

**DIFFERENCE OF SQUARES**

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

**Let's examine a special product:  $(a + b)(a - b)$**

What is the SAME about the two binomials?

What is DIFFERENT about the two binomials?

**EXPAND (FOIL) and SIMPLIFY (COLLECT LIKE TERMS):**

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

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

$$(2x + 5)(2x - 5)$$

**TO EXPAND SIMPLIFY THIS SPECIAL PRODUCT, USE THE FORMULA:**

$$(a + b)(a - b) = \underline{\hspace{2cm}}$$

The result is called a difference of squares. Two perfect squares being subtracted.

**NOTE THESE PERFECT SQUARES – AND THEIR SQUARE ROOTS:**

**Today we will learn to recognize and factor these difference of squares.**

**HOW TO SPOT A DIFFERENCE OF SQUARES**

$$x^2 - 16$$

$$4y^2 - 49$$

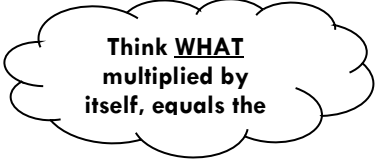


## **FACTORING A DIFFERENCE OF SQUARES**

When you can recognize a difference of squares, it is easy to **reverse the process** and **find the factors**.

“Factoring” means  
find the binomials  
that “FOIL” to  
this expression!

**Factor:**  $x^2 - 49$



Think **WHAT**  
multiplied by  
itself, equals the

**Notice the signs between the factors.**

One will always have a \_\_\_\_\_ and the other will always have a \_\_\_\_\_.

Note: We always try to common factor first.

**Examples:**

**FACTOR:**

$$x^2 - 64$$

$$x^2 - 16$$

$$25x^2 - 36$$

$$9x^2 - 121$$

**FACTOR. You will have to COMMON FACTOR FIRST!!**

$$2x^2 - 50$$

$$3x^2 - 48$$

$$5x^2 - 500$$

$$75x^2 - 27$$

Ex: The area of the top of a classroom desk is represented by the expression  $2500 - x^2$ .

a) Determine the length and width of the desk

$$A = 2500 - x^2$$

b) Find the actual dimensions if  $x = 10$  cm.

c) Determine the actual area