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) $\lim_{x \to 0} f(x)$
   (b) $\lim_{x \to 3^-} f(x)$
   (c) $\lim_{x \to 3^+} f(x)$
   (d) $\lim_{x \to 3} f(x)$
   (e) $f(3)$

2. (4 pts) Determine the infinite limit

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

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

   $$\lim_{t \to 9} \frac{9 - t}{3 - \sqrt{t}}$$
3. Given that
\[ \lim_{x \to a} f(x) = -3 \quad \lim_{x \to a} g(x) = 0 \quad \lim_{x \to a} h(x) = 8 \]
determine the limits below.
(a) (2 pts)
\[ \lim_{x \to a} \frac{g(x)}{h(x)} \]
(b) (2 pts)
\[ \lim_{x \to a} [f(x)]^2 \]

4. (8 pts) Prove
\[ \lim_{x \to -3} 2x + 4 = -2. \]

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

\textit{Proof.} Given