Unit 4, Lesson 11

A Partial-Quotients Algorithm

Let's make sense of a partial-quotients algorithm.

Warm-up

Notice and Wonder: Incomplete Solution

What do you notice? What do you wonder?

$$\begin{array}{rll} & 20 & \\ 16\,\big) & \overline{448} & \\ & -\underline{320} & (20 \times 16) \\ & 128 & \\ & & (5 \times 16) \end{array}$$

Activity 1

Elena's Work

1. Find the value of $448 \div 16$. Show your thinking. Organize it so it can be followed by others.

(Pause for teacher directions.)

2. Describe Elena's strategy for finding the value of $448 \div 16$.

$$
\begin{array}{rll}
 & \boxed{28} & \\
16\overline{)} & 448 & \\
 & 3 & \\
 & 5 & \\
 & 20 & \\
 & -320 & (20 \times 16) \\
 & 128 & \\
 & -\ 80 & (5 \times 16) \\
 & 48 & \\
 & -\ 48 & (3 \times 16) \\
 & 0 &
\end{array}
$$

Activity 2

Complete the Solution

Use Elena's strategy to complete solving these expressions.

1.

$$
\begin{array}{rl}
20 & \\
20 & \\
12\overline{)492} & \\
-240 & (20 \times 12) \\
\hline
252 & \\
-240 & (20 \times 12) \\
\hline
\end{array}
$$

2.

$$
\begin{array}{rl}
40 & \\
15\overline{)630} & \\
 & (40 \times 15)
\end{array}
$$

3.

$14\overline{)368}$