UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

2023-2024

Reveal MATH®

UAE Edition
Grade 5 General
Volume 1
Student Edition

Mc Graw Hill

Reveal MATH®

Student Edition

Grade 5 • Volume 1

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mheducation.com/prek-12

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Contents in Brief

Volume 1

Volume 2

Welcome to *Reveal Math*!

We are excited that you have made us part of your math journey.

Throughout this school year, you will explore new concepts and develop new skills. You will expand your math thinking and problem-solving skills. You will be encouraged to persevere as you solve problems, working both on your own and with your classmates.

With *Reveal Math*, you will experience activities to spark curiosity and challenge your thinking. In each lesson, you will engage in sense-making activities that will make you a better problem solver. You will have different learning experiences to help you build understanding.

We look forward to revealing to you the wonder and excitement of math.

The *Reveal Math* authors

The *Reveal Math* Authorship Team

McGraw-Hill teamed up with expert mathematicians to create a program centered around you, the student, to make sure each and every one of you can find joy and understanding in the math classroom.

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Dinah Zike, M.Ed.
Creator of learning tools that make connections through visual-kinesthetic techniques.

Unit 1

Math Is...

Unit 2

Volume

Unit 3

Place Value and Number Relationships

Unit 4

Add and Subtract Decimals

Unit 5

Multiply Multi-Digit Whole Numbers

Unit 6

Multiply Decimals

Unit 7

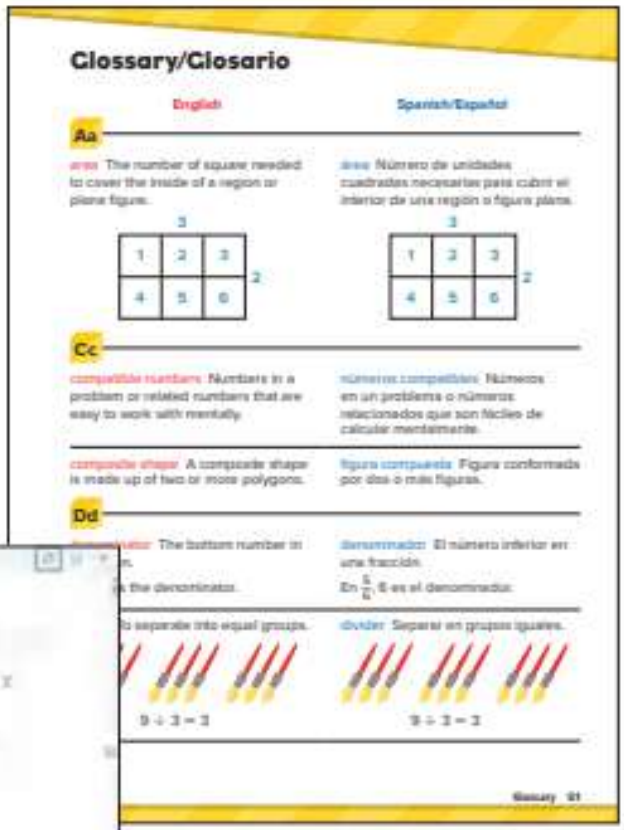
Divide Whole Numbers

Let's Talk About Math!

Throughout this year, you will explore the language of mathematics as you talk about math with your classmates. You are going to learn many new words this year. Use these resources as you expand your vocabulary.

Glossary

In the back of this book, you will find a glossary with definitions for your reference.



Interactive Glossary

The Interactive Glossary will support you as you work through your Interactive Student Edition and complete assignments online.

Jump into Learning!

You can find all the resources you need from your **Student Dashboard**.

1. Easily access scheduled work or assessments from the To-Do List.
2. View specific lesson resources throughout the course.
3. Review the previously completed work and see your scores.
4. Access to the Interactive Student Edition and the eToolkit easily with quick links.

You can use your **Interactive Student Edition** to complete assignments and practice and reference lesson content.

1. Use the slide numbers to find your page number.
2. Type or draw to work out problems and respond to questions.
3. Check your answers as you go through your assignment.

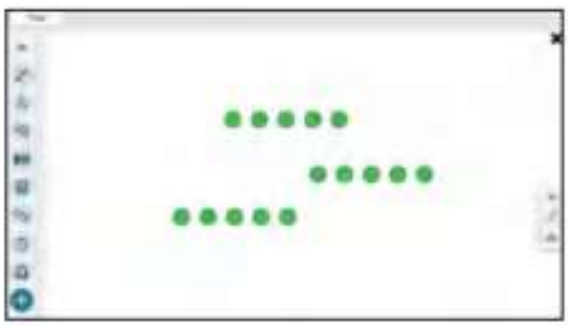
Access Lesson Supports Online!

In addition to your Interactive Student Edition, access these supports online while you practice.

MATH REPLAY | GO ONLINE

Need an Instant Replay of the Lesson Content?

Math Replay videos offer 1–2 minute overviews of the lesson concept to use as a reference while you are practicing or completing your homework.



Virtual Tools to Help You Problem Solve

You can access the eToolkit at any time from your Student Dashboard. You will have access to the following manipulatives:

- Counters
- Base-Ten Blocks
- Array Builder
- Fraction Model
- Bucket Balance
- Geometry Sketch
- Money
- Fact Triangles
- Number Line
- and more!

Key Concepts and Learning Objectives

Key Concept **Habits of Mind and Classroom Norms for Productive Math Learning**

- I can make sense of problems and quantities and represent them different ways. (Unit 1)
- I can represent a real-world situation using mathematics. (Unit 1)
- I can construct an argument to explain my thinking with clear and appropriate terms. (Unit 1)
- I can use patterns to develop efficient strategies to solve problems. (Unit 1)
- I can tell my math biography and recognize the behaviors and attitudes that support a productive learning environment. (Unit 1)

Key Concept **Operations with Fractions**

- I can add, subtract, and multiply fractions, including mixed numbers, with unlike denominators. (Units 9, 10)
- I can find the area of a rectangle with fractional side lengths. (Unit 10)
- I can describe multiplication as scaling. (Unit 10)
- I can divide unit fractions by whole numbers and whole numbers by unit fractions. (Unit 11)

Key Concept **Operations with Whole Numbers and Decimals**

- I can describe the relationship between place value positions. (Unit 3)
- I can use an algorithm to multiply whole numbers. (Unit 5)
- I can divide multi-digit dividends by 2-digit divisors. (Unit 7)
- I can add, subtract, multiply, or divide decimals. (Units 4, 6, 8)
- I can solve word problems involving operations with whole numbers or decimals. (Units 4, 5, 6, 7, 8)

Key Concept **Measurement and Data**

- I can describe volume as an attribute of solid figures. (Unit 2)
- I can measure volume by counting unit cubes. (Unit 2)
- I can calculate the volume of rectangular prisms using formulas. (Unit 2)
- I can find the volume of composite solid figures. (Unit 2)
- I can convert measurement units within a given measurement system. (Unit 12)
- I can interpret data on a line plot. (Unit 12)

Key Concept **Geometry**

- I can identify and describe features of a coordinate plane. (Unit 13)
- I can graph points on the coordinate plane to solve problems. (Unit 13)
- I can classify 2-dimensional figures into categories based on their properties. (Unit 13)

Key Concept **Algebraic Thinking**

- I can write numerical expressions to represent calculations that are described using written statements. (Unit 14)
- I can interpret numerical expressions without evaluating them. (Unit 14)
- I can use the order of operations to evaluate numerical expressions. (Unit 14)
- I can generate two numerical patterns using two given rules. (Unit 14)
- I can identify apparent relationships between corresponding terms in the generated number patterns. (Unit 14)

Math is...

How would you complete this sentence?

Math is.....

Math is not just carrying out operations and solving equations.

Math is...

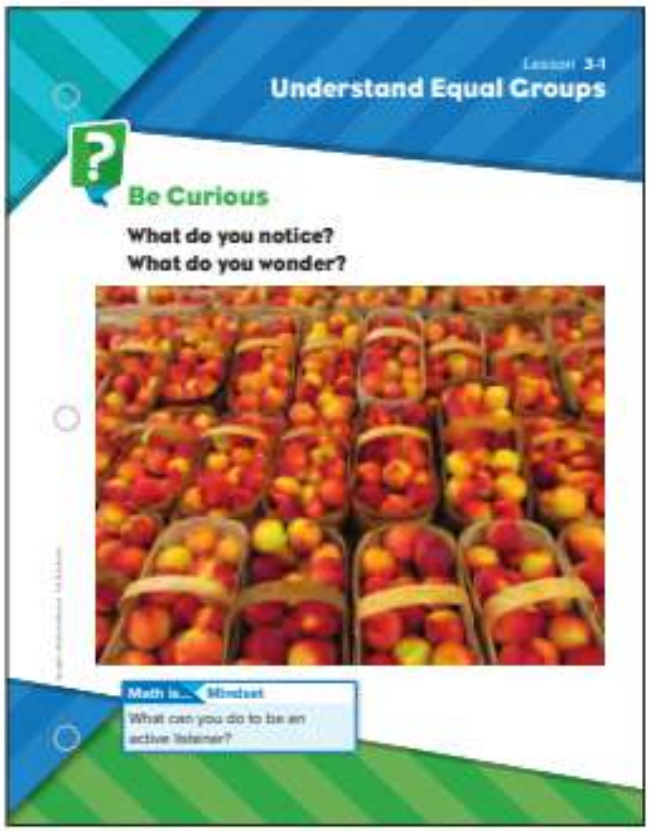
- working together
- finding patterns
- sharing ideas
- listening thoughtfully to our classmates
- sticking with a task even when it is a little challenging

In *Reveal Math*, you will develop the habits of mind that strong doers of math have. You will see that math is all around us.

Let's be Doers of Mathematics

Remember, math is more than getting the right answer. It is a tool for understanding the world around you. It is a language to communicate and collaborate. Be mindful of these prompts throughout the year to access the power of math.

1. **Math is... Mine**
   - Mindset
2. **Math is... Exploring and Thinking**
   - Planning
   - Exploring
   - Perseverence
   - Quantities
3. **Math is... In My World**
   - In My World
   - Choosing Tools
4. **Math is... Explaining and Sharing**
   - Explaining
   - Sharing
   - Precision
5. **Math is... Finding Patterns**
   - Patterns
   - Generalizations
6. **Math is... Ours**
   - Mindset



Math is... Mindset

What can you do to be an active listener?

Explore the Exciting World of STEM!

Ever wonder how math applies in the real world? In each unit, you will learn about a STEM career that engages in mathematics to make a positive impact in society, from protecting our parks to exploring outer space. Throughout the unit, you will have opportunities to dig into the STEM career through digital simulations and projects.

STEM Career Kid: Meet Hiro

Let the STEM Career Kid introduce their career and talk about their respective job responsibilities.

Math In Action: Ocean Engineer

Watch the Math in Action to see how the math you are learning applies to the real world and helps problem solve.

Hi, I'm Hiro.

I want to know everything about our oceans. The ocean has amazing plants and animals. I want to be an ocean engineer when I grow up to make sure our oceans are protected and everyone can enjoy them.

Math Is. . .

Focus Question

What does it mean to do math?

IGNITE!

Name _____

Map It

Using the fewest colors possible, color each state in the western United States so that no two states that share a boundary are the same color.

How many colors did you use?

Try it a second time. Can you use fewer colors?

Math Is Mine

Be Curious

What do you notice?
What do you wonder?

Learn

Math is all around us. We use it every day—in school, at home, and in our neighborhood. We use it when we build projects, play games, or practice our hobbies. We all have a math story.

Let's learn about our teacher's math biography.

How have you used math in the past?

Math is... Mindset

When do I use math during my day?

How do you use math now?

Math is... Mindset

How can I stay positive when I do math?

How do you think you will use math in your future?

Math is... Mindset

What do I want to learn about math?

Do you see yourself as good in math?

Math is... Mindset

What are my strengths in math?

How do you use math when doing your favorite things?

Math is... Mindset

How does math help me with my hobbies?

Work Together

What are some other questions you can ask your teacher about their math biography?

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is my math biography?

Reflect

What about my math biography do I want someone else to know?

Be Curious

What do you notice?
What do you wonder?

Learn

Lana counts the coins in her bank. She has only quarters, dimes, and nickels.

How many of each coin can she have?

When we do math, we use many strategies to make sense of problems.

I know:

- Lana has $12 in her bank.
- She has only quarters, dimes, and nickels.
- Four quarters equal $1.
- Ten dimes equal $1.
- Twenty nickels equal $1.

Math is... Exploring

What do I know about the problem?

I can ask:

- How many dimes and nickels would there need to be if there were 20 quarters in the bank?
- How many quarters would there be if there were 20 dimes and 20 nickels in the bank?

Math is... Planning

What questions can I ask myself?

When we do math, we work to solve problems, but sometimes the first try doesn't work. We keep trying and don't give up.

I can think about different quantities of quarters, dimes, and nickels.

- Could Lana have 20 quarters, 50 dimes, and 40 nickels?
- Could she have 36 quarters, 20 dimes, and 20 nickels?

Math is... Perseverance

What can I do if I'm stuck?

When we do math, we think about numbers in all sorts of ways. We think about how numbers and quantities relate.

I can relate the number of each coin and its fractional value of the dollar to get the dollar value.

- $20 \times \frac{1}{4} = 5$

  20 quarters equal $5.

- $50 \times \frac{1}{10} = 5$

  50 dimes equal $5.

- $40 \times \frac{1}{20} = 2$

  40 nickels equal $2.

Lana could have 20 quarters, 50 dimes, and 40 nickels.

Math is... Quantities

How do the numbers relate?

Work Together

Maggie bought the bag of apples shown.

She paid with nickels, dimes, and quarters.

What coins could she have used?

On My Own

MATH REPLAY | GO ONLINE

Name _____

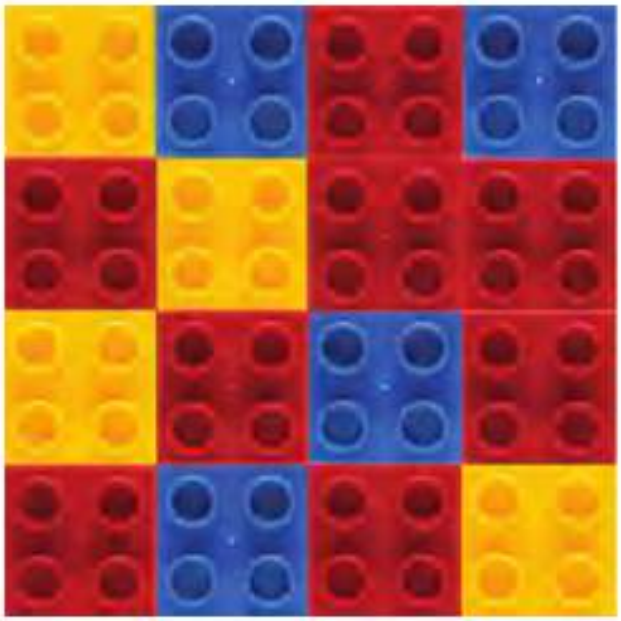
Lana found some more coins and now has $15. The coins include quarters, dimes, nickels, and pennies. How many of each coin could she have?

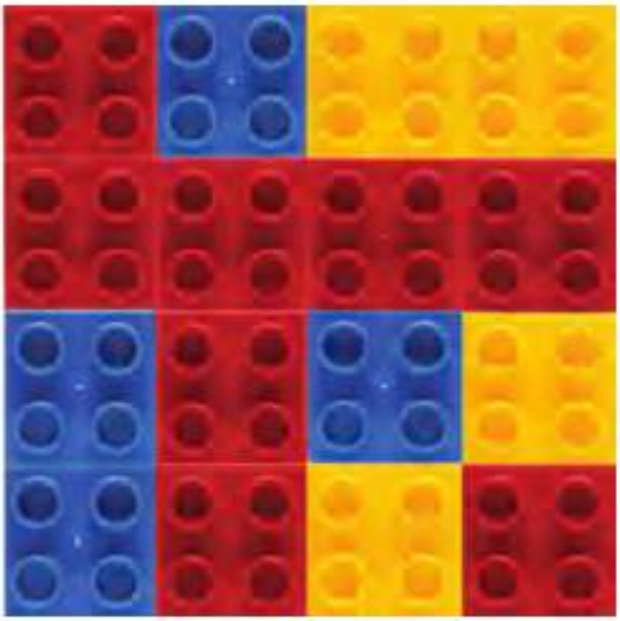
Reflect

Tell about a time when you had a problem and you didn't give up. It might be a math problem. But it might be a problem you had at home, playing a game, playing a sport, playing an instrument, drawing a picture, or doing a puzzle.

Be Curious

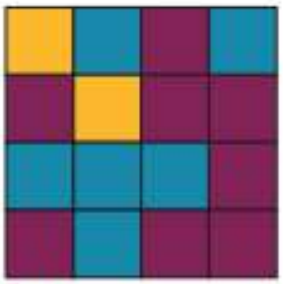
What do you notice? What do you wonder?





Learn

What fraction of the grid is shaded with each color?



When we do math, we make models to help us think about the math we need to solve the problem. Models can show a problem in different ways.

I can use a tally chart to track each color.

Color	Tally Marks	Totals
Purple	𝍸 |||	8
Blue	𝍸 |	6
Yellow	||	2

Math is... In My World

How can I visualize the problem?

I can use fractions to represent each color.

- There are 16 squares in the grid.
- Eight squares are purple.
  $\frac{8}{16}$ of the squares are purple.
- Six squares are blue.
  $\frac{6}{16}$ of the squares are blue.
- Two squares are yellow.
  $\frac{2}{16}$ of the squares are yellow.

Math is... In My World

How can I represent the problem?

When we do math, we use different tools to help us think about the math ideas. Some tools are more helpful for carrying out operations. Others are helpful for solving problems.

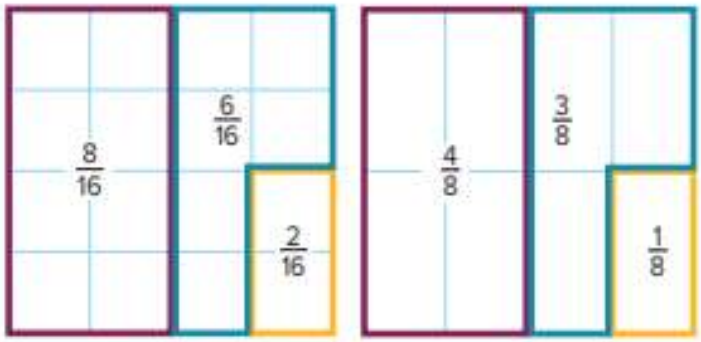
I can use a tally chart to track the number of squares of each color.

Color	Tally Marks	Totals
Purple	𝍸 |||	8
Blue	𝍸 |	6
Yellow	||	2

Math is... Choosing Tools

What tool can I use to represent the problem?

I can use fraction models to help me find equivalent fractions.

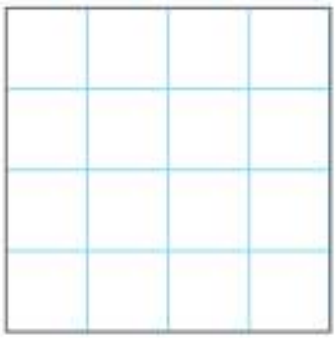


Math is... Choosing Tools

How can I use this tool to help me solve the problem?

Work Together

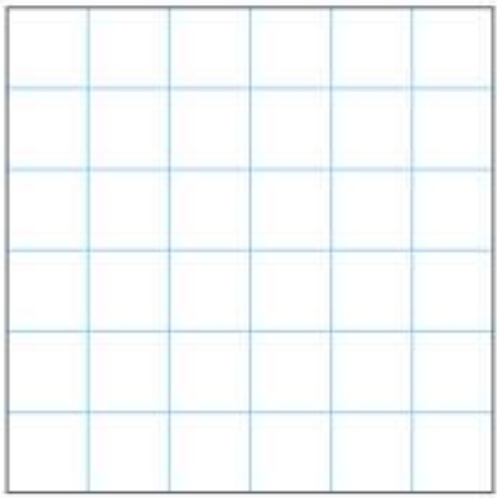
Amy colored $\frac{1}{8}$ of the grid red, $\frac{1}{2}$ yellow, and $\frac{3}{8}$ green. What does her grid look like?



On My Own

Name _____

Design your own color tile puzzle on the grid below. Color some of the squares blue, some yellow, some red, and some green. Find the fraction of the square for each color, but don't tell your partner. Give your partner your puzzle to solve.



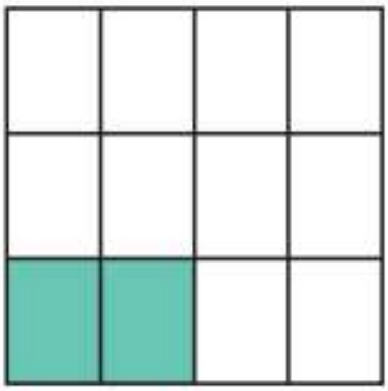
Reflect

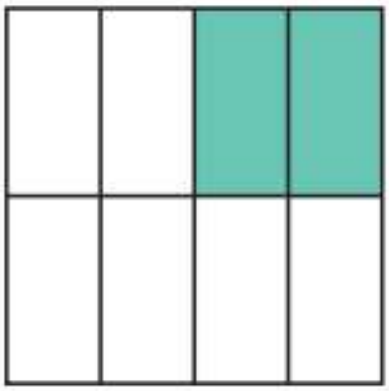
What are some ways to represent a problem in math?

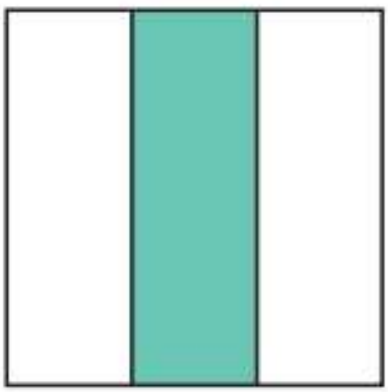
What tools do I prefer to use when solving problems involving fractions?

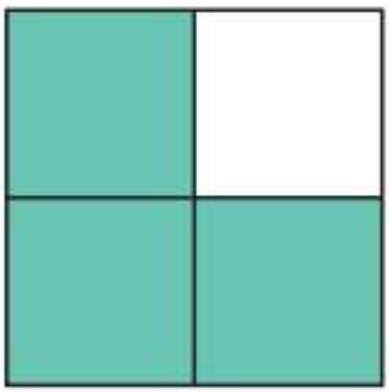
Be Curious

Which Doesn't Belong?









Learn

Aisha has three fractions in mind. Two are less than $\frac{1}{2}$ and one is greater than $\frac{1}{2}$. One of the fractions is a unit fraction.

What could these fractions be?

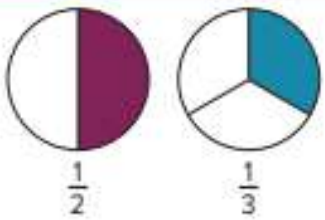
When we do math, we have to defend our thinking. Sometimes we use words, numbers, and pictures to create an argument.

Math is... Explaining

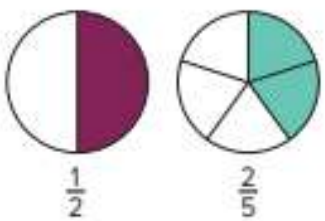
How can I justify my thinking?

I can use words or drawings to justify my thinking.

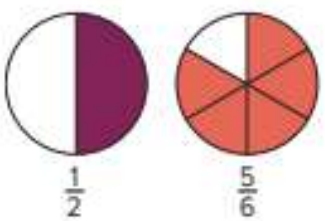
- The first fraction could be $\frac{1}{3}$. It is a unit fraction. It is less than $\frac{1}{2}$.



- The second fraction could be $\frac{2}{5}$. It is also less than $\frac{1}{2}$.

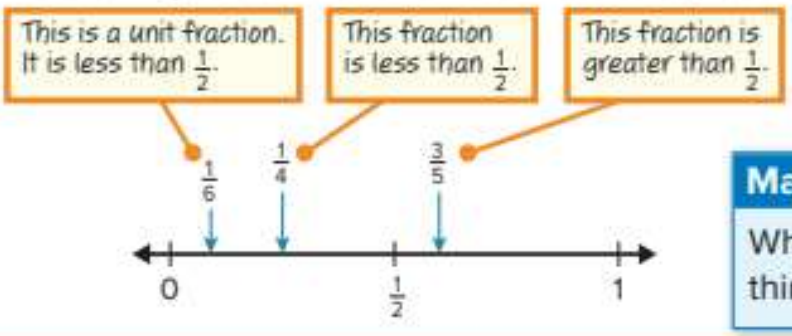


- The third fraction could be $\frac{5}{6}$. It is greater than $\frac{1}{2}$.



When we do math, we listen to the arguments of others and think about what makes sense and what doesn't.

Others might use different fractions and representations.



Math is... Sharing

What can I learn from others' thinking about the problem?

When we do math, we try to be precise in our arguments.

I justified my thinking about the three fractions that I identified.

- I used fraction circles to compare the fractions to the benchmark fraction $\frac{1}{2}$.
- I explained clearly what a unit fraction is.

Math is... Precision

Is my argument clear and precise?

We use correct vocabulary and make sure our calculations are accurate. We label our drawings and include units of measurement.

I used the correct terms for unit fractions and benchmark fractions.

Math is... Precision

Did I use math vocabulary appropriately?

Work Together

One classmate said that $\frac{1}{2}$, $\frac{2}{3}$, and $\frac{3}{4}$ could be the three fractions.

Do you agree with the classmate? What arguments can you construct to support your position?

On My Own

MATH REPLAY | GO ONLINE

Name _____

Aisha has three fractions in mind. One is a unit fraction that is less than $\frac{1}{4}$. Another is a unit fraction that is less than $\frac{1}{2}$. The third is greater than $\frac{1}{2}$ and is equivalent to $\frac{3}{4}$.

What could these fractions be?

Reflect

How did you create an argument and justify your thinking?

Why do you think it is important to be precise in math?

Be Curious

What do you notice?
What do you wonder?

Learn

How are the equations related?

$4 \times 12 = ?$ $4 \times 12 = ?$

$8 \times 12 = ?$ $4 \times 24 = ?$

$16 \times 12 = ?$ $4 \times 48 = ?$

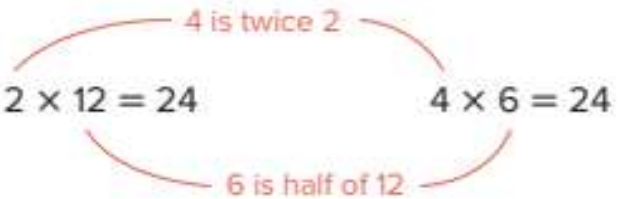
Math is full of patterns and relationships. When we do math, we notice patterns and relationships.

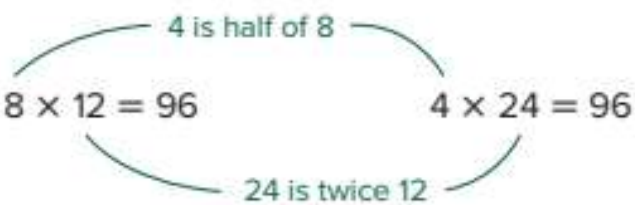
I know that I see a pattern when I see something similar over and over again.

- Some products are the same.
- There is a pattern with the factors.

Math is... Patterns

How do I know that I see a pattern?





When we do math, we use patterns to solve problems efficiently. Patterns can help you solve problems that are similar.

I can use the pattern above to solve these equations.

$8 \times 24 = \mathbf{192}$ — 24 is twice 12, so I can double the product of 8×12.

$16 \times 12 = \mathbf{192}$ — 16 is twice 8 and 12 is half of 24, so the product is the same as 8×24.

Math is... Patterns

How can the pattern help me solve the problem?

When we do math, we look for rules or generalizations. Patterns can also help you solve problems that are similar.

I can see a rule in the equations.

$2 \times 12 = 24$	$4 \times 6 = 24$
$4 \times 12 = 48$	$4 \times 12 = 48$
$8 \times 12 = 96$	$4 \times 24 = 96$
$16 \times 12 = 192$	$4 \times 48 = 192$

- When one factor is doubled, the product is doubled.

Math is... Generalizations

What is the rule for this pattern?

I can use this pattern to find other products.

- If I know that $4 \times 48 = 192$,
  then I know that $4 \times 96 = 384$ and $8 \times 48 = 384$,
  because $2 \times 192 = 384$.

Math is... Generalizations

How does this pattern help me work more efficiently?

Work Together

$4 \times 8 = ?$	$3 \times 15 = ?$	$6 \times 4 = ?$	$5 \times 8 = ?$
$4 \times 16 = ?$	$3 \times 30 = ?$	$12 \times 4 = ?$	$5 \times 16 = ?$
$8 \times 16 = ?$	$6 \times 30 = ?$	$6 \times 8 = ?$	$10 \times 8 = ?$

How are these equations related? What other equations can you write that follow the same pattern?

On My Own

MATH REPLAY | GO ONLINE

Name _____

How are these equations related?

