Chapter 3

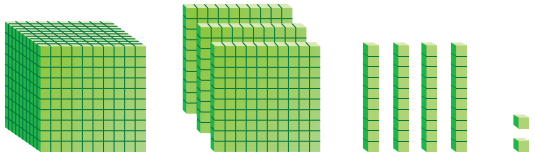
Name _____

Place Value and Decimals

Show What You Know

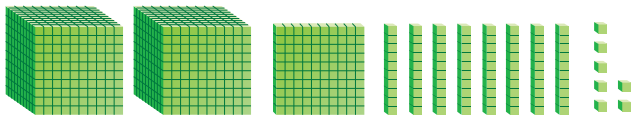
Place Value and Whole Numbers Write the value of the digit.

1. 1,342



The value of 3 is _____.

2. 2,187



The value of 2 is _____.

Decimals Greater Than One Write the word form and the expanded form for each.

3. 3.4

_____

_____

4. 2.51

_____

_____

Relate Fractions and Decimals Write as a decimal or a fraction.

5. 0.8 _____

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

7. 0.46 _____

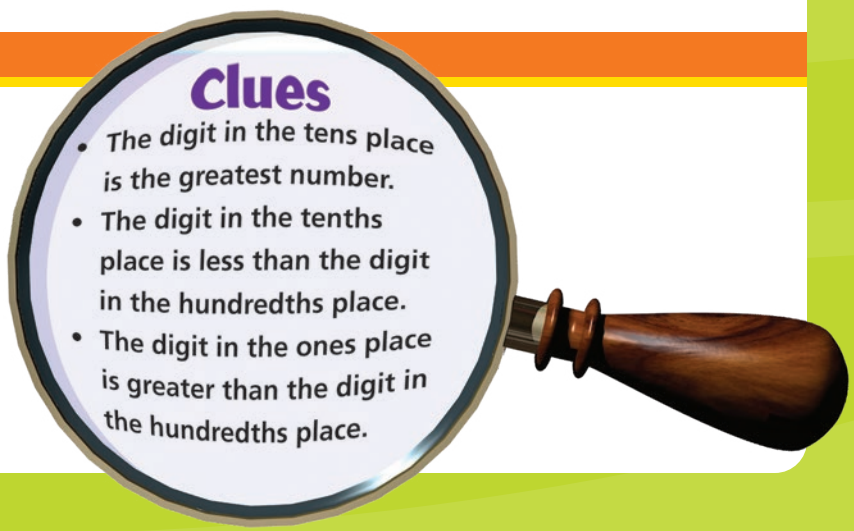
8. $\frac{6}{10}$ _____

9. 0.90 _____

10. $\frac{35}{100}$ _____

MATH in the Real World

Jason has 4 tiles. Each tile has a number printed on it. The numbers are 2, 3, 6, and 8. A decimal number is formed using the tiles and the clues. Find the number.

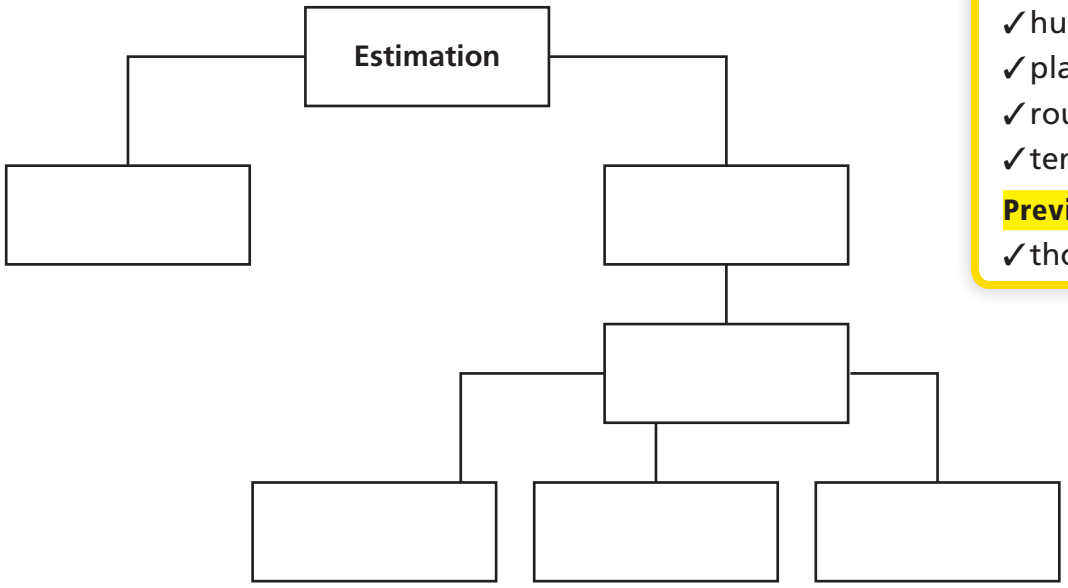


Vocabulary Builder

Go Online For more help

Visualize It

Use the ✓ words to complete the tree map.



Connect to Vocabulary

Review Words
- ✓benchmark
- ✓hundredth
- ✓place value
- ✓round
- ✓tenth

Preview Words
- ✓thousandth

Understand Vocabulary

Read the description. Which word do you think is described?

1. One of one hundred equal parts _____
2. The value of each digit in a number based on the location of the digit _____
3. To replace a number with one that is simpler and is approximately the same size as the original number _____
4. One of ten equal parts _____
5. A familiar number used as a point of reference _____
6. One of one thousand equal parts _____

Name _____

Understand Thousandths

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO1.1, 5.NSO1.2, 5.NSO1.3
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1

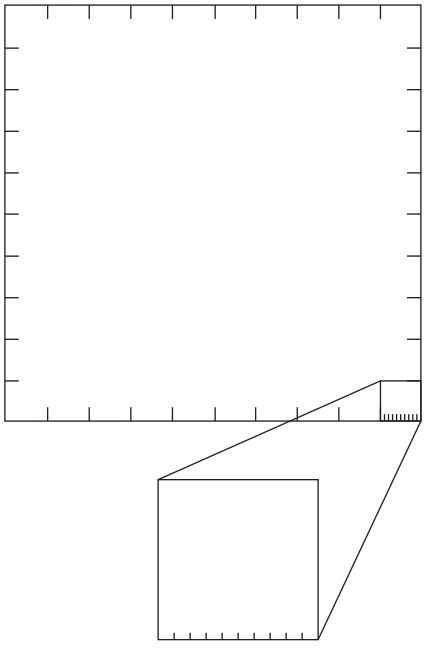
I Can describe the relationship between two decimal place-value positions.

