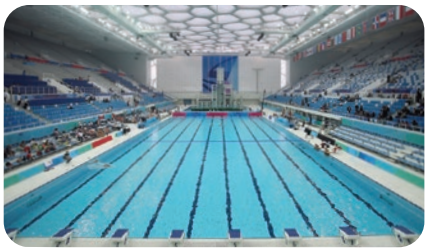
15. Mei runs 80.85 miles in 3 weeks. If she runs 5 days each week, what is the average distance she runs each day?

MATH on the Spot

16. Rob buys 6 tickets to the basketball game. He pays $8.50 for parking. His total cost is $40.54. What is the cost of each ticket?

Problem Solving · Applications

17. MTR The standard width of 8 lanes in swimming pools used for competitions is 21.92 meters. The standard width of 9 lanes is 21.96 meters. How much wider is each lane when there are 8 lanes than when there are 9 lanes?



a. What are you asked to find? _____

_____

b. What operations will you use to solve the problem? _____

_____

c. Show the steps you used to solve the problem.

d. Complete the sentences.

Each lane is _____ meters wide when there are 8 lanes.

Each lane is _____ meters wide when there are 9 lanes.

Since _____ − _____ = _____, the lanes are _____ meter(s) wider when there are 8 lanes than when there are 9 lanes.

18. Simon cut a pipe that was 5.75 feet long. Then he cut the pipe into 5 equal pieces. What is the length of each piece?

_____

19. Jasmine uses 14.24 pounds of fruit for 16 servings of fruit salad. If each serving contains the same amount of fruit, how much fruit is in each serving?

_____

Name _____

Divide Decimals by Whole Numbers

Go Online
Interactive Examples

Divide.

1. $7\overline{)9.24}$

$$\begin{array}{r} 1.32 \\ 7\overline{)9.24} \\ -7 \\ \hline 22 \\ -21 \\ \hline 14 \\ -14 \\ \hline 0 \end{array}$$

2. $6\overline{)5.04}$

3. $23\overline{)85.1}$

4. $36\overline{)86.4}$

5. $6\overline{)6.48}$

6. $8\overline{)59.2}$

7. $5\overline{)2.35}$

8. $41\overline{)278.8}$

9. $19\overline{)70.49}$

Problem Solving Real World

10. On Saturday, 12 friends go ice skating. Altogether, they pay $83.40 for admission. They share the cost equally. How much does each person pay?

_____

11. A team of 4 people participates in a 400-yard relay race. Each team member runs the same distance. The team completes the race in a total of 53.2 seconds. What is the average running time for each person?

_____

12. WRITE Math Write a word problem involving money that requires dividing a decimal by a whole number. Include an estimate and a solution.

_____

_____

Lesson Check

13. Theresa pays $9.56 for 4 pounds of tomatoes. What is the cost of 1 pound of tomatoes?

14. Robert wrote the division problem shown. What is the quotient?

$$13\overline{)83.2}$$

Spiral Review

15. What is the value of the following expression?

$$2 \times \{6 + [12 \div (3 + 1)]\} - 1$$

16. Last month, Dory biked 11 times as many miles as Karla. Together they biked a total of 156 miles. How many miles did Dory bike last month?

17. Mr. Jin ran 15.2 miles over the weekend. He ran 6.75 miles on Saturday. How many miles did he run on Sunday?

18. A bakery used 475 pounds of apples to make 1,000 apple tarts. Each tart contains the same amount of apples. How many pounds of apples are used in each tart?

Name _____

Represent Decimal Division

I Can use a model to divide by a decimal.

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

Investigate

Materials ■ decimal models ■ color pencils

Yaritza is making reusable shopping bags. She has 3.6 yards of fabric. She needs 0.3 yard of fabric for each bag. How many shopping bags can she make from the 3.6 yards of fabric?

A. Shade decimal models to show 3.6.

B. Cut apart your decimal model to show the tenths. Separate the tenths into as many groups of 3 tenths as you can.

There are _____ groups of _____ tenths.

