Name: _____ Date: _____ Period: _____

LT AA2: Study Guide

AA2

Identify the parent function, be able to graph, explain the transformation, and the significance of the locator point (h, k)

1. $y = 2(x - 5)^2 + 7$
2. $y = |x + 6| - 3$

3. $y = -(x + 9)^3 - 12$
4. $y = \frac{1}{4}\sqrt{x + 1} - 5$

5. $x = .75(y - 2)^2 + 1$
6. $(x - 6)^2 + (y + 4)^2 = 25$

Write the equation of the function using the given information (you must show your work)

7. A parabola that has a vertex at $(1,1)$ that goes through the point $(-4,76)$
8. A cubic function that has a locator point at $(-3, 5)$ and goes through the point $(-2,4)$
9. An absolute value function with the vertex $(5, -4)$ that goes through the point $(-1, 8)$.

Sketch a careful graph of each function

10. $y = (x + 3)^2 - 27$
11. $y = \sqrt{x + 16} - 6$
12. $y = 3|x + 4| - 3$
13. $(x - 2)^2 + (y + 4)^2 = 16$

Use completing the square to rewrite the equation in vertex form, then identify the vertex and find the x-intercepts.

14. $y = x^2 - 24x + 16$
15. $y = x^2 - 6x - 2$

Find the vertex and describe the transformation

16. $x = (y + 1)^2 - 3$
17. $x = (y - 12)^2 + 7$

18. Be able to graph a piecewise function
$$\begin{cases} 4x - 2, & x \geq 2 \\ \frac{-1}{3}x + 4, & x < 2 \end{cases}$$

19. Be able to compare and contrast a parent function and it's transformed function. For instance how are $y = |x|$ and $y = -2|x + 5| - 3$ the same and different.