The Derivative at a Point: Graphical Views

Figure 1: A function

1. Show how to represent the following lengths on Fig. 1.

   (a) \( f(1.8) \)
   (b) \( f(1.2) \)
   (c) \( f(1.8) - f(1.2) \)
   (d) \( \frac{f(1.8) - f(1.2)}{1.8 - 1.2} \)
   (e) \( f'(1.2) \)
2. For the function in Fig. 2, determine which of the following pairs of numbers is larger. Note that the y-axis scale might be different than the x-axis scale.

(a) $f(1.2)$ and $f(1.4)$
(b) $f(1.4) - f(1.2)$ and $f(1.6) - f(1.4)$
(c) $\frac{f(1.4) - f(1.2)}{1.4 - 1.2}$ and $\frac{f(1.6) - f(1.4)}{1.6 - 1.4}$
(d) $f'(1.2)$ and $f'(1.6)$