

Factoring Complex Trinomials ($ax^2 + bx + c$, $a \neq 1$)

1. Using Alge-tiles

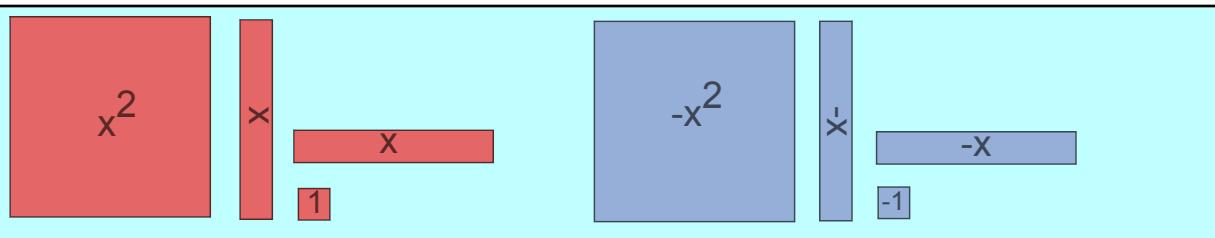
April 6/2010

Model the expression as an area. The tiles must form a rectangle (or square).

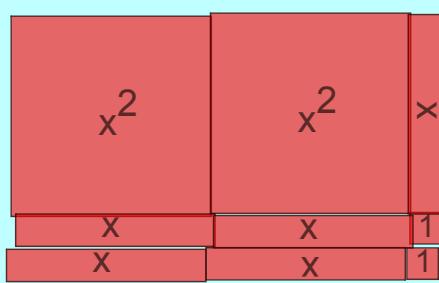
The lengths of the sides are factors.

Hint: Focus on the corners with a and c first.

Mar 26-8:24 AM



Factor: $2x^2 + 5x + 2$



$$\begin{aligned} & 2x^2 + 5x + 2 \\ & \approx (x+2)(2x+1) \end{aligned}$$

Mar 25-8:02 AM

The image shows tiles used for factoring the trinomial $3x^2 + 7x + 2$. There are three red square tiles labeled x^2 , one red vertical tile labeled x , one red horizontal tile labeled x , one blue square tile labeled $-x^2$, one blue vertical tile labeled $-x$, and one blue horizontal tile labeled $-x$. Below the tiles, the trinomial is written as $3x^2 + 7x + 2$.

Factor: $3x^2 + 7x + 2$

The tiles are arranged in a 2x3 grid. The top row contains three red x^2 tiles. The middle row contains two red x tiles and one red 1 tile. The bottom row contains three red x tiles and one red 1 tile.

Mar 25-8:02 AM

The image shows tiles used for factoring the trinomial $2x^2 - 5x + 3$. There are two red square tiles labeled x^2 , one red vertical tile labeled x , one red horizontal tile labeled x , one blue square tile labeled $-x^2$, one blue vertical tile labeled $-x$, and one blue horizontal tile labeled $-x$. Below the tiles, the trinomial is written as $2x^2 - 5x + 3$.

Factor: $2x^2 - 5x + 3$

The tiles are arranged in a 2x3 grid. The top row contains two red x^2 tiles. The middle row contains two blue $-x^2$ tiles. The bottom row contains two blue $-x$ tiles and three red 1 tiles.

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

check

$2x^2 - 2x - 3x + 3$
 $= 2x^2 - 5x + 3 \checkmark$

Mar 25-8:02 AM

The image shows algebra tiles used to factor the quadratic trinomial $2x^2 - x - 3$. It consists of four rows of tiles. The first row contains a red square labeled x^2 , a red vertical bar labeled x , and a small red square labeled 1 . The second row contains a blue square labeled $-x^2$, a blue vertical bar labeled $-x$, and a small blue square labeled -1 . The third row contains two red squares labeled x^2 and two red vertical bars labeled x . The fourth row contains three blue vertical bars labeled $-x$ and three small blue squares labeled -1 .

Factor: $2x^2 - x - 3 = (2x-3)(x+1)$

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The simplest factoring is to find a common factor.

If possible, always remove any common factors first.

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Factor: $10x^2 + 15x + 5 = 5(2x^2 + 3x + 1)$

factor with tiles

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

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Factor: $10x^2 - 11x - 6$

	$2x$	-3
$5x$	$10x^2$	$-15x$
2	$4x$	-6

$= (2x-3)(5x+2)$

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Assigned Work:

Handout Section 3.6

(1, 2)(odd)

3aceg

4acfknopqr

(don't forget common factors first)

Mar 26-9:06 AM