

QUIZ MATH 151 Sections 525-527  
WEEK 4

NAME \_\_\_\_\_ SECTION \_\_\_\_\_

Show all you work and box your final answer.

1. [60pts] Find these limits:

(a)  $\lim_{x \rightarrow -3^-} \frac{|x+3|}{x+3}$       (b)  $\lim_{x \rightarrow 0} \frac{\sqrt{x^2+9}-3}{x^2}$       (c)  $\lim_{x \rightarrow \infty} \frac{\sqrt{1+4x^2}}{4+x}$ .

2. [20pts] Explain why the following function is discontinuous at  $x = -4$ :

$$f(x) = \begin{cases} x^2 - 2 & \text{if } x \neq -4 \\ 1 & \text{if } x = -4 \end{cases}$$

3. [20pts] Determine the *infinite* limit:  $\lim_{x \rightarrow -2^+} \frac{x-1}{x^2(x+2)}$