

Unit 11 Objective 3 Remediation**Factoring Difference of Squares****Example:**

Factor $4x^2 - 25$

Step 1: The first step at factoring this is to make sure that the expression is a difference between squares. Ask yourself the following questions:

Question	Answer and Reason
Are there only two terms?	Yes, $4x^2$ and 25
Are both terms ($4x^2$ and 25) perfect squares?	Yes, $4x^2$ and 25 are both perfect squares ($(2x)^2 = 4x^2$ and $5^2 = 25$)
Is the 2 nd term being subtracted from the first?	Yes, $4x^2 - 25$

Since we answered YES to all 3 questions, we know it is a difference of squares and can write out our 2 sets of parentheses, one with a plus sign and the other with a minus sign:

$$(\quad + \quad)(\quad - \quad)$$

Step 2: Now find the square root of $4x^2$ (the first term). The square root of the entire term is $2x$ since $2^2 = 4$ and $x \cdot x = x^2$. Write this term on the left inside of each set of parentheses.

$$(2x + \quad)(2x - \quad)$$

We will now consider 25. Find the square root of 25, which is 5. So 5 is written on the right inside of each set of parentheses.

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

If you factor $4x^2 - 25$ your final answer will be $(2x + 5)(2x - 5)$

Try Some:

Factor each polynomial.

1.) $b^2 - 16$

2.) $f^2 - 81$

3.) $36 - x^2$

4.) $9x^2 - 16$

5.) $49n^2 - 1$

6.) $4a^2 - 9$

7.) $a^4 - 36$

8.) $49a^2 - 25b^2$

9.) $100 - 121x^2$

10.) $x^2 - 64y^2$

11.) $a^2 + 100$

12.) $64 + y^2$