Problem Set 5        Real Analysis 1        Due 10/25/2002

Each problem is worth 5 points. Adequate demonstration is required for full credit.

1. Prove that \( \lim_{x \to 5} \frac{1}{x} \) exists directly from the definition.

2. Prove that if \( \lim_{x \to a} f(x) = L \) then \( \lim_{x \to a} c \cdot f(x) = c \cdot L \).

3. Prove or give a counterexample: if \( \lim_{x \to c} f(x) = L \) then \( \lim_{x \to c} f(x) = c \cdot L \).

4. Prove that if \( \lim_{x \to a} f(x) = L \) then \( \lim_{x \to a} [f(x)]^2 = L^2 \).