$8 \times 9 = ?$	$7 \times 15 = ?$	$9 \times 6 = ?$	$5 \times 8 = ?$
$8 \times 18 = ?$	$7 \times 30 = ?$	$9 \times 12 = ?$	$5 \times 16 = ?$
$8 \times 36 = ?$	$7 \times 60 = ?$	$9 \times 24 = ?$	$5 \times 32 = ?$

What other equations can you write that follow the same pattern?

Reflect

What other patterns and relationships do you know about in math? Tell how those patterns have helped you.

How can patterns help you solve problems or equations?

Be Curious

What do you notice?
What do you wonder?

Learn

How do we do math?

When we do math, we often work together.

- We listen attentively.
- We share our thinking.
- We are respectful of others' ideas.
- We critique the *ideas of* others; we don't critique others.
- We take turns when sharing ideas.

Math is... Mindset

What can I do to be an active listener?

When we do math, sometimes we work on our own.

- We stay focused.
- We look for help when we are stuck.

Math is... Mindset

What can I do to stay focused on my work?

When we do math, we solve problems.

- We make sense of problems.
- We understand the quantities and the relationships among the quantities.
- We don't quit. If we get stuck, we look for different ways.
- We use tools. We select the tool that works best for us.
- We look for patterns.

Math is... Mindset

What can I do when I get frustrated?

Work Together

1. What rules should we have when we share our thinking with classmates?

2. What can you do to help all classmates feel comfortable in math class?

3. How do we use tools responsibly?

4. How can I know when I need help?

On My Own

MATH REPLAY | GO ONLINE

Name _____

What are two promises our class can make so that we always work well together?

Reflect

What are my responsibilities to make sure we can all learn math productively?

Unit Review

Name _____

Vocabulary Review

1. What does it mean to defend your thinking?

2. Why is a plan to solve a problem important?

3. How can we decide which tool to use to solve a problem?

4. What are some examples of patterns in the math you did last year?

Review

What should be our classroom norms for doing math?
Write up to 5 norms.

1.

2.

3.

4.

5.

Reflect

Choose one of the norms you wrote and tell why it is important.

Unit 1

Fluency Practice

Name _____

Fluency Strategy

You can use partial sums to find a sum.

Partial Sums

$$\begin{array}{rl} 364 & \\ +523 & \\ \hline 800 & (300 + 500) \\ 80 & (60 + 20) \\ +\ 7 & (4 + 3) \\ \hline 887 & \end{array}$$

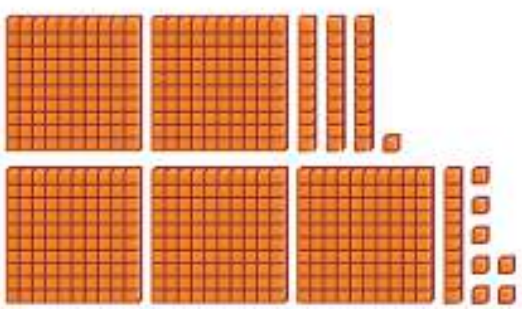
1. Use partial sums to find the sum.

$$\begin{array}{rl} 538 & \\ +275 & \\ \hline \square & (500 + 200) \\ \square & (30 + 70) \\ +\square & (8 + 5) \\ \hline \square & \end{array}$$

Fluency Flash

Add the two sets of blocks. Write the addition equation.

2.



Fluency Check

What is the sum?

3. $732 + 138 =$ _____

4. $369 + 471 =$ _____

5. $556 + 428 =$ _____

6. $637 + 285 =$ _____

7. $636 + 182 =$ _____

8. $192 + 354 =$ _____

9. $239 + 455 =$ _____

10. $219 + 684 =$ _____

11. $526 + 389 =$ _____

12. $473 + 220 =$ _____

Fluency Talk

Write one addition equation it makes sense to solve using partial sums. Explain how you found the sum.

When using partial sums, do you have to add the partial sums in a particular order? Explain.

Volume

Focus Question

How can I find the volume of rectangular prisms?

Hi, I'm Hiro.

I want to be an ocean engineer. Ocean engineers help build devices to explore the ocean. An ocean engineer might build a waterproof case for a camera. After they determine the camera's volume, they know that the case should be at least that big!

STEM video | GO ONLINE

IGNITE!

Name _____

Painted Cubes

Use connecting cubes to build each figure.

Figure 1

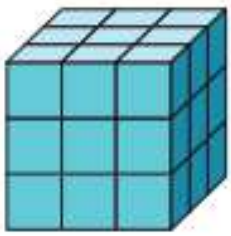


Figure 2

Figure 2 is made up of unit cubes. Suppose Figure 2 is dropped into a bucket of red paint. How many unit cubes would have

all 6 faces painted red? _____

exactly 5 faces painted red? _____

exactly 4 faces painted red? _____

exactly 3 faces painted red? _____

exactly 2 faces painted red? _____

exactly 1 face painted red? _____

no faces painted red? _____

Find the sum of the numbers of cubes you listed above. _____

Did you account for all of the small cubes in Figure 2? _____

Understand Volume

Be Curious

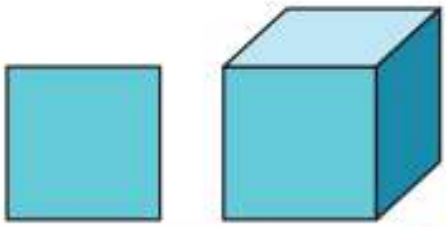
How are they the same? How are they different?

Math is... Mindset

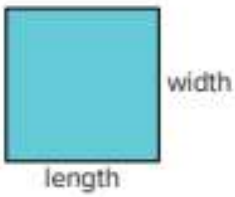
What do you already know that can help you with today's work?

Learn

How are these figures the same?
How are they different?

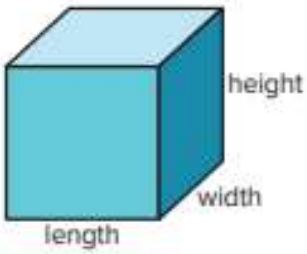


This figure has two dimensions.



Each dimension is a measureable edge length.

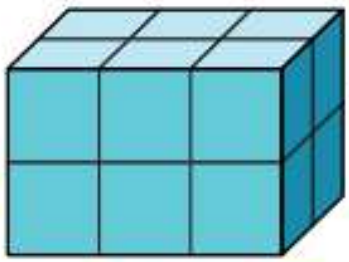
This figure has three dimensions.



Each dimension is a measureable edge length.

The space occupied by a 3-dimensional figure is called **volume**.

You can pack **rectangular prisms** using **unit cubes** with no gaps or overlaps to establish volume.



A unit cube has edge lengths of 1 unit.

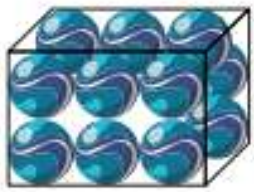
Math is... Precision

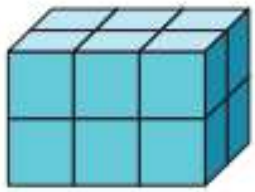
Does an empty box have volume? Does a filled box have volume? Explain why or why not.

Work Together

One student used marbles to pack a rectangular prism. Another student used unit cubes.

What do you notice about these strategies?

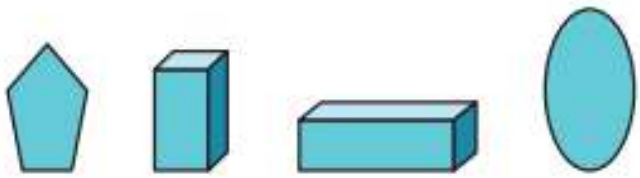




On My Own

Name _____

1. Which of these figures have volume? Justify your reasoning.



For the situation, would you measure the *length*, *area*, or *volume*? Explain.

2. the amount of soil needed to fill a flower pot

3. the distance of a bike ride

4. the amount of wall space covered by a poster

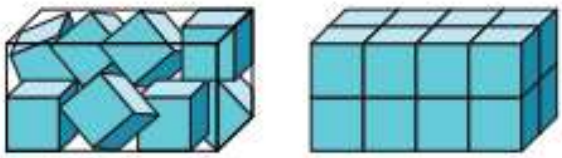
5. the amount of concrete needed to fill a patio

6. the space inside a moving truck

7. the distance around a building

8. **STEM Connection** An ocean engineer needs to tile the walls of an oceanarium. Does he need to find the area of the walls or the volume? Explain why. He also needs to fill the tank with seawater. Does he need to find the area or volume? Explain why.

9. Each rectangular prism is filled with unit cubes. Which is packed with no gaps or overlaps? Justify your reasoning.



10. **Extend Your Thinking** Can you pack a cylinder with unit cubes without gaps or overlaps? Explain your thinking.

Reflect

How can I explain volume of rectangular prisms to a friend?

Math is... Mindset

How did you use prior knowledge to help you with today's work?

Lesson 2-2

Use Unit Cubes to Determine Volume

Be Curious

What do you notice?
What do you wonder?

Math is... Mindset

How can different ideas and viewpoints help you learn better?

Learn

How can you determine the volume of this box?

You can pack the box with unit cubes to determine the volume. A unit cube has a volume of one **cubic unit**.

Sixteen cubes fill the bottom of the box.

16 unit cubes

Are there gaps or overlaps?

There are 3 layers of unit cubes.

$3 \times 16 = 48$

The volume of the box is 48 cubic units.

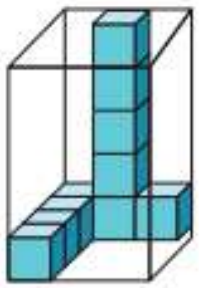
Math is... Structure

Why can you use addition or multiplication to determine the number of unit cubes?

One way to determine the volume of a 3-dimensional figure is to pack it with unit cubes and count the cubes.

Work Together

How can you determine the volume of this box?

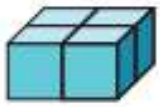


On My Own

Name _____

Determine the volume of the figure.

1.



Number of layers: _____

Number in each layer: _____

Volume: _____ cubic units

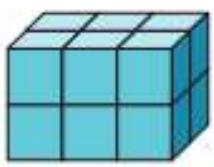
2.

Number of layers: _____

Number in each layer: _____

Volume: _____ cubic units

3.

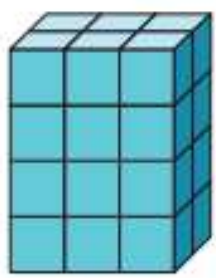


Number of layers: _____

Number in each layer: _____

Volume: _____ cubic units

4.



Number of layers: _____

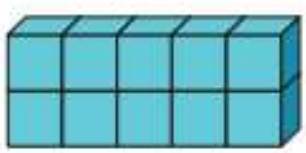
Number in each layer: _____

Volume: _____ cubic units

5. How can you determine the volume of the box?

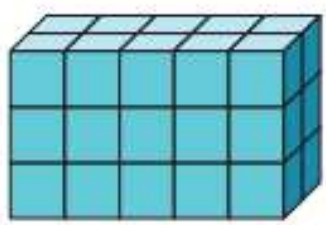
What is the volume of the figure?

6.



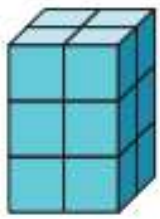
_____ cubic units

7.

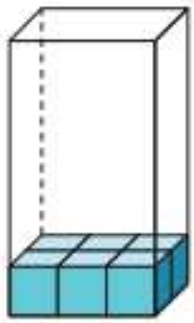


_____ cubic units

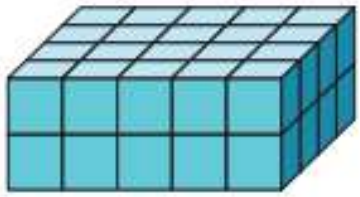
8. What equations could you write to determine the volume of this figure?



9. The volume of this box is 36 cubic units. How many layers of unit cubes are in the box? Explain your thinking.



10. **Error Analysis** Carlos and Kaylee are finding the volume of this figure. Carlos says there are 5 layers with 8 unit cubes in each layer. Kaylee says there are 4 layers with 10 unit cubes in each layer. Who is correct? Explain.



Reflect

How does understanding multiplication as area connect to determining the volume of a 3-dimensional figure?

Math is... Mindset

How did different ideas and viewpoints help you learn better?

Lesson 2-3

Use Formulas to Determine Volume

Be Curious

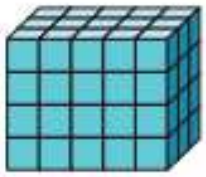
What do you notice?
What do you wonder?

Math is... Mindset

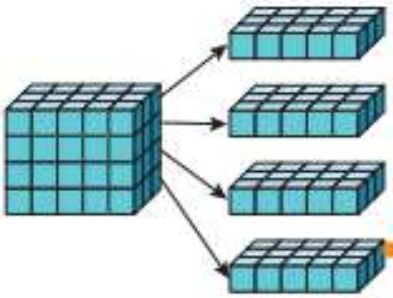
What can you do to stay focused on your work?

Learn

What are some ways to determine the volume of this rectangular prism?



One Way Multiply to find the number of cubes in one layer. Then, multiply by the number of layers.



$3 \times 5 = 15$

Volume = *Base* × *height*

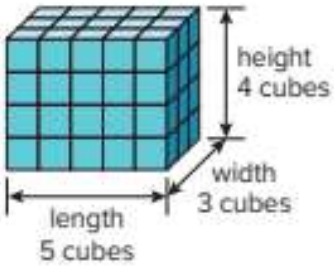
$V = B \times h$

$V = 15 \times 4$

$V = 60$ cubic units

A **formula** is a rule that uses math symbols.

Another Way Multiply the three attributes.



Volume = length × width × height

$V = l \times w \times h$

$V = 5 \times 3 \times 4$

$V = 60$ cubic units

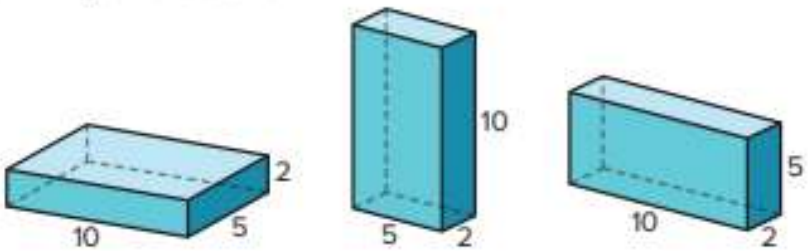
You can use a volume formula to determine the volume of a rectangular prism.

Math is... Modeling

How are the two formulas related?

Work Together

What do you notice about the volumes of the rectangular prisms? Explain why this occurs.



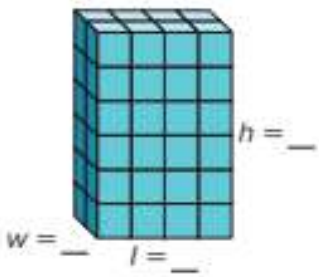
On My Own

MATH REPLAY | GO ONLINE

Name _____

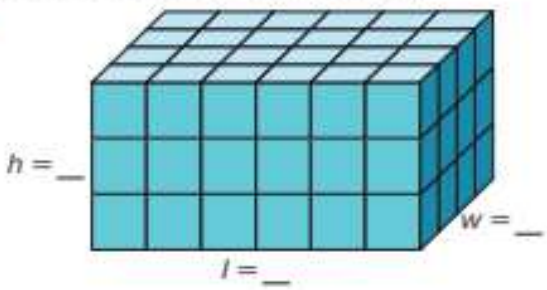
Label the dimensions and then determine the volume of the figure.

1.



$V =$ _____ cubic units

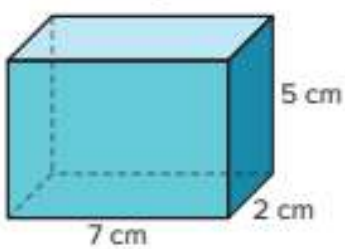
2.



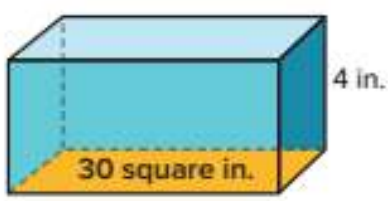
$V =$ _____ cubic units

What is the volume of the figure? Tell which volume formula you used and why.

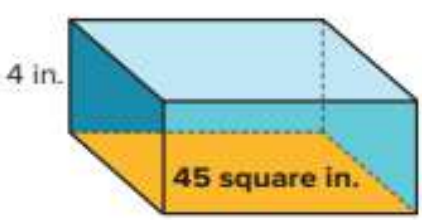
3.



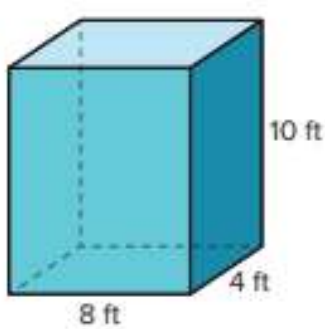
4.



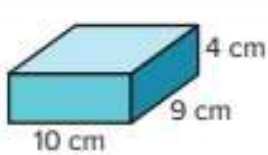
5.



6.



7. Explain how the Associative Property can be used to mentally find the volume of this figure.

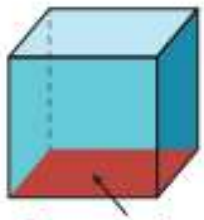


8. A freezer, shaped like a rectangular prism, is 6 feet long, 2 feet wide, and 3 feet tall. What is the volume of the freezer?

9. An Olympic swimming pool is 2 meters deep. What is the volume of the swimming pool?

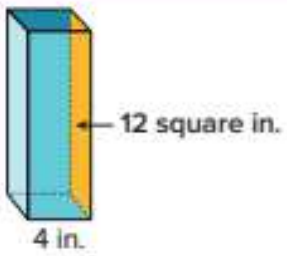
10. **Extend Your Thinking** Do you agree or disagree with this statement? Justify your reasoning. When the edge lengths of a rectangular prism are doubled, the volume is also doubled.

11. **Error Analysis** Colton says that he does not have enough information to find the volume of the figure. Do you agree? Explain.



Reflect

Can you use a formula to find the volume of this rectangular prism? Explain why or why not.



Math is... Mindset

How did you stay focused on your work?

Unit 2

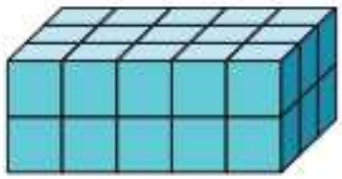
Volume of Rectangular Prisms

CHERYL TOBEY MATH PROBES

Name _____

Which expression(s) can be used to determine the volume of the rectangular prisms shown? Select all that apply. Do not actually find the volume of the prism.

1.



a. 15×2

b. $5 + 3 + 2$

c. $(5 \times 2) + (3 \times 2) + (5 \times 3)$

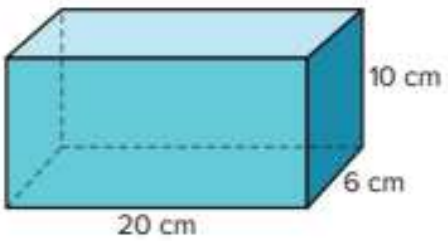
d. $10 \times 15 \times 6$

e. $2 \times 3 \times 5$

Explain your choice(s).

Which expression(s) can be used to determine the volume of the rectangular prisms shown? Select all that apply. Do not actually find the volume of the prism.

2.



a. $20 + 6 + 10$

b. 60×20

c. $(10 + 6) \times 20$

d. $20 \times 6 \times 10$

e. $(20 \times 6) + (6 \times 10)$

Explain your choice(s).

Reflect On Your Learning

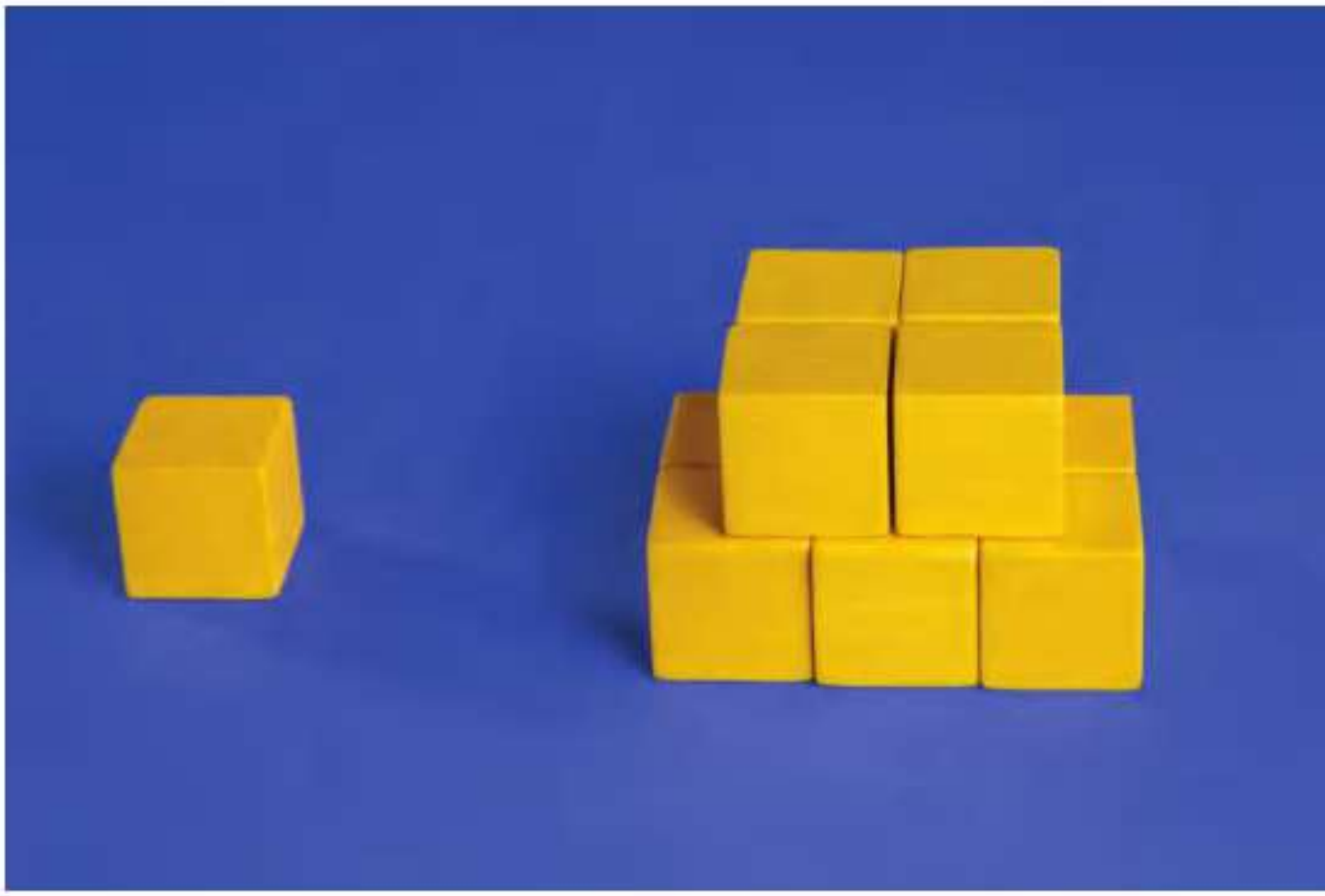
I'm confused. — I'm still learning. — I understand. — I can teach someone else.

Lesson 2-4

Determine the Volume of Composite Figures

Be Curious

How are they the same?
How are they different?

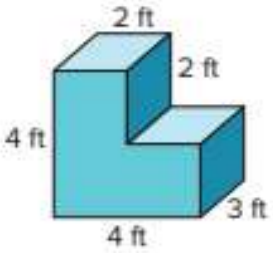


Math is... Mindset

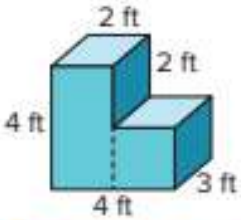
What can you do to build a relationship with a classmate?

Learn

How can you determine the volume of this figure?



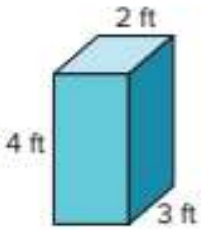
Look for a way to make two rectangular prisms.



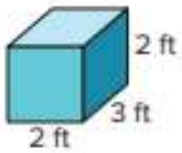
Math is... Connections

Why should the volume be the same whichever way you decompose a composite figure?

Determine the volume of each rectangular prism.



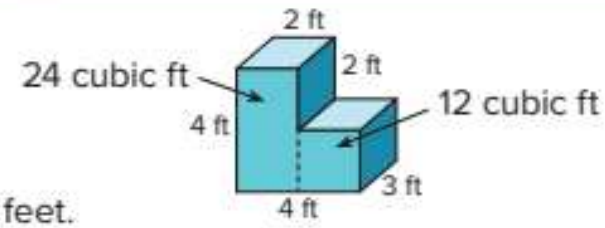
$V = 2 \times 3 \times 4$
$V = 24$ cubic ft



$V = 2 \times 3 \times 2$
$V = 12$ cubic ft

Add the volumes.

$24 + 12 = 36$

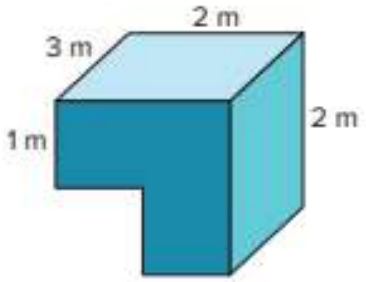


The volume of the figure is 36 cubic feet.

You can determine the volume of the **composite solid figure** by adding the volumes of the rectangular prisms that compose it.

Work Together

Draw lines to show how you could decompose the solid. What is the volume of the figure?

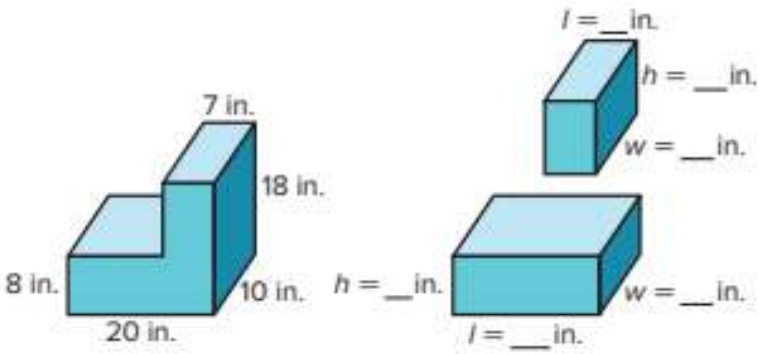


On My Own

MATH REPLAY | GO ONLINE

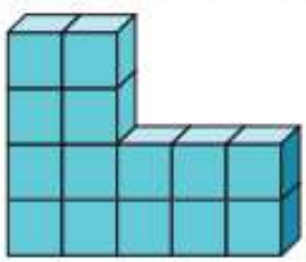
Name _____

1. Label the unknown dimensions of the decomposed figure and then find the volume of the composite solid figure.



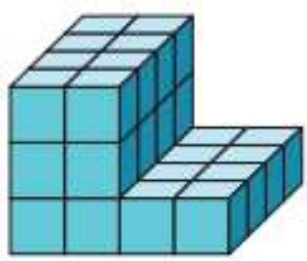
What is the volume of the figure?

2.



$V =$ _____ cubic units

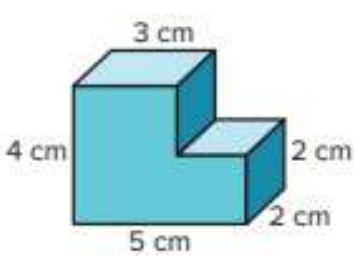
3.



$V =$ _____ cubic units

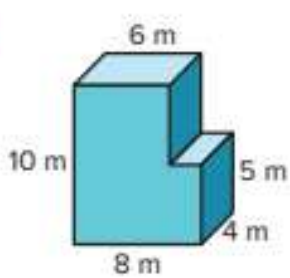
Draw line(s) to show how you decomposed the figure.
What is the volume of the figure?

4.



$V =$ _____

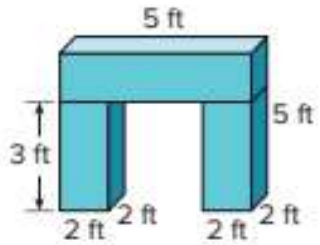
5.



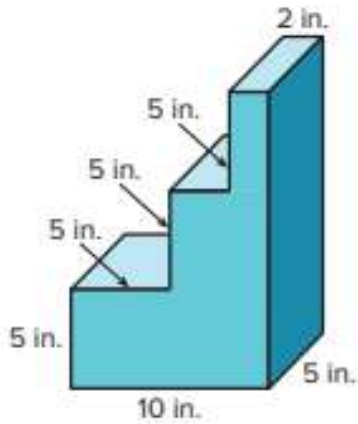
$V =$ _____

Draw line(s) to show how you decomposed the figure.
What is the volume of the figure?

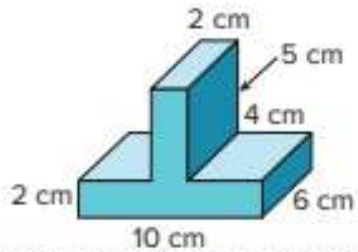
6.



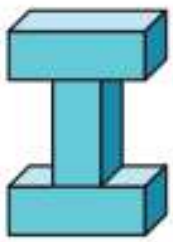
7.



