

Answers

— 5th Grade — EOT1-2025|COVERAGE Mathematics



Principal : Ms.Moza AlMansoori

Grade : 5

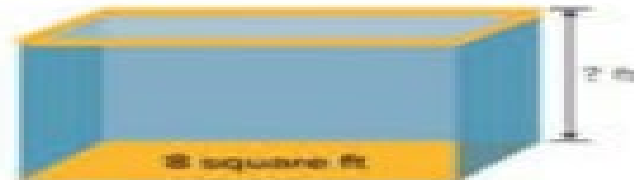
Teacher: Ms Lija Xavier

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.

$$24 = 8 \times h$$
$$24 \div 8 = h$$
$$3 = h$$

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.

2 inches; Sample answer:

$$30 = 5 \times 3 \times h;$$
$$30 = 15 \times h;$$
$$30 \div 15 = h; h = 2$$



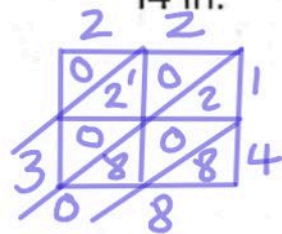


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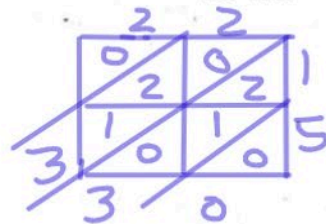
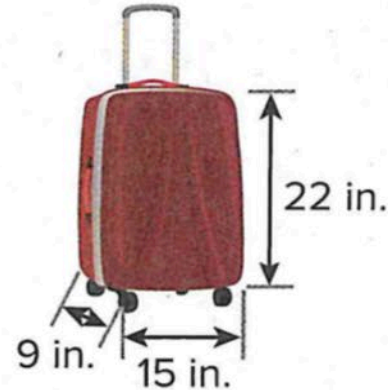
1. Lillian wants to buy the suitcase with the greater volume.
Which suitcase should she buy? Explain.

p.53

Suitcase A



Suitcase B



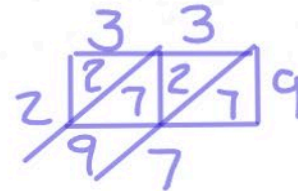
$$\text{Volume A} = (22 \times 14) \times 10$$

Think 308×10

$$\begin{array}{r} 23 \times 703 = 16169 \text{ in}^3 \\ 23 \times 9 = 207 \\ 23 \times 8 = 184 \end{array}$$

$$\text{Volume B} = (22 \times 15) \times 9$$

$$\begin{aligned} &= 330 \times 9 \\ &= 2970 \text{ in}^3 \end{aligned}$$



Suitcase A has the greatest volume



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.

The length is 18 meters

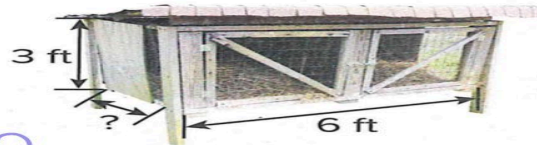
$$\text{Volume} = l \times w \times h$$

$$108 = \square \times 2 \times 3$$

$$108 = 18 \times 6$$

p.53

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



$$\text{Volume} = l \times w \times h$$

$$36 = 6 \times w \times 3$$

$$36 = 18 \times w$$

$$\text{So width} = 2 \text{ ft}$$

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.

$$\text{Volume} = l \times w \times h$$

$$100 = 5 \times 5 \times h$$

$$100 = 25 \times h$$

$$\text{So height} = 4 \text{ cm}$$



What is each decimal in standard form?

What is each decimal in expanded form?

9. ninety-three and six thousandths

Standard form: 93.006

Expanded form: $90 + 3 + \frac{6}{1000}$

10. three and eight hundred forty-six thousandths

Standard Form: 3.846

Expanded form: $3 + 0.8 + 0.04 + 0.006$

11. two hundred twelve and fifteen thousandths

Standard Form: 212.015

Expanded form: $200 + 10 + 2 + \frac{1}{100} + \frac{5}{1000}$

12. seven hundred fifty-one thousandths

Standard Form: 0.751

Expanded form: $0.7 + 0.05 + 0.001$

Write $>$, $<$, or $=$ in each $\bigcirc$ 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.



Most expensive – Highlighters

Least expensive - Pens

7. Do the pencils or the highlighters cost more?

The highlighters cost more

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

The pens cost less than the pencils

The pens cost less than the pencils

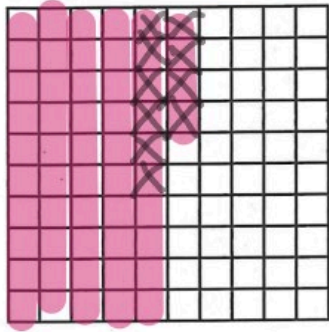
9. Which school supply is the most expensive? Which school supply is the least expensive? Explain how you know.

The ones are the same so we compare the tenths

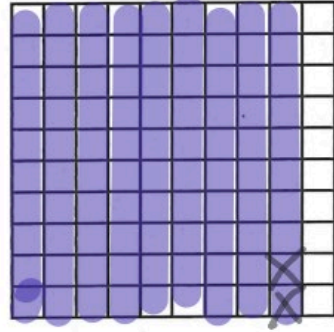


What is the difference? Use the decimal grids to solve.

