

# HOMWORK: COMPOSITE AND INVERSE FUNCTIONS

NAME: \_\_\_\_\_ DAY 7 DUE: \_\_\_\_\_

1. Use the table to answer the questions.

x	-3	-2	-1	0	1	2	3
f(x)	-7	-5	-3	-1	3	5	5
g(x)	8	3	0	-1	0	3	8

a.  $(f \circ g)(1) =$

b.  $(f \circ g)(-1) =$

c.  $(g \circ f)(-1) =$

d.  $(g \circ f)(0) =$

e.  $(g \circ g)(-2) =$

f.  $(f \circ f)(-1) =$

Find the domain of each composite function given:  $f(x) = \frac{3}{x-1}$  and  $g(x) = \frac{2}{x}$

2.  $(f \circ g)(x) =$

3.  $(f \circ f)(x) =$

Find the domain of each composite function given:  $f(x) = x^2 + 1$  and  $g(x) = \sqrt{x-1}$

4.  $(g \circ f)(x) =$

5.  $(g \circ g)(x) =$

Find functions  $f(x)$  and  $g(x)$  so that  $(f \circ g) = H$ .

6.  $H(x) = (2x + 3)^4$

$f(x) =$  \_\_\_\_\_

$g(x) =$  \_\_\_\_\_

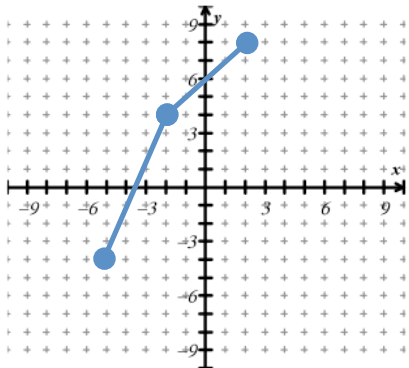
7.  $H(x) = \sqrt{x^2 + 1}$

$f(x) =$  \_\_\_\_\_

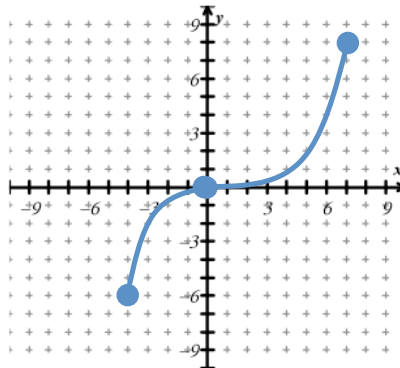
$g(x) =$  \_\_\_\_\_

Draw the graph of the inverse function.

8.

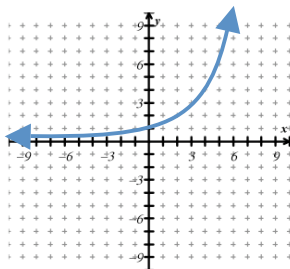


9.

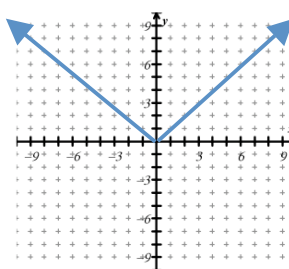


Use the horizontal line test to determine if each function is one-to-one.

10.



11.



12. The function  $y = |x|$  is not one-to-one. Find a suitable restriction on the domain of  $f$  so that the new function that results is one-to-one. Then find the inverse of  $f$ .

13. If a function,  $f$ , is even, can it be one-to-one? Why?

14. If a graph of a function and its inverse intersect, where must this necessarily occur? Why?