Quiz - September 12

Instructions: Write your name, student number, and answers on a blank sheet of paper. You can use the back of the paper. No calculators, notes, or other aids.

1) Sketch a graph of a function with the given properties.

\[ h(-2) = 0, \lim_{x \to -2} h(x) = -1, \]

\[ h(1) = 3, \lim_{x \to 1^-} h(x) = 1, \lim_{x \to 1^+} h(x) = 3, \]

\[ h(4) = 3, \lim_{x \to 4^-} h(x) = 3, \lim_{x \to 4^+} h(x) = 3. \]

2) The graph of \( f \) is below. Find three intervals on which \( f \) has an inverse, making each interval as large as possible.

3)

a) Find \( f^{-1} \) for the function \( f(x) = \sqrt{x - 1} \) on the interval \( x \geq 1 \).

b) What is the domain of \( f^{-1} \)? [HINT: What is the range of \( f \)?]

BONUS) Verify the relationship \( f(f^{-1}(x)) = x \) for \( x \) in the domain of \( f^{-1} \).