8. STEM Connection An ocean engineer is designing an underwater robot. The robot will have two pieces like the one shown. What is the volume of the robot?



9. A sign company made this letter using rectangular prisms. Each prism is 12 inches by 4 inches by 4 inches. What is the volume of the letter? Explain.



10. Extend Your Thinking Two rectangular prisms have a combined volume of 18 cubic feet. The volume of one prism is twice the volume of the other prism. What is the volume of each prism? Record your thinking.

Reflect

How is finding the volume of composite figures similar to finding the area of composite figures?

Math is... Mindset

What did you do today to build a better relationship with a classmate?

Solve Problems Involving Volume

Be Curious

How are they the same?
How are they different?

252 cubic in.

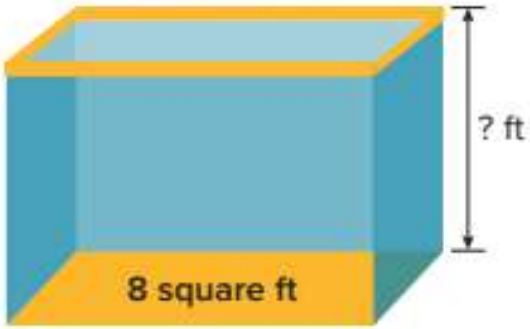
252 cubic in.

Math is... Mindset

How can creative thinking help you solve a problem?

Learn

A fish tank has a volume of 24 cubic feet.
How can you determine the height of the fish tank?



Math is... Quantities

How can you describe the relationship between the given quantities?

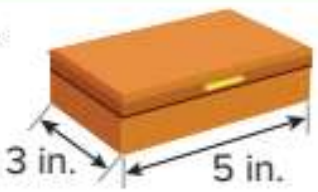
You can use a volume formula to solve problems.

The volume of the tank is 24 cubic feet. The base is 8 square feet. $V = B \times h$ $24 = 8 \times h$	To solve the equation, write a related division equation. $24 = 8 \times h$ $24 \div 8 = h$ $24 \div 8 = 3$ The fish tank has a height of 3 feet.

When solving problems involving volume, you can use the given information to help you determine which volume formula to use.

Work Together

A jewelry box has a volume of 30 cubic inches.
What is the height of the jewelry box?
Show your work.



On My Own

Name _____

1. Lillian wants to buy the suitcase with the greater volume. Which suitcase should she buy? Explain.

Suitcase A

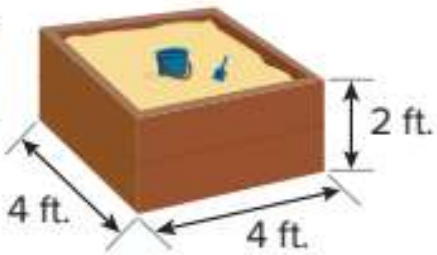
Suitcase B

2. A cargo container has a volume of 108 cubic meters, a height of 3 meters, and a width of 2 meters. How long is the cargo container? Show your work.

3. The volume of this rabbit hutch is 36 cubic feet.
What is the width? Show your work.

4. The base of a rectangular prism is a square with side lengths equal to 5 centimeters. The volume of the rectangular prism is 100 cubic centimeters. What is the prism's height? Explain.

5. **Error Analysis** Desmond said that the volume of the sandbox is 10 cubic feet. Do you agree with Desmond's solution? Explain your thinking.



6. Lisa is building a rectangular planter that is 2 feet wide, 4 feet long, and 1 foot high. She has 3 cubic feet of soil. How much more soil does she need to fill the planter? Explain.

7. The aquarium tank has a volume of 320 cubic meters. What is the width of the tank? Show your work.

8. **Extend Your Thinking** Rachel is helping build a rectangular sandbox with a volume of 60 cubic feet and a height of 3 feet. What are the possible lengths and widths of the sandbox?

Reflect

How did you think like a mathematician to solve these problems?

Math is... Mindset

How did creative thinking help you solve a problem?

Unit Review

Name _____

Vocabulary Review

Choose the correct word(s) to complete each sentence.

composite solid figure	cubic unit
formula	rectangular prism
unit cube	volume

1. A _____ is a solid figure that is made up of two or more solids. (Lesson 2–4)

2. The space occupied by a 3-dimensional figure, or solid figure, is called _____. (Lesson 2–1)

3. A cube with edge lengths of one unit is called a _____. (Lesson 2–1)

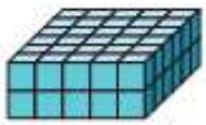
4. A _____ is a unit for measuring volume. (Lesson 2–2)

5. A _____ is an equation that describes the relationship between two or more quantities. (Lesson 2–3)

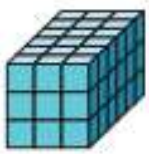
6. A 3-dimensional figure with six rectangular faces is called a _____. (Lesson 2–1)

Review

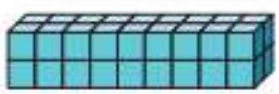
7. Which rectangular prisms have a volume of 36 cubic units? Select all that apply. (Lesson 2–3)

A. 

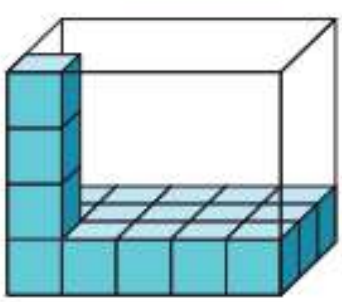
B. 

C. 

D. 

E. 

8. The figure shows a rectangular prism partially filled with unit cubes. (Lesson 2–2)

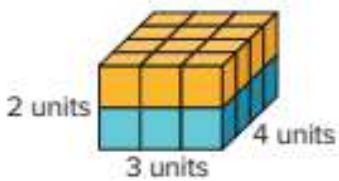


What is the volume of the rectangular prism?

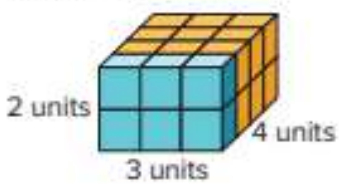
_____ cubic units

9. Which equation represents the different ways to find the volume of these figures? (Lesson 2–3)

Prism A:



Prism B:



A. $(4 \times 3) \times 2 = 4 \times (3 \times 2)$

B. $(3 \times 4) \times 2 = (4 \times 3) + 2$

C. $3 \times (4 \times 2) = (3 \times 4) \times (3 \times 2)$

D. $3 \times (4 + 2) = (3 \times 4) + (3 \times 2)$

10. A rectangular pool is 42 feet long, 15 feet wide, and 4 feet high. It is filled with water to a depth of 3 feet. What is the volume of the water in the pool? (Lesson 2–5)

A. 4,410 cubic feet

B. 2,520 cubic feet

C. 630 cubic feet

D. 1,890 cubic feet

11. The volume of a rectangular prism is 48 cubic inches. Which could be the dimensions of the prism? Select all that apply. (Lesson 2–3)

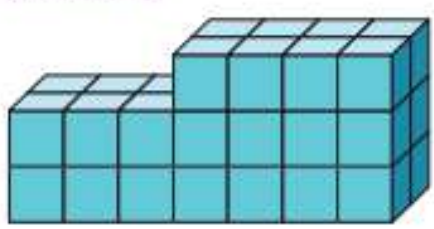
A. length = 24 inches
width = 1 inch
height = 2 inches

B. length = 6 inches
width = 6 inches
height = 4 inches

C. length = 16 inches
width = 16 inches
height = 16 inches

D. length = 12 inches
width = 2 inches
height = 2 inches

12. What is the volume of this figure? (Lesson 2–4)



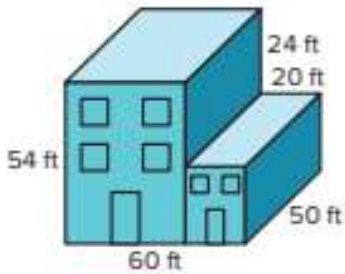
A. 32 cubic units

B. 38 cubic units

C. 34 cubic units

D. 36 cubic units

13. The figure shows the plans for a warehouse.



What will be the volume of the warehouse? (Lesson 2–4)

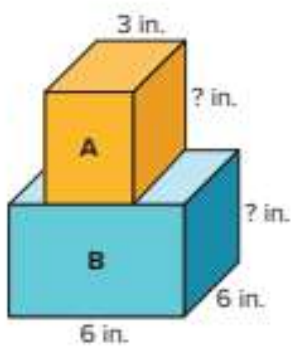
A. 72,000 cubic feet

B. 210,000 cubic feet

C. 138,000 cubic feet

D. 162,000 cubic feet

14. The combined volume of the two boxes shown is 270 cubic inches. Box A and Box B have the same width and height. Box B has twice the volume of Box A. (Lesson 2–4)

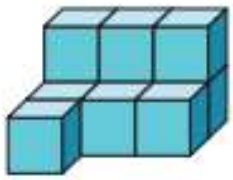


Fill in the height and volume of each box.

	Height (in.)	Volume (cubic in.)
Box A		
Box B		

Performance Task

An ocean engineer places cube-shaped crates on a ship as shown in the figure.



Part A: One student saw the boxes and said that the figure has a volume of 7 cubic units. Is the student correct? Explain your thinking.

Part B: The ocean engineer adds more crates so that the figure becomes a rectangular prism that has a length of 3 units, a width of 3 units, and a height of 2 units. How many more crates does the ocean engineer add? Show your work and explain your answer.

Reflect

Describe two ways to determine the volume of rectangular prisms.

Unit 2

Fluency Practice

Name _____

Fluency Strategy

You can decompose by place value to subtract.

Decompose to Subtract

$746 - 234 = ?$

$234 = 200 + 30 + 4$

So, $746 - 200 = 546$

$546 - 30 = 516$

$516 - 4 = 512$

$746 - 234 = 512$

1. Decompose by place value to find the difference.

$975 - 543 = ?$

$543 =$ _____ + _____ + _____

$975 -$ _____ $= 475$

$475 -$ _____ $= 435$

$435 -$ _____ $=$ _____

Fluency Flash

What subtraction equation is represented by the base-ten blocks?

2.

Fluency Check

What is the sum or difference?

3. $849 - 317 =$ _____

4. $467 - 254 =$ _____

5. $785 - 132 =$ _____

6. $597 + 236 =$ _____

7. $987 - 624 =$ _____

8. $456 + 259 =$ _____

9. $384 + 279 =$ _____

10. $795 - 264 =$ _____

11. $658 + 232 =$ _____

12. $487 + 152 =$ _____

Fluency Talk

How would you explain to a friend how to decompose a number by place value to subtract two 2-digit numbers?

How do you use place value to help you add using partial sums?

Place Value and Number Relationships

Focus Question

How can I extend my knowledge of place value to understand decimals?

STEM video | GO ONLINE

IGNITE!

Name _____

Number Lines

Consider the following numbers:

1.2 1.20 0.7 2.30 2.03 0.25 0.52 1 3.00 1.5

1. What sort of real-world situations might the above numbers represent?

_____

_____

_____

2. What do you notice about the numbers?

_____

_____

3. Rewrite each number in the list as a whole number, fraction, or mixed number.

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

4. Estimate the location of each number on the number line below. Draw a point for each number. Write the number as a decimal above the point; write the number as a whole number, fraction, or mixed number below the point.

Generalize Place Value

Be Curious

Which doesn't belong?

Math is... Mindset

How confident are you that you will be successful today?

Learn

What are some ways to describe the relationship between the values of the digits in the number shown?

thousands	hundreds	tens	ones
7	7	7	7

You can describe the relationship between the place-value positions.

One Way Relate 7,000 to 700.

thousands	hundreds	tens	ones
7	7	7	7

$7{,}000 = 10 \times 700$

Each 7 is ten times the value of the 7 to the right.

Another Way Relate 700 to 7,000.

thousands	hundreds	tens	ones
7	7	7	7

700 is $\frac{1}{10}$ of 7,000.

Each 7 is $\frac{1}{10}$ the value of the 7 to the left.

Math is... Structure

What ideas have we learned before that were helpful in understanding this relationship?

A digit represents 10 times as much as it represents in the place to the right. It also represents $\frac{1}{10}$ the value of what it represents in the place to its left.

Work Together

What are two different ways to describe the relationship between the values of each digit 4 in 449,035?

On My Own

MATH REPLAY | GO ONLINE

Name _____

Use the place-value chart to complete the sentence.

1. The value of the 6 in the hundreds place is _____ times the value of the 6 in the _____ place.

hundred thousands	ten thousands	thousands	hundreds	tens	ones
	3	2	5	6	5
	7	3	6	1	0

Complete the sentences to describe the relationship between the values of each digit 4 and each digit 9 in the number 447,699.

2. The value of the digit 4 in the ten thousands place is _____ the value of the digit 4 in the _____ place.
3. The value of the digit 9 in the _____ place is 10 times the value of the digit 9 in the _____ place.

Is each statement *true* or *false*?

4. The digit 3 in 5,630, is 10 times the value of the digit 3 in 342.

5. The digit 3 in 5,630, is $\frac{1}{10}$ the value of the digit 3 in 342.

6. The digit 3 in 5,630, is 10 times the value of the 3 in 13.

7. The digit 3 in 5,630, is $\frac{1}{10}$ the value of the digit 3 in 13.

8. On Tuesday, 600 people attended a play at the Children's Theatre. The same play had 6,000 attendees on Saturday.

   When you compare 600 attendees to 6,000 attendees, 600 is _____ as much as 6,000.

9. How does the value of the 2 in the hundred thousands place relate to the value of the 2 in the ten thousands place?

hundred thousands	ten thousands	thousands	hundreds	tens	ones
2	2	9	0	3	5

10. How does the value of the 7 in the thousands place relate to the value of the 7 in the ten thousands place?

hundred thousands	ten thousands	thousands	hundreds	tens	ones
4	7	7	3	0	0

11. **STEM Connection** Studies show that the first observation of Halley's comet was in 466 B.C. What are two different ways to describe the relationship between the digits 6 in 466?

12. **Extend Your Thinking** Write a number so that the digit 5 has a value of 5,000 and is $\frac{1}{10}$ the value of the digit in the ten thousands place.

Reflect

How did I think like a mathematician today?

Math is... Mindset

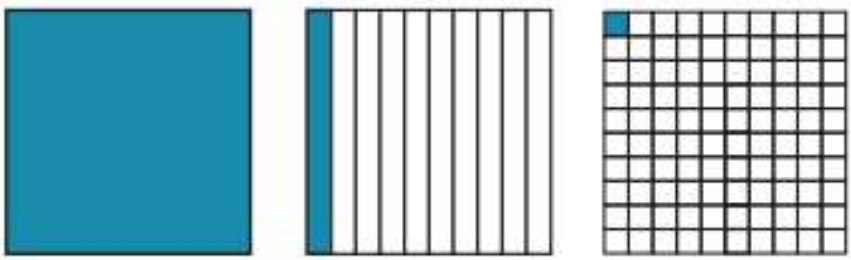
How did you show confidence that you were successful today?

Lesson 3-2

Extend Place Value to Decimals

Be Curious

What do you notice?
What do you wonder?



Math is... Mindset

What helps you feel calm when you feel angry?

Learn

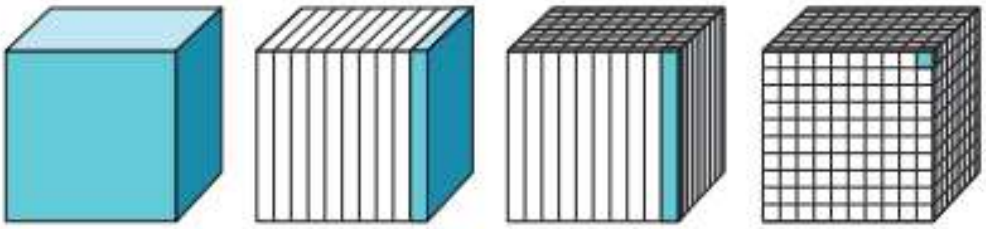
Keagan thinks that the value of each digit 1 is the same.

ones	tenths	hundredths	thousandths
1	1	1	1

How can you help Keagan make sense of this number?

Use a representation to show the value of each digit 1.

ones | tenths | hundredths | **thousandths**



1 | $\frac{1}{10}$ or 0.1 | $\frac{1}{100}$ or 0.01 | $\frac{1}{1,000}$ or 0.001

The value of the digit 1 depends on its position in the number.

Math is... Patterns

How is the name of the position related to the fractional part of the whole?

A digit in one place in a decimal number represents 10 times as much as it represents in the place to its right. It also represents $\frac{1}{10}$ the value of what it represents in the place to its left.

Work Together

What are two different ways to describe the relationship between the 0.8 and 0.08?

On My Own

MATH REPLAY | GO ONLINE

Name _____

1. Which of the following statements is *true*?
   - **A.** 0.009 is ten times 0.09
   - **B.** 0.09 is ten times 0.009
   - **C.** 0.09 is $\frac{1}{10}$ of 0.009
   - **D.** 9 is $\frac{1}{10}$ of 0.9

2. Which of the following statements is *true*?
   - **A.** 0.003 is $\frac{1}{10}$ of 0.03
   - **B.** 0.03 is $\frac{1}{10}$ of 0.003
   - **C.** 0.3 is ten times 0.003
   - **D.** 3 is ten times 0.03

Marcella has $5.00, Niko has $0.50, and Benjamin has $0.05. Use this information to complete each sentence.

3. Benjamin has _____ the money Niko has.
4. Marcella has _____ the money Niko has.

Complete each sentence.

5. $9.00 is _____ $0.90.
6. $0.90 is _____ $9.00.

7. What are two different ways to describe the relationship between the values of each digit 4 in 3.244?

8. What are two different ways to describe the relationship between the values of each digit 2 in 2.257?

9. **Error Analysis** Toby writes the number 23.2 and says that the value of the digit 2 in the tens place is 10 times the value of the digit 2 in the tenths place. How do you respond to him?

10. For which numbers is the value of the digit 8 ten times the value of the digit 8 in the number 4.984?

A. 3.814 **B.** 5.820

C. 6.982 **D.** 8.492

11. **STEM Connection** The world's biggest submarine can sail at a speed of about 25.5 miles per hour on the surface. How can you describe the relationship between 5 and 0.5?

12. **Extend Your Thinking** Using only the digits 1, 4, and 5, write a number so that the value of the digit 5 is ten times the value of the digit 5 in the number 1.45. Write another number so that the value of the digit 4 is $\frac{1}{10}$ the value of the digit 4 in 1.45.

Reflect

How is the relationship between the values of digits in a decimal the same as the relationship between the values of digits in a whole number?

Math is... Mindset

How have you felt calm when you felt angry?

Read and Write Decimals

Be Curious

What do you notice?
What do you wonder?

Math is... Mindset

What can you do to be an active listener?

Learn

How can you read the mass of the strawberries?

You can use a place-value chart to help you identify the value of each digit.

Decimal numbers can be written in expanded form.

tens	ones	tenths	hundredths	thousandths
3	4	6	1	8

$30 + 4 + 0.6 + 0.01 + 0.008$

$30 + 4 + \frac{6}{10} + \frac{1}{100} + \frac{8}{1{,}000}$

Standard form uses digits and a decimal point.

34.618

The word form helps you read decimal numbers.

tens	ones	tenths	hundredths	thousandths
3	4	6	1	8

thirty-four and six hundred eighteen thousandths

Math is... Precision

Why is it important to include *and* when reading a decimal number?

Reading and writing decimal numbers follows the same patterns as reading and writing whole numbers.

Work Together

Carly wrote 0.83 in expanded form using multiplication. Is her work correct? Explain your reasoning.

$8 \times \frac{1}{10} + 3 \times \frac{1}{100}$

On My Own

Name _____

What is the word form of the decimal?

1. 8.2

2. 8.02

3. 0.82

4. 0.082

What is the standard form of the decimal?

5. 0.9 + 0.03 + 0.007

6. 20 + 0.7 + 0.08 + 0.006

7. 5 + 0.01 + 0.009

8. $7 + \frac{4}{10} + \frac{5}{1{,}000}$

What is each decimal in standard form?
What is each decimal in expanded form?

9. ninety-three and six thousandths

10. three and eight hundred forty-six thousandths

11. two hundred twelve and fifteen thousandths

12. seven hundred fifty-one thousandths

13. **STEM Connection** The Andromeda galaxy is 2.537 million light years from Earth. How can you write this decimal number in expanded form and in word form?

14. Kole wrote the decimal 34.821 in word form as *thirty-four eight hundred twenty-one thousandths*. Is he correct? Explain why or why not.

15. **Extend Your Thinking** Write the word forms of 321,578 and 321.578. What is the same? Explain why those similarities exist.

Reflect

How is place value used when writing decimal numbers in expanded form?

Math is... Mindset

How have you been an active listener today?

Compare Decimals

Be Curious

How are they the same?
How are they different?

3.281 kg 3.095 kg 3.9 kg

Math is... Mindset

How can a different perspective help you with your work today?

Learn

Which bag weighs more?

3.281 kg 3.095 kg

Compare the digits in each place starting with the greatest place-value position.

ones	tenths	hundredths	thousandths
3	2	8	1
3	0	9	5

Both numbers have 3 ones.

2 tenths > 0 tenths

Math is... Thinking

Why was it not necessary to compare the hundredths place?

3.281 > 3.095. So, the purple bag weighs more than the red bag.

You can compare decimals the same way you compare multi-digit numbers.

Work Together

Compare the weights of these bags.

ones	tenths	hundredths	thousandths
3	2	8	1
3	9		

3.281 ◯ 3.9

3.281 kg 3.9 kg

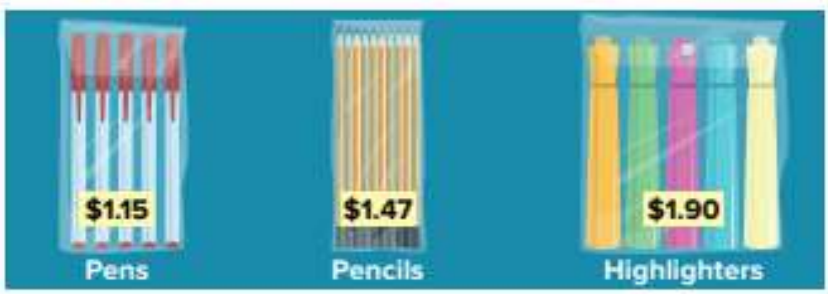
On My Own

Name _____

Write >, <, or = in each ◯ to make a true comparison. You can use a place-value chart to help.

1. 7.790 ◯ 8.7
2. 1.021 ◯ 1.095
3. 6.55 ◯ 5.66
4. 9.9 ◯ 0.99
5. 3.41 ◯ 3.41
6. 2.563 ◯ 2.573

For exercises 7–9, use the cost of each school supply.



7. Do the pencils or the highlighters cost more?

8. Write a comparison statement for the cost of the pens and the pencils.

9. Which school supply is the most expensive? Which school supply is the least expensive? Explain how you know.

10. Error Analysis An astronomer calculated that a comet traveled 192.40 kilometers. The astronomer wrote 192.4 kilometers on a chart. How do you respond to the astronomer?

11. Write a comparison statement that compares the speed of a quarter horse to the speed of a lion.

88.5 km per hour

80.5 km per hour

12. Which of the following comparisons are *true*?

A. $0.773 > 1.773$

B. $101.020 = 101.02$

C. $0.04 < 0.4$

D. $0.321 < 0.0123$

13. Extend Your Thinking Use the digits 5, 7, 8, and 9 to create the greatest possible decimal number.

Reflect

How is comparing decimals similar to comparing whole numbers?

Math is... Mindset

How has a different perspective helped you with your work today?

Unit 3

Comparing Decimals

CHERYL TOBEY MATH PROBES

Name _____

Compare the decimals by choosing >, <, or =.

1. 0.035 ☐ 0.35

Circle the symbol that goes in the ☐.

> < =

Explain or show why you chose that symbol.

2. 0.27 ☐ 0.235

Circle the symbol that goes in the ☐.

> < =

Explain or show why you chose that symbol.

3. 0.4 ☐ 0.575

Circle the symbol that goes in the ☐.

> < =

Explain or show why you chose that symbol.

4. 0.47 ☐ 0.470

Circle the symbol that goes in the ☐.

> < =

Explain or show why you chose that symbol.

Reflect On Your Learning

I'm confused. | I'm still learning. | I understand. | I can teach someone else.

Lesson 3-5

Use Place Value to Round Decimals

Be Curious

What do you notice?
What do you wonder?

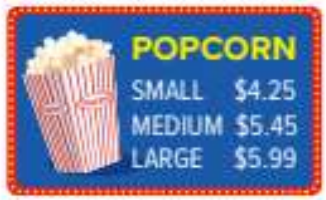
Math is... Mindset

How can being flexible in your thinking help you make good decisions?

Learn

Maya and her sister want to buy a medium popcorn.

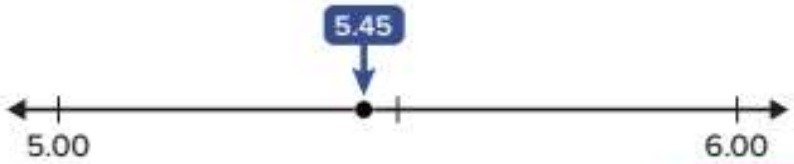
About how much money do they need?



You can round decimals to get a good estimate.

One Way Use a number line

Round to the ones.



The bag of popcorn costs about $5.00.

Another Way Use place value

to the ones	to the tenths
5.45	5.45
↓	↓
5.00	5.50

Rounding to the nearest tenths gives a better estimate.
Maya and her sister need about $5.50 to buy a medium popcorn.

Math is... Precision

What do you notice about the estimate when rounding to lesser place value positions?

You can round decimals using number lines or place value to make reasonable estimates. Think about how precise the estimate needs to be when deciding to which place you should round to.

Work Together

What is the weight of the pumpkin rounded to the nearest whole number? nearest tenth?

On My Own

Name _____

What is each decimal rounded to the nearest whole number? You can use a number line or place value.

1. 78.39

2. 4.07

3. 12.7

4. 15.55

What is each decimal rounded to the nearest tenth? You can use a number line or place value.

5. 42.89

6. 3.65

7. 16.12

8. 98.17

9. Danica rounded a number to the nearest tenth to get 14.7. What number could she have rounded to get this answer?

10. Which statements are *true*?

A. The decimal 43.678 rounded to the nearest tenth is 43.6.

B. The decimal 43.678 rounded to the nearest tenth is 43.7.

C. The decimal 43.678 rounded to the nearest hundredth is 43.68.

D. The decimal 43.678 rounded to the nearest hundredth is 43.67.

11. The masses of five different dogs are shown. Round each mass to the nearest whole number.

22.8 kg 25.4 kg 27.1 kg 25.8 kg 26.7 kg

12. STEM Connection The mass of the sun takes up about 99.86% of the mass of our solar system. What is 99.86 rounded to the nearest tenth?

13. Which of the following numbers are closer to 100? Which are closer to 99?

99.03 99.87 99.49 99.27 99.72

14. Extend Your Thinking The price of a container of orange juice, rounded to the nearest one is $3.00. Between what two amounts could the actual price be?

Reflect

How is rounding decimals similar to rounding whole numbers?

Math is... Mindset

How has being flexible in your thinking helped you make good decisions?

Unit Review Name _____

Vocabulary Review

Choose the correct word(s) to complete each sentence.

decimal	tenths
place value	hundredths
decimal point	thousandths

1. A _____ is a period that separates the ones and the tenths in a decimal number. (Lesson 3-2)

2. _____ is a place value position. It represents $\frac{1}{1{,}000}$ of a whole. (Lesson 3-2)

3. _____ is a place value position. It represents $\frac{1}{100}$ of a whole. (Lesson 3-2)

4. The value given to a digit by its position in a number is called _____. (Lesson 3-1)

5. A number that has a digit in the tenths place, hundredths place, and beyond is called a _____. (Lesson 3-2)

6. _____ is a place value position. It represents $\frac{1}{10}$ of a whole. (Lesson 3-2)

Review

7. Which statement correctly compares values of the digit 8 in 284,560 and 128,773? (Lesson 3-1)

A. The value of the digit 8 in 284,560 is $\frac{1}{10}$ the value of the digit 8 in 128,773.

B. The value of the digit 8 in 284,560 is 10 times the value of the digit 8 in 128,773.

C. The value of the digit 8 in 284,560 is 10,000 times the value of the digit 8 in 128,773.

8. Complete the sentence. (Lesson 3-3)

In standard form, the number *thirty-six and eight hundred fourteen thousandths is written* as _____

9. Determine whether each comparison is *true* or *false*. (Lesson 3-4)

	True	False
$0.49 < 0.5$		
$0.304 > 0.333$		
$0.019 < 0.09$		
$0.08 > 0.81$		
$0.111 < 0.11$		
$0.68 = 0.068$		

10. Complete each sentence. (Lesson 3-5)

0.737 rounded to the nearest hundredth is _____.

0.737 rounded to the nearest tenth is _____.

11. Do the numbers round to 8.1 when rounded to the nearest tenth? Choose *yes* or *no*. (Lesson 3-5)

	Yes	No
7.99		
8.162		
8.074		
8.13		
8.012		

12. The table show the lengths of the tracks at Valley High School and Eastside High School. (Lesson 3-4)

School	Length of Track (in meters)
Valley H.S.	398.25
Eastside H.S.	398.09

Write a comparison using $>$, $<$, or $=$.

