Quiz 2A, Calculus I

Dr. Graham-Squire, Spring 2013

Name: _____

1. (3 points) Use the limit definition of the derivative

$$f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

to prove that the derivative of a constant function is zero. That is, for $f(x) = c$, prove that $f'(x) = 0$.

2. (4 points) Use the shortcut rules (not the definition) to calculate $h'(x)$ if $h(x) = (x^3+7)(\sin x)$. You do not need to simplify your answer.

3. (3 points) Use the shortcut rules (not the definition) to calculate $f'(x)$ if $f(x) = \dfrac{x^8 - 5x^2}{x^6}$. If necessary, simplify your answer so that there are no fractions.