

# Lesson 3: Partial Products in Algorithms

- Let's find partial products.

## Warm-up: Which One Doesn't Belong: Multiplying Large Numbers

Which one doesn't belong?

A

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

B

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

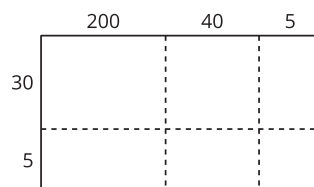
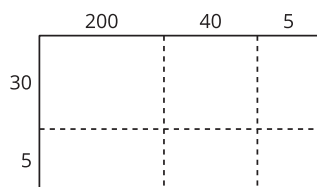
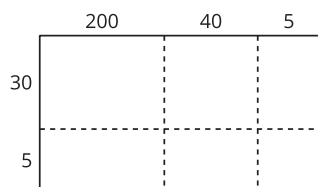
C

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

D

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

### 3.1: Partial Products Everywhere



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  $245 \times 35$ .

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3. What is the value of  $245 \times 35$ ? Explain or show your reasoning.

## 3.2: Record Partial Products

Andre

$$\begin{array}{r}
 245 \\
 \times 35 \\
 \hline
 6,000 \\
 1,200 \\
 150 \\
 1,000 \\
 200 \\
 + \quad 25 \\
 \hline
 8,575
 \end{array}$$

Clare

$$\begin{array}{r}
 245 \\
 \times 35 \\
 \hline
 25 \\
 200 \\
 1,000 \\
 150 \\
 1,200 \\
 + 6,000 \\
 \hline
 8,575
 \end{array}$$

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.