Math 151
Quiz 2
Spring 2006

Justify all answers with neat and organized work. Clearly indicate your answers. 20 points possible.

1. (4 pts.) For the function g whose graph is given, state the value of each quantity, if it exists. If it does not exist, explain why.

(a) $\lim_{t \to 2^-} g(t)$

(b) $\lim_{t \to 0^+} g(t)$

(c) $g(2)$

(d) $\lim_{t \to 0} g(t)$

2. (4 pts.) Determine the infinite limit.

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

3. (4 pts.) Evaluate the limit, if it exists. Your work must completely justify your answer algebraically.

$$\lim_{x \to -3} \frac{x^2 - 9}{x^2 + 8x + 15}$$

4. (4 pts.) Evaluate the limit, if it exists. Your work must completely justify your answer algebraically.

$$\lim_{x \to 0} \frac{\sqrt{4+h} - 2}{h}$$

5. (4 pts.) Explain why the function is discontinuous at the given number a. Sketch the graph of the function.

$$f(x) = \begin{cases} \dfrac{x^2 + 6x + 16}{x - 2} & \text{if } x \neq 2 \\ -3 & \text{if } x = 2 \end{cases}$$