Amplify Desmos Math CALIFORNIA

Grade 6

Intervention, Extension, and Investigation Resources

Contents

Mini-Lessons

Log in to the digital curriculum to review all program Mini-Lessons, Extensions, and Investigations.

Mini-Lessons (continued)

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Mini-Lessons (continued)

Prerequisite Skills and Concepts continued

Contents

Extensions (continued)

Investigations

Mini-Lessons

Unit 1

Mini-Lessons

Name _____

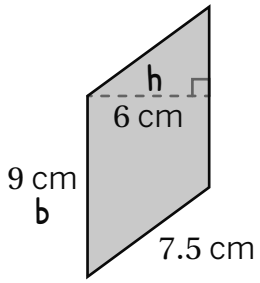
Calculating Area of Parallelograms

ML 1.05

Modeled Review

Name: Amir

Calculate the area of the parallelogram.

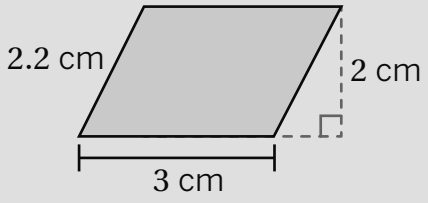
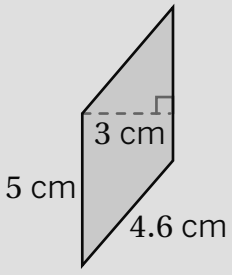


$A = b \cdot h$
$A = 9 \cdot 6$
$A = 54$

54 square centimeters

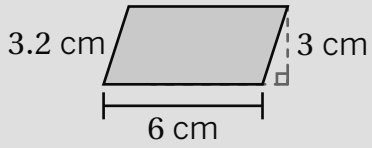
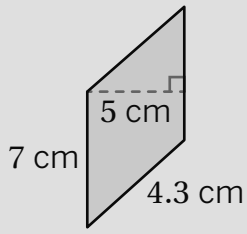
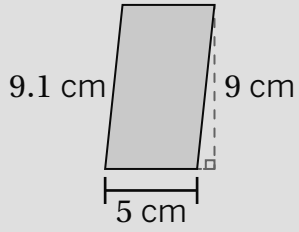
Guided Practice

1. Determine the base, height, and area of each parallelogram.

Parallelogram	Base (cm.)	Height (cm.)	Area $A = b \cdot h$
		2	6 square centimeters
	5		_____ square centimeters

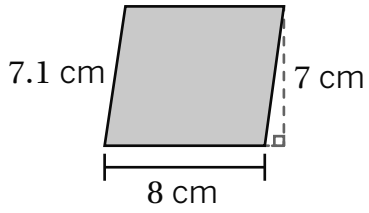
Guided Practice

2. Determine the base, height, and area of each parallelogram.

Parallelogram	Base (cm.)	Height (cm.)	Work	Area
			$A = b \cdot h$	
				
				

Check

Calculate the area of the parallelogram.



Name _____

Calculating Areas of Triangles

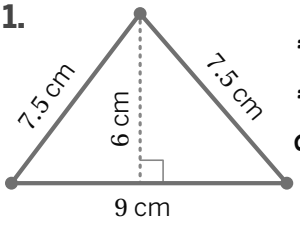
ML 1.08

Modeled Review

Name: Clare

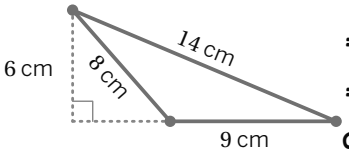
Determine the area of each triangle in square centimeters.

1.



$= \frac{1}{2}(9 \cdot 6)$
$= 27$ square centimeters

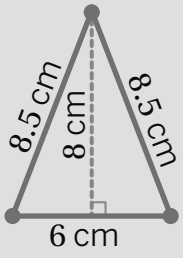
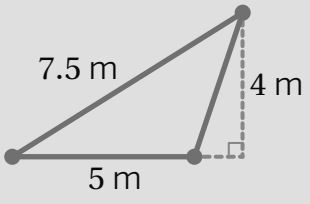
2.



$= \frac{1}{2}(9 \cdot 6)$
$= 27$ square centimeters

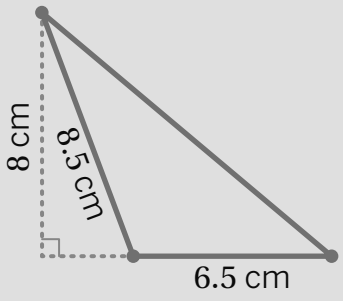
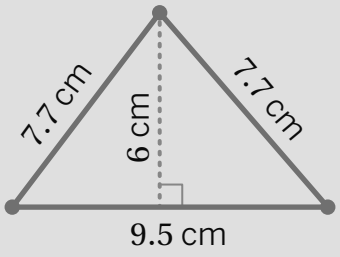
Guided Practice

1. Determine the base, height, and area of each triangle.

Triangle	Base	Height	Area
	6 cm	8 cm	
	5 m		

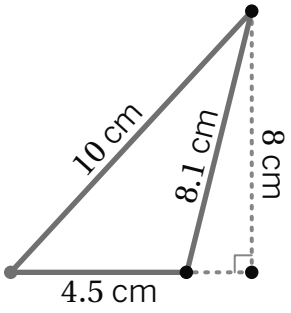
Guided Practice

2. Determine the base and height of each triangle and write an equation to represent the area of each triangle.

Triangle	Base	Height	Equation	Area
		8 cm		26 square centimeters
				28.5 square centimeters

Check

Determine the area of the triangle. Show or explain your thinking.



Name _____

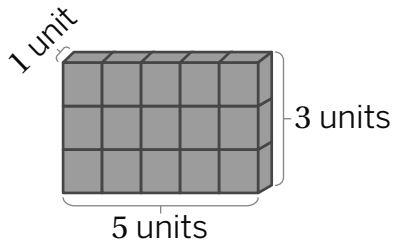
Determining Surface Areas of Rectangular Prisms

ML 1.10

Modeled Review

Name: Jaleel

Determine the surface area of the rectangular prism. Show or explain your thinking.



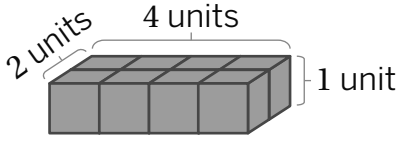
(5 · 3) · 2 = 30
(5 · 1) · 2 = 10
(3 · 1) · 2 = 6

30 + 10 + 6 = 46 square units

Guided Practice

Determine the surface area of each rectangular prism. Show or explain your thinking.

1.



(4 • 1) • 2 = 8

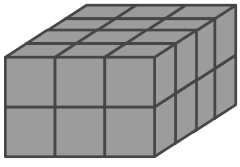
(1 • 2) • 2 = 4

(2 • 4) • 2 = 16

____ + ____ + ____ = ____

surface area: _____ square units

2.



(3 • 2) • 2 = ____

(2 • 4) • 2 = ____

(4 • 3) • 2 = ____

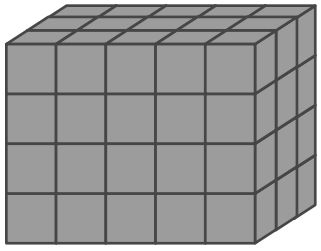
____ + ____ + ____ = ____

surface area: _____ square units

Guided Practice

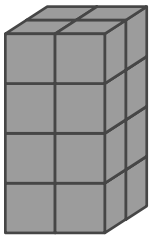
Determine the surface area of each rectangular prism. Show or explain your thinking.

3.



surface area: _____ square units

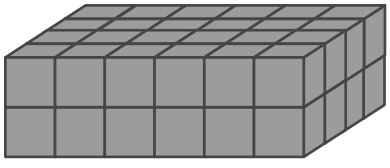
4.



surface area: _____ square units

Check

Determine the surface area of the rectangular prism. Show or explain your thinking.



surface area: _____ square units

Unit 2

Mini-Lessons

Name _____

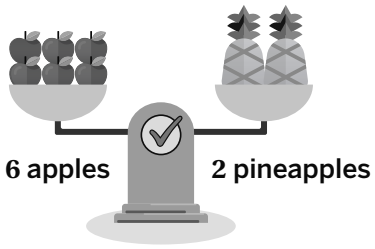
Generating Equivalent Ratios

ML 2.04

Modeled Review

Name: Tristan

The scale balances with 6 apples to 2 pineapples. Fill in the table of values that will balance the scale. Show your thinking.



Number of apples	Number of pineapples
3	1
6	2
12	4
24	8

× 2, × 2, × 2 (down the apples column)

2 ×, 2 ×, 2 × (down the pineapples column)

Guided Practice

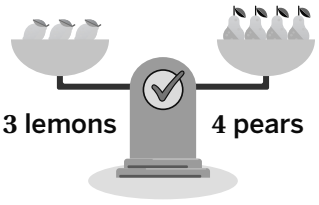
Use the tables below to record ratios that are equivalent to those shown on each balance scale.

1.

Number of lemons	Number of pears
3	4
6	
	16

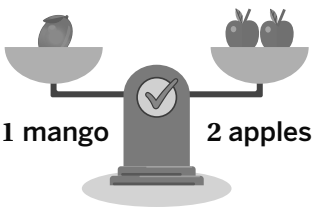
× 2, × 2 (down the lemons column)

× 2, × 2 (down the pears column)



2.

Number of mangos	Number of apples
1	2
10	



Guided Practice

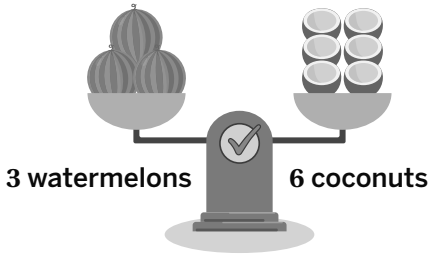
3. The scale balances with 3 watermelons to 6 coconuts. Select all of the equivalent ratios.

A. 1 watermelon and 2 coconuts

B. 6 watermelons and 12 coconuts

C. 9 watermelons and 15 coconuts

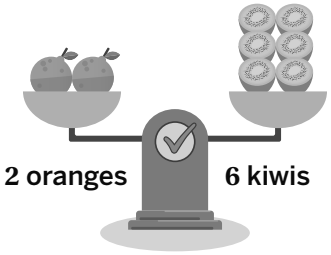
D. 30 watermelons and 60 coconuts



For Problems 4-5, use the tables below to record ratios that are equivalent to those shown on each balance scale.

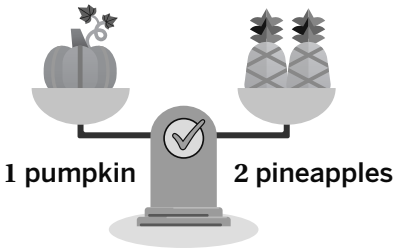
4.

Number of oranges	Number of kiwis



5.

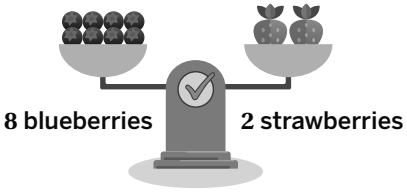
Number of pumpkins	Number of pineapples



Check

Use the table below to record ratios that are equivalent to those shown on the balance scale.

Number of blueberries	Number of strawberries
4	
	8



Name _____

Comparing Ratios

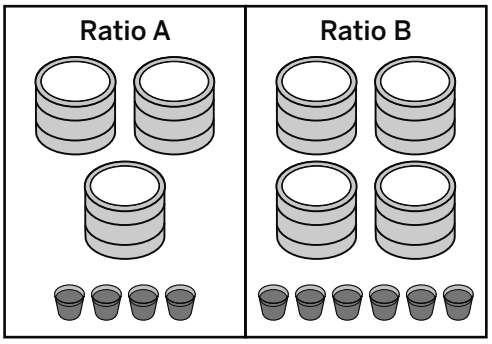
ML 2.09

Modeled Review

Name: Eva

Here are two ratios of red paint to white paint. Which ratio will make a darker red? Explain your thinking.

	Red paint
Ratio A	4 oz red: 3 gallons white
Ratio B	6 oz red: 4 gallons white



Ratio A is $\frac{4}{3}$, so it has 1.33 oz of red per gallon of white.
Ratio B is $\frac{6}{4}$, so it has 1.5 oz of red per gallon of white.

Ratio B will be darker because it has more red paint per gallon of white paint.

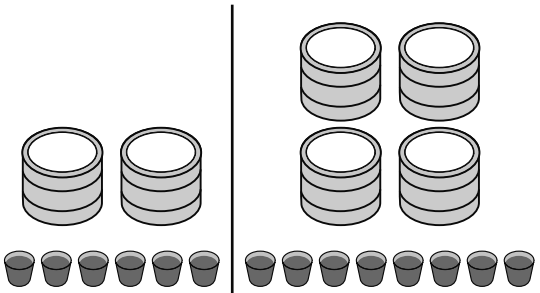
Guided Practice

Here are two ratios of blue paint to white paint. Which ratio will make a darker blue? Explain your thinking.

1. Ratio A is $\frac{6}{2}$ or _____ ounces of blue for every gallon of white.

Ratio B is _____ or _____ ounces of blue for every gallon of white.

Ratio _____ will be darker because it uses more blue paint for each gallon of white.



6 ounces blue
2 gallons white

Ratio A

8 ounces blue
4 gallons white

Ratio B

Guided Practice

For Problems 2-4, determine which ratio will make the darker paint color or if they would create the same color. Explain your thinking.

2.

Purple paint	
Ratio A	4 oz purple: 3 gal white
Ratio B	4 oz purple: 5 gal white

3.

Yellow Paint	
Ratio A	3 oz yellow: 6 gal white
Ratio B	14 oz yellow: 6 gal white

4.

Green Paint	
Ratio A	5 oz green: 2 gal white
Ratio B	15 oz green: 6 gal white

Check

Determine which ratio will make the darker paint color or if they would create the same color. Explain your thinking.

Red Paint	
Ratio A	2 oz red: 4 gal white
Ratio B	3 oz red: 5 gal white

Name _____

Applying Part-Part-Whole Relationships

ML 2.14

Modeled Review

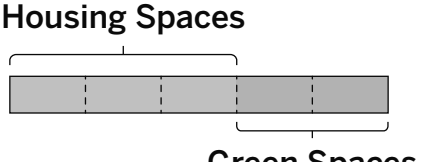
Name: Clare

Avalon Park requires a ratio of $5:4$ units of building space to green space. The city is developing 18 units of land. How many of each type should the city plan for?

10 building spaces	B	B	B	B	B	G
8 green spaces	G	G	G	B	B	B
	B	B	G	G	G	G

Guided Practice

1. Cedar City requires a $3:2$ ratio of housing space to green space. The city is developing 30 units of land. How many spaces of each type should the city plan for?



_____ housing spaces

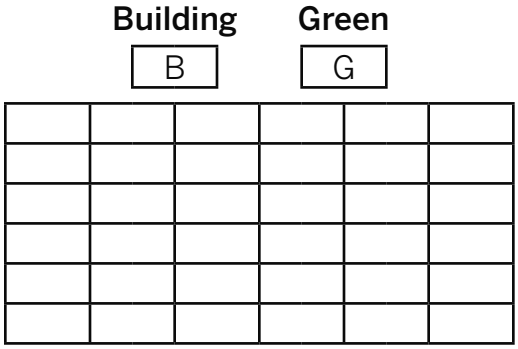
_____ green spaces

Housing	Green
H	G

H	H	H	G	G	

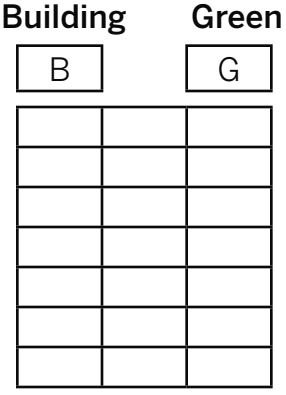
Guided Practice

2. Evergreen City requires a $2 : 4$ ratio of building space to green space. The city is developing 36 units of land for a new neighborhood. How many spaces of each type should the city plan for? Use the model to show your thinking.



_____ building spaces _____ green spaces

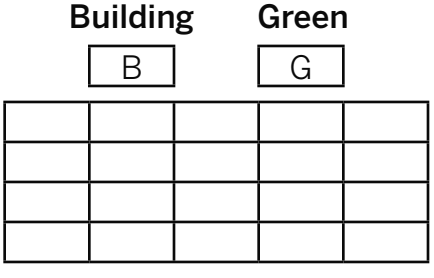
3. Spruce City requires a $4 : 3$ ratio of building space to green space. The city is developing 21 units of land for a new neighborhood. How many spaces of each type should the city plan for? Use the model to show your thinking.



_____ building spaces _____ green spaces

Check

Elm City requires a $2 : 3$ ratio of building space to green space. The city is developing 20 units of land for a new neighborhood. How many spaces of each type should the city plan for? Use the model to show your thinking.



_____ building spaces _____ green spaces

Unit 3

Mini-Lessons

Name _____

Converting Measurements

ML 3.02

Modeled Review

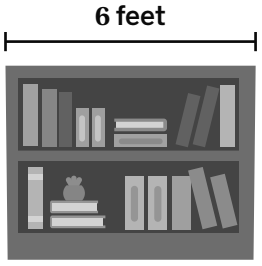
Name: Priya

A bookshelf is 6 feet wide. About how many meters is that? Show your thinking.

$$\frac{6 \text{ ft}}{x \text{ meters}} = \frac{1 \text{ ft}}{0.3 \text{ meters}}$$

$6 \cdot 0.3 = 1.8$

1.8 meters



1 foot ≈ 0.3 meters

Guided Practice

Use the given conversion rate to determine the approximate value of each missing quantity. Show your thinking.

1. A measuring cup holds 720 milliliters of water. Approximately how many cups is that?

$$\frac{720\ milliliters}{x\ cups} = \frac{240\ milliliters}{1\ cup}$$

$\frac{720}{240} =$ _____ _____ cups

1 cup = 240 milliliters

2. A swimming pool is 20 meters wide. Approximately how many yards is that?

$$\frac{\square\ meters}{\square\ yards} = \frac{\square\ meters}{\square\ yards}$$

$20 \cdot 1.1 =$ _____ _____ yards

1 meter = 1.1 yards

Guided Practice

For Problems 3–6, use the conversion rate that makes the most sense to determine the approximate value of each missing quantity. Show your thinking.

1 foot ≈ 0.3 meters	1 kilogram = 2.2 pounds
1 liter = 4.2 cups	1 meter = 1.1 yards

3. A watering can holds 15 liters of water. Approximately how many cups is that?

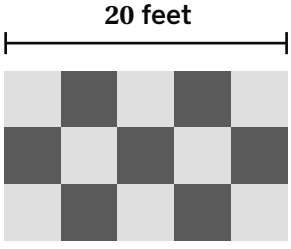
4. A bowling ball is 11 pounds. Approximately how many kilograms is that?

5. A shipping container is 10 meters wide. Approximately how many yards is that?

6. A flagpole is 12 meters tall. Approximately how many feet is that?

Check

A checkered floor is 20 feet wide. How many meters is that? Show your thinking.



1 foot ≈ 0.3 meters

Name _____

Calculating Unit Rates

ML 3.04

Modeled Review

Name: Jason

During a sale, a clothing store is selling 5 shirts for $30. What is the unit rate? What does it represent?

30 ÷ 5 = 6

The unit rate is $6/shirt. This represents the price of one shirt.

Guided Practice

1. A commuter train travels 60 miles in 30 minutes without stopping. A subway train travels 5 miles in 2 minutes without stopping. Which train is traveling faster? How do you know?

Commuter train

Ratio: 60 miles/ 30 minutes

Unit rate: 2 miles/minute

Subway train

Ratio: _____ miles/ _____ minutes

Unit rate: _____ miles/minute

Faster train: The _____ train. It has a greater unit rate.

2. A local grocery store sells three gallons of milk for $12.00. A supermarket sells two gallons of milk for $8.50. Which is the better deal? How do you know?

Grocery store

Ratio: _____ dollars/ _____ gallons

Unit rate: _____ dollars/gallon

Supermarket

Ratio: _____ dollars/ _____ gallons

Unit rate: _____ dollars/gallon

Better deal: _____

Guided Practice

3. A cheetah has been observed traveling a distance of 315 meters in 10 seconds. How fast was the cheetah?

Cheetah

Ratio: _____ meters/ _____ seconds

Unit rate: _____ meters/second

A light aircraft needs to travel 30 meters per second to take off. Was the cheetah moving faster than this? How do you know?

_____

4. You are setting up a lemonade stand. Your goal is to sell 25 cups of lemonade. The recipe you use says that 12 lemons make 4 cups. You purchase 100 lemons to make 25 cups. Will your lemonade have more or less lemon flavor than the recipe? How do you know?

Recipe

Ratio: _____

Unit rate: _____

Lemonade stand

Ratio: _____

Unit rate: _____

_____

_____

Check

A red model train moves 180 centimeters in 30 seconds. A green model train moves 320 centimeters in 40 seconds. Which train is moving faster? How do you know?

_____

_____

Name _____

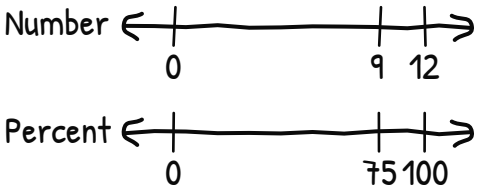
Calculating Unknown Percentages

ML 3.13

Modeled Review

Name: Tristan

What is 9 out of 12 as a percent?



75%

Name: Santiago

What is 9 out of 12 as a percent?

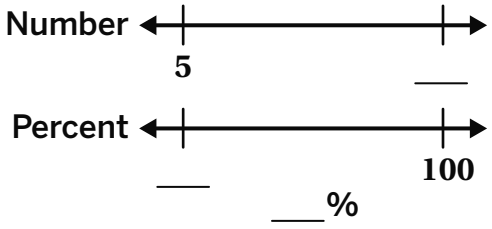
$\frac{9}{12} \cdot 100 =$ 75

75%

Guided Practice

For Problems 1 and 2, calculate the unknown percentage. Show your thinking.

1. What is 5 out of 10 as a percent?



2. What is 5 out of 50 as a percent?

$\frac{5}{50} \cdot 100 =$ _____

_____ %

Guided Practice

Calculate the unknown percentage. Show your thinking.

3. What is 18 out of 24 as a percent?

$\frac{18}{24} \cdot 100 =$ _____

4. What is 4 out of 16 as a percent?

_____ $\cdot 100 =$ _____

5. What is 13 out of 26 as a percent?

6. What is 3 out of 15 as a percent?

7. What is 7 out of 70 as a percent?

8. What is 19 out of 38 as a percent?

Check

What is 16 out of 64 as a percent? Show your thinking.

Unit 4

Mini-Lessons

Name _____

Determining How Many in Each Group

ML 4.04

Modeled Review

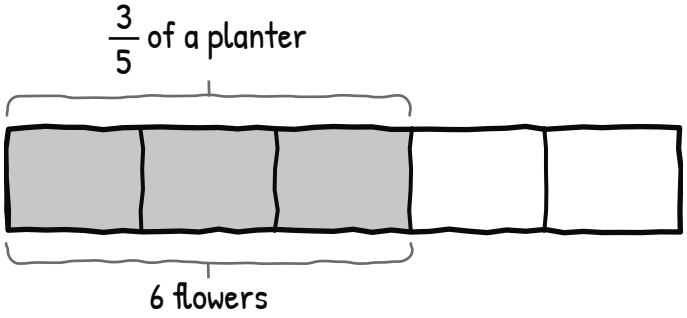
Name: Avery

6 flowers fill $\frac{3}{5}$ of a planter. How many flowers fill 1 planter? Draw a diagram if it is helpful.

$6 \div \frac{3}{5}$

$6 \times \frac{5}{3} = \frac{30}{3} = 10$

10 flowers

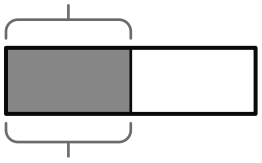


Guided Practice

Determine how many candles fill 1 box. Use the diagrams to model your thinking.

1. 8 candles fill $\frac{1}{2}$ of a box.

$\frac{1}{2}$ of a box



8 candles

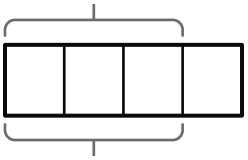
$8 \div$ _____

$8 \times$ _____ $=$ _____ $=$ _____

_____ **candles**

2. 6 candles fill $\frac{3}{4}$ of a box.

_____ of a box

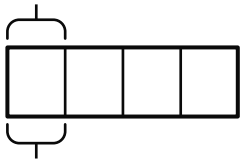


_____ candles

_____

Guided Practice

Micah is placing candles into different-sized boxes. Complete the table to determine the number of candles that can fill one box.

Scenarios	Diagram	Division expression	Number of candles that fill one box
6 candles fill $\frac{1}{4}$ of a box			
3 candles fill $\frac{3}{5}$ of a box			
9 candles fill $\frac{3}{4}$ of a box			

Check

3 candles fill $\frac{1}{5}$ of the box. How many candles fill 1 box? Draw a diagram if it is helpful.

Name _____

Dividing Fractions Using Common Denominators

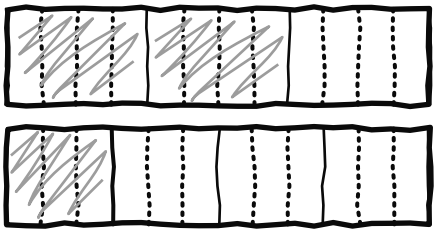
ML 4.07

Modeled Review

Name: Santiago

Calculate $\frac{2}{3} \div \frac{1}{4}$. Draw a diagram if it is helpful.

The common denominator is 12, so I cut each whole into 12 pieces.



$\frac{2}{3} \div \frac{1}{4} = \frac{8}{12} \div \frac{3}{12}$

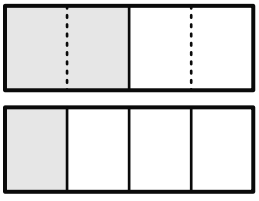
$= 8 \div 3$

$= \frac{8}{3}$

Guided Practice

Complete the given diagram to find the common denominator. Then, calculate the quotient.

1. $\frac{1}{2} \div \frac{1}{4}$

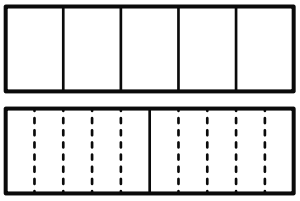


$\frac{1}{2} \div \frac{1}{4} = \frac{2}{4} \div$ _____

$= 2 \div$ _____

$=$ _____

2. $\frac{2}{5} \div \frac{1}{2}$



$\frac{2}{5} \div \frac{1}{2} = \frac{4}{10} \div$ _____

$=$ _____

$=$ _____

Guided Practice

Calculate each quotient. Draw a diagram if it is helpful.

3. $\frac{1}{8} \div \frac{3}{4}$

4. $\frac{2}{3} \div \frac{1}{2}$

5. $\frac{1}{4} \div \frac{1}{3}$

6. $\frac{3}{4} \div \frac{1}{6}$

Check

Calculate $\frac{1}{3} \div \frac{3}{4}$. Draw a diagram if it is helpful.

Name _____

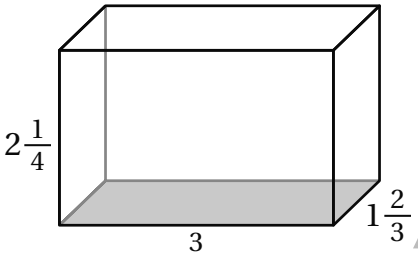
Determining the Volume of Prisms With Fractional Dimensions

ML 4.14

Modeled Review

Name: Dylan

Determine the volume of the prism. Show your thinking.



$V = l \cdot w \cdot h$

$V = 3 \cdot 1\frac{2}{3} \cdot 2\frac{1}{4}$

First, I need to convert the mixed numbers to equivalent fractions that are greater than 1.

$1\frac{2}{3} = \frac{3}{3} + \frac{2}{3}$

$1\frac{2}{3} = \frac{5}{3}$

$2\frac{1}{4} = \frac{8}{4} + \frac{1}{4}$

$2\frac{1}{4} = \frac{9}{4}$

Next, I need to find the volume of the prism and change it into a mixed number.

$V = \frac{3}{1} \cdot \frac{5}{3} \cdot \frac{9}{4} = \frac{135}{12} = \frac{45}{4}$

$V = \frac{45}{4} = 11\frac{1}{4}$

$V = 11\frac{1}{4}$ cubic units

Guided Practice

Convert the mixed number to an equivalent fraction greater than 1.

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

$3 = \frac{15}{5}$

$\frac{15}{5} + \_\_\_\_\_ = \_\_\_\_\_$

2. $2\frac{1}{5}$

$2 = \frac{10}{5}$

$\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_$

3. $2\frac{3}{4}$

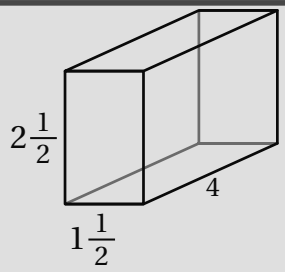
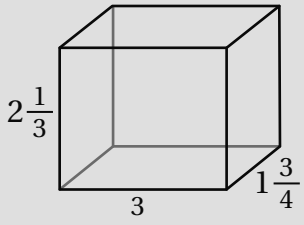
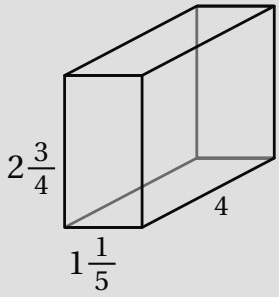
$2 = \_\_\_\_\_$

$\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_$

4. $3\frac{1}{4}$

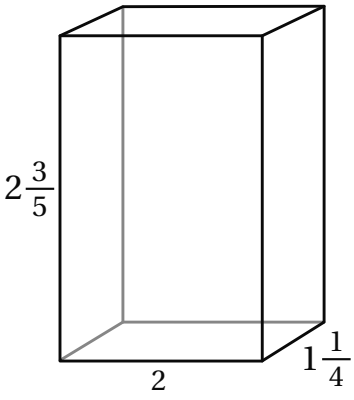
Guided Practice

5. Calculate the volume of each rectangular prism.

Prism	Dimensions ($l \cdot w \cdot h$)	Volume (cubic units)
		
		
		

Check

Determine the volume of the prism. Show your thinking.



Unit 5

Mini-Lessons

Name _____

Adding and Subtracting Decimals

ML 5.03

Modeled Review

Name: Shawn

Calculate the value $2.862 - 1.725$. Show your thinking.

$$\begin{array}{r} {\scriptstyle 5\ 12} \\ 2.8\cancel{6}\cancel{2} \\ -1.7\,2\,5 \\ \hline 1.1\,3\,7 \end{array}$$

I need to line up the decimals when adding or subtracting. 5 hundredths cannot be subtracted from 2 hundredths, so I need to regroup the tenths and hundredths.

Guided Practice

Determine the value of each expression.

1. $0.55 + 0.13$

$$\begin{array}{r} 0.5\,5 \\ +\,0.1\,3 \\ \hline 8 \end{array}$$

2. $0.54 - 0.24$

$$\begin{array}{r} 0.5\,4 \\ -\,0.2\,4 \\ \hline \end{array}$$

3. $0.204 + 0.136$

$$\begin{array}{r} {\scriptstyle \square} \\ 0.2\,0\,4 \\ +\,0.1\,3\,6 \\ \hline 0 \end{array}$$

4. $0.306 - 0.124$

$$\begin{array}{r} {\scriptstyle 2\,\square} \\ 0.\cancel{3}\,0\,6 \\ -\,0.1\,2\,4 \\ \hline \end{array}$$

Guided Practice

Determine the value of each expression.

