ST Math Texas

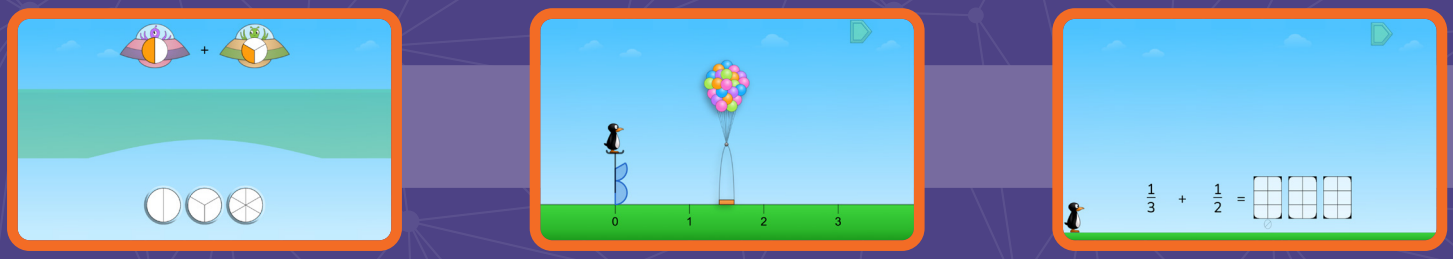
Grade 3

ST Math Practice Book

MIND EDUCATION

TEACHER EDITION

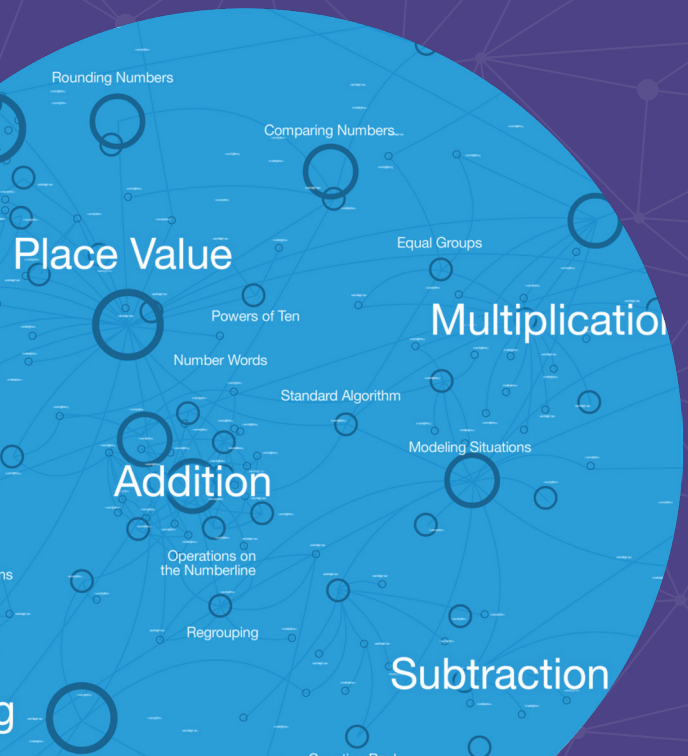
Building Mathematical Progressions Within and Across Grade Levels



Multiple models for every concept within a grade level

Visual-First Learning That Makes Math Click

ST Math Texas is built around a patented visual-first approach that helps students see and understand math. Interactive visuals activate students' spatial-temporal reasoning, building deep understanding even before introducing formal language or procedures.

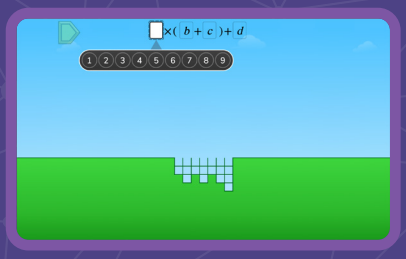


These scaffolded models support problem-solving, strategy sharing, and big-picture thinking—making math feel coherent and connected across and within grade levels.

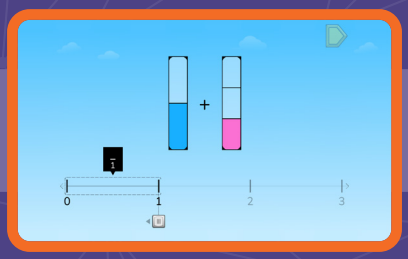
To deepen learning, lessons use multiple representations—visuals, numbers, words, and symbols—helping students form a rich network of ideas they can apply to new problems.

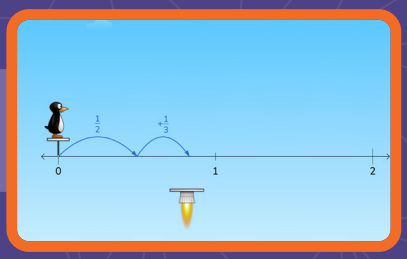
With **ST Math Texas** students go beyond memorization. They develop a connected understanding of math concepts, apply their learning flexibly, and build lasting confidence.

Expressions
Grade 5

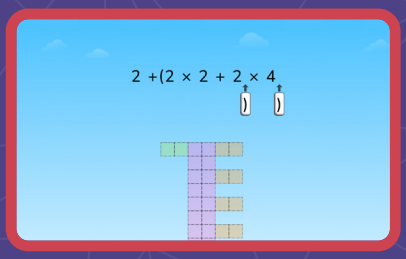


Fractions
Grade 4

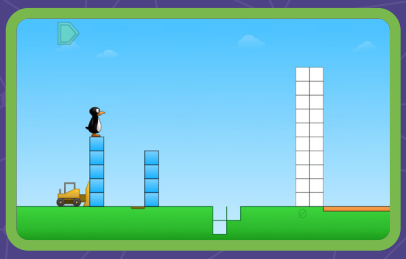




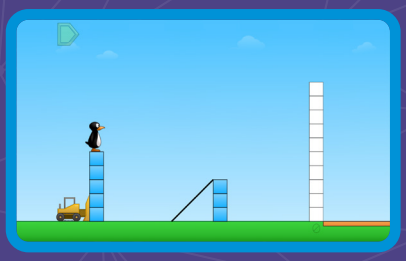
Multiplication
Grade 3



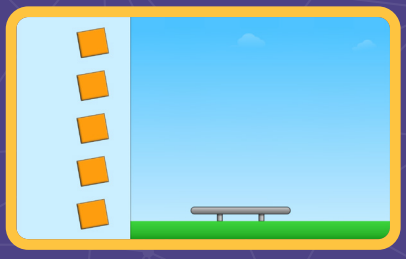
Subtraction
Grade 2



Addition
Grade 1



Counting
Grade K



Connected visual models build in complexity across grade levels

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How to Use This Document

This practice book is a standards-based, year long practice book companion to ST Math Texas.

To use this book in conjunction with ST Math Texas, find the digital games and objectives tied to each Topic. The hyperlinks will take you to the page that allows you to assign the ST Math Texas Objectives that go along with these practice pages.

These pages are designed to be printed and solved with paper and pencil. They come with spiral review, related topics and problems, and world problems that connect to the world around us.

Our help site offers further ties between ST Math, this practice book, and your school or district's curriculum.

Content Overview

Topic 1 (Discovering Multiplication and Division) introduces students to the operations of multiplication and division. This Topic focuses on building a strong conceptual foundation of the mathematics of equal groups, modeling multiplication situations, multiplication and division as inverse operations, and the efficiency of multiplication and division in place of repeated addition and subtraction.

Students explored the attribute of area informally in grade 2, and now in **Topic 2 (Discovering Area)**, they formally explore area of two-dimensional shapes. They directly measure area with Topic squares before discovering that multiplication can be used to indirectly measure the area of a rectangle. This work with area early in the course supports the use of area models of multiplication in subsequent topics.

In **Topic 3 (Exploring Multiplication and Division Strategies)**, students begin to develop more efficient multiplication strategies by using known foundational facts (such as 2s and 10s) to derive unknown facts using strategies such as grouping, partitioning, and compensation. They use their knowledge of area in order to use area as a model for multiplication and to support strategy development.

Students delve deeper into two-dimensional shapes in **Topic 4 (Discovering Perimeter and Exploring Area)**, differentiating between quantifying the size of shape as perimeter or area and investigating the relationship between the two. Students synthesize their understanding of area, multiplication, and division in **Topic 5 (Extending Multiplication and Division Strategies)** as they pair symbolic representations with area models, multiply and divide fluently, and extend their strategies to multidigit numbers.

In Topic 6 (Using Place Value to Add and Subtract), the focus shifts to place value understanding and how that supports comparison, addition, and subtraction of multidigit numbers. As students begin working with greater numbers, there is an emphasis on real-world examples in order to support understanding of magnitude.

In earlier grade levels, students partitioned shapes into equal shares and described the pieces as halves, thirds, etc. **Topic 7 (Discovering Fractions)** formally introduces students to fractions and fractional notation. Students first come to understand Topic fractions as one piece of a whole, and then extend their understanding to non-Topic fractions through both iteration and partitioning. This builds on students' schema of iterating topics of length and area. In **Topic 8 (Exploring Fractional Thinking)**, students extend their understanding of fractions in order to generate simple equivalent

fractions and to make comparisons. They come to understand fractions as numbers and recognize that there are many equivalent ways to represent the same number.

In Topic 9 (Exploring Measurement), students make use of their new knowledge of fractions to understand measurement as continuous, and express length measurements as fractions. They also extend their measurement schema to the attributes of volume and weight. With a larger repertoire of ways in which to quantify size, they learn to select appropriate attributes and topics in context.

Topic 10 (Deepening Financial Literacy) provides students with an opportunity to apply their addition and subtraction skills to solve problems related to money while also considering how financial decisions impact one another. Students complete the year applying their skills to more real-world contexts in **Topic 11 (Investigating Data)**.

Topic 1: Discovering Multiplication and Division

ST Math Objectives: Multiplication Concepts, Division Concepts, Multiplication and Division Relationships

TEKS: 1.1.F 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.2.D 3.4.D 3.4.E 3.4.F 3.4.G 3.4.H 3.4.I 3.4.K 3.5.B 3.5.C 3.5.D 3.8.B

ELPS: 1.A 1.B 1.C 1.E 1.F 2.A 2.B 2.C 2.D 2.E 3.A 3.C 3.E 3.F 3.G 3.H 4.A 4.D 4.E 4.F

Topic 2: Exploring Area

ST Math Objectives: Multiplication and Area, Area and Perimeter, Properties of Multiplication

TEKS: 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.4.E 3.4.K 3.5.B 3.6.C

ELPS: 1.A 1.B 1.D 1.E 2.B 2.D 2.E 2.F 3.C 3.F 3.G 4.A 4.C 4.D 4.E 4.F

Topic 3: Exploring Multiplication and Division Strategies

ST Math Objectives: Multiplication Facts and Strategies, Division Facts and Strategies, Properties of Multiplication

TEKS: 1.1.D 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.4.E 3.4.F 3.4.G 3.4.H 3.4.J 3.4.K 3.5.B 3.5.D 3.6.C 3.6.D 3.8.A 3.8.B

ELPS: 1.A 1.B 1.E 2.B 2.C 2.D 2.E 2.F 3.A 3.E 3.F 3.G 4.A 4.D 4.E

Topic 4: Discovering Perimeter and Exploring Area

ST Math Objectives: Area and Perimeter, Shape Attributes, Multiplication and Area

TEKS: 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.4.A 3.4.K 3.6.A 3.6.B 3.6.C 3.6.D 3.7.B

ELPS: 1.A 1.B 1.C 1.E 2.A 2.B 2.C 2.E 2.F 3.A 3.E 3.F 3.G 3.H 4.A 4.D 4.E

Topic 5: Extending Multiplication and Division Strategies

ST Math Objectives: Multiplication and Division Facts, Multiplication as Comparison, Solve Two-Step Problems

TEKS: 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.4.E 3.4.F 3.4.G 3.4.I 3.4.K 3.5.B 3.6.C 3.6.D 3.8.A 3.8.B

ELPS: 1.A 1.B 1.C 1.D 1.E 1.F 2.A 2.B 2.C 2.D 2.E 2.F 3.A 3.C 3.E 3.F 3.G 3.H 4.A 4.B 4.C 4.D 4.E 4.F

Topic 6: Extending Place Value and Adding and Subtracting Efficiently

ST Math Objectives: Place Value to 100,000, Addition and Subtraction within 1000 Strategies, Composing and Decomposing within 1000

TEKS: 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.2.A 3.2.B 3.2.C 3.2.D 3.4.A 3.4.B 3.5.A 3.5.C

ELPS: 1.A 1.B 1.D 1.E 1.F 2.A 2.B 2.C 2.D 2.E 2.F 3.A 3.B 3.C 3.D 3.E 3.F 3.G 3.H 4.A 4.D 4.E

Topic 7: Discovering Fractions

ST Math Objectives: Fraction Concepts, Fractions on the Number Line, Number Patterns

TEKS: 3.1.A 3.1.B 3.1.D 3.1.E 3.1.F 3.1.G 3.3.A 3.3.B 3.3.C 3.3.D 3.3.E 3.6.E 3.7.A

ELPS: 1.A 1.B 1.C 1.E 2.A 2.B 2.C 2.D 2.E 2.F 3.A 3.F 4.A 4.D 4.E 4.F

Topic 8: Exploring Fraction Thinking

ST Math Objectives: Fraction Equivalence and Ordering, Fractions on the Number Line, Fraction Concepts

TEKS: 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.3.A 3.3.B 3.3.C 3.3.D 3.3.F 3.3.G 3.3.H 3.6.E 3.7.A

ELPS: 1.A 1.B 2.B 2.C 2.D 2.E 3.A 3.B 3.C 3.D 3.F 4.A 4.D 4.E

Topic 9: Exploring Measurement

ST Math Objectives: Time to the Minute, Intervals of Time, Weight and Volume

TEKS: 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.3.H 3.4.A 3.4.K 3.5.E 3.6.A 3.7.A 3.7.D 3.7.E 3.8.A 3.8.B

ELPS: 1.A 1.B 1.C 1.D 1.E 2.A 2.B 2.C 2.D 2.E 2.F 3.A 3.B 3.D 3.E 3.F 4.A 4.B 4.C 4.D 4.E 4.F

Topic 10: Deepening Financial Literacy

ST Math Objectives: Money with Coins and Bills, Addition and Subtraction within 1000 Strategies, Solve Two-Step Problems

TEKS: 3.1.A 3.1.B 3.1.E 3.1.F 3.1.G 3.4.A 3.4.C 3.4.K 3.5.C 3.5.E 3.9.A 3.9.B 3.9.C 3.9.D 3.9.E 3.9.F

ELPS: 1.A 1.F 2.A 2.C 2.D 2.E 3.A 3.C 3.E 3.F 3.H 4.A 4.B 4.C 4.D 4.E

Topic 11: Investigating Data

ST Math Objectives: Line Plots, Scale and Measurement in Graphing, Number Patterns

TEKS: 3.1.A 3.1.B 3.1.C 3.1.D 3.1.E 3.1.F 3.1.G 3.7.C 3.8.A 3.8.B

ELPS: 1.A 1.E 2.B 2.E 2.F 3.A 3.B 3.C 3.E 3.F 3.G 4.A 4.C 4.D 4.E

Topic 1

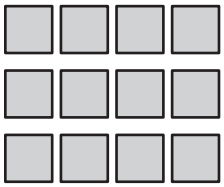
Discovering Multiplication and Division

Recommended ST Math Objectives:

Multiplication Concepts
Division Concepts
Multiplication and Division Relationships

Name: _____ Date: _____

Exploring Equal Groups

1. 

Write an equation to match the model.

4 + 4 + 4 = 12

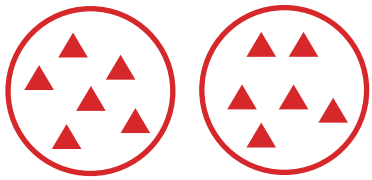
2. Is 7 an odd number or an even number?

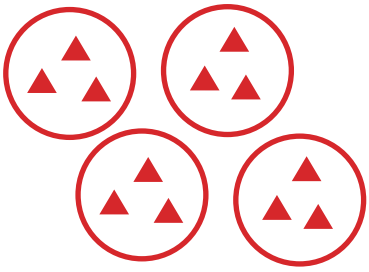
Draw a picture to show your thinking.

7 is an odd number.

3. You have 12 triangles. Draw 2 different ways that you can put them into equal groups.

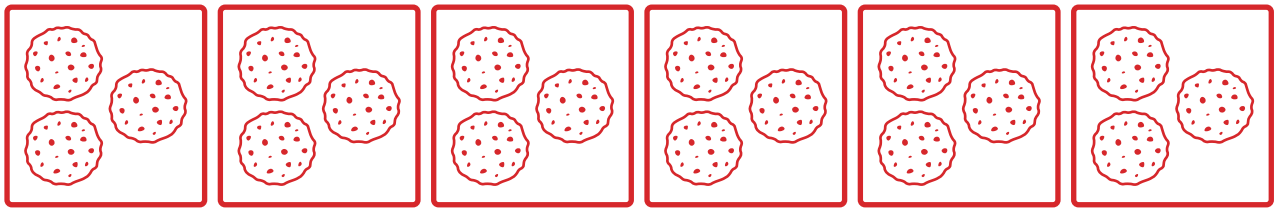
Possible answers:





4. You have 18 cookies that you are putting in boxes for the school bake sale. Each box needs to have the same number of cookies. If you have 6 boxes, how many cookies can you put in each box? Explain your thinking.

I can put 3 cookies in each box.



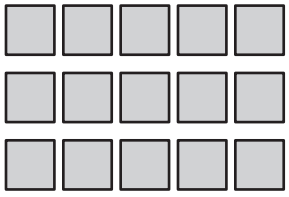
Did you show your thinking?

Name: _____ Date: _____


Jaymie

Using Equal Groups to Find the Total

1



How many squares are in this model?

15

Is the number of squares odd or even?

odd

How do you know?

Student answers will vary.

2 The glue sticks in Jaymie's classroom come in packs of 4. How many glue sticks could Jaymie's classroom have?

Explain your thinking.

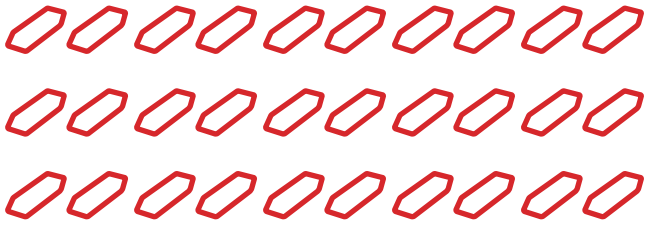
Student explanations will vary.

Possible answers:

4, 8, 12, 16, 20, 24, 28, 32

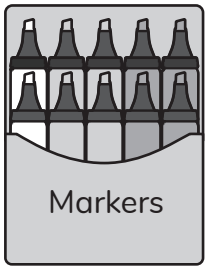
3 If Jaymie's class has 30 erasers, could the erasers come in packs of 3?

Show your work.

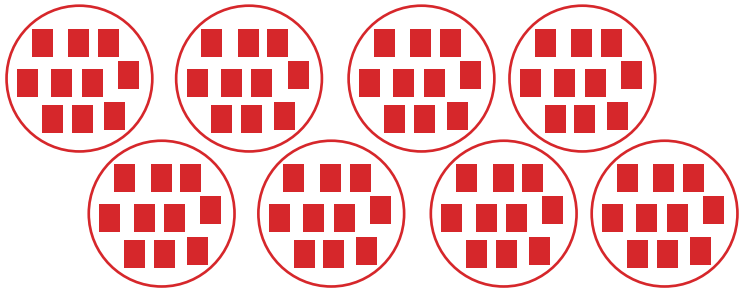


Yes, there are 10 packs of 3 erasers.

4 Jaymie has 8 packs of markers for the school supply sale. Each pack of markers contains 10 markers. How many total markers are there? Show your work.



There are 80 markers.

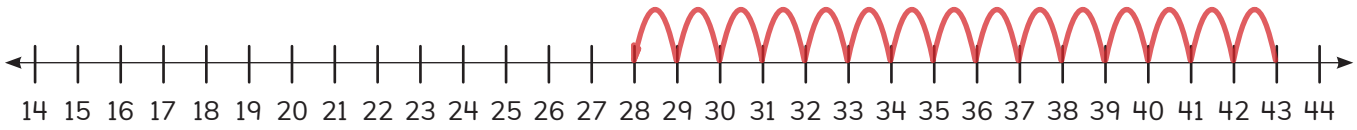


Did you show your thinking?

Name: _____ Date: _____

Writing Repeated Addition Equations to Model Equal Groups

1 Use the number line to find the difference of 43 – 15.

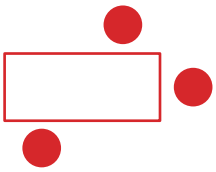


43 – 15 = 28

2 Count by 5s.

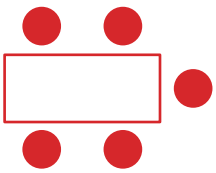
55 60 65 ***70*** ***75*** ***80*** ***85*** ***90***

3 a) There are 6 tables in the library at Jaymie's school. If there are 3 students at each table, how many students are in the library?



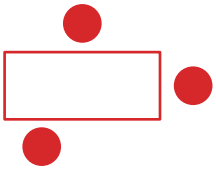
6 × 3 = 18 students

b) More students enter the library. Now there are 5 students at each table. How many students are in the library now?



6 × 5 = 30 students

4 Brian's classroom has 8 tables. Each table has 3 students. How many students are in Brian's class? Explain your thinking.



8 × 3 = 24 students

Student explanations will vary.

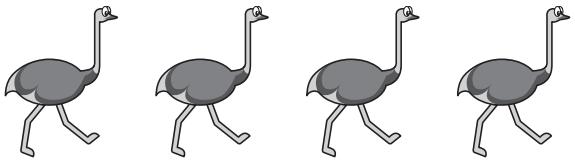
Name: _____ Date: _____


Jaymie

Introducing Multiplication

1. Solve.

$24 - 8 =$ **16** $37 - 30 =$ **7**

2. 

Write an equation to show how many shoes these ostriches need.

Possible answers:

2 + 2 + 2 + 2 = 8 ***2 × 4 = 8*** ***4 × 2 = 8***

3. 

Circle the expressions that represent the shoes the dogs need.

4 + 4 + 4 + 4 + 4 **5 + 5 + 5 + 5 + 5** **5 × 4** **2 × 10**

4. Jaymie helped her art teacher set up the art room for her school's Painting Club. She put 3 jars of paint on the table. This expression represents the number of paintbrushes she put on the same table.

5×3

Circle the statement that is true.

There are 5 more paintbrushes than jars of paint on the table.

There are 5 times as many paintbrushes as jars of paint on the table.

There are 5 times as many jars of paint as paintbrushes on the table.

Name: _____ Date: _____


Jaymie

Modeling and Solving Multiplication Problems with Equal Groups

1 Solve.

$19 + 9 =$ **28**

The sum of 19 and 9 is an even number.

True False

2 Skip count by 2.

30 32 34 **36** **38** **40** **42** **44**

3 Draw a creature with 3 legs. Use the creature to solve the following problems.

Student answers will vary.

$4 \times 3 =$ **12**

Student answers will vary.

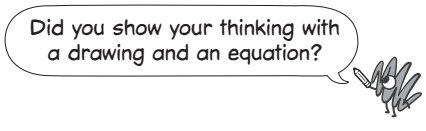
$5 \times 3 =$ **15**

4 Jaymie is helping to put flowers in vases to give to the third-grade teachers for Teachers' Day. She knows there are 5 teachers. She wants to put 6 flowers in each vase. Draw a picture to model this story. Then, write an equation to show how many flowers Jaymie will need to make the gifts.

Possible answers:

5 × 6 = 30 flowers

6 × 5 = 30 flowers



Name: Date:

Modeling and Solving Partitive Division Problems

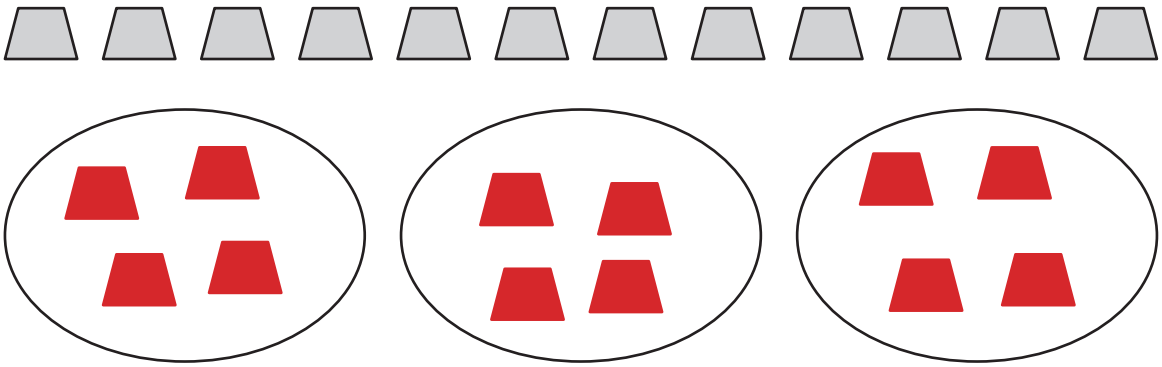
1. Write four equations using the numbers 7, 8, and 15.

$7 + 8 = 15$ $\quad$ $15 - 7 = 8$

$8 + 7 = 15$ $\quad$ $15 - 8 = 7$

2. Is 82 < 63? Yes **No**

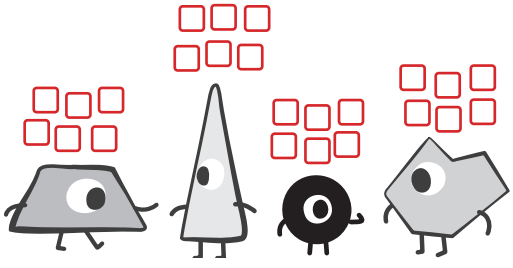
3. If the trapezoids are shared equally, show how many are in each group. ***4 trapezoids***

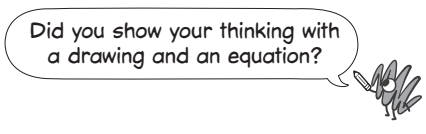


4. These critters have 24 squares to share. How many squares will each critter get if the squares are shared equally? Draw a picture to model this story. Then, write an equation to show how many squares each critter will receive.

Each critter will get 6 squares.

24 ÷ 4 = 6





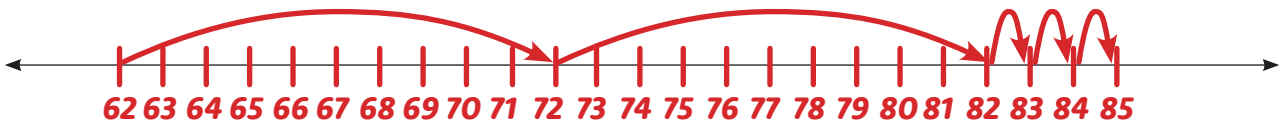
Name: Date:

Modeling and Solving Quotitive Division Problems

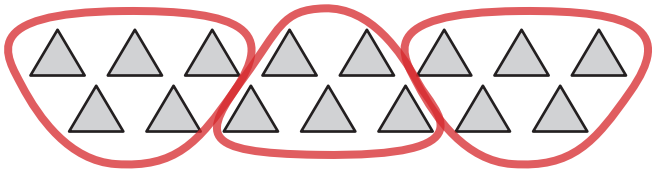
1. Write the missing number. $9 + 9 = \boxed{7} + 11$

2. Use the number line to find the sum of 62 + 23.

Possible model:



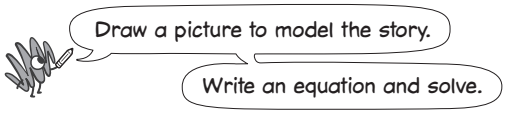
62 + 23 = 85

3. 

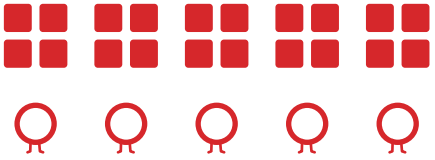
How many groups of 5 can be made from these triangles?

3 groups

4. There are 20 squares. Each critter gets 4 squares. How many critters are there?



20 ÷ 4 = 5 critters



5. On their field trip to the zoo, 27 students decide to ride the boat ride. If 3 students can fit in each boat, how many boats will be needed so everyone can ride? Draw a picture to model this story. Then, write an equation to show how many boats will be needed. Explain your thinking.

27 ÷ 3 = 9 boats

Student explanations will vary.

Name: _____ Date: _____

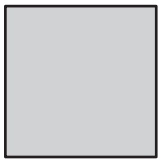

Jaymie

Interpreting Division Situations

1. Circle the correct time.

11:00 **11:55** **10:55**

2. Finish each statement.



One square has **4** sides.

Two squares have **8** sides.

Three squares have **12** sides.

3. Solve by drawing a picture to model the equation. $12 \div 3 = 4$

4 ■ ■ ■ ■

4 ■ ■ ■ ■

4 ■ ■ ■ ■

4. Jaymie is refilling the pencils in her classroom. She has 30 pencils and 6 tables that need pencils. If every table should have the same number of pencils, how many pencils does Jaymie need to put at each table? Write an equation and solve.

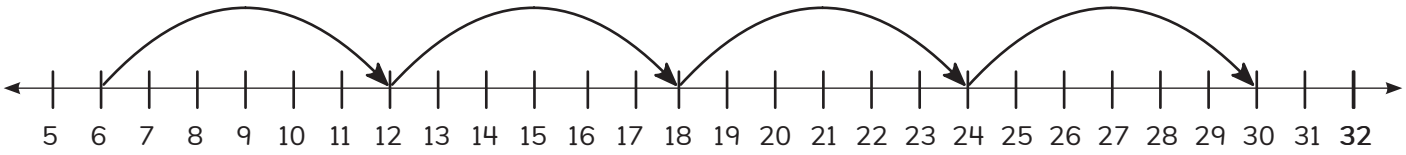
30 ÷ 6 = 5 pencils

Name: _____ Date: _____


Jaymie

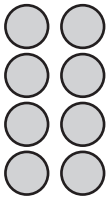
Using Arrays to Organize Equal Groups

1. Write the equation represented by the number line.



6 + 6 + 6 + 6 + 6 = 30

2. Write a multiplication expression that represents this array.

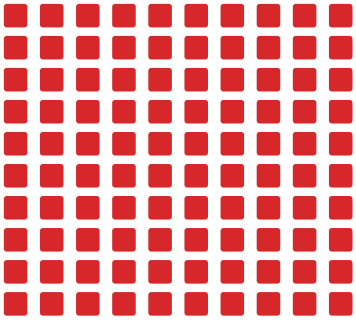


Possible answers:

4 × 2

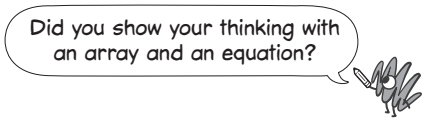
2 × 4

3. Make an array to represent 10 × 10.



4. Jaymie is helping to set up chairs for her school's art show. She puts the chairs in an array that has 4 rows with 9 chairs in each row. How many chairs does Jaymie use? Draw an array and write an equation to support your answer.

4 × 9 = 36 chairs



Name: _____ Date: _____


Hannah

Modeling and Solving Word Problems Involving Arrays

1 Write the multiplication equation represented by the repeated-addition expression.

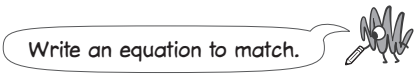
$4 + 4 + 4 + 4 + 4 + 4$

$4 \times 6 = 24$

2 Circle the correct length for the average pencil.

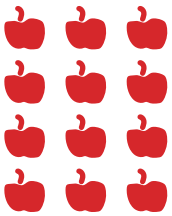
20 meters **20 centimeters**

3 Hannah has 12 tomato seeds she wants to plant. Draw how she could plant them in equal rows.



Student answers will vary.

6 × 2 = 12



3 × 4 = 12

4 Write an equation for how many squash are planted here.

Possible answers: *1 × 5 = 5* *5 × 1 = 5*

5 Hannah is planting pumpkin seeds with her dad on their farm. She has 18 seeds. Draw 2 different arrays she could use to plant the seeds. Write an equation to match each array.

Student answers will vary.

