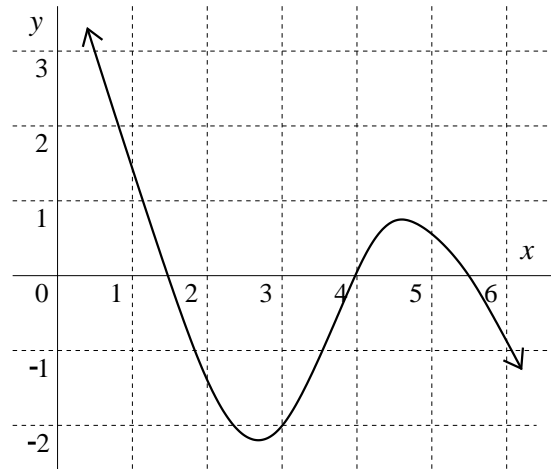**Problem statement**

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 $1 \le x \le 3$ 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).

Graph of $f'(x)$, the *derivative* of $f(x)$

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 $f(3.04)$.