Lesson 12: An Algorithm Using Partial Quotients

- Let's make sense of an algorithm using partial quotients.

Warm-up: Notice and Wonder: Incomplete Solution

What do you notice? What do you wonder?

$$\begin{array}{rl} 20 & \\ 16\overline{)448} & \\ -320 & (20 \times 16) \\ \hline 128 & \\ & (5 \times 16) \end{array}$$

12.1: 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. This is Elena's work. Describe the steps Elena took to find the value of $448 \div 16$.

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

12.2: Complete the Solution

Use Elena's strategy to complete the following problems:

1.

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

2.

$$\begin{array}{r} 40 \\ \hline 15\overline{)630} \end{array} \quad (40 \times 15)$$

3.

$$14\overline{)364}$$