

Summary: Definition of the derivative

The Definition of the average rate of change

The **average rate of change** of a function $f(x)$ over an interval $a \leq x \leq b$ is defined to be

$$\frac{f(b) - f(a)}{b - a}.$$

Definition of the derivative

The **derivative** of a function $f(x)$ at a point $x = a$ is defined to be

$$f'(a) = \lim_{b \rightarrow a} \frac{f(b) - f(a)}{b - a}.$$