

Name _____

Multiply Using Expanded Form

Essential Question How can you use expanded form to multiply a multidigit number by a 1-digit number?



Number and Operations in Base Ten—4.NBT.B.5

MATHEMATICAL PRACTICES
MP1, MP2, MP4

Unlock the Problem

Example 1 Use expanded form.

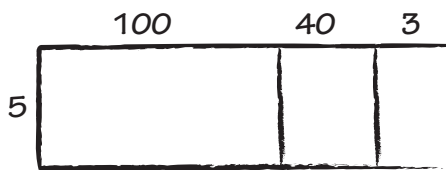
Multiply. 5×143

$5 \times 143 = 5 \times (\underline{\quad} + \underline{\quad} + \underline{\quad})$ Write 143 in expanded form.

$= (5 \times 100) + (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad})$ Use the Distributive Property.

SHADE THE MODEL

STEP 1

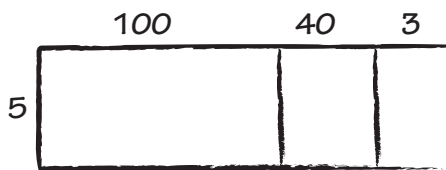


THINK AND RECORD

Multiply the hundreds.

$(5 \times 100) + (5 \times 40) + (5 \times 3)$
 $\underline{\quad} + (5 \times 40) + (5 \times 3)$

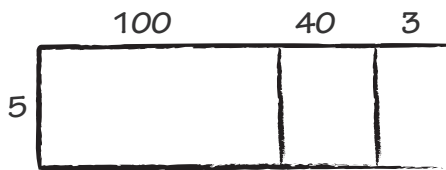
STEP 2



Multiply the tens.

$(5 \times 100) + (5 \times 40) + (5 \times 3)$
 $500 + \underline{\quad} + (5 \times 3)$

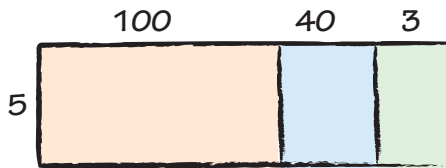
STEP 3



Multiply the ones.

$(5 \times 100) + (5 \times 40) + (5 \times 3)$
 $500 + 200 + \underline{\quad}$

STEP 4



Add the partial products.

$$\begin{array}{r} 500 \\ 200 \\ + 15 \\ \hline \end{array}$$

So, $5 \times 143 = \underline{\quad}$.



MATHEMATICAL PRACTICES 1

Evaluate Reasonableness
How do you know your answer is reasonable?

Example 2 Use expanded form.

The gift shop at the animal park orders 3 boxes of toy animals. Each box has 1,250 toy animals. How many toy animals does the shop order?

Multiply. $3 \times 1,250$

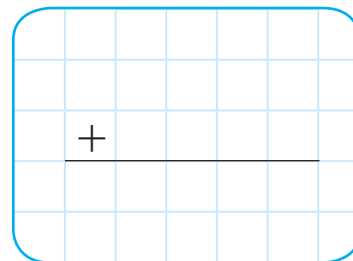
STEP 1

Write 1,250 in expanded form. Use the Distributive Property.

$$\begin{aligned} 3 \times 1,250 &= 3 \times (\underline{\quad} + \underline{\quad} + \underline{\quad}) \\ &= (3 \times 1,000) + (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad}) \end{aligned}$$

STEP 2

Add the partial products.

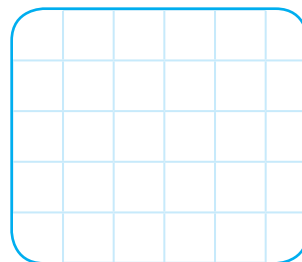
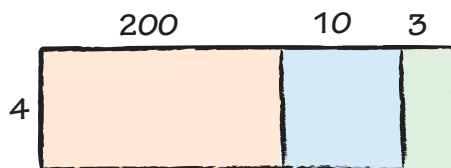


So, the shop ordered animals.

Share and Show



1. Find 4×213 . Use expanded form.



$$\begin{aligned} 4 \times 213 &= \underline{\quad} \times (\underline{\quad} + \underline{\quad} + \underline{\quad}) \\ &= (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad}) \quad \text{Use the Distributive Property.} \\ &= \underline{\quad} + \underline{\quad} + \underline{\quad} \\ &= \underline{\quad} \end{aligned}$$

Record the product. Use expanded form to help.