C. Use your decimal model to complete the number sentence.

$3.6 \div 0.3 =$ _____

So, Yaritza can make _____ shopping bags.

Draw Conclusions

1. Explain why you made each group equal to the divisor.

_____

_____

Remember

The divisor can tell the number of same-sized groups, or it can tell the number in each group.

2. MTR Identify the problem you would be modeling if each strip in the decimal model represents 1.

_____

3. MTR Dennis has 2.7 yards of fabric to make bags that require 0.9 yard of fabric each. Describe a decimal model you can use to find how many bags he can make.

_____

_____

Make Connections

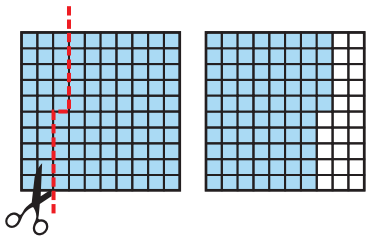
You can also use a decimal model to divide by hundredths.

Materials ■ decimal models ■ color pencils

Julie has $1.75 in nickels. How many stacks of $0.25 can she make from $1.75?

STEP 1

Shade decimal models to show 1.75.



There are _____ one(s) and _____ hundredth(s).

STEP 2

Cut apart your decimal model to show groups of 0.25.

There are _____ groups of _____ hundredths.

STEP 3

Use your decimal model to complete the number sentence.

1.75 ÷ 0.25 = _____

So, Julie can make _____ stacks of $0.25 from $1.75.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

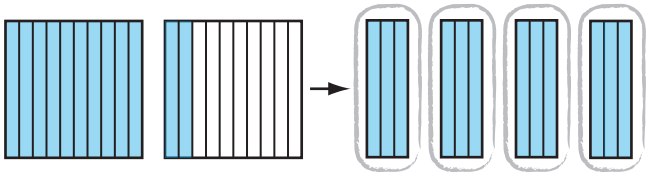
Explain how to use decimal models to find 3 ÷ 0.75.

Share and Show

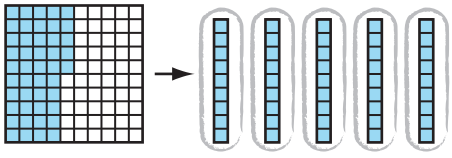
Math Board

Use the decimal model to complete number sentence.

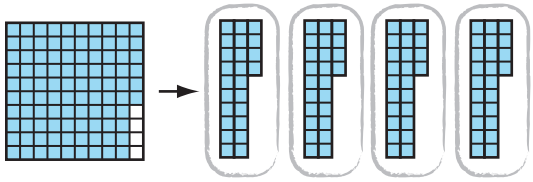
1. 1.2 ÷ 0.3 = _____



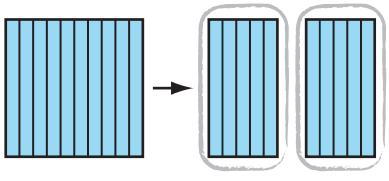
2. 0.45 ÷ 0.09 = _____



3. 0.96 ÷ 0.24 = _____



4. 1 ÷ 0.5 = _____



Name _____

Divide. Use decimal models.

5. $1.24 \div 0.62 =$ _____

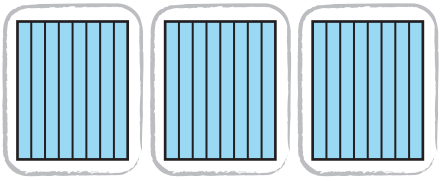
6. $0.84 \div 0.14 =$ _____

7. $1.6 \div 0.4 =$ _____

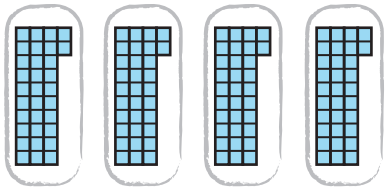
On Your Own

MTR **Use the decimal model to find the unknown value.**

8. $2.4 \div$ _____ $= 3$



9. _____ $\div 0.32 = 4$



10. Make a decimal model to find $0.6 \div 0.15$. Describe your model.

_____

_____

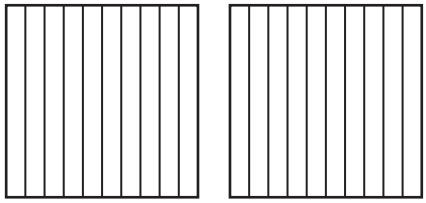
11. MTR Explain using the decimal model, what the equation represents in Problem 9.

