

6.2 Factoring Trinomials

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Objectives

- Factor trinomials when the coefficient of the quadratic term is 1.
- Factor trinomials when the coefficient of the quadratic term is not 1.

Foldable

Factoring Polynomials

Is there a Greatest Common Factor (GCF)?

ex) $30x^6 + 25x^5 + 10x^4 = 5x^4(6x^2 + 5x + 2)$

Foldable

How many terms are remaining?

Two
Terms

Three
Terms

Four or
More
Terms

How many terms are remaining?

TWO
Terms

Four or
More
Terms

Rainbow Method for Factoring Trinomials

$$12x^2 + 11x + 2$$

Rainbow Method for Factoring Trinomials

$$x^2 - 9x + 20$$

Rainbow Method for Factoring Trinomials

$$15m^2 + m - 2$$

Rainbow Method for Factoring Trinomials

$$x^2 - 9xy - 22y^2$$

Signs of Factors

$$ax^2 + bx + c$$

$$ax^2 - bx + c$$

$$ax^2 + bx - c$$

$$ax^2 - bx - c$$


$$3x^2 + 10x + 7$$

$$2y^2 - 20y + 48$$


$$p^2 - 2p - 15$$

$$z^2 + 5z - 14$$

How many terms are remaining?

TWO
Terms

Rainbow Method

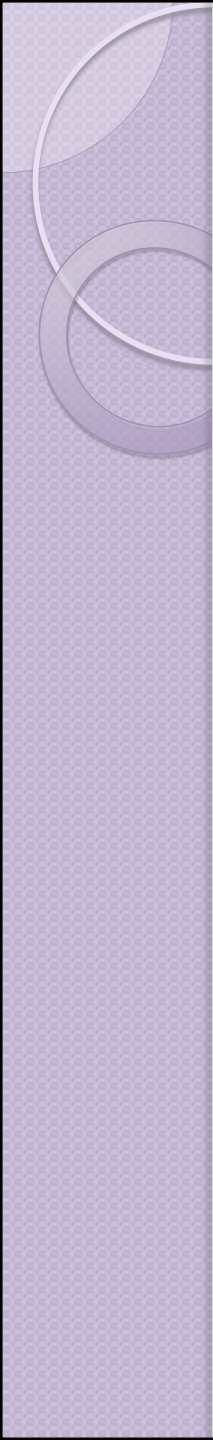
$$\textcircled{12}x^2 + 11x + \textcircled{2}$$

$$(12x^2 + 3x) + (8x + 2)$$

$$3x(4x+1) + 2(4x+1)$$

$$\boxed{(4x+1)(3x+2)}$$

Four or
More
Terms

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- Shortcut: If leading coefficient = 1

$$25x^2 - 30x + 9$$

$$2y^2 + 13y - 18$$

More Factoring Practice

- $20x^2 + 22xy + 6y^2$

- $m^2 - 8m + 14$

- $3x^4 - 15x^3 + 18x^2$

- $-5x^2 + 2x + 16$

- $6p^4 + 21p^3 + 9p^2$

- $k^2 + 20k + 100$