Lecture 3

Write MATH-I / MATHEMATICS I / MA10001 in the 'subject' of the email.

Wednesday: 5:00 - 6:30 pm.

N322 ~~N325~~, Dept. of Maths.

reach there by 6:00 pm.

$$f : [a, b] \longrightarrow \mathbb{R}$$

$$f(x) \in \mathbb{R}$$

$$\lim_{x \to c} f(x) = l.$$

where $c, l \in \mathbb{R}$

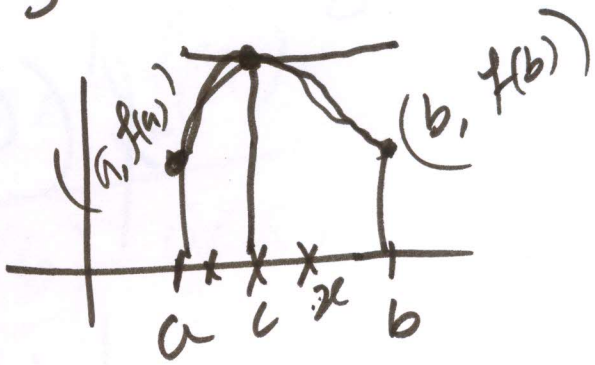
For (every) an ε amount of change/perturbation to 'l', there must exist a change of an amount δ ~~such~~ of 'c' such that for ~~any~~ all input x in $(c-\delta, c+\delta)$ the corresponding output $f(x)$ lies in $(l-\varepsilon, l+\varepsilon)$.

Derivative of f at 'c'

$c \in [a,b]$

Rolle's Thm. $f: [a,b] \to \mathbb{R}$

- $f(a) = f(b)$
- f is cont. in $[a,b]$
- f is diff in (a,b)



Then $\exists\ c \in (a,b)$ s.t. $f'(c) = 0$

Pf. For $x \in (a,b)$, if $f(x) > f(c)$

Then by Fermat's Thm.
the desired result follows.