

# EUREKA MATH

A STORY OF UNITS



Mathematics Curriculum



## Grade 4 • MODULE 3

Multi-Digit Multiplication and Division

# Homework

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Info for parents: <http://bit.ly/pusdmath>

Video tutorials: <http://embarc.online>

Version 3



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**GRADE 4 • MODULE 3**

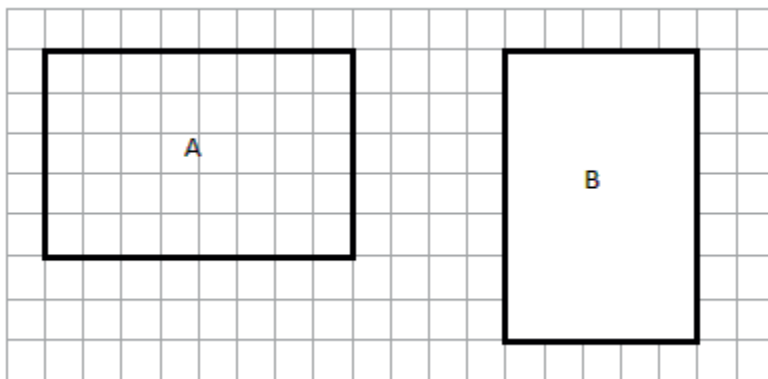
## Multi-Digit Multiplication and Division

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Name \_\_\_\_\_

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1. Determine the perimeter and area of rectangles A and B.



a. A = \_\_\_\_\_

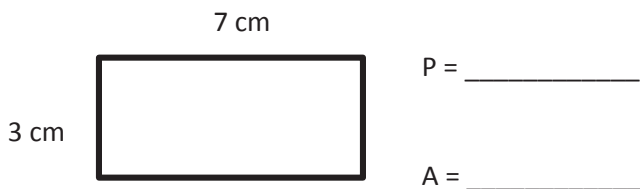
A = \_\_\_\_\_

b. P = \_\_\_\_\_

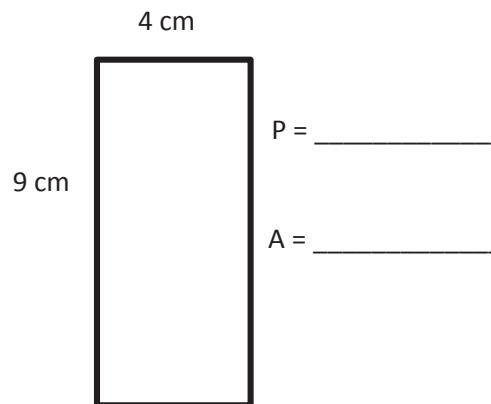
P = \_\_\_\_\_

2. Determine the perimeter and area of each rectangle.

a.

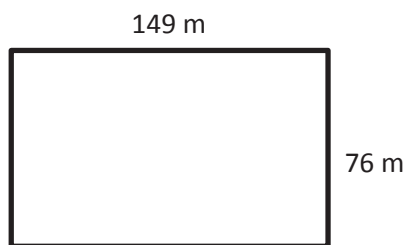


b.



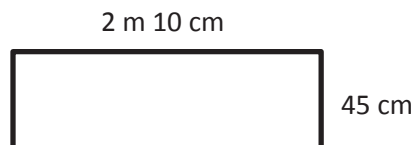
3. Determine the perimeter of each rectangle.

a.



P = \_\_\_\_\_

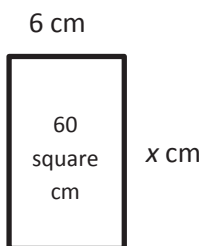
b.



P = \_\_\_\_\_

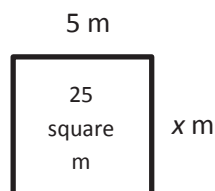
4. Given the rectangle's area, find the unknown side length.

a.



x = \_\_\_\_\_

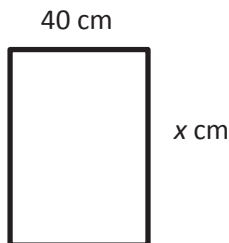
b.



x = \_\_\_\_\_

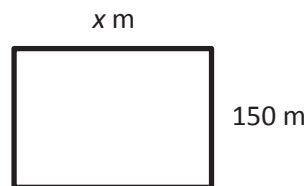
5. Given the rectangle's perimeter, find the unknown side length.

a.  $P = 180$  cm



$x =$  \_\_\_\_\_

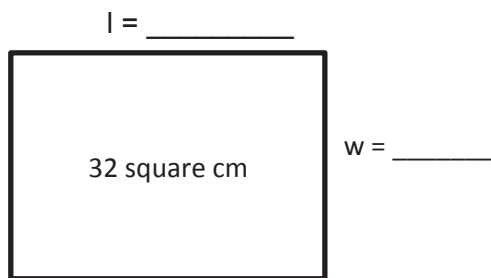
b.  $P = 1,000$  m



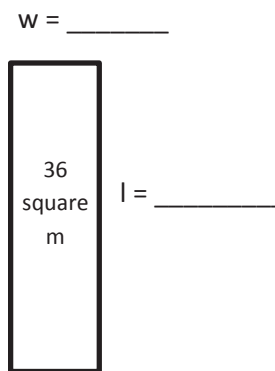
$x =$  \_\_\_\_\_

6. Each of the following rectangles has whole number side lengths. Given the area and perimeter, find the length and width.

a.  $A = 32$  square cm  
 $P = 24$  cm



b.  $A = 36$  square m  
 $P = 30$  m



Name \_\_\_\_\_

Date \_\_\_\_\_

1. A rectangular pool is 7 feet wide. It is 3 times as long as it is wide.

a. Label the diagram with the dimensions of the pool.



b. Find the perimeter of the pool.

2. A poster is 3 inches long. It is 4 times as wide as it is long.

a. Draw a diagram of the poster, and label its dimensions.

b. Find the perimeter and area of the poster.



4. The area of Nathan's bedroom rug is 15 square feet. The longer side measures 5 feet. His living room rug is twice as long and twice as wide as the bedroom rug.
- a. Draw and label a diagram of Nathan's bedroom rug. What is its perimeter?
- b. Draw and label a diagram of Nathan's living room rug. What is its perimeter?
- c. What is the relationship between the two perimeters?
- d. Find the area of the living room rug using the formula  $A = l \times w$ .



- e. The living room rug has an area that is how many times that of the bedroom rug?
- f. Compare how the perimeter changed with how the area changed between the two rugs. Explain what you notice using words, pictures, or numbers.



3. Brinn's rectangular kitchen has an area of 81 square feet. The kitchen is 9 times as many square feet as Brinn's pantry. If the rectangular pantry is 3 feet wide, what is the length of the pantry?
4. The length of Marshall's rectangular poster is 2 times its width. If the perimeter is 24 inches, what is the area of the poster?

