

Grade 4 Unit 6

Lesson 19

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Unit 6 Lesson 19: Division With and Without Remainders

WU Notice and Wonder: Equations with Hundreds (Warm up)

Student Task Statement

What do you notice? What do you wonder?

$$100 = 33 \times 3 + 1$$

$$200 = 66 \times 3 + 2$$

$$300 = 100 \times 3$$

$$400 = 133 \times 3 + 1$$

$$500 = 166 \times 3 + 2$$

$$600 = 200 \times 3$$

1 A Stack of Partial Quotients

Student Task Statement

Jada used partial quotients to find out how many groups of 7 are in 389.

Analyze Jada's steps in the algorithm.

$$\begin{array}{r}
 \boxed{55} \\
 8 \\
 7 \\
 40 \\
 7 \overline{)389} \\
 \underline{- 280} \\
 109 \\
 \underline{- 49} \\
 60 \\
 \underline{- 56} \\
 4
 \end{array}$$

1.
 - a. Look at the three numbers above 389. What do they represent?
 - b. Look at the three subtractions below 389. What do they represent?

- c. What is another way you can decompose 389 to divide by 7?
- Is 389 a multiple of 7? Explain your reasoning.
 - Use an algorithm that uses partial quotients to find out how many groups of 3 are in 702.
 - Is 702 a multiple of 3? Explain your reasoning.

Activity Synthesis

$$\begin{array}{r}
 \boxed{234} \\
 4 \\
 30 \\
 200 \\
 3 \overline{)702} \\
 \underline{- 600} \\
 102 \\
 \underline{- 90} \\
 12 \\
 \underline{- 12} \\
 0
 \end{array}$$

$$\begin{array}{r}
 \boxed{234} \\
 4 \\
 30 \\
 200 \\
 3 \overline{)702} \\
 \underline{- 600} \\
 102 \\
 \underline{- 90} \\
 12 \\
 \underline{- 12} \\
 0
 \end{array}$$

$$\begin{array}{r}
 \boxed{234} \\
 4 \\
 30 \\
 200 \\
 3 \overline{)702} \\
 \underline{- 600} \\
 102 \\
 \underline{- 90} \\
 12 \\
 \underline{- 12} \\
 0
 \end{array}
 \begin{array}{l}
 3 \times 200 \\
 3 \times 30 \\
 3 \times 4
 \end{array}$$

2 Andre and Elena's Work

Student Task Statement

Andre and Elena are dividing 2,316 by 5. Before they begin, Andre says, "I can already tell that there will be a remainder."

1. Without doing any calculations, decide if you agree with Andre. Explain your reasoning.
2. Here is Andre and Elena's work. Each student made one or more errors. Identify the errors each student made. Then, show a correct computation.

Andre's Work

$$\begin{array}{r} \boxed{103} \\ 3 \\ 60 \\ 40 \\ 5 \overline{)2,316} \\ \underline{-2,000} \\ 316 \\ \underline{-300} \\ 16 \\ \underline{-15} \\ 1 \end{array}$$

Elena's Work

$$\begin{array}{r} \boxed{400} \\ 60 \\ 100 \\ 300 \\ 5 \overline{)2,316} \\ \underline{-1,500} \\ 816 \\ \underline{-500} \\ 316 \\ \underline{-300} \\ 16 \end{array}$$

Activity Synthesis

$$\begin{array}{r} \boxed{403} \\ 3 \\ 60 \\ 100 \\ 300 \\ 5 \overline{)2,316} \\ \underline{-1,500} \quad 5 \times 300 \\ 816 \\ \underline{-500} \quad 5 \times 100 \\ 316 \\ \underline{-300} \quad 5 \times 60 \\ 16 \\ \underline{-15} \quad 5 \times 3 \\ 1 \end{array}$$

3 Incomplete Calculations

Student Task Statement

Here are four calculations to find the value of $3,294 \div 3$, but each one is unfinished.

Complete at least two of the unfinished calculations. Be prepared to explain why you chose them.

A

$$\begin{array}{r} 90 \\ 1,000 \\ 3 \overline{)3,294} \\ -3,000 \\ \hline 294 \\ - 270 \\ \hline \end{array} \quad \begin{array}{l} 3 \times 1,000 \\ 3 \times 90 \end{array}$$

B

$$\begin{array}{r} 80 \\ 200 \\ 400 \\ 400 \\ 3 \overline{)3,294} \\ -1,200 \\ \hline 2,094 \\ -1,200 \\ \hline 894 \\ - 600 \\ \hline 294 \\ - 240 \\ \hline \end{array} \quad \begin{array}{l} 3 \times 400 \\ 3 \times 400 \\ 3 \times 200 \\ 3 \times 80 \end{array}$$

C

$$\begin{array}{l} 600 \div 3 = \\ 270 \div 3 = \end{array}$$

D

$$\begin{array}{r} 3,300 \div 3 = 1,100 \\ - \quad 6 \div 3 = \quad 2 \\ \hline \end{array}$$