Unit 5 Lesson 3: Adding and Subtracting Decimals with Few Non-Zero Digits

1 Do the Zeros Matter? (Warm up)

Student Task Statement

1. Evaluate mentally: $1.009 + 0.391$

2. Decide if each equation is true or false. Be prepared to explain your reasoning.

    a. $34.56000 = 34.56$

    b. $25 = 25.0$

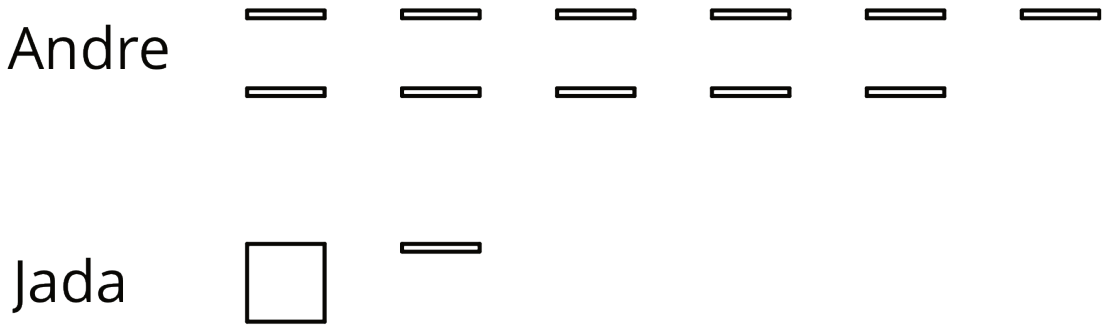
    c. $2.405 = 2.45$

2 Calculating Sums (Optional)

Images for Launch

Student Task Statement

1. Andre and Jada drew base-ten diagrams to represent $0.007 + 0.004$. Andre drew 11 small rectangles. Jada drew only two figures: a square and a small rectangle.



   a. If both students represented the sum correctly, what value does each small rectangle represent? What value does each square represent?

   b. Draw or describe a diagram that could represent the sum $0.008 + 0.07$.

2. Here are two calculations of $0.2 + 0.05$. Which is correct? Explain why one is correct and the other is incorrect.

$$\begin{array}{r} 0.2 \\ +\ 0.05 \\ \hline 0.25 \end{array} \qquad \begin{array}{r} 0.2 \\ +\ 0.05 \\ \hline 0.07 \end{array}$$

3. Compute each sum. If you get stuck, consider drawing base-ten diagrams to help you.
   a.

$$\begin{array}{r} 0.11 \\ +\ 0.005 \\ \hline \end{array}$$

b. $0.209 + 0.01$

c. $10.2 + 1.1456$

Activity Synthesis

$$\begin{array}{r} 0.2 \\ +\ 0.05 \\ \hline 0.25 \end{array}$$

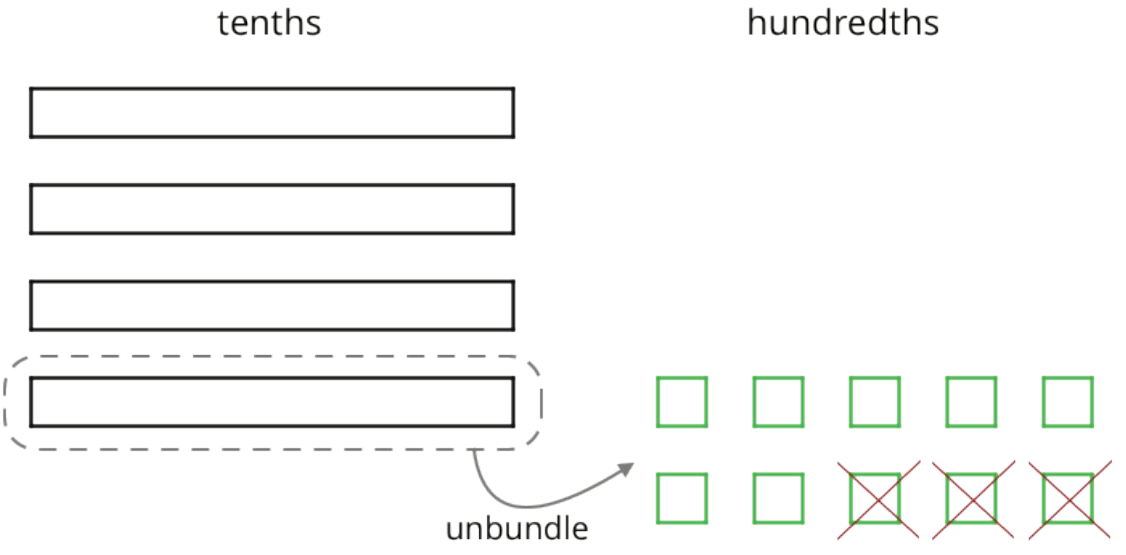
3 Subtracting Decimals of Different Lengths

