# Quiz 1

Student ID Number: Name _____

Math 140B, 5PM

Please justify all your answers January 17, 2019

Please also write your full name on the back

1. Suppose the limits $L_1 = \lim_{x \to a^+} f_1(x)$ and $L_2 = \lim_{x \to a^+} f_2(x)$ exist.

   (a) Show if $f_1(x) \leq f_2(x)$ for all $x$ in some interval $(a, b)$, then $L_1 \leq L_2$.

   (b) Suppose that, in fact, $f_1(x) < f_2(x)$ for all $x$ in $(a, b)$. Can you conclude that $L_1 < L_2$? Explain or draw a picture.

2. True or False? Explain. Suppose $f : S \to \mathbb{R}$ is continuous and $\{x_n\}_{n=1}^{\infty}$ is a sequence in $S$. If $f(x_n) \to f(x)$ for some $x \in S$, then $x_n \to x$.