1. $0.54 - 0.1 = \underline{0.44}$ 2. $0.9 - 0.02 = \underline{0.88}$

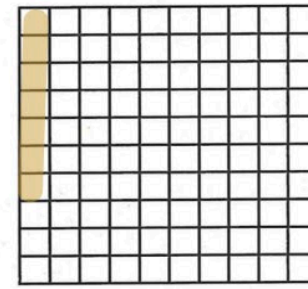
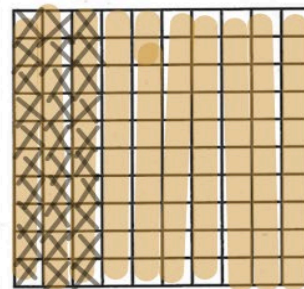


$$\begin{array}{r} 0.54 \\ - 0.1 \\ \hline 0.44 \end{array}$$



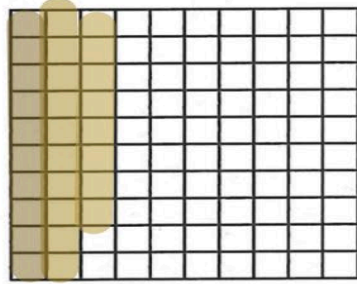
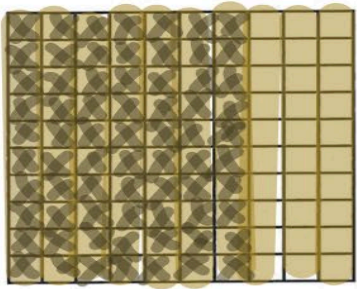
$$\begin{array}{r} 0.90 \\ - 0.02 \\ \hline 0.88 \end{array}$$

3. $1.07 - 0.3 = \underline{0.77}$



$$\begin{array}{r} 1.07 \\ - 0.30 \\ \hline 0.77 \end{array}$$

4. $1.28 - 0.7 = \underline{0.58}$



Check

$$\begin{array}{r} 1.28 \\ - 0.7 \\ \hline 0.58 \end{array}$$

$$\begin{array}{r} 2.30 \\ - 0.27 \\ \hline 2.03 \end{array}$$

5. $2.3 - 0.27 = \underline{2.03}$

6. $2.7 - 1.68 = \underline{1.02}$

$$\begin{array}{r} 2.70 \\ - 1.68 \\ \hline 1.02 \end{array}$$

$$\begin{array}{r} 1.74 \\ - 0.80 \\ \hline 0.94 \end{array}$$

7. $1.74 - 0.8 = \underline{0.94}$

8. $2.25 - 1.8 = \underline{0.45}$

$$\begin{array}{r} 2.25 \\ - 1.80 \\ \hline 0.45 \end{array}$$



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

1. 3.6×10^2 
= 360

2. 7.2×10^3
= 7200



3. 4.8×10^4 
= 48000

4. 1.9×10^2
= 190



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?

= 120

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?

$4700 > 930$

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

$3.5 \times 10^2 = 3,500$ = 350

$3.5 \times 10^3 = 35,000$ = 3500

$3.5 \times 10^4 = 350,000$ = 35000



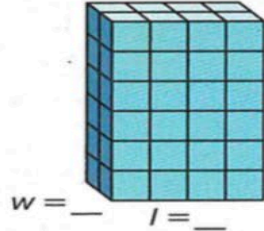
Move the decimal to the right one place for every factor of 10



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

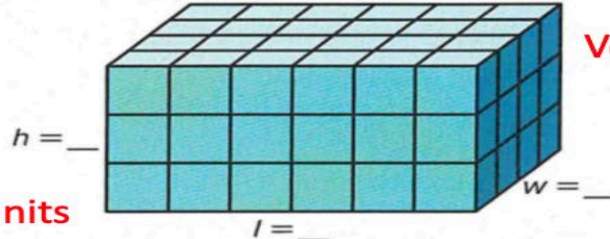
1.



$$\begin{aligned}\text{Volume} &= l \times w \times h \\ &= 4 \times 2 \times 6 \\ &= 8 \times 6 \\ &= 48 \text{ cubic units}\end{aligned}$$

$V =$ _____ cubic units

2.

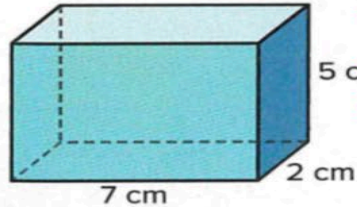


$$\begin{aligned}\text{Volume} &= l \times w \times h \\ &= 6 \times 4 \times 3 \\ &= 24 \times 3 \\ &= 72 \text{ cubic units}\end{aligned}$$

$V =$ _____ cubic units

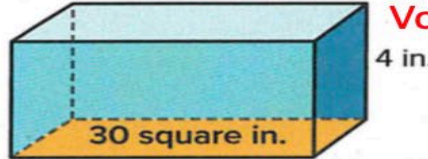
What is the volume of the figure? Tell which volume formula you used and why.

3.



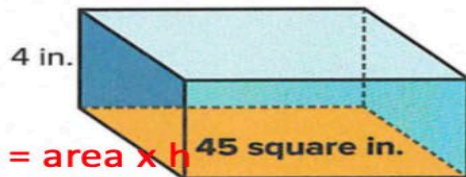
$$\begin{aligned}\text{Volume} &= l \times w \times h \\ &= 7 \times 2 \times 5 \\ &= 14 \times 5 \\ &= 70 \text{ cm}\end{aligned}$$

4.