5. $0.324 + 0.281$

6. $0.246 - 0.174$

7. $2.613 + 1.217$

8. $2.825 - 1.245$

9. $2.632 + 1.193$

10. $2.735 - 1.472$

Check

Calculate the value $2.725 - 1.365$. Show your thinking.

Name _____

Multiplying Decimals Using Area Models

ML 5.07

Modeled Review

Name: Priya

Determine the product $4.2 \cdot 2.6$. Show your thinking.

$8 + 0.4 + 2.4 + 0.12 = 10.92$

10.92

	4	0.2
2	8	0.4
0.6	2.4	0.12

Guided Practice

For Problems 1–2, use the area model that represents $3 \cdot 1.5$.

1. Calculate the areas of A and B.

A	B

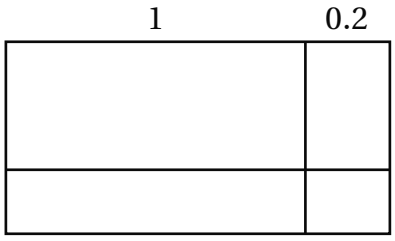
	3
1	A
0.5	B

2. What is the value of $3 \cdot 1.5$?

_____ + _____ = _____

Guided Practice

3. Calculate the product using an area model.

Problem	Area Model	Product
$1.2 \cdot 1.5$		
$2.1 \cdot 1.6$		
$3.3 \cdot 2.5$		

Check

Determine the product $3.5 \cdot 2.7$ using an area model.

Name _____

Dividing Decimals Using Long Division

ML 5.12

Modeled Review

Name: Diego

Calculate $3.18 \div 0.6$. Show your thinking.

$3.18 \div 0.6 = \frac{318}{100} \div \frac{60}{100}$

$$\begin{array}{r} 5.3 \\ 60 \overline{)\,318.0} \\ -\,300 \\ \hline 18 \\ -\,18 \\ \hline 0 \end{array}$$

5.3

I need to multiply both decimals by 100 for the numbers to both be whole numbers.

Guided Practice

Divide the decimals by completing the long division.

1. $0.8 \div 0.4 =$ ____

$0.8 \div 0.4 = \frac{8}{10} \div \frac{\quad}{10}$

$$\begin{array}{r} \\ 4 \overline{)\,8} \\ -\,\square \\ \hline \square \end{array}$$

2. $0.62 \div 0.2 =$ _____

$0.62 \div 0.2 = \frac{62}{100} \div \frac{\quad}{100}$

$$\begin{array}{r} \\ \overline{)\,62.0} \\ - \\ \hline \end{array}$$

Guided Practice

Divide the decimals using long division.

3. $1.34 \div 0.2 =$ ____

4. $2.15 \div 0.5 =$ ____

5. $2.25 \div 0.3 =$ ____

6. $3.36 \div 0.6 =$ ____

Check

Calculate $2.55 \div 0.3$. Show your thinking.

Name _____

Converting Between Fractions, Percents, and Decimals

ML 5.15

Modeled Review

Name: Tristan

Write 45% as its fraction and decimal equivalent. Show your thinking.

$\frac{45}{100} = 45. = 0.45$

$\frac{45}{100} \div \frac{5}{5} = \frac{9}{20}$

A percent is always out of 100.

Guided Practice

Convert the fraction to determine its decimal and percent equivalents.

1. Convert $\frac{1}{4}$ to its decimal equivalent.

2. Convert $\frac{1}{5}$ to its decimal equivalent.

Convert $\frac{1}{4}$ to its percent equivalent.

____ • 100 = ____

Convert $\frac{1}{5}$ to its percent equivalent.

____ • ____ = ____

Guided Practice

3. Determine the missing values in each row.

Percent (%)	Decimal	Fraction
15	$\frac{\quad}{100} =$	$\frac{15}{100} \div \frac{5}{5} =$ ____
	0.40	
5		
		$\frac{7}{20}$

Check

Write 55% as its fraction and decimal equivalents. Show your thinking.

Unit 6

Mini-Lessons

Name _____

Writing and Solving Equations

ML 6.05

Modeled Review

Name: Han

For Problems 1–3, use the equation $x + 2 = 10$.

1. Write a situation that represents this equation. Explain what x represents in your situation.

   Tristan spent $10 on a box of tissues and medicine. The box of tissues cost $2. The medicine cost x dollars.

2. Determine the solution to the equation.

   $x = 8$

   x + 2 = 10
   - 2 - 2
   x = 8

3. Explain what the solution means in your situation.

   The medicine cost $8.

Guided Practice

For each situation, write the equation from the bank that best represents it.

$x + 6 = 13$	$6x = 13$	$x + 2 = 7$
$2x = 7$	$x - 2 = 7$	$2x = 10$

1. Santiago spent $7 on a cup of coffee and a croissant. The cup of coffee cost $2. The croissant cost x dollars.

   _____

2. Jada spent $10 on two secondhand books. Each book cost x dollars.

   _____

3. Diego spent $13 on an herb plant and a pot. The plant cost $6. The pot cost x dollars.

   _____

Guided Practice

4. Complete the table for each equation shown.

Equation	Situation	Solution	Solution's meaning
$x + 6 = 15$	Rebecca spent \$15 on a deck of cards and a phone charger. The deck of cards cost \$6. The phone charger cost x dollars.	$x = 9$	
$4x = 20$	Esteban spent \$20 on four greeting cards. Each greeting card cost x dollars.		
$x + 3 = 14$			

Check

For Problems 1–3, use the equation $x + 5 = 12$.

1. Write a situation that represents the equation. Explain what x represents in your situation.

2. Determine the solution to the equation.

3. Explain what the solution means in your situation.

Name _____

Writing Equivalent Expressions Using the Area Model

ML 6.08

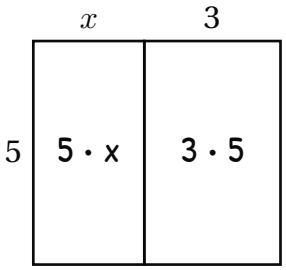
Modeled Review

Name: Jada

Write *two* equivalent expressions that represent the area of the rectangle.

Expression 1: 5(*x* + 3)

Expression 2: 5*x* + 15



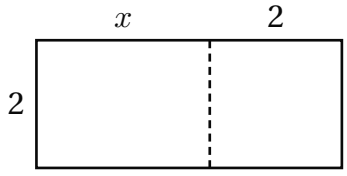
5 times *x* + 3 or 5(*x* + 3)

5 · *x* + 5 · 3 or 5 · (*x* + 3)
5*x* + 15

Guided Practice

Write *two* equivalent expressions using the area of a rectangle.

1.



$2 \cdot (x + \_\_\_)$

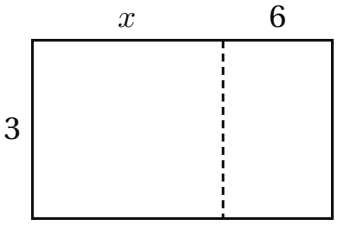
$2 \cdot x + \_\_\_\_$

$\_\_\_\_ + \_\_\_\_$

Expression 1: _____

Expression 2: _____

2.



$3 \cdot (\_\_\_ + \_\_\_)$

$\_\_\_\_ + \_\_\_\_$

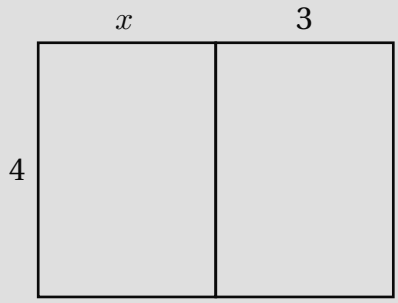
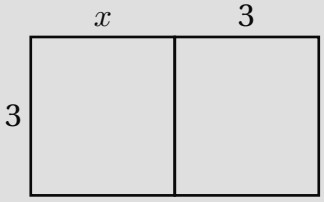
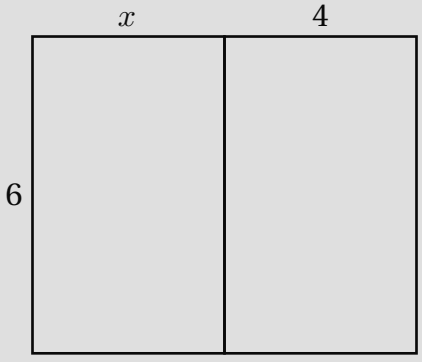
$\_\_\_\_ + \_\_\_\_$

Expression 1: _____

Expression 2: _____

Guided Practice

3. Write *two* equivalent expressions that represent the area of each rectangle.

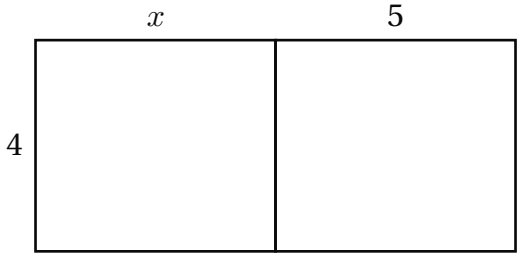
Area Model	Expression 1	Expression 2
	$4(x+3)$	
		
		

Check

Write *two* equivalent expressions that represent the area of the rectangle.

Expression 1: _____

Expression 2: _____



Name _____

Evaluating Expressions With Exponents

ML 6.11

Modeled Review

Name: Kai

Determine the value of each expression.

1. $2 \cdot 3^2$ = 18

$2 \cdot (3 \cdot 3)$
$2 \cdot (9)$
18

I need to evaluate the part of the expression with the exponent first and then multiply.

2. $5 + (4 - 3)^2$ = 6

$5 + (1)^2$
$5 + (1 \cdot 1)$
$5 + 1$
6

I need to evaluate the grouped part of the expression first, then the exponent part. Then I can add.

Guided Practice

Determine the value of each expression.

1. 2^2

$2 \cdot$ ___

_____

2. $2 + 3^2$

$2 + ($___ $\cdot$ ___$)$

___ + ___

_____

3. $(6 - 2)^2$

(___)^2

(_____)

_____

4. $1 + (3 - 2)^2$

$1 + ($___$)^2$

_____

_____

_____

Guided Practice

5. Determine the value of each expression.

Expression	Value
$3^2 + 6$	
$(4 + 3)^2$	
$3 + (4 + 1)^2$	
$2 \cdot 4^2$	
$(7 - 1)^2 + 2$	
$6 + 7^2$	

Check

Determine the value of each expression.

1. $3 \cdot 5^2$ _____

2. $7 + (5 - 2)^2$ _____

Name _____

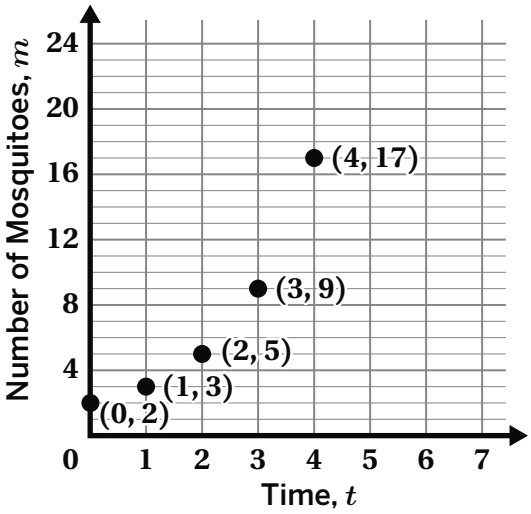
Interpreting Graphs

ML 6.14

Modeled Review

Name: Shawn

The graph represents the relationship between time, t, and the number of mosquitoes, m. Complete the table so it reflects the values in the graph.

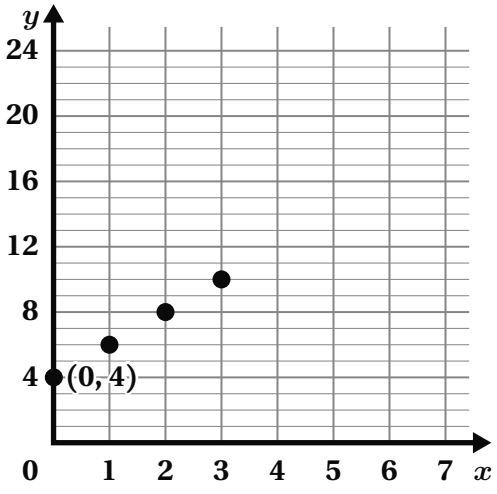


t	m
0	2
1	3
2	5
3	9
4	17

Time is the independent variable, so it represents the x-values. The number of mosquitos is the dependent variable, so it represents the y-values.

Guided Practice

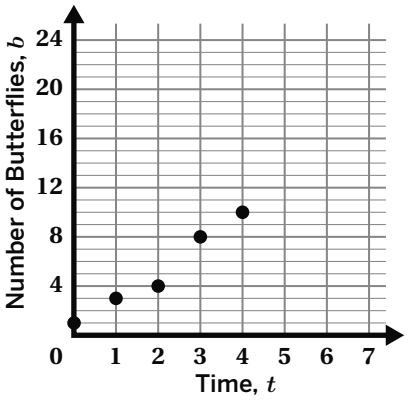
1. The graph represents the relationship between the independent variable, x, and the dependent variable, y. Complete the table so it reflects the values in the graph.



x	y
0	4

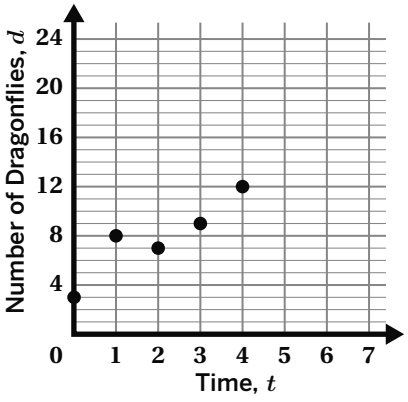
Guided Practice

2. This graph represents the relationship between time, t, and the number of butterflies, b. Complete the table so it reflects the values in the graph.



t	b

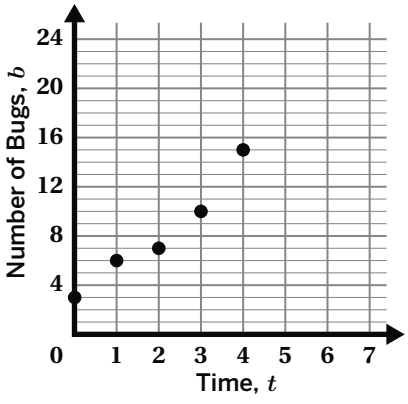
3. This graph represents the relationship between time, t, and the number of dragonflies, d. Complete the table so it reflects the values in the graph.



t	d

Check

This graph represents the relationship between time, t, and the number of bugs, b. Complete the table so it reflects the values in the graph.



t	b

Unit 7

Mini-Lessons

Name _____

Ordering and Comparing Positive and Negative Numbers

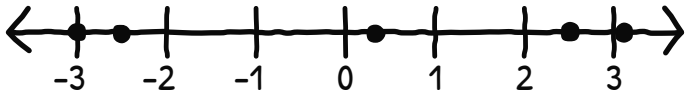
ML 7.04

Modeled Review

Name: Adam

Order the numbers from *least* to *greatest*.

−3	3.1	−2.5	2.5	$\frac{1}{4}$



−3	−2.5	$\frac{1}{4}$	2.5	3.1
least				greatest

Guided Practice

Order each set of numbers from least to *greatest*. Use the number lines if they are helpful.

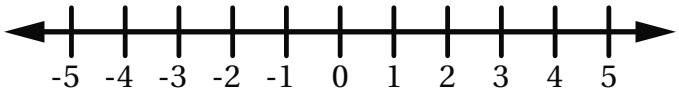
1.

0	-3.5	3	-1

-3.5			
least			greatest

2.

4.5	-2	-4	$\frac{1}{4}$



least			greatest

Guided Practice

Order each set of numbers from *least* to *greatest.*

3.

0.2	-2	3.5	3	1.25
_____	_____	_____	_____	_____
least				greatest

4.

0.5	3	$1\frac{1}{2}$	-2	1
_____	_____	_____	_____	_____
least				greatest

5.

2.5	2	-2.5	$-\frac{1}{2}$	-3
_____	_____	_____	_____	_____
least				greatest

6.

-3.5	$-\frac{1}{5}$	2.5	-5	3
_____	_____	_____	_____	_____
least				greatest

Check

Order the numbers from *least* to *greatest.*

$-\frac{1}{2}$	1	-3	4	-4.5
_____	_____	_____	_____	_____
least				greatest

Name _____

Identifying Solutions to Inequalities

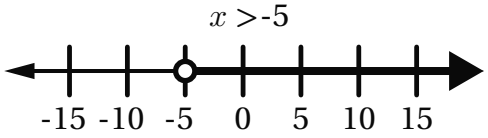
ML 7.08

Modeled Review

Name: Emmanuel

Here is an inequality and its graph. Select *three* solutions to the inequality.

- ☐ -20
- ☐ -5
- ☑ 0
- ☑ 5
- ☑ 20

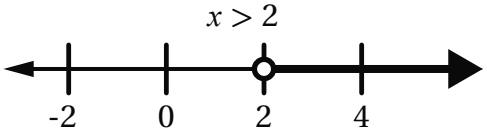


For a number to be a solution to this inequality, it must be greater than -5. The numbers 0, 5, and 20 are greater than -5.

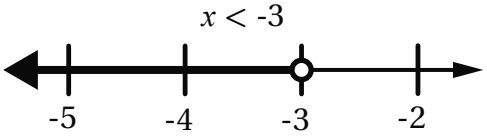
Guided Practice

Here are inequalities and their graphs. Select *three* solutions to each inequality.

1.
- ☐ 0
- ☐ 2
- ☑ 4
- ☐ 6
- ☐ 8



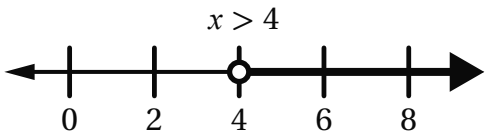
2.
- ☐ -6
- ☐ -5
- ☐ -4
- ☐ -3
- ☐ -2



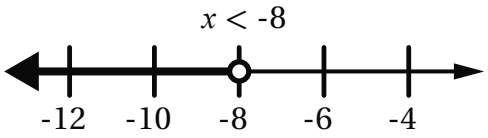
Guided Practice

Here are inequalities and their graphs. Select *three* solutions to each inequality.

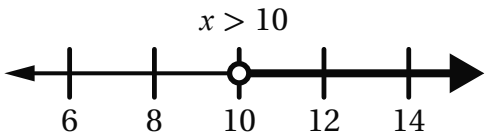
3.
- ☐ 2
- ☐ 4
- ☐ 6
- ☐ 8
- ☐ 10



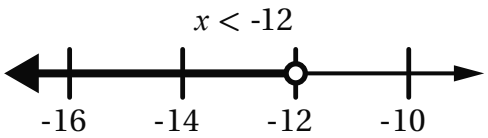
4.
- ☐ -14
- ☐ -12
- ☐ -10
- ☐ -8
- ☐ -6



5.
- ☐ 8
- ☐ 10
- ☐ 12
- ☐ 14
- ☐ 16



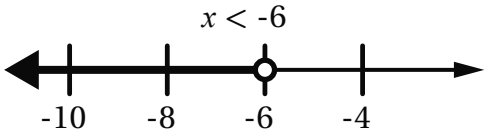
6.
- ☐ -18
- ☐ -16
- ☐ -14
- ☐ -12
- ☐ -10



Check

Here is an inequality and its graph. Select *three* solutions to the inequality.

- ☐ -12
- ☐ -10
- ☐ -8
- ☐ -6
- ☐ -4

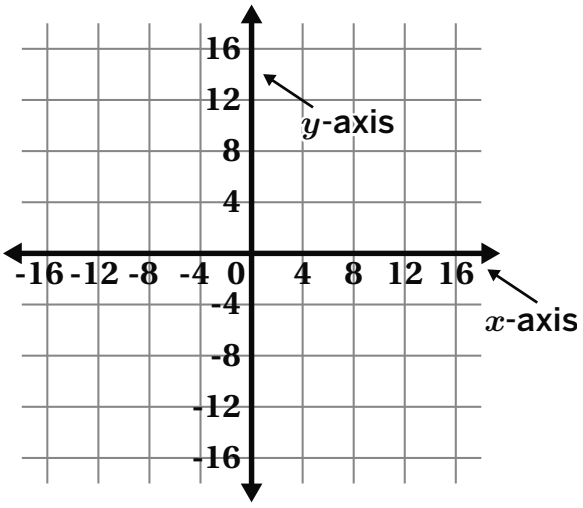


Name _____

Plotting Points on the Coordinate Plane

ML 7.11

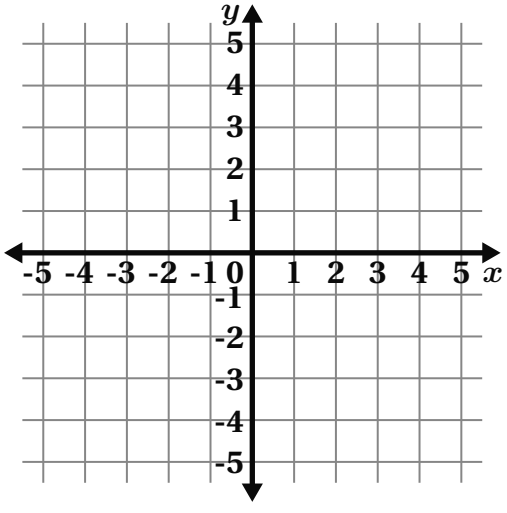
Modeled Review

Coordinate Plane	In an ordered pair (x, y):
	• The first number (x) represents how far to move **horizontally** along the ***x-axis.*** • The second number (y) represents how far to move **vertically** along the ***y-axis.***

Guided Practice

1. Plot and label each point on the graph.

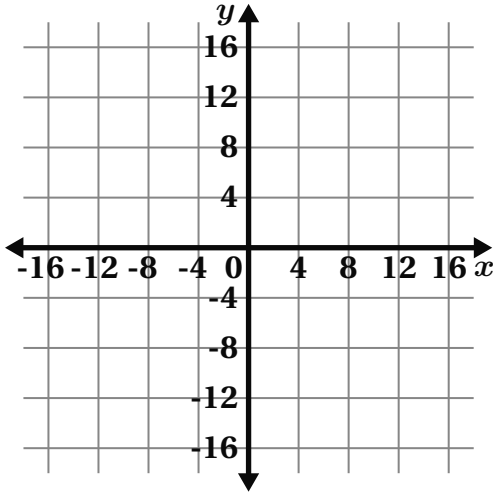
$A(-4, 2)$
$B(4, -2)$
$C(-5, -1)$



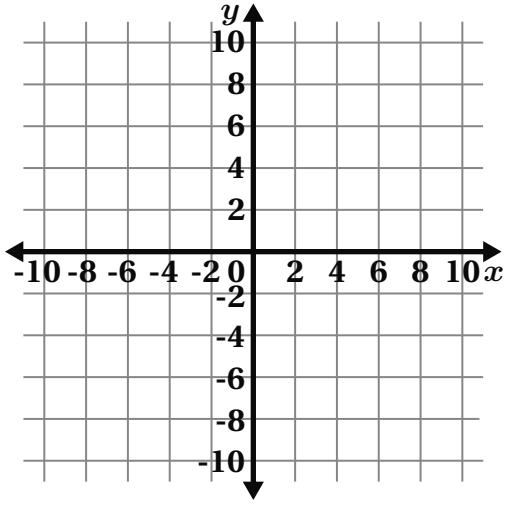
Guided Practice

Plot and label each point on the graphs.

2. $A(-8, 2)$
$B(-8, -6)$
$C(0, 8)$



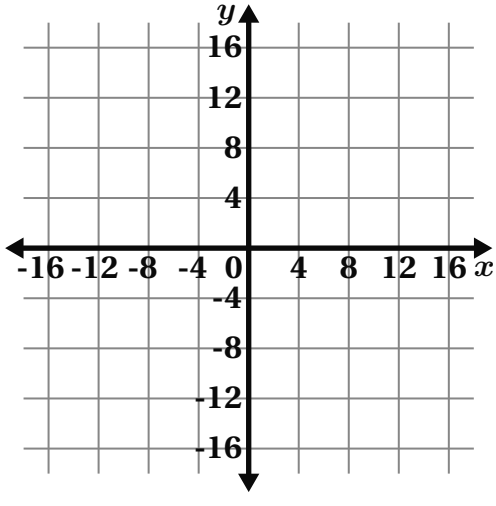
3. $A(-3, 2)$
$B(5, 5)$
$C(-4, 6)$



Check

Plot and label each point on the graph.

$A(6, -10)$
$B(-6, 4)$
$C(-6, -4)$



Unit 8

Mini-Lessons

Name _____

Creating Dot Plots

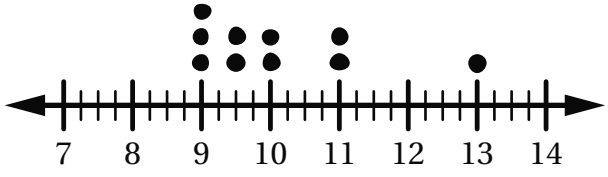
ML 8.03

Modeled Review

Name: Clare

10 fast food companies in Nebraska reported their hourly wages for new employees. Complete the dot plot to display this data.

Hourly Wage				
$11.00	$9.00	$9.00	$10.00	$9.50
$10.00	$9.00	$11.00	$9.50	$13.00

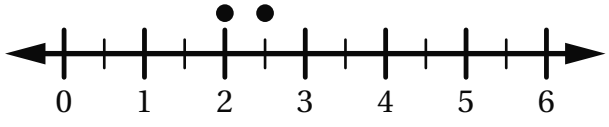


Hourly Wage ($)

Guided Practice

1. Here are the prices per gallon of gasoline at 6 gas stations in Georgia. Complete the dot plotthat shows this data.

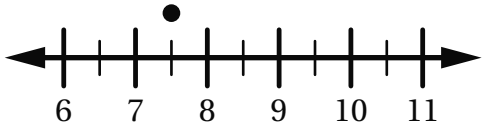
Price per gallon		
$2.00	$3.00	$2.50
$2.00	$3.50	$4.00



Price per gallon ($)

2. Here are the ticket prices for movies at 6 theaters in Texas. Complete the dot plot to display this data.

Price per ticket		
$10.00	$8.00	$7.50
$8.50	$7.00	$8.00

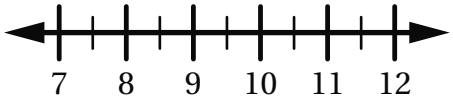


Price per ticket ($)

Guided Practice

3. 8 smoothie shops in Arizona reported the price of their large smoothie. Complete the dot plot to display this data.

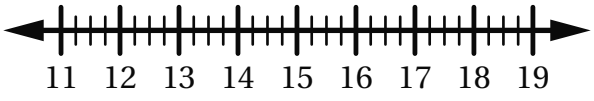
Price per smoothie			
$10.00	$9.50	$9.00	$10.50
$11.00	$10.00	$9.50	$11.00



Price per smoothie ($)

4. 10 parking lots in Chicago reported their daily parking fees. Complete the dot plot to display this data.

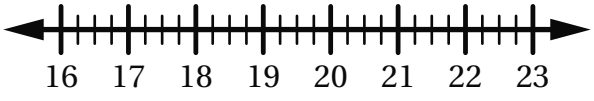
Daily parking fee				
$12.50	$14.00	$18.00	$18.00	$12.00
$18.00	$15.00	$12.00	$15.50	$15.00



Daily parking fee ($)

5. 10 deli shops in New York reported the price of a large sandwich. Complete the dot plot to display this data.

Price per sandwich				
$18.00	$21.00	$21.00	$23.00	$19.50
$20.50	$19.00	$20.00	$22.00	$20.00

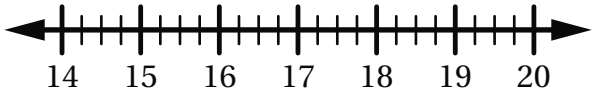


Price per sandwich ($)

Check

10 bookstores in Illinois reported the price of their best-selling book. Complete the dot plot to display this data.

Price per book				
$15.00	$20.00	$16.00	$15.00	$16.00
$18.00	$18.50	$15.00	$17.00	$18.50



Price per book ($)

Name _____

Calculating Mean Absolute Deviation

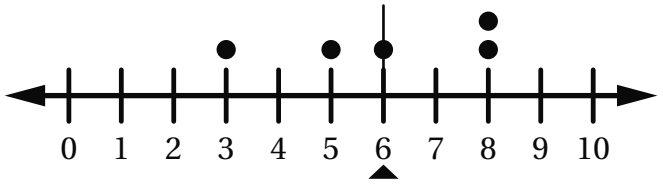
ML 8.09

Modeled Review

Name: Tristan

The dot plot shows the number of text messages Deven sent every day for 5 days. Calculate the MAD of this data.

Number of text messages Deven sent



Mean: 6 books

3 + 1 + 0 + 2 + 2 = 8

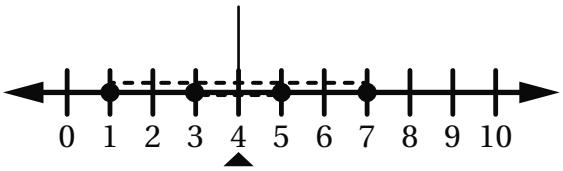
8 ÷ 5 = 1.6

MAD: 1.6

Guided Practice

1. The dot plot shows the number of books Jin read each month for 4 months. Calculate the MAD of this data.

Number of books Jin read



Mean: 4 books

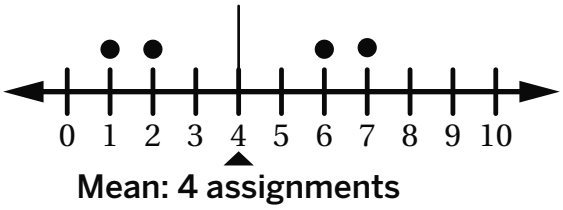
MAD: ____

Moves	Work
Step 1: Find the distance between each data point and the mean.	3 ___ ___ ___
Step 2: Add all the differences, then divide by the number of data points.	3 + ___ + ___ + ___ = ___ ___ ÷ 4 = ___

Guided Practice

2. The dot plot shows the number of homework assignments Neel completed each day for 4 days. Calculate the MAD of this data.

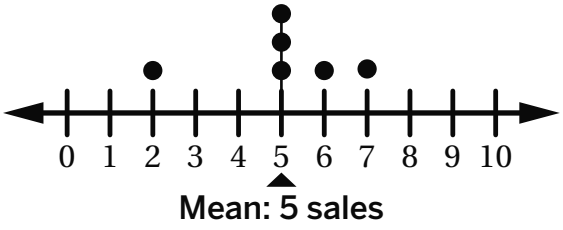
Number of assignments Neel completed



MAD: ____

3. The dot plot shows the number of sales Peter made each day for 6 days. Calculate the MAD of this data.

Number of sales Peter made

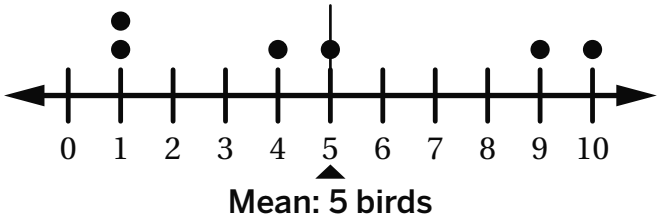


MAD: ____

Check

The dot plot shows the number of birds Tyler saw each day for 6 days. Calculate the MAD of this data.

