

HW#3 Due Jan 25, 2022

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

Point	x	y	f'(x)	f''(x)
	0	10	undefined	undefined
A	1	11	0.5	-0.25
B	2	11.414	0.3536	-0.0884
C	3	11.732	0.2887	-0.0481

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

$f'(x)$

$$\frac{dy}{dx} 10 + \sqrt{x}$$

$$\frac{dy}{dx} x^{\frac{1}{2}}$$

$$\frac{dy}{dx} \frac{1}{2} x^{-\frac{1}{2}}$$

$f''(x)$

$$\frac{dy}{dx} \frac{1}{2} x^{-\frac{1}{2}}$$

$$\frac{dy}{dx} \frac{1}{2} \cdot -\frac{1}{2} x^{-\frac{1}{2}-1}$$

$$= -\frac{1}{4} x^{-1.5}$$

