$$\boxed{\textbf{Definition of Derivative} \\ f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}}$$

Formulas and Theorems

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Definition of Derivative

$$f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h} \quad \text{or} \quad f'(a) = \lim_{x \to a} \frac{f(x) - f(a)}{x - a}$$

The latter definition of the derivative is the instantaneous rate of change of $f(x)$ with respect to x at x = a.

Geometrically, the derivative of a function at a point is the slope of the tangent line to the graph of the function at that point.