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SuccessMaker Targeted Lessons

Multiplication and Division

Student Practice

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Multiplication and Division

Student Practice

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LEARNING COMPANY

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Multiplication as Equal Groups

1

show me

Solve.

6 × 8 = _____

setting the direction

example

How many different ways can you use 12 counters to make equal groups? Sketch all the ways you can think of to make equal groups.

4 × 3 xxx xxx xxx xxx

3 × 4 xxxx xxxx xxxx

6 × 2 xx xx xx xx xx xx

2 × 6 xxxxxx xxxxxx

12 × 1 x x x x x x x x x x x x

1 × 12 xxxxxxxxxxxx

Write at least two equations that show that one set of equal groups is equivalent to a different set of equal groups.

4 × 3 = 6 × 2

4 × 3 = 3 × 4

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work time

1. Use 18 counters to make equal groups.

   a. Sketch all the ways you can think of to make equal groups.

   b. Write at least two equations that show that one set of equal groups is equivalent to a different set of equal groups.

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2. a. Use 24 counters to make equal groups and sketch your groupings.

b. Write six equations that show that one of your sets of equal groups is equivalent to another set of equal groups.

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reflection

Something new I learned today is …

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0							0 × 6				
1							1 × 6				
2							2 × 6				
3							3 × 6 18				
4							4 × 6				
5							5 × 6				
6	6 × 0	6 × 1 6	6 × 2 12	6 × 3	6 × 4	6 × 5	6 × 6	6 × 7	6 × 8	6 × 9	6 × 10
7							7 × 6				
8							8 × 6				
9							9 × 6				
10							10 × 6				

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Equal Groups in Context

2

show me

What number makes this equation true?

$$42 \div _____ = 7$$

work time

1. Mrs. Chi is buying fruit for a class field trip. She wants to buy enough oranges to give 1 to each of her 29 students.
   Mrs. Chi is going to buy 5 bags of oranges.
   In each bag there are 6 oranges.

   Will Mrs. Chi have enough oranges for her students?
   Explain your thinking.

Write an equation that you could use to find the answer.

Remember to write your answer as a complete sentence.

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2. Tran has a stamp album with 4 pages.
There are 10 stamps on each page.

How many stamps does Tran have altogether?

Write an equation that you could use to find the answer.

Remember to write your answer as a complete sentence.

3. There are 9 boats on the lake.
Each boat has 4 people in it.

How many people are in the boats on the lake?

Make a math drawing to show the people and boats.

Write an equation that you could use to find the answer.

Remember to write your answer as a complete sentence.

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reflection

Multiplying is ☺ easy for me ☹ hard for me (circle one)

because …

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Multiplication as Arrays

3

show me

How many ◯s? Write an equation that matches this drawing.

setting the direction

example

Amir made a rectangular shape using square tiles.
This array had 4 rows with 5 tiles in each row.

How many tiles did Amir use to make his rectangular array?

Amir used 20 tiles to make his rectangular array.

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work time

1. Josh used some equal-sized squares to make a rectangular quilt. The quilt had 5 rows of squares, with 9 squares in each row.

   How many squares did Josh use to make his quilt? Use a rectangular array to solve this problem.

Sketch your array.

Write an equation that you could use to find the answer.

Remember to write your answer as a complete sentence.

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2. Tamika covered the front of her book with square tiles. She found that she made 6 rows with 8 tiles in each row. How many tiles did Tamika use altogether to cover her book? Use a rectangular array to solve this problem.

   Suggestion: If you do not want to make a math drawing, use the grid paper on page 15 and cut out a model that matches your array. Glue it onto this page.

Remember to write your answer as a complete sentence.

reflection

I know to multiply when …

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0							0				
1							6				
2							12				
3							18				
4							24				
5							30				
6	0	6	12	18	24	30	36	42	48	54	60
7							42				
8							48				
9							54				
10							60				

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Multiplication Equations in Context

4

show me

Write 8 + 8 + 8 + 8 + 8 as a multiplication equation.

setting the direction

example

Malaya is making bows for 8 packages.
She needs 3 feet of ribbon to make each bow.

How much ribbon does she need
to make 8 bows?

$8 \times 3 = 24$

Malaya needs 24 feet of ribbon
to make 8 bows.

What makes this problem a multiplication story?

There are 8 equal groups. Each group is 3 feet of ribbon. We have to find the total number of feet in 8 groups of 3 feet each.

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work time

1. $2 \times 8 = ?$
   - Write a multiplication story to match this equation.
   - Create a question to go with your story.
   - Make a math drawing or a diagram to match your story.
   - Answer your question using a complete sentence.

Story with Question	
Diagram	**Your Work**
	$2 \times 8 =$ _____
Answer	

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2. $8 \times 10 = ?$

- Write a multiplication story to match this equation.
- Create a question to go with your story.
- Explain how you know your story is a multiplication story.

Story with Question
How You Know Your Story Is a Multiplication Story

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3. $8 \times ? = 32$

- Write a multiplication story to match this equation.
- Create a question to go with your story.
- Make a math drawing or a diagram to match your story.
- Answer your question using a complete sentence.

Story with Question	
Diagram	**Your Work**
	$8 \times$ _____ $= 32$
Answer	

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reflection

I know that a problem is a multiplication problem when …

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0							0	0			
1							6	7			
2							12	14			
3							18	21			
4							24	28			
5							30	35			
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8							48	56			
9							54	63			
10							60	70			

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Comparison Situations

5

show me

Show me which of these is *not* a factor pair of 24?

24 and 1 2 and 14 4 and 6 8 and 3

setting the direction

Tran has $25. Gabby has $4 more.
How much money does Gabby have?

Estimate:

Unknown:

Diagram:

Equation:

Answer:

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work time

1. a. Get the *Comparison Situations* page (page 25) and cut out all of the cards.

   b. Make four sets of four matching cards. Each set should have one of the following:

   - A word problem card
   - A diagram card
   - An equation card
   - An answer card

   c. When you are done, have your partner check your cards.

2. Look at your sorted cards.

   How do comparison situations involving addition differ from comparison situations involving multiplication?

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Mr. Hakim has 12 gold pens. He has 4 times as many red pens as gold pens. **How many red pens does Mr. Hakim have?**		$12 = 4 + n$ $n = 4 \times 12$
Maria cut off 12 inches of her hair for charity. Anna cut off 4 more inches of hair than Maria. **How many inches of hair did Anna cut off?**		$n = 12 + 4$ $4 \times n = 12$
Pink dotted shoelaces cost $12. That is 4 times as much as plain white shoelaces cost. **How much do the plain white shoelaces cost?**		$n = 8$ $n = 3$
Tran buys 12 pounds of oranges and 4 pounds of lemons. **How many more pounds of oranges does Tran buy?**		$n = 16$ $n = 48$

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reflection

Something I am still struggling with is …

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Writing Comparison Situations

6

show me

Show me an equation for the word phrase given: 15 is 3 times as many as 5.

setting the direction

Gabby wrote the following comparison word problems that can be solved by multiplication or division. She used the three quantities in each problem, with each of the quantities being the answer to one of the three problems.

