Amplify Desmos Math CALIFORNIA

Grade 5

Volume 2: Unit 5

Student Edition

About Amplify

Amplify is dedicated to collaborating with educators to create learning experiences that are rigorous and riveting for all students. Amplify creates K–12 core and supplemental curriculum, assessment, and intervention programs for today's students.

A pioneer in K–12 education since 2000, Amplify is leading the way in next-generation curriculum and assessment. All of our programs provide teachers with powerful tools that help them understand and respond to the needs of every student.

Amplify gratefully acknowledges the work of distinguished program advisors from English Learners Success Forum (ELSF), who have been integral in the development of Amplify Desmos Math. ELSF is a 501(c)(3) nonprofit organization whose mission is to expand educational equity for multilingual learners by increasing the supply of high-quality instructional materials that center their cultural and linguistic assets.

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Hello Curious Mind,

Welcome to Grade 5!

This year, you'll continue to build on all of the math skills you've already learned and will flex your strong fluency muscles.

You'll travel to the far-off lands of Trashville and Joyful Green as you learn all about volume. You'll help Sage explore more complex ideas about fractions as you help him get ready for a family party. You'll use powers of 10 and measurement with Jacob, Miriam, and Quique — fifth graders just like you — to explore the migration patterns of butterflies. Plus, you will hear Fiona interview student entrepreneurs as they use decimals to create their businesses.

And that's not all!

It's going to be an exciting year! Let's dig in!

Sincerely,

The Amplify Desmos Math California team

Unit 1 Volume

Let's determine the volume of rectangular prisms and figures made out of rectangular prisms.

Unit Story: Joyful Green In this story, Trashville's excess trash is packed into cubes and shipped off to the town of Joyful Green, where the trash is given a new purpose.

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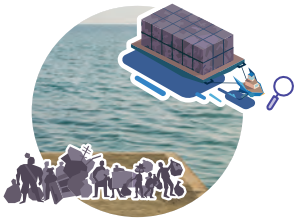

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Unit 2 Fractions as Quotients and Fraction Multiplication

Let's find fractions of whole numbers and multiply fractions.

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Unit Story: The More the Merrier In this story, Sage learns flexibility when plans are disrupted by an unexpected number of guests and their impact on the food and use of space at his aunt's party.

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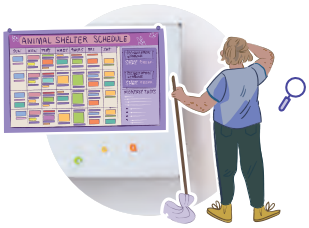
Unit 3 Multiplying and Dividing Fractions

Let's multiply any 2 fractions, including mixed numbers, and divide unit fractions and whole numbers.

Unit Story: Princess Sweetsocks In this story, Shay bonds with a troublesome cat as he perseveres as a volunteer at an animal shelter.

Africa Studio/Shutterstock.com



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Unit 4 Multiplication and Division With Multi-Digit Whole Numbers

Pavel Skopets/Shutterstock.com

Let's multiply and divide large numbers.

Unit Story: Andrea In this story, Gil learns the value of thinking differently from his cousin Andrea.

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Unit 5 Place Value Patterns and Decimal Operations

Let's explore place value including tenths, hundredths, and thousandths. Let's add, subtract, multiply, and divide decimals to the hundredths.

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Unit Story: Market Day In this story, four kid entrepreneurs showcase their clever businesses.

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Twin Design/Shutterstock.com

AtlasStudio/Shutterstock.com

Unit 6 More Decimal and Fraction Operations

Let's explore powers of ten. Let's interpret data that includes fractions with unlike denominators.

Unit Story: The Monarchs In this story, Jacob studies the migration of monarch butterflies across North America.

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Wael hamdan/Shutterstock.com

AlvaroMedina/Shutterstock.com

Unit 7 Shapes on the Coordinate Plane

Let's use the coordinate plane to represent real-world problems. Let's classify shapes based on their attributes.

Unit Story: Hanan Pacha In this story, Mia visits her grandfather in Chile and learns about the heritage of her ancestors and the beauty of "looking up" once in a while.

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Unit 5

Place Value Patterns and Decimal Operations

Big Ideas in This Unit

CC2 Factors and Groups | Fraction Connections | Modeling

CC3 Powers and Place Value | Seeing Division

NS Number Flexibility

Questions for Investigation

- How are tenths, hundredths, and thousandths related?
- How can we use place value to add, subtract, multiply, and divide decimals to the hundredths?

Explore: Numbers Between Numbers

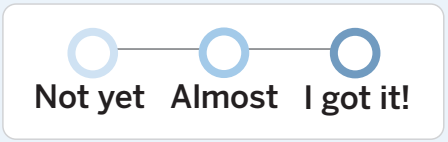
Is there *always* a number between 2 numbers?

Unit Story: Market Day

In this story, 4 kid entrepreneurs showcase their clever businesses.

Watch Your Knowledge Grow

This is the math you'll explore in this unit. Rate your understanding to see how your knowledge grows!



I can . . .	Before	After
Read and write decimals to the thousandths using base-ten numerals, number names, and expanded form.		
Compare 2 decimals to the thousandths using place value and record the results of the comparisons using <, >, or =.		
Use place value to round decimals to any place.		
Add and subtract decimals to the hundredths using place value strategies.		
Multiply whole numbers and decimals to the hundredths.		
Multiply 2 decimals to the tenths.		
Divide decimals less than 1 by whole numbers.		
Divide a whole number by a decimal less than 1.		
Divide a decimal by a decimal.		

Sub-Unit

1

Numbers to Thousandths

Unit Story: Market Day

pzAxe/Shutterstock.com

How can you determine the winner of a race when it looks like 2 racers tied for first place?

Name _____ Date _____

Modeling | Powers and Place Value | Building Towards 5.NBT.3, SMP.1, SMP.6, SMP.7

Explore: Numbers Between Numbers

Is there *always* a number between 2 numbers?

Warm-Up

eyes on teacher

I can be all of me in math class.
How do you remind yourself that it is okay to make mistakes?

Discuss What do you notice? What do you wonder?

Market Day

Unit Story

Activity

Name _____ Date _____

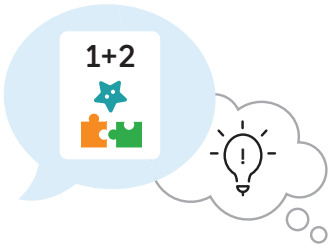
You will play a game with your partner to determine if there are *always* numbers between numbers.

Ways to be a mathematician

1. I can take my time to think about a challenging problem before trying to solve it.

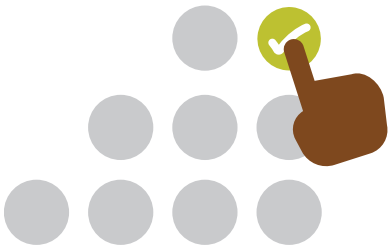
Not yet — Almost — I got it!

2. I can work carefully and try to be clear when I share my ideas.



Not yet — Almost — I got it!

3. I can see how ideas are connected and use patterns to help solve problems.



Not yet — Almost — I got it!

Unit 5
Lesson
2

Name _____ Date _____

Modeling | Powers and Place Value | 5.NBT.3, SMP.2, SMP.6, SMP.7

What Is One Thousandth?

Let's make sense of thousandths.

I am a doer of math.
Why is it important to talk about math with others?

Warm-Up

eyes on teacher

Activity
1

Fractions to Decimals

1 Work with your partner to make a poster showing what you know about each number.

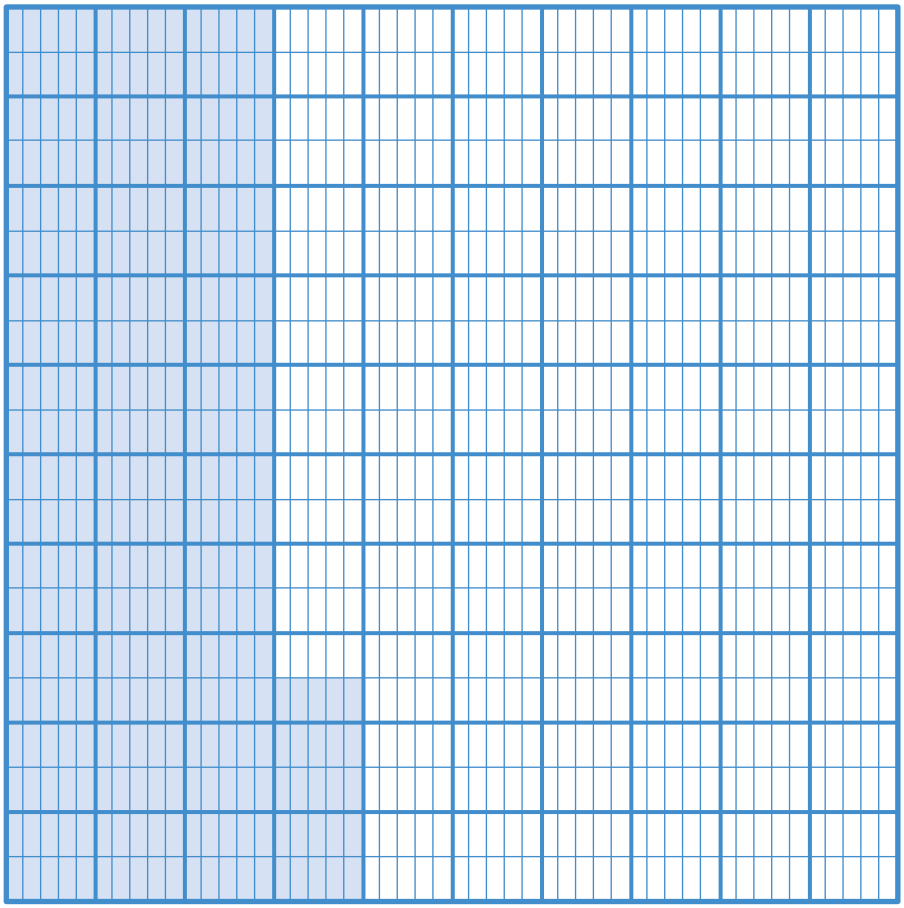
- What do you know about $\frac{1}{10}$?
- What do you know about $\frac{1}{100}$?
- What do you know about $\frac{1}{1{,}000}$?

Activity 2

Name _____ Date _____

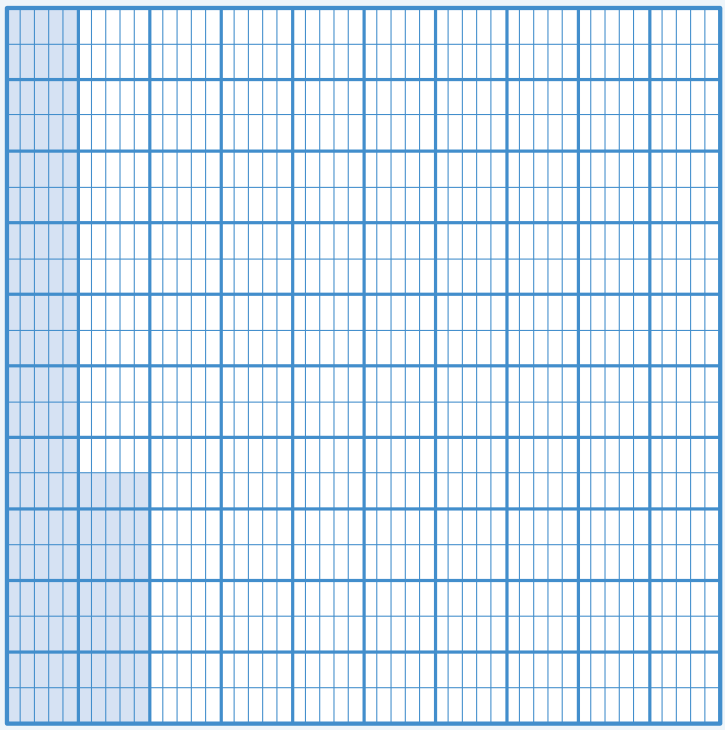
Name That Number

2 The grid represents 1. Represent the shaded portion in as many ways as possible.



Summary 5.02

You can represent 1 **thousandth** as the fraction $\frac{1}{1,000}$ and as the decimal 0.001. A large number of thousandths can be decomposed in different ways.



0.135 can be decomposed in different ways.

- 1 tenth + 3 hundredths + 5 thousandths
- 0.1 + 0.03 + 0.005
- 13 hundredths and 5 thousandths

thousandths One of 1,000 equal parts. The place value of the digit in the third place to the right of the decimal.

Practice 5.02

For Problems 1–3, write the fraction as a decimal.

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

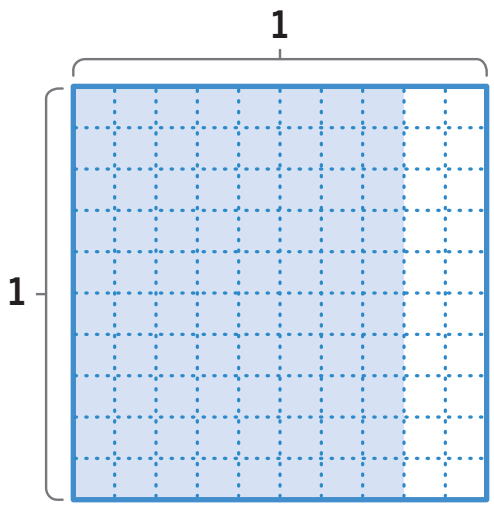
2. $\frac{1}{100}$ _____

3. $\frac{1}{1,000}$ _____

Name _____ Date _____

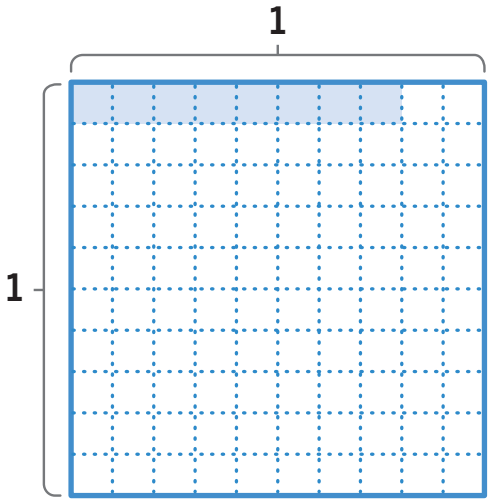
For Problems 4–6, represent the shaded portion as a decimal. Each whole grid represents a value of 1.

4



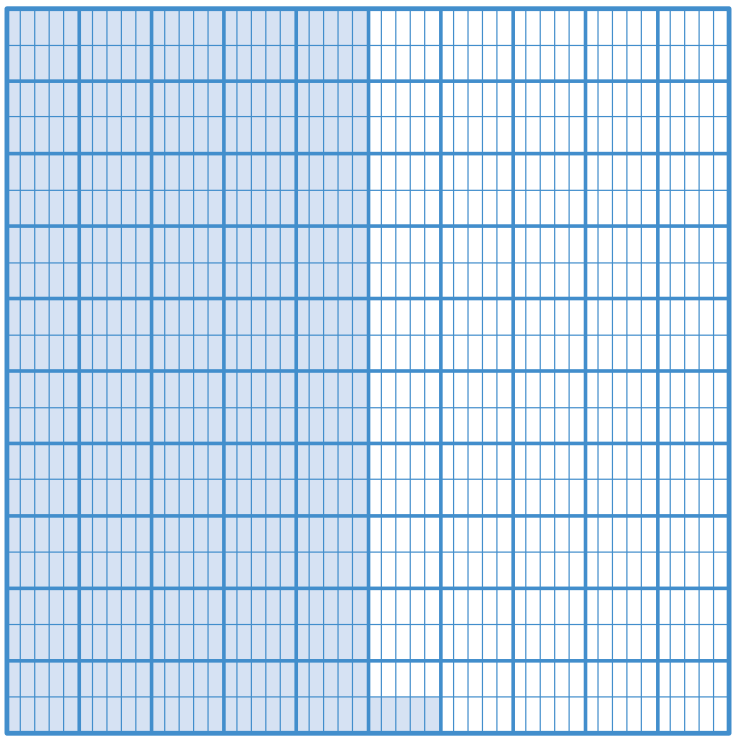
answer: _____

5



answer: _____

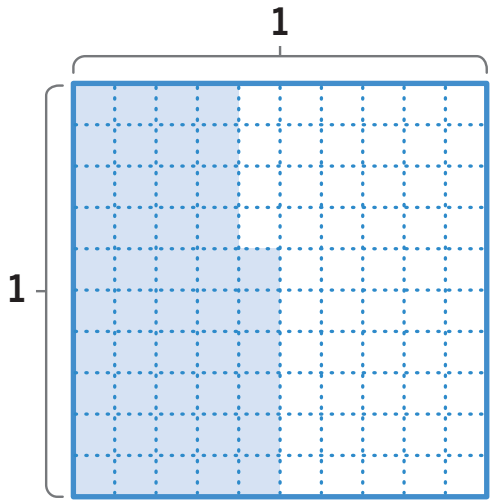
6



answer: _____

Name _____ Date _____

7 The whole grid represents a value of 1.



Which decimal does the shaded region of the grid represent? Select *all* that apply.

