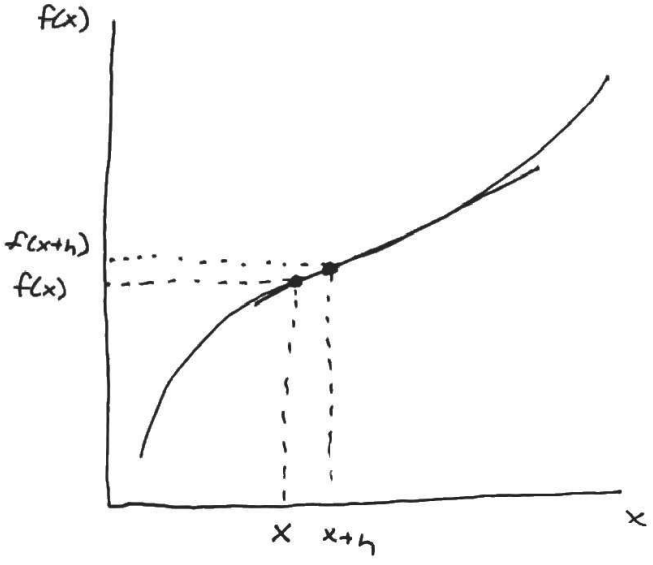

The slope of the line passing through the points $(x, f(x))$ & $(x+h, f(x+h))$ is given by:

$$m = \frac{f(x+h) - f(x)}{(x+h) - x} = \frac{f(x+h) - f(x)}{h}$$

As h gets infinitely small, or $x+h$ gets infinitesmely close to x, the secant line becomes a tangent line at x. Therefore the derivative is given by:

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