MATH REPLAY | GO ONLINE

13. Which of the following statements is *true*? (Lesson 3-2)

A. 0.002 is 10 times 0.02

B. 0.02 is $\frac{1}{10}$ of 0.002

C. 0.02 is 10 times 0.002

D. 2 is $\frac{1}{10}$ of 0.2

14. Complete the sentence. (Lesson 3-2)

7 is _____ 0.7.

15. Complete the sentence. (Lesson 3-2)

0.05 is _____ 0.5.

16. Complete the expanded form of the number 8.207. (Lesson 3-3)

$8 + 2 \times \_\_\_\_ + \_\_\_\_ \times \frac{1}{1{,}000}$

17. Write the decimal number in standard form. (Lesson 3-3)

$3 \times \frac{1}{100} + 9 \times \frac{1}{1{,}000}$

18. Write 44.259 in word form. (Lesson 3-3)

19. List three different decimal numbers that, when rounded to the nearest tenth, round to 3.2. (Lesson 3-5)

20. Show two different ways to write the expanded form of the number 3.48. (Lesson 3-3)

Performance Task

There are eight planets in our solar system. Each planet orbits the sun at different speeds. Some planets have no moons and some planets have multiple moons!

PART A. The table shows length of time it takes Jupiter and Saturn to orbit the Sun in relation to Earth's orbit. Complete the table to show the word form and the expanded form of each speed.

Name	Orbit Speed (in Earth years)		
	Standard Form	Word Form	Expanded Form
Jupiter	11.86		
Saturn	29.4		

PART B. Jupiter has 67 confirmed moons. Each moon orbits at different speeds. One moon takes 259.22 Earth days to orbit Jupiter and another one takes 259.653 Earth days. Use >, <, or = to compare the orbit speeds. Explain your answer.

Reflect

Explain how place value helps you understand the relationship between decimal places.

Unit 3

Fluency Practice

Name _____

Fluency Strategy

You can use an **algorithm** to add. Add the digits in the same place value.

Add the ones, tens, hundreds, then thousands.

$$\begin{array}{r} 2{,}431 \\ +\ 3{,}247 \\ \hline 5{,}678 \end{array}$$

$$\begin{array}{r} {\scriptstyle +1\ +1\ +1\ \ } \\ 1{,}367 \\ +\ 4{,}856 \\ \hline 6{,}223 \end{array}$$

Sometimes it is necessary to regroup.

Fluency Flash

What is the sum?

1.

	thousands	hundreds	tens	ones
	3	5	0	2
+	4	1	9	6

2.

	thousands	hundreds	tens	ones
	6	4	2	8
+	1	2	5	3

Fluency Check

What is the sum or difference?

3. 1,397 + 248 = _____

4. 597 − 462 = _____

5. 899 − 654 = _____

6. 12,947 + 8,126 = _____

7. 34,510 + 21,468 = _____

8. 259 + 346 = _____

9. 2,345 + 7,413 = _____

10. 219 + 684 = _____

11. 2,468 + 3,579 = _____

12. 192 + 354 = _____

Fluency Talk

Explain to a friend how you know if you have to regroup when adding using an algorithm.

How is adding using partial sums similar to adding using an algorithm?

Add and Subtract Decimals

Focus Question

How can I add and subtract decimals?

STEM video | GO ONLINE

IGNITE!

Name _____

How Far?

A. Make a guess: How many steps do you think it would take you to walk across the width of our classroom? ____ steps

What number of steps would definitely be too great? ____ steps

What number of steps would definitely be too few? ____ steps

B. Record the number of steps for each student who walked across the room.

____ steps	____ steps	____ steps
____ steps	____ steps	____ steps
____ steps	____ steps	____ steps
____ steps	____ steps	____ steps

C. Why do you suppose each student did not walk the same number of steps?

D. A common step length for a fifth grader is 1.9 feet. Use this information, along with one of the step-counts listed in Part B, to estimate the width of the room in feet.

Estimated width of the room: ____ feet

E. The actual width of the classroom, given to you by your teacher, is ____ feet. Describe how close your estimate was to the actual distance.

Lesson **4-1**

Estimate Sums and Differences of Decimals

Be Curious

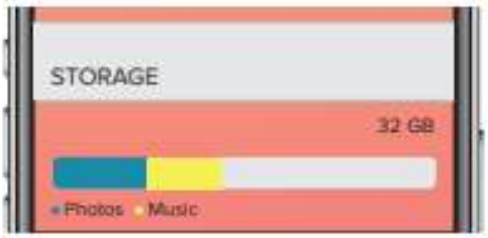
What do you notice?
What do you wonder?

Math is... Mindset

What goal do you want to accomplish today?

Learn

A phone has 32 gigabytes of storage. Photos take up 8.25 gigabytes of this storage, and music takes up 3.62 gigabytes.



How can you determine about how many gigabytes of storage are left?

First, estimate how much storage the photos and music take up.

Use rounding to estimate the sum.

$8.25 \quad 3.62$

$8 + 4 = 12$

Math is... Choosing Tools

What strategies do we know for estimating sums?

The photos and music take up about 12 gigabytes of storage.

Next, use compatible numbers to estimate the difference.

$32 \quad 11.87$

$32 - 12 = 20$

The total storage of photos and music is 11.87 gigabytes. Is this sum reasonable?

The phone has about 20 gigabytes of storage left.

Strategies used to estimate sums and differences of whole numbers can also be used to estimate sums and differences of decimals. Estimating helps assess the reasonableness of calculated solutions.

Work Together

About how much more does Hero weigh than Layla? How did you determine which estimation strategy to use?

Layla

82.98

Hero

86.74

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is a reasonable estimate for the sum or difference? Explain the strategy you used.

1. 9.86 + 4.30

___ + ___ = ___

2. 43.85 + 56.01

___ + ___ = ___

3. 3.92 + 6.14

___ + ___ = ___

4. 24.73 + 26.05

___ + ___ = ___

5. 8.32 − 5.9

___ − ___ = ___

6. 88.4 − 10.96

___ − ___ = ___

7. 16.28 − 5.9

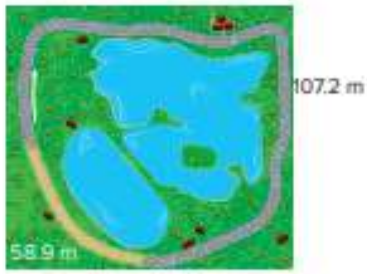
___ − ___ = ___

8. 5.42 − 1.7

___ − ___ = ___

9. **STEM Connection** A baby rabbit weighs 24.8 grams. A veterinarian predicts the rabbit will weigh about 64.5 grams by the next visit. About how much weight will the rabbit gain?

10. The path around a lake is part stone and part dirt. About how long is the path around the lake?



11. Marcus's family is driving 354.3 miles to his grandmother's house. They have driven 209.7 miles. About how many more miles does Marcus's family have left to drive?

12. The winner of a skateboarding competition scored 87.83 points. The second-place skateboarder scored 81.50 points. About how many more points did the winner score than the second-place skateboarder?

13. Aaron has 1.3 meters of red yarn and 1.65 meters of purple yarn. Aaron says he has 2.95 meters of yarn. Is his answer reasonable? Explain.

14. **Extend Your Thinking** Charles had $20.00 to spend at the zoo. His ticket cost $11.25, and he spent $4.39 for lunch. Charles says he spent about $15.00 so far. Charles thinks he has enough money to buy a $4.99 souvenir. Do you agree with Charles? Explain.

Reflect

How would you explain to a friend how to estimate the sum of two decimals?

Math is... Mindset

How have you worked to accomplish your goal today?

Unit 4

Estimating Decimal Sums and Differences

Name _____

For each problem, use what you know about decimals and estimation to choose the better answer. Do not perform the exact addition or subtraction.

1. 0.04 + 0.603

Circle **a** or **b** to show the better estimate.

a. less than 1

b. greater than 1

Explain or show your thinking.

2. 0.99 + 0.009

Circle **a** or **b** to show the better estimate.

a. less than 1

b. greater than 1

Explain or show your thinking.

For each problem, use what you know about decimals and estimation to choose the better answer. Do not perform the exact addition or subtraction.

3. $0.67 - 0.085$

Circle **a** or **b** to show the better estimate.

a. less than $\frac{1}{2}$

b. greater than $\frac{1}{2}$

Explain or show your thinking.

4. $1.587 - 0.89$

Circle **a** or **b** to show the better estimate.

a. less than $\frac{1}{2}$

b. greater than $\frac{1}{2}$

Explain or show your thinking.

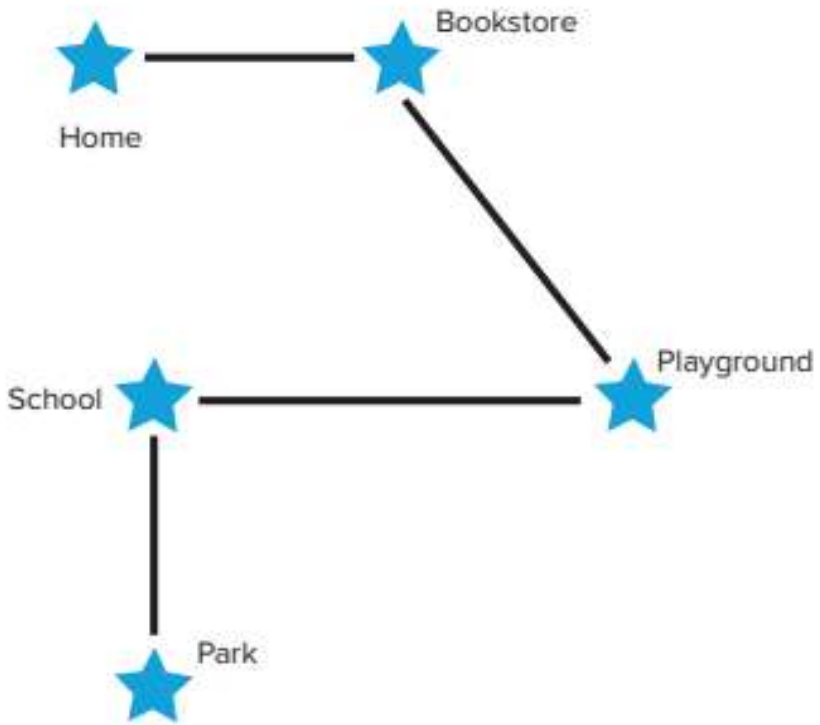
Reflect On Your Learning

I'm confused. — I'm still learning. — I understand. — I can teach someone else.

Represent Addition of Decimals

Be Curious

What's the question?

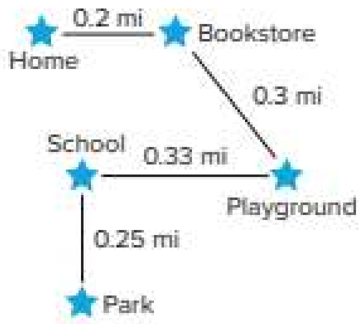


Math is... Mindset

How do you feel about learning math?

Learn

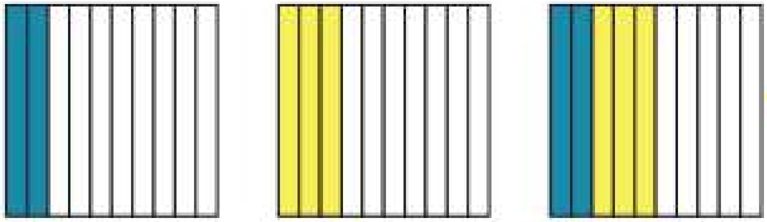
Deja drew a map showing the distances she walked.



How can you determine how far Deja walks from home to the bookstore, then to the playground? How can you determine how far she walks from the playground to the school, then to the park?

Deja walks from home to the bookstore, then to the playground.

0.2 + 0.3 = 0.5

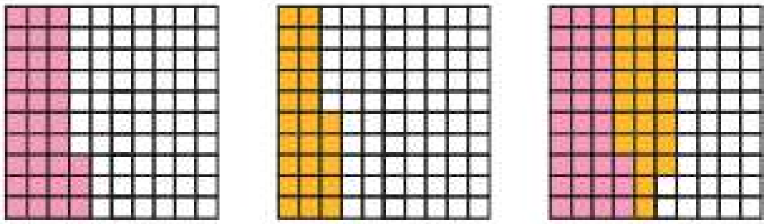


Decimal grids can help you solve the equation.

Deja walked 0.5 mile.

Deja walks from the playground to school, then to the park.

0.33 + 0.25 = 0.58



Deja walked 0.58 mile.

Math is... Choosing Tools

How are decimal grids helpful in determing the sum of two decimals?

You can use decimal grids to help solve addition equations involving decimals.

Work Together

René bought potatoes and turnips. How much do the potatoes and turnips weigh? Use decimal grids to solve.

0.9 kg

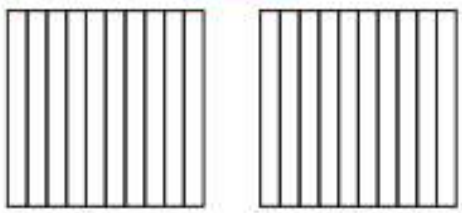
0.3 kg

On My Own

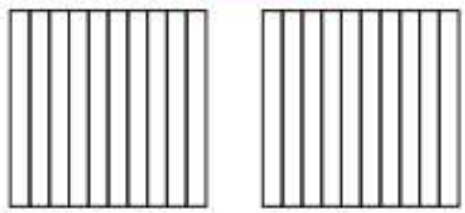
Name _____

What is the sum? Use the decimal grids.

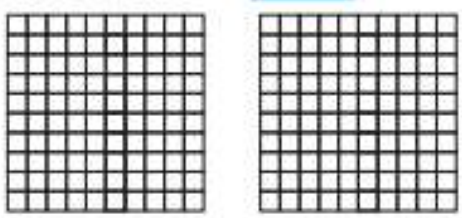
1. $0.7 + 0.1 =$ _____



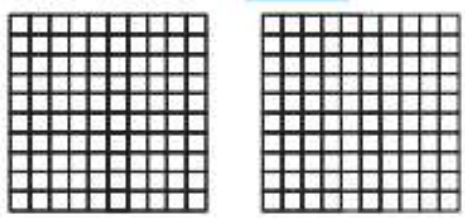
2. $0.5 + 0.8 =$ _____



3. $0.02 + 0.09 =$ _____



4. $0.78 + 0.64 =$ _____



What is the sum? Use decimal grids to show the sum.

5. $0.2 + 0.7 =$ _____

6. $0.5 + 0.6 =$ _____

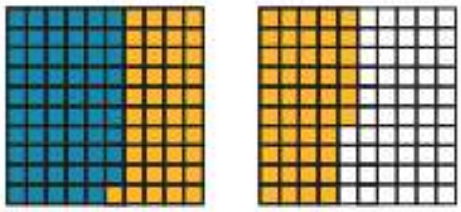
7. $0.08 + 0.06 =$ _____

8. $0.79 + 0.84 =$ _____

9. $0.32 + 0.88 =$ _____

10. $0.46 + 0.29 =$ _____

11. Write the addition equation represented by the decimal grids.



12. STEM Connection A veterinarian mixes 1.2 milliliters of medicine with 1.5 milliliters of water. How many milliliters are in the mixture? Use decimals grids to solve.

13. Extend Your Thinking Write a word problem that could be solved using this decimal grid. Then, solve the problem.

Reflect

How did using decimal grids help you add decimals?

Math is... Mindset

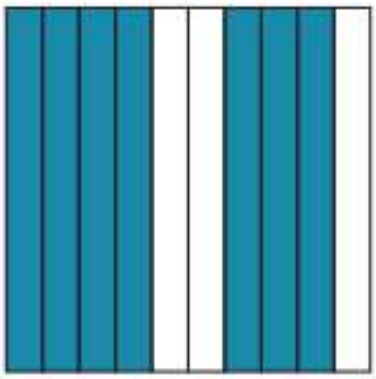
How have your feelings changed about learning math?

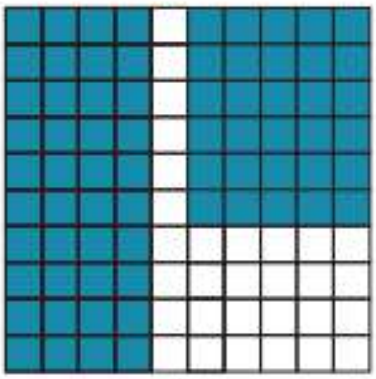
Lesson 4-3

Represent Addition of Tenths and Hundredths

Be Curious

How are they the same?
How are they different?



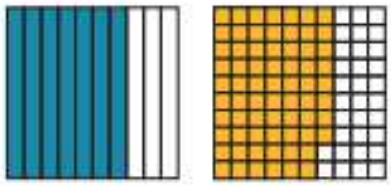


Math is... Mindset

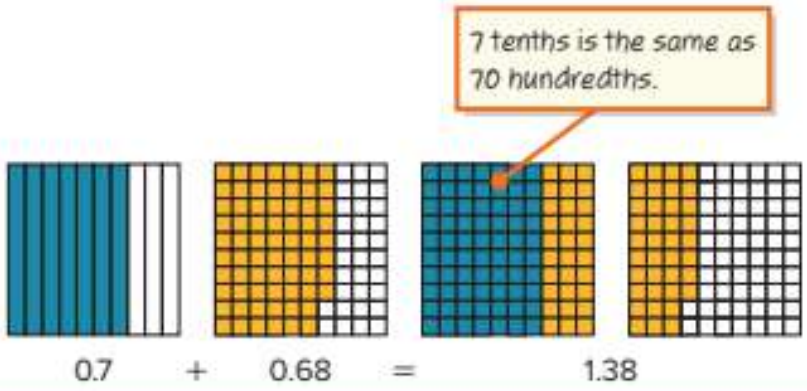
What are some ways you can connect with your classmates?

Learn

How can you determine the sum of 0.7 + 0.68?



You can use decimal grids to help you determine the sum.



Sometimes you need to represent tenths as hundredths to help solve addition equations involving decimals.

Math is... Structure

How is adding decimals similar to adding whole numbers?

Work Together

What is the total weight of the chocolate bits and raisins? Use a decimal grid to solve.

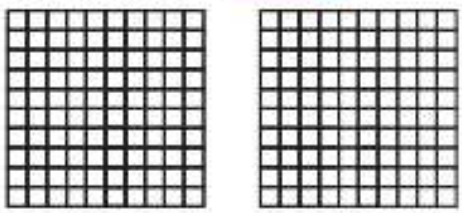
Ingredient	Weight (lb)
Chocolate bits	0.6
Raisins	0.59

On My Own

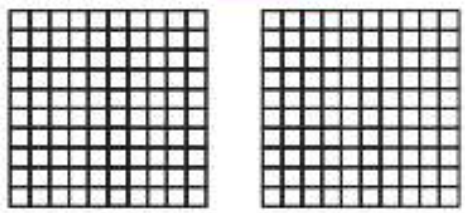
Name _____

What is the sum? Use the decimal grids to solve.

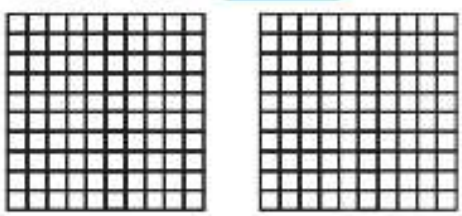
1. 0.9 + 0.02 = _____



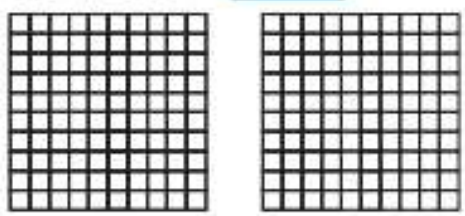
2. 0.14 + 0.5 = _____



3. 0.45 + 0.4 = _____



4. 0.6 + 0.09 = _____



What is the sum? Use decimal grids to solve.

5. 0.7 + 0.18 = _____

6. 0.86 + 0.5 = _____

7. 0.44 + 0.6 = _____

8. 0.1 + 0.89 = _____

9. Adrian jumped 0.25 meter down a sidewalk. He jumped again and went an additional 0.3 meter. What is the total distance that Adrian jumped? Show your work.

10. Vi bought 1.4 pounds of pecans and 0.79 pound of almonds. What is the total weight of the nuts Vi bought?

11. **Error Analysis** Abe represented the expression 0.32 + 0.4 on this decimal grid. How do you respond to Abe?

12. **Extend Your Thinking** Sage has a fitness goal of traveling 1.6 miles each day. She bikes 0.3 mile. She then runs another 1.2 miles. Then, she swims 0.25 mile. Did Sage reach her goal? Explain how you can use a decimal grid to find your answer.

Reflect

How do you think like a mathematician when adding decimals?

Math is... Mindset

How have you connected with your classmates?

Strategies to Add Decimals

Be Curious

Which doesn't belong?

$1{,}000 + 700 + 30 + 1$

$10 + 7 + 0.3 + 0.01$

$10 + 7 + \frac{3}{10} + \frac{1}{100}$

$17 + 0.31$

Math is... Mindset

How can you recognize and understand how others are feeling?

Learn

How can you determine the total cost of the helicopter and robot?

$17.31

$12.45

Math is... Modeling

What equation can you use to represent the problem?

You can use partial sums to determine the total cost.

One Way Decompose by place value.

$$17.31 + 12.45 = c$$

$$10 + 7 + 0.3 + 0.01 \qquad 10 + 2 + 0.4 + 0.05$$

$10 + 10 = 20$
$7 + 2 = 9$
$0.3 + 0.4 = 0.7$
$0.01 + 0.05 = 0.06$

Find partial sums

Add partial sums to find the sum

$20 + 9 + 0.7 + 0.06 = 29.76$

Another Way Decompose into whole numbers and decimals.

$$17.31 + 12.45 = c$$

$$17 + 0.31 \qquad 12 + 0.45$$

$17 + 12 = 29$
$0.31 + 0.45 = 0.76$

Find partial sums

Add partial sums to find the sum

$29 + 0.76 = 29.76$

We can decompose decimals different ways to find partial sums.

Work Together

Michael drove 23.06 kilometers on Saturday and 16.38 kilometers on Sunday. What is the total distance he drove during the two days?

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the sum? Use partial sums to solve.

1. $2.57 + 8.4$
   $= 2 + 0.5 + 0.07 + 8 + 0.4$
   $=$ _____

2. $6.9 + 0.31$
   $= 6 + 0.9 + 0.3 + 0.01$
   $=$ _____

3. $35.12 + 64.73 =$ _____

4. $70.34 + 21.52 =$ _____

5. $14.53 + 11.2 =$ _____

6. $104.75 + 21.9 =$ _____

7. Mattis earns $22.50 shoveling snow. Later, he finds $0.82 in his backpack. How much money does he have now?

8. Josh's suitcase weighs 13.4 pounds. Karen's suitcase weighs 21.63 pounds. What is the total weight of the two suitcases?

9. Kim's goal was to run at least 10 miles this week to train for her cross-country race. On Tuesday she ran 3.57 miles, and on Wednesday she ran 6.48 miles. Did Kim reach her goal? Explain.

10. **STEM Connection** A veterinarian records the amounts of medication she dispenses over the course of three days. How many milliliters of medication does she dispense? Show your work.

	Amount (in milliliters)
Friday	32.5
Saturday	46.25
Sunday	27.1

11. Harry adds the two decimals, 80.51 and 43.97. He states that the sum cannot be greater than 125. Do you agree? Why or why not?

12. **Error Analysis** Scott adds 54.37 + 19.28 by writing 50 + 10 + 4 + 9 + 0.3 + 0.2 + 0.07 + 0.03 + 0.05. Is Scott's work correct? Why or why not?

13. **Extend Your Thinking** How can you use addition properties to solve this equation efficiently?

$0.19 + 0.5 + 0.81 = x$

Reflect

Describe two ways to decompose decimals to find partial sums.

Math is... Mindset

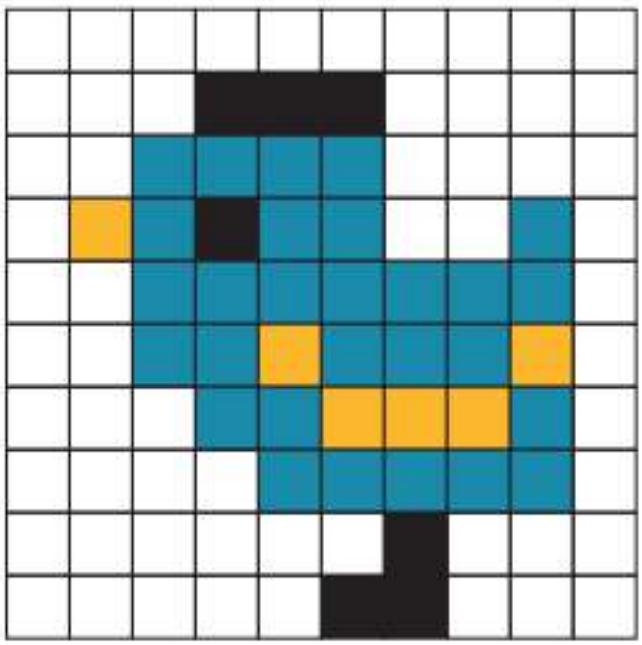
How have you recognized and understood how others are feeling?

Lesson 4-5

Represent Subtraction of Decimals

Be Curious

What do you notice?
What do you wonder?



Math is... Mindset

How can working as a team help you achieve your goal?

Learn

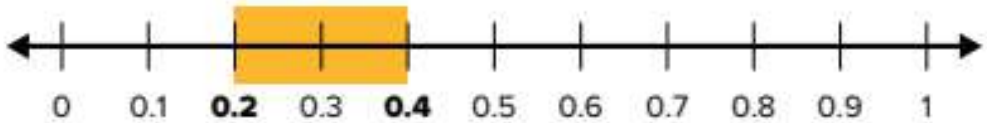
The table shows the decimals represented by different colors on a decimal grid.

Color	Decimal
Red	0.4
Green	0.2
Yellow	0.36
Purple	0.04

How can you determine how much more is shaded red than green? Yellow than purple?

Use a number line to find how much more is shaded red than green.

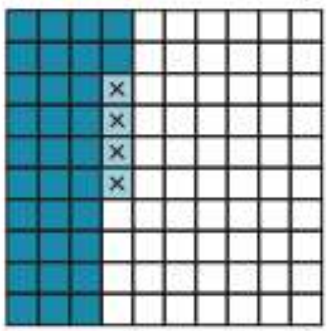
$0.4 - 0.2 = r$



There is 0.2 more shaded red than green.

Use a decimal grid to find how much more is shaded yellow than purple.

$0.36 - 0.04 = y$



There is 0.32 more shaded yellow than purple.

Math is... Precision

How is each quantity shown on the decimal grid?

You can use a number line or decimal grid to subtract decimals.

Work Together

How much greater is the mass of an emu egg than a chicken egg? Explain.

Chicken egg
0.06 kg

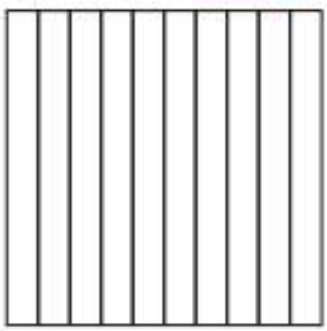
Emu egg
0.62 kg

On My Own

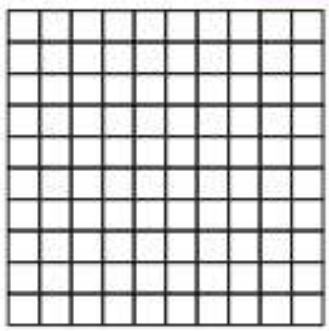
Name _____

What is the difference? Use the decimal grid to solve.

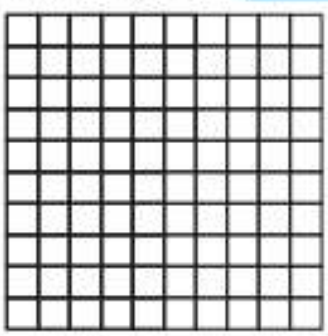
1. $0.7 - 0.1 =$ _____



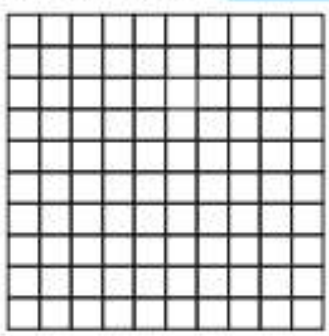
2. $0.09 - 0.02 =$ _____



3. $0.54 - 0.38 =$ _____



4. $0.25 - 0.11 =$ _____



What is the difference? Use a number line to solve.

5. $0.7 - 0.2 =$ _____

6. $0.6 - 0.4 =$ _____

7. Malik has $0.85. He bought a pencil for $0.50. Does he have enough money left to buy a folder for $0.30? Explain.

8. **STEM Connection** An ocean engineer is comparing the weight of two different screws. The first screw weighs 0.18 gram. The second screw weighs 0.25 gram. How much more does the second screw weigh?

9. Kameron ran 0.76 kilometer on Monday. She ran 0.42 kilometer on Tuesday. How much farther did Kameron run on Monday than Tuesday?

