

H.W.

1) $y = 10 + \sqrt{x}$ Find $\frac{dy}{dx}$

x	y	$\frac{dy}{dx}$
0	10	-
1	11	1
2	11.4	0.4
3	11.7	0.3

Approximate Δy
when $x=2$, $\Delta x=0.1$
and $\Delta x=-0.2$

if $x=2$ $\frac{dy}{dx} = 0.353$

$\Delta x = 0.1$, $\Delta y = 0.353(0.1) = 0.0353$

$\Delta x = -0.2$, $\Delta y = 0.353(-0.2) = -0.0706$

$$\frac{dy}{dx} = \frac{1}{2\sqrt{x}}$$

2) Find 2nd order derivative of $y = 10 + \sqrt{x}$ and plot the graph of y and $\frac{dy}{dx}$. Is the slope constant

$$y = 10 + \sqrt{x}$$
$$y' = \frac{1}{2}x^{-\frac{1}{2}}$$
$$y'' = \frac{1}{4}x^{-\frac{3}{2}}$$