Number of birds Tyler saw



MAD: ____

Name _____

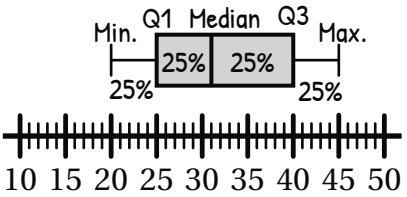
Interpreting Box Plots

ML 8.14

Modeled Review

Name: Santiago

Inola took the bus to school most days in January. She wrote down how many minutes her journey took each day and made this box plot.



1. Determine the median, IQR, and range for this data.

median: 30 **IQR:** 15 **range:** 25

40 – 25 = 15 45 – 20 = 25

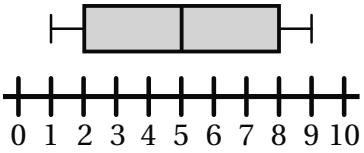
2. What percent of Inola's journey to school took 40 minutes or less?

A. 25% **B.** 50% **C.** 75% **D.** 100%

Guided Practice

For Problems 1–2, refer to the box plots to identify the statistics of the data set.

1. Mia measured the number of books she read each day for a week in June.



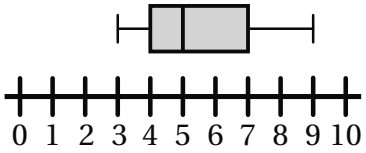
Number of books

Min.	Q1	Median	Q3	Max.
1	2			

What percent of the data was more than **5** books?

A. 25% **B.** 50%
C. 75% **D.** 100%

2. Zoe tracked the number of apples she ate each day for a week in January.



Number of apples

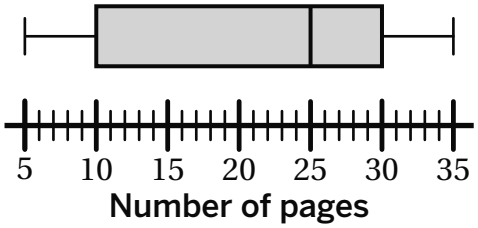
Min.	Q1	Median	Q3	Max.

What percent of the data was between **4** and **5** apples?

A. 25% **B.** 50%
C. 75% **D.** 100%

Guided Practice

Eliza tracked the number of pages she read each day for a week. She wrote down the amounts and created this box plot.



3. Determine the median, IQR, and range for this data.

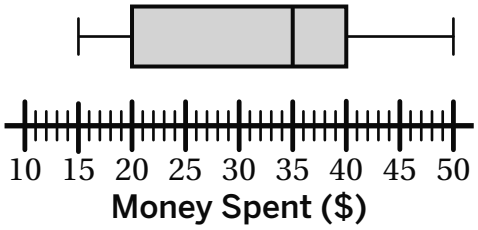
median: _____ **IQR:** _____ **range:** _____

4. On what percent of days did Eliza read less than 25 pages?

A. 25% **B.** 50% **C.** 75% **D.** 100%

Check

Evan tracked the amount of money he spent on clothes in January. He wrote down the amounts and created this box plot.



1. Determine the median, IQR, and range for this data.

median: _____ **IQR:** _____ **range:** _____

2. What percent of Evan's clothes cost at least $15?

A. 25% **B.** 50% **C.** 75% **D.** 100%

Prerequisite Skills and Concepts

Mini-Lessons

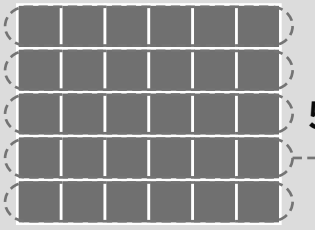
Name _____

Relating Multiplication Expressions to Tiled Rectangles

ML 2.06

Modeled Review

Here is a rectangle with an expression that represents its area.



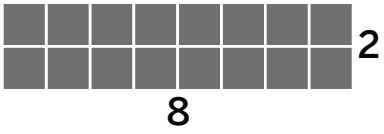
5 rows with 6 tiles in each row

5 x 6

Guided Practice

Complete the phrase. Then write an expression to represent the area of each rectangle.

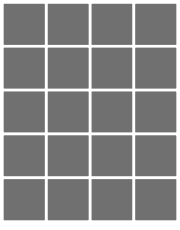
1.



_____ rows with _____ tiles in each row

expression: _____ × _____

2.



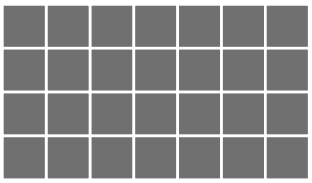
_____

_____ rows with _____ tiles in each row

expression: _____ × _____

Guided Practice

3. Determine the side lengths. Then write an expression to represent the area of the rectangle.

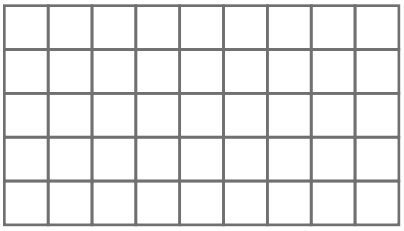


_____

_____ rows with _____ tiles in each row

_____

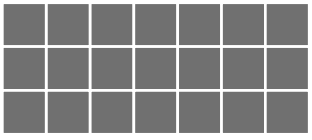
4. Use the grid to create a rectangle whose area can be represented by the expression 3 × 4. Then complete the phrase.



_____ rows with _____ tiles in each row

Check

1. Determine the side lengths. Then write an expression to represent the area of the rectangle.

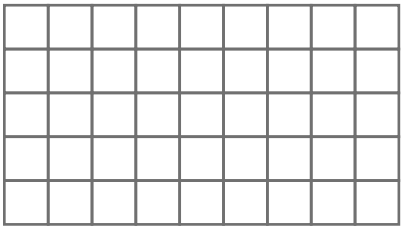


_____

_____ × _____

_____

2. Use the grid to create a rectangle whose area can be represented by the expression 3 × 6.



Name _____

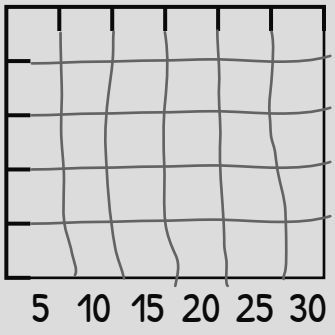
Finding the Area of Rectangles Without a Grid

ML 2.07

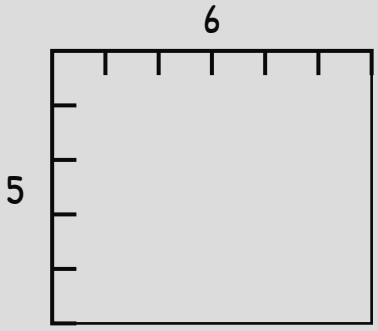
Modeled Review

Dylan and Avery correctly found the area using different methods. Study each of their work.

Dylan's Work



Avery's Work

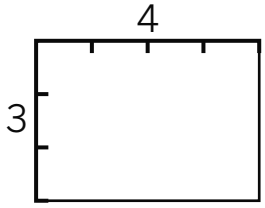


5 × 6 = 30

Guided Practice

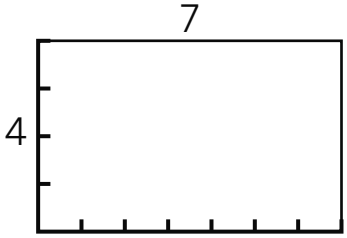
The space between two tick marks represents 1 foot. Determine the area of each rectangle.

1.



3 × 4 = _____ square feet

2.

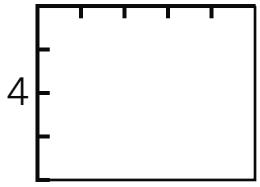


_____ × _____ = _____

Guided Practice

The space between two tick marks represents 1 inch. Determine the area of each rectangle.

3.



expression: _____

area: _____

4.

expression: _____

area: _____

Check

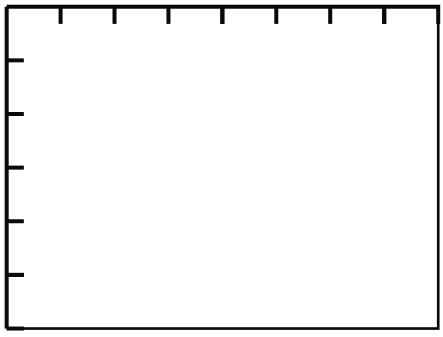
The space between two tick marks represents 1 foot. Determine the area of each rectangle.

1.

expression: _____

area: _____

2.



expression: _____

area: _____

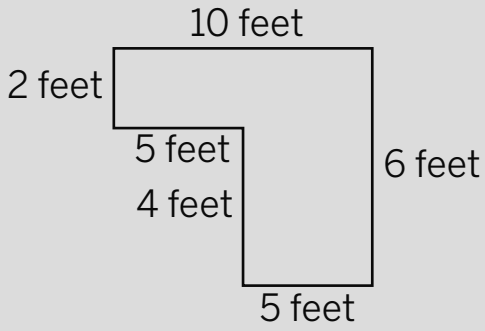
Name _____

Finding Area of Rectilinear Figures Without Grids

ML 2.11

Modeled Review

Students were asked to determine the area of the figure.

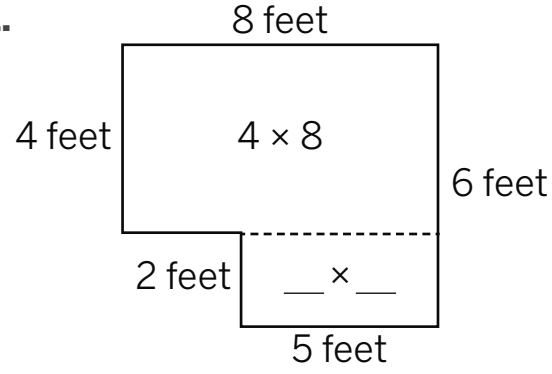


- Maya says you can determine the area by adding 2 × 10 and 4 × 5.
- Jack says you can determine the area by adding 2 × 5 and 6 × 5.

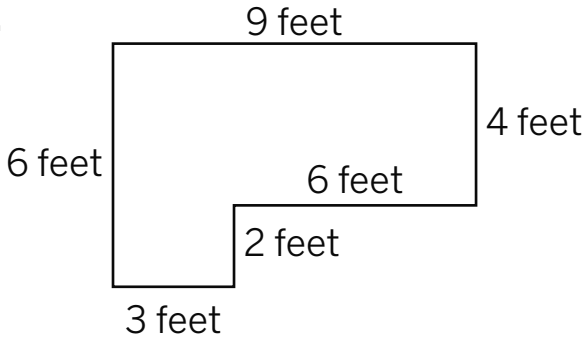
Guided Practice

Draw a line to decompose each figure into rectangles. Then write expressions that represent the area of each rectangle.

1.



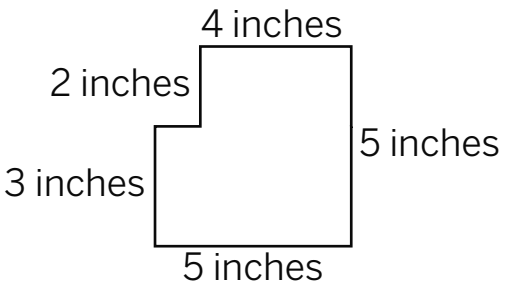
2.



Guided Practice

Determine the area of each figure. Show or explain your thinking.

3.



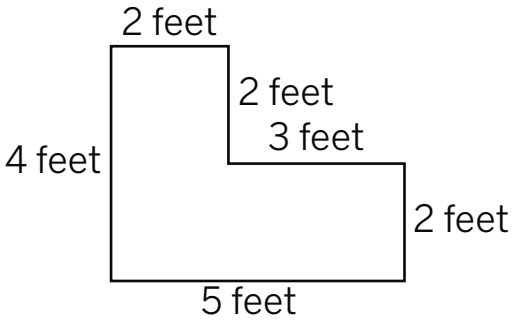
____ × ____ = ____

____ × ____ = ____

total area: ____ + ____ = ____

answer: ____ square inches

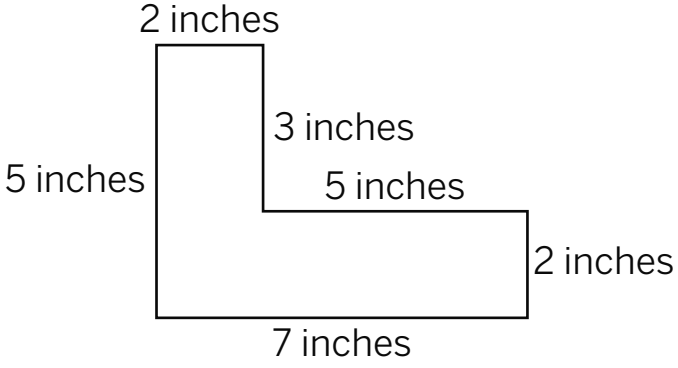
4.



answer: _____

Check

Determine the area of the figure. Show or explain your thinking.



answer: _____

Name _____

Skip Counting to Find Multiples

ML 1.04

Modeled Review

Name: Diego

Two multiples of 3 have been provided for you. List the next six multiples of 3.

Multiples of 3: 3, 6, 9, 12, 15, 18, 21, 24

I can skip count by 3 to find the multiples.

Guided Practice

List the next multiples of the given number.

1. Multiples of 2: 2, 4, _____, _____

2. Multiples of 2: 12, _____, _____, _____

3. Multiples of 2: 24, _____, _____, _____

4. Multiples of 3: 3, 6, _____, _____, _____

Guided Practice

List the next multiples of the given number.

5. Multiples of 6: 6, _____, _____, _____, _____, _____

6. Multiples of 100: 100, _____, _____, _____, _____

7. List six multiples of 10.

_____, _____, _____, _____, _____, _____

8. List six multiples of 5.

_____, _____, _____, _____, _____, _____

9. List six multiples of 3.

_____, _____, _____, _____, _____, _____

10. List six multiples of 9.

_____, _____, _____, _____, _____, _____

Check

List six multiples of 4.

_____, _____, _____, _____, _____, _____

Name _____

Identifying Multiples

ML 1.05

Modeled Review

Name: Avery

Place a check mark next to the numbers that are multiples of 5.

Number	Multiple of 5?
20	✓
38	
50	✓
72	

I can skip count by 5 to find multiples of 5.
5, 10, 15, 20, 25, 30, 35, 40, 45, 50...

Guided Practice

1. Skip count by 4 up to 40. Use a hundreds chart if it is helpful.

4, _____, _____, _____, _____, _____, _____, _____, _____, _____

2. Place a check mark next to the numbers that are multiples of 4. Use your skip counting pattern from Problem 1 if it is helpful.

Number	Multiple of 4?
16	
20	
22	
36	

Guided Practice

Place a check mark next to the numbers that are multiples of the given number. Use a hundreds chart if it is helpful.

3.

Number	Multiple of 5?
20	✓
35	
56	
75	

4.

Number	Multiple of 10?
40	
68	
80	
96	

5.

Number	Multiple of 6?
18	
32	
36	
40	

6.

Number	Multiple of 9?
19	
25	
50	
54	

Check

Place a check mark next to the numbers that are multiples of 3.

Number	Multiple of 3?
14	
18	
23	
33	

Name _____

Identifying Factor Pairs

ML 1.06

Modeled Review

Name: Jada

Use the factor pairs of 15 to write multiplication expressions.

Number	Factor pairs
15	1 × 15, 3 × 5

I can find factor pairs by thinking about which two numbers I can multiply to equal the number.

Guided Practice

Determine *all* the factor pairs of the given number.

Number	Factor pairs
12	1 × 12, 2 × 6, 3 × _____
9	1 × 9, 3 × _____
10	1 × 10, _____ × _____
16	1 × 16, 2 × 8, _____ × _____
21	1 × 21, _____ × _____
19	1 × _____

Guided Practice

Use *all* the factor pairs of the given number to write multiplication expressions.

Number	Factor pairs
30	1 × 30, _____, _____, _____
7	1 × _____
35	
20	
36	

Check

Use *all* the factor pairs of the given number to write multiplication expressions.

Number	Factor pairs
18	
11	

Name _____

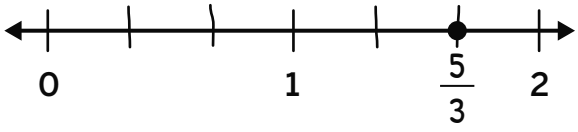
Labeling Fractions Greater Than 1 on a Number Line

ML 2.04

Modeled Review

Name: Kai

Locate and label the fraction $\frac{5}{3}$ with a point.

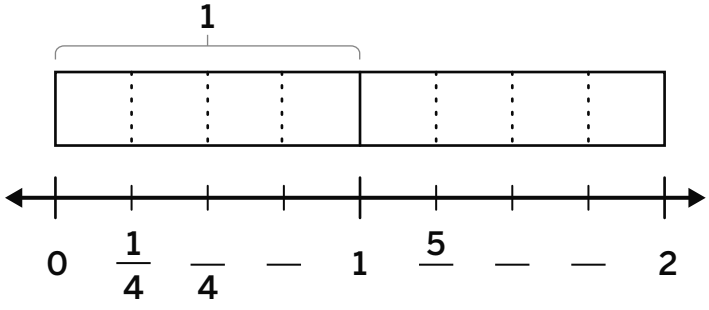


The denominator is 3, so I know that I need to have 3 equal parts between 0 and 1 and 3 equal parts between 1 and 2.

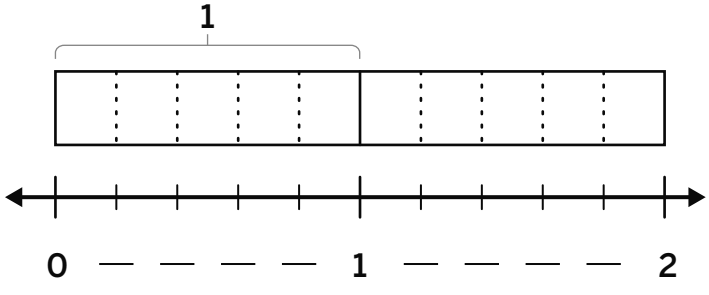
Guided Practice

Label *all* the tick marks on each number line. Use the fraction-strip diagram if it is helpful.

1.

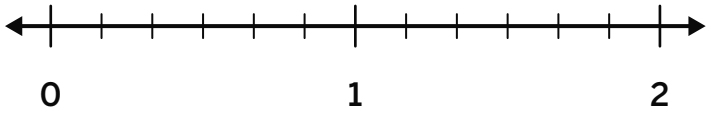


2.

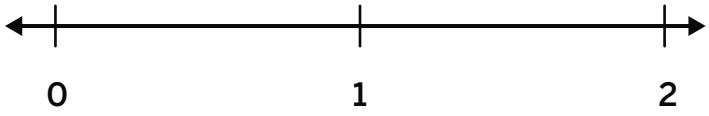


Guided Practice

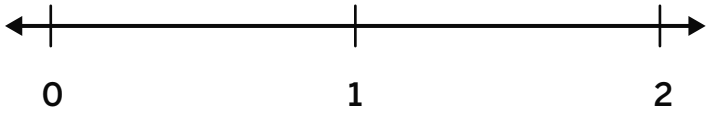
3. Locate and label the fraction $\frac{9}{6}$ with a point.



4. Locate and label the fraction $\frac{3}{2}$ with a point.

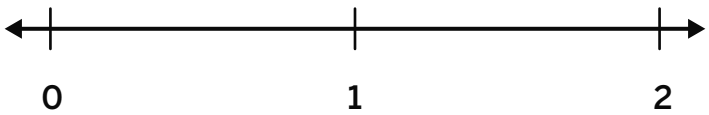


5. Locate and label the fraction $\frac{14}{8}$ with a point.



Check

Locate and label the fraction $\frac{6}{4}$ with a point.

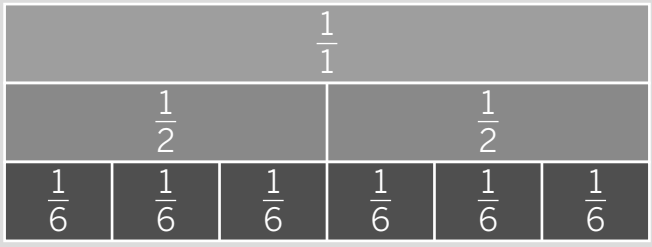


Name _____

Identifying Equivalent Fractions Using Fraction Strips

ML 2.05

Modeled Review

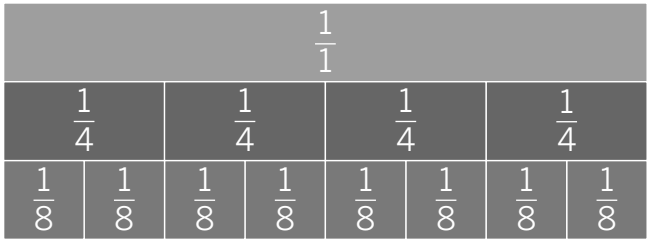


$\frac{1}{2}$ is equivalent to $\frac{3}{6}$.

Guided Practice

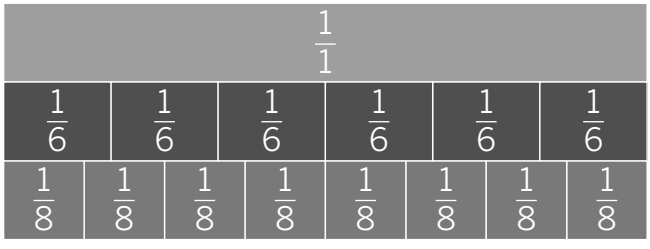
Identify an equivalent fraction to complete the statement.

1.



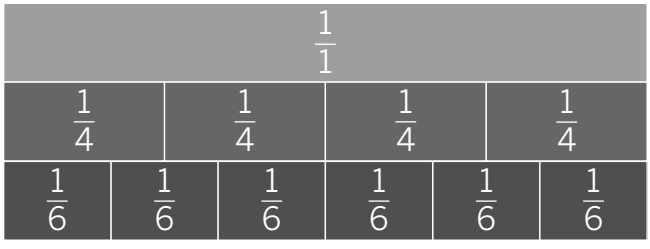
$\frac{1}{4}$ is equivalent to $\frac{}{8}$.

2.



$\frac{3}{6}$ is equivalent to ____.

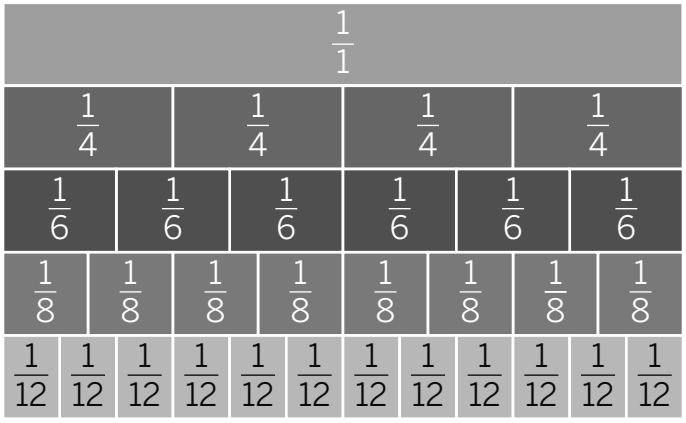
3.



$\frac{2}{4}$ is equivalent to ____.

Guided Practice

Use the fraction strips to name an equivalent fraction.



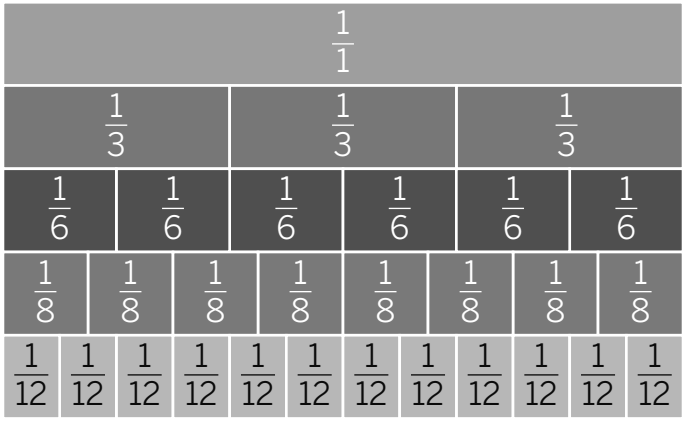
4. Write a fraction that is equivalent to $\frac{1}{4}$. _____

5. Write a fraction that is equivalent to $\frac{3}{6}$. _____

6. Write a fraction that is equivalent to $\frac{3}{4}$. _____

Check

Use the fraction strips to name an equivalent fraction.



1. Write a fraction that is equivalent to $\frac{1}{3}$. _____

2. Write a fraction that is equivalent to $\frac{4}{6}$. _____

Name _____

Identifying Equivalent Fractions Using Factors and Multiples

ML 2.10

Modeled Review

Name: Shawn

Use factors and multiples to identify *two* other fractions that are equivalent to $\frac{12}{8}$.

$\frac{12 \times 2}{8 \times 2} = \frac{24}{16}$

$\frac{12 \div 4}{8 \div 4} = \frac{3}{2}$

answer: $\frac{24}{16}, \frac{3}{2}$

Guided Practice

Use factors and multiples to identify *two* other fractions that are equivalent to the given fraction.

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

$\frac{10 \times 3}{4 \times 3} =$ _____

$\frac{10 \div 2}{4 \div 2} =$ ___

answer: _____

2. $\frac{30}{20}$

$\frac{30 \times \_\_\_}{20 \times} =$ _____

$\frac{30 \div \_\_\_}{20 \div} =$ ___

answer: _____

Guided Practice

Use factors and multiples to identify *two* other fractions that are equivalent to the given fraction.

3. $\frac{20}{8}$

$\frac{\quad \times}{\times} = \_\_\_\_$

$\frac{\quad \div}{\div} = \_\_$

answer: _____

4. $\frac{18}{10}$

$\frac{\quad \times}{\times} = \_\_\_\_$

$\frac{\quad \div}{\div} = \_\_$

answer: _____

5. $\frac{24}{8}$

answer: _____

6. $\frac{9}{12}$

answer: _____

Check

Use factors and multiples to identify *two* other fractions that are equivalent to $\frac{18}{8}$.

answer: _____

Name _____

Comparing and Ordering Decimals

ML 4.06

Modeled Review

Name: Jack

Order the decimals from *least* to *greatest*.

1. 5.01, 5.1, 0.51

0.51 , 5.01 , 5.1

0.51 has 0 ones, so it is the least.
5.01 has 0 tenths and 5.1 has 1 tenth,
so 5.1 is the greatest.

2. 1.23, 1.32, 1.3

1.23 , 1.3 , 1.32

Guided Practice

Order the decimals from *least* to *greatest*.

1. 2.4 | 0.24 | 2.04

0.24, _____, _____

2. 3.24 | 3.42 | 3.4

_____, _____, 3.42

3. 1.12 | 1.2 | 1.02 | 1.21

1.02, 1.12, _____, _____

4. 0.52 | 5.02 | 5.25 | 0.05

_____, _____, _____, _____

Guided Practice

Order the decimals from *least* to *greatest*.

5. 1.03 | 0.31 | 3.10

_____, _____, _____

6. 4.52 | 2.45 | 5.42

_____, _____, _____

7. 2.32 | 2.23 | 2.2 | 2.25

_____, _____, _____, _____

8. 0.61 | 6.01 | 0.16 | 1.06

_____, _____, _____, _____

Check

Order the decimals from *least* to *greatest*.

1. 0.84 | 8.04 | 0.48 | 4.8

_____, _____, _____, _____

2. 0.17 | 1.07 | 1.71 | 0.71

_____, _____, _____, _____

Name _____

Comparing Decimals and Fractions

ML 4.07

Modeled Review

Name: Tristan

Complete the comparison statement using < , >, or =.

1. $\frac{1}{10}$ ___<___ 1.10

$1.10 = \frac{11}{10}$

2. 0.5 ___=___ $\frac{50}{100}$

3. $\frac{45}{100}$ ___>___ 0.2

$0.2 = \frac{2}{10} = \frac{20}{100}$

Guided Practice

Complete the comparison statement using <, >, or =.

1. 0.3 _____ $\frac{4}{10}$

$0.3 = \frac{3}{10}$

2. $\frac{43}{100}$ _____ 0.65

$0.65 = \frac{65}{100}$

3. $\frac{56}{100}$ _____ 0.4

4. 0.60 _____ $\frac{6}{10}$

5. $\frac{2}{10}$ _____ 0.22

Guided Practice

Complete the comparison statement using <, >, or =.

6. 0.5 _____ $\frac{15}{100}$

7. $\frac{72}{100}$ _____ 0.75

8. 0.3 _____ 0.40

9. 0.28 _____ $\frac{28}{100}$

10. $\frac{4}{10}$ _____ 0.32

Check

Complete the comparison statement using <, >, or =.

1. 0.1 _____ $\frac{1}{10}$

2. $\frac{12}{100}$ _____ 0.15

3. $\frac{6}{10}$ _____ 0.72

4. $\frac{54}{100}$ _____ 0.54

Name _____

Solving Comparison Problems Using Tape Diagrams

ML 5.04

Modeled Review

Name: Clare

Represent each problem with a diagram and solve.

Priya has 4 strawberries. Maya has 6 times as many strawberries as Priya. How many strawberries does Maya have?

Priya [4]

Maya [4][4][4][4][4][4]

6 × 4 = 24

answer: 24 strawberries

Guided Practice

Represent each problem with a diagram and solve.

1. Diego has 6 blueberries. Avery has 5 times as many blueberries as Diego. How many blueberries does Avery have?

Deigo [6]

Avery [6][6][6][6][6]

5 × 6 = _____

answer: _____ blueberries

2. Eva has 8 strawberries. Jack has 4 times as many strawberries as Eva. How many strawberries does Jack have?

Eva [ ]

Jack [ ][ ][ ][ ]

4 × 8 = _____

answer: _____

Guided Practice

Represent each problem with a diagram and solve.

3. Han has 2 apples. Shawn has 4 times as many apples as Han. How many apples does Shawn have?

Han ☐

Shawn

answer: _____

4. Kai has 5 peaches. Eva has 2 times as many peaches as Kai. How many peaches does Eva have?

answer: _____

5. Santiago has 3 pears. Avery has 6 times as many pears as Santiago. How many pears does Avery have?

answer: _____

Check

Represent the problem with a diagram and solve.

Priya has 9 blackberries. Jada has 3 times as many blackberries as Priya. How many blackberries does Jada have?

answer: _____

Name _____

Solving Multiplicative Comparison Problems

ML 5.05

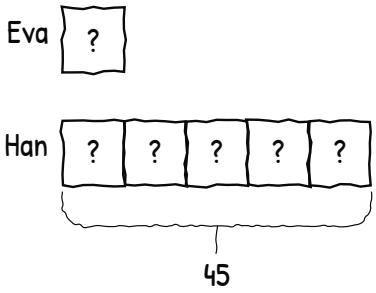
Modeled Review

Name: Tristan

Eva has some stickers. Han has 45, which is 5 times as many stickers as Eva has. How many stickers does Eva have?

$5 \times ? = 45$

$45 \div 5 = ?$



answer: 9 stickers

Guided Practice

Solve each problem to determine the unknown value. Show your thinking.

1. Avery has some trading cards. Jada has 24, which is 6 times as many trading cards as Avery has. How many trading cards does Avery have?

answer: _____ trading cards

2. Maya has 7 beads and Diego has 28 beads. How many times as many beads does Diego have compared to the number of beads that Maya has?

answer: _____ times as many

Guided Practice

Solve each problem to determine the unknown value. Show your thinking.

