Math 201

Section 4.8 Rolle's Theorem; Mean-Value Theorem

Rolle's Theorem Let f be continuous on the closed interval $[a, b]$ and differentiable on the open interval (a, b). If $f(a) = 0$ and $f(b) = 0$ then there is at least one point c in the interval (a, b) such that $f'(c) = 0$.

Mean-Value Theorem If f is a differentiable function on the interval $[a, b]$, then there exists a number c between a and b such that

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