**SOL Review Topic 1: Factoring and Solving Quadratics**

7 Factoring Rules

**Rule #1 - GCF**

1) 

**Rule #2 – Difference of Perfect Squares**

2)  3) 

**Rule #3 – Trinomial with 1 as a Leading Coefficient**

4)  5) 

**Rule #4 – Sum/Difference of Perfect Cubes**

6)  7) 

**Rule #5 – Perfect Square Trinomials**

8)  9)

**Rule #6 – Factoring by Grouping** *\*#11 is a change from original packet*

10)  11) 

**Rule #7 – Trinomial with Leading Coefficient >1**

12) 3y2 + 5y + 2 13) 

**What if it can’t be factored?**
14) 

Factoring Review

How do I know which factoring rule to use?



Factoring Mixed Practice

15)  16) 

17)  18) 

Solving Quadratics

What are the different ways to solve quadratics?

**#1 – Solve by Factoring**

19)  20)  21) 

**#2 – Solve by Graphing**

22)

**#3 – Solve by Completing the Square**

23) 

**#4 – Solve by the Quadratic Formula** 

24)  25) 

How do I know which way to solve?

Try to solve by factoring first, if you can’t solve by factoring use the quadratic formula or solve by completing the square.

Solving Quadratics Mixed Practice

26)  27) 

28)  29) 



30)  31)

Describe the Nature of the Roots of a Quadratic

1. 2 Real Rational Roots
2. 1 Real Double Root
3. 2 Real Irrational Roots
4. 2 Imaginary Roots

**What are the nature of the roots of the following quadratics with roots?**

32) $\left\{\pm \frac{1}{3}\right\}$ 33) $\left\{\pm \frac{1}{3}i\right\}$ 34) $\left\{0, -5\right\}$



35) $\left\{2\pm \sqrt{5}\right\}$ 36) 37)

EXTRA NOTES AND EXAMPLES:

Factoring Examples:

***Rule 2 Difference of Perfect Squares***

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***Rule 3* *Trinomial w/Leading Coeff.=1***

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***Rule 4 Sum/Difference of Perfect Cubes***

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***Rule 5 Perfect Square Trinomials***

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Quadratic Example:

To solve a quadratic equation you may be asked to find the **solutions**, **zeros**, or **roots**. These answers will also be found on a graph (called a parabola) as **x-intercepts**.

***Note:*** A quadratic equation can have **two solutions, one solution** (a double root-touches the x-axis and turns around) **or no real solutions** (graph does not cross the *x*-axis)**.**

Solving by Factoring:

1) Get the equation equal to zero. Move everything to left side.

2) Factor the left side using an appropriate technique we have learned.

3) Set each factor = 0 and solve.

EX) Solve for *x*: 

 

 

 

MORE PRACTICE A:



MORE PRACTICE B:

