

## 4.3 Notes Day 1

**Objectives: Write a quadratic equation from given roots.**

**Factor Quadratic Functions (GCF and trinomials with  $a = 1$ )**

**Warm-up: Multiply the two binomials**

1.  $(x + 3)(x - 4)$

2.  $(3x - 2)(2x - 3)$

**In order to write a quadratic equation given roots, use the pattern  $(x - p)(x - q) = 0$ . Where  $p$  and  $q$  represent the roots of the quadratic equation.**

1. Write a quadratic equation in standard form with 2 and 6 as its roots.

2. Write a quadratic equation in standard form with -2 and -6 as its roots

3. Write a quadratic equation in standard form with 8 and -5 as its roots.

4. Write a quadratic equation in standard form with -8 and 5 as its roots.

**Factor GCF: Find the GCF of the terms of the quadratic equation.**

4.  $10xy - 15x^2y^2$

5.  $10x - 15x^3$

6.  $3ab^2 - 6a^2b$

**Zero Product Property:**

For any real numbers  $a$  and  $b$ , if  $a \cdot b = 0$ , then either  $a = 0$ ,  $b = 0$  or both  $a$  and  $b$  equal zero.

Ex. If  $(x + 3)(x - 5) = 0$ , then  $x + 3 = 0$  or  $x - 5 = 0$ .

**Factor by GCF and solve the following:**

7.  $2x^2 + 16x = 0$

8.  $5x^2 - 20x = 0$

**Factor trinomials: Find two values,  $m$  and  $p$ , such that their product equals  $ac$  and their sum equals  $b$ .**

9.  $x^2 - 2x - 15$

10.  $x^2 - 8x + 16$

**Use the Zero Product Property to find the solutions of each quadratic equation. Remember that the solutions to a quadratic equation are the roots or x-intercepts (where  $x = 0$ ).**

11.  $x^2 + 4x - 45 = 0$

12.  $x^2 + 3x + 2 = 0$

13.  $x^2 - 4x - 21 = 0$

14.  $x^2 - 12x + 32 = 0$