Functions 5b – Composition of Functions
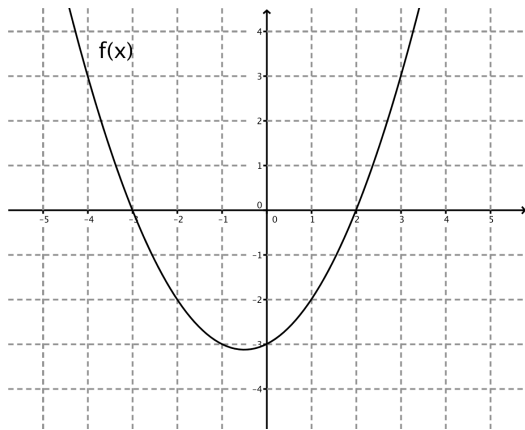**Homework #4 – Composition Continued**

1. Consider the following functions: $f(x)$ is given graphically, $g(x)$ is given as a chart of values, and $h(x)$ is given symbolically. Compute the below composite function values.

x	$g(x)$
-2	-3
-1	1
0	-4
1	0
2	0
3	-1
4	2

$h(x) = 2x - 1$

a. $f\left(g(2)\right) =$

b. $g\left(h(2)\right) =$

c. $g\left(f(1)\right) =$

d. $g\left(g(3)\right) =$

e. $g\left(f\left(h(2)\right)\right) =$

2. Given that $f(x) = 4x^2$, $g(x) = 3\sqrt{x}$, **and** $h(x) = \dfrac{-2}{x}$, **compute the following compositions, simplifying where possible.**

a. $h(f(x)) =$

b. $h(g(4)) =$

c. $g(f(x)) =$

d. $f(h(1)) =$

e. $f(h(-1)) =$

f. $f(g(x)) =$

3. For the following composite function h, **identify functions** f **and** g **so that** $h = f \circ g$.

a. $h(x) = (3x - 1)^2 + 5$ $f(x) =$ $g(x) =$

b. $h(x) = 4(x - 2)^2 + 7(x - 2) - 1$ $f(x) =$ $g(x) =$

c. $h(x) = \sqrt{x^2 - 3x}$ $f(x) =$ $g(x) =$

d. $h(x) = \dfrac{2}{x^2 + 1}$ $f(x) =$ $g(x) =$