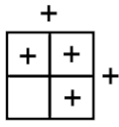


Use the rules for signs to check the signs of each factor:

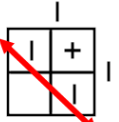
① All positive signs

$$ax^2 + bx + c = (+) (+)$$



② Negative signs on the diagonal

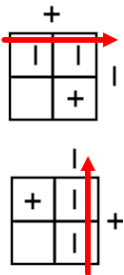
$$ax^2 - bx + c = (-) (-)$$



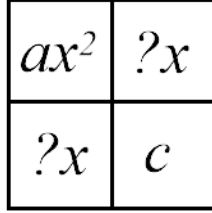
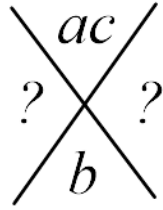
③ Negative signs in same row or same column

$$ax^2 + bx - c = (+) (-)$$

$$ax^2 - bx - c = (-) (-)$$



Factoring with a leading coefficient greater than 1



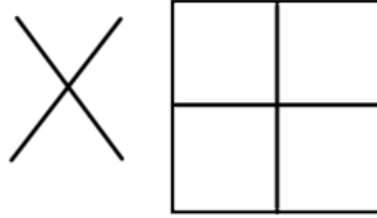
After the box is set up, pull out the greatest common factors from each row and column. What's on the outside of the box forms the factors.

Example 1

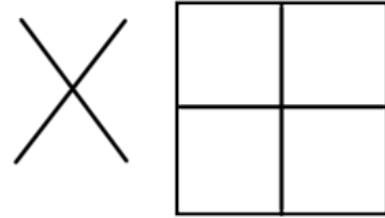
Factoring trinomials
with leading coefficient greater than one

*Always divide out a common factor FIRST if you can

Ⓐ $2x^2 - 5x - 12$



Ⓑ $9x^2 + 6x - 24$



Difference of Squares
 $a^2 - b^2 = (a+b)(a-b)$

Only two terms to factor, both are perfect squares with SUBTRACTION in between.

Perfect Square Trinomial
Three terms to factor, but first and last terms are perfect squares.
 $a^2 + 2ab + b^2 = (a+b)^2$
 $a^2 - 2ab + b^2 = (a-b)^2$

The Box Method creates two of the exact same factor.

Example 2

Shortcuts for factoring special cases

Ⓐ $4x^2 - 9$
Ⓑ $9x^2 + 24x + 16$
Ⓒ $8x^2 - 24x + 18$

- Step 1. Make sure the equation is in standard form $ax^2 + bx + c = 0$; a must be positive.
Step 2. Divide out any common factors.
Step 3. Factor completely.
Step 4. Set each factor equal to zero and solve for x .

Ⓐ] $10x^2 - 40x = 32 + 36x$
Ⓑ] $18x^2 + 48x = -32$

Example 3

Solving quadratic equations by factoring