



# Derivatives

## 1 Why

## 2 Definition

Let  $f : \mathbf{R} \rightarrow \mathbf{R}$ . Define  $g : \mathbf{R} \rightarrow \mathbf{R}$  by

$$g(x) = \lim_{\xi \rightarrow x} \frac{g(xi) - g(x)}{\xi - x}.$$