

# Multiply Binomials

Apply the distributive property.

$$\begin{aligned}(a + b)(c + d) &= \\ a(c + d) + b(c + d) &= \\ ac + ad + bc + bd &\end{aligned}$$

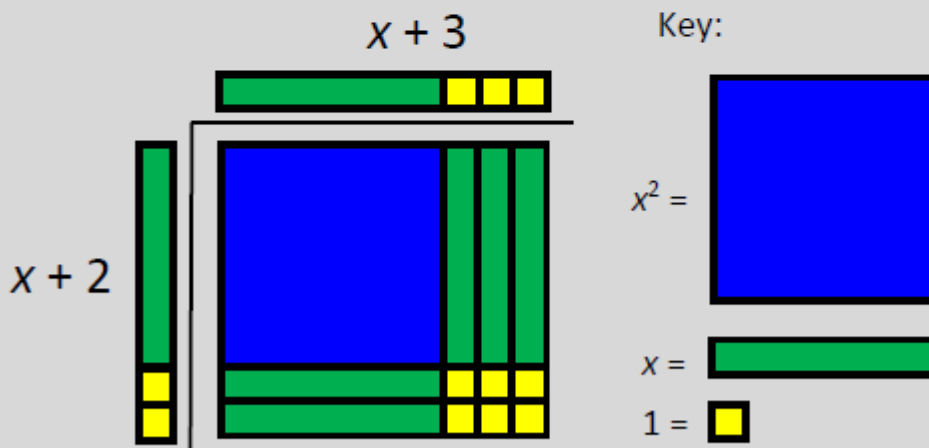
Example:  $(x + 3)(x + 2)$

$$\begin{aligned}&= (x + 3)(x + 2) \\ &= x(x + 2) + 3(x + 2) \\ &= x^2 + 2x + 3x + 6 \\ &= x^2 + 5x + 6\end{aligned}$$

# Multiply Binomials (Model)

Apply the distributive property.

Example:  $(x + 3)(x + 2)$



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

# Multiply Binomials (Graphic Organizer)

Apply the distributive property.

Example:  $(x + 8)(2x - 3)$

$$= (x + 8)(2x + -3)$$

$$2x + -3$$

$x$	$2x^2$	$-3x$
$+$		
$8$	$16x$	$-24$

$$2x^2 + 16x + -3x + -24 = 2x^2 + 13x - 24$$

# Multiply Binomials (Sum and Difference)

$$(a + b)(a - b) = a^2 - b^2$$

Examples:

$$(2b + 5)(2b - 5) = 4b^2 - 25$$

$$(7 - w)(7 + w) = 49 - w^2$$

# Multiply Binomials

## (Squaring a Binomial)

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

Examples:

$$\begin{aligned}(3m + n)^2 &= 9m^2 + 2(3m)(n) + n^2 \\ &= 9m^2 + 6mn + n^2\end{aligned}$$

$$\begin{aligned}(y - 5)^2 &= y^2 - 2(5)(y) + 25 \\ &= y^2 - 10y + 25\end{aligned}$$