3. Dylan has some baseballs. Han has 27, which is 3 times as many baseballs as Dylan has. How many baseballs does Dylan have?

answer: _____

4. Shawn has 6 tennis balls and Clare has 42. How many times as many tennis balls does Clare have compared to the number of tennis balls that Shawn has?

answer: _____

5. Tristan scored some points in basketball. Priya scored 18, which is 6 times as many points as Tristan scored. How many points did Tristan score?

answer: _____

Check

Solve the problem to determine the unknown value. Show your thinking.

Jack scored some points in football. Santiago has 21, which is 3 times as many points as Jack has. How many points does Jack have?

answer: _____

Name _____

Applying Measurement Conversions to Compare Different Units

ML 5.17

Modeled Review

Name: Tristan

Use measurement conversion and compare using <, >, or = to solve the problem. Show your thinking.

Dylan loves broccoli. Would he rather have 2 pounds or 30 ounces of broccoli?

1 pound = 16 ounces
2 × 16 = 32 ounces
2 pounds > 30 ounces

Dylan would rather have 2 pounds of broccoli.

Guided Practice

Use measurement conversion and compare using <, >, or = to solve each problem.

1. Clare does not like running. Would she rather run down a 2 kilometer trail or a 3,000 meter trail?

1 kilometer = 1,000 meters

2 × 1,000 = _____ meters

2 kilometers _____ 3,000 meters

Clare would rather run down a _____ trail.

2. Han enjoys running long distances. Would he rather run on a course that is 1,000 yards long or 900 feet long?

1 yard = 3 feet

1,000 × 3 = _____

Han would rather run on a course that is _____ long.

Guided Practice

Use measurement conversion to solve each problem.

3. Maya wants to make a large batch of strawberry jam. Would she rather have 60 ounces or 4 pounds of strawberries to make the jam?

Maya would rather have _____ of strawberries.

4. Diego is collecting milk from his dairy cows to sell at the market. Would he rather collect 1,500 milliliters or 15 liters?

Diego would rather collect _____ of milk.

5. Priya does not enjoy chores. Would she rather have 110 minutes of chores or 2 hours?

Priya would rather have _____ of chores.

Check

Use measurement conversion to solve the problem.

Santiago does not enjoy hiking. Would he rather hike a trail that is 14 kilometers or 15,000 meters?

Santiago would rather hike the _____ trail.

Name _____

Dividing Multi-Digit Numbers Using Partial Quotients

ML 6.14

Modeled Review

Name: Diego

Calculate the quotient.

672 ÷ 3 = 224

```
3)672
 -600      3 × 200      200
  72                      20
 -60       3 × 20     +   4
  12                     224
 -12       3 × 4
   0
```

Guided Practice

Calculate the quotient.

1. 245 ÷ 5 = _____

```
5)245
 -200      5 × 40       40
  45                   +  9
 -45       5 × 9        [ ]
   0
```

2. 1,233 ÷ 3 = _____

```
3)1,233
 -1,200    3 × 400      400
    33                  +[ ]
  -[ ]     3 ×[ ]       [ ]
   [ ]
```

Guided Practice

Calculate the quotient.

3. 920 ÷ 2 = _____

$2\overline{)920}$

4. 2,416 ÷ 4 = _____

$4\overline{)2,416}$

5. 292 ÷ 4 = _____

6. 1,120 ÷ 5 = _____

Check

Calculate the quotient.

856 ÷ 4 = _____

Name _____

Classifying Triangles Based on Their Angles

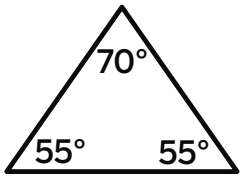
ML 7.13

Modeled Review

Name: Kai

Name the type of triangle using the word bank. Explain your thinking.

acute triangle	obtuse triangle	right triangle



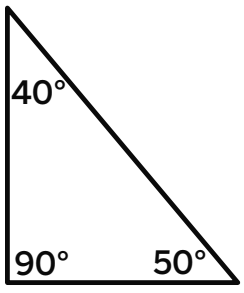
type of triangle: acute triangle

It does not have a right angle. It has three angles that are all less than 90°.

Guided Practice

Check the attribute that describes each triangle. Then name the type of triangle.

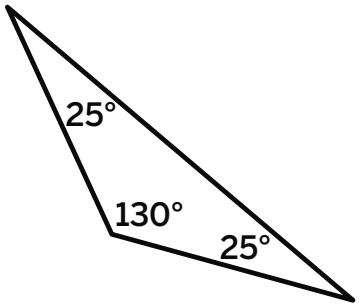
1.



- ☐ Has a right angle
- ☐ Has all acute angles
- ☐ Has an obtuse angle

type of triangle: _____

2.



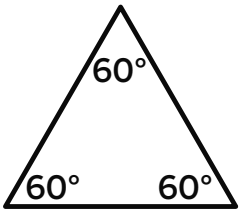
- ☐ Has a right angle
- ☐ Has all acute angles
- ☐ Has an obtuse angle

type of triangle: _____

Guided Practice

For Problems 3 and 4, check the attribute that describes each triangle. Then name the type of triangle.

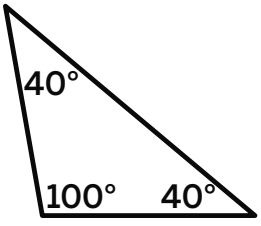
3.



- ☐ Has a right angle
- ☐ Has all acute angles
- ☐ Has an obtuse angle

type of triangle: _____

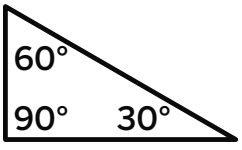
4.



- ☐ Has a right angle
- ☐ Has all acute angles
- ☐ Has an obtuse angle

type of triangle: _____

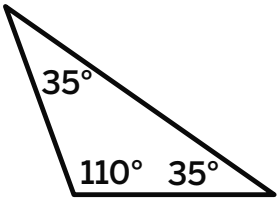
5. Name the type of triangle. Explain your thinking.



type of triangle: _____

Check

Name the type of triangle. Explain your thinking.



type of triangle: _____

Name _____

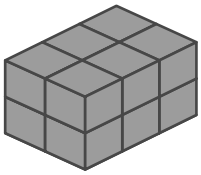
Using the Structure of Rectangular Prisms to Determine Volume

ML 1.04

Modeled Review

Name: Gabriela

Determine the volume of the prism. Show or explain your thinking.

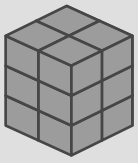
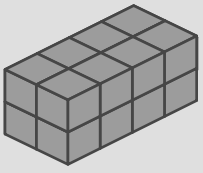
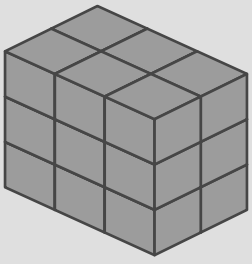


The bottom layer has 6 cubes.
There are 2 layers. 2 layers of
6 cubes is 12 cubes.

answer: 12 cubic units

Guided Practice

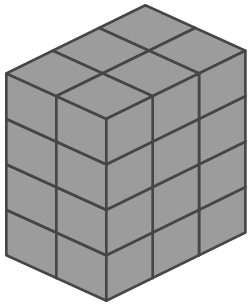
1. Complete the table.

Prism	Number of cubes in the bottom layer	Number of layers	Volume (cubic units)
	4	3	
	8		
			

Guided Practice

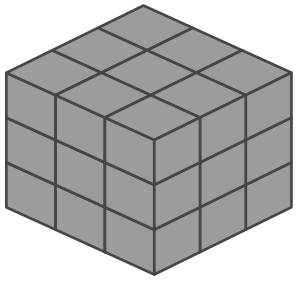
Determine the volume of each prism. Show or explain your thinking.

2.



answer: _____

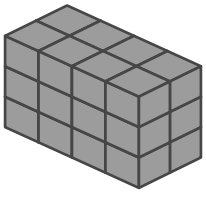
3.



answer: _____

Check

Determine the volume of the prism. Show or explain your thinking.



answer: _____

Name _____

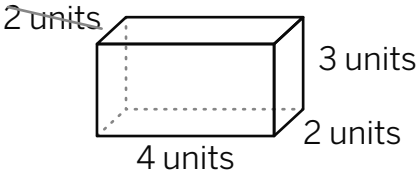
Determining the Volume of Solid Rectangular Prisms

ML 1.06

Modeled Review

Name: Han

Determine the volume of the prism in cubic units.



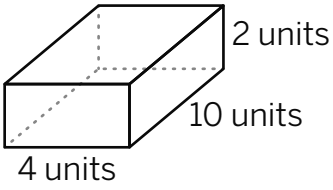
V = length × width × height
V = l × w × h
V = 4 × 2 × 3

answer: 24 cubic units

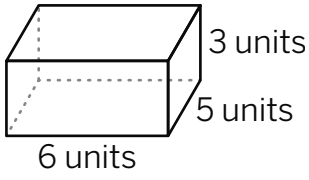
Guided Practice

1. Use the prisms to complete the table.

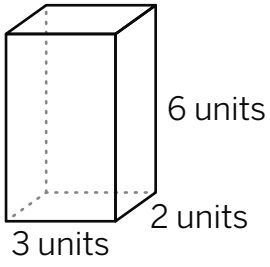
Prism A



Prism B



Prism C

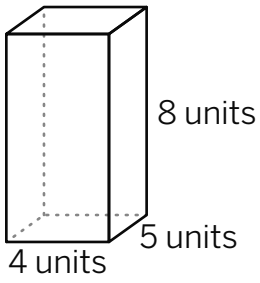


	length × width × height	volume (cubic units) $V = l \times w \times h$
Prism A	4 × 10 × 2	80 cubic units
Prism B	6 × ___ × ___	
Prism C	___ × ___ × ___	

Guided Practice

Determine the volume of each prism. Show or explain your thinking.

2.



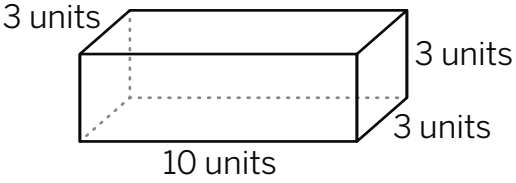
$V = l \times w \times h$

$V = 4 \times 5 \times 8$

$V =$ _____

answer: _____ cubic units

3.



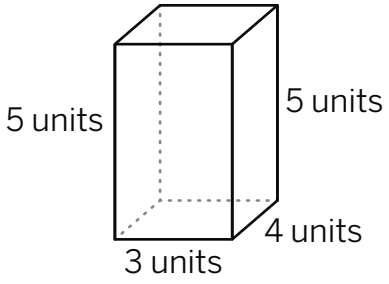
$V = l \times w \times h$

$V =$ _____ × _____ × _____

$V =$ _____

answer: _____

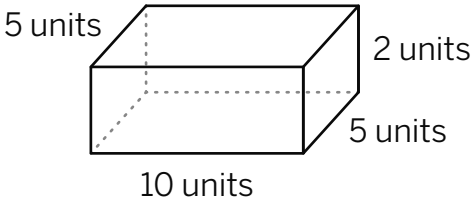
4.



answer: _____

Check

Determine the volume of the prism. Show or explain your thinking.



answer: _____

Name _____

Explaining the Relationship Between Fractions and Division

ML 2.05

Modeled Review

Consider the equation $a \div b = \frac{a}{b}$.	
The fraction $\frac{a}{b}$ will be *less* than 1 if the dividend is less than the divisor.	$4 \div 5 = \frac{4}{5}$
The fraction $\frac{a}{b}$ will be *greater* than 1 if the dividend is greater than the divisor.	$5 \div 4 = \frac{5}{4}$ or $1\frac{1}{4}$
The fraction $\frac{a}{b}$ will be *equal to a whole number* if the dividend is a multiple of the divisor.	$15 \div 5 = \frac{15}{5}$ or 3

Guided Practice

1. Circle the equations that are true.

$b \div 5 = \frac{b}{5}$ $\quad$ $3 \div a = \frac{a}{3}$ $\quad$ $6 \div a = \frac{6}{a}$

$7 \div 3 = \frac{3}{7}$ $\quad$ $4 \div 2 = \frac{4}{2}$ $\quad$ $8 \div 5 = \frac{8}{5}$

Complete the equations.

2. $a \div 3 = \frac{a}{\_\_}$ $\quad$ **3.** $9 \div 2 =$ ___ $\quad$ **4.** $5 \div a =$ ___

5. $8 \div 6 =$ ___ $\quad$ **6.** $b \div 4 =$ ___ $\quad$ **7.** $2 \div 4 =$ ___

Guided Practice

8. Complete the table by rewriting the equation $a \div b = \frac{a}{b}$ using the values in each row.

a	*b*	Equation
3	5	$3 \div 5 = \frac{3}{5}$
8	2	
3	4	

9. Are all of your equations true? How do you know?

Check

Determine whether the equation $4 \div a = \frac{4}{a}$ is *true* or *false*. Explain your thinking.

Name _____

Multiplying Whole Numbers by Fractions and Mixed Numbers

ML 2.14

Modeled Review

Name: Diego

Evaluate the expressions. Explain your thinking.

1. $\frac{7}{4} \times 12$

$\frac{(7 \times 12)}{4}$

$84 \div 4 = 21$

2. $3\frac{2}{5} \times 8$

$(8 \times 3) + (8 \times \frac{2}{5})$

$24 + \frac{16}{5}$

$\frac{16}{5} = 3\frac{1}{5}$

$24 + 3\frac{1}{5} = 27\frac{1}{5}$

Guided Practice

Evaluate the equations.

1. $\frac{1}{4} \times 16 =$ _____

2. $\frac{5}{9} \times 3 =$ _____

3. $\frac{1}{12} \times 24 =$ _____

Guided Practice

4. Evaluate the expressions in the table.

Expression	Work	Solution
$7\frac{2}{3} \times 3$	$(3 \times 7) + (3 \times \frac{2}{3})$	
$2\frac{3}{4} \times 3$	$(3 \times \_\_\_) + (3 \times \_\_\_)$	
$\frac{7}{3} \times 4$		
$6\frac{3}{4} \times 5$		
$\frac{15}{2} \times 5$		

Check

Evaluate the equations. Show your thinking.

1. $\frac{14}{3} \times 6 =$ _____

2. $3\frac{4}{5} \times 5 =$ _____

Name _____

Multiplying With Fractions and Mixed Numbers

ML 3.07

Modeled Review

Name: Priya

Determine the product of each expression. Show your thinking.

1. $\frac{2}{4} \times \frac{2}{3}$

$\frac{2}{4} \times \frac{2}{3} = \frac{2 \times 2}{4 \times 3} = \frac{4}{12}$

answer: $\frac{4}{12}$

2. $2\frac{2}{5} \times \frac{3}{4}$

$2\frac{2}{5} = \frac{5}{5} + \frac{5}{5} + \frac{2}{5} = \frac{12}{5}$ $\quad \frac{12 \times 3}{5 \times 4} = \frac{36}{20}$

answer: $\frac{36}{20}$

Guided Practice

Determine the product of each expression. Show your thinking.

1. $\frac{2}{3} \times \frac{3}{4}$

$\frac{2}{3} \times \frac{3}{4} = \frac{2 \times 3}{3 \times 4} = \frac{6}{\square}$

2. $\frac{4}{5} \times \frac{1}{2}$

$\frac{4}{5} \times \frac{1}{2} = \frac{4 \times 1}{5 \times 2} = \frac{\square}{10}$

3. $\frac{5}{6} \times \frac{1}{4}$

4. $\frac{4}{5} \times \frac{2}{3}$

5. $2\frac{1}{4} \times \frac{2}{5}$

$2\frac{1}{4} = \frac{4}{4} + \frac{4}{4} + \frac{1}{4} = \frac{\square}{4}$

$\frac{9}{4} \times \frac{2}{5} = \frac{\square \times 2}{4 \times 5} = \frac{\square}{\square}$

6. $2\frac{1}{3} \times \frac{4}{6}$

$2\frac{1}{3} = \frac{\square}{3} + \frac{\square}{3} + \frac{1}{3} = \frac{\square}{\square}$

$\frac{\square}{3} \times \frac{4}{6} = \frac{\square \times \square}{\square \times \square} = \frac{\square}{\square}$

Guided Practice

Determine the product of each expression. Show your thinking.

7. $1\frac{2}{4} \times \frac{2}{3}$

$1\frac{2}{4} =$

answer: _____

8. $1\frac{3}{4} \times \frac{2}{3}$

answer: _____

Check

Determine the product of each expression. Show your thinking.

1. $\frac{3}{4} \times \frac{4}{5}$

answer: _____

2. $2\frac{2}{3} \times \frac{2}{5}$

answer: _____

Name _____

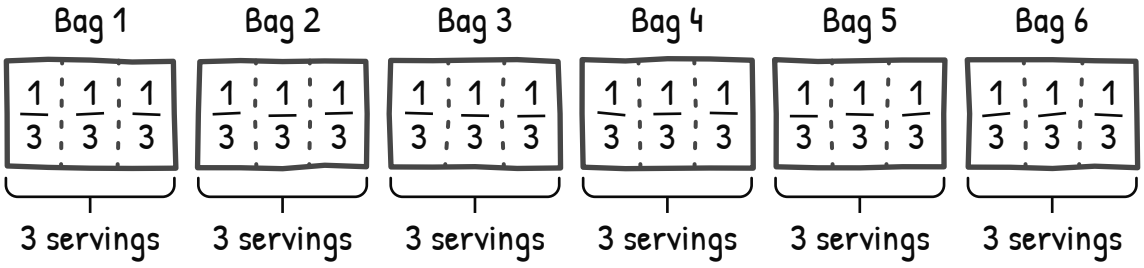
Representing Dividing Whole Numbers by Unit Fractions

ML 3.12

Modeled Review

Name: Jada

One serving of popcorn is $\frac{1}{3}$ of a bag. How many servings are there in 6 bags?



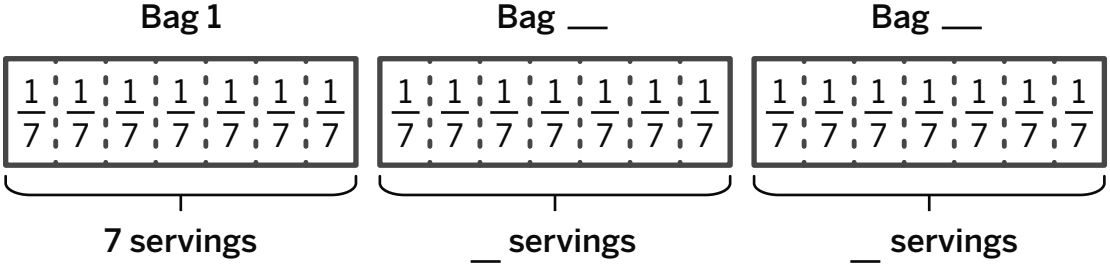
$6 \times 3 = 18$ servings

equation: $6 \div \frac{1}{3} = 18$ **answer:** 18 servings

Guided Practice

Fill in the missing information in the diagram to show your thinking.

1. One serving of pretzels is $\frac{1}{7}$ of a bag. How many servings are there in 3 bags?

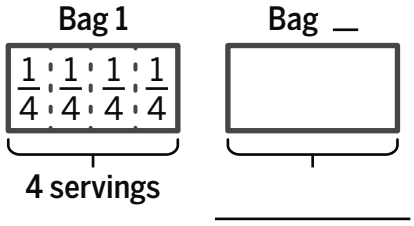


equation: $3 \div \frac{1}{7} =$ _____ **answer:** _____

Guided Practice

Write a division equation to represent the situation. Then solve the problem. Show or explain your thinking.

2. One serving of granola is $\frac{1}{4}$ of a bag. How many servings are in 2 bags?



equation: _____ **answer:** _____

3. One serving of hamburger is $\frac{1}{3}$ pounds. How many hamburgers can be made with 5 pounds of hamburger meat?

equation: _____ **answer:** _____

Check

Write a division equation to represent the situation. Then solve the problem. Show or explain your thinking.

One serving of dog food is $\frac{1}{6}$ of a can. How many servings are there in 4 cans?

equation: _____ **answer:** _____

Name _____

Connecting Division Expressions and Story Problems

ML 3.13

Modeled Review

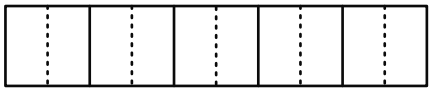
Story problem	Jada has 2 pounds of fish. She wants to serve each person $\frac{1}{4}$ pound of fish. How many people can she serve?	Jada and her friend split $\frac{1}{4}$ pound of fish evenly between them. How much fish does each person get?
Problem type	"how many parts"	equal sharing
Expression	$2 \div \frac{1}{4}$ starting amount; size of each part	$\frac{1}{4} \div 2$ starting amount; number of shares/groups
Size of quotient	larger than 2	less than $\frac{1}{4}$

Guided Practice

Represent each story problem with the matching expression from the bank.

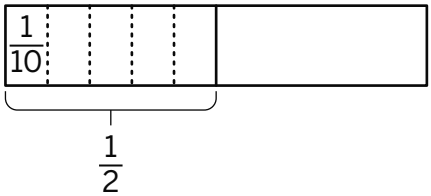
$\frac{1}{2} \div 5$	$5 \div \frac{1}{2}$

1. Jada has 5 cups of popcorn she wants to share with her friends. She gives each friend $\frac{1}{2}$ cup. How many friends were given popcorn?



_____

2. Jada has $\frac{1}{2}$ pound of granola to split with friends. If she shares the granola between her and 4 friends, how much does each person get?



_____

Guided Practice

Represent each story problem with the matching expression from the bank.

$4 \div \frac{1}{3}$	$\frac{1}{3} \div 4$

3. Jada has $\frac{1}{3}$ of a bag of dog food for her dog over the next 4 days. How much of the bag of food can her dog eat each day?

_____

4. Jada bought 4 pounds of fruit at the market. A serving size of fruit is $\frac{1}{3}$ pound. How many single servings will Jada be able to make?

_____

5. Jada brings 4 sub sandwiches to a picnic. She wants to cut each sandwich into thirds. How many people will she be able to serve?

_____

6. Jada picked $\frac{1}{3}$ pound of blueberries. She wants to share the blueberries equally among her four friends. How many pounds of blueberries will each friend get?

_____

Check

Represent each story problem with the matching expression from the bank.

$\frac{1}{4} \div 3$	$3 \div \frac{1}{4}$

1. Jada has 3 cups of popcorn. She gives each friend $\frac{1}{4}$ cup. How many friends were given popcorn?

_____

2. Jada buys $\frac{1}{4}$ pound of granola to share between her and 2 friends. How much granola does each person get?

_____

Name _____

Finding Products Using the Standard Algorithm With Composing in More Than One Place

ML 4.08

Modeled Review

Name: Jack

Determine the product using the standard algorithm.

583 × 67 = 39,061

```
    4 1
    5 2
    5 8 3
×       6 7
-----------
    4, 0 8 1
+ 3 4, 9 8 0
-----------
  3 9, 0 6 1
```

Guided Practice

Determine the product using the standard algorithm.

1. 749 × 58 = _____

```
    2 4
    3 7
    7 4 9
×       5 8
-----------
    5, 9 9 2
+ 3 7, 4 5 0
-----------
  [ ][ ][ ][ ][ ]
```

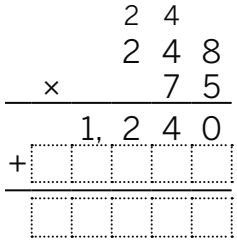
2. 326 × 89 = _____

```
      2 5
      3 2 6
×       8 9
-----------
    2, 9 3 4
+ [ ][ ][ ][ ] 0
-----------
  [ ][ ][ ][ ][ ]
```

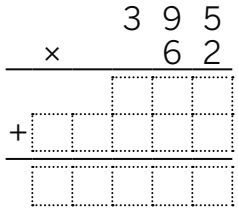
Guided Practice

Determine the product using the standard algorithm.

3. 248 × 75 = _____



4. 395 × 62 = _____



5. 417 × 86 = _____

6. 539 × 94 = _____

Check

Determine the product using the standard algorithm.

462 × 74 = _____

Name ______________________________

Dividing Four-Digit Dividends by Two-Digit Divisors Without Remainders

ML 4.12

Modeled Review

Name: Jack

Determine the quotient.

5,676 ÷ 12 = 473

```
12 | 5, 6  7  6      (5 crossed out → 4; 6 crossed out → 16)
   - 4, 8  0  0      12 × 400
   ------------
        8  7  6
      - 8  4  0      12 × 70      473
      ---------
           3  6
         - 3  6      12 × 3
         ------
              0
```

Guided Practice

Determine the quotient.

1. 8,640 ÷ 18 = ________

```
18 | 8, 6  4  0
   - 7, 2  0  0      18 × 400
   ------------                 [ ]
     1, 4  4  0
   - 1, 4  4  0      18 × 80
   ------------
              0
```

2. 9,801 ÷ 27 = ________

```
27 | 9, 8  0  1
   - 8, 1  0  0      27 × 300
   ------------
     1, 7  0  1                 [ ]
   - 1, 6  2  0      27 × 60
   ------------
          [ ][ ]
        - [ ][ ]     27 × [ ]
   ------------
             [ ]
```

Guided Practice

Determine the quotient.

3. 7,488 ÷ 24 = _____

$$24\overline{)7{,}488}$$
$$-\ 7{,}200$$
$$-$$

24 × ☐ = ☐

☐ × ☐

4. 7,920 ÷ 12 = _____

$$12\overline{)7,\ 9\ 2\ 0}$$

5. 9,408 ÷ 16 = _____

$$16\overline{)9{,}408}$$

6. 8,670 ÷ 15 = _____

Check

Determine the quotient.

6,480 ÷ 15 = _____

Name _____

Determining Missing Side Lengths in Area and Volume Problems

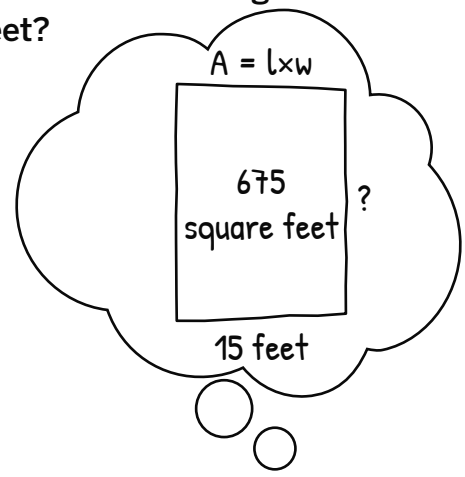
ML 4.14

Modeled Review

Name: Santiago

A rectangular garden has an area of 675 square feet and a length of 15 feet. What is the width of the garden, in feet?

$$\begin{array}{r|l} 15 & 675 \\ -600 & 15 \times 40 \\ \hline 75 & \\ -75 & 15 \times 5 \\ \hline 0 & \end{array} \qquad \begin{array}{r} 40 \\ +\ 5 \\ \hline 45 \end{array}$$

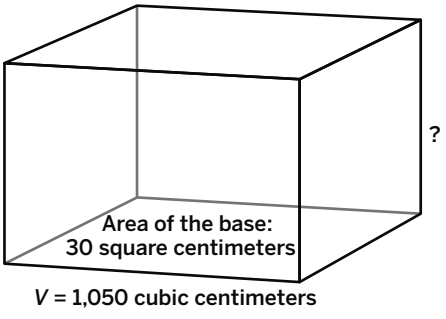


answer: 45 feet

Guided Practice

Determine the missing height of the prism in feet, using $V = B \times h$.

1. A rectangular prism has a volume of 1,050 cubic centimeters. The area of the base is 30 square centimeters. What is the height of the prism, in centimeters?



$$\begin{array}{r|l} 30 & 1,050 \\ -\ 900 & 30 \times 30 \\ \hline \square\square\square & \\ \square\square\square & \square\square \\ \hline \square & \end{array} \qquad \begin{array}{r} 30 \\ +\ \square \\ \hline \square\square \end{array}$$

answer: _____ centimeters

Guided Practice

Determine the missing dimension in each problem, using $A = b \times h$ or $V = B \times h$.

2. A rectangular garden has an area of 1,272 square feet and a width of 53 feet. What is the length of the garden, in feet?

answer: _____

3. A rectangular prism has a volume of 854 cubic feet. The area of the base is 61 square feet. What is the height of the prism in feet?

answer: _____

Check

A rectangular garden has an area of 725 square feet and a length of 25 feet. What is the width of the garden, in feet?

answer: _____

Name _____

Selecting Equations With Parentheses to Represent Multi-Step Story Problems

ML 4.17

Modeled Review

Name: Maya

Which equation represents the story problem?

A school orders 156 whiteboard markers each month to be split evenly between 12 teachers. How many markers does each teacher receive after 10 months?

A. (156 × 12) ÷ 10 = ?

B. (156 ÷ 12) ÷ 10 = ?

C. (156 ÷ 10) × 12 = ?

D. (156 ÷ 12) × 10 = ?

Guided Practice

For Problems 1 and 2, select an expression that matches the problem.

1. A school purchases 24 packs of paper each month to split evenly between 3 printers. How many packs of paper are purchased for each printer after 4 months?

A. (24 ÷ 3) × 4

B. (24 ÷ 4) × 3

2. Twice a year, a school purchases 80 packs of pencils for 8 classrooms. How many packs of pencils does each classroom get per year?

A. (80 × 2) ÷ 8

B. (8 × 2) × 80

Guided Practice

For Problems 3–5, select the equation that represents the problem.

3. A school purchases 20 new books for the class library that are split between 5 bookshelves. If the school purchases books 4 times a year, how many books are on each bookshelf at the end of the year?

A. $(20 \times 5) \div 4 = ?$
B. $(20 \div 5) \times 4 = ?$
C. $(20 \div 5) \div 4 = ?$
D. $(20 \div 4) \times 5 = ?$

4. Three times a year, a school purchases 200 erasers for 12 classrooms. How many erasers does each classroom receive for the entire year?

A. $(200 \div 12) \div 3 = ?$
B. $(200 \div 3) \times 12 = ?$
C. $(200 \times 12) \div 3 = ?$
D. $(200 \times 3) \div 12 = ?$

5. A teacher purchases 125 highlighters for 25 students. If she purchases that same amount twice during the year, how many highlighters does each student receive?

A. $(125 \times 25) \div 2 = ?$
B. $(125 \div 2) \times 25 = ?$
C. $(125 \div 25) \times 2 = ?$
D. $(125 \div 2) \div 25 = ?$

Check

Which equation represents the story problem?

A principal purchases 75 stickers to split evenly between 5 teachers. If she purchases stickers three times a year, how many stickers does each teacher receive by the end of the year?

A. $(75 \div 5) \times 3 = ?$
B. $(75 \times 5) \div 3 = ?$
C. $(75 \div 3) \times 5 = ?$
D. $(75 \div 5) \div 3 = ?$

Name _____

Interpreting and Comparing Written and Numerical Expressions

ML 4.18

Modeled Review

Name: Han

Without evaluating, complete the comparison using <, >, or =.

700 divided by 100 is less than 700 divided by 10.

(700 ÷ 100) + 30 __<__ (700 ÷ 10) + 30

Guided Practice

Match each written expression with a numerical expression that represents it.

1.

Two less than the quotient of 925 and 5.	2 × (925 × 5)
Double the product of 925 and 5.	(925 ÷ 5) – 2

2.

Two more than the product of 925 and 5.	(5 – 2) × 925
The difference between 925 and 5, divided by 2.	(925 – 5) ÷ 2
The difference between 5 and 2, multiplied by 925.	2 + (925 × 5)

Guided Practice

3. Without evaluating, complete the comparison using <, >, or =.

100 ÷ 10 _____ 50 ÷ 5

7 × (1,720 + 523) _____ 3 × (1,720 + 523)

(1,500 ÷ 10) + 5 _____ (1,500 ÷ 100) + 5

3 × (545 – 400) _____ (3 × 545) – 400

2 + (725 – 200) _____ 2 + (725 + 200)

Check

Without evaluating, complete the comparison using <, >, or =.

