Chapter 12

Name _____

Relate Fractions and Decimals

Show What You Know

Count Coins Find the total value.

1. 

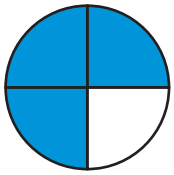
total value: _____

2. 

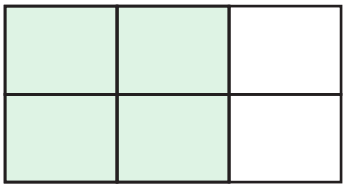
total value: _____

Equivalent Fractions

Write two equivalent fractions for the picture.

3. 

_____

4. 

_____

Fractions with Denominators of 10

Write a fraction for the words. You may draw a picture.

5. three tenths _____
6. six tenths _____
7. eight tenths _____
8. nine tenths _____

MATH in the Real World

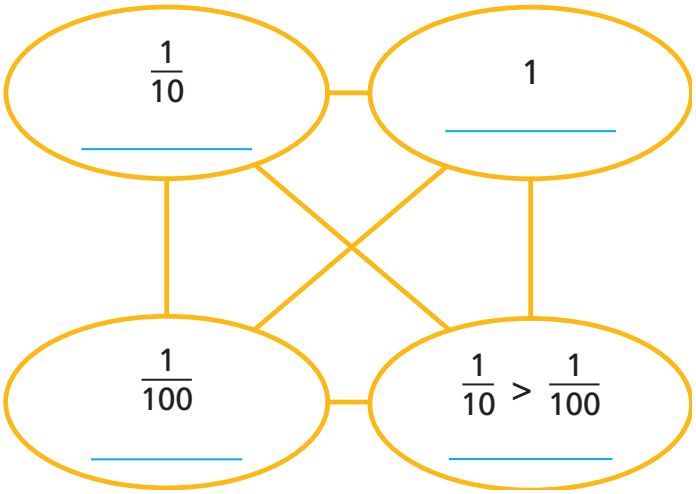
The Hudson River Science Barge, docked near New York City, provides a demonstration of how renewable energy can be used to produce food for large cities. Vegetables grown on the barge require $\frac{1}{4}$ of the water needed by field crops. How can you write $\frac{1}{4}$ as an equivalent fraction with a denominator of 100?

Vocabulary Builder

Go Online For more help

Visualize It

Complete the Semantic Map by using the words with a ✓.



Connect to Vocabulary

Review Words

- ✓ compare
- equivalent fractions
- fraction
- order
- place value
- ✓ whole

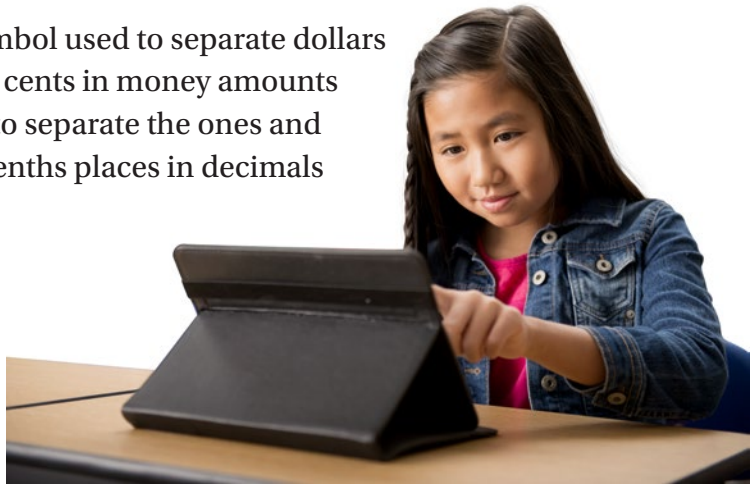
Preview Words

- decimal
- decimal fraction
- decimal point
- equivalent decimals
- ✓ hundredth
- ✓ tenth

Understand Vocabulary

Draw a line to match each word with its definition.

Word	Definition
1. decimal	• Two or more decimals that name the same amount
2. decimal point	• One part out of one hundred equal parts
3. tenth	• A number with one or more digits to the right of the decimal point
4. hundredth	• One part out of ten equal parts
5. equivalent decimals	• A symbol used to separate dollars from cents in money amounts and to separate the ones and the tenths places in decimals



Name _____

Model Tenths and Hundredths

I Can use decimal notation to represent fractions with denominators of 10 or 100.

Florida's B.E.S.T.
- **Fractions** 4.FR.1.2
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1

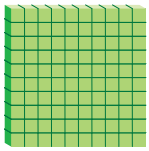
Investigate

Materials ■ base-ten blocks

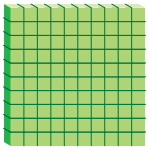
A **decimal** is a number with one or more digits to the right of the **decimal point**, such as tenths and hundredths. If 1 is divided into ten equal parts, each part is one **tenth**. If 1 is divided into one hundred equal parts, each part is one **hundredth**.

The decimal point separates the whole number part from the fraction part.
$1\frac{5}{10}$ is written 1.5
↑
decimal point

A. **What if** the small cube is 1 unit? Use what you know about the relationships of whole numbers to describe the value of the other blocks.

Flat 	**Long** 	**Small cube**
_____ ones	_____ ones	1 one (unit)
_____ tens	_____ ten	
_____ hundred		

B. **What if** the flat is 1 unit? How can you represent the flat, the long, and the small cube by using the least number of blocks? the greatest number of blocks? What is the value of each block?

Flat 	**Long** 	**Small cube** 
1 one (unit)	_____ of one	_____ of one
_____ tenths	_____ tenth	_____ of a tenth
_____ hundredths	_____ hundredths	_____ hundredth

C. Model 0.4 with base-ten blocks. Use the flat to represent 1. Tell which blocks you used. _____

Make Connections

You can use your understanding of place-value patterns and a place-value chart to write decimals that are 10 times as much as or $\frac{1}{10}$ of any given decimal.

Tens	Ones	Tenths	Hundredths
	0	5	
	?	0.5	?

10 times as much as ← 0.5 → $\frac{1}{10}$ of

_____ is 10 times as much as 0.5.

_____ is $\frac{1}{10}$ of 0.5.

Use the steps below to complete the table.

STEP 1 Write the given decimal in a place-value chart.

STEP 2 Use the place-value chart to write a decimal that is 10 times as much as the given decimal.

STEP 3 Use the place-value chart to write a decimal that is $\frac{1}{10}$ of the given decimal.

Decimal	10 times as much as	$\frac{1}{10}$ of
0.3		
0.1		
7.0		

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

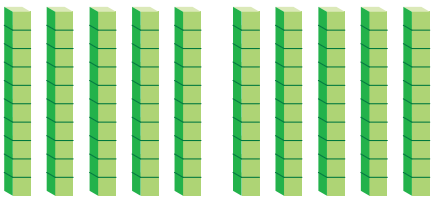
Describe the pattern you see when you move one decimal place value to the right and one decimal place value to the left.

Share and Show

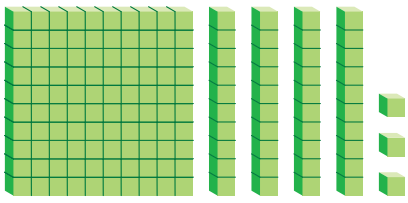
Math Board

Write the decimal shown by the model. The flat represents 1 unit. Then model the decimal in another way. Tell which blocks you used.

1.



2.



Model the decimal in two ways. Use the flat to represent 1. Record by drawing a quick picture.

3. 2.1

4. 0.16

5. 3.9

Name _____

UNLOCK the Problem Real World

6. Thabo said he swam 23 tenths miles this week. His coach said Thabo swam 2.3 miles this week.

To find who is correct, model the distances both Thabo and his coach said Thabo swam. Use the flat as 1 unit.

MATH on the Spot

a. What do you need to use? _____

_____

b. What do you know about representing whole numbers and decimals that may help you solve the problem? _____

_____

_____

_____

c. Make a model and draw a quick picture to record the distances that Thabo and his coach said he swam.

Regroup Thabo's model.

d. Complete the sentences.

Are the two models alike or different?

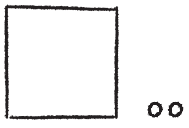
_____

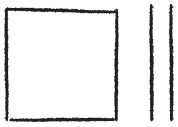
Tyler swam _____ tenths, or _____, miles.

So, _____

_____ correct.

7. Mike and Shantel both drew a quick picture to represent the decimal 1.2. Whose quick picture is correct? Explain the error that either Mike or Shantel made when drawing the quick picture.

Mike: 

Shantel: 

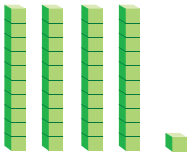
_____

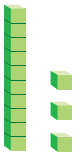
_____

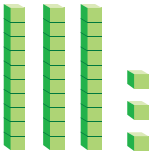
On Your Own

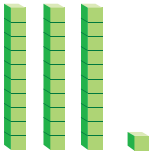
Fill in the bubble completely to show your answer.

8. In the models below, the flat represents 1 unit.
The width of an apple seed is 0.31 centimeter. Which model shows 0.31?

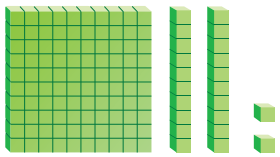
Ⓐ 

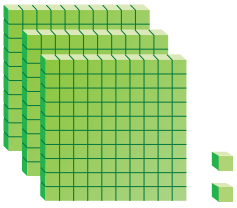
Ⓒ 

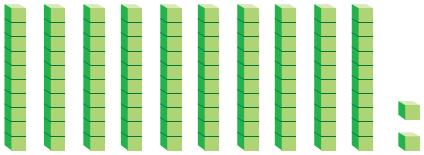
Ⓑ 

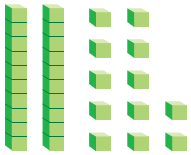
Ⓓ 

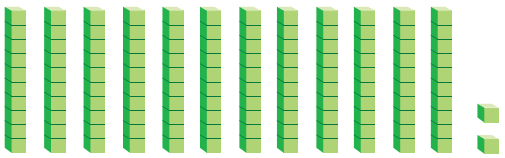
9. In the model below, the flat represents 1 unit.
Which is another way to model this decimal?