Investigate

Materials ■ color pencils ■ straightedge

Thousandths are smaller parts than hundredths. If one hundredth is divided into ten equal parts, each part is one **thousandth**.

Use the model at the right to show tenths, hundredths, and thousandths.



A. Divide the larger square into 10 equal columns or rectangles. Shade one rectangle. What part of the whole is the shaded rectangle? Write that part as a decimal and a fraction.

_____

B. Divide each rectangle into 10 equal squares. Use a second color to shade in one of the squares. What part of the whole is the shaded square? Write that part as a decimal and a fraction.

_____

C. Divide the enlarged hundredths square into 10 equal columns or rectangles. If each hundredths square is divided into ten equal rectangles, how many parts will the model have?

_____

Use a third color to shade one rectangle of the enlarged hundredths square. What part of the whole is the shaded rectangle? Write that part as a decimal and a fraction.

_____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

There are 10 times as many hundredths as there are tenths. Explain how the model shows this.

Draw Conclusions

1. Explain what each shaded part of your model in the Investigate section shows. What fraction can you write that relates each shaded part to the next greater shaded part? _____

2. MTR Identify and describe a part of your model that shows one thousandth. Explain how you know.

Make Connections

The relationship of a digit in different place-value positions is the same with decimals as it is with whole numbers. 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 a decimal.

Ones	Tenths	Hundredths	Thousandths
0	0	4	
	?	0.04	?

10 times as much

$\frac{1}{10}$ of

_____ is 10 times as much as 0.04.

_____ is $\frac{1}{10}$ of 0.04.

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
0.03		
0.1		
0.07		

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

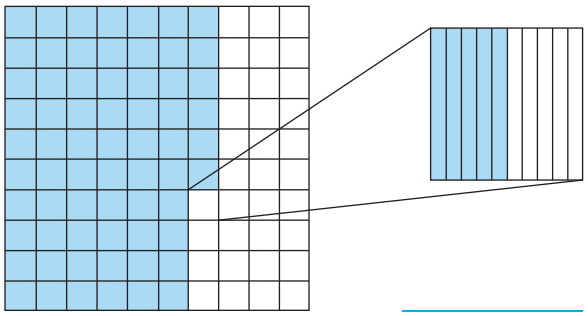
Explain the pattern you see when you move one decimal place value to the right and one decimal place value to the left.

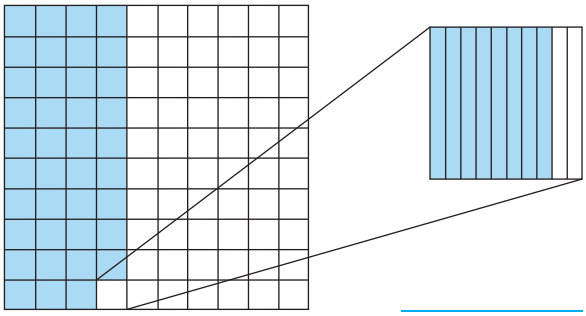
Name _____

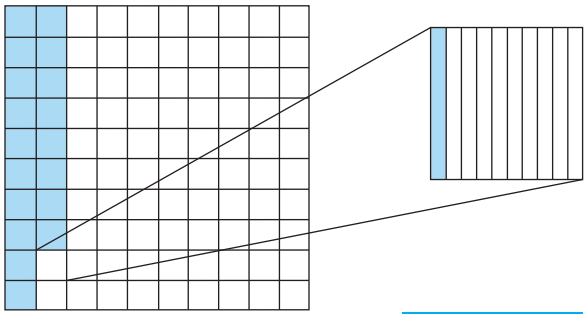
Share and Show

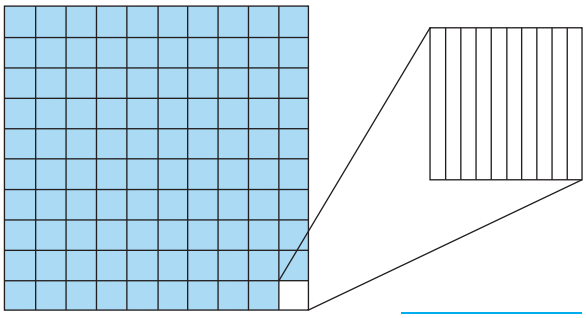
Math Board

Write the decimal shown by the shaded parts of each model.

1. 

2. 

3. 

4. 

Complete the sentence.

5. 0.6 is 10 times as much as _____.

6. 0.007 is $\frac{1}{10}$ of _____.

7. 0.008 is $\frac{1}{10}$ of _____.

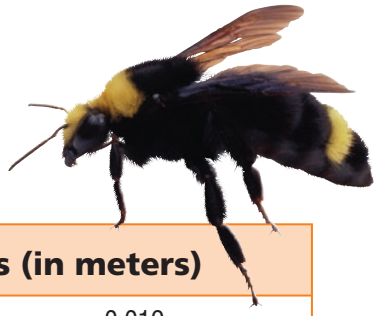
8. 0.5 is 10 times as much as _____.

Use place-value patterns to complete the table.

	Decimal	10 times as much as	$\frac{1}{10}$ of
9.	0.2		
10.	0.07		
11.	0.05		
12.	0.4		

	Decimal	10 times as much as	$\frac{1}{10}$ of
13.	0.06		
14.	0.9		
15.	0.3		
16.	0.08		

Problem Solving · Applications



Use the table for Problems 17 and 18.

Bee Lengths (in meters)	
Bumblebee	0.019
Carpenter Bee	0.025
Leafcutting Bee	0.014
Orchid Bee	0.028
Sweat Bee	0.006

17. A science teacher showed an image of a carpenter bee on a wall. The image is 10 times as large as the actual bee. Then he showed another image of the bee that is 10 times as large as the first image. What is the length of the bee in the second image?

