

Mean Value Theorem

Let f be a function that is continuous on $[a, b]$ and differentiable on (a, b) . Then there exists a number c in (a, b) such that

(at least one!)

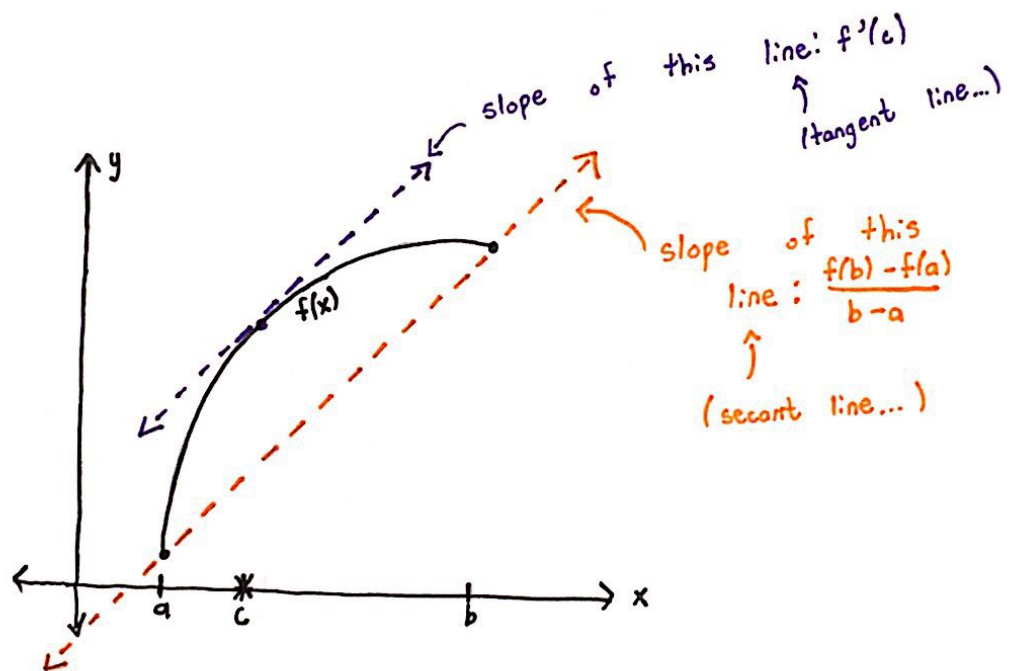
$$f'(c) = \frac{f(b) - f(a)}{b - a}$$

In other words, the I.R.O.C. of f equals the A.R.O.C. of f from $x=a$ to $x=b$ at least one point between a and b !

This is known as the Mean Value Theorem.

A visual:

* The two slopes are equal!



Note: There could be more than one such value of c in (a, b) guaranteed by the MVT. The function graphed below, for example, has three such values of c .

