

Name \_\_\_\_\_

## Divide Using Repeated Subtraction

**Essential Question** How can you use repeated subtraction and multiples to find quotients?



Number and Operations in Base Ten—4.NBT.B.6

**MATHEMATICAL PRACTICES**  
MP3, MP6, MP8



### Investigate

**Materials** ■ counters ■ grid paper

John is building a backyard pizza oven with an arch opening. He has 72 bricks. He will place 6 bricks at a time as he builds the oven. If he arranges the bricks in piles of 6, how many piles will he have?

You can use repeated subtraction to divide  $72 \div 6$ .

**A.** Begin with 72 counters. Subtract 6 counters.

How many are left? \_\_\_\_\_

**B.** Record the subtraction on grid paper as shown. Record the number of counters left and the number of times you subtracted.

		7	2	
	-		6	1 time
<hr style="width: 100%;"/>				
				_____ times
				_____ times

**C.** Can you reach zero evenly? Explain.

\_\_\_\_\_

\_\_\_\_\_

**D.** Count the number of times you subtracted 6 counters. \_\_\_\_\_

So, there are \_\_\_\_\_ piles of 6 bricks.



## Draw Conclusions

1. Explain the relationship between the divisor, the dividend, the quotient, and the number of times you subtracted the divisor from the dividend.

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2. What happens if you subtract multiples of 6? Complete the example at the right.

- What multiples of 6 did you use? How did you use them?

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- What numbers did you add? Why?

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- How did using multiples of the divisor help you?

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$$\begin{array}{r}
 6 \overline{)72} \\
 \underline{-60} \leftarrow \square \times 6 \quad 10 \\
 \square \\
 \underline{-12} \leftarrow \square \times 6 + \square \\
 \square
 \end{array}$$

3. **THINK SMARTER** Why should you subtract  $10 \times 6$  and not  $9 \times 6$  or  $20 \times 6$ ?

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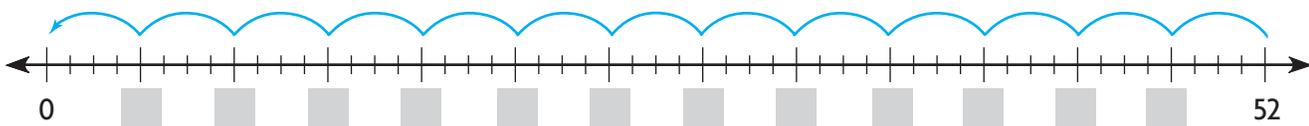
**Math Talk**

**MATHEMATICAL PRACTICES 4**

**Use Models** How does subtracting counters and counting back on a number line help you divide?

## Make Connections

Another way to divide by repeated subtraction is to use a number line. Count back by 4s from 52 to find  $52 \div 4$ .



How many equal groups of 4 did you subtract? \_\_\_\_\_

So,  $52 \div 4 =$  \_\_\_\_\_.

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## Share and Show



Use repeated subtraction to divide.

1.  $84 \div 7$  \_\_\_\_\_

2.  $60 \div 4$  \_\_\_\_\_

3.  $91 \div 8$  \_\_\_\_\_

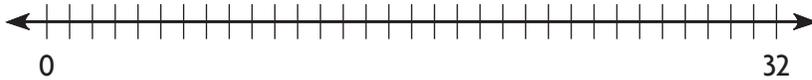
Draw a number line to divide.

4.  $65 \div 5 =$  \_\_\_\_\_

## Problem Solving • Applications



5. **MATHEMATICAL PRACTICE 5** **Use Appropriate Tools** Can you divide 32 by 3 evenly? Use the number line to explain your answer.



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6. **GO DEEPER** John has \$40 to spend at the yard sale. He buys 6 books for \$2 each. He would like to spend the rest of his money on model cars for his collection. If the cars cost \$7 each, how many can he buy? Explain.

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# Unlock the Problem

7. **THINK SMARTER** A new playground will be 108 feet long. Builders need to allow 9 feet of space for each piece of climbing equipment. They want to put as many climbers along the length of the playground as possible. How many climbers can they place?