- ☐ **A.** 0.406
- ☐ **B.** 0.046
- ☐ **C.** 0.460
- ☐ **D.** $\frac{460}{1{,}000}$
- ☐ **E.** 4 tenths and 6 hundredths
- ☐ **F.** 46 thousandths

Spiral Review

8 Han has $\frac{1}{4}$ of a jar of marbles. He gives $\frac{1}{2}$ of the marbles to his sister. How much of the jar does Han have left?

_____

For Problems 9–12, determine the value of the expression.

9 4×4 _____

10 7×7 _____

11 12×12 _____

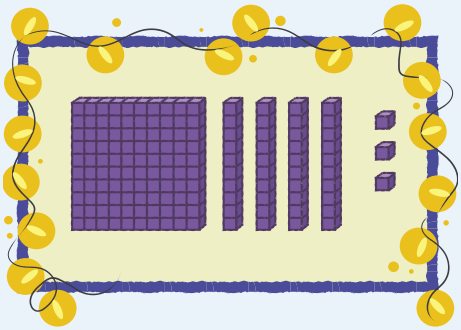
12 $48 \div 12$ _____

Name _____ Date _____

Fraction Connections | Modeling | Powers and Place Value | 5.NBT.3.a, SMP.1, SMP.2, SMP.3, SMP.6, SMP.7

Say What?

Let's write decimals to the thousandths in expanded form.



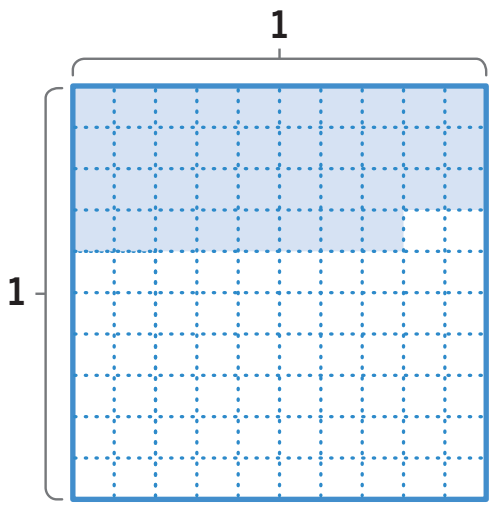
Warm-Up

eyes on teacher

I am a doer of math.
What is the difference between listening to and comparing yourself to other mathematicians?

Activity 1 Say My Name

1 Name the number using words.



Name _____ Date _____

Say My Name (continued)

2 Name the number using words.

0	.	2	4	5
ones		tenths	hundredths	thousandths

_____

3 **Discuss**

Here is a number. Priya and Han discussed how they would read the number.

0	.	8	3	0
ones		tenths	hundredths	thousandths

- Priya read the number as *eighty-three hundredths*.
- Han read the number as *eight hundred thirty thousandths*.

Who is correct? How do you know?

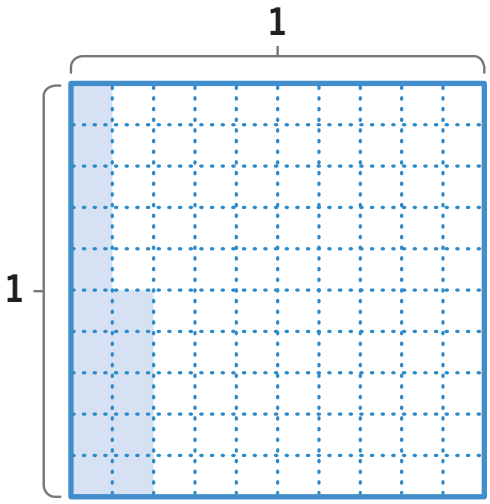
Activity 2

Name _____ Date _____

Card Sort: How Many Ways?

Hands-On **You and your partner will be given a set of cards.**

There are many ways to represent the number.



4 Sort

With your partner, sort the cards into those that represent the number and those that do not represent the number. Record your responses in the table.

Represent the number	Do *not* represent the number

Name _____ Date _____

Card Sort: How Many Ways? (continued)

5 Which 4 expressions from the Card Sort represent the number in expanded form?

Expression 1: _____

Expression 2: _____

Expression 3: _____

Expression 4: _____

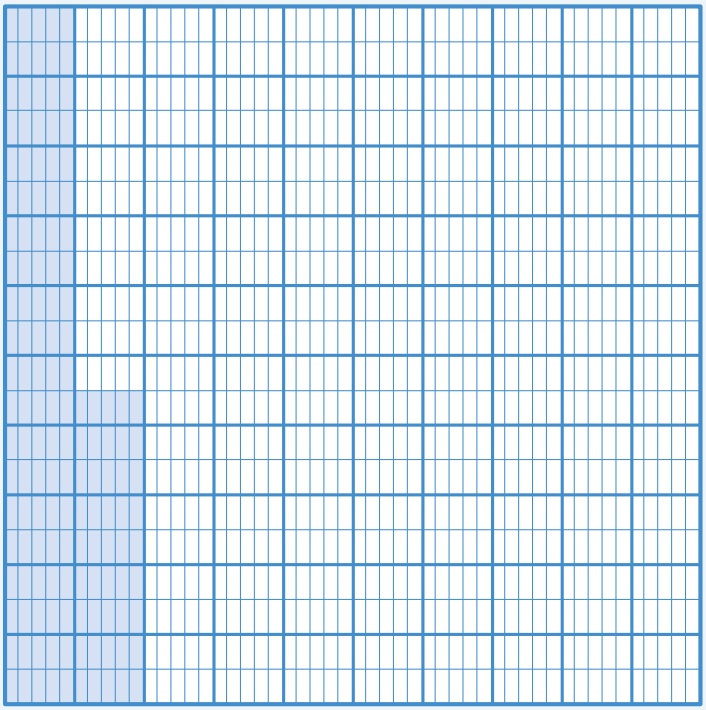
6 **Discuss**

Join another pair. Take turns justifying how you sorted the cards in Problem 4 and the expressions you chose for Problem 5. If there is disagreement, discuss until you reach an agreement.

Summary 5.03

You can represent a decimal in many forms, including standard form and expanded form. Expanded form decomposes a number to represent the value of each digit.

A whole grid represents 1.



Standard form	Expanded form
0.145	$(1 \times 0.1) + (4 \times 0.01) + (5 \times 0.001)$ $\left(1 \times \frac{1}{10}\right) + \left(4 \times \frac{1}{100}\right) + \left(5 \times \frac{1}{1{,}000}\right)$ $0.1 + 0.04 + 0.005$

Practice 5.03

1 Write 2.837 in expanded form.

Name _____ Date _____

2 Write 0.809 in expanded form.

3 Select *all* the ways to represent (4 × 0.01) + (5 × 0.001).

- ☐ **A.** 4 tenths and 5 hundredths
- ☐ **B.** 4 hundredths and 5 thousandths
- ☐ **C.** 0.045
- ☐ **D.** (4 × 0.1 + 5 × 0.01)
- ☐ **E.** 45 hundredths
- ☐ **F.** 45 thousandths
- ☐ **G.** 0.04 + 0.005
- ☐ **H.** 0.4 + 0.05

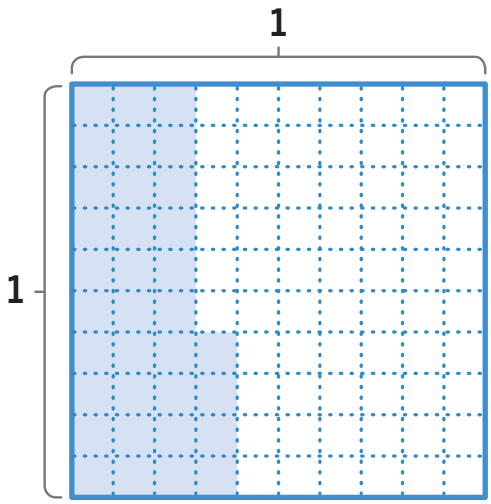
4 Select *all* the ways to represent (7 × 0.1) + (2 × 0.001).

- ☐ **A.** (7 × 0.1 + 2 × 0.01)
- ☐ **B.** 72 hundredths
- ☐ **C.** 0.7 + 0.02
- ☐ **D.** 7 tenths and 2 thousandths
- ☐ **E.** 0.702
- ☐ **F.** 0.7 + 0.002
- ☐ **G.** 702 thousandths
- ☐ **H.** 7 tenths and 2 hundredths

5 Write 0.583 in words.

Name _____ Date _____

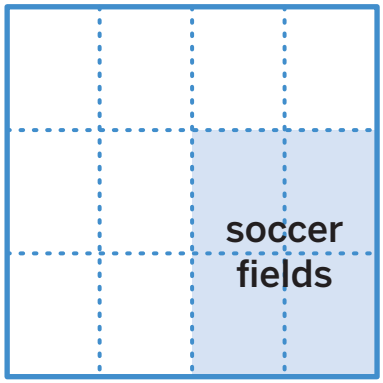
6 Write 4 different ways to represent the number. Make sure to include expanded form.



Spiral Review

7 A city engineer is making plans to build a park, which will include soccer fields. Write an equation to represent how much of the park the soccer fields will cover.

_____



For Problems 8–11, determine the value of the expression.

8 2×5 _____

9 10×6 _____

10 6×7 _____

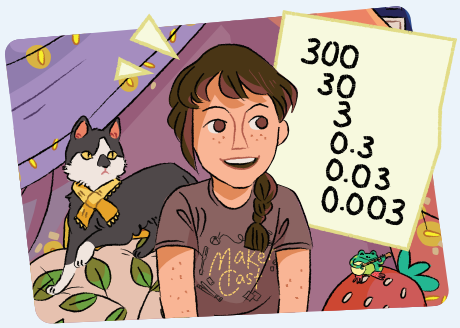
11 $18 \div 6$ _____

Name _____ Date _____

Modeling | Powers and Place Value | 5.NBT.1, 5.NBT.3, SMP.2, SMP.3, SMP.6, SMP.7

Place Value Patterns

Let's explain the relationships between place values.



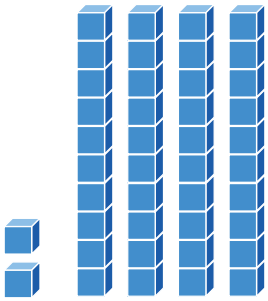
I am a doer of math.
Why is it important to talk about math with others?

Warm-Up

eyes on teacher

Activity 1 Relationship Between 0.001 and 0.01

Diego used base-ten blocks to represent 0.024.



He said, "The little squares represent hundredths, and the rectangles represent thousandths. This makes sense because 1 hundredth equals 10 thousandths."

1 What is correct about Diego's reasoning?

Name _____ Date _____

Relationship Between 0.001 and 0.01 (continued)

2 What is incorrect about Diego's reasoning?

3 Draw base-ten blocks that represent 0.024. Be prepared to explain your thinking.

Draw

4 How does your drawing show the relationship between 1 hundredth and 1 thousandth?

Activity 2

Name _____ Date _____

Relationships Between Place Values

5 Discuss

What do you notice about how the value of the 3 changes?

300
30
3
0.3
0.03
0.003

6

Complete the sentences to describe the relationship between each 7 in 2.775.

The value of the 7 in the _____ place is _____ as much as the value of the 7 in the hundredths place.

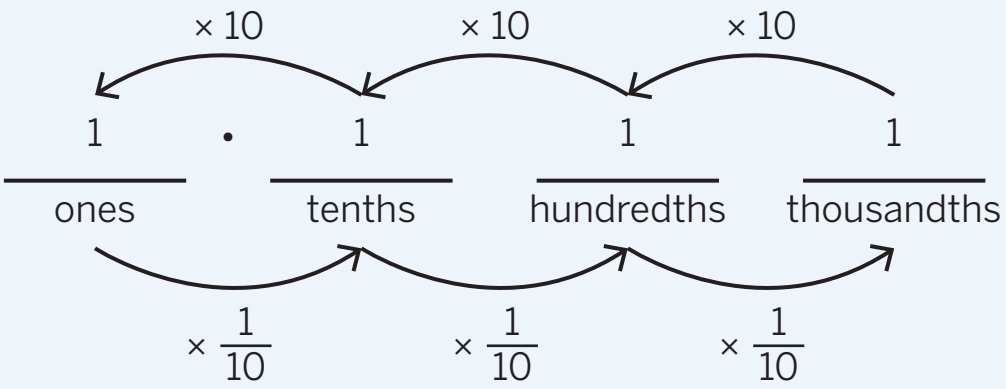
The value of the 7 in the _____ place is _____ as much as the value of the 7 in the tenths place.

7 Discuss

Describe the relationship between the value of the 8 in 4<u>8</u>.567 and the value of the 8 in 45.6<u>8</u>7.

Summary 5.04

The value of a digit in any place represents $\frac{1}{10}$ of its value when it is in the place to the left. The value of a digit in any place represents 10 times its value when it is in the place to the right.



Practice 5.04

For Problems 1 and 2, complete the statement to describe the relationship between the values of the digits.

1 The value of the 8 in 36.248 is _____ as much as the value of the 8 in 36.482.

2 The value of the 4 in 36.842 is _____ as much as the value of the 4 in 36.284.

Name _____ Date _____

For Problems 3–6, use the relationship between the numbers 24.357 and 24.573 to determine whether the statement is *true* or *false*. Place a check mark in the correct column.

		True	False
3	The value of the 7 in 24.357 is 10 times as much as the value of the 7 in 24.573.		
4	The value of the 5 in 24.573 is $\frac{1}{10}$ as much as the value of the 5 in 24.357.		
5	The value of the 7 in 24.573 is 10 times as much as the value of the 7 in 24.357.		
6	The value of the 5 in 24.357 is $\frac{1}{10}$ as much as the value of the 5 in 24.573.		

7 Which completes the statement to make it true?

The value of the 8 in 7.538 is _____ as much as the value of the 8 in 7.385.

(A) $\frac{1}{10}$ (B) 10 times (C) $\frac{1}{100}$ (D) 100 times

8 Select *all* the statements that describe the relationship between the value of the 8 in 13.825 and the value of the 8 in 13.582.

- ☐ **A.** The value of the 8 in 13.825 is 10 times the value of the 8 in 13.582.
- ☐ **B.** The value of the 8 in 13.825 is $\frac{1}{10}$ the value of the 8 in 13.582.
- ☐ **C.** The value of the 8 in 13.582 is $\frac{1}{10}$ the value of the 8 in 13.825.
- ☐ **D.** The value of the 8 in 13.582 is $\frac{1}{100}$ the value of the 8 in 13.825.

Name _____ Date _____

Spiral Review

9 Determine the quotient 2,064 ÷ 24.

Show your thinking.

answer: _____

10 Round each time to the different place values shown in the table.

	Nearest second	Nearest tenth of a second	Nearest hundredth of a second
47.136 seconds			
48.583 seconds			
49.902 seconds			

Name _____ Date _____

Number Flexibility 5.NBT.3, SMP.6, SMP.7

The Claw

Let's locate and label decimals to the thousandths on number lines.

I am a doer of math.
Why is it important to listen to other mathematicians in your class?

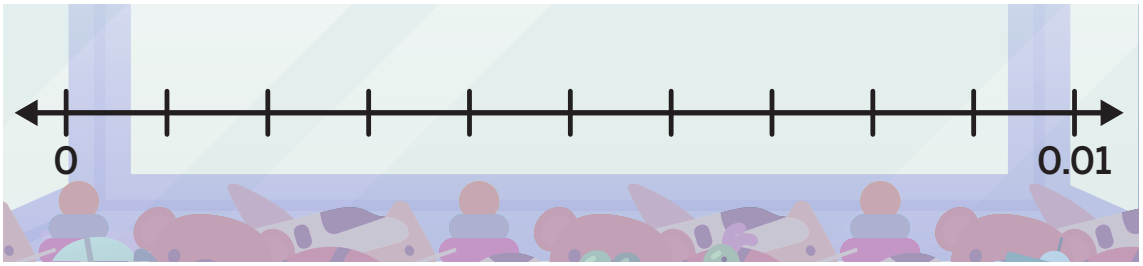
Warm-Up

1 eyes on teacher

Activity 1 Prizes at Precise Points

Locate and label 0.001 on each number line. Be prepared to explain your thinking.