18. An atlas beetle is about 0.14 meter long. How does the length of the atlas beetle compare to the length of a leafcutting bee?

MATH on the Spot

19. WRITE Math Explain how you can use place value to describe how 0.05 and 0.005 compare.

20. MTR Terry, Sasha, and Harry each choose a number. Terry's number is ten times as much as Sasha's. Harry's number is $\frac{1}{10}$ of Sasha's. Sasha's number is 0.4. What number did each person choose?

21. Choose the numbers that make the statement true.

0.65 is 10 times as much as [0.065 / 0.65 / 6.5 / 65.0] and $\frac{1}{10}$ of [0.065 / 0.65 / 6.5 / 65.0].

Show the Math

Demonstrate Your Thinking

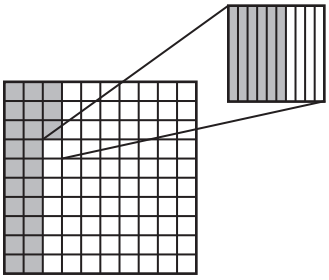
Name _____

Understand Thousandths

Go Online
Interactive Examples

Write the decimal shown by the shaded parts of each model.

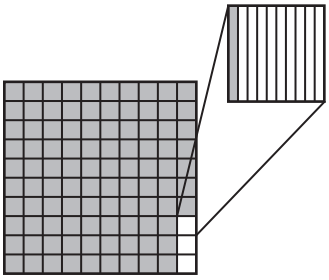
22.



0.236

Think: 2 tenths, 3 hundredths, and 6 thousandths are shaded

23.



_____

Complete the sentence.

24. 0.4 is 10 times as much as _____ .

25. 0.003 is $\frac{1}{10}$ of _____ .

Use place-value patterns to complete the table.

	Decimal	10 times as much as	$\frac{1}{10}$ of
26.	0.1		
27.	0.09		

	Decimal	10 times as much as	$\frac{1}{10}$ of
28.	0.08		
29.	0.2		

Problem Solving Real World

30. The diameter of a dime is seven hundred five thousandths of an inch. Complete the table by recording the diameter of a dime.

U.S. Coins	
Coin	**Diameter (in inches)**
Penny	0.750
Nickel	0.835
Dime	
Quarter	0.955
Half dollar	1.205

31. What is the value of the 5 in the diameter of a half dollar?

_____

32. Which coins have a diameter with a 5 in the hundredths place?

_____

33. WRITE Math Write four decimals with the digit 4 in a different place in each—ones, tenths, hundredths, and thousandths. Then write a statement that compares the value of the digit 4 in the different decimals.

_____

Lesson Check

34. Write a decimal that is $\frac{1}{10}$ of 3.0.

35. A penny is 0.061 inch thick. What is the value of the 6 in the thickness of a penny?

Spiral Review

36. What is the number seven hundred thirty-one million, nine hundred thirty-four thousand, thirty written in standard form?

37. A city has a population of 743,182 people. What is the value of the digit 3?

38. Write an expression to match the words "three times the sum of 8 and 4".

39. A family of 2 adults and 3 children goes to a play. Admission costs $8 per adult and $5 per child. What expression would show the total admission cost for the family?

Name _____

Read and Write Decimals Through Thousandths

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.1.2, 5.NSO1.3
- **Mathematical Thinking & Reasoning** MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1

I Can read, write, and represent decimals through thousandths.

UNLOCK the Problem

Real World

The Brooklyn Battery Tunnel in New York City is 1.726 miles long. It is the longest underwater tunnel for vehicles in the United States. To understand this distance, you need to understand the place value of each digit in 1.726.

▲ The Brooklyn Battery Tunnel passes under the East River.

You can use a place-value chart to understand decimals. Whole numbers are to the left of the decimal point. Decimals are to the right of the decimal point. The thousandths place is to the right of the hundredths place.

Tens	Ones	Tenths	Hundredths	Thousandths
	1	7	2	6
	1×1	$7 \times \frac{1}{10}$	$2 \times \frac{1}{100}$	$6 \times \frac{1}{1{,}000}$
	1.0	0.7	0.02	0.006

} Value

The place value of the digit 6 in 1.726 is thousandths. The value of 6 in 1.726 is $6 \times \frac{1}{1{,}000}$, or 0.006.

Standard Form: 1.726
Word Form: one and seven hundred twenty-six thousandths

Expanded Form: $1 \times 1 + 7 \times \left(\frac{1}{10}\right) + 2 \times \left(\frac{1}{100}\right) + 6 \times \left(\frac{1}{1{,}000}\right)$

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain how the place value of the last digit in a decimal can help you read a decimal.

Try This! Use place value to read and write decimals.

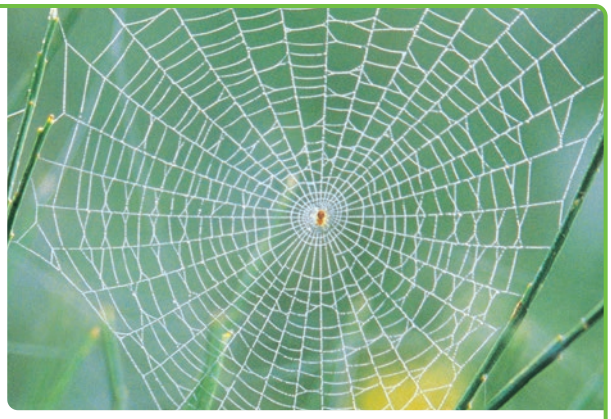
A **Standard Form:** 172.35
Word Form: one hundred seventy-two and _____

Expanded Form: $1 \times 100 + 7 \times 10 + 2 \times 1 +$ _____

B **Standard Form:** _____
Word Form: three and six hundred fourteen thousandths

Expanded Form: _____ $+ 6 \times \left(\frac{1}{10}\right) +$ _____ $+$ _____

Example Use a place-value chart.



A common garden spider spins a web with its silk that is about 0.003 millimeter thick. A commonly used sewing thread is about 0.3 millimeter thick. How does the thickness of the spider silk and the thread compare?

STEP 1 Write the numbers in a place-value chart.

Ones	Tenths	Hundredths	Thousandths

STEP 2 Count the number of decimal place-value positions to the digit 3 in 0.3 and 0.003.

