# WARM-UP...

Factor each of the following...

a) $x^2 - 13x - 30$    M -30

$(x-15)(x+2)$    A -13
   N -15, 2

b) $4x^2 + 17x + 15$    M 60

A 17
$4x^2 + 12x + 5x + 15$    N 5 12
$4x(x+3) + 5(x+3)$
$(x+3)(4x+5)$

| | |
|---|---|
| 1 | 60 |
| 2 | 30 |
| 3 | 20 |
| 4 | 15 |
| 5 | 12 |

c) $16x^2 - 24x + 9$    M 144

$16x^2 - 12x - 12x + 9$    A -24
$4x(4x-3) - 3(4x-3)$    N -12, -12
$(4x-3)(4x-3)$

$(4x-3)^2$

# 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?

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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:

$$16 - (a-b)^2$$

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

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

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

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

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

$(a - 6)(a - 2)(a + 6)(a + 2)$

# HOMEWORK...

Puzzle Worksheet - Difference of Squares.pdf

Multiply

① $(a+5)(a-5) = a^2 - 25$

② $(2+3a)(2-3a) = 4 - 9a^2$

Factor:

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

① $4x^2 - 49y^2 = (2x+7y)(2x-7y)$

# Attachments

Puzzle Worksheet - Difference of Squares.pdf