_____

_____

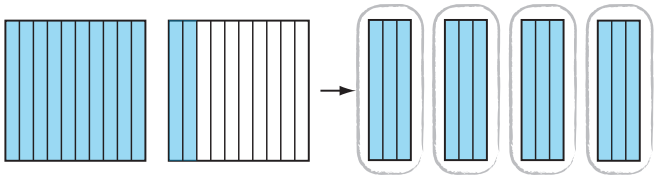
12. Shade the decimal model below and circle to show $1.8 \div 0.6$.

$1.8 \div 0.6 =$ ☐



13. Emilio buys 1.2 kilograms of grapes. He separates the grapes into packages that contain 0.3 kilogram of grapes each. How many packages of grapes does Emilio make?

MATH on the Spot



$1.2 \div 0.3 = 4$

Emilio made 4 packages of grapes.

Write a new problem using a different amount for the weight in each package. The amount should be a decimal with tenths. Use a total amount of 1.5 kilograms of grapes. Then use decimal models to solve your problem.

Pose a problem.

Solve your problem. Draw a picture of the model you used to solve your problem.

14. Josie has 2.31 meters of blue ribbon that she wants to cut into 0.33-meter long pieces. She has 2.05 meters of red ribbon that she wants to cut into 0.41-meter long pieces. How many more pieces of blue ribbon than pieces of red ribbon will there be?

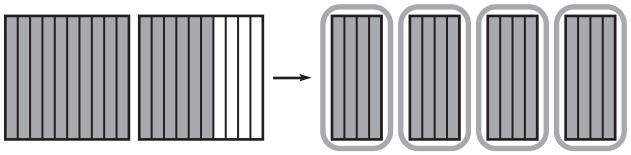
Name _____

Decimal Division

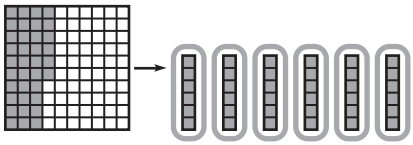
Go Online
Interactive Examples

Use the decimal model to complete each number sentence.

1. $1.6 \div 0.4 =$ 4



2. $0.36 \div 0.06 =$ _____



Divide. Use decimal models.

3. $2.8 \div 0.7 =$ _____

4. $0.40 \div 0.05 =$ _____

5. $0.45 \div 0.05 =$ _____

6. $1.62 \div 0.27 =$ _____

7. $0.56 \div 0.08 =$ _____

8. $1.8 \div 0.9 =$ _____

Problem Solving Real World

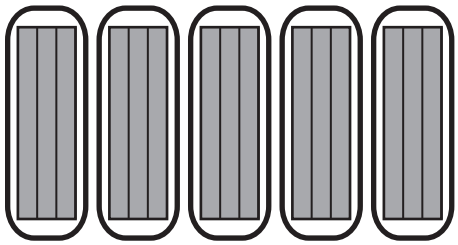
9. Keisha buys 2.4 kilograms of rice. She separates the rice into packages that contain 0.4 kilogram of rice each. How many packages of rice can Keisha make?

10. Leighton is making cloth headbands. She has 4.2 yards of cloth. She uses 0.2 yard of cloth for each headband. How many headbands can Leighton make from the length of cloth she has?

11. WRITE Math Write a word problem that involves dividing by a decimal. Include a picture of the solution using a decimal model.

Lesson Check

12. Write a number sentence that tells what the model represents.



13. Morris has 1.25 pounds of strawberries. He uses 0.25 pound of strawberries to make one serving. How many servings can Morris make?