0.3 has _____ fewer decimal places than 0.003

2 fewer decimal places: $10 \times 10 =$ _____

0.3 is _____ times as much as 0.003

0.003 is _____ of 0.3

So, the thread is _____ times as thick as the garden spider's silk. The thickness of the garden spider's silk is

_____ that of the thread.

You can use place-value patterns to rename a decimal.

Try This! Use place-value patterns.

Rename 0.3 using other place values.

0.300	3 tenths	$3 \times \frac{1}{10}$
0.300	_____ hundredths	_____ $\times \frac{1}{100}$
0.300	_____	_____

Name _____

Share and Show

Math Board

1. Complete the place-value chart to find the value of each digit.

Ones	Tenths	Hundredths	Thousandths
3	5	2	4
3×1		$2 \times \frac{1}{100}$	
	0.5		

Value

Write the value of the underlined digit.

2. 860.5$\underline{4}$3 _____

3. 6.$\underline{2}$34 _____

4. 3.95$\underline{4}$ _____

Write the number in two other forms.

5. two hundred fifty-three thousandths

_____

_____

_____

6. 751.632

_____

_____

_____

On Your Own

Write the value of the underlined digit.

7. 0.4$\underline{9}$6 _____

8. 24.$\underline{7}$26 _____

9. 1.06$\underline{6}$ _____

10. 634.$\underline{3}$99 _____

11. 0.00$\underline{2}$ _____

12. 1,489.37$\underline{1}$ _____

Write the number in two other forms.

13. four hundred eighty nine thousandths

_____

_____

_____

14. 537.916

_____

_____

_____

Problem Solving · Applications

Use the table for problems 15–16.

Average Annual Rainfall (in meters)	
California	0.564
New Mexico	0.372
New York	1.041
Wisconsin	0.820
Maine	1.074

15. What is the value of the digit 7 in New Mexico's average annual rainfall?

16. Which of the states has an average annual rainfall with the least number in the thousandths place? What is another way to write the total annual rainfall in this state?

17. MTR Damian wrote the number one hundred thirty-four and twenty-three thousandths as 134.23. Describe and correct his error.

18. Dan used a meter stick to measure some seedlings in his garden. One day, a corn stalk was 0.85 m tall. A tomato plant was 0.850 m. A carrot top was 0.085 m. Which plant was shortest?

MATH on the Spot

19. WRITE Math Explain how you know that the digit 6 does not have the same value in the numbers 3.675 and 3.756.

20. What is the value of the underlined digit? Mark all that apply.

0.5$\underline{8}$9

- ○ 0.8
- ○ 0.08
- ○ eight tenths
- ○ eight hundredths
- ○ $8 \times (\frac{1}{10})$

Show the Math

Demonstrate Your Thinking

Name _____

Read and Write Decimals Through Thousandths

Go Online
Interactive Examples

Write the value of the underlined digit.

21. 0.2$\underline{8}$7

8 hundredths, or 0.08

22. 15.$\underline{3}$49

23. 2.70$\underline{4}$

24. 96.$\underline{1}$54

25. 4.00$\underline{6}$

26. 317.2$\underline{5}$8

Write the number in two other forms.

27. $3 \times (\frac{1}{10}) + 2 \times (\frac{1}{100}) + 6 \times (\frac{1}{1{,}000})$

28. 348.517

29. nine hundred twenty-four thousandths

30. 1,924.075

Problem Solving Real World

31. In a gymnastics competition, Paige's score was 37.025. What is Paige's score written in word form?

32. Haru's batting average for the softball season is 0.368. What is Haru's batting average written in expanded form?

33. WRITE Math Write five decimals that have at least 3 digits to the right of the decimal point. Write the expanded form and the word form for each number.

Lesson Check

34. When Mindy went to China, she exchanged $1 for 6.589 Yuan. What digit is in the hundredths place of 6.589?

35. The diameter of the head of a screw is 0.306 inch. What is this number written in word form?

Spiral Review

36. Each car on a commuter train can seat 114 passengers. If the train has 7 cars, how many passengers can the train seat?

37. Write a decimal that is $\frac{1}{10}$ of 6.0.

38. Danica has 15 stickers. She gives 3 to one friend and gets 4 from another friend. What expression would match the words?

39. There are 138 people seated at the tables in a banquet hall. Each table can seat 12 people. All the tables are full except one. How many full tables are there?

Name _____

Compose and Decompose Decimals

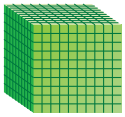
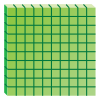
I Can compose and decompose multi-digit numbers with decimals.

Florida's B.E.S.T.
- **Number Sense & Operations** 5.NSO.1.3
- **Algebraic Reasoning** 5.AR.2.3
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.5.1

Investigate

Materials ■ base-ten blocks

You can use base-ten blocks to understand the relationships among decimal place-value positions. Use a large cube for 1, a flat for $\frac{1}{10}$, a long for $\frac{1}{100}$, and a small cube for $\frac{1}{1{,}000}$.

Number	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1{,}000}$
Model				
Description	large cube	flat	long	small cube

You can decompose numbers with decimals in different ways.

A. Use the blocks to model 2.543.
What did you use? Draw them and list the number of each.

_____ large cubes

_____ flats

_____ longs

_____ small cubes

2.543 = ____ ones + ____ tenths + ____ hundredths + ____ thousandths

B. Replace 1 of the longs with small cubes. Record your results.

_____ large cubes _____ flats

_____ longs _____ small cubes

2.543 = ____ ones + ____ tenths + ____ hundredths + ____ thousandths

C. Now replace 2 of the flats with longs. Record your results.

_____ large cubes _____ flats

_____ longs _____ small cubes

2.543 = ____ ones + ____ tenths + ____ hundredths + ____ thousandths

Math Talk

MTR 5.1 Use patterns and structure.

How many times as much is the long compared to the small cube? the flat compared to the small cube? Explain.

Draw Conclusions

1. MTR Why can you replace a long with 10 small cubes?

2. MTR How can you check to see if you decomposed the number correctly?

Make Connections

You can use your understanding of place-value patterns and a place-value chart to write and decompose decimal numbers.

