Math 319 Quiz

November 22, 2005

Name: **School ID:**

Question 1 For each of the three statements below give an example.

(i) A bounded monotonic sequence is convergent.

(ii) A sequence that contains two subsequences with different limits is divergent.

(iii) Let $f : \mathbb{R} \to \mathbb{R}$ be any function and (a_n) be a convergent sequence with limit $c \in \mathbb{R}$. Suppose that $\lim_{x \to c} f(c) = L$. Then $\lim_{n \to \infty} f(a_n) = L$.

Question 2. Prove any ONE of the above statements from the definitions.