Spiral Review

14. What property does the following equation show?

$$5 + 7 + 9 = 7 + 5 + 9$$

15. An auditorium has 25 rows with 45 seats in each row. How many seats are there in all?

16. Volunteers at an animal shelter divided 132 pounds of dry dog food equally into 16 bags. How many pounds of dog food did they put in each bag?

17. At the movies, Aaron buys popcorn for $5.25 and a bottle of water for $2.50. He pays with a $10 bill. How much change should Aaron receive?

Name _____

Solve Multistep Decimal Problems

I Can work backward to solve a multistep decimal problems.

Florida's B.E.S.T.

- **Measurement** 5.M.2.1
- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

UNLOCK the Problem Real World

Carson spent $15.99 for 2 books and 3 pens. The books cost $4.95 each. The sales tax on the total purchase was $1.22. Carson also used a coupon for $0.50 off his purchase. If each pen had the same cost, how much did each pen cost?

Read the Problem

What do I need to find?	What information do I need to use?	How will I use the information?

Solve the Problem

- Make a flowchart to show the information. Then using inverse operations, work backward to solve.

Cost of 3 pens	plus →	Cost of 2 books	plus →	Amount of tax	minus →	Amount of coupon	equals →	Total spent
3 × cost of each pen	+	2 × ____	+	____	−	____	=	____

Total spent	plus →	Amount of coupon	minus →	Amount of tax	minus →	Cost of 2 books	equals →	Cost of 3 pens
____	+	____	−	____	−	____	=	____

- Divide the cost of 3 pens by 3 to find the cost of each pen.

_____ ÷ 3 = _____

So, the cost of each pen was _____.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking

Explain why the amount of the coupon was added when you worked backward.

Try Another Problem

Last week, Vivian spent a total of $20.00. She spent $9.95 for tickets to the school fair, $5.95 for food, and the rest for 2 rings that were on sale at the school fair. If each ring had the same cost, how much did each ring cost?

Read the Problem

What do I need to find?	What information do I need to use?	How will I use the information?

Solve the Problem

So, the cost of each ring was _____.

Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

How can you check your answer?

Name _____

Share and Show Math Board

1. Hector spent $36.75 for 2 DVDs that cost the same amount. The sales tax on his purchase was $2.15. Hector also used a coupon for $1.00 off his purchase. How much did each DVD cost?

First, make a flowchart to show the information and show how you would work backward.

Then, work backward to find the cost of 2 DVDs.

_____

Finally, find the cost of one DVD.

_____

So, each DVD costs _____.

2. What if Hector spent $40.15 for the DVDs, the sales tax was $2.55, and he didn't have a coupon? How much would each DVD cost?

_____

3. Sophia spent $7.30 for school supplies. She spent $3.00 for a notebook and $1.75 for a pen. She also bought 3 large erasers. If each eraser had the same cost, how much did she spend for each eraser?

_____

Show the Math

Demonstrate Your Thinking

On Your Own

4. The change from a gift purchase was $3.90. Each of 6 students donated an equal amount for the gift. How much change should each student receive?

5. A mail truck picks up two boxes of mail from the post office. The total weight of the boxes is 32 pounds. One box is 8 pounds heavier than the other box. How much does each box weigh?

6. Stacy buys 3 CDs in a set for $29.98. She saved $6.44 by buying the set instead of buying the individual CDs. If each CD costs the same amount, how much does each of the 3 CDs cost when purchased individually?

MATH on the Spot

7. MTR A school cafeteria sold 1,280 slices of pizza the first week, 640 the second week, and 320 the third week. If this pattern continues, in what week will the cafeteria sell 40 slices? Explain how you got your answer.

8. Dawn spent $26.50, including sales tax, on 4 books and 3 folders. The books cost $5.33 each and the total sales tax was $1.73. Fill in the table with the correct cost of each item.

Item	Cost
cost of each book	
cost of each folder	
cost of sales tax	

Show the Math

Demonstrate Your Thinking

Name

Solve Multistep Decimal Problems

Go Online
Interactive Examples

1. Lily spent $30.00 on a T-shirt, a sandwich, and 2 books. The T-shirt cost $8.95, and the sandwich cost $7.25. The books each cost the same amount. How much did each book cost?

