1. Evaluate the limit, if it exists.
   
   (a) \( \lim_{x \to 4} \frac{x^2 - 4x}{x^2 - 3x - 4} \)

   (b) \( \lim_{x \to 1} \frac{\sqrt{x^2 + 1} - \sqrt{2}}{1 - x} \)

   (c) \( \lim_{x \to 0^+} \frac{3}{x} \left( \frac{1}{4 + x} - \frac{1}{4 - x} \right) \)
(d) \( \lim_{x \to 2^-} ([x - 1] - x^2) \), where \([\]\) denotes the greatest integer function.

2. Sketch the graph of a function \( f \) that satisfies all of the given conditions:
   \( f(0) = 0 \), \( f(2) = 1 \), \( \lim_{x \to 2^+} f(x) = 0 \), \( \lim_{x \to 2^-} f(x) = 2 \), \( \lim_{x \to 2^-} f(x) = +\infty \)