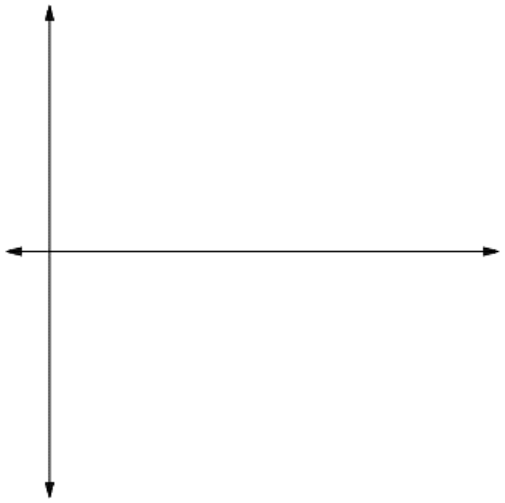
Name: _____ Date: _____

Learning Goal 4.1	The Mean Value Theorem and L'Hospital's Rule

Theorem Day!

The Intermediate Value Theorem

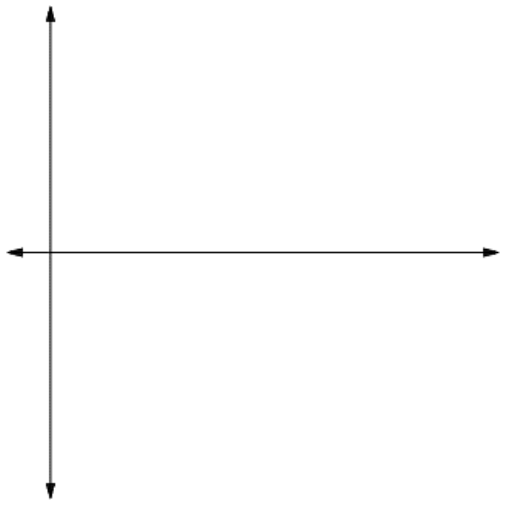
Let f be continuous on $[a, b]$ and let M be any number between $f(a)$ and $f(b)$. Then there exists a number c such that



Rolle's Theorem

Let f be a function that satisfies the following:

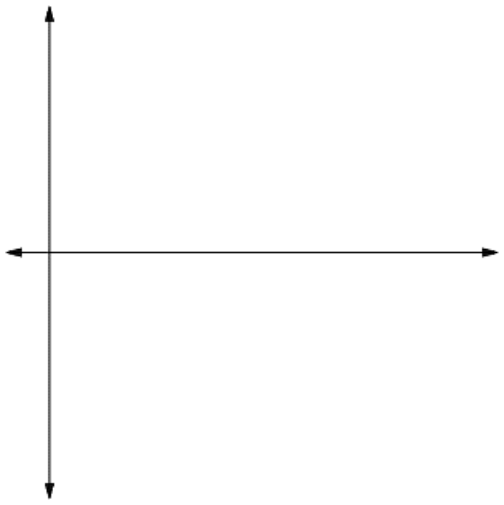
1. f is continuous on $[a, b]$,
2. f is differentiable on (a, b) and
3. $f(a) = f(b)$



The Mean Value Theorem

Let f be a function that satisfies the following:

1. f is continuous on $[a, b]$,
2. f is differentiable on (a, b) and



Example Show that the equation $x^3 + x - 1 = 0$ has exactly one root.

Example Determine all the numbers c which satisfies the conclusion of the MVT for $f(x) = x^3 - x$ on $[0, 2]$.