Math 132
Quiz IC

Name: Sec: Serial:

1. Find
\[ \lim_{h \to 0} \frac{f(x + h) - f(x)}{h}, \]
where \( f(x) = \sqrt{x + 4} \).

2. Let \( f(x) = \begin{cases} 3 & \text{if } x > 4 \\ -x & \text{if } x \leq 4 \end{cases} \). Find the following

(a) \( \lim_{x \to 4^+} f(x) \)

(b) \( \lim_{x \to 4^-} f(x) \)

(c) \( \lim_{x \to 4} f(x) \)

(d) \( \lim_{x \to \infty} f(x) \)

(e) \( \lim_{x \to -\infty} f(x) \)
3. Find the value(s) of $x$ for which $f(x) = \frac{x+2}{x^3+5x^2+6x}$, is discontinuous.

4. If a manufacturer’s average cost equation is

$$\bar{c} = 1000 + 10q + 0.2q^2.$$ 

Find the marginal cost function? What is the marginal cost when 10 units are produced?