



**Objective: Difference of Squares**

**Homework FE-4 – NYA p.515 #15, 16, 18, 19 p.531 #14 – 30 (even), 68**

**Do Now: Factor**      1.  $x^2 - 2x - 35$       2.  $x^2 + 18x + 45$

**Exam Prep: Which of the following “c” values would be invalid for  $x^2 - 4x + c$ ?**

- A) 4      B) -4      C) -12      D) 3



Difference of squares is easy to remember because the name tells you what to look for!

Do you know “difference” and “square”?

**Difference of Squares**

**Heavy: The product of the sum and difference of the same two terms is the difference of their squares...**

$$(a + b)(a - b) = a^2 - b^2 \quad \text{or} \quad (x + 3)(x - 3) = x^2 - 9$$

**Don't memorize the words... understand what is happening.**

**FOIL**  $(x + 5)(x - 5) =$  \_\_\_\_\_  $=$  \_\_\_\_\_

**What do you see happening in this special case of factors that will occur every time you see a difference of squares?**



**Explain:**

### Practice: Multiply the Binomials

1.  $(x - 10)(x + 10) =$

2.  $(8 + y)(8 - y) =$

3.  $(3x - y)(3x + y) =$

4.  $(x^2 - 1)(x^2 + 1) =$

### Factoring the Difference of Squares

Try to recognize the expression  $x^2 - 64$  as a difference of squares.

- Difference: **Subtraction sign!**
- Subtraction sign is surrounded by **two perfect squares**

Factor the expression to the product of two binomials that are the sum and difference of the roots of the squares.

$$x^2 - 64 = (x + 8)(x - 8) \quad \text{or} \quad 9y^2 - 144 = (3y + 12)(3y - 12)$$

### Practice: Factor

1.  $h^2 - 100 =$

2.  $x^2 - 36 =$

3.  $121 - y^2 =$

4.  $v^2 - 1 =$

5.  $25x^2 - 225 =$

6.  $4x^6 - 81 =$

7.  $g^4 - 49 =$

8.  $p^2 - q^2 =$