Use the steps below to show different ways to decompose the decimal.

STEP 1 Build 4.598 with base ten blocks. Draw your blocks.

4.598 = ____ ones + ____ tenths + ____ hundredths + ____ thousandths

STEP 2 Decompose three of the flats into longs.

4.598 = ____ ones + ____ tenths + ____ hundredths + ____ thousandths

STEP 3 Now decompose 2 longs into small cubes.

4.598 = ____ ones + ____ tenths + ____ hundredths + ____ thousandths

Ones	Tenths	Hundredths	Thousandths
4	5	9	8

10 times as much | 10 times as much | 10 times as much as

Name _____

Share and Show

Math Board

Decompose the decimal number two different ways.

1. 4.763 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

   4.763 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

2. 17.402 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

   17.402 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

3. What number is composed of 5 ones, 17 tenths, 22 hundredths and 9 thousandths?

   _____

On Your Own

Decompose the decimal number two different ways.

4. 3.587 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

   3.587 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

5. 2.296 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

   2.296 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

6. 12.809 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

   12.809 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

7. What number is composed of 8 ones, 35 tenths, 17 hundredths and 13 thousandths?

   _____

8. What number is composed of 4 ones, 21 tenths, 32 hundredths and 4 thousandths?

   _____

9. What number is composed of 18 ones, 11 tenths, 11 hundredths and 11 thousandths?

   _____

10. WRITE Math Write a decimal number. How many ways can you decompose your number?

    _____

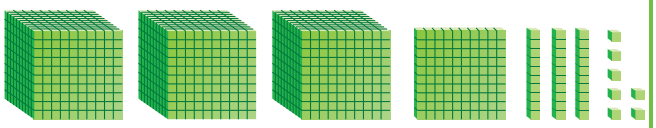
11. MTR 0.3 is _____ times as much as 0.003.

    3 tenths = _____ thousandths

12. Joji and Goro use base-ten blocks to model 3.137. Whose model makes sense? Whose model does not make sense? Explain your reasoning.

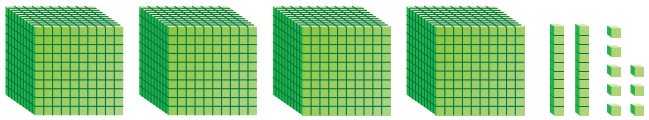
MATH on the Spot

Joji's Work



_____ ones + _____ tenths +
_____ hundredths + _____ thousandths

Goro's Work



_____ ones + _____ tenths +
_____ hundredths + _____ thousandths

13. Explain how Goro could make his model represent the number.

14. For Problems 14a–14c, choose True or False for each equation.

14a. $5.4 = 54$ tenths ○ True ○ False

14b. $6.73 = 6$ ones $+ 73$ tenths ○ True ○ False

14c. $0.492 = 20$ hundredths $+ 292$ thousandths ○ True ○ False

Name _____

Compose and Decompose Decimals

Go Online
Interactive Examples

Decompose the decimal number two different ways.

15. 5.924 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

5.924 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

16. 7.881 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

7.881 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

17. 13.465 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

13.465 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

18. What number is composed of 8 ones, 16 tenths, 24 hundredths and 37 thousandths?

_____

19. What number is composed of 2 ones, 29 tenths, 17 hundredths and 105 thousandths?

_____

20. What number is composed of 16 ones, 22 tenths, 33 hundredths and 44 thousandths?

_____

Problem Solving Real World

21. Earth is about 4.54 billion years old. Decompose 4.54 two different ways.

_____

_____

_____

22. Franklin weighs his puppy in pounds. He decomposes the weight as shown.

8 ones + 13 tenths + 24 hundredths + 176 thousandths

How much does his puppy weigh in pounds?

_____

23. WRITE Math How does place value help you decompose numbers in different ways?

_____

_____

Lesson Check

24. Decompose 6.279. Choose all that apply.

Ⓐ 5 ones + 12 tenths + 4 hundredths + 39 thousandths

Ⓑ 6 ones + 1 tenth + 8 hundredths + 9 thousandths

Ⓒ 5 ones + 11 tenths + 7 hundredths + 19 thousandths

Ⓓ 6 ones + 3 hundredths + 249 thousandths

25. What number is composed of 13 ones, 24 tenths, 55 hundredths and 117 thousandths?

Spiral Review

26. Write the decimal.

twenty-six and four hundred eighteen thousandths

27. Divide. Write the remainder as a fraction.

85,723 ÷ 9

28. Estimate the quotient.

5,572 ÷ 8

29. Jeremy has 374 baseball cards. He keeps them in a book that holds 6 cards per page. How many pages in his book are full? How many cards are on the last page?

Name _____

Compare and Order Decimals

I Can use place value to compare and order decimals.

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.1.4
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1

UNLOCK the Problem Real World

The table lists some of the mountains in the United States that are over two miles high. How does the height of Cloud Peak in Wyoming compare to the height of Boundary Peak in Nevada?

Mountain Heights	
Mountain and State	**Height (in miles)**
Boundary Peak, Nevada	2.488
Cloud Peak, Wyoming	2.495
Grand Teton Peak, Wyoming	2.607
Wheeler Peak, New Mexico	2.493

▲ The Tetons are located in Grand Teton National Park.

One Way Use place value.

Line up the decimal points. Start at the left. Compare the digits in each place-value position until the digits are different.

STEP 1 Compare the ones.

2.495
↓
2.488 $2 = 2$

STEP 2 Compare the tenths.

2.495
↓
2.488 $4 \bigcirc 4$

STEP 3 Compare the hundredths.

2.495
↓
2.488 $9 \bigcirc 8$

Since 9 ◯ 8, then 2.495 ◯ 2.488, and 2.488 ◯ 2.495.

So, the height of Cloud Peak is _____ the height of Boundary Peak.

Another Way Use a place-value chart to compare.

Compare the height of Cloud Peak to Wheeler Peak.

Ones		Tenths	Hundredths	Thousandths
2	•	4	9	5
2	•	4	9	3

$2 = 2$ $4 =$ _____ $9 =$ _____ $5 >$ _____

Since 5 ◯ 3, then 2.495 ◯ 2.493, and 2.493 ◯ 2.495.

