Chapter 4 – Solving Quadratics Booklet Project

Name:_____ Due Date: **9/30/16**

Date:_____ Period:_____

The solving quadratics project is a project in which you will display your knowledge of solving quadratic equations through a variety of methods – seven methods to be exact: *graphing, greatest common factor, factoring when $a = 1$, factoring when $a \neq 1$, square root property, completing the square and quadratic formula.*

Project Basics

- You will solve a total of 10 quadratic equations.
- Each quadratic equation will be solved in two different methods.
- You final product will be a booklet with 10 pages.
- Each page will display one equation solved two different ways.

What Work To Show For Each Method:

1. Graphing
   - Find the y-intercept
   - Find the axis of symmetry
   - Find the vertex
   - Complete a table
   - Graph the parabola
   - State whether the graph has a maximum or a minimum and the value of it
   - Find the roots

2. Greatest Common Factor (GCF)
   - Solve by factoring out the GCF
   - Use the zero property

3. Factoring when $a = 1$
   - Factor into two binomials
   - Do not solve these in your head only.
   - Use the zero property

4. Factoring when $a \neq 1$
   - Use Slide, Divide
   - Use the zero property

5. Square Root Property
   - Show the perfect square $(\quad)^2$
   - Taking the square root of both sides
   - Don't forget the $\pm$
   - Simplify the final answer

6. Completing the Square
   - Show $c = \left(\frac{b}{2}\right)^2$
   - Show the perfect square $(\quad)^2$
   - Don't forget the $\pm$
   - Simplify the final answer

7. Quadratic Formula
   - Write out the ***Quadratic Formula***
   - Plug in and simplify

Your booklet checklist: To make sure that your project includes all of the following, check off everything in the list below.

- My name is on the front of my booklet
- My booklet has a title written on the front of my booklet
- I have written page numbers on *every page* of my booklet
- Each of the 10 equations are solved twice for a total of 20 solved equations
- All work is shown for every quadratic equation on each page following the instructions above
- Each method is labeled on each page (*i.e. square root property*)
- All my writing (titles and work) is neat and legible
- The pages of my booklet are bound
- *Above and Beyond*: My booklet is creatively made

Equations: You are to solve the following equations on the following pages the following two ways.

Page #	Quadratic Equation	Method #1	Method #2
1	$2x^2 + 7x + 6$	Factoring $a \neq 1$	Quadratic Formula
2	$x^2 - 21 = 20x$	Quadratic Formula	Completing the Square
3	$3x^2 + 15x - 18$	Greatest Common Factor	Quadratic Formula
4	$2x^2 - 6 = -4$	Quadratic Formula	Square Root Property
5	$x^2 - 16$	Factoring $a = 1$	Square Root Property
6	$2q^2 - 8q - 40$	Completing the Square	Quadratic Formula
7	$-3x^2 + 1 - 4x$	Graphing	Factoring $a \neq 1$
8	$3u^2 + 5 = 17$	Square Root Property	Quadratic Formula
9	$-7 + c^2 + 6c$	Factoring $a = 1$	Graphing
10	$-10 = d^2 + 7d$	Factoring $a \neq 1$	Quadratic Formula

Solving Quadratics Project Rubric: ***You must attach this rubric to your booklet.***

Pg. #	Method #1 Solved Correctly & Work Shown	Method #2 Solved Correctly & Work Shown	10 pts.	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Name:

Version:

Name and Title	/5
Booklet Bound	/5
Page #'s written	/5
Each method is labeled	/10
Neat Writing	/10
Creativity	/10
Time Spent Making	/5
Total Points from Pages	/100
Total Points: (150)	
Final Grade:	