Quiz #1 Math 101 Semester 101

Name:	I.D.		

1 Find $\lim_{x \to -3^+} \frac{1}{|3+x|}$

when $x \to -3^+$

$x = -3 + \delta$

where δ is a small number

$\Rightarrow \frac{1}{|3-3+\delta|} = \frac{1}{|\delta|} = \frac{1}{\delta}$

1 over small is large

$\Rightarrow \lim_{x \to -3^+} \frac{1}{|3+x|} = \infty$

and $\lim_{x \to 2^+} [[2x-1]]$

$x \to 2^+$

$x = 2 + \delta$

$\lim [[2(2+\delta) - 1]]$

$= [[4 + 2\delta - 1]]$

$= [[3 + 2\delta]] = 3$

$\lim_{x \to 2^+} [[2x-1]] = 3$

2 Find $\lim_{x \to 1^-} \frac{|x^2 - 3x + 2|}{x^2 - 1}$

$$\lim_{x \to 1^-} \frac{|(x-1)(x-2)|}{(x-1)(x+1)}$$

Since $x \to 1^-$ $(x = 1 - \delta) \Rightarrow (x-1) < 0$

also $(x-2) < 0$

hence $(x-1)(x-2) > 0$

$$\Rightarrow \lim_{x \to 1^-} \frac{|(x-1)(x-2)|}{(x-1)(x+1)} = \lim_{x \to 1^-} \frac{(x-1)(x-2)}{(x-1)(x+1)}$$

$$= \lim_{x \to 1^-} \frac{(x-2)}{x+1} = \frac{-1}{2}.$$