Math 165: Honors Calculus I   Name:_____

Quiz 7   *Oct. 29, 1998*

1. Use the Basic Limit Theorems to prove that if f and g are continuous at p, then $f + g$ and $f \cdot g$ are continuous at p.

2. Use the Squeezing Principle to show $\lim\limits_{x \to 0} x^2 \cos\left(\dfrac{3}{x^2}\right) = 0$.

3. Compute the following limits. Explain which limit theorems you are using in each case.

a) $\displaystyle\lim_{x\to 1}\frac{x-1}{\sin[(x^2-1)]}$

b) $\displaystyle\lim_{x\to 0}\frac{\sqrt{x+9}-3}{x}$

c) $\displaystyle\lim_{x\to 3}\sqrt{2+\cos(\pi x^2)}$