Written Assignment 6

Due: Wednesday, August 3rd

1. Let $L(t) = \dfrac{2t}{t+2}$ and $N(a) = (a-1)^3$.

   (a) Find a formula for $L \circ N(a)$.

   (b) Find a formula for $N \circ L(t)$. Is your answer different than part (a)?

   (c) Compute $(L \circ L)(-3)$.

2. Suppose H and M are functions defined in the table below. Compute the following quantities.

t	$H(t)$	$M(t)$
-2	0	-1
-1	3	-2
0	3	3
1	-2	0
2	-1	1
3	0	2

   (a) $(H \circ M)(2)$

   (b) $(H \circ H)(0)$

   (c) $(M \circ H)(-2)$

   (d) $(M \circ M)(1)$

3. For the functions below, identify f and g such that the listed function is the composition $f \circ g$.

   (a) $h(x) = (1+3x)^2$

   (b) $q(x) = e^{-3x}$

   (c) $r(x) = e^{x^2}$

4. First find a formula for the composition $(f \circ g)(t)$, and then find the domain of $f \circ g$.

   (a) $f(x) = \frac{1}{x}$; $g(t) = t + 4$

   (b) $f(x) = \sqrt{2x+1}$; $g(t) = 3 - t$