

Name: MS 137

Lesson 3-5
Multiply Multi-Digit Numbers

Write and solve a real-world problem with a question that can be answered by the equation.
 $36 \times 208 = n$

Example:
There are 36 trees. Each tree has 208 apples.
How many apples are there in all?
Estimate and solve.

$36 \times 208 = n$
 $40 \times 200 = 8,000$

$n = \text{total apples}$

You can use reasoning to connect mathematics to everyday life. Think about the situations multiplication describes.

208×36

208	
1248	$= 208 \times 6$
6240	$= 208 \times 30$
7488	

Look Back! **MP3 Construct Arguments** Write a real-world problem for the equation $208 \times 36 = n$. Tell how your two problems are the same and how they are different.

$36 \times 208 = n$ and $208 \times 36 = n$ are similar because they have the same product (Commutative Property).
 36×208 is 36 groups of 208 and 208×36 is 208 groups of 36.

Mr. Goldman did sit-ups every day for 36 days. If he does 208 sit-ups each day, how many sit-ups did he do in all?

Coach Jacobs buys bunches of grapes for his snack. He bought 36 bunches and each bunch has 208 grapes. If Coach Jacobs eats all of the grapes, how many grapes did he eat in all?

Santa has 36 sacks of presents to still deliver. Each sack has 208 gifts. How many total gifts does Santa still have left to deliver?

How Can You Use Multiplication to Solve Problems?

How much does the Carson family pay each year for their cell phones?

I can use the Commutative, Associative, and Distributive Properties to make the computations easier.

A bar diagram can be used to show joining equal groups.

Call phone bill \$271 per month.

Step 1
Draw a bar diagram that represents the problem.

271	271	271	271	271	271	271	271	271	271
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Then write an equation.
 $12 \times 271 = n$

Step 2
Multiply to solve.

271
$\times 12$
542
$+ 2710$
3,252

The Carson family pays \$3,252 a year for their cell phones.

Convince Me! **MP2 Reasoning** Is \$3,252 a year a reasonable answer? Explain.

12×271
 $10 \times 271 = 2,710$
About \$2,710 underestimate.

\$3,252 is reasonable because the estimate \$2,710 is in the thousands place and the product is greater than the underestimate.

Guided Practice

Do You Understand?

1. Carlos saves 18 cents every day of the year. If there are 365 days this year, how many cents will he have saved by the end of the year? Write an equation that represents the problem. Then solve the equation.
 $18 \times 365 = c$

2. **MP4 Model with Math** Lila drives 129 kilometers round trip to work. How many kilometers does she drive in 31 days? Write an equation that represents the problem. Then solve the equation.

Do You Know How?

In 3-6, estimate each product. Then complete each calculation. Check that your answer is reasonable.

3. 134×11

4. 208×26

5. 428×35

6. 275×56

$400 \times 40 = 16,000$

Complete # 21, 23, 28

$18 \times 365 = c$

$20 \times 400 = 8,000$

365×18

365	
$\times 18$	
2920	
$+ 2970$	
6570	

6,570 cents

