H.W. $y = 10 + \sqrt{x}$ find $\frac{dy}{dx}$

assume $x = 2$

$\frac{0.5}{x^{0.5}} = \frac{\sqrt{2}}{4}$

x	y	dy/dx
0	10	–
1	11	1
2	11.414	0.414
3	11.732	0.322

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

Compare the actual Δy to find the errors.

if $\Delta x = -0.2$, $\Delta y = \frac{0.5}{\sqrt{2}}(0.1) = 0.035$

if $\Delta x = 0.1$, $\Delta y = \frac{0.5}{\sqrt{2}}(-0.2) = -0.07$

Ans : $x = 2 \quad \therefore \frac{dy}{dx} = 0.353$ ※

การ Dif ครั้งที่ 2

H.W. find 2nd order derivative of $y = 10 + \sqrt{x}$ and plot the graph of y and $\frac{dy}{dx}$

Is the slope of slope a constant.

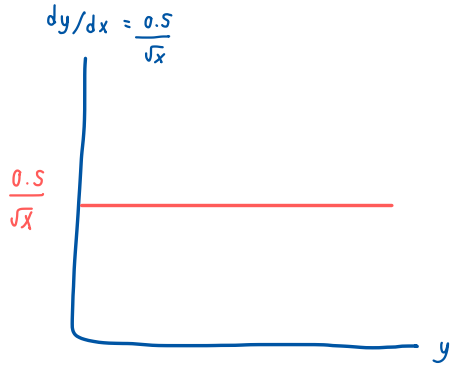
$$y = 10 + \sqrt{x}$$

$$y = 10 + x^{1/2}$$

$$y = 0.5\,x^{-1/2}$$

$$y' = \frac{0.5}{\sqrt{x}}$$

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



Is the slope of slope a constant ?

Ans. NO, because it diminishing

proof!

if $x = 1$ slope $= -0.5$

if $x = 2$ slope $= -0.35$

if $x = 3$ slope $= -0.28$