

## Definition: Derivative

*The derivative of a function  $f(x)$  with respect to  $x$  is the function*

$$f'(x) \stackrel{\text{D}}{=} \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

*With  $y = f(x)$  then using Leibniz notation we have*

$$\frac{dy}{dx} \stackrel{\text{D}}{=} f'(x)$$