2



3

Name _____ Date _____

Prizes at Precise Points (continued)

4 Estimate and label the location of 0.001 on the number line.

5 **Think-Pair-Share**

Let's consider the location of 0.001 on Screen 4. What do you notice about the estimates?

Activity 2

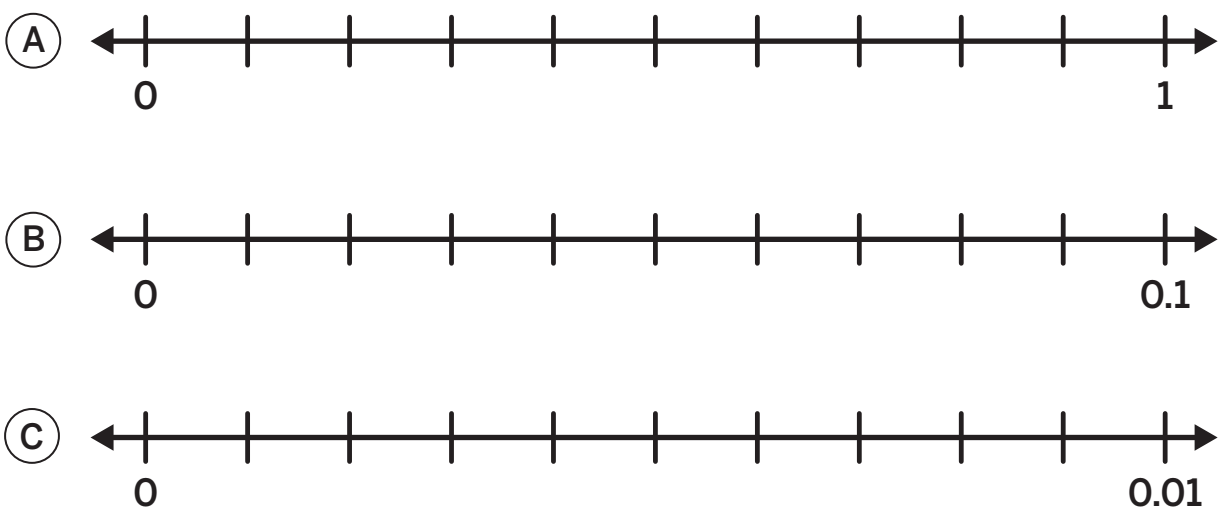
Name _____ Date _____

Bear Down

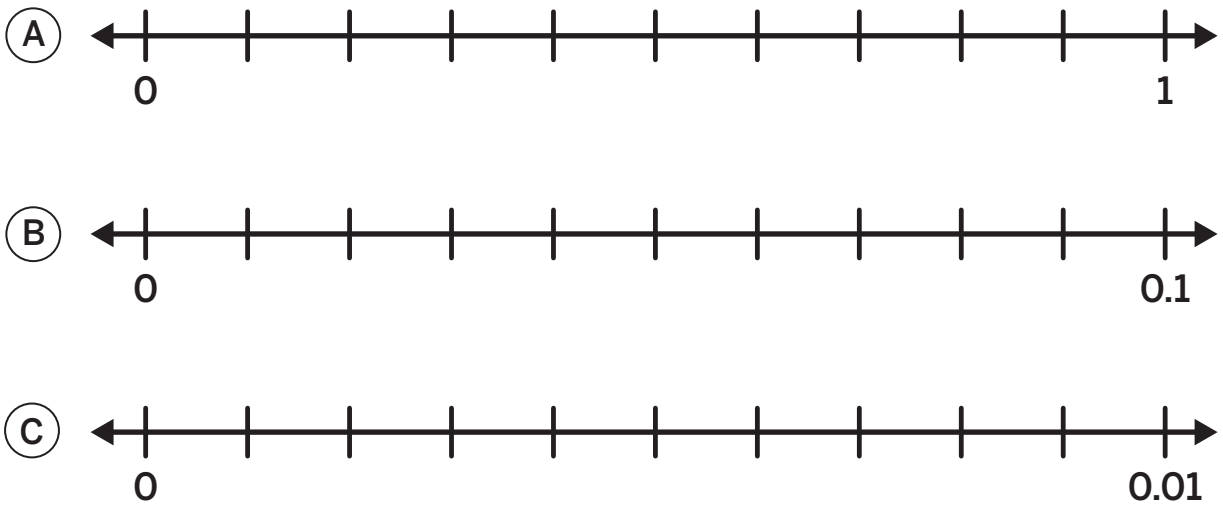
6 Let's consider how to locate 0.003 on the number line.

Choose the number line where each decimal can be precisely located on a tick mark. Then locate and label the decimal on the number line.

7 0.07



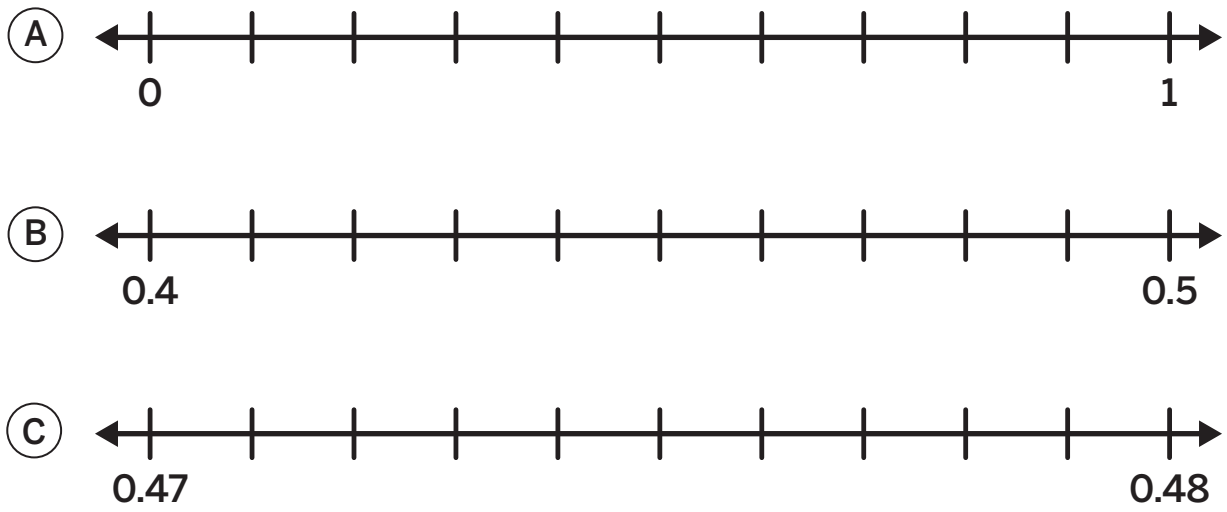
7 0.4



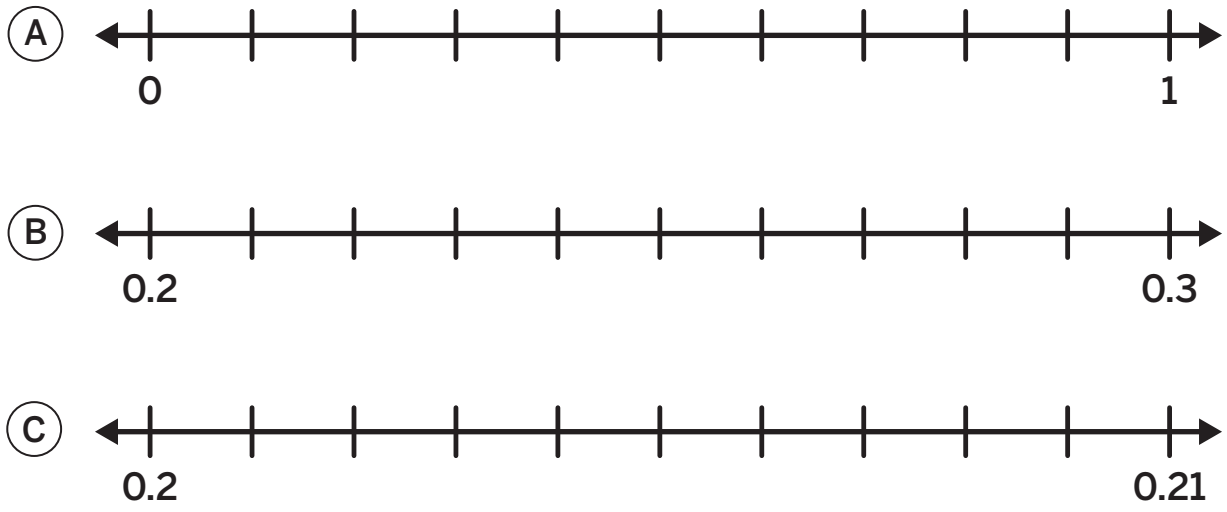
Name _____ Date _____

Bear Down (continued)

7 0.473



7 0.208

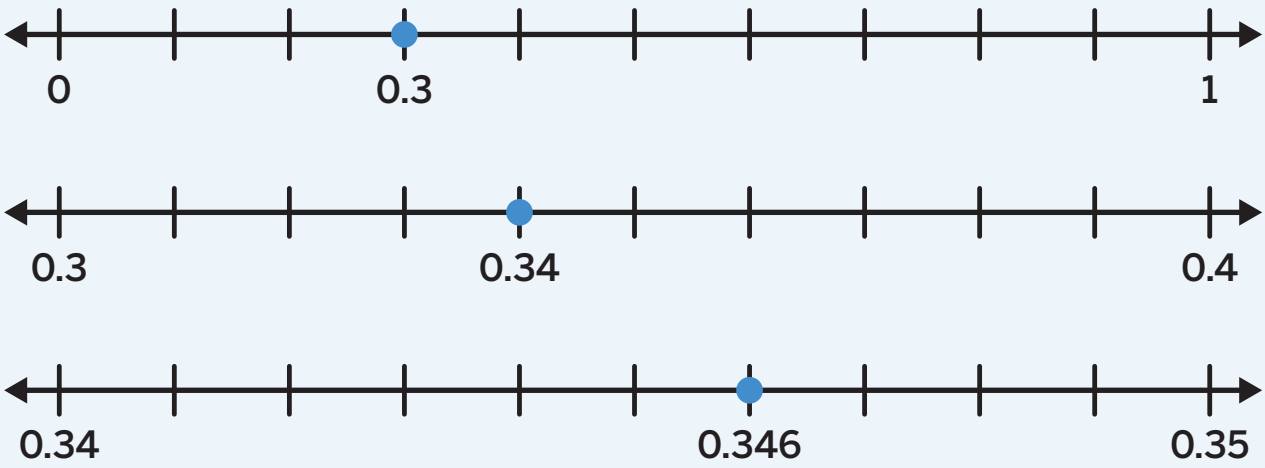


7 Discuss

Diego and Clare are locating 0.618 on a number line. Diego thinks the number is between 0.6 and 0.7. Clare thinks the number is between 0.61 and 0.62. Who do you agree with?

Summary 5.05

Place value understanding can be used to locate and label decimals to the thousandths on number lines.



Practice 5.05

1 Locate and label 0.874 on the number line. Explain your thinking

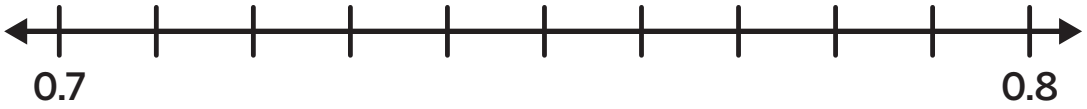
2 Locate and label 0.368 on the number line.

Name _____ Date _____

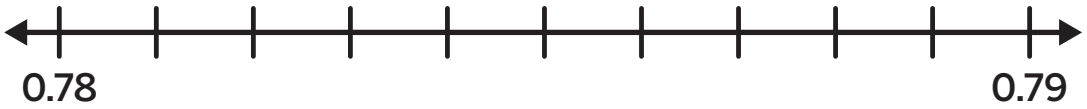
For Problems 3–5, locate and label 0.782 on the number line.

3

4



5



6 Which number could represent the point on the number line?

(A) 0.45 (B) 0.415 (C) 0.401 (D) 0.42

Name _____ Date _____

Spiral Review

For Problems 7 and 8, determine the product using the standard algorithm.

Show your thinking.

7 146 × 23

answer: _____

8 308 × 24

answer: _____

For Problems 9–14, determine the value of the expression.

9 6 × 5 _____

10 3 × 9 _____

11 8 × 7 _____

12 77 ÷ 11 _____

13 54 ÷ 9 _____

14 84 ÷ 7 _____

Name _____ Date _____

Powers and Place Value 5.NBT.3.b, 5.NBT.3, SMP.3, SMP.7

Selling Collectibles

Let's compare 2 decimals using place value and record the results of the comparisons using <, >, or =.

I am a doer of math.
Why is it important not to compare yourself to other mathematicians?

Warm-Up

eyes on teacher

Activity 1 Collectible Miniatures

Kara creates miniatures of different dog breeds using her 3D printer. The size of the miniature determines the weight of materials needed to make that miniature.

Miniature	toy poodle	French bulldog	pug	Chihuahua	corgi	terrier	dachshund
Weight (ounces)	5.01	5.1	5.010	5.009	5.02	5.012	5.021

Write a comparison statement using >, <, or = about the weights of the 2 dogs.

Show or explain your thinking.

1 the Chihuahua and the terrier

answer: _____

Name _____ Date _____

Collectible Miniatures (continued)

Write a comparison statement about the weights of the 2 dogs.

Show or explain your thinking.

2 the corgi and the dachshund

answer: _____

3 the toy poodle and the pug

answer: _____

4 the Chihuahua and the French bulldog

answer: _____

5 Discuss

Join another pair. Discuss how you compared the weights in Problems 1–4. How are your strategies similar? How are they different?

Activity 2

Name _____ Date _____

Introducing the Center, Greatest of Them All

Stage 7

Pairs Let's make and compare decimal numbers.

You'll need: Number Cards, 0–9, Recording Sheet, one per pair.

Set Up

- Choose who will be Player A and who will be Player B.
- Shuffle the Number Cards and place them in a stack facedown.

How to Play

1. Each player draws a Number Card and records it in one of the boxes.
2. Repeat until each player has a number to the thousandths place.
3. Write a comparison using <, >, or =. The player with the greater number earns 1 point.

How to Win When the Recording Sheet is full, the player who earns more points wins.

CENTER
Recording Sheet

Name _____ Date _____

Greatest of Them All (continued)

Player A	Compare using <, >, or =	Player B	Winner?

Summary 5.06

Comparing decimal numbers is similar to comparing whole numbers because you compare the digits using an understanding of place value or equivalence. You can use <, >, or = to record comparison statements.

0.43 > 0.403

Place value	0.4 3 0.4 0 3 There are the same digits in the ones and tenths places. The digits are different in the hundredths place. 3 > 0, so 0.43 > 0.403.
Decimal equivalence	0.43 is the same as 0.430, so 0.430 > 0.403.
Fraction equivalence	$\frac{43}{100} = \frac{430}{1{,}000}$, so $\frac{430}{1{,}000} > \frac{403}{1{,}000}$

Practice 5.06

For Problems 1–4, write a comparison statement about the 2 decimals.

1 0.654 and 0.658

Show your thinking.

answer: _____

Name _____ Date _____

Show or explain your thinking.

2 0.009 and 0.008

answer: _____

3 0.601 and 0.61

answer: _____

4 1.85 and 1.849

answer: _____

Name _____ Date _____

The table shows the length of insects that Priya found. Use the table for Problems 5 and 6.

Insect	Length (in.)
ant	0.75
beetle	0.835
cricket	0.705
grasshopper	0.955

5 Which insect has the *longest* length?

(A) ant (B) beetle

(C) cricket (D) grasshopper

6 Which comparison statements are true? Select *all* that apply.

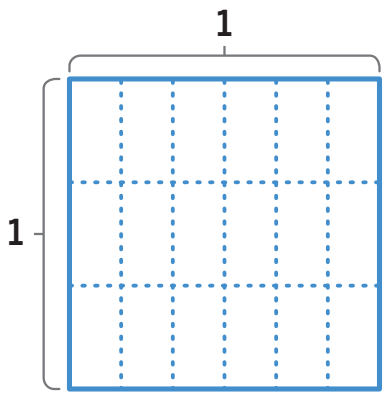
☐ **A.** $0.835 > 0.955$ ☐ **B.** $0.705 < 0.75$ ☐ **C.** $0.955 > 0.75$

☐ **D.** $0.75 < 0.835$ ☐ **E.** $0.835 < 0.705$ ☐ **F.** $0.955 < 0.705$

Spiral Review

7 Represent the expression $\frac{4}{6} \times \frac{2}{3}$ on the diagram and determine the product.

Draw



answer: _____

For Problems 8–11, determine the value of the expression.

