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* $(b, f(b))$.