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?

$$2(50X + 75y = 250)$$
$$100X + 75y = 312.50$$
$$100X + 150y = 500$$
$$100X + 75y = 312.50$$
$$75y = 187.50$$
$$\frac{75}{75} \qquad \frac{187.50}{75}$$
$$y = \$2.50$$

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

$$f(-5) = (-5)^2 + 3(-5) - 10$$
$$25 - 15 - 10$$
$$f(-5) = 0 \qquad (-5, 0)$$

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?
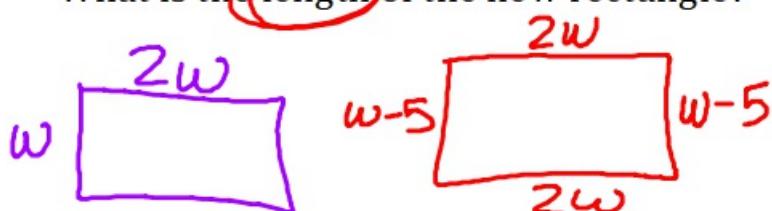
2w
w [rectangle]

2w
w-5 [rectangle] w-5
2w

width: 16
length: 2(16)
32

$$6w - 10 = 86$$
$$ +10 \quad +10$$
$$\frac{6w = 96}{6} \quad \frac{96}{6}$$
$$w = 16$$

Multiplying Binomials

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

$$x \quad - \quad 1$$

	x	-1
x	x^2	$-x$
$+8$	$8x$	-8

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

F L

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

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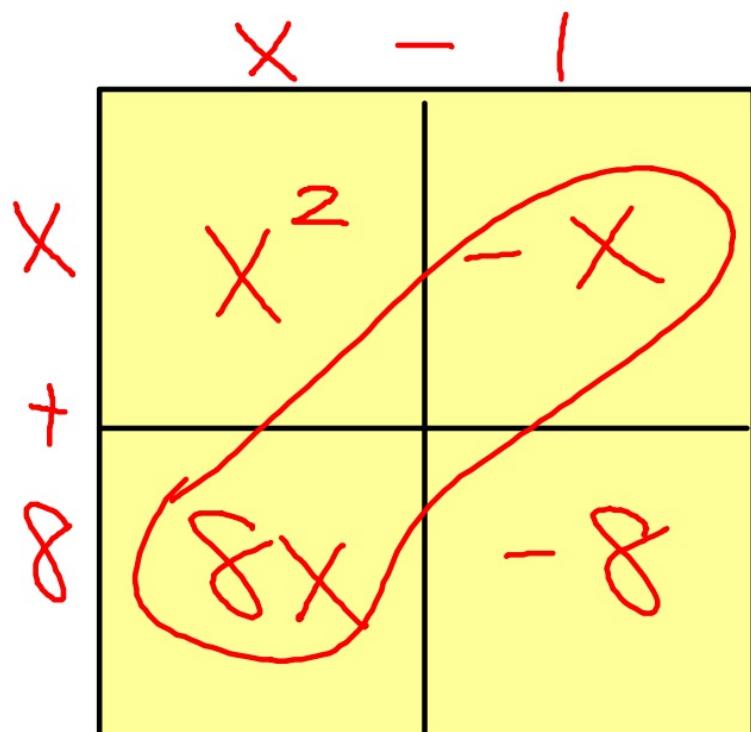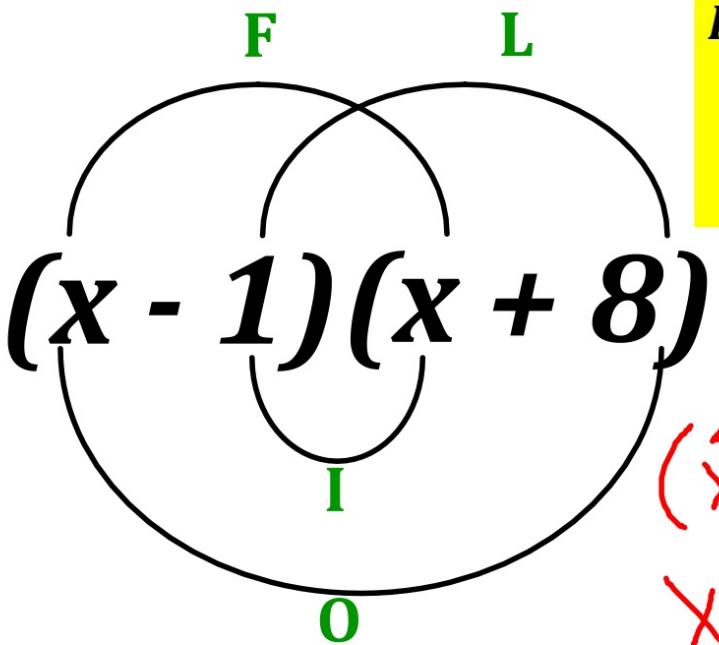
$(x - 1)(x + 8)$