8 3×4 _____

9 8×5 _____

10 9×4 _____

11 $35 \div 5$ _____

Name _____ Date _____

Modeling | 5.NBT.4, 5.NBT.3, SMP.5, SMP.6, SMP.7

Which Way Down the Mountain?

Let's round decimals to the nearest whole, tenth, and hundredth.

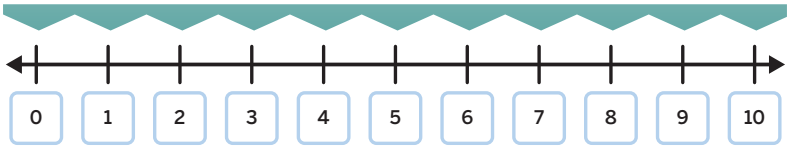
I am a doer of math.
What is a math skill that took a lot of practice for you to improve? How did it feel when you improved?

Warm-Up

1 eyes on teacher

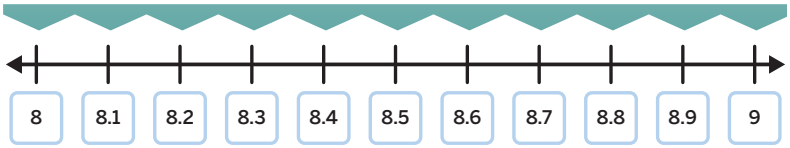
Activity 1 Rounding With Number Lines

2 The skier will drop at 8.3. Round to the nearest whole number to show where the skier will stop.



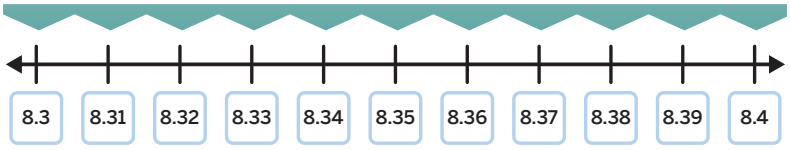
_____

3 The skier will drop at 8.37. Round to the nearest tenth to show where the skier will stop.



_____

4 The skier will drop at 8.374. Round to the nearest hundredth to show where the skier will stop.



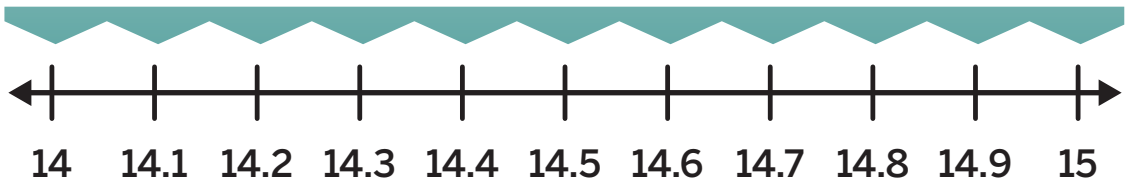
_____

Name _____ Date _____

Rounding With Number Lines (continued)

5 Discuss

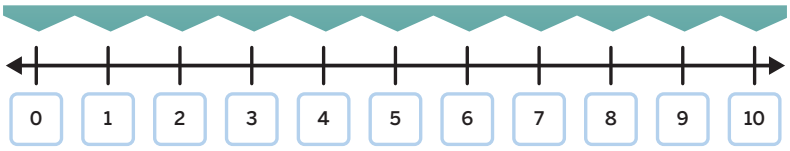
The skier will drop at 14.672. How can you determine the nearest tenth the skier will stop at?



6 Complete as many challenges you have time for.

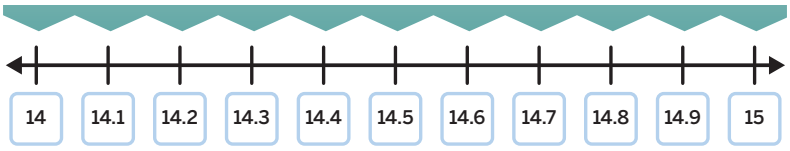
Round 7.33 to the nearest whole number.

_____



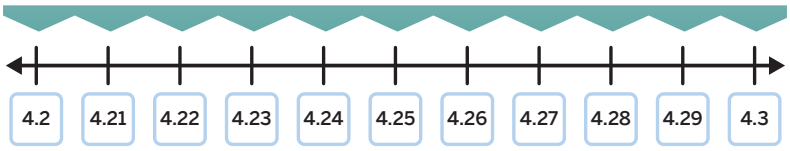
Round 14.26 to the nearest tenth.

_____



Round 4.243 to the nearest hundredth.

_____



7 Think-Pair-Share

Let's look at 3 ways to round 8.374. What do you have to consider when rounding decimals?

Activity 2

Name _____ Date _____

Rounding Decimals

8 Round 5.783 to the nearest tenth. Draw a number line to show your thinking if it is helpful.

answer: _____

Complete as many challenges as you have time for. Draw a number line to show your thinking if it is helpful.

9 Round 5.577 to the nearest hundredth.

answer: _____

9 Round 35.708 to the nearest tenth.

answer: _____

Name _____ Date _____

Rounding Decimals (continued)

Complete as many challenges as you can. Draw a number line to show your thinking if it is helpful.

9 Round 59.93 to the nearest whole number.

answer: _____

9 Round 2.842 to the nearest hundredth.

answer: _____

9 Round 3.06 to the nearest tenth.

answer: _____

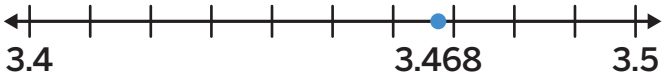
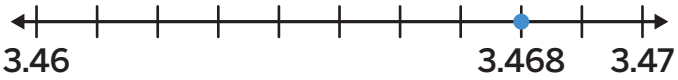
10 **Discuss**

What strategies could you use to round 6.382 to any place value?

Summary 5.07

Similar to rounding whole numbers, you can use number lines or your understanding of which whole number, tenth, or hundredth a decimal is closer to when rounding decimals.

Round 3.468 to the . . .

Nearest whole number	**3**	
Nearest tenth	**3.5**	
Nearest hundredth	**3.47**	

Practice 5.07

A $5 gold coin weighs 8.359 grams. Use the information for Problems 1 and 2.

1 Locate and label 8.359 on the number line.

2 A scale measures to the nearest hundredth gram. What will the scale show for the weight of the coin?

_____

Name _____ Date _____

For Problems 3–5, round the decimal to the given place value. You can use the number line if it is helpful.

3 Round 12.498 to the nearest whole number.

_____

4 Round 31.971 to the nearest tenth.

_____

5 Round 0.555 to the nearest hundredth.

_____

6 Which number represents 9.636 rounded to the nearest hundredths?

(A) 9.7

(B) 9.6

(C) 9.63

(D) 9.64

Name _____ Date _____

Spiral Review

7 Which expression does *not* require composing units?

(A) 1,831 × 4

(B) 201 × 11

(C) 524 × 31

(D) 318 × 12

8 4 friends equally share $\frac{1}{3}$ pounds of trail mix. How many pounds of trail mix does each friend receive?

Show or explain your thinking.

answer: _____

For Problems 9–16, determine the value of the expression.

9 12 × 5 _____

10 7 × 9 _____

11 8 × 11 _____

12 4 × 10 _____

13 45 ÷ 5 _____

14 50 ÷ 5 _____

15 21 ÷ 3 _____

16 72 ÷ 8 _____

Name _____ Date _____

Number Flexibility 5.NBT.4, 5.NBT.3, SMP.2, SMP.7

Rounding Races

Let's use place value to round decimals to any place.

Warm-Up eyes on teacher

I am a doer of math.
How do you know when you have mastered a math skill?

Activity 1 Round the Times

Many high-speed sporting events are timed to the thousandth of a second. This determines differences in athletes' finish times that are very close.

At Games Day at Kara's school, the students' times for the 200-meter race were measured to the thousandth of a second.

1 The table shows the times of a student who ran the 200-meter race twice. Round each time to the different place values shown in the table. Be prepared to explain your thinking.

	Nearest second	Nearest tenth of a second	Nearest hundredth of a second
39.482 seconds			
37.959 seconds			

Name _____ Date _____

Round the Times (continued)

2 Another student ran the 200-meter race and their exact finish time was measured to the thousandth of a second. Their finish time rounded to the nearest hundredth was 36.60 seconds. What are 5 possible exact finish times to the thousandth of a second? Use the number line if it is helpful.

Show your thinking.

Time 1: _____ seconds

Time 2: _____ seconds

Time 3: _____ seconds

Time 4: _____ seconds

Time 5: _____ seconds

3 **Discuss**

Join another pair. Compare your answers for Problem 2.

- Do all of your values round to 36.60 seconds?
- How is it possible for more than one value to round to the same number?

Activity 2

Name _____ Date _____

Card Sort: Marching Miniatures

Kara used what she learned in the afterschool STEM lab to make her collectible miniatures move. She set up a 1-meter race between 5 of the miniatures. The table shows their finish times.

Miniature	Time (seconds)
toy poodle	28.532
French bulldog	28.561
pug	28.626
Chihuahua	28.634
corgi	28.708

Hands-On

You and your partner will be given a set of cards.

4 Sort

Use the finish times to sort the cards into 2 piles: *true* and *false*. Record the letters of the cards in the table.

True	False

5

Rewrite 1 false statement to make it true.

statement: _____

Summary 5.08

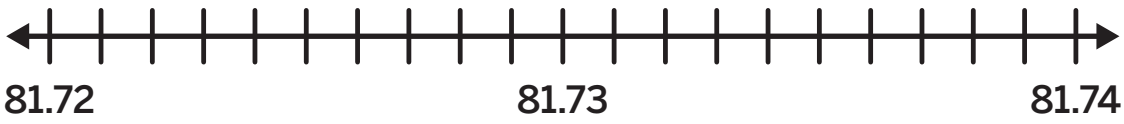
A variety of numbers round to the same number, which is why context matters and why many place values are included for certain contexts.

The table shows the times of a student who ran the 200-meter race twice.

	Nearest second	Nearest tenth of a second	Nearest hundredth of a second
48.561	49	48.6	48.56
48.596	49	48.6	48.60

Practice 5.08

1 Rounded to the nearest hundredth, a luge rider's fastest speed was 81.73 miles per hour. Write 10 different possible speeds that could have been the rider's fastest speed to the thousandth of a mile per hour. You can use the number line if it is helpful.



Name _____ Date _____

2 The table shows all-around scores from a gymnastic meet. Round each score to the different place values shown in the table.

	Nearest whole number	Nearest tenth	Nearest hundredth
89.702			
93.471			
84.998			
92.648			
91.084			
90.975			

3 Which numbers would be rounded to 17 as the nearest whole number? Select *all* that apply.

- ☐ **A.** 17.981
- ☐ **B.** 16.87
- ☐ **C.** 17.007
- ☐ **D.** 16.442
- ☐ **E.** 17.413
- ☐ **F.** 17.501

4 Which numbers would be rounded to 33.8 as the nearest tenth? Select *all* that apply.

- ☐ **A.** 33.802
- ☐ **B.** 33.78
- ☐ **C.** 33.18
- ☐ **D.** 33.844
- ☐ **E.** 33.885
- ☐ **F.** 33.748

Name _____ Date _____

Spiral Review

5 Determine the quotient 1,404 ÷ 36.

Show your thinking.

answer: _____

For Problems 6–11, determine the value of the expression.

6 6 × 2 _____

7 9 × 12 _____

8 8 × 6 _____

9 15 ÷ 5 _____

10 49 ÷ 7 _____

11 99 ÷ 9 _____

Sub-Unit

2

Adding and Subtracting Decimals

Unit Story: Market Day

LightField Studios/Shutterstock.com

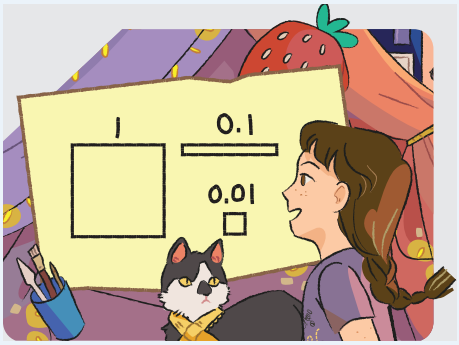
What would you need to know to calculate how much fabric is needed to make pet scarves for 5 different kinds of pets?

Unit 5
Lesson
9

Name _____ Date _____

Modeling 5.NBT.7, SMP.7, SMP.8

Exploring Decimal Addition and Subtraction



Let's make sense of adding and subtracting decimals.

I am a doer of math.
How can using familiar tools help you reason about new problems in math class?

Warm-Up

eyes on teacher

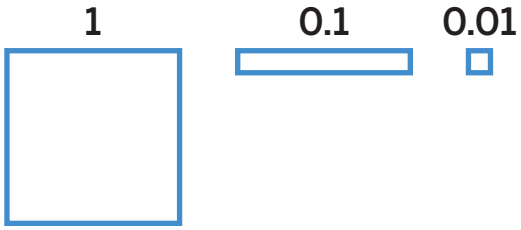
Activity
1

Adding and Subtracting Decimals

Hands-On

You and your partner will be given a set of base-ten blocks and a hundreds grid.

Determine the value of each expression. You can use diagrams like the ones shown to represent your thinking if it is helpful.



Show or explain your thinking.

1 0.65 + 0.34

answer: _____

Name _____ Date _____

Adding and Subtracting Decimals (continued)

Show or explain your thinking.

2 2.45 + 1.66

answer: _____

3 0.65 – 0.34

answer: _____

4 2.45 – 1.66

answer: _____

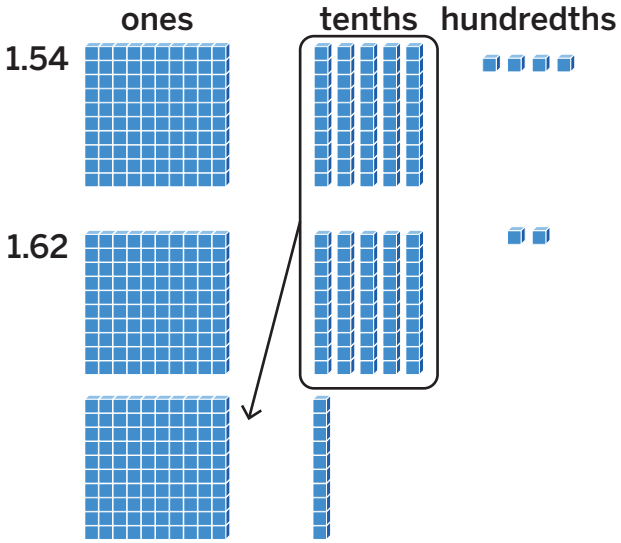
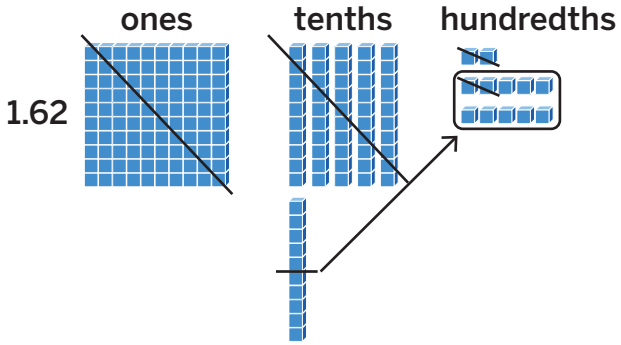
5 Discuss

Join another pair.

- Share and compare your work and answers for Problems 1–4.
- How is your work similar to adding and subtracting with whole numbers? How is it different?

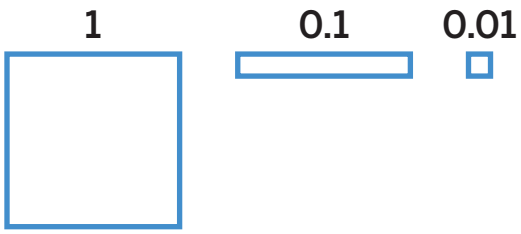
Summary 5.09

You can use the same strategies and representations you used for whole numbers to add and subtract decimals.

Addition	Subtraction
1.62 + 1.54  2 wholes + 11 tenths + 6 hundredths = 3.16	1.62 – 1.54  8 hundredths = 0.08

Practice 5.09

For Problems 1–4, determine the sum or difference. Use diagrams like the ones shown if it is helpful.



Show or explain your thinking.

1 2.45 – 0.06

answer: _____

Name _____ Date _____

Show or explain your thinking.

