1. Find the absolute maximum and minimum of $f(x) = \ln(x^2 + x + 1)$ in the interval $[-1, 1]$

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2. The function f is continuous and differentiable on the interval $[2, 5]$. If $f(5) = 7$ and $f'(x) \leq 2$ what is the smallest $f(2)$ can be?

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3. Two runners start a race at the same time, and finish in a tie. Show at the some time during the race they were running at the same speed. (Hint: use the function $h(t) = f(t) - g(t)$ where $f(t), g(t)$ are the position functions of the runners