



# Analyze Subtraction Algorithms

Let's think about subtraction algorithms in more detail.

Warm-up

## Number Talk: Subtract within 1,000

Find the value of each expression mentally.

- $400 - 200$

- $450 - 200$

- $450 - 205$

- $450 - 215$



## Activity 1

### Compare Two Subtraction Algorithms

1. The first steps of 2 algorithms are shown.

Algorithm A, Step 1

$$\begin{array}{r} 4 \text{ } 10 \\ \cancel{5} \text{ } \cancel{0} \text{ } 8 \\ - 1 \text{ } 5 \text{ } 6 \\ \hline \end{array}$$

Algorithm B, Step 1

$$\begin{array}{r} 5 \text{ } 0 \text{ } 8 \\ - 1 \text{ } 5 \text{ } 6 \\ \hline 2 \end{array}$$

How are the steps different?

2. Use each algorithm to find the value of  $824 - 541$ .

## Activity 2

### Use an Algorithm?

Noah wanted to find the value of  $301 - 167$  and wrote:

$$\begin{array}{r} 301 \\ - 167 \\ \hline \end{array}$$

Elena said that we can't subtract this way because we would need more ones to subtract 7 ones, but there's a zero in the tens place of 301.

1. Do you agree with Elena's statement? Explain your reasoning.

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2. Show how you would use an algorithm (either Noah's or another algorithm) to find the difference between 301 and 167.