Math 319 Quiz
November 22, 2005

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.