6 × 3 = 18

3 × 6 = 18

Name: _____ Date: _____

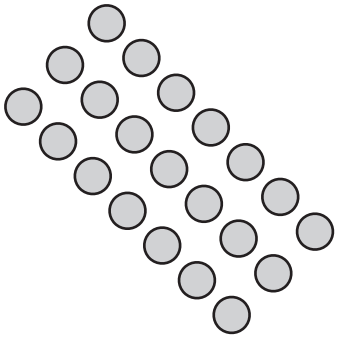

Hannah

Exploring the Commutative Property of Multiplication

1. Circle the expressions that represent the amount of tentacles.

3 + 8 **3 × 8** **8 + 8 + 8** 3 + 3 + 3

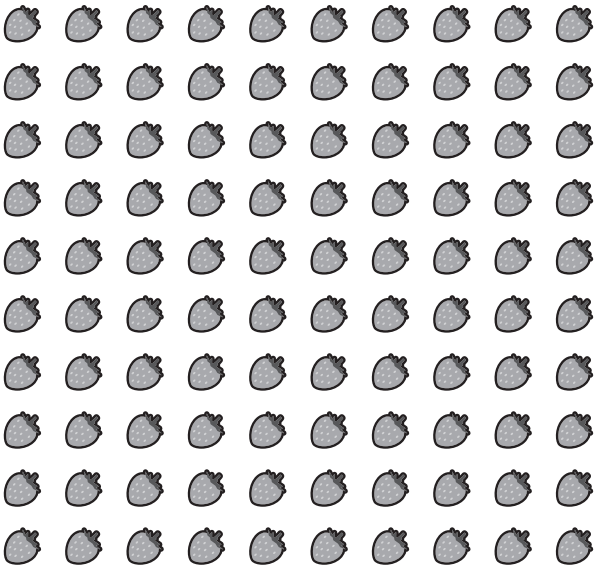
2. Write 2 equations that represent the number of circles in this array.



3 × 7 = 21

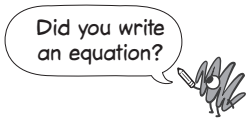
7 × 3 = 21

3. How many strawberries are in this array? Solve with an equation.



10 × 10 = 100

100 strawberries



Name: _____ Date: _____


Hannah

Using the Commutative Property of Multiplication Strategically

1. Write the 3 numbers that come next as you count.

267, 268, 269, **270**, **271**, **272**

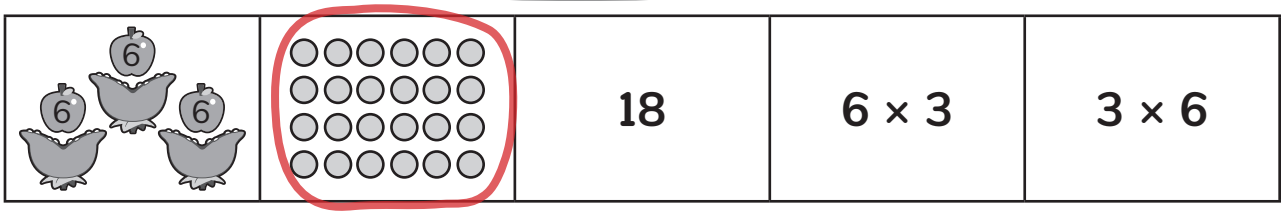
2. Continue the pattern.

105, 110, 115, **120**, **125**, **130**

3. Which expression would you prefer to solve: 9 × 10 or 10 × 9? Explain your thinking.

Student answers will vary.

4. Which one does not belong? Explain your thinking.



Possible explanation:

The array has 24 dots, while every other expression or picture represents 18.

5. At the farmers market, Hannah's dad has 8 boxes of apples to sell. Each box has 6 apples. How many apples will Hannah's dad sell if he sells all of the apples he has? Write an equation to represent the problem.

Possible answers:

8 × 6 = 48 apples

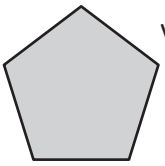
6 × 8 = 48 apples

Did you show your thinking with an equation?

Name: _____ Date: _____


Hannah

Using Patterns to Multiply

1 

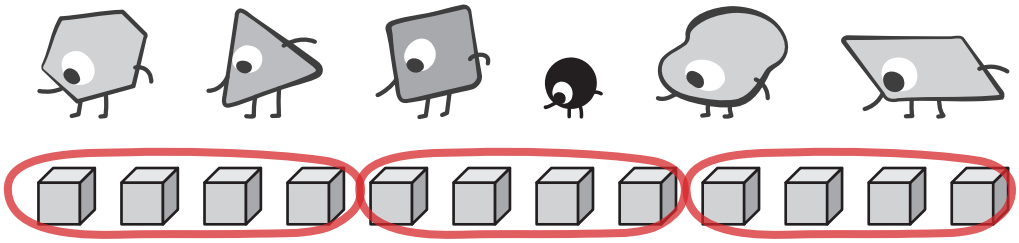
What is the name of this shape? How do you know?

Pentagon; it is a polygon with 5 sides.

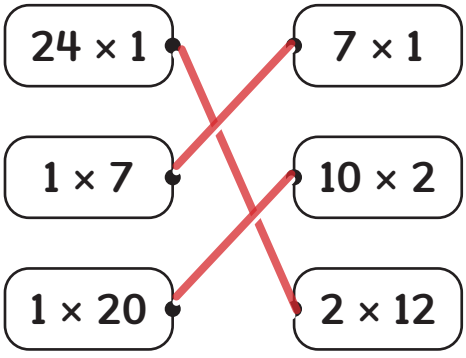
2 How many of the critters could equally share the blocks? Show how you know.

1, 2, 3, 4, or 6 critters

Possible explanation for 3 critters:



3 Draw a line to match equations with the same product.



4 Can you divide 80 into 10 equal groups? Why or why not?

Possible answer:

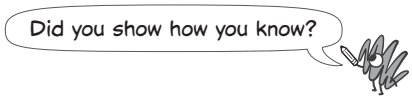
Yes, because when I skip count by 10, I land on 80.

5 Jaymie is helping to finish setting up 10 chairs for a performance at school. What are two different ways Jaymie could arrange the chairs into equal groups? Show how you know.

Possible answer:

2 × 5

1 × 10



Name: _____ Date: _____


Jaymie

Using Multiplication and Division Patterns to Solve Equal-Group Problems

1. About how many students would be in 2 third-grade classes?

5 students **50 students** 500 students

2. Write 5 × 7 as a repeated-addition equation.

7 + 7 + 7 + 7 + 7 = 35

3. Circle True or False for each statement, and then explain your answer.

a) 26 crayons can be put into 8 equal groups. True **False**

Possible answer:
There are 2 extra crayons when you put 26 crayons into groups of 8. This does not make equal groups.

b) 24 crayons can be put into 6 equal groups. **True** False

Possible answer:
24 crayons can be put into 6 groups of 4. This makes equal groups.

4. Jaymie organizes the markers in the art bin so there are 6 markers in each group. Her teacher reorganizes the markers so there are 3 markers in each group. There are fewer than 20 markers in the art bin. How many markers might be in the art bin? Explain your thinking.

Possible answers: ***6, 12, or 18***

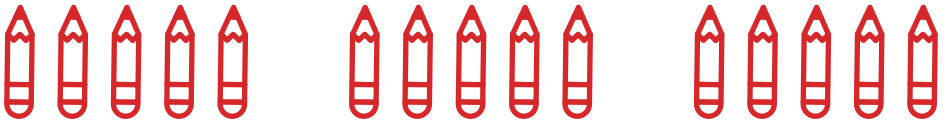
Student explanations will vary.

Name: _____ Date: _____

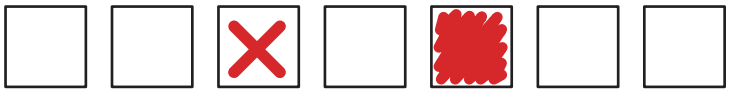

Hannah

Using Multiplication and Division to Unlock the Barn

1 How could you split 15 pencils into 3 equal groups?



2 Put an X on the third square. Fill in the fifth square.



3 Use the pictograph to answer the following questions.

a) Hannah says that she and her dad sold 3 ears of corn at the farmers market on Tuesday. Is Hannah correct?

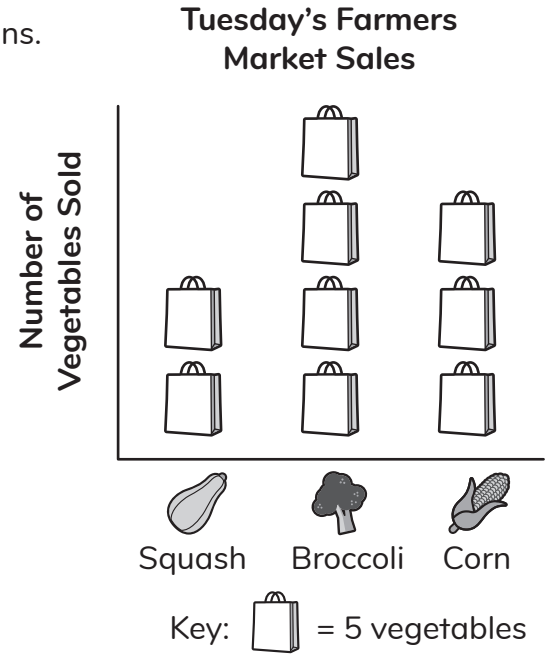
Yes **No**

b) How much squash was sold at the farmers market on Tuesday? Write an equation and show your thinking.

Possible answers:

2 × 5 = 10 squash

5 × 2 = 10 squash

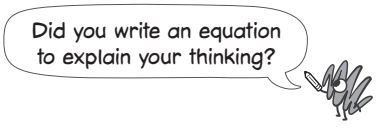


4 Each month, Hannah puts the sunflowers that she and her dad grow into bunches to sell at the farmers market. Each bunch has 6 sunflowers, and she would like to make 7 bunches. How many sunflowers does Hannah need? Write an equation and solve.

Possible answers:

6 × 7 = 42 sunflowers

7 × 6 = 42 sunflowers



Topic 2

Exploring Area

Recommended ST Math Objectives:

Multiplication and Area

Area and Perimeter

Properties of Multiplication

Name: _____ Date: _____


Jaymie

Superimposing to Directly Compare Area

1. Write the number that is 30 more than 73.

   103

2. Write a repeated-addition expression that has the same value as the expression 4 × 6.

   Possible answers:

   4 + 4 + 4 + 4 + 4 + 4
   6 + 6 + 6 + 6

3. Describe something that you learned during today's lesson.
   Use the words *area* and *compare* in your description.

   Student answers will vary.

4. Jaymie bought 3 bags of erasers at the school book fair. Each bag held 6 erasers.
   How many erasers did she buy?

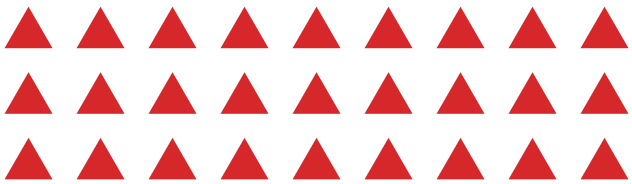
   18 erasers

Name: _____ Date: _____

Making Indirect Comparisons of Area


Hannah

1. a) Draw an array to represent 3 × 9.



b) How many objects are in your array?

27 objects

2. Select ALL of the choices that represent 53.

☑ 5 tens and 3 ones ☑ 50 + 3 ☐ 3 tens and 5 ones

3. How does area help you compare 2 shapes?

Student answers will vary.

4. Hannah's dad planted 5 rows of bean plants. There are 7 bean plants in each row. How many bean plants did Hannah's dad plant?

35 bean plants

Name: Date:


Arman

Measuring Area with Nonstandard Units

1. Solve.

$8 \times 5 =$ **40**

$4 + 5 + 6 + 9 + 5 =$ **29**

2. What is something new you know about area after today's lesson?

Student answers will vary.

3. Arman wants to design a tile mosaic for his mother. He buys 6 boxes of tiles. Each box has 8 tiles. How many tiles does Arman have for his mosaic?

48 tiles

Name: _____ Date: _____


Arman

Measuring Area with Unit Squares

1 Arman designed a mosaic with triangles and rhombuses. He used 8 triangles in his mosaic. This expression represents the number of rhombuses he used in the same mosaic.

$$6 \times 8$$

Circle the statement that is true.

There are 6 times as many triangles as rhombuses in his mosaic.

There are 6 more triangles than rhombuses in his mosaic.

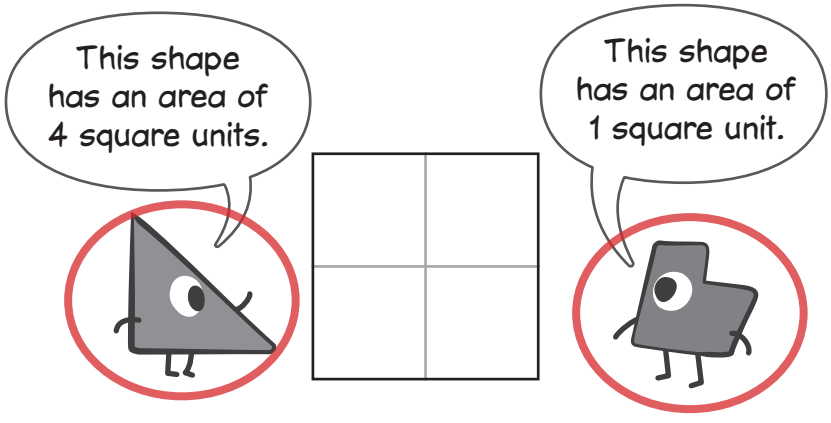
There are 6 times as many rhombuses as triangles in his mosaic.

2 a) Draw an array for 3 × 8.

b) How many objects are in your array?

24

3 Circle the critter you agree with. Show your thinking.



Possible explanation:

If you consider the 4 small squares to be the unit squares, then the shape's area is 4 square units.

If instead you consider the one big square to be the unit square, then the shape's area is 1 square unit.

Either choice is correct.

4 Arman is designing another mosaic. His design has 6 rows of 10 square tiles. How many square tiles does Arman's design use?

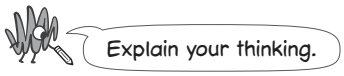
60 tiles

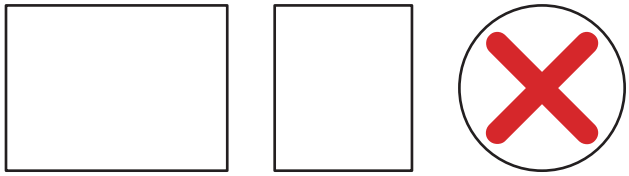
Name: _____ Date: _____


Arman

Measuring Area with Square Inches

1 Put an X on the shape that does not belong.





Possible explanation:

The circle does not have straight lines and sides.

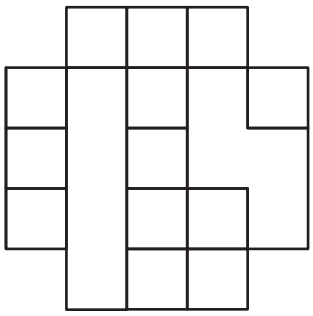
2 Does 4 × 5 = 5 × 4? Why or why not?

Yes, 4 × 5 = 5 × 4.

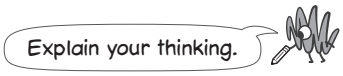
Possible explanation:

4 groups of 5 = 20 and 5 groups of 4 = 20.

3



What is the area of the shape?



21 square units

Possible explanation:

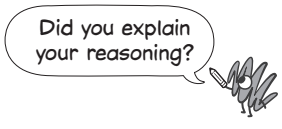
If you draw lines where there are lines missing and count the square units, the answer is 21 square units.

4 Arman uses 72 square inch tiles to create his next mosaic design. Arman says that if he uses square centimeter tiles to create the same design, he will need more than 72 tiles. Do you agree? Explain your reasoning.

Yes, he will need more than 72 tiles.

Possible explanation:

Square centimeters are smaller than square inches. Arman would need more square centimeter tiles to cover the same area.



Name: _____ Date: _____


Jaymie

Measuring Area with Square Centimeters

1. Which job would require you to measure area?

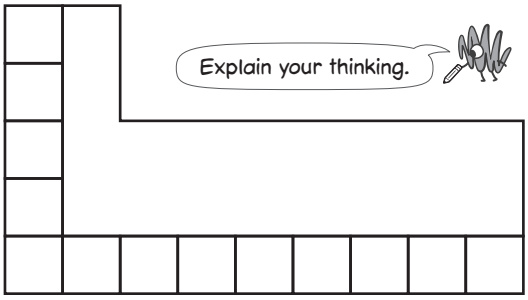
☑ painting a wall ☐ selling lemonade

2. Solve.

$7 \times 4 =$ **28**

3. What is the area of the shape?

31 square units



Possible explanation:

Draw the missing squares and count them.

The bottom rectangle is 3 × 9 = 27.
The top square is 2 × 2 = 4, and 27 + 4 = 31.

4. Jaymie is helping her teacher make bags of cookies for a class party. Each bag needs 4 cookies in it, and Jaymie will make 8 bags. How many cookies will Jaymie use?

32 cookies

Name: _____ Date: _____

Using a Grid to Measure Area

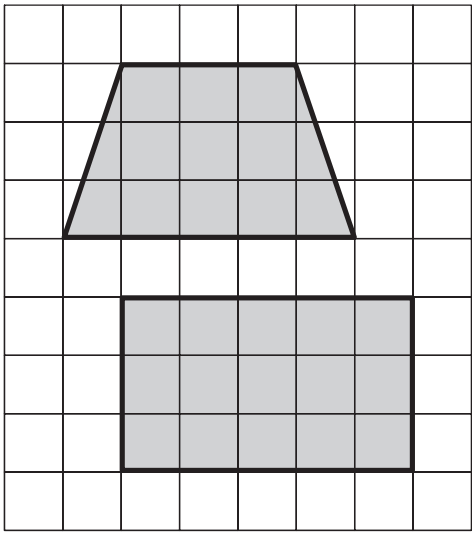
1. Which unit of measure would you use to find the area of your Playbook?

☐ inches ☑ square inches

2. Continue the pattern. 6, 12, 18, **24**, **30**, **36**

3. a) What is the area of the rectangle?

15 square units



b) Circle the phrase that will correctly complete the sentence.

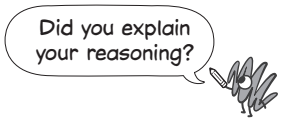
The area of the trapezoid is _____ the area of the rectangle.

less than **greater than** **equal to**

4. Rectangle A can be covered by 6 rows with 4 square units in each row. Rectangle B can be covered by 7 rows with 3 square units in each row. Which rectangle has a smaller area? Explain your thinking.

Possible answer:

Rectangle B has a smaller area. It has an area of 21 square units. Rectangle A has an area of 24 square units.



Name: _____ Date: _____


Hannah

Using Multiplication to Find the Area of Rectangles

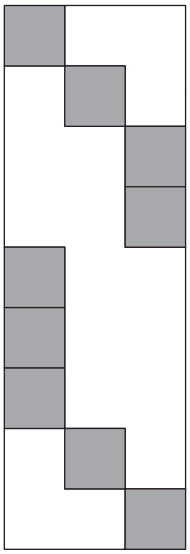
1 Continue the pattern.

8, 16, 24, **32**, **40**, **48**

2 About how long would it take you to brush your teeth?

☐ 20 minutes ☑ 2 minutes ☐ 2 hours

3



a) What is the area of this shape?

27 square units

b) Explain how you found the area.

Possible answer:

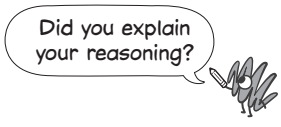
I counted 9 rows with 3 boxes in each row.

4 Hannah is preparing a field to grow pumpkins. She has dug 3 rows of holes with 8 holes in each row to put seeds into. How many holes has she dug? Explain your thinking.

24 holes

Possible answer:

I multiplied 3 × 8 to get my answer.



Name: _____ Date: _____


Arman

Writing Equations to Represent the Area of Rectangles

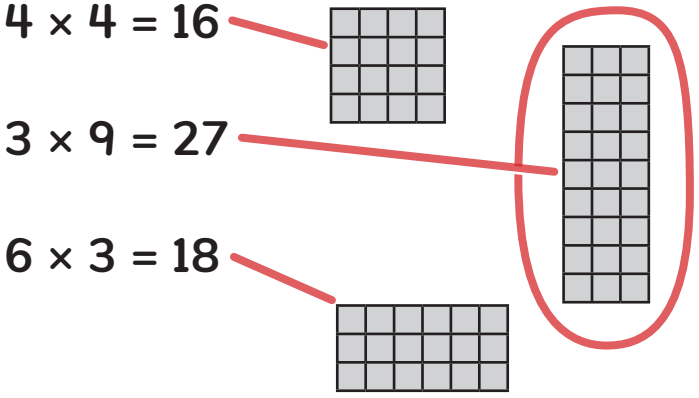
1 Write a repeated-addition expression that has the same value as the multiplication expression 3 × 9.

9 + 9 + 9 or 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3

2 Write the total value of each group of coins.

7 dimes ***70¢*** 5 nickels ***25¢*** 3 quarters ***75¢***

3



a) Match each equation to a rectangle.

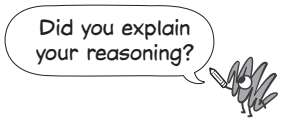
b) Circle the rectangle that matches the equation 9 × 3 = 27.

4 Arman is designing a mosaic out of square tiles. He has a total of 24 tiles. If he uses all 24 tiles in the design, what are 2 different rectangles he could make? Write an equation to describe each design option. Explain your thinking.

Possible answer:

2 × 12 = 24 3 × 8 = 24

Student explanations will vary.



Name: _____ Date: _____


Jaymie

Using Side Lengths to Indirectly Measure the Area of Rectangles

1. Jaymie measured the area of the dry-erase board in her classroom.
Which area measurement most likely matches what Jaymie measured?

☐ 24 feet ☑ 24 square feet ☐ 24 inches

2. Solve.

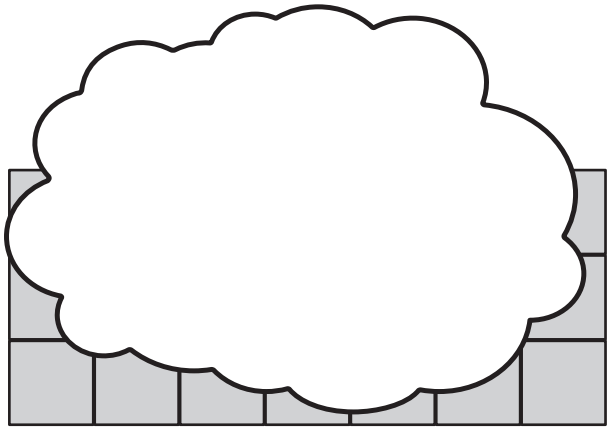
$9 \times 9 =$ **81**

3. a) What is the area of the rectangle?

21 square units

b) Write an equation to show how you found the area of the rectangle.

7 × 3 = 21

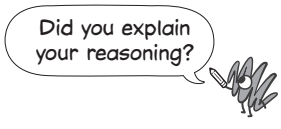


4. If the art teacher has 9 packs of markers, and each pack has 8 markers, how many markers does the art teacher have? Explain your thinking.

72 markers

Possible answer:

I know that 8 × 9 = 72.



Name: _____ Date: _____


Arman

Using a Ruler to Indirectly Measure the Areas of Rectangles

1 Arman drew an array that has 12 objects. How many rows and how many objects in each row could his array have?

- [x] 6 rows, 2 objects in each row
- [ ] 10 rows, 2 objects in each row
- [x] 4 rows, 3 objects in each row

2 Write a multiplication expression that has the same value as the repeated-addition expression 5 + 5 + 5 + 5.

Possible answers:

5 × 4 ***4 × 5***

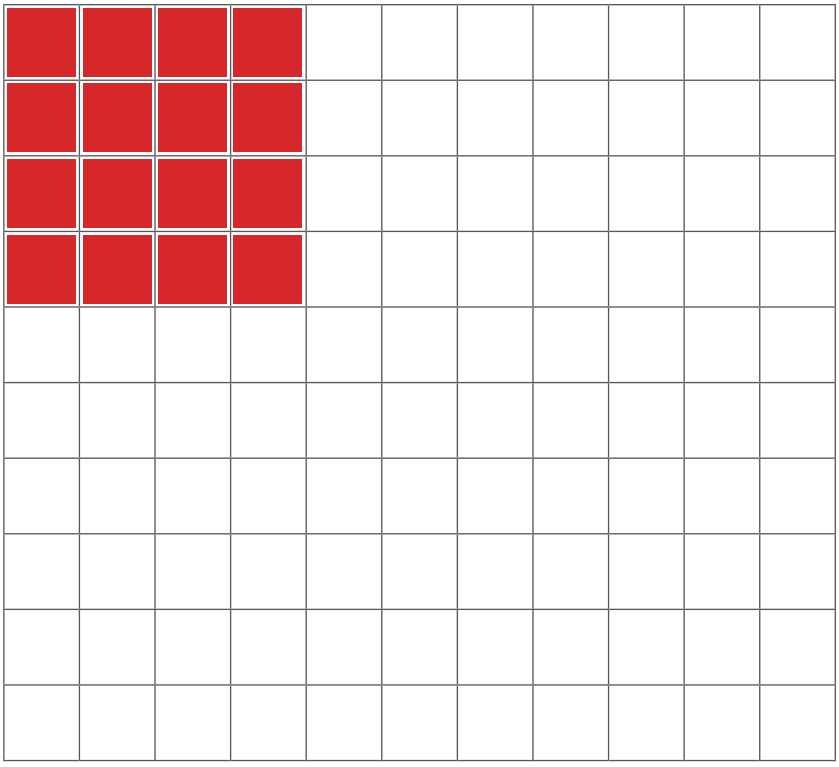
3 a) Create a rectangle with an area of 16 square centimeters.

b) Write an equation to match your rectangle.

Possible answer:

4 × 4 = 16

Possible answer:

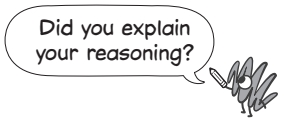


4 Arman has 45 tiles for his next mosaic design. If he splits the tiles into groups of 5, how many groups of tiles will he make? Explain your thinking.

9 groups

Possible answer:

I know that 5 × 9 = 45.



Name: _____ Date: _____


Aleki

Measuring Area with Square Feet

1. Solve.

$4 + 6 + 9 + 7 + 1 + 5 + 3 =$ **35**

2. What unit of measure would you use to find the height of a house?

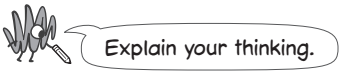
☑ feet ☐ centimeters

3. Aleki wants to paint some walls in his living room. One of the walls is 7 ft long and 8 ft high, and the other wall is 6 ft long and 8 ft high.

a) What are the areas of the walls?

56 sq. ft and 48 sq. ft

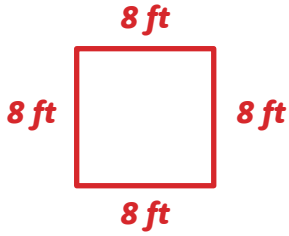
b) If Aleki has enough paint to cover 100 sq. ft, does he have enough paint for both walls?



No. The total area of the walls is 104 sq. ft, which is greater than the 100 sq. ft of paint that Aleki has.

4. A critter has a garden in the shape of a square that measures 8 feet on each side. What is the area of the garden? Draw a picture to show your thinking.

64 sq. ft



Name: _____ Date: _____

Measuring Area with Square Meters

1. Show how to put 24 markers into 3 equal groups.

24 ÷ 3 = 8 markers per group

2. Connect the measurement to its correct unit:

Length	Square Feet
Area	Feet

3. Hannah is planning out the fields that she and her dad will be planting in this year. She wants the sunflower field to have the dimensions of 4 meters by 9 meters. What will the area of the sunflower field be?

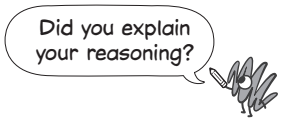
36 sq. meters

4. Hannah also wants a tulip field that is 8 meters long and 7 meters wide. What will the area of the tulip field be?

56 sq. meters

5. The basketball court at Aleki's school has side lengths of 9 feet and 8 feet. What is the area of the basketball court? Explain your thinking.

72 square feet because 9 × 8 = 72.



Topic 3

Exploring Multiplication and Division Strategies

Recommended ST Math Objectives:

Multiplication Facts and Strategies
Division Facts and Strategies
Properties of Multiplication

Name: _____ Date: _____

Modeling and Solving Multiplication Problems: Product Unknown

1. What is the value of the 5 in each number?

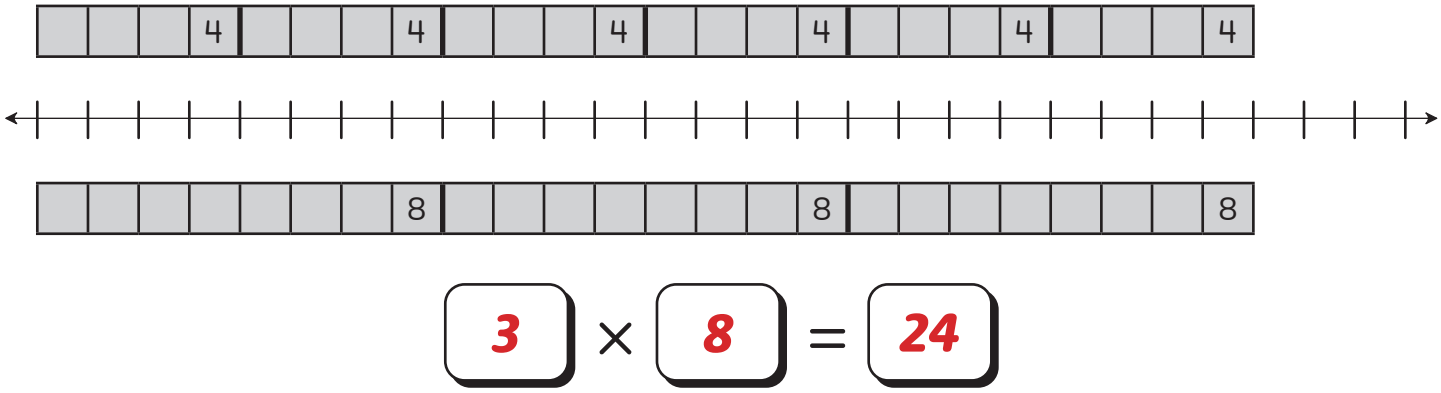
152 **50** 395 **5** 520 **500**

Possible answer:

2. Estimate the sum of 78 + 19 + 9. **110**

3. a) Write an equation to represent each bar model.

6 × **4** = **24**



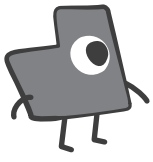
3 × **8** = **24**

b) What do you notice about the 2 equations?

Student answers will vary.

4. This critter has 9 bags of tacos. Each bag contains 5 tacos.
How many tacos does the critter have? Show how you found the answer.

45 tacos



Possible explanations:

9 × 5 = 45 ***9 + 9 + 9 + 9 + 9 = 45***

Name: _____ Date: _____


Jaymie

Modeling and Solving Multiplication Problems: Factor Unknown

1 About how long would it take to watch a movie?

☐ 2 minutes ☐ 2 days ☑ 2 hours

2 Solve.

$8 \times 8 = \boxed{64}$

3 a) Fill in the missing factor with 2, 5, or 7 and solve the equation.

$\square \times 4 = \square$

Student answers will vary.

b) Show how many groups and how many in each group are represented by the equation.

Student answers will vary.

4 Jaymie has some boxes of markers. Each box contains 6 markers. If Jaymie has a total of 42 markers, how many boxes of markers are there? Show how you found the answer.

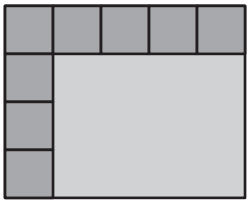
42 ÷ 6 = 7 boxes of markers

Name: _____ Date: _____


Vivi

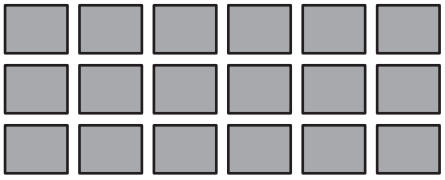
Modeling and Solving Division Problems: Number of Groups Unknown

1. What is the area of the rectangle?

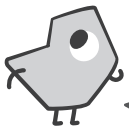


20 square units

2. Write a multiplication equation for the array.



6 × 3 = 18

3. 

I have 36 markers. I want to put 9 markers on each table. How many tables will I use?

a) Draw a strip diagram to represent the problem.

36			
9	9	9	9

b) Write 2 equations to represent the problem.

36 ÷ 9 = 4

4 × 9 = 36

4. Jaymie has 11 packs of erasers with 4 erasers in each pack. How many erasers does she have in total?

44 erasers

Name: _____ Date: _____

Modeling and Solving Division Problems: Group Size Unknown

1. Aleki arrived at band practice at 4:00. He finished band practice at 6:00 and went home. Do you think these times are a.m. or p.m.? Explain your thinking.

p.m.

Possible explanation:

4:00 p.m. and 6:00 p.m. are in the afternoon, while 4:00 a.m. and 6:00 a.m. are in the very early morning. It is unusual to have band practice so early in the morning.

2. If 6 × 2 = 12, what is the value of 12 ÷ 2?

6

3. Vivi has 28 red beads. She wants to use them to make 4 necklaces that each have the same number of beads. How many beads can she put on each necklace? Show your thinking with a strip diagram.

7 beads on each necklace

7	7	7	7
28			

4. Vivi has 36 blue beads. She wants to use them to make bracelets so that each bracelet has the same number of beads. Can she make 9 bracelets? Show how you found the answer.

Yes

Possible explanation:

9 × 4 = 36 blue beads

Did you show your thinking?

Name: _____ Date: _____


Vivi

Modeling and Solving Division Problems: Unknown Dividend or Divisor

1 What is the value of the set of coins?

Write the value using the dollar sign.