So, the height of Cloud Peak is _____ the height of Wheeler Peak.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain why it is important to line up the decimal points when comparing decimals.

Examples

You can use place value to order decimal numbers.

Mount Whitney in California is 2.745 miles high, Mount Rainier in Washington is 2.729 miles high, and Mount Harvard in Colorado is 2.731 miles high. Order the heights of these mountains from least to greatest.

STEP 1

Line up the decimal points. There are the same number of ones. Circle the tenths and compare.

2.745 **Whitney**

2.729 **Rainier**

2.731 **Harvard**

There are the same number of tenths.

STEP 2

Underline the hundredths and compare. Order from least to greatest.

2.745 **Whitney**

2.729 **Rainier**

2.731 **Harvard**

Since ◯ < ◯ < ◯, the heights in order from least to greatest are _____, _____, _____.

So, _____ has the least height and _____ has the greatest height.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain why you do not compare the digits in the thousandths place to order the heights of the 3 mountains.

Try This! Use a place-value chart.

What is the order of 1.383, 1.321, 1.456, and 1.32 from greatest to least?

- Write each number in the place-value chart. Compare the digits, beginning with the greatest place value.
- Compare the ones. The ones are the same.
- Compare the tenths. $4 > 3$.

Ones	Tenths	Hundredths	Thousandths
1	3	8	3
1			
1			
1			

The greatest number is _____.
Circle the greatest number in the place-value chart.

- Compare the remaining hundredths. $8 > 2$.

The next greatest number is _____.
Draw a rectangle around the number.

- Compare the remaining thousandths. $1 > 0$.

So, the order of the numbers from greatest to least is: _____ .

Name _____

Share and Show

Math Board

1. Use the place-value chart to compare the two numbers. What is the greatest place-value position where the digits differ?

Ones	Tenths	Hundredths	Thousandths
3	4	7	2
3	4	4	5

_____

Compare. Write <, >, or =.

2. 4.563 ◯ 4.536

3. 5.640 ◯ 5.64

4. 8.673 ◯ 8.637

Name the greatest place-value position where the digits differ.
Name the greater number.

5. 3.579; 3.564

_____

_____

6. 9.572; 9.637

_____

_____

7. 4.159; 4.152

_____

_____

Order from least to greatest.

8. 4.08; 4.3; 4.803; 4.038

_____

9. 1.703; 1.037; 1.37; 1.073

_____

On Your Own

Compare. Write <, >, or =.

10. 8.72 ◯ 8.720

11. 5.4 ◯ 5.243

12. 1.036 ◯ 1.306

13. 2.573 ◯ 2.753

14. 9.300 ◯ 9.3

15. 6.76 ◯ 6.759

Order from greatest to least.

16. 2.007; 2.714; 2.09; 2.97

_____

17. 0.275; 0.2; 0.572; 0.725

_____

18. 5.249; 5.43; 5.340; 5.209

_____

19. 0.678; 1.678; 0.587; 0.687

_____

MTR **Find the unknown digit to make each statement true.**

20. 3.59 > 3.5 ☐ 1 > 3.572

21. 6.837 > 6.83 ☐ > 6.835

22. 2.45 < 2. ☐ 6 < 2.461

Problem Solving · Applications

Use the table for problems 23–26.

Mountains Over Three Miles High

Mountain and Location	Height (in miles)
Mount Blackburn, Alaska	3.104
Mount Bona, Alaska	3.134
Mount Steele, Yukon	3.152

23. In comparing the height of the mountains, which is the greatest place value where the digits differ?

_____

24. MTR How does the height of Mount Steele compare to the height of Mount Blackburn? Compare the heights using words.

_____

_____

25. Explain how to order the heights of the mountains from greatest to least.

_____

_____

_____

26. What if the height of Mount Blackburn were 0.05 mile greater? Would it then be the mountain with the greatest height? Explain.

MATH on the Spot

_____

_____

_____

27. Orlando kept a record of the total rainfall each month for 5 months.

Month	Rainfall (in.)
March	3.75
April	4.42
May	4.09
June	3.09
July	4.04

Order the months from the least amount of rainfall to the greatest amount of rainfall.

Least Greatest

Name _____

Compare and Order Decimals

Go Online
Interactive Examples

Compare. Write <, >, or =.

28. 4.735 (<) 4.74

29. 2.549 ( ) 2.549

30. 3.207 ( ) 3.027

31. 8.25 ( ) 8.250

32. 5.871 ( ) 5.781

33. 9.36 ( ) 9.359

Order from greatest to least.

34. 3.008; 3.825; 3.09; 3.18

_____

35. 0.386; 0.3; 0.683; 0.836

_____

Find the unknown digit to make each statement true.

36. 2.48 > 2.4 ▢ 1 > 2.463

_____

37. 5.723 < 5.72 ▢ < 5.725

_____

38. 7.64 < 7. ▢ 5 < 7.68

_____

Problem Solving Real World

39. The completion times for three runners in a 100-yard dash are 9.75 seconds, 9.7 seconds, and 9.675 seconds. Which is the least time?

_____

40. In a discus competition, an athlete threw the discus 63.37 meters, 62.95 meters, and 63.7 meters. Order the distances from least to greatest.

_____

41. WRITE Math Write a word problem that can be solved by ordering three decimals to thousandths. Include a solution.

_____

_____

Lesson Check

Jay, Alana, Evan, and Stacey work together to complete a science experiment. The table at the right shows the amount of liquid left in each of their beakers at the end of the experiment.

Student	Amount of liquid (liters)
Jay	0.8
Alana	1.05
Evan	1.2
Stacey	0.75

42. Whose beaker has the greatest amount of liquid left in it?

_____

43. Whose beaker has the least amount of liquid left in it?

_____

Spiral Review

44. Ganyu walked 3.75 miles yesterday. What is the word form of 3.75?

_____

_____

45. A dance school allows a maximum of 15 students per class. If 112 students sign up for dance class, how many classes does the school need to offer to accommodate all the students?

_____

_____

46. Tommy has 3 large jars filled with marbles. He has a total of 450 marbles. How many marbles are in each jar?

_____

47. Ahmed cut 2 apples into 6 slices each. He ate 9 slices. What expression matches the words?

_____

Name _____

Round Decimals

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.1.5
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1

I Can use place value to round decimals to a given place.

