

Ex: Average rate of Change

Find the average rate of change of $f(x) = \frac{1}{x+2}$
on the interval $[3, 3+h]$.

$$f(3) = \frac{1}{3+2} = \frac{1}{5} \rightarrow \left(3, \frac{1}{5}\right)$$

$$f(3+h) = \frac{1}{(3+h)+2} = \frac{1}{5+h} \rightarrow \left(3+h, \frac{1}{5+h}\right)$$

$$\text{Average rate of change} = \frac{\frac{1}{5+h} - \frac{1}{5}}{(3+h) - (3)} =$$

$$\text{Average Rate of Change} = \frac{\text{Change in Output}}{\text{Change in Input}} = \frac{f(x_2) - f(x_1)}{x_2 - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$$