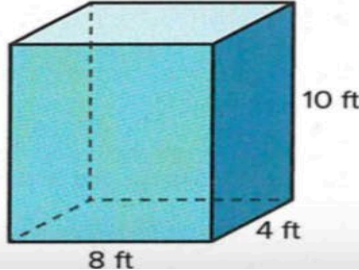
$$\begin{aligned}\text{Volume} &= \text{area} \times h \\ &= 30 \times 4 \\ &= 120 \text{ square in}\end{aligned}$$

5.



$$\begin{aligned}\text{Volume} &= \text{area} \times h \\ &= 45 \times 4 \\ &= 180 \text{ square in}\end{aligned}$$

6.



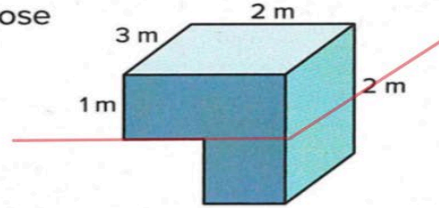
$$\begin{aligned}\text{Volume} &= l \times w \times h \\ &= 8 \times 4 \times 10 \\ &= 32 \times 10 \\ &= 320 \text{ cubic units}\end{aligned}$$



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

$$\text{Total volume} = 9\text{m}^3$$



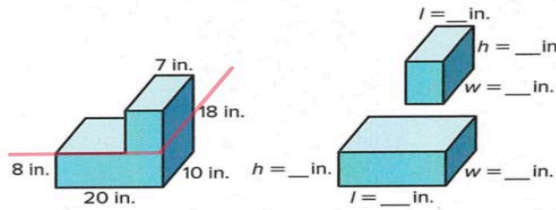
$$\begin{aligned}\text{Top} &= l \times w \times h \\ &= 2 \times 3 \times 1 \\ &= 6\end{aligned}$$

$$\begin{aligned}\text{Bottom} &= l \times w \times h \\ &= 1 \times 3 \times 1 \\ &= 3\end{aligned}$$

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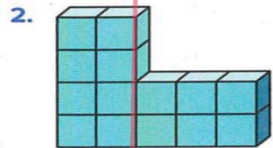
1. Label the unknown dimensions of the decomposed figure and then find the volume of the composite solid figure.



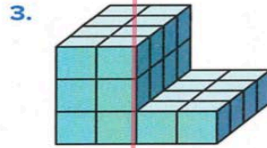
$$\begin{aligned}\text{Volume} &= (7 \times 10 \times 10) + (20 \times 10 \times 8) \\ &= 700 + 1600 \\ &= 2300 \text{ cubic in}\end{aligned}$$

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What is the volume of the figure?

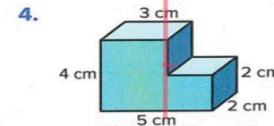


$$\begin{aligned}\text{Volume} &= (2 \times 1 \times 4) + (3 \times 1 \times 2) \\ &= 8 + 6 \\ &= 14 \text{ cubic units}\end{aligned}$$

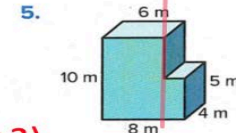


$$\begin{aligned}\text{Volume} &= (2 \times 4 \times 3) + (2 \times 4 \times 1) \\ &= 24 + 8 \\ &= 32 \text{ cubic units}\end{aligned}$$

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



$$\begin{aligned}\text{Volume} &= (3 \times 2 \times 4) + (2 \times 2 \times 2) \\ &= 24 + 8 \\ &= 32 \text{ cubic cm}\end{aligned}$$



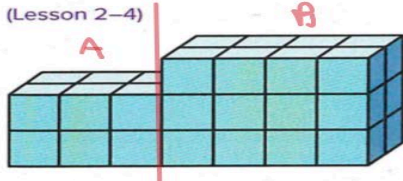
$$\begin{aligned}\text{Volume} &= (6 \times 4 \times 10) + (2 \times 4 \times 5) \\ &= 240 + 40 \\ &= 280 \text{ cubic m}\end{aligned}$$



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



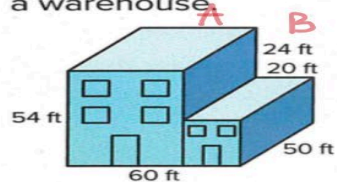
- A. 32 cubic units
B. 38 cubic units
C. 34 cubic units
D. 36 cubic units

$$\begin{aligned}\text{Volume A} &= l \times w \times h \\ &= 3 \times 2 \times 2 \\ &= 12 \text{ units}\end{aligned}$$

$$\begin{aligned}\text{Volume B} &= l \times w \times h \\ &= 4 \times 2 \times 3 \\ &= 24 \text{ units}\end{aligned}$$

$$\begin{aligned}\text{Total} &= 12 + 24 \\ &= 36 \text{ units}\end{aligned}$$

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

$$\begin{aligned}\text{Volume A} &= l \times w \times h \\ &= (40 \times 50) \times 54 \\ &= 2000 \times 54 \\ &= 108000\end{aligned}$$

$$\begin{aligned}\text{Volume B} &= l \times w \times h \\ &= (20 \times 50) \times 30 \\ &= 1000 \times 30 \\ &= 30000\end{aligned}$$

$$\begin{aligned}\text{Total} &= 108000 + 30000 \\ &= 138000\end{aligned}$$

Learn

Which bag weighs more?



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		

$3.281 < 3.9$



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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.

