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 $(b, f(b))$.