(2 × cost of each book) + $8.95 + $7.25 = $30.00

$30.00 − $8.95 − $7.25 = (2 × cost of each book)

(2 × cost of each book) = $13.80
$13.80 ÷ 2 = $6.90

$6.90

2. Meryl spends a total of $68.82 for 2 pairs of sneakers with the same cost. The sales tax is $5.32. Meryl also uses a coupon for $3.00 off her purchase. How much does each pair of sneakers cost?

3. A 6-pack of undershirts costs $13.98. This is $3.96 less than the cost of buying 6 individual shirts. If each undershirt costs the same amount, how much does each undershirt cost when purchased individually?

4. WRITE Math Write a problem that can be solved using a flowchart and working backward. Then draw the flowchart and solve the problem.

Lesson Check

5. Joe spends $8 on lunch and $6.50 on dry cleaning. He also buys 2 shirts that each cost the same amount. Joe spends a total of $52. What is the cost of each shirt?

6. Tia uses a $50 gift certificate to buy a pair of pajamas for $17.97, a necklace for $25.49, and 3 pairs of socks that each cost the same amount. Tia has to pay $0.33 because the gift certificate does not cover the total cost of all the items. How much does each pair of socks cost?

Spiral Review

7. List the following numbers in order from least to greatest.

2.31, 2.13, 0.123, 3.12

8. Stephan wrote the problem 46.8 ÷ 0.5. What is the correct quotient?

9. Sarah, Juan, and Lars are on the high school track team. Last week, Sarah ran 8.25 miles, Juan ran 11.8 miles, and Lars ran 9.3 miles. How many miles did they run altogether?

10. On a fishing trip, Lia and Ed caught one fish each. Ed's fish weighed 6.45 pounds. Lia's fish weighed 1.6 times as much as Ed's fish. How much did Lia's fish weigh?

Name _____

Chapter 7

Chapter Review

1. Rita is hiking along a trail that is 13.7 miles long. So far she has hiked along one tenth of the trail. How far has Rita hiked?

_____ miles

2. Use the numbers on the tiles to complete each number sentence. You can use a tile more than once or not at all.

35.5 ÷ 1	=	
35.5 ÷ 10	=	
35.5 ÷ 100	=	

.	0	3	5

3. Tom and his brothers caught 100 fish on a weeklong fishing trip. The total weight of the fish was 235 pounds.

Part A

Write an expression to find the weight of 1 fish. Assume that the weight of each fish is the same.

Part B

What is the weight of 1 fish?

_____ pounds

Part C

Suppose Tom and his brothers caught 10 fish instead of 100 fish, but the total weight of the fish stayed the same. How would the weight of each fish change? Explain.

4. Draw a model to show 5.5 ÷ 5.

$5.5 \div 5 =$ ☐

5. Emma, Brandy, and Damian will cut a rope that is 29.8 feet long into 3 jump ropes. Each of the 3 jump ropes will be the same length. Write a division sentence using compatible numbers to estimate the length of each rope.

6. Karl drove 617.3 miles. For each gallon of gas, the car can travel 41 miles. Select a reasonable estimate of the number of gallons of gas Karl used. Mark all that apply.

- (A) 1.5 gallons
- (B) 1.6 gallons
- (C) 15 gallons
- (D) 16 gallons
- (E) 150 gallons

7. Donald bought a box of golf balls for $9.54. There were 18 golf balls in the box. About how much did each golf ball cost?

8. Luke cut down a tree that was 28.8 feet tall. Then he cut the tree into 6 equal pieces to take it away. What is the length of each piece?

_____ feet

Name _____

9. Jazmine is making some floral arrangements. The table shows the prices for one-half dozen of each type of flower.

Prices For $\frac{1}{2}$ Dozen Flowers	
Rose	$5.29
Carnation	$3.59
Tulip	$4.79

Part A

Jazmine wants to buy 6 roses, 4 carnations, and 8 tulips. She estimates that she will spend about $14 on these flowers. Do you agree? Explain your answer.