1. (600 ÷ 100) + 20 _____ (20 ÷ 10) + 6

2. 2 × (320 – 200) _____ (2 × 320) – 200

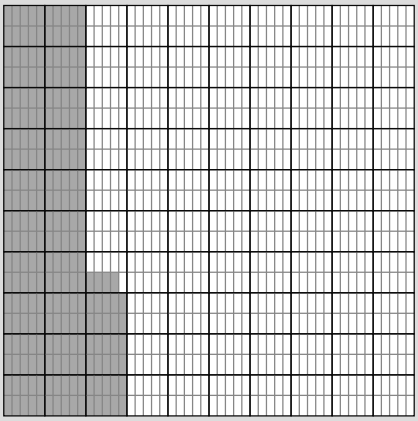
Name _____

Representing Decimals on Grids

ML 5.02

Modeled Review

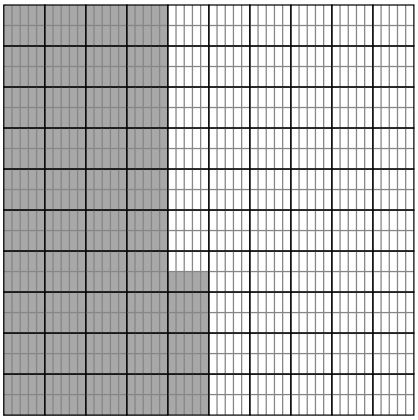
The shaded region of the diagram represents 0.234.



- The 2 shaded columns are each a tenth or 0.1
- The 3 shaded squares are each a hundredth or 0.01.
- The 4 shaded small rectangles are each a thousandth or 0.001.

Guided Practice

1. Each large square represents 1. Fill in the blank to represent the shaded part of the grid.



4 tenths + 3 hundredths + 5 thousandths

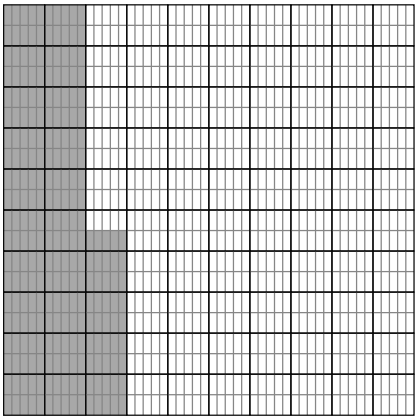
43 hundredths + 5 thousandths

_____ thousandths

Guided Practice

For Problems 2-3, each large square represents 1. Represent the shaded part as a decimal.

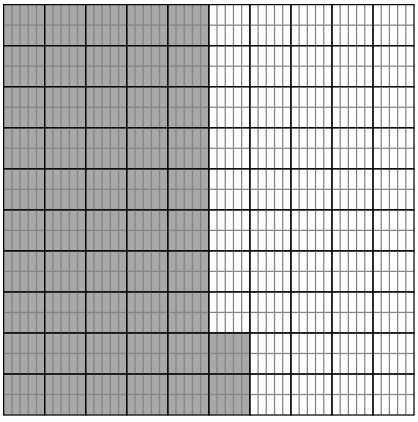
2.



2 tenths + 4 hundredths + 5 thousandths

answer: 0.

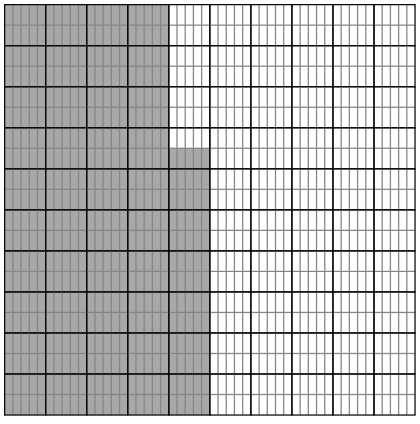
3.



answer: _____

Check

The large square represents 1. Represent the shaded part as a decimal.



answer: _____

Name _____

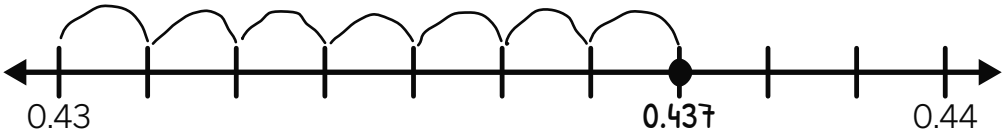
Locating Decimals on Number Lines

ML 5.05

Modeled Review

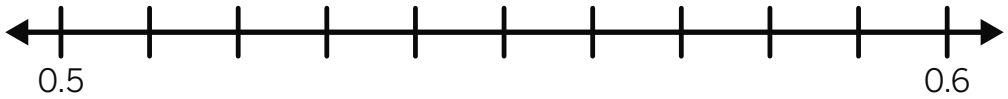
Name: Diego

1. Locate and label 0.437 on the number line.

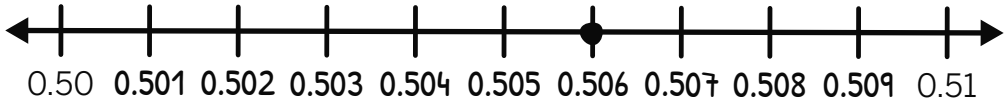


2. Which number line could you use to precisely locate and label 0.506 on a tick mark?

A.



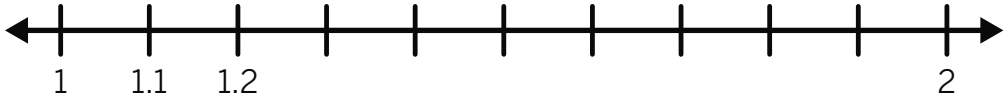
B.



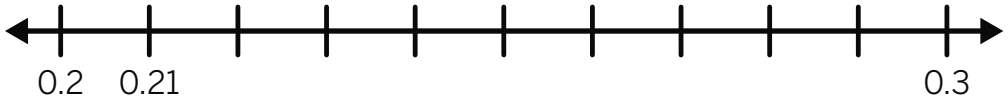
Guided Practice

Locate and label each value on the number line.

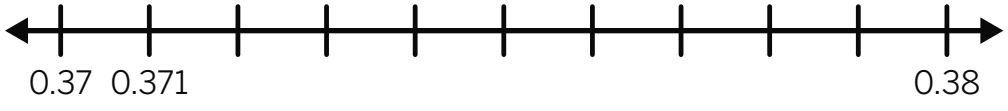
1. 1.6



2. 0.25

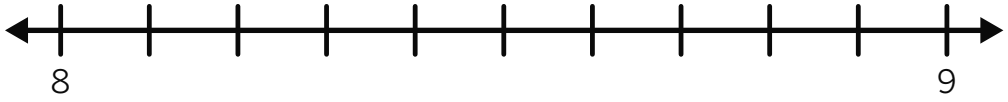


3. 0.376

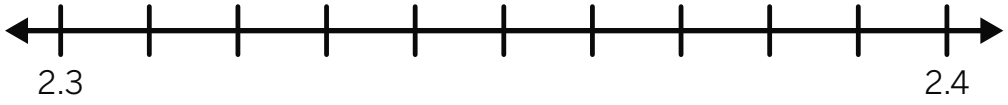


Guided Practice

4. Locate and label 8.7 on the number line.

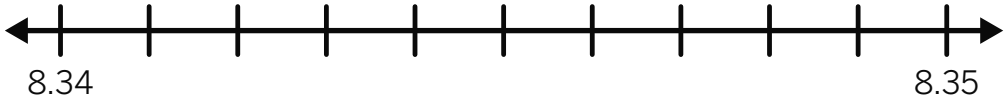


5. Locate and label 2.34 on the number line.

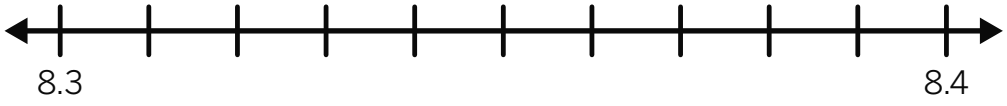


6. Which number line could you use to precisely locate and label 8.346 on a tick mark?

A.

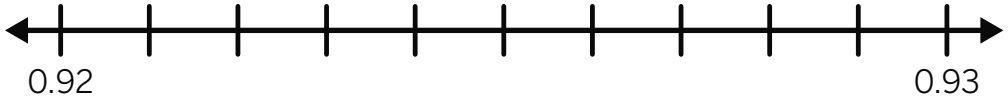


B.



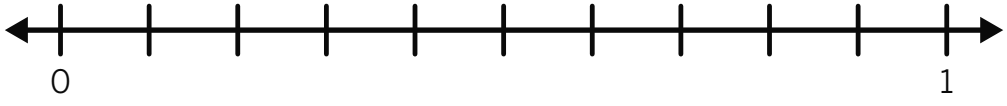
Check

1. Locate and label 0.924 on the number line.

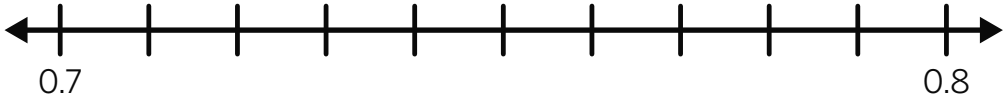


2. Which number line could you use to precisely locate and label 0.703 on a tick mark?

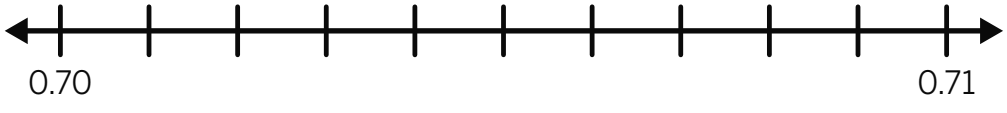
A.



B.



C.



Name _____

Adding Decimals

ML 5.10

Modeled Review

Name: Priya

Determine the sum. Show your thinking.

5.3 + 14.78 = 20.08

```
  1 1
  1 4.7 8
+   5.3 0
  2 0.0 8
```

Guided Practice

Determine the sum.

1. 25.18 + 1.5 = _____

```
  2 5 . 1 8
+     1 . 5 0
  □ □ . 6 8
```

2. 13.66 + 1.45 = _____

```
    1   1
  1 3 . 6 6
+     1 . 4 5
  □ □ . □ 1
```

3. 72.93 + 4.7 = _____

```
    □
  7 2 . 9 3
+     4 . 7 0
  □ □ . □ □
```

4. 51.24 + 9.07 = _____

```
  □   □
  5 1 . 2 4
+     9 . 0 7
  □ □ . □ □
```

Guided Practice

Determine the sum. Show your thinking.

5. 42.61 + 4.3 = _____

6. 20.77 + 1.03 = _____

7. 36.29 + 7.4 = _____

8. 19.58 + 6.41 = _____

Check

Determine the sum. Show your thinking.

1. 12.07 + 7.8 = _____

2. 42.19 + 3.45 = _____

Name _____

Connecting Whole Number and Decimal Multiplication

ML 5.14

Modeled Review

Name: Avery

Determine each product. Show your thinking.

1. 4 × 3 = 12

4 × 3 ones = 12 ones = 12

2. 4 × 0.3 = 1.2

4 × 3 tenths = 12 tenths = 1.2

3. 4 × 0.31 = 1.24

4 × 31 hundredths = 124 hundredths = 1.24

$$\begin{array}{r} 31 \\ \times \quad 4 \\ \hline 124 \end{array}$$

Guided Practice

Determine each product.

1. 5 × 0.3

5 × 3 tenths = ___ tenths

5 × 0.3 = 1.5

2. 4 × 0.12

___ × ___ hundredths = 48 hundredths

4 × 0.12 = _____

3. 2 × 0.32

___ × ___ hundredths = 64 hundredths

___ × _____ = _____

4. 6 × 0.40

___ × ___ hundredths = 240 hundredths

___ × _____ = _____

Guided Practice

Determine each product. Show your thinking.

5. $7 \times 0.2 =$ _____

6. $8 \times 0.3 =$ _____

7. $6 \times 0.5 =$ _____

8. $5 \times 0.9 =$ _____

9. $4 \times 0.15 =$ _____

10. $2 \times 0.51 =$ _____

Check

Determine each product. Show your thinking.

1. $6 \times 0.3 =$ _____

2. $3 \times 0.11 =$ _____

Name _____

Multiplying Decimals Less Than 1

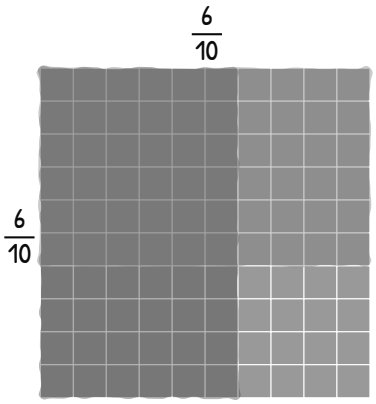
ML 5.16

Modeled Review

Name: Jack

Determine the product.

0.6 × 0.6 = 0.36



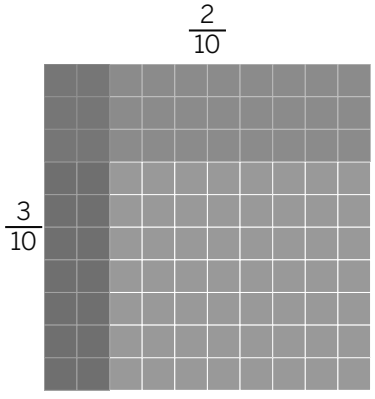
$\frac{6}{10} \times \frac{6}{10} = \frac{36}{100} = 0.36$

Guided Practice

Determine the product.

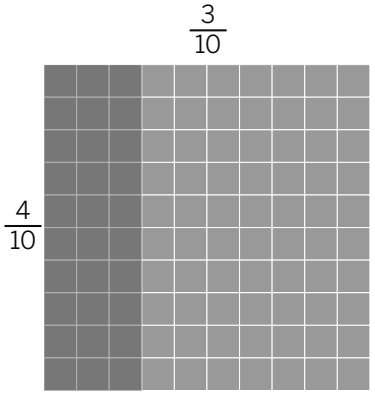
1. 0.3 × 0.2 = _____

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



2. 0.4 × 0.3 = _____

$\frac{\square}{10} \times \frac{\square}{10} =$ ____

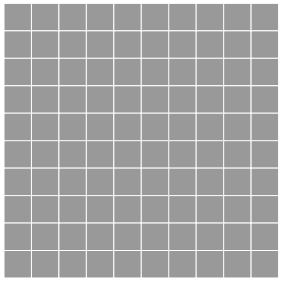


Guided Practice

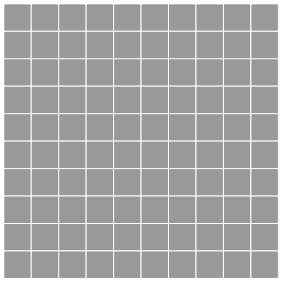
Determine the product.

3. 0.2 × 0.8 = _____

— × — = — = _____



4. 0.3 × 0.6 = _____



5. 0.5 × 0.4 = _____

6. 0.6 × 0.4 = _____

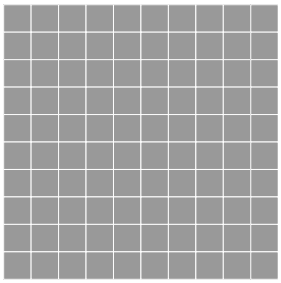
7. 0.7 × 0.3 = _____

8. 0.8 × 0.4 = _____

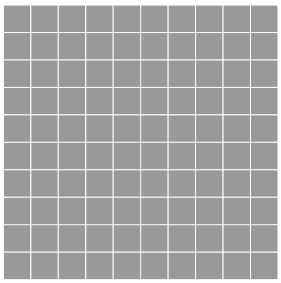
Check

Determine the product. Use a decimal grid if it is helpful.

1. 0.5 × 0.8 = _____



2. 0.3 × 0.9 = _____



Name _____

Multiplying Two Decimals Greater than 1

ML 5.18

Modeled Review

Name: Priya

Determine the product. Show your thinking.

14.6 × 8.2 = 119.72

	14	0.6
8	112	4.8
0.2	2.8	0.12

$$\begin{array}{r} {\scriptstyle 1} \\ 112.00 \\ 4.80 \\ 2.80 \\ +\ \ 0.12 \\ \hline 119.72 \end{array}$$

Guided Practice

Determine the product. Show your thinking.

1. 10.5 × 2.1 = _____

	10	0.5
2	20	1
0.1	1	

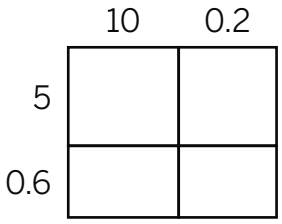
2. 10.8 × 4.3 = _____

	10	0.8
4	40	3.2
0.3	3	

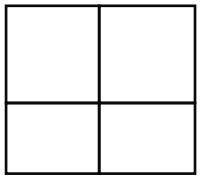
Guided Practice

Determine the product. Show your thinking.

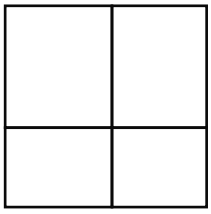
3. 10.2 × 5.6 = _____



4. 11.5 × 7.5 = _____



5. 12.7 × 9.1 = _____



6. 14.3 × 8.6 = _____

Check

Determine the product. Show your thinking.

13.4 × 8.5 = _____

Name _____

Representing Powers of 10 With Exponents

ML 6.02

Modeled Review

Exponential form	10^6 (base: 10; exponent: 6)
Multiplication expression	10 × 10 × 10 × 10 × 10 × 10
Standard form	1,000,000

Guided Practice

Fill in the missing information to make each equation true.

1. $10 = 10^1$

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

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

4. $10 \times 10 \times 10 \times$ ____ $= 10{,}000 = 10^{\square}$

5. $10 \times 10 \times$ ____ $\times$ ____ $\times$ ____ $=$ _____ $= 10^{\square}$

6. $10 \times$ ____ $\times$ ____ $\times$ ____ $\times$ ____ $\times$ ____ $= 1{,}000{,}000 = 10^{\square}$

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

Guided Practice

8. Complete the table by writing the exponential form, a multiplication expression, or the standard form for each power of 10.

Exponential form	Multiplication expression	Standard form
10^4		10,000
	10×10	
10^7		
10^9	$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$	
	$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$	10,000,000,000

Check

Complete the table by writing the exponential form, a multiplication expression, or the standard form for each power of 10.

Exponential form	Multiplication expression	Standard form
10^3		
	10	
		100,000
10^6	$10 \times 10 \times 10 \times 10 \times 10 \times 10$	

Name _____

Converting Millimeters, Centimeters, Meters, and Kilometers

ML 6.06

Modeled Review

Name: Diego

Clare ran 14,500 meters last week. How many kilometers did Clare run?

14,500 ÷ 1,000 = 14.5

1 kilometer = 1,000 meters
1 meter = 100 centimeters
1 centimeter = 10 millimeters

answer: 14.5 kilometers

Guided Practice

Complete the conversions. Show your thinking.

1. 1 kilometer = 1,000 meters

4 kilometers = _____ meters

1,000 × 4 = _____

2. 1 meter = 100 centimeters

6.5 meters = _____ centimeters

3. 1 meter = 1,000 millimeters

_____ meters = 5,000 millimeters

4. 1 centimeter = 10 millimeters

_____ centimeters = 43 millimeters

Guided Practice

Use the information about the caterpillar to complete each conversion. Show your thinking.

5. A caterpillar moves 220 centimeters in 4 minutes. How many meters does the caterpillar move?

answer: _____

6. A caterpillar moves 60 centimeters in 30 seconds. How many millimeters does the caterpillar move?

answer: _____

7. A caterpillar moves 864 centimeters in a day. How many millimeters does the caterpillar move in a day?

answer: _____

8. A caterpillar moves 15 millimeters. How many centimeters did the caterpillar move?

answer: _____

Check

Clare ran a 5,500 meter race. How many kilometers did Clare run? Show your thinking.

answer: _____

Name _____

Representing Data on a Line Plot and Solving Problems

ML 6.18

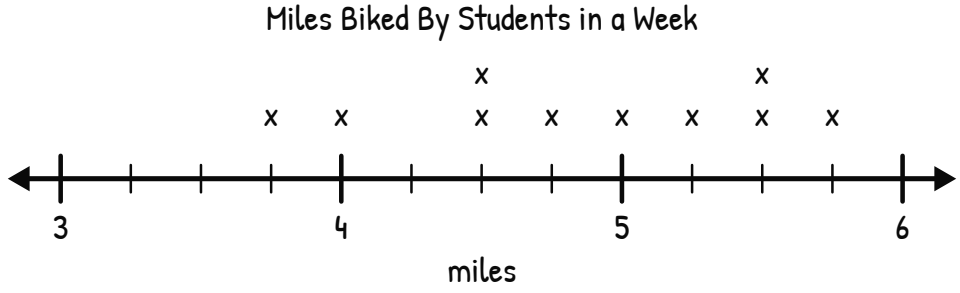
Modeled Review

Name: Avery

Students were surveyed about the number of miles they biked in a week. The results are shown in the table.

$5\frac{1}{4}$	$4\frac{3}{4}$	$5\frac{1}{2}$	$4\frac{1}{2}$	5	$5\frac{3}{4}$	$4\frac{1}{2}$	$5\frac{1}{2}$	4	$3\frac{3}{4}$

1. Represent the data on a line plot. Include a title and label.



2. What is the difference between the greatest number of miles biked and least number of miles biked?

$5\frac{3}{4} - 3\frac{3}{4} = 2$

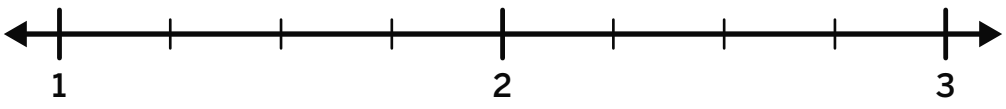
answer: 2 miles

Guided Practice

Represent the data on a line plot. Include a title and label.

1. Han surveyed students about how many hours they practiced a musical instrument each day.

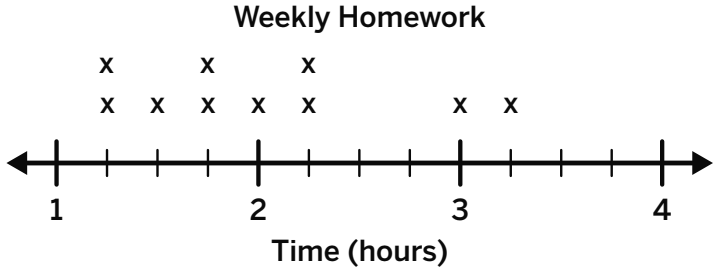
$1\frac{1}{2}$	$2\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{1}{4}$	2	$2\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{3}{4}$



Guided Practice

Several students were surveyed about how many hours they spend on homework in a week. Use the line plot data to answer the questions.

$1\frac{1}{4}$	2	$1\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$
$1\frac{1}{4}$	3	$2\frac{1}{4}$	$1\frac{3}{4}$	$3\frac{1}{4}$



2. How many students completed the survey? **answer:** _____

3. What fraction of the students spent fewer than 3 hours on homework? **answer:** _____

4. What fraction of students spent at least $2\frac{1}{4}$ hours on homework? **answer:** _____

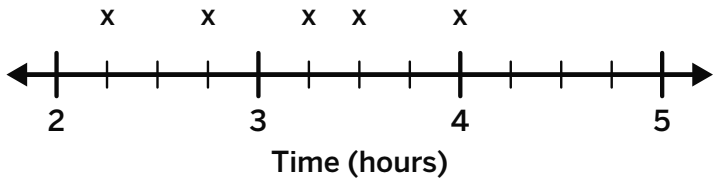
5. What is the difference between the greatest number of hours spent on homework and the least number of hours? **answer:** _____

Check

Complete the line plot and answer the question.

1. Diego keeps track of the time he spends at different soccer practices each month.

$2\frac{3}{4}$	$\frac{4}{}$	$3\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{1}{4}$
$2\frac{3}{4}$	$3\frac{1}{2}$	$2\frac{1}{2}$	$4\frac{1}{4}$	2



2. What is the difference between the greatest number of hours Diego spent practicing and the least number of hours he spent practicing? Show or explain your thinking.

answer: _____

Name _____

Using Line Plots to Solve Problems

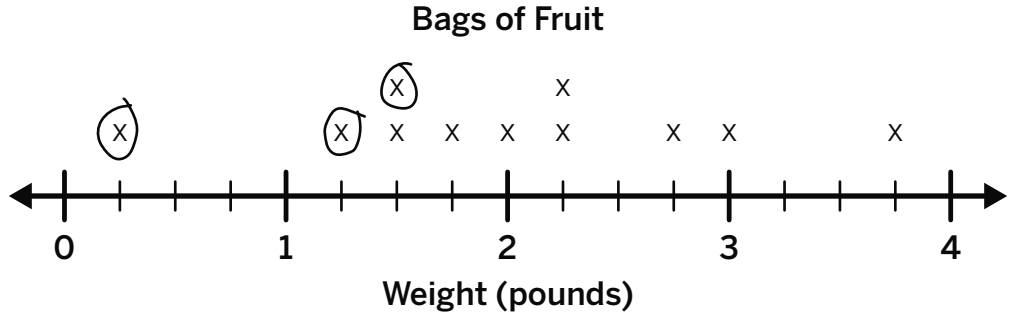
ML 6.19

Modeled Review

Name: Jada

Use the line plot to answer the question.

What is the total combined weight of the three smallest bags of fruit?

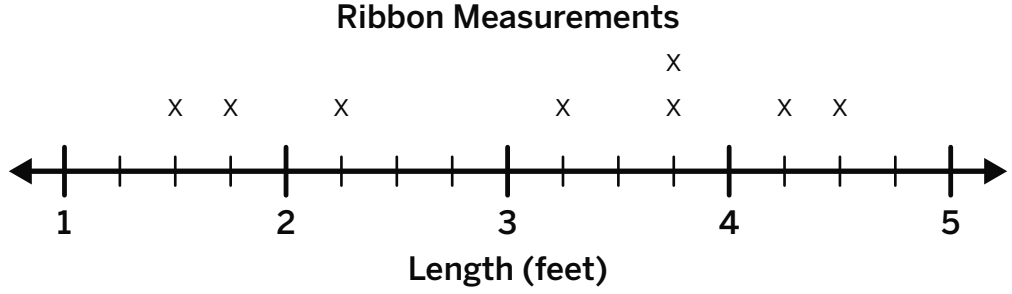


$\frac{1}{4} + 1\frac{1}{4} + 1\frac{2}{4} = 2\frac{4}{4} = 3$

answer: 3 pounds

Guided Practice

Use the line plot data to answer the questions.



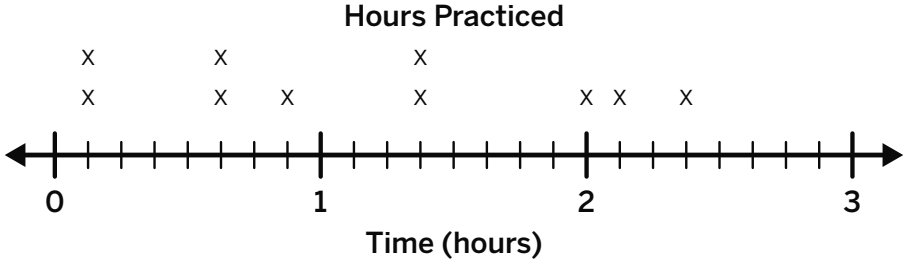
1. How many ribbons are shown in the line plot? **answer:** _____

2. What is the length of the longest ribbon? **answer:** _____

3. How many feet longer is the longest ribbon than the shortest ribbon? **answer:** _____

Guided Practice

Several students were surveyed about how many hours they practice playing an instrument each week. Use the line plot data to answer the questions.



4. What is the combined time for students who practiced 2 or more hours?

answer: _____

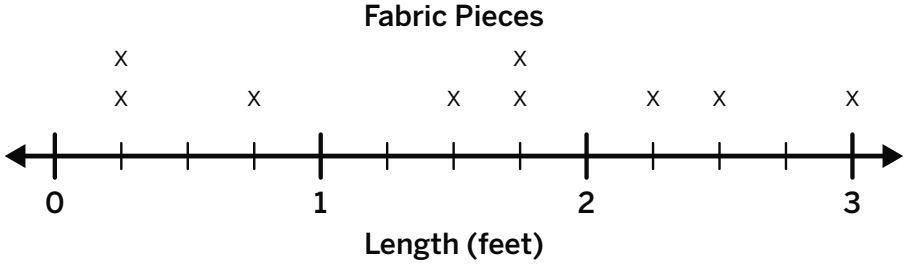
5. How much more time did the student with the greatest number of hours practice than the two students with the least number of hours combined?

answer: _____

Check

Use the line plot data to answer the question.

What is the combined length of fabric pieces that were at least 2 feet?



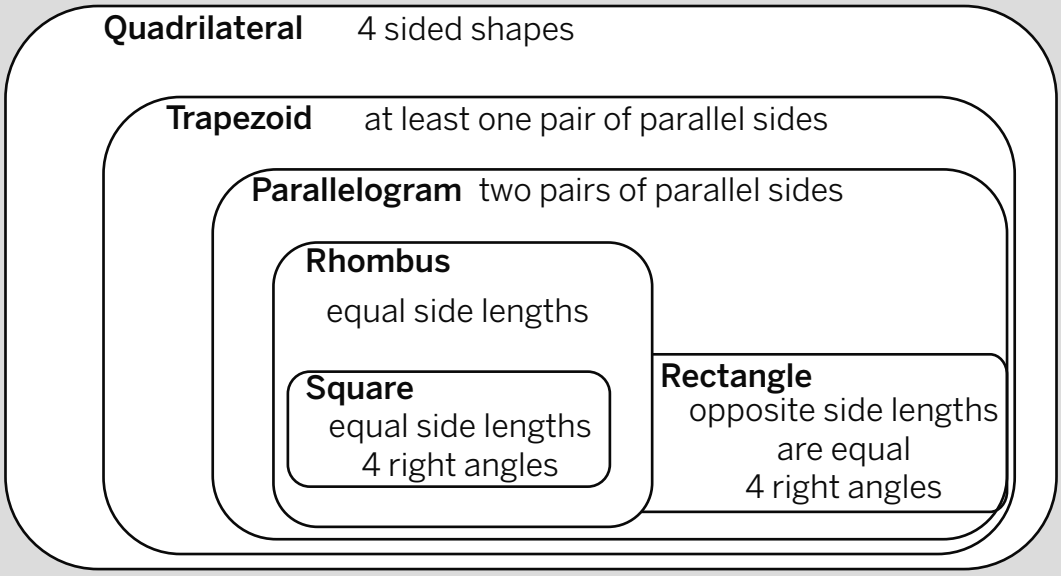
answer: _____

Name _____

Using a Hierarchy to Classify Quadrilaterals

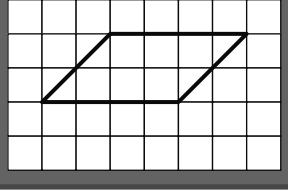
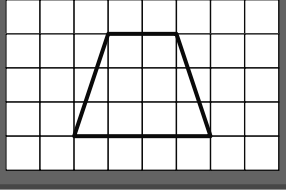
ML 7.04

Modeled Review



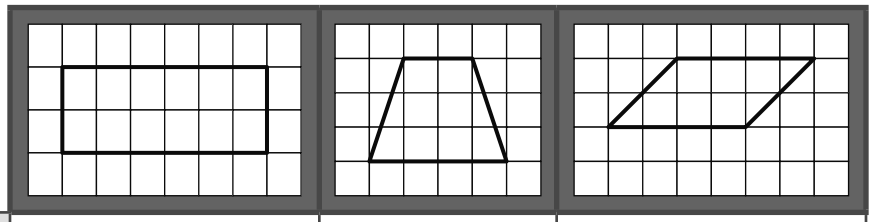
Guided Practice

1. For each shape, determine *all* the possible names that describe it. Place a check mark in the correct column.

		
Quadrilateral	✓	✓
Trapezoid		
Parallelogram		
Rhombus		
Rectangle		
Square		

Guided Practice

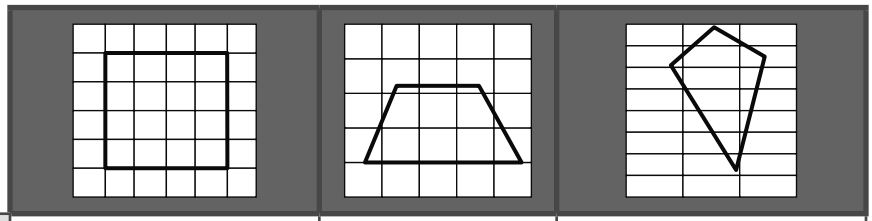
2. For each shape, determine *all* the possible names that describe it. Place a check mark in the correct column.