1.19 lb

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. $0.9 + 0.02 = 0.92$

2. $0.14 + 0.5 = 0.64$

3. $0.45 + 0.4 = 0.85$

4. $0.6 + 0.09 = 0.69$

5. $0.7 + 0.18 = 0.88$

6. $0.86 + 0.5 = 1.36$

7. $0.44 + 0.6 = 1.04$

8. $0.1 + 0.89 = 0.99$

Unit 4 • Add and Subtract Decimals



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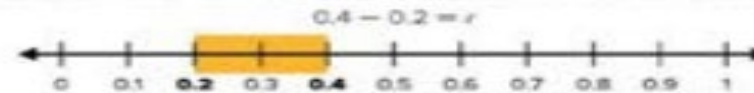
Learn

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

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

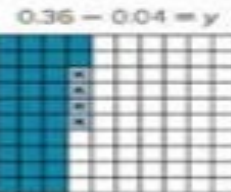
Color	Decimal
Red	0.4
Green	0.2
Yellow	0.36
Purple	0.04

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



There is 0.2 more shaded red than green.

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



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. **0.56 kg:**

62 squares of a decimal grid are shaded, then 6 of the shaded squares are marked with an x, leaving 56 shaded squares.



Chicken egg
0.06 kg



Emu egg
0.62 kg

On My Own MATH REPLAY GO ONLINE

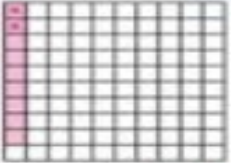
Name _____

What is the difference? Use the decimal grid to solve.
Sample shading shown.

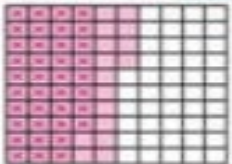
1. $0.7 - 0.1 = \underline{0.6}$



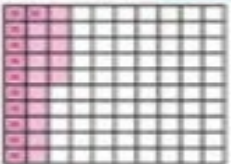
2. $0.09 - 0.02 = \underline{0.07}$



3. $0.54 - 0.38 = \underline{0.16}$



4. $0.25 - 0.11 = \underline{0.14}$



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

5. $0.7 - 0.2 = \underline{0.5}$ 6. $0.6 - 0.4 = \underline{0.2}$

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.
Yes. Sample answer: Malik has \$0.35 left, so he can buy the folder.

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

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.

Math is... Modeling

How does an area model help you understand multiplication?

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 . **20,672**



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On My Own

Name _____

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

1.

	100	+ 50	+ 4
30	3,000	1,500	120
+			
6	600	300	24

5,544

2.

	400	+ 20	+ 1
50	20,000	1,000	50
+			
2	800	40	2

21,892

What is the product? Use area models to solve.

3. $15 \times 24 = \underline{360}$
24
15

--	--

4. $28 \times 132 = \underline{3,696}$
132
28

--

5. $33 \times 78 = \underline{2,574}$

6. $72 \times 225 = \underline{16,200}$

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

7.

	200	+ 10	+ 8
20			
+			
8			

 $218 \times 28 = 6,104$

8.

	400	+ 10	+ 6
60			
+			
3			

 $416 \times 63 = 26,208$

Unit 5 • Multiply Multi-Digit Whole Numbers 189

On My Own

Name _____

MATH **GO**
REPLAY **ONLINE**

Check students' explanations.
What is the product? Explain the strategy you used to solve.

- $2.9 \times 0.7 = d$
2.03
- $5.6 \times 3.2 = b$
17.92
- Each bottle holds the same amount. How much water can these bottles hold? **5.25 L**

- Rebecca cut these ribbons to the same length. How much ribbon did Rebecca use in all? **6.88 m**

- 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? **4.23 g**
- 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? **35.88 L**

Solve. Explain the strategy used to solve.

- 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?
6.8 pounds; Sample explanation: $10 \times 0.4 = 4$, $7 \times 0.4 = 2.8$, $4 + 2.8 = 6.8$

Unit 6 • Multiply Decimals • 197

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.

$1,752 \div 24 = ?$

Weight of the adult bison: 1,752

Weight of the bison calf: ?

24 times

Math is... Connections

What is another way to show multiplicative comparison?

Use partial quotients to solve.

24	1,752	
-	1,200	50
	552	
-	480	20
	72	
-	72	3
	0	73

$1,752 \div 24 = 73$

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	$50 \times 38 = 1,900$	50
10	$10 \times 38 = 380$	10
2	$2 \times 38 = 76$	2
		62

38	2,356	
-	1,900	50
	456	
-	380	10
	76	
-	76	2
	0	62

224 Lesson 5 • Use Partial Quotients to Divide

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MINISTRY OF EDUCATION

On My Own



Name _____

What is the quotient? Use partial quotients to solve.

1. $819 \div 39 = \underline{21}$

2. $988 \div 26 = \underline{38}$

3. $1,215 \div 27 = \underline{45}$

4. $3,432 \div 66 = \underline{52}$

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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?

11 years



Unit 7 • Divide Whole Numbers 225

Principal Ms.Moza AlMansoori

Grade : 5

Teacher: Ms Lija Xavier



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

This figure has two dimensions.



Each dimension is a measurable edge length.

This figure has three dimensions.



Each dimension is a measurable 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?

Sample answer: The marbles do not completely fill the rectangular prism because there are gaps. The unit cubes fill the rectangular prism with no gaps.

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Name _____

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



Sample answer:
Only 3-dimensional figures have volume.

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

2. the amount of soil needed to fill a flower pot
volume; Sample answer: You are filling a 3-dimensional figure.

3. the distance of a bike ride
length; Sample answer: Distance is length.

4. the amount of wall space covered by a poster
area; Sample answer: You are covering a 2-dimensional figure.

5. the amount of concrete needed to fill a patio
volume; Sample answer: The concrete is filling a 3-dimensional figure.

