

Factoring Trinomials using the Algebraic Technique - Decomposition

Learning Goal:

By the end of today, I will be able to factor (break down) a trinomial expression using the algebraic technique of Decomposition.

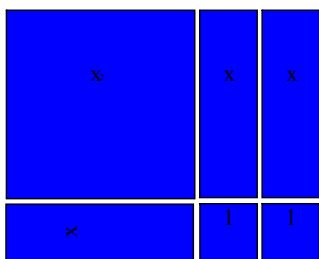
Sep 23-4:22 PM

Alge-Tiles and the Multiplication Array

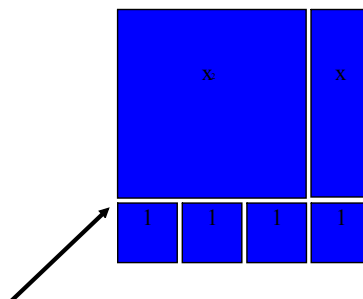
Alge-Tile Guide Lines

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



Mar 30-9:23 AM

Expand/Multiply

(use the dimensions to find the area)

$(2x+1)(x-3)$

x^2

$-x^2$

x

$-x$

x

$-x$

-1

1

$(2x+1)(x-3)$

Factoring is working from the Area back to the Dimensions.

Factor
 (use the area to find the dimensions)

$$2x^2 - 9x + 4$$

The diagram illustrates the components of the polynomial $2x^2 - 9x + 4$ using an area model. The components are represented by colored rectangles and squares:

- A large blue square representing x^2 .
- A large red square representing $-x^2$.
- A horizontal green rectangle representing x .
- A horizontal red rectangle representing $-x$.
- A vertical green strip representing x .
- A vertical red strip representing $x-$.
- A small red square representing -1 .
- A small yellow square representing 1 .

Feb 12-11:53 AM

Algebraic Technique for Factoring Trinomials is called "Decomposition"

Nov 24-2:34 PM

Part One

I am looking for TWO numbers, that will multiply (product) for P and add (sum) for S.

(a) $P = 10 \quad S = 7$

(b) $P = 16 \quad S = 10$

(c) $P = -24 \quad S = 2$

(d) $P = -15 \quad S = 2$

(e) $P = 6 \quad S = -5$

Nov 24-2:35 PM

Part Two - Common Factoring Revisited

Factor the following:

(a) $2xA - 7A =$

(b) $2x \text{ 😊 } - 7 \text{ 😊 } =$

(c) $2x(?) - 7(?) =$

(d) $2x(x+1) - 7(x+1) =$

(e) $2x(\text{Math Rocks}) - 7(\text{Math Rocks}) =$

Nov 24-2:40 PM

Factor

$$3x(A) - 5(A) =$$

$$3x(x+1) - 5(x+1) =$$

$$5x(x+7) - 3(x+7) =$$

$$-3x(x-6) + 2(x-6) =$$

Nov 24-2:48 PM

Part Three

Factor

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

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

Nov 24-2:48 PM

Putting it all together...

Factor

$$2x^2 - 9x + 4$$

Nov 24-2:55 PM

Factor

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

Nov 24-2:59 PM

Factor

$$3x^2 - 13x - 10$$

Nov 24-2:59 PM

Consolidation Questions

Page 109-110 #4ace, 5ace, 9ace

May 4-12:41 PM