AGS 3 Name: _____ Period: _____ Date: _____

Assignment 1.4

Use the functions $f(x) = \sqrt{x} - 1$ and $g(x) = x^2 + 7$

1. a. Calculate $f(16)$ and $g(3)$.

b. Write the ordered pair for $f(16)$ and $g(3)$.

c. What do the ordered pairs you wrote in b imply?

d. Find the inverse function for $f(x)$. Are $f(x)$ and $g(x)$ inverse functions? Explain.

2. Match each function with its inverse.

$f(x)$	$f^{-1}(x)$
_____ $f(x) = 3x + 5$	a. $f^{-1}(x) = log_5 x$
_____ $f(x) = x^5$	b. $f^{-1}(x) = \sqrt[3]{x}$
_____ $f(x) = \sqrt[5]{x - 3}$	c. $f^{-1}(x) = \frac{x-5}{3}$
_____ $f(x) = x^3$	d. $f^{-1}(x) = \frac{x}{3} - 5$
_____ $f(x) = 5^x$	e. $f^{-1}(x) = log_3 x$
_____ $f(x) = 3(x + 5)$	f. $f^{-1}(x) = x^5 + 3$
_____ $f(x) = 3^x$	g. $f^{-1}(x) = \sqrt[5]{x}$

3. a. The inverse function of a linear function is _____.

b. The inverse function of a quadratic function is _____.

c. The inverse function of an exponential function is _____.

Refresh Your Memory

4. Calculate the composition for each pair of functions.

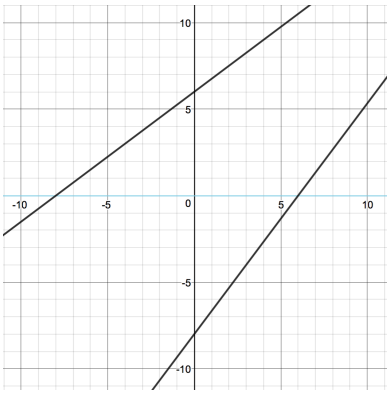
a. $f(x) = \frac{3}{4}x + 6$ $\quad$ $g(x) = \frac{4(x-6)}{3}$

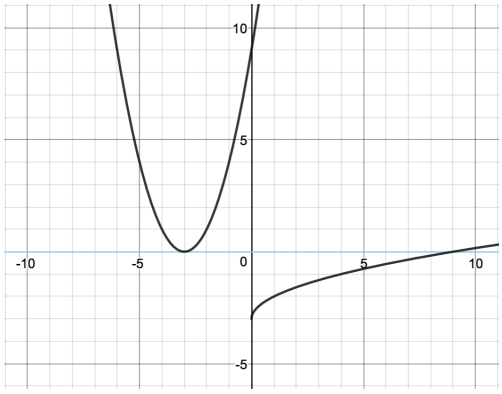
$f(g(x)) =$ $\quad$ $g(f(x)) =$

b. $m(x) = (x+3)^2$ $\quad$ $n(x) = \sqrt{x} - 3$

$m(n(x)) =$ $\quad$ $n(m(x)) =$

5. Label the graph of each function from #4.





6. Graph the line $y = x$ on each of the above graphs.

Describe how the line $y = x$ is related to the two functions on each graph. Does this have anything to do with your answers to #4? Explain.

7. How do you have to limit the domain of $m(x)$ so its inverse will be a function?