Unit 5 Lesson 8: Calculating Products of Decimals

1 Number Talk: Twenty Times a Number (Warm up)

Student Task Statement

Evaluate mentally.

$20 \cdot 5$

$20 \cdot (0.8)$

$20 \cdot (0.04)$

$20 \cdot (5.84)$

2 Calculating Products of Decimals

Student Task Statement

1. A common way to find a product of decimals is to calculate a product of whole numbers, then place the decimal point in the product.

$$\begin{array}{rr} & 2\ 5 \\ \times & 1\ 2 \\ \hline & 5\ 0 \\ + & 2\ 5\ 0 \\ \hline & 3\ 0\ 0 \end{array}$$

Here is an example for $(2.5) \cdot (1.2)$.

Use what you know about decimals and place value to explain why the decimal point of the product is placed where it is.

$25 \cdot 12 = 300$

$(2.5) \cdot (1.2) = 3.00$

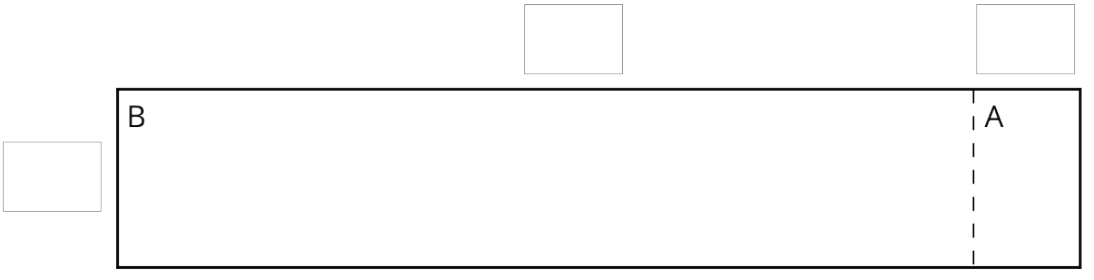
2. Use the method shown in the first question to calculate each product.

   a. $(4.6) \cdot (0.9)$

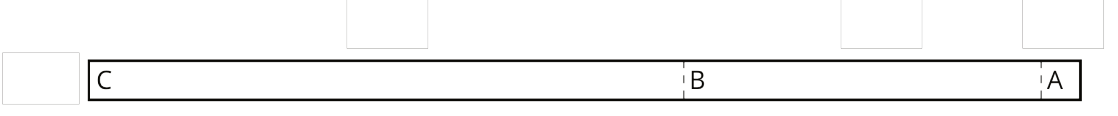
   b. $(16.5) \cdot (0.7)$

3. Use area diagrams to check your earlier calculations. For each problem:
    - Decompose each number into its base-ten units and write them in the boxes on each side of the rectangle.
    - Write the area of each lettered region in the diagram. Then find the area of the entire rectangle. Show your reasoning.

    a. $(4.6) \cdot (0.9)$



    b. $(16.5) \cdot (0.7)$



4. About how many centimeters are in 6.25 inches if 1 inch is about 2.5 centimeters? Show your reasoning.

3 Practicing Multiplication of Decimals (Optional)

Student Task Statement

1. Calculate each product. Show your reasoning. If you get stuck, consider drawing an area diagram to help.

    a. $(5.6) \cdot (1.8)$

    b. $(0.008) \cdot (7.2)$

2. A rectangular playground is 18.2 meters by 12.75 meters.

    a. Find its area in square meters. Show your reasoning.

    b. If 1 meter is approximately 3.28 feet, what are the approximate side lengths of the playground in feet? Show your reasoning.