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

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

b) Fill in the table

Point	X	Y	$f'(x)$
	0	10	∞
A	1	11	0.5
B	2	14	0.35
C	3	19	0.29

c) Does the slope increase as x increase?

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

Note: If the function $f(x)$ is linear, the approximation is exact.

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

c) No, it doesn't

d). Approximate change in y → $\Delta y = f'(x)\Delta x = \frac{1}{2\sqrt{3}} \cdot 0.2 \simeq 0.058$

actual $\Delta y \rightarrow f(3.2) - f(3) = \sqrt{3.2} - \sqrt{3} \simeq 0.057$

∴ The approximation is over-estimate.

6304640979

Patcharapon Korsuyat