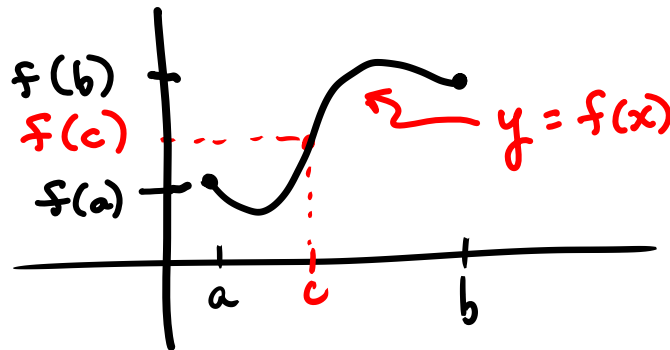


Intermediate Value Theorem...Extreme Value Theorem...Mean Value Theorem...Oh, My!

Intermediate Value Theorem (IVT)

A function $y = f(x)$ that is continuous on a closed interval $[a, b]$ takes on every value between $f(a)$ and $f(b)$.

In other words, if y_0 is between $f(a)$ and $f(b)$, then $y_0 = f(c)$ for some c in $[a, b]$.



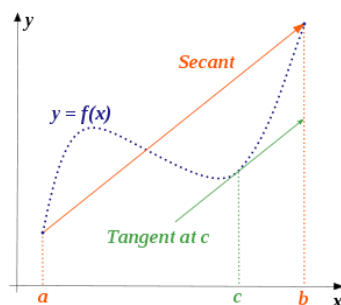
The Extreme Value Theorem (EVT)

If f is continuous on a closed interval $[a, b]$,

then f has both a maximum value and a minimum value on the interval.

The Mean Value Theorem (MVT) for Derivatives

If $y = f(x)$ is continuous at every point of the closed interval $[a, b]$ and differentiable at every point of its (a, b) , then there is at least one point c in (a, b) at which



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