

Exercise 32

For the following exercises, find the average rate of change of each function on the interval specified.

$$y = \frac{1}{x} \text{ on } [1, 3]$$

Solution

The average rate of change of the function between $x = 1$ and $x = 3$ is

$$\begin{aligned} \frac{y(3) - y(1)}{3 - 1} &= \frac{\frac{1}{3} - \frac{1}{1}}{2} \\ &= \frac{\frac{1}{3} - \frac{3}{3}}{2} \\ &= \frac{\frac{1-3}{3}}{2} \\ &= \frac{-2}{2(3)} \\ &= -\frac{1}{3}. \end{aligned}$$