2/2/2006 MATH261 Calculus I Name:_____
Dr. Lunsford Quiz 3 (20 Points Total)

For each of the following limits, analytically determine if the limit exists as a number or does not exist. If the limit exists find its value. Neatly show ALL of your work and CLEARLY indicate your answers. You must show at least one intermediate step for each limit. Use the back of the page if necessary.

1. $\lim_{w\to 0}\dfrac{(2+w)^{-1}-2^{-1}}{w}$

(4 points)

2. $\lim_{x\to -1}\dfrac{x^3+1}{x^4+1}$

(4 points)

3. $\lim_{y\to 2}\dfrac{y^2-5y+6}{16-y^4}$

(4 points)

4. For the remaining limits use the function $f(x)=\begin{cases} x^2+3, & x\le -1 \\ \sqrt{x+7}, & -1<x<2 \\ 1+x, & x\ge 2 \end{cases}$

(a) $\lim_{x\to -1} f(x)$

(4 points)

(b) $\lim_{x\to 2^+} f(x)$

(2 points)

(c) $\lim_{x\to 0} f(x)$

(2 points)