

# Multiplying by Tens

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Use the array of dimes to complete the number sentences.



$$4 \times 70 = \square$$

$$7 \times 40 = \square$$



$$30 \times \square = \square$$

$$3 \times \square = \square$$



$$\square \times \square = \square$$

$$\square \times \square = \square$$

**Complete the number sentence.**

4

$$\begin{array}{r} 60 \\ 5 \\ \hline \square \end{array}$$

5

$$\begin{array}{r} 60 \\ 50 \\ \hline \square \end{array}$$

6

$$\begin{array}{r} 80 \\ \square \\ \hline 240 \end{array}$$

7

$$\begin{array}{r} \square \\ 12 \\ \hline 840 \end{array}$$

8

$$\begin{array}{r} \square \\ 6 \\ \hline 540 \end{array}$$

**Solve.**



9 Mrs. Wheeler bought special pencils for each of the 40 children who ride her bus. Each pencil cost 12¢. How much did she spend for all the pencils? Explain how you found your answer.

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10 There are 60 minutes in 1 hour. How many minutes are there in 8 hours?

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11 **Challenge** Miko made this array of nickels. Write some multiplication sentences this array could represent.




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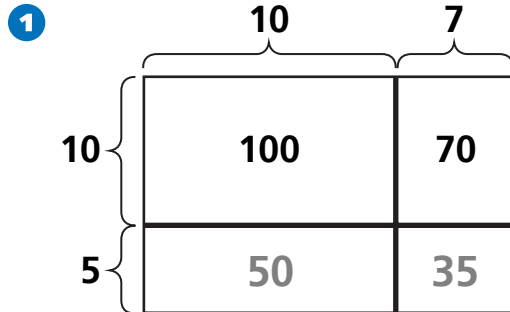


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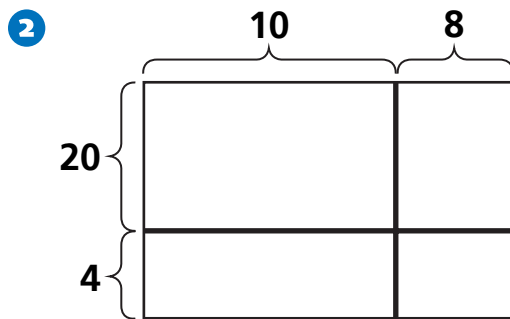
# Separating Large Arrays

NCTM Standards 1, 2, 6, 7, 9, 10

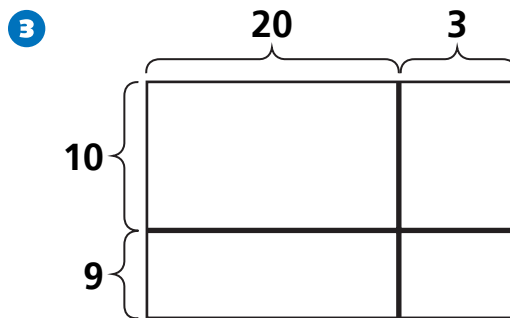
Complete the diagram and find the product.