Name \_\_\_\_\_

Date \_\_\_\_\_

Example:

$5 \times 10 = \underline{50}$

$5 \text{ ones} \times 10 = \underline{5} \text{ tens}$

thousands	hundreds	tens	ones

Draw place value disks and arrows as shown to represent each product.

1.  $7 \times 100 = \underline{\hspace{2cm}}$

$7 \times 10 \times 10 = \underline{\hspace{2cm}}$

$7 \text{ ones} \times 100 = \underline{\hspace{2cm}}$

thousands	hundreds	tens	ones

2.  $7 \times 1,000 = \underline{\hspace{2cm}}$

$7 \times 10 \times 10 \times 10 = \underline{\hspace{2cm}}$

$7 \text{ ones} \times 1,000 = \underline{\hspace{2cm}}$

\_\_\_\_\_

thousands	hundreds	tens	ones

3. Fill in the blanks in the following equations.

a.  $8 \times 10 = \underline{\hspace{2cm}}$

b.  $\underline{\hspace{2cm}} \times 8 = 800$

c.  $8,000 = \underline{\hspace{2cm}} \times 1,000$

d.  $10 \times 3 = \underline{\hspace{2cm}}$

e.  $3 \times \underline{\hspace{2cm}} = 3,000$

f.  $\underline{\hspace{2cm}} \times 3 = 300$

g.  $1,000 \times 4 = \underline{\hspace{2cm}}$

h.  $\underline{\hspace{2cm}} = 10 \times 4$

i.  $400 = \underline{\hspace{2cm}} \times 100$

Draw place value disks and arrows to represent each product.

4.  $15 \times 10 =$  \_\_\_\_\_

(1 ten 5 ones)  $\times 10 =$  \_\_\_\_\_

thousands	hundreds	tens	ones

5.  $17 \times 100 =$  \_\_\_\_\_

$17 \times 10 \times 10 =$  \_\_\_\_\_

(1 ten 7 ones)  $\times 100 =$  \_\_\_\_\_

thousands	hundreds	tens	ones

6.  $36 \times 1,000 =$  \_\_\_\_\_

$36 \times 10 \times 10 \times 10 =$  \_\_\_\_\_

(3 tens 6 ones)  $\times 1,000 =$  \_\_\_\_\_

ten thousands	thousands	hundreds	tens	ones

Decompose each multiple of 10, 100, or 1000 before multiplying.

7.  $2 \times 80 = 2 \times 8 \times$  \_\_\_\_\_

$= 16 \times$  \_\_\_\_\_

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

8.  $2 \times 400 = 2 \times$  \_\_\_\_\_  $\times$  \_\_\_\_\_

$=$  \_\_\_\_\_  $\times$  \_\_\_\_\_

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

9.  $5 \times 5,000 =$  \_\_\_\_\_  $\times$  \_\_\_\_\_  $\times$  \_\_\_\_\_

$=$  \_\_\_\_\_  $\times$  \_\_\_\_\_

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

10.  $7 \times 6,000 =$  \_\_\_\_\_  $\times$  \_\_\_\_\_  $\times$  \_\_\_\_\_

$=$  \_\_\_\_\_  $\times$  \_\_\_\_\_

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

Name \_\_\_\_\_

Date \_\_\_\_\_

Draw place value disks to represent the value of the following expressions.

1.  $5 \times 2 =$  \_\_\_\_\_

5 times \_\_\_\_\_ ones is \_\_\_\_\_ ones.

thousands	hundreds	tens	ones

$$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$$

2.  $5 \times 20 =$  \_\_\_\_\_

5 times \_\_\_\_\_ tens is \_\_\_\_\_.

thousands	hundreds	tens	ones

$$\begin{array}{r} 20 \\ \times 5 \\ \hline \end{array}$$

3.  $5 \times 200 =$  \_\_\_\_\_

5 times \_\_\_\_\_ is \_\_\_\_\_.

thousands	hundreds	tens	ones

$$\begin{array}{r} 200 \\ \times 5 \\ \hline \end{array}$$

4.  $5 \times 2,000 =$  \_\_\_\_\_

\_\_\_\_\_ times \_\_\_\_\_ is \_\_\_\_\_.

thousands	hundreds	tens	ones

$$\begin{array}{r} 2,000 \\ \times 5 \\ \hline \end{array}$$

5. Find the product.

a. $20 \times 9$	b. $6 \times 70$	c. $7 \times 700$	d. $3 \times 900$
e. $9 \times 90$	f. $40 \times 7$	g. $600 \times 6$	h. $8 \times 6,000$
i. $5 \times 70$	j. $5 \times 80$	k. $5 \times 200$	l. $6,000 \times 5$

6. At the school cafeteria, each student who orders lunch gets 6 chicken nuggets. The cafeteria staff prepares enough for 300 kids. How many chicken nuggets does the cafeteria staff prepare altogether?

7. Jaelynn has 30 times as many stickers as her brother. Her brother has 8 stickers. How many stickers does Jaelynn have?
8. The flower shop has 40 times as many flowers in one cooler as Julia has in her bouquet. The cooler has 120 flowers. How many flowers are in Julia's bouquet?



Name \_\_\_\_\_

Date \_\_\_\_\_

Represent the following problem by drawing disks in the place value chart.

1. To solve
- $30 \times 60$
- , think

$$(3 \text{ tens} \times 6) \times 10 = \underline{\hspace{2cm}}$$

$$30 \times (6 \times 10) = \underline{\hspace{2cm}}$$

$$30 \times 60 = \underline{\hspace{2cm}}$$

hundreds	tens	ones

2. Draw an area model to represent
- $30 \times 60$
- .

$$3 \text{ tens} \times 6 \text{ tens} = \underline{\hspace{2cm}} \underline{\hspace{2cm}}$$

3. Draw an area model to represent
- $20 \times 20$
- .

$$2 \text{ tens} \times 2 \text{ tens} = \underline{\hspace{2cm}} \underline{\hspace{2cm}}$$

$$20 \times 20 = \underline{\hspace{2cm}}$$

4. Draw an area model to represent  $40 \times 60$ .

$$4 \text{ tens} \times 6 \text{ tens} = \underline{\hspace{2cm}}$$

$$40 \times 60 = \underline{\hspace{2cm}}$$

Rewrite each equation in unit form and solve.

