6404641216 Thamolwan Sirivejakul

HW#3 Due Jan 25, 2022

HW Find the 2nd -order derivative of $y = f(x) = 10 + \sqrt{x}$ and fill in the table:

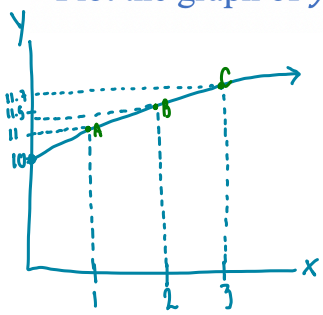
$f(x) = 10 + x^{\frac{1}{2}}$

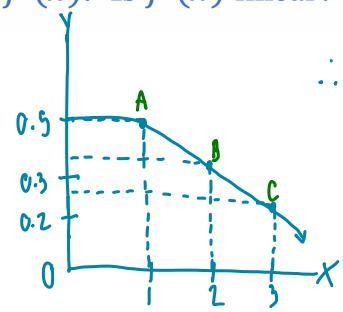
$f'(x) = \frac{1}{2}x^{\frac{1}{2}-\frac{2}{2}} = \frac{1}{2}x^{-\frac{1}{2}} = \frac{1}{2\sqrt{x}}$

$f''(x) = \frac{1}{2}x^{-\frac{1}{2}} = -\frac{1}{4}x^{-\frac{3}{2}} = -\frac{1}{4\sqrt{x^3}}$

Point	x	y	$f'(x)$	$f''(x)$
	0	10	DNE	DNE
A	1	11	$\frac{1}{2} = 0.5$	$-\frac{1}{4}$
B	2	11.414	$\frac{1}{2\sqrt{2}} \approx 0.354$	$-\frac{1}{4\sqrt{8}} \approx -0.088$
C	3	11.732	$\frac{1}{2\sqrt{3}} \approx 0.289$	$-\frac{1}{4\sqrt{12}} \approx -0.048$

Plot the graph of y and $f'(x)$. Is $f'(x)$ linear?





$\therefore f'(x)$ is not linear