Quiz 2

Spring 2013 **Your name:** _____

Math 0220 **Your TA's name:** _____

No calculators, no notes, no books. Show all your work (no work = no credit). Write neatly. Simplify your answers.

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1. [5 points] Evaluate the limit $L = \lim_{x \to 0} \dfrac{x}{\sqrt{16 - x} - 4}$, if it exists.

2. [5 points] Sketch the graph of an example of a function $g(x)$ if it has the domain $[-3, \infty)$ and satisfies all the given conditions. Mark all important points on the graph and the axes.

$g(-3) = -1$, $\lim_{x \to -1^-} g(x) = -\infty$, $\lim_{x \to -1^+} g(x) = -1$, $g(-1)$ is undefined,

$g(1) = 1$, $\lim_{x \to 1^-} g(x) = 1$, $\lim_{x \to 1^+} g(x) = 0$, $\lim_{x \to 3} g(x) = -2$, $g(3) = 0$, $\lim_{x \to \infty} g(x) = 0$.

bonus problem [5 points extra] Evaluate the difference quotient $\dfrac{f(2+h)-f(2)}{h}$ for the function $f(x)=\dfrac{x}{x-1}$.