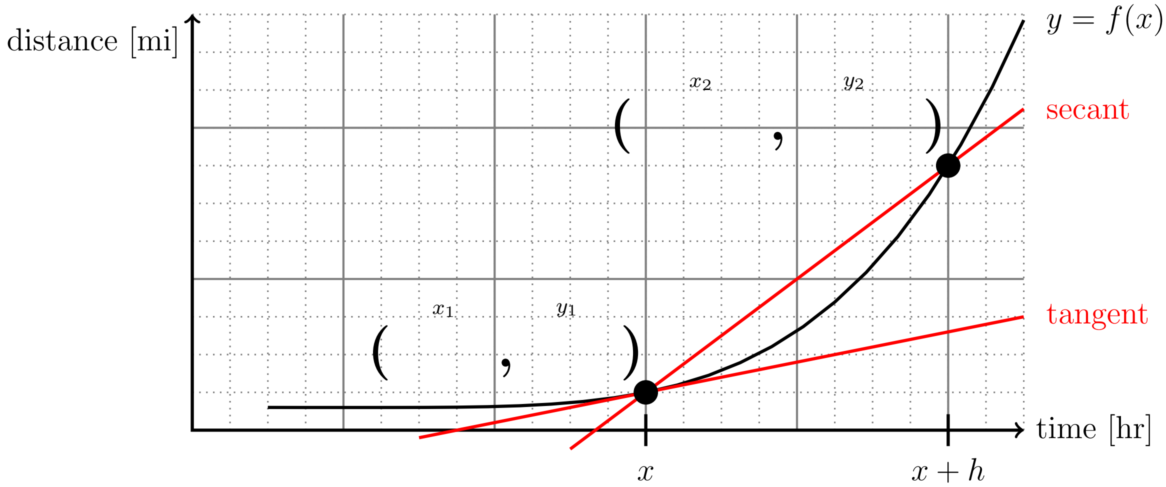
The Limit Definition of Derivative

Suppose the distance a train has traveled 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 $x, x{+}h$ = $\dfrac{\Delta y}{\Delta x}$ = $\dfrac{y_2 - y_1}{x_2 - x_1}$ = $\boxed{}$ = definition of difference quotient

velocity at x = rate of change at x = slope of tangent at x = $\boxed{\lim\limits_{h\to} }$ = definition of derivative $f'(x)$

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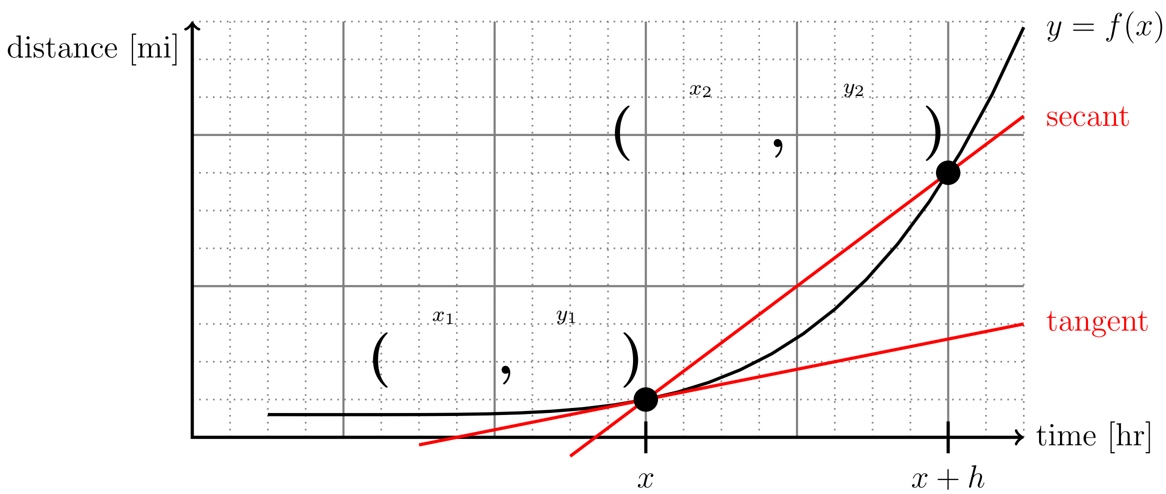

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