Quantities	My Problems
4 10 40	Problem: A viper snake in the zoo is 10 inches long. A boa snake is 4 times as long. How long is the boa snake? Unknown: Let s = the length of the boa snake. Equation: s = 10 × 4; s = 40 Answer: The boa snake is 40 inches long.
	Problem: Miguel's sunflower is 40 inches tall. This is 4 times as tall as my sunflower. How tall is my sunflower? Unknown: Let h = the height of my sunflower. Equation: 4 × h = 40; h = 40 ÷ 4; h = 10 Answer: My sunflower is 10 inches tall.
	Problem: A planter box is 10 inches wide and 40 inches long. How many times longer is the planter box than it is wide? Unknown: Let t = the number of times longer. Equation: t × 10 = 40; t = 40 ÷ 10; t = 4 Answer: The planter box is 4 times longer than it is wide.

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work time

1. Use the given quantities to write three comparison word problems that can be solved using multiplication or division. Write problems involving length, time, volume, mass, or money.

   Use all three quantities in every word problem. Use each quantity as the answer for one of the problems.

Quantities	My Problems
6 9 54	Problem: Unknown: Equation: Answer:
	Problem: Unknown: Equation: Answer:
	Problem: Unknown: Equation: Answer:

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2. Write three comparison word problems for the given quantities, as in problem 1. Write problems involving length, time, volume, mass, or money.

Use all three quantities in every word problem. Use each quantity as the answer for one of the problems.

Quantities	My Problems
6 12 72	Problem: Unknown: Equation: Answer:
	Problem: Unknown: Equation: Answer:
	Problem: Unknown: Equation: Answer:

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reflection

Writing comparison situations is (circle one) easy hard for me because …

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Using Data from Graphs with Different Scales

7

show me

If ◯ = 2 CDs, what does ◯ ◯ ◯ ◐ represent?

work time

1. This bar graph shows the number of phone calls made to a school during one week in the summer.

a. Describe the scale used for this bar graph.

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b. On which day were the fewest calls made to the school? How many calls were made on this day? Explain how you know.

c. On a school day during the fall, the school can get twice as many calls as the number of calls made on Monday and Tuesday combined. How many calls might the school get on a school day in the fall? Explain how you know.

2. This pictograph shows the number of letters the school got during one week in the summer.

Letters Received During the Week

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a. Anna said that the school got 6 letters on Friday. Is she correct? Explain how you know.

b. On which day did the school get the most letters? How many letters did the school get on that day? Explain how you know.

c. How many fewer letters did the school get on Thursday than on Monday? Explain how you know.

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reflection

I think bar graphs are easier harder (circle one) for me to read than pictographs because …

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Representing Division

8

show me

Write all the division facts you can think of for 16.

work time

1. A class has 32 students. The teacher wants to split the class into 8 equal teams. How many students will be on each team?

Remember to write your answer as a complete sentence.

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2. Anthony has 20 trading cards. He wants to share the cards equally among 5 people.

a. How many cards will each person get?

Make a math drawing to show how Anthony divided the cards.

Write an equation that you could use to find the answer.

Remember to write your answer as a complete sentence.

b. How many cards, if any, will be left over?

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reflection

My favorite way to do math is (circle one) …

3 + 1 =

because …

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

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Another Kind of Division

9

show me

How many apples? Write an equation that solves this problem.

work time

1. A class has 60 students. The students want to form teams that have 12 students on each team.

a. How many teams can they form?

b. How many students, if any, will be left over?

Use numbers or a math drawing to show how you solved the problem.

Write an equation that you could use to find the answer.

Remember to write your answer as a complete sentence.

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2. Tamika has 20 photos. She wants to put the photos into an album so that there are 3 pictures on each page.

a. How many pages will she fill completely?

- Make a math drawing to show how Tamika divided the photos.
- Write an equation that you could use to find the answer.
- Remember to write your answer as a complete sentence.

b. How many photos, if any, will be left over?

reflection

I am confused about …

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0							0	0	0		
1							6	7	8		
2							12	14	16		
3							18	21	24		
4							24	28	32		
5							30	35	40		
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9							54	63	72		
10							60	70	80		

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Inverse Operations 10

show me

Write all the multiplication facts you can think of for the number 36.

work time

1. Get page 47 and cut out all the cards.
   - Make sets of five cards. Each diagram card matches one multiplication card and its answer card as well as one division card and its answer card.
   - Compare your card sort with your partner's. If they are not the same, try to figure out why.
   - When you both agree that you have sorted the cards correctly, tape or glue them to your poster.

Example

	3×2	6	$6 \div 2$	3

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reflection

Something that is still hard for me is …

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Diagram Cards

Multiplication Cards	Division Cards	Answer Cards	
8 × 5	40 ÷ 5	9	35
6 × 9	35 ÷ 7	14	40
5 × 7	54 ÷ 6	5	112
8 × 14	112 ÷ 8	54	8

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0					0		0	0	0	0	0
1					4		6	7	8	9	10
2					8		12	14	16	18	20
3					12		18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5					20		30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

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11 Using Multiplication to Solve Division Problems

show me

Write 45 – 5 – 5 – 5 – 5 – 5 – 5 – 5 – 5 – 5 = 0 as a division equation.

setting the direction

example

Miguel saves $3 each week. How many weeks will it take him to save $66?

Ⓐ 18 weeks Ⓑ 2 weeks

Ⓒ 22 weeks Ⓓ 3 weeks

I can rule out 2 weeks and 3 weeks because they are too small.

I know 3 × 20 = 60 and 3 × 2 = 6,

so 3 × 22 = 66.

It will take 22 weeks for Miguel to save $66.

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work time

1. Tran needs to buy 75 hot dog buns. There are 8 buns in a package.

   How many packages should he buy?

   Ⓐ 10 packages

   Ⓑ 9 packages

   Ⓒ 8 packages

   Ⓓ 80 packages

First estimate to rule out wrong answers.

Then multiply to find the correct answer.

2. Anna thinks the answer is Ⓑ. Anna is wrong.

   How can she use multiplication to see her mistake?

