



Partial Products and the Standard Algorithm

Let's compare multiplication algorithms.

Warm-up

Number Talk: The Value of the Digits

Find the value of each expression mentally.

- 5×101

- 5×102

- 5×203

- 5×404



Activity 1

Two Algorithms to Multiply

1. Here are two algorithms for finding the value of 3×713 .

Kiran

$$\begin{array}{r} 713 \\ \times 3 \\ \hline 2,139 \end{array}$$

Diego

$$\begin{array}{r} 713 \\ \times 3 \\ \hline 9 \\ 30 \\ + 2,100 \\ \hline 2,139 \end{array}$$

Discuss with your partner:

- How are these algorithms alike? How are they different?
- How do you think Kiran found the product 2,139?

2. Find the value of each product.

◦ 212×4

◦ $3 \times 4,132$

Activity 2

Algorithm Comparison

1. Analyze the two algorithms used to find the value of 4×223 .

Kiran

$$\begin{array}{r} \overset{1}{} \\ 223 \\ \times 4 \\ \hline 892 \end{array}$$

Diego

$$\begin{array}{r} 223 \\ \times 4 \\ \hline 12 \\ 80 \\ + 800 \\ \hline 892 \end{array}$$

- a. How are these algorithms alike? How are they different?

- b. Where is the 12 in Kiran's algorithm?

2. a. Try using Kiran's algorithm to find the value of 512×3 .

- b. Check your work using a different method.