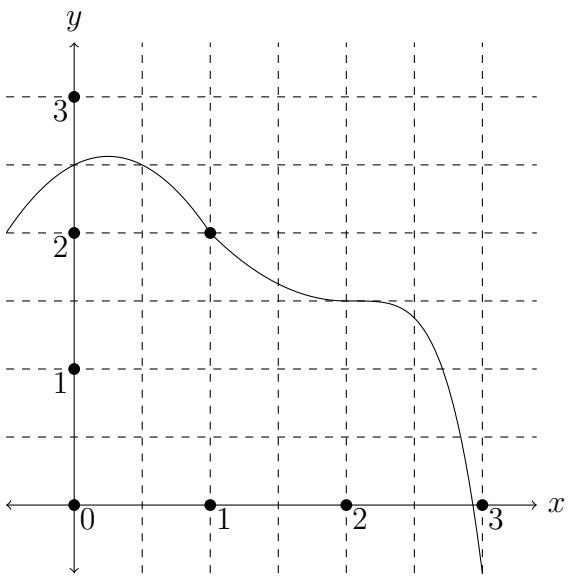
The Precise Definition of a Limit

Solutions should show all of your work, not just a single final answer.

1. State the precise definition of $\lim_{x \to a} f(x) = L$ using ϵ and δ.

2. For the continuous function $f(x)$ graphed below, $f(1) = 2$. Estimate a value of $\delta > 0$ such that if $0 < |x - 1| < \delta$, then $|f(x) - 2| < 1$. Explain your answer by referencing what you see in the graph.



3. Let $g(x) = 4x - 1$. Prove that $\lim_{x \to 2} g(x) = 7$ by using the ε, δ definition of a limit.