Part B

Along with the flowers, Jazmine bought 4 packages of glass beads and 2 vases. The vases cost $3.59 each, and the total sales tax was $1.34. The total amount she paid for the flowers, glass beads, and vases was $28.50, including sales tax. Explain a strategy she could use to find the cost of 1 package of glass beads.

10. Les is sending 8 identical catalogs to one of his customers. If the package with the catalogs weighs 6.72 pounds, how much does each catalog weigh?

_____ pound(s)

11. Divide.

$5\overline{)6.55}$

12. Isabella is buying art supplies. The table shows the prices for the different items she buys.

Art Supplies	
Item	**Price**
Glass beads	$0.28 per ounce
Paint brush	$0.95
Poster board	$0.75
Jar of paint	$0.99

Part A

Isabella spends $2.25 on poster boards. How many poster boards does she buy?

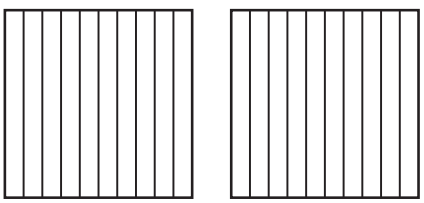
_____ poster boards

Part B

Isabella spends $4.87 on paint brushes and paint. How many of each item does she buy? Explain how you found your answer.

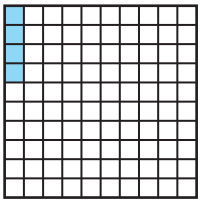
13. Shade the model and then circle to show $1.4 \div 0.7$.

$1.4 \div 0.7 =$ ☐

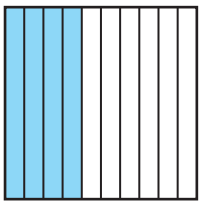


Name _____

14. Tabitha bought peppers that cost $0.79 per pound. She paid $3.95 for the peppers. How many pounds of peppers did she buy? Use a decimal model.



15. Hank has a large bag of trail mix that weighs 2.4 pounds. He uses the mix in the large bag to make small bags each containing 0.6 pound of mix. How many small bags containing 0.6 pound can Hank make? Use a decimal model.



_____ bags

16. Shareen walked a total of 9.52 miles in a walk-a-thon. If her average speed was 4 miles per hour, how long did it take Shareen to complete the walk?

_____ hours

17. For Problems 17a–17c, choose Yes or No to indicate whether the quotient is true.

17a.	$1.4 \div 5 = 0.28$	○ Yes	○ No
17b.	$2.52 \div 6 = 4.2$	○ Yes	○ No
17c.	$2.61 \div 3 = 0.087$	○ Yes	○ No

18. Lisandra made 22.8 quarts of split pea soup for her restaurant. She wants to put the same amount of soup into each of 15 containers. How much soup should Lisandra put into each container?

_____ quarts

19. Percy is making doll scarves from a roll of cloth that is 5.25 feet long. He will cut the cloth into 3 equal lengths.

Part A

Draw a model to show how long Percy will cut each length of cloth.

Part B

Complete the number sentence.

$5.25 \div 3 =$ _____

20. Who drove the fastest? Select the correct answer.

(A) Harlin drove 363 miles in 6 hours.

(B) Kevin drove 435 miles in 7 hours.

(C) Shanna drove 500 miles in 8 hours.

(D) Hector drove 215 miles in 5 hours.

21. Maritza is buying a multipack of 3 pairs of socks for $25.98. She will save $6.39 by buying the multipack instead of buying 3 individual pairs of the same socks. If each pair of socks costs the same amount, how much does each pair of socks cost when bought individually? Show your work.

22. Eric spent $22.00, including sales tax, on 2 jerseys and 3 pairs of socks. The jerseys cost $6.75 each and the total sales tax was $1.03. Fill in the table with the correct prices.

Item	Cost
Cost of each jersey	
Cost of each pair of socks	
Cost of sales tax	