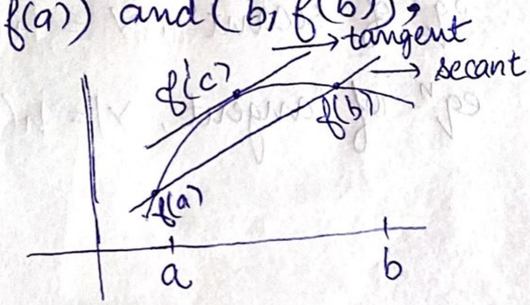
Lagrange Mean Value Theorm

- It States that if a $f(x)$ is defined on the closed interval $[a,b]$ satisfying the following conditions:-

1) The function f is continuous on the closed interval $[a,b]$
2) The function f is differentiable on the open interval (a,b)

Then there exists some c in the interval (a,b) such that the tangent at c is parallel to the secant line through the endpoints $(a, f(a))$ and $(b, f(b))$, that is:-



$$f'(c) = \frac{f(b) - f(a)}{(b-a)}$$

~~Then put $f'(c) = 0$~~

and get value of c

$$\text{slope} = (h(b) - h(a))/(b-a)$$

Equation of secant / Chord

$$Y = h(a) + \text{slope} * (x-a)$$

Equation of tangent

$$Y1 = f(c) + (x-c) * f'(c)$$

Rolle's Theorm

3 conditions are necessary for the theorm to be true:-

1. $f(x)$ is continuous on the closed interval $[a, b]$
2. $f(x)$ is differentiable on the open interval (a, b)
3. $f(a) = f(b)$

Then $\exists$ at least one point c in the open interval (a, b) for which $f'(c) = 0$

eq^n of secant, $y = h(c)$

eq^n of tangent, $y' = h(c')$