

Source: [KBhMATH401SubIndex](#)

1 | Derivatives

=> Instantaneous rate of change at a particular point

- Average rate of change = $\frac{\Delta Y}{\Delta X}$

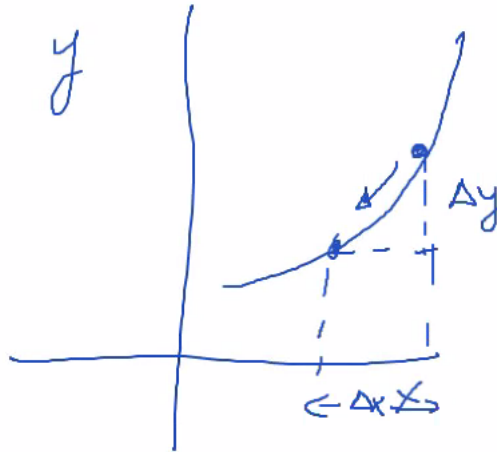
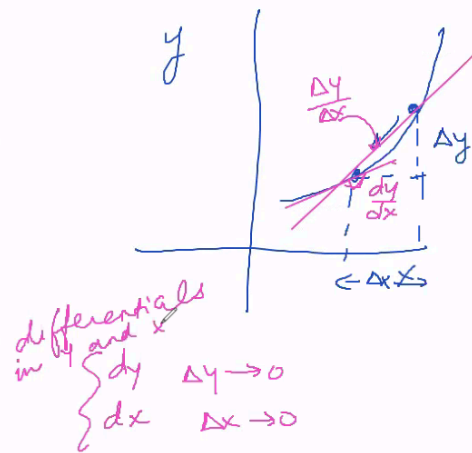


Figure 1: rateofchange.png

- Instantaneous rate of change = $\lim_{\Delta x \rightarrow 0} \frac{\Delta Y}{\Delta X}$

Derivative of $f(x)$ => $\frac{dy}{dx}$

Derivative of a function is its instantaneous rate of change



Average Rate of Change = $\frac{\Delta y}{\Delta x}$

Instantaneous Rate of Change

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{\Delta y}{\Delta x} = \text{slope of the tangent line}$$

Derivative of $y = f(x)$ with respect to

Figure 2: derivativesWB.png

1.1 | Useful Table of Derivatives