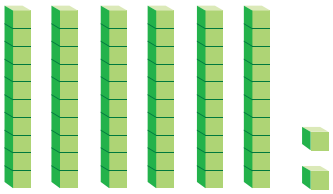
Ⓐ 

Ⓒ 

Ⓑ 

Ⓓ 

10. Suppose the flat represents 1 unit. What decimal is represented by the model?



Ⓐ 62

Ⓑ 0.62

Ⓒ 6.2

Ⓓ 0.26

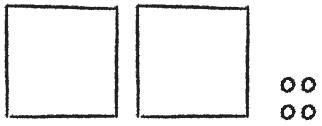
Name _____

Model Tenths and Hundredths

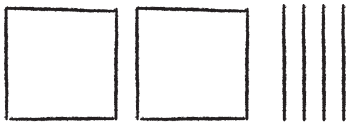
Go Online
Interactive Examples

1. Lucia and Santos each drew a quick picture to model 2.04. Whose model is correct? Explain the error.

Lucia



Santos

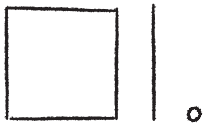


Problem Solving Real World

2. Nabil planted a flower bed that is 1.6 square meters. Jamila planted a flower bed that is 16 tenths square meters. Draw a quick picture to model the two areas.

Nabil

Jamila

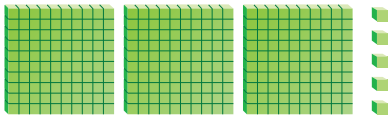


3. Compare the areas of the two flower beds. Explain your reasoning.

Lesson Check

Fill in the bubble completely to show your answer.

4. In the model below, the flat shows 1 unit. What decimal does the model show?



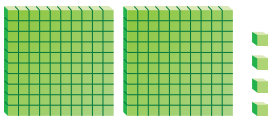
Ⓐ 3.5

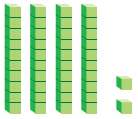
Ⓑ 0.53

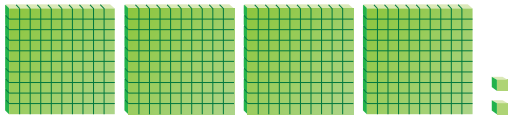
Ⓒ 0.35

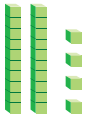
Ⓓ 3.05

5. In the models below, the flat shows 1 unit. Which model shows 0.24?

Ⓐ 

Ⓑ 

Ⓒ 

Ⓓ 

Spiral Review

6. The area of a rectangle-shaped piece of art is 24 inches. If the width of the art is 6 inches, how tall is the art?

_____

7. Bino has 48 points in the game. This is 6 times as many points as Franny has. How many points does Franny have?

_____

Name _____

Relate Tenths and Decimals

I Can model and express fractions with a denominator of 10 and identify numbers that are one-tenth more or less.

Florida's B.E.S.T.

- **Fractions** 4.FR.1.2
- **Number Sense & Operations** 4.NSO.2.6
- **Mathematical Thinking & Reasoning** MTR 1.1, MTR 2.1, MTR 3.1, MTR 4.1

UNLOCK the Problem Real World

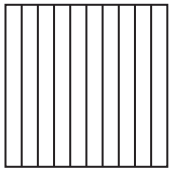
Ty is reading a book about metamorphic rocks. He has read $\frac{7}{10}$ of the book. What decimal describes the part of the book Ty has read?

A fraction like $\frac{7}{10}$ is called a decimal fraction. A **decimal fraction** has denominator like 10 or 100.

One Way Use a model and a place-value chart.

Fraction

Shade $\frac{7}{10}$ of the model.



Think: The model is divided into 10 equal parts. Each part represents one **tenth**.

Write: _____

Read: seven tenths

Decimal

$\frac{7}{10}$ is 7 tenths.

Ones	.	Tenths	Hundredths
	.		

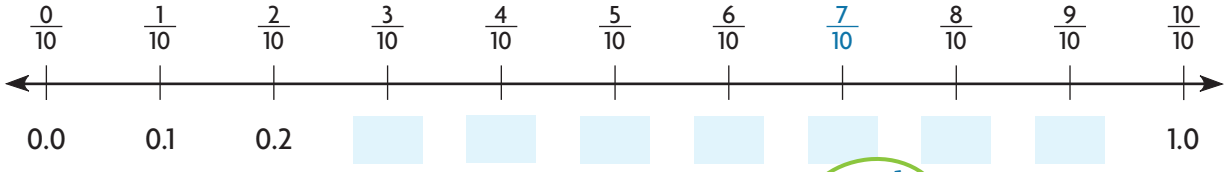
decimal point

Write: _____

Read: _____

Another Way Use a number line.

Label the number line with decimals that are equivalent to the fractions. Locate the point $\frac{7}{10}$.



_____ names the same amount as $\frac{7}{10}$.

So, Ty read 0.7 of the book.

Math Talk

MTR 7.1 Apply mathematics to real-world contexts.

How is the size of one whole related to the size of one tenth?

- How can you write 0.1 as a fraction? Explain.

_____

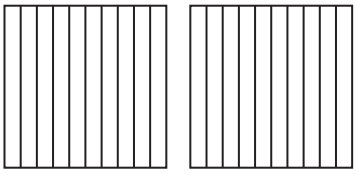
Nechama rode her bicycle $1\frac{6}{10}$ miles. What decimal describes how far she rode her bicycle?

You have already written a fraction as a decimal. You can also write a mixed number as a decimal.

One Way Use a model and a place-value chart.

Fraction

Shade $1\frac{6}{10}$ of the model.



Write: _____

Read: one and six tenths

Decimal

$1\frac{6}{10}$ is 1 whole and 6 tenths.

Think: Use the ones place to record wholes.

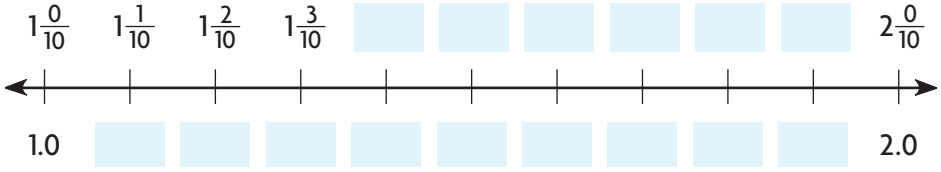
Ones	.	Tenths	Hundredths
	.		

Write: _____

Read: _____

Another Way Use a number line.

Label the number line with equivalent mixed numbers and decimals. Locate the point $1\frac{6}{10}$.



_____ names the same amount as $1\frac{6}{10}$.

So, Nechama rode her bicycle _____ miles.

Nechama rode her bike one tenth mile. What decimal describes how far she rode her bicycle? _____

If her friend Ling rode her bike one tenth mile less, what decimal describes how far Ling rode her bicycle? _____

Write true or false.

$\frac{1}{10}$ more than 1.2 is 1.1. _____

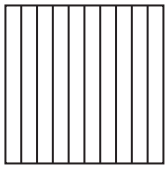
$\frac{1}{10}$ less than 2.9 is 2.8. _____

Name _____

Share and Show

Math Board

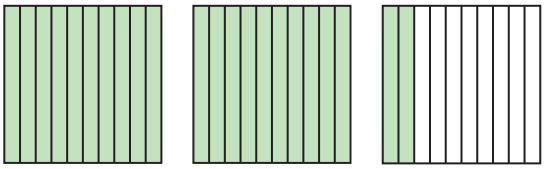
1. Write five tenths as a fraction and as a decimal. Also, shade the model and fill in the place-value chart.



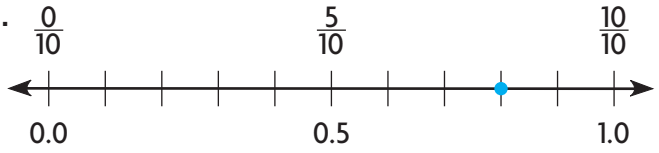
Ones	.	Tenths	Hundredths
	.		

Fraction: _____ Decimal: _____

Write the fraction or mixed number and the decimal shown by the model.

2. 

_____ _____

3. 

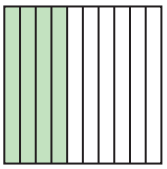
_____ _____

Math Talk MTR 7.1 Apply mathematics to real-world contexts.

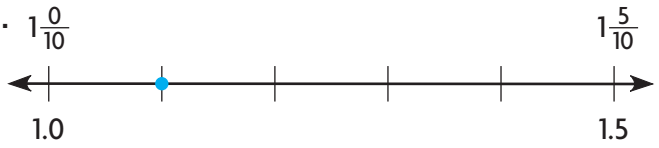
How can you write $1\frac{3}{10}$ as a decimal? Explain.

On Your Own

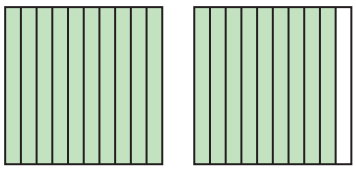
Write the fraction or mixed number and the decimal shown by the model.

4. 

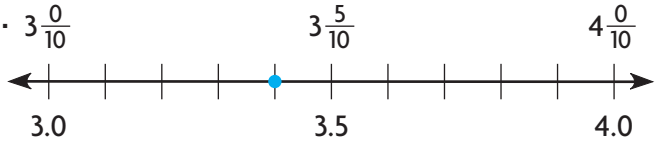
_____ _____

5. 

_____ _____

6. 

_____ _____

7. 

_____ _____

Practice and Solve

Write the fraction or mixed number as a decimal.

8. $5\frac{9}{10}$ _____

9. $\frac{1}{10}$ _____

10. $\frac{7}{10}$ _____

11. $8\frac{9}{10}$ _____

12. $\frac{6}{10}$ _____

13. $6\frac{3}{10}$ _____

14. $\frac{5}{10}$ _____

15. $9\frac{7}{10}$ _____

Problem Solving · Applications

Use the table for Problems 16–19.

Ramon's Rock Collection

Name	Type
Basalt	Igneous
Rhyolite	Igneous
Granite	Igneous
Peridotite	Igneous
Scoria	Igneous
Shale	Sedimentary
Limestone	Sedimentary
Sandstone	Sedimentary
Mica Schist	Metamorphic
Slate	Metamorphic

▲ Granite – Igneous

▲ Mica Schist – Metamorphic

▲ Sandstone – Sedimentary

16. What part of the rocks listed in the table are igneous? Write your answer as a decimal.

_____

17. Sedimentary rocks make up what part of Ramon's collection? Write your answer as a fraction and in word form.

_____

18. What part of the rocks listed in the table are metamorphic? Write your answer as a fraction and as a decimal.

MATH on the Spot

_____

19. Niki wrote the following sentence in her report: "Metamorphic rocks make up 2.0 of Ramon's rock collection." Describe her error.

_____

_____

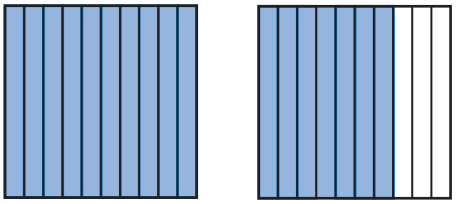
20. Select True or False.