UNLOCK the Problem Real World

The Gold Frog of South America is one of the smallest frogs in the world. It is 0.386 of an inch long. What is this length rounded to the nearest hundredth of an inch?

- Underline the length of the Gold Frog.
- Is the frog's length about the same as the length or the width of a large paper clip?

_____

One Way Use a place-value chart.

- Write the number in a place-value chart and circle the digit in the place to which you want to round.
- In the place-value chart, underline the digit to the right of the place to which you are rounding.
- If the digit to the right is less than 5, the digit in the place to which you are rounding stays the same. If the digit to the right is 5 or greater, the digit in the rounding place increases by 1.
- Drop the digits after the place to which you are rounding.

Ones	Tenths	Hundredths	Thousandths
0	3	8	6

Think: Does the digit in the rounding place stay the same or increase by 1?

So, to the nearest hundredth of an inch, a Gold Frog is about _____ inch long.

Another Way Use place value.

The Little Grass Frog is the smallest frog in North America. It is 0.437 inch long.

A **What is the length of the frog to the nearest hundredth of an inch?**

0.437 $7 > 5$

↓

0.44

So, to the nearest hundredth of an inch, the frog is about _____ inch long.

B **What is the length of the frog to the nearest tenth of an inch?**

0.437 $3 < 5$

↓

0.4

So, to the nearest tenth of an inch, the frog is about _____ inch long.

Example

The Goliath Frog is the largest frog in the world. It is found in the country of Cameroon in West Africa. The Goliath Frog can grow to be 11.815 inches long. How long is the Goliath Frog to the nearest inch?

STEP 1 Write 11.815 in the place-value chart.

Tens	Ones	Tenths	Hundredths	Thousandths

STEP 2 Find the place to which you want to round. Circle the digit.

STEP 3 Underline the digit to the right of the place to which you are rounding. Then round.

Think: Does the digit in the rounding place stay the same or increase by 1?

So, to the nearest inch, the Goliath Frog is about _____ inches long.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How would your answer change if the frog were 11.286 inches long?

MTR Explain why any number less than 12.5 and greater than or equal to 11.5 would round to 12 when rounded to the nearest whole number.

Try This! Round 14.603 to the place named.

A hundredths

Tens	Ones	Tenths	Hundredths	Thousandths

Circle and underline the digits as you did above to help you round to the nearest hundredth.

So, 14.603 rounded to the nearest hundredth is _____.

B ones

Tens	Ones	Tenths	Hundredths	Thousandths

Circle and underline the digits as you did above to help you round to the nearest whole number.

So, 14.603 rounded to the nearest ones is _____.

Name _____

Share and Show

Math Board

Write the place value of the underlined digit. Round each number to the place of the underlined digit.

1. 0.6$\underline{7}$3

2. 4.$\underline{2}$82

3. 1$\underline{2}$.917

Name the place value to which each number was rounded.

4. 0.982 to 0.98

5. 3.695 to 4

6. 7.486 to 7.5

On Your Own

Write the place value of the underlined digit. Round each number to the place of the underlined digit.

7. 0.$\underline{5}$92

8. $\underline{6}$.518

9. 0.8$\underline{0}$9

10. 3.$\underline{3}$34

11. 12.$\underline{0}$74

12. 4.4$\underline{9}$4

Name the place value to which each number was rounded.

13. 0.328 to 0.33

14. 2.607 to 2.61

15. 12.583 to 13

Round 16.748 to the place named.

16. tenths _____

17. hundredths _____

18. ones _____

19. WRITE Math Explain what happens when you round 4.999 to the nearest tenth. _____

Problem Solving · Applications

Use the table for problems 20–22.

Insect Speeds (meters per second)	
Insect	**Speed**
Dragonfly	6.974
Horsefly	3.934
Bumblebee	2.861
Honeybee	2.548
Housefly	1.967

20. The speeds of two insects when rounded to the nearest whole number are the same. Which two insects are they?

_____

21. What is the speed of the housefly rounded to the nearest hundredth?

_____

22. Mark said that the speed of a dragonfly rounded to the nearest tenth was 6.9 meters per second. Is he correct? If not, what is his error?

MATH on the Spot

_____

_____

_____

23. MTR A rounded number for the speed of an insect is 5.67 meters per second. What are the fastest and slowest speeds to the thousandths that could round to 5.67 meters per second? Explain.

_____

_____

_____

_____

24. The price of a certain box of cereal at the grocery store is $0.258 per ounce. For 24a–24c, select True or False for each statement.

24a. Rounded to the nearest whole number, the price is $1 per ounce. ○ True ○ False

24b. Rounded to the nearest tenth, the price is $0.3 per ounce. ○ True ○ False

24c. Rounded to the nearest hundredth, the price is $0.26 per ounce. ○ True ○ False

Show the Math

Demonstrate Your Thinking

Name _____

Round Decimals

Go Online
Interactive Examples

Write the place value of the underlined digit. Round each number to the place of the underlined digit.

25. 0.$\underline{7}$82 _____ _____

26. $\underline{4}$.735 _____ _____

27. 2.$\underline{3}$48 _____ _____

28. 0.5$\underline{0}$6 _____ _____

29. 15.$\underline{1}$86 _____ _____

30. 8.4$\underline{6}$5 _____ _____

Name the place value to which each number was rounded.

31. 0.546 to 0.55 _____

32. 4.805 to 4.8 _____

33. 6.493 to 6 _____

Round 18.194 to the place named.

34. tenths _____

35. hundredths _____

36. ones _____

Problem Solving Real World

37. The population density of Montana is 6.699 people per square mile. What is the population density per square mile of Montana rounded to the nearest whole number?

_____

38. Alex is mailing an envelope that weighs 0.346 pound. What is the weight of the envelope rounded to the nearest hundredth?

_____

39. WRITE Math Describe how to round 3.987 to the nearest tenth.

_____

_____

_____

Lesson Check

40. Ms. Ari buys and sells diamonds. She has a diamond that weighs 1.825 carats. What is the weight of Ms. Ari's diamond rounded to the nearest hundredth?

41. A machinist uses a special tool to measure the diameter of a small pipe. The measurement tool reads 0.276 inch. What is this measure rounded to the nearest tenth?

