Intermediate Value Theorem

In order for the theorem to be applicable…
1) f(x) must be continuous on [a, b]
2) f(c) must be between f(a) and f(b)

Theorem states…
There exists at least one value, x = c, on (a, b) such that f(c) = y.

Extreme Value Theorem

In order for the theorem to be applicable…
1) f(x) must be continuous on [a, b]

Theorem states…
There exists an absolute maximum and an absolute minimum on [a, b] at either x = a, x= b, or any value of x on (a, b) such that f'(x) = 0 or f'(x) is undefined.

Rolle's Theorem

In order for the theorem to be applicable…
1) f(x) must be continuous on [a, b]
2) f(x) must be differentiable on (a, b)
3) f(a) must equal f(b)

Theorem states…
There exists at least one value, x = c, on (a, b) such that f'(c) = 0.

Mean Value Theorem

In order for the theorem to be applicable…
1) f(x) must be continuous on [a, b]
2) f(x) must be differentiable on (a, b)

Theorem states…

There exists a value, x = c, on (a, b) such that f'(c) = $\frac{f(a)-f(b)}{a-b}$.