Problem Set 6   Real Analysis 1   Due 11/1/2002

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

1. Prove that $f(x) = x^2$ is continuous directly from the definition.

2. Prove that if $f(x)$ is continuous then $|f(x)|$ is continuous directly from the definition.

3. Prove or give a counterexample: if $|f(x)|$ is continuous, then $f(x)$ is continuous.

4. Prove that if $f(x)$ is continuous, then $[f(x)]^2$ is continuous directly from the definition.