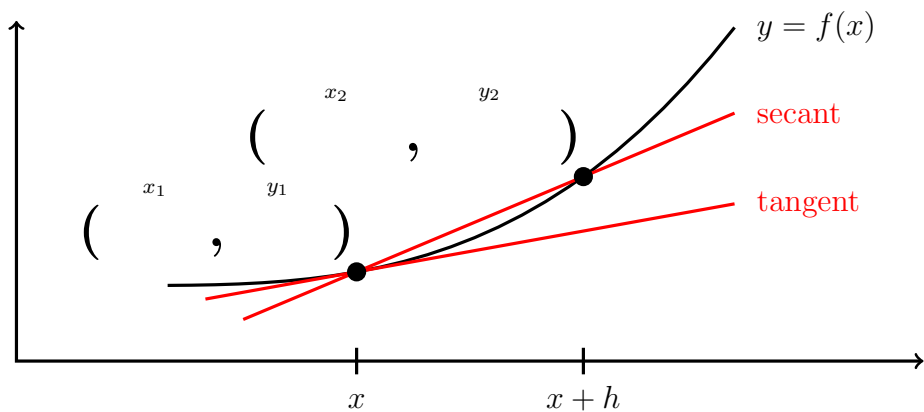


The Limit Definition of Derivative

Suppose the height of a ball is a function of time  $y = f(x)$ .



average velocity over  $[x, x+h]$

=

average rate of change over  $[x, x+h]$

=

slope of secant between  $x, x+h$

=

$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

=

=

definition of difference quotient

velocity at  $x$

=

rate of change at  $x$

=

slope of tangent at  $x$

=

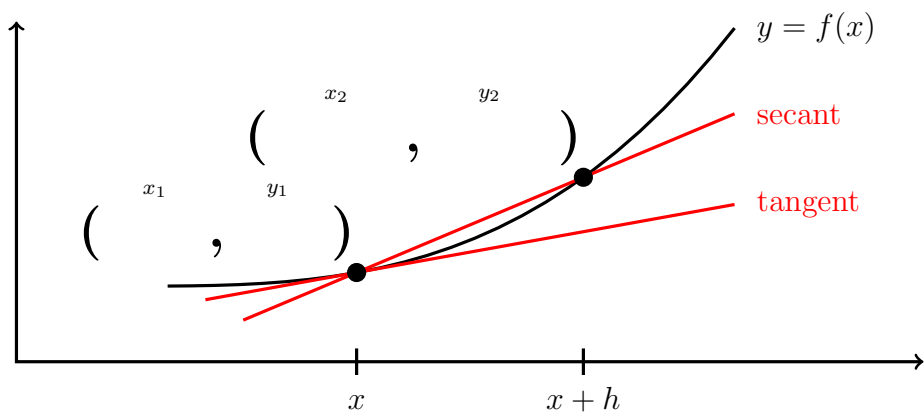
$\lim_{h \rightarrow 0}$

=

definition of derivative  $f'(x)$

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