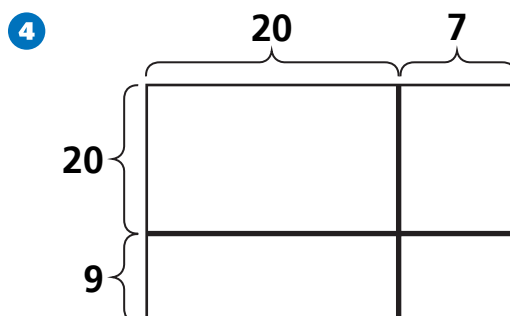
$$17 \times 15 = \square$$



$$18 \times 24 = \square$$



$$\square \times \square = \square$$

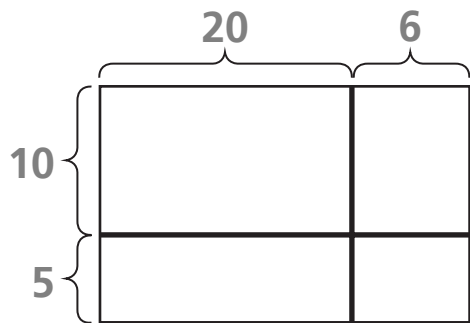


$$\square \times \square = \square$$

**Find the product. Complete the diagram if it helps.**

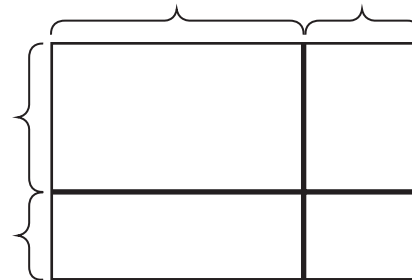
5

$$26 \times 15 = \square$$



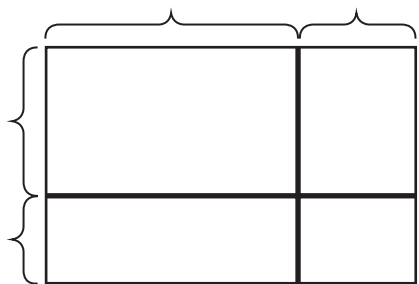
6

$$25 \times 23 = \square$$



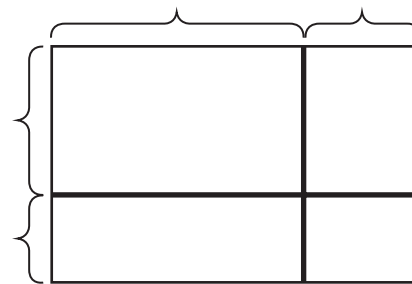
7

$$25 \times 32 = \square$$



8

$$57 \times 39 = \square$$



**Solve. Draw a diagram if it helps.**

- 9 Paolo's garden measures 28 feet by 15 feet. What is the area of his garden?

- 10 **Challenge** Jackie has 37 quarters. How much money does she have?

# Making a Vertical Record

NCTM Standards 1, 2, 6, 7, 8, 9, 10

**Complete the diagram and the vertical record.**

**1**

	10	3		13
	┌──────────┴──────────┐			× 14
	└──────────┬──────────┘			-----
10	100	30		100
4				30

**2**

	10	2		12
	┌──────────┴──────────┐			26
	└──────────┬──────────┘			-----
20				
6				

**3**

	20	5		25
	┌──────────┴──────────┐			36
	└──────────┬──────────┘			-----
30				
6				

**4**

	30	1		31
	┌──────────┴──────────┐			38
	└──────────┬──────────┘			-----
30				
8				

**Find the product. Draw a diagram if it helps.**

5    28  
     28


6    27  
     29


7    33  
     33


8    32  
     34


**Solve.**

9 Three planes each make 8 flights to the desert. Each plane can take 45 boxes of bottled water. How many boxes of bottled water are delivered?

\_\_\_\_\_

10 **Challenge** Jasmine is selling knitted scarves at the craft fair for \$15.00. She wants to buy candles for \$8.00 each. If Jasmine sells 38 scarves, how many candles can she buy?

\_\_\_\_\_

# Multiplying Three-Digit Numbers

NCTM Standards 1, 2, 6, 7, 9, 10

Use base-ten block shorthand ( $\square$ ,  $\square$ ,  $|$ ,  $\bullet$ ) to find the product.

1  $314 \times 4 = \underline{\hspace{2cm}}$


2  $3 \times 162 = \underline{\hspace{2cm}}$

Use money shorthand ( $\$1$ ,  $\textcircled{D}$ ,  $\textcircled{P}$ ) to find the product.

3  $3 \times 251 = \underline{\hspace{2cm}}$

4  $472 \times 2 = \underline{\hspace{2cm}}$

Complete the diagram and find the product.

5

$132 \times 7 = \square$

6

$4 \times 256 = \square$

7

$5 \times 317 = \square$

8

$\square \times \square = \square$

9

$214 \times 9 = \square$

10

$8 \times 305 = \square$

**11 Challenge** Find  $236 \times 6$ .



# Multiplication and Division Situations

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Complete the related number sentences for each story.

