The graph of \( y = f(x) \) is shown above.

1. Determine each of the following. Use \( \infty \) or \( -\infty \) as appropriate.
   (a) \( \lim_{x \to 7} f(x) \)  (b) \( \lim_{x \to 4^-} f(x) \)  (c) \( \lim_{x \to 4^+} f(x) \)  (d) \( \lim_{x \to 8^-} f(x) \)  (e) \( \lim_{x \to -6^-} f(x) \)  (f) \( \lim_{x \to -\infty} f(x) \)

2. State the values of \( x \) at which \( f \) is discontinuous. For each of your answers state which of the three requirements of the definition of continuity is not met.

3. State the values of \( x \) at which \( f \) is not differentiable. For each of your answers tell what feature of the graphs lets you know that \( f' \) does not exist there.