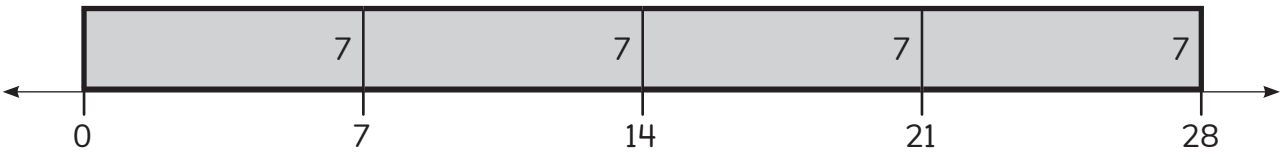
$1.00

Write the value using the cent sign.

100¢

2 Does this model represent 7 ÷ 4 = ☐?

☐ Yes ☑ No



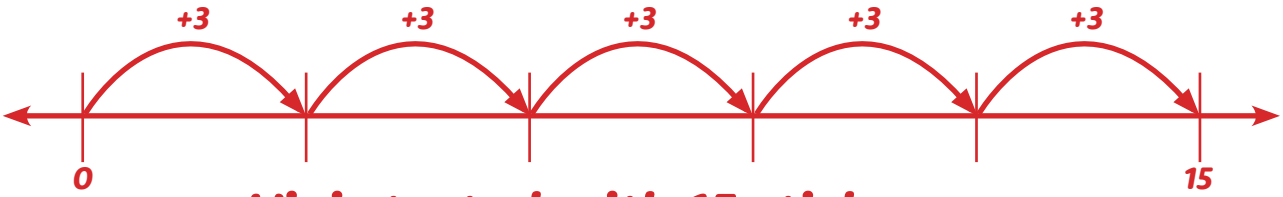
Possible answer:

28 ÷ **4** = **7**

What is an equation that does represent the model?

3 Vivi had some stickers. She shared them equally between 5 friends. Each friend got 3 stickers. How many stickers did Vivi start with? Write an equation with a box for the unknown and then solve.

Possible answers: $5 \times 3 = \square$ $\square \div 3 = 5$



Vivi started with 15 stickers.

Name: _____ Date: _____

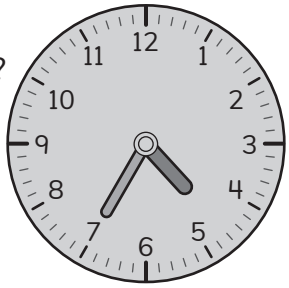

Naomi

Using Multiplication to Solve Problems Involving a Scaled Pictograph

1 Continue the pattern.

28, 30, 32, **34**, **36**, **38**

2 What time is shown on the clock?



4:35

3 Naomi found 21 sea stars on Sunday.

a) Write an equation to help you determine how many symbols you will need to draw to represent the number of sea stars. Draw an empty box to represent the data you are missing.

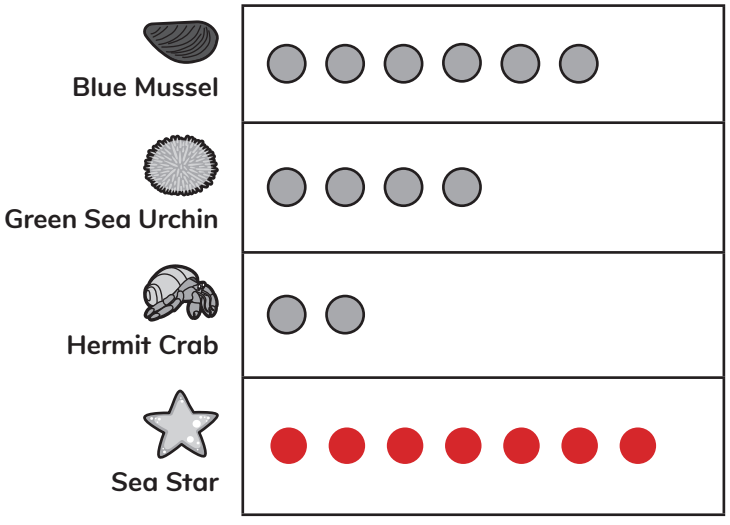
Possible answer:

$3 \times \square = 21$

b) Complete the pictograph to show the number of sea stars.

c) How many more sea stars than blue mussels did Naomi find?

Tide Pools on Sunday



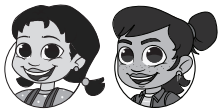
Key: ● = 3 ocean creatures

3 more sea stars

4 Naomi and her friend visited 3 tide pools on Monday. They saw 9 hermit crabs in each tide pool. How many hermit crabs did they see? Show how you found the answer.

3 × 9 = 27 hermit crabs

Name: _____ Date: _____



Using Known Facts to Multiply Efficiently

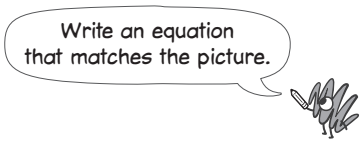
1. Write the number 913 in expanded form.

   900 + 10 + 3

2. If 5 × 3 = 15, what is the value of 15 ÷ 5?

   3

3. How many shoes do the creatures need?



   5 × 1 = 5 shoes

4. a) Solve.

   $2 \times 5 =$ ***10*** $\quad 4 \times 5 =$ ***20***

   b) How does 2 × 5 = ☐ help you solve 4 × 5 = ☐?

   Possible answer:

   4 is the double of 2, so the product of 4 × 5 is going to be double the product of 2 × 5.

5. Vivi has 4 bracelets that have 6 beads each. Naomi has 8 bracelets that have 3 beads each. Do Vivi and Naomi have the same number of beads? Show how you found your answer.

   Yes, they have the same number of beads.

   Possible explanation:

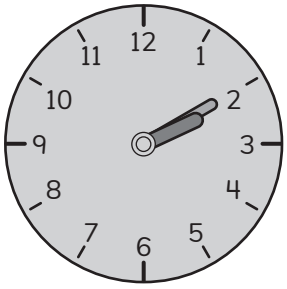
   6 × 4 = 24 beads and 8 × 3 = 24 beads

Name: _____ Date: _____

Using Grouping Strategies to Multiply Efficiently

1. What time will the clock show in 15 minutes?

☑ 2:25 ☐ 2:30 ☐ 2:10

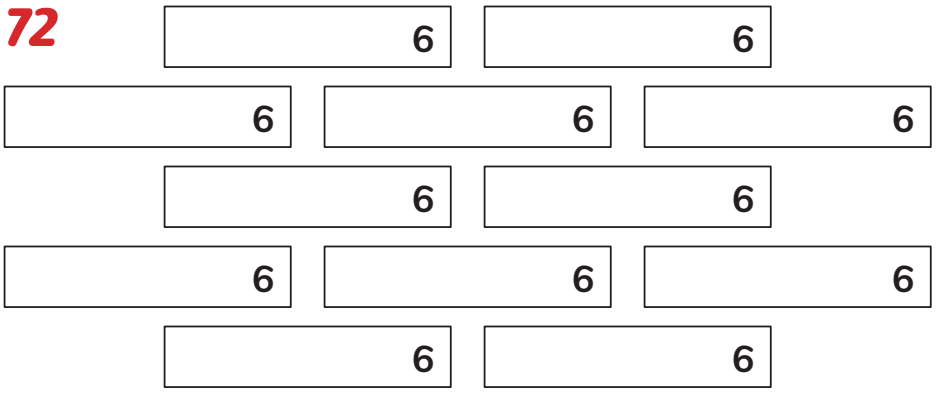


2. If it takes 8 purple beads to make a bracelet, how many purple beads are needed to make 6 bracelets?

48 beads

3. What is the total?

72



4. Jaymie has 8 packs that contain 2 pencils each. Arman has 3 packs that contain 6 pencils each. Do Jaymie and Arman have the same number of pencils? Show how you found the answer.

No

Possible explanation:

8 × 2 = 16 and 3 × 6 = 18
18 and 16 are not the same.

Name: _____ Date: _____


Vivi

Relating Fours and Eights Multiplication Facts

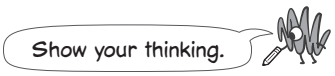
1 Draw 3 different quadrilaterals.

Student answers will vary.
However, all figures should have 4 sides.

2 What is the value of 3 dimes, 5 nickels, and 2 pennies?

57 cents

3 $4 \times 4 = 8 \times 2$ ☑ True ☐ False



Possible explanation:

4 × 4 = 16 and 8 × 2 = 16

4 a) Vivi has 24 beads. She is thinking about using the beads to make 2 bracelets that each have 12 beads. What is another way Vivi could use the 24 beads to make bracelets that each have the same number of beads?

Possible answers:

3 bracelets × ***8*** beads per bracelet = 24 total beads

4 bracelets × 6 beads per bracelet = 24 total beads

b) Write equations for ALL the different ways Vivi could use 24 beads to make bracelets that have an equal amount of beads.

1 × 24 = 24
2 × 12 = 24
3 × 8 = 24
4 × 6 = 24
6 × 4 = 24
8 × 3 = 24
12 × 2 = 24
24 × 1 = 24

Name: _____ Date: _____


Hannah

Introducing the Distributive Property of Multiplication

1 Write these numbers in order from greatest to least.

228 288 282

288, 282, 228

2 Which unit of measure would you use to record area?

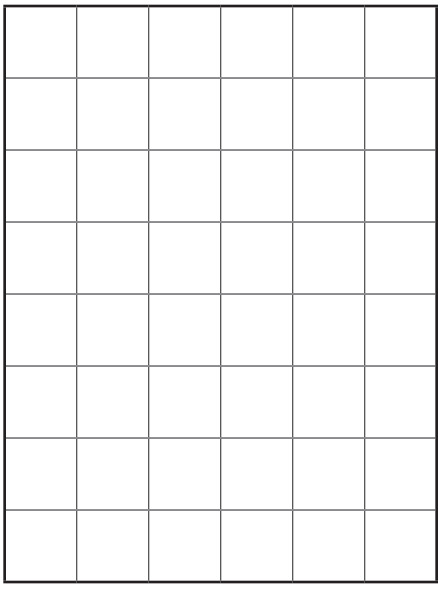
☑ square feet ☐ feet

3 a) Split the rectangle in a way that makes it easier for you to find its area. ***Student answers will vary.***

b) What is the area of the rectangle?

48 square units

Student explanations will vary.



4 Hannah has a rectangular garden bed to plant some new vegetables in.
If the total area is 36 square feet, what could the side lengths of the garden bed be?
Show how you found the answer.

Possible answers:

1 foot and 36 feet (1 × 36 = 36 square feet)
2 feet and 18 feet (2 × 18 = 36 square feet)
3 feet and 12 feet (3 × 12 = 36 square feet)
4 feet and 9 feet (4 × 9 = 36 square feet)
6 feet (6 × 6 = 36 square feet)

Name: _____ Date: _____


Hannah

Using Area Models to Represent Multiplication

1 Out of the 276 stickers in a sticker collection, 258 are scratch and sniff. How many stickers are NOT scratch and sniff.

Show your thinking.

276 – 258 = 18 stickers

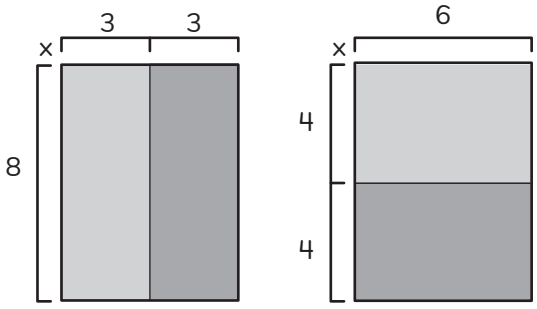
2 Find the product of 9 × 8.

Show your thinking.

72

Student explanations will vary.

3



Do these rectangles have the same total area?

☑ Yes ☐ No Show how you know.

Student explanations will vary.

4 Hannah planted 9 rows of flowers. In each row, there are 2 roses and 5 daisies. How many flowers did she plant?

63 flowers

Did you show your thinking?

Name: _____ Date: _____

Using Compensation Strategies to Multiply Efficiently


Naomi

1. Which number has a 7 in the tens place?

☑ 272 ☐ 720 ☐ 907

2. Which number is between 65 and 89?

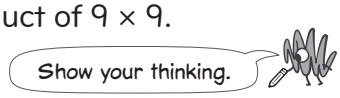
☑ 72 ☐ 90 ☐ 64

3. Naomi wants to find the product of 5 × 9. How can she use 5 × 10 to help her find the product?

Possible answer:

5 × 10 = 50, and the product of 5 × 9 will be 5 less than that, so 5 × 9 is 45.

4. Use what you know about multiplying 10 to help you find the product of 9 × 9.



81

Student explanations will vary.

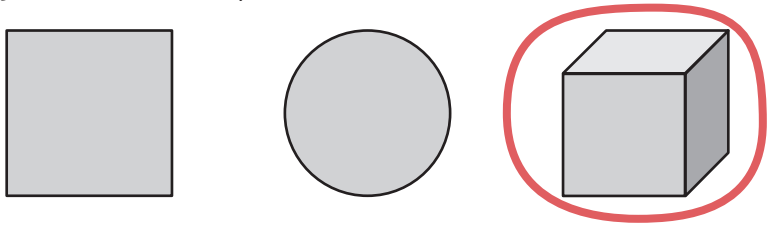
5. Naomi's 7 cousins will attend her quinceañera. Naomi's *abuela* wants to give each cousin 6 dollars. How much money does Naomi's *abuela* need to bring to the quinceañera? Explain your thinking.

7 × $6 = $42

Name: _____ Date: _____

Exploring Patterns and Related Facts in a Multiplication Table

1 Which object is a 3-D shape?



2 Continue the pattern. 12, 16, 20, 24, **28**, **32**, **36**

3 a) Complete the 2s column, and then complete the 4s column.

b) How did the 2s column help you fill in the 4s column?

Student answers will vary.

	1	2	3	4	5	6	7	8	9	10
1		***2***		***4***	5					10
2		4		8	10			16		20
3		6		12	15			24		30
4		***8***		***16***	20					40
5		10		20	25			40		50
6		***12***		***24***	30					60
7		***14***		***28***	35					70
8		***16***		***32***	40					80
9		***18***		***36***	45					90
10		***20***	30	***40***	50					100

4 Jaymie has 5 boxes of markers. Each of Jaymie's boxes contains 4 markers. Vivi has 6 boxes of markers. Each of Vivi's boxes contains 3 markers. Who has more markers? Explain your thinking.

Jaymie

Student explanations will vary.

Name: _____ Date: _____

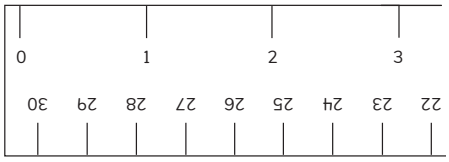

Arman

Exploring More Patterns in a Multiplication Table

1 Circle the number with the least value. **134** **143** **334**

2 What does this tool measure?

☐ time ☑ length ☐ temperature



3 a) Circle a number on the table. Write 2 equations that represent that number.

Student answers will vary.

☐ × ☐ = ☐

Student answers will vary.

☐ ÷ ☐ = ☐

b) Explain how the multiplication table helps you find the product of 6 × 8.

Student answers will vary.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	54	80
9	9	18	27	36	45	54	63	54	81	90
10	10	20	30	40	50	60	70	80	90	100

4 Arman is creating a mural for his mom. The mural is in the shape of a square. He uses 7 rows of tiles and needs a total of 49 tiles to complete the mural. How many tiles are in each row? Explain your thinking.

7 tiles

Student explanations will vary.

Name: _____ Date: _____

Thinking Flexibly to Solve Word Problems Involving Multiplication and Division

1. Draw base ten blocks to represent 255.

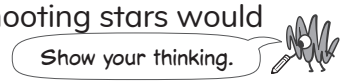
2. Write the number nine hundred fifty-three in standard form.

953

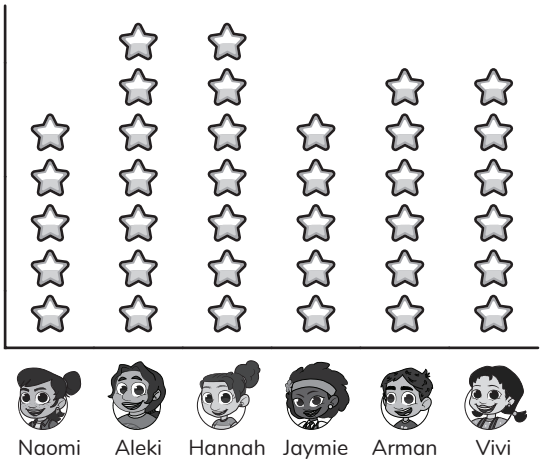
3. a) If Naomi had seen 14 more shooting stars, how many more star symbols would need to be added to the pictograph?

2 more star symbols

b) How many total shooting stars would Naomi have seen?



7 × 7 = 49 shooting stars

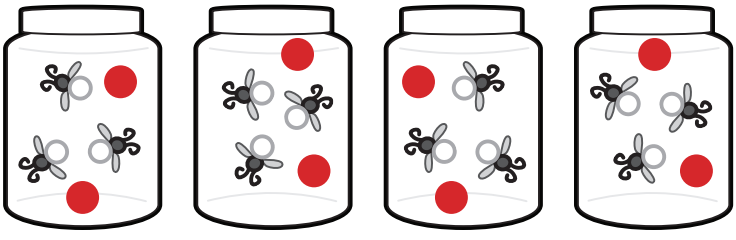


Key: ☆ = 7 shooting stars

4. The following image shows the fireflies Vivi found. Vivi finds 8 more fireflies. She plans to put an equal number of the new fireflies into each of the jars that already hold 3 fireflies. How many fireflies will Vivi then have in each jar? Explain your thinking.

5 fireflies in each jar

Student explanations will vary.



Topic 4

Discovering Perimeter and Exploring Area

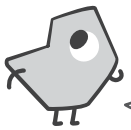
Recommended ST Math Objectives:

Area and Perimeter
Shape Attributes
Multiplication and Area

Name: _____ Date: _____

Identifying Parallel Sides in Shapes


Aleki

1 

I made 8 sandwiches and used 2 slices of bread for each sandwich. How many slices of bread did I use?

a) Draw a strip diagram to represent the situation.

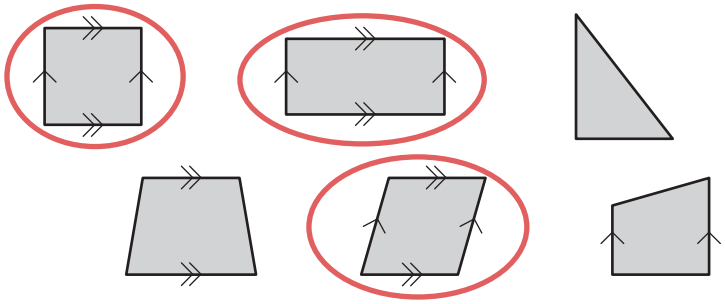
16							
2	2	2	2	2	2	2	2

b) Write an equation.

8 × 2 = 16 slices of bread

2 $12 \times 4 = \boxed{48}$ $4 \times 12 = \boxed{48}$

3 Circle the parallelograms.



4 Aleki has 24 pencils. He wants to put them into 6 containers. He wants each container to have the same number of pencils. How many pencils will go in each container? Show how you found the answer.

24 ÷ 6 = 4 pencils

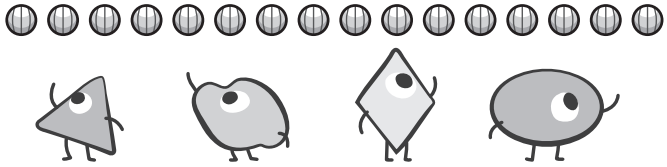
Name: _____ Date: _____


Hannah

Using Attributes to Build and Identify Quadrilaterals

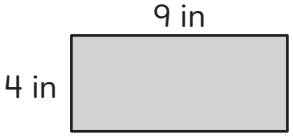
1 Each critter will get an equal number of beads. Write an equation to represent how many beads each critter will get.

16 ÷ 4 = 4 beads

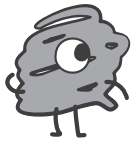


2 What is the area of the rectangle?

36 square inches



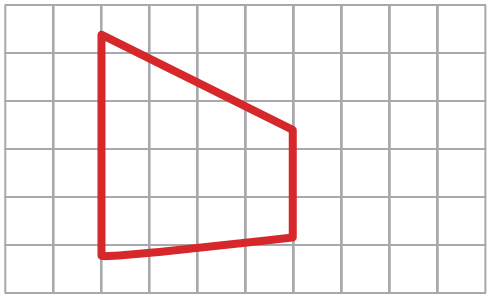
3



The shape
- is a quadrilateral.
- has 1 pair of parallel sides.
- has no right angles.

Draw the shape.

Possible answer:



4 Arman has 4 packs that have 12 crayons in each pack. Hannah has 6 packs that have 8 crayons in each pack. Do Arman and Hannah have the same number of crayons? Show how you found the answer.

Yes, they have the same number of crayons.

Possible explanation:
4 × 12 = 48 and 6 × 8 = 48, so they both have 48 crayons.

Name: _____ Date: _____

Using String to Measure Perimeter


Hannah

1. Which tool would be the best tool to use to measure the length of a pencil?

☐ a piece of string ☐ a meter stick ☑ a ruler

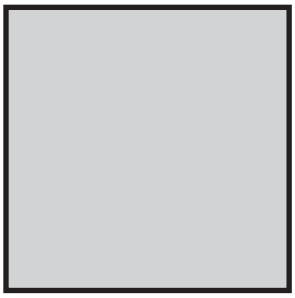
2. What is the total value of 2 quarters, 2 dimes, and 2 pennies?

72 cents

3. Write down everything you know about perimeter.

Possible answer:

You add up all the sides.

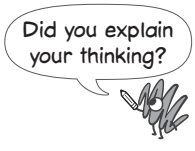
4. 

Which part of the shape shows the perimeter?

☐ The shaded space inside the line

☑ The line that goes around the outside of the shape

Student explanations will vary.



Name: _____ Date: _____


Hannah

Using Side Lengths to Measure Perimeter

1. Continue the pattern. 300, 400, 500, **600**, **700**, **800**

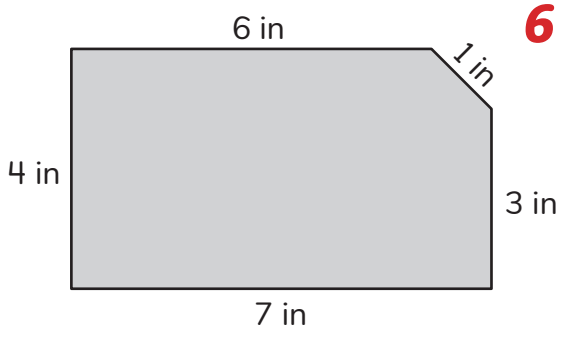
2. Solve and draw a model that shows how you found the answer.

$18 \div 6 =$ **3**

Student answers will vary.

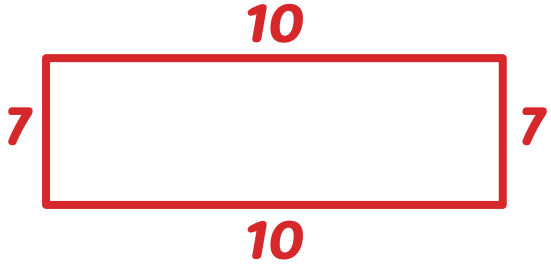
3. Find the perimeter of the shape.

Show your thinking.



6 + 1 + 3 + 7 + 4 = 21 inches

4. Hannah is making a rectangular garden bed for her flowers. The lengths of the longer sides will be 10 feet and the lengths of the shorter sides will be 7 feet. What will the perimeter of the garden bed be? Draw a picture to show how you found the answer.



34 feet

Did you show your thinking with a drawing?

Name: _____ Date: _____


Vivi

Strategically Calculating Perimeter

1. Write 2 multiplication and 2 division equations using the numbers 4, 6, and 24.

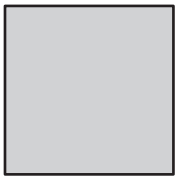
4 × 6 = 24 24 ÷ 6 = 4

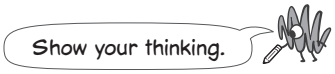
6 × 4 = 24 24 ÷ 4 = 6

2. Solve.

12 + 12 + 15 + 15 = 54

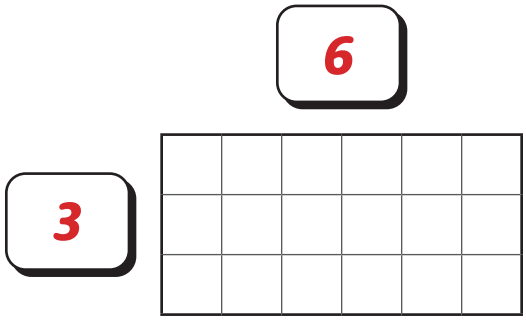
3. Find the perimeter of the square.





4 × 4 = 16 m or
4 + 4 + 4 + 4 = 16 m

4. Find the perimeter of the rectangle.



6 + 6 + 3 + 3 = 18 units

5. Vivi is decorating a birthday cake. She wants to line the perimeter of the top of the cake with blue icing. If the top of the cake is a rectangle that is 9 inches along one side and 13 inches along the other side, how many inches of blue icing will Vivi needed? Show how you found the answer.

9 + 9 + 13 + 13 = 44 inches

Name: _____ Date: _____

Using Perimeter to Find Missing Side Lengths of Polygons

1 Draw 2 different shapes that each have 4 vertices.

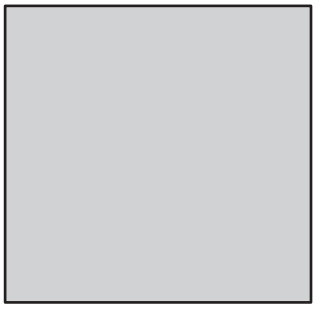
Possible answer:

2 Solve.

$36 \div$ ***6*** $= 6$

3 a) The square has a perimeter of 40 cm. What are the missing side lengths?

$P = 40$ cm



10 cm

b) How did knowing that the shape is a square help you to solve this problem?

A square has 4 equal sides, so I can use multiplication or division to help me find the side lengths: 4 × 10 = 40 or 40 ÷ 4 = 10.

4 Vivi has a piece of ribbon that is 24 inches long. She wants to put ribbon around the outside of a birthday card she is making with her *halmeoni*. If the rectangular card has side lengths of 7 inches and 5 inches, does Vivi have enough ribbon? Show your thinking.

Yes, she has enough ribbon because 7 + 7 + 5 + 5 = 24 inches.

Name: _____ Date: _____

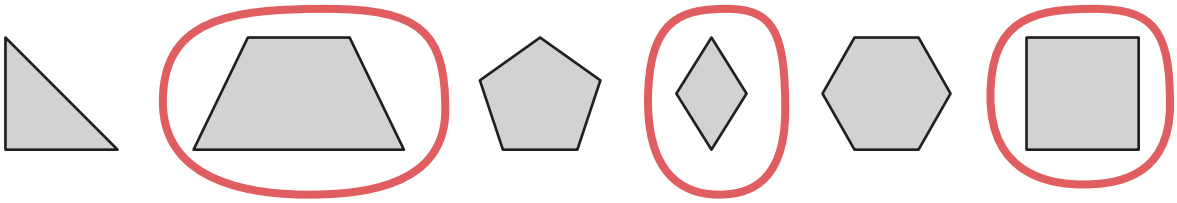

Arman

Relating Perimeter and Area

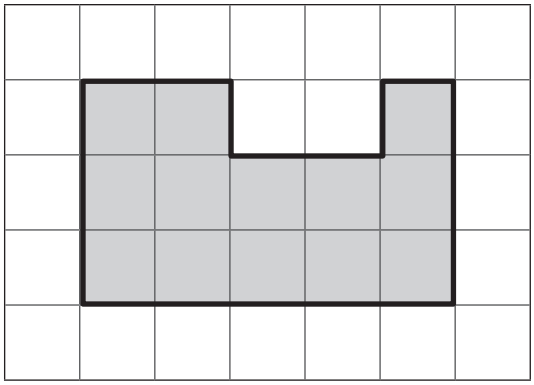
1 About how long is a folder?

☐ 3 centimeters ☑ 30 centimeters ☐ 300 centimeters

2 Circle all of the quadrilaterals.



3 a) Find the area and perimeter of the shape.



$A =$ **13** square units

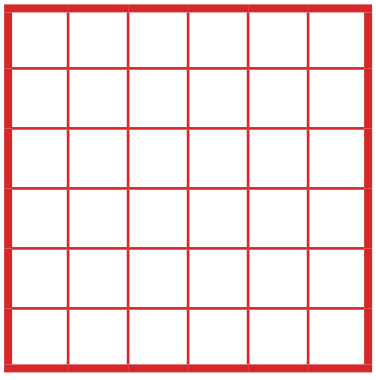
$P =$ **18** units

b) How did the grid help you find the area and perimeter?

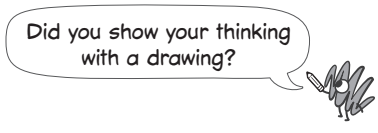
Possible answer:

It made it easy to count.

4 Arman is playing a video game in which he is making a rectangle habitat for a snake. He has 24 feet of fencing to make the habitat. He has to make a habitat that gives the snake as much area to move around as possible while keeping a perimeter of exactly 24 feet. What length should he use for each side of the habitat? What area will the habitat have? Draw a picture to show your work.



Each side would be 6 feet and the area would be 36 square feet.



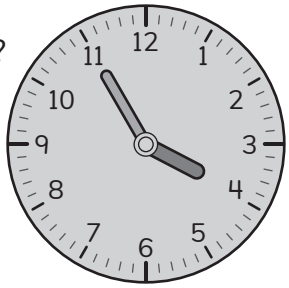
Name: _____ Date: _____


Jaymie

Exploring a Change in Perimeter or Area of a 2-D Shape

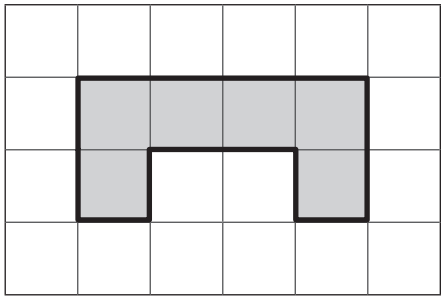
1 What time is shown on the clock?

3:55



2 Solve. $14 + 14 + 7 + 7 =$ **42**

3 a) Find the area and perimeter of the shape.



$A =$ **6** square units

$P =$ **14** units

b) Add one more square unit to the model and find the new perimeter and area.

$A =$ **7** square units

Possible answer:

$P =$ **16** units

4 Jaymie is running for class president and wants to make a banner for her election. She is looking for a banner with the largest area to write on. She measured the sides of Banner A and Banner B, and she noticed that the banners have the same perimeter but different areas. Which banner should Jaymie choose? Show your thinking.

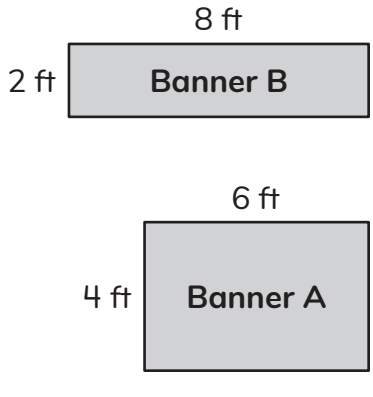
Banner A area:

6 × 4 = 24 square feet

Banner B area:

8 × 2 = 16 square feet

Banner A because it has the larger area.



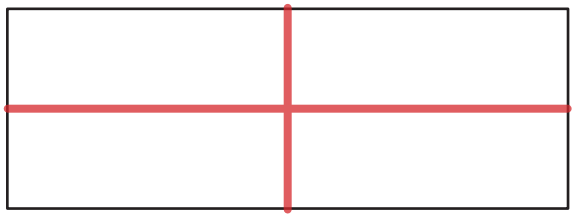
Name: _____ Date: _____


Sarah

Solving Two-Step Problems Involving Perimeter and Area of Rectangles

1 Partition the rectangle below into quarters.

Possible answer:



2 Which of these expressions has a value of 965?

☐ 600 + 90 + 5 ☑ 900 + 60 + 5 ☐ 900 + 600 + 5

3 Sarah is drawing a new garden for tomatoes in her notebook. She needs to find the area of the garden to make sure she buys the correct number of plants. She got some dirt on her notebook, but she knows that the garden is a square that has a perimeter of 28 m. Find the area of the garden. Show your thinking.

28 ÷ 4 = 7 m

7 × 7 = 49 square m

$A =$ ***49*** square m

4 Sarah and her dad used 30 feet of fencing to surround another vegetable garden. What shape might their garden be? What is the length of each side? Show your design below.

Possible answer:

A rectangle with sides of 10 feet and 5 feet.

