E-Learning Day Assignment – THE QUADRATIC FORMULA

Main Ideas/Questions	Notes/Examples
WARM UP	**Directions:** Identify *a*, *b*, and *c*.
	Standard Form of a Quadratic Equation: $ax^2 + bx + c$
	1. $3x^2 + 4x + 5 = 0$ *a* = _____, *b* = _____, *c* = _____
	2. $7x^2 + 2 = 0$ *a* = _____, *b* = _____, *c* = _____
	3. $6x^2 - 9x = 0$ *a* = _____, *b* = _____, *c* = _____
	4. $x^2 + 5x = 3$ *a* = _____, *b* = _____, *c* = _____ *Hint: rewrite in standard form!*
	Answers: 1. $a = 3, b = 4, c = 5$ 2. $a = 7, b = 0, c = 2$ 3. $a = 6, b = -9, c = 0$ 4. $a = 1, b = 5, c = -3$
THE QUADRATIC FORMULA	**MEMORIZE!** $\longrightarrow$ $$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$ A method for solving quadratic equations that are difficult to factor.

Directions: Solve the equation using the quadratic formula.

Steps	Example
1. Write the equation in standard form. Set it = 0.	$x^2 - 5x = 36$ $x^2 - 5x - 36 = 0$
2. Identify *a*, *b*, and *c*.	*a* = 1, *b* = -5, *c* = -36
3. Substitute these values into the formula. Find the solutions by solving for *x*.	$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(1)(-36)}}{2(1)}$$ $$x = \frac{5 \pm \sqrt{25 + 144}}{2}$$ $$x = \frac{5 \pm \sqrt{169}}{2}$$ $$x = \frac{5 \pm 13}{2}$$ $$x = \frac{5+13}{2} = \frac{18}{2} = 9 \qquad\qquad x = \frac{5-13}{2} = \frac{-8}{2} = -4$$

YOU TRY!	**Directions:** Solve each equation using the quadratic formula.	
$$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$	1. $x^2 - 8x = 20$	2. $x^2 + 15x = 6x$
	3. $3x^2 + 6x = 9$	4. $2x^2 - 50 = 0$
	5. $7x^2 + 4x + 8 = 0$	6. $6x^2 - 7x - 10 = 0$

Answers:

1. $a = 1, b = -8, c = -20;$ $x = -2, x = 10$

2. $a = 1, b = 9, c = 0;$ $x = 0, x = -9$

3. $a = 3, b = 6, c = -9;$ $x = 1, x = -3$

4. $a = 2, b = 0, c = -50;$ $x = 5, x = -5$

5. $a = 7, b = 4, c = 8;$ *No Solution*

6. $a = 6, b = -7, = -10;$ $x = 2, x = \dfrac{-5}{6}$