20a. $\frac{1}{10}$ more than 0.5 is 1.5 ○ True ○ False

20b. $\frac{1}{10}$ less than 0.8 is 0.7 ○ True ○ False

20c. $\frac{1}{10}$ more than 1.4 is 1.5 ○ True ○ False

21. Select a number shown by the model. Circle all that apply.



$1\frac{7}{10}$ $\frac{70}{10}$ 1.7

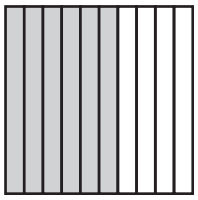
7 0.7 $\frac{17}{10}$

Name _____

Relate Tenths and Decimals

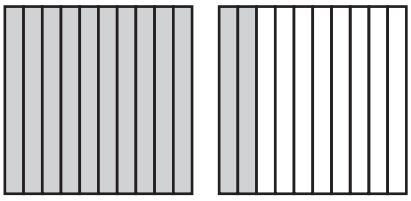
Go Online
Interactive Examples

Write the fraction or mixed number and the decimal shown by the model.

1. 

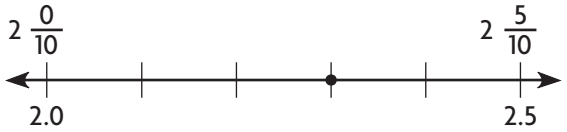
Think: The model is divided into 10 equal parts. Each part represents one tenth.

$\frac{6}{10}$; 0.6

2. 

_____

3.



_____

Write the fraction or mixed number as a decimal.

4. $\frac{4}{10}$ _____

5. $3\frac{1}{10}$ _____

6. $\frac{7}{10}$ _____

7. $6\frac{5}{10}$ _____

8. $\frac{9}{10}$ _____

Write *true* or *false*.

9. one tenth less than 12.3 is 2.3 _____

10. one tenth more than 0.9 is 0.10 _____

11. one tenth less than 3.6 is 3.5 _____

12. one tenth more than 0.6 is 0.7 _____

Problem Solving Real World

13. There are 10 sports balls in the equipment closet. Three are kickballs. Write the portion of the balls that are kickballs as a fraction, as a decimal, and in word form.

_____

14. Angel has 2 pizzas. Each pizza is cut into 10 equal slices. She and her friends eat 14 slices. What part of the pizzas did they eat? Write your answer as a decimal.

_____

15. WRITE Math Do 0.3 and 3.0 have the same value? Explain.

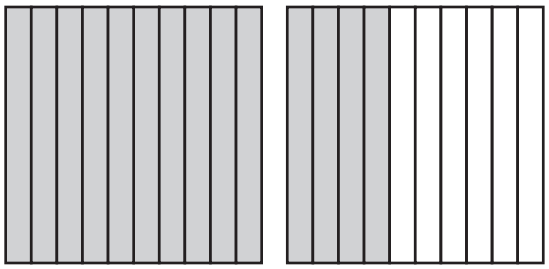
_____

_____

Lesson Check

16. Yuna has 10 songs in a playlist. Seven of the songs are pop music. What is this amount written as a decimal?

17. What decimal amount is modeled below?

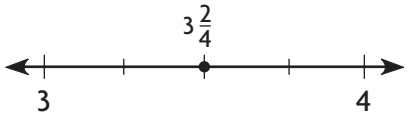


Spiral Review

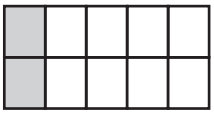
18. Write one number that is a factor of 13.

19. An art gallery has 18 paintings and 4 photographs displayed in equal rows on a wall, with the same number of each type of art in each row. What could be the number of rows?

20. How do you write the mixed number shown as a fraction greater than 1?



21. What fraction of this model, is shaded?



Name _____

Relate Hundredths and Decimals

I Can model and express fractions with a denominator of 100 and identify numbers that are one hundredth more or less.

Florida's B.E.S.T.
- **Fractions** 4.FR.1.2
- **Number Sense & Operations** 4.NSO.2.6
- **Mathematical Thinking & Reasoning** MTR 1.1, MTR 2.1, MTR 3.1, MTR 4.1

UNLOCK the Problem Real World

In the 2008 Summer Olympic Games, the winning time in the men's 100-meter butterfly race was only $\frac{1}{100}$ second faster than the second-place time. What decimal represents this fraction of a second?

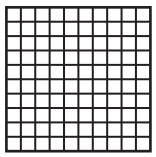
- Circle the numbers you need to use.

You can write hundredths as fractions or decimals.

One Way Use a model and a place-value chart.

Fraction

Shade $\frac{1}{100}$ of the model.



Think: The model is divided into 100 equal parts. Each part represents one **hundredth**.

Write: _____

Read: one hundredth

Decimal

Complete the place-value chart. $\frac{1}{100}$ is 1 hundredth.

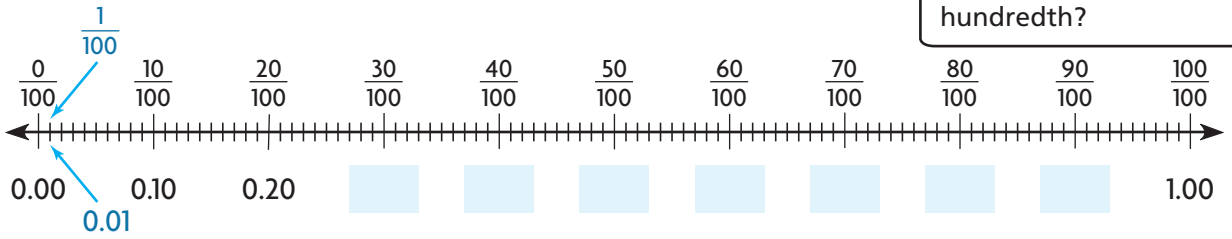
Ones	.	Tenths	Hundredths
0	.	0	

Write: _____

Read: one hundredth

Another Way Use a number line.

Label the number line with equivalent decimals.
Locate the point $\frac{1}{100}$.



_____ names the same amount as $\frac{1}{100}$.

So, the winning time was _____ second faster.

Math Talk

MTR 7.1 Apply mathematics to real-world contexts.

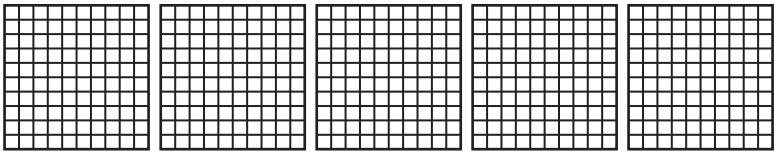
How is the size of one tenth related to the size of one hundredth?

Akira won her 400-meter freestyle race by $4\frac{25}{100}$ seconds. How can you write this mixed number as a decimal?

One Way Use a model and a place-value chart.

Mixed Number

Shade the model to show $4\frac{25}{100}$.



Write: _____

Read: four and twenty-five hundredths

Decimal

Complete the place-value chart.

Think: Look at the model above. $4\frac{25}{100}$ is 4 wholes and 2 tenths 5 hundredths.

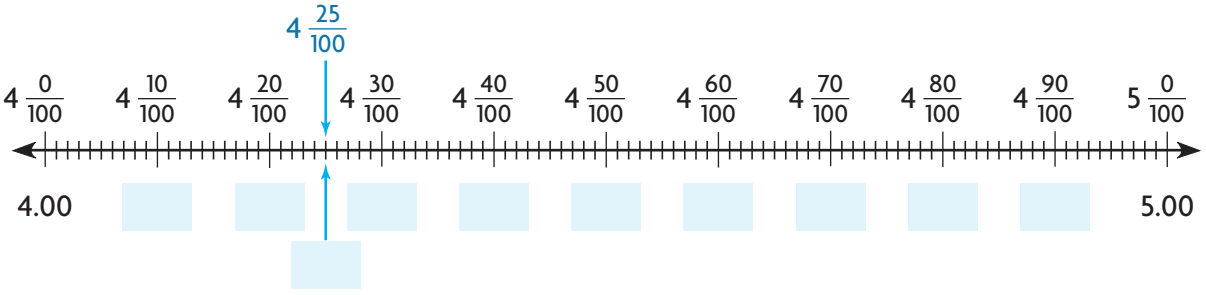
Ones	.	Tenths	Hundredths
	.		

Write: _____

Read: _____

Another Way Use a number line.

Label the number line with equivalent mixed numbers and decimals. Locate the point $4\frac{25}{100}$.



_____ names the same amount as $4\frac{25}{100}$.

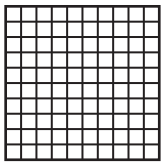
So, Akira won her race by _____ seconds.

Name _____

Share and Show

Math Board

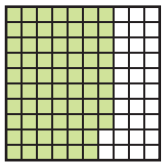
1. Shade the model to show $\frac{31}{100}$.
Fill in the place-value chart.

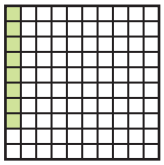


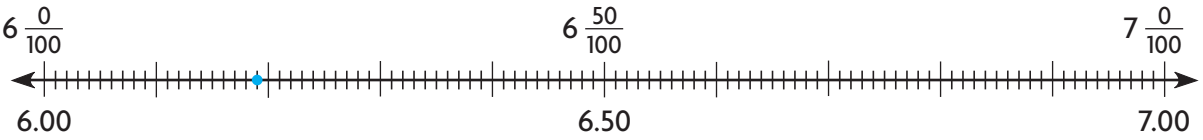
Ones	.	Tenths	Hundredths
	.		

Write the amount as a decimal. _____

Write the fraction or mixed number and the decimal shown by the model.

2. 

3. 

4. 

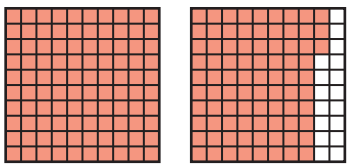
Math Talk

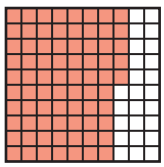
MTR 4.1 Engage in discussions on mathematical thinking.

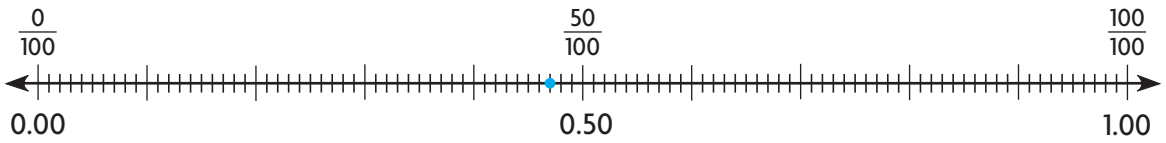
Are 0.5 and 0.50 equivalent? Explain.

On Your Own

Write the fraction or mixed number and the decimal shown by the model.

5. 

6. 

7. 

Write the fraction or mixed number as a decimal.