10. Henry found a seashell that has a mass of 0.55 kilogram. Kale found a seashell that has a mass 0.34 kilogram less than Henry's seashell. What is the mass of Kale's seashell?

11. Griffin and Lucy are growing sunflowers. Griffin's sunflower is 0.19 meter taller than Lucy's sunflower. Griffin's sunflower is 0.98 meter tall. How tall is Lucy's sunflower?

12. **Extend Your Thinking** Explain how using models to find $2.35 - 1.08$ is similar to using models to find $235 - 108$.

Reflect

How do decimal grids and number lines help you subtract decimals?

Math is... Mindset

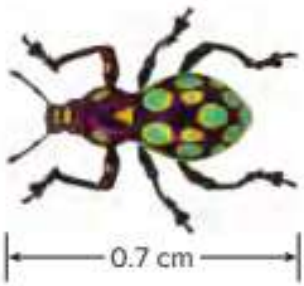
How has working as a team helped you achieve your goal?

Lesson 4-6

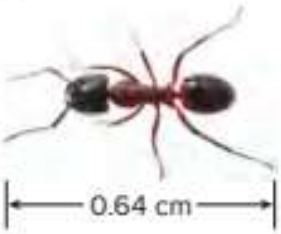
Represent Subtraction of Tenths and Hundredths

Be Curious

What do you notice? What do you wonder?



Beetle



Ant

Ladybug

Aphid

Math is... Mindset

What helps you know when there is a problem?

Learn

The table shows different lengths of insects.

How can you find how much longer the ant is than the aphid? The beetle than the ladybug?

Insect	Length (cm)
Beetle	0.7
Ant	0.64
Ladybug	0.43
Aphid	0.3

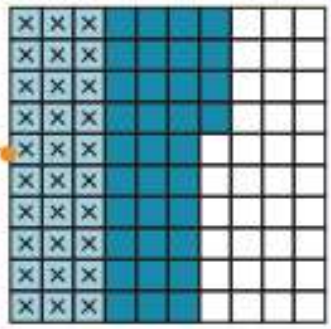
You can use subtraction to find the differences in lengths.

Find how much longer the ant is than the aphid.

$0.64 - 0.3 = 0.34$

The ant is 0.34 centimeter longer than the aphid.

0.3 is the same as 0.30.



Math is... Perseverance

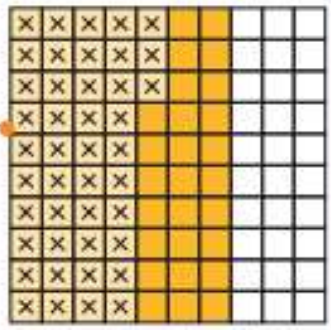
How can you use addition to check that the answer is correct?

Find how much longer the beetle is than the ladybug.

$0.7 - 0.43 = 0.27$

The beetle is 0.27 centimeter longer than the ladybug.

0.7 is the same as 0.70.

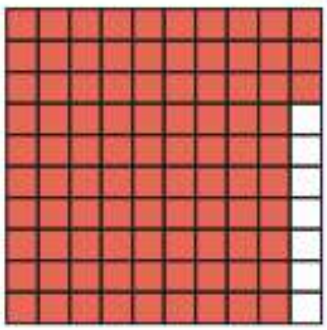


Sometimes you need to convert tenths to hundredths to help solve subtraction equations involving decimals.

Work Together

Marcus is using a decimal grid to solve $0.93 - 0.6 = r$.

How can he show subtracting 0.6?
Explain your reasoning.



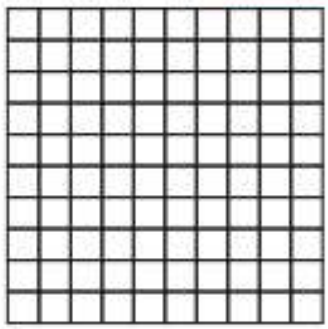
On My Own

MATH REPLAY | GO ONLINE

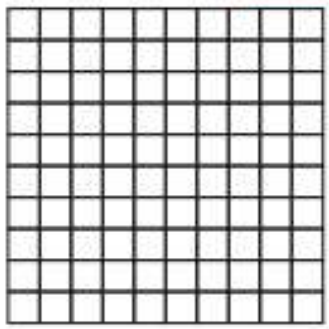
Name _____

What is the difference? Use the decimal grids to solve.

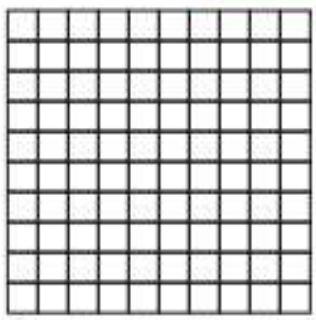
1. $0.54 - 0.1 =$ _____

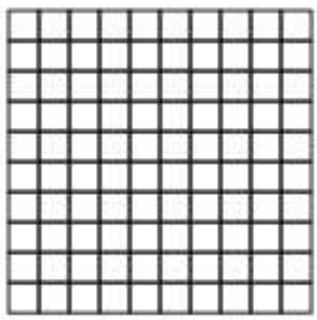


2. $0.9 - 0.02 =$ _____

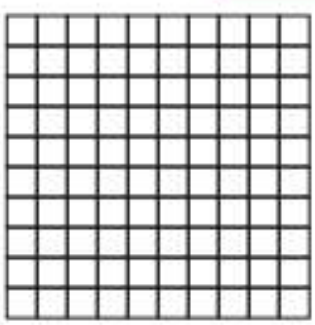


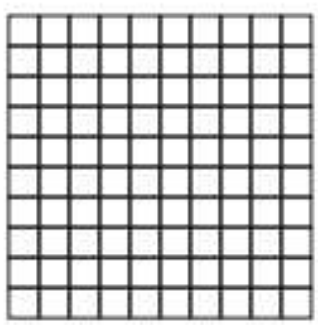
3. $1.07 - 0.3 =$ _____





4. $1.28 - 0.7 =$ _____





What is the difference? Use decimal grids to solve.

5. $2.3 - 0.27 =$ _____

6. $2.7 - 1.68 =$ _____

7. $1.74 - 0.8 =$ _____

8. $2.25 - 1.8 =$ _____

9. **STEM Connection** A veterinarian records the amounts of medicine given to three dogs. How much more medicine did the rottweiler receive than the chihuahua?

Dog Breed	Amount
Rottweiler	12.75 mL
Labrador	10.82 mL
Chihuahua	6.9 mL

10. Jana bought 1.66 pounds of roast beef and 0.8 pound of turkey at the deli. How much more roast beef than turkey did Jana buy?

11. **Error Analysis** Harry subtracts 0.3 from 0.88. He states that the difference cannot be greater than 0.5. Do you agree? Why or why not?

12. **Extend Your Thinking** Write two different expressions that have a difference of 0.4. Use hundredths in at least one of the expressions.

Reflect

How did decimal grids help you subtract decimals with different numbers of decimal places?

Math is... Mindset

How have you known when there is a problem?

Strategies to Subtract Decimals

Be Curious

Which doesn't belong?

$400 - 240 = 160$

$400 - 160 = 240$

$160 + 240 = 400$

$400 + 160 = 560$

Math is... Mindset

What are your strengths in math?

Learn

How can you determine how much more precipitation Olympia, Washington receives than Salem, Oregon?

One Way Decompose by place value to subtract.

$23.89 - 19.29 = p$

$23.89 - 10 = 13.89$
$13.89 - 9 = 4.89$
$4.89 - 0.2 = 4.69$
$4.69 - 0.09 = \mathbf{4.60}$

Math is... Choosing Tools

Is the calculated answer reasonable? How do you know?

Another Way Count on a number line to subtract.

$19.29 + p = 23.89$

$19.29 + \mathbf{4.6} = 23.89$

On average, Olympia receives 4.6 inches more precipitation than Salem.

You can use the same strategies to subtract decimals as you did to subtract whole numbers.

Work Together

Find the difference and explain your strategy.

$57 - 32.64$

On My Own

MATH REPLAY | GO ONLINE

Name _____

Decompose by place value to find the difference.

1. 8.57 − 2.4

8.57 − 2 = _____

_____ − 0.4 = _____

8.57 − 2.4 = _____

2. 7.73 − 5.1

7.73 − 5 = _____

_____ − 0.1 = _____

7.73 − 5.1 = _____

Count on to find the difference.

3. 6.31 − 0.9 = _____

4. 64.19 − 35.75 = _____

What is the difference? Show your work.

5. 36.33 − 32.29 = _____

6. 48.56 − 18.21 = _____

7. 17.10 − 6.02 = _____

8. 25.50 − 11.49 = _____

9. **STEM Connection** A veterinarian weighed a dog at a checkup. Its weight was 22.47 kilograms. When the dog came back for another checkup, it weighed 19.62 kilograms. How much weight did the dog lose? Show your work.

10. Casey lives on the east side of town and is 25.9 kilometers from the hockey arena. Terry lives on the west side of town and is 18.75 kilometers from the hockey arena. How much farther away from the hockey arena does Casey live than Terry?

11. Find a pattern in this list of numbers. Then, list the next three numbers in the pattern.

0.73, 0.66, 0.59, ☐, ☐, ☐

12. **Extend Your Thinking** Natalie said that the difference between 30.8 and 3.8 is 2.7. Explain to Natalie how you know that this statement is not reasonable and what a reasonable answer would be.

Reflect

How did you decide which strategy to use?

Math is... Mindset

How have you identified your strengths in math?

Lesson 4-8

Explain Strategies to Add and Subtract Decimals

Be Curious

Rose is participating in a bike-a-thon. She stops to eat at a rest stop after riding a certain distance. How much farther does Rose have to go?

Math is... Mindset

How can you show others you respect their ideas?

Learn

Rose is participating in a 50-kilometer bike-a-thon. She stops to eat at a rest stop after 30.2 kilometers. How much farther does Rose have to go?

You can use a bar diagram to represent the problem.

You can write a subtraction equation or an addition equation with unknown addend to solve.

$50 - 30.2 = d$ $30.2 + d = 50$

You can use different strategies to solve.

Decompose by place value.

$50 - 30 = 20$

$20 - 0.2 = 19.8$

$d = 19.8$

Count on to subtract.

$30.2 + 0.8 = 31$

$31 + 9 = 40$

$40 + 10 = 50$

$d = 19.8$

Rose has 19.8 kilometers to go.

Math is... Choosing Tools

Explain why you find one strategy more efficient than another.

You can use different strategies to add or subtract decimals. Select the strategy that is most efficient based on the quantities in the problem.

Work Together

Jack downloaded two games that cost $4.99 each. Find the total cost, not including tax, using two different strategies.

On My Own

Name _____

What is the sum or difference? Explain how you determined which strategy to use.

1. $2.19 + 3.8 =$ _____

2. $5.6 - 3.24 =$ _____

3. $1.35 + 0.45 =$ _____

4. $5.12 - 1.4 =$ _____

5. $1.3 - 0.8 =$ _____

6. $32.74 - 2.89 =$ _____

7. Carlos' luggage weighs 15.6 pounds. Emily's luggage weighs 19.25 pounds. What is the total weight of their luggage? Which strategy did you use to solve?

8. Amy drove 13.4 miles on Monday and 11.25 miles on Tuesday. How much farther did she drive on Monday than on Tuesday? Which strategy did you use to solve?

9. STEM Connection
An oceanographer recorded the time spent scuba diving last week. How much more time was spent scuba diving on Monday than on Wednesday?

Day of Week	Length of Time
Monday	34.4 min
Tuesday	42.17 min
Wednesday	29.09 min

10. A rectangular poster in a stadium measures 13.25 meters on two sides and 9.5 meters on two sides. What is the perimeter of the poster?

11. Extend Your Thinking How would you find the sum of 175 and 125? Explain how to use a similar strategy to find the sum of 1.75 + 1.25.

12. The science club raised money to clean the beach. They spent $29.75 on trash bags and $74.75 on waterproof boots. They still have $47 left. How much did they raise?

Reflect

How did you think like a mathematician when selecting which strategy to use?

Math is... Mindset
How have you shown others you respect their ideas?

Unit Review Name _____

Vocabulary Review

Choose the correct word(s) to complete each sentence.

estimate	decimal grid
decompose	partial sums
decimal	

1. A number that has a digit in the tenths place, hundredths place, and beyond is called a(n) _____. (Lesson 4-1)

2. To _____ a number means to break the number into parts by place value or by whole number and decimals. (Lesson 4-4)

3. A tool that can be used to represent tenths and hundredths is called a(n) _____. (Lesson 4-2)

4. Add the parts of decomposed numbers to find _____. (Lesson 4-4)

5. A number close to an exact value is called a(n) _____. (Lesson 4-1)

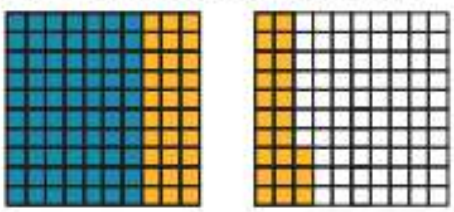
Review

6. Wesley drove 81.23 miles before lunch and 49.49 miles after lunch.

Round each number to the nearest whole number to estimate of the total number of miles Wesley drove. (Lesson 4-1)

_____ + _____ = _____

7. Look at the decimal grids.



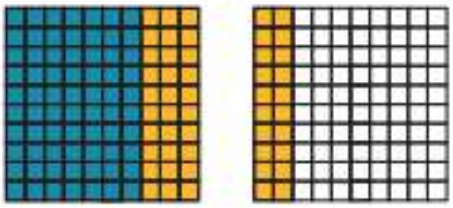
Complete the addition equation that is represented by the decimal grids. (Lesson 4-2)

0.7 + _____ = _____

8. Use partial sums to add. Show your work. (Lesson 4-4)

4.23 + 1.6 = _____

9. Lucia used a decimal grid to solve 0.69 + 0.5.



Which statement can help Lucia correct her work? (Lesson 4-3)

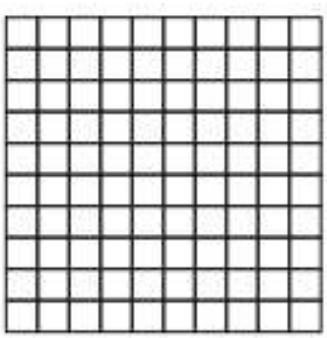
A. She should start with a number less than 0.69.

B. She should add more.

C. She should start with 0.69.

D. She should add fewer.

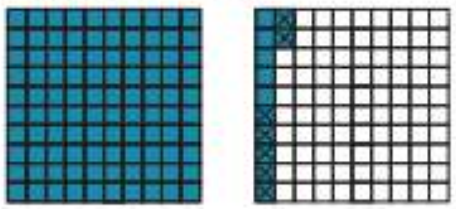
10. Use the decimal grid to solve $0.31 - 0.07 = d$. (Lesson 4-5)



What is the value of d?

d = _____

11. Benny used a decimal grid to solve 1.12 − 0.7.



Which statement can help Benny correct his work? (Lesson 4-6)

A. He should start with a number less than 1.12.

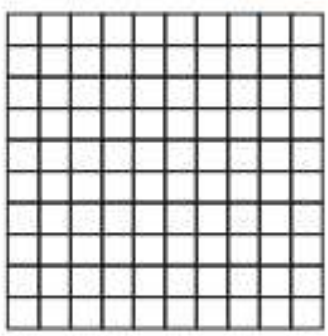
B. He should count back by more.

C. He should start with a number greater than 1.12.

D. He should count back by fewer.

12. Use a decimal grid to subtract. (Lesson 4-5)

0.70 − 0.08 = _____



13. Decompose by place value to subtract. Show your work. (Lesson 4-7)

5.70 − 2.08 = _____

14. Marcus weighs two puppies. The first puppy weighs 2.88 kilograms. The second puppy weighs 2.35 kilograms more than the first puppy.

What is the weight of the second puppy? Explain how you determined which strategy to use. (Lesson 4-8)

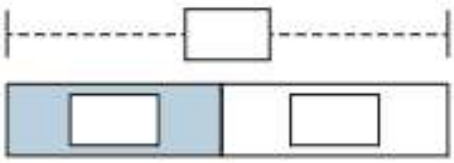
16. What is the difference? Explain the strategy you use. (Lesson 4-8)

7.2 − 5.86 = _____

Performance Task

A veterinarian makes a paste to remove skunk odor on pets. She combines 1.48 quarts of hydrogen peroxide with 0.72 quart of a mixture of liquid dishwashing soap and baking soda. How many more quarts of hydrogen peroxide than liquid soap mixture does the veterinarian use?

Part A: Complete the bar diagram to represent the problem.



Part B: Solve the problem. Show your work and explain how you determined which strategy to use to solve.

Reflect

Describe two strategies for adding or subtracting decimal numbers. Which strategy do you prefer to use?

Unit 4

Fluency Practice

Name _____

Fluency Strategy

You can use an **algorithm** to subtract. Subtract the numbers in the same place value.

Subtract the ones, tens, hundreds, then thousands.

Sometimes it is necessary to regroup.

$$\begin{array}{r} 3{,}674 \\ -\ 2{,}143 \\ \hline 1{,}531 \end{array} \qquad \begin{array}{r} 4{,}8\overset{7}{\cancel{8}}6 \\ -\ 1{,}367 \\ \hline 3{,}529 \end{array}$$

Fluency Flash

What is the difference?

1.

	thousands	hundreds	tens	ones
	6	4	7	9
−	4	1	5	6

2.

	thousands	hundreds	tens	ones
	5	7	2	9
−	2	3	4	1

Fluency Check

What is the sum or difference?

3. 6,937 − 2,804 = _____
4. 632 − 419 = _____
5. 928 − 706 = _____
6. 45,187 − 31,065 = _____
7. 47,629 + 3,547 = _____
8. 2,348 + 5,051 = _____
9. 12,563 − 7,241 = _____
10. 5,479 − 2,168 = _____
11. 94,135 − 67,249 = _____
12. 354 − 192 = _____

Fluency Talk

Explain to a friend how you know if you have to regroup when subtracting using an algorithm.

How is decomposing to subtract different from using an algorithm to subtract?

Multiply Multi-Digit Whole Numbers

Focus Question

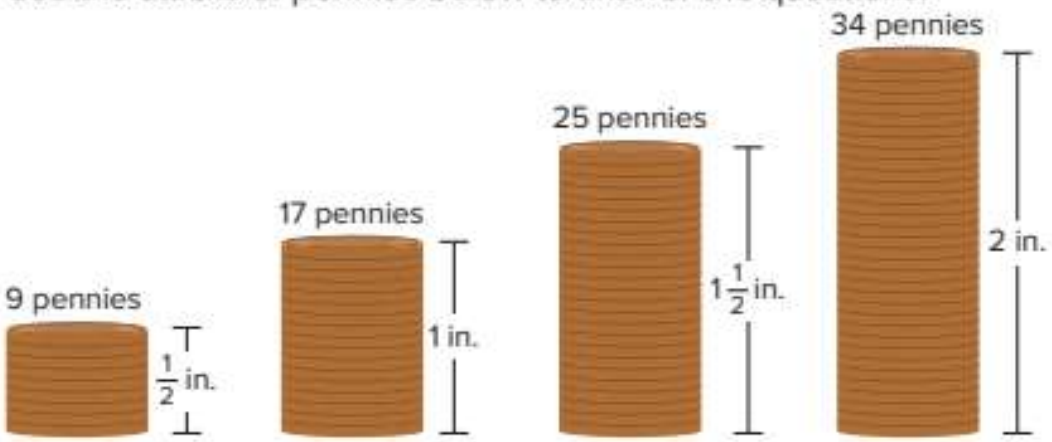
How can I multiply multi-digit whole numbers?

IGNITE!

Name _____

Mile-High Pennies

Use the stacks of pennies below to answer the questions.



1. How many pennies are in a 1-inch stack? _____

   How many pennies are in a 2-inch stack? _____

2. About how many pennies would be in a 1-foot stack? _____

3. Make a guess: A mile is equal to 5,280 feet. How many pennies do you think would be needed to make a stack that is 1 mile tall?

   _____

   Write a number that is definitely too large for a reasonable estimate. _____

   Write a number that is definitely too small for a reasonable estimate. _____

4. What is your calculated estimate for the number of pennies in a stack that is 1 mile tall? _____

Lesson 5-1

Understand Powers and Exponents

Be Curious

Which Doesn't Belong?

7×7

4×4

6×8

10×10

Math is... Mindset

What do you want your classmates to know about your math story?

Learn

At Week 1, Dean had 10 pennies Each week after, Dean increased the number of pennies by 10 times the previous week.

During which week will Dean have 1,000,000 pennies?

You can organize the information in a table to help determine the solution.

Math is... Patterns

What patterns do you notice in the table?

Week	Multiplication Expression	Number of Pennies Added each Week
1	10	10
2	10 × 10	100
3	10 × 10 × 10	1,000
4	10 × 10 × 10 × 10	10,000
5	10 × 10 × 10 × 10 × 10	100,000
6	10 × 10 × 10 × 10 × 10 × 10	1,000,000

A **power of 10** is the product of 10 multiplied by itself a number of times.

Dean will have 1,000,000 pennies in Week 6.

You can write a power of 10 as a multplication expression with factors of 10.

You can also write a power of 10 in **exponential form** using a **base** and an **exponent**.

$10 \times 10 = 10^2$ ← exponent

2 factors

base

Work Together

Write 10^8 as a multiplication expression. Then, find the product.

On My Own

MATH REPLAY | GO ONLINE

Name _____

Write the exponential form as a multiplication expression.

1. 10^4

2. 10^2

3. 10^3

4. 10^6

Write the exponential form.

5. $10 \times 10 \times 10 =$ _____

6. $10 \times 10 \times 10 \times 10 \times 10 =$ _____

7. $10 \times 10 \times 10 \times 10 =$ _____

8. $10 \times 10 =$ _____

Write the exponential form of each power of 10.

9. $10 =$ _____

10. $1{,}000 =$ _____

11. $100 =$ _____

12. $10{,}000 =$ _____

13. Rachel finds the value of 10^5 as shown. Do you agree with her solution? Tell why.

$10^5 = 10 \times 5 = 50$

14. **STEM Connection** Grace reviewed 10^6 lines of a computer program. How many lines did she review? Write the product.

15. Trevor's personal walking goal is shown on his activity tracker.

A. How can you help Trevor write this goal using an exponent?

B. How can you help Trevor write this goal as a product of 10s?

16. Jenny's father gives her $10. Her grandfather offers to give her ten times the value her father gave her. Her grandmother offers her a choice of either ten times the value her grandfather offered or $500. Which of her grandmother's offers should Jenny choose? Explain.

17. Extend Your Thinking Consider the inequality shown.

$$10 \times 10 \times 10 \times 10 < b < 10^6$$

What is the value of b? Explain.

Reflect

What patterns did you notice when writing different forms of powers of 10?

Math is... Mindset

How have you told your classmates about your math story?

Be Curious

How are they the same?
How are they different?

$15 \times 10{,}000$

$15 \times 10 \times 10 \times 10 \times 10$

15×10^4

150,000

Math is... Mindset

What do you do to avoid getting distracted?

Learn

The distances from these planets to the Sun are shown as multiplication expressions.

How can you determine the value of these expressions?

Mercury
about 36×10^6 mi

Neptune
about 3×10^9 mi

First, determine the distance from Mercury to the Sun. Look for pattterns when multiplying by a power of 10.

$36 \times 10^6 = 36 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$

$= 36 \times 1{,}000{,}000$

$= 36{,}000{,}000$

The exponent is the same as the number of zeros in the product.

The distance from Mercury to the Sun is about **36,000,000 miles.**

You can use patterns to determine the distance from Neptune to the Sun.

$3 \times 10^9 = 3 \times 1{,}000{,}000{,}000$

$= 3{,}000{,}000{,}000$

The distance from Neptune to the Sun is about 3,000,000,000 miles.

Math is... Structure

Why does the place of the digits in a number shift each time you multiply by 10?

When multiplying by powers of 10, there is a pattern in the number of zeros in the product in relationship to the exponent.

Work Together

Find the value of each expression. Explain how you used patterns to help you.

32×10^2 32×10^3 32×10^4

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the product? Use patterns to solve.

1. $12 \times 10 =$ _____
   $12 \times 100 =$ _____
   $12 \times 1{,}000 =$ _____

2. $24 \times 1{,}000 =$ _____
   $24 \times 10{,}000 =$ _____
   $24 \times 100{,}000 =$ _____

3. $33 \times 10^2 =$ _____
   $33 \times 10^3 =$ _____
   $33 \times 10^4 =$ _____

4. $57 \times 10^4 =$ _____
   $57 \times 10^5 =$ _____
   $57 \times 10^6 =$ _____

What is the product?

5. 23×10^3

6. 581×10^2

7. 60×10^4

8. 103×10^2

What is the unknown factor?

9. $571 \times$ _____ $= 5{,}710$

10. $43 \times$ _____ $= 4{,}300{,}000$

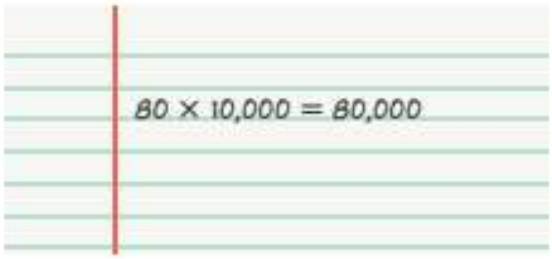
11. $6 \times$ _____ $= 6{,}000$

12. $28 \times$ _____ $= 280{,}000$

13. How can you describe the relationship between the equations shown?

    $6 \times 10^5 = 600{,}000$
    $6 \times 10^7 = 60{,}000{,}000$
    $6 \times 10^9 = 6{,}000{,}000{,}000$

14. Error Analysis Carol says the equation that she wrote is correct. How do you respond to her?



15. Which equations are *true*? Circle all that apply.

A. $6 \times 100 = 6 \times 10 \times 10 \times 10$

B. $10{,}000 \times 4 = 10 \times 10 \times 10 \times 10 \times 4$

C. $15 \times 10^3 = 1{,}500$

D. $70 \times 10 \times 10 = 7{,}000$

16. Extend Your Thinking Find the unknown factor that is a whole number. Explain your thinking.

$$? \times 10^5 = 56{,}300{,}000$$

Reflect

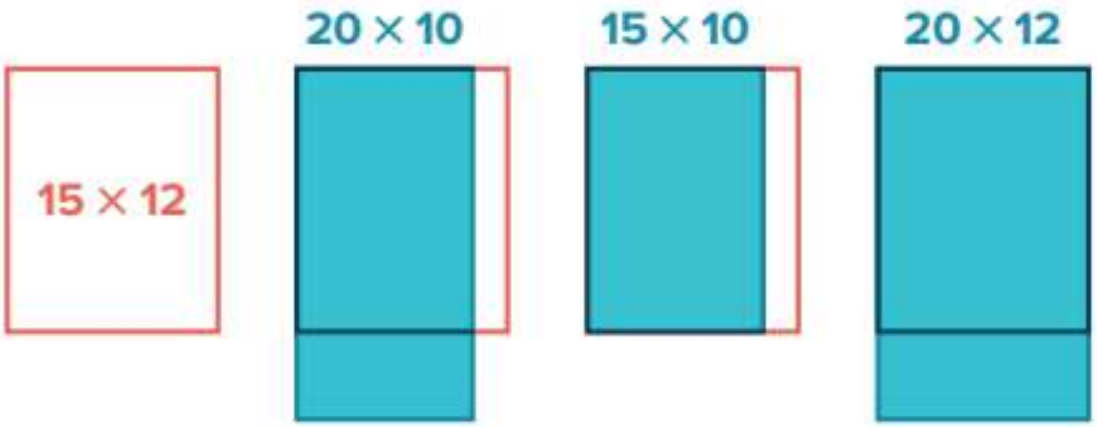
What patterns did you notice when multiplying by powers of 10?

Math is... Mindset

How have you avoided getting distracted?

Be Curious

What do you notice?
What do you wonder?



Math is... Mindset

What helps you make sense of a situation?

Learn

On Saturday, 432 people go to the theater.

About how much money does the theater collect on Saturday?

You can use strategies you know to determine a reasonable estimate.

One Way Compatible numbers

432×13

$400 \times 15 = 4 \times 100 \times 15$
$= 4 \times 15 \times 100$
$= 6{,}000$

The theater collects about $6,000.

Another Way Rounded factors

432×13

$430 \times 10 = 4{,}300$

The theater collects about $4,300.

A reasonable estimate is between $4,300 and $6,000.

You can use these estimates to determine that the calculated solution of $5,616 is a reasonable answer.

Math is... Choosing Tools

What can and can't an estimated product tell you?

Estimated products can help you determine whether calculations are reasonable.

Work Together

Estimate the product of 879×36.

Which strategy did you use? Explain why.

On My Own

MATH REPLAY | GO ONLINE

Name _____

Estimate the product.

1. 643 × 18

2. 325 × 62

3. 438 × 27

4. 572 × 49

5. On a school trip, 54 students went to a museum. Each ticket cost $23. About how much did all students spend on tickets?

6. The town library has 478 shelves. Each shelf holds 38 books. About how many books does the library have?

7. A vendor at a fair is selling her paintings for $23 each. Over the course of the fair, 339 people purchase her paintings. About how much did the vendor earn over the course of the fair?

