

## Theorem: Mean Value Theorem

*For a continuous function  $f : [a, b] \mapsto \mathbb{R}$  where  $a < b$  and differentiable on the open interval  $(a, b)$  then there exists  $c \in (a, b)$  such that*

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

*Notice that  $\frac{f(b) - f(a)}{b - a}$  is the slope of the secant line through the endpoints  $(a, f(a))$  and  $(b, f(b))$ .*