

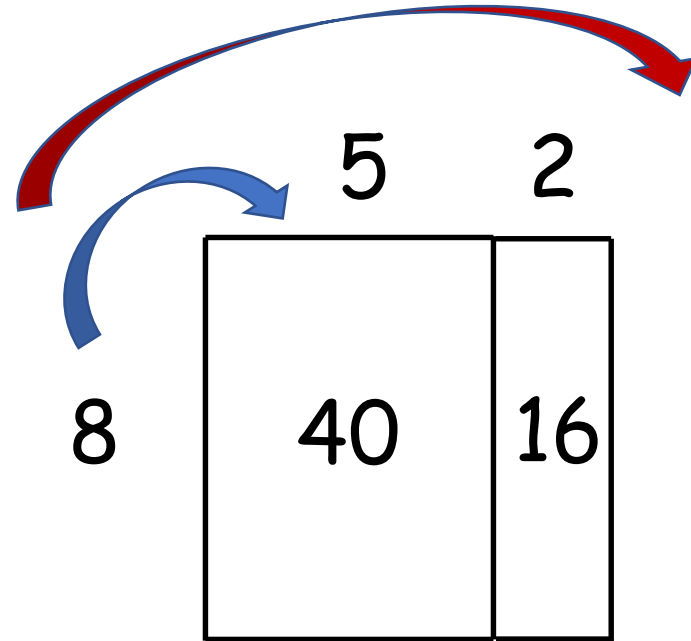


Why Teach the Area Models of Multiplication?



One-Digit by One-Digit Multiplication

$$8 \times 7$$



A diagram illustrating the distributive property. It shows the expression $8(5 + 2)$. A blue arrow points from the 8 to the 5, and another blue arrow points from the 8 to the 2. A red arrow points from the 8 to the entire expression $(5 + 2)$.

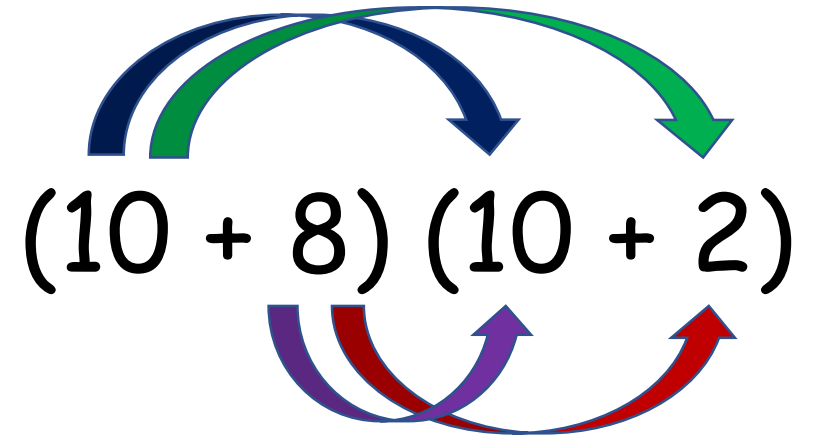
$$8(5 + 2)$$

$$40 + 16 = 56$$

Two-Digit by Two-Digit Multiplication

$$\textcircled{18} \times \textcircled{12}$$

	10	2
10	100	20
8	80	16

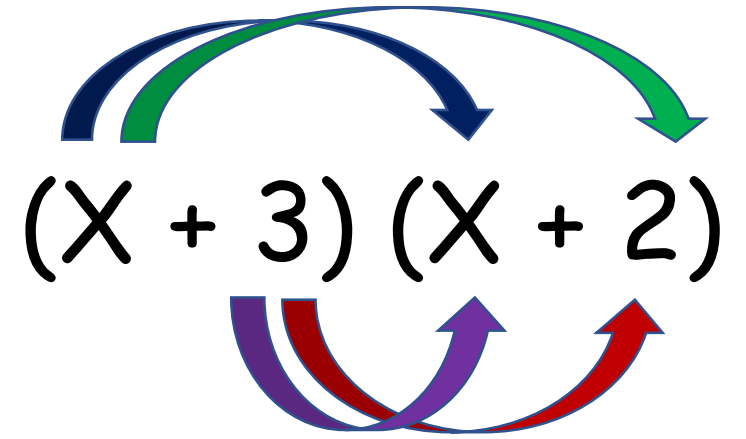
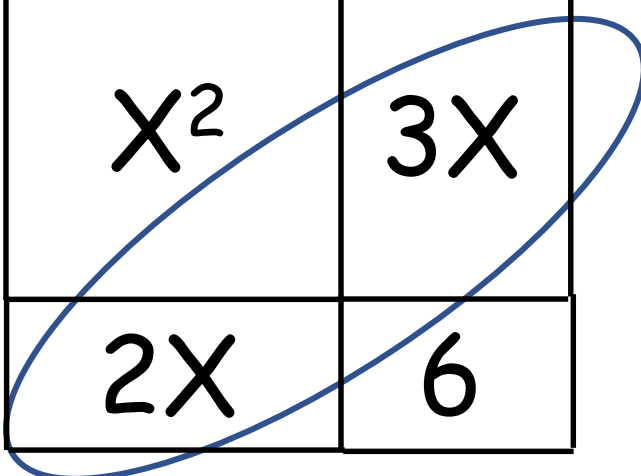


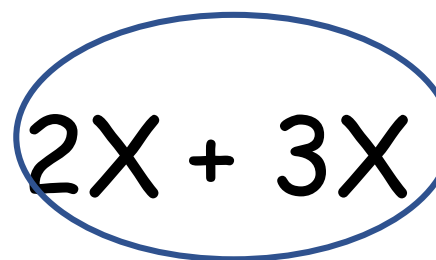
$$100 + 20 + 80 + 16 = 216$$

Multiplication of Algebraic Expressions

$$(X+3)(X+2)$$

	X	3
X	X^2	$3X$
2	$2X$	6



$$X^2 + 2X + 3X + 6 = X^2 + 5X + 6$$


Try using the area model to multiply this problem.

$$(3X + 4)(X + 2)$$

Factoring Polynomials

$$X^2 + 6X + 8$$

	X	2
X	X^2	$2X$
4	$4X$	8

$$(X + 2)(X + 4)$$

$$1 \times 8$$

$$-1 \times -8$$

$$2 \times 4$$

$$-2 \times -4$$

$$1 + 5$$

$$2 + 4$$

$$3 + 3$$

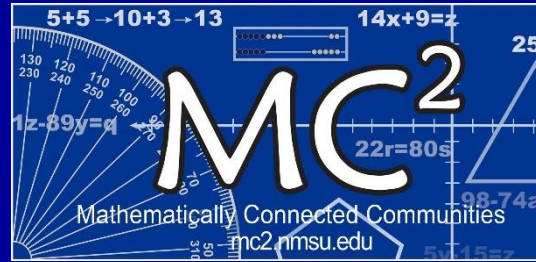
Try using the area model to factor this problem.

$$X^2 + 11X + 24$$

For other interesting uses of flexibility with numbers view Jo Boaler's video,
What is Number Sense?

<https://www.youcubed.org/what-is-number-sense/>

For more information, email mc2.numsu.edu



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