8. $\frac{9}{100}$

9. $4\frac{55}{100}$

10. $\frac{10}{100}$

11. $9\frac{33}{100}$

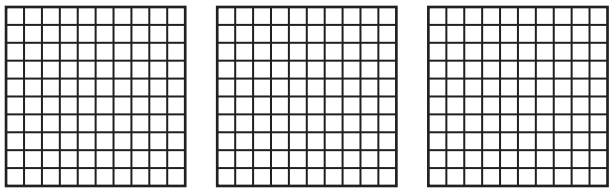
12. $\frac{92}{100}$

13. $14\frac{16}{100}$

Problem Solving · Applications

14. Shade the grids to show three different ways to represent $\frac{16}{100}$ using models.

MATH on the Spot



15. Select True of False.

15a. $\frac{1}{100}$ more than 0.5 is 0.6. ○ True ○ False

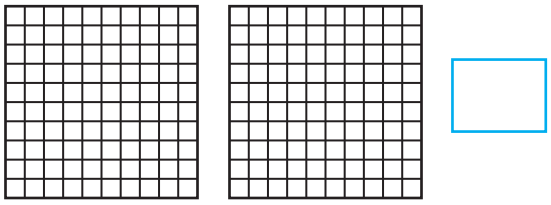
15b. $\frac{1}{100}$ more than 0.39 is 0.4. ○ True ○ False

15c. $\frac{1}{100}$ less than 0.72 is 0.71. ○ True ○ False

15d. $\frac{1}{10}$ more than 0.28 is 0.38 ○ True ○ False

15e. $\frac{1}{10}$ less than 0.50 is 0.49 ○ True ○ False

16. Shade the model to show $1\frac{24}{100}$. Then write the mixed number in decimal form.



17. The Memorial Library is 0.3 mile from school. Whose statement makes sense? Whose statement is nonsense? Explain your reasoning.

Gaben

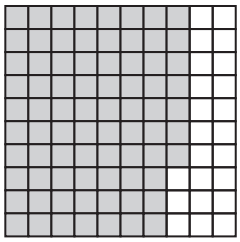
Erys

Name _____

Relate Hundredths and Decimals

Go Online
Interactive Examples

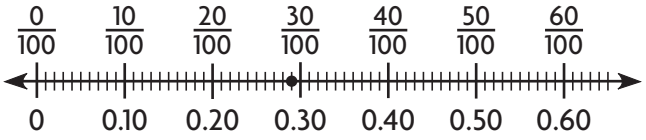
Write the fraction or mixed number and the decimal shown by the model.

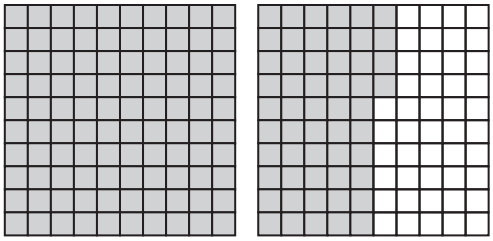
1. 

Think: The whole is divided into one hundred equal parts, so each part is one hundredth.

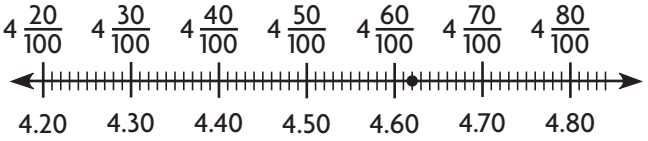
$\frac{77}{100}$; 0.77

2.



3. 

4.



Write the fraction or mixed number as a decimal.

5. $\frac{37}{100}$ **6.** $8\frac{11}{100}$ **7.** $\frac{98}{100}$ **8.** $25\frac{50}{100}$ **9.** $\frac{6}{100}$

Write *true* or *false*.

10. one hundredth less than 0.74 is 0.73

11. one hundredth more than 0.19 is 0.2

12. one tenth less than 0.65 is 0.55

13. one tenth more than 0.37 is 0.38

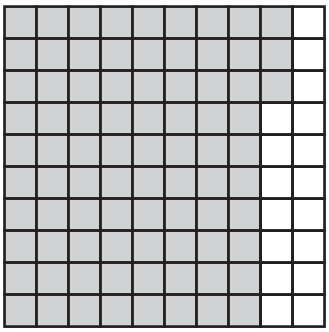
Problem Solving Real World

14. There are 100 pennies in a dollar. What part of a dollar is 61 pennies? Write it as a fraction, as a decimal, and in word form.

15. WRITE *Math* Describe a situation where it is easier to use decimals than fractions, and explain why.

Lesson Check

16. What decimal represents the shaded section of the model below?

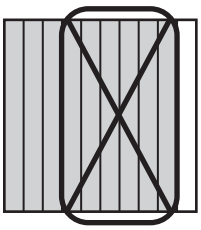


17. There were 100 questions on the unit test. Alondra answered 97 of the questions correctly. What decimal represents the fraction of questions Alondra answered correctly?

Spiral Review

18. Write an expression that is equivalent to $\frac{7}{8}$.

19. What is $\frac{9}{10} - \frac{6}{10}$?



20. Misha used $\frac{1}{4}$ of a carton of 12 eggs to make an omelet. How many eggs did she use?

21. Kurt used the rule *add* 4, *subtract* 1 to generate a pattern. The first term in his pattern is 5. Write a number that could be in Kurt's pattern.

Name _____

Equivalent Fractions and Decimals

Florida's B.E.S.T.
- **Number Sense & Operations** 4.FR.1.1
- **Mathematical Thinking & Reasoning** MTR 1.1, MTR 2.1, MTR 3.1, MTR 4.1

I Can model and express equivalent fractions for tenths and hundredths as well as use decimal notation.

UNLOCK the Problem Real World

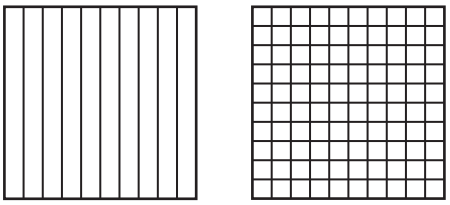
Jose spent a day hiking through a wildlife preserve. During the first hour of the hike, he drank $\frac{6}{10}$ liter of water. How many hundredths of a liter did he drink?

- Underline what you need to find.
- How can you represent hundredths?

_____

One Way Write the decimal fraction $\frac{6}{10}$ as an equivalent decimal fraction with a denominator of 100.

MODEL



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

RECORD

$\frac{6}{10} = \frac{6 \times \square}{10 \times \square} = \frac{\square}{100}$

Another Way Write the decimal fraction $\frac{6}{10}$ with a decimal point.

Think: 6 tenths is the same as 6 tenths 0 hundredths.

Ones	.	Tenths	Hundredths

So, Jose drank _____, or _____, liter of water.

Math Talk

MTR 2.1 Demonstrate understanding in multiple ways.

Explain how you can write 0.2 as hundredths.

- Explain why 6 tenths is equivalent to 60 hundredths.

_____

_____

Libby collected 0.30 liter of water in a jar during a rainstorm. How many tenths of a liter did she collect?

Equivalent decimals are decimals that name the same amount. You can write 0.30 as a decimal that names tenths.

One Way Write 0.30 as an equivalent decimal.

Show 0.30 in the place-value chart.

Ones	.	Tenths	Hundredths

Think: There are no hundredths.

0.30 is equivalent to _____ tenths.

Write 0.30 as _____.

Another Way Write 0.30 as a fraction with a denominator of 10.

STEP 1 Write 0.30 as a fraction.

0.30 is _____ hundredths.

30 hundredths written as a fraction is _____.

STEP 2 Write $\frac{30}{100}$ as an equivalent decimal fraction with a denominator of 10.

Think: 10 is a common factor of the numerator and the denominator.

$$\frac{30}{100} = \frac{30 \div \square}{100 \div \square} = \frac{\square}{10}$$

So, Libby collected _____, or _____, liter of water.

Share and Show Math Board

1. Write $\frac{4}{10}$ as hundredths.

Write $\frac{4}{10}$ as an equivalent fraction.

$$\frac{4}{10} = \frac{4 \times \square}{10 \times \square} = \frac{\square}{100}$$

Fraction: _____

Write $\frac{4}{10}$ as a decimal.

Ones	.	Tenths	Hundredths
	.		

Decimal: _____

Name _____

Write the number as hundredths in fraction form and decimal form.

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

3. 0.5

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

Write the number as tenths in fraction form and decimal form.

5. 0.40

6. $\frac{80}{100}$

7. $\frac{220}{100}$

On Your Own

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain whether you can write 0.25 as tenths.

Write the number as hundredths in fraction form and decimal form.

8. $\frac{78}{10}$

9. $\frac{2}{10}$

10. 0.1

Write the number as tenths in fraction form and decimal form.

11. $\frac{60}{100}$

12. $3\frac{90}{100}$

13. 0.70

Write the number as an equivalent mixed number with hundredths.

14. $1\frac{4}{10}$

15. $3\frac{5}{10}$

16. $2\frac{9}{10}$

Problem Solving · Applications

17. Carter says that 0.08 is equivalent to $\frac{8}{10}$. Describe and correct Carter's error.

MATH on the Spot

18. For numbers 18a–18e, choose True or False for the statement.

18a. 0.6 is equivalent to $\frac{6}{100}$. ○ True ○ False

18b. $\frac{3}{10}$ is equivalent to 0.30. ○ True ○ False

18c. $\frac{40}{100}$ is equivalent to $\frac{4}{10}$. ○ True ○ False

18d. 0.40 is equivalent to $\frac{4}{100}$. ○ True ○ False

18e. 0.5 is equivalent to 0.50. ○ True ○ False

Connect to Science

Inland Water

How many lakes and rivers does your state have? The U.S. Geological Survey defines inland water as water that is surrounded by land. The Atlantic Ocean, the Pacific Ocean, and the Great Lakes are not considered inland water.

19. WRITE Math Just over $\frac{2}{100}$ of the entire United States is inland water. Write $\frac{2}{100}$ as a decimal.

20. MTR Can you write 0.02 as tenths? Explain.

21. About 0.17 of the area of Rhode Island is inland water. Write 0.17 as a fraction.

22. Louisiana's lakes and rivers cover about $\frac{1}{10}$ of the state. Write $\frac{1}{10}$ as hundredths in words, decimal fraction form, and decimal form.

Name _____

Equivalent Fractions and Decimals

Go Online
Interactive Examples

Write the number as hundredths in fraction form and decimal form.

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

$\frac{5}{10} = \frac{5 \times 10}{10 \times 10} = \frac{50}{100}$

Think: 5 tenths is the same as 5 tenths and 0 hundredths. Write 0.50.

$\frac{50}{100}$; 0.50

2. $5\frac{9}{10}$

3. 0.2

4. 0.8

Write the number as tenths in fraction form and decimal form.

5. $\frac{40}{100}$

6. $\frac{410}{100}$

7. 0.60

Problem Solving Real World

8. Omar walks $\frac{6}{10}$ mile to school each day. Write $\frac{6}{10}$ as hundredths in fraction form and in decimal form.