Quadrilateral			
Trapezoid			
Parallelogram			
Rhombus			
Rectangle			
Square			

Check

For each shape, determine *all* the possible names that describe it. Place a check mark in the correct column.



Quadrilateral			
Trapezoid			
Parallelogram			
Rhombus			
Rectangle			
Square			

Name _____

Using the Coordinate Grid to Locate Points

ML 7.06

Modeled Review

Name: Jack

Describe the location of each point.

1. point *A*

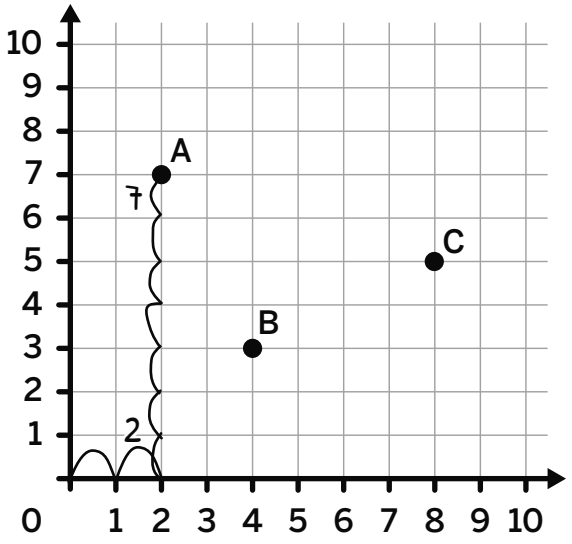
2 units right, then up 7 units

2. point *B*

(4, 3)

3. point *C*

(8, 5)



Guided Practice

Identify the point that is shown by each ordered pair.

1. (3, 5)

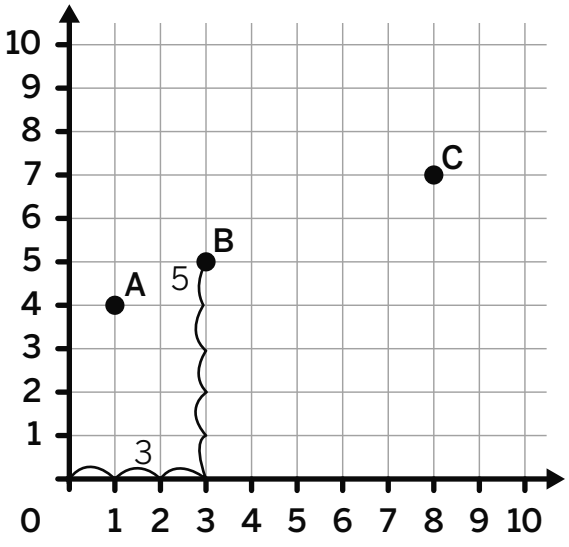
_____

2. (1, 4)

_____

3. (8, 7)

_____



Guided Practice

Use only numbers to describe the location of each given point.

4. point *A*

1 unit to the right, then up 5 units

(1, ____)

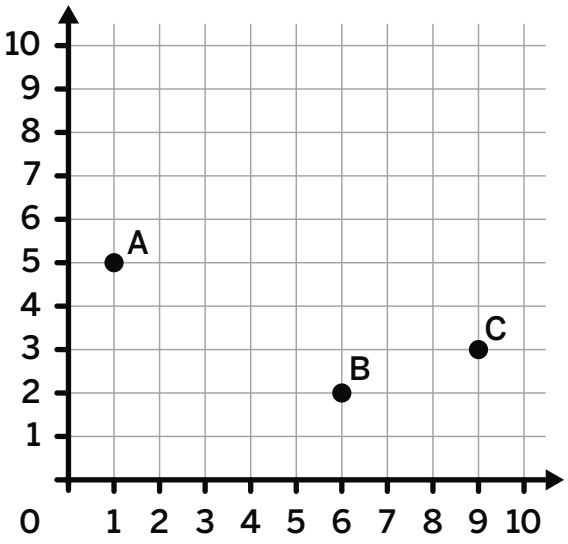
5. point *B*

6 units right, then up 2 units

(____, ____)

6. point *C*

_____



Check

Use only numbers to describe the location of each given point.

1. point *A*

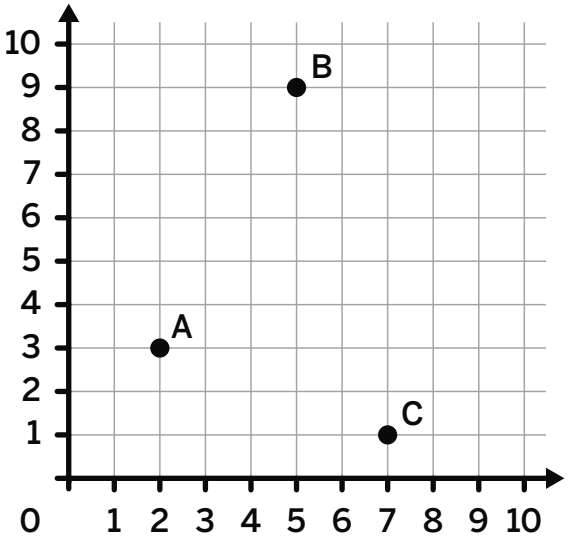
_____

2. point *B*

_____

3. point *C*

_____



Name _____

Plotting Points on the Coordinate Grid

ML 7.07

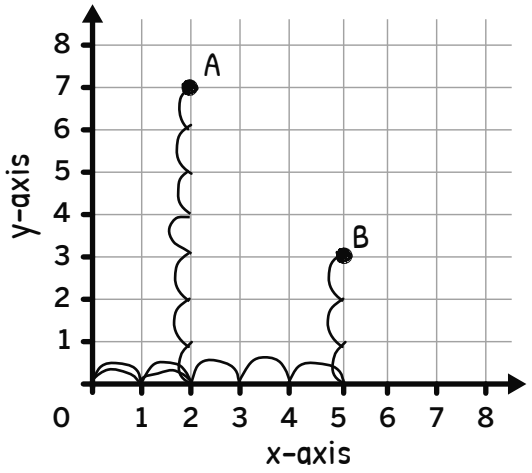
Modeled Review

Name: Eva

Plot and label each point on the coordinate grid.

Point	Ordered pair
A	(2, 7)
B	(5, 3)

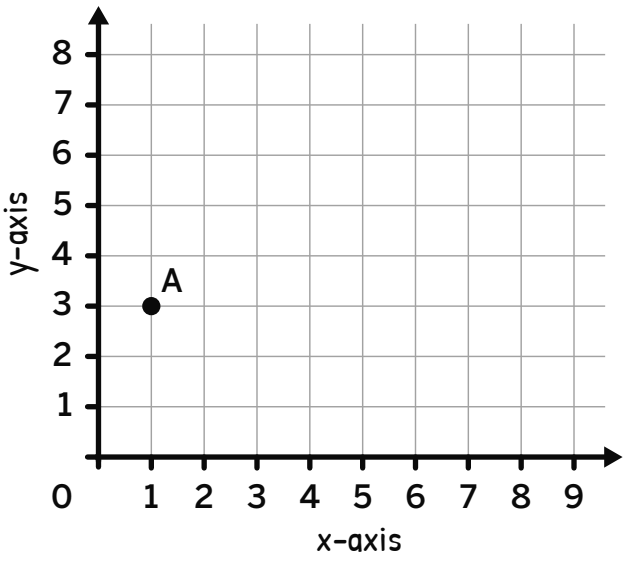
(x, y)
→, ↑



Guided Practice

1. Use the information in the table to plot and label each point on the coordinate grid.

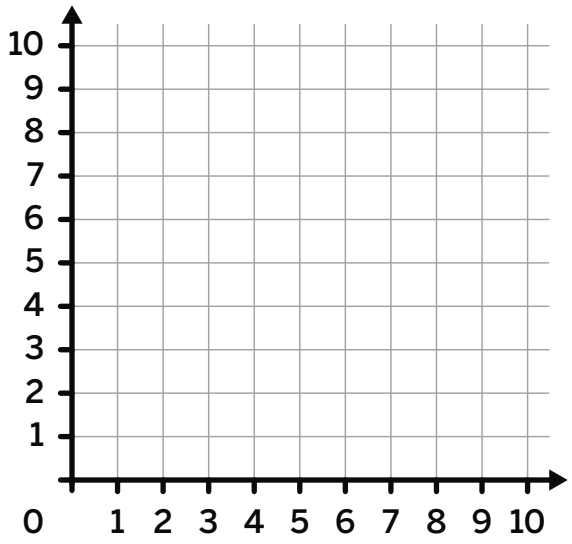
Point	Ordered pair (x, y)	Directions from origin →, ↑
A	(1, 3)	1 unit right, up 3 units
B	(3, 7)	3 units right, up 7 units
C	(5, 6)	5 units right, up 6 units
D	(8, 2)	8 units right, up 2 units



Guided Practice

2. Plot and label each point on the coordinate grid.

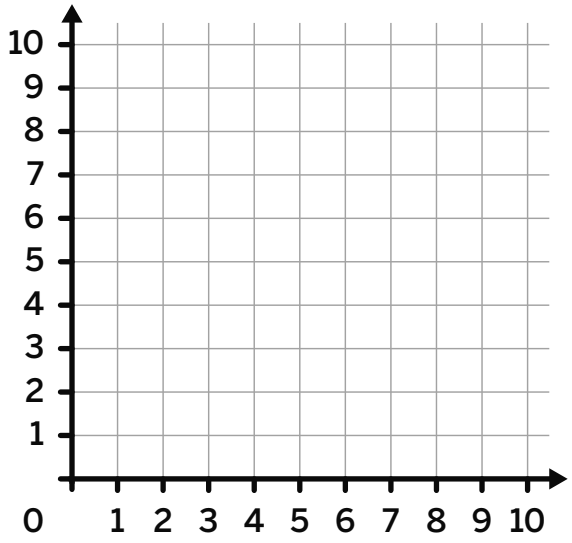
Point	Ordered pair
A	(1, 5)
B	(2, 3)
C	(7, 1)
D	(6, 4)



Check

Plot and label each point on the coordinate grid.

Point	Ordered pair
A	(4, 8)
B	(5, 2)



Name _____

Representing Data on the Coordinate Grid

ML 7.11

Modeled Review

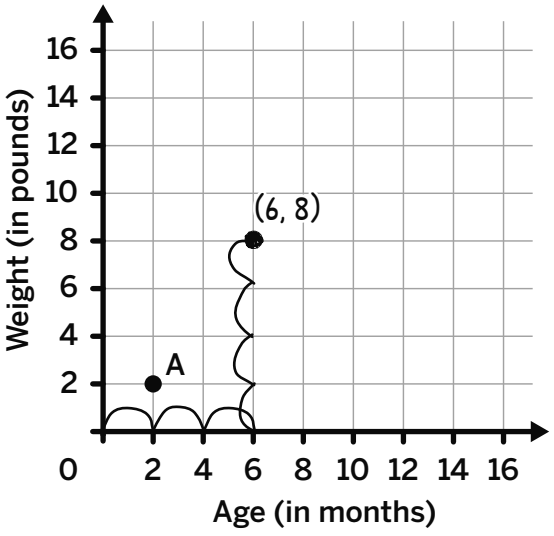
Name: Han

The graph shows the weight of a small dog as it grew. Use the graph for Problems 1–2.

1. What does point *A* represent?

When the dog was two months old, it weighed 2 pounds.

2. Plot a point on the coordinate grid to show that the dog weighed 8 pounds at 6 months. Label the point with its ordered pair.



Guided Practice

The graph shows the number of books Maya read over a 10 week period.

1. What does point *A* represent?

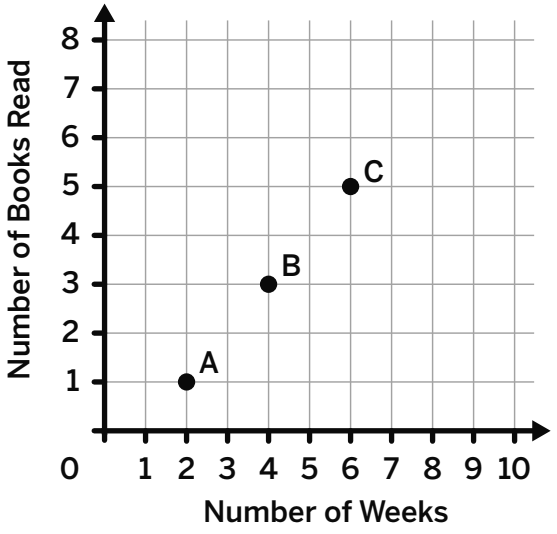
A. It takes Maya 1 week to read 2 books.

B. It takes Maya 2 weeks to read 1 book.

2. What does point *C* represent?

A. It takes Maya 6 weeks to read 5 books.

B. It takes Maya 5 weeks to read 6 books.



Guided Practice

The graph shows the amount of money earned for every hour a student worked after school. Use the graph for Problems 3–4.

3. What does point *A* represent?

_____

_____

4. Plot points on the coordinate grid to show that a student makes $60 in 5 hours and $96 after working 8 hours. Label each point with its ordered pair.

Check

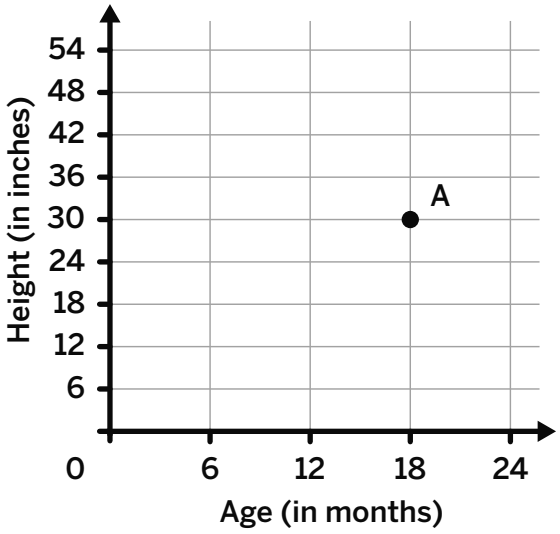
The graph shows the height of a child from birth to two years. Use the graph for Problems 1–2.

1. What does point *A* represent?

_____

_____

2. Plot a point on the coordinate grid to show that the child is 24 inches at 6 months. Label the point with its ordered pair.



Extensions

Area

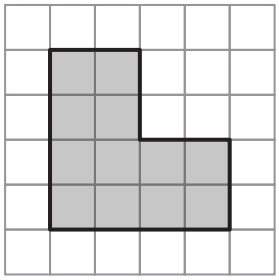
Name: Date: Period:

Student Choice Start with any problem. Remember to show or explain your thinking.

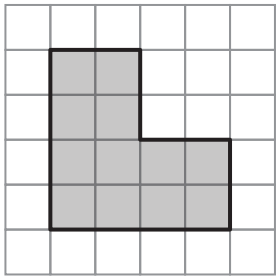
1

a Divide the L shape into . . .

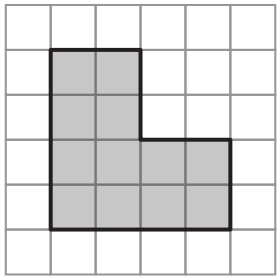
2 identical pieces



3 identical pieces

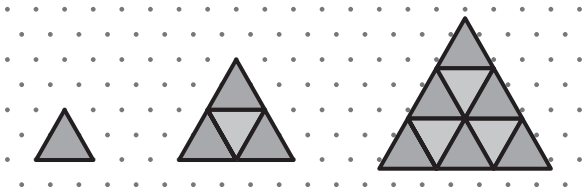


4 identical pieces



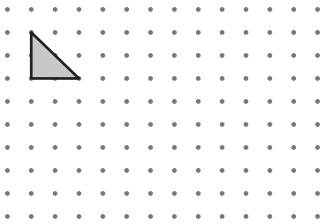
b *Rep-tile* has a different meaning in Mathematics! It is short for "replicating tile."

When several copies of these tiles are put together, the shape will appear exactly the same but larger! For example, an equilateral triangle is a rep-tile.

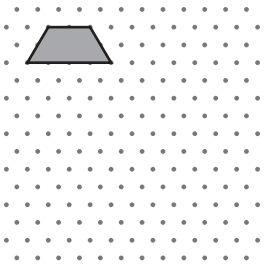


Select *all* the polygons that are rep-tiles.

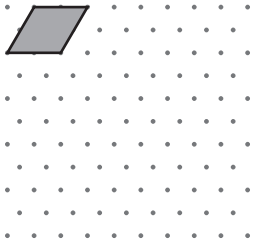
☐ Right triangle



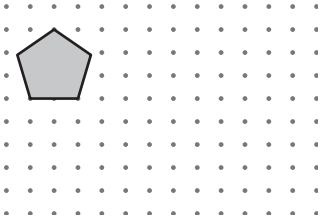
☐ Trapezoid



☐ Parallelogram



☐ Regular pentagon

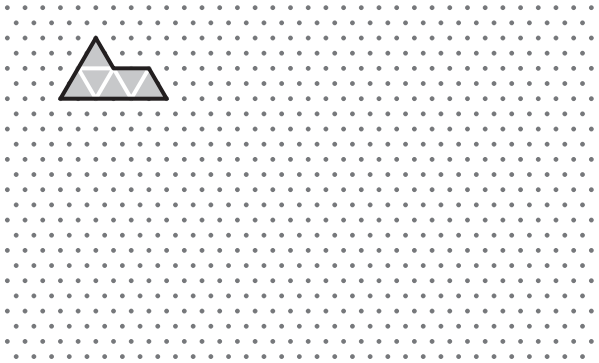


Area (continued)

Name: Date: Period:

c The figure shows a *sphinx tile*, which is composed of six equilateral triangles.

If the side length of each equilateral triangle is 6 units and the height is 5.2 units, draw the sphinx rep-tile and determine its area.



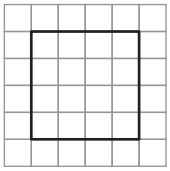
2

a Here are several shapes. For each shape:

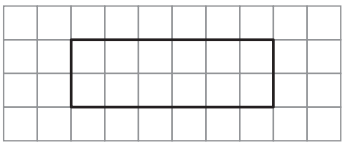
- Mark the midpoint of each side using a ruler or the square grids.
- Connect the four midpoints to form another shape.

What do you notice about the shapes you drew?

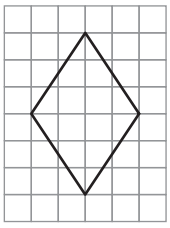
Square



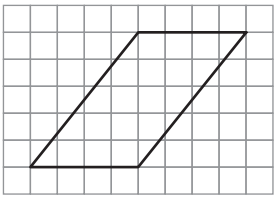
Rectangle



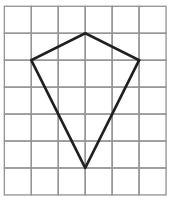
Rhombus



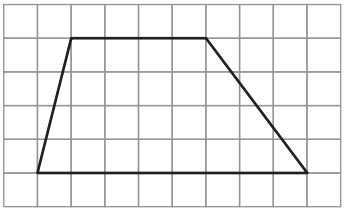
Parallelogram



Kite



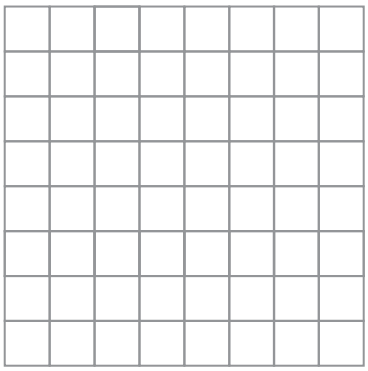
Trapezoid



Area (continued)

Name: ..... Date: ..... Period: .....

b Draw any four sided shape and repeat the same steps. What is the new shape?



c Find the area of the original shape and compare it to the area of shape you drew inside.

Surface Area

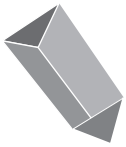
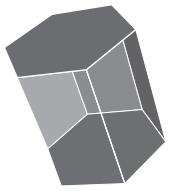
Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

1

Here are different 3-D solids.

a Investigate each solid and record its number of vertices, V, number of edges, E, and the number of faces, F.

Solid			
V	6		
F	5		
E	9		

Solid			
V			
F			
E			

b What do you notice about the number of vertices, faces, and edges for different solids?

c Describe or draw a prism with 9 faces.

d Describe or draw a pyramid with 9 faces.

Surface Area (continued)

Name: ..... Date: ..... Period: .....

e Describe or draw a prism with 12 vertices.

f Describe or draw a pyramid with 9 vertices.

g If there a solid with 24 vertices and 14 faces, how many edges does it have?

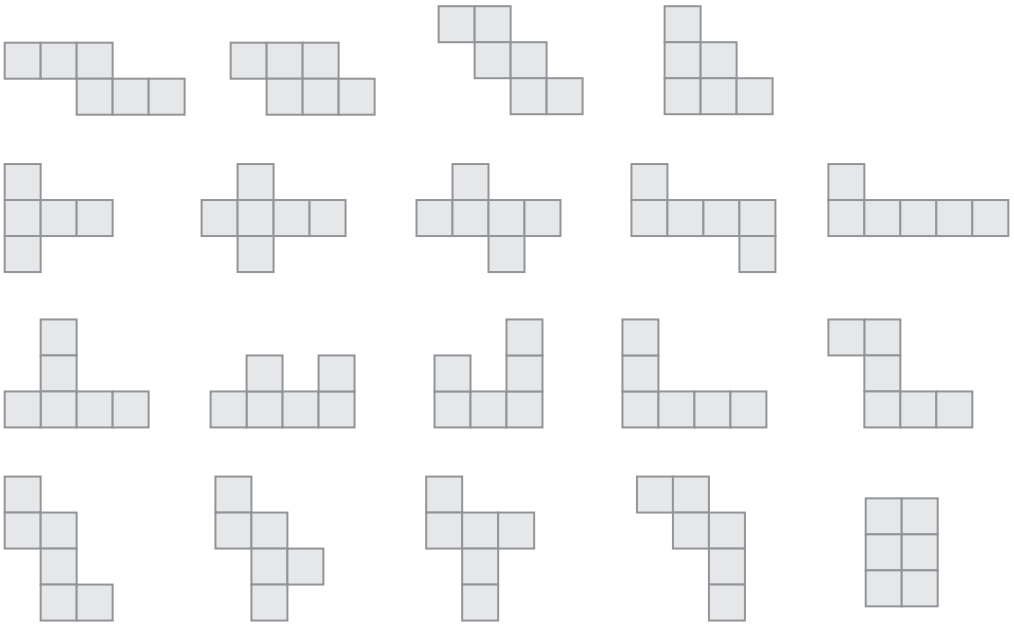
2

Create four identical triangles using only 6 identical toothpicks.

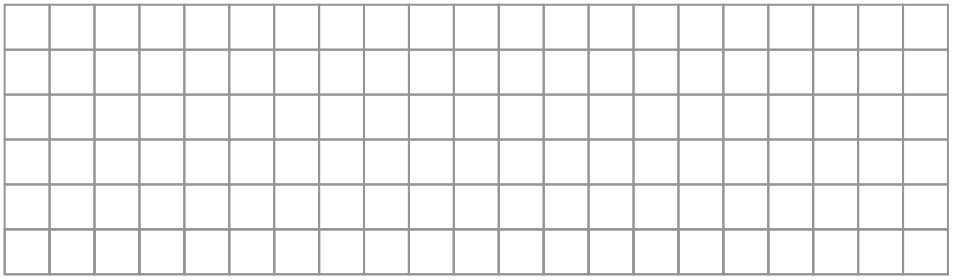
3

Here are nets of six squares.

a Circle *all* the nets that can fold into a cube.



b Create a different net of six squares that can fold into a cube.



Ratios

Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

1

Determine two numbers such that . . .

a Their ratio is $4 : 5$ and their sum is 27.

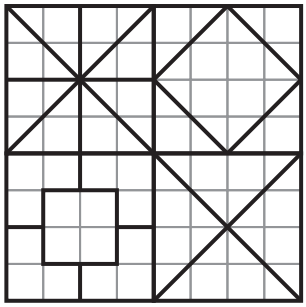
b Their ratio is $2 : 5$ and their difference is 27.

c Both numbers are less than 20, and the ratio of their sum to their difference is $7 : 5$.

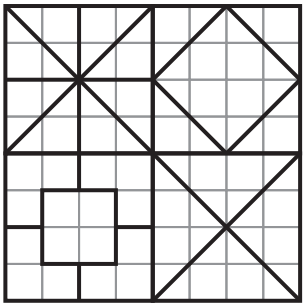
2

Shade the figure so that the ratio of the shaded area to the unshaded area is . . .

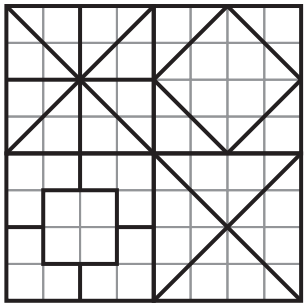
$3 : 5$



$3 : 1$



$5 : 11$



Common Factors and Multiples

Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

1 The number 660 is divisible by 3, 4, and 11. What is the next largest number that is also divisible by 3, 4, and 11?

2 A pirate chest contains gold coins such that:

- If the coins are equally divided among 12 pirates, 10 coins are left over.
- If the coins are equally divided among 10 pirates, 8 coins are left over.
- The number of gold coins is known to be greater than 200.

What is the smallest number of coins that meets these conditions?

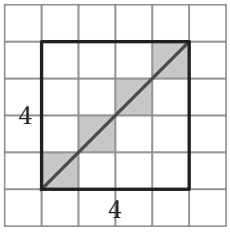
Common Factors and Multiples (continued)

Name: Date: Period:

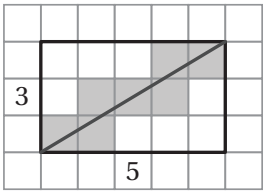
3 Computer screens are large square grids of individual lights, where each light is called a *pixel*.

To see how computers draw lines on the screen, you can first draw the line using a straightedge, then shade any pixels that the line touches.

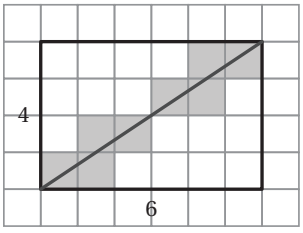
For example, to draw each of these diagonals:



4 pixels should be shaded.



7 pixels should be shaded.



8 pixels should be shaded.

Determine the number of pixels that need to be shaded to draw the diagonal of a 15×20 rectangle.

Solving Problems With Ratios

Name: ..... Date: ..... Period: .....

Student Choice Start with Problem 1 or Problem 2. Complete Problem 3 after Problem 2. Remember to show or explain your thinking.

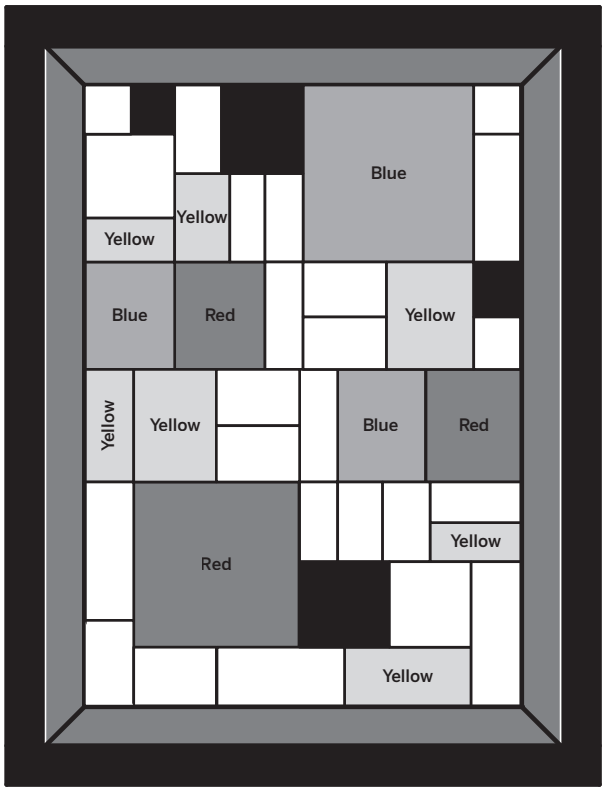
1

Dutch artist Piet Mondrian (1872–1944) is one of the best-known abstract painters.

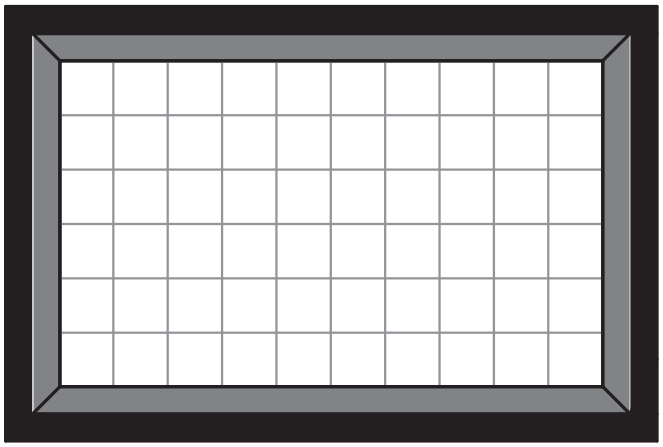
His abstract style is mostly known for his use of geometric elements colored with primary colors (red, blue, and yellow), black, and white.

Create a Mondrian-like painting using a 6×10 canvas such that:

- The ratio of red to blue to yellow is $5 : 10 : 8$.
- The ratio of black to white is $3 : 4$.
- The ratio of yellow to white is $2 : 1$.



Piet Mondrian



Solving Problems With Ratios (continued)

Name: Date: Period:

2 A collection of dimes and nickels is worth $\$5.60$.

The ratio of the number of dimes to the number of nickels is $3 : 2$.

Determine the number of each type of coin.

dime
10¢

nickel
5¢

3 A collection of dimes, nickels, and quarters is worth $\$6.90$.

The ratio of the number of dimes to the number of nickels is $8 : 3$.

The ratio of the number of dimes to the number of quarters is $8 : 10$.

Determine the number of each type of coin.

quarter
25¢

dime
10¢

nickel
5¢

Units and Measurement

Name: ..... Date: ..... Period: .....

Student Choice Remember to show or explain your thinking.

1

Our solar system is so big, it is almost impossible to imagine its size using units like kilometers or miles. To solve this problem, astronomers use the distance between the Earth and the Sun, approximately 149 million kilometers, as a new unit of measure called the Astronomical Unit (1 AU).