- 1 Devi has 48 toy cars.  
He parked them in 3 rows,  
with \_\_\_\_\_ cars in each row.

$$\boxed{3} \times \boxed{\phantom{00}} = \boxed{48}$$

$$\boxed{\phantom{00}} \times \boxed{3} = \boxed{48}$$

$$\boxed{48} \div \boxed{\phantom{00}} = \boxed{3}$$

$$\boxed{48} \div \boxed{3} = \boxed{\phantom{00}}$$

- 2 Hanae has 15 nickels in her  
coin bank. How much money  
does she have?
- \_\_\_\_\_

$$\boxed{15} \times \boxed{5} = \boxed{\phantom{00}}$$

$$\boxed{5} \times \boxed{15} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} \div \boxed{5} = \boxed{15}$$

$$\boxed{\phantom{00}} \div \boxed{15} = \boxed{5}$$

- 3 It is 13 weeks until Ki's  
birthday. How many days  
until Ki's birthday?
- \_\_\_\_\_

$$\boxed{13} \times \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} \times \boxed{13} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} \div \boxed{\phantom{00}} = \boxed{13}$$

$$\boxed{\phantom{00}} \div \boxed{13} = \boxed{\phantom{00}}$$

- 4 The baker arranged 56 fruit tarts  
on 4 trays. If he put the same  
number of tarts on each tray,  
how many were on a tray?
- \_\_\_\_\_




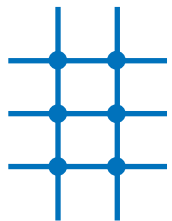

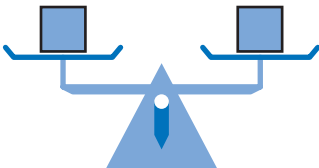
$$\boxed{\phantom{00}} \times \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} \times \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} \div \boxed{\phantom{00}} = \boxed{\phantom{00}}$$



$$\boxed{\phantom{00}} \div \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

Complete the related number sentences. Write a story for the sentences using the suggested topic.


Related Number Sentences	Topic	Story
 <p>5</p> $\square \times \square = \square$ $8 \times 25 = \square$ $\square \div \square = \square$ $\square \div \square = \square$	 Quarters	<hr/> <hr/> <hr/> <hr/>
 <p>6</p> $\square \times \square = \square$ $\square \times \square = \square$ $132 \div 11 = \square$ $\square \div \square = \square$	 Lines and Intersections	<hr/> <hr/> <hr/> <hr/>
 <p>7</p> $16 \times 7 = \square$ $\square \times \square = \square$ $\square \div \square = \square$ $\square \div \square = \square$	 Ounces and Pounds (16 oz = 1 lb)	<hr/> <hr/> <hr/> <hr/>

**8 Challenge** Fill in each table with numbers that make the sentence true.

**A**  $\triangle \times \square = 48$

**B**  $\nabla \div \diamond = 3$

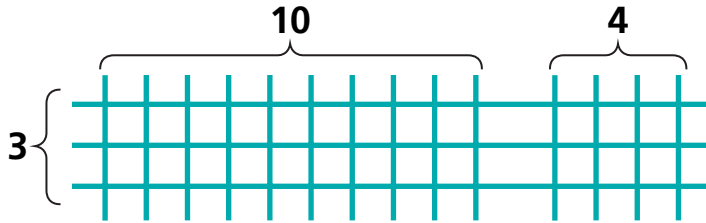
							
							

## Using Arrays for Division

NCTM Standards 1, 2, 6, 7, 9, 10

Fill in the missing numbers.