5.  $50 \times 20 = \underline{\hspace{2cm}}$

$$5 \text{ tens} \times 2 \text{ tens} = \underline{\hspace{1cm}} \text{ hundreds}$$

6.  $30 \times 50 = \underline{\hspace{2cm}}$

$$3 \text{ tens} \times 5 \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ hundreds}$$

7.  $60 \times 20 = \underline{\hspace{2cm}}$

$$\underline{\hspace{1cm}} \text{ tens} \times \underline{\hspace{1cm}} \text{ tens} = 12 \underline{\hspace{2cm}}$$

8.  $40 \times 70 = \underline{\hspace{2cm}}$

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ hundreds}$$

9. There are 60 seconds in a minute and 60 minutes in an hour. How many seconds are in one hour?
10. To print a comic book, 50 pieces of paper are needed. How many pieces of paper are needed to print 40 comic books?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Represent the following expressions with disks, regrouping as necessary, writing a matching expression, and recording the partial products vertically.

a.  $3 \times 24$

tens	ones

b.  $3 \times 42$

hundreds	tens	ones

c.  $4 \times 34$

hundreds	tens	ones

2. Represent the following expressions with disks, regrouping as necessary. To the right, record the partial products vertically.

a.  $4 \times 27$

hundreds	tens	ones

b.  $5 \times 42$

hundreds	tens	ones

3. Cindy says she found a shortcut for doing multiplication problems. When she multiplies  $3 \times 24$ , she says, “ $3 \times 4$  is 12 ones, or 1 ten and 2 ones. Then, there’s just 2 tens left in 24, so add it up, and you get 3 tens and 2 ones.” Do you think Cindy’s shortcut works? Explain your thinking in words, and justify your response using a model or partial products.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Represent the following expressions with disks, regrouping as necessary, writing a matching expression, and recording the partial products vertically as shown below.

a.  $2 \times 424$

hundreds	tens	ones
● ● ● ●	● ●	● ● ● ●

$$\begin{array}{r}
 4 \quad 2 \quad 4 \\
 \times \quad \quad 2 \\
 \hline
 \\
 + \quad \quad \quad \\
 \hline
 \end{array}
 \begin{array}{l}
 \rightarrow 2 \times \text{ones} \\
 \rightarrow 2 \times \text{tens} \\
 \rightarrow 2 \times \text{hundreds}
 \end{array}$$

$$2 \times \text{hundreds} + 2 \times \text{tens} + 2 \times \text{ones}$$

b.  $3 \times 424$

hundreds	tens	ones

c.  $4 \times 1,424$

2. Represent the following expressions with disks, using either method shown in class, regrouping as necessary. To the right, record the partial products vertically.

a.  $2 \times 617$

b.  $5 \times 642$

c.  $3 \times 3,034$





Name \_\_\_\_\_

Date \_\_\_\_\_

1. Solve using each method.

Partial Products	Standard Algorithm
a. $\begin{array}{r} 46 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 46 \\ \times 2 \\ \hline \end{array}$

Partial Products	Standard Algorithm
b. $\begin{array}{r} 315 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 315 \\ \times 4 \\ \hline \end{array}$

2. Solve using the standard algorithm.

a. $\begin{array}{r} 232 \\ \times 4 \\ \hline \end{array}$	b. $\begin{array}{r} 142 \\ \times 6 \\ \hline \end{array}$	c. $\begin{array}{r} 314 \\ \times 7 \\ \hline \end{array}$
d. $\begin{array}{r} 440 \\ \times 3 \\ \hline \end{array}$	e. $\begin{array}{r} 507 \\ \times 8 \\ \hline \end{array}$	f. $\begin{array}{r} 384 \\ \times 9 \\ \hline \end{array}$



6. Mr. Meyers wants to order 4 tablets for his classroom. Each tablet costs \$329. How much will all four tablets cost?
7. Amaya read 64 pages last week. Amaya's older brother, Rogelio, read twice as many pages in the same amount of time. Their big sister, Elianna, is in high school and read 4 times as many pages as Rogelio did. How many pages did Elianna read last week?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Solve using the standard algorithm.

a. $3 \times 41$	b. $9 \times 41$
c. $7 \times 143$	d. $7 \times 286$
e. $4 \times 2,048$	f. $4 \times 4,096$
g. $8 \times 4,096$	h. $4 \times 8,192$

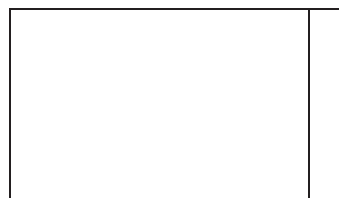


Name \_\_\_\_\_

Date \_\_\_\_\_

1. Solve the following expressions using the standard algorithm, the partial products method, and the area model.

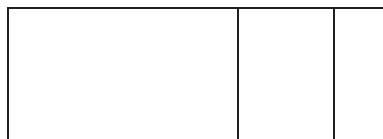
a.  $302 \times 8$



$8(300 + 2)$

$(8 \times \underline{\quad}) + (8 \times \underline{\quad})$

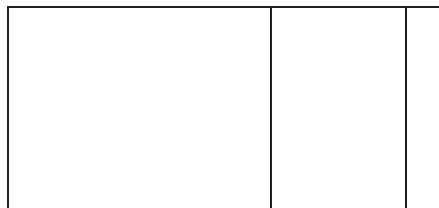
b.  $216 \times 5$



$5(\underline{\quad} + \underline{\quad} + \underline{\quad})$

$(\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad})$

c.  $593 \times 9$



$\underline{\quad}(\underline{\quad} + \underline{\quad} + \underline{\quad})$

$(\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad})$

2. Solve using the partial products method.

On Monday, 475 people visited the museum. On Saturday, there were 4 times as many visitors as there were on Monday. How many people visited the museum on Saturday?

3. Model with a tape diagram and solve.

6 times as much as 384

Solve using the standard algorithm, the area model, the distributive property, or the partial products method.

4.  $6,253 \times 3$

5. 7 times as many as 3,073
6. A cafeteria makes 2,516 pounds of white rice and 608 pounds of brown rice every month. After 6 months, how many pounds of rice does the cafeteria make?



Name \_\_\_\_\_

Date \_\_\_\_\_

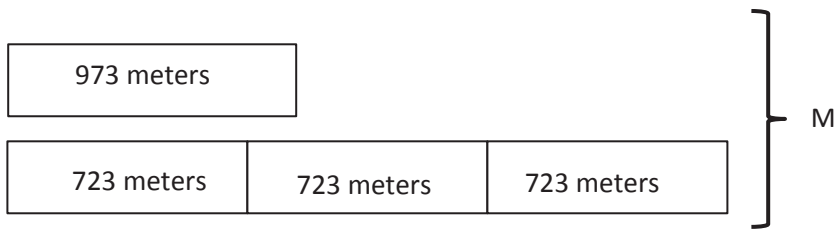
Use the RDW process to solve the following problems.

1. The table shows the number of stickers of various types in Chrissy's new sticker book. Chrissy's six friends each own the same sticker book. How many stickers do Chrissy and her six friends have altogether?