Spiral Review

42. Four ice skaters participate in an ice skating competition. The table shows their scores. Who has the highest score?

Name	Points
Natasha	75.03
Taylor	75.39
Rowena	74.98
Suki	75.3

43. Write a decimal that is $\frac{1}{10}$ of 0.9.

44. Sam types 44 words per minutes. How long does it take Sam to type 1,232 words?

45. Joseph needs to find the quotient of $3{,}216 \div 8$. In what place is the first digit in the quotient?

Name _____

Chapter 3

Chapter Review

1. Chaz kept a record of how many gallons of gas he purchased each day last week.

Day	Gas (in gallons)
Monday	4.5
Tuesday	3.9
Wednesday	4.258
Thursday	3.75
Friday	4.256

Order the days from least amount of gas Chaz purchased to greatest amount of gas Chaz purchased.

Least Greatest

2. For 2a–2c, select True or False for each statement.

2a. 16.437 rounded to the nearest whole number is 16. ○ True ○ False

2b. 16.437 rounded to the nearest tenth is 16.4. ○ True ○ False

2c. 16.437 rounded to the nearest hundredth is 16.43. ○ True ○ False

3. Decompose the decimal 2 different ways.

1. 5.682 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

5.682 = _____ ones + _____ tenths + _____ hundredths + _____ thousandths

4. What is the value of the underlined digit? Mark all that apply.

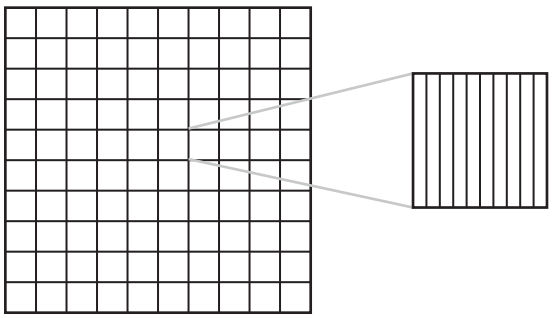
0.6̲79

- ○ 0.6
- ○ six hundredths
- ○ 0.06
- ○ $6 \times \frac{1}{10}$
- ○ six tenths

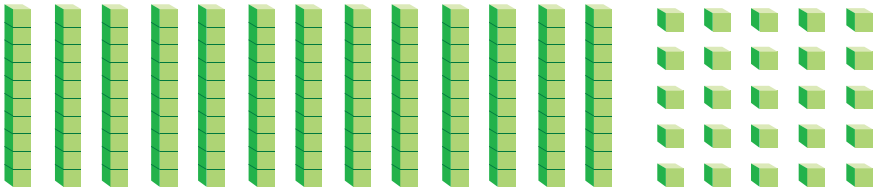
5. Eduar jogged 3.26 kilometers when rounded to the nearest hundredth. Which could be how far he jogged? Mark all that apply.

- ○ 3.257 km
- ○ 3.254 km
- ○ 3.272 km
- ○ 3.261 km

6. Shade the model to show the decimal 0.542.



7. Julienne models the number 1.325 with base ten blocks.



Is she correct? Explain.

Name _____

8. Round 25.999 to the nearest hundredth. Explain.

9. What number is composed of 7 ones, 11 tenths, 12 hundredths and 41 thousandths?

_____

10. Write the number 0.783 in two other forms.

word form: _____

expanded form: _____

11. The price of hand soap at the grocery store is $0.649. For 11a-11c, select True or False for each statement.

11a. Rounded to the nearest whole number, the price is $1 per ounce. ○ True ○ False

11b. Rounded to the nearest tenth, the price is $0.7 per ounce. ○ True ○ False

11c. Rounded to the nearest hundredth, the price is $0.65 per ounce. ○ True ○ False

12. Complete the table.

Decimal	10 times as much as	$\frac{1}{10}$ of
0.08		
0.2		
0.6		
0.05		

13. Rafael bought 2.15 pounds of potato salad and 4.2 pounds of macaroni salad to bring to a picnic. For 13a–13c, select Yes or No to indicate whether each statement is true.

13a. Rounded to the nearest whole number, Rafael bought 2 pounds of potato salad. ○ Yes ○ No

13b. Rounded to the nearest whole number, Rafael bought 4 pounds of macaroni salad. ○ Yes ○ No

13c. Rounded to the nearest tenth, Rafael bought 2.1 pounds of potato salad. ○ Yes ○ No

14. The four highest scores on the floor exercise at a gymnastics meet were 9.675, 9.25, 9.325, and 9.5 points. Choose the numbers that make the statement true.

The lowest of these four scores was [9.675 / 9.25 / 9.325 / 9.5] points. The highest of these four scores was [9.675 / 9.25 / 9.325 / 9.5] points.

Name _____

15. Michelle records the value of 1 euro in U.S. dollars each day for her social studies project. The table shows the data she has recorded so far.

Day	Value of 1 Euro (in U.S. dollars)
Monday	1.448
Tuesday	1.443
Wednesday	1.452
Thursday	1.458

On which two days was the value of 1 euro the same when rounded to the nearest hundredth of a dollar?

16. Estee, Sarai, and Kurry each chose a number. Estee's number is $\frac{1}{10}$ of Sarai's. Kurry's number is 10 times as much as Sarai's. Sarai's number is 0.09. What number did each person choose?

17. Karis has plants that are 16.407 centimeters, 16.427 centimeters tall, and 16.413 centimeters tall.

Part A

To compare the heights of the plants, which is the place value that you will consider? Explain.

Part B

Order the heights of the plants from tallest to shortest.

18. 0.4 is _____ times as much as _____.

So, 4 tenths = _____ thousandths.

19. Choose the value that makes the statement true.

In the number 1.025, the value of the digit 2 is 2 [ones / tenths / hundredths / thousandths], and the value of the digit 5 is 5 [ones / tenths / hundredths / thousandths].

20. A rounded number for the weight of a puppy is 15.87 pounds. What are the least and greatest weights to the thousandths that could round to 15.87 pounds? Explain.

21. 0.84 is 10 times as much as [0.084 / 0.84 / 8.4 / 84] and $\frac{1}{10}$ of [0.084 / 0.84 / 8.4 / 84].