Complete the table to determine the distances of some of the planets from the Sun in Astronomical Units. Round answers to the nearest hundredth.

Planet	Approximate distance to the Sun (millions of kilometers)	Approximate distance to the Sun (AU)
Mercury	57	
Earth	149	
Mars	228	
Neptune	$4{,}530$	30.40

2

Proxima Centauri is the closest star to our planet other than the sun. It is about $268{,}770$ AU away. Astronomers also use the light-year, the distance light travels in one year, as a unit of distance in space, especially for the distances outside of our solar system.

a Light travels at a velocity of about $300{,}000$ kilometers per second. Determine the distance that light travels in one year.

b One light-year is about $63{,}241$ Astronomical Units. How many light-years away is Proxima Centauri?

Units and Measurement (continued)

Name: Date: Period:

3 A common estimate for the time it takes Earth to complete one revolution around the Sun is 365 days and 6 hours.

Thus, we add an extra day to February every four years ($6 \cdot 4 = 24$ hours, or one day) for a leap year.

Actually, a more precise estimate is about 365 days, 5 hours, 48 minutes, and 46 seconds.

a How many extra minutes and seconds do we add to the calendar every four years?

b Determine the extra time that would be added to the calendar every 400 years.

c This extra time is accounted for by skipping leap years that are divisible by 100, but not by 400. Can you determine the last time and the next time we skip a leap year?

Unit Rates

Name: ..... Date: ..... Period: .....

Student Choice Remember to show or explain your thinking.

1

The bridge will collapse in 17 minutes. Hikers A, B, C, and D must cross the bridge in pitch darkness using a flashlight.

- A maximum of two people can cross the bridge at one time, carrying the flashlight which must be returned by hand after each crossing.
- Each hiker walks at a different speed:
  - Hiker A takes 1 minute to cross the bridge
  - Hiker B takes 2 minutes to cross
  - Hiker C takes takes 5 minutes to cross
  - Hiker D takes 10 minutes to cross
- Each pair crosses the bridge at the rate of the slower hiker's pace.

Help them cross the bridge in 17 minutes or less by determining the order in which the hikers should cross.

Unit Rates (continued)

Name: Date: Period:

2 A snail climbed up a window 90 inches high. Every day, it climbed 11 inches up, and every night dropped back 7 inches. How many days did it take for the snail to reach the top?

3 Tiam traveled to work at her usual speed of about 60 miles per hour. Her return journey during the rush hour was 30 miles per hour. What was her average speed for the round trip?

Percentages

Name: Date: Period:

Student Choice Start with any problem. Remember to show or explain your thinking.

1

a $A\% + B\% + C\% + D\% + E\% + F\% = 100\%$. If A, B, C, D, E, F are known to be odd numbers, determine their values.

b Can you find five different percentages that add up to 100%? Seven different percentages?

2

If you increase one side of a rectangle by 30% and decrease the other side by 30%, what happens to its area?

Percentages (continued)

Name: Date: Period:

3 In a collection of marbles, 8 are red, 1 is black, and 55% of them are blue. What is the smallest possible size of this collection?

4 After eating at a restaurant, you know that the bill before tax is $\$50$ and that the sales tax rate is 8%. You decide to leave a 20% tip for the waiter based on the pre-tax amount.

a How much is the total bill including tax and tip?

b How much is the total bill including tax and tip if the bill before tax was $\$75$?

c Determine an easy way to calculate the total bill including tax and tip for any amount of pre-tax and tip bill.

Introduction to Dividing Fractions

Name: Date: Period:

Student Choice Start with any problem. Remember to show or explain your thinking.

1

Unit fraction $\frac{1}{2}$ can be written as $\frac{3-(2-1)}{4}$

Unit fraction $\frac{1}{3}$ can be written as $\frac{1}{4+2-3}$

a Using $1, 2, 3, 4$ write a different fraction equivalent to $\frac{1}{3}$.

b Using $1, 2, 3, 4$ write as many fractions equivalent to other unit fractions as you can.

2

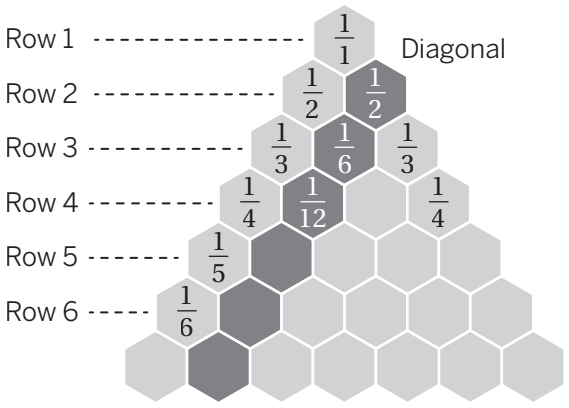
Suppose you have two jugs: one containing tea and the other containing milk. You pour $\frac{1}{3}$ of the tea into the milk and mix it. Then you pour $\frac{1}{3}$ of this mixture back into the tea. After these operations, is there more tea in the jug of milk or more milk in the jug of tea?

Introduction to Dividing Fractions (continued)

Name: Date: Period:

3

The *Leibniz harmonic triangle* is a triangular arrangement of unit fractions.



a What do you notice about each fraction and the two fractions beneath it?

b Anna thinks that the missing fraction in Row 4 is $\frac{1}{12}$. Explain how she might be able to check if she is correct?

c What else do you notice about the triangle?

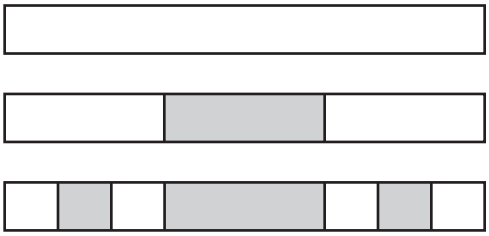
Dividing Fractions

Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

1

Follow this process repeatedly to create a Cantor ternary set.



Step 1 Start with a tape diagram of length 1 unit

Step 2 Color in the middle third of the tape diagram.

Step 3 Do the same to each remaining segment that is not colored in.

a What fraction of the diagram is colored in after Step 2? Step 3? Step 5?

b If you continue this process, how much of the tape diagram will you color?

c Will the result be different if you color the first fifth instead of the middle third of each strip?

2

Use identical rectangular blocks such as dominoes, place two dominoes to have a step.

a How far can you move the top domino? What fraction of the domino's length is the overhang?

b Add one more domino to the ladder to create the max length. What fraction of the domino's length is the second overhang?

Dividing Fractions (continued)

Name: Date: Period:

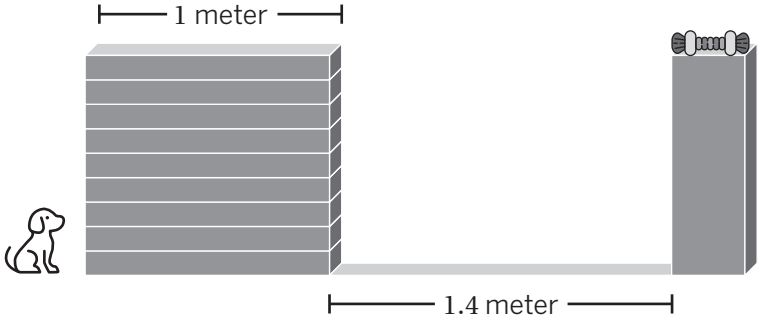
2

c Add a fourth domino to the ladder to keep creating a new max length. What fraction of the domino's length is the third overhang?

d What do you notice about the length of the maximum overhang in each step? How is it related to the length of the dominoes?

e Use the *Block-Stacking Sheet* to determine the length of the maximum overhang to build a 6-blocks tall ladder. Then, determine the length of the maximum overhang to build a 7-blocks tall ladder.

f Nine identical blocks, each 1 meter in length are stacked, with the bottom block nailed to the floor. Move the eighth block to maximize the overhang for the top block. Will the overhang be sufficient for the puppy to reach the toy that is 140 centimeters away?



Area and Volume With Fractions

Name: Date: Period:

Student Choice Start with any problem. Remember to show or explain your thinking.

1

a Multiply $\frac{1}{2}$ and $\frac{2}{3}$.

b Multiply $\frac{1}{2}$, $\frac{2}{3}$, and $\frac{3}{4}$.

c What do you think happens if you keep multiplying fractions $\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \frac{4}{5} \ldots$? Explain your thinking.

d Multiply $\frac{1}{1}$, $\frac{2}{1}$, and $\frac{1}{3}$.

e What do you think happens if you keep multiplying fractions $\frac{1}{1} \cdot \frac{2}{1} \cdot \frac{1}{3} \cdot \frac{4}{1} \cdot \frac{1}{5} \ldots$? Explain your thinking.

Area and Volume With Fractions (continued)

Name: Date: Period:

2

The ancient Egyptians represent fractions as the sums of distinct unit fractions. For example:

$\frac{2}{3} = \frac{1}{2} + \frac{1}{6}$ $\frac{2}{3} = \frac{1}{3} + \frac{1}{4} + \frac{1}{12}$ $\frac{2}{5} = \frac{1}{3} + \frac{1}{15}$

a Express $\frac{5}{6}$ as the sum of distinct unit fractions.

b Is there another way to to express $\frac{5}{6}$ as the sum of distinct unit fractions?

c Do you think it is possible to represent any unit fraction as a sum of two unit fractions?

d Jon thinks that he can use $\frac{1}{n} = \frac{1}{n+1} + \frac{1}{n(n+1)} (n \neq 0)$ to write any unit fraction in terms of two distinct unit fractions. Is he correct?

e Can every fraction be represented as a sum of two unit fractions?

f Can every fraction be written as the sum of distinct unit fractions?

Adding and Subtracting Decimals

Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

1

How can you make five 5s equal to 6 using decimals, addition, and subtraction?

2

Deja's house number is 700 and her age is 30. A magician tells her,

Step 1: Double your house number

Step 2: Multiply by 50

Step 3: Add 250

Step 4: Add your age

Step 5: Add 365

Step 6: Subtract 615

Step 7: Divide by 100

Then, she told her that the whole number part is her house number and the decimal part is her age!

a Follow the same steps to verify if the trick really worked for Deja.

b Follow the same steps to verify if the trick works for your house number and age.

c Try it with a friend!

d Why do you think this trick works?

3

Use the digits 1 to 9, at most one time each, to fill in the boxes so that the difference is as close to 20 as possible.

□□.□ − □□.□

Adding and Subtracting Decimals (continued)

Name: Date: Period:

4 In a decimal Magic Square the rows, columns, and diagonals all add up 3.3.
Determine a set of possible values of the missing squares. (All cells must be different.)

	1.1	
1.0		1.4

5 Move the decimal points to make the sum correct.

$$\begin{array}{r} 6.001 \\ 3.29 \\ 42.16 \\ +\ 15.729 \\ \hline 200.407 \end{array}$$

Multiplying Decimals

Name: Date: Period:

Student Choice Start with any problem. Remember to show or explain your thinking.

1

Jon knows he is able to buy 10 pens and 4 pencils using all of his money, but his shopping list also includes paper and an eraser. Find a way Jon can spend $\$25.25$ and have at least one of each item on his list

- Paper at 2 sheets for $\$1.01$
- Pens at $\$1.01$ each
- Pencils at 2 for $\$5.05$
- Erasers at $\$5.05$ each

How many of each can he buy?

2

Using the digits 0 to 9 at most one time each, fill in the boxes to make a true equation.

$$\square.\square\left(\square+\square\right)=\square.\square+\square.\square$$

Multiplying Decimals (continued)

Name: ..... Date: ..... Period: .....

3 If you are only allowed to use the steps A, B, and C, and your starting number is 3.5, how can you get to

A: $\times 2$
B: $\times 5$
C: $+ 0.2$

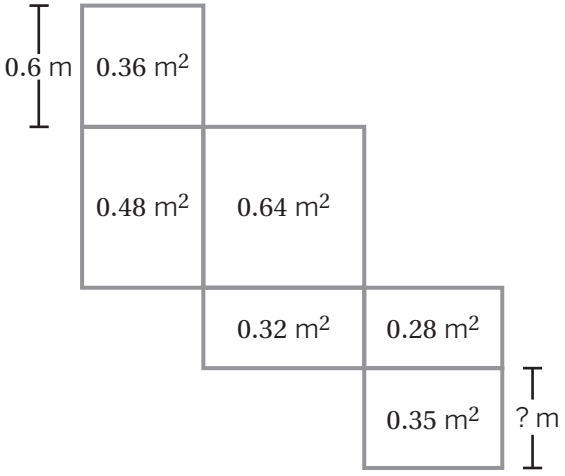
a. 36 in three steps

b. 37 in three steps

c. 38 in four steps

d. 39 in four steps

4 A figure made out of rectangles is given. Determine the unknown length.



Division and Dividing Decimals

Name: ..... Date: ..... Period: .....

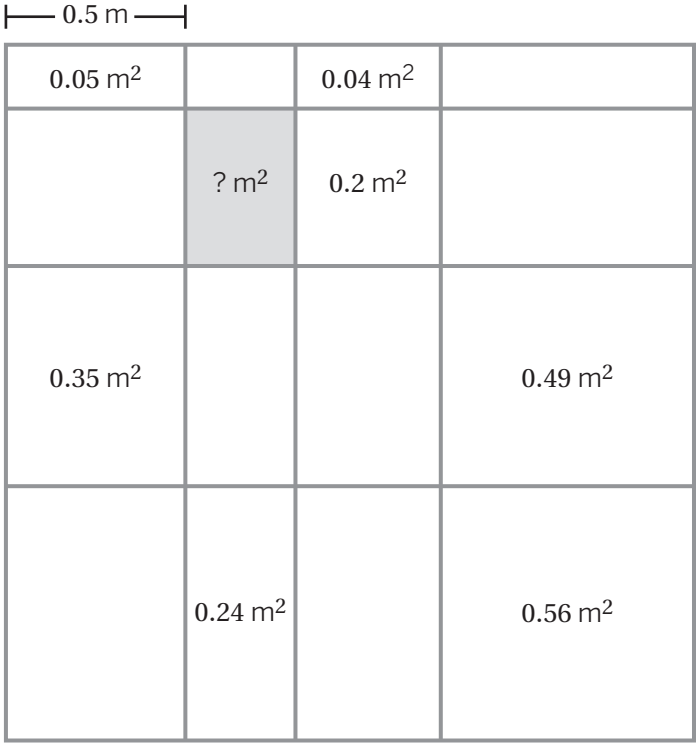
Student Choice Remember to show or explain your thinking.

1

Use three 7s to write an expression that equals to 20.

2

A figure made out of rectangles is given. Determine the unknown area.



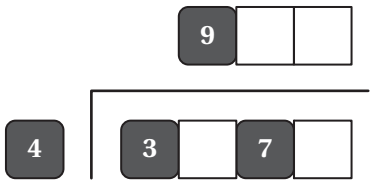
Division and Dividing Decimals (continued)

Name: Date: Period:

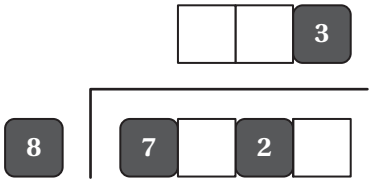
3

Use the remaining digits 1–9 without repeating any digits to make the divisions correct.

a

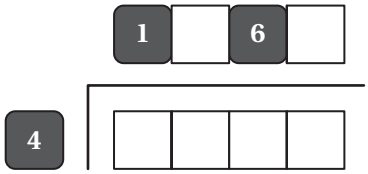


b



4

Fill in the blanks using digits 1–9, except the numbers 1, 4 and 6 to make the division correct.



5

Using the digits 0-9, without repeating any digits, find the quotient closest to 1 and also bigger than 1.

$$\frac{\square.\square\square}{\square.\square\square} > 1$$

Solving Problems With Decimals

Name: Date: Period:

Student Choice Remember to show or explain your thinking.

1 If you were offered a job for 30 days at the following rates, would you take it?

$\$0.01$ for the first day

$\$0.02$ for the second day

$\$0.04$ for the third day

$\$0.08$ for the fourth day, and so on until the last day, with each day's pay being double that of the previous day.

2 On Arnav's calculator he divided one whole number by another whole number and got the answer 3.125. He can't remember what the numbers were, but remembers both were less than 50. Determine the numbers Arnav used.

Solving Problems With Decimals (continued)

Name: Date: Period:

3 Alexis has a total of $\$1.15$ in coins, which include half dollars, quarters, dimes, nickels, and pennies. With the coins she has, she cannot make exact change for the following amounts:

- $\$1.00$ (one dollar)
- $\$0.50$ (one half dollar)
- $\$0.25$ (one quarter)
- $\$0.10$ (one dime)
- $\$0.05$ (one nickel)

What possible combination of half dollars, quarters, dimes, nickel and pennies could Alexis have?

Solving Equations

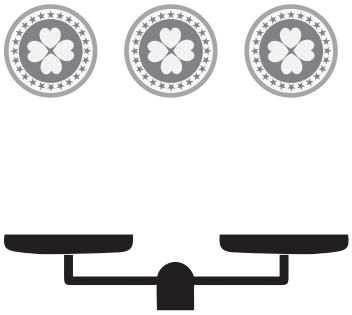
Name: ..... Date: ..... Period: .....

Student Choice Remember to explain your thinking.

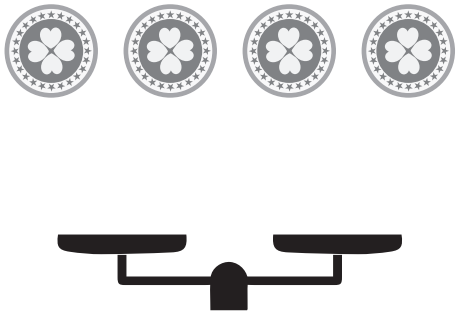
1

Here are two balance scales and some identical-looking coins. One of the coins is counterfeit and has a different weight than all the others. What is the fewest number of weighings needed to determine the counterfeit coin?

a When there are three coins?



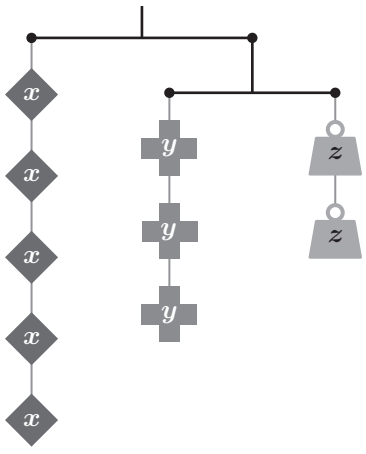
b When there are four coins?



2

Hanger A is balanced.

Hanger A



a If the value of x is 4, what are the values of y and z?

b Determine three whole number values for x, y, and z to keep the hanger balanced.

c Describe all the whole number values for x, y, and z that keep the hanger balanced.

Solving Equations (continued)

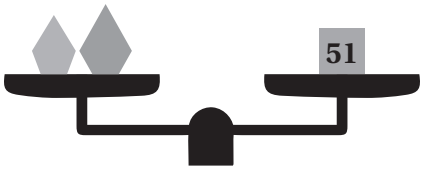
Name: Date: Period:

3

Consecutive numbers are whole numbers that follow each other from smallest to biggest without skipping any number in between.

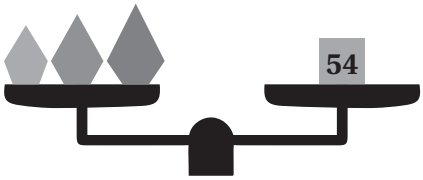
Here are three balanced scales with consecutive weights:

a In Scale A, two consecutive weights balance with a weight of 51 grams. How many grams is each consecutive weight?



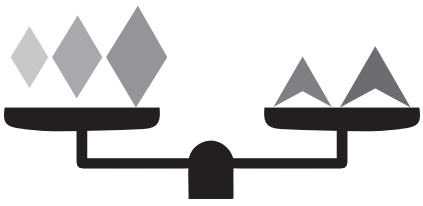
Scale A

b In Scale B, three consecutive weights balance with a weight of 54 grams. How many grams is each consecutive weight?



Scale B

c In Scale C, three consecutive weights balance with two different consecutive weights. Determine a possible solution.



Scale C

Equivalent Expressions

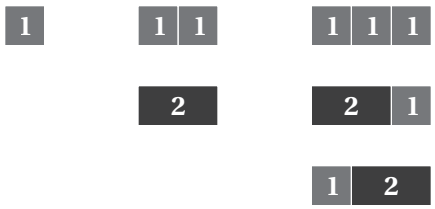
Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

1

Antwon is building rods of different lengths by combining smaller rods that are either 1 unit or 2 units long. The table and image below show how many different ways he can build rods of length 1, 2, and 3 using 1-unit and 2-unit rods.

Length of the line	Number of ways
1	1
2	2
3	3
. . .	. . .



a Continue the sequence to find how many different ways Antwon can make a rod that is 10 units long.

b Jalen created a number sequence using the same rule that Antwon discovered in the "Number of ways" column from part a. In Jalen's sequence, the second number is 4 and the fourth number is 11. Can you determine the first number in his sequence?

2

Here is a 6×6 number grid. Ava and Bao are playing the game of *Guess my Number* by placing a Z shape to cover four of the numbers. Once Bao covers the numbers, he tells Ava the sum for her to guess the numbers. Ava has a strategy of representing the top right number with n.

a What do you think is the rest of her strategy to determine the numbers? Try with several numbers.

b How will Ava's strategy be different if the number grid is 5×5?

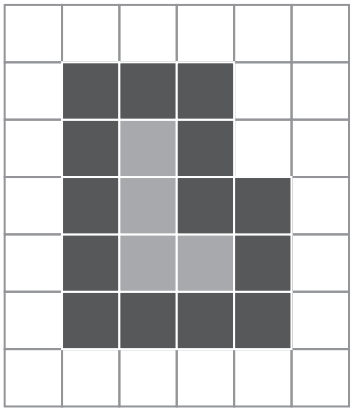
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

For example, the sum of the covered numbers is
$8 + 9 + 13 + 14 = 44$.

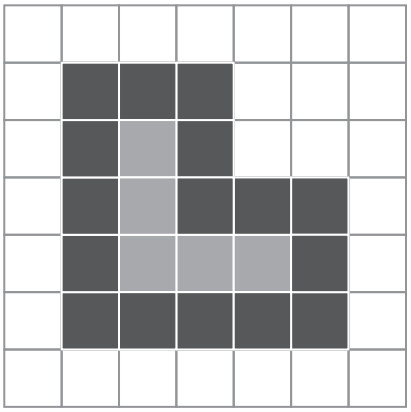
Equivalent Expressions (continued)

Name: Date: Period:

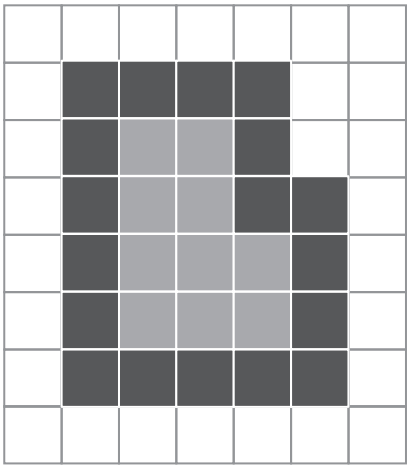
3 Here is an L-shaped pool with the size of 2×3. It has 14 border tiles.



a How many border tiles are needed to surround a 3×3 L-shaped pool?



b How many border tiles are needed to surround a 3×4 L-shaped pool?



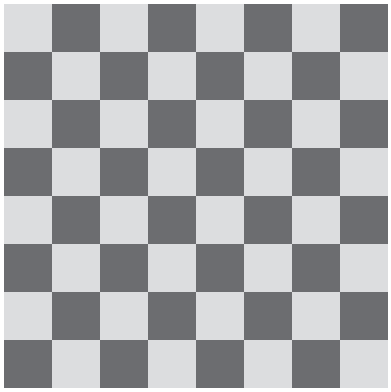
c How many border tiles are needed to surround a 12×16 L-shaped pool?

Expressions Involving Exponents

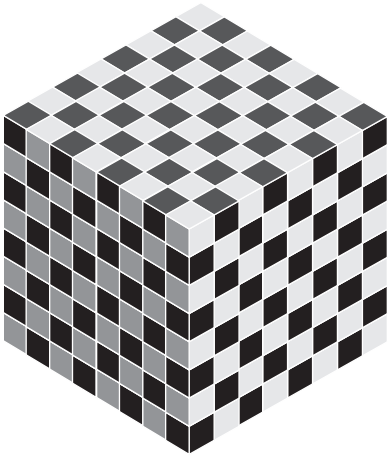
Name: Date: Period:

Student Choice Remember to show or explain your thinking.

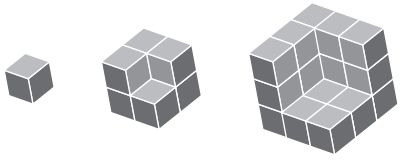
1 How many squares are there on an 8×8 checkerboard? (It is not 64!)



2 How many cubes are there in an $8 \times 8 \times 8$ cube?



3 How many cubes are there in the 10th figure?



Expressions Involving Exponents (continued)

Name: Date: Period:

4

Lagrange's square number theorem states that every number can be expressed as the sum of, at most, four square numbers. For example, $12 = 9 + 1 + 1 + 1$. Let's try:

a 13

b 15

c 178

5

Complete each of the following problems.

a Consider the equation $\square^2 + \square^2 = \square^2$.

One example of three different whole numbers that could go in the boxes are 3, 4, and 5, because $3^2 + 4^2 = 5^2$. Can you find a different set of three whole numbers that make the equation true?

b How many sets of three different whole numbers can you find?

c Can you find a set of three different whole numbers that make the equation true?

$$\square^3 + \square^3 = \square^3$$

d Can you find a set of three different whole numbers that make the equation true?

$$\square^4 + \square^4 = \square^4$$

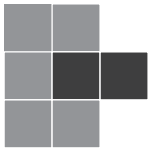
Introduction to Representing Relationships

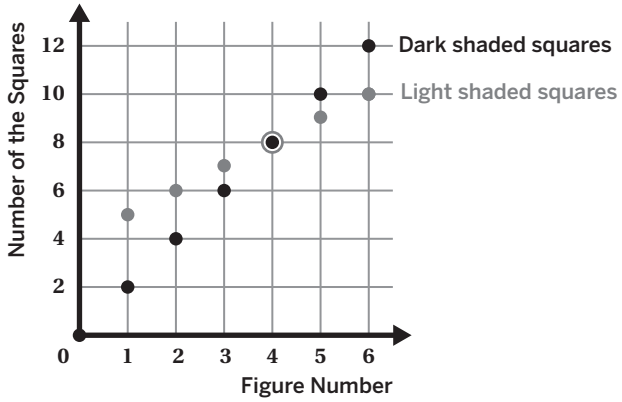
Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

1

Here is the starting figure of a pattern and a graph showing how both the number of the light shaded squares and dark shaded squares increase in each new figure.





a What might the next three figures look like?

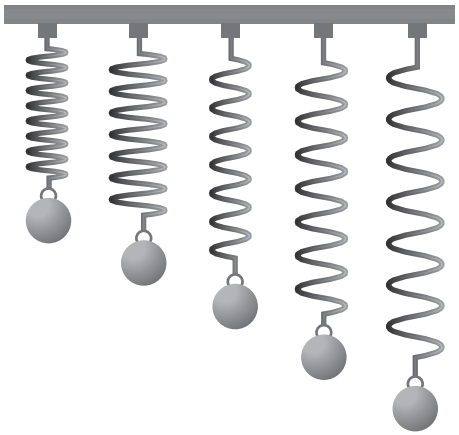
b How many light shaded squares and dark shaded squares are there in the 50th figure?

c Will there be another figure where the number of light squares and the number of dark squares are the same?

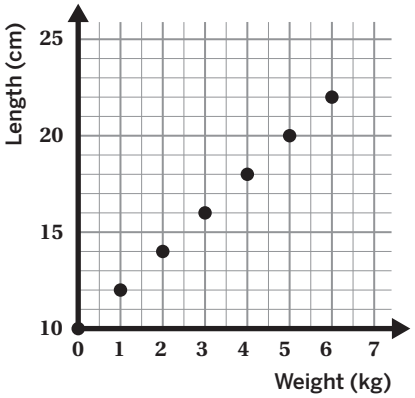
Introduction to Representing Relationships (continued)

Name: Date: Period:

2 The length of a spring is related to the weight that hangs from it.



Here is a graph showing the relationship between the length of the spring and the weight hanging from it.



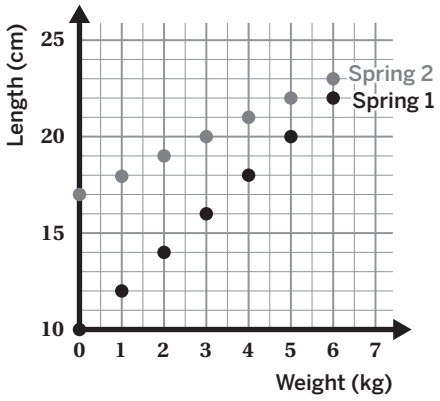
a What was the length of the spring before any weight was added?

b How many centimeters did the spring stretch for each kilogram of weight?

c Drew says the equation of the spring length is $l = 2w$. Is she correct?

d Can the graph continue infinitely to the right?

e This graph shows data for two other springs. What do you notice and wonder about the springs? Which spring is stiffer? Which one is longer?



Negative Numbers and Absolute Values

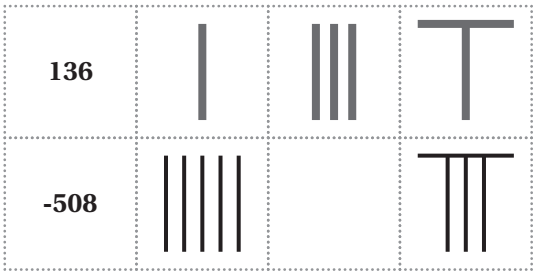
Name: ..... Date: ..... Period: .....

Student Choice Remember to show or explain your thinking.

1

One of the first known records of negative numbers being used comes from the Chinese number rod system seen here, which dates to around 200 BCE. The need for positive and negative numbers came from taxes — receiving and paying currency.

Use the image to decipher and determine how to write each of the following numbers using Chinese number rods.



a 27

b 4,852

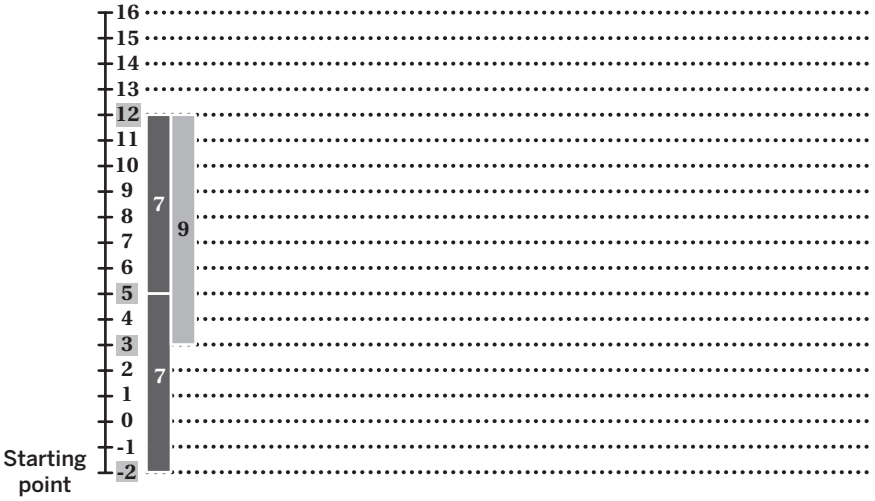
c -3,906

2

The only elevator of an 18-floor building has only two buttons: ⬆ and ⬇ where you can either go 7 floors UP or 9 floors DOWN.