Type of Sticker	Number of Stickers
flowers	32
smiley faces	21
hearts	39

2. The small copier makes 437 copies each day. The large copier makes 4 times as many copies each day. How many copies does the large copier make each week?
3. Jared sold 194 Boy Scout chocolate bars. Matthew sold three times as many as Jared. Gary sold 297 fewer than Matthew. How many bars did Gary sell?

4. a. Write an equation that would allow someone to find the value of  $M$ .



- b. Write your own word problem to correspond to the tape diagram, and then solve.



3. All 3,000 seats in a theater are being replaced. So far, 5 sections of 136 seats and a sixth section containing 348 seats have been replaced. How many more seats do they still need to replace?
4. Computer Depot sold 762 reams of paper. Paper Palace sold 3 times as much paper as Computer Depot and 143 reams more than Office Supply Central. How many reams of paper were sold by all three stores combined?

Name \_\_\_\_\_

Date \_\_\_\_\_

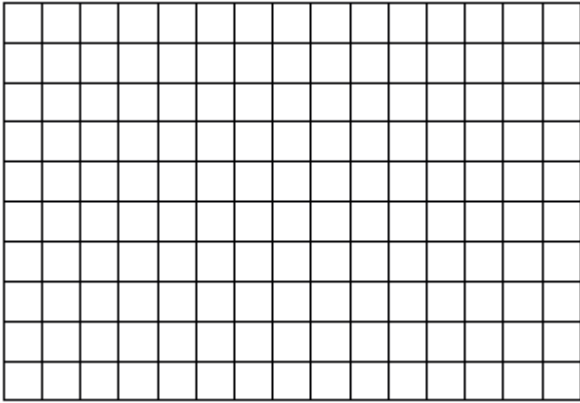
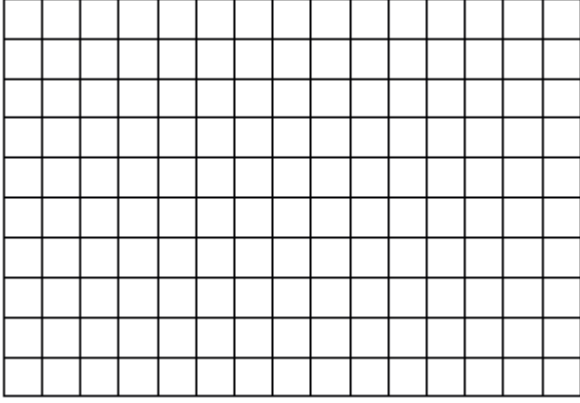
Use the RDW process to solve the following problems.

1. Linda makes booklets using 2 sheets of paper. She has 17 sheets of paper. How many of these booklets can she make? Will she have any extra paper? How many sheets?
  
2. Linda uses thread to sew the booklets together. She cuts 6 inches of thread for each booklet. How many booklets can she stitch with 50 inches of thread? Will she have any unused thread after stitching up the booklets? If so, how much?
  
3. Ms. Rochelle wants to put her 29 students into groups of 6. How many groups of 6 can she make? If she puts any remaining students in a smaller group, how many students will be in that group?

4. A trainer gives his horse, Caballo, 7 gallons of water every day from a 57-gallon container. How many days will Caballo receive his full portion of water from the container? On which number day will the trainer need to refill the container of water?
5. Meliza has 43 toy soldiers. She lines them up in rows of 5 to fight imaginary zombies. How many of these rows can she make? After making as many rows of 5 as she can, she puts the remaining soldiers in the last row. How many soldiers are in that row?
6. Seventy-eight students are separated into groups of 8 for a field trip. How many groups are there? The remaining students form a smaller group of how many students?

Name \_\_\_\_\_

Date \_\_\_\_\_

Show division using an array.	Show division using an area model.
<p>1. <math>24 \div 4</math></p> <p>Quotient = _____</p> <p>Remainder = _____</p>	 <p>Can you show <math>24 \div 4</math> with one rectangle? _____</p>
<p>2. <math>25 \div 4</math></p> <p>Quotient = _____</p> <p>Remainder = _____</p>	 <p>Can you show <math>25 \div 4</math> with one rectangle? _____</p> <p>Explain how you showed the remainder:</p>

Solve using an array and area model. The first one is done for you.

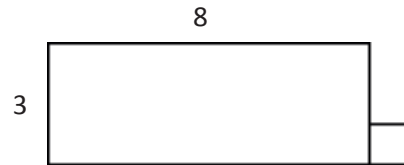
Example:  $25 \div 3$

a.



Quotient = 8    Remainder = 1

b.



3.  $44 \div 7$

a.

b.

4.  $34 \div 6$

a.

b.

5.  $37 \div 6$

a.

b.

6.  $46 \div 8$

a.

b.



Name \_\_\_\_\_

Date \_\_\_\_\_

Show the division using disks. Relate your work on the place value chart to long division. Check your quotient and remainder by using multiplication and addition.

1.  $7 \div 3$ 

Ones

$$3 \overline{) 7}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

2

$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$
2.  $67 \div 3$ 

Tens	Ones

$$3 \overline{) 67}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

3.  $5 \div 2$

Ones

$$2 \overline{)5}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

4.  $85 \div 2$

Tens	Ones

$$2 \overline{)85}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

5.  $5 \div 4$

Ones

$$4 \overline{) 5}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

6.  $85 \div 4$

Tens	Ones

$$4 \overline{) 85}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

Name \_\_\_\_\_

Date \_\_\_\_\_

Show the division using disks. Relate your model to long division. Check your quotient and remainder by using multiplication and addition.

1.  $7 \div 2$

Ones

$$2 \overline{) 7}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

2.  $73 \div 2$

Tens	Ones

$$2 \overline{) 73}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

3.  $6 \div 4$

Ones

$$4 \overline{) 6}$$

Check Your Work

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

4.  $62 \div 4$

Tens	Ones

$$4 \overline{) 62}$$

Check Your Work

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

5.  $8 \div 3$

Ones

$$3 \overline{) 8}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

6.  $84 \div 3$

Tens	Ones

$$3 \overline{) 84}$$

quotient = \_\_\_\_\_

remainder = \_\_\_\_\_

Check Your Work

Name \_\_\_\_\_

Date \_\_\_\_\_

Solve using the standard algorithm. Check your quotient and remainder by using multiplication and addition.