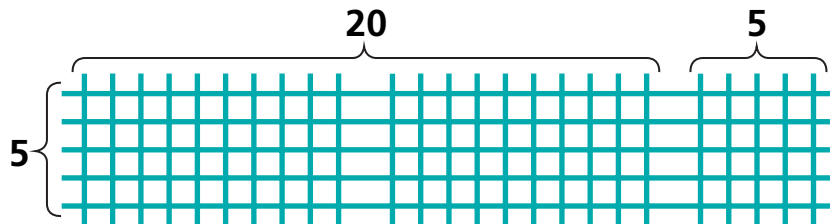
1



$$\begin{array}{r} \square + \square \\ 3 \overline{) 30 + 12} \end{array}$$

$$\square \div 3 = \square$$

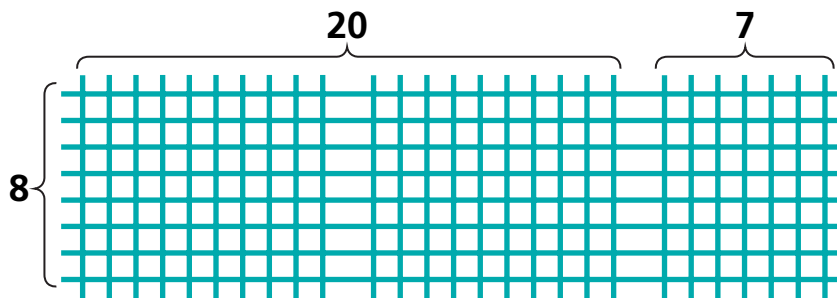
2



$$\begin{array}{r} \square + 5 \\ 5 \overline{) 100 + \square} \end{array}$$

$$\square \div 5 = \square$$

3



$$\begin{array}{r} 20 + 7 \\ 8 \overline{) \square + \square} \end{array}$$

$$\square \div 8 = \square$$

Solve these division puzzles. You may draw diagrams on a separate piece of paper if it helps.

4

$$\begin{array}{r} \boxed{20} + \boxed{3} \\ \hline \boxed{4} \overline{) \boxed{\phantom{00}} + \boxed{\phantom{00}}} \\ \hline \boxed{\phantom{00}} \div \boxed{4} = \boxed{23} \end{array}$$

5

$$\begin{array}{r} \boxed{\phantom{00}} + \boxed{7} \\ \hline \boxed{5} \overline{) \boxed{100} + \boxed{\phantom{00}}} \\ \hline \boxed{\phantom{00}} \div \boxed{5} = \boxed{\phantom{00}} \end{array}$$

6

$$\begin{array}{r} \boxed{30} + \boxed{6} \\ \hline \boxed{\phantom{00}} \overline{) \boxed{\phantom{00}} + \boxed{12}} \\ \hline \boxed{\phantom{00}} \div \boxed{\phantom{00}} = \boxed{36} \end{array}$$

7

$$\begin{array}{r} \boxed{10} + \boxed{8} \\ \hline \boxed{8} \overline{) \boxed{\phantom{00}} + \boxed{\phantom{00}}} \\ \hline \boxed{\phantom{00}} \div \boxed{8} = \boxed{18} \end{array}$$

8

$$\begin{array}{r} \boxed{40} + \boxed{\phantom{00}} \\ \hline \boxed{8} \overline{) \boxed{\phantom{00}} + \boxed{32}} \\ \hline \boxed{\phantom{00}} \div \boxed{8} = \boxed{\phantom{00}} \end{array}$$

9

$$\begin{array}{r} \boxed{20} + \boxed{9} \\ \hline \boxed{\phantom{00}} \overline{) \boxed{\phantom{00}} + \boxed{54}} \\ \hline \boxed{\phantom{00}} \div \boxed{\phantom{00}} = \boxed{29} \end{array}$$

10

$$\begin{array}{r} \boxed{10} + \boxed{3} \\ \hline \boxed{12} \overline{) \boxed{\phantom{00}} + \boxed{\phantom{00}}} \\ \hline \boxed{\phantom{00}} \div \boxed{12} = \boxed{13} \end{array}$$

11

$$\begin{array}{r} \boxed{\phantom{00}} + \boxed{4} \\ \hline \boxed{25} \overline{) \boxed{250} + \boxed{\phantom{00}}} \\ \hline \boxed{\phantom{00}} \div \boxed{25} = \boxed{\phantom{00}} \end{array}$$

12

$$\begin{array}{r} \boxed{\phantom{00}} + \boxed{3} \\ \hline \boxed{\phantom{00}} \overline{) \boxed{240} + \boxed{36}} \\ \hline \boxed{276} \div \boxed{\phantom{00}} = \boxed{\phantom{00}} \end{array}$$

**13 Challenge** Bea is running the forklift. She can lift 8 crates at a time, each with the same number of toaster ovens.



