

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

a) Find the derivative $f'(x)$.

b) Fill in the table

Point	X	Y	$f'(x)$
	0	10	0
A	1	11	0.5
B	2	11.414	1
C	3	11.732	1.5

c) Does the slope increase as x increases?

d) Approximate the change in Y when $\Delta x = 0.2$ at $x_1 = 3$. Is the approximation under- or over-estimate?

$$a.) \frac{dy}{dx} = f'(x) = \frac{x}{2}$$

c.) Yes

d.) overestimate

$$x_1 = 3 \quad y_1 = 11.73 \quad f'(x_1) = \frac{3}{2}$$

$$x_2 = 3.2 \quad y_2 = 11.79 \quad f'(x_2) = \frac{3.2}{2}$$

$$x_3 = 3.4 \quad y_3 = 11.84 \quad f'(x_3) = \frac{3.4}{2}$$