WARM-UP...

1. Factor each of the following...

a) $x^2 - 13x - 30$ -30 $+-13$ $(x-15)(x+2)$

b) $x^2 - 6x + 9$ 9 -6 $(x-3)^2$

c) $4x^2 - 40x - 96$ -24 -10 $4(x^2-10x-24)$ $4(x-12)(x+2)$

d) $24x^6y^5 - 16x^2y + 32x^3y^3$ $8x^2y(3x^4y^4 - 2 + 4xy^2)$

2. Expand and simplify.

$3x(5x^2 + 2x - 3) + (x - 2)(2x+7)$

$15x^3 + 6x^2 - 9x + 2x^2 + 7x - 4x - 14$

$15x^3 + 8x^2 - 6x - 14$

IV. Difference of Squares:

Conjugate: Same binomials except opposite signs between the terms.

Multiply the conjugates shown below...

$(x+3)(x-3)$ $x^2 - 3x + 3x - 9$ $x^2 - 9$

$(5w-4)(5w+4)$ $25w^2 + 20w - 20w - 16$ $25w^2 - 16$

$(4ab-c)(4ab+c)$ $16a^2b^2 + 4abc - 4abc - c^2$ $16a^2b^2 - c^2$

Is there a pattern when a binomial gets multiplied by it's conjugate?

With conjugate pairs the middle adds to zero.

I. Difference of Squares

Criteria...
- two terms that are perfect squares.
- must be a difference
- factor like this...

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

EXAMPLES...

1) $81x^2 - 16$

$(9x + 4)(9x - 4)$

2) $196x^2 - 49$

$(14x - 7)(14x + 7)$

3) $8x^2 - 18y^2$

$2(4x^2 - 9y^2)$

$2(2x - 3y)(2x + 3y)$

4) $81z^4 - 625$

$(9z^2 + 25)(9z^2 - 25)$

$(9z^2 + 25)(3z + 5)(3z - 5)$

Let's make things slightly more complicated...

Factor each of the following:

$16 - (a - b)^2$

$[4 + (a - b)][4 - (a - b)]$

$(4 + a - b)(4 - a + b)$

$(a^2 + 12)^2 - 64a^2$

$(a^2 + 12 + 8a)(a^2 + 12 - 8a)$

$25x^2 - 4y^2 = (5x + 2y)(5x - 2y)$

HOMEWORK...

Puzzle Worksheet - Difference of Squares.pdf

Multiply:

I $(a+5)(a-5)$ $= a^2 - 25$

D $(2+3a)(2-3a)$ $4 - 9a^2$

Factor:

S $x^2 - y^2$ $(x+y)(x-y)$

I $4x^2 - 49y^2$ $(2x+7y)(2x-7y)$

Attachments

Puzzle Worksheet - Difference of Squares.pdf