2 2.4 – 0.6

answer: _____

3 2.45 + 0.06

answer: _____

4 2.5 + 0.6

answer: _____

5 Determine the sum 1.6 + 0.5.

(A) 0.9

(B) 1 and 2 tenths

(C) 2 ones + 1 tenth

(D) 9 tenths

Name _____ Date _____

6 Determine the difference 1.5 – 0.9.

(A) 2.6

(B) 2 ones + 6 tenths

(C) 0.06

(D) 6 tenths

Spiral Review

7 Determine the quotient.

1,508 ÷ 52

Show or explain your thinking.

answer: _____

For Problems 8–11, determine the value of the expression.

8 4 × 5 _____

9 3 × 7 _____

10 56 ÷ 8 _____

11 40 ÷ 5 _____

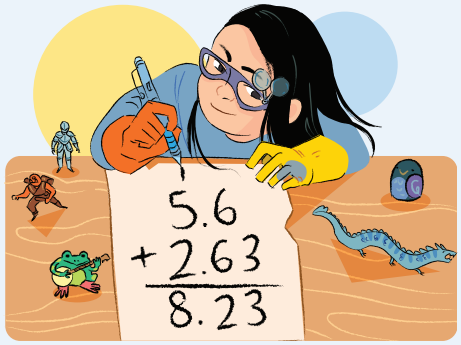
Unit 5
Lesson
10

Name _____ Date _____

Modeling 5.NBT.7, SMP.3, SMP.6, SMP.7

Adding Decimals

Let's estimate sums and add decimals using the standard algorithm.



I am a doer of math.
When has making a mistake helped you learn something important in math class?

Warm-Up

eyes on teacher

Activity 1 Whole Numbers and Decimals

1 Determine the sum of each expression.

Expression A: 561 + 263	Expression B: 5.61 + 2.63
561 + 263 answer: _____	5.61 + 2.63 answer: _____

Name _____ Date _____

Whole Numbers and Decimals (continued)

2 Discuss

How is evaluating Expression A similar to evaluating Expression B? How is it different? Explain your thinking.

3

Justify how you know your sum for Expression B is correct.

Activity 2

Name _____ Date _____

Calculating Sums

4 What 2 *whole numbers* do you expect the sum 1.58 + 3.6 to be between? Which *whole number* do you expect the sum to be closer to?

between _____ **and** _____

closer to _____

5 Determine the sum 1.58 + 3.6.

Show your thinking.

answer: _____

6 **Discuss**

Is your exact sum reasonable? How close is it to your estimate?

Summary 5.10

You can use the same standard algorithm to add 2 whole numbers or 2 decimals. Line up the numbers by place value so that you add digits in the same place value. Estimating before evaluating helps you determine whether your sum is reasonable.

5.6 + 2.63

Estimate	Exact sum
About 8 because 5 + 2 is 7, and I will compose 1 whole when combining tenths.	$\begin{array}{r} {\scriptstyle 1} \\ 5.6 \\ +\ 2.63 \\ \hline 8.23 \end{array}$

Practice 5.10

For Problems 1 and 2, estimate and determine the sum using the standard algorithm.

Show or explain your thinking.

1 5.79 + 6.06

estimate: _____

answer: _____

2 36.28 + 51.9

estimate: _____

answer: _____

Name _____ Date _____

For Problems 3 and 4, select 2 number cards to write an expression. Then determine the sum. You can only use each number card once.

14.07	32.8	8.91	26.52

Show or explain your thinking.

3 Determine the *greatest* possible sum.

expression: _____

answer: _____

4 Determine the *least* possible sum.

expression: _____

answer: _____

5 Priya jogged for 1.2 miles. Then she took a break to drink water. After her break, she jogged for 0.96 miles. How many miles did Priya jog altogether?

Show your thinking.

answer: _____

Name _____ Date _____

6 Determine the sum 215.7 + 64.94.

(A) 270.64 (B) 279.64 (C) 280.64 (D) 289.64

7 Determine the sum 83.67 + 44.38.

(A) 127.95 (B) 128.05 (C) 128.95 (D) 129.05

Spiral Review

8 Determine the product 392 × 74 using the standard algorithm.

Show your thinking.

answer: _____

For Problems 9–14, determine the value of the expression.

9 10 × 10 _____

10 12 × 12 _____

11 6 × 6 _____

12 49 ÷ 7 _____

13 25 ÷ 5 _____

14 16 ÷ 4 _____

Unit 5
Lesson
11

Name _____ Date _____

Modeling 5.NBT.7, SMP.6, SMP.7, SMP.8

Subtracting Decimals

Let's estimate differences and subtract decimals using the standard algorithm.

I am a doer of math.
How can identifying known and unknown information be helpful when trying to understand a math problem?

Warm-Up

eyes on teacher

Activity 1 Dog Scarves

Miguel makes 2 scarves for different-sized dogs. The blue scarf is 5.47 feet long, and the green scarf is 3.53 feet long.

1 About how much longer is the blue scarf than the green scarf?

Show your thinking.

answer: _____

Name _____ Date _____

Dog Scarves (continued)

2 Determine the exact difference between the blue scarf and the green scarf using any strategy.

Show your thinking.

answer: _____

3 **Discuss**

Is your exact difference reasonable? How close is it to your estimate?

Activity 2

Name _____ Date _____

Using the Standard Algorithm

4 Determine the difference of each expression.

Expression A: 887 – 208	Expression B: 8.87 – 2.08
$\begin{array}{r} 887 \\ -\ 208 \\ \hline \end{array}$	$\begin{array}{r} 8.87 \\ -\ 2.08 \\ \hline \end{array}$
answer: _____	**answer:** _____

5 **Discuss**

How is evaluating Expression A similar to evaluating Expression B? How is it different? Explain your thinking.

Name _____ Date _____

Using the Standard Algorithm (continued)

Determine each difference.

Show your thinking.

6

$$\begin{array}{r} 4.67 \\ -\ 0.58 \\ \hline \end{array}$$

answer: _____

7

$$\begin{array}{r} 8.88 \\ -\ 6.93 \\ \hline \end{array}$$

answer: _____

Summary 5.11

Lining up the numbers by place value helps you subtract digits in the same place value. Estimating before evaluating helps you determine whether your difference is reasonable.

7.41 – 3.68

Estimate	Exact difference
Between 3 and 4 because 7 – 4 = 3, and I will need to decompose 1 whole and 1 tenth to subtract.	$\begin{array}{r} {\scriptstyle 6\ \ 13\,11} \\ 7.4\cancel{1}\cancel{1} \\ -\ 3.68 \\ \hline 3.73 \end{array}$

Practice 5.11

For Problems 1 and 2, estimate and determine the difference using any strategy.

Show your thinking.

1 12.03 – 1.05

estimate: _____

answer: _____

2 11.27 – 6.38

estimate: _____

answer: _____

Name _____ Date _____

3 Miguel went hiking on 2 different trails. The first trail was 5.37 miles long, and the second trail was 0.87 miles long. How much longer was the first trail than the second?

Show your thinking.

answer: _____

4 Priya determined the difference 35.36 – 14.82 with these calculations.

$$14.82 + 0.18 = 15$$
$$15 + 20.36 = 35.36$$
$$20.36 + 0.18 = 20.54$$

Explain why Priya's strategy works.

Name _____ Date _____

5 Determine the difference 83.60 – 52.09.

(A) 31.69 (B) 31.51 (C) 31.13 (D) 31.17

6 Determine the difference 46.46 – 28.34.

(A) 12.12 (B) 18.12 (C) 22.12 (D) 28.12

Spiral Review

7 Determine the quotient 1,287 ÷ 33.

Show your thinking.

answer: _____

For Problems 8–13, determine the value of the expression.

8 3 × 5 _____

9 10 × 2 _____

10 4 × 8 _____

11 35 ÷ 5 _____

12 56 ÷ 7 _____

13 40 ÷ 8 _____

Name _____ Date _____

Modeling 5.NBT.7, SMP.3, SMP.7

Sums and Differences

Let's add and subtract decimals using the standard algorithm.

I am a doer of math.
How can you use previously learned math skills to help you learn new math skills?

Warm-Up

eyes on teacher

Activity 1 Explain the Error

Andre subtracted 2.42 from 9.5.

$$\begin{array}{r} 9.5 \\ -\ 2.42 \\ \hline 7.12 \end{array}$$

1 What did Andre do correctly?

Name _____ Date _____

Explain the Error (continued)

2 What is Andre's error? How could Andre fix his error?

Activity 2

Name _____ Date _____

Place Value Makes a Difference

Use the standard algorithm to determine each sum or difference.

Show your thinking.

3 7.3 + 1.76

answer: _____

4 12.4 – 3.59

answer: _____

Name _____ Date _____

Place Value Makes a Difference (continued)

Show your thinking.

5 8.38 – 6.7

answer: _____

Summary 5.12

When using the standard algorithm to add and subtract decimals, it is helpful to extend both numbers to the same place value by using equivalent decimals.

4.53 + 2.7	4.5 – 2.49
$\begin{array}{r} {\scriptstyle 1} \\ 4.53 \\ +\ 2.70 \\ \hline 7.23 \end{array}$	$\begin{array}{r} {\scriptstyle 4\,10} \\ 4.\not{5}0 \\ -\ 2.49 \\ \hline 2.01 \end{array}$

Practice 5.12

For Problems 1—3, determine the sum or difference using the standard algorithm.

Show your thinking.

1 15.3 – 8.19

answer: _____

Name _____ Date _____

Show your thinking.

2 0.5 + 9.88

answer: _____

3 12.47 + 23.6

answer: _____

4 Here is how Shawn determined the difference 15.37 – 8.19. Explain Shawn's calculations and the meaning of the 17 above the 7 in 15.37.

$$\begin{array}{r} {\scriptstyle 15\ \ 2\,17} \\ 1\cancel{5}.3\cancel{7} \\ -\ \ 8.19 \\ \hline 7.18 \end{array}$$

Name _____ Date _____

5 Determine the difference.

27.34 – 19.28

Show your thinking.

Spiral Review

6 Diego has 5 yards of rope. It takes $\frac{1}{3}$ yards to make a boat knot. How many boat knots can Diego make with the rope?

Show or explain your thinking.

answer: _____

For Problems 7–10, determine the value of the expression.

7 3 × 6 _____

8 5 × 8 _____

9 7 × 3 _____

10 16 ÷ 2 _____

Unit 5
Lesson
13

Name _____ Date _____

Modeling 5.NBT.7, SMP.1, SMP.3, SMP.7

Making Scarves

Let's use what we know about adding and subtracting decimals to solve real-world problems.

I am a doer of math.
How can keeping track of information be helpful when working with others to solve a math problem?

Warm-Up

eyes on teacher

Activity
1

Scarves for Market Day

1 Miguel has 100 feet of yarn to make 13 different-sized scarves for 13 different-sized animals. He will start by knitting the biggest scarf. Then Miguel will reduce the amount of yarn he uses for the next scarf by 0.25 feet, then another 0.25 feet for the third scarf, and so on.

If the widest and longest scarf will require 8.25 feet of yarn, will Miguel have enough yarn to make all 13 scarves? If yes, how much yarn will be left over? If not, how much more yarn will he need?

Name _____ Date _____

Scarves for Market Day (continued)

Show your thinking.

answer: _____

Summary 5.13

There are often different ways to solve multi-step problems to get the same result. It can be helpful to consider what information you have and how you will use that information before evaluating the problem.

Miguel has $22. If he buys a piece of fabric for $9.75, scissors for $8.99, and a ruler for $0.25, how much money will he have left?

Subtract	Add then subtract
22 – 9.75 = 12.25 12.25 – 8.99 = 3.26 3.26 – 0.25 = 3.01 **$3.01**	9.75 + 8.99 + 0.25 = 18.99 22 – 18.99 = 3.01 **$3.01**

Practice 5.13

1 The total length of Priya's 3 pencils is 18.72 inches. If 2 of the pencils measure 7.5 inches and 4.65 inches, how long is the third pencil in inches?

Show or explain your thinking.

answer: _____

Name _____ Date _____

Diego, Clare, and Shawn each help care for a boa constrictor at a snake sanctuary. The lengths of the snakes are shown in the table. Use the information for Problems 2–5.

Diego's snake	Clare's snake	Shawn's snake
6.85 ft	4.48 ft	9.2 ft

Show or explain your thinking.

2 Order the lengths from *least* to *greatest*.

answer: _____

3 How much longer is Shawn's snake than Diego's snake?

answer: _____

4 What is the total length of all 3 snakes?

answer: _____

5 How much shorter is Clare's snake than Diego's snake?

answer: _____

Name _____ Date _____

Jada earned $63.75 raking leaves, and Priya earned $52.38 walking dogs. Use the information for Problems 6 and 7.

6 How much money did Jada and Priya earn altogether?

(A) $115.03 (B) $115.13 (C) $116.03 (D) $116.13

7 How much more money did Jada earn than Priya?

(A) $11.33 (B) $11.37 (C) $11.43 (D) $11.47

Spiral Review

8 Priya has $\frac{1}{3}$ of a watermelon. She and 4 of her friends share the watermelon. How much of the watermelon will each person get?

Show or explain your thinking.

answer: _____

For Problems 9–14, determine the value of the expression.

9 12×10 _____

10 9×11 _____

11 7×8 _____

12 $108 \div 9$ _____

13 $72 \div 9$ _____

14 $49 \div 7$ _____

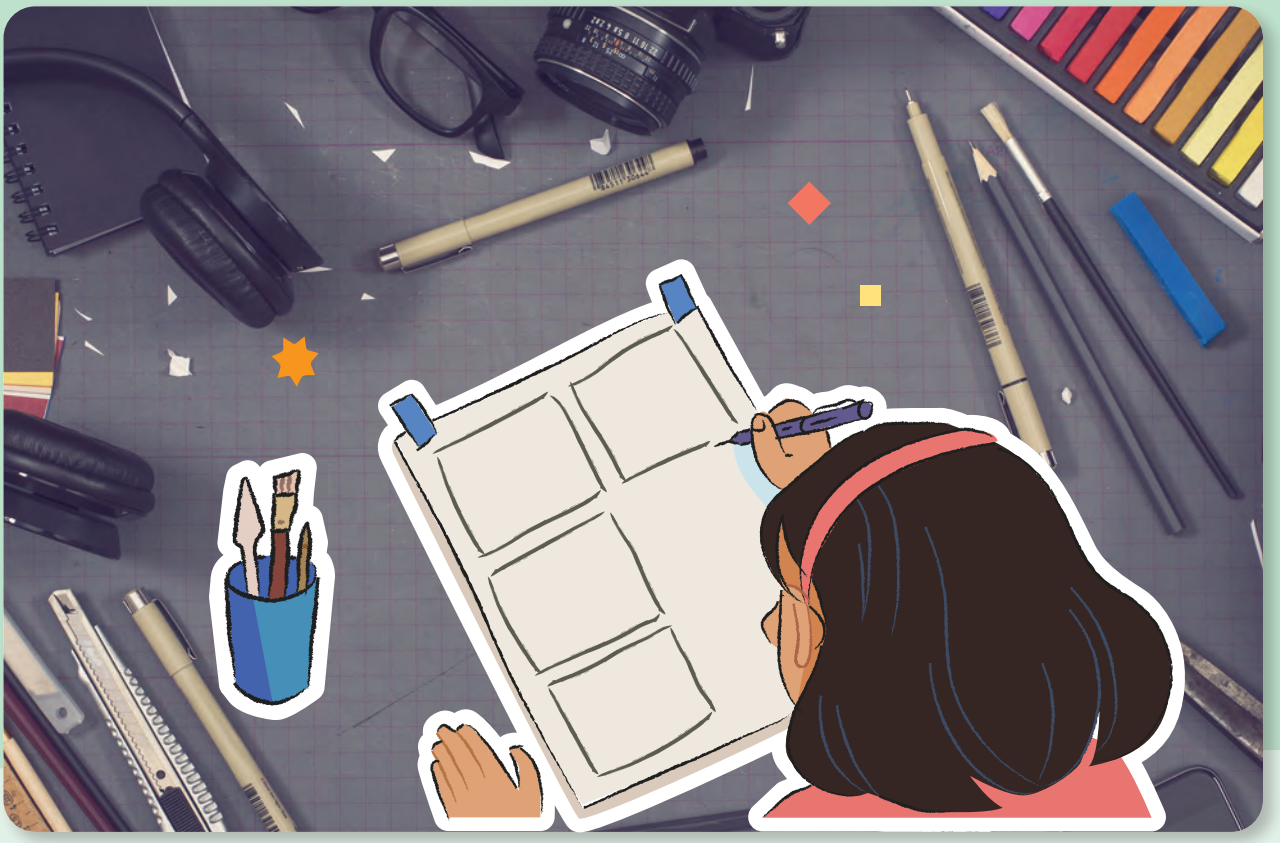
Notes:

Sub-Unit

3

Multiplying Decimals

Unit Story: Market Day



Twin Design/Shutterstock.com

What would you need to know to calculate how many panels are in an entire series of comic books?

