

Hw

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

x	y	$\frac{dy}{dx}$
0	10	0
1	11	0.5
2	11.4	0.35
3	11.7	0.29

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

compare the actual Δy to
 find the errors

$$y = 0 + \frac{1}{2}x^{-\frac{1}{2}}$$

$$y = \frac{1}{2\sqrt{x}}$$

if $x=2$ $\frac{dy}{dx} = \underline{0.35}$

$$\Delta x = 0.1 \quad \Delta y = 0.35(0.1) = \underline{0.035}$$

$$\Delta x = -0.2 \quad \Delta y = 0.35(-0.2) = \underline{-0.07}$$

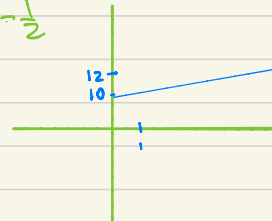
Find 2nd order derivative of $y = 10 + \sqrt{x}$ and plot the graph of y and $\frac{dy}{dx}$, is the slope of slope a constant

$$y = 10 + x^{\frac{1}{2}}$$

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

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

$$\frac{dy}{dx} = \frac{1}{2}x^{-\frac{1}{2}}$$



x	y
0	10
1	11
2	11.4
3	11.7
4	12

$\therefore$ the slope isn't constant