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reflection

I still have questions about …

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0				0	0		0	0	0	0	0
1				3	4		6	7	8	9	10
2				6	8		12	14	16	18	20
3	0	3	6	9	12		18	21	24	27	30
4	0	4	8	12	16		24	28	32	36	40
5							30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

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Connecting Representations in a Problem

12

show me

Solve for n.

$7 \times n = 42$

setting the direction

example

Fill in this table.
All of the parts should go with the problem.

PROBLEM	
3 children are going to share 72 plums equally. How many plums does each child get?	
ESTIMATE $3 \times 10 = 30$ $3 \times 20 = 60$ More than 20	EQUATION $72 \div 3 = n$
DRAWING 	CALCULATION $3 \times 20 = 60$ $3 \times 4 = 12$ $3 \times 24 = 60 + 12 = 72$
ANSWER Each child gets 24 plums.	

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work time

1. Fill in this table.
   All of the parts should go with the problem.

   Check your work with your partner as you go along.

PROBLEM Maria is wrapping packages. She has 90 feet of ribbon to make bows. She needs 6 feet of ribbon for each bow. How many bows can she make?	
ESTIMATE	EQUATION
DRAWING	CALCULATION
ANSWER	

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2. This time you are given the equation. Make up a problem that goes with it. Fill in the rest of the table. All of the parts should go with the problem you make up.

Check your work with your partner as you go along.

PROBLEM	
ESTIMATE	EQUATION $13 = 91 \div 7$
DRAWING	CALCULATION
ANSWER	

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reflection

Writing math stories is ☺ ☹ (circle one)
easy for me hard for me.

because …

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Fill in the shaded squares in the multiplication table below.

×	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

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Multiplication and Division Word Problems

13

show me

Show me all the multiplication and division equations you can write using 5, 6, and 30.

setting the direction

Mr. Hakim asked Anna to write three word problems. He said that Anna should use all three quantities in each word problem and each quantity should be used as the answer for one problem. Anna wrote the following problems:

example

Quantities	My Problems
6 7 42	PROBLEM: There are 7 packages of pens. There are 42 pens in all. How many pens are in each package? UNKNOWN: Let p = the number of pens in each package. EQUATION: 7 × p = 42 or p = 42 ÷ 7 p = 6 ANSWER: There are 6 pens in each package.

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example

	PROBLEM: There are 42 pens in all. There are 6 pens in a package. How many packages are there? UNKNOWN: Let p = the number of packages. EQUATION: $p \times 6 = 42$ or $p = 42 \div 6$ $p = 7$ ANSWER: There are 7 packages.
	PROBLEM: There are 6 pens in a package. There are 7 packages of pens. How many pens are there in all? UNKNOWN: Let p = the total number of pens. EQUATION: $p = 7 \times 6$ $p = 42$ ANSWER: There are 42 pens in all.

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work time

Use the given quantities to write related word problems. All the quantities should be used in every word problem. Each quantity should be used as the answer for one problem.

1.

Quantities	My Problems
4 9 inches 36 inches	PROBLEM: Anthony has 36 inches of ribbon. He cuts the ribbon into pieces that are each 9 inches long. How many pieces of ribbon does Anthony have now? UNKNOWN: EQUATION: ANSWER:
	PROBLEM: UNKNOWN: EQUATION: ANSWER:

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	PROBLEM: UNKNOWN: EQUATION: ANSWER:

2.

Quantities	My Problems
6 $8 $48	PROBLEM: Tran buys 6 pairs of socks that cost $8 each. How much money do the socks cost in all? UNKNOWN: EQUATION: ANSWER:

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	PROBLEM: UNKNOWN: EQUATION: ANSWER:
	PROBLEM: UNKNOWN: EQUATION: ANSWER:

3. How can you find an unknown factor if you know one factor and the product?

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reflection

It was easy hard (circle one) for me to write the related word problems because …

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More Multiplication and Division Word Problems

14

show me

Show me what number d equals. What division equation can you use to solve it?

$32 = 8 \times d$

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setting the direction

Maria turned in her math homework.

a. Mark whether each problem is right or wrong.

b. Correct the problems she got wrong.

c. With your partner, discuss what Maria did wrong and write an explanation.

Name: Maria

Mrs. Chi arranges 28 chairs into 4 equal rows for a class poetry reading. How many chairs are in each row?

c = the number of chairs

c = 40 + 40 + 32

c = 112

There are 112 chairs.

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work time

Maria turned in her math homework.

- Mark whether each problem is right or wrong.
- Correct the problems she got wrong.
- With your partner, discuss what Maria did wrong and write an explanation.

Name: Maria

1. A lawn is shaped like a rectangle. The lawn has an area of 56 square yards. If one side of the lawn is 8 yards long, how long is a side next to it?

y = length of the side in yards

y = 56 + 8; y = 64; The other side is 64 yards long.

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Name: Maria

2. For band practice, 50 students are arranged into equal rows of 10 students. How many rows of students are there?

n = the number of students in the other rows

50 students in all

10 + n = 50 or n = 50 − 10; n = 40

There are 40 students in the other rows.

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3. How do you know when a problem involves multiplication or division?

reflection

To help Maria solve these problems, I would tell her …

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One-Step Word Problems 15

show me

Show me what m equals. What subtraction equation can you use to solve the problem?

$$37 = m + 19$$

work time

1. Work with your partner.
   - Get the *Word Problem, Diagram, Equation, and Answer Cards* page (page 75) and cut out all the cards.
   - Make four sets of four matching cards. Each set should have one of the following:
     - word problem card
     - diagram card
     - equation card
     - answer card
   - Explain to your partner how you know that the cards match. Your partner should either agree with your explanation or challenge it if your explanation is not clear, correct, and complete.
   - Once you and your partner agree on the matches, tape the cards together in this order: word problem, diagram, equation, and then answer.

     After you tape your cards, work on the problems that follow.

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2. What other equation can you write for each word problem?

a. Malaya's problem

b. Mr. Samson's problem

c. Amir's problem

d. Gabby's problem

3. Estimate the answer to Gabby's problem. Explain why the given answer is reasonable.

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Malaya covers a rectangular table top with square tiles. She uses 56 tiles. There are 8 tiles in each row. How many rows of tiles are there?	$n = 8$		$n = 56 \div 7$
	Mr. Samson has 56 inches of rope. He wants to cut it into 7 equal pieces. How long will each piece of rope be?	$n \times 8 = 56$	$n = 48$
$n = 49$		Amir baked 56 muffins for a bake sale. At the end, there were 8 muffins left. How many muffins did Amir sell at the bake sale?	$7 + n = 56$
$8 = 56 - n$	Gabby has $7. She earns some money feeding the neighbor's pets. She now has $56. How much money did Gabby earn feeding the neighbor's pets?	$n = 7$	

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reflection

I still have questions about …

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Hidden Questions and First-Step Equations

16

show me

There are 33 balls on the tennis court. 19 balls are near the net. The rest are near the back fence. Show me an equation you can write to find how many balls are near the back fence.

work time

Work with a partner and follow these instructions for problems 1 – 4.