Name: _____ Date: _____


Hannah

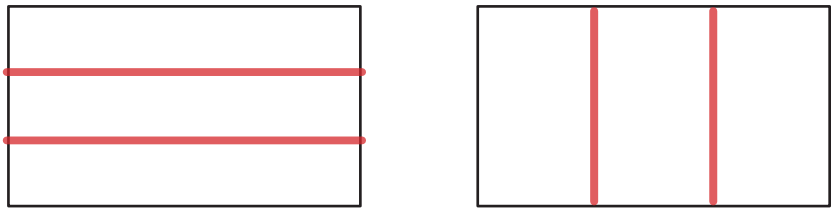
Using Area to Find Missing Side Lengths of Rectangles

1. Solve.

$48 \div 6 =$ **8**

2. Partition these rectangles into thirds 2 different ways.

Possible answers:



3. Use an equation to find the missing information.

a) If a rectangle has an area of 21 square units and one side length of 7 units, what is the other side length?

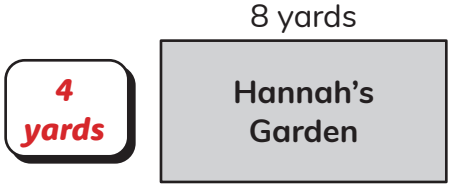
Possible answer: **7** units × **3** units = **21** square units

b) If a rectangle has side lengths of 5 units and 6 units, what is the area of the rectangle?

Possible answer: **5** units × **6** units = **30** square units

4. Hannah's farm has a rectangular field that has a perimeter of 24 yards. If one side length of the field is 8 yards long, what are the other side lengths? Show how you found the answer.

8 × 2 = 16 yards total for longer sides
24 – 16 = 8 yards total for shorter sides
8 ÷ 2 = 4 yards for each shorter side



Name: _____ Date: _____


Hannah

Finding the Area of Rectilinear Shapes

1. Circle the expression with the greater value. Show your thinking.

4 × 8 3 × 9

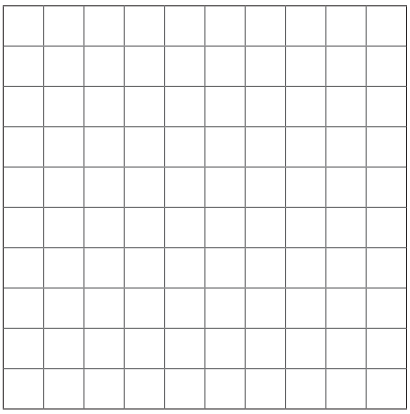
2. Find the product of 3 × 4. Is the product odd or even?

3 × 4 = 12, even

3. Draw and color a shape on the grid that matches the value of these expressions.

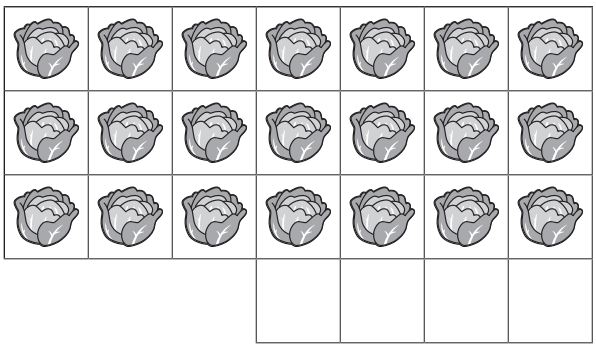
8 × 2 add 2 × 2 **20** square units

Student shapes will vary.



4. Hannah is planting a lettuce garden. She already planted 7 columns of lettuce with 3 seeds in each column. She has 4 extra spots on the side where she can grow additional lettuce plants. How many lettuce plants can she grow in her garden?

Hannah's Lettuce Garden



25 lettuce plants

Name: _____ Date: _____


Sarah

Using a Grid to Find the Area of Rectilinear Shapes

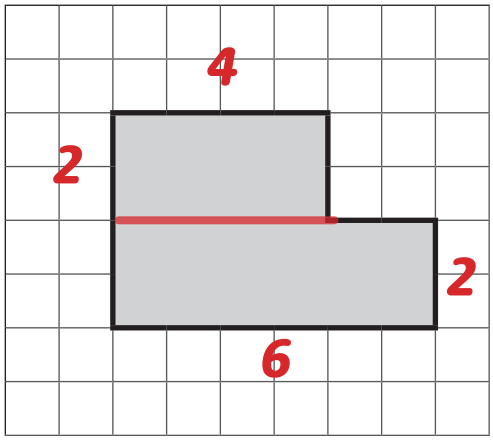
1 Use > or < to make the inequality true.

6×6 **>** 4×8

2 Solve.

$376 + 200 =$ **576**

3



What is the total area of the shape?
Label the side lengths you used.

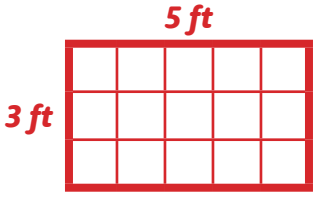
Show your thinking.

20 square units

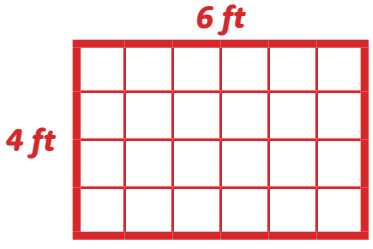
Possible answer:

4 × 2 = 8 and 6 × 2 = 12

4 Sarah and her dad want to make sure they have enough space for some of the things they want to plant in the community garden. If their rectangular rose garden has side lengths of 5 feet and 3 feet and their vegetable garden has side lengths of 6 feet and 4 feet, what is the total area of both gardens? Draw a picture to show how you found the answer.



5 × 3 = 15 sq. ft



6 × 4 = 24 sq. ft

15 + 24 = 39 square feet

Did you show your thinking with a drawing?

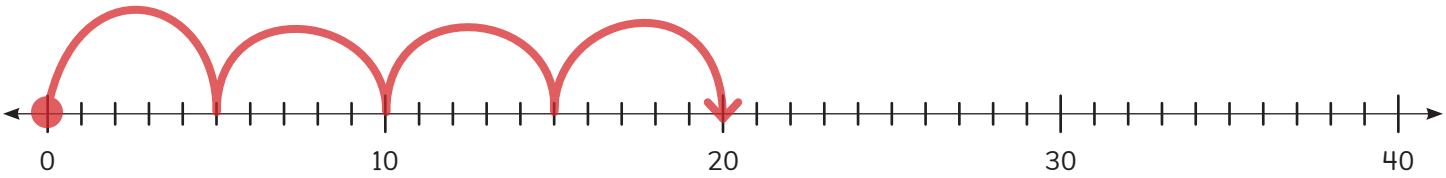
Name: _____ Date: _____


Sarah

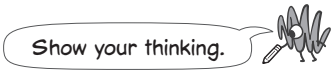
Using Side Lengths to Find the Area of Rectilinear Shapes

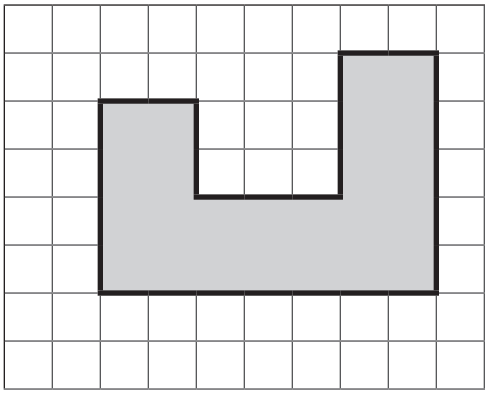
1 Solve. $275 + 89 = \boxed{364}$

2 Use the number line to show how to find the product of 4 × 5.



3 Sarah's dad has another option for the shape of a new garden. What is the area of this vegetable bed?





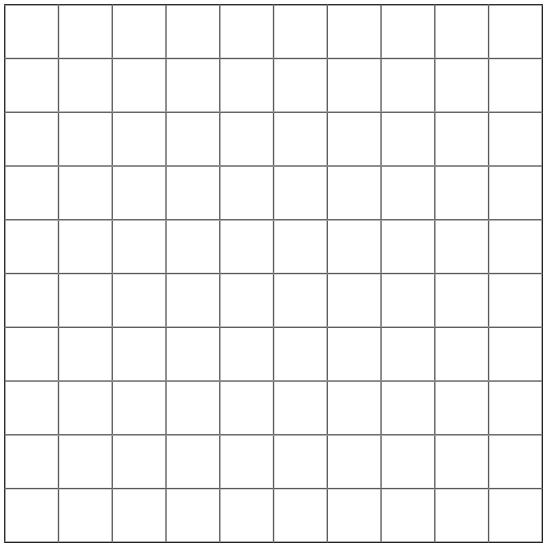
1 ft
1 ft

24 square feet

4 Sarah is planning a new garden bed for the community garden. She has 32 feet of fencing to enclose the garden bed. Sarah has measured 7 of the bed's side lengths: 8 feet, 8 feet, 3 feet, 2 feet, 3 feet, 2 feet, and 4 feet. What is the remaining side length of the garden bed? Use the grid to draw a picture of the bed.

2 feet

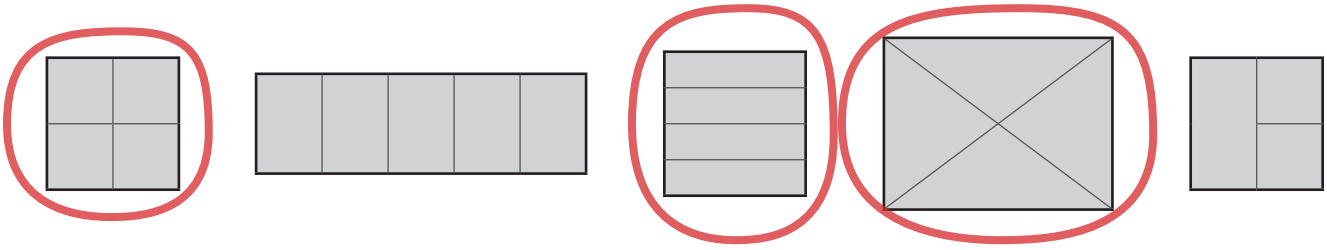
Student drawings will vary.



Name: _____ Date: _____

Solving Word Problems Involving the Area of Rectilinear Shapes

1 Circle all of the rectangles that are partitioned into fourths.

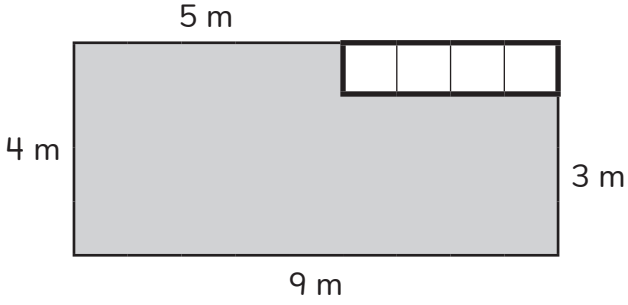


2 Solve.

$14 + 14 + 8 + 8 =$ **44**

3 Aleki wants to paint a wall in his basement next. The wall has a window in it. Aleki has enough paint for 30 square meters. Does he have enough paint to cover the basement wall?

Show your work.



No. The entire wall is 9 meters × 4 meters, or 36 square meters.
The window is 4 meters × 1 meter, or 4 square meters.
Aleki needs enough paint for 36 – 4 = 32 square meters.

4 Arman builds a mosaic that has an area of 36 square inches. There is a blue rectangle in the center of the mosaic with side lengths of 3 inches and 4 inches. The remainder of the mosaic has only red tiles. What is the area of the red section of the mosaic? Show your thinking.

3 × 4 = 12 sq. inches
36 – 12 = 24 sq. inches

Did you show your thinking?

Topic 5

Extending Multiplication and Division Strategies

Recommended ST Math Objectives:

Multiplication and Division Facts
Multiplication as Comparison
Solve Two-Step Problems

Name: _____ Date: _____


Aleki

Partitioning Rectangles to Calculate Products

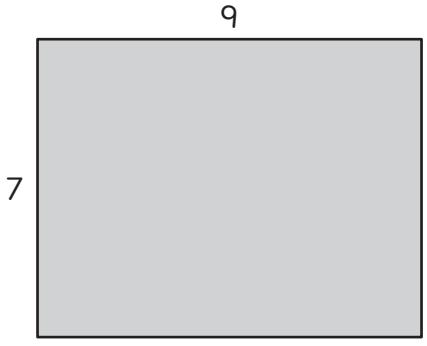
1. Solve.

$56 \div$ **7** $= 8$ $\quad$ $63 \div 9 =$ **7**

2. Solve.

$370 + 30 =$ **400**

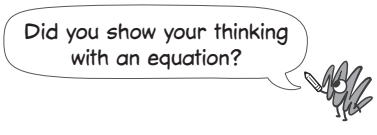
3. Circle ALL the expressions that could be used to find the product shown in the model.



- **7 × 9**
- **(7 + 4) added to (7 + 5)**
- **(7 × 4) added to (7 × 5)**
- **(7 × 2) added to (7 × 7)**

4. Aleki is painting a mural on his wall. He wants to cover a rectangular space that has side lengths of 8 feet and 4 feet. What is the area of the mural that Aleki will paint? Write an equation to show how Aleki could find the area.

8 × 4 = 32 square feet



Name: _____ Date: _____

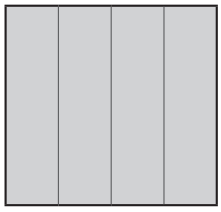

Sarah

Introducing Parentheses as Grouping Symbols

1 If 4 × 9 = 36, what is the value of 36 ÷ 9?

4

2



How is this rectangle partitioned?

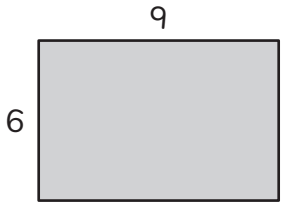
☐ halves ☐ thirds ☑ fourths

3 a) Here are 2 equations to find the area of the shape.
Circle the equation that makes it easier to find the area.

$(6 \times 7) + (6 \times 2) =$ ☐

$(6 \times 5) + (6 \times 4) =$ ☐

Student answers will vary.



b) Why did you choose that equation?

Student answers will vary.

4 Sarah's garden has 3 rows of squash and 5 rows of corn. There are 6 plants in each row.
How many plants are in Sarah's garden?

48 plants

Name: _____ Date: _____

Generating Multistep Expressions With and Without Parentheses

1. What is a reasonable estimate for the number of days in the third grade school year?

☐ 20 days ☑ 200 days ☐ 2,000 days

2. Vivi has 8 pages of stickers in her sticker book. If each page has 9 stickers, how many total stickers does Vivi have in her sticker book?

Write an equation and solve.

8 × 9 = 72 stickers

3. Find the value of each expression. Circle the expression that has the greatest value.

a) $2 \times (5 + 3)$ $(2 \times 5) + 3$

2 × 8 = 16 *10 + 3 = 13*

b) $36 \div (9 - 3)$ $(36 \div 9) - 3$

36 ÷ 6 = 6 *4 – 3 = 1*

4. Jaymie has 6 boxes of markers to share with the class. Each box contains 8 markers. She also has 14 markers from the art table. How many markers does Jaymie have?

62 markers

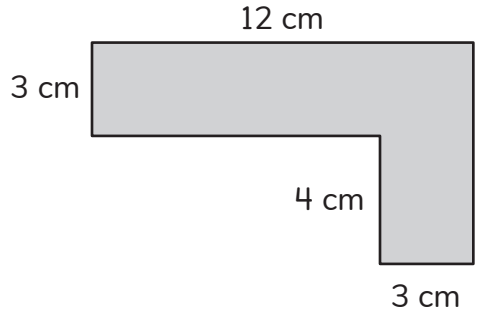
Name: _____ Date: _____


Jaymie

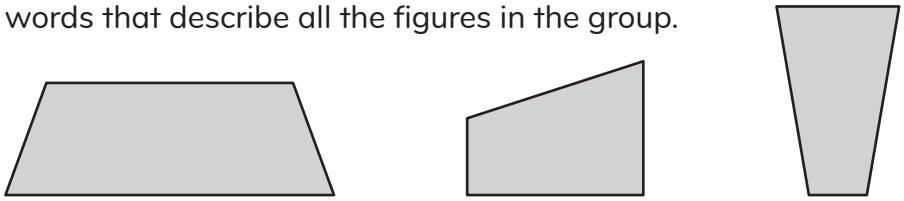
Using Divisibility Rules to Identify Evens and Odds

1. Find the perimeter of the figure.

$P =$ **38** cm



2. Circle the words that describe all the figures in the group.



parallelograms **quadrilaterals** **trapezoids**

3. Circle the numbers that are divisible by 2.

7 **634** **50** 83 **28** **106** 241

4. a) Write a 2-digit odd number.

Possible answer: **4 7**

b) Write a 3-digit odd number.

Possible answer: **3 2 9**

5. Jaymie's class collected 135 notebooks and 247 folders. They donated 150 items to a local charity. How many items did they keep? Show how you found the answer.

232 items

135 + 247 = 382

382 – 150 = 232

Name: _____ Date: _____

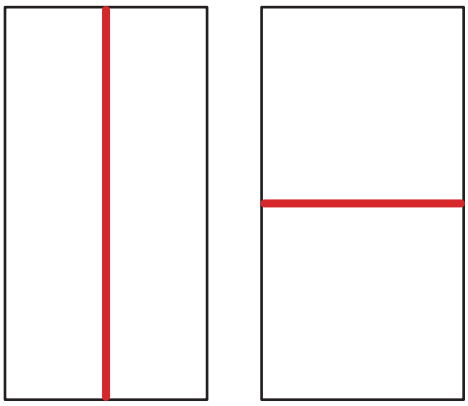
Exploring the Associative Property of Multiplication

1 Naomi buys a candy bar for 83¢. List the fewest possible coins Naomi could use to buy the candy bar.

3 quarters, 1 nickel, and 3 pennies

2 Partition these rectangles into halves 2 different ways.

Possible answer:



3 a) Solve.

$3 \times (2 \times 5) =$ ***30***

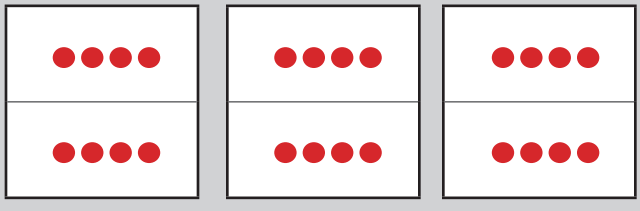
$(3 \times 2) \times 5 =$ ***30***

b) Which equation has the greatest total? Why?

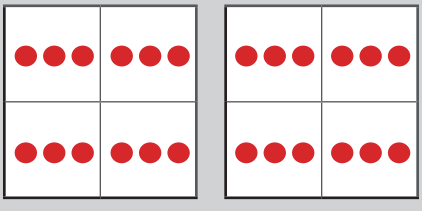
They are equivalent because you are multiplying the same numbers, just in a different order.

4 Vivi has 3 bead organizers. Each bead organizer has 2 sections containing 4 beads. Jaymie has 2 bead organizers. Each bead organizer has 4 sections containing 3 beads. Compared to Vivi, does Jaymie have more beads, fewer beads, or the same number of beads? Use these models to help you draw and solve.

Vivi's Bead Organizers



Jaymie's Bead Organizers



They have the same number of beads (24 beads).

Name: _____ Date: _____


Dani

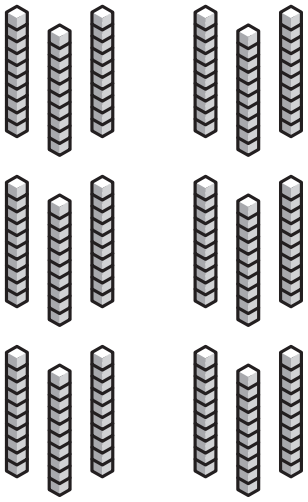
Using the Associative Property to Multiply One-Digit Numbers by Multiples of 10

1 Find the area of the rectangle.

48 sq. cm

2 Continue the pattern. 110, 115, 120, **125**, **130**, **135**

3 a) Write an equation to represent the model.



10 × 3 × 6 = □

b) Solve the equation for this model and explain how you solved.

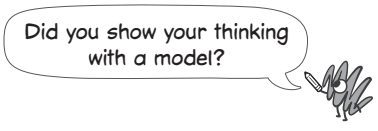
180

Student explanations will vary.

4 Dani buys packs of beads for a new design she is making. Beads come in packages of 10. She buys 3 packs of yellow beads, 2 packs of purple beads, and 2 packs of green beads. What is the total number of beads that Dani has for her design? Draw a model to show your thinking.

70 beads

Student models will vary.



Name: _____ Date: _____


Dani

Using the Associative Property of Multiplication Strategically

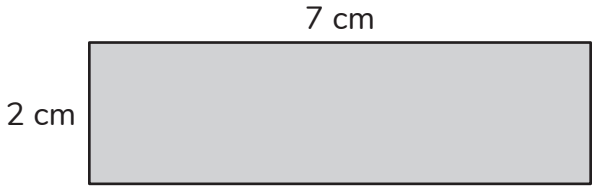
1 Solve.

$30 \div 6 =$ **5**

$9 \times 8 =$ **72**

$48 \div 8 =$ **6**

2 Find the perimeter of the rectangle.



18 cm

3 I am thinking of an equation. The product is 240.

a) My equation could be **24** × **10** = 240. *Possible answer:*

b) What other factors could make this equation true?

Possible answer:

12 × **20** = 240

4 Dani buys a box that contains 120 beads. There are bags inside the box that each contain 40 beads. How many bags of beads are in the box? Show how you found the answer.

3 bags

Student work will vary.

Name: _____ Date: _____

Writing Equations to Solve Multiplication and Division Problems

1 a) Solve.

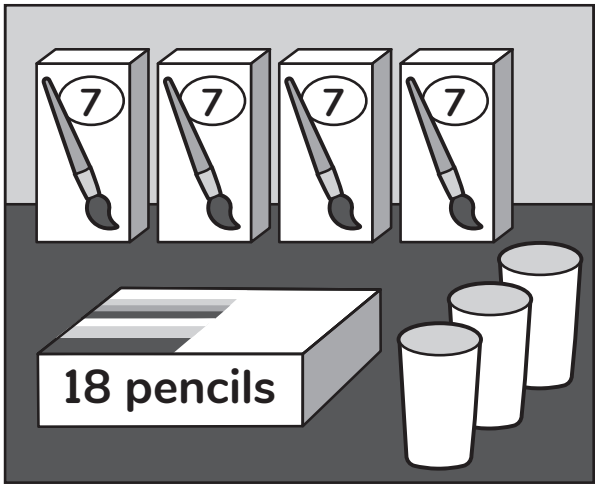
$$23 + 16 + 7 = \boxed{46}$$

b) Explain the strategy you used to solve the problem.

Student answers will vary.

2 a) Mateo took 18 pencils and put the same number of pencils into the 3 cups. How many pencils were in each cup?

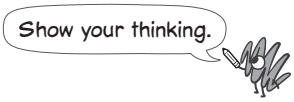
6 pencils



b) Mateo cleaned up his art room and put the pencils and the paintbrushes together. How many did he have altogether? Show your work.

46 pencils and paintbrushes

Student work will vary.



3 Jaymie is organizing Mateo's supplies for Art Club. She picks up 6 bins of glue sticks. Each bin contains 9 glue sticks. How many glue sticks are there? Show your work.

6 × 9 = 54 glue sticks

Student work will vary.

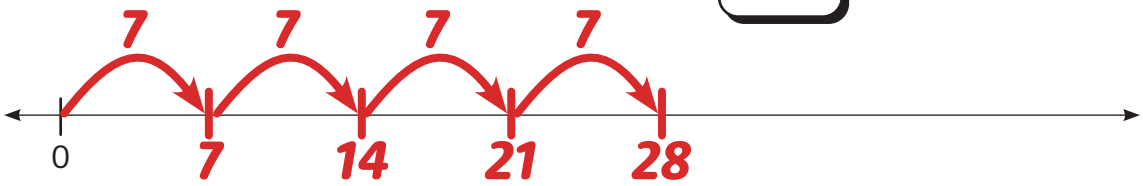
Name: _____ Date: _____


Sarah

Representing Two-Step Multiplication and Division with Array Models

1 Complete the equation. $90 = \boxed{10} \times 9$

2 Use the number line to complete the equation. $4 \times \boxed{7} = 28$



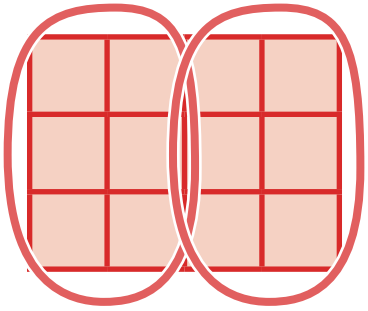
3 a) Create your own expression by circling an operation symbol.

Possible answer:

$3 \times 4 \; \begin{matrix} \times \\ \div \\ + \end{matrix} \; 2$

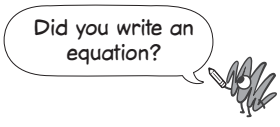
b) Draw an array to represent your expression.

Possible answer:



4 Sarah picked 48 tomatoes from her garden. She wants to pack the tomatoes equally into 6 baskets. How many tomatoes will go in each basket? Write an equation to represent the problem.

48 ÷ 6 = 8 tomatoes in each basket



Name: _____ Date: _____

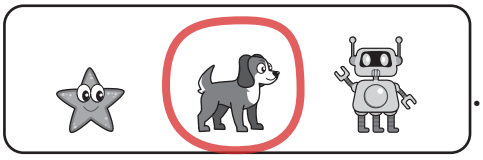

Hannah

Exploring the Inverse Relationship Between Multiplication and Division

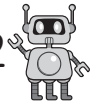
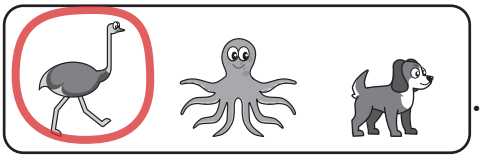
1 Choose the most appropriate tool to measure the length of your pencil.

☑ ruler ☐ meterstick

The creatures are here! Each creature represents a number based on the number of legs it has. Circle the creature or number that makes the equations true.

a) 4  share their shoes with 5  .

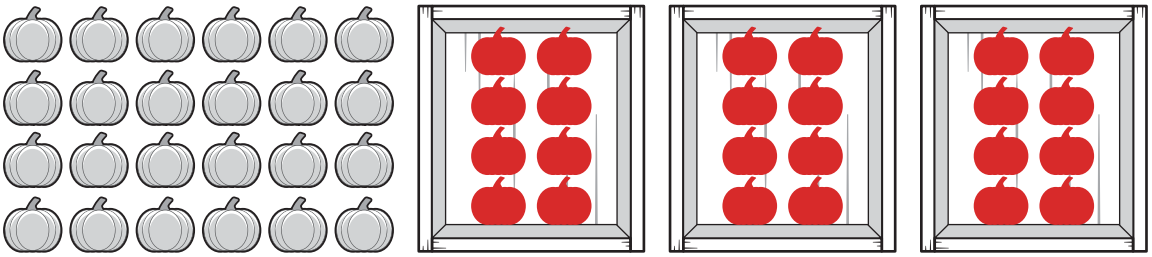
$4 \times 5 \div 5 = 4$

b) 2  share their shoes with 3  .

$2 \times 3 \div 3 = 2$

3 Hannah is planting vegetables in her garden. She has 4 rows of 6 pumpkins. When she havests the pumpkins, she puts them into 3 crates. If each crate has the same number of pumpkins, how many pumpkins are in each crate? Use the model to show how you found the answer.

8 pumpkins



Name: _____ Date: _____


Hannah

Representing Two-Step Multiplication and Division with Strip Diagrams

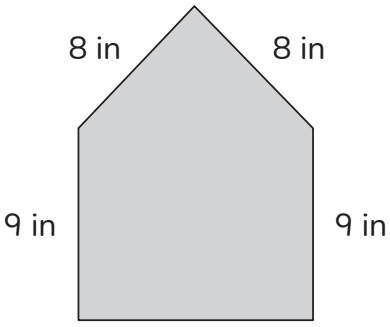
1 Write an equation to represent the strip diagram.

6	6	6	6	6
30				

Possible answer: ***30 ÷ 6 = 5***

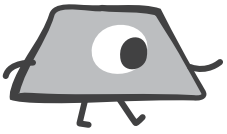
2 What is the missing side length?

$P = 45$ inches



11 in

3



I have 36 blocks and sorted them equally into 4 buckets. Each bucket is shared equally by 3 critters.

How many blocks does each critter get?

Create a strip diagram and write an equation to represent the problem.

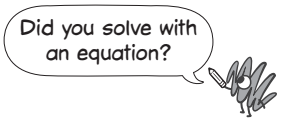
36											
9			*9*			*9*			*9*		
3	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*

Each critter gets 3 blocks.

36 ÷ 4 ÷ 3 = 3

4 At the farmers market, Hannah sold 6 containers with 5 tomatoes in each container. She also sold 4 additional tomatoes. How many tomatoes did she sell? Solve with an equation.

6 × 5 + 4 = 34 tomatoes sold

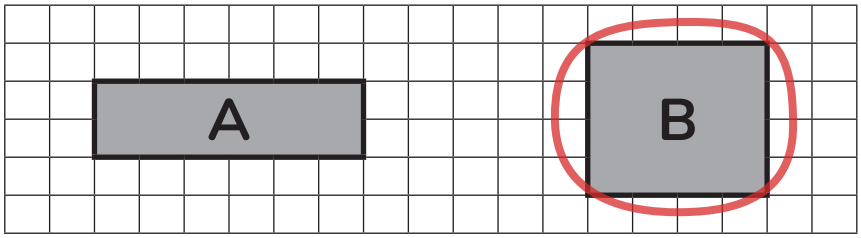


Name: _____ Date: _____

Representing Two-Step Problems with Single Equations


Mateo

1 Circle the shape with the greater area.



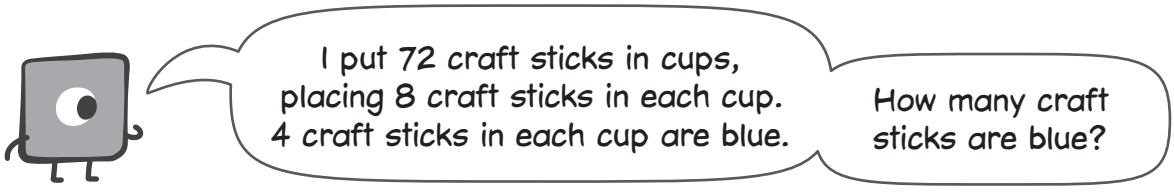
Area of Rectangle A = **12** square units

Area of Rectangle B = **16** square units

2 $36 \div 4 =$ **9**

9 × **4** = **36**

3



Write a single equation to represent how you solved the problem.

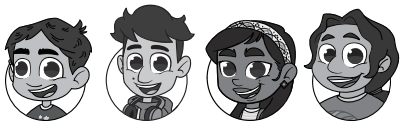
72 ÷ 8 × 4 = 36 blue craft sticks

4 Mateo has 7 purple markers and 3 green markers in a cup. 4 of the markers do not work. How many markers work? Show how you know.

7 + 3 = 10 markers total
10 – 4 = 6 markers that work

Name: _____ Date: _____

Using Multiplication and Division to Complete the Key on Pictographs

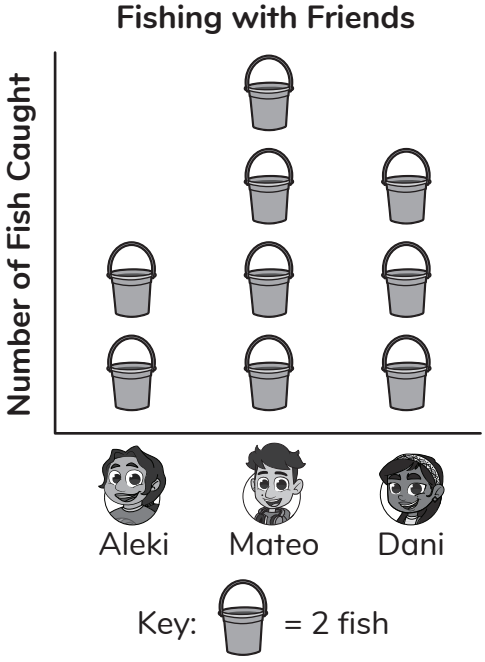


1. Arman has 3 pieces of rope to practice his knots. The first piece is 24 inches. The second piece is 32 inches. The third piece is 18 inches. What is total length in inches of Arman's rope?

   24 + 32 + 18 = 74 inches

2. Look at the number line below. Draw an X where 45 would go.

3. Using the graph, answer the following questions from the lesson.



   a) How many fish were caught?

   18 fish

   b) Who caught the fewest fish? How many did they catch?

   Aleki
   4 fish

4. Mateo and Dani each had 5 worms for fishing. Aleki had 8 worms. How many worms in total did they have for fishing? Show how you found the answer.

   5 + 5 + 8 = 18 worms

Name: _____ Date: _____


Dani

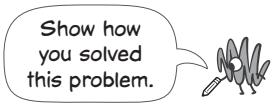
Modeling and Solving Open-Ended Multiplication and Division Problems

1 Partition the circle into fourths.
Shade the circle to show 4 fourths.

2 Solve.

$450 + 160 =$ **610**

3 Dani and her brother did not have enough room to put away all of their books. Dani got 54 feet of wood to make more shelves. If she uses all of the wood, how many of each shelf length can she make?



