

Name: _____

Math 200 Calculus I (Bueler)

8 February 2006

Quiz # 2
Total of 25 points.

1. (5 pts) Use the given graph of f to state the value of each quantity, if it exists. If it does not exist, explain why.

(a) $\lim_{x \rightarrow 0} f(x)$

(b) $\lim_{x \rightarrow 3^-} f(x)$

(c) $\lim_{x \rightarrow 3^+} f(x)$

(d) $\lim_{x \rightarrow 3} f(x)$

(e) $f(3)$

2. (4 pts) Determine the infinite limit

$$\lim_{x \rightarrow 5^+} \frac{6}{x - 5}$$

3. (4 pts) Evaluate the limit, if it exists.

$$\lim_{t \rightarrow 9} \frac{9 - t}{3 - \sqrt{t}}$$

3. Given that

$$\lim_{x \rightarrow a} f(x) = -3 \quad \lim_{x \rightarrow a} g(x) = 0 \quad \lim_{x \rightarrow a} h(x) = 8$$

determine the limits below.

(a) (2 pts)

$$\lim_{x \rightarrow a} \frac{g(x)}{h(x)}$$

(b) (2 pts)

$$\lim_{x \rightarrow a} [f(x)]^2$$

4. (8 pts) Prove

$$\lim_{x \rightarrow -3} 2x + 4 = -2.$$

[Yes, I want the formal “ ϵ, δ ” proof. I have suggested a way to start and end the desired proof below; you need to fill in the rest.]

Proof. Given

Thus

$$|(2x + 4) - (-2)| < \epsilon.$$

□