

Focus:

1. To be able to expand and simplify polynomial expressions using the distributive property.
2. To be able to use the multiplication of polynomial expressions to represent area.



Curricular Competencies:
C2: I can represent math concretely, pictorially and symbolically

Multiplying Polynomials

$$3x(x) = 3x^2$$

$$3x(x+1) = 3x^2 + 3x$$

Multiplying polynomials is based on the same principal as multiplying monomials: distributive property.

There are two approaches in which you can represent and apply this property:

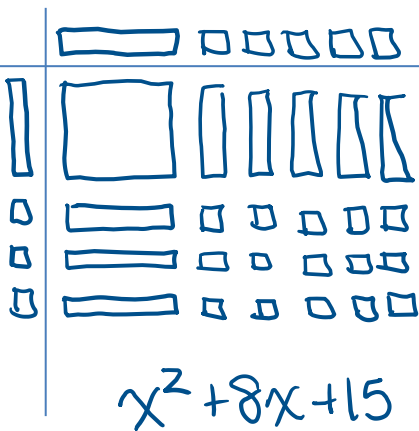
use tiles (area or array method)
expand brackets + simplify

Examples:

Multiply the following using both methods.

$$(x + 5)(x + 3)$$

Method 1: Algebra Tiles



Method 2: Multiply by Expanding Brackets

This method is commonly referred to as FOIL

- F - first
- O - outside
- I - inside
- L - last

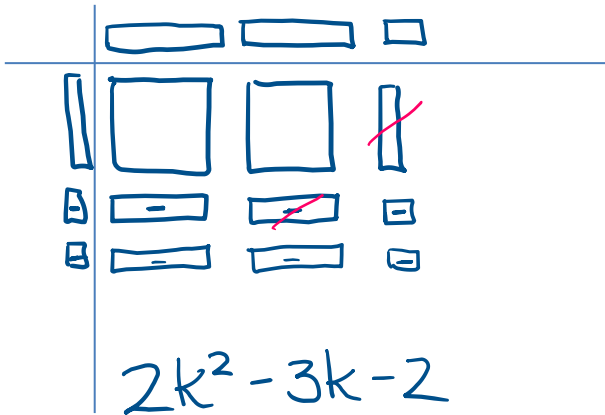
$$(x+5)(x+3)$$

$$x^2 + 3x + 5x + 15$$

$$x^2 + 8x + 15$$

$$(k - 2)(2k + 1)$$

Method 1: Algebra Tiles



Method 2: Multiply by Expanding Brackets

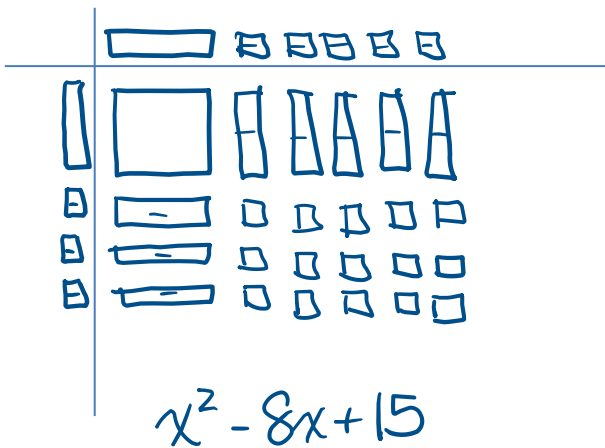
$$(k - 2)(2k + 1)$$

$$2k^2 + k - 4k - 2$$

$$2k^2 - 3k - 2$$

$$(x - 5)(x - 3)$$

Method 1: Algebra Tiles



Method 2: Multiply by Expanding Brackets

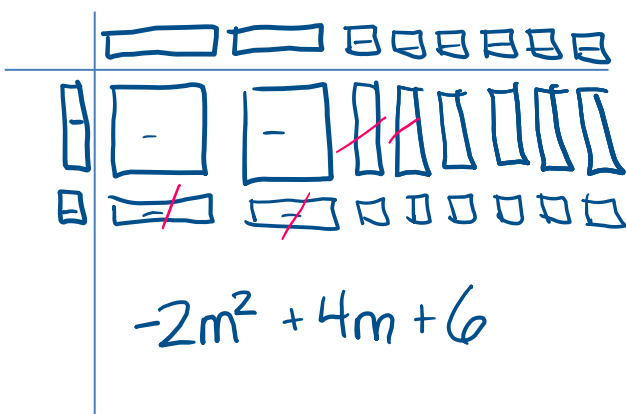
$$(x - 5)(x - 3)$$

$$x^2 - 3x - 5x + 15$$

$$x^2 - 8x + 15$$

$$(-m - 1)(2m - 6)$$

Method 1: Algebra Tiles



Method 2: Multiply by Expanding Brackets

$$(-m - 1)(2m - 6)$$

$$-2m^2 + 6m - 2m + 6$$

$$-2m^2 + 4m + 6$$

$$3^2 = 3 \times 3$$

What about ... $(2x - 1)^2$

$$(2x - 1)(2x - 1)$$

$$4x^2 - 2x - 2x + 1$$

$$4x^2 - 4x + 1$$

$(x + 6)^2$

~~$$x^2 + 6^2$$~~

~~$$x^2 + 36$$~~

$$(x + 6)(x + 6)$$

$$x^2 + 6x + 6x + 36$$

$$x^2 + 12x + 36$$

$$(x + 3)^2$$

assignment: p 209 1-3, 5, 12, w/s Multiplying using Foil