

## Grade 5 Unit 4

### Lesson 3

CC BY 2021 Illustrative Mathematics®

## Unit 4 Lesson 3: Partial Products in Algorithms

### WU Which One Doesn't Belong: Multiplying Large Numbers (Warm up)

#### Student Task Statement

Which one doesn't belong?

**A**

	5,000	300	40	2
4	20,000	?	160	8

**B**

$$(4 \times 5,000) + (4 \times 300) + (4 \times 40) + (4 \times 2)$$

**C**

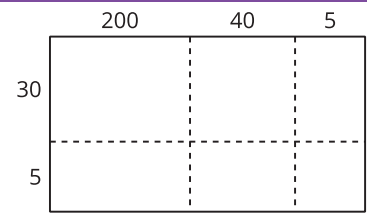
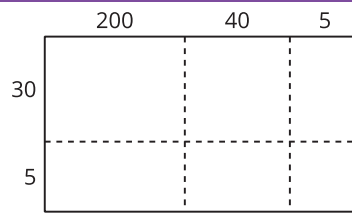
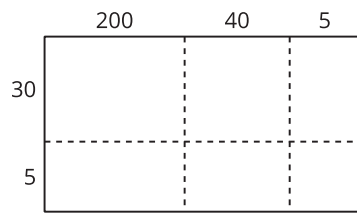
	5,000	300	42
4	20,000	1,200	168

**D**

	5,000	300	40	2
5	25,000	1,500	200	10

### 1 Partial Products Everywhere

#### Student Task Statement



1. Take turns picking out a set of expressions that are equal to  $245 \times 35$  when added together. Use the diagrams if they are helpful.
2. Explain how you know the sum of your expressions is equal to  $245 \times 35$ .
3. What is the value of  $245 \times 35$ ? Explain or show your reasoning.

## 2 Record Partial Products

### Student Task Statement

Andre

$$\begin{array}{r}
 \begin{array}{r} 2 \ 4 \ 5 \\ \times \quad 3 \ 5 \\ \hline 6, \ 0 \ 0 \ 0 \\ 1, \ 2 \ 0 \ 0 \\ \quad 1 \ 5 \ 0 \\ 1, \ 0 \ 0 \ 0 \\ \quad 2 \ 0 \ 0 \\ + \quad \quad 2 \ 5 \\ \hline 8, \ 5 \ 7 \ 5 \end{array}
 \end{array}$$

Clare

$$\begin{array}{r}
 \begin{array}{r} 2 \ 4 \ 5 \\ \times \quad 3 \ 5 \\ \hline \quad 2 \ 5 \\ \quad 2 \ 0 \ 0 \\ 1, \ 0 \ 0 \ 0 \\ \quad 1 \ 5 \ 0 \\ 1, \ 2 \ 0 \ 0 \\ + \ 6, \ 0 \ 0 \ 0 \\ \hline 8, \ 5 \ 7 \ 5 \end{array}
 \end{array}$$

1. How are Andre's and Clare's strategies the same? How are they different?
2. Create a list of equations to match the partial products Andre and Clare found.