At each lift, she holds 192 toaster ovens. How many ovens are in each crate?

\_\_\_\_\_

# Solving Division Puzzles

NCTM Standards 1, 2, 6, 7, 9, 10

1 Complete the table.

	0	10	20	30	40	50	60	70	80	90
$7 \times$ 										

Use the table to help you make division puzzles to solve the division problems below.

**Remember:**

1. The first part must be a multiple of 10.
2. Make the second part as small as possible.
3. Use only whole numbers.

2  $147 \div 7 = \square$

$$\begin{array}{r} \square + \square \\ 7 \overline{) 140 + \square} \end{array}$$

3  $224 \div 7 = \square$

$$\begin{array}{r} \square + \square \\ 7 \overline{) \square + \square} \end{array}$$

4  $301 \div 7 = \square$

$$\begin{array}{r} \square + \square \\ 7 \overline{) \square + \square} \end{array}$$

5  $378 \div 7 = \square$

$$\begin{array}{r} \square + \square \\ 7 \overline{) \square + \square} \end{array}$$

6  $455 \div 7 = \square$

$$\begin{array}{r} \square + \square \\ 7 \overline{) \square + \square} \end{array}$$

7  $532 \div 7 = \square$

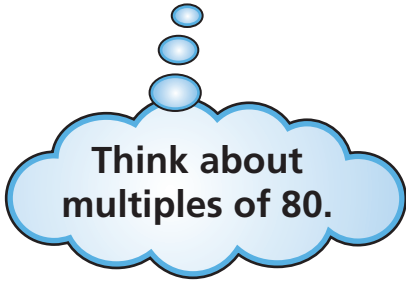
$$\begin{array}{r} \square + \square \\ 7 \overline{) \square + \square} \end{array}$$

Make a division puzzle that will help you solve each division problem.

8

$$336 \div 8 = \square$$

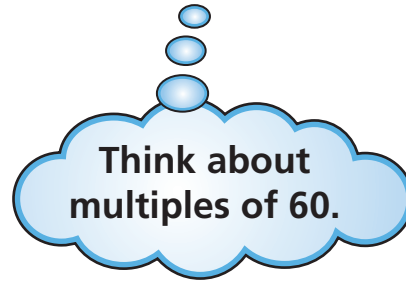
$$\begin{array}{r} \square + \square \\ 8 \overline{) \square + \square} \end{array}$$



9

$$576 \div 6 = \square$$

$$\begin{array}{r} \square + \square \\ 6 \overline{) \square + \square} \end{array}$$



10

$$328 \div 4 = \square$$

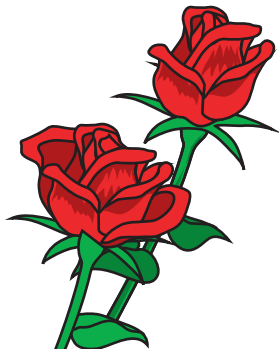
$$\begin{array}{r} \square + \square \\ 4 \overline{) \square + \square} \end{array}$$

11

$$378 \div 9 = \square$$

$$\begin{array}{r} \square + \square \\ 9 \overline{) \square + \square} \end{array}$$

**12 Challenge** Shana packs a dozen roses in each box. If she has 910 roses, how many full boxes can she pack? How many roses will be left over?



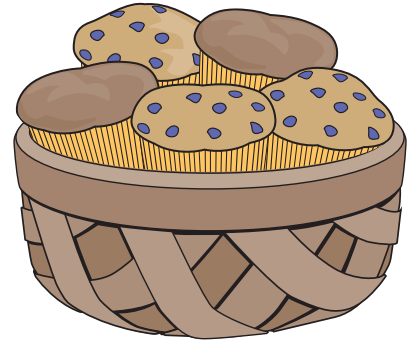
# Division with Remainders

NCTM Standards 1, 2, 6, 7, 8, 9

**Shawn made 128 muffins. He packed them in baskets with 7 muffins in each.**

- 1 How many full baskets did he make?

