

H.W.

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

(11111 x 11111) (11111111111 x 11111111111)

x	y	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 $\Delta x = -0.2$

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

$\frac{dy}{dx} = \frac{\Delta y}{\Delta x}$

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

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

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

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

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

