

QUIZ MATH 151 Sections 525-527
WEEK 4

NAME _____ SECTION _____

Show all you work and box your final answer.

1. [60pts] Find these limits:

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

2. [20pts] Explain why the following function is discontinuous at
- $x = -3$
- :

$$f(x) = \begin{cases} x^2 - 2 & \text{if } x \neq -3 \\ 5 & \text{if } x = -3 \end{cases}$$

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