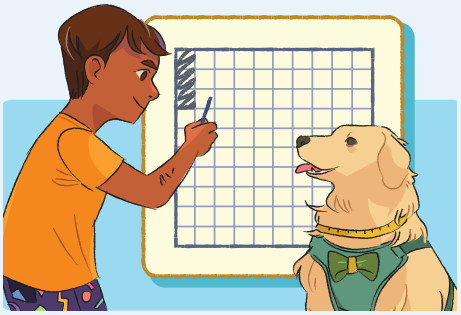
Unit 5
Lesson
14

Name _____ Date _____

Modeling 5.NBT.7, SMP.7

Exploring Decimal Multiplication

Let's explore multiplying whole numbers and decimals.



I am a doer of math.
Why is it helpful to think about how new math ideas connect to ideas you have already explored?

Warm-Up

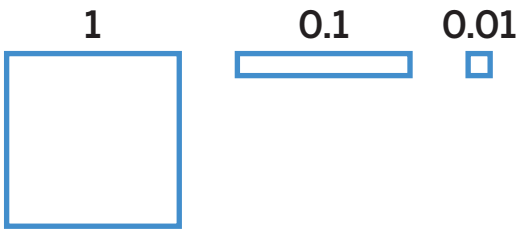
eyes on teacher

Activity 1 Multiplying Whole Numbers and Decimals

Hands-On

You and your partner will be given a set of base-ten blocks and hundreds grids.

Determine the value of each expression. You can use diagrams, like the ones shown, to represent your thinking if they are helpful.



Show your thinking.

1 3×0.4

answer: _____

Name _____ Date _____

Multiplying Whole Numbers and Decimals (continued)

Show your thinking.

2 3×0.04

answer: _____

3 5×0.4

answer: _____

4 6×0.8

answer: _____

5 12×0.02

answer: _____

6 Discuss

Join with another pair.

How are your strategies for Problems 1–5 similar? Different?

Summary 5.14

Multiplying with decimals is similar to multiplying with fractions. You can use base-ten blocks and grids to represent your thinking.

3 × 0.33

3 × 0.3 = 0.9

3 × 0.03 = 0.09

3 × 0.33 = 0.99

Practice 5.14

1 What is the product of 4 and 0.6?

(A) 24

(B) 0.24

(C) 2.4

(D) 0.024

2 Which does *not* represent the product of 0.2 and 3?

(A) 6 tenths

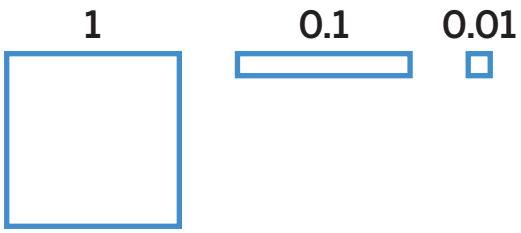
(B) 60 hundredths

(C) 0.6

(D) 6 hundredths

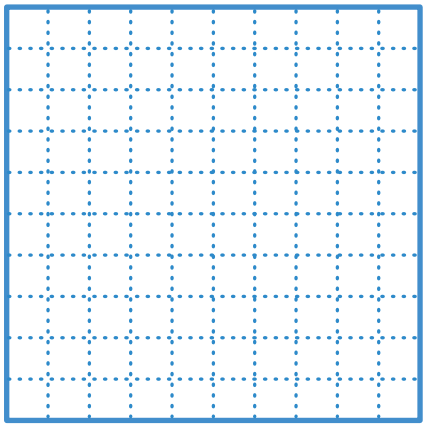
Name _____ Date _____

For Problems 3–5, determine the value of the expression. You can use diagrams like the ones shown or the grid to represent your thinking, if they are helpful.



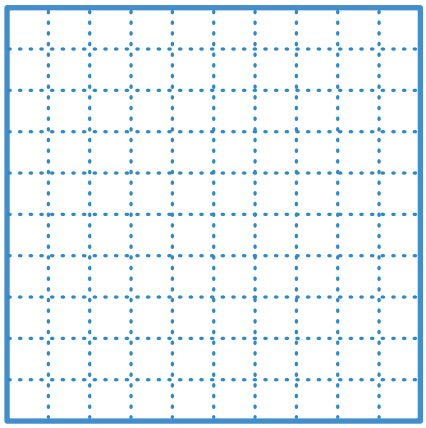
Show your thinking.

3 2×0.5



answer: _____

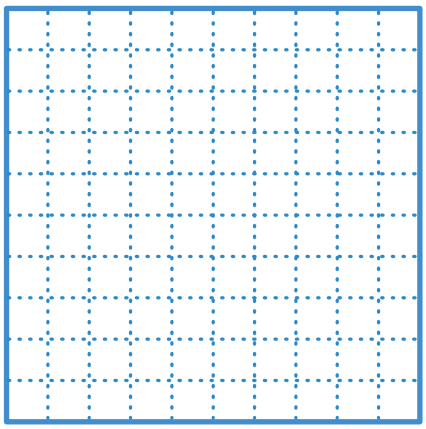
4 2×0.04



answer: _____

Name _____ Date _____

5 6×0.1



answer: _____

Spiral Review

6 What is the area of a rectangular garden that is $2\frac{1}{2}$ feet by $\frac{11}{12}$ feet?

Show your thinking.

answer: _____

For Problems 7–10, determine the value of the expression.

7 4×4 _____

8 2×7 _____

9 $35 \div 7$ _____

10 $15 \div 5$ _____

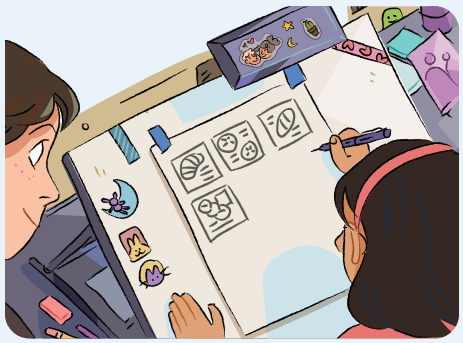
Unit 5
Lesson
15

Name _____ Date _____

Factors and Groups | Modeling | Powers and Place Value | 5.NBT.7, 5.OA.2, SMP.2, SMP.7, SMP.8

Comic Book Advertisements

Let's multiply whole numbers and decimals.



I am a doer of math.
What does it mean to think flexibly about numbers?

Warm-Up

eyes on teacher

Activity
1

Ads in Bobbi's Comic Book

Bobbi planned an advertisement section for her comic book. She sold different-sized advertisements for different prices.

1 Mr. Sawyer, the owner of Sawyer's Sensational Smoothies, bought 3 medium advertisements. Each medium advertisement covers 0.8 square inches of space. How many square inches of space did Mr. Sawyer buy in total?

Show or explain your thinking.

answer: _____

Name _____ Date _____

Ads in Bobbi's Comic Book (continued)

2 Ms. Baker, the owner of Baker's Bakery, bought 3 small advertisements. Each small advertisement cost $0.05. How much did Ms. Baker pay Bobbi?

Show or explain your thinking.

answer: _____

3 Ms. Dwyer, the owner of Dwyer's Discount Den, bought 1 large advertisement that is 3 inches long and 0.85 inches wide. What is the area of the large advertisement?

Show or explain your thinking.

answer: _____

4 **Discuss**

Share and compare your work for Problem 3 with another pair. What is similar? What is different?

Activity 2

Name _____ Date _____

Extra-Large Advertisements

Bobbi made an extra-large advertisement for Mr. Frost, the owner of Frost's Frosties.

5 The advertisement was 9 inches long and 4.32 inches wide. What is the area of the advertisement in square inches?

Show or explain your thinking.

answer: _____

6 Discuss

Share and compare your work with your partner. What is similar? What is different?

Summary 5.15

You can use familiar strategies, including the associative and Distributive Properties, to multiply a whole number and a decimal.

5×0.53

Fractions	$5 \times \frac{53}{100}$
Associative property	$(5 \times 53) \times 0.01$
Distributive Property	$(5 \times 0.5) + (5 \times 0.03)$

Practice 5.15

1 Match each expression with its product.

Expression	Product
a. 4×0.7	_____ 8.28
b. 4×2.07	_____ 4.08
c. 4×0.12	_____ 2.8
d. 4×1.02	_____ 0.48

Name _____ Date _____

2 Determine whether each representation is equivalent to 8×0.9. Place a check mark in the correct column.

	Yes	No
$8 \times \frac{9}{10}$		
89 hundredths		
$8 \times \frac{90}{100}$		
72 hundredths		

3 Priya found 12 nickels while walking around her neighborhood. How much money did Priya find?

Show or explain your thinking.

answer: _____

4 5 cats each weigh 6.31 pounds. How much do the cats weigh in all?

Show or explain your thinking.

answer: _____

Name _____ Date _____

Spiral Review

5 Determine the product 532 × 87 using the standard algorithm.

Show your thinking.

answer: _____

For Problems 6–13, determine the value of the expression.

6 9 × 8 = _____

7 7 × 11 = _____

8 4 × 9 = _____

9 8 × 4 = _____

10 50 ÷ 5 = _____

11 11 ÷ 11 = _____

12 84 ÷ 7 = _____

13 48 ÷ 6 = _____

Unit 5
Lesson
16

Name _____ Date _____

Factors and Groups | Modeling | Powers and Place Value | 5.NBT.7, 5.NF.5.a, 5.OA.1, SMP.3, SMP.7

Revisiting Parts of Parts

Let's multiply 2 decimals to the tenths.

I am a doer of math.
What are some strategies to think flexibly about numbers?

Warm-Up

eyes on teacher

Activity
1

Products of Tenths

Determine whether each equation is *true* or *false*. Explain your thinking.

1. $0.3 \times 0.4 = 1.2$

2. $0.2 \times 0.4 = 0.08$

Name _____ Date _____

Products of Tenths (continued)

3 $0.8 \times 0.5 = 0.04$

_____

_____

4 $0.6 \times 0.6 = 0.36$

_____

_____

5 Prove your thinking for Problem 3.

Show your thinking.

answer: _____

Activity 2

Name _____ Date _____

Multiplying Decimals

Evaluate each expression.

Show or explain your thinking.

6 0.2×0.3

answer: _____

7 0.6×0.9

answer: _____

Name _____ Date _____

Multiplying Decimals (continued)

8 0.5×0.4

answer: _____

9 **Discuss**

Join another pair. How are your strategies for each problem similar? How are they different?

Summary 5.16

You can use what you know about fraction multiplication, whole number facts, and place value to multiply 2 decimals less than 1.

0.7×0.3

Fractions	Associative Property of Multiplication
$\frac{7}{10} \times \frac{3}{10}$	$(7 \times 3) \times 0.01$

Practice 5.16

For Problems 1–3, determine whether each equation is *true* or *false*. Explain your thinking.

1 $0.2 \times 0.2 = 0.4$

2 $0.9 \times 0.4 = 0.36$

3 $0.3 \times 0.3 = 0.009$

Name _____ Date _____

4 Write 2 different expressions you could use to evaluate 0.6×0.3.

Expression 1: _____

Expression 2: _____

5 Determine whether each expression is equivalent to 0.9×0.4. Select Yes or No for each expression.

	Yes	No
$(9 \times 4) \times 0.01$		
$(9 \times 4) \times 10$		
$(0.4 \times 0.8) + 0.1$		
$(9 \times 4) \times (0.1 \times 0.1)$		
$(9 \times 4) \times 100$		
$(9 \times 4) + (0.9 \times 0.4)$		

6 Determine whether each equation is true or false. Select True or False for each equation.

	True	False
$0.9 \times 0.7 = 0.63$		
$0.5 \times 0.6 = 0.03$		
$0.4 \times 0.4 = \frac{16}{10}$		
$0.8 \times 0.4 = 0.32$		
$0.7 \times 0.9 = 6.3$		
$0.2 \times 0.6 = \frac{12}{100}$		
$0.6 \times 0.4 = 2.4$		
$0.4 \times 0.6 = 0.24$		

Name _____ Date _____

7 Choose 1 true equation from Problem 6 and show or explain how you know the equation is true.

Show or explain your thinking.

Spiral Review

8 A container can hold 4 cups. How much water would fill $\frac{1}{6}$ of the container?

Show or explain your thinking.

answer: _____

For Problems 9–14, determine the value of the expression.

9 2×8 _____

10 3×9 _____

11 8×5 _____

12 $12 \div 6$ _____

13 6×6 _____

14 $63 \div 9$ _____

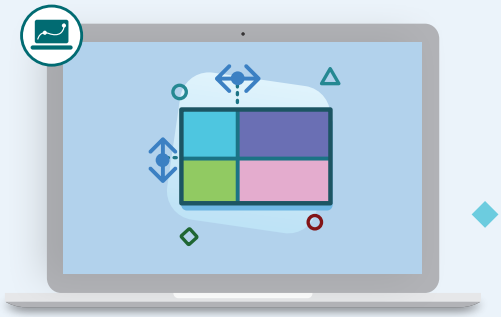
Unit 5
Lesson
17

Name _____ Date _____

Factors and Groups | Modeling | Powers and Place Value | 5.NBT.7, 5.NBT.1, 5.OA.1, SMP.3, SMP.7

Decimals, Diagrams, and Decompositions

Let's multiply tenths with tenths.



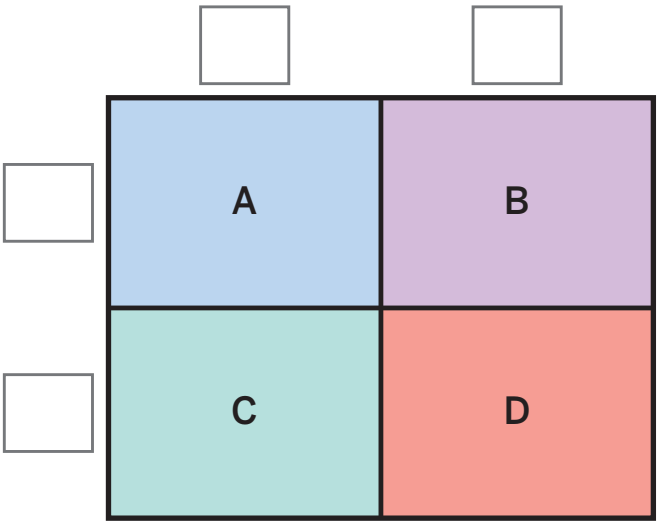
I am a doer of math.
How do you decide which strategy to use when starting a math problem?

Warm-Up

1 eyes on teacher

Activity 1 Decomposing Decimals

2 Label each side length to show how you would decompose each factor to multiply 3.4 × 2.6.



Discuss

Explain why you chose to decompose the factors in this way.

Name _____ Date _____

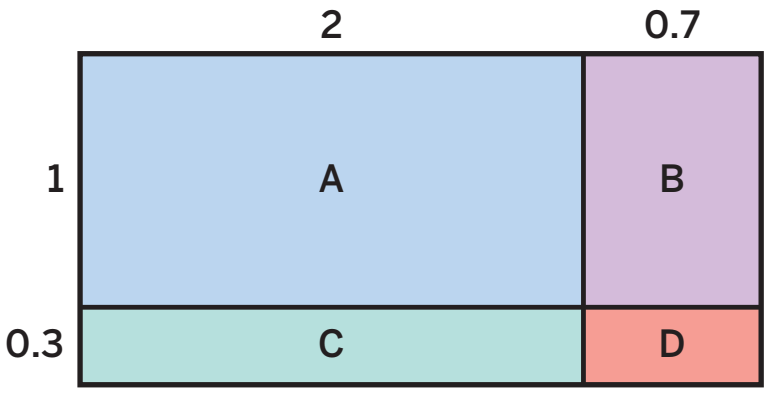
Decomposing Decimals (continued)

3 Determine the final product by calculating the partial products of Parts A–D from the area diagram in Screen 2.

Part	Product
A	
B	
C	
D	
Total	

4 Priya created this area diagram to determine the product 2.7 × 1.3. Determine the final product by calculating the partial products of Parts A–D from the area diagram.

Part	Product
A	
B	
C	
D	
Total	



Name _____ Date _____

Decomposing Decimals (continued)

5 Determine the product 2.3 × 1.8. Use the area diagram if it helps your thinking.

Show your thinking.

answer: _____

6 Discuss

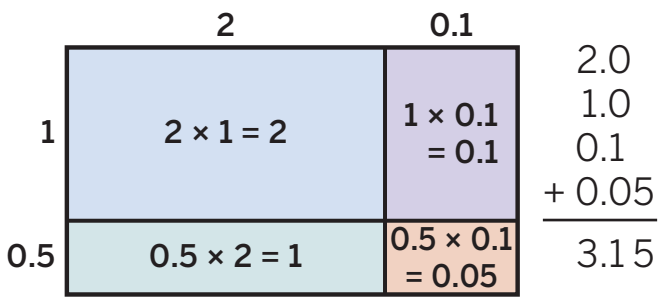
Han said 3.2 × 1.9 = 3.18 because 3 × 1 = 3 and 0.2 × 0.9 = 0.18. Is Han correct? How do you know?

