## Unit 3 Lesson 16: Methods for Multiplying Decimals

### 1 Multiplying by 10 (Warm up)

#### Student Task Statement

1. In which equation is the value of the largest?
2. How many times the size of 0.81 is 810?

### 2 Fractionally Speaking: Multiples of Powers of Ten

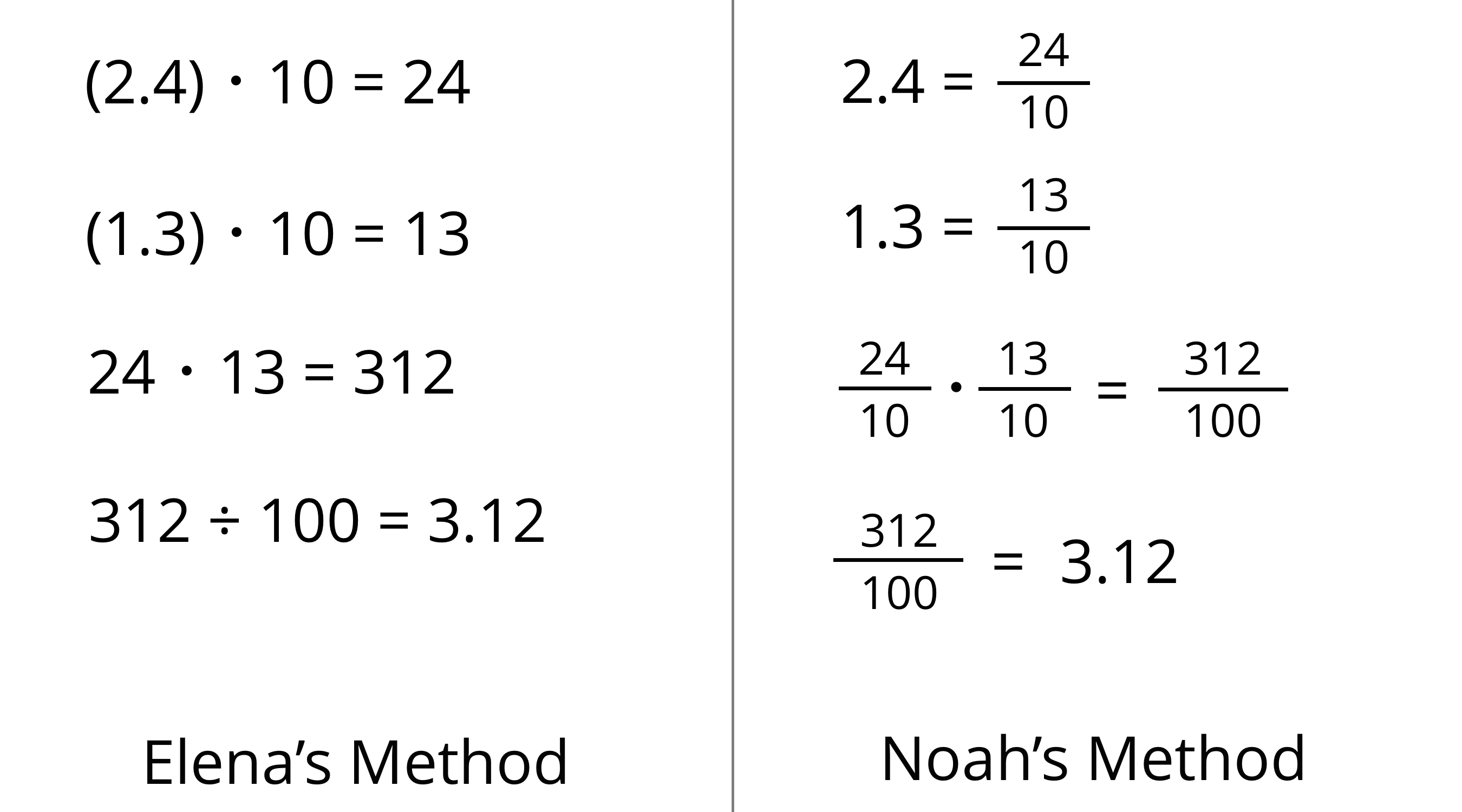
#### Student Task Statement

1. Select **all** expressions that are equivalent to . Be prepared to explain your reasoning.
2. Find the value of . Show your reasoning.
3. Find the value of each product by writing and reasoning with an equivalent expression with fractions.

### 3 Using Properties to Reason about Multiplication

#### Student Task Statement

Elena and Noah used different methods to compute . Both calcuations were correct.



1. Analyze the two methods, then discuss these questions with your partner.
   * Which method makes more sense to you? Why?
   * What might Elena do to compute ? What might Noah do to compute ? Will the two methods result in the same value?
2. Compute each product using the equation and what you know about fractions, decimals, and place value. Explain or show your reasoning.