8. The fifth graders sold 405 baked goods at the bake sale. About how much did the fifth graders earn?

9. **Error Analysis** Han estimates that the product of 492 and 32 will be 1,200. How do you respond to Han?

10. Which equation represents a reasonable estimate for 658 × 19? Explain.

A. 700 × 10 = 7,000

B. 650 × 20 = 13,000

C. 600 × 10 = 6,000

11. If you estimate the product of 246 × 38, will the estimate be greater using rounded numbers or compatible numbers? Why?

12. Extend Your Thinking A recycling club has a goal of collecting 8,000 plastic bottles. Each of the 26 students in the club collected 72 bottles a day for 5 days. About how many bottles did they collect at the end of 5 days? Did they meet their goal?

Reflect

How can you use estimates to determine whether a calculated product is reasonable?

Math is... Mindset

How have you made sense of a situation?

Lesson 5-4

Use Area Models to Multiply Multi-Digit Factors

Be Curious

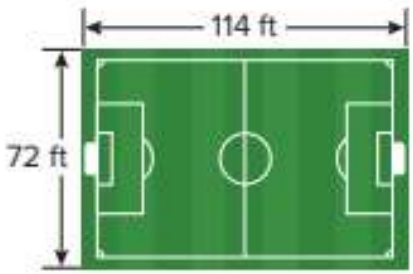
What do you see?

Math is... Mindset

How can you show that you understand your partner's point of view?

Learn

How can you determine the area of the youth soccer field?



You can use an area model to solve $72 \times 114 = A$.

Decompose the factors by place value.

	100	+ 10	+ 4
70			
+ 2			

Determine partial products.

	100	+ 10	+ 4
70	7,000	700	280
+ 2	200	20	8

Math is... Modeling

How does an area model help you understand multiplication?

Add the partial products to determine the product.

$7{,}000 + 700 + 280 + 200 + 20 + 8 = 8{,}208$

The area of the soccer field is 8,208 square feet.

You can use area models to multiply multi-digit factors.

Work Together

Use an area model and partial products to determine the product of 304×68.

On My Own

Name _____

Complete the area model. Then solve to find the product.

1.

	100	+ 50	+ 4
30	3,000		
+ 6	600		

2.

	400	+ 20	+ 1
50	20,000		50
+ 2			

What is the product? Use area models to solve.

3. $15 \times 24 =$ _____

	24
15	

4. $28 \times 132 =$ _____

	132
28	

5. $33 \times 78 =$ _____

6. $72 \times 225 =$ _____

Write the multiplication equation based on the area model. Then solve to find the product.

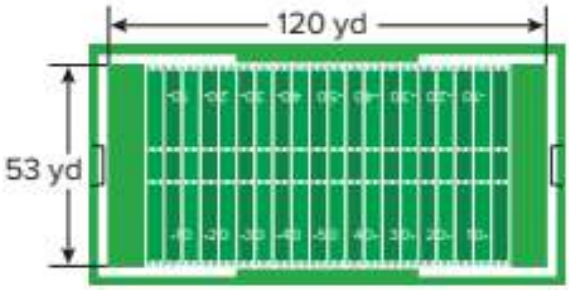
7.

	200	+ 10	+ 8
20			
+ 8			

8.

	400	+ 10	+ 6
60			
+ 3			

9. What is the area of the football field?



10. A school collected 128 boxes of canned food. Each box has 45 cans. How many cans of food did the school collect?

11. STEM Connection Owen has 14 sketchbooks that each contain 128 sketches of insects. How many sketches of insects does Owen have in all?

12. Extend Your Thinking How could you use an area model to determine the product of 452 × 273? Explain.

Reflect

How did I think like a mathematician to multiply multi-digit factors?

Math is... Mindset

How have you shown that you understand your partner's point of view?

Lesson 5-5

Use Partial Products to Multiply Multi-Digit Factors

Be Curious

What do you notice?
What do you wonder?

	300	+ 70	+ 4
40	12,000	2,800	160
+ 3	900	210	12

$$
\begin{array}{rl}
 & 374 \\
\times & 43 \\
\hline
 & 12{,}000 \leftarrow 40 \times 300 \\
 & 2{,}800 \leftarrow 40 \times 70 \\
 & 160 \leftarrow 40 \times 4 \\
 & 900 \leftarrow 3 \times 300 \\
 & 210 \leftarrow 3 \times 70 \\
+ & 12 \leftarrow 3 \times 4 \\
\hline
 & 16{,}082
\end{array}
$$

Math is... Mindset

What steps can you take to focus on your work today?

Learn

A stadium has 164 rows of seats.

How many seats are in the stadium?

You can use partial products to solve the problem.

Decompose the factors by place value.

$164 = 100 + 60 + 4$

$82 = 80 + 2$

Determine the partial products.

$$\begin{array}{rr} & 164 \\ \times & 82 \\ \hline & 8{,}000 \leftarrow 80 \times 100 \\ & 4{,}800 \leftarrow 80 \times 60 \\ & 320 \leftarrow 80 \times 4 \\ & 200 \leftarrow 2 \times 100 \\ & 120 \leftarrow 2 \times 60 \\ + & 8 \leftarrow 2 \times 4 \\ \hline & 13{,}448 \end{array}$$

Multiply 80 by 100, 60, and 4.

Multiply 2 by 100, 60, and 4.

Add the partial products.

There are 13,448 seats in the stadium.

Math is... Generalizations

How does the area model help you understand how this strategy works?

Partial products is another multiplication strategy you can use to multiply multi-digit whole numbers.

Work Together

What is the product? Use partial products to solve.
Show 142 × 63 vertically.

On My Own

Name ____

Find the unknown partial products. Then find the product.

1.
$$\begin{array}{r} 325 \\ \times \quad 73 \\ \hline 21{,}000 \\ 1{,}400 \\ 350 \\ \square \\ \square \\ + \quad \square \\ \hline \square \end{array}$$

2.
$$\begin{array}{r} 104 \\ \times \quad 28 \\ \hline 32 \\ 800 \\ \square \\ + \quad \square \\ \hline \square \end{array}$$

What is the product? Use partial products to solve.

3.
$$\begin{array}{r} 17 \\ \times 86 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 24 \\ \times 129 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 36 \\ \times 93 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 222 \\ \times 58 \\ \hline \end{array}$$

7. A sporting goods store sold 24 mountain bikes. How much money did they make selling bikes?

8. The store also sold 12 mountain bike and scooter packages each for $367. How much money did they make?

9. At a school fundraiser, 327 donors give $25 each. How much money does the school collect?

10. A store has 60 boxes of shirts with 152 shirts in each box. How many shirts are there in all?

11. **Error Analysis** Raya used partial products to find the product of 128 × 17. What can you say about Raya's work?

```
  208
×  17
2,000
  100
   80
1,400
   70
+  56
3,706
```

12. **Extend Your Thinking** Solve using partial products. Explain your answer.

$$384 \times 725$$

Reflect

How can you use partial products to find the product of multi-digit factors?

Math is... Mindset

What steps did you take to focus on your work today?

Lesson 5-6

Relate Partial Products to an Algorithm

Be Curious

What do you notice?
What do you wonder?

$$\begin{array}{r} 132 \\ \times \quad 3 \\ \hline 300 \leftarrow 3 \times 100 \\ 90 \leftarrow 3 \times 30 \\ + \quad 6 \leftarrow 3 \times 2 \\ \hline 396 \end{array} \qquad \begin{array}{r} 132 \\ \times \quad 3 \\ \hline 396 \end{array}$$

Math is... Mindset

How can you be part of the classroom community?

Learn

The distance from Los Angeles to New York City is 7 times as far from Los Angeles to Phoenix.

How can you determine the distance from Los Angeles to New York City?

You can multiply using an **algorithm**.

Step 1 Multiply the ones.

$7 \times 3 = 21$

Regroup 21 as 2 tens and 1 one.

$$\begin{array}{r} {\scriptstyle 2} \\ 413 \\ \times \quad 7 \\ \hline 1 \end{array}$$

Show 2 tens.

Show 1 one.

Step 2 Multiply the tens.

$7 \times 10 = 70$

Add the 2 tens from Step 1.

$70 + 20 = 90$

$$\begin{array}{r} {\scriptstyle 2} \\ 413 \\ \times \quad 7 \\ \hline 91 \end{array}$$

Show 9 tens.

Step 3 Multiply the hundreds.

$7 \times 400 = 2{,}800$

The distance from Los Angeles to New York City is 2,891 miles.

$$\begin{array}{r} {\scriptstyle 2} \\ 413 \\ \times \quad 7 \\ \hline 2{,}891 \end{array}$$

Show 28 hundreds.

Math is... Generalizations

How are the partial products strategy and this algorithm related?

Work Together

Find the product using an algorithm.

$$\begin{array}{r} 3{,}021 \\ \times \quad 4 \\ \hline \end{array}$$

On My Own

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Name _____

What is the product?

1. 327 × 6

2. 543 × 8

3. 1,931 × 5

4. 3,462 × 4

What is the product? Choose the correct answer.

5. 188 × 7 = *s*

- **A.** *s* = 1,300
- **B.** *s* = 1,316
- **C.** *s* = 1,388
- **D.** *s* = 1,406

6. 237 × 9 = *v*

- **A.** *v* = 2,033
- **B.** *v* = 2,163
- **C.** *v* = 2,153
- **D.** *v* = 2,133

7. 2,623 × 2 = *y*

- **A.** *y* = 5,246
- **B.** *y* = 4,246
- **C.** *y* = 5,126
- **D.** *y* = 5,616

8. 5,246 × 3 = *r*

- **A.** *r* = 15,882
- **B.** *r* = 16,838
- **C.** *r* = 16,612
- **D.** *r* = 15,738

9. **STEM Connection** Hiro knows that Lake Michigan is 922 feet deep. He knows that the Atlantic Ocean is 28 times as deep. How deep is the Atlantic Ocean?

10. Joey earns $355 a week mowing lawns. How much money does he earn in 6 weeks?

11. The pedometer shows the number of steps Maria walks each day. How many steps did she walk after 7 days?

12. On a road trip, Emily and her family listen to 3 podcasts. Each one is 45 minutes long. For how many seconds do they listen to podcasts?

13. **Extend Your Thinking** Explain why it is important to follow each step of the algorithm when multiplying.

Reflect

How are partial products and an algorithm for multiplication related?

Math is... Mindset

How have you been part of the classroom community?

Unit 5

Multiplication of 2-Digit Numbers

Name _____

Four students were in the process of finding this product:

42×13.

Decide if each student's approach is a correct way to find the product. Circle Yes or No.

Do not actually complete the process to find the product.

Student 1

	40	+ 2
10	400	20
+ 3	120	6

Circle Yes or No.

Yes No

Explain why you chose Yes or No.

Student 2

$(40 \times 20) + (2 \times 3)$

Circle Yes or No.

Yes No

Explain why you chose Yes or No.

Student 3

$13 \times 40 + 13 \times 2$

Circle Yes or No.

Yes No

Explain why you chose Yes or No.

Reflect On Your Learning

I'm confused. I'm still learning. I understand. I can teach someone else.

Lesson 5-7

Multiply Multi-Digit Factors Fluently

Be Curious

How are they the same?
How are they different?

443 × 15 2,000 200 15 4,000 400 + 30 6,645	21 443 × 15 2,215 + 4,430 6,645

Math is... Mindset

What makes you feel excited when doing math?

Learn

Last weekend, a store sold 549 T-shirts.

How can you determine how much money a store made from selling T-shirts last weekend?

You can use an algorithm to solve the problem.

Step 1 Multiply 549 × 6.

$$\begin{array}{r} {\scriptstyle 2\ 5} \\ 549 \\ \times\ 26 \\ \hline 3{,}294 \end{array}$$

Math is... Generalizations

How might using this algorithm be different when multiplying two 3-digit numbers?

Step 2 Multiply 549 × 20.

$$\begin{array}{r} {\scriptstyle 1} \\ 549 \\ \times\ 26 \\ \hline 3{,}294 \\ 10{,}980 \end{array}$$

Step 3 Add partial products.

$$\begin{array}{r} 549 \\ \times\ 26 \\ \hline 3{,}294 \\ +10{,}980 \\ \hline 14{,}274 \end{array}$$

The store made $14,274 from selling T-shirts last weekend.

An algorithm can be a more efficient way to multiply.

Work Together

What is the product?

$$\begin{array}{r} 2{,}165 \\ \times\ 34 \\ \hline \end{array}$$

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the product?

1. 327 × 15

2. 2,682 × 35

3. 135 × 23

4. 792 × 11

5. 180 × 72

6. 378 × 29

7. 623 × 64

8. 1,432 × 73

9. The students at Mia's school use about 3,408 sheets of paper per day. How many sheets of paper do the students use after 25 days of school?

10. In one video game, you can build a house for every 375 points you earn. Jack built 23 houses. How many points did he earn?

11. On a road trip, a family traveled 412 miles each day. How many miles had they traveled by the end of 5 days?

12. A hotel room costs $193 per night. How much will a 7-day stay cost?

13. STEM Connection Adult dogs have 42 teeth. Over the course of a week, Ruby checks the teeth of 65 dogs. How many teeth does she check in all?

14. Extend Your Thinking How does knowing how to solve multiplication equations using partial products help you solve multiplication equations using an algorithm?

Reflect

Why might using an algorithm be more efficient than using partial products when multiplying?

Math is... Mindset

What has made you feel excited when doing math?

Unit Review Name _____

Vocabulary Review

Choose the correct word(s) to complete each sentence.

algorithm	exponential form
base	partial products
exponent	power of 10
estimate	round

1. When multiplying multi-digit numbers, you can decompose the factors and find _____. Then, you add the _____ to get the product. (Lesson 5-4)

2. The _____ of a number written in exponential form tells you how many times the base is multiplied by itself. (Lesson 5-1)

3. The _____ of a number includes a base raised to a power called the _____. (Lesson 5-1)

4. To estimate a solution, you can _____ the values used before performing operations. (Lesson 5-3)

5. A(n) _____ is written in exponential form using 10 as the base and the number of times 10 is multiplied by itself as the power, or exponent. (Lesson 5-1)

6. A(n) _____ is an approximate solution to a problem. (Lesson 5-3)

7. A(n) _____ is a set of steps used to solve a problem. (Lesson 5-6)

Review

8. Which expression or value is equivalent to 10^4? (Lesson 5-1)

A. 1,000

B. 10×4

C. $10 \times 10 \times 10 \times 10$

D. $10 + 10 + 10 + 10$

9. The rock museum has 324 display drawers. Each drawer holds 23 rock samples. About how many rock samples does the museum have? (Lesson 5-3)

There are about _____ rock samples.

10. Use an area model to find the area of the outdoor recreational center. (Lesson 5-4)

The area is _____ square meters.

11. Complete the partial products to find 328×14. (Lesson 5-5)

$$\begin{array}{r} 328 \\ \times\ 14 \\ \hline 3{,}000 \leftarrow 10 \times 300 \\ \square \leftarrow 10 \times 20 \\ \square \leftarrow 10 \times 8 \\ 1{,}200 \leftarrow 4 \times 300 \\ 80 \leftarrow 4 \times 20 \\ \square \leftarrow 4 \times 8 \end{array}$$

$328 \times 14 =$ _____

12. Blaire reads 242 pages each week. How can she use partial products or an algorithm to find the number of pages she reads in 6 weeks? (Lesson 5-6)

_____

_____

_____

_____

13. Find the product using an algorithm. (Lesson 5-7)

$429 \times 31 =$ _____

14. Which equation or equations are true? Select all. (Lesson 5-2)

A. $7 \times 100 = 7 \times 10 \times 10 \times 10$

B. $2 \times 1{,}000 = 2 \times 10^3$

C. $50 \times 10 \times 10 \times 10 = 50{,}000$

D. $8 \times 10^3 = 8 \times 10 \times 10$

E. $16 \times 10^2 = 160$

15. Which equation represents the best estimate for 367×29? (Lesson 5-3)

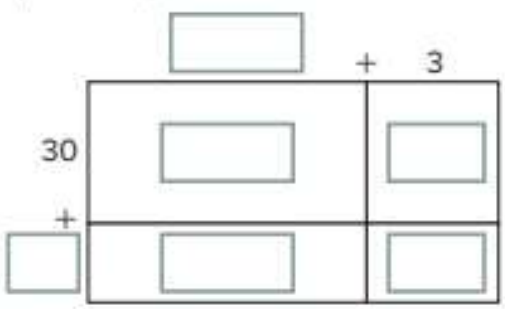
A. $300 \times 20 = 6{,}000$

B. $300 \times 30 = 9{,}000$

C. $400 \times 20 = 8{,}000$

D. $400 \times 30 = 12{,}000$

16. Fill in the area model and use partial products to find 53×37. (Lesson 5-5)



$53 \times 37 =$ _____

17. The track team runs a combined average of 126 miles per day. How many miles might the team run in 5 weeks? Estimate the solution. Then solve. (Lesson 5-7)

estimation: _____ miles

solution: _____ miles

18. Complete the algorithm to find the product. (Lesson 5-7)

$$\begin{array}{r} 541 \\ \times \quad 62 \\ \hline \square \\ + \quad \square \\ \hline \square \end{array}$$

19. Write 10^6 as a product of 10s. Then write the product. (Lesson 5-2)

$10^6 =$ _____

$=$ _____

Performance Task

Owen is studying how much honey is produced by honey bees at two different locations. The hives at location A house 13×10^2 honey bees and produce about 121 ounces of honey each week. The hives at location B house 27×10^2 honey bees and produce about 344 ounces of honey each week.

Part A: What is the difference between the number of honey bees at each location?

Part B: What is the combined amount of honey produced each year?

Reflect

What are some different strategies you can use to multiply multi-digit numbers?

Unit 5

Fluency Practice

Name _____

Fluency Strategy

You can choose a strategy to add. You can adjust the numbers, use partial sums, or use an algorithm.

Adjust the numbers. $1{,}521 + 2{,}299$

-1 $+1$

$1{,}520 + 2{,}300 = 3{,}820$

1. Adjust the numbers to find the sum.

2,413 + 1,097

$-$ $+$

_____ + _____ = _____

Fluency Flash

What is the sum?

2.

	thousands	hundreds	tens	ones
	1	0	9	7
+	2	4	5	6

3.

	thousands	hundreds	tens	ones
	4	2	7	9
+	2	3	6	8

Fluency Check

What is the sum or difference?

4. 3,241 + 316 = _____

5. 987 – 453 = _____

6. 824 – 76 = _____

7. 148 + 231 = _____

8. 542 + 328 = _____

9. 475 + 267 = _____

10. 541 + 789 = _____

11. 647 – 325 = _____

12. 978 + 96 = _____

13. 1,549 – 256 = _____

Fluency Talk

How do you determine which strategy you want to use to add?

Why might you need to regroup when you subtract using an algorithm?

Multiply Decimals

Focus Question

What strategies can I use to multiply decimals?

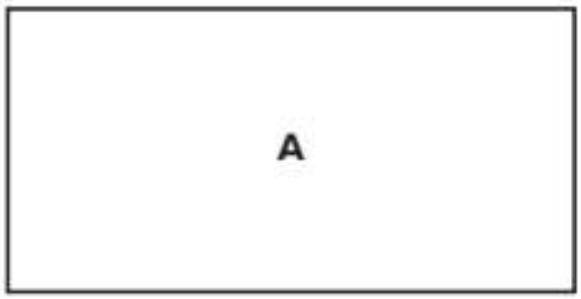
STEM video | GO ONLINE

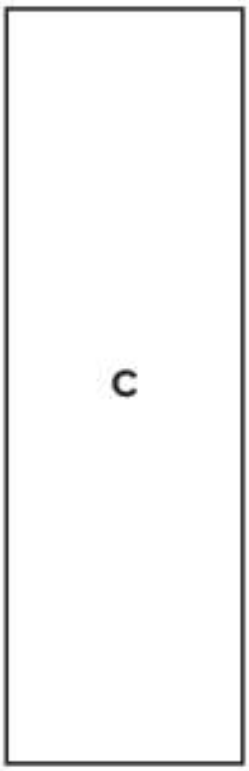
IGNITE!

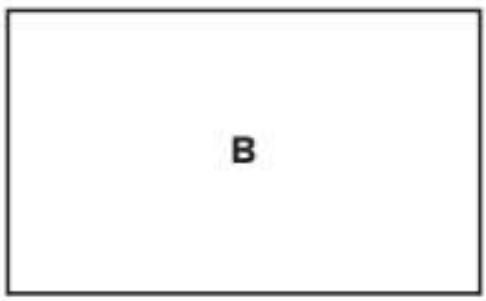
Name _____

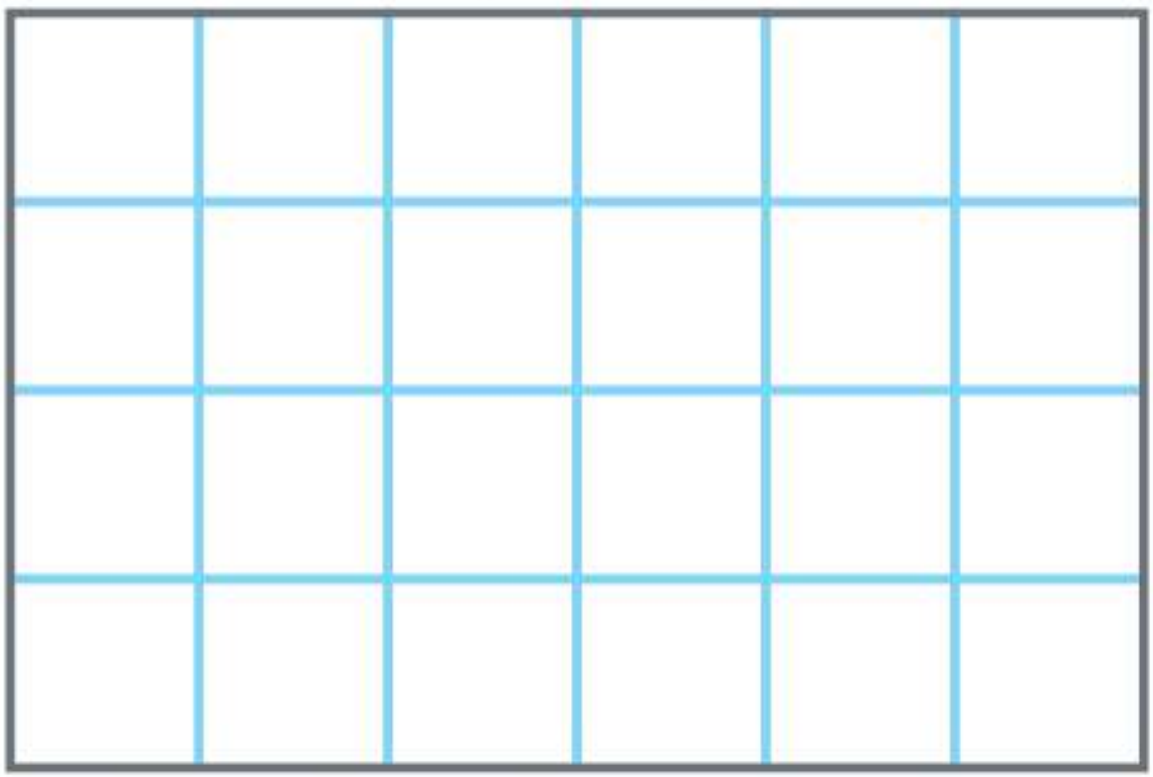
Area and Decimal Multiplication

Compare the areas of each rectangle.









Patterns When Multiplying Decimals by Powers of 10

Be Curious

What do you notice? What do you wonder?

$3{,}400 \times 10 = 34{,}000$ $34 \times 100 = 3{,}400$

$340 \times 10 = 3{,}400$ $34 \times 10 = 340$

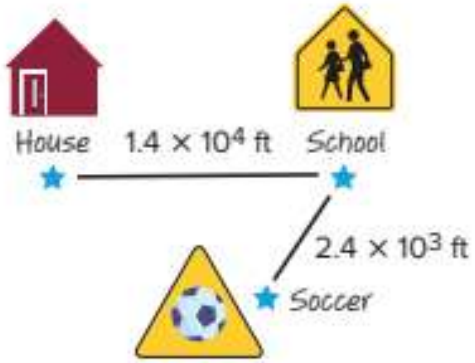
$34 \times 10 = 340$ $34 \times 1 = 34$

Math is... Mindset

How can you show you understand how others are feeling?

Learn

Tamara walks from her house to school, then to the soccer field. The distances are shown using multiplication expressions.



How can you determine the value of these expressions?

First, determine the distance from house to school.

Look for patterns when multiplying a decimal by a power of 10.

$1.4 \times 10^1 = 1.4 \times 10 = 14$

$1.4 \times 10^2 = 1.4 \times 100 = 140$

$1.4 \times 10^3 = 1.4 \times 1{,}000 = 1{,}400$

$1.4 \times 10^4 = 1.4 \times 10{,}000 = 14{,}000$

The exponent is the same as the number of places the digits shift to the left.

The distance from house to school is 14,000 feet.

Math is... Structure

How is multiplying decimals and whole numbers by 10 similar?

You can use patterns to determine the distance from school to soccer.

$2.4 \times 10^3 = 2.4 \times 1{,}000$

$= 2{,}400$

The distance from school to soccer is 2,400 feet.

When multiplying decimals by powers of 10, the exponent tells you the number of places the digits shift. Because the exponent is a positive number, the digits shift to the left.

Work Together

What is the value of each expression?

Explain how you used patterns to help you.

1.4×10^2

1.4×10^3

1.4×10^4

On My Own

Name _____

Write the multiplication expression using factors of 10. Then, find the value.

1. 3.6×10^2

2. 7.2×10^3

3. 4.8×10^4

4. 1.9×10^2

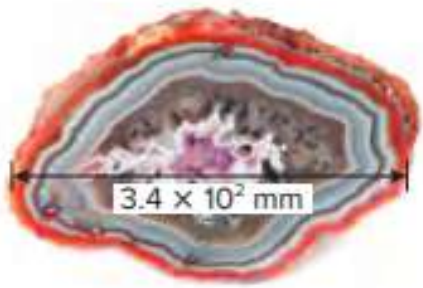
5. Ashley rides the train to visit her grandmother. She lives 1.2×10^2 miles away from her grandmother. How many miles does she travel?

6. Juan walks 4.7×10^3 meters from his house to the museum. Mary walks 9.3×10^2 meters from her house to the museum. Who walks farther, Juan or Mary? How do you know?

7. **Error Analysis** Sasha multiplied the decimals as shown. How can you help Sasha understand the patterns in multiplying decimals by powers of 10?

   $3.5 \times 10^2 = 3{,}500$
   $3.5 \times 10^3 = 35{,}000$
   $3.5 \times 10^4 = 350{,}000$

8. **STEM Connection** A geologist measures the width of the geode at its widest point. How can the geologist determine the value of the expression?



What is the product? Use patterns to help you solve.

9. $6.5 \times 10^2 =$ _____
   $6.5 \times 10^3 =$ _____
   $6.5 \times 10^4 =$ _____

10. $1.2 \times 10^1 =$ _____
    $1.2 \times 10^2 =$ _____
    $1.2 \times 10^3 =$ _____

11. $3.9 \times 10^3 =$ _____
    $3.9 \times 10^4 =$ _____
    $3.9 \times 10^5 =$ _____

12. $7.7 \times 10^2 =$ _____
    $7.7 \times 10^3 =$ _____
    $7.7 \times 10^4 =$ _____

13. **Extend Your Thinking** How are these two expressions related?

15.3×10^2 1.53×10^3

Reflect

How can you explain what it means to multiply a decimal by a power of 10?

Math is... Mindset

How did you show you understand how others are feeling?

Be Curious

What math do you see in this problem?

Sadie goes to a gas station to fill up her car. About how much money will she pay?

Math is... Mindset

What are some ways to build a positive relationship with classmates?

Learn

Sadie will buy 7.8 gallons of regular gasoline to fill up her car.

What are some ways to estimate the total cost?

You can round or use a range to estimate products of decimals.

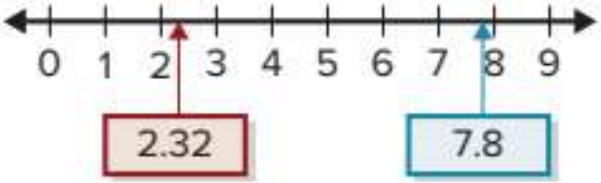
One Way Estimate by rounding.

7.8 rounds to 8. 2.32 rounds to 2.

$2 \times 8 = 16$

Sadie will pay about \$16 for gas.

Another Way Estimate using a **range.**



$2 \times 7 = 14$ $3 \times 8 = 24$

A reasonable estimate is between \$14 and \$24.

Sadie calculated that the total cost is \$18.10. This is reasonable because it is within the range of \$14 to \$24 and close to \$16.

Math is... Choosing Tools

Why is a range helpful when estimating?

You can use rounding or finding a range to estimate. You can use an estimate to assess the reasonableness of an answer.

Work Together

Is this answer reasonable? Explain your thinking.

$5 \times 27.8 \stackrel{?}{=} 1{,}390$

On My Own

MATH REPLAY | GO ONLINE

Name _____

Estimate each product by rounding. Show your work.