- Get the *Hidden Question Cards* and *First Step Cards* pages (pages 83 and 85) and cut out all of the cards.
- Match each hidden question card to a word problem on pages 80 and 81. There will be four cards that you will not use.
- Match each first step card to a word problem. The first step cards say what equation you might do first. There will be four cards that you will not use.
- Explain to your partner how you know that the cards match. Your partner should either agree with your explanation or challenge it if your explanation is not clear, correct, and complete.
- Once you and your partner agree on the matches, tape the cards on pages 80 and 81.
- Do not solve any problems yet.

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1. Tamika buys 32 fluid ounces of blue paint and 4 fluid ounces of gold paint. Anna buys 8 fewer fluid ounces of paint than Tamika. How many fluid ounces of paint does Anna buy?

How many fluid ounces of paint does Tamika buy in total?	$n = 32 + 4$

2. Tran has some coins in his pocket. He finds 4 cents and adds it to his pocket. Amir now has 8 cents more than Tran. Amir has 32 cents in his pocket. How much money did Tran have in his pocket to start with?

How much money does Tran have in his pocket after finding 4 cents?	$n + 8 = 32$

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3. Mrs. Chi's garden plot at school is 32 square feet. The length of the plot is 8 feet. Mr. Samson's garden plot is the same length as Mrs. Chi's, but it is 4 feet wider. How many feet wide is Mr. Samson's garden plot?

How wide is Mrs. Chi's garden plot?	$n \times 8 = 32$

4. Gabby has a piece of plastic lace that is 32 inches long. Miguel has a piece of lace that is 8 inches longer than Gabby's. Miguel cuts his piece of lace into 4 equal pieces. How long is each of Miguel's pieces?

How long is Miguel's piece of plastic lace?	$n = 32 + 8$

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5. Describe how you matched the cards to the problems.

reflection

I still have questions about …

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How many fluid ounces of paint does Tamika buy in total?	How wide is Mrs. Chi's garden plot?
How much more blue paint than gold paint does Tamika buy?	How long is Mr. Samson's garden plot?
How much more money does Amir have in his pocket than Tran did to start?	How much shorter is Gabby's piece of plastic lace than Miguel's piece?
How much money does Tran have in his pocket after finding 4 cents?	How long is Miguel's piece of plastic lace?

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$n = 32 + 8$	$32 + 8 = n$
$n = 32 - 8$	$32 + 4 = n$
$n = 32 + 4$	$n + 8 = 32$
$n = 8 + 4$	$n \times 8 = 32$

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Multiplying by Multiples of 10

17

show me

Show me the number that completes this equation.

5 × 3 = _____ × 5

Draw a diagram to show that your equation makes sense.

setting the direction

Write 7 × 20 in different ways:

7 × 2 × ____ = 14 × 10 = 140	Associative Property
7 × 5 × ____ = 35 × ____ = 140	Associative Property
7 (10 + 10) = ____ + ____ = 140	Distributive Property
7 (5 + 5 + 5 + 5) = ____ + ____ + ____ + ____ = 140	Distributive Property

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work time

1. Fill in this multiplication table.

×	10	20	30	40	50	60	70	80	90
1								80	
2		40							
3									
4	40								
5					250				
6									540
7									
8						480			
9									

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2. With your partner, look for at least two patterns in the multiplication table. Then explain the patterns using the properties of operations.

example

The products are the same as the times facts but ten times as large.

You can write the times fact and attach a zero. The times fact moves to the left, making each digit ten times as large.

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3. How does the multiplication table on page 14 compare to the familiar multiplication table shown here?

×	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

reflection

When I multiply by a multiple of ten, I usually …

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How Much Is 15 Tens? 18

show me

How many are in 4 groups of 6?

setting the direction

Fill in the last column of this chart.

10 tens		100
20 tens		
30 tens		
40 tens		
50 tens		
60 tens		
70 tens		
80 tens		
90 tens		

How many tens make 300? _____ How many tens make 500? _____

20 × 10 = _____

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work time

1. Anna's class had 15 boxes of pencils. Each box had 10 pencils.

   Anna asked:

   "How much is 15 tens?"

   Answer her question. Use base-10 blocks to model 15 tens.

   Draw and write below to explain your thinking.

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2. Amir helped in his day camp's kitchen after lunch.
He made 3 stacks of trays. Each stack had 40 trays.

Amir wanted to know how many trays he had stacked in all.

Tamika started to explain:

"Each stack has 4 tens. So you stacked 4 tens 3 times."

Try to understand Tamika's thinking. Finish her explanation.

How many trays did Amir stack?

reflection

One new thing I learned today is …

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How Many Tens? 19

show me

Write the missing number. $(2 \times 3) \times 5 = 2 \times (3 \times _____)$

setting the direction

At the art store, a box of clay has 40 packs of clay.

Josh's teacher has enough money to buy 3 boxes.

She asks the class how many packs of clay there are in 3 boxes.

Josh says:

"We can think about how many tens there are.

Each box has 4 rows of 10 ... (4×10)

... and there are 3 boxes." $3 \times (4 \times 10)$

Then he says:

"There are 12 tens because 3 times 4 is 12."

He writes:

$(3 \times 4) \times 10 = 12 \times 10$

Do you agree with him?

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work time

1. Work with a partner.
   - Get pages 97 and 99 and cut out all of the cards.
   - Put the cards in groups. Each group should show the same problem in five ways.
   - When you have made all of the groups, put each group in a row like this one.

	3 × 40	3 × (4 × 10)	(3 × 4) × 10	12 × 10

   - Compare your answers with your partner's answers. If they are not the same, try to figure out why.
   - Have your teacher check your groups. Your teacher will tell you when you can tape the cards together.

2. If you have time, make your own row of cards like the ones from problem 1.

reflection

Thinking "How many tens?" to answer problems like 6 × 30 helps me because …

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50 50 50

20 20 20 20

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$3 \times (5 \times 10)$	15×10	$(4 \times 2) \times 10$	3×50
$(5 \times 3) \times 10$	4×20	$(3 \times 5) \times 10$	15×10
8×10	$5 \times (3 \times 10)$	5×30	$4 \times (2 \times 10)$

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Using Equations to Multiply Tens 20

show me

Write the products. $5 \times 7 =$ _____ $1 \times 7 =$ _____ $6 \times 7 =$ _____

setting the direction

The supply room at Anna's school had 7 boxes of 50 erasers.

