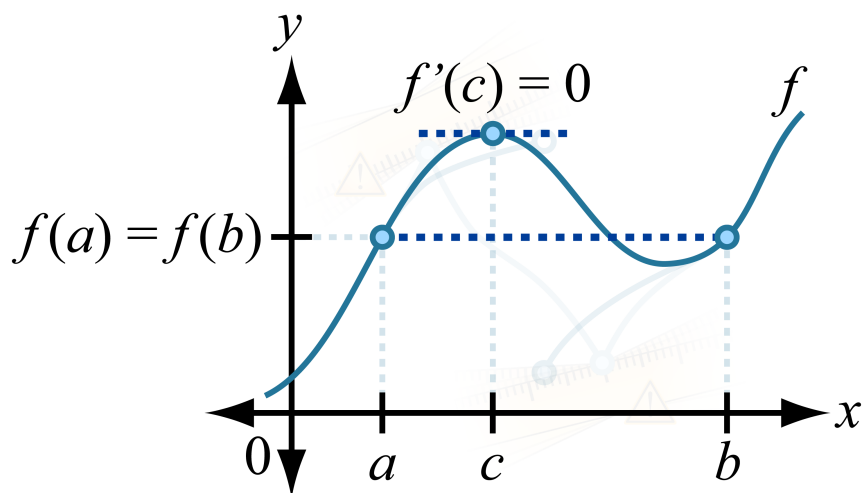


Relating average and instantaneous rates of change

Rolle's theorem



Hypothesis

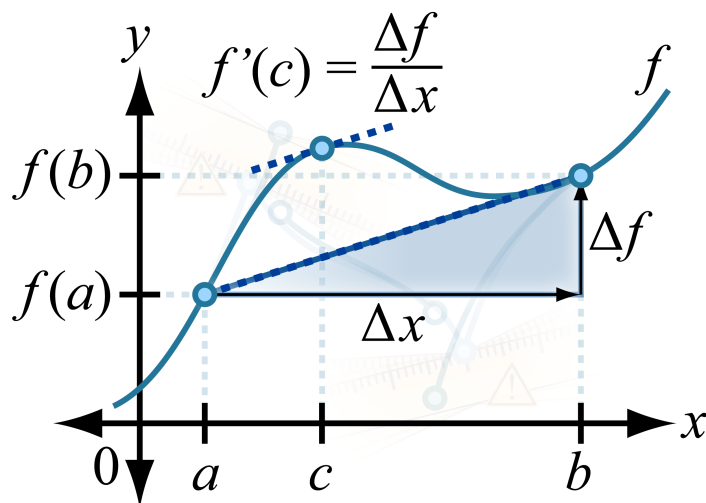
1. $f(b) = f(a)$
2. f is continuous on $[a, b]$
3. f is differentiable on (a, b)

Conclusion

There is at least one value of c on (a, b) for which

$$f'(c) = 0$$

Mean value theorem



Hypothesis

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

Conclusion

There is at least one value of c on (a, b) for which

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