Possible answer:

5 foot shelves: **2**

8 foot shelves: **2**

9 foot shelves: **2**

10 foot shelves: **1**

Student work will vary.

4 Dani has 6 shelves that each contain 7 books. She needs to build another shelf for the 5 books sitting on the table. How many books does Dani have? Show how you found the answer.

6 × 7 = 42

42 + 5 = 47 books

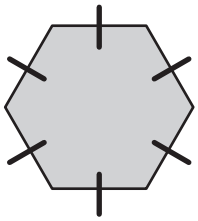
Name: Date:


Mateo

Using Place Value Strategies to Find the Area of Rectangles

1. The hexagon has a perimeter of 60 units. What are the hexagon's side lengths?

$P = 60$ units

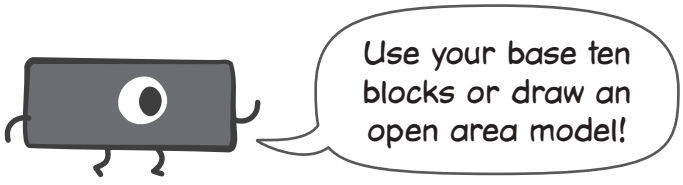


10 units

2. Solve. **5** $\times 8 = 40$

3. What is the area of a rectangle with the side lengths of 53 cm and 4 cm?

Student models will vary.



114 square centimeters

4. Mateo painted 6 paintings of flowers. Each painting had 3 sunflowers.
Which equation can be used to find the total number of sunflowers Mateo painted?

$6 \div 3 = 2$ $6 \times 3 = 18$ $6 + 3 = 9$ $6 - 3 = 3$

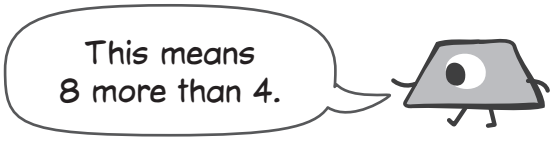
Name: _____ Date: _____

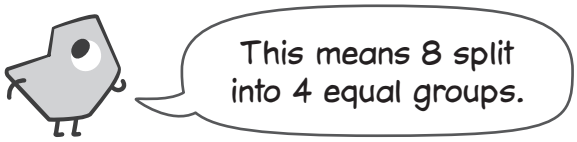

Aleki

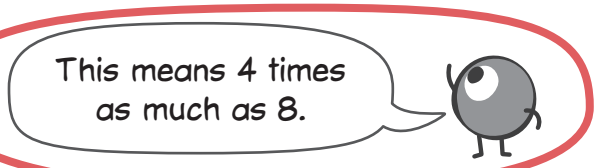
Using Area Models to Multiply One-Digit by Two-Digit Numbers

1 Circle the critter that is correct.

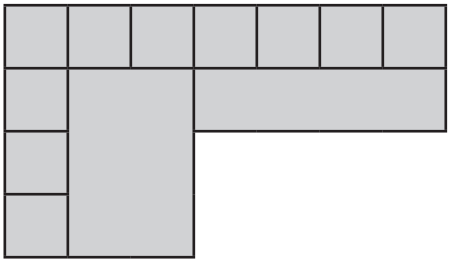
4×8





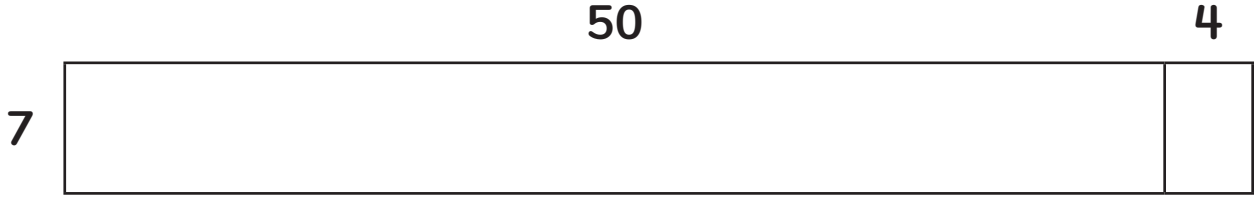


2 What is the total area of the figure?



20 square units

3 Complete the equations to find the product of 7×54.



$7 \times 54 = (7 \times$ **50** $) + (7 \times$ **4** $)$

$=$ **350** $+$ **28**

$=$ **378**

4 Aleki has 9 albums. Each album has 12 songs.
What is the total number of songs on all the albums?

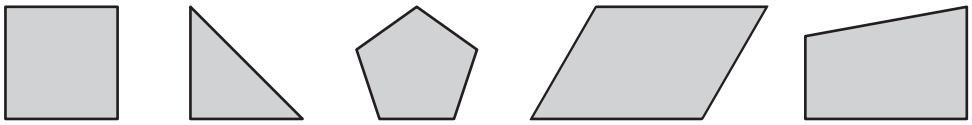
9 × 12 = 108 songs

Name: _____ Date: _____


Jaymie

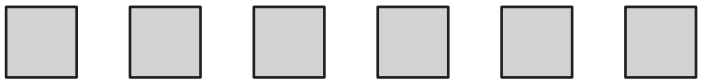
Connecting Area Models to the Standard Algorithm

1 Circle the statement that is true about all the shapes.



All the shapes are parallelograms.	All the shapes are quadrilaterals.	All the shapes are polygons.

2 This is 1 row of an array. How many squares are in 9 rows?



54 squares

3 Solve using partial products and an area model.

$$\begin{array}{r} 84 \\ \times\ \ 7 \\ \hline \end{array}$$

28	4 × 7
+ 560	80 × 7
588	

Possible answer:

	80	4
7	560	28

4 The square rug in Jaymie's classroom has a perimeter of 20 square feet. What are the side lengths of the rug? Show how you know.

20 ÷ 4 = 5 feet

Name: _____ Date: _____

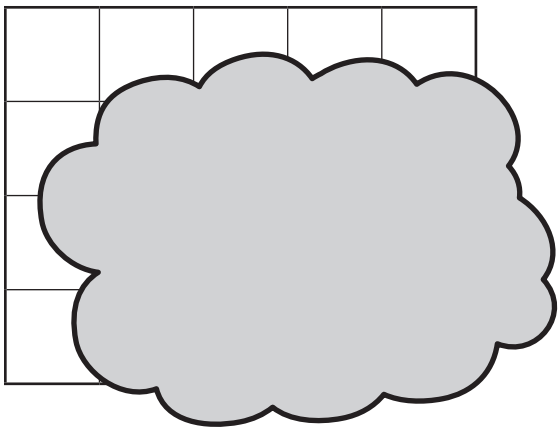

Sarah

Applying the Standard Algorithm to Multiply Two-Digit Numbers

1 Complete the equation to make it true.

$6 \times 4 = 8 \times$ **3**

2 a) What is the area of the rectangle?



20 square units

b) Write an equation to show how you found the area of the rectangle.

Possible answer:

4 × 5 = 20

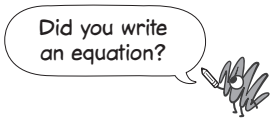
3 Solve using the standard algorithm.

	4	5
×		8
3	**6**	**0**

	2	7
×		3
	8	**1**

4 Sarah's garden has 4 rows of strawberry plants, with 8 plants in each row. She has twice as many tomato plants as strawberry plants. Write an equation to find the total number of tomato plants in the garden.

4 × 8 × 2 = 64 tomato plants



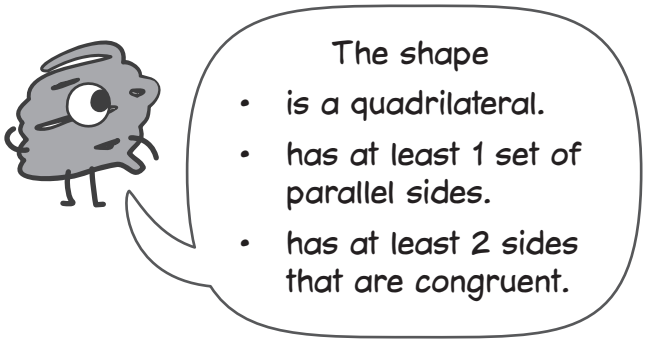
Name: _____ Date: _____


Dani

Solving Open-Ended Problems with the Standard Algorithm

1. Solve. $\boxed{56} = 7 \times 8$

2. Draw the shape the critter is thinking about.



Possible answer:

3. a) Solve using partial products.

$$\begin{array}{r} 42 \\ \times \quad 6 \\ \hline 12 \\ \times\ 240 \\ \hline 252 \end{array}$$

b) Solve using the standard algorithm.

$$\begin{array}{r} {\scriptstyle 1}\,42 \\ \times \quad 6 \\ \hline 252 \end{array}$$

c) How are the 2 strategies similar? How are they different?

Student answers will vary.

4. Dani made a rectangular wooden bookmark that has side lengths of 5 inches and 1 inch. What is the perimeter of the bookmark?

12 inches

Name: _____ Date: _____

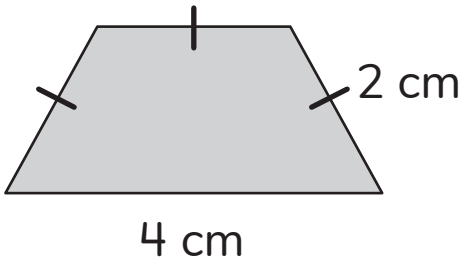

Mateo

Modeling and Solving Multiplication and Division Problems Efficiently

1 Make the comparison true. $614 < \square$

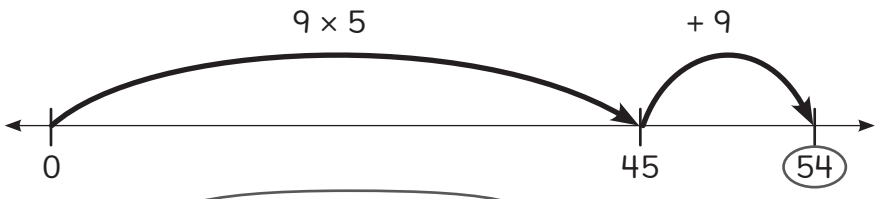
any number equal to or greater than 615

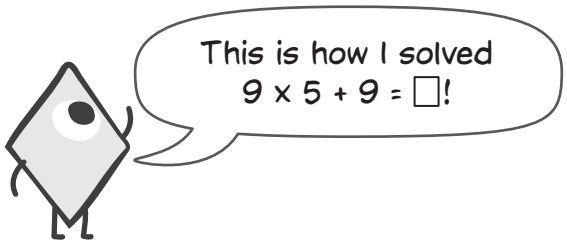
2 What is the perimeter of the trapezoid?



$P =$ ***10 cm***

3 What is another way the critter could have solved this equation?





Possible answer:

9 × 5 + 9
9 + 9 + 9 + 9 + 9 + 9
9 × 6
54

4 Mateo bought containers to organize 108 art supplies. Each container fits 9 art supplies. How many containers did Mateo buy? Show how you know.

Possible answer:

108 ÷ 9 = □

9 × 10 = 90
9 × 2 = 18
90 + 18 = 108

Mateo bought ***12*** containers for his art supplies.

Topic 6

Extending Place Value and Adding and Subtracting Efficiently

Recommended ST Math Objectives:

Place Value to 100,000
Addition and Subtraction within 1000 Strategies
Composing and Decomposing within 1000

Name: _____ Date: _____


Aleki

Representing Numbers to 100,000 with Base Ten Block Relationships

1 Is 21 divisible by 2? Explain your thinking.

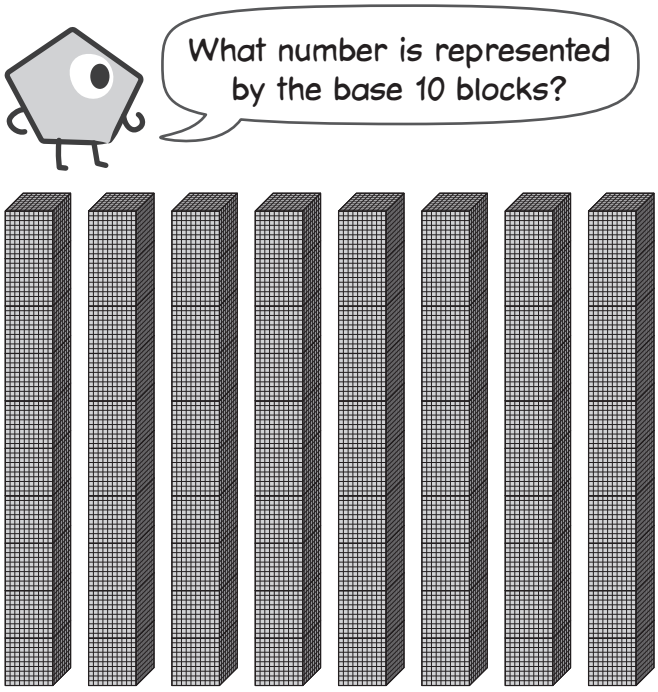
No

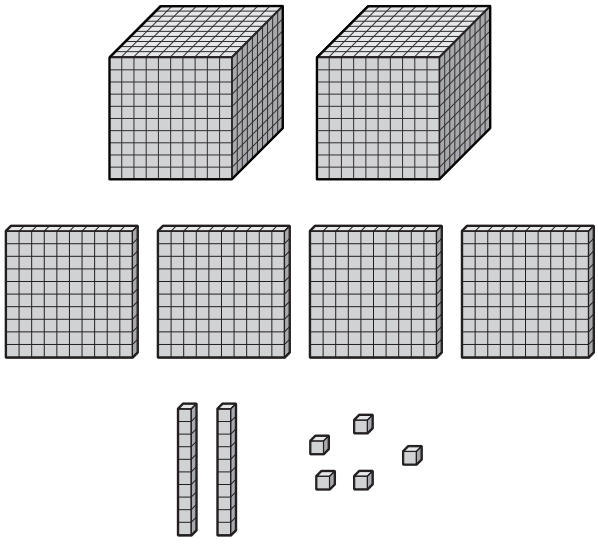
Possible explanation:
21 cannot be divided into 2 equal groups.

2 Solve.

$$\begin{array}{r} {\scriptstyle 3} \\ 38 \\ \times\ \ 4 \\ \hline 152 \end{array}$$

3





82,425

4 Aleki has a bookcase with 8 shelves. There is space for 7 albums on each shelf. How many albums can fit in the bookcase? Show how you know.

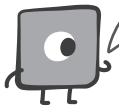
8 × 7 = 56 albums

Name: _____ Date: _____

Using Place Value to Name and Write Numbers to 100,000


Dani

1



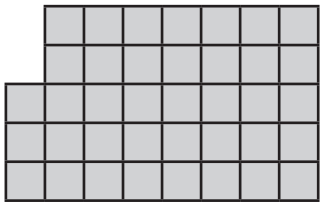
$48 \div 4 = 12$
$12 \div 6 = 2$

48 ÷ 4 ÷ 6 = 2

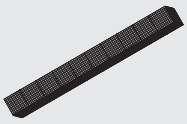
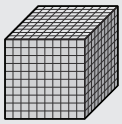
2 Complete the expression to calculate the area.

(**5** × **7**) + **3**

$A =$ **38** square units



3

 Hundred Thousands	 Ten Thousands	 Thousands ,	 Hundreds	 Tens	Ones
	8	**4** ,	**7**	**6**	**3**

4 Dani bought 5 packs of small metal brackets and 2 packs of large metal brackets for a building project. Each pack had 12 brackets. How many brackets did she buy in total? Show how you know.

5 + 2 = 7
7 × 12 = 84 brackets

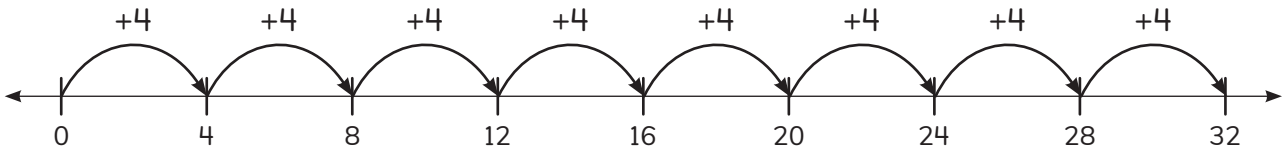
Name: _____ Date: _____


Vivi

Using Expanded Notation to Name and Write Numbers to 100,000

1. Find the product. $34 \times 6 =$ **204**

2. Write a multiplication equation to represent the model.



Possible answer:

8 × 4 = 32

3. Write the number in expanded form and in expanded notation.

34,816

30,000 + 4,000 + 800 + 10 + 6

Expanded Form

(3 × 10,000) + (4 × 1,000) + (8 × 100) + (1 × 10) + (6 × 1)

Expanded Notation

4. Vivi has 63 stickers to fill 7 pages in her album. She puts the same number of stickers on each page. How many stickers does she put on each page? Explain your thinking.

63 ÷ 7 = 9 stickers on each page

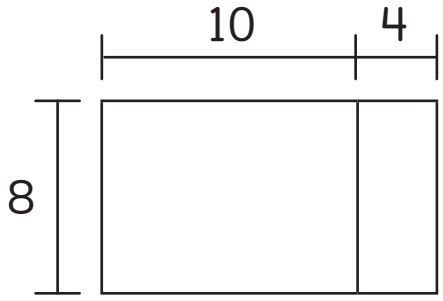
Name: _____ Date: _____


Mateo

Representing Multiplication Relationships Between Place Values

1. Solve using a strategy or model of your choice. $4 \times 5 \div 2 =$ **10**

2. Complete the equation to find the product of 8×14.

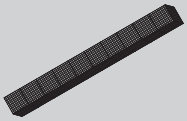
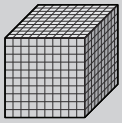


$8 \times 14 = ($ **8** $\times$ **10** $) + ($ **8** $\times$ **4** $)$

$=$ **80** $+$ **32**

$=$ **112**

3. Use the place value chart to solve. $70 \times$ **100** $= 7{,}000$

 Hundred Thousands	 Ten Thousands	 Thousands ,	 Hundreds	 Tens	Ones
				7	0
		7 ,	**0**	**0**	**0**

Name: _____ Date: _____

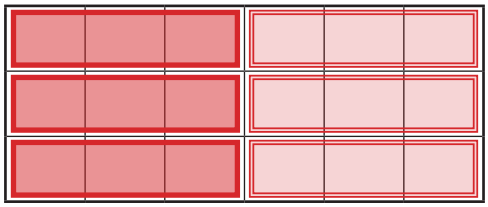

Arman

Using the Number Line to Find Nearby Numbers Within 100,000

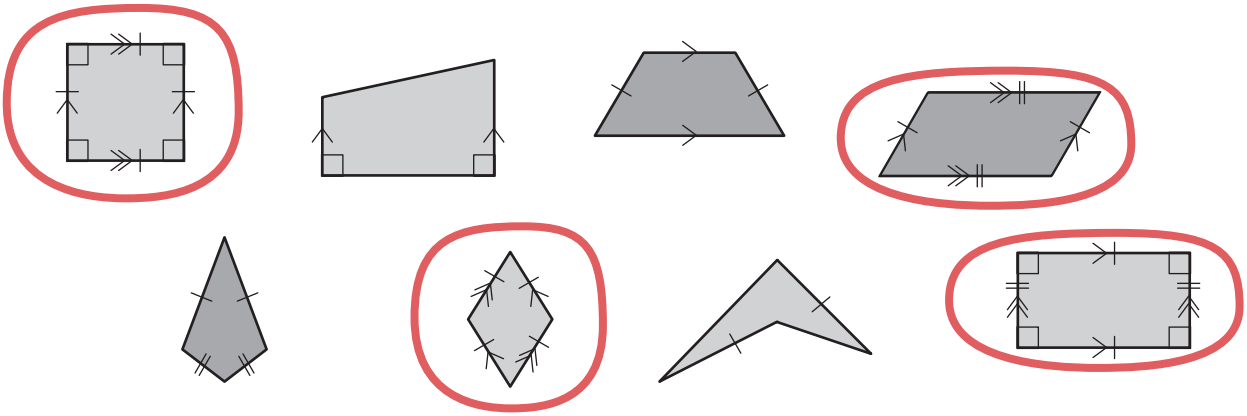
1 Complete the model and solve.

$18 \div 2 \div 3 =$ **3**

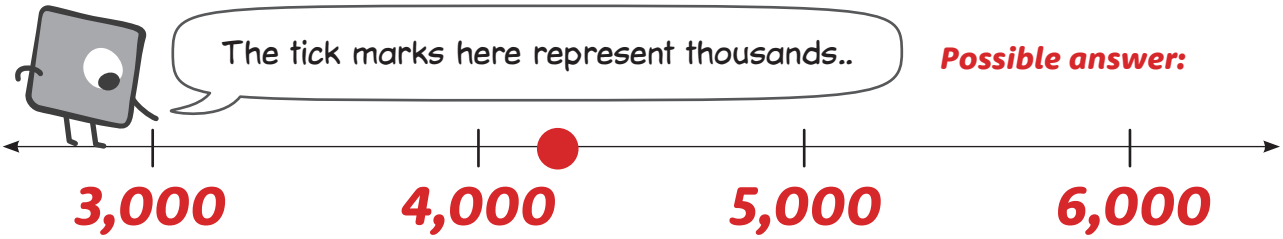
Possible answer:



2 Which shapes are parallelgrams?



3 a) Place 4,281 on the number line and label each tick mark.



Possible answer:

b) Which thousand is nearest 4,281?

4,000

4 Arman has 36 planet cards and 28 star cards that he wants to sort into a binder. If each binder page holds 8 cards, how many pages will he need? Show how you know.

36 + 28 = 64

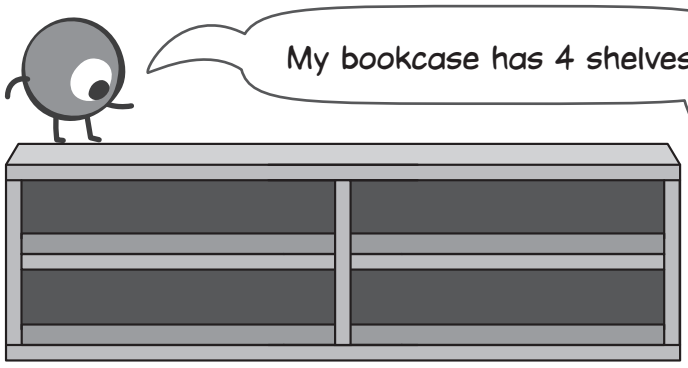
64 ÷ 8 = 8 pages

Name: _____ Date: _____


Mateo

Comparing Numbers Within 100,000

1



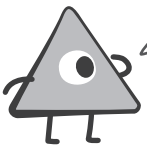
24 shelves

2 Circle the equation that could be used to find the quotient. Then solve the equation.

$42 \div 6 =$ **7**

42 + 6 = 48	42 × 6 = 252
7 × 6 = 42	6 + 36 = 42

3



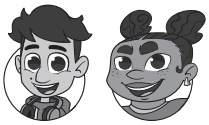
2,035 **<** 2,305

3 Mateo had 3 boxes of pencils. There were 12 pencils in each box. He placed 9 cups on the art table and put an equal number of his pencils into each cup. How many pencils did he put in each cup? Show how you know.

3 × 12 ÷ 9

3 × 12 = 36
36 ÷ 9 = 4 pencils in each cup

Name: _____ Date: _____



Rounding to the Nearest 10

1. 781 – 200 = **581**

2. Mateo has a piece of ribbon that is 42 inches long. He cuts off 19 inches to use on a birthday present. How much ribbon does Mateo have left?

   42 – 19 = 23 inches

3. a) Write 3 numbers that would round to 70 when rounded to the nearest ten.

   Student answers will vary.

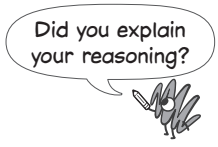
   b) Write 3 numbers that would round to 80 when rounded to the nearest ten.

   Student answers will vary.

4. Sarah has 143 seeds for her garden. To know about how many seeds to order for next year, she wants to round this number of seeds to the nearest ten. What number should she round to? Explain your reasoning.

   Possible answer:

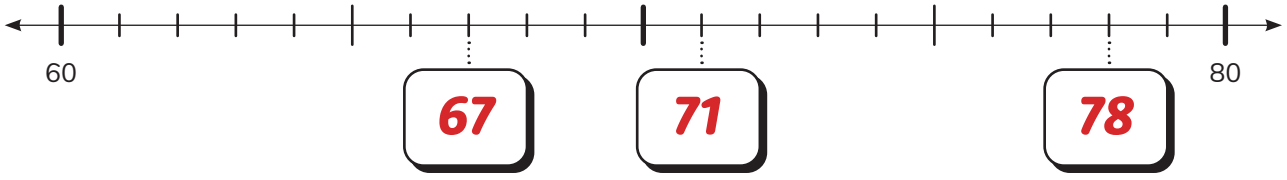
   140 because the 4 is in the tens place and there is a 3 in the ones place, so she should round down to 140.



Name: _____ Date: _____

Rounding to the Nearest 100

1. Fill in the missing numbers on the number line below.



2. Round 36 to the nearest 10. **40**

3. Sarah says that 364 rounds to both 360 and 400. Do you agree with Sarah? Prove your thinking.

Yes, because rounding to the nearest 10 gives 360 and rounding to the nearest hundred gives 400.

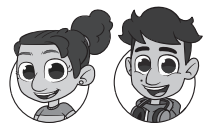
4. a) Round 655 to the nearest 10. **660** b) Round 655 to the nearest 100. **700**

5. Jaymie has about 50 sheets of blue and green paper. If 37 sheets of paper are blue, about how many sheets of green paper does Jaymie have? Explain your reasoning.

Possible answer:

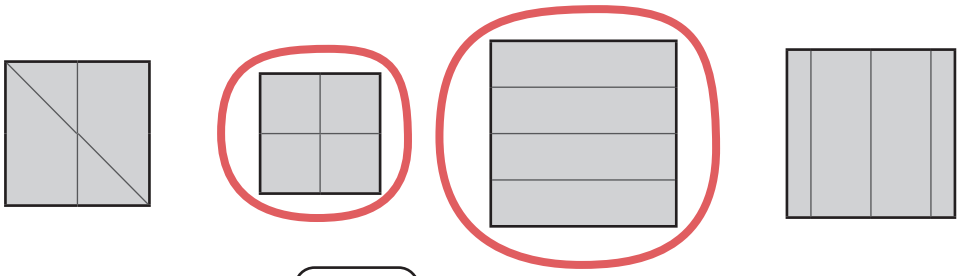
37 is close to 40, so 50 – 40 = 10, or about 10 sheets. The actual answer is 50 – 37 = 13.

Name: _____ Date: _____



Using Rounding to Estimate the Total

1. Circle the squares that are partitioned into quarters.



2. Round 392 to the nearest 10. **390**

3. Hannah bought a hat and glove to start the new baseball season. About how much money did she need to buy the hat and glove?

Show your thinking.

Possible answer:

$50 ***Round $15 to $20 and $28 to $30***

4. The total cost of Hannah's sports equipment is $188. What is $188 rounded to the nearest 10? What is $188 rounded to the nearest 100?

$190 and $200

5. Mateo ordered new supplies for his art studio. He ordered 56 colored pencils. If there were 8 colored pencils in each box, how many boxes of colored pencils did Mateo order? Show how you found your answer.

7 boxes

56 ÷ 8 = 7

Name: _____ Date: _____


Hannah

Using Sequential Strategies to Add and Subtract Three-Digit Numbers

1 Draw a picture to represent 4 × 7.

Student answers will vary.

2 Solve this riddle.

- I am a 2-digit number.
- I am less that 80 but greater than 70.
- I am an even number.
- I round to 80 when rounded to the nearest ten.
- The sum of my digits is 15.

What number am I?

78

3 Solve.

634 + 144 = ***778*** 548 – 253 = ***295***

4 Hannah tracks her steps along the garden path. Her step tracker showed 285 steps before she entered the garden. When she got to the end of the garden path, the tracker showed 523 steps. How many steps did Hannah take on the garden path? Show how you found your answer.

523 – 285 = 238 steps

Name: _____ Date: _____


Mateo

Using Decomposition Strategies to Add and Subtract Three-Digit Numbers

1. a) Round 895 to the nearest 10. **900** b) Round 112 to the nearest 100. **100**

2. a) Use the strategy of your choice to find the sum of 528 + 274.

802

b) Use a different strategy to find the sum of 342 + 449.

791

3. Mateo had an art show to share the art his friends created. On Thursday, 156 people visited the show. On Friday, there were 243 visitors. On Saturday morning, another 75 visitors came to the art show. Over these 3 days, how many visitors came to Mateo's art show? Show how you found your answer.

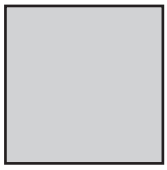
156 + 243 + 75 = 474 visitors

Name: _____ Date: _____


Aleki

Using Partial Sums to Add Three-Digit Numbers

1 Find the perimeter and area of the square below.



Perimeter is 28 inches.
Area is 49 square inches.

2 Finish this sentence:

If $7 \times 6 = 42$, then $42 \div 7 =$ ***6***

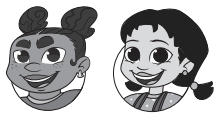
3 Find the sum of 632 + 268 using 2 different strategies.
Circle the strategy that works the best for you.

Student strategies will vary. 632 + 268 = 900

4 Aleki's class is figuring out how many tickets the school will need to buy for the upcoming field trip to the theater. If there are 342 students in Kindergarten, 1st grade, and 2nd grade and 279 students in 3rd grade, 4th grade, and 5th grade, how many tickets will need to be purchased for all students to attend? Show your thinking.

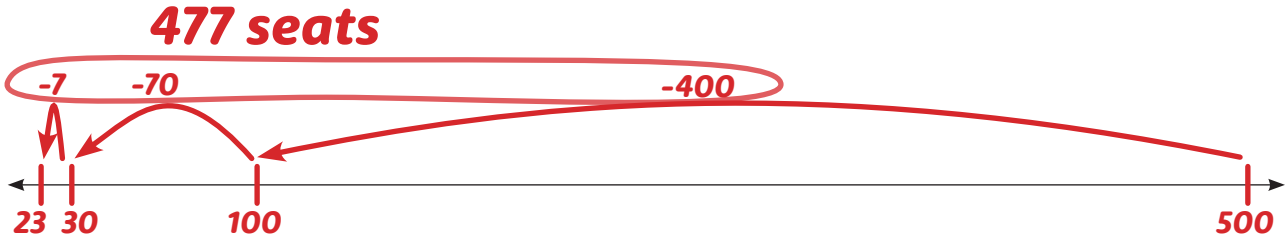
342 + 279 = 621 tickets

Name: _____ Date: _____



Solving Word Problems Involving Addition and Subtraction of Three-Digit Numbers

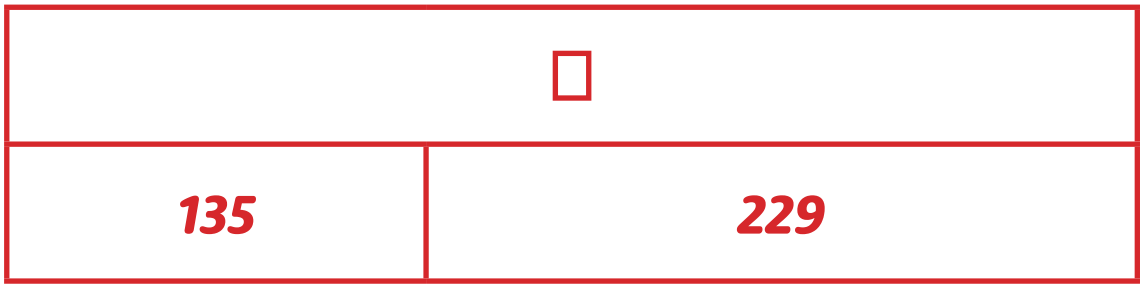
1. The school auditorium has 500 seats. Only 23 seats are empty. How many seats are filled? Use the number line to solve the problem.



2. 400 – 12 = **388**

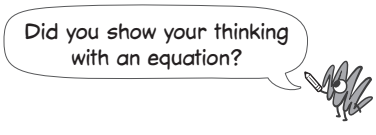
3. Sarah's class planted 135 carrot seeds and 229 pumpkin seeds in their school garden. Draw a strip diagram to help you find how many seeds Sarah's class planted in all.

364 seeds



4. Vivi has some new stickers. If she has 7 pages of stickers and there are 6 stickers on each page, how many new stickers does Vivi have? Write an equation and solve.

7 × 6 = 42 stickers



Name: _____ Date: _____


Hannah

Using Estimation to Solve Three-Digit Addition and Subtraction Problems

1. $72 \div 8 =$ **9**

2. Solve this riddle:

   - I am a 3-digit number.
   - I am less than 400 but greater than 200.
   - I am an even number.
   - I round to 350 when rounded to the nearest 10.
   - The sum of my digits is 13.

   What number am I?

