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Statement

- If a function $f(x)$ is:
 1. continuous at interval $[a, b]$
 2. differentiable at interval (a, b)
- There exists a point in the curve c such that,

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

Geometrical Interpretation

- If a function is continuous at closed interval and differentiable at an open interval then there exists a **point** in the curve whose **tangent** line is *parallel* to the **chord** joining the *end points* of the interval.

Problem Solving

Verification

- The *following* steps are taken to solve a problem involving verification of *Lagrange's* mean value **theorem** for a function $f(x)$ in an interval $[a, b]$.
 1. Verify that the function is **continuous** at the closed interval $[a, b]$.

$$\lim_{x \rightarrow c} f(x) = f(c)$$

2. Verify that the function is differentiable at c such that $c \in (a, b)$.

- This is done by calculating $f'(c)$.
- If $f'(c)$ yields any other *expression* other than real, the function is *not* **differentiable**.

3. Calculate the point c by applying,

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