Anna wanted to find 7×50.

She thought:

"How many tens is that?"

There are 5 tens in each box. (5×10)

There are 7 boxes. $7 \times (5 \times 10)$

That equals 35 tens because 7×5 is 35. $(7 \times 5) \times 10$ 35×10

Do you agree with Anna?

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work time

1. Anna thought:

   "I can find 35 × 10 the way I have done other problems like this. I'll show my thinking with equations."

   Look at how she started. Finish her work.

   35 × 10 = (30 + 5) × 10
   = (30 × 10) + (5 × 10)

2. Josh's class set up chairs for a school play. The students set up 8 rows of 40 chairs. How many chairs did they set up?

   Think: How many tens are there in 40? _____ tens

   How many tens in 8 rows of 40? _____ tens

   Finish the equations to find the number of chairs the class set up.

   _____ × 10 = (_____ + _____) × 10

   = (_____ × 10) + (_____ × 10)

   = _____ + _____

   = _____

reflection

One new thing I know about writing equations is …

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Times Tens Concentration 21

show me

How many tens are in 70? _____

setting the direction

Play **Simon Says How Many Tens?**

How to play:

- The teacher speaks.
- If the teacher says "Simon says," you say the correct answer.
- If the teacher does not say "Simon says," you do not answer. If you do, you are out for the rest of the game.
- The winner is the last player still in the game or all players who are still in the game when time is called.

example

Teacher:	"Simon says 2 × 40."
Students:	"8 tens"
Teacher:	"Simon says 150."
Students:	"15 tens"
Teacher:	"4 × 50"
Students:	(Shhh!)

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work time

1. Play **Times Tens Concentration** with one or two other players.
   - Get pages 107–112 and cut out all of the cards.
   - Place the cards face down and mix them up. Then make them into a stack.
   - Use the top cards from the stack to lay out a three-by-six array.

   - Players take turns. On each turn, a player flips over any two cards.
     – If the cards match, the player keeps both cards and puts two new cards in the empty spaces of the array. It is now the next player's turn.

example

Anna made this match.

2×30

     – Other players may challenge the match, explaining why they disagree. The first player must defend the match or agree that the cards do not match.
     – If the cards do not match, the first player turns both cards back over.
   - The winner is the person who has the most cards when all of the cards have been used or time is called.

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2. You know how to multiply ones. You know how to multiply tens.

What do you know about multiplying hundreds?

Look at the table below. Fill in the blanks.

Hundreds	Tens	Ones
4 × _____	4 × 20	4 × 2
_____ hundreds	_____ tens	8 ones
800	_____	8

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reflection

Multiplying tens is (circle one) ☺ ☹ for me because …

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6×50	9×60
3×70	4×40
2×90	6×60

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Times Tens Concentration	**Times Tens Concentration**
Times Tens Concentration	**Times Tens Concentration**
Times Tens Concentration	**Times Tens Concentration**

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3×40	250
7×80	30 tens
54 tens	

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Times Tens Concentration	**Times Tens Concentration**
Times Tens Concentration	**Times Tens Concentration**
Times Tens Concentration	**Times Tens Concentration**

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180

36 tens

25 tens

56 tens

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Times Tens Concentration	**Times Tens Concentration**
Times Tens Concentration	**Times Tens Concentration**
Times Tens Concentration	**Times Tens Concentration**

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22 Solving Problems with Multiples of 10 and 100

show me

Show me how to fill in the blanks to make this equation true.

$5 \times 8 = (5 \times _____) + (5 \times _____)$

setting the direction

Anna read 30 pages of her favorite book last night. She wonders how many pages she will read if she reads 30 pages each night for two weeks. (There are seven days in a week.) Find one way to solve this problem.

Write the answer in a complete sentence.

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work time

1. Tamika's school sets up 300 chairs for each play performance. There will be 13 performances this year. Tamika helps set up chairs. She wonders how many chairs will be set up in all.

   Find one way to solve this problem.

Write the answer in a complete sentence.

2. a. Anthony's school group is printing raffle tickets. The group is planning to put 20 tickets in a book. How many tickets will they have if they print 40 books?

   Find one way to solve this problem.

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b. The group wants to print 1,200 raffle tickets. Now Amir knows that 40 books will not be enough. How many books (of 20 tickets) does the group need to print?

Find one way to solve this problem.

3. If the raffle tickets are printed in books of 30 tickets instead, how many books will the group need in order to have 1,200 tickets?

reflection

Breaking up numbers helps me solve multiplication problems because …

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Counting and Calculating the Area of Rectangles

23

show me

Show me all of the factors of 20.

setting the direction

Instead of counting the squares to find the area of a rectangle, you can calculate the area in two other ways:

Examples:

5 + 5 = 10 square feet
2 × 5 = 10 square feet

5 + 5 + 5 = 15 square feet
3 × 5 = 10 square feet

5 + 5 + 5 + 5 = 20 square feet
4 × 5 = 10 square feet

Calculate the area of the following rectangles using both methods described above.

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work time

1. a. Circle the rectangles that have an area of 12 square units.

b. Sketch two other rectangles that have an area of 12 square units and label the side lengths.

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2. Using only whole numbers, what are all possible dimensions of a rectangle with an area of 30 square inches?

3. Fill in each blank with the missing dimension.

a.

Area is 21 square inches.

b.

Area is 24 square inches.

c. Explain how you found the missing dimensions.

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reflection

One thing I know about finding the area of a rectangle is …

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Matching Areas of Rectangles 24

show me

Show me how to write the sum 9 + 9 + 9 using multiplication.

setting the direction

You can say that the rectangle below has dimensions of either 7 inches by 2 inches or 2 inches by 7 inches. The area of the rectangle is 7 × 2 or 2 × 7, or 14 square inches.

One dimension is the *length* of the rectangle and the other is the *width*.

Fill in the blanks with the correct dimension or area.

If the area of a rectangle is 42 square centimeters and the length is 7 centimeters, then the width of the rectangle is _____.

Since a square is a special type of rectangle, a rectangle with dimensions of 5 meters by 5 meters has an area of _____.

You can say that a rectangle with a length of 15 feet and a width of 3 feet has the dimensions _____ by _____ or _____ by _____.

