



# Standard Algorithm: Multi-digit Numbers, without Composing

Let's use the standard algorithm to multiply three-digit numbers by two-digit numbers.

## Warm-up

### Number Talk: Partial Products

Find the value of each product mentally.

- $20 \times 3$
- $24 \times 3$
- $120 \times 3$
- $140 \times 3$



## Activity 1

### Compare Two Algorithms

Here are two algorithms that represent finding the value of  $413 \times 21$ .

$$\begin{array}{r}
 413 \\
 \times 21 \\
 \hline
 826 \quad \text{step 1} \\
 8260 \quad \text{step 2} \\
 \hline
 8673 \quad \text{step 3}
 \end{array}$$

$$\begin{array}{r}
 413 \\
 \times 21 \\
 \hline
 826 \quad \text{step 1} \\
 8260 \quad \text{step 2} \\
 \hline
 8673 \quad \text{step 3}
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1. How are the 2 algorithms alike? How are they different?

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2. Explain or show where you see each step from the first algorithm in the second algorithm.

3. How are the final steps in the 2 algorithms alike? How are they different?

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## Activity 2

### Use the Standard Algorithm

Use the standard algorithm to find the value of each expression.

1.  $202 \times 12$

2.  $122 \times 33$

3.  $321 \times 24$



4. Diego finds the value of  $301 \times 24$ . Why doesn't Diego's answer make sense? Explain your reasoning.

$$\begin{array}{r} 301 \\ \times 24 \\ \hline 1,204 \\ + 6,020 \\ \hline 7,224 \end{array}$$

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