A Brief Summary of Differential Calculus

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1 Derivative

Definition Given a function f, we define the derivative of f by

$$f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}.$$

The number $f'(c)$ represents the **slope** of the graph $y = f(x)$ at the point $(c, f(c))$. It also represents the **rate of change** of y with respect to x when x is near c.