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work time

1. Work with your partner to match rectangles with their areas.
   - Get the *Rectangles* and *Areas* pages (pages 125 and 127) and cut out all of the cards.
   - Find the rectangle card and area card that match each of the rectangles (broken into unit squares) on pages 123–124. (Note: There will be some extra cards after you are done matching.)
   - When you make a match, explain to your partner how you know that the cards match.
   - Your partner should either agree with your explanation or challenge it if your explanation is not clear, correct, and complete.
   - Once you and your partner agree on all of the matches, ask your teacher to check your matches. Then tape the cards into the correct spaces on pages 123–124.

2. Why can you calculate the area of a rectangle by *either* multiplying the length by the width or the width by the length?

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Match and then tape rectangle and area cards below:

	TAPE RECTANGLE CARD HERE	TAPE AREA CARD HERE
	TAPE RECTANGLE CARD HERE	TAPE AREA CARD HERE
	TAPE RECTANGLE CARD HERE	TAPE AREA CARD HERE
	TAPE RECTANGLE CARD HERE	TAPE AREA CARD HERE

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	TAPE RECTANGLE CARD HERE	TAPE AREA CARD HERE
	TAPE RECTANGLE CARD HERE	TAPE AREA CARD HERE

reflection

If I know the dimensions of a rectangle, I can find the area of the rectangle by …

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28 square units	60 square units	30 square units
36 square units	35 square units	32 square units
60 square units	63 square units	40 square units

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Using Addition and Multiplication to Find the Area of Rectangles

25

show me

Show me the solution to: 6 × 8

setting the direction

The following rectangle is broken into unit squares.

How many *rows* does the rectangle have? _____ rows

How many *columns* does the rectangle have? _____ columns

What addition equation can you write to find the total number of unit squares?

What multiplication equation can you write to find the total number of unit squares?

What is the area of the rectangle? _____

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work time

1. Work with a partner to connect the dimensions of a rectangle, the addition calculation you would use to find its area, the multiplication calculation you would use to find its area, and the area.
   - Get the *Connections Table* page (page 131).
   - The first column of the table shows rectangles broken into unit squares. For each rectangle, fill in the missing information in the other columns. Follow the example provided in the first row.

2. How would you explain to a friend how to find the area of a rectangle using addition?

3. How would you explain to a friend how to find the area of a rectangle using multiplication?

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CONNECTIONS TABLE

Rectangle	Number of Rows	Number of Columns	Addition Calculation	Multiplication Calculation	Area
	8	4	4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32 or 8 + 8 + 8 + 8 = 32	8 × 4 = 32 or 4 × 8 = 32	32 square units

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reflection

Finding the area of a rectangle is easy hard (circle one) for me because …

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Solving Area Word Problems 26

show me

Show me the missing factor.

____ × 6 = 48

setting the direction

Mr. Hakim said that you can use a formula to find the area of a rectangle.

Area of a Rectangle Formula
Area = length × width

Use the formula to fill in the blanks below.

If a rectangle has a length of 8 units and a width of 7 units, then the area is

_____ square units.

If a rectangle has an area of 72 square units and a length of 8 units, then the width is

_____ units.

If a rectangle has an area of 70 square units and a width of 10 units, then the length is

_____ units.

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work time

1. a. In the game of checkers, a checkerboard has 8 rows of squares with 8 squares in each row. Sketch a picture of a checkerboard.

b. Write a multiplication equation that you can use to find the total number of squares on a checkerboard. How many squares are on a checkerboard?

c. If each square on a checkerboard is 1 inch by 1 inch, what is the area of the checkerboard?

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2. a. A rectangular patchwork quilt has 9 rows of square patches with 7 patches in each row. Sketch a picture of what the quilt might look like.

b. Write a multiplication equation you can use to find the total number of squares in the quilt. How many squares are in the quilt?

c. If each square in the quilt is 1 foot by 1 foot, what is the area of the quilt?

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3. a. A rectangular photograph is 8 inches wide and 10 inches long. Sketch and label a picture of the photograph.

b. Write a multiplication equation that you can use to find the area of the photograph. What is the area of the photograph?

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4. a. Think of a situation about a rectangle that can be broken into equal-sized squares and describe it below.

b. Share your idea with your partner.

c. With your partner, choose one of the ideas. Then write a word problem that involves finding the area of the rectangle in the situation. (You do not need to solve the problem yet.)

d. Sketch a picture that represents your situation.

e. Find the area of the rectangle. Be sure to include the appropriate units in your answer.

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reflection

Finding the area of a rectangle can be useful because …

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Relating Area and Perimeter 27

show me

Show me a rectangle with an area of 9 square units.

setting the direction

Using only whole-number dimensions, find all the rectangles with a perimeter of 20 units. Sketch and label them below.

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work time

1. Mr. Samson is building a rectangular pen for his dog. He has 24 yards of fencing.

   a. Complete the table to find all the possible pens that Mr. Samson can build using all the fencing. (Use whole-number dimensions.) Find the area of each pen.

Rectangle	Dimensions	Area
	1 yd × 11 yd or 11 yd × 1 yd	11 square yards

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b. Which pen has the greatest area?

c. Which pen has the longest length?

d. Which pen would you advise Mr. Samson to build? Explain your answer.

2. Mrs. Chi is making a quilt using 36 squares that are each 1 foot in length.

a. Complete the table to find all the possible quilts that Mrs. Chi can make. Find the perimeter of each quilt.

Rectangle	Dimensions	Perimeter
	1 ft × 36 ft or 36 ft × 1 ft	74 feet

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b. Mrs. Chi wants to sew ribbon around the edge of the quilt. Which quilt in the table needs the most ribbon? How much ribbon does Mrs. Chi need for this quilt?

c. Which quilt in the table needs the least ribbon? How much ribbon does Mrs. Chi need for this quilt?

d. There are 3 yards of ribbon in a package. If Mrs. Chi buys 3 packages of ribbon, which of the quilts in the table can she make? (1 yard = 3 feet)

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3. Look back at problem 1. What can you say about the areas of rectangles that have different dimensions but the same perimeter?

4. Look back at problem 2. What can you say about the perimeters of rectangles that have different dimensions but the same area?

reflection

One new thing I learned about area and perimeter is …

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Area and Perimeter Word Problems 28

show me

Show me the solution to: (2 × 4) + 15

setting the direction

For each problem below, Josh determined whether he needed to find the perimeter or the area to solve each problem. He circled his answer. Is Josh correct? Explain your answer.

Malaya wants to put trim around the edge of a square pillow. The pillow measures 18 inches by 18 inches. How much trim does she need?

area perimeter

Is Josh correct?

A baseball diamond is a square formed by home plate, first base, second base, and third base. The distance between bases is 90 feet. If a player hits a home run and runs around all the bases, how far does the player run?

area perimeter

Is Josh correct?

