

Name: _____ Academic Integrity Signature: _____

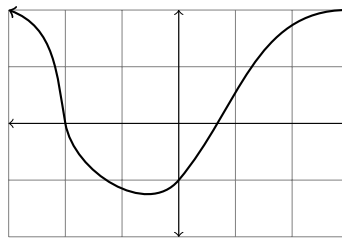
Note: Correct numerical answers without justification will receive little or no credit.

1. (5 points) The *average rate of change* of $y = f(x)$ with respect to x over the interval $[x_1, x_2]$ is

Solution:

$$\frac{\Delta y}{\Delta x} = \frac{f(x_2) - f(x_1)}{x_2 - x_1}.$$

2. (5 points) Compute the average rate of change for $y = f(x)$ shown below on the interval $[-2, 0]$.



Solution:

$$\begin{aligned} \frac{\Delta y}{\Delta x} &= \frac{f(x_2) - f(x_1)}{x_2 - x_1} \\ &= \frac{f(0) - f(-2)}{0 - (-2)} \\ &= \frac{-1 - 0}{0 - (-2)} \\ &= -\frac{1}{2} \end{aligned}$$