Activity 2

Name _____ Date _____

Decimal Products

7 Priya and Han used different strategies to multiply the product 2.1 × 1.5.

Priya	Han
$2.1 \times 1.5 = \left(21 \times \frac{1}{10}\right) \times \left(15 \times \frac{1}{10}\right)$ $= (21 \times 15) \times \frac{1}{100}$ 21 × 15 5 100 10 + 200 315 × $\frac{1}{100}$ = 3.15	 2.0 1.0 0.1 + 0.05 3.15

Discuss

- How are Priya and Han's strategies similar? How are they different?
- Does Priya's strategy make sense? How did Priya place the decimal point in the product?

8 Determine each product.

Show your thinking.

4.6 × 6.4

answer: _____

Name _____ Date _____

Decimal Products (continued)

8

Show your thinking.

7.2 × 2.5

answer: _____

8.3 × 0.7

answer: _____

9 Explain

If 45 × 81 = 3,645, then what is the value of 4.5 × 8.1? How do you know?

Summary 5.17

When multiplying 2 decimals, you can decompose the factors or use what you know about whole number multiplication.

3.4×6.7

	3	0.4
6	3 × 6 = 18	6 × 0.4 = 2.4
0.7	0.7 × 3 = 2.1	0.7 × 0.4 = 0.28

$18 + 2.4 + 2.1 + 0.28 = 22.78$

$3.4 \times 6.7 = \left(34 \times \frac{1}{10}\right) \times \left(67 \times \frac{1}{10}\right)$

$= (34 \times 67) \times \frac{1}{100}$

$$\begin{array}{r} {\scriptstyle 2\ \ } \\ {\scriptstyle 2\ \ } \\ 34 \\ \times\ \ 67 \\ \hline 238 \\ +2040 \\ \hline 2{,}278 \end{array}$$

$2{,}278 \times \frac{1}{100} = 22.78$

Practice 5.17

1 Does 3.9×7.8 equal $(39 \times 78) \times 0.1$? Explain your thinking.

Name _____ Date _____

2 Clare has a bulletin board that is 0.7 yards by 4.1 yards. If Clare wants to cover the bulletin board in decorative paper, how many square yards of paper does she need?

Show or explain your thinking.

answer: _____

3 Determine the product 5.6 × 3.4.

Show your thinking.

answer: _____

4 Which expression has a product of 1.74?

(A) 0.8 × 0.3

(B) 5.8 × 0.3

(C) 0.8 × 3.9

(D) 5.8 × 3.9

Name _____ Date _____

5 Choose one of the incorrect expressions from Problem 4. Explain why the expression does not have a product of 1.74 using estimation or your understanding of place value.

Spiral Review

6 Determine the product 973 × 25 using the standard algorithm.

Show your thinking.

answer: _____

For Problems 7–10, determine the value of the expression.

7 7 × 6 _____

8 4 × 4 _____

9 8 × 5 _____

10 18 ÷ 2 _____

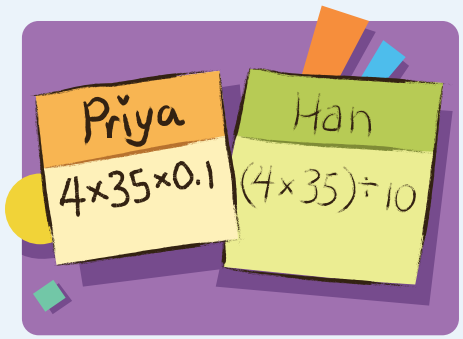
Unit 5
Lesson
18

Name _____ Date _____

Factors and Groups | Modeling | Powers and Place Value | 5.NBT.7, 5.NBT.1, 5.OA.1, SMP.2, SMP.3, SMP.7

What Is the Relationship?

Let's multiply decimals.



Warm-Up eyes on teacher

I am a doer of math.
What do you do when your strategy does not work to solve a math problem?

Activity
1

Why Does It Work?

Priya and Han evaluated 4 × 3.5 using different expressions.

Priya	Han
4 × 35 × 0.1	[4 × 35] ÷ 10

1 Discuss

- How are the expressions related?
- Why can both expressions be used to evaluate 4 × 3.5?

Name _____ Date _____

Why Does It Work? (continued)

2 Jada tried Han's strategy to determine the product 17.5 × 3.3. She used the following expression.

$$(175 \times 33) \div 10$$

Did Jada accurately use Han's strategy? Explain your thinking.

3 Determine the product 17.5 × 3.3.

Show your thinking.

answer: _____

Activity 2

Name _____ Date _____

Practicing Decimal Multiplication

Evaluate each expression.

Show your thinking.

4 23.8×2.5

answer: _____

5 242×0.66

answer: _____

Name _____ Date _____

Practicing Decimal Multiplication (continued)

6 Discuss

What is similar about your work for Problems 4 and 5?
What is different?

Summary 5.18

Multiplying by 0.1 is the same as dividing by 10. Multiplying by 0.01 is the same as dividing by 100. You can use this equivalence when multiplying decimals.

24.8 × 3.9

$(248 \times 39) \times 0.01$

$9{,}672 \times 0.01 = 96.72$

$\frac{248}{10} \times \frac{39}{10} = \frac{248 \times 39}{100}$

$\frac{9{,}672}{100} = 96.72$

96.72 is a reasonable product because 25 × 4 = 100.

Practice 5.18

For Problems 1–3, determine the product.

Show your thinking.

1 24.7 × 2.8

answer: _____

Name _____ Date _____

Show your thinking.

2 38 × 1.6

answer: _____

3 0.49 × 62

answer: _____

4 If the product of 54 and 37 is 1,998, which equations are true? Select *all* that apply.

(A) 0.54 × 37 = 199.8

(B) 5.4 × 3.7 = 19.98

(C) 54 × 3.7 = 199.8

(D) 54 × 0.37 = 19.98

(E) 5.4 × 37 = 19.98

(F) 5.4 × 0.37 = 19.98

Name _____ Date _____

Spiral Review

5 Determine the quotient 3,478 ÷ 47.

Show your thinking.

answer: _____

For Problems 6–11, determine the value of the expression.

6 5 × 11 _____

7 12 × 3 _____

8 11 × 10 _____

9 132 ÷ 12 _____

10 64 ÷ 8 _____

11 27 ÷ 9 _____

Unit 5
Lesson
19

Name _____ Date _____

Factors and Groups | Modeling | 5.NBT.7, 5.OA.1, SMP.1, SMP.2, SMP.3

Planning a Comic Book

Let's use what we know about multiplying decimals to plan Bobbi's next comic book.

I am a doer of math.
When might it be important to think flexibly about numbers?

Warm-Up

eyes on teacher

Activity
1

Bobbi the Brave

Hands-On

Your group will be given a set of clue cards.

1 After Market Day, Bobbi writes a new comic book. It tells the story of Bobbi the Brave, a superhero who saves Carvalho Elementary from the sewer monsters that roam the school at night.

Bobbi only has enough ink to cover 3,500 square centimeters with pictures inside the panels. Use the clue cards to determine whether she has enough ink to tell the story of Bobbi the Brave. Complete the tables.

Page	Information	Area covered (sq. cm)
1		
2		

Name _____ Date _____

Bobbi the Brave (continued)

Page	Information	Area covered (sq. cm)
3		
4		
5		
6		
7		
8		

2 Does Bobbi have enough ink to tell the story?

Show or explain your thinking.

answer: _____

Summary 5.19

When solving multi-step problems, it is important to identify and record the mathematical information and consider how the information is connected.

Use the clues to determine the total area of Rectangles A and B.

Clue 1	Clue 2
The area of Rectangle B is 5 times the area of Rectangle A.	The area of Rectangle A is 25.25 square centimeters.

Rectangle	What I know	Area (sq. cm)
A	Area is 25.25 square centimeters.	25.25
B	$5 \times A$ Area = 5×25.25	126.25
Total area (sq. cm)	25.25 + 126.25 = 151.5	

Practice 5.19

1 A chapter book has 6.5 times as many pages as a comic book. If the comic book has 12 pages, how many more pages are in the chapter book than the comic book?

Show or explain your thinking.

answer: _____

Name _____ Date _____

2 Clare bought fruit at the market for her brother's birthday party. Use the clues to determine the total weight of the fruit that Clare bought in pounds.

- The peaches weigh 1.5 times as much as the pears.
- The oranges weigh 2.5 pounds.
- The pears weigh 1.6 pounds more than the apples.
- The apples weigh 1.3 pounds less than the oranges.

Show or explain your thinking.

answer: _____

Name _____ Date _____

Spiral Review

3 Determine the quotient.

2,990 ÷ 65

Show your thinking.

answer: _____

For Problems 4–11, determine the value of the expression.

4 2 × 4 _____

5 5 × 12 _____

6 3 × 8 _____

7 36 ÷ 9 _____

8 16 ÷ 4 _____

9 90 ÷ 9 _____

10 18 ÷ 3 _____

11 42 ÷ 7 _____

Notes:

Sub-Unit

4

Dividing Decimals

Unit Story: Market Day

AtlasStudio/Shutterstock.com

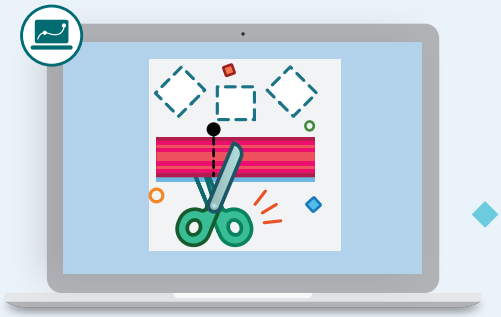
What would you need to know to determine the number of puzzle pieces that would fit along the top edge of a puzzle?

Name _____ Date _____

Modeling | Seeing Division | 5.NBT.7, SMP.7

Making Quilts!

Let's divide decimals less than 1 by whole numbers.



I am a doer of math.
What does it look like to be curious in math class?

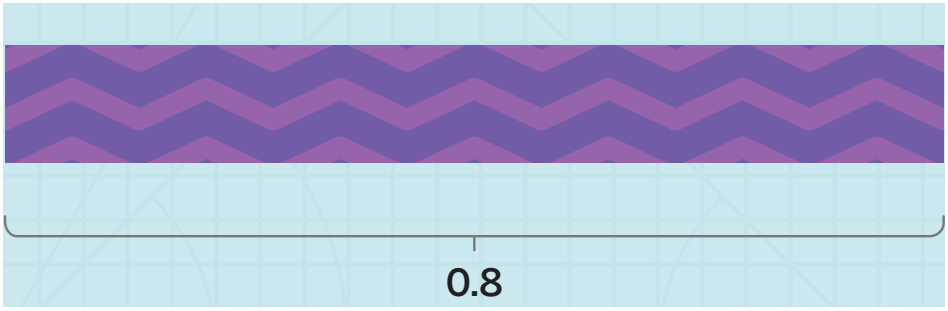
Warm-Up

1 eyes on teacher

Activity 1 Equally Sharing Fabric

2 Miguel wants to cut a piece of fabric that is 0.8 units long into 4 equal pieces. What should the length of each piece be?

Show or explain your thinking.



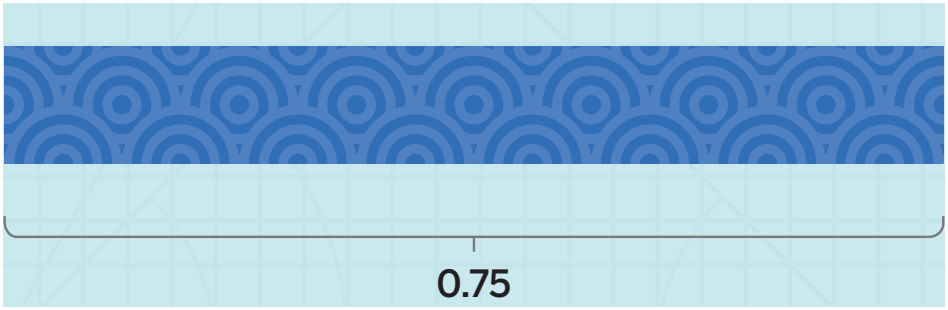
answer: _____

Name _____ Date _____

Equally Sharing Fabric (continued)

3 Jonathan wants to cut a piece of fabric that is 0.75 units long into 5 equal pieces. What should the length of each piece be?

Show or explain your thinking.



answer: _____

4 Discuss

Let's consider 2 diagrams and equations.

What do you notice about the size of the quotients? Why does this make sense?

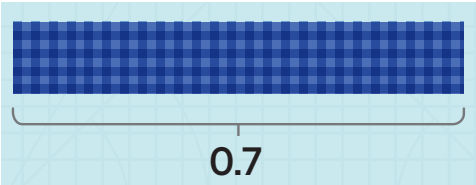
Activity 2

Name _____ Date _____

Equivalent Decimals

5 Kara wants to cut a piece of fabric that is 0.7 units long into 2 equal pieces. What should the length of each piece be?

Show or explain your thinking.



answer: _____

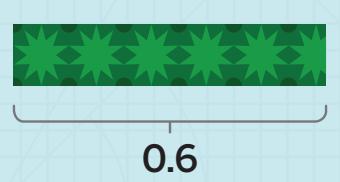
6 Think-Pair-Share

Let's consider 2 questions and a diagram.

7 Complete as many challenges as you have time for.

Show or explain your thinking.

The fabric is 0.6 units long and needs to be cut into 5 equal pieces. What should the length of each piece be?



answer: _____

Name _____ Date _____

Equivalent Decimals (continued)

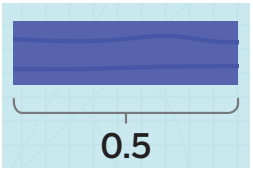
7

Show or explain your thinking.

The fabric is 0.2 units long and needs to be cut into 5 equal pieces. What should the length of each piece be?

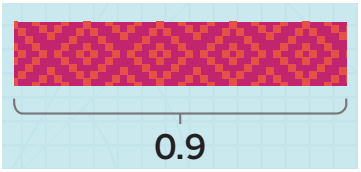
answer: _____

The fabric is 0.5 units long and needs to be cut into 10 equal pieces. What should the length of each piece be?



answer: _____

The fabric is 0.9 units long and needs to be cut into 15 equal pieces. What should the length of each piece be?



answer: _____

8 How can you divide when the decimal dividend cannot be divided evenly by the divisor?

_____

_____

Summary 5.20

You can use equivalent decimals to help you divide decimals by whole numbers. When dividing by a number greater than 1, the quotient is less than the dividend.

$$0.5 \div 2$$

$$0.5 = 0.50$$

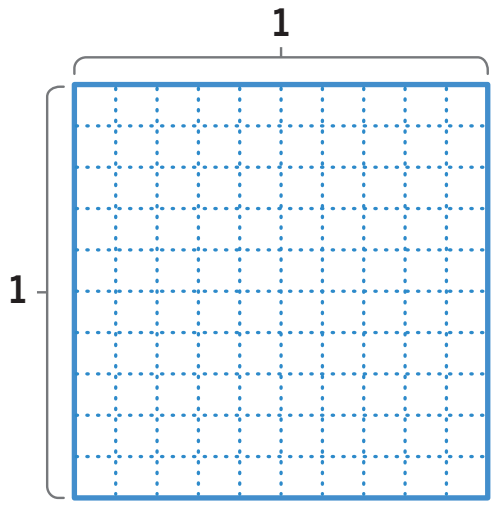
$$50 \text{ hundredths} \div 2 = 25 \text{ hundredths}$$

$$0.50 \div 2 = 0.25$$

Practice 5.20

1 Determine the quotient 0.9 ÷ 2. Use the grid if it is helpful.

Show your thinking.



answer: _____

Name _____ Date _____

For Problems 2 and 3, determine the quotient.

Show or explain your thinking.

2 0.9 ÷ 6

answer: _____

3 0.16 ÷ 2

answer: _____

For Problems 4–7, match the expression with its quotient.