- a. What are you asked to find?

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- b. How can you use repeated subtraction to solve the problem?

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- c. Tell why you might use multiples of the divisor to solve the problem.

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- d. Show steps to solve the problem.

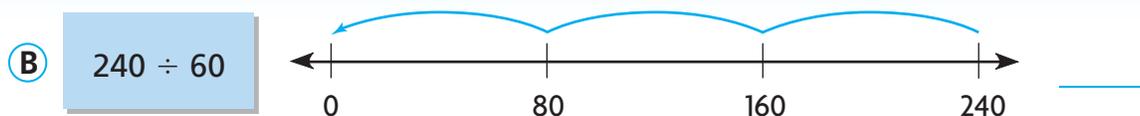
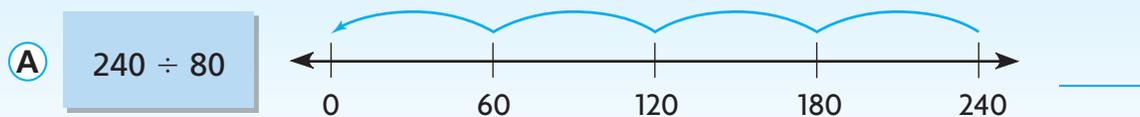
- e. Complete the sentences.

There are \_\_\_\_\_ equal parts of the  
playground, each \_\_\_\_\_ feet long.

So, \_\_\_\_\_ climbers can fit along the length  
of the playground.

8. **THINK SMARTER** Which model matches each expression?

Write the letter on the line next to the model.



Name \_\_\_\_\_

## Divide Using Repeated Subtraction



**COMMON CORE STANDARD—4.NBT.B.6**

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Use repeated subtraction to divide.

1.  $42 \div 3 = \underline{14}$

2.  $72 \div 4 = \underline{\hspace{2cm}}$

3.  $93 \div 3 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 3 \overline{)42} \\ \underline{-30} \phantom{0} \\ 12 \phantom{0} \\ \underline{-12} \\ 0 \end{array} \quad \begin{array}{l} \leftarrow 10 \times 3 \quad | \quad 10 \\ \leftarrow 4 \times 3 \quad | \quad +4 \\ \phantom{\leftarrow} \phantom{\phantom{\phantom{0}}} \quad | \quad 14 \end{array}$$

4.  $35 \div 4 = \underline{\hspace{2cm}}$

5.  $93 \div 10 = \underline{\hspace{2cm}}$

6.  $86 \div 9 = \underline{\hspace{2cm}}$

Draw a number line to divide.

7.  $70 \div 5 = \underline{\hspace{2cm}}$

## Problem Solving



8. Gretchen has 48 small shells. She uses 2 shells to make one pair of earrings. How many pairs of earrings can she make?

\_\_\_\_\_

9. **WRITE** *Math* Show how you can use repeated subtraction to find  $84 \div 6$ .

\_\_\_\_\_

## Lesson Check (4.NBT.B.6)

1. Randall collects postcards that his friends send him when they travel. He can put 6 cards on one scrapbook page. How many pages does Randall need to fit 42 postcards?  

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2. Ari stocks shelves at a grocery store. He puts 35 cans of juice in each display case. The case has 4 shelves with an equal number of cans, and one shelf with only 3 cans. How many cans are on each of the equal shelves?  

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## Spiral Review (4.OA.A.3, 4.NBT.A.1, 4.NBT.B.5, 4.NBT.B.6)

3. Fiona sorted her CDs into separate bins. She placed 4 CDs in each bin. If she has 160 CDs, how many bins did she fill?  

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4. Eamon is arranging 39 books on 3 shelves. If he puts the same number of books on each shelf, how many books will there be on each shelf?  

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5. A newborn boa constrictor measures 18 inches long. An adult boa constrictor measures 9 times the length of the newborn plus 2 inches. How long is the adult?  

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6. Madison has 6 rolls of coins. Each roll has 20 coins. How many coins does Madison have?  

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