

HW#2 Due Jan 20, 2022

HW Given $y = 10 + \sqrt{x}$,

- Find the derivative $f'(x)$.
- Fill in the table

Point	X	Y	$f'(x)$
	0	10	0
A	1	11	0.5
B	2	11.414	0.3536
C	3	11.732	0.2887

- Does the slope increase as x increases?
- Approximate the change in Y when $\Delta x = 0.2$ at $x_1 = 3$. Is the approximation under- or over-estimate?

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

c) The slope decrease

$$d) \Delta y = f'(x_1) \cdot \Delta x$$

$$\Delta y = 0.2887 \cdot 0.2$$

$$y_2 = f(x) = 10 + \sqrt{3.2} = 11.79$$

$$\Delta y = y_2 - y_1 = 11.79 - 11.73 = 0.06$$

$$x_1 \approx 3$$

$$\Delta x \approx 0.2$$

$$x_2 \approx 3.2$$

The approximation is underestimate