9. WRITE Math Write $\frac{5}{10}$ in three equivalent forms.

Lesson Check

10. The fourth-grade students at Harvest School make up 0.3 of all students at the school. What fraction is equivalent to 0.3?

11. Kyle and his brother have a marble set. Of the marbles, 12 are blue. This represents $\frac{50}{100}$ of all the marbles. What decimal is equivalent to $\frac{50}{100}$?

Spiral Review

12. Zaire won his race by $3\frac{45}{100}$ seconds. What is this number written as a decimal?

13. Myra cut 16 pieces of tape for mounting pictures on poster board. Each piece of tape was $\frac{3}{8}$ inch long. How much tape did Myra use?

14. Of Zuleha's pattern blocks, $\frac{9}{12}$ are triangles. Using division, what is an equivalent fraction for $\frac{9}{12}$?

15. A number pattern has 75 as its first term. The rule for the pattern is *subtract* 6. What is the sixth term?

Name _____

Relate Fractions, Decimals, and Money

I Can relate fractions and decimals to money and write equivalent forms.

Florida's B.E.S.T.
- **Fractions** 4.FR.1.2
- **Number Sense & Operations** 4.NSO.2.6
- **Mathematical Thinking & Reasoning** MTR 2.1, MTR 4.1, MTR 7.1

UNLOCK the Problem Real World

Together, Julie and Sarah have $1.00 in quarters. They want to share the quarters equally. How many quarters should each girl get? How much money is this?

Remember

1 dollar = 100 cents
1 quarter = 25 cents
1 dime = 10 cents
1 penny = 1 cent

Use the model to relate money, fractions, and decimals.

4 quarters = 1 dollar = $1.00

$0.25 $0.25 $0.25 $0.25

1 quarter is $\frac{25}{100}$, or $\frac{1}{4}$ of a dollar.

2 quarters are $\frac{50}{100}$, $\frac{2}{4}$, or $\frac{1}{2}$ of a dollar.

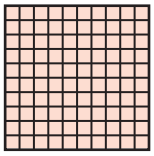
$\frac{1}{2}$ of a dollar = $0.50, or 50 cents.

Circle the number of quarters each girl should get.

So, each girl should get 2 quarters, or $ _____.

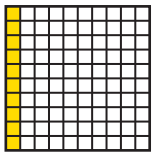
Examples Use money to model decimals.

1 dollar



$1.00, or _____ cents

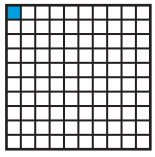
10 dimes = 1 dollar



1 dime = $\frac{1}{10}$, or 0.10 of a dollar

$ _____, or 10 cents

100 pennies = 1 dollar



1 penny = $\frac{1}{100}$, or 0.01 of a dollar

$ _____, or 1 cent

Math Talk **MTR 2.1** Demonstrate understanding in multiple ways.

Model 68 pennies. What part of a dollar do you have? Explain.

Relate Money and Decimals

Think of dollars as ones, dimes as tenths, and pennies as hundredths.

$1.56

Dollars	.	Dimes	Pennies
1	.	5	6

Think: $1.56 = 1 dollar and 56 pennies

There are 100 pennies in 1 dollar.
So, $1.56 = 156 pennies.

1.56 dollars

Ones	.	Tenths	Hundredths
1	.	5	6

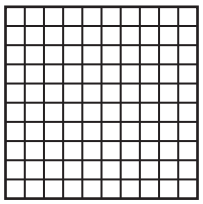
Think: 1.56 = 1 one and 56 hundredths

There are 100 hundredths in 1 one.
So, 1.56 = 156 hundredths.

More Examples

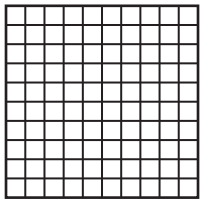
Shade the decimal model to show the money amount. Then write the money amount and a fraction in terms of dollars.

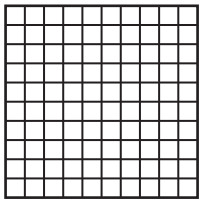
A



_____, or $\frac{21}{100}$ of a dollar

B





$1.46, or 1 _____ dollars

Try This!

Complete the table to show how money, fractions, mixed numbers, and decimals are related.

$ Bills and Coins	Money Amount	Fraction or Mixed Number	Decimal
	$0.03		0.03
	$0.25	$\frac{25}{100}$, or $\frac{1}{4}$	
2 quarters; 1 dime		$\frac{60}{100}$, or $\frac{6}{10}$	
2 $1 bills 5 nickels			

Math Talk

MTR 7.1 Apply mathematics to real-world contexts.

Would you rather have $0.25 or $\frac{3}{10}$ of a dollar? Explain.

Name _____

Share and Show Math Board

1. Write the amount of money as a decimal in terms of dollars.

5 pennies = $\frac{5}{100}$ of a dollar = _____ of a dollar.

Write the total money amount. Then write the amount as a fraction or a mixed number and as a decimal in terms of dollars.

2. 

_____ _____ _____

3. 

_____ _____ _____

Write as a money amount and as a decimal in terms of dollars.

4. $\frac{92}{100}$ _____ _____

5. $\frac{7}{100}$ _____ _____

6. $\frac{16}{100}$ _____ _____

7. $\frac{53}{100}$ _____ _____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How are \$0.84 and $\frac{84}{100}$ of a dollar related?

On Your Own

Write the total money amount. Then write the amount as a fraction or a mixed number and as a decimal in terms of dollars.

8. 

_____ _____ _____

9. 

_____ _____ _____

Write as a money amount and as a decimal in terms of dollars.

10. $\frac{27}{100}$ _____ _____

11. $\frac{4}{100}$ _____ _____

12. $\frac{75}{100}$ _____ _____

13. $\frac{100}{100}$ _____ _____

Write the total money amount. Then write the amount as a fraction and as a decimal in terms of dollars.

14. 1 quarter 6 dimes 8 pennies

_____ _____ _____

15. 3 dimes 5 nickels 20 pennies

_____ _____ _____

MTR **Complete to tell the value of each digit.**

16. $1.05 = _____ dollar + _____ pennies

1.05 = _____ one + _____ hundredths

17. $5.18 = _____ dollars + _____ dime + _____ pennies

5.18 = _____ ones + _____ tenth + _____ hundredths

Problem Solving · Applications

Use the table for Problems 18–19.

18. The table shows the coins three students have. Write Hiei's total amount as a fraction in terms of dollars.

_____

Pocket Change				
Name	**Quarters**	**Dimes**	**Nickels**	**Pennies**
Kim	1	3	2	3
Tony	0	6	1	6
Hiei	2	4	0	2

19. Kim spent $\frac{40}{100}$ of a dollar on a snack. Write as a money amount the amount she has left.

MATH on the Spot

_____

20. Andre has $\frac{1}{2}$ of a dollar. He has at least two different types of coins in his pocket. Draw two possible sets of coins that Travis could have.

21. Lugard has $12.74 in his wallet. How much would he have if he had:

a. one penny less? $ _____

b. one penny more? $ _____

c. one dime less? $ _____

d. one dime more? $ _____

Name _____

Relate Fractions, Decimals, and Money

Go Online
Interactive Examples

Write the total money amount. Then write the amount as a fraction or a mixed number and as a decimal in terms of dollars.

1.

$0.18; $\frac{18}{100}$; 0.18

2.

Write as a money amount and as a decimal in terms of dollars.

3. $\frac{25}{100}$ **4.** $\frac{79}{100}$ **5.** $\frac{31}{100}$ **6.** $\frac{8}{100}$ **7.** $\frac{42}{100}$

Write the money amount as a fraction in terms of dollars.

8. $0.87 **9.** $0.03 **10.** $0.66 **11.** $0.95 **12.** $1.00

Write the total money amount. Then write the amount as a fraction and as a decimal in terms of dollars.

13. 2 quarters 2 dimes **14.** 3 dimes 4 pennies **15.** 8 nickels 12 pennies

Problem Solving Real World

16. Suvi has 1 dime, 4 nickels, and 8 pennies. Write Suvi's total amount as a fraction in terms of a dollar.

17. Anna Maria has $6.73. Jamal says he has one penny more than Anna Maria. Patrice says she has one dime less than Anna Maria. How much does Jamal have? Patrice?

Lesson Check

18. Write the total amount of money shown as a fraction in terms of a dollar.

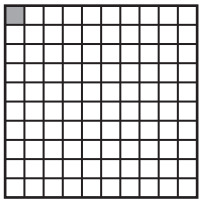
19. Crystal has $\frac{81}{100}$ of a dollar. What could be the coins Crystal has?

Spiral Review

20. Joel gives $\frac{1}{3}$ of his baseball cards to his sister. Write a fraction that is equivalent to $\frac{1}{3}$.

21. Penelope bakes pretzels. She salts $\frac{3}{8}$ of the pretzels. Write a fraction that is equivalent to $\frac{3}{8}$.

22. What decimal is shown by the shaded area in the model?



23. Mr. Guzman has 100 cows on his dairy farm. Of the cows, 57 are Holstein. What decimal represents the portion of cows that are Holstein?

Name _____

Add Fractional Parts of 10 and 100

Florida's B.E.S.T.

- **Fractions** 4.FR.1.1, 4.FR.2.3
- **Mathematical Thinking & Reasoning** MTR 1.1, MTR 2.1, MTR 3.1, MTR 6.1, MTR 7.1

I Can add fractions when the denominators are 10 or 100.

UNLOCK the Problem Real World

The fourth grade classes are painting designs on tile squares to make a mural. Mrs. Kirk's class painted $\frac{3}{10}$ of the mural. Mr. Becker's class painted $\frac{21}{100}$ of the mural. What part of the mural is painted?

You know how to add fractions with parts that are the same size. You can use equivalent fractions to add fractions with parts that are not the same size.

Example 1 Find $\frac{3}{10} + \frac{21}{100}$.

STEP 1 Write $\frac{3}{10}$ and $\frac{21}{100}$ as a pair of fractions with a common denominator.

Think: 100 is a multiple of 10. Use 100 as the common denominator.

$$\frac{3}{10} = \frac{3 \times \square}{10 \times \square} = \frac{\square}{100}$$

Think: $\frac{21}{100}$ already has 100 in the denominator.

STEP 2 Add.

Think: Write $\frac{3}{10} + \frac{21}{100}$ using fractions with a common denominator.

$$\frac{30}{100} + \frac{21}{100} = \frac{\square}{100}$$

So, $\frac{\square}{100}$ of the mural is painted.

Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

When adding tenths and hundredths, can you always use 100 as a common denominator? Explain.

Try This! Find $\frac{4}{100} + \frac{1}{10}$.

A Write $\frac{1}{10}$ as $\frac{10}{100}$.

$$\frac{1}{10} = \frac{1 \times \square}{10 \times \square} = \frac{\square}{100}$$

B Add.

$$\frac{\square}{100} + \frac{10}{100} = \frac{\square}{100}$$

So, $\frac{4}{100} + \frac{10}{100} = \frac{14}{100}$.

