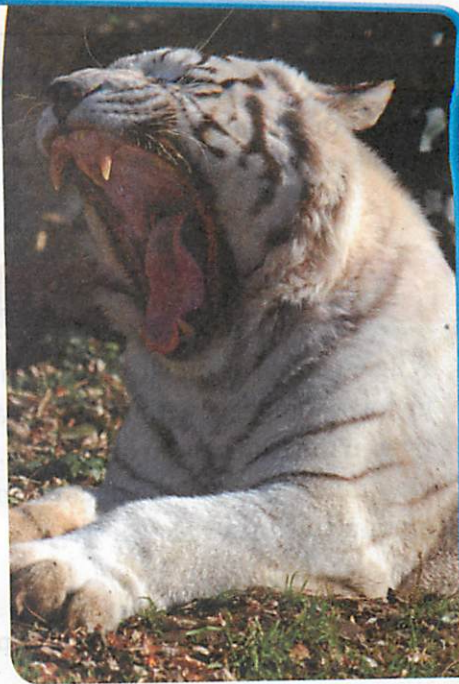


## Example

A Siberian tiger was observed sleeping 1,287 minutes *during the course of one day*. If he slept for that long every day, how many minutes would he sleep in one year? Assume there are 365 days in one year.



**STEP 1** Estimate:  $1,287 \times 365$

Think:  $1,000 \times 400 =$  \_\_\_\_\_

**STEP 2** Multiply by the ones.

$$\begin{array}{r} 1,287 \\ \times 365 \\ \hline \end{array}$$

\_\_\_\_\_  $1,287 \times 5 \text{ ones} =$  \_\_\_\_\_ ones

**STEP 3** Multiply by the tens.

$$\begin{array}{r} 1,287 \\ \times 365 \\ \hline \end{array}$$

\_\_\_\_\_  $1,287 \times 6 \text{ tens} =$  \_\_\_\_\_ tens, or \_\_\_\_\_ ones

**STEP 4** Multiply by the hundreds.

$$\begin{array}{r} 1,287 \\ \times 365 \\ \hline \end{array}$$

\_\_\_\_\_  $1,287 \times 3 \text{ hundreds} =$  \_\_\_\_\_ hundreds, or \_\_\_\_\_ ones

**STEP 5** Add the partial products.

$$\begin{array}{r} 1,287 \\ \times 365 \\ \hline \text{_____} \leftarrow 1,287 \times 5 \\ \text{_____} \leftarrow 1,287 \times 60 \\ + \text{_____} \leftarrow 1,287 \times 300 \\ \hline \text{_____} \end{array}$$

So, the tiger would sleep \_\_\_\_\_ minutes in one year.

**Math Talk**

**MATHEMATICAL PRACTICES 6**

Are there different numbers you could have used in Step 1 to find an estimate that is closer to the actual answer? Explain.



# Multiply by Multi-Digit Numbers

**Essential Question** How do you multiply by multi-digit numbers?

**Common Core**  
**Ten—5.NBT.B.5**  
**Number and Operations in Base Ten—5.NBT.B.5**  
**MATHEMATICAL PRACTICES**  
 MP1, MP4, MP6

## Unlock the Problem



A tiger can eat as much as 40 pounds of food at a time but it may go for several days without eating anything. Suppose a Siberian tiger in the wild eats an average of 18 pounds of food per day. How much food will the tiger eat in 28 days if he eats that amount each day?

**Use place value and regrouping.**

**STEP 1 Estimate:**  $28 \times 18$

Think:  $30 \times 20 =$  \_\_\_\_\_

**STEP 2 Multiply by the ones.**

$$\begin{array}{r} \phantom{0} \\ 28 \\ \times 18 \\ \hline \end{array}$$

$28 \times 8$  ones = \_\_\_\_\_ ones

**STEP 3 Multiply by the tens.**

$$\begin{array}{r} \phantom{00} \\ 28 \\ \times 18 \\ \hline \end{array}$$

$28 \times 1$  ten = \_\_\_\_\_ tens, or \_\_\_\_\_ ones

**STEP 4 Add the partial products.**

$$\begin{array}{r} \phantom{000} \\ 28 \\ \times 18 \\ \hline 224 \\ + 2520 \\ \hline \end{array}$$

So, on average, a Siberian tiger may eat \_\_\_\_\_ pounds of food in 28 days.

Use patterns of zeros to find the product of multiples of 10.

### Remember

$$3 \times 4 = 12$$

$$30 \times 40 = 1,200$$

$$300 \times 40 = 12,000$$



## Lesson Check (5.NBT.B.5)

1. Mr. Nielson works 154 hours each month. He works 8 months each year. How many hours does Mr. Nielson work each year?  

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2. Sasha lives 1,493 miles from her grandmother. One year, Sasha's family made 4 round trips to visit her grandmother. How many miles did they travel in all?  

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## Spiral Review (Reviews 4.NBT.A.2, 4.NBT.A.3, 4.NF.C.6, 5.NBT.A.1)

3. Yuna missed 5 points out of 100 points on her math test. What decimal number represents the part of her math test that she answered correctly?  

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4. Which symbol makes the statement true?  
Write  $>$ ,  $<$ , or  $=$ .  
 $602,163$    $620,163$   

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5. The number below represents the number of fans that attended Chicago Cubs baseball games in 2008. What is this number written in standard form?  
 $(3 \times 1,000,000) + (3 \times 100,000) + (2 \times 100)$   

---
6. A fair was attended by 755,082 people altogether. What is this number rounded to the nearest ten thousand?  

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**FOR MORE PRACTICE  
GO TO THE  
Personal Math Trainer**



Name \_\_\_\_\_

## Multiply by 1-Digit Numbers



COMMON CORE STANDARD—5.NBT.B.6

Perform operations with multi-digit whole numbers and with decimals to hundredths.

Estimate. Then find the product.

1. Estimate:  $\underline{3,600}$

$$\begin{array}{r} 15 \\ 416 \\ \times 9 \\ \hline 3,744 \end{array}$$

2. Estimate: \_\_\_\_\_

$$\begin{array}{r} 1,374 \\ \times 6 \\ \hline \end{array}$$

3. Estimate: \_\_\_\_\_

$$\begin{array}{r} 726 \\ \times 5 \\ \hline \end{array}$$

Estimate. Then find the product.

4.  $4 \times 979$

5.  $503 \times 7$

6.  $5 \times 4,257$

7.  $6,018 \times 9$

8.  $758 \times 6$

9.  $3 \times 697$

10.  $2,141 \times 8$

11.  $7 \times 7,956$

## Problem Solving



12. Mr. and Mrs. Dorsey and their three children are flying to Springfield. The cost of each ticket is \$179. Estimate how much the tickets will cost. Then find the exact cost of the tickets.

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13. Ms. Tao flies roundtrip twice yearly between Jacksonville and Los Angeles on business. The distance between the two cities is 2,150 miles. Estimate the distance she flies for both trips. Then find the exact distance.

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14. **WRITE** *Math* Show how to solve the problem  $378 \times 6$  using place value with regrouping. Explain how you knew when to regroup.

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