For example, when you press ⬆ two times and then press ⬇ one time, you can visit floors 5, 12 and 3.

a Is it possible to reach all the floors of the building using the elevator?



b In which order have you visited the floors?

c How many times did you press the buttons to try to visit all the floors?

Negative Numbers and Absolute Values (continued)

Name: Date: Period:

3

If the absolute value of x is greater than the absolute value of y, then x is greater than y.

a Determine whether each set of values for x and y supports or does not support this claim.

x	y	Supports	Does not support
8	7	☐	☐
-4	0	☐	☐
-2.1	-2.05	☐	☐
$\frac{3}{4}$	$\frac{1}{5}$	☐	☐

b Can you generalize for which numbers does the inequality $|x| > |y|$ imply that $x > y$? And for which numbers does it not?

4

Determine the number that makes each of the following statements true.

a The difference between the absolute value of a number and the number is 8. What is the number?

b The sum of a number and its absolute value is 8. What is the number?

c What if the result from each problem was 6? 5? Can you generalize your findings?

Inequalities

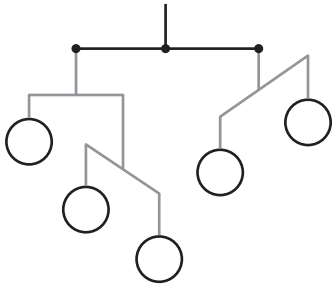
Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

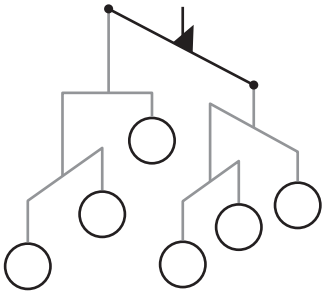
1

Keep the unbalanced hanger diagrams as they are by inserting the given numbers.

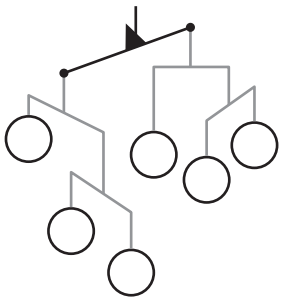
a -3, -2, 0, 2, 3



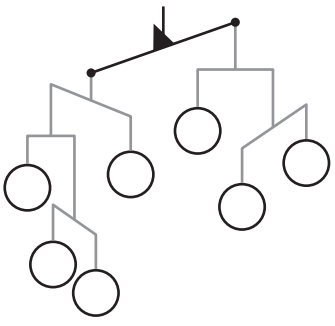
b -3, -2, 1, 2, 5, 6



c -4, -2, 0, 2, 6, 8



d Pick your own numbers!



Inequalities (continued)

Name: Date: Period:

2

$|x| < 4$ is given.

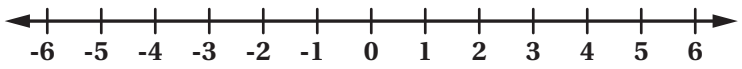
a What are all the possible integer values of x?

b Give three non-integer examples of x that satisfy the inequality.

c Give an example of x that satisfies the inequality and is larger than 3.

d Give an example of x that satisfies the inequality and is smaller than -3.

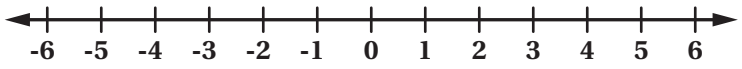
e Graph the inequality using your answers in parts $a - d$.



f Graph the inequality $-4 < x < 4$. What did you notice?

g The inequalities $|x| < 6$ and $a < x < b$ have the same solution sets. What are the values of a and b?

h Graph the inequality $|x| > 4$.



i Write two inequalities that when combined they have the same solution set as $|x| > 4$.

The Coordinate Plane

Name: ..... Date: ..... Period: .....

Student Choice Start with any problem. Remember to show or explain your thinking.

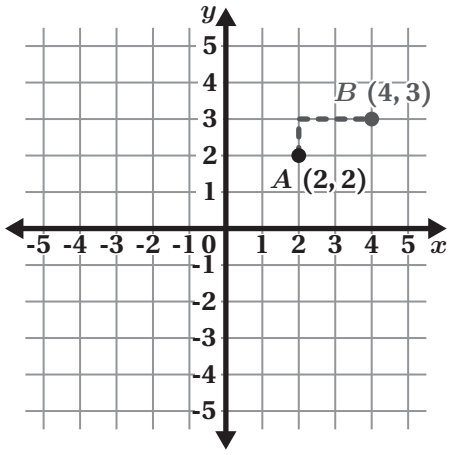
1

Taxicab geometry is a form of geometry in which you can only move along the lines of a grid.

Point $A(2, 2)$ is given on the coordinate plane. Point $B(4, 3)$ is 3 units away from A.

a Determine all the other points that are 3 units away from the point A.

b What do you notice?

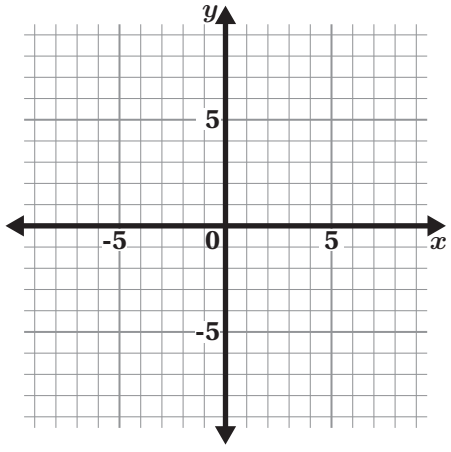


2

a Determine as many coordinate points as possible whose x- and y-coordinates have a sum of 5.

b Graph the coordinate points on the coordinate plane. What do you notice?

c Try another value to sum the coordinates to. What do you notice?



The Coordinate Plane (continued)

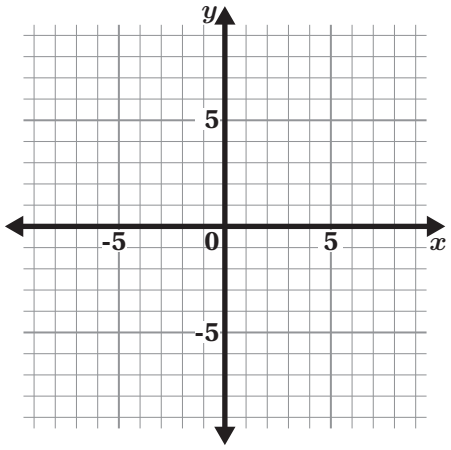
Name: ..... Date: ..... Period: .....

3

Choose any point and plot it on the coordinate plane.

a Reflect the point across the x-axis, then across the y-axis, then across the x-axis again, and across the y-axis again.

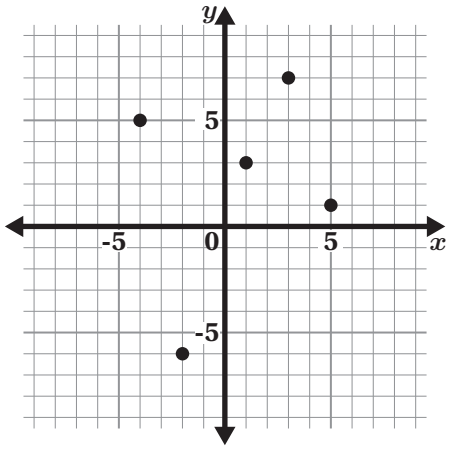
b What do you notice? Why do you think that happened?



4

There are five points in the coordinate plane. You can choose any starting point and travel along the gridlines.

Draw the shortest path that visits all five points and returns to your original point. State the number of total units traveled.



Visualizing Data

Name: Date: Period:

Student Choice Start with any problem. Remember to show or explain your thinking.

1

A *stem-and-leaf plot* is another way to display data. In a stem-and-leaf plot, the greatest place value common to all the data values is usually used for the *stem*. The next greatest place value forms the *leaves*.

For example, here are the prices of 20 of the best rated cookies in Destown.

58¢	45¢	67¢	71¢	50¢
55¢	40¢	65¢	75¢	80¢
90¢	75¢	64¢	78¢	88¢
95¢	80¢	77¢	50¢	99¢

Stem-and-leaf plot of the prices of the best rated Cookies

4	0 5
5	0 0 5 8
6	4 5 7
7	1 5 5 7 8
8	0 0 8
9	0 5 9

4|0 means 40¢

a What are some advantages of displaying data using a stem-and-leaf plot?

b How is a stem-and-leaf plot similar to a dot plot? How is it different?

c In which interval do most of the cookie prices lie?

d Determine the prices that appear most frequently.

e If Descafe wants to decide a price range for a new special cookie, what price range would you recommend for the cookie to have?

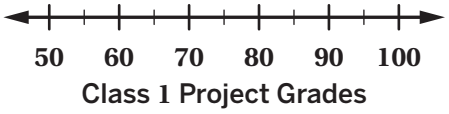
Visualizing Data (continued)

Name: Date: Period:

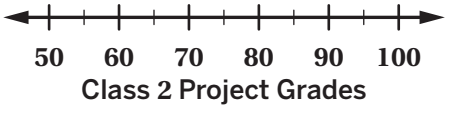
2

Ms. Lucas wants to create dot plots displaying the project grades of her three math classes. Here is some information about the classes:

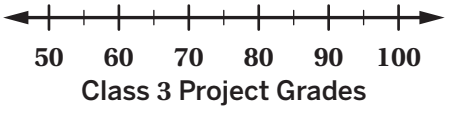
- Each class has 10 students.
- All three classes have a symmetric distribution.
- The mean, mode, and median of each class is 80.
- There are more students who scored 80 in the second class than the first class.
- First two classes have the lowest score as 60 and highest score as 100. The third class has the lowest score as 75 and highest score as 85.



Class 1 Project Grades



Class 2 Project Grades



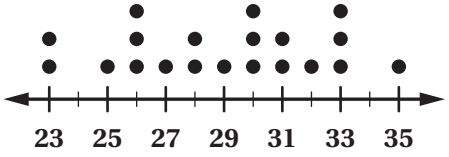
Class 3 Project Grades

Help Ms. Lucas to create the dot plots.

3

In the 12th century, King Henry I of England fixed the *yard* as the distance from his nose to the thumb of his out-stretched arm. (Today it is 36 inches.)

Here is a dot plot showing the "yards" of 6th grade students in a school.



Length from nose to thumb (in.)

a Describe the shape of the dot plot. Are the dots evenly distributed or grouped on one side?

b Describe the center of the dot plot. What single plot would best represent the data?

c Describe the spread of the dot plot. Are there any outliers?

d Do you think it is reliable to use body measurements as the units of measurements?

Measuring Data: Mean and MAD

Name: ..... Date: ..... Period: .....

Student Choice Remember to show or explain your thinking.

1

Final grades in a college course are determined by the average score on the five exams throughout the semester. On the first four exams a student scored 60, 55, 70, and 75. The fifth exam will be scored from 0 to 100.

a What is the lowest final grade this student could receive in this course?

b What is the best final grade this student could receive in this course?

c What is the lowest score this student could earn on the last exam that would result in a final grade of 70?

2

Producing clothing in smaller batches can often result in less waste and a safer working environment. Over a two week period, one clothing company produced the following numbers of dresses each day: 20, 12, 7, 10, 8, 11, 9, 7, 15, 1.

a Calculate the Mean Absolute Deviation (MAD) for the production of dresses.

b What do you think would be an acceptable variation? Write your answer in terms of the mean and the MAD.

c If the number of dresses produced beyond the acceptable variation is considered unsustainable, what percent of the company's production was unsustainable for these two weeks?

Measuring Data: Mean and MAD (continued)

Name: Date: Period:

3 The mean of four numbers, a, b, c, d, is 40. The mean of a and b is 35. The mean of b, c, and d is 45. Determine the mean of a, c, and d.

4 Is the mean of means of a data set equal to the actual mean? For example, If you have a data set of 8, 20, 45, 30, 25, and 10, when you split these numbers into two groups (not necessarily the same size), and calculate the mean of means of each group, is it the same with the actual mean?

Measuring Data: Median and IQR

Name: Date: Period:

Student Choice Remember to show or explain your thinking.

1

Mai is a sixth-grader who competes in the 100 meter hurdles. In eight track meets during the season, she recorded the following times, to the nearest one-hundredth of a second.

18.11, 31.23, 17.99, 18.25, 17.50, 35.55, 17.44, 17.85

a Explain what information you can determine by comparing the mean and the median.

b Why might Mai and her coach be interested in both the mean and the median times?

2

Suppose there is an error in the following data set:

3, 6, 8, 11, 11, 13, 14, 14, 14, 14, 16, 18, 20, 20, 20, 22, 24, 32, 36, 51

a What was the error if, when corrected, the minimum is the only value in the five-number summary that changes?

b What was the error if, when corrected, the minimum is not the only value in the five-number summary that changes? What other values change, and how?

Measuring Data: Median and IQR (continued)

Name: Date: Period:

3 Here is a list of seven numbers x, 22, 1, 1, 1, 5, 10.

a What value would make the mode < median < mean?

b What value would make the mean median and mode all the same value?

Investigations

Investigation 1
Polygons on a Grid

Graphing Shapes | Nets and Surface Area | Relationships Between Variables

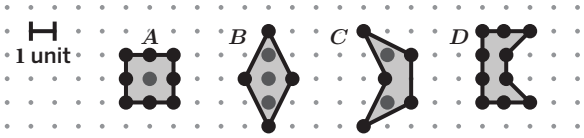
6.G.1, 6.EE.2, 6.EE.6, 6.EE.9, SMP.1, SMP.3, SMP.4, SMP.6, SMP.7

Task 1

Name: ..... Date: ..... Period: .....

Drawing Polygons

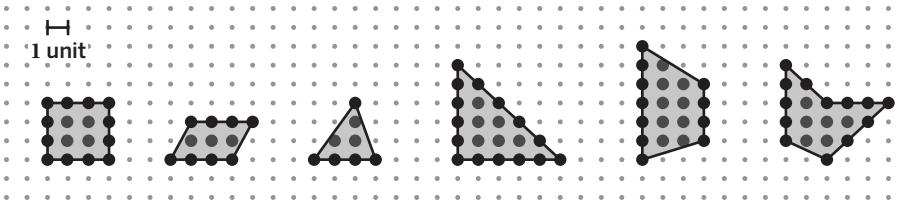
1. Four polygons are given on the dotted grid. What do you notice and wonder about the polygons?



I notice . . .

I wonder . . .

2. Determine the area and number of perimeter and interior points for these polygons.



Number of Perimeter Points, P	12		5			
Number of Interior Points, I	4	3				
Area, A						

Task 1

Name: ..... Date: ..... Period: .....

Drawing Polygons (continued)

3. **Discuss:** How could the area, number of interior points, and number of perimeter points be related? What patterns or relationships do you see?

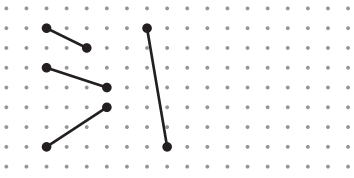
4. To help us determine the relationship, let's see how the other values change if we keep one value the same. Use the dotted grid to draw a polygon . . .

With no Interior Point	With only 1 Interior Point	With 3 Perimeter Points*

5. What do you notice about the polygons you drew?

6. **Discuss:** What strategies could you use to draw a polygon with any area?

*__Hint:__ Here are some examples of segments that do not pass through any grid points. Draw more examples if it helps you create shapes with the given number of perimeter points.



Task 2

Name: Date: Period:

Number of Interior Points, Perimeter Points, and Area

Let's define the variables to start investigating the relationships between them.

A: area	P: number of perimeter points	I: number of interior points

In your group, decide which pair will be Pair A, and which pair will be Pair B. Pair A will complete Part A, and Pair B will complete Part B.

Part A

1. Draw several shapes with a single point inside (1 interior point). Then determine the values of P and A.

Interior points, $I = 1$

	Shape 1	Shape 2	Shape 3					
Perimeter Points, P	3	4	5					
Area, A	1.5							

Task 2

Name: Date: Period:

Number of Interior Points, Perimeter Points, and Area (continued)

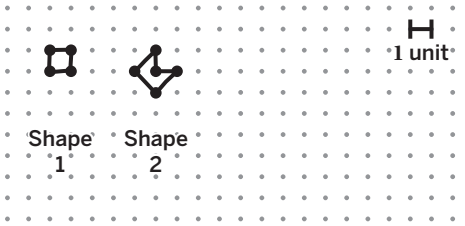
Part A (continued)

2. Draw several shapes with only two points inside (2 interior points). Then determine the values of P and A.

Interior points, $I = \mathbf{2}$

	Shape 1	Shape 2	Shape 3					
Perimeter Points, P	3	4	6					
Area, A	2.5							

3. Draw several shapes with no interior point. Then determine the values of P and A.



$I = \mathbf{0}$

	Shape 1	Shape 2			
P	4	5			
A					

4. How does the area change when the number of perimeter points increases by 1?

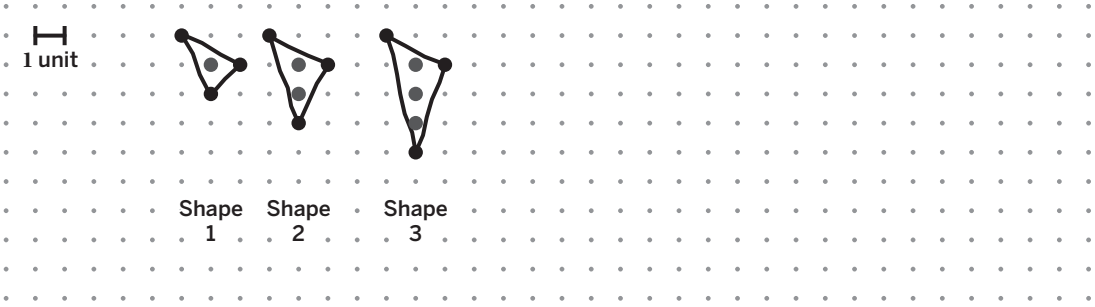
Task 2

Name: Date: Period:

Number of Interior Points, Perimeter Points, and Area (continued)

Part B

1. Draw several shapes with the 3 perimeter points. Then determine the values of I and A.



Perimeter points, P = **3**

	Shape 1	Shape 2	Shape 3					
Interior Points, I	1	2	3					
Area, A	1.5							

2. Draw several shapes with the 4 perimeter points. Then determine the values of I and A.

Perimeter points, P = **4**

	Shape 1	Shape 2	Shape 3					
Interior Points, I	0	1	2					
Area, A	1							

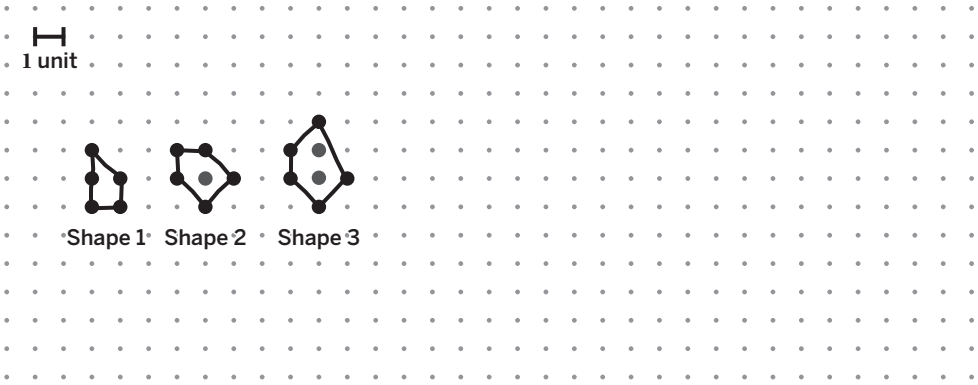
Task 2

Name: Date: Period:

Number of Interior Points, Perimeter Points, and Area (continued)

Part B (continued)

3. Draw several shapes with the 5 perimeter points. Then determine the values of I and A.



Perimeter points, P = **5**

	Shape 1	Shape 2	Shape 3					
Interior Points, I	0	1	2					
Area, A								

4. How does the area change when the number of interior points increases by 1?

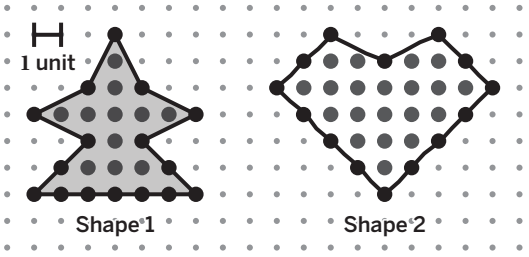
Task 3

Name: ..... Date: ..... Period: .....

Representing the Relationship

1. You will now communicate the results of your investigation.

Determine the area of each shape using your rule and using another strategy. Compare your results to check your formula.



	Shape 1	Shape 2
Number of Perimeter Points		
Number of Interior Points		
Area (calculated with the formula)		
Area (using another strategy)		

Task 3

Name: ..... Date: ..... Period: .....

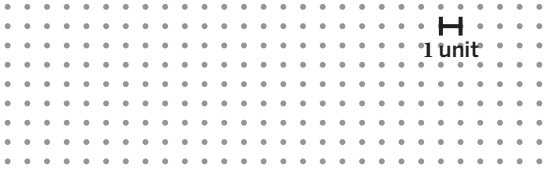
Representing the Relationship

2. Pairs A and B will work together to prepare a poster about the results of your investigation and participate in a Gallery Tour.

Pair A

We kept the ..... constant and investigated the relationship between the area and the .....

For example,
(Include sample drawings and your data)



I = ...

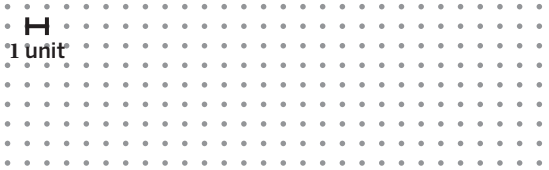
P					
A					

Findings:

Pair B

We kept the ..... constant and investigated the relationship between the area and the .....

For example,
(Include sample drawings and your data)



P = ...

I					
A					

Findings:

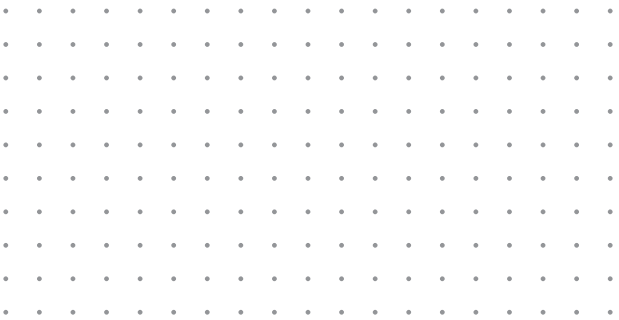
Formula:

Group Name: ..... Date: ..... Period: .....

Representing the Relationship

Create your own area puzzle.

- Draw a polygon with multiple interior and perimeter points.
- Determine its area on a different paper.
- Exchange polygons and determine the area of each other's polygons.



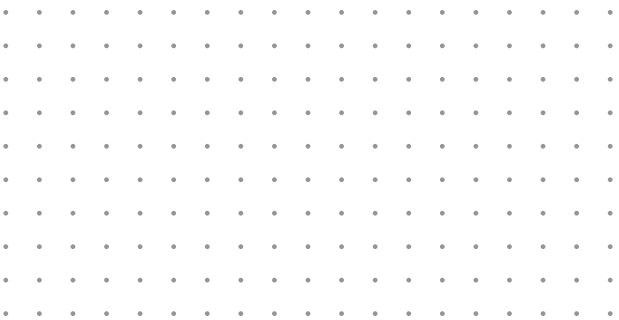
Group Name: ..... Date: ..... Period: .....

Investigation 1
Task 3

Representing the Relationship

Create your own area puzzle.

- Draw a polygon with multiple interior and perimeter points.
- Determine its area on a different paper.
- Exchange polygons and determine the area of each other's polygons.



Investigation 2
Taxicab Geometry

Model the World | Distance and Direction | Graphing Shapes | Ratios, Percents, and Proportional Relationships | Number Line Understanding

6.RP.3, 6.RP.3.b, 6.RP.3.d, 6.NS.6.b, 6.NS.6.c, 6.NS.8, 6.G.3, SMP.4, SMP.5, SMP.6, SMP.7

Task 1

Name: ..... Date: ..... Period: .....

Calculating Taxicab Distance

Taxicab distance is a way of measuring the distance between two points on a grid where you can only move horizontally or vertically. This method reflects how distances are measured in cities with a grid system, such as Sacramento, California.

In Sacramento, you can't usually travel in a straight line between two points because of its grid-like street structure. Instead, you have to follow the streets, moving in a combination of horizontal (east-west) and vertical (north-south) directions, similar to how a taxi navigates through the city. Downtown and Midtown Sacramento streets are organized with numbered streets running north-south and lettered streets running east-west, making it a perfect place to explore Taxicab Geometry.

1. Some key tourist attractions in Downtown and Midtown Sacramento are listed on the *Downtown & Midtown Sacramento* Recording Sheet – along with their intersections – as well as a map of this area. In the table below, determine four different routes between a Midtown attraction and a Downtown attraction. Then sketch a route between the two on the map on your Recording Sheet.

	Downtown Sacramento	Midtown Sacramento
Route 1		
Route 2		
Route 3		
Route 4		

Task 1

Name: ..... Date: ..... Period: .....

Calculating Taxicab Distance (continued)

2. The length of a typical block in Sacramento is approximately 400 feet in both the north-south and east-west directions. For each route you sketched:

- Calculate the taxicab distances between each pair of attractions, in feet.
- Convert the distance to miles. 5280 feet = 1 mile

Note: Ignore the width of the streets when performing your calculations. For blocks that are larger than 1 square unit, use your best judgment to determine its length based on surrounding blocks.

	Taxicab Distance (feet)	Taxicab Distance (miles)
Route 1		
Route 2		
Route 3		
Route 4		

Task 1

Name: ..... Date: ..... Period: .....

Calculating Taxicab Distance (continued)

3. Which route between landmarks had the longest Taxicab distance? Which had the shortest?

4. If you could travel in a straight line (ignoring streets), how would the distance differ from the Taxicab distance for each route?

5. A taxi shuttle company charges a flat rate of $4 plus $3 per mile to transport a passenger from a location Downtown to Midtown (or vice versa). Determine the approximate price of each of your routes for a tourist who uses this taxi shuttle company. Explain or show your thinking.

Route 1: $ .....

Route 2: $ .....

Route 3: $ .....

Route 4: $ .....

6. The taxi shuttle company guarantees to transport tourists between any two locations in Downtown or Midtown Sacramento within 10 minutes or less. Using the taxicab distance you determined for each route, calculate the speed the taxi must travel to meet this time limit. Show or explain your thinking.

Route 1: ..... miles per hour

Route 2: ..... miles per hour

Route 3: ..... miles per hour

Route 4: ..... miles per hour

Investigation 2
Taxicab Geometry

Task 2

Name: ..... Date: ..... Period: .....

Plotting Taxicab Distance

The Sacramento Circuit Taxi Shuttle Company provides reliable transportation across Sacramento, focusing on seamless travel between Downtown and Midtown. Their service area is divided into four zones on a coordinate plane, with their central dispatch location situated at the origin. Your task is to map key landmarks and organize them by zone.

1. On the *Coordinate Plane of Sacramento* Recording Sheet, plot and label each point representing the corresponding landmarks.

Point	Landmark	Coordinate Point
A	California State Capitol	$(-6, 1)$
B	Crocker Art Museum	$(-13, -2)$
C	Golden 1 Center	$(-11, 1)$
D	Sacramento Valley Station	$(-11, 4)$
E	John Muir Children's Park	$(15, 5)$
F	State Indian Museum	$(10, 2)$
G	Sacramento Natural Foods Co-op	$(13, -5)$
H	The Sofia, Home of B Street Theater	$(11, -5)$

2. A popular farm-to-table restaurant is located on 16th St and P St.

a. What ordered pair represents the location of the restaurant on the coordinate plane?

b. How far is the restaurant from Sacramento Circuit's central dispatch location $(0, 0)$?

Task 2

Name: ..... Date: ..... Period: .....

Plotting Taxicab Distance (continued)

The Sacramento Circuit Shuttle Company arranges round-trip journeys for tourists between their hotels and destinations in Downtown and Midtown Sacramento. You will help determine a route that the shuttle can take to get each customer to their destination and then back to their hotel. For each customer:

- **Determine the starting point.** Identify the ordered pair that represents the customer's hotel, which will be the starting and ending point of the trip.
- **Sketch the round-trip route.** On the *Coordinate Plane of Sacramento* Recording Sheet, draw the route using horizontal and vertical segments to represent travel along the streets.
- **Follow Traffic Rules.** Pay attention to the one-way street restrictions indicated on the map, and adjust your route to follow the correct flow of traffic.
- **Calculate the distance.** Use Taxicab geometry to find the total distance for each round-trip route and record your answers in the space provided.

3. Adnan is a solo traveler visiting from Dubai, UAE. He has requested a shuttle to visit the **Golden 1 Center** and the **California State Capitol**.

Location of Hotel: 6th and U St

Ordered pair:

Customer 1:

Total round-trip distance

..... units

4. Daeja and Nasir are a married couple visiting from New York City. They requested a shuttle to visit **The Sofia, Home of B Street Theater** and the **State Indian Museum**.

Location of Hotel: 16th and N St

Ordered pair:

Customer 2:

Total round-trip distance

..... units

5. The Garcias are a family of 4 that is visiting from Austin, Texas. They requested a shuttle to visit the **Sacramento Natural Foods Co-op** and **John Muir Children's Park**.

Location of Hotel: 13th and L St

Ordered pair:

Customer 3:

Total round-trip distance

..... units

Task 2

Name: ..... Date: ..... Period: .....

Plotting Taxicab Distance (continued)

6. Which quadrant(s) has most of the Downtown landmarks? What about the Midtown landmarks?

7. How did the direction of streets affect the route you took? Did you have to make extra turns to follow the one-way rules?

8. Which route was the easiest for you to calculate? Which one was the most challenging? Explain your thinking.

9. How does Taxicab distance relate to real-world travel in cities with grid layouts like Sacramento? What factors might make real travel distances different from Taxicab distance?

Downtown & Midtown Sacramento

Sacramento Landmark Locations

California State Capitol

Address: 1315 10th St, Sacramento, CA
Nearest intersection: 10th St and L St
Downtown

John Muir Children's Park

Address: 1515 C St, Sacramento, CA
Nearest intersection: 16th St and C St
Midtown

Crocker Art Museum

Address: 216 O St, Sacramento, CA
Nearest intersection: 3rd St and O St
Downtown

State Indian Museum

Address: 2618 K St, Sacramento, CA
Nearest intersection: 26th St and K St
Midtown

Golden 1 Center

Address: 500 David J Stern Walk, Sacramento,CA
Nearest intersection: 5th St and L St
Downtown

Sacramento Natural Foods Co-op

Address: 2820 R St, Sacramento, CA
Nearest intersection: 29th St and R St
Midtown

Sacramento Valley Station

Address: 401 I St, Sacramento, CA 95814
Nearest intersection: 5th Ave and I St
Downtown

The Sofia, Home of B Street Theater

Address: 2700 Capitol Ave, Sacramento, CA
Nearest intersection: 27th St and Capitol Ave
Midtown

Coordinate Plane of Sacramento

Note: The arrows on the map indicate one-way streets. Be sure to pay attention to these arrows when creating your routes. Since one-way streets affect which direction you can travel, you'll need to adjust your routes to follow the correct flow of traffic.