1. $5.73 \times 3.16 = ?$
2. $6.23 \times 3.87 = ?$
3. $13.6 \times 9.82 = ?$
4. $40.55 \times 7.89 = ?$
5. $19.91 \times 28.75 = ?$
6. $24.09 \times 12.57 = ?$

Estimate each product by finding a range. Show your work.

7. $4.93 \times 7.88 = ?$
8. $3.29 \times 3.81 = ?$
9. $7.77 \times 10.8 = ?$
10. $4.1 \times 13.5 = ?$
11. $20.11 \times 9.96 = ?$
12. $16.12 \times 3.55 = ?$

13. Bryce is buying 4.3 kilograms of apples. The store charges $1.79 per kilogram for apples. About how much will the apples cost? Explain which estimation strategy you used.

14. Anna has $40 to spend on downloading music. If each song costs $1.29, does she have enough money to download 16 songs? Explain how you can use estimation to solve.

15. Is the product reasonable? Explain.

$5.86 \times 9.3 \stackrel{?}{=} 64.5$

16. STEM Connection Maya has 3.8 liters of a solution. She needs 4.3 times more than she already has. About how many liters of the solution does she need?

17. Write two expressions that could be used to find a range of reasonable estimates for the product 10.25×5.89.

18. Extend Your Thinking Write two multiplication expressions so that when the product is estimated by rounding, the estimates are the same.

Reflect

Why is estimating products of decimals helpful?

Math is... Mindset

What did you do to build a positive relationship with a classmate?

Represent Multiplication of Decimals

Be Curious

How are they the same?
How are they different?

Math is... Mindset

What makes you feel confident about your work today?

Learn

Jonah will make 5 turkey sandwiches. He will use 0.04 pound of lettuce for each sandwich. Lettuce costs $0.90 per pound.

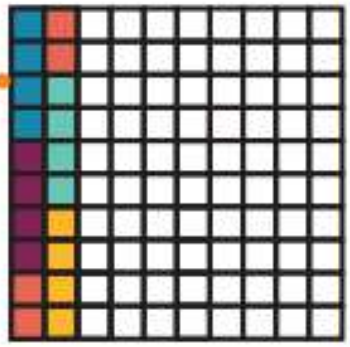
How can you determine the cost of lettuce for all 5 sandwiches?

You can use decimal grids to help you solve the problem.

Find the total amount of lettuce, p.

$5 \times 0.04 = p$

Show 5 groups of 0.04.



There are 20 hundredths of the whole shaded.

Jonah needs 0.2 pound of lettuce to make all 5 sandwiches.

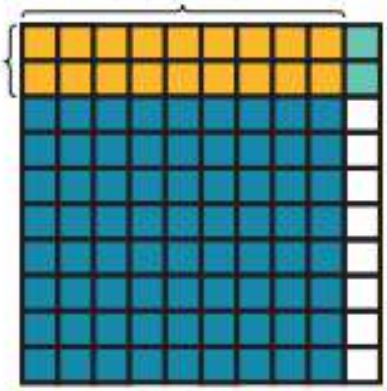
Find the total cost, c.

$0.2 \times 0.9 = c$

There are 18 hundredths of the whole shaded.

Shade 0.9 of the whole.

Shade 0.2 of 0.9.



The cost of lettuce for 5 sandwiches is $0.18.

Math is... Modeling

How do decimal grids help you understand multiplying decimals?

Representations are a helpful tool when solving multiplication problems involving decimals.

Work Together

Rin needs 0.3 cup of flour per serving to make bread. Rin wants to make 4 servings. How many cups of flour does he need?

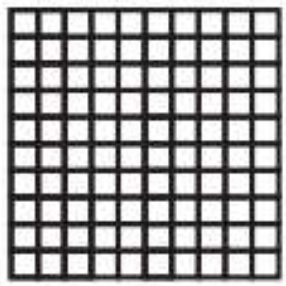
On My Own

MATH REPLAY | GO ONLINE

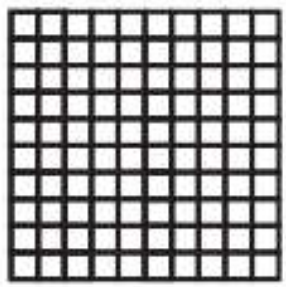
Name _____

Write an equation and use a decimal grid to help you solve.

1. Laura pours 0.08 liter of milk into her tea each day. How much milk does Laura use in her tea in one week?



2. Jason buys 0.9 pound of cabbage. The grocery store charges $0.60 per pound. How much will Jason pay for the cabbage?



3. Tonya cuts 0.4 meter of ribbon for each gift she wraps. She wraps 6 gifts. How much ribbon does Tonya use?

4. **STEM Connection** A rock has a mass of 2.4 kilograms. Maya estimates that the amount of granite in the rock is 0.3 of the full mass of the rock. How much granite is in the rock?

What is the product? Use a representation to solve.

5. $8 \times 0.2 =$ _____

6. $0.3 \times 0.9 =$ _____

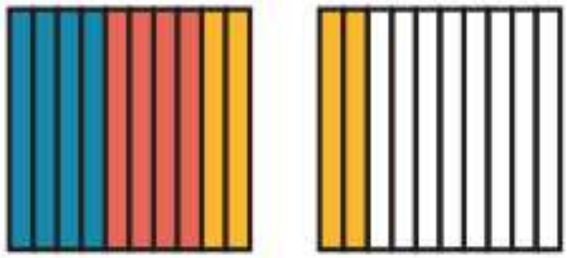
7. $0.12 \times 7 =$ _____

8. $0.4 \times 0.8 =$ _____

9. $5 \times 1.5 =$ _____

10. $0.6 \times 0.6 =$ _____

11. Write an equation to show the product represented by the decimal grids.



12. **Extend Your Thinking** Kristina buys 2 yards of fabric for $2.90 per yard. Her friend Norman wants to buy 0.4 yard of fabric from her. How much does Kristina pay for the fabric? How much will Norman pay Kristina for the fabric?

Reflect

How is multiplying decimals similar to multiplying whole numbers?

Math is... Mindset

What made you feel confident about your work today?

Unit 6

Decimal Multiplication

Name _____

Use what you know about decimal multiplication to estimate the product. Do not perform the exact multiplication.

1. 1.37 × 0.2

Circle **a** or **b** to show the better estimate.

a. less than 1

b. greater than 1

Explain or show your thinking.

2. 0.55 × 2.29

Circle **a** or **b** to show the better estimate.

a. less than 1

b. greater than 1

Explain or show your thinking.

Use what you know about decimal multiplication to estimate the product. Do not perform the exact multiplication.

3. 0.54×0.54

Circle **a** or **b** to show the better estimate.

a. less than 0.5

b. greater than 0.5

Explain or show your thinking.

4. 1.4×0.62

Circle **a** or **b** to show the better estimate.

a. less than 0.5

b. greater than 0.5

Explain or show your thinking.

Reflect On Your Learning

I'm confused. | I'm still learning. | I understand. | I can teach someone else.

Use an Area Model to Multiply Decimals

Be Curious

Which doesn't belong?

0.237

237

273

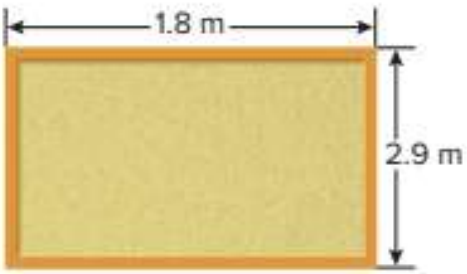
2,370

Math is... Mindset

What helps you focus when you feel frustrated?

Learn

How can you find the area of the board?



You can use the equation $1.8 \times 2.9 = A$ to represent the problem.

You can use an area model to help you solve the equation.

Decompose each factor and find partial products.

Decompose by place value.

	2	+	0.9
1	$2 \times 1 = 2$		$0.9 \times 1 = 0.9$
+			
0.8	$2 \times 0.8 = 1.6$		$0.9 \times 0.8 = 0.72$

Find partial products by finding the area of each rectangle.

Add partial products.

$2 + 0.9 + 1.6 + 0.72 = 5.22$

The area of the board is 5.22 square meters.

Math is... Modeling

How are the area models for decimals and whole numbers similar?

One multiplication strategy for multiplying decimals is to use an area model to determine partial products, which are then added to determine the product.

Work Together

A teacher bought 18 rulers. What was the total cost of the rulers? Use an area model to solve.

On My Own

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Name _____

What is the product? Use an area model to solve.

1. $32 \times 1.5 =$ _____

2. $14 \times 2.3 =$ _____

3. $7.1 \times 8 =$ _____

4. $6.2 \times 1.5 =$ _____

5. $9.6 \times 5.5 =$ _____

6. $1.9 \times 2.4 =$ _____

7. A tent repair shop charges $9.50 for every 1 meter of stitching repaired on a tent. Michael brings in his tent for repairs. It needs 1.2 meters of stitching. How much will the repairs cost him?

8. **Error Analysis** Evelyn used an area model to multiply 7.4×1.2 as shown. How do you respond to her work?

	1	+	2
7	$7 \times 1 = 7$		$7 \times 2 = 14$
+			
4	$4 \times 1 = 4$		$4 \times 2 = 8$

$7 + 14 + 4 + 8 = 33$

9. The Mountaintop Ski Shop sold 15 pairs of ski gloves last week. How much did the ski shop make selling gloves last week?

10. Olive's van can travel 16.4 miles per gallon of gas. Her tank has 8.3 gallons of gas in it. How many miles can Olive travel with the gas in her tank?

11. **Extend Your Thinking** Write and solve a real-world multiplication problem with at least one decimal factor. Use an area model to help you solve.

Reflect

How can you use partial products and an area model to find the product of two decimal factors?

Math is... Mindset

What helped you focus when you felt frustrated?

Be Curious

Which are equal?

3.4×10^3

340

0.34

34,000

3.4×10^2

Math is... Mindset

How can you know that you have made good decisions?

Learn

How can you use the solution from one equation to solve the other two equations?

$48 \times 26 = m$ $48 \times 2.6 = n$ $48 \times 0.26 = p$

You know $48 \times 26 = 1{,}248$. You can use place value to help you understand the relationship between the equations.

$48 \times 26 = 1{,}248$

$48 \times 2.6 = 124.8$

2.6 is $\frac{1}{10}$ of 26. 124.8 is $\frac{1}{10}$ of 1,248.

$48 \times 26 = 1{,}248$

$48 \times 0.26 = 12.48$

0.26 is $\frac{1}{100}$ of 26. 12.48 is $\frac{1}{100}$ of 1,248.

If the digits in one factor move places to the right, the digits in the product move the same number of places to the right.

Math is... Generalizations

How can you use the patterns in the calculations to efficiently multiply decimals?

You can use patterns to make generalizations about multiplying decimals.

Work Together

How can you use the solution for the first equation to solve the others?

$72 \times 24 = ?$

$7.2 \times 24 = ?$

$0.72 \times 24 = ?$

$72 \times 2.4 = ?$

$72 \times 0.24 = ?$

On My Own

Name _____

Complete each sentence.

1. 3.8 is _____ of 38.

   So, 3.8 × 25 is _____ of the product 38 × 25.

2. 0.45 is _____ of 45.

   So, 0.45 × 16 is _____ of the product 45 × 16.

3. 7.8 is _____ of 78 and 9.2 is _____ of 92.

   So, 7.8 × 9.2 is _____ of the product 78 × 92.

What is the product? Use patterns to solve.

4. 45 × 17 = 765

   45 × 1.7 = _____

   45 × 0.17 = _____

5. 32 × 14 = _____

   32 × 1.4 = 44.8

   3.2 × 1.4 = _____

6. 16 × 89 = 1,424

   16 × 8.9 = _____

   16 × 0.89 = _____

7. 61 × 22 = _____

   6.1 × 22 = 134.2

   6.1 × 2.2 = _____

8. 96 × 55 = _____

   96 × 5.5 = _____

   9.6 × 5.5 = 52.8

9. 19 × 42 = _____

   1.9 × 42 = 79.8

   1.9 × 4.2 = _____

10. 67 × 34 = _____

    67 × 3.4 = _____

    6.7 × 3.4 = _____

11. 82 × 67 = _____

    82 × 6.7 = _____

    8.2 × 6.7 = _____

12. **Error Analysis** Clarissa states that since 5.5 is $\frac{1}{10}$ of 55 and 3.7 is $\frac{1}{10}$ of 37, 5.5×3.7 is $\frac{1}{10}$ of 55×37. How do you respond to Clarissa?

13. **Extend Your Thinking** Kyle's paper has been smudged and any decimals in the factors have been lost. Can you help explain to Kyle how to determine where decimals could go?

$340 \times 13 = 4.42$

14. Loni's house has a rectangular window with a height of 1.5 meters and a width of 0.8 meter. What is the area of the window?

15. A car averages 32.6 miles per gallon of gasoline. How many miles can the car travel on 4.5 gallons of gasoline?

16. Dale bought 3 apples that cost \$0.49 each. He also bought 1.8 pounds of grapes that cost \$0.90 per pound. How much did Dale spend for the apples and grapes?

Reflect

What patterns did you notice when multiplying decimals?

Math is... Mindset

What helped you make good decisions today?

Be Curious

What math do you see in this problem?

Amy rides her bike a certain distance to school each day. Jason rides his bike a portion of the distance that Amy rides. How far does Jason ride his bike to school each day?

Math is... Mindset

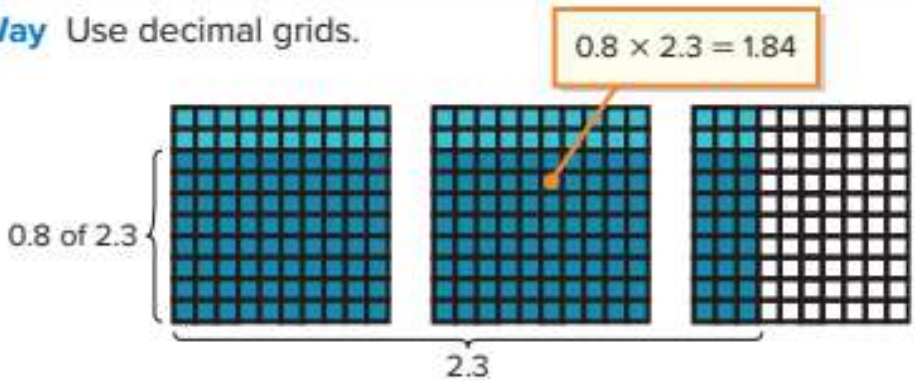
How can you show others that you value their ideas?

Learn

Amy rides her bike 2.3 miles to school each day. Jason rides his bike 0.8 of that distance.

How far does Jason ride his bike to school each day?

One Way Use decimal grids.



Jason rides his bike 1.84 miles to school each day.

Another Way Use partial products.

$0.8 \times 2.3 = 0.8 \times (2 + 0.3)$ — Decompose 2.3 by place value.

$= 0.8 \times 2 + 0.8 \times 0.3$

$= 1.6 + 0.24$ — Add partial products.

$= 1.84$

Jason rides his bike 1.84 miles to school each day.

Math is... Exploring

Why is it useful to know more than one strategy to solve a problem?

You can use any strategy to multiply decimals. Look at the factors to determine the most efficient strategy.

Work Together

An area model can be used to solve 3.6×2.5.

What other strategy can you use to solve this problem?

	2	+	0.5
3	$3 \times 2 = 6$		$3 \times 0.5 = 1.5$
+			
0.6	$0.6 \times 2 = 1.2$		$0.6 \times 0.5 = 0.30$

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the product? Explain the strategy you used to solve.

1. $2.9 \times 0.7 = d$

2. $5.6 \times 3.2 = b$

3. Each bottle holds the same amount. How much water can these bottles hold?

4. Rebecca cut these ribbons to the same length. How much ribbon did Rebecca use in all?

5. Experts recommend that people have 4.7 grams of potassium per day. Last week Marcus averaged 0.9 times as much potassium as the recommendation. How much potassium did Marcus average each day last week?

6. A pitcher has a capacity of 3.9 liters. A cooler has a capacity 9.2 times greater. What is the capacity of the cooler?

Solve. Explain the strategy used to solve.

7. Kara has a bag of apples. Each apple weighs 0.4 pound on average. There are 17 apples in her bag. What is the total weight of her apples?

8. Julio's doctor told him that he should eat 0.7 gram of protein per day for every kilogram of body mass. Julio measures 58 kilograms now. How much protein should Julio eat?

9. Anita rode her bicycle 7.8 miles on Monday and 3.1 times as far on Tuesday. How far did she ride her bicycle on Tuesday?

10. **STEM Connection** Maya has 1 liter of a solution that contains 0.13 liter of an active ingredient. How much of the active ingredient is in 2.8 liters of the solution? How can you use an area model to show this product?

11. Jared buys 3.5 pounds of potatoes. The store charges $0.80 per pound of potatoes. How much does Jared pay for the potatoes? Explain how you solved the problem.

12. **Extend Your Thinking** How many decimal places do you think are in the product of $1.2 \times 1.43 \times 0.3$? What strategy did you use to make your prediction? Multiply to check your prediction.

Reflect

How did I think like a mathematician when explaining how to multiply decimals?

Math is... Mindset

How did you show others that you value their ideas?

Unit Review

Name _____

Vocabulary Review

Choose the correct word(s) to complete the sentence.

estimate	partial products
exponent	range

1. To find an approximate value of a calculation is to _____. (Lesson 6-2)

2. When multiplying by a power of 10, the _____ tells us the number of places the digits shift to the left. (Lesson 6-1)

3. A(n) _____ gives two numbers between which acceptable values fall. (Lesson 6-2)

4. When using an area model to multiply, the values placed in rectangles are called _____. (Lesson 6-4)

Review

5. Which is equivalent to 7.6×10^3? (Lesson 6-1)

A. 76

B. 760

C. 7,600

D. 76,000

6. Which equation is represented by the model? (Lesson 6-3)

A. $0.04 \times 0.08 = 0.0032$

B. $0.4 \times 0.08 = 0.032$

C. $0.4 \times 0.8 = 0.32$

D. $4 \times 0.8 = 3.2$

7. Find the missing products. (Lesson 6-5)

$23 \times 89 =$ _____

$23 \times 8.9 = 204.7$

$2.3 \times 8.9 =$ _____

8. Deshaun cuts 0.8 meter of tape for each part of his project. There are 7 parts to his project. How much tape does Deshaun use? (Lesson 6-6)

9. Daniel is making 7 pizzas for himself and his friends. Each pizza will have 2.8 ounces of sauce. About how much sauce does Daniel need to make 7 pizzas? (Lesson 6-2)

Daniel needs between _____ ounces and _____ ounces of sauce.

10. Which expressions are equivalent to 3,400? Choose all that apply. (Lesson 6-1)

A. 0.34×10^2

B. 0.34×10^3

C. 3.4×10^2

D. 3.4×10^3

E. 34×10^2

F. 34×10^3

11. Leo pays $4.60 for every movie he rents. He rents 12 movies. How much does he pay for movies? (Lesson 6-4)

12. A recipe calls for 1.8 liters of milk. If the recipe needs to be tripled, how many liters of milk are needed? (Lesson 6-6)

13. Kellen has a battery that weighs 14.7 grams. He also has a bigger battery that weighs 4.29 times that much. About how much does the bigger battery weigh? (Lesson 6-2)

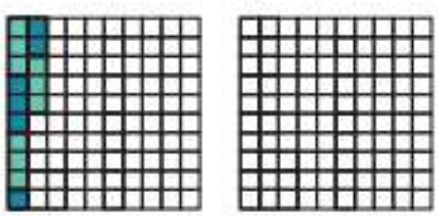
The bigger battery is between _____ grams and _____ grams.

14. Find the product. (Lesson 6-4)

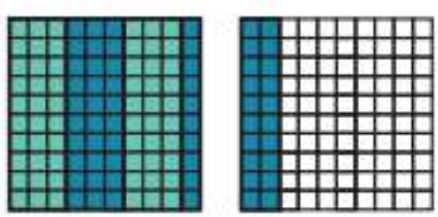
$3.6 \times 4.7 =$ _____

15. David rides 0.3 miles each day to school. Which model shows how far he rides in 5 days? (Lesson 6-3)

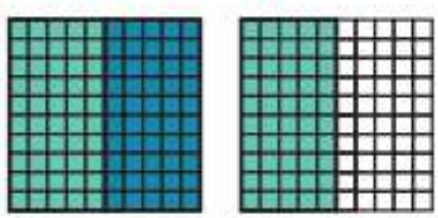
A.



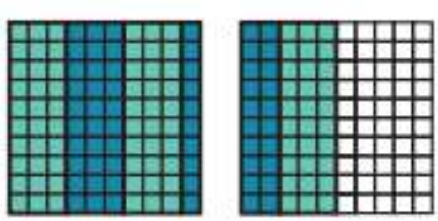
B.



C.



D.



16. Which is equivalent to 5.9×10^4? (Lesson 6-1)

A. 59

B. 590

C. 5,900

D. 59,000

17. 5.4 is _____ of 54. So, 5.4×27 is _____ of the product 54×27. (Lesson 6-5)

18. Which expression has a value of 0.35? Choose all that apply. (Lesson 6-5)

A. 7×0.5

B. 0.7×0.5

C. 0.07×5

D. 0.7×5

19. Use partial products to find the product of 4.7×2.8. (Lesson 6-4)

$4 \times 2 =$ _____

$4 \times$ _____ $=$ _____

$0.7 \times$ _____ $=$ _____

$0.7 \times 0.8 =$ _____

So, $4.7 \times 2.8 =$ _____

Performance Task

Caitlyn worked with a geologist to help miners find iron ore. She is paid $7.50 for each hour of work. Last week, she worked 9.5 hours.

Part A: She can increase her hours to 10.5 hours some weeks. How can she earn $300 or more in a month?

Part B: How many hours a week would she need to work to make $80.25 per week?

Reflect

How can I multiply decimals?

Unit 6

Fluency Practice

Name _____

Fluency Strategy

You can choose a strategy to subtract. You can adjust the numbers, decompose the second number, or use an algorithm.

Adjust the numbers. $9{,}747 - 5{,}398$

$+2$ $+2$

$9{,}749 - 5{,}400 = 4{,}349$

1. Adjust the numbers to find the difference.

3,978 − 1,703

− −

_____ − _____ = _____

Fluency Flash

What is the difference?

2.

	thousands	hundreds	tens	ones
	5	3	8	6
−	1	0	7	2

3.

	thousands	hundreds	tens	ones
	2	4	1	6
−	1	9	5	7

Fluency Check

What is the sum or difference?

4. 1,678 − 245 = _____

5. 459 − 216 = _____

6. 995 + 56 = _____

7. 748 − 432 = _____

8. 824 + 513 = _____

9. 862 − 375 = _____

10. 368 + 214 = _____

11. 894 − 151 = _____

12. 564 + 27 = _____

13. 1,687 − 526 = _____

Fluency Talk

How do you decide when to use adjusting or an algorithm to subtract?

How would you explain to a friend what it means to regroup in addition?

Divide Whole Numbers

Focus Question

How can I divide multi-digit numbers?

Hi, I'm Grace.

I want to be a computer programmer. When developing a city building game, I will need to know the measurements of each object. I will use division to find the ones I don't know. In my job, it will be important to be able to divide whole numbers.

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IGNITE!

Name _____

Division Puzzles

1. Each row and column (not diagonals) represents a division problem. Use whole numbers to fill in the missing numbers in Puzzles A–E.

Figure 1

56	8	7
14	2	7
4	4	1

Puzzle A

	3	
		6
6	3	

Puzzle B

72	12	
8		2

Puzzle C

	7	4
2	1	

Puzzle D

		10
	5	
	2	10

Puzzle E

54	9	
2		

2. Show as many ways as you can to solve this division puzzle.

36		
	3	
		1

36		
	3	
		1

36		
	3	
		1

36		
	3	
		1

36		
	3	
		1

36		
	3	
		1

Lesson 7-1

Division Patterns with Multi-Digit Numbers

Be Curious

What question could you ask?

Math is... Mindset

How can your strengths in other areas help you in math?

Learn

There are 12,000 nickels.

How can you find the number of rolls of nickels?

Patterns can help you solve the problem.

$12{,}000 \div 40 = n$

You can use a basic fact and patterns to help you solve the equation.

basic fact → $12 \div 4 = 3$

$120 \div 40 = 3$

Both the dividend and divisor are 10 times as much, so quotient is the same.

When only the dividend is 10 times as much, the quotient is also 10 times as much.

$120 \div 40 = 3$

$1{,}200 \div 40 = 30$

As the number of zeros in the dividend increases, the number of zeros in the quotient also increases.

$12{,}000 \div 40 = 300$

There are 300 rolls of nickels.

You can use patterns in the number of zeros to help you divide by a multiple of 10.

Math is... Structure

How can you use place value to explain this pattern?

Work Together

What is the quotient? How can you use a basic fact and patterns to solve?

$300 \div 50 =$

$3{,}000 \div 50 =$

$30{,}000 \div 50 =$

On My Own

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Name _____

Use a basic fact and patterns to solve.

1. 15 ÷ _____ = 5

150 ÷ 30 = _____

_____ ÷ 30 = 50

15,000 ÷ _____ = _____

2. 32 ÷ 8 = _____

_____ ÷ 80 = _____

3,200 ÷ _____ = _____

_____ ÷ _____ = _____

3. 20,000 ÷ 40 = _____

4. 15,000 ÷ 30 = _____

5. 18,000 ÷ 60 = _____

6. 16,000 ÷ 80 = _____

7. 8,000 ÷ 40 = _____

8. 25,000 ÷ 50 = _____

9. 32,000 ÷ 80 = _____

10. 9,000 ÷ 30 = _____

11. There are 24,000 quarters in rolls of 40 quarters each. How many rolls of quarters are there?

12. Error Analysis Drew wants to solve 12,000 ÷ 20 by starting with this basic fact: 12 ÷ 2 = 6. Drew then uses patterns to find a quotient of 60. Is Drew correct? If not, what mistake did he make?

13. STEM Connection A building has 20 floors. The building has a total floor area of 40,000 square feet. What is the area of each floor? Explain.

14. Extend Your Thinking Write a basic fact. Use place value patterns to multiply the dividend by 10 and the divisor by 10. How do the quotients compare?

Reflect

How does using place-value patterns and basic facts help you divide whole numbers by multiples of 10?

Math is... Mindset

How have your strengths in other areas helped you in math?

Estimate Quotients

Be Curious

What do you notice?
What do you wonder?

Math is... Mindset

What helps you be motivated to do your best work?

Learn

A school collected 3,000 bottles of water to be packed into boxes.

What are some ways to estimate the number of boxes needed?

You can use different strategies to estimate quotients.

One Way Use rounded numbers. $3{,}000 \div 24 = n$ ↓ ↓ $3{,}000 \div 20 = 150$ The school will need about 150 boxes.	**Another Way** Use compatible numbers. $3{,}000 \div 24 = n$ ↓ ↓ $3{,}000 \div 30 = 100$ The school will need about 100 boxes.

$3{,}000 \div 24 = 125$ — *calculated quotient*

The calculated quotient is reasonable because it is close to the estimated quotients.

Math is... Choosing Tools

Why might you estimate a quotient more than one way?

Estimated quotients can help you determine whether calculations are reasonable.

Work Together

Estimate the quotient of 4,000 ÷ 16 two different ways.

On My Own

MATH REPLAY | GO ONLINE

Name _____

Estimate the quotient.

1. 2,400 ÷ 34

2. 3,500 ÷ 65

3. 1,800 ÷ 92

4. 4,800 ÷ 86

5. 6,390 ÷ 31

6. 4,988 ÷ 19

7. 809 ÷ 10

8. 9,598 ÷ 11

9. **Error Analysis** Cho writes this equation. Is her calculation reasonable? Explain.

9,025 ÷ 25 = 3,610

10. A quarterback throws the football for a total of 3,189 yards in 16 games. About how many yards did he throw in each game?

11. Owen took 7,027 pictures over the course of a year. About how many pictures did Owen take each month?

12. **Extend Your Thinking** Which of these equations is *not* a reasonable estimate for 533 ÷ 57? Explain your reasoning.

$540 \div 60 = 9$ $500 \div 50 = 10$ $420 \div 60 = 7$

Reflect

How can you use estimates to determine if calculations are reasonable?

Math is... Mindset

What helped you be motivated to do your best work?

Lesson 7-3

Relate Multiplication and Division of Multi-Digit Numbers

Be Curious

What do you notice?
What do you wonder?

Math is... Mindset

What are some ways you can contribute to your group today?

Learn

A café owner orders 350 tea bags.

How many boxes of tea will the cafe owner receive?

You can use the relationship between multiplication and division to determine the solution.

A division equation can represent the problem.
$350 \div 25 = t$

A multiplication equation with an unknown factor can also represent the problem.
$t \times 25 = 350$

One Way

$4 \times 25 = 100$
$4 \times 25 = 100$
$4 \times 25 = 100$
$2 \times 25 = 50$

$4 + 4 + 4 + 2 = 14$

$14 \times 25 = 350$
$350 \div 25 = 14$

$$\begin{array}{r} 350 \\ -100 \\ \hline 250 \\ -100 \\ \hline 150 \\ -100 \\ \hline 50 \\ -50 \\ \hline 0 \end{array}$$

Another Way

$10 \times 25 = 250$
$4 \times 25 = 100$

$10 + 4 = 14$

$14 \times 25 = 350$
$350 \div 25 = 14$

$$\begin{array}{r} 350 \\ -250 \\ \hline 100 \\ -100 \\ \hline 0 \end{array}$$

You can think about how many groups of the divisor can be made from the dividend to solve division problems.

