

Name _____

Multiply by Multi-Digit Numbers

I Can multiply by multi-digit whole numbers.

Florida's B.E.S.T.

- Number Sense & Operations 5.NSO.2.1
- Mathematical Thinking & Reasoning
MTR.3.1, MTR.4.1, MTR.6.1, MTR.7.1



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: 28×18 Think: $30 \times 20 =$ _____**STEP 2** Multiply by the ones.

$$\begin{array}{r} 28 \\ \times 18 \\ \hline \end{array}$$
 $28 \times 8 \text{ ones} = \underline{\hspace{2cm}} \text{ ones}$

STEP 3 Multiply by the tens.

$$\begin{array}{r} 28 \\ \times 18 \\ \hline \end{array}$$
 $28 \times 1 \text{ ten} = \underline{\hspace{2cm}} \text{ tens, or } \underline{\hspace{2cm}} \text{ ones}$

STEP 4 Add the partial products.

$$\begin{array}{r} 28 \\ \times 18 \\ \hline \leftarrow 28 \times 8 \\ \leftarrow 28 \times 10 \\ + \\ \hline \end{array}$$

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

Remember

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

$$3 \times 4 = 12$$

$$3 \times 40 = 120$$

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

$$3 \times 400 = 1,200$$

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

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.

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

_____ $\leftarrow 1,287 \times 5$
_____ $\leftarrow 1,287 \times 60$
+ _____ $\leftarrow 1,287 \times 300$

So, the tiger would sleep _____ minutes in one year.



**Math
Talk**

MTR 6.1 Assess the reasonableness of solutions.

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