6. the space inside a moving truck
volume; Sample answer: You are packing a 3-dimensional figure.

7. the distance around a building
length; Sample answer: Perimeter is length.



On My Own

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 $\frac{1}{10}$ of the money Niko has.

4. Marcella has **10 times** the money Niko has.

Complete each sentence.

5. \$9.00 is **10 times** \$0.90.

6. \$0.90 is $\frac{1}{10}$ of \$9.00.

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

Sample answer: 0.04 is ten times 0.004; 0.004 is $\frac{1}{10}$ of 0.04

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

Sample answer: 2 is ten times 0.2; 0.2 is $\frac{1}{10}$ of 2

Unit 3 • Place Value and Number Relationships 69

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?

Sample answer: I do not agree. 20 is not 10 times 0.2; 20 is 10 times 2; the value of the tens place is 10 times the value of the ones place.

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

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On My Own

Name _____

What is the word form of the decimal?

1. 8.2 **eight and two tenths** 2. 8.02 **eight and two hundredths**

3. 0.82 **eighty-two hundredths** 4. 0.082 **eighty-two thousandths**

What is the standard form of the decimal?

5. $0.9 + 0.03 + 0.007$ **0.937** 6. $20 + 0.7 + 0.08 + 0.006$ **20.786**

7. $5 + 0.01 + 0.009$ **5.019** 8. $7 + \frac{4}{10} + \frac{5}{1,000}$ **7.405**

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

9. ninety-three and six thousandths
93.006; $90 + 3 + 0.006$

10. three and eight hundred forty-six thousandths
3.846; $3 + 0.8 + 0.04 + 0.006$

11. two hundred twelve and fifteen thousandths
212.015; $200 + 10 + 2 + 0.01 + 0.005$

12. seven hundred fifty-one thousandths
0.751; $0.7 + 0.05 + 0.001$

Unit 3 • Place Value and Number Relationships 73

On My Own **MATH** **GO**

Name _____

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

1. 78.39 **78** 2. 4.07 **4**

3. 12.7 **13** 4. 15.55 **16**

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

5. 42.89 **42.9** 6. 3.65 **3.7**

7. 16.12 **16.1** 8. 98.17 **98.2**

9. Danica rounded a number to the nearest tenth to get 14.7.
What number could she have rounded to get this answer?
Sample answer: 14.65

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.

Unit 3 - Place Value and Number Relationships **83**

11. The masses of five different dogs are shown. Round each mass to the nearest whole number.
23; 25; 27; 26; 27


22.8 kg 25.4 kg 27.1 kg 25.8 kg 26.7 kg

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.

$$8.25 \quad 3.62$$

$$\downarrow \quad \downarrow$$

$$8 + 4 = 12$$

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

Math is... Choosing Tools

What strategies do we know for estimating sums?

Next, use compatible numbers to estimate the difference.

$$32 \quad 11.87$$

$$\downarrow \quad \downarrow$$

$$32 - 12 = 20$$

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?

Sample answer: about 4 lb; I used rounding to estimate because both numbers were close to a whole number.

Layla



82.98

Hero



86.74



On My Own

Name: _____

What is a reasonable estimate for the sum or difference?

Explain the strategy you used.

Sample answers are shown.

Check students' strategies.

1. $9.86 + 4.30$

$10 + 4 = 14$

2. $43.85 + 56.01$

$44 + 56 = 100$

3. $3.92 + 6.14$

$4 + 6 = 10$

4. $24.73 + 26.05$

$25 + 26 = 51$

5. $8.32 - 5.9$

$8 - 6 = 2$

6. $88.4 - 10.96$

$88 - 11 = 77$

7. $16.28 - 5.9$

$16 - 6 = 10$

8. $5.42 - 1.7$

$5 - 2 = 3$

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?

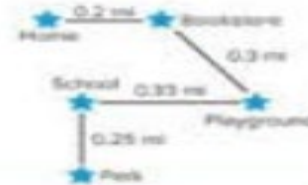
Sample answer: 40 g



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?



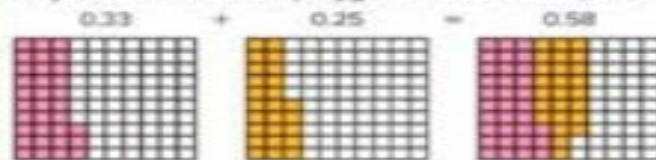
Deja walks from home to the bookstore, then to the playground.



Decimal grids can help you solve the equation.

Deja walked 0.5 mile.

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



Deja walked 0.58 mile.

Math is... Choosing Tools

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

Work Together

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

1.2 kg



0.9 kg



0.3 kg

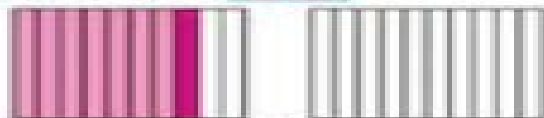
On My Own



Name: _____

What is the sum? Use the decimal grids. Sample shading shown.

