

# Approximation of Derivatives

This is an ungraded tool to develop your understanding of the material.

Here you can compare how much the approximation of derivative  $\frac{\Delta f}{\Delta x}$  differs from the exact derivative  $\frac{df}{dx}$ , depending on the size of  $\Delta x$ . Dragging the black dot on the top graph you can change the value of  $\Delta x$  - to control the length of the interval on which the approximation is calculated. Dragging the orange or blue dots you will move around the location of the triangle showing  $\Delta f$  and  $\Delta x$ .

On the bottom graph, you can compare two lines corresponding to the exact derivative and its approximation.

