Standard(s)

MGSE9-12.A.SSE.2 Use the structure of an expression to rewrite it in different equivalent forms.

For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.

Day 4 – Factor Special Products

Standard(s): _____

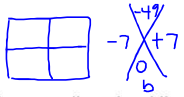
What do you already know about the standards?

Factoring Special Products – Difference of Squares

Factoring Special Products

Review: Factor the following expressions:

a. $x^2 - 49$ $a=1$ $b=0$ $c=-49$ $(x-7)(x+7)$



b. $x^2 - 25$ $(x-5)(x+5)$

c. $x^2 - 81$ $(x+9)(x-9)$

1. What do you notice about the "a" term? It is a perfect square
2. What do you notice about the "c" term? It is a perfect square
3. What do you notice about the "b" term? It is missing
4. What do you notice about the factored form? _____

Difference of Squares

Difference of Two Perfect Squares

$a^2 - b^2 = (a - b)(a + b)$

Always subtraction

Both terms are perfect squares

Always two terms

Difference of Squares

Can you apply the "Difference of Two Squares" to the following polynomials?

a. $9x^2 - 49$ — $(3x+7)(3x-7)$

b. $9x^2 - 100$ — $(3x-10)(3x+10)$

c. $4x^2 - 25$ — $(2x-5)(2x+5)$

d. $16x^2 - 1$ — $(4x-1)(4x+1)$

e. $x^2 + 25$ — Not a Difference of Squares (adding)

f. $25x^2 - 64$ — $(5x+8)(5x-8)$

g. $36x^2 - 81$ — $(6x-9)(6x+9)$

h. $49x^2 - 9$ — $(7x+3)(7x-3)$

Factoring Special Products – Perfect Square Trinomials

Factoring Special Products

Review: Factor the following expressions:

a. $x^2 + 8x + 16$ — $a=1\ b=8\ c=16$ — $(x+4)(x+4)$ — $(x+4)^2$

b. $x^2 - 2x + 1$ — $a=1\ b=-2\ c=1$ — $(x-1)(x-1)$ — $(x-1)^2$

c. $x^2 - 10x + 25$

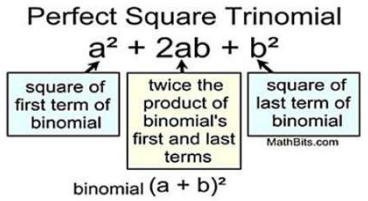
1. What do you notice about the "a" term? Perfect Square
2. What do you notice about the "c" term? Perfect Square
3. What do you notice about the "b" term? _____
4. What do you notice about the factored form? _____

Perfect Square Trinomials

Perfect Square Trinomials

$a^2 + 2ab + b^2 = (a + b)^2$

$a^2 - 2ab + b^2 = (a - b)^2$



Perfect Square Trinomials

Using the perfect square trinomial pattern, see if you can fill in the blanks below:

a. $x^2 + \underline{12x} + 36$ (X, 2(6), 6) $(x+6)^2$

b. $x^2 - \underline{18x} + 81$ (X, 2(9), 9) $(x-9)^2$

c. $x^2 - \underline{16x} + 64$ (X, 2(8), 8) $(x-8)^2$

d. $x^2 + 4x + \underline{(2)^2}$ $\frac{4}{2}$ 4

e. $x^2 - 6x + \underline{(3)^2}$ $\frac{6}{2}$ 9

f. $x^2 + 20x + \underline{(10)^2}$ $\frac{20}{2}$ 100

$x^2 + \boxed{4}x + 4$