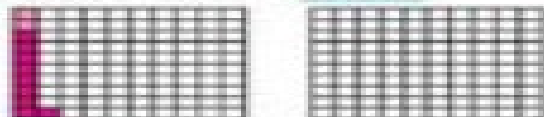
1. $0.7 + 0.1 = 0.8$



2. $0.5 + 0.8 = 1.3$



3. $0.02 + 0.09 = 0.11$



4. $0.78 + 0.64 = 1.42$



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

5. $0.2 + 0.7 = 0.9$

6. $0.5 + 0.6 = 1.1$

7. $0.08 + 0.06 = 0.14$

8. $0.79 + 0.84 = 1.63$

9. $0.32 + 0.88 = 1.2$

10. $0.45 + 0.29 = 0.75$



Gayathi Common School(2065)

Learn

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

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.

$$\begin{array}{l} 17.31 + 12.45 = c \\ 10 + 7 + 0.3 + 0.01 \quad 10 + 2 + 0.4 + 0.05 \\ 10 + 10 = 20 \\ 7 + 2 = 9 \\ 0.3 + 0.4 = 0.7 \\ 0.01 + 0.05 = 0.06 \\ \text{Find partial sums} \quad 20 + 9 + 0.7 + 0.06 = 29.76 \\ \text{Add partial sums to find the sum} \end{array}$$

► **Another Way** Decompose into whole numbers and decimals.

$$\begin{array}{l} 17.31 + 12.45 = c \\ 17 + 0.31 \quad 12 + 0.45 \\ 17 + 12 = 29 \\ 0.31 + 0.45 = 0.76 \\ \text{Find partial sums} \quad 29 + 0.76 = 29.76 \\ \text{Add partial sums to find the sum} \end{array}$$

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?

39.44 km

On My Own 

Name: _____

What is the sum? Use partial sums to solve.

1. $2.57 + 8.4$
 $= 2 + 0.5 + 0.07 + 8 + 0.4$
 $= \underline{10.97}$

2. $6.9 + 0.31$
 $= 6 + 0.9 + 0.3 + 0.01$
 $= \underline{7.21}$

3. $35.12 + 64.73 = \underline{99.85}$

4. $70.34 + 21.52 = \underline{91.86}$

5. $14.53 + 11.2 = \underline{25.73}$

6. $104.75 + 21.9 = \underline{126.65}$

7. Mattis earns \$22.50 shoveling snow. Later, he finds \$0.82 in his backpack. How much money does he have now? **\$23.32**

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

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.
Yes. Sample answer: She ran 10.05 miles.



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.

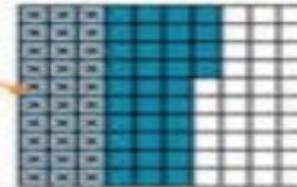
Find how much longer the ant is than the aphid.

$$0.64 - 0.3 = 0.34$$

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?

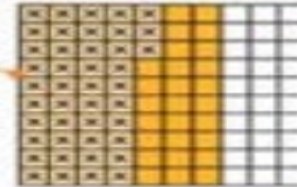


Find how much longer the beetle is than the ladybug.

$$0.7 - 0.43 = 0.27$$

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?

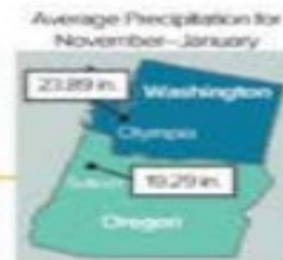
Explain your reasoning.

He can draw an X on 60 of the shaded squares. Sample explanation: 0.6 is the same as 0.60.



Learn

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

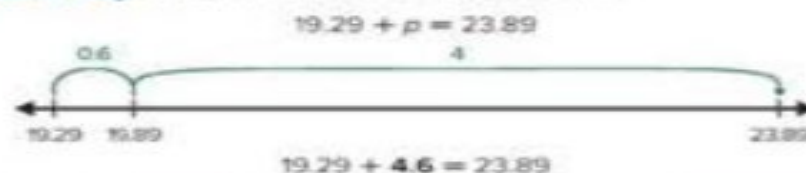


► **One Way** Decompose by place value to subtract.

$$\begin{aligned} 23.89 - 19.29 &= p \\ 23.89 - 10 &= 13.89 \\ 13.89 - 9 &= 4.89 \\ 4.89 - 0.2 &= 4.69 \\ 4.69 - 0.09 &= \mathbf{4.60} \end{aligned}$$

Math is... **Choosing Tools**
Is the calculated answer reasonable? How do you know?

► **Another Way** Count on a number line to subtract.



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.

$$57 - 32.64$$

24.36; Check students' strategies.

Gayathi Common School(2065)



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MINISTRY OF EDUCATION

On My Own

Name _____

Decompose by place value to find the difference.

1. $8.57 - 2.4$

2. $773 - 5.1$

$8.57 - 2 = 6.57$

$773 - 5 = 2.73$

$6.57 - 0.4 = 6.17$

$2.73 - 0.1 = 2.63$

$8.57 - 2.4 = 6.17$

$773 - 5.1 = 2.63$

Count on to find the difference. Check students' work.

3. $6.31 - 0.9 = 5.41$



4. $64.19 - 35.75 = 28.44$



What is the difference? Show your work.

5. $36.33 - 32.29 = 4.04$

6. $48.56 - 18.21 = 30.35$

7. $1730 - 6.02 = 11.08$

8. $25.50 - 11.49 = 14.01$

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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	$10 \times 10 \times 10$	1,000
4	$10 \times 10 \times 10 \times 10$	10,000
5	$10 \times 10 \times 10 \times 10 \times 10$	100,000
6	$10 \times 10 \times 10 \times 10 \times 10 \times 10$	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 multiplication expression with factors of 10.

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

$$\underbrace{10 \times 10}_{2 \text{ factors}} = 10^2 \quad \begin{array}{l} \leftarrow \text{exponent} \\ \uparrow \\ \text{base} \end{array}$$

Work Together

Write 10^6 as a multiplication expression. Then, find the product.

$$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 100,000,000$$

On My Own



Name _____

Write the exponential form as a multiplication expression.

