Algebra I
Notes 11.5 Factoring the Difference of Two Squares

Objective: Factor the difference of two squares.

If a second degree trinomial is in standard form, you can try to factor by finding two integers that MULTIPLY to be the constant and ADD to be the middle coefficient.

For binomials of the form $x^2 - b$, you can try factoring using algebra tiles, the "guess and check" method, or the trinomial sum and product rule (using $x^2 + 0x - b$).

Binomials of the form $x^2 + b$ cannot be factored.

Example 1

$x^2 - 9 = x^2 + \_\_ x - 9$ Find two integers that multiply to be ___ and add to be ___.

Those integers are ____ and ____.

$x^2 - 9 = (x \quad)(x \quad)$

Verify by FOILing.

Example 2

$x^2 - 4 = x^2 + \_\_ x - 4$ Find two integers that multiply to be ___ and add to be ___.

Those integers are ____ and ____.

$x^2 - 4 = (x \quad)(x \quad)$

Verify by FOILing.

Example 3

$a^2 - 16 = a^2 + \_\_ a - 16$ Find two integers that multiply to be ___ and add to be ___.

Those integers are ____ and ____.

$a^2 - 16 = (a \quad)(a \quad)$

Verify by FOILing.

Classroom Practice

1. $x^2 - 1 = x^2 + \_\_ x - 1$ Find two integers that multiply to be ___ and add to be ___.

   Those integers are ____ and ____.

   $x^2 - 1 = (x \quad)(x \quad)$

2. $b^2 - 81 = b^2 + \_\_ b - 81$ Find two integers that multiply to be ___ and add to be ___.

   Those integers are ____ and ____.

   $b^2 - 81 = (b \quad)(b \quad)$

3. $c^2 - 36 = c^2 + \_\_ c - 36$ Find two integers that multiply to be ___ and add to be ___.

   Those integers are ____ and ____.

   $c^2 - 36 = (c \quad)(c \quad)$

4. $x^2 - 100 = x^2 + \_\_ x - 100$ Find two integers that multiply to be ___ and add to be ___.

   Those integers are ____ and ____.

   $x^2 - 100 = (x \quad)(x \quad)$

5. $y^2 - 49 = y^2 + \_\_ y - 49$ Find two integers that multiply to be ___ and add to be ___.

   Those integers are ____ and ____.

   $y^2 - 49 = (y \quad)(y \quad)$

6. $d^2 - 25 = d^2 + \_\_ d - 25$ Find two integers that multiply to be ___ and add to be ___.

   Those integers are ____ and ____.

   $d^2 - 25 = (d \quad)(d \quad)$

Factoring the difference of two squares: $x^2 - (a)^2 = (x \quad)(x \quad)$