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Amir has a strawberry bed that measures 8 feet by 12 feet. He has 100 square feet of mulch. Does he have enough mulch to cover his strawberry bed?

area perimeter

Is Josh correct?

work time

Work with your partner.

- For each of the following word problems, decide whether you need to find the area or perimeter. Circle "area" or "perimeter" once you decide.
- Then solve the word problem.
- Next, write a new word problem using the same situation and dimensions given in the original problem. If the original problem was about finding area, write a problem about finding perimeter. If the original problem was about finding perimeter, write a problem about finding area. Provide a solution for each of your problems.

1. Mrs. Chi needs to buy new carpet for a room. The dimensions of the room are 10 feet by 7 feet. How much carpeting does Mrs. Chi need to buy?

a. area or perimeter (circle one)

b. Solution:

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c. New word problem and solution:

2. Tamika wants to put a ribbon border around her picture of her two best friends. If the picture is 5 inches by 7 inches, what length of ribbon does she need?

a. area or perimeter (circle one)

b. Solution:

c. New word problem and solution:

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3. Anthony helped his dad cover one of the basement walls with paneling. The wall measures 20 feet by 8 feet.
How big is the piece of paneling?

a. area or perimeter (circle one)

b. Solution:

c. New word problem and solution:

reflection

One way I can figure out if a word problem involves area or perimeter is …

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The Distributive Property and Area 29

show me

Calculate the answer in your head: 19 + 25

setting the direction

example

Anna says that she can calculate 3 × (4 + 5) in two ways.

$$3 \times (4 + 5) = 3 \times 9 = 27$$

$$3 \times (4 + 5) = (3 \times 4) + (3 \times 5) = 12 + 15 = 27$$

Anna uses the distributive property in the second calculation.

Fill in the blanks below. Think about Anna's example above to help you.

(9 × 3) + (9 × 10) = _____ + _____ = _____

9 × (3 + 10) = _____ × _____ = _____

(____ × 5) + (____ × 6) = 15 + 18 = _____

8 × (____ + 8) = 8 × _____ = 80

Solve 6 × 10 in four different ways. 6 × (_____ + _____) = _____ + _____ = 60

6 × (_____ + _____) = _____ + _____ = 60

6 × (_____ + _____) = _____ + _____ = 60

6 × (_____ + _____) = _____ + _____ = 60

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work time

1. a. Determine the dimensions of Rectangles A and B.

Rectangle A

Rectangle B

Rectangle A is _____ units by _____ units or _____ units by _____ units.

Rectangle B is _____ units by _____ units or _____ units by _____ units.

b. Find the area of Rectangle A and the area of Rectangle B.

Area of Rectangle A = _____

Area of Rectangle B = _____

c. Compute the sum of the areas of Rectangle A and Rectangle B.

Area of Rectangle A + Area of Rectangle B = _____ + _____ = _____

d. Suppose Rectangle A and Rectangle B are combined into one rectangle, called Rectangle C. Find the dimensions of Rectangle C.

Rectangle C

Rectangle C is _____ units by _____ units or _____ units by _____ units.

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e. Find the area of Rectangle C.

Area of Rectangle C = _____

f. Explain how the work you did in parts a–e relates to the distributive property.

2. a. Find the area of the following rectangle.

b. Break the rectangle in part a into two smaller rectangles. Sketch the two rectangles. Find the area of each rectangle and the sum of their areas. Then write an equation using the distributive property to show how the combined area of the two smaller rectangles is equal to the area of the original rectangle.

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c. Break up the rectangle in part a in a different way. Find the area of each rectangle and calculate the sum of the two areas. Then write an equation using the distributive property to show how the combined area of the two smaller rectangles is the same as the area of the original rectangle.

reflection

It is helpful to be able to find the area of a rectangle in more than one way because …

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Using the Distributive Property 30

show me

Write all the division facts you can think of for the number 24.

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work time

1. Mr. Samson is planning to plant 13 rows of trees with 7 trees in each row. Some rows will have apple trees. The rest will have pear trees.

   a. Choose one way Mr. Samson could divide the rows into apple trees and pear trees. Show your way in the array below. Use A for each apple tree and P for each pear tree.

   b. Write an equation that uses the distributive property to match your divided array.

   c. Write the equation that shows the two products that you will add together.

   d. Write the equation with the sum of the two products.

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2. There are 6 rows of seats in the school gymnasium.
In each row there are 15 seats.
How many seats are in the gymnasium?

a. Write an equation using the distributive property that you could use to find the number of seats.

b. Solve the problem using your equation.

reflection

The distributive property can help make a multiplication problem easier because …

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Multiplying Multidigit Numbers 31

show me

Show me the number I would have to add to 500,000 to have 1,000,001.

setting the direction

Fill in each of these multiplication tables.

×	1	2	3	4	5	6	7	8	9
4	4	8		16			28	32	

×	10	20	30	40	50	60	70	80	90
4	40	80			200		280		

×	100	200	300	400	500	600	700	800	900
4	400	800				2,400			3,600

Malaya said she could use the tables to find 4 × 136. She solved the problem this way.

4 × 100 = 400
4 × 30 = 120
4 × 6 = 24 400 + 120 + 24 = 520 + 24 = 544

Explain why Malaya's way works.

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work time

1. Find 4 × 287 using these multiplication tables and Malaya's method.

×	1	2	3	4	5	6	7	8	9
4	4	8	12	16	20	24	28	32	36

×	10	20	30	40	50	60	70	80	90
4	40	80	120	160	200	240	280	320	360

×	100	200	300	400	500	600	700	800	900
4	400	800	1,200	1,600	2,000	2,400	2,800	3,200	3,600

2. Tran said he could find 2 × 348 without using the multiplication tables. Fill in the missing values in the equations below to complete Tran's work.

2 × 348 = 2 × (300 + _____ + 8)

= _____ + 80 + _____

= _____

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3. Solve this problem.

3×519

Use the distributive property.

reflection

When I multiply a three-digit number, the distributive property helps me because …

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Multiplying by Two-Digit Numbers 32

show me

Show me the number that makes this equation true.

$4 \times 8 \times$ _____ $= 320$

setting the direction

Find one way to solve 24×13.

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work time

1. a. Solve 65 × 72. Use the distributive property. Write equations to show your thinking.

   b. Compare your solution with your partner's solution. Did you work the problem the same way? Explain.

