Problem statement
The graph of \( y = f'(x) \), the derivative of the function \( f(x) \), is shown to the right. (Both parts of this problem, otherwise unrelated, use information from the graph of the derivative of \( f(x) \).)

a) Use information from the graph of \( f'(x) \) to find (as well as possible) the \( x \) where the maximum value of \( f(x) \) in the interval \( 1 \leq x \leq 3 \) must occur. Explain using calculus why your answer is correct (that is, why the value of \( f(x) \) for the \( x \) you select is larger than \( f(x) \) at any other number in the interval).

b) Suppose that \( f(3) = 5 \). Use information from the graph and the tangent line approximation for \( f(x) \) to find an approximate value of \( f(3.04) \). Explain using calculus and information from the graph why your approximate value for \( f(3.04) \) is greater than or less than the exact value of \( f(3.04) \).