	Expression		Quotient
4	0.12 ÷ 3	_____	0.2
5	0.06 ÷ 3	_____	0.04
6	0.18 ÷ 3	_____	0.02
7	0.6 ÷ 3	_____	0.06

Name _____ Date _____

8 Which equations are true? Select *all* that apply.

- ☐ **A.** $0.7 \div 2 = 0.35$
- ☐ **B.** $0.24 \div 4 = 0.8$
- ☐ **C.** $0.18 \div 2 = 0.09$
- ☐ **D.** $0.2 \div 4 = 0.05$
- ☐ **E.** $0.18 \div 2 = 0.9$
- ☐ **F.** $0.16 \div 4 = 0.04$

Spiral Review

9 Determine the quotient $5{,}005 \div 55$.

Show your thinking.

answer: _____

For Problems 10–15, determine the value of the expression.

10 7×12 _____

11 11×8 _____

12 9×5 _____

13 $28 \div 7$ _____

14 $60 \div 12$ _____

15 $24 \div 2$ _____

Unit 5
Lesson
21

Name _____ Date _____

Modeling | Seeing Division | 5.NBT.7, SMP.1, SMP.7, SMP.8

Puzzle Pieces Everywhere

Let's divide whole numbers by decimals less than 1.

Warm-Up

eyes on teacher

I am a doer of math.
How can you share your curiosity about math with the class?

Activity 1 Creatively Determining Quotients

Determine each quotient.

Show or explain your thinking.

1. $2 \div 0.2$

answer: _____

Name _____ Date _____

Creatively Determining Quotients (continued)

Show or explain your thinking.

2 $4 \div 0.2$

answer: _____

3 $3 \div 0.2$

answer: _____

4 $7 \div 0.2$

answer: _____

5 Discuss

Join another pair. How are your strategies to determine the quotient similar? How are they different?

Activity 2

Name _____ Date _____

How Many Puzzle Pieces?

Jonathan wonders about creating giant puzzles of the Grade 5 class photograph for Market Day. He imagines that each puzzle is 3 yards long along the top edge.

6 In his first puzzle, if each piece is 0.1 yards long, how many puzzle pieces will be in the top edge?

Show or explain your thinking.

answer: _____

7 In his second puzzle, if each piece is 0.01 yards long, how many puzzle pieces will be in the top edge?

Show or explain your thinking.

answer: _____

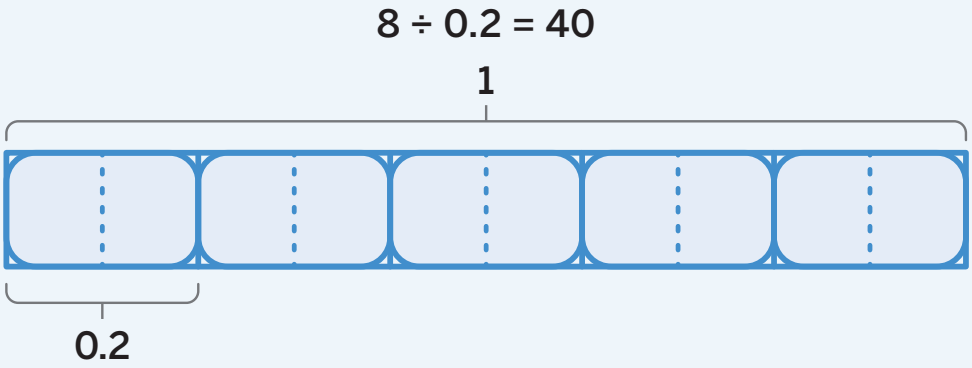
Name _____ Date _____

How Many Puzzle Pieces? (continued)

8 How are your answers to Problems 6 and 7 related? Why does that make sense?

Summary 5.21

When you are dividing a whole number by a decimal less than 1, you are using the "how many groups?" interpretation of division. Just like when dividing whole numbers by unit fractions, when dividing by a decimal less than 1, the quotient is greater than the dividend.



There are 5 groups of 0.2 in 1, so there are 40 groups of 0.2 in 8.

Practice 5.21

1 Jada says that there are 10 hundredths in 1, so 1 ÷ 0.01 is 10. Do you agree with Jada? Explain your thinking.

Name _____ Date _____

For Problems 2–5, determine the quotient.

Show or explain your thinking.

2 12 ÷ 0.2

answer: _____

3 12 ÷ 0.02

answer: _____

4 2 ÷ 0.5

answer: _____

5 2 ÷ 0.25

answer: _____

6 Determine the quotient 18 ÷ 0.5.

(A) 0.36 (B) 3.6 (C) 36 (D) 360

Name _____ Date _____

7 Determine the quotient 6 ÷ 0.01.

(A) 60 (B) 0.6 (C) 600 (D) 0.06

8 Determine the quotient 6 ÷ 0.02.

(A) 300 (B) 30 (C) 0.3 (D) 0.03

Spiral Review

9 A bucket can hold 5 gallons. How much water would fill $\frac{2}{3}$ of the bucket?

Show or explain your thinking.

answer: _____

For Problems 10–15, determine the value of the expression.

10 4 × 3 _____

11 6 × 5 _____

12 2 × 8 _____

13 24 ÷ 4 _____

14 72 ÷ 12 _____

15 48 ÷ 6 _____

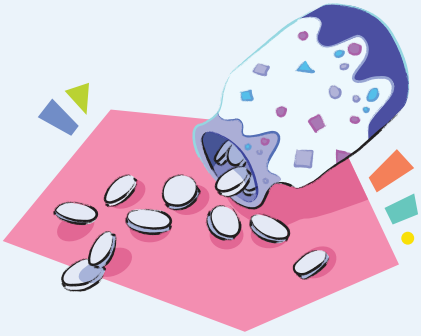
Unit 5
Lesson
22

Name _____ Date _____

Modeling | Seeing Division | 5.NBT.7, 5.OA.2, SMP.2, SMP.3, SMP.7

Division Medley

Let's solve real-world division problems and reason about quotients.



Warm-Up

eyes on teacher

I am a doer of math.
What advice would you give when someone is frustrated while solving a math problem?

Activity 1

Making It Make Sense

1 Jada emptied her quarter jar and found that she had $5. How many quarters were in the jar?

Show or explain your thinking.

answer: _____

Name _____ Date _____

Making It Make Sense (continued)

2 5 friends equally shared a bag of trail mix that weighed 0.25 pounds. How many pounds of trail mix did each friend receive?

Show or explain your thinking.

answer: _____

3 **Discuss**

Did you use the same strategy to solve Problems 1 and 2? Why or why not?

Activity 2

Name _____ Date _____

Card Sort: In the Mix

Hands-On

You and your partner will be given a set of cards with expressions.

4 Sort

Without evaluating, sort the cards into 2 categories — *quotient greater than the dividend* and *quotient less than the dividend*. Record each expression in the table. Be prepared to share your thinking.

Quotient greater than the dividend	Quotient less than the dividend

Name _____ Date _____

Card Sort: In the Mix (continued)

5 Discuss

Join another pair.

- Share and compare your categories in Problem 4.
- How did you reason about the expressions on Cards B and E?

Summary 5.22

You can determine whether quotients are reasonable by considering the type of division you are doing and the size of the dividend and divisor.

Diego has 0.6 pounds of clay. He uses the same amount of clay to make 2 mugs. How much clay does he use to make each mug?

0.6 ÷ 2 = 0.3

The quotient is reasonable because 0.6 is being divided into 2 groups, so the quotient will be less than 0.6.

Practice 5.22

For Problems 1–3, determine the quotient. Explain how you know your quotient is reasonable.

1 2.7 ÷ 9

2 81 ÷ 0.9

3 0.63 ÷ 9

Name _____ Date _____

4 The daily recommended allowance of vitamin C for a fifth grader is 0.05 grams. A vitamin C tablet has 1 gram of vitamin C. How many times the daily recommended allowance of vitamin C is 1 tablet?

Show or explain your thinking.

answer: _____

5 Han prepared 1.5 pounds of dough to make bread. He used the dough to make 3 equal-sized loaves of bread. How many pounds of dough were in each loaf of bread?

Show or explain your thinking.

answer: _____

Name _____ Date _____

6 Without evaluating, which comparison statements are true? Select *all* that apply.

- ☐ **A.** $12 \div 0.1 > 12$
- ☐ **B.** $0.4 \div 8 < 0.4$
- ☐ **C.** $12 \div 0.01 < 12$
- ☐ **D.** $0.04 \div 8 > 0.04$
- ☐ **E.** $1.2 \div 0.1 > 1.2$
- ☐ **F.** $0.4 \div 0.8 > 0.4$

Spiral Review

7 A food container can hold 3 cups. How much food would fill $\frac{3}{5}$ of the container?

Show or explain your thinking.

answer: _____

For Problems 8–13, determine the value of the expression.

8 9×6 _____

9 7×5 _____

10 8×12 _____

11 $63 \div 9$ _____

12 $48 \div 12$ _____

13 $25 \div 5$ _____

Unit 5
Lesson
23

Name _____ Date _____

Modeling 5.NBT.7, 5.NBT.1, SMP.6, SMP.7, SMP.8

Decimal Dividends and Divisors

Let's divide decimals by decimals.

I am a doer of math.
How can you support the curiosity of your classmates in math class?

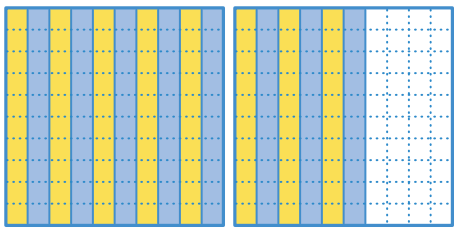
Warm-Up

eyes on teacher

Activity 1 To Be or Not to Be a Decimal

1 Discuss

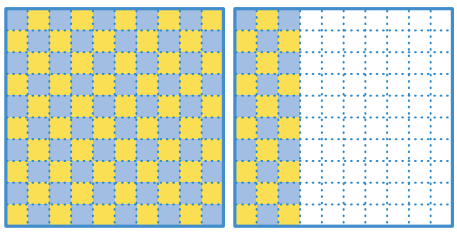
To determine the value of 1.6 ÷ 0.1, Jada drew a diagram. Describe how the diagram shows the value of . . .



- 1.6 ÷ 0.1
- 16 ÷ 1
- 160 ÷ 10

2

To determine the value of 1.3 ÷ 0.01, Jada drew another diagram. How does the diagram show 1.3 ÷ 0.01 = 130 ÷ 1?



Name _____ Date _____

To Be or Not to Be a Decimal (continued)

Complete each division equation to make it true. Then write an equivalent division equation with whole numbers. Be prepared to explain your thinking.

Division equation	Equivalent division equation with whole numbers
3 $0.5 \div 0.1 =$ _____	
4 $0.5 \div$ _____ $= 50$	
5 _____ $\div 0.1 = 14$	
6 $1.4 \div 0.01 =$ _____	

7 Discuss

Join another pair. Share your responses and strategies for Problems 3–6. If you disagree, discuss until you reach an agreement.

Summary 5.23

You can use what you know about place value to divide a decimal by a decimal. You can also represent a decimal division expression with an equivalent whole-number division expression.

1.5 ÷ 0.01

How many parts?	Equivalent whole number equation
There are 100 groups of 0.01 in 1. There are 50 groups of 0.01 in 0.5. 100 + 50 = 150	1.5 ÷ 0.01 = 150 ÷ 1 150 ÷ 1 = 150

Practice 5.23

For Problems 1 and 2, determine the quotient.

Show your thinking.

1. 3.5 ÷ 0.1

answer: _____

2. 3.5 ÷ 0.01

answer: _____

Name _____ Date _____

For Problems 3–8, determine the value that makes the equation true.

3 $0.8 \div 0.1 =$ _____

4 $0.8 \div$ _____ $= 80$

5 _____ $\div 0.1 = 4$

6 $3.6 \div 0.01 =$ _____

7 $2.4 \div 0.1 =$ _____

8 $0.24 \div$ _____ $= 0.24$

9 Determine whether each equation is *true* or *false*. Place a check mark in the correct column.

	True	False
$4.9 \div 0.1 = 490$		
$0.56 \div 0.01 = 56$		
$6.3 \div 0.1 = 63$		

10 Which expressions are equal to 120? Select *all* that apply.

☐ **A.** $12 \div 0.01$

☐ **B.** $12 \div 0.1$

☐ **C.** $1.2 \div 0.01$

☐ **D.** $1.2 \div 0.1$

11 What is the value of $0.49 \div 0.1$?

(A) 49

(B) 4.9

(C) 0.49

(D) 490

Name _____ Date _____

Spiral Review

12 Determine the product 819 × 96 using the standard algorithm.

Show your thinking.

answer: _____

For Problems 13–18, determine the value of the expression.

13 5 × 5 _____

14 3 × 8 _____

15 8 × 8 _____

16 36 ÷ 6 _____

17 99 ÷ 11 _____

18 15 ÷ 5 _____

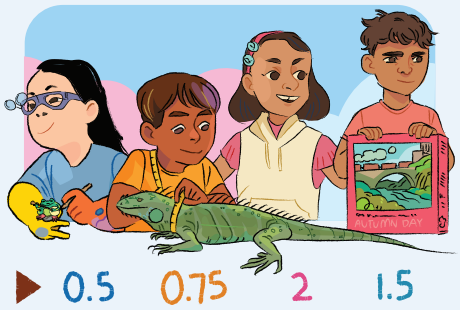
Unit 5
Lesson
24

Name _____ Date _____

Modeling | Seeing Division | 5.NBT.7, SMP.1, SMP.4

Watch and Learn

Let's use what we know about decimals to solve real-world problems.



Warm-Up eyes on teacher

I am a doer of math.
How has your understanding of decimals developed since the first lesson in this unit?

Activity
1

Studious Students

In preparation for Carvalho's Market Day, each student watched different videos about topics they wanted to study.

Carvalho student	Study topic	Video length	Watching speed
Kara	3D printing	24 minutes	0.5
Miguel	sewing	30 minutes	0.75
Bobbi	comic book art	24 minutes	2
Jonathan	photography	60 minutes	1.5

Name _____ Date _____

Studious Students (continued)

1 How many total hours did the students spend watching videos? Talk with your partner about the strategies you used to determine the total number of hours.

Show or explain your thinking.

answer: _____

Summary 5.24

You can use what you know about decimal and whole number operations to solve complex real-world problems. Sometimes, there is more than 1 way to solve a problem.

Diego is listening to an audiobook that is 150 minutes long at 1.5 speed. If he starts listening at 6:00 p.m., at what time will he be finished?

Strategy A	Strategy B
$150 \div 1.5 = 1{,}500 \div 15$ $1{,}500 \div 15 = 100$ $100 = 60 + 40$ He will be finished at 7:40 p.m.	There are 10 groups of 1.5 in 15, so there are 100 groups of 1.5 in 150 because 150 is 10 times as much as 15. 100 minutes = 1 hour and 40 minutes He will be finished at 7:40 p.m.

Practice 5.24

1 Determine whether each equation is true or false. Select True or False for each equation.

	True	False
$0.54 \div 6 = 0.09$		
$0.3 \div 6 = 0.05$		
$9 \div 0.6 = 1.5$		
$2 \div 0.25 = 8$		
$4.5 \div 0.1 = 450$		
$0.72 \div 0.8 = 9$		

Name _____ Date _____

2 Clare needs 2.35 yards of fabric to make 1 dress. She plans to make 4 dresses. If she purchases 10 yards of fabric, how much fabric will Clare have left after making the 4 dresses?

Show or explain your thinking.

answer: _____

3 Andrea is 3D printing superhero figures. She uses 4.5 kilograms of plastic material to make 9 figures. She also uses 1.8 kilograms of material to make armor for the figures. How many kilograms of plastic material does she use to make 1 superhero figure with armor?

Show or explain your thinking.

answer: _____

Name _____ Date _____

Spiral Review

4 In a jar of peanuts, 4 ounces is $\frac{1}{5}$ of the jar. How many ounces of peanuts are in the whole jar?

Show or explain your thinking.

answer: _____

For Problems 5–12, determine the value of the expression.

5 8×5 _____

6 2×9 _____

7 12×10 _____

8 $121 \div 11$ _____

9 $32 \div 4$ _____

10 $27 \div 9$ _____

11 8×6 _____

12 $36 \div 9$ _____

Notes:

Math at Work

Adults aren't the only ones who have changed the world with their new ideas. Way back in 1873, fifteen-year-old Chester Greenwood went ice skating. His ears became painfully cold and he noticed that wrapping a scarf around his head didn't really help. He decided to make something better. Chester designed a wire frame and asked his grandmother to sew beaver skins to it. And this became the first pair of earmuffs!

Entrepreneurs come up with ideas for new products or businesses. They might use decimals as they work with measurements of the items they might create. They might also use decimals to keep track of the money they spend or earn.

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Math at Home

What idea do you have for a new business that either creates a product or provides a service? Describe the product or service. Share your idea with someone at home or in your communities.

Math Mindset

How are multiplying decimals and multiplying whole numbers alike? How are they different?