1.  $84 \div 2$

2.  $84 \div 4$

3.  $48 \div 3$

4.  $80 \div 5$

5.  $79 \div 5$

6.  $91 \div 4$

7.  $91 \div 6$

8.  $91 \div 7$

9.  $87 \div 3$

10.  $87 \div 6$

11.  $94 \div 8$

12.  $94 \div 6$



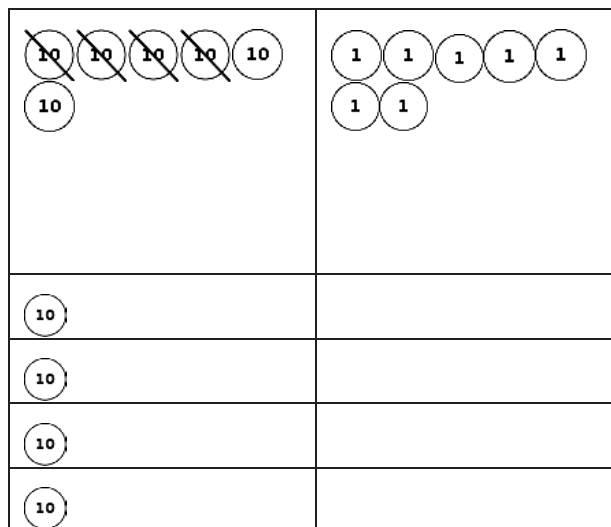
Name \_\_\_\_\_

Date \_\_\_\_\_

1. When you divide 86 by 4, there is a remainder of 2. Model this problem with place value disks. In the place value disk model, how can you see that there is a remainder?

2. Francine says that  $86 \div 4$  is 20 with a remainder of 6. She reasons this is correct because  $(4 \times 20) + 6 = 86$ . What mistake has Francine made? Explain how she can correct her work.

3. The place value disk model is showing  $67 \div 4$ . Complete the model. Explain what happens to the 2 tens that are remaining in the tens column.



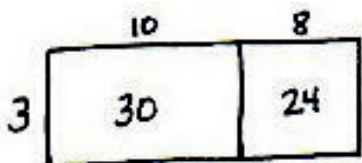
4. Two friends share 76 blueberries.
- a. To count the blueberries, they put them into small bowls of 10 blueberries. Draw a picture to show how the blueberries can be shared equally. Will they have to split apart any of the bowls of 10 blueberries when they share them?
- b. Explain how the friends can share the blueberries fairly.

Name \_\_\_\_\_

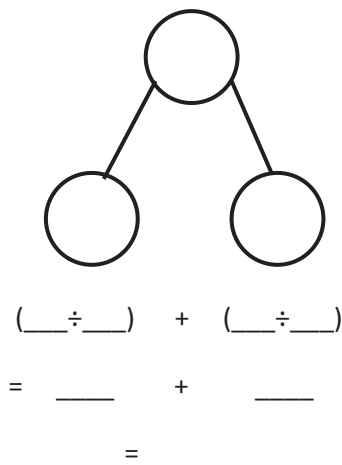
Date \_\_\_\_\_

1. Maria solved a division problem by drawing an area model.

a. Look at the area model. What division problem did Maria solve?



b. Show a number bond to represent Maria's area model. Start with the total, and then show how the total is split into two parts. Below the two parts, represent the total length using the distributive property, and then solve.



2. Solve  $42 \div 3$  using an area model. Draw a number bond, and use the distributive property to solve for the unknown length.

3. Solve  $60 \div 4$  using an area model. Draw a number bond to show how you partitioned the area, and represent the division with a written method.
4. Solve  $72 \div 4$  using an area model. Explain, using words, pictures, or numbers, the connection of the distributive property to the area model.
5. Solve  $96 \div 6$  using an area model and the standard algorithm.

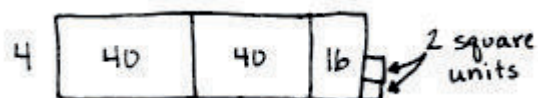
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Solve  $35 \div 2$  using an area model. Use long division and the distributive property to record your work.

2. Solve  $79 \div 3$  using an area model. Use long division and the distributive property to record your work.

3. Paulina solved the following division problem by drawing an area model.



- a. What division problem did she solve?
- b. Show how Paulina's model can be represented using the distributive property.

Solve the following problems using the area model. Support the area model with long division or the distributive property.

4.  $42 \div 3$

5.  $43 \div 3$

6.  $52 \div 4$

7.  $54 \div 4$

8.  $61 \div 5$

9.  $73 \div 3$

10. Ninety-seven lunch trays were placed equally in 4 stacks. How many lunch trays were in each stack?  
How many lunch trays will be left over?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Record the factors of the given numbers as multiplication sentences and as a list in order from least to greatest. Classify each as prime (P) or composite (C). The first problem is done for you.

	Multiplication Sentences	Factors	P or C
a.	8 $1 \times 4 = 8$ $2 \times 4 = 8$	The factors of 8 are: 1, 2, 4, 8	C
b.	10	The factors of 10 are:	
c.	11	The factors of 11 are:	
d.	14	The factors of 14 are:	
e.	17	The factors of 17 are:	
f.	20	The factors of 20 are:	
g.	22	The factors of 22 are:	
h.	23	The factors of 23 are:	
i.	25	The factors of 25 are:	
j.	26	The factors of 26 are:	
k.	27	The factors of 27 are:	
l.	28	The factors of 28 are:	



2. Find all factors for the following numbers, and classify each number as prime or composite. Explain your classification of each as prime or composite.

Factor Pairs for 19		Factor Pairs for 21		Factor Pairs for 24	

3. Bryan says that only even numbers are composite.
- List all of the odd numbers less than 20 in numerical order.
  - Use your list to show that Bryan's claim is false.
4. Julie has 27 grapes to divide evenly among 3 friends. She thinks there will be no leftovers. Use what you know about factor pairs to explain whether or not Julie is correct.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Explain your thinking or use division to answer the following.

a. Is 2 a factor of 72?	b. Is 2 a factor of 73?
c. Is 3 a factor of 72?	d. Is 2 a factor of 60?
e. Is 6 a factor of 72?	f. Is 4 a factor of 60?
g. Is 5 a factor of 72?	h. Is 8 a factor of 60?

2. Use the associative property to find more factors of 12 and 30.

a.  $12 = 6 \times 2$

$$= (\underline{\quad} \times 2) \times 2$$

$$= \underline{\quad} \times (2 \times 2)$$

$$= \underline{\quad} \times \underline{\quad}$$

$$= \underline{\quad}$$

b.  $30 = \underline{\quad} \times 5$

$$= (\underline{\quad} \times 3) \times 5$$

$$= \underline{\quad} \times (3 \times 5)$$

$$= \underline{\quad} \times 15$$

$$= \underline{\quad}$$

3. In class, we used the associative property to show that when 6 is a factor, then 2 and 3 are factors, because  $6 = 2 \times 3$ . Use the fact that  $10 = 5 \times 2$  to show that 2 and 5 are factors of 70, 80, and 90.

$$70 = 10 \times 7$$

$$80 = 10 \times 8$$

$$90 = 10 \times 9$$

4. The first statement is false. The second statement is true. Explain why, using words, pictures, or numbers.

If a number has 2 and 6 as factors, then it has 12 as a factor.

