Math 151 Quiz #1 Name_____

Show all work. Your answers must be fully justified.

1. Let $f(x) = 5\sqrt{x-3}$ and $g(x) = \dfrac{x-2}{x+8}$

   (a) Find the domain of each function.

   (b) Find $g \circ f$. You do not need to simplify your answer.

2. Carefully sketch a function $f(x)$ that satisfies the requirements:

   (a) $f(-1) = 2$, $\lim_{x \to -1^-} f(x) = 2$, $\lim_{x \to -1^+} f(x) = 4$

   (b) $f(3)$ does not exist, $\lim_{x \to 3} = 1$.

3. Find $\lim_{x \to 2} \dfrac{3x^2 - x - 10}{x^2 - 4}$, if it exists.