An Introduction to Factoring Trinomials

Expand and simplify each of the following polynomial expressions. Then examine patterns in the product, sum, and factors.

a) $(8x+1)(x+3)$

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

c) $(8x+3)(x+1)$

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

Patterns:

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$$(x+3)(2x-5)=2x^2-5x+6x-15$$

$$(x+3)(2x-5)=2x^2-5x+6x-15$$

$$(x+3)(2x-5)=2x^2-5x+6x-15$$

Using these discoveries, let's examine each of the possible factors for the trinomial shown below.

$2x^2 - x - 3$ Check

Factor the trinomials shown below. Examine any patterns that may exist.

$2x^2 + 7x + 3$ Check

$2x^2 - 15x + 7$ Check

Conclusion →

Factor the trinomials shown below. Examine any patterns that may exist.

$x^2 - 4x - 21$ Check

$x^2 + 5x - 14$ Check

$5x^2 - 34x - 7$ Check

Conclusion →

Let's use what we've learned to factor a few more trinomials.

1. $x^2+9x+20$

2. $x^2-12x+32$

3. x^2-x-30

4. $x^2+4x-45$

5. $11x^2+6x-5$

Homework – Please complete: Questions #3abcf, 4acdf, and 5aceg on page 240

Questions #2acd, 3ab, and 4abcf on page 246