If a number has 12 as a factor, then both 2 and 6 are factors.

Name \_\_\_\_\_

Date \_\_\_\_\_

- For each of the following, time yourself for 1 minute. See how many multiples you can write.
  - Write the multiples of 5 starting from 75.
  - Write the multiples of 4 starting from 40.
  - Write the multiples of 6 starting from 24.
- List the numbers that have 30 as a multiple.
- Use mental math, division, or the associative property to solve. (Use scratch paper if you like.)
  - Is 12 a multiple of 3? \_\_\_\_\_ Is 3 a factor of 12? \_\_\_\_\_
  - Is 48 a multiple of 8? \_\_\_\_\_ Is 48 a factor of 8? \_\_\_\_\_
  - Is 56 a multiple of 6? \_\_\_\_\_ Is 6 a factor of 56? \_\_\_\_\_
- Can a prime number be a multiple of any other number except itself? Explain why or why not.

5. Follow the directions below.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- a. Underline the multiples of 6. When a number is a multiple of 6, what are the possible values for the ones digit?
- b. Draw a square around the multiples of 4. Look at the multiples of 4 that have an odd number in the tens place. What values do they have in the ones place?
- c. Look at the multiples of 4 that have an even number in the tens place. What values do they have in the ones place? Do you think this pattern would continue with multiples of 4 that are larger than 100?
- d. Circle the multiples of 9. Choose one. What do you notice about the sum of the digits? Choose another one. What do you notice about the sum of the digits?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. A student used the sieve of Eratosthenes to find all prime numbers less than 100. Create a step-by-step set of directions to show how it was completed. Use the word bank to help guide your thinking as you write the directions. Some words may be used just once, more than once, or not at all.

1	2	3	<del>4</del>	5	<del>6</del>	7	<del>8</del>	<del>9</del>	<del>10</del>
11	<del>12</del>	13	<del>14</del>	<del>15</del>	<del>16</del>	17	<del>18</del>	19	<del>20</del>
<del>21</del>	<del>22</del>	23	<del>24</del>	<del>25</del>	<del>26</del>	<del>27</del>	<del>28</del>	29	<del>30</del>
31	<del>32</del>	<del>33</del>	<del>34</del>	<del>35</del>	<del>36</del>	37	<del>38</del>	<del>39</del>	<del>40</del>
41	<del>42</del>	43	<del>44</del>	<del>45</del>	<del>46</del>	47	<del>48</del>	<del>49</del>	<del>50</del>
<del>51</del>	<del>52</del>	53	<del>54</del>	<del>55</del>	<del>56</del>	<del>57</del>	58	59	<del>60</del>
61	<del>62</del>	<del>63</del>	<del>64</del>	<del>65</del>	<del>66</del>	67	<del>68</del>	<del>69</del>	<del>70</del>
71	<del>72</del>	73	<del>74</del>	<del>75</del>	<del>76</del>	<del>77</del>	<del>78</del>	79	<del>80</del>
<del>81</del>	<del>82</del>	83	<del>84</del>	<del>85</del>	<del>86</del>	<del>87</del>	<del>88</del>	89	<del>90</del>
<del>91</del>	<del>92</del>	<del>93</del>	<del>94</del>	<del>95</del>	<del>96</del>	97	<del>98</del>	<del>99</del>	100

**Word Bank**

composite	cross out
number	shade
circle	X
multiple	prime

Directions for completing the sieve of Eratosthenes activity:



Name \_\_\_\_\_

Date \_\_\_\_\_

1. Draw place value disks to represent the following problems. Rewrite each in unit form and solve.

a.  $6 \div 3 = \underline{\hspace{2cm}}$



6 ones  $\div 3 = \underline{\hspace{2cm}}$  ones

b.  $60 \div 3 = \underline{\hspace{2cm}}$

6 tens  $\div 3 = \underline{\hspace{2cm}}$

c.  $600 \div 3 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} \div 3 = \underline{\hspace{2cm}}$

d.  $6,000 \div 3 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} \div 3 = \underline{\hspace{2cm}}$

2. Draw place value disks to represent each problem. Rewrite each in unit form and solve.

a.  $12 \div 4 = \underline{\hspace{2cm}}$

12 ones  $\div 4 = \underline{\hspace{2cm}}$  ones

b.  $120 \div 4 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} \div 4 = \underline{\hspace{2cm}}$

c.  $1,200 \div 4 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} \div 4 = \underline{\hspace{2cm}}$



3. Solve for the quotient. Rewrite each in unit form.

<p>a. <math>800 \div 4 = 200</math></p> <p>8 hundreds <math>\div 4 =</math> 2 hundreds</p>	<p>b. <math>900 \div 3 = \underline{\hspace{2cm}}</math></p>	<p>c. <math>400 \div 2 = \underline{\hspace{2cm}}</math></p>	<p>d. <math>300 \div 3 = \underline{\hspace{2cm}}</math></p>
<p>e. <math>200 \div 4 = \underline{\hspace{2cm}}</math></p> <p>20 tens <math>\div 4 = \underline{\hspace{1cm}}</math> tens</p>	<p>f. <math>160 \div 2 = \underline{\hspace{2cm}}</math></p>	<p>g. <math>400 \div 5 = \underline{\hspace{2cm}}</math></p>	<p>h. <math>300 \div 5 = \underline{\hspace{2cm}}</math></p>
<p>i. <math>1,200 \div 3 =</math> <math>\underline{\hspace{2cm}}</math></p> <p>12 hundreds <math>\div 3 =</math> <math>\underline{\hspace{1cm}}</math> hundreds</p>	<p>j. <math>1,600 \div 4 = \underline{\hspace{2cm}}</math></p>	<p>k. <math>2,400 \div 4 = \underline{\hspace{2cm}}</math></p>	<p>l. <math>3,000 \div 5 = \underline{\hspace{2cm}}</math></p>

4. A fleet of 5 fire engines carries a total of 20,000 liters of water. If each truck holds the same amount of water, how many liters of water does each truck carry?

