## **Unit # 1 – Solving Quadratic Equations: Part II (By Square Roots)**

<u> Simplifying Radicals – Square Roots</u>	
- <u>square root (of a number)</u> $\rightarrow$ If have $a^2 = b$ , the	en because
DEPEN CONTROL	116
• <u>radicand</u> – represents the	Ex: $\sqrt{4}$ where
• <b>index number</b> – represents the	Ex: $\sqrt{x}$ where index =
Notes: 1.) You can have a	(called the)
2.) You can have a	where
3.) (Normally) You have a	where a symbol is used
4.) (Occasionally) You can have a	where answer is
• GOAL to simplifying square roots –	
	using a

## **Example 1:** Simplify each radical (square root) completely.

a.) Simplify: $\sqrt{18}$	b.) Simplify: $\sqrt{27}$	c.) Simplify: $\sqrt{360}$

d.) Simplify: $5\sqrt{48}$	e.) Simplify: $-3\sqrt{32}$	f.) Simplify: $3\sqrt{5} \cdot 2\sqrt{10}$

- quadratic equation # 1 (to solve by sq roots)  $\rightarrow$  equation needs to be in the form: \_\_\_\_\_

Follow these steps to solve: Step 1 – \_\_\_\_\_ Step 2 – \_\_\_\_\_

Step 3 – \_\_\_\_\_

\* Notes: Keep answers in simplified radical form If get a negative underneath square root  $\rightarrow$  answer is no real solution Ex:  $x = \sqrt{-2}$ 

Example 2: Solve each quadratic equation by using square roots.

a.) $3x^2 = 75$	b.) $24x^2 - 6 = 0$	c.) $6 - 4x^2 = -18$	d.) $8x^2 - 10 = 214$	e.) $2x^2 + 16 = 0$

- <u>quadratic equation # 2 (to solve by sq roots using a "formula"</u>)  $\rightarrow$  equation needs to be in the form:

where x = \_\_\_\_\_ (this is called the quadratic formula)

\* Notes: This method will work for \_\_\_\_\_\_ but the equation \_\_\_\_\_ Keep answers in simplified radical form

If get a <u>negative underneath square root</u>  $\rightarrow$  answer is no real solution Ex:  $x = \sqrt{-2}$ 

Example 3: Solve each quadratic equation using the Quadratic Formula. Round to tenth place.

a.) $x^2 - 5x + 6 = 0$	b.) $-2x^2 + 8 - 4x = 0$	c.) $3x^2 = -1$	d.) $2x^2 + 4x - 5 = 2$