

Multiplying 2-Digit Numbers by 2-Digit Numbers

Lesson 4-9

DATE

TIME

Draw a partitioned rectangle to represent the multiplication problem. Then use partial-products multiplication to record your work in a simpler way.



1 $20 * 34 = \underline{680}$

Partitioned Rectangle	Partial-Products Multiplication
<p>A partitioned rectangle representing the multiplication $20 * 34$. The rectangle is divided into two columns. The top edge is labeled with 30 and 4. The left edge is labeled with 20. The bottom edge is labeled with 34. The left column contains the number 600, and the right column contains the number 80.</p>	$\begin{array}{r} 34 \\ * 20 \\ \hline 600 \\ + 80 \\ \hline 680 \end{array}$

2 $17 * 34 = \underline{578}$

Partitioned Rectangle	Partial-Products Multiplication
<p>A partitioned rectangle representing the multiplication $17 * 34$. The rectangle is divided into two columns. The top edge is labeled with 30 and 4. The left edge is labeled with 17. The bottom edge is labeled with 34. The left column contains 300 and 210. The right column contains 40 and 28. To the right of the top part of the rectangle is the number 10, and to the right of the bottom part is the number 7.</p>	$\begin{array}{r} 34 \\ * 17 \\ \hline 300 \\ 40 \\ 210 \\ + 28 \\ \hline 578 \end{array}$

Multiplying 2-Digit Numbers by 2-Digit Numbers (continued)

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Use partial-products multiplication.

<p>Example:</p> $ \begin{array}{r} 38 \\ * 76 \\ \hline 2100 \\ 560 \\ 180 \\ + 48 \\ \hline 2,888 \end{array} $	<p>3</p> $ \begin{array}{r} 73 \\ * 87 \\ \hline 5600 \\ 240 \\ 490 \\ + 21 \\ \hline 6,351 \end{array} $
<p>4</p> $ \begin{array}{r} 44 \\ * 28 \\ \hline 800 \\ 80 \\ 320 \\ + 32 \\ \hline 1,232 \end{array} $	<p>5</p> $ \begin{array}{r} 92 \\ * 89 \\ \hline 7200 \\ 160 \\ 810 \\ + 18 \\ \hline 8,188 \end{array} $

- 6** Eli solved $28 * 37$ like this. He showed his thinking in blue:

$$\begin{array}{r}
 28 \\
 * 37 \\
 \hline
 3 * 20 = 60 \\
 3 * 8 = 24 \\
 7 * 20 = 140 \\
 7 * 8 = 56 \\
 \hline
 280
 \end{array}$$

What mistake did Eli make? Eli multiplied by 3 twice instead of multiplying by 30. $37 = 30 + 7$, not $3 + 7$.

Sketch a partitioned rectangle that could help Eli understand what he did wrong.