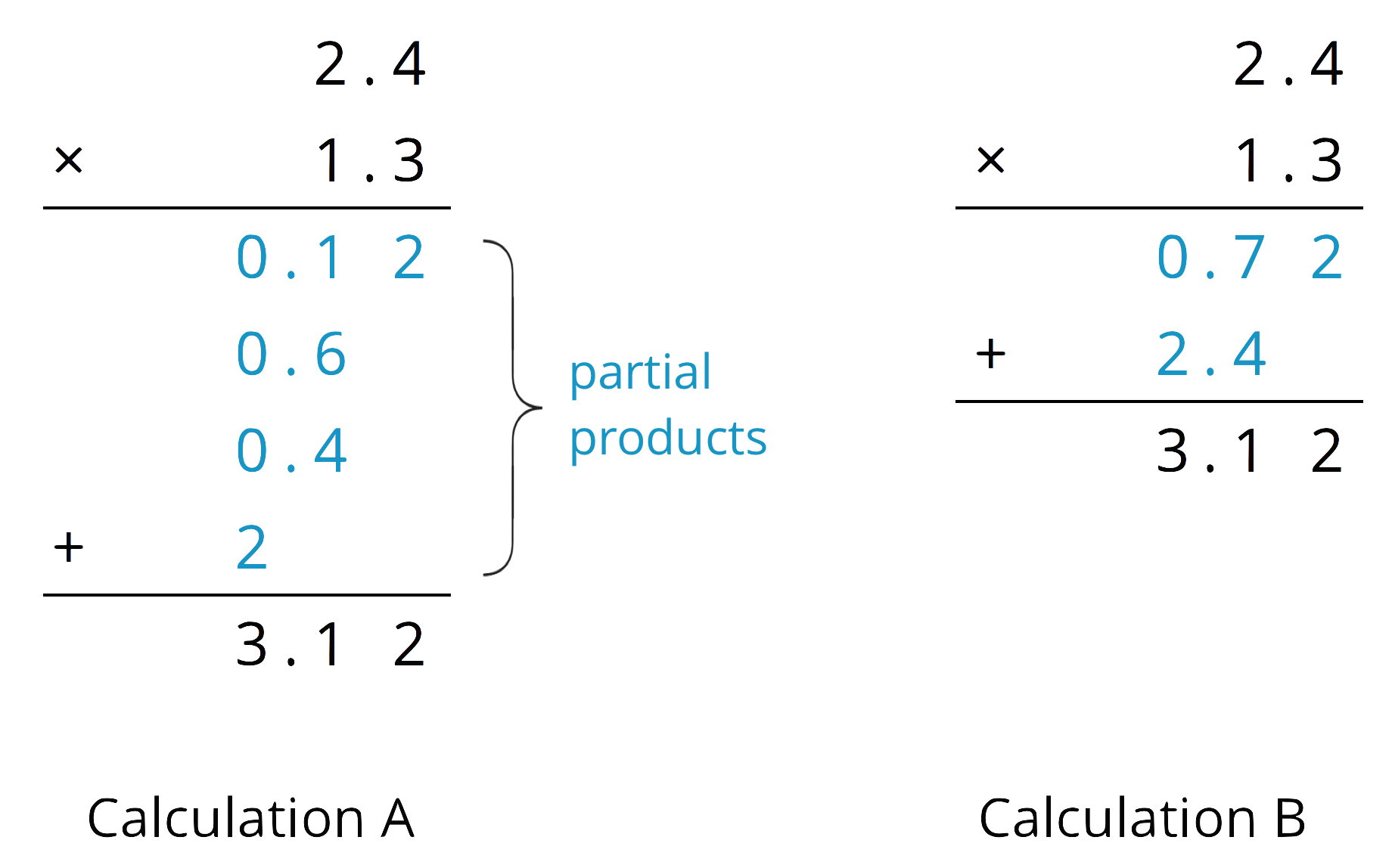
### 4 Connecting Area Diagrams to Calculations with Decimals

#### Student Task Statement

1. You can use area diagrams to represent products of decimals. Here is an area diagram that represents .

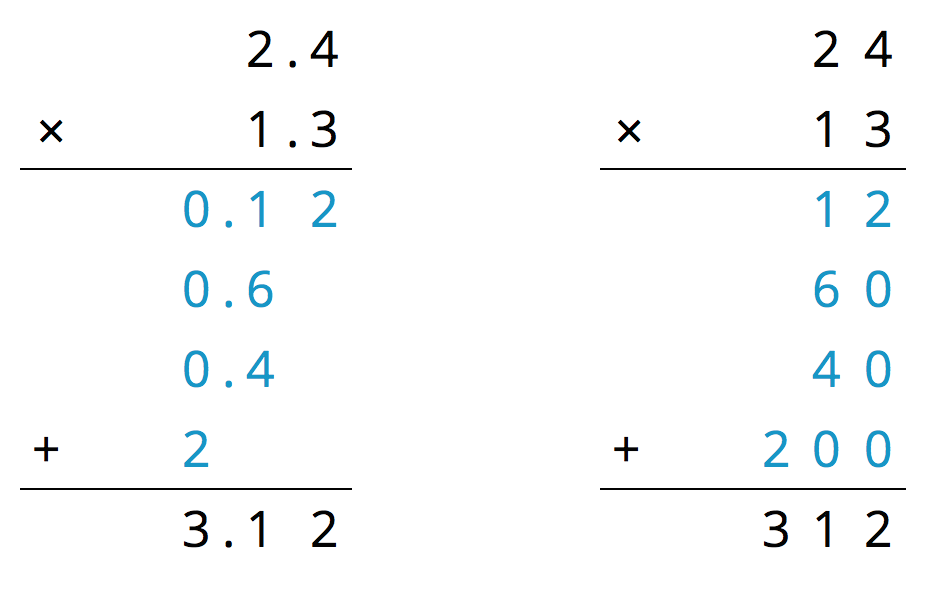
* 
  1. Find the region that represents . Label it with its area of 0.12.
  2. Label the other regions with their areas.
  3. Find the value of . Show your reasoning.

1. Here are two ways of calculating .

* 
* Analyze the calculations and discuss these questions with a partner:
  + In Calculation A, where does the 0.12 and other partial products come from?
  + In Calculation B, where do the 0.72 and 2.4 come from?
  + In each calculation, why are the numbers below the horizontal line aligned vertically the way they are?

1. Find the product of by drawing and labeling an area diagram. Show your reasoning.
2. Show how to calculate using numbers without a diagram. Be prepared to explain your reasoning. If you are stuck, use the examples in a previous question to help you.

#### Activity Synthesis





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