   346

3. Is this equation true or false? Show your thinking.

   $387 + 165 = 876 - 324$ **True**

   387 + 165 = 552 **876 – 324 = 552**

4. Hannah and her dad were at the farmers market on a busy Saturday morning. Before it rained, there were 410 visitors. After it rained, there were 185 people remaining. How many visitors left during the rain? Draw a strip diagram and write an equation to show your thinking.

   410 – 185 = 225 visitors

410	
185	□

Did you show your thinking?

Name: _____ Date: _____

Solving Two-Step Word Problems Involving Addition and Subtraction of Three-Digit Numbers

1. Find the sum of 281 + 519.

800

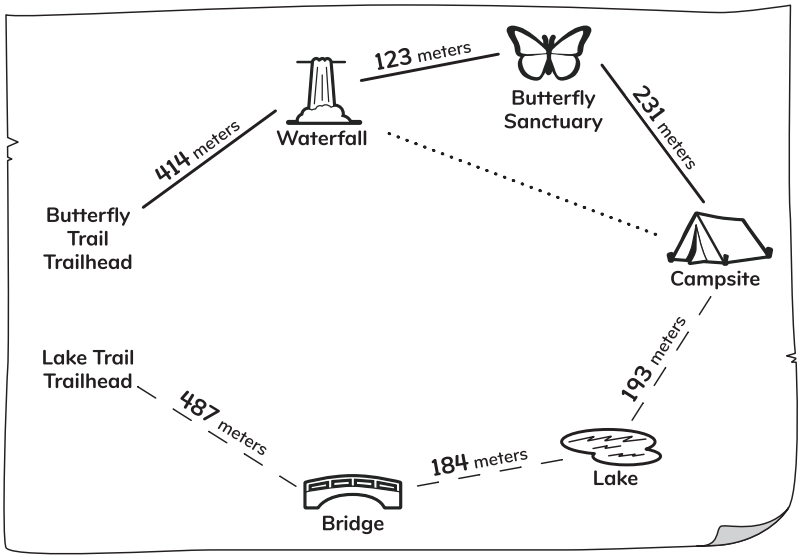
2. Find the sum of 281 + 519 using a different strategy. Show your strategy.

Student answers will vary.

3. Donner and his aunt take the Lake Trail from the trailhead to the campsite. How far do they hike? Model the problem with a strip diagram.

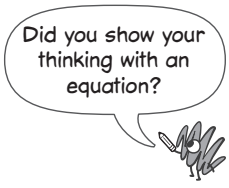
864 meters

☐		
487	**184**	**193**



4. Naomi is organizing her shell collection. She has 36 shells and wants to put 9 shells in each container. How many containers will Naomi need to organize the shells? Write an equation to represent this problem and solve.

36 ÷ 9 = 4 containers



Name: _____ Date: _____


Donner Vivi

Using Estimation to Solve Two-Step Word Problems Involving Three-Digit Addition and Subtraction

1. Use the numbers 7, 9, and 63 to write 2 multiplication equations and 2 division equations.

$7 \times 9 = 63$ $\quad 63 \div 7 = 9$

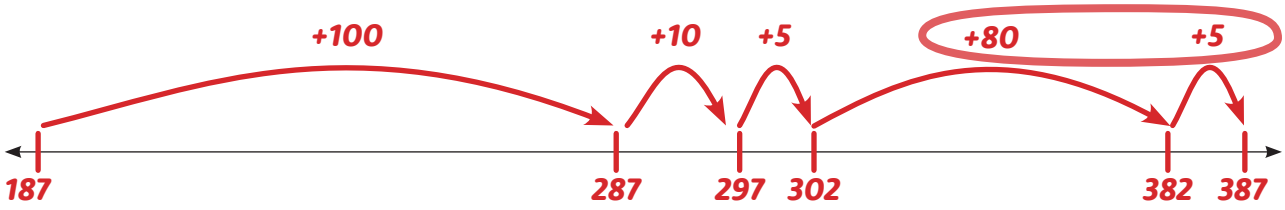
$9 \times 7 = 63$ $\quad 63 \div 9 = 7$

2. Round 349 to the nearest hundred.

300

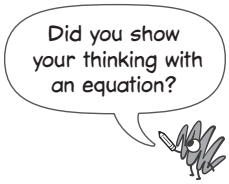
3. On a road trip, Donner's family drove 187 miles on Saturday morning and 115 miles on Saturday afternoon. On Sunday, they drove 387 miles. How many more miles did they drive on Sunday than on Saturday? Use the number line to model and help you solve.

85 more miles



4. Vivi got a new book to hold her stamp collection. If the book has 8 pages and each page can hold 6 stamps, how many stamps can this book hold? Write an equation to represent the problem and solve.

$8 \times 6 = 48$ stamps



Name: _____ Date: _____


Donner

Choosing Strategies to Flexibly Add and Subtract Three-Digit Numbers

1 What time is shown on the clock?

1:15

2 What is the missing factor?

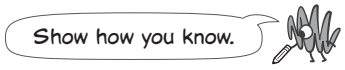
$6 \times$ **9** $= 54$

3 Model and solve.

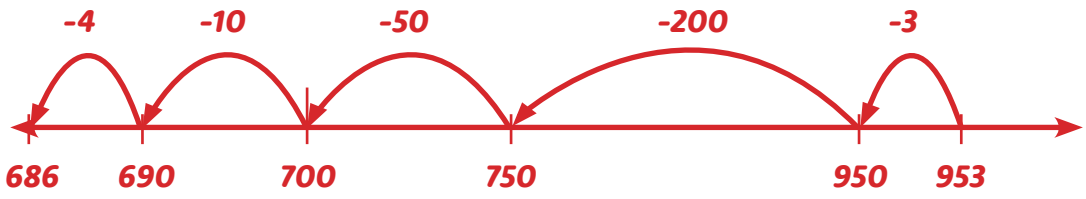
$387 + 464 =$ **851**

$746 - 125 =$ **621**

4 Donner hiked 953 meters on Saturday. He hiked 267 fewer meters on Sunday. How many meters did Donner hike on Sunday?



Possible explanation: **953 – 267**



Donner hiked **686 meters** on Sunday.

Topic 7

Discovering Fractions

Recommended ST Math Objectives:

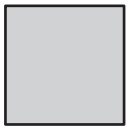
Fraction Concepts
Fractions on the Number Line
Number Patterns

Name: _____ Date: _____


Hannah

Partitioning Area Models into Equal Parts

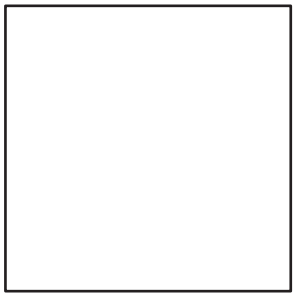
1 Find the area of this square.


6 inches

36 square inches

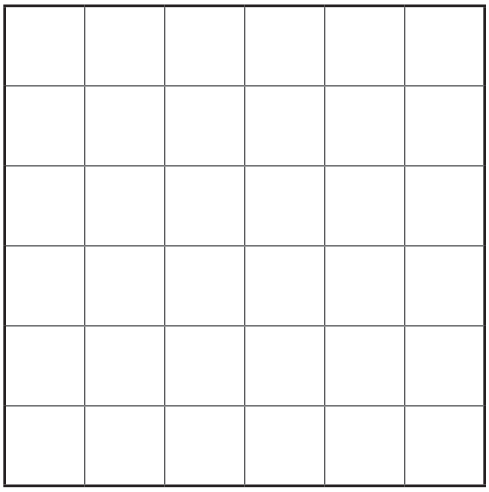
2 Partition the squares into quarters in 2 different ways.

Student answers will vary.

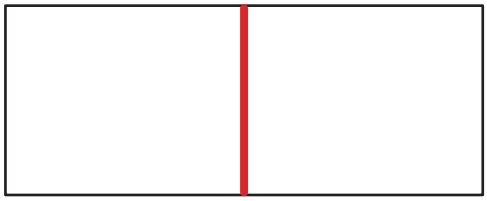


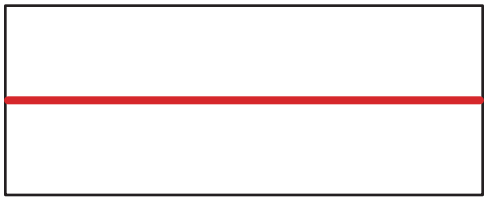
3 Use the grid to show sixths any way you choose.

Student answers will vary.



4 Hannah is planning a new garden area with her dad. Using the following rectangles, show 2 different ways that Hannah might partition her garden into 2 equal parts.


Plan #1


Plan #2

Name: _____ Date: _____


Aleki

Analyzing the Meaning of One-Half

1. If 9 × 8 = 72, what is the value of 72 ÷ 8?

   9

2. Partition and shade this rectangle to show $\frac{1}{3}$ shaded.

   Student answers will vary.

3. A lemon bar was cut like this.

   Is the lemon bar cut in half?

   ☐ Yes ☑ No

   Explain your thinking.

   Student explanations will vary.

4. Aleki is selling tickets to the school's talent show where he will be playing his drum set. If each ticket costs $5 and Aleki has collected $45, how many tickets has he sold? Write an equation to represent the problem and solve.

   45 ÷ 5 = 9 tickets

Did you write an equation to explain your thinking?

Name: _____ Date: _____

Introducing the Unit Fraction

1. Is this equation true or false? $3 \times 5 = 5 \times 3$

True

Possible answer:

3 × 5 = 15 and 5 × 3 = 15

2. Jaymie has 24 sticky notes that she splits into piles. She puts 8 sticky notes into each pile. How many piles does Jaymie make?

Draw a model to show your thinking.

3 piles

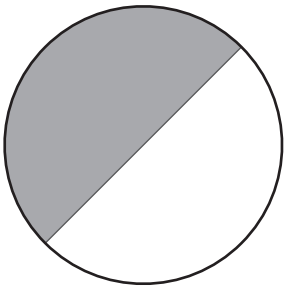
Student models will vary.

3. What fraction of each shape is shaded?

a)

$\frac{1}{4}$

b)



$\frac{1}{2}$

4. Arman is designing a new mosaic. He is using tiles that are $\frac{1}{8}$ of the board where the mosaic will go. How many tiles will Arman need to cover the board?
Draw a model to explain your thinking.

8 tiles

Student models will vary.

Did you show your thinking with a model?

Name: _____ Date: _____


Vivi

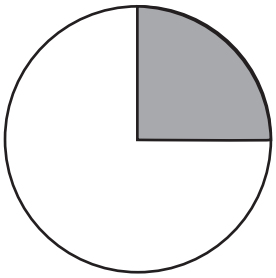
Defining the Whole to Name and Iterate Unit Fractions

1. Explain how you could skip count by 4 to find the product of 3×4.

Student explanations will vary.

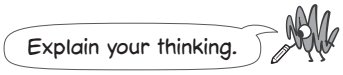
2. What fraction of the shape is shaded?

1/4



3. 

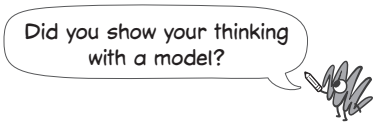

= ***1/2***



4. Vivi is using pieces of ribbon to create a new bracelet. If each ribbon is $\frac{1}{3}$ of the bracelet, how many ribbons will Vivi need to make the whole bracelet? Draw a model to explain your thinking.

She will need 3 ribbons.

Student models will vary.



Name: _____ Date: _____

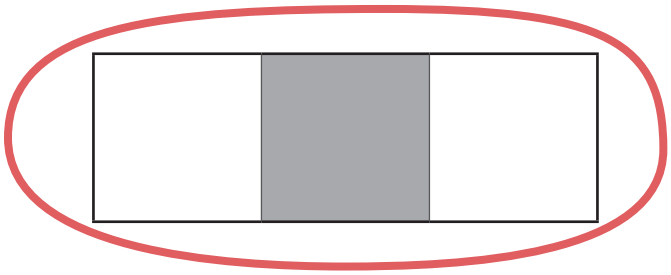

Hannah

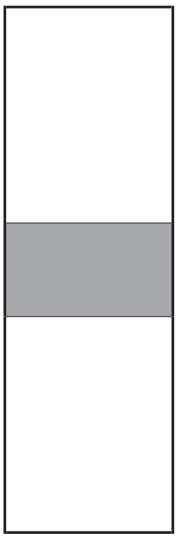
Iterating Unit Fractions to Create Fractions

1. Solve.

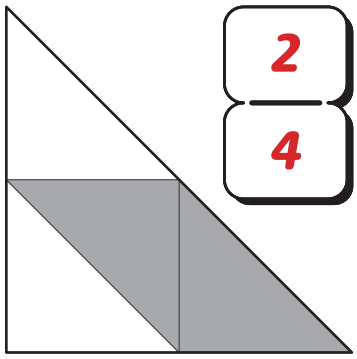
$8 \times 40 =$ **320**

2. Circle the model that shows $\frac{1}{3}$ shaded.

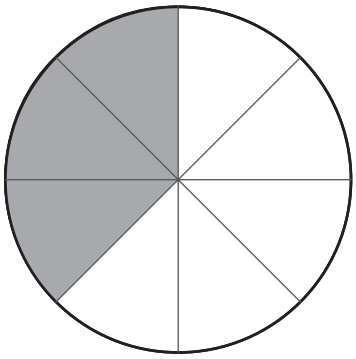




3. What fraction of each shape is shaded?

a) 

2/4 or **1/2**

b) 

3/8

4. Hannah divided her garden into 3 equal parts. She planted strawberries in $\frac{1}{3}$ of the garden. Using the following rectangle, partition Hannah's garden and label it to show where she planted the strawberries. ***Possible answer:***

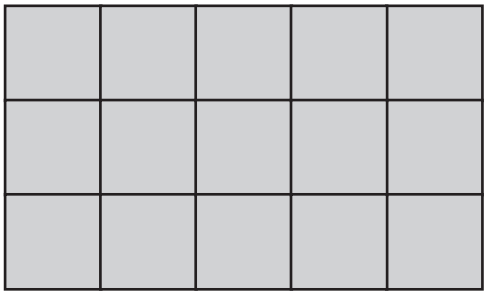
Name: _____ Date: _____


Mateo

Partitioning a Whole to Create Fractions

1. What is the area of this rectangle?

15 sq. units



2. Partition the rectangle into eighths and label each part with a unit fraction.

Possible answer:

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

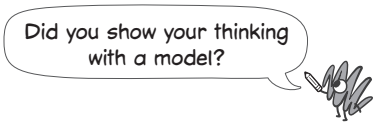
3. a) $\frac{4}{6}$ of the shape is gray. **or** $\frac{2}{3}$

b) $\frac{2}{6}$ of the shape is white. **or** $\frac{1}{3}$

4. Mateo divides his canvas into 6 equal parts. He paints 2 of the parts blue and the remaining parts orange. What fraction of Mateo's painting is blue? Draw a model to explain your thinking.

$\frac{2}{6}$ or $\frac{1}{3}$ of his painting is blue.

Student models will vary.



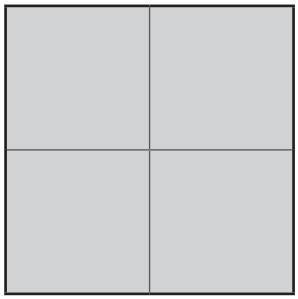
Name: _____ Date: _____

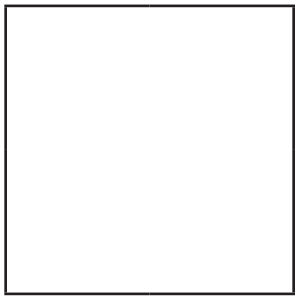

Aleki

Iterating Unit Fractions to Create the Whole

1 Aleki says this shape is partitioned into fourths, and he knows another way to show fourths. Show another way.

Student answers will vary.



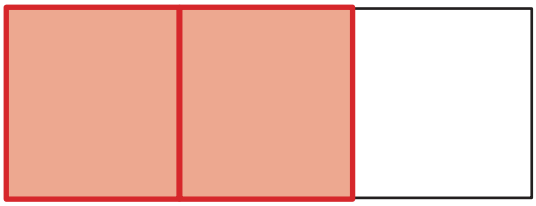


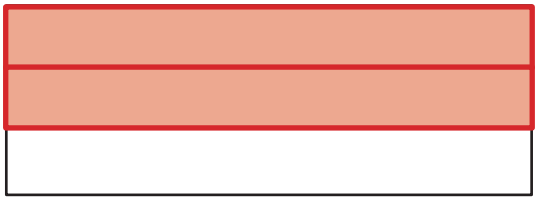
2 Complete the equation to represent $\frac{4}{4}$ as a sum of unit fractions.

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

3 Use these rectangles to show $\frac{2}{3}$ shaded in 2 different ways.

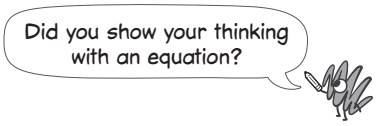
Possible answer:





4 Aleki is packing bait to go fishing. He has 8 worms and 2 containers. If Aleki wants to have the same number of worms in each container, how many worms should be in each container? Write an equation to show how many worms Aleki will place in each container.

8 ÷ 2 = 4 worms



Name: _____ Date: _____


Louis

Decomposing and Composing Fractions with Visual Models

1. This number is in expanded notation. Write the number in the standard form.

$$(3 \times 10{,}000) + (5 \times 1{,}000) + (8 \times 10) + (1 \times 1)$$

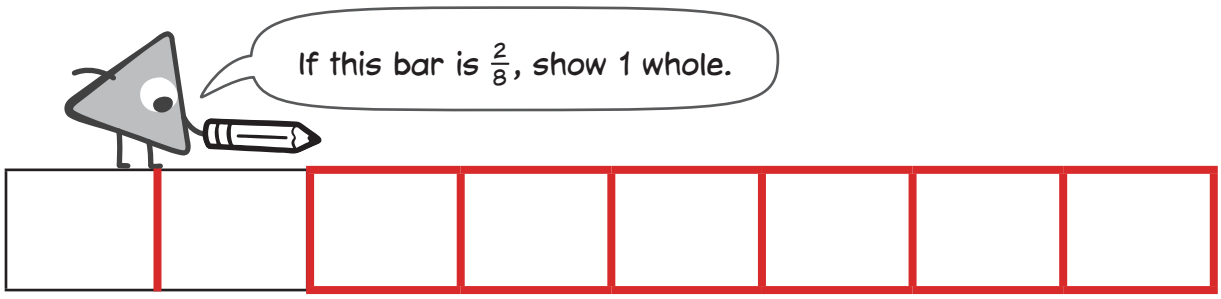
35,081

2. Fill in the missing digits to make a true comparison.

$578 > 5\square\square$

Student answers will vary.

3.



4. Louis's basketball team collected 464 cans in the first week. In the second week, they collected 72 more cans than they did in the first week. What was the total number of cans collected in the 2 weeks? Explain how you know.

1,000 cans

Possible answer:

Louis's team collected 536 cans in the second week because 464 + 72 = 536. Louis's team collected 1,000 cans in the 2 weeks because 464 + 536 = 1,000

Name: _____ Date: _____

Exploring Fractions Involving Discrete Sets

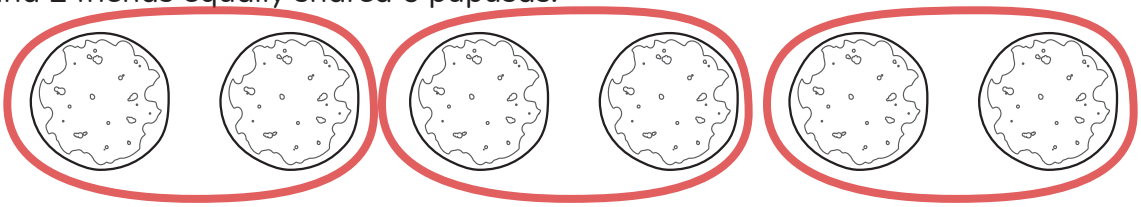
1. Put the numbers in order from least to greatest.

10,000 1,000 100,000

1,000 *10,000* *100,000*

2. Round 324 to the nearest ten. *320*

3. Mateo and 2 friends equally shared 6 pupusas.



What fraction of the pupusas did each person get?

$\frac{2}{6}$

4. Jaymie is organizing crayons for an upcoming project.
She has 8 packs of crayons with 6 crayons in each pack.
How many crayons does Jaymie have? Show how you found your answer.

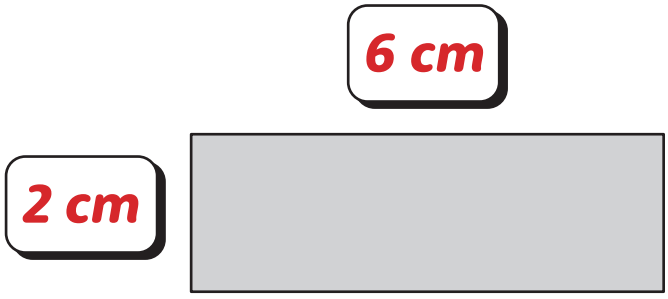
6 × 8 = 48 crayons

Name: _____ Date: _____

Exploring Fractions Involving Number Lines

1 Donner draws a rectangle with an area of 12 square centimeters. Label the possible side lengths of Donner's rectangle.

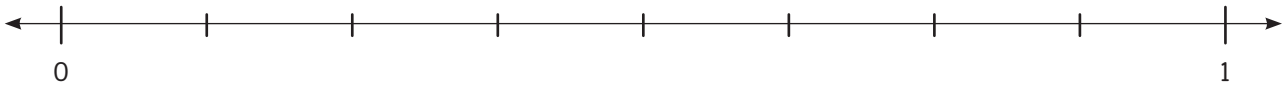
Possible answer:



2 Draw 2 polygons that each have 4 vertices.

Student answers will vary.

3



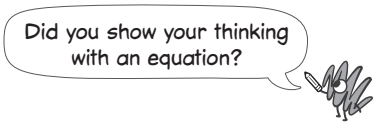
a) Label $\frac{4}{8}$ on the number line.

b) Write $\frac{4}{8}$ as a sum of unit fractions.

$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

4 Vivi is making ribbon bracelets. She uses pieces of ribbon that are each 3 inches long. If she has 5 pieces of ribbon, how many inches of ribbon does she have? Write an equation to find the total length of Vivi's ribbon.

5 × 3 = 15 inches

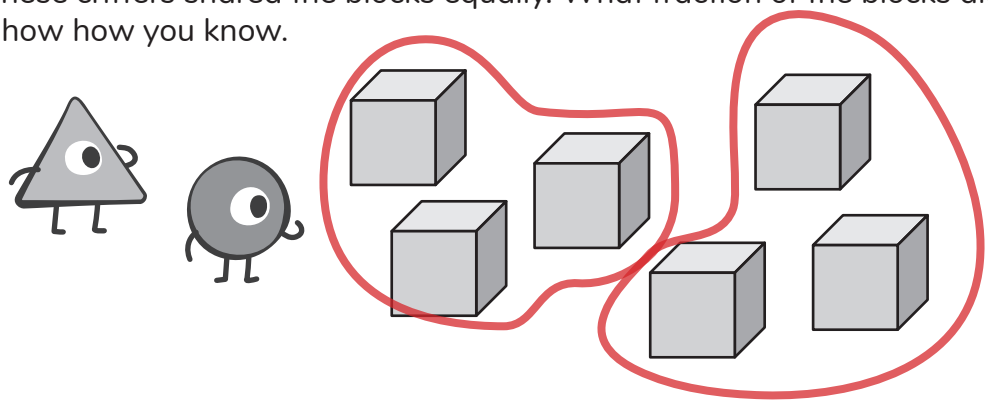


Name: _____ Date: _____


Donner

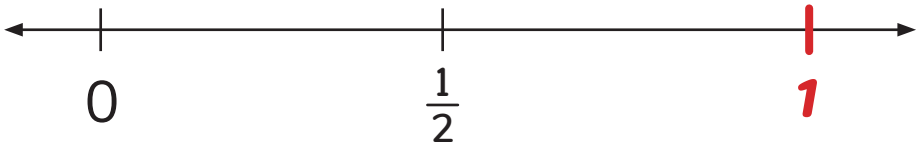
Locating Fractions on a Number Line

1 These critters shared the blocks equally. What fraction of the blocks did they each get? Show how you know.

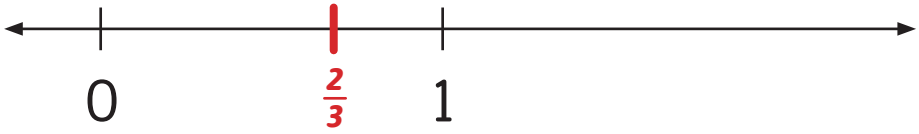


$\frac{3}{6}$

2 Label 1 on the number line.



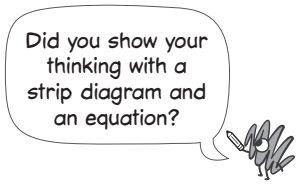
3 Label $\frac{2}{3}$ on the number line.



4 Donner is planning a hiking trip. On Friday, he plans to hike a 425-meter trail. On Saturday, he plans to hike a 250-meter trail. On Sunday, he plans to hike a 308-meter trail. How many meters does Donner plan to hike on his hiking trip in all? Solve with a strip diagram and an equation.

☐		
425	250	308

425 + 250 + 308 = 983 meters



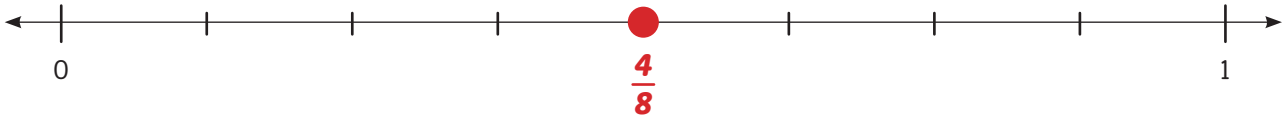
Name: _____ Date: _____


Hannah

Relating Different Fraction Models

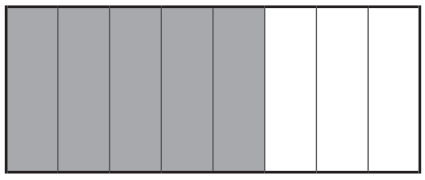
1. Solve. $8 \times \boxed{7} = 56$

2. Label $\frac{4}{8}$ on the number line.



3. a) What fraction of the shape is shaded.

$\frac{5}{8}$

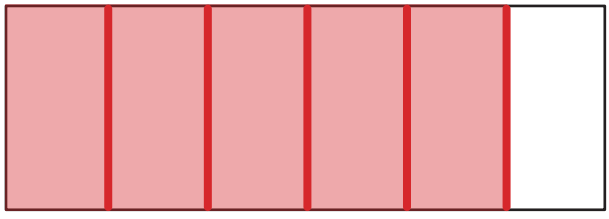


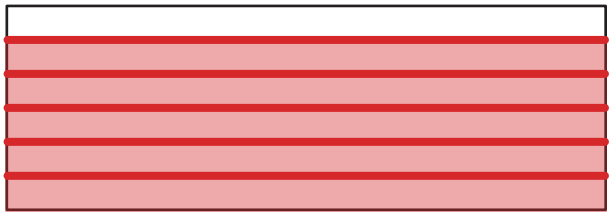
b) Write this fraction as a sum of unit fractions.

$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

4. Hannah is planting squash in her rectangular garden. She wants to use $\frac{5}{6}$ of the garden for squash. Draw 2 different ways the squash could be planted in the rectangles below. Which plan do you think is best and why?

Possible answer:


Plan #1


Plan #2

Student answers will vary.

Topic 8

Exploring Fraction Thinking

Recommended ST Math Objectives:

Fraction Equivalence and Ordering
Fractions on the Number Line
Fraction Concepts

Name: _____ Date: _____

Writing One Whole as a Fraction

1. Vivi has 5 bags of marbles. There is the same number of marbles in each bag. If she has a total of 35 marbles, how many marbles are in each bag? Write an equation with a ☐ to represent the unknown. Solve for the unknown.

   5 × ☐ = 35

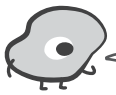
   7 marbles

2. Solve.

   48 ÷ 8 = **6** 63 ÷ 7 = **9**

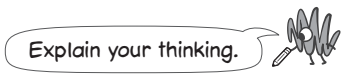
3. Which fraction is equal to 1?

   ☑ $\frac{3}{3}$ ☐ $\frac{3}{6}$

4. 

   I think that $\frac{2}{2}$ and $\frac{4}{4}$ are equivalent.

   Do you agree? Circle yes or no. **Yes** **No**

   Possible answer:

   Both fractions are equivalent to 1.

5. Last year, Naomi had 465 shells in her seashell collection. When she counted them today, she had 1,000 shells. How many shells has Naomi collected since last year? Show how you found your answer.

   1,000 – 465 = 535 shells

Name: _____ Date: _____

Exploring Equivalent Fractions for One-Half

1. Solve. $54 \div 6 =$ **9**

2. If $7 \times 8 = 56$, does $56 \div 8 = 7$? Why or why not?

Yes

Possible answer:
These are related multiplication and division facts.

3. Sarah says this rectangle shows $\frac{1}{2}$ shaded.

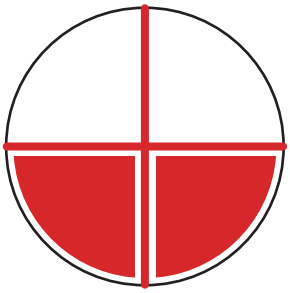
Arman says this rectangle shows $\frac{1}{2}$ shaded.

Who is correct? Why?

Both are correct, because the rectangles are divided into 2 equal parts and one of the 2 parts is shaded.

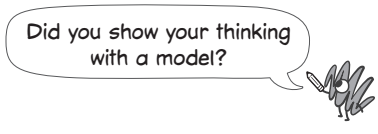
4. Partition and shade the circle to show a fraction of the circle shaded that is eqivalentt to $\frac{1}{2}$.

Possible answer:



5. Mateo paints $\frac{3}{4}$ of a canvas in yellow. Jaymie paints $\frac{6}{8}$ of the same-sized canvas in yellow. Mateo says that they used the same amount of yellow paint. Do you agree? Draw a model to show your thinking.

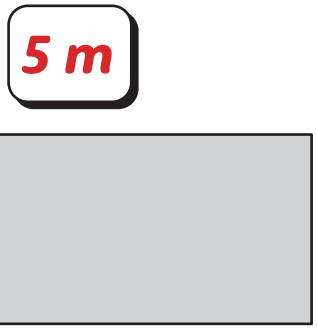
Yes



Name: _____ Date: _____

Using Patterns to Make Equivalent Fractions

1 Label the sides of the rectangle so that the rectangle has an area of 10 square meters. Then find the perimeter.

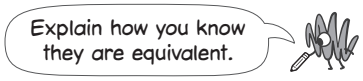


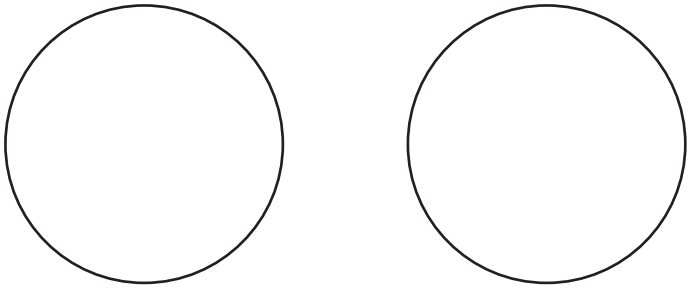
Possible answer:

The perimeter is 14 meters.

2 Does $\frac{1}{2} = \frac{4}{8}$? **Yes** **No**

3 Partition the circles to show 2 fractions that are equivalent.





Student answers will vary.

4 Mateo has 3 boxes of markers, and each box contains 8 markers. Jaymie also has 3 boxes of markers, and each box has 4 markers. Does Mateo or Jaymie have more markers? Write equations to show how you solved the problem.

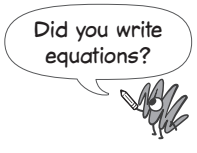
Mateo has more markers.

