**Unit 3 Day 2 Notes: Quadratic Formula and Imaginary Numbers**

***Imaginary Numbers***

* You can’t take the square root of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If you get a negative number under you square root while using the quadratic equation, your answer will be an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ What is an imaginary number?
		- The imaginary number $i$is defined as the number whose square is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

So $i^{2}=-1 and i=\sqrt{-1}$

Examples:

* $\sqrt{-9} ⇒      $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* $\sqrt{-8} ⇒ $ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Recall: Quadratic Formula**

-The quadratic formula can be used to solve any quadratic. It is the simplest way to solve quadratics that are non-factorable (those that have imaginary solution). Make sure the equation equals 0 before you use the Quadratic Formula!

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example #1: Find the solutions for $3x^{2}-13x+4=0$

a = \_\_\_\_\_\_\_

b = \_\_\_\_\_\_\_

c = \_\_\_\_\_\_\_

Example #2: Find the solutions of $3x^{2}+4x+2 = 0$

a = \_\_\_\_\_\_\_

b = \_\_\_\_\_\_\_

c = \_\_\_\_\_\_\_

Example #3: Find the solutions of $2x^{2}-4x-3 = 0$

a = \_\_\_\_\_\_\_

b = \_\_\_\_\_\_\_

c = \_\_\_\_\_\_\_

Example #4: Find the solutions of $2x^{2}+x=-1$

a = \_\_\_\_\_\_\_

b = \_\_\_\_\_\_\_

c = \_\_\_\_\_\_\_

Example #5: Find the solutions of $-6x+2x^{2}=-10$

a = \_\_\_\_\_\_\_

b = \_\_\_\_\_\_\_

c = \_\_\_\_\_\_\_

Example #6: Find the solutions of $-27x+36+2x^{2}=0$

a = \_\_\_\_\_\_\_

b = \_\_\_\_\_\_\_

c = \_\_\_\_\_\_\_