1. 10^4 $10 \times 10 \times 10 \times 10$

2. 10^2 10×10

3. 10^3 $10 \times 10 \times 10$

4. 10^6 $10 \times 10 \times 10 \times 10$
 $\times 10 \times 10$

Write the exponential form.

5. $10 \times 10 \times 10 = 10^3$

6. $10 \times 10 \times 10 \times 10 \times 10 =$
 10^5

7. $10 \times 10 \times 10 \times 10 = 10^4$

8. $10 \times 10 = 10^2$

Write the exponential form of each power of 10.

9. $10 = 10^1$

10. $1,000 = 10^3$

11. $100 = 10^2$

12. $10,000 = 10^4$

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

$10^5 = 10 \times 5 = 50$ **Sample answer: I disagree with her solution. She needs to multiply 10 by 10 five times or $10 \times 10 \times 10 \times 10 \times 10$, which equals 100,000.**

14. **STEM Connection** Grace reviewed 10^5 lines of a computer program. How many lines did she review? Write the product. **1,000,000**





On My Own

Name _____

MATH REPLAY | **GO ONLINE**

What is the product? Use patterns to solve.

1. $12 \times 10 =$ <u>120</u>	2. $24 \times 1,000 =$ <u>24,000</u>
$12 \times 100 =$ <u>1,200</u>	$24 \times 10,000 =$ <u>240,000</u>
$12 \times 1,000 =$ <u>12,000</u>	$24 \times 100,000 =$ <u>2,400,000</u>
3. $33 \times 10^2 =$ <u>3,300</u>	4. $57 \times 10^4 =$ <u>570,000</u>
$33 \times 10^3 =$ <u>33,000</u>	$57 \times 10^5 =$ <u>5,700,000</u>
$33 \times 10^4 =$ <u>330,000</u>	$57 \times 10^6 =$ <u>57,000,000</u>

What is the product?

5. 23×10^3 <u>23,000</u>	6. 581×10^2 <u>58,100</u>
7. 60×10^4 <u>600,000</u>	8. 103×10^2 <u>10,300</u>

What is the unknown factor?

9. $571 \times$ <u>10</u> $= 5,710$	10. $43 \times$ <u>100,000</u> $= 4,300,000$
11. $6 \times$ <u>1,000</u> $= 6,000$	12. $28 \times$ <u>10,000</u> $= 280,000$

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

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

Sample answer: Each time the exponent increases by 2, the digits in the first factor shift 2 more places to the left.

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

$$\begin{aligned} 432 \times 13 \\ \downarrow \quad \downarrow \\ 400 \times 15 &= 4 \times 100 \times 15 \\ &= 4 \times 15 \times 100 \\ &= 6,000 \end{aligned}$$

The theater collects about \$6,000.

► Another Way Rounded factors

$$\begin{aligned} 432 \times 13 \\ \downarrow \quad \downarrow \\ 430 \times 10 &= 4,300 \end{aligned}$$

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 . **36,000**

Which strategy did you use? Explain why.

Sample answer: 36,000; Check students' responses.

On My Own

Name _____

Estimate the product. Sample answers are shown.

1. 643×18
 $600 \times 20 = 12,000$

2. 325×62
 $300 \times 70 = 21,000$

3. 438×27
 $400 \times 30 = 12,000$

4. 572×49
 $600 \times 50 = 30,000$

5. On a school trip, 54 students went to a museum. Each ticket cost \$23. About how much did all students spend on tickets?
Sample answer: $50 \times 20 = \$1000$

6. The town library has 478 shelves. Each shelf holds 38 books. About how many books does the library have?
Sample answer: $500 \times 40 = 20,000$

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?
Sample answer: $300 \times 20 = \$6,000$

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



Sample answer: $10 \times 400 = \$4,000$

9. **Error Analysis** Han estimates that the product of 492 and 32 will be 1,200. How do you respond to Han?
Sample answer: I do not agree with Han. Using compatible numbers, 500×30 gives an estimate of 15,000.

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.

$\begin{array}{r} 164 \\ \times 82 \\ \hline 13,448 \end{array}$		
8,000	$\leftarrow 80 \times 100$	Multiply 80 by 100, 60, and 4.
4,800	$\leftarrow 80 \times 60$	
320	$\leftarrow 80 \times 4$	
200	$\leftarrow 2 \times 100$	Multiply 2 by 100, 60, and 4.
120	$\leftarrow 2 \times 60$	
8	$\leftarrow 2 \times 4$	
$+ \quad 8 \quad \leftarrow$		
$13,448$		

There are 13,448 seats in the stadium.

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

Math is... Generalizations
How does the area model help you understand how this strategy works?

Work Together

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

8,946

On My Own



Name _____

Find the unknown partial products. Then find the product.

1.

$$\begin{array}{r} 325 \\ \times 73 \\ \hline 21,000 \\ 1,400 \\ 350 \\ \hline 900 \\ 60 \\ 15 \\ \hline 23,725 \end{array}$$

2.

$$\begin{array}{r} 104 \\ \times 28 \\ \hline 32 \\ 800 \\ \hline 80 \\ +2,000 \\ \hline 2,912 \end{array}$$

What is the product? Use partial products to solve.

3.

$$\begin{array}{r} 17 \\ \times 86 \\ \hline 1,462 \end{array}$$

4.

$$\begin{array}{r} 24 \\ \times 129 \\ \hline 3,096 \end{array}$$

5.

$$\begin{array}{r} 36 \\ \times 93 \\ \hline 3,348 \end{array}$$

6.

$$\begin{array}{r} 222 \\ \times 58 \\ \hline 12,876 \end{array}$$

7. A sporting goods store sold 24 mountain bikes. How much money did they make selling bikes? **\$5,976**



8. The store also sold 12 mountain bike and scooter packages each for \$367. How much money did they make? **\$4,404**

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.

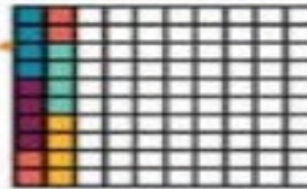
Find the total amount of lettuce, p .

$$5 \times 0.04 = p$$

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 .

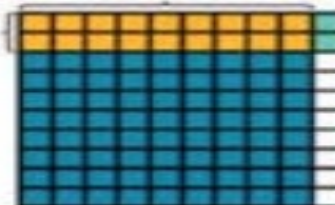
$$0.2 \times 0.9 = c$$

There are 18 hundredths of the whole shaded.

The cost of lettuce for 5 sandwiches is \$0.18.

Shade 0.2 of 0.9.

Shade 0.9 of the whole.



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?

$$1.2 \text{ cups; } 4 \times 0.3 = 1.2$$

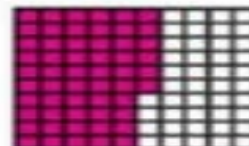
On My Own



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?
Sample answer: $7 \times 0.08 = 0.56$;
Laura uses 0.56 liter of milk 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?
Sample answer: $0.9 \times 0.6 = 0.54$;
Jason will pay \$0.54 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?
Sample answer: $0.4 \times 6 = 2.4$; **Tonya uses 2.4 meters of ribbon to wrap the gifts.**



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?
Sample answer: $2.4 \times 0.3 = 0.72$;
Maya's rock has 0.72 kilogram of granite.



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.

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

Decompose by place value.

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.

\$15.30; Check students' work.



On My Own



Name _____

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

1. $32 \times 1.5 = \underline{48}$

2. $14 \times 2.3 = \underline{32.2}$

3. $71 \times 8 = \underline{56.8}$

4. $6.2 \times 1.5 = \underline{9.3}$

5. $9.6 \times 5.5 = \underline{52.8}$

6. $1.9 \times 2.4 = \underline{4.56}$

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?

Sample answer:

$9.5 \times 1.2 = ?$

$9 + 1.8 + 0.5 + 0.1 = 11.4$

The repairs will cost Michael \$11.40

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	$4 \times 1 = 4$		$4 \times 2 = 8$

$7 + 14 + 4 + 8 = 33$

Sample answer: I disagree with Evelyn's work. I would write the value of each digit when setting up the area model ($1 + 0.2$, $7 + 0.4$). Then multiply to find the partial products. $7 + 1.4 + 0.4 + 0.08 = 8.88$

Unit 5 - Multiplication

On My Own



Name _____

Complete each sentence.

1. 3.8 is $\frac{1}{10}$ of 38.

So, 3.8×25 is $\frac{1}{10}$ of the product 38×25 .

2. 0.45 is $\frac{1}{100}$ of 45.

So, 0.45×16 is $\frac{1}{100}$ of the product 45×16 .

3. 7.8 is $\frac{1}{10}$ of 78 and 9.2 is $\frac{1}{10}$ of 92.

So, 7.8×9.2 is $\frac{1}{100}$ of the product 78×92 .

What is the product? Use patterns to solve.

4. $45 \times 17 = 765$

$45 \times 1.7 = 76.5$

$45 \times 0.17 = 7.65$

5. $16 \times 89 = 1,424$

$16 \times 8.9 = 142.4$

$16 \times 0.89 = 14.24$

8. $96 \times 55 = 5,280$

$96 \times 5.5 = 528$

$9.6 \times 5.5 = 52.8$

10. $67 \times 34 = 2,278$

$67 \times 3.4 = 227.8$

$6.7 \times 3.4 = 22.78$

5. $32 \times 14 = 448$

$32 \times 1.4 = 44.8$

$3.2 \times 1.4 = 4.48$

7. $61 \times 22 = 1,342$

$6.1 \times 2.2 = 134.2$

$6.1 \times 2.2 = 13.42$

9. $19 \times 42 = 798$

$1.9 \times 4.2 = 79.8$

$1.9 \times 4.2 = 7.98$

11. $82 \times 67 = 5,494$

$8.2 \times 6.7 = 549.4$

$8.2 \times 6.7 = 54.94$

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.

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?

$$300 \div 50 = 6$$

$$3,000 \div 50 = 60$$

$$30,000 \div 50 = 600$$

Sample explanation: The basic fact is $30 \div 5 = 6$. For $300 \div 50 = 6$, because both the dividend and divisor are 10 times as much, the quotient is the same. For the last two steps, when zeros are added to only the dividend, the quotient also increases by the same number of zeros.

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Name: _____

Use a basic fact and patterns to solve.

1. $15 \div 3 = 5$

$150 \div 30 = 5$

$1,500 \div 30 = 50$

$15,000 \div 30 = 500$

2. $32 \div 8 = 4$

$320 \div 80 = 4$

$3,200 \div 80 = 40$

$32,000 \div 80 = 400$

3. $20,000 \div 40 = 500$

4. $15,000 \div 30 = 500$

5. $18,000 \div 60 = 300$

6. $16,000 \div 80 = 200$

7. $8,000 \div 40 = 200$

8. $25,000 \div 50 = 500$

9. $32,000 \div 80 = 400$

10. $9,000 \div 30 = 300$



Thank You