## Unit 3 Lesson 17: Calculating Products of Decimals

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

#### Student Task Statement

Evaluate mentally.

$20⋅5$

$20⋅\left(0.8\right)$

$20⋅\left(0.04\right)$

$20⋅\left(5.84\right)$

### 2 Using the Partial Products Method (Optional)

#### Student Task Statement

1. Label the area diagram to represent $\left(2.5\right)⋅\left(1.2\right)$ and to find that product.
* 
	1. Decompose each number into its base-ten units (ones, tenths, etc.) and write them in the boxes on each side of the rectangle.
	2. Label Regions A, B, C, and D with their areas. Show your reasoning.
	3. Find the product that the area diagram represents. Show your reasoning.
1. Here are two ways to calculate $\left(2.5\right)⋅\left(1.2\right)$. Each number with a box gives the area of one or more regions in the area diagram.
* 
	1. In the boxes next to each number, write the letter(s) of the corresponding region(s).
	2. In Calculation B, which two numbers are being multiplied to obtain 0.5?
	Which numbers are being multiplied to obtain 2.5?

#### Activity Synthesis



### 3 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.
* 
* Here is an example for $\left(2.5\right)⋅\left(1.2\right)$.
* Use what you know about decimals and place value to explain why the decimal point of the product is placed where it is.
1. Use the method shown in the first question to calculate each product.
	1. $\left(4.6\right)⋅\left(0.9\right)$
	2. $\left(16.5\right)⋅\left(0.7\right)$
2. 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.
	1. $\left(4.6\right)⋅\left(0.9\right)$
	* 
	1. $\left(16.5\right)⋅\left(0.7\right)$
	* 
3. About how many centimeters are in 6.25 inches if 1 inch is about 2.5 centimeters? Show your reasoning.

### 4 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.
	1. $\left(5.6\right)⋅\left(1.8\right)$
	2. $\left(0.008\right)⋅\left(7.2\right)$
2. A rectangular playground is 18.2 meters by 12.75 meters.
	1. Find its area in square meters. Show your reasoning.
	2. If 1 meter is approximately 3.28 feet, what are the approximate side lengths of the playground in feet? Show your reasoning.



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