

Name: _____
Topic: Practice Inverses and Composition of Functions

Functions & Statistics: Per ___
Date: _____

In 1-3, let $f(x) = x^2 + 2x + 7$ and $g(x) = 5x - 3$

1. Evaluate each of the following:

a. $f(g(1))$

b. $g(f(1))$

2. Find a formula for each:

a. $f(g(x))$

b. $g(f(x))$

3. Use the formula from question 1 to evaluate each of the following:

a. $f(g(1))$

b. $g(f(1))$

4. Let $s(x) = \sqrt{x-1}$ and $h(x) = x^2 - 2$. What is the domain of $h \circ s$?

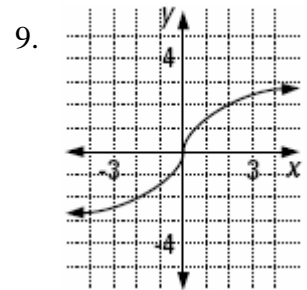
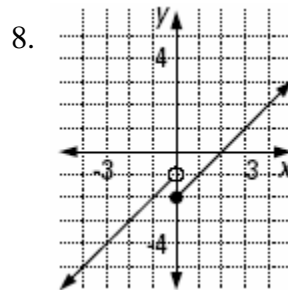
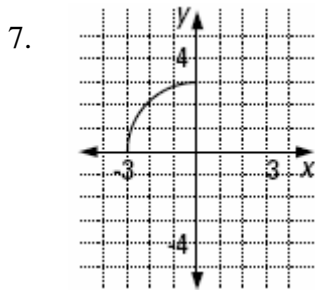
5. For each of the following functions, find an equation for the inverse, graph the inverse with the original function, and tell whether the inverse is a function.

a. $f(x) = 3 - 2x$

b. $g(x) = \frac{1}{x^2}$

6. True or False: If a function is an even function, then its inverse is not a function.

In 7-9 determine whether the inverse of the graphed function is a function. If the inverse is a function, sketch its graph on the same set of axes.



10. Prove $f(x) = 2x^3 - 8$ and $f^{-1}(x) = \sqrt[3]{\frac{x+8}{2}}$ are inverses of each other.

(Hint: You must prove the composition of the function and its inverse results in x)