\_\_\_\_\_



- 2 How many muffins were left over?

\_\_\_\_\_

**128 people have signed up for the Vans Across America trip. Each van can take 7 people.**



- 3 How many vans are needed for the trip?  
Explain how you know.

\_\_\_\_\_  
\_\_\_\_\_



- 4 How many empty seats are there?  
Explain how you know.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Solve.

- 5 Ms. Kennedy's class tried to make groups of 3 for an activity, but 2 students were left over. How many students might be in Ms. Kennedy's class? (There are more than 12 students and fewer than 30.)
- 

- 6 Ms. Kennedy's class decided to make groups of 4 for the activity. This time no students were left over. Which is the number of students in the class?
- 

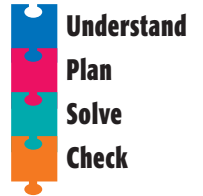
- 7 **Challenge** Mr. Tan's class can make groups of 2 or 3 without any students left over, but when they make groups of 5 there are 3 students left over. Mr. Tan has fewer than 30 students. How many students are in Mr. Tan's class?
-



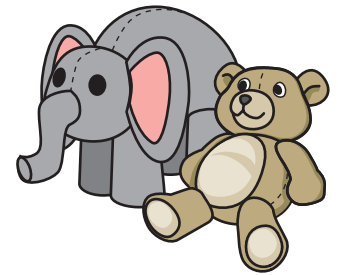
# Problem Solving Strategy

## Draw a Picture

NCTM Standards 1, 2, 6, 7, 8, 9, 10



- 1 Derek wants to buy 4 stuffed animals. Each one costs \$2.13. How much money does Derek need? Draw a picture to show how you solved the problem.



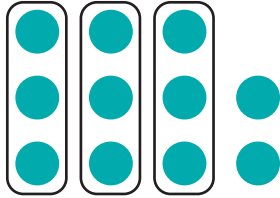
- 2 There are about 320 third graders in Belltown. There are about 20 students in each classroom. About how many third-grade classrooms are there in Belltown?
- \_\_\_\_\_

- 3 It is 84 days until Rashid's birthday. How many weeks is that?
- \_\_\_\_\_

# Problem Solving Test Prep

Choose the correct answer.

- 1 The picture shows the division expression  $11 \div 3$ . What is the remainder?



- A. 1  
B. 2  
C. 3  
D. 11
- 2 Which multiplication expression has the product 24,000?
- A.  $8 \times 30$   
B.  $8 \times 300$   
C.  $8 \times 3,000$   
D.  $8 \times 30,000$

- 3 Danny left the movie theater at 3:45 P.M. when the movie ended. The movie he saw lasted 2 hours 10 minutes. At what time did the movie start?

- A. 12:35 P.M.  
B. 1:25 P.M.  
C. 1:35 P.M.  
D. 1:45 P.M.

- 4 Marita has some three-dimensional figures. Which figure must have faces that are triangles?

- A. prism  
B. cone  
C. cylinder  
D. pyramid

## Show What You Know

Solve the problem. Explain your answer.

- 5 Linda's kitchen floor is a rectangle that is 12 feet by 11 feet. She has square tiles that are 2 feet on each side. Can she exactly cover the floor without cutting any tiles?

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- 6 Mikel is sharing 31 markers among 3 friends and himself. He shares as evenly as he can. Mikel keeps the leftover markers. How many markers does he have?

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# Chapter 15

# Review/Assessment

NCTM Standards 1, 2, 6, 7, 9, 10

- 1 Use the array of dimes to complete the number sentences.

