

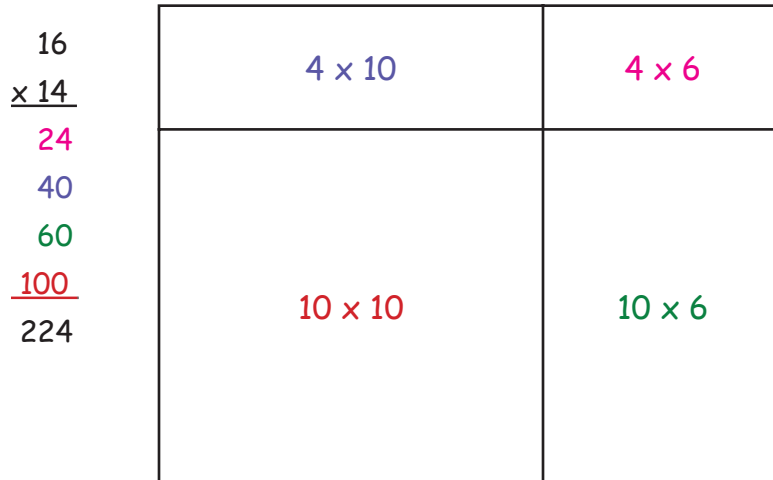
Geometric Representations of Arithmetical Operations

Making distributive property explicit in multiplication of two-digit numbers

Discuss an explicit procedure for multiplying 14×16 ; relate it to the algorithm you know, and to a geometric representation.

$\begin{array}{r} 16 \\ \times 14 \\ \hline 64 \\ 160 \\ \hline 224 \end{array}$	$\begin{array}{r} 14 \\ \times 16 \\ \hline 84 \\ 140 \\ \hline 224 \end{array}$
--	--

For the first procedure, in the figure below, where is 64 represented? What part does represent 160? Break the process into all the steps.



How is this process related to the use of the distributive property of multiplication over addition?
 $(10 + 6) \times (10 + 4)$

Another example, 12×23

Explain what partial products do each of the following numbers represent 6, 40, 30, 200. Identify the corresponding areas in the rectangle below.

$\begin{array}{r} 23 \\ \times 12 \\ \hline 46 \\ 230 \\ \hline 276 \end{array}$	$\begin{array}{r} 20 + 3 \\ \times 10 + 2 \\ \hline 40 + 6 \\ 200 + 30 \\ \hline 200 + 70 + 6 \end{array}$
--	--

