

Written Assignment 3 (due 9/10/12)

Exercise 1: Problem 57 from section 1.8 of the textbook. You may simply state your results for parts (a), (b), and (c). However, part (d) should be thoroughly explained using complete sentences and the notation from our discussion of limits.

Exercise 2: Alice and Bob both plan to hike the appropriately named Mount Awesomeness, which has an altitude of 0 feet at the base and 1000 feet at the peak. Alice starts at the base at 8am and reaches the peak at 10am. Bob, meanwhile, starts at the peak at 8am and reaches the base at 10am.

Let t be the time in minutes since 8am. Let $f(t)$ be the function which gives Alice's altitude as a function of time, and let $g(t)$ be the function which gives Bob's altitude as a function of time. We do not have specific formula for $f(t)$ and $g(t)$, but we do know that these functions are continuous (since neither Alice nor Bob can teleport).

Mathematically show that at some time between 8am and 10am, Alice and Bob are at the exact same altitude at the exact same time.