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

$x^2 + 7x - 8$

Solve using FOIL method: *#8*

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

$$X^2 - 4X - 10X + 40$$

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

Solve using the FOIL method: [9]

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

$$2x^2 - 10x + x - 5$$

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

Box Method:

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

$$2a + 5b$$

$$a$$

$$2a^2 \quad 5ab$$

$$-4b$$

$$-8ab \quad -20b^2$$

$$2a^2 - 3ab - 20b^2$$
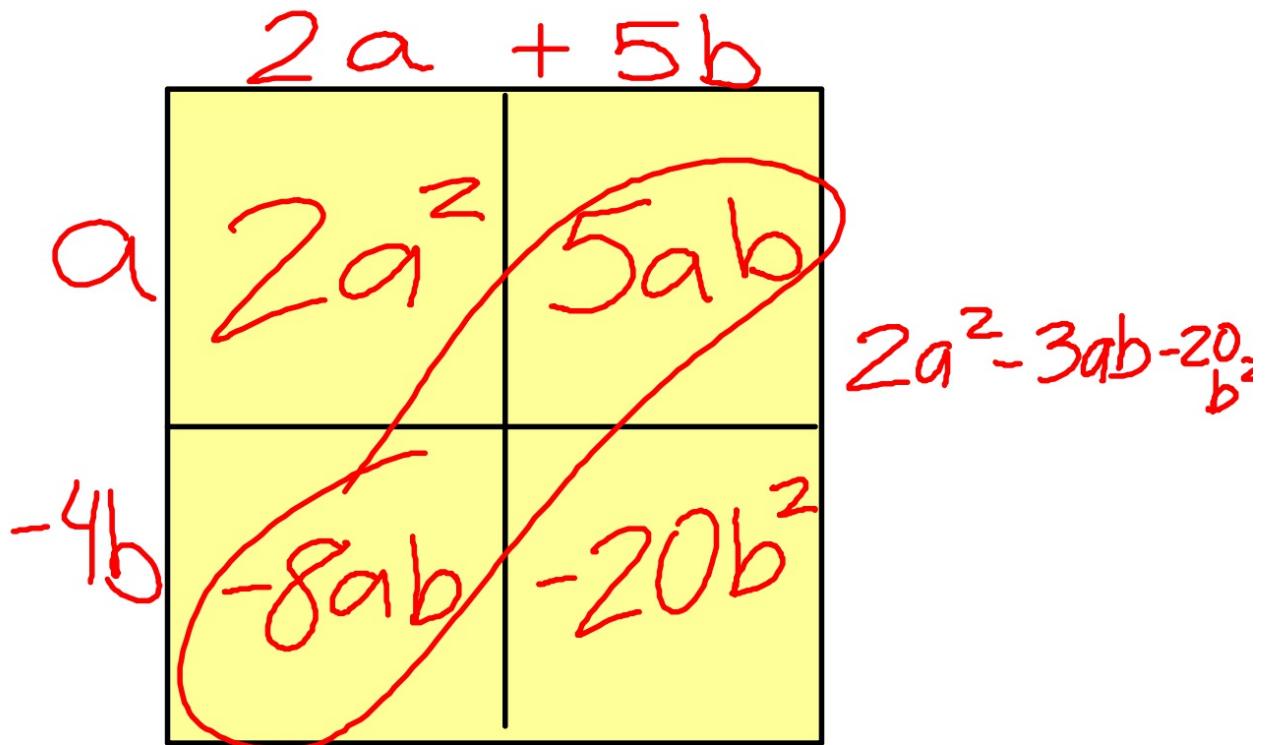
Multiplying Binomials times Trinomials

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

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

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

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

Distributive Method

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

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

$$k^3 - 6k^2 - 3k + 40$$

You try Distributive:

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

	m^2	$+ 3m$	$+5$
m	m^3	$3m^2$	$5m$
$+3$	$3m^2$	$9m$	15

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

Choose your method: #8

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

$8x^3 - 6x^2 - 12x + 8x^2 - 6x - 12$

$$8x^3 + 2x^2 - 18x - 12$$

Simplify:

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

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