

QUIZ MATH 151 Sections 525-527

WEEK 4

NAME_____ SECTION_____

Show all your 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: $\lim_{x \rightarrow -2^+} \frac{x - 1}{x^2(x + 2)}$