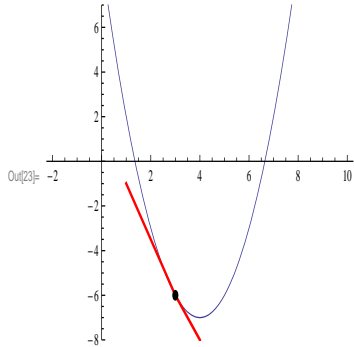


You can observe this in the figure below



Definition The derivative of $f(x)$ is the function $f'(x)$ given by

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

provided the limit exists. (So domain of $f'(x)$ is those x 's where the above limit exists.)

Remarks:

- 1) The process of computing a derivative is called *differentiation*.
- 2) f is differentiable on an interval I if it is differentiable at every point in I .