Mateo:

3 × 8 = 24 markers

Jaymie:

3 × 4 = 12 markers



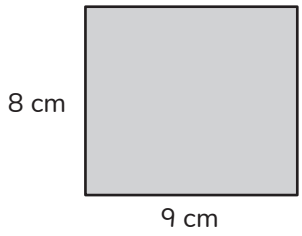
Name: _____ Date: _____

Generating Equivalent Fractions on a Number Line

1. Circle the fraction equivalent to 1.

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

2. What is the area of the rectangle?



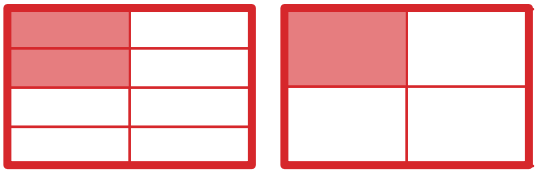
A = **72 square cm**

3. Circle true or false and then show how you know.

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

True False

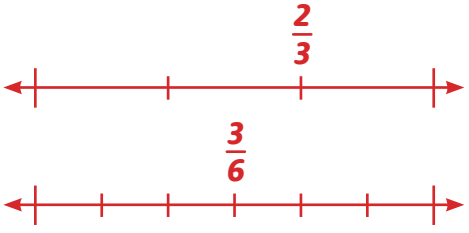
Possible answer:



$\frac{2}{3} = \frac{3}{6}$

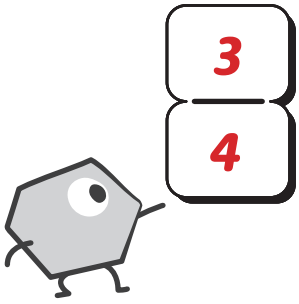
True **False**

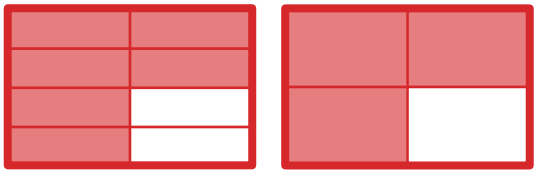
Possible answer:

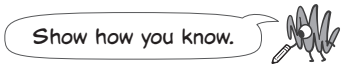


4. The critter is holding a fraction equivalent to $\frac{6}{8}$. What could the fraction be?

Possible answer:







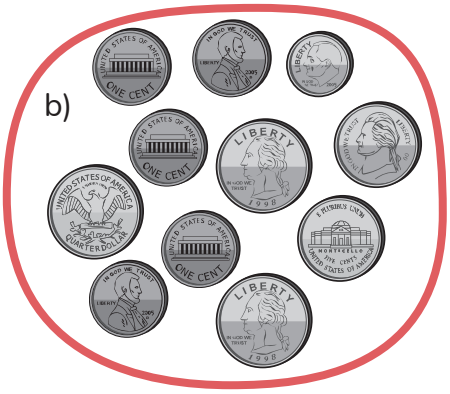
Name: _____ Date: _____

Using Equivalent Fractions to Solve Word Problems

1 Circle the set of coins with a value of $1.00.

a)

b)



c)

2 Write 2 attributes that all rectangles share.

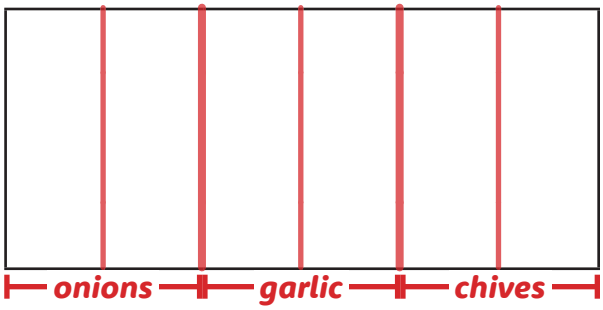
Possible answer:

4 straight sides, 4 vertices

3 Hannah decides to add chives to her garden. Design her garden to add the chives while giving each plant the same amount of space.

Hannah's Garden
$\frac{2}{6}$ of the garden bed will have onions.
$\frac{2}{6}$ of the garden bed will have garlic.

Hannah's Garden



Note:
Students may use different colors to designate the equal spaces as $\frac{2}{6}$ in the model.

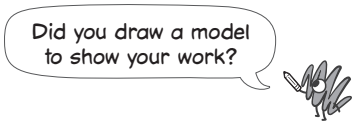
4 Hannah and Sarah have equal-sized vegetable gardens. Hannah plants green beans in $\frac{3}{4}$ of her vegetable garden. Sarah plants green beans in $\frac{5}{8}$ of her vegetable garden. Did Hannah and Sarah plant equivalent amounts of green beans? Draw a model to show your thinking.

Hannah

Sarah

No, Hannah planted more.

Student models will vary.



Name: _____ Date: _____

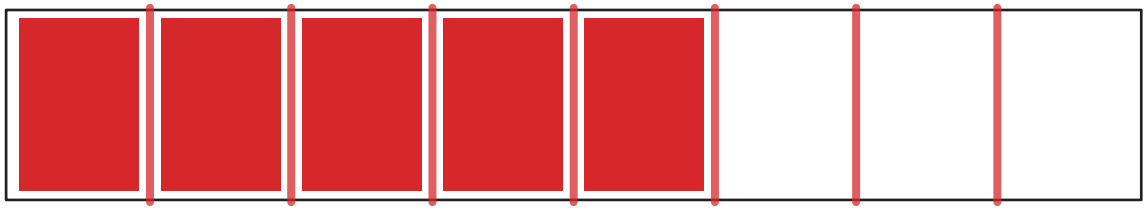
Comparing Fractions with Common Denominators


Dani

1 Circle the fractions equivalent to 1.

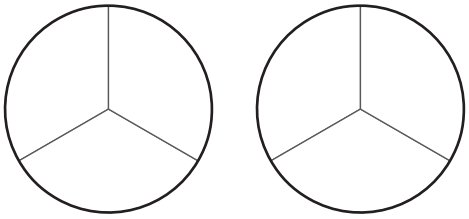
$\frac{2}{6}$ $\frac{2}{2}$ $\frac{6}{6}$

2 Partition and shade the rectangle to represent $\frac{5}{8}$ shaded.



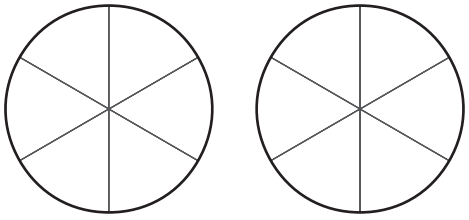
3 Make the comparison true. Use the models to show your thinking.

a) $\frac{\square}{3} < \frac{\square}{3}$



Student answers will vary. The numerator should be less in the first fraction than in the second fraction.

b) $\frac{\square}{6} > \frac{\square}{6}$

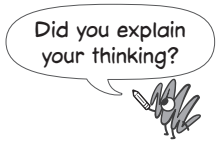


Student answers will vary. The numerator should be greater in the first fraction than in the second fraction.

4 Dani used $\frac{2}{3}$ yard of wood for a project. Her brother used $\frac{1}{3}$ yard of wood for the project. Who used more wood, Dani or her brother? Explain your thinking.

Possible answer:

Dani used more wood because $\frac{2}{3}$ is greater than $\frac{1}{3}$.



Name: _____ Date: _____

Comparing Unit Fractions

1. Solve.

$4 \times 8 =$ **32** $\qquad 9 \times 3 =$ **27**

$5 \times 5 =$ **25**

2. Hannah has 21 pieces of candy. If she gives the same number of pieces of candy to each of her 3 friends, how many pieces of candy will each friend get? Show your thinking.

7 pieces of candy

Student explanations will vary.

3. Use $>$, $<$, or $=$ to make this comparison true.

$\frac{1}{8}$ **<** $\frac{1}{2}$

4. Why does knowing the size of the whole matter when thinking about fractions?

Student explanations will vary.

5. Donner hiked $\frac{1}{4}$ of a mile on Friday. On Saturday, Donner hiked $\frac{1}{3}$ of a mile. Did he hike a longer distance on Friday or Saturday? Explain your reasoning.

Possible answer:

Donner hiked a longer distance on Saturday because $\frac{1}{3}$ is greater than $\frac{1}{4}$.

Name: _____ Date: _____


Aleki

Comparing Fractions with Common Numerators

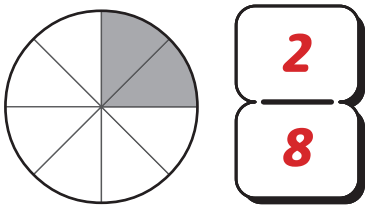
1. Use >, <, or = to make this comparison true.

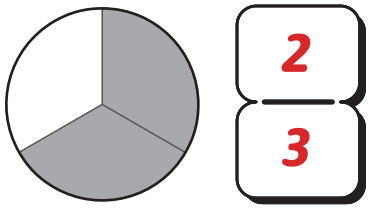
$\frac{1}{3}$ **>** $\frac{1}{4}$

2. Are fractions with the same denominator always equivalent? Explain.

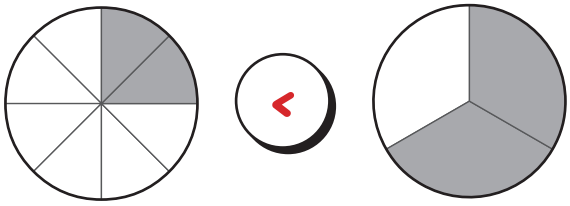
No. If the denominators are the same and the numerators are different, the fractions are not equivalent.

3. What fraction of each circle is shaded?


2/8


2/3

4. Use >, <, or = to make this comparison true.


<

5. Aleki and his uncle went fishing. Aleki has $\frac{3}{5}$ of a bucket of worms to use for bait. His uncle has $\frac{3}{8}$ of a bucket of worms. If the buckets are the same size, does Aleki or his uncle have more worms? Explain your thinking.

Aleki has more worms.

Possible explanation:

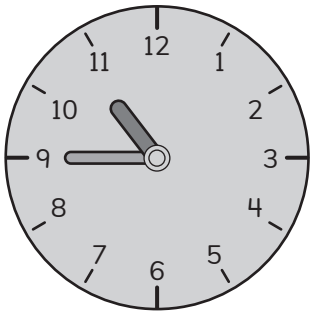
The parts of Aleki's whole bucket are larger than the parts of his uncle's bucket, so Aleki's 3 parts are more than his uncle's 3 parts.

Name: _____ Date: _____

Using Benchmarks to Order Fractions on a Number Line

1 Write the time shown on the clock.

10:45



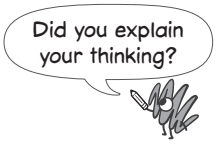
2 Circle the best estimate for the length of a pencil.

6 inches **6 feet** **6 miles**

3 Hannah thinks that $\frac{9}{4}$ is greater than $\frac{7}{4}$. Sarah thinks that $\frac{7}{4}$ is greater than $\frac{9}{4}$. Do you agree with Hannah or Sarah? Explain your thinking.

Possible answer:

I agree with Hannah. $\frac{9}{4}$ is greater than $\frac{7}{4}$ if the wholes are the same size.



4 Use >, <, or = to make this comparison true.

$\frac{1}{6}$ **<** $\frac{1}{2}$

5 Naomi is buying food for her fish. If there are 7 fish in the tank and each fish will need 8 pellets, how many pellets will Naomi need to buy? Show how you found your answer.

56 pellets ***7 × 8 = 56***

Topic 9

Exploring Measurement

Recommended ST Math Objectives:

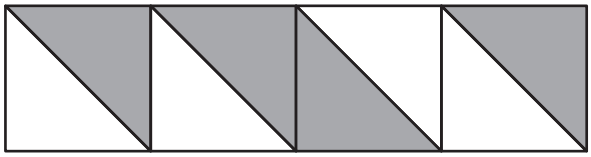
Time to the Minute
Intervals of Time
Weight and Volume

Name: _____ Date: _____


Jaymie

Measuring Length with More Precision

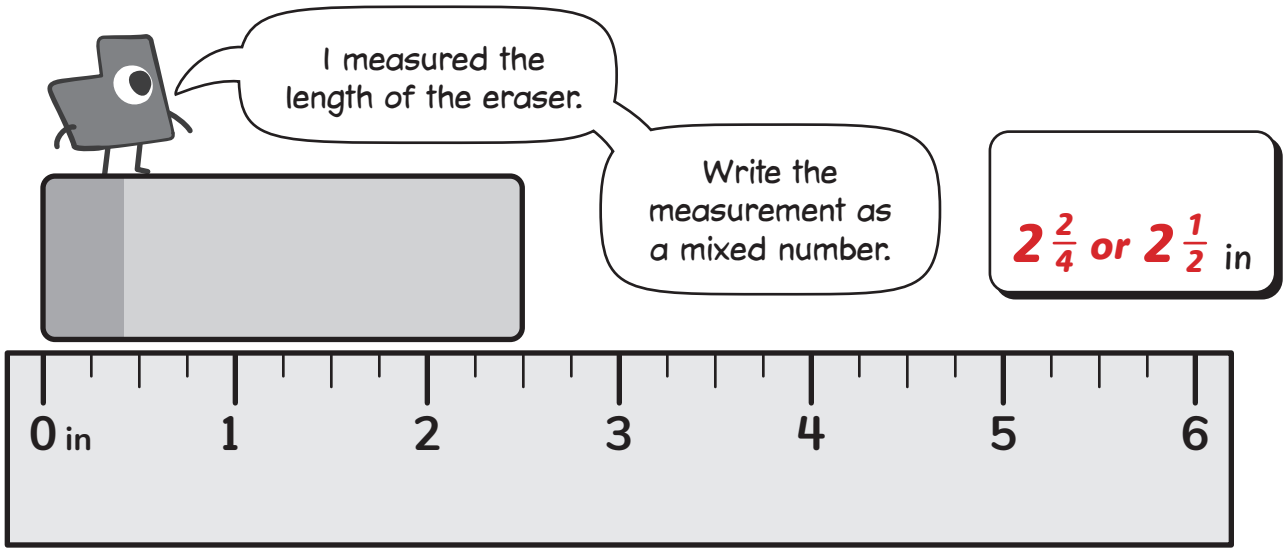
1. What fraction of the figure is shaded?



$\frac{4}{8}$

2. Solve. $342 - 168 =$ **174**

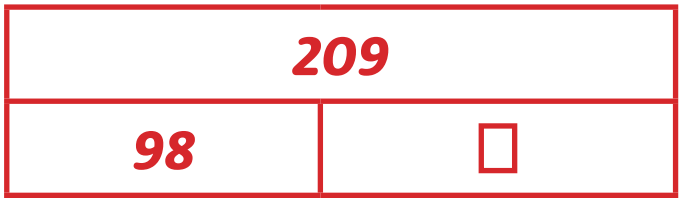
3.



$2\frac{2}{4}$ or $2\frac{1}{2}$ in

4. Last week, Jaymie helped in the school library. She helped to check out 209 fiction books and 98 nonfiction books. How many more fiction books were checked out than nonfiction books? Show your work with a strip diagram.

111 more fiction books



Name: _____ Date: _____

Strategically Comparing Fractions


Sarah


Arman


Vivi

1 Solve.

$300 - 167 =$ **133**

2 Sarah says she ate $\frac{1}{2}$ of a pizza. Arman says he ate $\frac{1}{2}$ of a pizza. The amount of pizza each child ate is NOT equal. How can this be true?

Possible explanation:

If the pizzas are not the same size, the amount of pizza that each child ate will not be equal.

3 Circle true or false for each statement.

a) $\frac{1}{3}$ is greater than $\frac{1}{2}$. **True** **False**

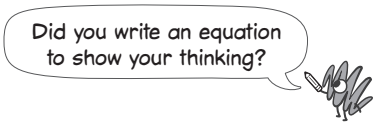
b) $2\frac{1}{4}$ is less than $2\frac{3}{4}$. **True** **False**

c) $\frac{3}{3}$ and $\frac{8}{8}$ are equal. **True** **False**

4 Vivi is making necklaces. She has 36 beads and wants to use all of them. If each necklace will have the same number of beads, can she make 9 necklaces? Write an equation to show your thinking.

Yes, she can make 9 necklaces. Each necklace would have 4 beads

36 ÷ 9 = 4



Name: _____ Date: _____


Jaymie

Measuring Distance Traveled

1 Complete the statement that describes the relationship between the value of the digit in the hundreds place and the value of the digit in the tens place in the number shown.

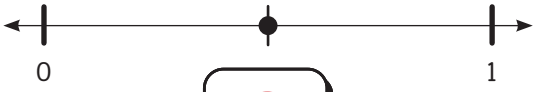
573,111

The value of the digit in the hundreds place is **10** **100** times as much as the value of the digit in the tens place.

2 Write 2 fractions that can represent the point on the number line.

Possible answers:

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



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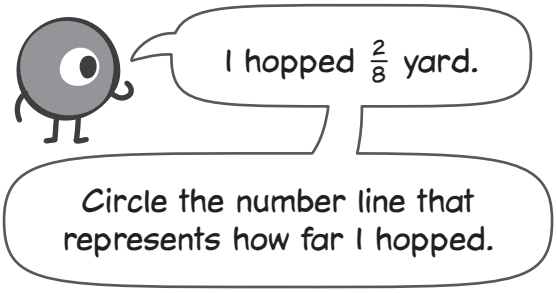
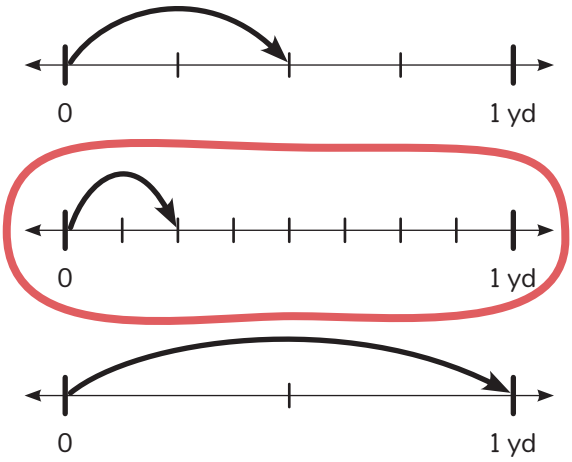




4 Jaymie helped her class set up chairs for the school play. They set up 8 rows of 9 chairs. Then, they placed 12 chairs along the back wall. How many total chairs did Jaymie and her class set up?

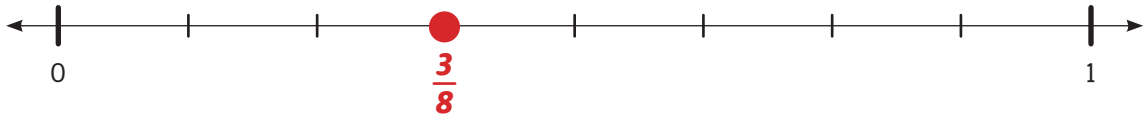
84 chairs

Name: _____ Date: _____


Sarah

Using a Dot Plot to Organize and Display Length Data

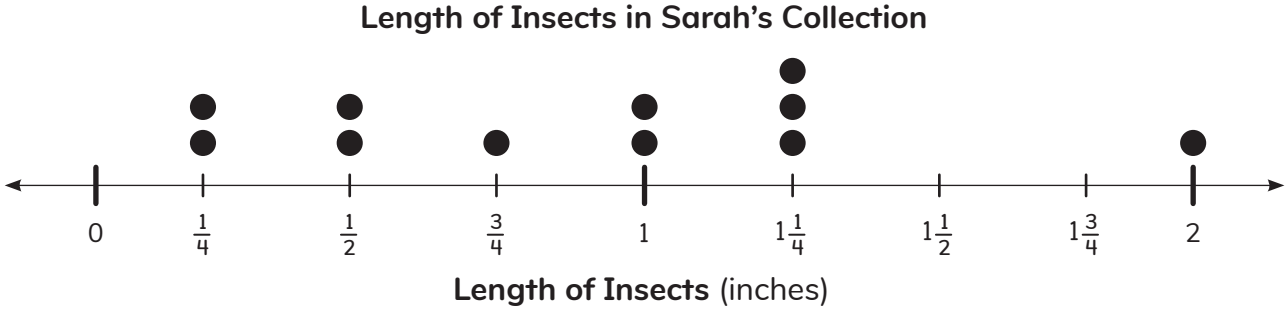
1 Label $\frac{3}{8}$ on the number line.



2 Circle the best estimate for the length of a pencil.

20 centimeters **20 meters** **20 inches**

3



a) How many insects in Sarah's collection are less than 1 inch long?

5 insects are less than 1 inch long.

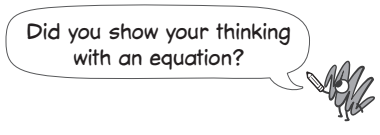
b) What are 2 other things the dot plot tells you about Sarah's insect collection?

Student answers will vary.

4 Sarah has 3 sets of winged insects. Each set has 7 winged insects. How many winged insects does Sarah have in her insect collection? Write an equation to show your thinking.

Sarah has 21 winged insects.

3 × 7 = 21



Name: _____ Date: _____

Using a Dot Plot to Interpret Length Data

1. Dani loves chocolate. Would she want to eat $\frac{3}{4}$ or $\frac{3}{8}$ of a chocolate bar? Explain your thinking?

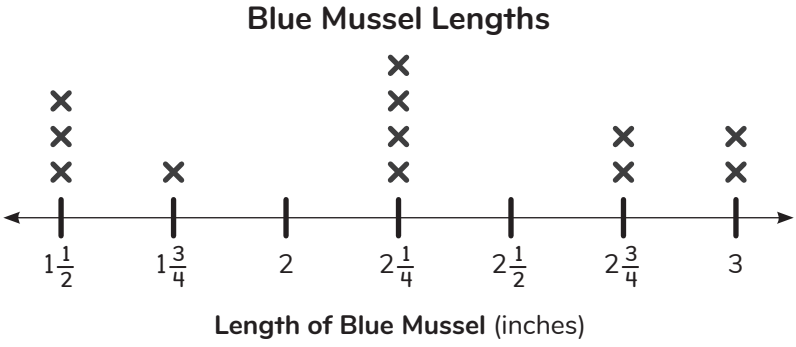
Dani would want to eat $\frac{3}{4}$ of a chocolate bar because $\frac{3}{4}$ is greater than $\frac{3}{8}$.

2. Vivi is measuring the length of a table. Will it take more meters or centimeters to measure the length of the table? Explain your thinking.

Possible answer:

It will take more centimeters because centimeters are shorter than meters.

3. Naomi went to the beach to collect blue mussels. She made this dot plot to show their lengths.



a) What was the most common length of blue mussels?

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

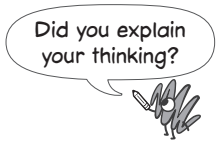
b) How many blue mussels were longer than 2 inches?

8 blue mussels

c) Naomi has a blue mussel that is shorter than the ones shown on the dot plot. What might be the length of Naomi's blue mussel? Explain your thinking.

Any length less than $1\frac{1}{2}$ inches

Student explanations will vary.



Name: _____ Date: _____

Collecting Length Data and Displaying on a Dot Plot

1 Vivi had 24 beads. She used 15 beads to make a bracelet. Then she bought 36 more beads at the store. How many beads does Vivi have now?

Show your thinking.

45 beads **24 – 15 = 9**

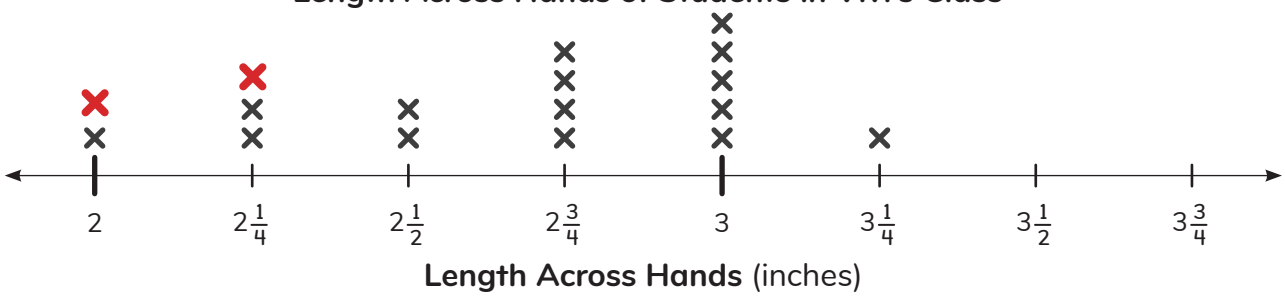
9 + 36 = 45

2 Write 2 different fractions that are equivalent to $\frac{1}{2}$.

Possible answer:

$\frac{3}{6}$, $\frac{4}{8}$

3



a) Vivi and her class made this dot plot showing the lengths across their hands. Vivi said the length across the hand of most students is less than 3 inches. Do you agree with her? Explain.

Yes ***Possible answer:***
9 students have a hand length of less than 3 inches.
Only 6 students have a hand length greater than or equal to 3 inches.

b) In the middle of the year, 2 new students joined the class. The lengths across their hands are $2\frac{1}{4}$ inches and 2 inches. Add these data points to the dot plot. Including the new students, how many students have data shown on the dot plot?

17 students have data shown on the dot plot.

4 Jaymie is ordering new glue sticks for the classroom. If she wants to order 36 glue sticks and the glue sticks come in packs of 4, how many packs should she order? Show your thinking.

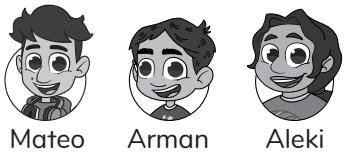
Jaymie should order 9 packs.

36 ÷ 4 = 9

Did you show your work?

Name: _____ Date: _____

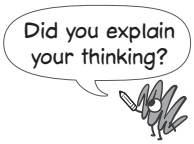
Analyzing Length Data on a Dot Plot



1 Solve to find the sum of the unit fractions.

$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{6}{6}$$

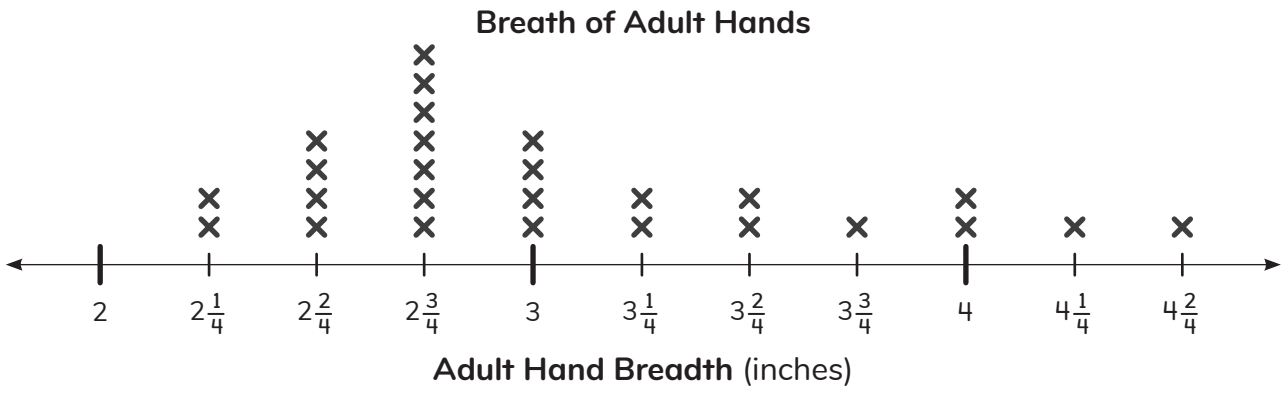
2 Mateo and Aleki collected 18 leaves for an art project. If they share the 18 leaves equally, how many leaves will they each have? Explain your thinking.



They will each have 9 leaves.

Student explanations will vary.

3



a) What was the minimum measurement?

2 1/4 inches

b) How many total hands were measured?

26 hands

4 The breadth of Arman's hand is $3\frac{1}{2}$ inches. The breadth of Mateo's hand is $3\frac{1}{4}$ inches. Whose hand has a larger breadth? Explain your thinking.

Student explanations will vary.
Arman's hand has a larger breadth.

Possible explanation:
½ inch is greater than ¼ inch, so 3 ½ inches is greater than 3 ¼ inches.

Name: _____ Date: _____


Donner

Identifying 3-D Shapes by Their Attributes

1. $\square = \frac{1}{4}$

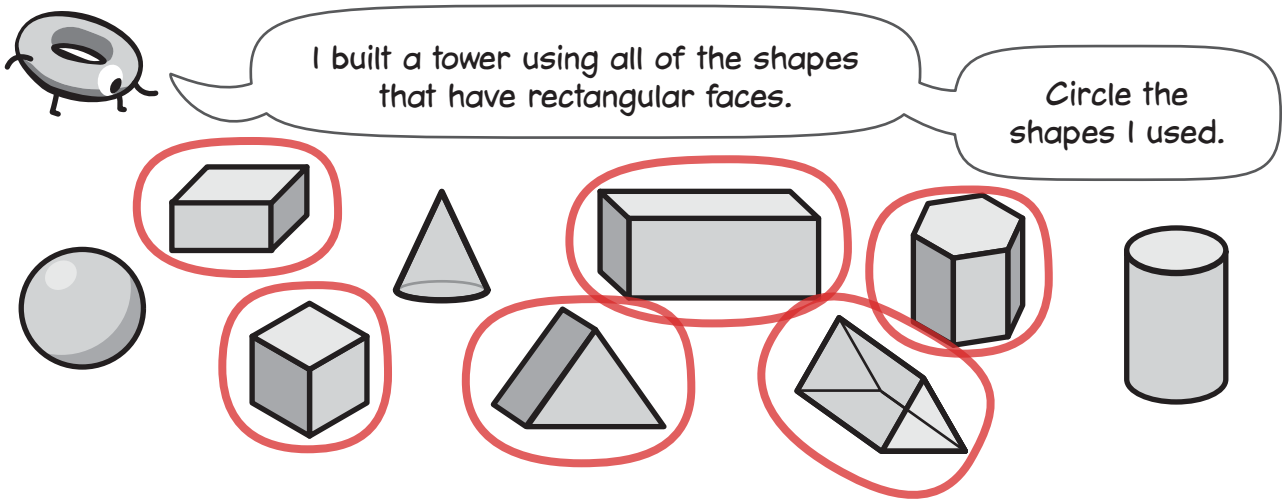
Show $\frac{3}{4}$.

Write an expression that represents your model as a sum of unit fractions.

$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

2. Write the value of 7 ten thousands, 15 hundreds, and 8 tens in standard form.

71,580

3. 

4. Donner and his aunt track birds spotted during their camping trips.

In one month, they recorded 427 birds during their trips.
The next month, they recorded 573 birds during their trips.

How many birds did they record in total?

427 + 573 = 1,000 birds

Name: _____ Date: _____

Introducing Liquid Volume

1. Round 36 to the nearest 10. **40**

2. Donner estimates the amount of water in a glass. Is 200 liters or 200 milliliters a better estimate? Explain your thinking.

   200 milliliters is a better estimate.

   Student explanations will vary.

3. What is important to do when using a graduated cylinder to measure volume?

   Student answers will vary.

4. Dani and Sarah filled up two cups with water. Dani's cup had a volume of 250 mL and Sarah's cup had a volume of 375 mL. How much more water did Sarah's cup have? Show your thinking.

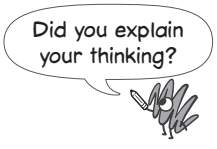
   125 mL

   Student work will vary.

5. Naomi is adding water to her aquarium. She measures about 175 mL of water. Is the amount Naomi measured closer to 170 mL or 180 mL? Explain your thinking.

   It is the same distance from each.

   Student explanations will vary.



Name: _____ Date: _____

Solving Problems Involving Liquid Volume

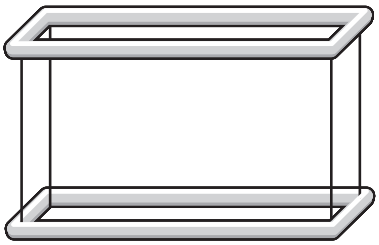
1 Does a polygon always have the same number of sides as it has vertices? Explain your reasoning.

Yes

Student explanations will vary.

2 Solve. $704 - 285 =$ ***419***

3 Naomi bought this fish tank that holds 20 L of water.



a) Which fish should Naomi put in the tank? Show your thinking.

Type of Fish	Water Needed (L)
Cory Catfish	8
Neon Tetra	4
Platy	8
Zebra Danio	2

Student answers will vary.

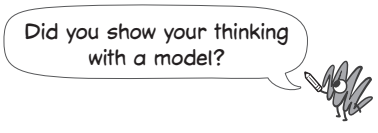
b) Could Naomi put all the fish in the tank and each fish have the water they need? Explain why or why not.

No, she would need 22 L of water.

4 Vivi is measuring ribbon for a new project. She has 24 feet of ribbon and wants to cut the ribbon into 3-foot sections. How many pieces of ribbon can Vivi cut? Make a model to show how you found your answer.

8 pieces

Student models will vary.



Name: _____ Date: _____

Introducing Liquid Volume in Customary Units

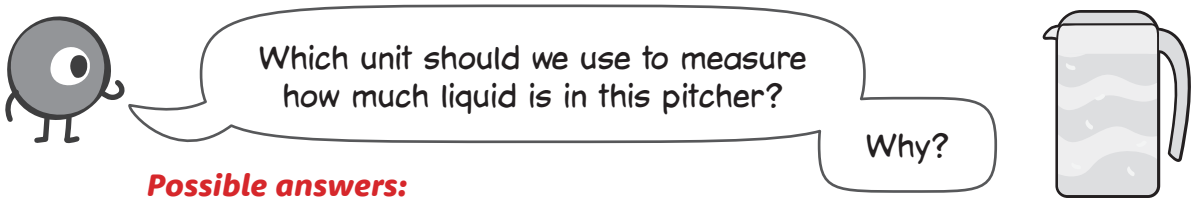

Arman

1. Complete the statement that describes the relationship between the value of the digit in the thousands place and the value of the digit in the tens place in the number shown.

842,128

The value of the digit in the thousands place is 2 10 **100** times as much as the value of the digit in the tens place.

2. Make the comparison true. 1,783 > ***Student answers will vary.*** > 1,684

3. 

Possible answers:

liters, cups, pints, quarts, or gallons

Student explanations will vary.

4. Arman measured the side lengths of the rectangular hallway floor outside his classroom. The floor had side lengths of 28 feet and 9 feet.

a) What is the area of the hallway floor?

