

Arithmetic Fluency and Differentiated Instruction through Alternative Algorithms

NCTM Annual Meeting and Exposition: April 17-20, 2013, Denver CO

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Addition Algorithms

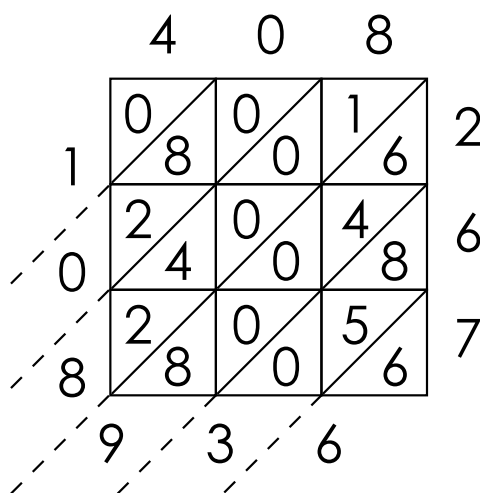
$$\begin{array}{r} 489 \\ + 257 \\ \hline 600 \\ 130 \\ + 16 \\ \hline 746 \end{array}$$

$$\begin{array}{r} 489 \\ + 257 \\ \hline \cancel{6}\cancel{3}6 \\ 74 \end{array}$$

$$\begin{array}{r} 489 \\ + 257 \\ \hline \end{array} \rightarrow \begin{array}{r} 500 \\ + 246 \\ \hline 746 \end{array}$$

Multiplication Algorithms

$$\begin{array}{r} 408 \\ \times 267 \\ \hline 56 \\ 2800 \\ 480 \\ 24000 \\ 1600 \\ + 80000 \\ \hline 108936 \end{array}$$



$$\begin{array}{r} 420 \times 12 = \\ 1260 \times 4 = \\ 5040 \times 1 = \\ \hline 5040 \end{array}$$

Subtraction Algorithms

$$\begin{array}{r}
 623 \\
 - 176 \\
 \hline
 500 \\
 - 50 \\
 - 3 \\
 \hline
 447
 \end{array}$$

$$\begin{array}{r}
 6^1 2^1 3 \\
 - \cancel{7}^2 \cancel{7}^8 6 \\
 \hline
 447
 \end{array}$$

$$\begin{array}{r}
 623 \\
 - 176 \\
 \hline
 \end{array}
 \rightarrow
 \begin{array}{r}
 647 \\
 - 200 \\
 \hline
 447
 \end{array}$$

Division Algorithms

$$\begin{array}{r}
 26 \overline{) 5562} \\
 \underline{- 2600} \quad 100 \\
 2962 \\
 \underline{- 2600} \quad 100 \\
 362 \\
 \underline{- 260} \quad 10 \\
 102 \\
 \underline{- 52} \quad 2 \\
 50 \\
 \underline{- 26} \quad 1 \\
 24 \\
 \hline
 213 \text{ r. } 24
 \end{array}$$

$$\begin{array}{r}
 420 \div 12 = \\
 70 \div 2 = \\
 35
 \end{array}$$

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