

Math 165: Honors Calculus I
Quiz 7 Nov. 3, 1994

Name: _____

1. a) State the BASIC LIMIT THEOREMS.

b) 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. a) State the SQUEEZING PRINCIPLE.

b) Use the Squeezing Principle to prove $\lim_{t \rightarrow 0} t \cos(3t^2) = 0$.

3. Suppose $f(x)$ is a function with the following property: if $|x - 1| < 3$ then $|f(x) - 5| < 7|x - 1|^2$. Given $\epsilon > 0$, determine how δ should be chosen so that if $|x - 1| < \delta$ then $|f(x) - 5| < \epsilon$.

4. Find $\lim_{x \rightarrow 1} \frac{\sqrt{x+3} - 2}{x - 1}$.