Exercise 30

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

$$q(x) = x^3 \text{ on } [-4, 2]$$

Solution

The average rate of change of the function between $x = -4$ and $x = 2$ is

$$\begin{aligned}\frac{q(2) - q(-4)}{2 - (-4)} &= \frac{(2)^3 - (-4)^3}{2 + 4} \\ &= \frac{(8) - (-64)}{6} \\ &= \frac{8 + 64}{6} \\ &= \frac{72}{6} \\ &= 12.\end{aligned}$$