Example 2 Add decimals.

Huy lives 0.5 mile from the store. The store is 0.25 mile from his grandmother's house. Huy is going to walk to the store and then to his grandmother's house. How far will he walk?

Find 0.5 + 0.25.

STEP 1 Write 0.5 + 0.25 as a sum of fractions.

Think: 0.5 is 5 tenths. **Think:** 0.25 is 25 hundredths.

$0.5 = \frac{\square}{\square}$ $0.25 = \frac{\square}{\square}$

Write 0.5 + 0.25 as $\frac{\square}{\square} + \frac{\square}{\square}$

STEP 2 Write $\frac{5}{10} + \frac{25}{100}$ as a sum of fractions with a common denominator.

Think: Use 100 as a common denominator. Rename $\frac{5}{10}$.

$\frac{5}{10} = \frac{5 \times \square}{10 \times \square} = \frac{\square}{100}$

Write $\frac{5}{10} + \frac{25}{100}$ as $\frac{\square}{\square} + \frac{\square}{\square}$.

STEP 3 Add.

$\frac{50}{100} + \frac{25}{100} = \frac{\square}{\square}$

STEP 4 Write the sum as a decimal.

$\frac{75}{100} =$ _____

So, Huy will walk _____ mile.

Math Talk

MTR 7.1 Apply mathematics to real-world contexts.

Explain why you can think of \$0.25 as either $\frac{1}{4}$ dollar or $\frac{25}{100}$ dollar.

Try This! Find \$0.25 + \$0.40.

\$0.25 + \$0.40 = _____

Remember

A money amount less than a dollar can be written as a fraction of a dollar.

Name _____

Share and Show

1. Find $\frac{17}{10} + \frac{5}{100}$.

Think: Write the addends as fractions with a common denominator.

$\frac{\square}{100} + \frac{\square}{100} = \frac{\square}{\square}$

Find the sum.

2. $\frac{1}{10} + \frac{11}{100} =$ _____

3. $\frac{236}{100} + \frac{5}{10} =$ _____

4. $\$0.16 + \$0.45 = \$$_____

5. $\$0.08 + \$0.88 = \$$_____

On Your Own

6. $\frac{6}{10} + \frac{25}{100} =$ _____

7. $\frac{7}{10} + \frac{7}{100} =$ _____

8. $\$0.55 + \$0.23 = \$$_____

9. $\$0.19 + \$0.13 = \$$_____

MTR Write the number that makes the equation true.

10. $\frac{20}{100} + \frac{\square}{10} = \frac{60}{100}$

11. $\frac{2}{10} + \frac{\square}{100} = \frac{90}{100}$

12. Jaime used $\frac{3}{10}$ gallon of ice cream to make chocolate milkshakes and 0.40 gallon to make vanilla milkshakes. How much ice cream did Jaime use to make the milkshakes?

_____

Problem Solving · Applications

Use the table for 13–16.

13. Dean selects Teakwood stones and Buckskin stones to pave a path in front of his house. How many meters long will each set of one Teakwood stone and one Buckskin stone be?

MATH on the Spot

Paving Stone Center	
Style	**Length (in meters)**
Rustic	$\frac{15}{100}$
Teakwood	$\frac{3}{10}$
Buckskin	$\frac{41}{100}$
Rainbow	$\frac{6}{10}$
Rose	$\frac{8}{100}$

14. The backyard patio at Nona's house is made from a repeating pattern of one Rose stone and one Rainbow stone. How many meters long is each pair of stones?

15. For a stone path, Emily likes the look of a Rustic stone, then a Rainbow stone, and then another Rustic stone. How long will the three stones in a row be? Explain.

16. Which two stones can you place end-to-end to get a length of 0.38 meter? Explain how you found your answer.

17. Kaini is making a dollhouse. The dollhouse is $\frac{6}{10}$ meter tall without the roof. The roof is $\frac{15}{100}$ meter high. What is the height of the dollhouse with the roof? Choose a number from each column to complete an equation to solve.

$\frac{6}{10} + \frac{15}{100} =$ $\boxed{\begin{matrix}\frac{6}{100} \\ \frac{60}{100} \\ \frac{61}{100}\end{matrix}}$ $+$ $\boxed{\begin{matrix}\frac{15}{10} \\ \frac{5}{100} \\ \frac{15}{100}\end{matrix}}$ $=$ $\boxed{\begin{matrix}\frac{65}{100} \\ \frac{7}{10} \\ \frac{75}{100}\end{matrix}}$ meter.

Name _____

Add Fractional Parts of 10 and 100

Go Online
Interactive Examples

Find the sum.

1. $\frac{2}{10} + \frac{43}{100}$

$\frac{20}{100} + \frac{43}{100} = \frac{63}{100}$

Think: Write $\frac{2}{10}$ as a fraction with a denominator of 100:

$\frac{2 \times 10}{10 \times 10} = \frac{20}{100}$

$\frac{63}{100}$

2. $\frac{17}{100} + \frac{6}{10}$

3. $\frac{309}{100} + \frac{9}{10}$

4. $\$0.25 + \$0.34$

Problem Solving Real World

5. Arielle's frog jumped $\frac{38}{100}$ meter. Then her frog jumped $\frac{4}{10}$ meter. How far did Arielle's frog jump?

6. Keiko walks $\frac{5}{10}$ kilometer from school to the park. Then she walks $\frac{19}{100}$ kilometer from the park to her home. How far does Keiko walk?

7. Explain how you would use equivalent fractions to solve 0.5 + 0.10.

Lesson Check

8. In a fish tank, $\frac{2}{10}$ of the fish were orange and $\frac{5}{100}$ of the fish were striped. What fraction of the fish were orange or striped?

9. Greg spends \$0.45 on an eraser and \$0.30 on a pen. How much money does Greg spend?

Spiral Review

10. Dante saves \$8 each month. How many months will it take him to save at least \$60?

11. Ursula and Yi share a submarine sandwich. Ursula eats $\frac{2}{8}$ of the sandwich. Yi eats $\frac{3}{8}$ of the sandwich. How much of the sandwich do the two friends eat?

12. A farmer needs $3\frac{2}{3}$ feet of board and $2\frac{1}{3}$ feet of board to repair a fence in two places. How many feet of board does the farmer need to repair the fence?

13. Jeff drinks $\frac{2}{3}$ of a glass of juice. Write a fraction that is equivalent to $\frac{2}{3}$.

Name _____

Compare Decimals

I Can compare decimals up to the hundredths.

Florida's B.E.S.T.

- **Number Sense & Operations** 4.NSO.1.5
- **Mathematical Thinking & Reasoning** MTR 1.1, MTR 3.1, MTR 4.1, MTR 6.1, MTR 7.1

UNLOCK the Problem Real World

The city park covers 0.64 square mile. About 0.18 of the park is covered by water, and about 0.2 of the park is covered by paved walkways. Is more of the park covered by water or paved walkways?

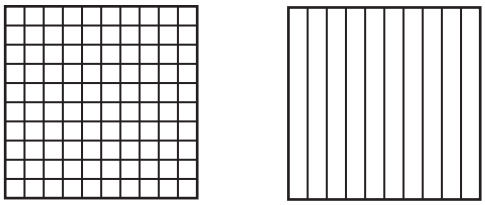
- Cross out unnecessary information.
- Circle numbers you will use.
- What do you need to find?

_____

_____

One Way Use a model.

Shade 0.18. Shade 0.2.



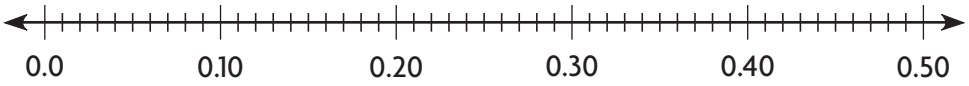
0.18 ◯ 0.2

Other Ways

A **Use a number line.**

Locate 0.18 and 0.2 on a number line.

Think: 2 tenths is equivalent to 20 hundredths.



_____ is closer to 0, so 0.18 ◯ 0.2.

B **Compare equal-size parts.**

- 0.18 is _____ hundredths.
- 0.2 is 2 tenths, which is equivalent to _____ hundredths.

18 hundredths ◯ 20 hundredths, so 0.18 ◯ 0.2.

So, more of the park is covered by _____.

Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

How does the number of tenths in 0.18 compare to the number of tenths in 0.2? Explain.

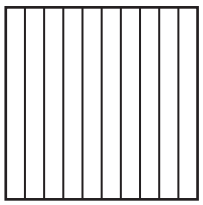
PLACE VALUE You can compare numbers written as decimals by using place value. Comparing decimals is like comparing whole numbers. Always compare the digits in the greatest place-value position first.

Examples Use place value.

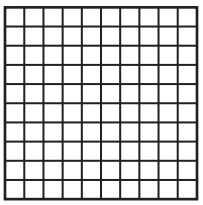
Tim has 0.5 dollar, and Sienna has 0.05 dollar. Who has more money?

MODEL

Tim



Sienna



So, _____ has more money.

RECORD

Ones	.	Tenths	Hundredths
	.		
	.		

← Tim

← Sienna

Think: The digits in the ones place are the same. Compare the digits in the tenths place.

5 tenths ◯ 0 tenths, so 0.5 ◯ 0.05.

- Compare the size of 1 tenth to the size of 1 hundredth. How could this help you compare 0.5 and 0.05? Explain.

_____

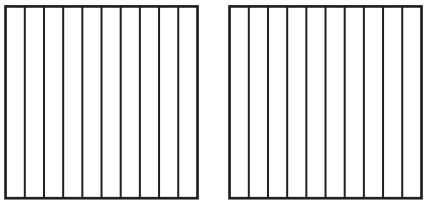
_____

_____

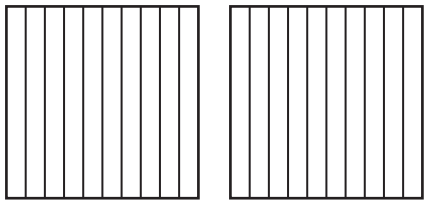
Try This! Compare 1.3 and 0.6. Write <, >, or =.

1.3 ◯ 0.6

Shade to model 1.3.



Shade to model 0.6.



Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How could you use place value to compare 1.3 and 0.6?

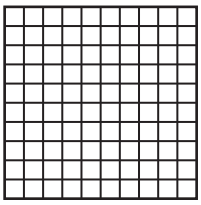
Name _____

Share and Show

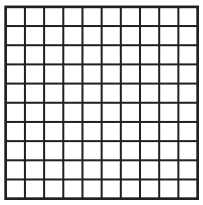
Math Board

1. Compare 0.39 and 0.42. Write <, >, or =. Shade the model to help.

0.39 ◯ 0.42



0.39



0.42

Compare. Write <, >, or =.