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2. a. Anthony started to solve 42 × 59 this way.

$$42 \times 59 = 59 \times 42$$
$$59 \times 42 = (60 \times 42) - (1 \times 42)$$

Try to understand his thinking. Write down what you understand.

b. Finish solving the problem Anthony's way.

$$42 \times 59 = 59 \times 42$$
$$59 \times 42 = (60 \times 42) - (1 \times 42)$$
$$= _____ - _____$$
$$= _____$$

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reflection

Here is a problem I can solve using Anthony's method:

Problem:

Solution:

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Relating Division to Multiplication 33

show me

Show me the missing number.

13 × _____ = 390

setting the direction

Fill in each of these multiplication tables.

×	1	2	3	4	5	6	7	8	9
6	6	12	18	24		36	42	48	

×	10	20	30	40	50	60	70	80	90
6	60	120		240	300	360			540

×	100	200	300	400	500	600	700	800	900
6	600	1,200	1,800		3,000		4,200	4,800	5,400

Maria solved 4,722 ÷ 6 by thinking, "How many 6s in 4,722?"
She used the tables to make groups of 6. She used each table once.
Try to understand Maria's work, and then fill in the blanks below.

700 x 6 = 4,200 — 4,722 − 4,200 = 522

_____ x 6 = 480 — 522 − _____ = 42

_____ x 6 = 42 — 42 − _____ = _____

I used _____ groups.

(700 + _____ + _____) × 6 = 4,200 + _____ + _____

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work time

1. a. Fill in each of these multiplication tables.

×	1	2	3	4	5	6	7	8	9
8									

×	10	20	30	40	50	60	70	80	90
8									

×	100	200	300	400	500	600	700	800	900
8									

b. 7,896 ÷ 8
How many 8s in 7,896?

Use groups of 8 from the tables. Use the fewest steps possible.

7,896

_____ × 8 = 7,200 – _____

_____ × 8 = 640 – _____

_____ × 8 = 56 – _____

Total _____ groups.

c. Write an equation to show how you used groups of 8.

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2. a. 3,780 ÷ 5

How many 5s in 3,780? Try this problem without tables.

	3,780
____ × 5 = 3,500	− _____
____ × 5 = 250	− _____
____ × 5 = 30	− _____

Total _____ groups.

b. Write an equation to show how you used groups of 5.

3. What is the same about the problem below and the one you just did? What is different?

3,781 ÷ 5

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reflection

When I am dividing, thinking about multiplication helps because …

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Estimating When Dividing 34

show me

Show me the product.

13 × 300 = _____

setting the direction

Miguel's school recycled 3,417 cans in 32 weeks. Miguel said,

"That's a little more than 100 cans per week."

Explain why Miguel's estimate makes sense.

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work time

1. a. In the table below, write each expression in the column that describes the result of the division. Do not use paper and pencil or a calculator. Just use estimation.

600 ÷ 60	4,999 ÷ 500	700 ÷ 50
756 ÷ 80	660 ÷ 60	5,000 ÷ 200
500 ÷ 50	700 ÷ 70	536 ÷ 60

_____ < 10	_____ = 10	_____ > 10

b. In the bottom row of the chart, write another expression for each column.

2. Estimate the answer. 3,510 ÷ 6

Explain how you estimated.

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reflection

One thing that helps me estimate when I am dividing is …

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Interpreting Remainders 35

show me

Show me the missing number in the factor pair for 72: 8 and _____

work time

Anthony turned in solutions for the following homework problems.

- Mark whether each problem is correct or incorrect. Use a colored pen, if possible.
- Correct the problems he got wrong.
- With your partner, write comments to Anthony explaining what he is doing wrong.

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Name: Anthony

Note: 1 pound is equal to 16 ounces.

1. Malaya has a new kitten. The kitten eats 3 ounces of cat food each day. How many days can Malaya feed the kitten from a 1-pound bag of cat food?

15 ÷ 3 = 5; Malaya can feed the kitten for about 5 days.

Let d = the number of days.

d = 16 ÷ 3

d = 5 R1

Malaya can feed the kitten for 6 days.

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2. The fifth-grade class is going canoeing. There are 53 students on the trip. Each canoe will hold at the most 3 students. How many canoes will the class need?

60 ÷ 3 = 20; about 20 canoes will be needed.

Let c = the number of canoes needed.

c = 53 ÷ 3

c = 17 R2

The class needs 18 canoes.

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3. Miguel is wrapping packages. He has 76 feet of ribbon to make 8 bows. He wants to use all of the ribbon. How much ribbon does he have for each bow?

80 ÷ 8 = 10; Miguel has about 10 feet of ribbon for each bow.

Let f = the number of feet of ribbon for each bow.

f = 76 ÷ 8

f = 9 R4

Miguel has 9 feet 4 inches for each bow.

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4. The flower market is having a sale on tulips. What is the cost of each bunch of tulips?

$28 ÷ 4 = $7; each bunch is about $7.

Let c = the cost of each bunch of tulips.

c = $26 ÷ 4

c = $6 R2

c = $8

Each bunch of tulips cost $8.

reflection

To help Anthony interpret remainders, I would tell him …

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Repeating Shape Patterns 36

show me

Show me the remainder for 10 ÷ 3.

setting the direction

- Get the *Shapes for Patterns* page (page 185) and carefully cut out all the shapes.
- Use the given rule to make a pattern with the shapes.
- Once you believe your pattern is correct, ask your teacher to check it. Your teacher will then tell you if you can glue the shapes down.

Rule: Start with a square and a triangle.
Add a square and a triangle each time.

a. How many elements repeat?

b. What is the 6th shape in the pattern?

c. Predict what the 12th shape would be in the pattern. Explain how you know.

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d. Predict what the 25th shape would be in the pattern. Explain how you know.

e. Explain how you would find the 100th shape in the pattern.

work time

Use the given rule to make a pattern with the shapes.

Glue the shapes down when you are done.

1. Rule: Start with 2 circles and 1 triangle.
Add 2 circles and 1 triangle each time.

a. How many elements repeat?

b. What is the 9th shape in the pattern?

c. Predict what the 24th shape would be in the pattern. Explain how you know.

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d. Predict what the 35th shape would be in the pattern. Explain how you know.

e. Explain how you would find the 100th shape in the pattern.

2. Rule: Start with 1 square, 1 triangle, and 1 circle.
Add 1 square, 1 triangle, and 1 circle each time.

a. How many elements repeat?

b. What is the 8th shape in the pattern?

c. Predict what the 36th shape would be in the pattern. Explain how you know.

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d. Predict what the 49th shape would be in the pattern. Explain how you know.

e. Explain how you would find the 1,000th shape in the pattern.

3. a. How are the patterns in problem 1 and problem 2 similar?

b. How are the patterns in problem 1 and problem 2 different?

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reflection

One thing I learned today about repeating shape patterns is …

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