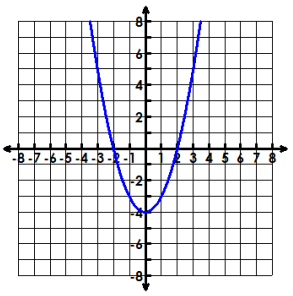
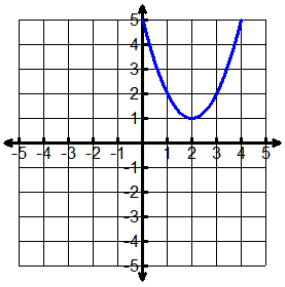
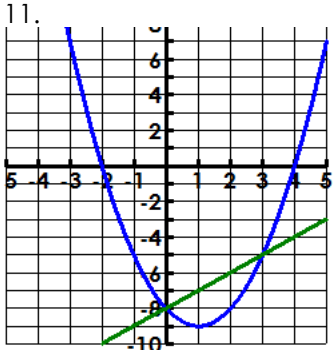
Name: _____ Date: _____

You need to know & be able to do	Things to remember	Example Problems	
Solve a Quadratic by Graphing	Identify where the graph crosses the x-axis.	1. 	2. 
Solve a Quadratic by Factoring	Get in standard form. Factor. Set each factor equal to zero and solve.	3. $4x^2 - 9 = 0$	4 $2x^2 + x = 6$
		5. $-4x^2 = -4x - 15$	6. $5x^2 + x = 4$
Solve a Quadratic by Taking Square Roots	Isolate the square. Take the square root of both sides. Don't forget the $\pm$. Get the variable by itself.	7. $x^2 - 13 = 0$	8. $3(x^2 - 1) = 27$
		9. $2(x-1)^2 + 4 = 16$	10. $(x+4)^2 = 121$
Solve a System with a Quadratic and Linear Equation.	**Graphically**: See where the two intersect and list as ordered pairs. **Algebraically**: Set the equations equal to each other and solve for x. Substitute each x back in and solve for y. List as ordered pairs.	11. 	12. $y = x^2 - x - 6$ $y = 2x - 2$

<table>
<tr><td rowspan="2">Solve a Quadratic by Completing the Square</td><td rowspan="2">Put terms with an x on the left.

Make sure a = 1.

Find the number that completes the square.

Add it to both sides.

Factor the left.
Simplify the right.

Take the square root of each side.

Solve for x.</td><td>13. $x^2 + 2x - 4 = 0$</td><td>14. $x^2 + 8x + 4 = 0$</td></tr>
<tr><td>15. $x^2 - 8x - 36 = 0$</td><td>16. $3x^2 + 12x - 6 = 0$</td></tr>
<tr><td rowspan="2">Solve a Quadratic by Quadratic Formula</td><td rowspan="2">Put it in standard form.

Identify a, b, and c.

Use the formula.

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$</td><td>17. $x^2 + 4x - 2 = 0$</td><td>18. $x^2 + 4x - 1 = 0$</td></tr>
<tr><td>19. $x^2 - 3x = -2$</td><td>20. $2x^2 + 2x = 12x - 1$</td></tr>
<tr><td>Applications</td><td></td><td colspan="2">A ball is thrown into the air from a height of 256 feet at time t = 0. The function that models this situation is $h(t) = -16t^2 + 96t + 256$, where t is in seconds and h is the height in feet.
21. What is the height of the ball at 2 seconds?

22. When will the ball reach a height of 144 feet?
$144 = -16t^2 + 96t + 256$

23. When will the ball hit the ground? $0 = -16t^2 + 96t + 256$</td></tr>
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