2. 0.26 ◯ 0.23

Ones	.	Tenths	Hundredths
	.		
	.		

3. 0.7 ◯ 0.54

Ones	.	Tenths	Hundredths
	.		
	.		

4. 1.15 ◯ 1.3

Ones	.	Tenths	Hundredths
	.		
	.		

5. 4.5 ◯ 2.89

Ones	.	Tenths	Hundredths
	.		
	.		

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Can you compare 0.39 and 0.42 by comparing only the tenths? Explain.

On Your Own

Compare. Write <, >, or =.

6. 0.9 ◯ 0.81

7. 1.06 ◯ 0.6

8. 0.25 ◯ 0.3

9. 2.61 ◯ 3.29

MTR Compare. Write <, >, or =.

10. 0.30 ◯ $\frac{3}{10}$

11. $\frac{4}{100}$ ◯ 0.2

12. 0.15 ◯ $\frac{1}{10}$

13. $\frac{1}{10}$ ◯ 0.8

14. Malik had $14.53 in his pocket. Abdul had $14.25 in his pocket. Kai had $14.40 in his pocket. Who had more money, Malik or Kai? Did Abdul have more money than either Malik or Kai?

_____

Problem Solving · Applications

MATH on the Spot

15. Ricardo and Felix ran a 1500-meter race. Ricardo finished in 4.89 minutes. Felix finished in 4.83 minutes. What was the time of the runner who finished first?

a. What are you asked to find? _____

b. What do you need to do to find the answer? _____

_____

c. Solve the problem.

d. What was the time of the runner who finished first?

_____

e. Look back. Does your answer make sense? Explain.

_____

_____

_____

_____

16. The Venus flytrap closes in 0.3 second and the waterwheel plant closes in 0.2 second. What decimal is halfway between 0.2 and 0.3? Explain.

_____

_____

_____

_____

17. For numbers 17a–17c, compare then select True or False.

17a. $0.5 > 0.53$ ○ True ○ False

17b. $0.35 < 0.37$ ○ True ○ False

17c. $\$1.35 > \$0.35$ ○ True ○ False

Name _____

Compare Decimals

Go Online
Interactive Examples

Compare. Write <, >, or =.

1. $0.35 \bigcirc 0.53$ — $0.35 < 0.53$

Think: 3 tenths is less than 5 tenths.
So, $0.35 < 0.53$

2. $0.6 \bigcirc 0.60$

3. $0.24 \bigcirc 0.31$

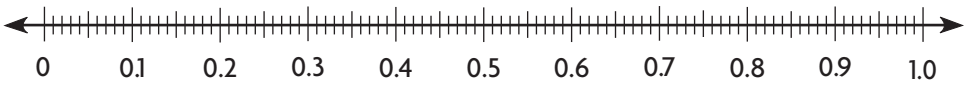
4. $0.94 \bigcirc 0.9$

5. $0.3 \bigcirc 0.32$

6. $0.45 \bigcirc 0.28$

7. $0.39 \bigcirc 0.93$

Plot each number on the number line to compare. Write *true* or *false*.



8. $0.8 > 0.78$ _____

9. $0.4 > 0.84$ _____

10. $0.7 < 0.70$ _____

11. $0.4 > 0.04$ _____

Write *true* or *false*.

12. $0.09 > 0.1$ _____

13. $0.24 = 0.42$ _____

14. $0.17 < 0.32$ _____

15. $0.85 > 0.82$ _____

Problem Solving Real World

16. Aliyah walks 0.7 mile to school. Mary walks 0.49 mile to school. Write an inequality using <, >, or = to compare the distances they walk to school.

_____

17. Show or describe two different ways to complete the comparison using <, >, or =: $0.26 \bigcirc 0.4$.

_____

_____

_____

Lesson Check

18. Jaylen, Eli, and Leo each made a stack of baseball cards. Jaylen's stack was 0.2 meter high. Eli's stack was 0.24 meter high. Leo's stack was 0.18 meter high. Write a number sentence that compares Eli's stack of cards to Leo's stack of cards.

19. Three classmates spent money at the school supplies store. Yosef spent 0.5 dollar, Andre spent 0.45 dollar, and Raquel spent 0.52 dollar. Write a number sentence that compares the money Andre spent to the money that Yosef spent.

Spiral Review

20. Pedro has \$0.35 in his pocket. Alice has \$0.40 in her pocket. How much money do Pedro and Alice have altogether?

21. The measure 62 centimeters is equivalent to $\frac{62}{100}$ meter. What is this measure written as a decimal fraction?

22. Joel has 24 sports trophies. Of the trophies, $\frac{1}{8}$ are soccer trophies. How many soccer trophies does Joel have?

23. Molly's jump rope is $6\frac{1}{3}$ feet long. Gail's jump rope is $4\frac{2}{3}$ feet long. How much longer is Molly's jump rope?

Name _____

Order Decimals

I Can order decimals up to the hundredths.

Florida's B.E.S.T.

- **Number Sense & Operations** 4.NSO.1.5
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.4.1, MTR.6.1

Investigate

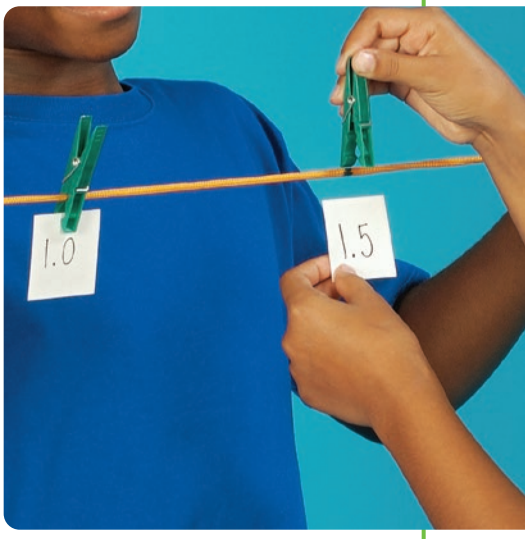
Materials ■ string ■ clothespins ■ marker ■ index cards

Order 1.2, 1.9, and 1.6 from least to greatest.

A. Use your marker to mark the location of benchmark decimals 1.0, 1.5, and 2.0 on your string.

B. Use clothespins and index cards to label the points you marked.

C. Now locate the points 1.2, 1.9, and 1.6 on your string by using clothespins and labeled index cards.



D. Draw a picture of the number line you modeled.

E. Compare your model with another student's model. Do either of you want to change any of the positions of your clothespins? Explain.

_____

_____

Make Connections

You can also use place value to order decimals or amounts of money.

Order \$1.52, \$0.87, and \$1.56 from least to greatest.

STEP 1

Line up the decimal places.

Think: Compare the digits in the greatest place.

\$1.52
↓ $0 < 1$
\$0.87
↓
\$1.56

Since $0 < 1$, _____ is the least.

STEP 2

Compare the tenths in the remaining decimals.

\$1.52
↓ $5 = 5$
\$1.56

There is the same number of tenths.

STEP 3

Compare the hundredths in the remaining decimals.

\$1.52
↓ $2 < 6$
\$1.56

Since $2 < 6$, _____ is the greatest.

So, the order from least to greatest is

_____, _____, _____.

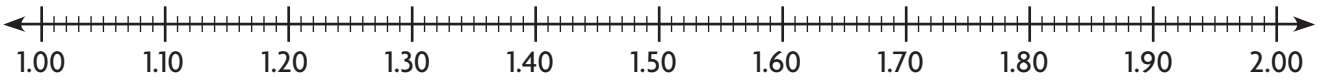
Share and Show

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How is ordering decimals similar to comparing decimals?

Use the number line to order the decimals from least to greatest.



1. 1.9, 1.09, 1.5, 1.55

2. 1.65, 1.56, 1.6, 2.0

Order the decimals from greatest to least. You can use place value or a number line on your MathBoard.

3. \$1.41, \$0.14, \$1.14, \$1.40

4. 7.03, 7.3, 6.98, 6.89

Order the decimals from least to greatest. You can use place value or a number line on your MathBoard.

5. \$1.35, \$3.15, \$1.53, \$3.51

6. 6.25, 7.2, 6.93, 7.11

Name _____

UNLOCK the Problem Real World

7. Martin's class drew a design using 10 by 10 grid paper. The table shows how much of each color was used in the design. Which color was the third-greatest part of the design?

MATH on the Spot

Class Design	
Color	**Part of Design**
Blue	0.28
Green	$\frac{2}{5}$
Purple	$\frac{1}{10}$
Orange	0.15
Yellow	0.07

a. What do you need to know?

_____

_____

b. Describe a strategy you could use to order the values in the table.

_____

_____

c. How might you use models to help you? _____

_____

_____

d. Show your work.

e. Complete the sentences.

The greatest part of the design was the color _____.

The least part of the design was the color _____.

The third-greatest part of the design was the color _____.

8. Howard studied math for 0.75 hour. Carol studied math for 0.80 hour. Who studied math for the greater amount of time? Explain.

_____

9. Han has $3.23, Mateo has $2.32, and Sally has $3.32. Who has the most money?

_____

On Your Own

Fill in the bubble completely to show your answer.

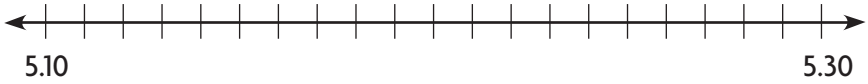
10. Four cockroaches finished a race. Their winning times are 9.42 seconds, 8.3 seconds, 9.2 seconds, and 8.17 seconds. Which shows the winning times written in order from least to greatest?

- (A) 8.17 seconds, 8.3 seconds, 9.42 seconds, 9.2 seconds
- (B) 9.42 seconds, 9.2 seconds, 8.3 seconds, 8.17 seconds
- (C) 8.17 seconds, 8.3 seconds, 9.2 seconds, 9.42 seconds
- (D) 9.42 seconds, 8.3 seconds, 9.2 seconds, 8.17 seconds

11. Use place value to order 5.87, 6.14, 5.78, and 6.04. Which shows the decimals written in order from least to greatest?

- (A) 6.04, 6.14, 5.87, 5.78
- (B) 5.78, 5.87, 6.04, 6.14
- (C) 5.78, 5.87, 6.14, 6.04
- (D) 5.87, 6.04, 6.14, 5.78

12. Use the number line to order the decimals.



Which shows the decimals 5.16, 5.28, 5.11, and 5.21 written in order from greatest to least?

