**Math 441 - Homework 5**

1. Suppose that $s_n$ is a sequence and $s_n \to s$. Suppose that $c \in \mathbb{R}$. Prove that $\lim cs_n = cs$.

2. Suppose that $(a_n)$, $(b_n)$, and $(c_n)$ are sequences such that $a_n \leq b_n \leq c_n$ for all $n \in \mathbb{N}$ and such that $\lim a_n = \lim c_n = b$. Prove that $\lim b_n = b$.

3. Suppose that $\lim s_n = s$, with $s > 0$. Prove that there exists an $N \in \mathbb{R}$ such that $s_n > 0$ for all $n > N$.