5. Jamie drank 4 times as much juice as Brodie. Jamie drank 280 milliliters of juice. How much juice did Brodie drink?
6. A diner sold \$2,400 worth of French fries in June, which was 4 times as much as was sold in May. How many dollars' worth of French fries were sold at the diner in May?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Divide. Use place value disks to model each problem.

a.  $346 \div 2$

b.  $528 \div 2$

c.  $516 \div 3$

d.  $729 \div 3$

2. Model using place value disks, and record using the algorithm.

a.  $648 \div 4$

Disks

Algorithm

b.  $755 \div 5$

Disks

Algorithm

c.  $964 \div 4$

Disks

Algorithm

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Divide. Check your work by multiplying. Draw disks on a place value chart as needed.

a.  $378 \div 2$

b.  $795 \div 3$

c.  $512 \div 4$

d.  $492 \div 4$

e.  $539 \div 3$

f.  $862 \div 5$

g.  $498 \div 3$

h.  $783 \div 5$

i.  $621 \div 4$



j.  $531 \div 4$

2. Selena's dog completed an obstacle course that was 932 meters long. There were 4 parts to the course, all equal in length. How long was 1 part of the course?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Divide, and then check using multiplication.

a.  $2,464 \div 4$

b.  $1,848 \div 3$

c.  $9,426 \div 3$

d.  $6,587 \div 2$

e.  $5,445 \div 3$

f.  $5,425 \div 2$

g.  $8,467 \div 3$

h.  $8,456 \div 3$

i.  $4,937 \div 4$

j.  $6,173 \div 5$

2. A truck has 4 crates of apples. Each crate has an equal number of apples. Altogether, the truck is carrying 1,728 apples. How many apples are in 3 crates?

Name \_\_\_\_\_

Date \_\_\_\_\_

Divide. Check your solutions by multiplying.

1.  $409 \div 5$

2.  $503 \div 2$

3.  $831 \div 4$

4.  $602 \div 3$

5.  $720 \div 3$

6.  $6,250 \div 5$

7.  $2,060 \div 5$

8.  $9,031 \div 2$

9.  $6,218 \div 4$

10.  $8,000 \div 4$





4. A piece of ribbon 876 inches long was cut by a machine into 4-inch long strips to be made into bows. How many strips were cut?
5. Five Martians equally share 1,940 Groblarx fruits. How many Groblarx fruits will 3 of the Martians receive?

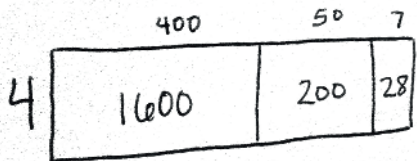


4. A baker made 7 batches of muffins. There was a total of 252 muffins. If there was the same number of muffins in each batch, how many muffins were in a batch?
5. Samantha ran 3,003 meters in 7 days. If she ran the same distance each day, how far did Samantha run in 3 days?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Arabelle solved the following division problem by drawing an area model.



- a. What division problem did she solve?
- b. Show a number bond to represent Arabelle's area model, and represent the total length using the distributive property.

2. a. Solve  $816 \div 4$  using the area model. There is no remainder in this problem.

- b. Draw a number bond and use a written method to record your work from Part (a).

3. a. Draw an area model to solve  $549 \div 3$ .
- b. Draw a number bond to represent this problem.
- c. Record your work using the long division algorithm.

- 
4. a. Draw an area model to solve  $2,762 \div 2$ .
- b. Draw a number bond to represent this problem.
- c. Record your work using the long division algorithm.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Use the associative property to rewrite each expression. Solve using disks, and then complete the number sentences.

a.  $20 \times 34$

$$= (\underline{\quad} \times 10) \times 34$$

$$= \underline{\quad} \times (10 \times 34)$$

$$= \underline{\quad}$$

hundreds	tens	ones

b.  $30 \times 34$

$$= (3 \times 10) \times \underline{\quad}$$

$$= 3 \times (10 \times \underline{\quad})$$

$$= \underline{\quad}$$

thousands	hundreds	tens	ones

c.  $30 \times 42$

$$= (3 \times \underline{\quad}) \times \underline{\quad}$$

$$= 3 \times (10 \times \underline{\quad})$$

$$= \underline{\quad}$$

thousands	hundreds	tens	ones

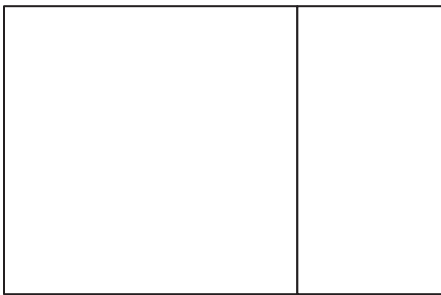




Name \_\_\_\_\_ Date \_\_\_\_\_

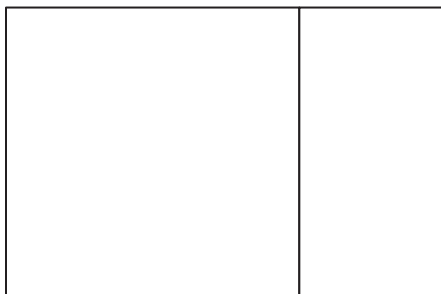
Use an area model to represent the following expressions. Then, record the partial products and solve.

1.  $30 \times 17$



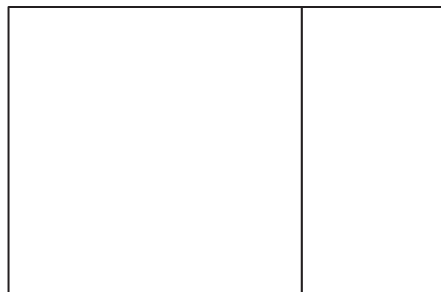
$$\begin{array}{r} 17 \\ \times 30 \\ \hline \\ + \\ \hline \end{array}$$

2.  $40 \times 58$



$$\begin{array}{r} 58 \\ \times 40 \\ \hline \\ + \\ \hline \end{array}$$

3.  $50 \times 38$



$$\begin{array}{r} 38 \\ \times 50 \\ \hline \\ + \\ \hline \end{array}$$

Draw an area model to represent the following expressions. Then, record the partial products vertically and solve.

4.  $60 \times 19$

5.  $20 \times 44$

Visualize the area model, and solve the following expressions numerically.

6.  $20 \times 88$

7.  $30 \times 88$

8.  $70 \times 47$

9.  $80 \times 65$



Draw an area model to represent the following expressions. Record the partial products vertically and solve.

3.  $45 \times 18$

4.  $45 \times 19$

Visualize the area model and solve the following numerically using four partial products. (You may sketch an area model if it helps.)

