

1. The Math Club sells hot dogs and hamburgers at the football games.

*X = H. dogs  
Y = Ham.*

\*50 hot dogs and 75 hamburgers will sell for \$250.  
\*100 hot dogs and 75 hamburgers will sell for \$312.50

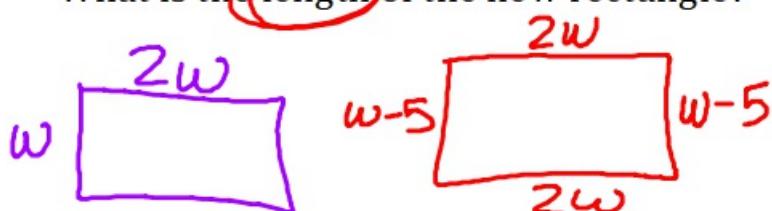
How much does each hamburger sell for?

$$\begin{aligned}
 & 2(50x + 75y = 250) \\
 & 100x + 150y = 500 \\
 & \underline{-} \quad \underline{100x + 75y = 312.50} \\
 & \quad \quad \quad \underline{75y = 187.50} \\
 & \quad \quad \quad \frac{75}{75} \\
 & \boxed{y = \$2.50}
 \end{aligned}$$

2. Evaluate  $f(-5)$  when  $f(x) = x^2 + 3x - 10$

$$\begin{aligned}
 f(-5) &= (-5)^2 + 3(-5) - 10 \\
 &= 25 - 15 - 10 \\
 f(-5) &= 0 \quad (-5, 0)
 \end{aligned}$$

3. The length of a rectangle is twice its width. If the width is decreased by 5, the new rectangle has a perimeter of 86. What is the length of the new rectangle?



width: 16

length:  $2(16)$

$$\boxed{32}$$

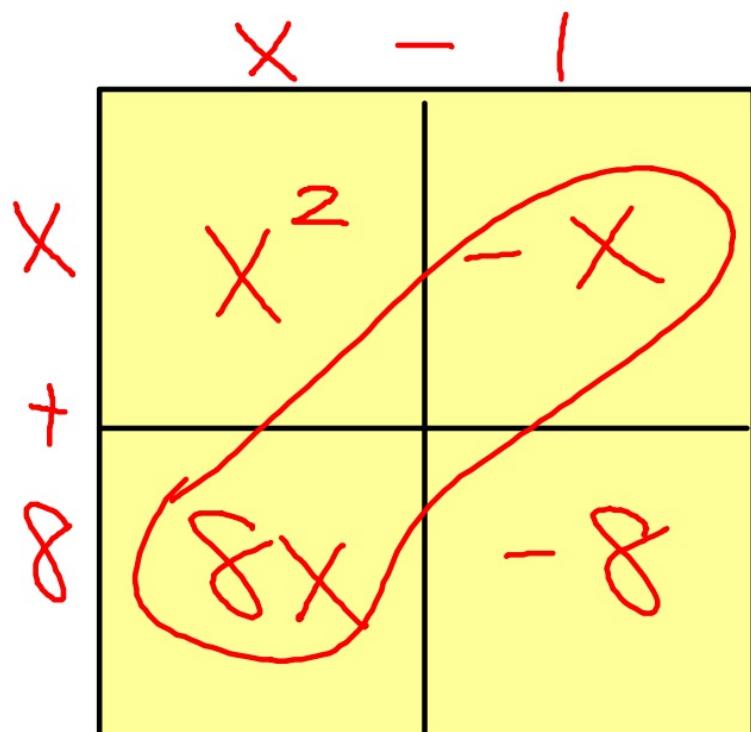
$$\begin{aligned}
 6w - 10 &= 86 \\
 +10 &\quad +10 \\
 \hline
 6w &= 96 \\
 \hline
 w &= 16
 \end{aligned}$$

# Multiplying Binomials

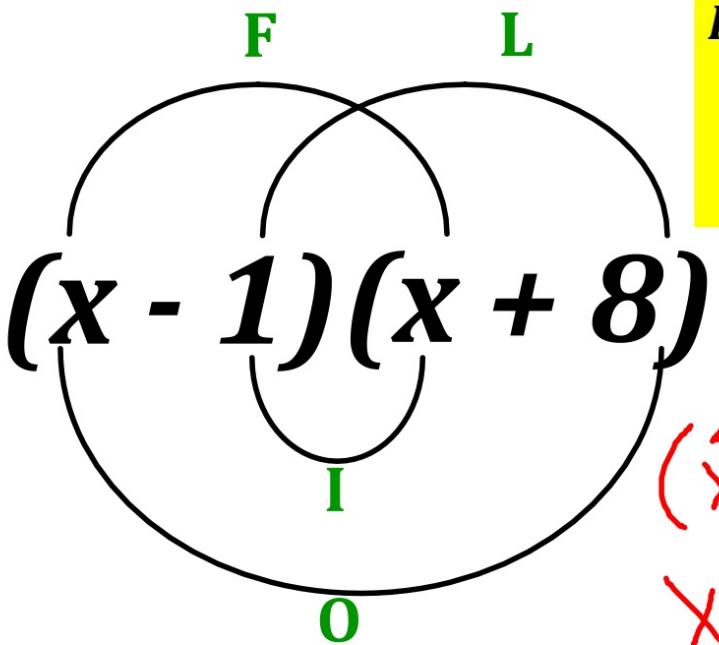
**Box Method:**

#6

$$(x - 1)(x + 8)$$



$$x^2 + 7x - 8$$



**Foil Method:** F - First terms  
 O - Outer terms  
 I - Inner terms  
 L - Last terms

Handwritten work showing the application of the FOIL method:

$$(x-1)(x+8)$$

$$x^2 + 8x - x - 8$$

$$\boxed{x^2 + 7x - 8}$$

Solve using FOIL method: #8

$$(x - 10)(x - 4)$$

$$x^2 - \underline{4x} - \underline{10x} + 40$$

$$\boxed{x^2 - 14x + 40}$$

Solve using the FOIL method: #9

$$(2x + 1)(x - 5)$$

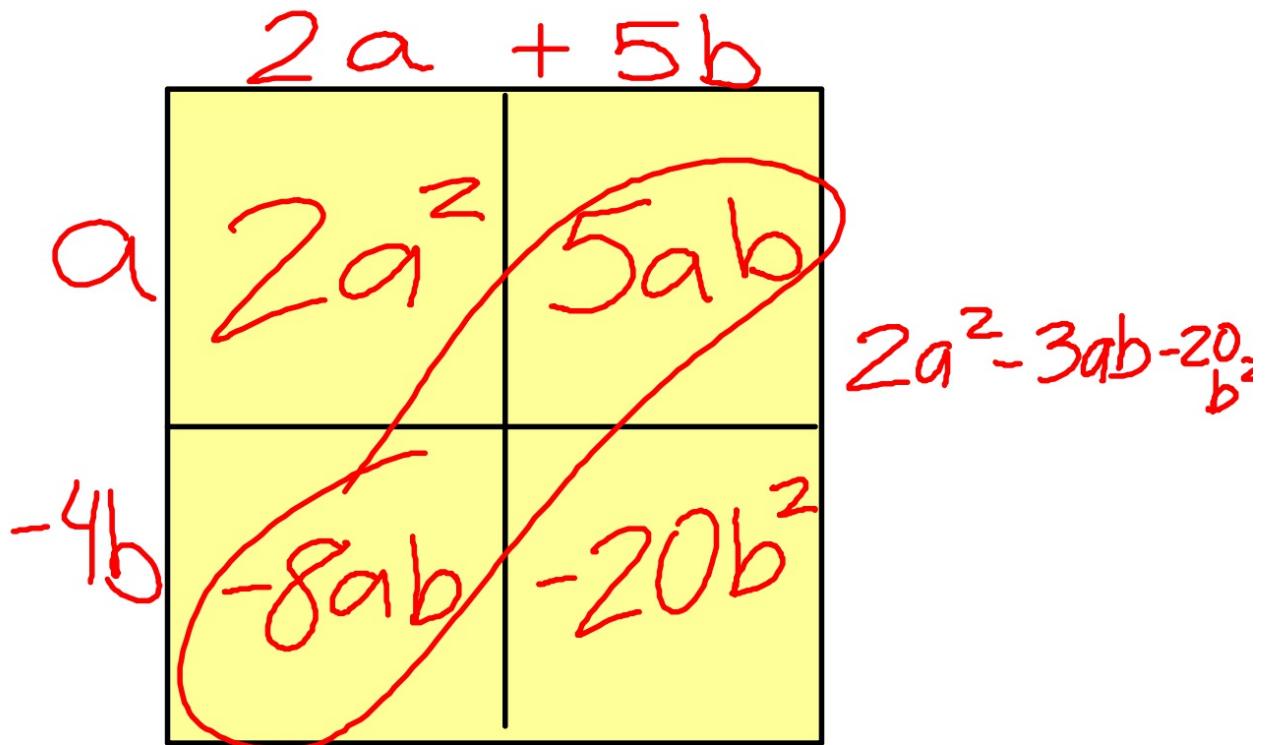
$$2x^2 \underline{-} 10x + \underline{x} - 5$$

$$\boxed{2x^2 - 9x - 5}$$

## *Box Method:*

#11

$$(2a + 5b)(a - 4b)$$



# Multiplying Binomials times Trinomials

#1

$$(x + 4)(x^2 + 3x - 6)$$

		$x^2 + 3x - 6$
$x$	$x^3$	$3x^2$
$+$		$-6x$
$4$	$4x^2$	$12x$
		$-24$

$$x^3 + 7x^2 + 6x - 24$$

## Distributive Method

#3

$$(k - 5)(k^2 - k - 8)$$

$$k^3 - k^2 - 8k - 5k^2 + 5k + 40$$

$$\boxed{k^3 - 6k^2 - 3k + 40}$$

You try Distributive:

$$(m + 3)(m^2 + 3m + 5)$$

A hand-drawn diagram illustrating the multiplication of two polynomials using a box method. The top row contains terms  $m^2$ ,  $+3m$ , and  $+5$ . The left column contains terms  $m$  and  $+3$ . The grid is divided into six cells. The top-left cell contains  $m^3$ . The top-middle cell contains  $3m^2$ . The top-right cell contains  $5m$ . The middle-left cell contains  $3m^2$ . The middle-middle cell contains  $9m$ . The bottom-right cell contains  $15$ . Red circles highlight the terms  $3m^2$  and  $9m$ . Red lines connect the terms  $m^2$  and  $+3m$  in the top row to the terms  $m$  and  $+3$  in the left column respectively. The final result at the bottom is  $m^3 + 6m^2 + 14m + 15$ .

$$m^3 + 6m^2 + 14m + 15$$

*Choose your method:*

#8

$$(2x + 2)(4x^2 - 3x - 6)$$

$$\begin{array}{r} 8x^3 - 6x^2 - \underline{12x} + 8x^2 - \underline{6x} - 12 \\ \hline 8x^3 + 2x^2 - 18x - 12 \end{array}$$

*Exit Ticket*

*4/8/19*

*Simplify:*

$$1. (2x + 1)(4x^2 - 5x + 3)$$

$$2. -3x(4x^2 - 10x + 2) + (-3x - 4)$$