

Source: [KBhMATH401SubIndex](#)

1 | Derivatives

=> Instantaneous rate of change at a particular point

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

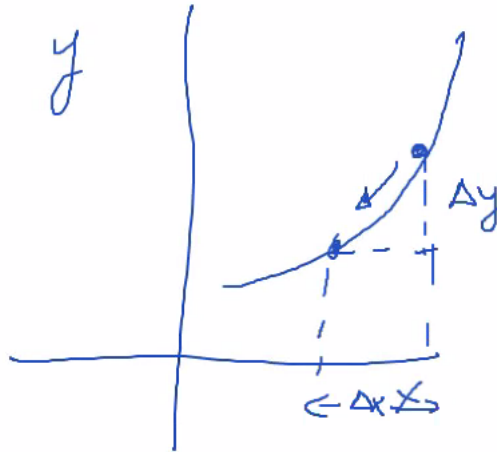


Figure 1: rateofchange.png

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

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

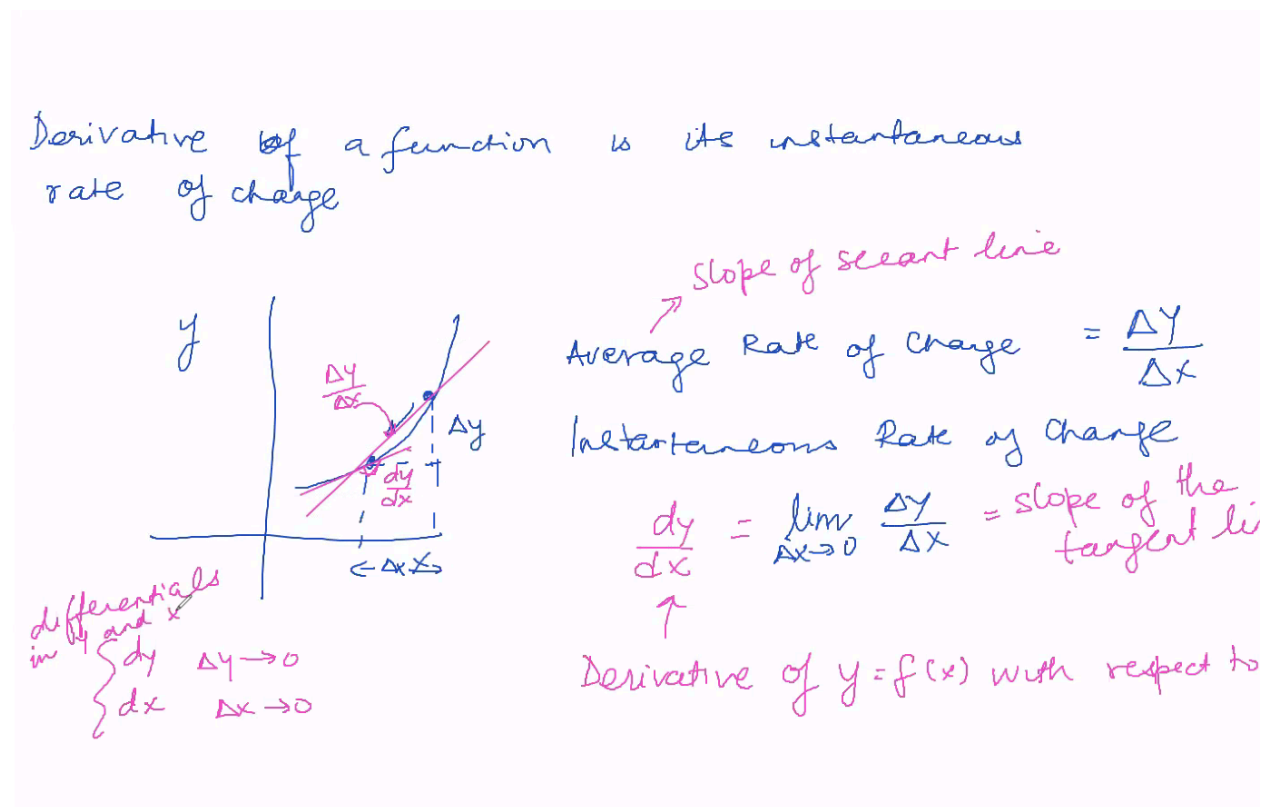


Figure 2: derivativesWB.png

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