Unit 5 Review Guide

Name: _____

1. The highest or lowest point of a quadratic function is called the _____.

2. The graph of a quadratic function is in the shape of a _____.

3. The point where the graph crosses the y-axis is called the _____.

4. The x-values of the x-intercepts are called _____.

5. Use the discriminant to determine the number of solutions for the given equation: $y = 2x^2 + 4x + 5$

6. Use the quadratic formula to find the solutions of the following (also called roots or zeros):

Put in Standard Form 1st

   a. $x^2 + 8x + 12 = 0$

   b. $2x^2 + 3x + 9 = 0$

   c. $2x^2 - 2x = 12$

7. Find the vertex and axis of symmetry of the following:

   a. $f(x) = x^2 + 10x - 9$

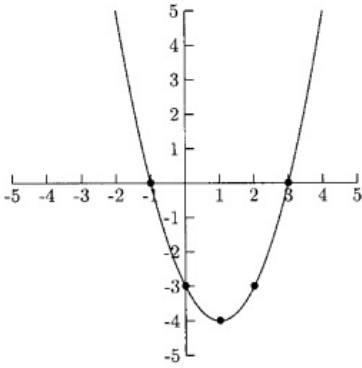   b. $y = x^2 + 4x - 3$

   c. $y = -(x + 3)^2 - 8$

8. Determine the y-intercept of the following function: $y = 7x^2 + 2x + 6$

9. Describe the transformations of the following:

	$y = (x - 4)^2 + 7$	$y = -(x + 3)^2 - 8$	$y = 4(x - 8)^2$
Reflection (yes or no)			
Dilation			
Horizontal Shift			
Vertical Shift			

10. Convert the following equation/function from standard form to vertex form: $y = 2x^2 - 16x + 3$

_____

Use the graph below for questions 11 – 16:

11. **Vertex:**   _____

12. **Axis of Symmetry:**   _____

13. **y-intercept**   _____

14. **Zeros (x-ints):**   _____

15. **Domain:**   _____

16. **Range:**   _____

_____

Use the information below to answer questions (17-20)

John hits a baseball. The following function models the height, h(t), in feet, of an object t seconds after it is in the air: $f(t) = -16t^2 + 64t + 3$.

17. **How high is the ball at its highest point?**

18. **After how many seconds is the ball at its highest point?**

19. **How high is the baseball at 3 seconds?**

20. **Approximately how many seconds does it take for the ball to hit the ground?**

_____

21. **Identify if the following are an odd function, an even function, or neither:**

(A) $f(x) = 5x^2 - x$ (B) $f(x) = 3x^3 + x$

(C) $f(x) = 6x^2 - 8$ (D) $f(x) = 4x^3 + 2x^2$

22. **Identify if the following are an odd function, an even function, or neither:**