 2. $4 \times 59 = \underline{\quad}$

 3. $3 \times 288 = \underline{\quad}$

Math Talk

MATHEMATICAL PRACTICES 2

Represent a Problem How did using the Distributive Property make finding the product easier?

Name _____

On Your Own

Record the product. Use expanded form to help.

4. $4 \times 21 =$ _____

5. $6 \times 35 =$ _____

6. **GO DEEPER** A hotel has 128 rooms on each floor. There are 4 floors in all. If 334 of the rooms in the hotel have been cleaned, how many rooms still need to be cleaned?

7. **GO DEEPER** Ben wants to buy 2 blue sweaters for \$119 each and 3 brown sweaters for \$44 each. How much will Ben spend on the five sweaters?

8. **GO DEEPER** A jeweler has 36 inches of silver chain. She needs 5 times that much to make some necklaces and 3 times that amount to make some bracelets. How much silver chain does the jeweler need to make her necklaces and bracelets?

9. **GO DEEPER** Gretchen walks her dog 3 times a day. Each time she walks the dog, she walks 1,760 yards. How many yards does she walk her dog in 3 days?

10. **MATHEMATICAL PRACTICE 4** **Write an Expression** Which expression could you write to show how to multiply 9×856 using place value and expanded form?

11. **GO DEEPER** Jennifer bought 4 packages of tacks. There are 48 tacks in a package. She used 160 of the tacks to put up posters. How many tacks does she have left? Explain.

WRITE  *Math*
Show Your Work

Problem Solving • Applications



Use the table for 12–13.

Sacco Nursery Plant Sale Prices per Tree

Tree	Regular Price	Discounted Price (4 or more)
Flowering Cherry	\$59	\$51
Italian Cypress	\$79	\$67
Muskogee Crape Myrtle	\$39	\$34
Royal Empress	\$29	\$25



12. What is the total cost of 3 Italian cypress trees?

13. **THINK SMARTER** What's the Error?

Tanya says that the difference in the cost of 4 flowering cherry trees and 4 Muskogee crape myrtles is \$80. Is she correct? Explain.



WRITE *Math* • Show Your Work

14. **WRITE** *Math* What is the greatest possible product of a 2-digit number and a 1-digit number? Explain how you know.

15. **THINK SMARTER** Multiply 5×381 using place value and expanded form. Select a number from each box to complete the expression.

$$(5 \times \begin{array}{|c|} \hline 30 \\ \hline 300 \\ \hline \end{array}) + (5 \times \begin{array}{|c|} \hline 8 \\ \hline 80 \\ \hline \end{array}) + (5 \times \begin{array}{|c|} \hline 1 \\ \hline 10 \\ \hline \end{array})$$

Name _____

Multiply Using Expanded Form



COMMON CORE STANDARD—4.NBT.B.5
Use place value understanding and properties of operations to perform multi-digit arithmetic.

Record the product. Use expanded form to help.

1. $7 \times 14 =$ 98

$$\begin{aligned} 7 \times 14 &= 7 \times (10 + 4) \\ &= (7 \times 10) + (7 \times 4) \\ &= 70 + 28 \\ &= 98 \end{aligned}$$

2. $8 \times 43 =$ _____

3. $6 \times 532 =$ _____

4. $5 \times 923 =$ _____

Problem Solving



- The fourth-grade students at Riverside School are going on a field trip. There are 68 students on each of the 4 buses. How many students are going on the field trip?
- There are 5,280 feet in one mile. Hannah likes to walk 5 miles each week for exercise. How many feet does Hannah walk each week?

7. **WRITE** *Math* Explain how you can find 3×584 using expanded form.

Lesson Check (4.NBT.B.5)

1. Write an expression that shows how to multiply 7×256 using expanded form and the Distributive Property.
2. Sue uses the expression $(8 \times 3,000) + (8 \times 200) + (8 \times 9)$ to help solve a multiplication problem. What is Sue's multiplication problem?

Spiral Review (4.NBT.A.1, 4.NBT.A.2, 4.NBT.B.5)

3. What is another way to write 9×200 ?
4. What is the value of the digit 4 in 46,000?

5. Chris bought 6 packages of napkins for his restaurant. There were 200 napkins in each package. How many napkins did Chris buy?
6. List these numbers in order from **least** to **greatest**.
8,251; 8,125; 8,512
