

HW#3 Due Jan 25, 2022

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

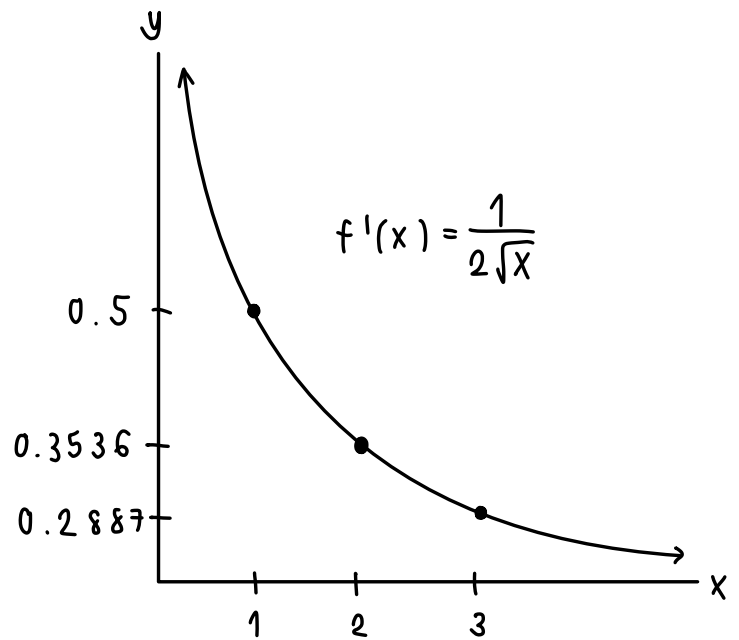
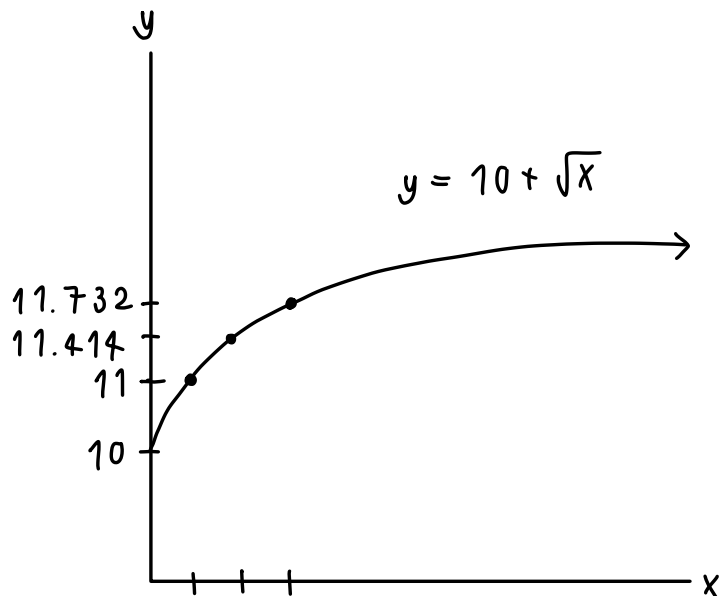
Point	$x$	$y$	$f'(x)$	$f''(x)$
	0	10	undefined	undefined
A	1	11	0.5	-0.25
B	2	11.414	0.3536	-0.0884
C	3	11.732	0.2887	-0.0481

$$f(x) = 10 + \sqrt{x}$$

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

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

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



$f'(x)$  is not a linear function, because linear function is a straight line but  $f'(x)$  is not, it is a radical function.