

Factoring Trinomials using the Area Model

Learning Goal:

By the end of today, I will be able to factor (break down) a trinomial expression into its factors (building blocks - monomials and binomials).

Sep 23-4:20 PM

Polynomial Definitions

Monomial - "ONE Term" - consisting of a *constant*, an unknown, or a constant and unknown multiplied together

ie. 5

ie. $9x$

ie. $-12x^2$

Binomial - "Two Terms" - consisting of a constant and an unknown, or two unknowns separated by the addition or subtraction operation

ie. $x + 5$

ie. $7x - 16$

ie. $-12x^2 + 7x$

Trinomial - "Three Terms" - consisting of a constants and unknowns separated by the addition or subtraction operation

ie. $x^2 - 6x + 5$

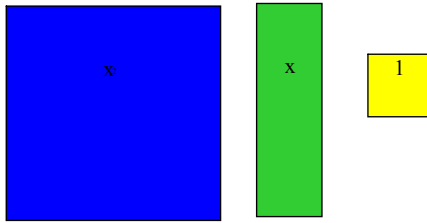
ie. $-12x^2 + 7x - 1$

Mar 30-9:23 AM

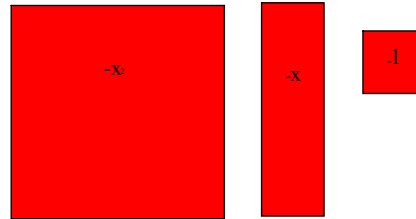
Alge-Tiles and the Multiplication Array

Alge-Tile Pieces we will be using, both positive and negative

Positive Alge-Tiles



Negative Alge-Tiles



The ZERO Principle still applies to Alge-Tiles, a positive and negative of the same value (size) cancel each out.

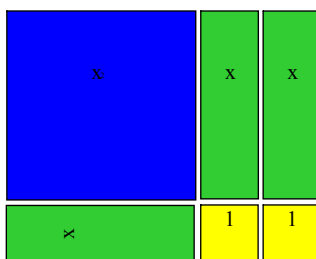
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Alge-Tiles and the Multiplication Array

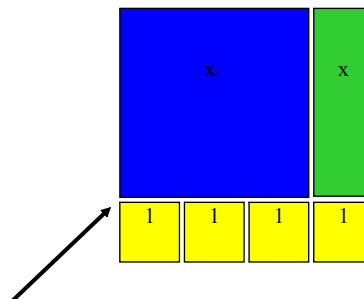
Alge-Tile Guide Lines

The one important guideline for using Alge-Tiles is that
ONLY SIDES OF THE SAME LENGTH ARE
ALLOWED TO BE IN CONTACT.

Correct Alge-Tile Placement



Incorrect Alge-Tile Placement



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ONLY SIDES OF THE SAME LENGTH ARE
ALLOWED TO BE IN CONTACT.

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x^2

$-x^2$

x

$-x$

x

x^-

-1

1

Expand/Multiply
(use the dimensions to find the area)

$(2x+1)(x+2)$

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x^2

$-x^2$

x

$-x$

x

x^-

-1

1

Expand/Multiply
(use the dimensions to find the area)

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

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3

Finding the dimensions from the area (the other direction).

Nov 24-3:02 PM

Factor

(use the area to find the dimensions)

$x^2 + 2x + 1$

x^2

$-x^2$

x

$-x$

x

$x-$

-1

1

Factor

(use the area to find the dimensions)

$x^2 + 5x + 6$

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x^2

$-x^2$

x

$-x$

x

$x-$

-1

1

Factor

(use the area to find the dimensions)

$x^2 + 2x - 3$

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5

x^2

$-x^2$

x

$-x$

x

$-x$

-1

1

Factor
(use the area to find the dimensions) $2x^2 + 7x + 3$

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Consolidation Questions:

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