Quiz 2 *Key*

Show *all* your work algebraically for each. No credit is given without supporting work. There are *two* sides to this quiz.

1. Assume that g and h are the functions *completely* defined by the tables below:

x	$g(x)$
-3	-1
-1	1
1	2.5
3	-2

x	$h(x)$
-4	2
-2	-3
2	-1.5
3	1

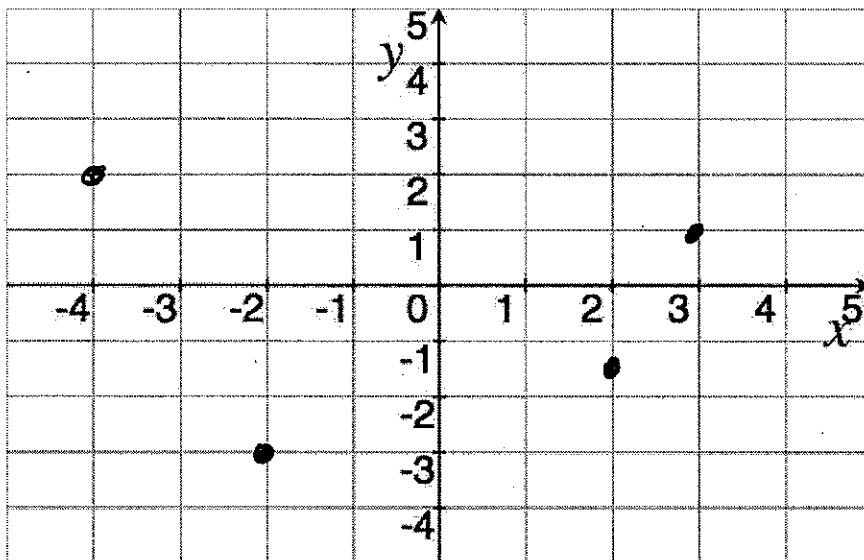(a) [1] (§1.2 #13) What is the domain of g?

$$\{-3, -1, 1, 3\}$$

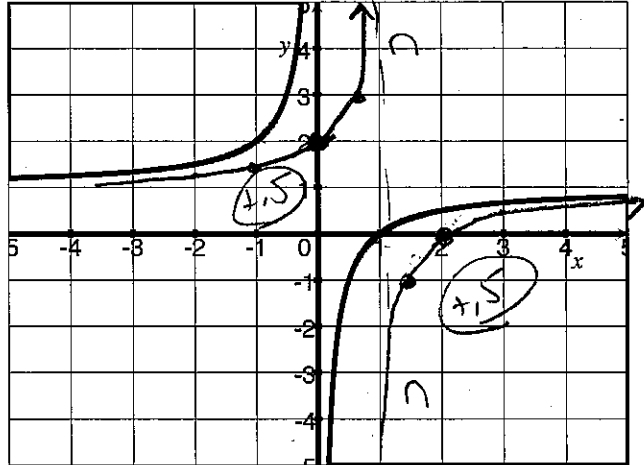(b) [1] (§1.4 #3) Find the value of $(h \circ g)(3)$.

$$(h \circ g)(3) = h(g(3)) = h(-2) = -3$$
$(+.5)$ $(+.5)$

(c) [2] (§1.2 #11) Sketch the graph of the function h.

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2. Suppose $f(x) = \dfrac{x-1}{x}$.

The graph of f is provided on the right.

(a) [1] (WebHW2 #4) Find $(f \circ f)(3)$.

$(f \circ f)(3) = f(f(3))$ ⊛ (+.5)

$\qquad = f\left(\dfrac{3-1}{3}\right) = f\left(\dfrac{2}{3}\right)$

$\qquad = \dfrac{\frac{2}{3} - 1}{\frac{2}{3}} = \dfrac{-\frac{1}{3}}{\frac{2}{3}}$

$\qquad = -\frac{1}{2}$ (+.5)

(b) [1] (Inverse Wks #2a) Does f have an inverse? Why or why not?

yes b/c the graph of f passes the horiz line test

stated (+.5)
got it (+.5)

(c) [2] (§1.3) Let $n(x) = f(x - 1)$. Write down the rule of n and simplify.

(+.5)

$f(x-1) = \dfrac{(x-1)-1}{(x-1)} = \dfrac{x-2}{x-1}$ simplify (+.5)

(+.5)

comp (+.5)

(d) [2] (WebHW2 #13) Carefully draw the graph of n on the axes above.

shifted to the right 1 unit. (+1)

ex $n(0) = f(0-1) = f(-1) = 2$

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