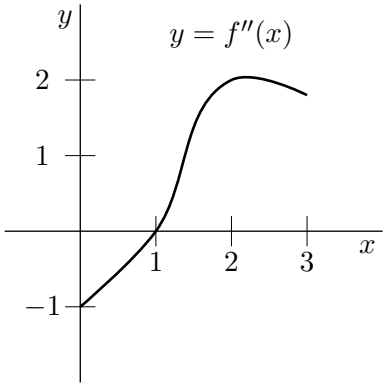
8. The figure below shows the graph of the *second* derivative of f, on the interval $[0, 3]$.



Assume that $f'(1) = 1$ and $f(1) = 0$.

(a) (5 points) Can $f'(x) = 0.5$ for some x in $[0, 3]$? Why or why not?

(b) (5 points) Explain why f has a global maximum at $x = 3$.