1.) (5 pts.) Explain why \( \lim_{x \to 0^+} \sqrt{x} = 0 \) but \( \lim_{x \to 0} \sqrt{x} \) does not exist.

\[ \text{We cannot compute the square root of a negative number.} \]

\[ \text{Therefore the domain of } y = \sqrt{x} \text{ is } [0, \infty). \]

For \( \lim_{x \to 0} \sqrt{x} \), we need limits from both sides to exist (and be equal). From the graph as \( x \to 0 \) from the right, \( \sqrt{x} \to 0 \), but \( x \) cannot \( \to 0 \) from the left.

2.) (5 pts.) Is \( G(x) = x^3 + 4 \) an antiderivative of \( g(x) = x^2 \)? Justify your answer.

\[ \text{No. } G'(x) = 3x^2 \text{ and } g(x) = x^2. \]

Since \( G' \neq g \),

\( G \) is not an antiderivative of \( g \).