- (A) 5.11, 5.16, 5.21, 5.28
- (B) 5.16, 5.28, 5.11, 5.21
- (C) 5.21, 5.16, 5.11, 5.28
- (D) 5.28, 5.21, 5.16, 5.11

13. Which of the following is less than 14.70?

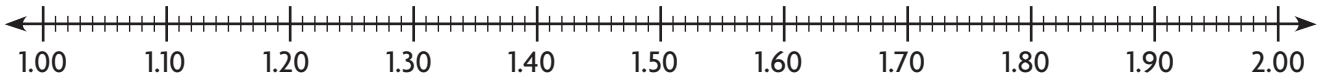
- (A) 15.03
- (B) 14.09
- (C) 14.73
- (D) 14.7

Name _____

Order Decimals

Go Online
Interactive Examples

Use the number line to order the decimals from least to greatest.



1. 1.11, 1.2, 1.01, 1.1

_____

2. 1.32, 1.23, 1.3, 1.2

_____

Order the decimals from greatest to least. You can use place value or a number line on your MathBoard.

3. $2.15, $1.89, $1.09, $1.90

_____

4. 0.66, 0.06, 0.60, 0.96

_____

Problem Solving Real World

5. Jamal wrote the following decimals on the board.

4.24, 4.04, 4.18, 4.42

Order these decimals from least to greatest.

_____

6. Anna paid $13.32 for a teddy bear. Karl paid $13.02 for a teddy bear. Cindy paid $12.45 for her teddy bear and Mark paid $14.50 for his teddy bear. Order the names from who spent the least to who spent the greatest for a teddy bear.

_____

7. During recess, some students ran the 40-yard dash. Tim ran it in 5.64 seconds, Sarah in 5.46 seconds, Hannah in 5.60 seconds, and Jason in 5.49 seconds. Order the times from least to greatest.

_____

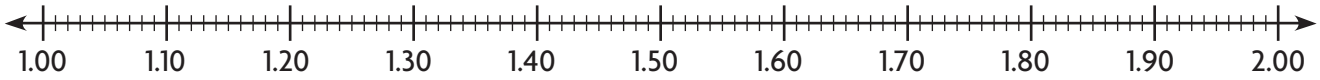
8. Karen made four different hats. She used some blue ribbon for each hat. For one hat, she used 0.8 foot of ribbon. For another hat, she used 1.2 feet of ribbon. For the last two hats, she used 1.02 and 1.21 feet of ribbon. Order these amounts from greatest to least.

_____

Lesson Check

Fill in the bubble completely to show your answer.

9. Use the number line to order the decimals.



Which answer shows 1.31, 1.13, 1.3, and 1.1 in order from least to greatest?

Ⓐ 1.1, 1.3, 1.13, 1.31

Ⓑ 1.1, 1.13, 1.3, 1.31

Ⓒ 1.13, 1.1, 1.31, 1.3

Ⓓ 1.13, 1.31, 1.1, 1.3

10. Order these amounts of money from least to greatest.
$4.88, $5.19, $4.83, $5.02

Ⓐ $4.88, $4.83, $5.02, $5.19

Ⓑ $5.19, $5.02, $4.88, $4.83

Ⓒ $5.02, $5.19, $4.83, $4.88

Ⓓ $4.83, $4.88, $5.02, $5.19

Spiral Review

11. Which number is one tenth greater than 7.23?

Ⓐ 8.23

Ⓑ 7.13

Ⓒ 7.24

Ⓓ 7.33

12. Cory, Kala, and Alyssa get the same allowance. Cory saved $\frac{2}{5}$ of his allowance. Kala saved $\frac{1}{3}$ of hers. Alyssa saved $\frac{2}{10}$ of hers. Which statement is true?

Ⓐ Cory saved the most.

Ⓑ Alyssa saved more than Kala.

Ⓒ Cory and Alyssa saved the same amount.

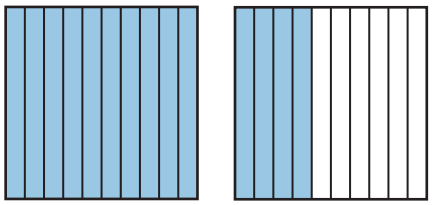
Ⓓ Kala saved more than Cory.

Name _____

Chapter 12

Chapter Review

1. Circle all the numbers shown by the model.



$\frac{14}{10}$ $\frac{40}{10}$ 1.4

$1\frac{4}{10}$ 14 4.1

2. Jung has one dollar and twenty-seven cents to buy a notebook. Which names this money amount as a number of dollars? Mark all that apply.

Ⓐ 12.7

Ⓑ 1.027

Ⓒ $1.27

Ⓓ 1.27

Ⓔ $1\frac{27}{100}$

Ⓕ $\frac{127}{10}$

3. For Problems 3a–3e, choose True or False for each statement.

3a.	0.9 is equivalent to 0.90.	○ True	○ False
3b.	0.20 is equivalent to $\frac{2}{100}$.	○ True	○ False
3c.	$\frac{80}{100}$ is equivalent to $\frac{8}{10}$.	○ True	○ False
3d.	$\frac{6}{10}$ is equivalent to 0.60.	○ True	○ False
3e.	0.3 is equivalent to $\frac{3}{100}$.	○ True	○ False

4. Which shows 0.46, 4.6, 0.64, 0.06 in order from least to greatest?

Ⓐ 4.6, 0.64, 0.46, 0.06

Ⓑ 0.06, 0.46, 4.6, 0.64

Ⓒ 0.06, 0.46, 0.64, 4.6

Ⓓ 0.64, 0.46, 0.06, 4.6

5. Max bought 2 used books and a guitar pick at a garage sale. The books cost $1.10 each, and the guitar pick cost $0.08.

Part A

Max said he spent $3.00 at the garage sale. Do you agree with Max? Explain.

Part B

Max wants to buy 2 more guitar picks that cost $0.15 each. He has two dimes, 1 nickel, and 5 pennies. Does he have enough money for the guitar picks? Explain.

6. Harrison rode his bike $\frac{6}{10}$ of a mile to the park. Shade the model. Then write the decimal to show how far Harrison rode his bike.

Harrison rode his bike _____ mile to the park.

7. Amaldo spent $\frac{88}{100}$ of a dollar on a souvenir pencil from Zion National Park in Utah. What is $\frac{88}{100}$ written as a decimal in terms of dollars?

8. Tran has $8.85. He is saving for a video game that costs $8.95.

Tran needs _____ more to have enough money for the game.

Name _____

9. Cheyenne lives $\frac{7}{10}$ mile from school. A fraction in hundredths equal to $\frac{7}{10}$ is _____.

10. Write a decimal in tenths that is *less* than 2.42 but *greater* than 2.0.

11. Kylee and two of her friends are at a museum. They find ten nickels and one dime on the ground.

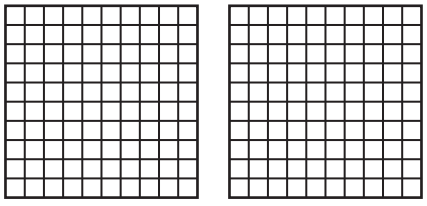
Part A

If Kylee and her friends share the money equally, how much will each person get? Explain how you found your answer.

Part B

Kylee says that each person will receive $\frac{2}{10}$ of the money that was found. Do you agree? Explain.

12. Shade the model to show $1\frac{52}{100}$. Then write the mixed number in decimal form.



13. Henry is making a recipe for biscuits. A recipe calls for $\frac{5}{10}$ kilogram flour and $\frac{9}{100}$ kilogram sugar.

Part A

If Henry measures correctly and combines the two amounts, how much flour and sugar will he have? Show your work.

Part B

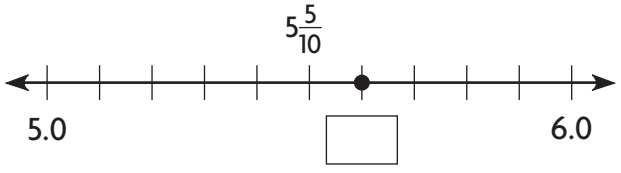
How can you write your answer as a decimal?

14. An orchestra has 100 musicians. $\frac{40}{100}$ of them play string instruments—violin, viola, cello, double bass, guitar, lute, and harp. What decimal is equivalent to $\frac{40}{100}$?

15. Complete the table.

$ bills and coins	Money amount	Fraction or mixed number	Decimal
8 pennies		$\frac{8}{100}$	0.08
	$0.50		0.50
		$\frac{90}{100}$ or $\frac{9}{10}$	0.90
4 $1 bills 5 pennies			4.05

16. The point on the number line shows the number of seconds it took an athlete to run the forty-yard dash. Write the decimal that correctly names the point.

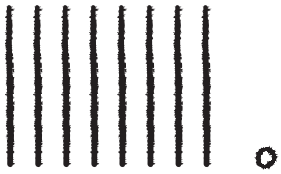


Name _____

17. Hoshi is making a toy car. The body of the car is $\frac{5}{10}$ meter high. The wheels add another $\frac{18}{100}$ meter to the height. What is the height of the toy car after the wheels are added? Choose a number from each column to complete an equation to solve.

$\frac{5}{10} + \frac{18}{100} =$ [$\frac{5}{100}$ / $\frac{15}{100}$ / $\frac{50}{100}$] + [$\frac{18}{100}$ / $\frac{81}{100}$ / $\frac{18}{10}$] = [$\frac{68}{10}$ / $\frac{23}{100}$ / $\frac{68}{100}$] meter high

18. Callie drew a quick picture to represent the questions she answered correctly on a test. What decimal does the model show?



represents ☐

19. For Problems 19a–19f, choose True or False for the inequality.

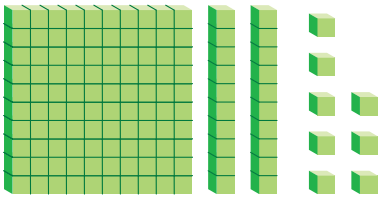
19a.	$0.21 < 0.27$	○ True	○ False
19b.	$0.4 > 0.45$	○ True	○ False
19c.	$\$3.21 > \$0.2$	○ True	○ False
19d.	$1.9 < 1.90$	○ True	○ False
19e.	$0.41 = 0.14$	○ True	○ False
19f.	$6.2 > 6.02$	○ True	○ False

20. For Problems 20a and 20b, fill in the number.

20a. $\frac{1}{10}$ more than 3.24 _____

20b. $\frac{1}{100}$ less than 3.24 _____

21. Amir used the model to show the growth of a tree in meters. The flat represents 1 unit. Which fraction, mixed number, or decimal does the model show? Mark all that apply.



Ⓐ 1.28

Ⓑ 12.8

Ⓒ 0.28

Ⓓ $2\frac{8}{100}$

Ⓔ $1\frac{28}{100}$

Ⓕ $1\frac{28}{10}$

22. Luke lives 0.4 kilometer from a skating rink. Mia lives 0.25 kilometer from the skating rink.

Part A

Who lives closer to the skating rink? Explain.

Part B

How can you write each distance as a fraction? Explain.

Part C

Luke is walking to the skating rink to pick up a practice schedule. Then he is walking to Mia's house. Will he walk more than a kilometer or less than a kilometer? Explain.