Math is... Generalizations

Will this strategy work for all division situations? Why or why not?

Work Together

Use multiplication to solve for d. Show your work.

$1{,}650 \div 22 = d$

On My Own

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Name _____

1. How many groups of 23 can you make from 184?

2. How many groups of 14 can you make from 700?

3. How many groups of 12 can you make from 192?

4. How many groups of 18 can you make from 720?

Solve for the unknown.

5. $396 \div 12 = n$
   $n \times 12 = 396$

6. $448 \div 16 = s$
   $s \times 16 = 448$

7. $312 \div 52 = m$
   $m \times 52 = 312$

8. $533 \div 41 = a$
   $a \times 41 = 533$

9. The fifth-grade class is setting up for a performance. They need to set up enough chairs for 280 people. The chairs are set up in rows of 35. How many rows will they have?

10. Merrick wants to organize his trading cards into a binder. He can fit 18 cards in each plastic sheet in the binder. He has 1,440 cards. How many plastic sheets will he need?

11. **STEM Connection** Maya sorts her rock collection into three main types of rocks: igneous, metamorphic, or sedimentary. She has 126 rocks and has equal numbers of each type of rock. How many rocks will she have in each group?

12. A charity has 6,650 volunteers and 7 different chapters in 7 different cities. All of the chapters have the same number of volunteers. How many volunteers are in each chapter?

13. **Extend Your Thinking** Why does thinking of a division equation in terms of multiplication help you solve the division equation?

Reflect

How can using the relationship between multiplication and division help you determine the quotient of multi-digit whole numbers?

Math is... Mindset

How did you contribute to your group today?

Lesson 7-4

Represent Division of 2-Digit Divisors

Be Curious

Tell me everything you can.

Math is... Mindset

What is your responsibility in building a safe classroom culture?

Learn

The Parthenon, in Athens, Greece has an area of 2,139 square meters.

What is the length of the Parthenon?

An area model can help to determine the solution.

You can use an area model to represent division with 2-digit divisors.

$2,139 \div 31 = /$

31	2,139

Represent each partial quotient in the area model.

	50	+ 10	+ 9
31	1,550	310	279

Partial Quotients

$$\begin{array}{r} 2,139 \\ -1,550 \\ \hline 589 \\ -310 \\ \hline 279 \\ -279 \\ \hline 0 \end{array}$$

Add the partial quotients to determine the quotient.

$50 + 10 + 9 = 69$

$2,139 \div 31 = 69$

The length of the Parthenon is 69 meters.

Math is... Generalization

How is an area model for multiplication different from one for division?

You can use an area model to represent division with 2-digit divisors.

Work Together

A rectangle has an area of 888 square feet. The width of the rectangle is 24 feet. What is the length?

Use an area model to solve.

On My Own

MATH REPLAY | GO ONLINE

Name _____

What is the quotient? Use an area model and partial quotients to solve.

1. 575 ÷ 25 = _____

2. 656 ÷ 41 = _____

3. 2,006 ÷ 34 = _____

4. 7,626 ÷ 93 = _____

5. **STEM Connection** Grace is helping to develop a computer game. The game uses 1,764 blocks to build 28 structures. How many blocks does each structure require?

6. The floor in a large classroom has an area of 1,184 square feet and is 32 feet wide. How long is the classroom?

7. A county is rectangular in shape. It has an area of 322 square miles and is 23 miles long (east to west). How wide (north to south) is the county?

8. The footprint of a new office building is a rectangle 17 meters wide with an area of 391 square meters. How long is the building?

9. A parking lot is a rectangle 74 feet long with an area of 4,884 square feet. How wide is the parking lot?

10. What is the quotient of 3,724 ÷ 49?

A. 70 **B.** 73

C. 76 **D.** 80

11. Mr. Ramirez drove 1,798 miles on the highway over a few days. He had a constant speed of 58 miles per hour. How long did he drive?

12. Traci earns $13 per hour working at a store. How many hours does she need to work to afford a new $611 smart phone?

13. Extend Your Thinking Over 18 days, a fifth-grade class of 21 students collected 4,914 cans. Each student collected the same number of cans each day. How many cans did the class collect per day? How many did each student collect per day? Show your work.

Reflect

How can you represent division involving 2-digit divisors? Explain.

Math is... Mindset

How have you responsibly built a safe classroom culture?

Lesson 7-5

Use Partial Quotients to Divide

Be Curious

What math do you see in this problem?

An adult bison weighs a number of times the weight of a bison calf. How can you find the weight of the bison calf?

Math is... Mindset

What behaviors show respect towards someone?

Learn

An adult bison weighs 1,752 pounds, which is 24 times the weight of a bison calf.

How much does the bison calf weigh?

You can use partial quotients to solve division equations.

A bar diagram can represent the problem.

$1{,}752 \div 24 = l$.

Weight of the adult bison

Math is... Connections

What is another way to show multiplicative comparison?

Use partial quotients to solve.

$$
\begin{array}{r|l}
24\overline{)1{,}752} & \\
-1{,}200 & 50 \\
\hline
552 & \\
-480 & 20 \\
\hline
72 & \\
-72 & 3 \\
\hline
0 & 73
\end{array}
$$

$1{,}752 \div 24 = 73$

The bison calf weighs 73 pounds.

Work Together

What is the quotient of $2{,}356 \div 38$? Use the partial quotients strategy to help you solve the problem.

38	
$50 \times 38 = 1{,}900$	50
$10 \times 38 = 380$	10
$2 \times 38 = 76$	2
	62

$$
\begin{array}{r|l}
38\overline{)2{,}356} & \\
-\ \square & \square \\
\hline
\square & \\
-\ \square & \square \\
\hline
\square & \\
-\ \square & \square \\
\hline
0 & \square
\end{array}
$$

On My Own

Name _____

What is the quotient? Use partial quotients to solve.

1. 819 ÷ 39 = ____

2. 988 ÷ 26 = ____

3. 1,215 ÷ 27 = ____

4. 3,432 ÷ 66 = ____

5. STEM Connection An astronomer is studying two comets. Comet A has an orbit that is 187 years. Comet A has an orbit that is 17 times as long as the Comet B. How long is the orbit of the Comet B?

6. Miguel has taken 3,196 photographs in the last 47 days. Miguel took the same number of photographs each day. How many photographs per day has he taken?

7. One hiker completed the Appalachian Trail in only 55 days. The trail is about 3,520 kilometers. How many kilometers per day did she hike if she hiked the same distance each day?

8. What partial quotients could you use to find the quotient of $3,276 \div 52$?

9. **Extend Your Thinking** Over 11 weeks last summer, Emily earned $4,004. She earned $14 per hour. Emily worked the same number of hours each week. How much did she earn each week? How many hours per week did Emily work? Show your work.

Reflect

How does using the partial quotients strategy help you divide?

Math is... Mindset

How have your behaviors shown respect towards someone?

Be Curious

What math do you see in this problem?

Rahim is selling bags of tortillas. He wants to fill the bags with no tortillas left over.

Math is... Mindset

What actions can help you achieve your day's goal?

Learn

Rahim will fill bags with tortillas. He has bags that hold 12 tortillas and bags that hold 16 tortillas.

Which size bag should he use if he wants no tortillas left over?

276 tortillas

If Rahim uses the bags that hold 16 tortillas,

$276 \div 16 = b$.

$$\begin{array}{r|l} 16\overline{)276} & \\ -160 & 10 \\ \hline 116 & \\ -112 & 7 \\ \hline 4 & 17 \end{array}$$

The **remainder** is 4.

He will have 4 tortillas left over.

Math is... Reasonableness

How can you check your solution when there is a remainder?

If Rahim uses the bags that hold 12 tortillas,

$276 \div 12 = t$.

$$\begin{array}{r|l} 12\overline{)276} & \\ -240 & 20 \\ \hline 36 & \\ -36 & 3 \\ \hline 0 & 23 \end{array}$$

The remainder is 0.

He will have no tortillas left over.

Rahim should use bags of 12 tortillas.

You can use partial quotients to divide. Sometimes the quotient has a remainder.

Work Together

What is the quotient?

$89\overline{)1{,}250}$

On My Own

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Name _____

What is the quotient?

1. $754 \div 13 =$ _____

2. $1{,}426 \div 46 =$ _____

3. $975 \div 64 =$ _____

4. $2{,}246 \div 27 =$ _____

5. **Error Analysis** Is this division correct? If not, explain the error and find the correct quotient.

$$
\begin{array}{r|l}
84\overline{)3{,}115} & \\
-2{,}520 & 30 \\
\hline
595 & \\
-504 & 6 \\
\hline
91 & 36
\end{array}
$$

6. Lily's town is hosting a race. She bought 1,525 water cups to pass out to the runners. She wants to distribute the cups equally to 14 water stations. When she finishes, how many are remaining?

7. One bridge in Maryland is 6,946 meters long. It is 46 times as long as another nearby bridge. How long is the shorter bridge? Explain.

8. Amir has a collection of 936 trading cards. He wants to put them in boxes with 25 trading cards in each box. How many boxes will Amir fill? How many trading cards will be left over?

9. **Extend Your Thinking** A florist has 476 carnations. She wants to put the same number of carnations in each vase with no carnations left over. Should she put 14 or 18 carnations in each vase? Explain your answer.

Reflect

How can you tell if there is a remainder when dividing using a partial quotients strategy?

Math is... Mindset

How have your actions helped you achieve your day's goal?

Solve Problems Involving Division

Be Curious

What's the question?

Javier and his family stay at a hotel.

Math is... Mindset

How can you help identify a problem in your class or community?

Learn

Javier and his family have $1,059 to pay for their vacation hotel.

Will they be able to stay at the hotel for 12 nights?

A division equation can represent the problem.

Math is... Planning

What are some different ways you know to determine a quotient?

$1{,}059 \div 95 = h$

One strategy is to use partial quotients.

$$\begin{array}{r|l} 95\overline{)\,1{,}059} & \\ -\,950 & 10 \\ \hline 109 & \\ -\,\;95 & 1 \\ \hline 14 & 11 \end{array}$$

The remainder is 14.

The quotient is 11.

Javier and his family can stay at the hotel for 11 nights only. They will have $14 left.

Sometimes it is necessary to interpret the remainder to solve problems.

Work Together

There are 1,658 people attending a play.

Each row at the theater has 75 seats.

How many rows will they need to seat everyone? Will all the rows have the same number of seats?

On My Own

Name _____

What is the quotient? Use partial quotients to solve.

1. $562 \div 22 =$ _____

2. $3{,}842 \div 32 =$ _____

3. Jiya is a restaurant critic. She is given a budget of $850 and can spend $45 at each restaurant. How many restaurants can she visit and review? Explain your answer.

4. **STEM Connection** Grace writes a computer program containing 1,190 lines. Each page contains 56 lines. How many full pages of code does she write? Explain your answer.

5. A farmer packs 1,124 pears to take to the farmers' market. Each tray holds 16 pears. How many trays will she take to the farmers' market? Explain your answer.

6. Alicia has 2,056 stickers. She puts the same number of stickers into 24 gift bags. How many stickers are in each gift bag? Will she use all her stickers? Explain your answer.

7. Lily rents buses to take 1,980 runners to the starting line of a marathon. Each bus holds 40 people. How many buses are needed? Explain your answer.

8. **Extend Your Thinking** There are 8,554 runners participating in a marathon. The runners will be divided into 12 groups with about the same number of runners in each group. How many runners can be in each group? Explain.

Reflect

What does the remainder tell you?

Math is... Mindset

How did you help identify a problem in your class or community?

Unit 7

Solving Division Word Problems

Name _____

Represent and solve the division problem. Then circle the best answer. Explain your answer choice.

1. Diana wants to make jump ropes for gifts. She needs 11 feet of rope to make one jump rope. With 235 feet of rope, how many jump ropes can she make?

Which number of jump ropes best represents the solution?

a. 21

b. 22

c. 21 remainder 4

d. None of these

Explain your choice.

2. Mrs. Philbrick is packing 374 eggs into cartons. Each carton holds 12 eggs. How many cartons will she need in order to pack all of the eggs?

Which number of cartons best represents the solution?

a. 31

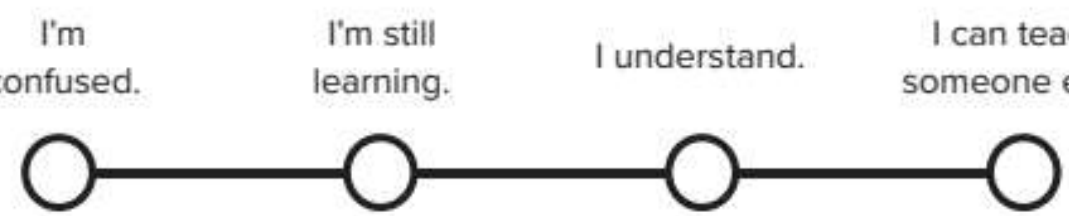
b. 32

c. 31 remainder 2

d. None of these

Explain your choice.

Reflect On Your Learning



Unit Review Name _____

Vocabulary Review

Choose the correct word(s) to complete each sentence.

dividend	partial quotient
divisor	quotient
estimate	remainder

1. To find an approximate value of an operation is to _____. (Lesson 7-2)

2. In a division problem, the _____ is divided by the _____. (Lesson 7-1)

3. The _____ is the result of dividing one number by another. (Lesson 7-1)

4. You can break a dividend into parts to divide. Each separate quotient is called a(n) _____. (Lesson 7-4)

5. A(n) _____ is an amount left over after one whole number is divided by another. (Lesson 7-6)

Review

6. Which is the quotient? (Lesson 7-1)

24,000 ÷ 80

A. 3

B. 30

C. 300

D. 3,000

7. Write a multiplication equation you could use to solve 480 ÷ 12. What is the solution? (Lesson 7-3)

8. Which expressions will provide the best estimate for the quotient of 7,721 ÷ 29? Choose all that apply. (Lesson 7-4)

A. 7,000 ÷ 30

B. 7,500 ÷ 30

C. 8,000 ÷ 20

D. 8,000 ÷ 30

9. What is the quotient? Use partial quotients to solve.
435 ÷ 54 (Lesson 7-6)

10. Complete the partial quotients strategy to solve. (Lesson 7-5)

```
32 ) 2,304
   −1,600   [ ]
      704
     −640   [ ]
       64
      −64   [ ]
        0
```

2,304 ÷ 32 = ____

11. Trevor wrote 31,435 lines of programming code this month. He wrote about the same number of lines each day. About how many lines of code did he write each day? (Lesson 7-2)

A. 100

B. 200

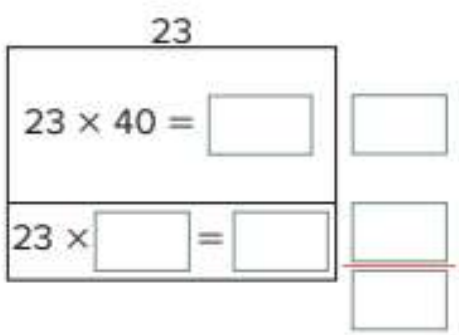
C. 1,000

D. 2,000

12. There are 18,000 envelopes in packs of 60. How many packs of envelopes are there? (Lesson 7-1)

13. Janette earns $13 each hour walking dogs. She earned $585 last month. For how many hours did she walk dogs last month? Use partial quotients to solve. (Lesson 7-7)

14. A rectangle has an area of 1,104 square meters. The width of the rectangle is 23 meters. What is the length? Complete the area model to solve. (Lesson 7-4)



15. Which is the best estimate of 3,988 ÷ 19? (Lesson 7-2)

A. 20

B. 200

C. 400

D. 2,000

16. Tickets for a ballet cost $46 each. James has a budget of $1800 to purchase ballet tickets. How many ballet tickets can James purchase? (Lesson 7-7)

17. A party supply store manager is packaging party hats for sale. There are 504 party hats. How many hats can the manager place in each package so that there are no hats left over? Choose all that apply. (Lesson 7-7)

A. 12

B. 15

C. 20

D. 21

E. 24

F. 63

Performance Task

Jenny reviews lines of computer code checking for any errors that might cause the program to not run correctly. One program that she checks has 3,843 lines of code. Jenny can review an average of 47 lines in an hour.

Part A About how many hours will it take Jenny to review the entire program?

Part B Jenny is paid for each full hour she works. For how many hours of work will Jenny be paid? Explain how you know your solution is reasonable.

Reflect

How can I divide multi-digit whole numbers?

Unit 7

Fluency Practice

Name _____

Fluency Strategy

You can use place value and properties of operations to multiply by multiples of 10.

$80 \times 7 = 8 \times 10 \times 7$ Write 80 as 8×10.

$= 8 \times 7 \times 10$ Use properties to change the order of the factors without changing the product.

$= 56 \times 10$ Multiply.

$= 560$

1. Use place value and properties to multiply.

$60 \times 4 =$ _____ $\times 10 \times 4$

$= 6 \times$ _____ $\times 10$

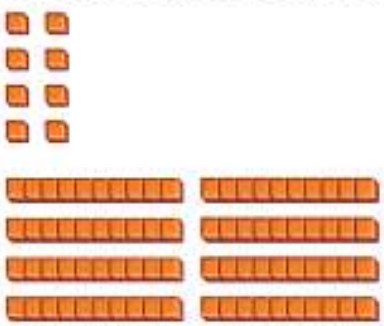
$=$ _____ $\times 10$

$=$ _____

Fluency Flash

Use the models to complete the multiplication equations.

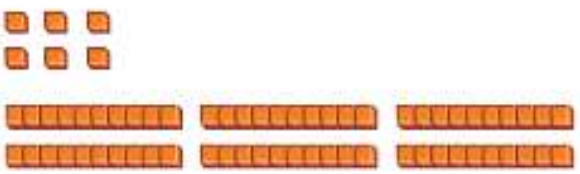
2.



$2 \times 4 =$ _____

$2 \times 40 =$ _____

3.



$2 \times 3 =$ _____

$2 \times 30 =$ _____

Fluency Check

What is the sum, difference, or product?

4. $9 \times 40 =$ _____

5. $6 \times 30 =$ _____

6. $847 - 328 =$ _____

7. $7 \times 60 =$ _____

8. $671 + 749 =$ _____

9. $1{,}923 - 456 =$ _____

10. $60 \times 5 =$ _____

11. $749 + 231 =$ _____

12. $2 \times 70 =$ _____

13. $80 \times 6 =$ _____

14. $681 - 453 =$ _____

15. $50 \times 4 =$ _____

16. $4{,}655 + 229 =$ _____

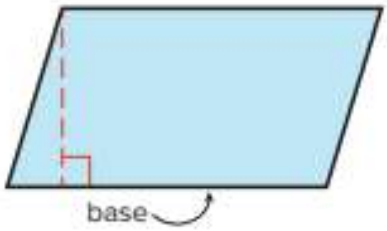
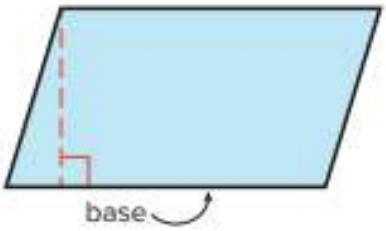
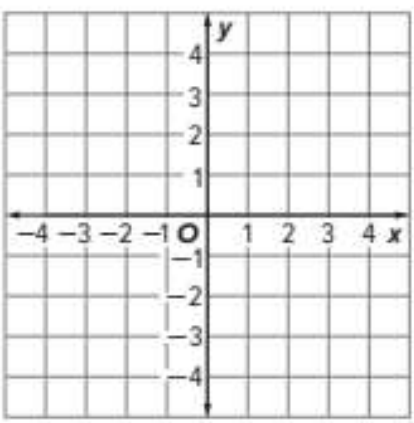
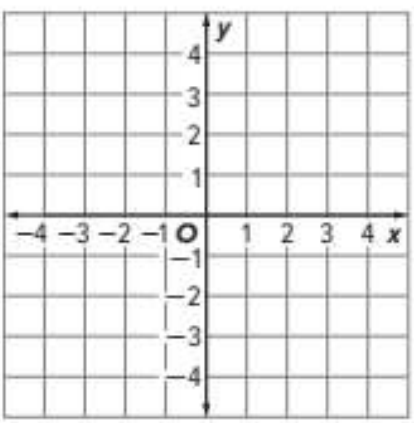
17. $80 \times 8 =$ _____

Fluency Talk

Explain how you can use properties of operations to find the product of a number and a multiple of 10.

Describe when and how you need to regroup when subtracting using an algorithm.

Glossary/Glosario

English	Spanish/Español
Bb	
base The side of a plane figure or 3-dimensional solid that is used to find its height by drawing a line from the opposite angle. 	base Lado de una figura plana que se usa para calcular su altura trazando una recta desde el ángulo opuesto. 
Cc	
composite solid figure A solid figure that is made up of two or more solids.	figura compuestra Figura conformada por dos o más figuras tridimensionales.
coordinate plane A plane in which a horizontal number line and a vertical number line intersect at a right angle at the point where each line is zero. 	plano de coordenanas Plano en que una recta numérica horizontal y una recta numérica vertical se intersecan en ángulo recto en el punto donde cada recta es cero. 
corresponding terms Numbers that are in the same position in two numerical patterns.	términos correspondientes Números que están en la misma posición en dos patrones numéricos.

English	Spanish/Español
Ee	
evaluate To find the value of an algebraic expression by replacing variables with numbers.	evaluar Calcular el valor de una expresión algebraica reemplazando las variables con números.
exponent The number of times a base is multiplied by itself. In 3^2, the exponent is 2.	exponente Número de veces que la base se multiplica por sí misma. En 3^2, el exponente es 2.
expression A combination of numbers, variables, and operation symbols. 5 + 7	expression Combinación de números, variables y símbolos de operaciones. 5 + 7
Gg	
grouping symbol Parentheses ( ) or brackets [ ] that tell you where that group starts and ends. They help to determine the order when evaluating a numerical expression.	símbolo de agrupación Paréntesis ( ) o corchetes [ ] que indican el comienzo y el fin de un grupo. Sirven para ordenar y evaluar una expresión numérica.
Hh	
hierarchy of figures A classification of figures into categories and subcategories.	jerarquía de figuras Clasificación de figuras en categorías y subcategorías.
Nn	
numerical expression A combination of numbers and operations.	expresión numérica Combinación de números y operaciones.

Oo

order of operations Rules that tell what order to follow when evaluating expressions.

The order of operations says:

1. Evaluate numerical expressions inside grouping symbols first.
2. Multiply and divide in order, from left to right.
3. Add and subtract in order, from left to right.

orden de la operaciones Reglas que indican qué orden seguir al evaluar una expresión:

1. Evalúa dentro de los paréntesis ( ).
2. Multiplica o divide de izquierda a derecha.
3. Suma o resta de izquierda a derecha.

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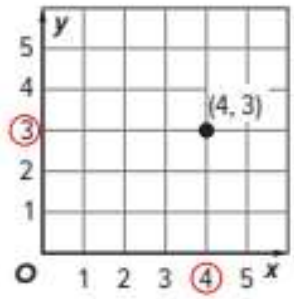
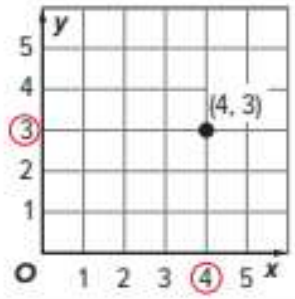
ordered pair A pair of numbers that are the coordinates of a point in a coordinate plane or grid in this order (horizontal coordinate, vertical coordinate).

Example: (4, 3)



par ordenado Par de números que son coordenadas de un punto en un plano de coordenadas o un cuadriculado, en este orden (coordenada horizontal, coordenada vertical).

Ejemplo: (4, 3)



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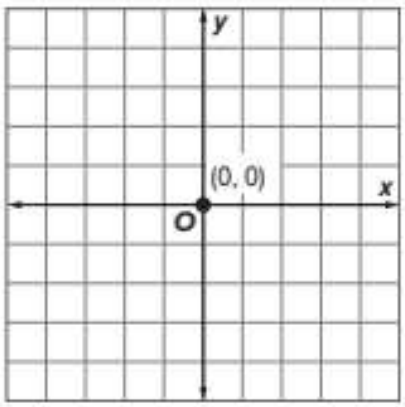
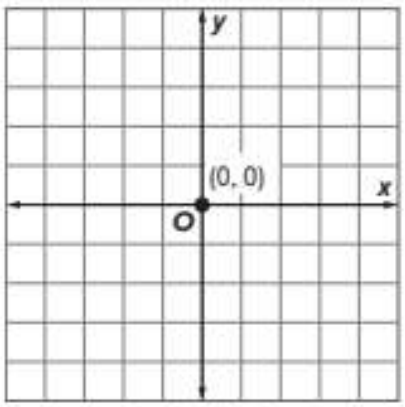
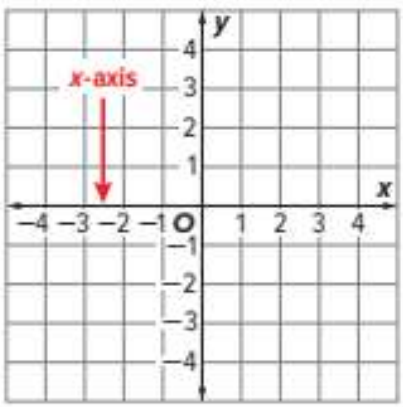
origin The point (0, 0) on a coordinate graph where the vertical axis meets the horizontal axis.

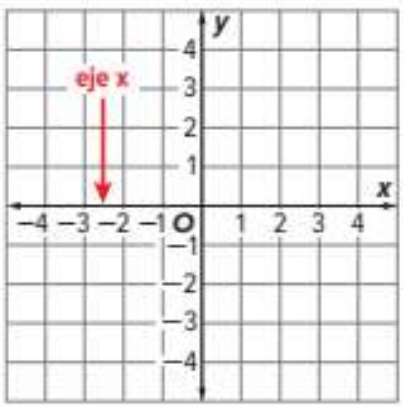


origen El punto (0,0) en una gráfica de coordenadas donde el eje vertical interseca el eje horizontal.



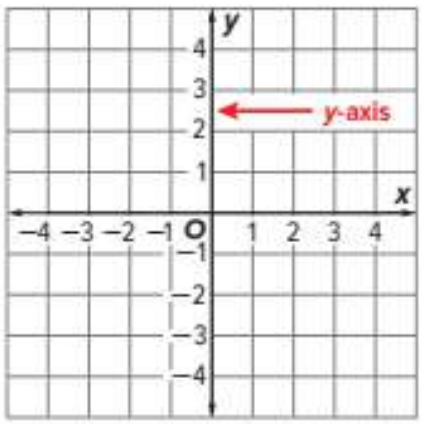
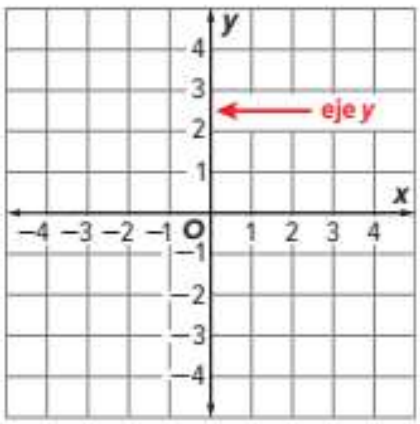
English	Spanish/Español
Pp	
power of 10 A number obtained by raising 10 to a given exponent.	potencia de 10 Un número que se obtiene elevando 10 a un exponente dado.
$10^2 = 10 \times 10 = 100$	$10^2 = 10 \times 10 = 100$
Rr	
range The difference between the greatest and the least numbers in a set of data.	rango La diferencia entre los números mayores y menores en un conjunto de datos.
Ss	
subcategory Common properties within a larger category.	subcategoría Propiedades comunes dentro de una categoría más amplia.
Vv	
volume The number of cubic units needed to fill a 3-dimensional figure or solid figure.	volumen Número de unidades cúbicas necesarias para llenar una figura tridimensional o sólida.
Xx	
x-axis The horizontal axis in a coordinate plane.	eje *x* Eje horizontal en una coordenada.





English	Spanish/Español
x-coordinate The first part of an ordered pair that indicates how far to the left or the right of the *y*-axis the corresponding point is. (1, 2): 1 unit to the right of the *y*-axis	coordenada x Primera parte de un par ordenado que indica la distancia a que está el punto correspondiente a la izquierda o a la derecha del eje *y*. (1, 2): 1 unidad a la derecha del eje *y*

Yy

y-axis The vertical axis in a coordinate plane. 	eje *y* El eje vertical en una coordenada. 
y-coordinate The second part of an ordered pair that indicates how far above or below the *x*-axis the corresponding point is. (1, 2): 2 units above the *x*-axis	coordenada *y* Segunda parte de un par ordenado que indica la distancia a que está el punto correspondiente por encima o por debajo del eje *x*. (1, 2): 2 unidades por encima del eje *x*