Images for Launch

Student Task Statement

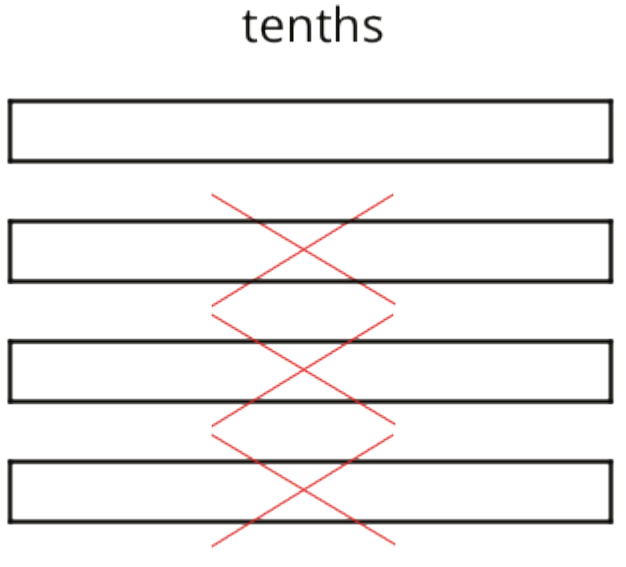
Diego and Noah drew different diagrams to represent $0.4 - 0.03$. Each rectangle represents 0.1. Each square represents 0.01.

- Diego started by drawing 4 rectangles to represent 0.4. He then replaced 1 rectangle with 10 squares and crossed out 3 squares to represent subtraction of 0.03, leaving 3 rectangles and 7 squares in his diagram.



Diego's Method

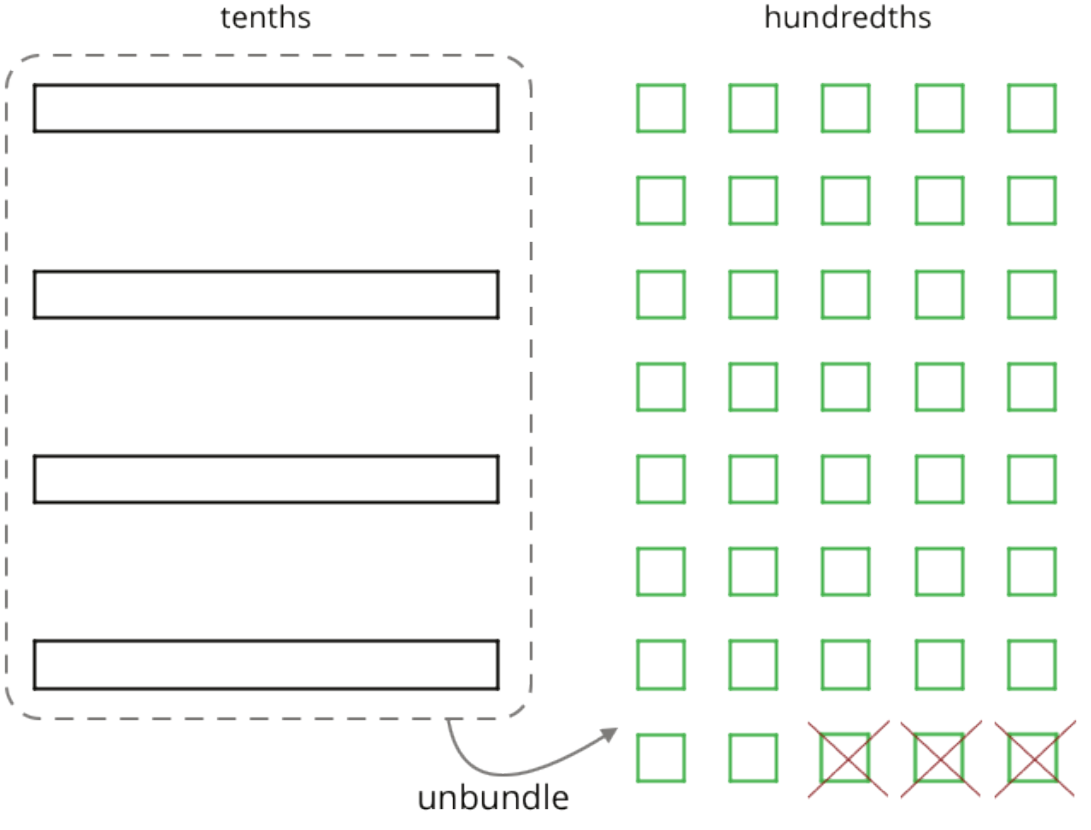
- Noah started by drawing 4 rectangles to represent 0.4. He then crossed out 3 rectangles to represent the subtraction, leaving 1 rectangle in his diagram.



Noah's Method

1. Do you agree that either diagram correctly represents $0.4 - 0.03$? Discuss your reasoning with a partner.

2. Elena also drew a diagram to represent $0.4 - 0.03$. She started by drawing 4 rectangles. She then replaced all 4 rectangles with 40 squares and crossed out 3 squares to represent subtraction of 0.03, leaving 37 squares in her diagram. Is her diagram correct? Discuss your reasoning with a partner.



Elena's Method

3. Find each difference. Explain or show your reasoning.

   a. $0.3 - 0.05$

   b. $2.1 - 0.4$

   c. $1.03 - 0.06$

   d. $0.02 - 0.007$

Activity Synthesis

$$\begin{array}{r} {\scriptstyle 3\ 10} \\ 0.\cancel{4} \\ -\ 0.03 \\ \hline 0.37 \end{array} \qquad \begin{array}{r} 0.40 \\ -\ 0.03 \\ \hline 0.37 \end{array}$$