Lesson 1

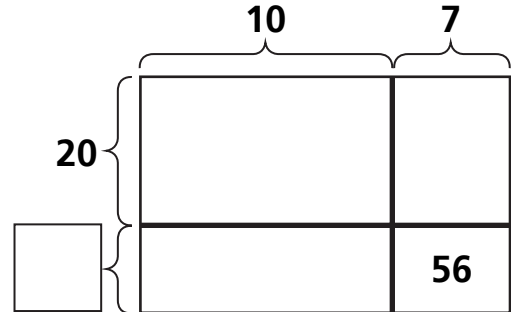


$$5 \times 12 = \square$$

$$5 \times 120 = \square$$

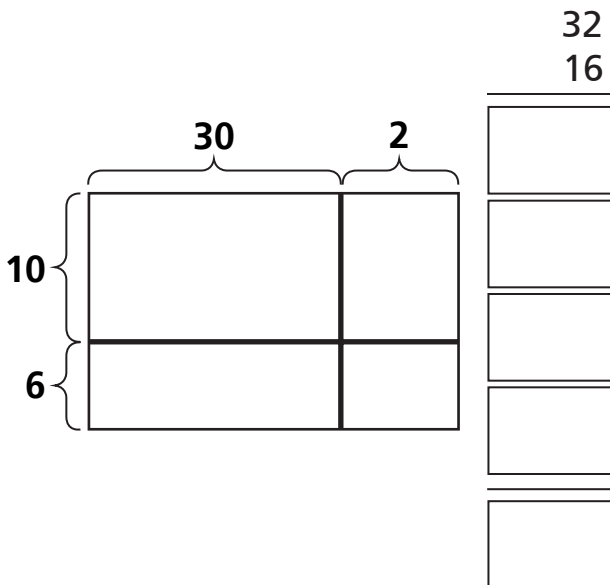
$$50 \times 12 = \square$$

- 2 Complete the diagram and the number sentence. Lesson 2



$$17 \times \square = \square$$

- 3 Complete the diagram and the vertical record. Lesson 3



- 4 Draw a diagram to help you find the product. Lesson 4

$$142 \times 8 = \square$$

**5** Complete the related number sentences for the story. **Lesson 5**

Shai made 8 stacks of coins.  
Each stack had a quarter and  
a dime. How much money did  
Shai use?

\_\_\_\_\_

$$\square \times 35 = \square$$

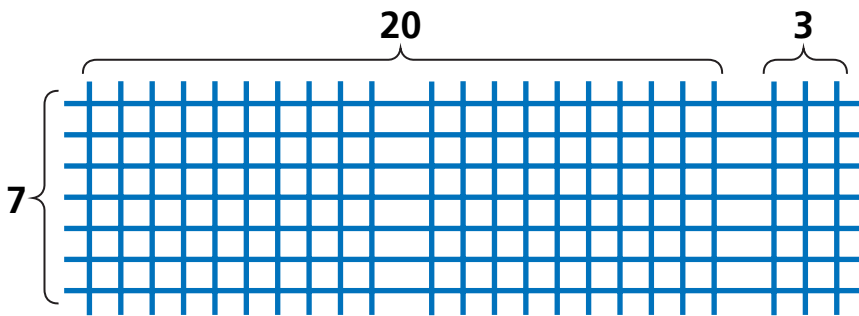
$$\square \times \square = \square$$

$$\square \div \square = \square$$

$$\square \div \square = \square$$



**6** Fill in the missing numbers. **Lesson 6**



$$\begin{array}{r} \square + \square \\ \hline \square + \square \\ \hline \square \div 7 = \square \end{array}$$

**Solve the division puzzle.** **Lessons 6 and 7**

**7**

$$\begin{array}{r} \square + \square \\ \hline 11 \overline{) 330 + 66} \\ \hline \square \div 11 = \square \end{array}$$

**8**

$$\begin{array}{r} \square + 9 \\ \hline 7 \overline{) 420 + \square} \\ \hline \square \div 7 = \square \end{array}$$

**Solve.** **Lessons 8 and 9**

**9** There are 335 horses going to the Summer Stampede Horse Show from Vast Acres farm. 9 horses fit in each horse van.

**A** How many vans are needed?

\_\_\_\_\_

**B** If each van is filled, then sent off, how many horses are in the last van?

\_\_\_\_\_