Algebra 1 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solving Quadratics by Factoring

**Solving Quadratic Equations by Factoring**

**Zero-Product Property**

If AB = 0 then A = 0 or B = 0

Ex: (x - 3)(x + 2) = 0 means

x - 3 = 0 or x + 2 = 0 Now solve each equation.

x = 3 or x = -2

**How to solve a quadratic equation:**

**1. Set the equation equal to zero.**

**2. Factor.**

**3. Use Zero-Product Property (set each factor equal to zero)**

**4. Solve each equation.**

**Example:**

2x2 - 7x = -3 *Move -3 to the other side to get zero on the right.*

2x2 - 7x + 3 = 0 *Now factor the left side.*

(2x - 1)(x - 3) = 0 *Use zero-product property.*

2x - 1 = 0 or x - 3 = 0 *Solve each equation.*

2x = 1 x = 3

x =  or x = 3 *This is the answer.*

**Example:**

5x2 - 20 = 0 *Factor (don't forget about the GCF)*

5(x2 - 4) = 0

5(x + 2)(x - 2) = 0 *Use zero-product property.*

x + 2 = 0 or x - 2 = 0

x = -2 or x = 2

**Practice problems:**

1. x2 - 3x - 10 = 0 2. x2 + 6x + 8 = 0 3. 2x2 + 5x + 3 = 0

4. 6x2 - x = 2 5. 4x2 + 4x + 1 = 0 6. 3x2 + 2x = 8

7. x2 - 13x + 40 = 0 8. x2 - 121 = 0 9. x2 - 49 = 0