

# Lesson 10: Using Algorithms with Partial Products: 2 Two-digit Numbers

- Let's try to multiply two-digit numbers with an algorithm that uses partial products.

## Warm-up: Number Talk: Products

Find the value of each expression mentally.

- $30 \times 7$

- $15 \times 14$

- $50 \times 8$

- $25 \times 16$

## 10.1: Partial Products, Recorded

1. Tyler used an algorithm to find the value of  $64 \times 87$ .

$$\begin{array}{r}
 \phantom{\times} \phantom{0000} 64 \\
 \times \phantom{0000} 87 \\
 \hline
 \phantom{0000} 28 \\
 \phantom{000} 420 \\
 \phantom{000} 320 \\
 + 4,800 \\
 \hline
 5,568
 \end{array}$$

How do you think he arrived at the last five numbers? Record your thinking. Be prepared to share it with a partner.

2. Use Tyler's method to find the value of  $31 \times 15$ . Then, draw a diagram to check your answer.

## 10.2: Han's Multiplication Mishap

1. Decide with your partner who will find each product. Show your reasoning.

$$\begin{array}{r} \phantom{\times} 19 \\ \times \phantom{1} 32 \\ \hline \end{array}$$

$$\begin{array}{r} \phantom{\times} 32 \\ \times \phantom{1} 19 \\ \hline \end{array}$$

2. Here is Han's computation of  $51 \times 47$ .

	5 1	
×	4 7	
	7	$7 \times 1$
	3 5	$7 \times 5$
	4 0	$40 \times 1$
+	2 0 0	$40 \times 5$
	2 8 2	

a. What error or errors did Han make?

b. Show the correct computation for finding the value of  $51 \times 47$ .

$$\begin{array}{r} \phantom{\times} 51 \\ \times \phantom{1} 47 \\ \hline \end{array}$$