Source: [KBhMATH401SubIndex]

1 | Derivatives

=> Instantaneous rate of change at a particular point

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

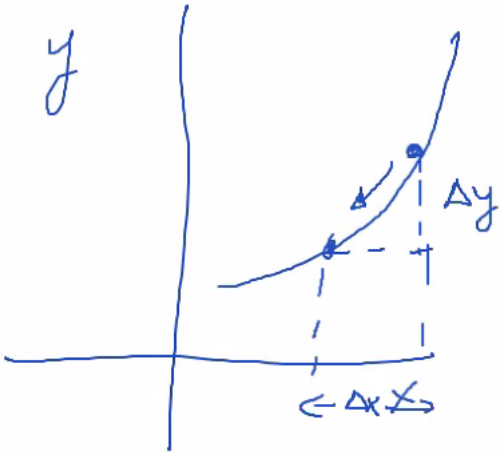

Figure 1: rateofchange.png

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

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

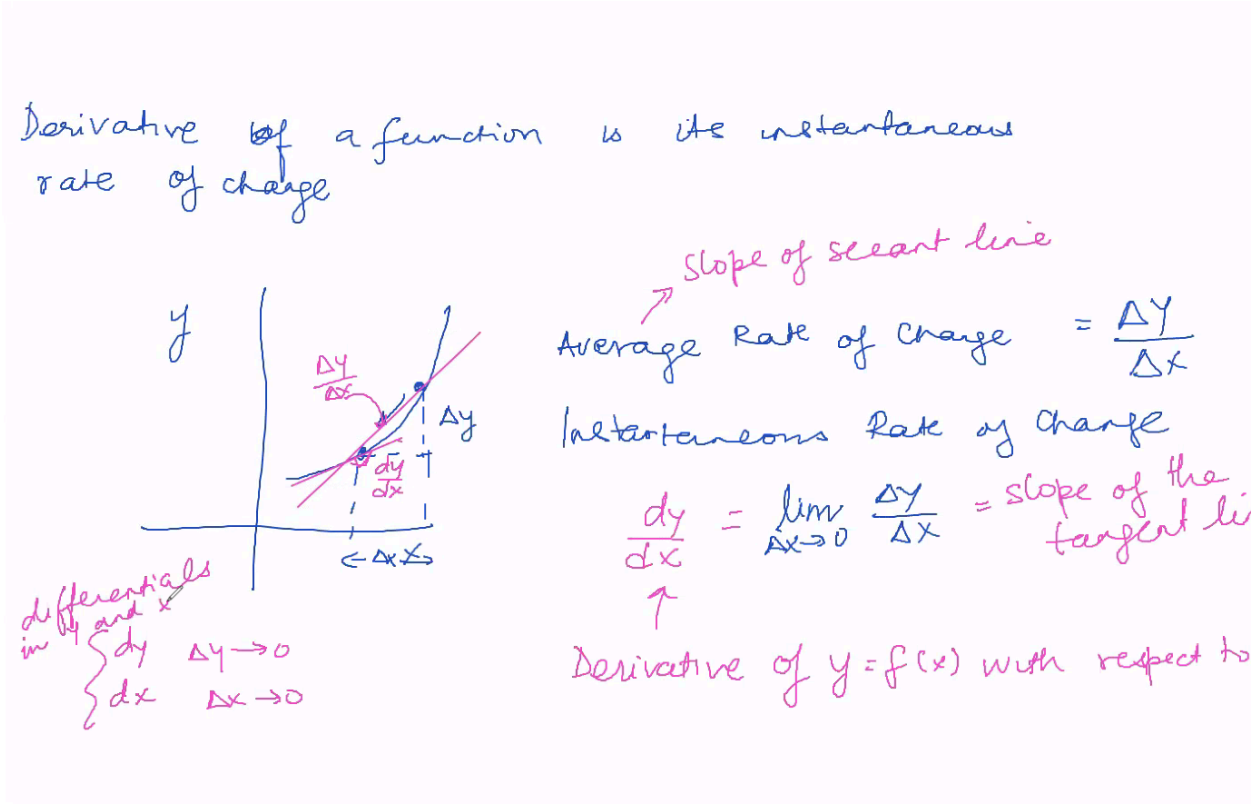

Figure 2: derivativesWB.png

1.1 | **Useful Table of Derivatives**

f(x)	f'(x)
x^2	$2x$
x^3	$3x^2$
x^n	nx^{n-1}
$x^3 - x + 2$	$3x^2 - 1$
$\frac{1}{x}$	$\frac{-1}{x^2}$
$\sqrt{x}$	$\frac{1}{2\sqrt{x}}$
$\sin(x)$	$\cos(x)$
$\cos(x)$	$-\sin(x)$