

Name \_\_\_\_\_ date \_\_\_\_\_ Pd \_\_\_\_\_

### 9.5 WS from the WB

#### Methods for Solving Quadratic Equations, Where they are in your book, & Advantages/Disadvantages

Method	Advantages	Disadvantages
Factoring (Lessons 7.5–7.8)	<ul style="list-style-type: none"><li>• Straightforward when the equation can be factored easily</li></ul>	<ul style="list-style-type: none"><li>• Some equations are not factorable.</li></ul>
Graphing (Lesson 9.2)	<ul style="list-style-type: none"><li>• Can easily see the number of solutions</li><li>• Use when approximate solutions are sufficient.</li><li>• Can use a graphing calculator</li></ul>	<ul style="list-style-type: none"><li>• May not give exact solutions</li></ul>
Using Square Roots (Lesson 9.3)	<ul style="list-style-type: none"><li>• Used to solve equations of the form <math>x^2 = d</math>.</li></ul>	<ul style="list-style-type: none"><li>• Can only be used for certain equations</li></ul>
Completing the Square (Lesson 9.4)	<ul style="list-style-type: none"><li>• Best used when <math>a = 1</math> and <math>b</math> is even</li></ul>	<ul style="list-style-type: none"><li>• May involve difficult calculations</li></ul>
Quadratic Formula (Lesson 9.5)	<ul style="list-style-type: none"><li>• Can be used for any quadratic equation</li><li>• Gives exact solutions</li></ul>	<ul style="list-style-type: none"><li>• Takes time to do calculations</li></ul>

1 – 6: solve the equation using the Quadratic Formula. State your a, b, & c. Show the set up of the formula. Leave your answers simplified in radical form and provide the decimal to the tenth.

1.  $x^2 - 10x + 16 = 0$

2.  $x^2 + 2x - 8 = 0$

3.  $3x^2 - x - 2 = 0$

4.  $x^2 + 6x = -13$

5.  $-3x^2 + 5x - 1 = -7$

6.  $-4x^2 + 8x + 12 = 6$

**Draw and label a diagram.**

7. A square pool has a side length of  $x$  feet. A uniform border around the pool is 1 foot wide. The total area of the pool and the border is 361 square feet. What is the area of the pool?

**8 – 10: Determine the number of real solutions of the equation. Show your work to earn credit.**

8.  $-x^2 + 6x + 3 = 0$

9.  $x^2 + 6x + 9 = 0$

10.  $x^2 + 3x + 8 = 0$

**11 – 13: Find the number of x-intercepts of the graph of the function. Show your work to earn credit.**

11.  $y = -x^2 + 4x + 3$

12.  $y = x^2 + 14x + 49$

13.  $y = -x^2 - 8x - 18$

**14 – 16: Solve the equation using ANY METHOD. Explain your choice of method. HINT: Use the chart provided at the beginning of this worksheet.**

14.  $x^2 - 4x + 4 = 16$

15.  $x^2 - 8x + 7 = 0$

16.  $3x^2 + x - 5 = 0$