5.  $12 \times 47$

6.  $23 \times 93$

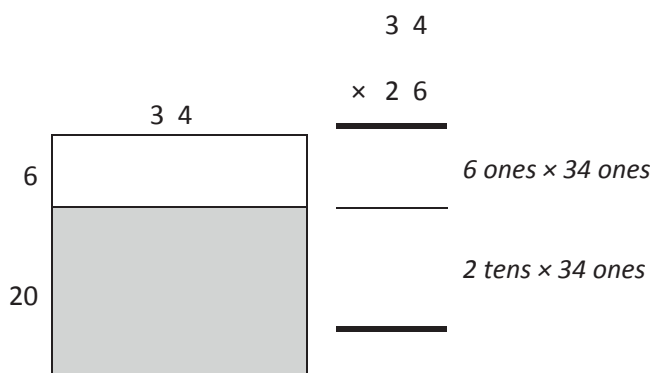
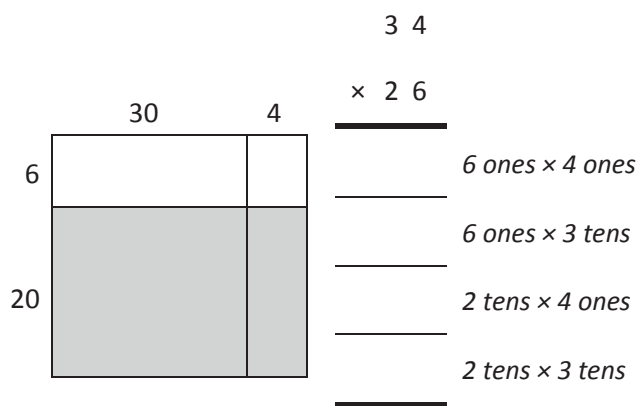
7.  $23 \times 11$

8.  $23 \times 22$

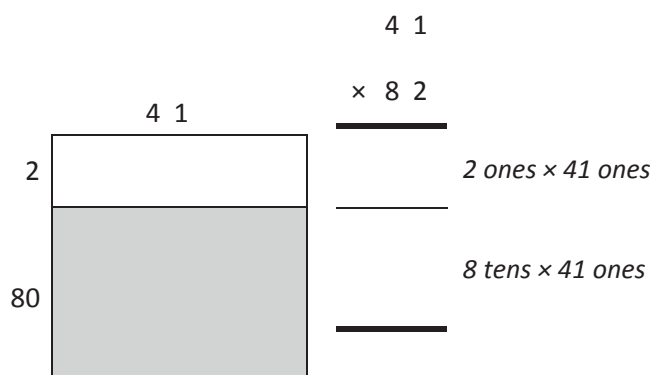
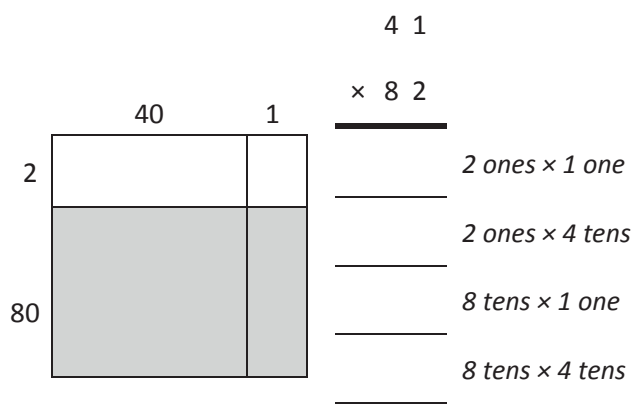
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Solve  $26 \times 34$  using 4 partial products and 2 partial products. Remember to think in terms of units as you solve. Write an expression to find the area of each smaller rectangle in the area model.



2. Solve using 4 partial products and 2 partial products. Remember to think in terms of units as you solve. Write an expression to find the area of each smaller rectangle in the area model.



3. Solve  $52 \times 26$  using 2 partial products and an area model. Match each partial product to its area on the model.

4. Solve the following using 2 partial products. Visualize the area model to help you.

a.  $68$

$$\begin{array}{r} \times 23 \\ \hline \end{array}$$

$$\underline{\quad} \times \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad}$$

---

b.  $49$

$$\begin{array}{r} \times 33 \\ \hline \end{array}$$

$$\underline{\quad} \times \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad}$$

---

c.  $16$

$$\begin{array}{r} \times 25 \\ \hline \end{array}$$

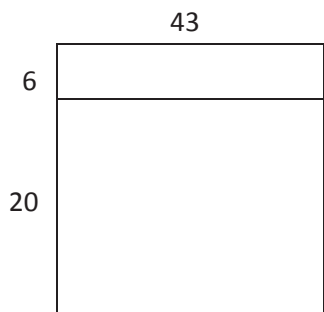
d.  $54$

$$\begin{array}{r} \times 71 \\ \hline \end{array}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Express  $26 \times 43$  as two partial products using the distributive property. Solve.

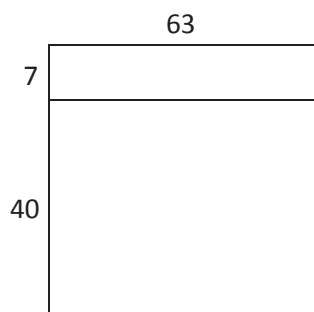


$26 \times 43 = (\text{____} \text{ forty-threes}) + (\text{____} \text{ forty-threes})$

$$\begin{array}{r} 43 \\ \times 26 \\ \hline \\ \hline \end{array}$$

$6 \times \text{____}$   
 $20 \times \text{____}$

2. Express  $47 \times 63$  as two partial products using the distributive property. Solve.

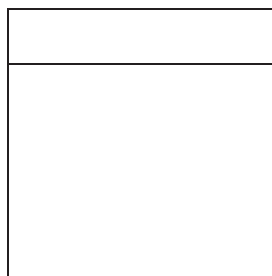


$47 \times 63 = (\text{____} \text{ sixty-threes}) + (\text{____} \text{ sixty-threes})$

$$\begin{array}{r} 63 \\ \times 47 \\ \hline \\ \hline \end{array}$$

$\text{____} \times \text{____}$   
 $\text{____} \times \text{____}$

3. Express  $54 \times 67$  as two partial products using the distributive property. Solve.



$54 \times 67 = (\text{____} \times \text{____}) + (\text{____} \times \text{____})$

$$\begin{array}{r} 67 \\ \times 54 \\ \hline \\ \hline \end{array}$$

$\text{____} \times \text{____}$   
 $\text{____} \times \text{____}$

4. Solve the following using two partial products.

$$\begin{array}{r}
 52 \\
 \times 34 \\
 \hline
 \end{array}$$
  

$$\begin{array}{r}
 \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} \\
 \hline
 \end{array}$$

5. Solve using the multiplication algorithm.

$$\begin{array}{r}
 86 \\
 \times 56 \\
 \hline
 \end{array}$$
  

$$\begin{array}{r}
 \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} \\
 \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} \\
 \hline
 \end{array}$$

6.  $54 \times 52$

7.  $44 \times 76$

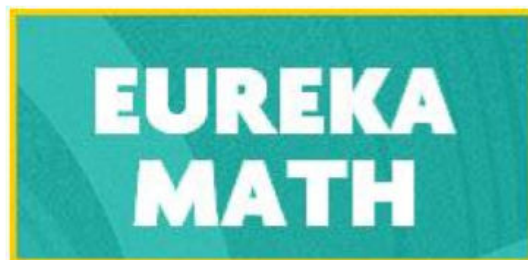


8.  $63 \times 63$

9.  $68 \times 79$







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Video tutorials: <http://embarc.online>



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