252 square feet

b) What is the perimeter of the hallway floor?

74 feet

Name: Date:


Hannah

Introducing Weight

1 Solve.

$8 \times 40 =$ **320**

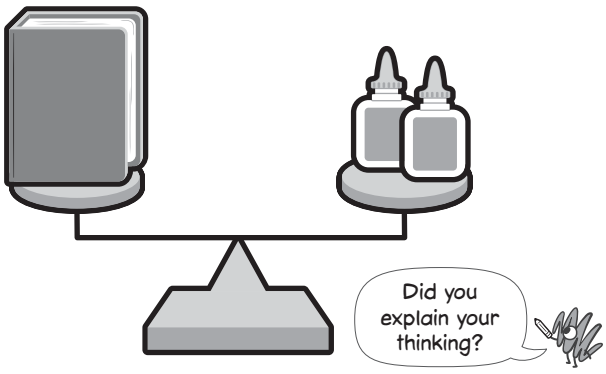
2 Use < , > , or = to make the comparison true.

10,000 **<** 100,000

3 What is important to do when using a balance to weigh objects?

Student answers will vary.

4 If a glue bottle weighs 4 ounces, what is the weight of the book? Explain your thinking.

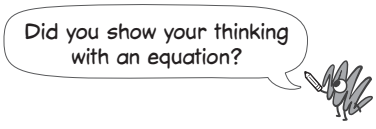


8 ounces

The book has the same weight as 2 glue bottles.

5 Hannah has 2 watermelons. The first watermelon weighs 193 ounces. The second watermelon weighs 250 ounces. What is the difference in weight between the 2 watermelons? Write an equation to show your thinking.

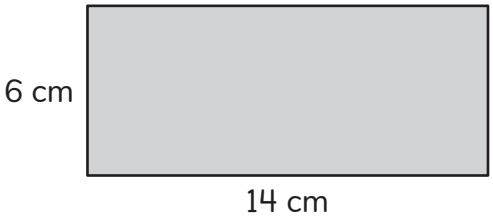
57 ounces ***250 – 193 = 57***



Name: _____ Date: _____

Estimating and Solving Measurement Problems in Context

1 Find the perimeter of the rectangle.

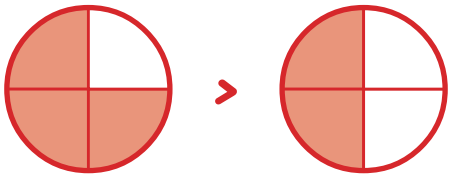


$P =$ **40 cm**

2 What sign would make this comparison true? Show how you know.

$\frac{3}{4}$ **>** $\frac{2}{4}$

Possible answer:



3 Vivi collected green beans from her garden. Which unit of measurement should she use to measure the weight of the green beans?

quarts **ounces** gallons

4 Mateo gives his dog Arturito the same amount of water in his dish each day. Which unit of measurement should Mateo use to measure the amount of water in Arturito's dish?

ounces yards **fluid ounces**

5 Naomi put 56 shells in 8 jars. She put the same number of shells in each jar. How many shells did Naomi put in each jar? Show your thinking with a strip diagram.

7 shells

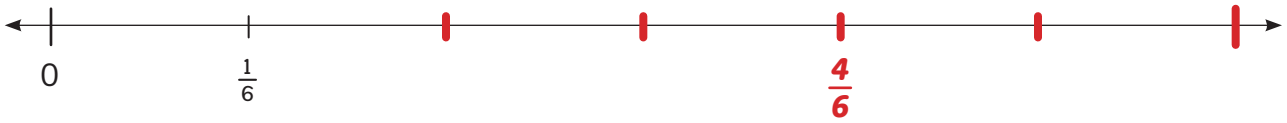
56							
7	7	7	7	7	7	7	7

Name: _____ Date: _____


Aleki

Using Tables to Represent Additive and Multiplicative Measurement Relationships

1. Label $\frac{4}{6}$ on the number line.



2. What number is equivalent to this expression? $400 + 20{,}000 + 10 + 6$

20,416

3. There are 3 glue sticks in each package sold at the store. Complete the table to show the total number of glue sticks in each number of packages.

Number of Glue Sticks in Different Numbers of Packages

Number of Packages	Total Number of Glue Sticks
5	15
7	21
9	***27***
11	***33***
12	***36***

4. Aleki helped sell tickets for his school band concert. There were 620 tickets. At the end of the week, 95 tickets were left. How many tickets were sold?

525 tickets

Topic 10

Deepening Financial Literacy

Recommended ST Math Objectives:

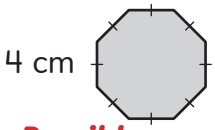
Money with Coins and Bills
Addition and Subtraction within 1000 Strategies
Solve Two-Step Problems

Name: _____ Date: _____

Finding the Value of Collections of Coins and Bills


Naomi

1 a) Show how to find the perimeter.



Possible answer:
4 + 4 + 4 + 4 + 4 + 4 + 4 + 4

b) What is the perimeter of the polygon?

32 cm

2 Solve using partial sums.

$324 + 257 =$ ***581***

Possible answer:

	300	+	***20***	+	***4***
+	***200***	+	***50***	+	***7***
	500	+	***70***	+	***11***

3 What is the value of this group of bills and coins? ***$40.12***

4 Naomi looked at the rainfall in 3 different cities for the month of April:

- City A received 1,000 millimeters of rain.
- City B received 185 millimeters of rain.
- City C received 147 millimeters of rain.

How much more rain did City A receive than the combined total in City B and City C?

185 + 147 = 332

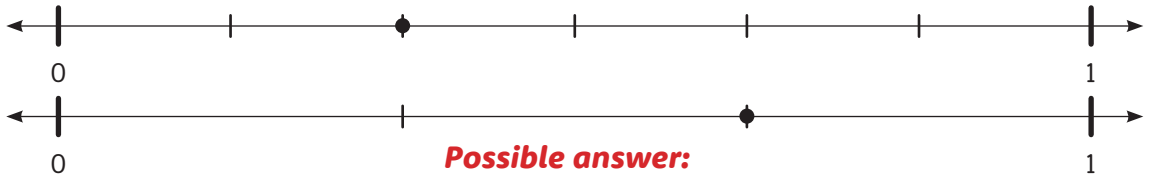
1,000 – 332 = 668 more millimeters of rain

Name: _____ Date: _____


Mateo

Representing a Given Amount with Coins and Bills

1 Compare the fractions shown as points on the number line.



Possible answer:

$\frac{2}{6} < \frac{2}{3}$

2 $48 \div \boxed{8} = 6$

3 Circle the coins and bills that can be used to make $12.30.

Possible answer:

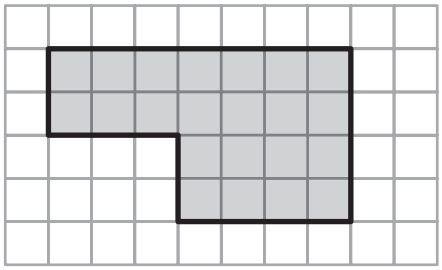
4 Mateo's dog Arturito eats $\frac{5}{6}$ of a bag of dog food every month. Write this fraction as a sum of unit fractions.

$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

Name: Date:

Solving Addition and Comparison Problems with Money

1. What is the area of the shaded figure?



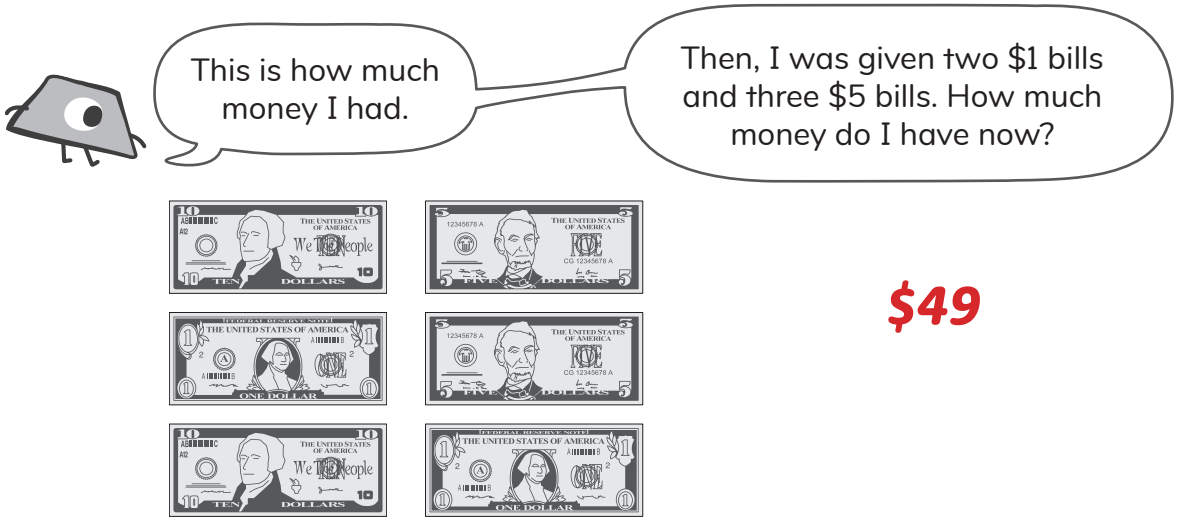
22 square units

2. Order the numbers from greatest to least.

8,197 42,056 8,735

42,056 8,735 8,197

3.



$49

4. Last month, Hannah and her dad planted 9 rows of flowers. Each row had 27 flowers. How many flowers did they plant?

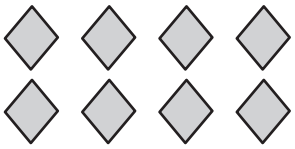
9 × 27 = 243 flowers

Name: _____ Date: _____


Jaymie

Solving Subtraction Problems by Making Change

1



a) Write a multiplication equation to represent the model.

Possible answer:

2 × 4 = 8

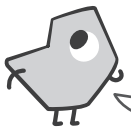
b) Write a repeated-addition equation to represent the model.

Possible answer:

2 + 2 + 2 + 2 = 8

2 401 – 153 = ***248***

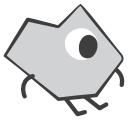
3



I want to buy something that costs $18.

I pay with one $10 bill and two $5 bills. How much change will I get?

$2



What bills would I get back?

two $1 bills

4 Jaymie had 96 books to put on shelves. She placed 12 books on each shelf. How many shelves did she use?

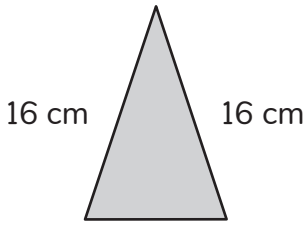
96 ÷ 12 = 8 shelves

Name: _____ Date: _____


Dani

Identifying Factors that Affect Income

1. The perimeter of the triangle is 42 centimeters. Find the missing side length.



10 cm

2. 

What number could the point represent?

Possible answer:

175

3. What factors can increase a person's income?

Possible answers:

years of experience, education, hours worked

4. Dani has a collection of nails and screws in her toolbox. She has 319 nails and 187 screws. How many more nails than screws does Dani have? Show you thinking with a strip diagram.

132 more nails

319	
□	187

Name: _____ Date: _____

Identifying Benefits and Strategies for Saving Money

1 Circle the odd numbers.

30 **15** 122 **7** 48 54 **261**

2 $\square \times 6 = 54$

3 Jaymie wants to buy a new tablet case that costs $45. She has already saved $15, and she deposits $8 into her bank account each week. How many weeks will it take Jaymie to save $45? Explain your thinking.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Deposit	$8	*$8*	*$8*	*$8*		
Total Money	$23	*$31*	*$39*	*$47*		

4 weeks

Student explanations will vary.

4 Vivi bought a new square sticker album. The perimeter of the album is 36 inches. What is the length of each side of the sticker album in inches?

9 inches

Name: _____ Date: _____

Exploring Responsible Credit Use and Paying Interest

1 Match the standard form of each number to its expanded notation.

100,000	(1 ×10,000) + (1 ×10)
10,010	(1 × 1,000) + (1 ×100) + (1 ×1)
1,101	(1 × 100,000)

2 Complete the chart to show when someone might save or might use credit for each activity.

Possible answers:

Activity	Save	Use Credit
buying a game	✓	
paying for a haircut	✓	
buying a house		✓
donating to a charity	✓	
going to the doctor		✓

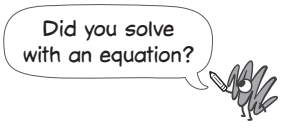
Choose 1 activity and explain why someone might save or might use credit.

Possible answer:

Someone might use credit to buy a house because it is important and expensive. It would take a long time to save up for.

3 Brian brought 9 pizzas to the party. Each pizza had 8 slices. How many slices of pizza did Brian bring to the party? Solve with an equation.

9 × 8 = 72 slices of pizza

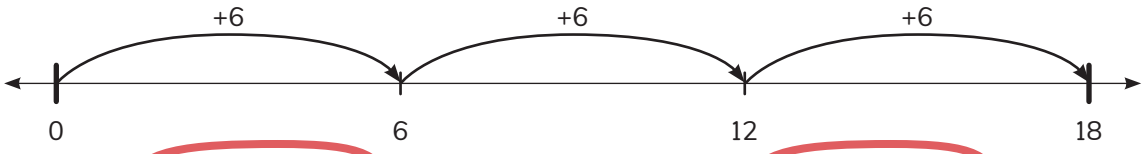


Name: _____ Date: _____

Jaymie

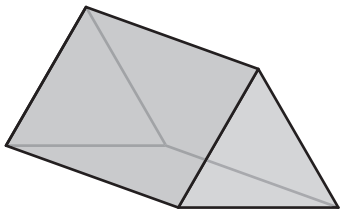
Exploring Decisions About Planned and Unplanned Uses of Money

1 Which equations match the model? Circle your answers.



18 ÷ 3 = 6 **6 ÷ 3 = 2** **3 × 6 = 18**

2



How many faces? **5**

How many vertices? **6**

How many edges? **9**

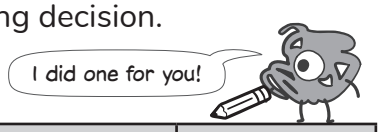
What is the shape of the base?

triangle

What is the name of the shape?

triangular prism

3 Identify each example as a planned or unplanned spending decision.



Example	Planned	Unplanned
paying for a haircut	✓	
fixing a broken car		✓
donating money outside of a store		✓
saving up for a new outfit	✓	
paying for art classes	✓	

4 Jaymie had some money. She bought items that cost a total of $31 and got $9 back in change. How much money did Jaymie start with?

$40

Name: _____ Date: _____


Mateo

Exploring How Availability Affects the Price of Resources

1. Round 247 to the nearest 10. **250**

   Round 247 to the nearest 100. **200**

2. If $6 \times 4 = 24$, what is the value of $24 \div 6$? **4**

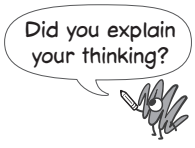
3. The table below shows the number of pies that are available to sell at the farmers market each month.

Number of Pies Available to Sell Each Month

Month	Number of Pies
September	35
October	52
November	40

In which month will the price of the pies be the lowest? Explain your thinking.

The price of the pies will be the lowest in October because there are more pies available in October than there are in the other months.



4. If Mateo has 50 pencils, could the pencils come in packs of 5? Show your work.

Yes

Topic 11

Investigating Data

Recommended ST Math Objectives:

Line Plots
Scale and Measurement in Graphing
Number Patterns

Name: _____ Date: _____

Starting a Data Investigation

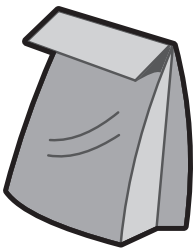
1 Finish each statement.

a) 454 rounded to the nearest ten is **450**.

b) 454 rounded to the nearest hundred is **500**.

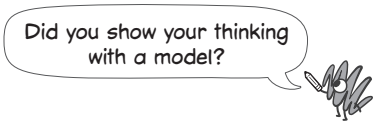
2 Use >, <, or = to make this comparison true. $\frac{2}{4}$ **>** $\frac{2}{8}$

3 Aleki peeked in his bag and saw that he had 10 candies that were either green, red, or purple. There were 6 red candies. There were more purple candies than green. How many green candies were there? Draw a model to show your thinking.



1 green candy

Student models will vary.



4 Naomi observed 42 shells in her recent visit to the tide pool. If she wants to organize information about them equally into 7 pages of her notebook, how many shells should she write about on each page? Write an equation to show your thinking.

6 shells **42 ÷ 7 = 6**

Name: _____ Date: _____


Naomi

Completing a Data Investigation

1. Naomi has 8 liters of fruit punch. How many 2-liter pitchers can Naomi fill with fruit punch? Show your thinking.

4 pitchers

Student explanations will vary.

2. Continue the pattern.

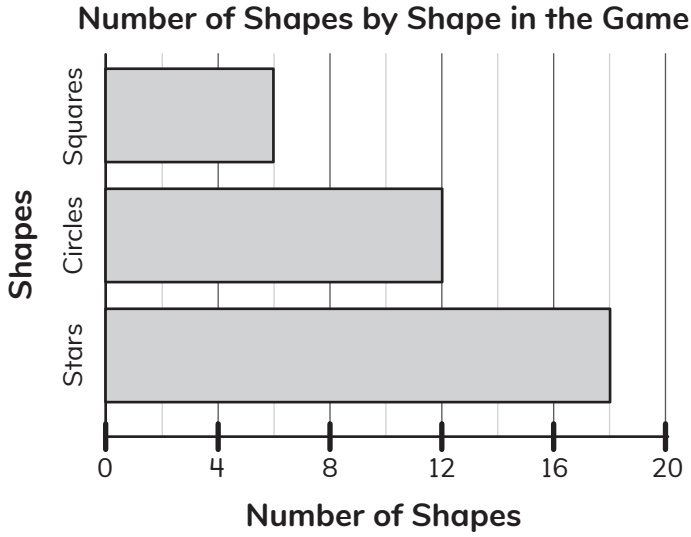
7, 14, 21, 28, **35**, **42**

3. a) How many shapes are either stars or circles?

30 shapes

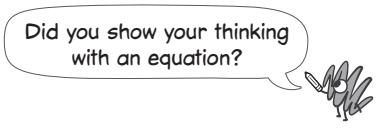
b) How many total shapes are shown on the graph?

36 shapes



4. Naomi has 2 notebooks full of information about fish that she has seen at the tide pools. She knows she has written about 802 fish. Her first notebook has information about 347 fish. How many fish has she written about in her second notebook? Write an equation to show your thinking.

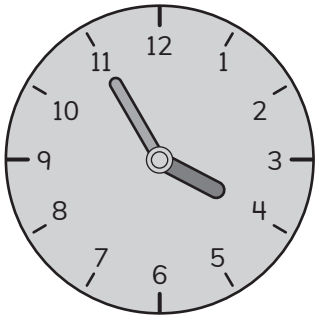
455 fish **802 – 347 = 455**



Name: _____ Date: _____

Revisiting a Data Investigation

1 What time does the clock show?



3:55

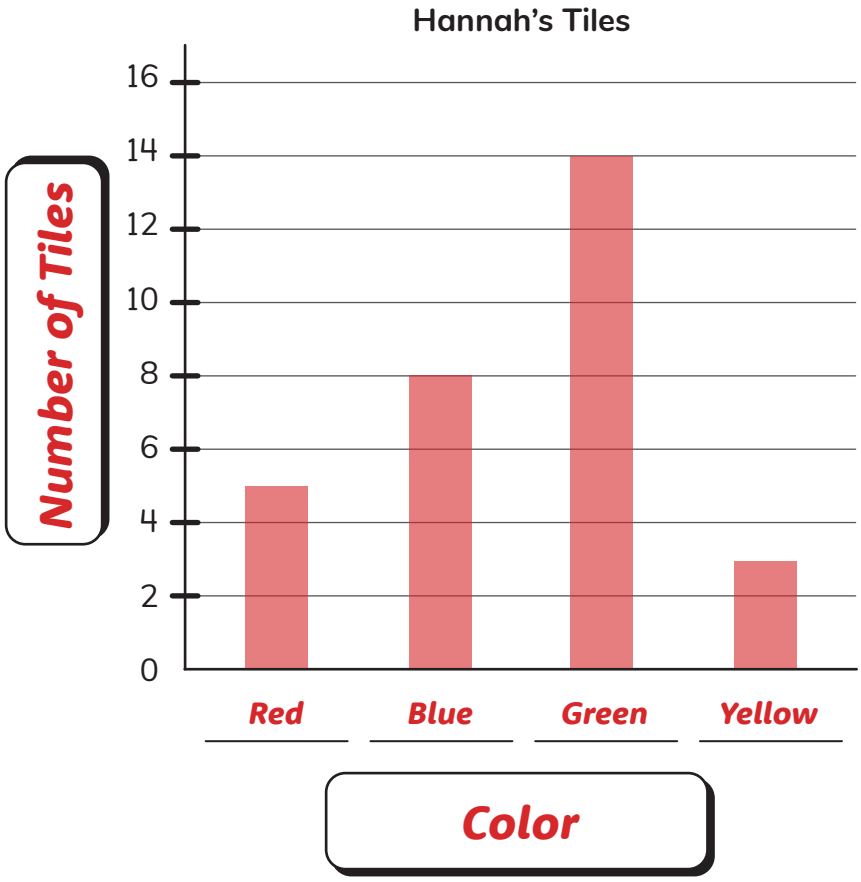
2 Solve.

482 + 379 = **861**

3 Hannah pulled out her inch tiles. She organized them in a chart.

Red	5
Blue	8
Green	14
Yellow	3

Create a bar graph to show the colors of the inch tiles in Hannah's bag.



4 Aleki stays after school to practice the drums. He plays 4 practice sets. If each set is the same length and he plays for 36 minutes, what is the length of each practice set? Show your thinking.

36 ÷ 4 = 9 minutes

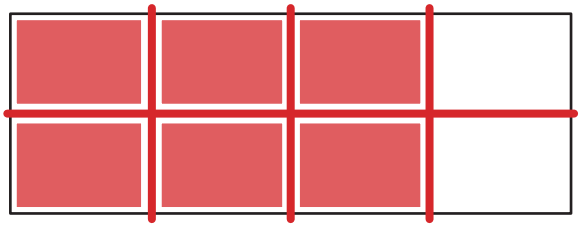
Name: _____ Date: _____


Vivi

Using Surveys to Collect and Display Data in Scaled Bar Graphs

1 Partition and shade the rectangle to show $\frac{6}{8}$ shaded.

Possible answer:



2 Label $\frac{3}{4}$ on the number line.

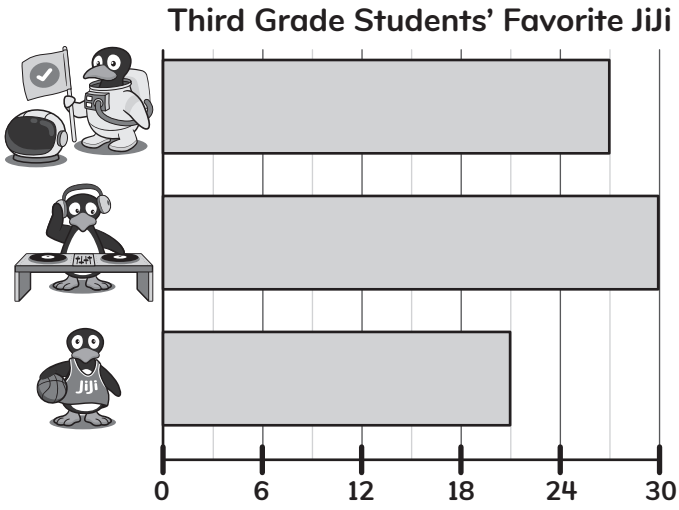
3 The third grade students took a poll to see which JiJi they like best.

a) How many more students like Astronaut JiJi than Basketball JiJi?

6 more students

b) How many students voted for their favorite JiJi?

78 students



4 Vivi is cutting ribbon for a new bracelet. She cuts $\frac{1}{6}$ inch of red ribbon and $\frac{5}{6}$ inch of orange ribbon. Does she have more red ribbon or more orange ribbon? Explain your reasoning.

She has more orange ribbon because $\frac{5}{6}$ is greater than $\frac{1}{6}$.

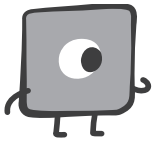
Name: _____ Date: _____


Mateo


Jaymie

Collecting Survey Data to Display in Scaled Pictographs and Bar Graphs

1



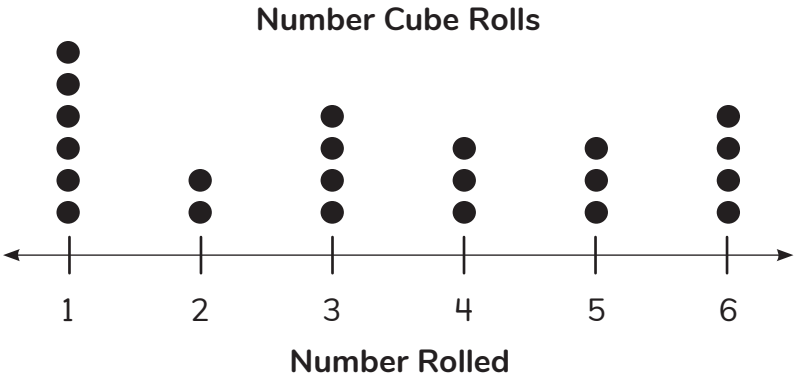
I drew a square with a perimeter of 28 inches.
What are the side lengths of my square?

Show your thinking with an equation.

7 inches

28 ÷ 4 = 7

2 Mateo rolled a number cube and recorded the results on the dot plot below.



a) How many times did Mateo roll the number 4?

3 times

b) How many times did Mateo roll the number cube in all?

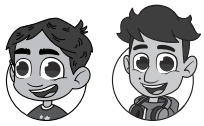
22 times

3 Jaymie is ordering school supplies for next year. She orders 8 boxes of crayons. Each box contains 6 crayons. How many crayons does Jaymie order? Show your thinking.

48 crayons ***8 × 6 = 48***

Did you show your thinking?

Name: _____ Date: _____



Displaying Survey Data in Scaled Pictographs and Bar Graphs

1. Arman measured 216 mL of apple juice and 306 mL of cranberry juice to make a fruit punch. What is the total volume of Arman's fruit punch?

522 mL

2. How are a bar graph and dot plot the same? How are they different?

Student answers will vary.

3. a) How many total student votes are represented on the graph? Show your thinking.

48 insects

Possible answer:

20 + 18 + 10 = 48

b) How many more students prefer butterflies than bees?

8 more students

Students' Preferred Insects

Type of Insect	Number of Student Votes
	● ● ● ● ●
	● ● ● ● ◗
	● ● ◗

Key: ● = 4 insects

4. Arman and Mateo are making paintings that are the same size. Arman painted $\frac{4}{5}$ of his painting red, and Mateo painted $\frac{4}{6}$ of his painting red. Whose painting has more red?

Arman

Name: _____ Date: _____

Interpreting Scaled Pictographs and Bar Graphs to Solve One- and Two-Step Problems

1 Continue the pattern.

27, 36, 45, **54**, **63**, **72**

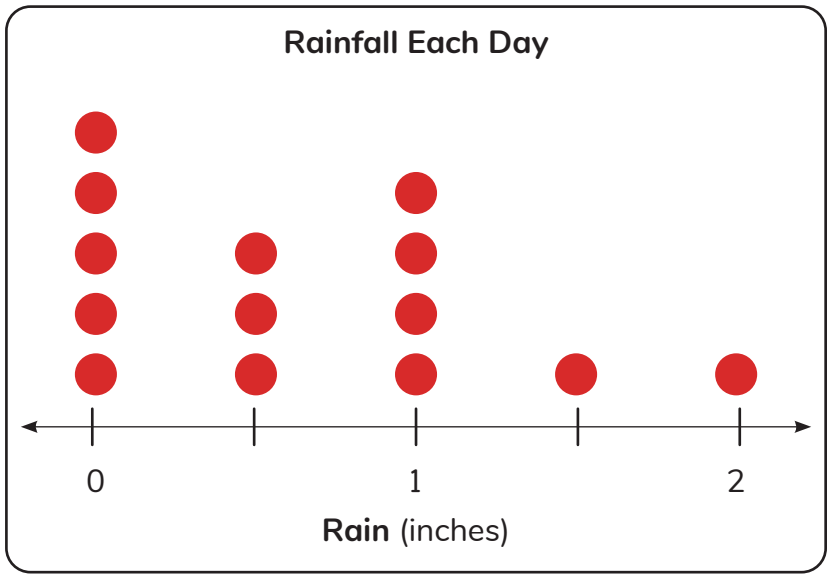
2 Jaymie had 300 flyers to advertise her lemonade stand. She handed out some flyers around town. Now she has 134 flyers. How many flyers did Jaymie hand out?

166 flyers

3 Donner recorded the amount of rainfall his town received each day for 2 weeks in the frequency table below. Use this data to complete the dot plot.

Inches of Rainfall Each Day for 2 Weeks

Rain (in)	Number of Days
0	5
$\frac{1}{2}$	3
1	4
$1\frac{1}{2}$	1
2	1



4 Mateo counts steps on his step tracker when he walks his dog, Arturito. His goal is to walk his dog 1,000 steps each day. If he walks 350 steps around his block, and then 215 steps to the park, how many more steps does Mateo need to walk to reach his goal?

1,000 – 350 – 215 = 435 steps

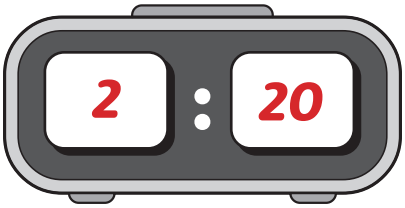
Name: _____ Date: _____

Relating Analog Clocks, Number Lines, and Time

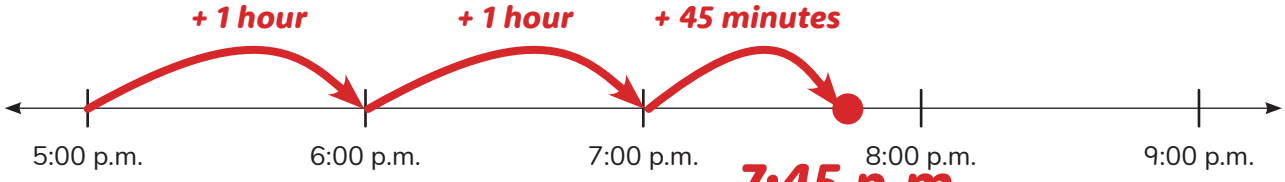
1 Circle the activity that would take the most time to complete.

blowing out a candle **brushing your teeth** **making a cake**

2 Read the analog clock. Write the time shown on the digital clock.



3 Vivi and her family threw a party. The party began at 5:00 p.m. and lasted 2 hours and 45 minutes. Show the time the party ended using the number line.

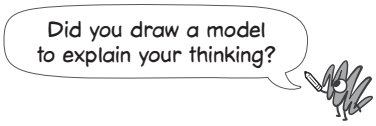


7:45 p.m.

4 Naomi went to the tide pool to see if she could find any new fish to write about. She was at the tide pool for 1 hour and 20 minutes. She left the tide pool at 3:00 p.m. What time did she arrive at the tide pool? Draw a model to explain your thinking.

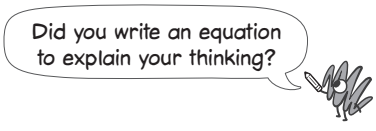
1:40 p.m.

Student models will vary.



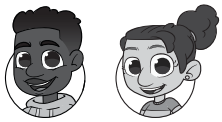
5 Sarah has a butterfly, a cricket, and a praying mantis in her insect collection. Each insect has 6 legs. What is the total number of legs for these insects? Write an equation to explain your thinking.

3 × 6 = 18 legs

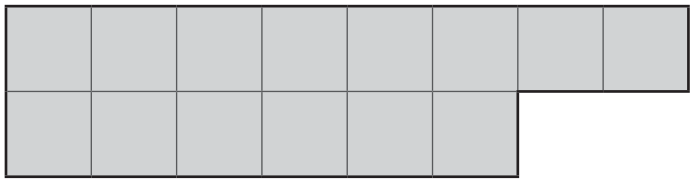


Name: _____ Date: _____

Modeling and Solving Word Problems Involving Time



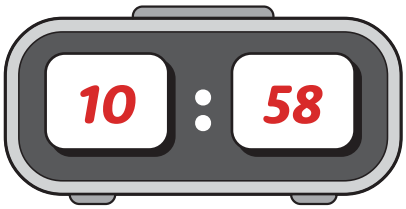
1



Find the area of this shape.

14 square units

2 Read the analog clock. Write the time shown on the digital clock.



3 Donner practiced his violin for 20 minutes in the morning, 22 minutes in the afternoon, and 28 minutes in the evening. What is the total amount of time Donner practiced his violin?

1 hour 10 minutes or 70 minutes

4 Hannah ran a race with her sister. They both started running at 10:00 a.m. Hannah finished the race in 55 minutes. Her sister finished 8 minutes before Hannah. What time did Hannah's sister finish the race?

10:47 a.m.

ST Math Texas

MIND EDUCATION