Exercise 29

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

$$h(x) = 5 - 2x^2 \text{ on } [-2, 4]$$

Solution

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

$$\begin{aligned}
\frac{h(4) - h(-2)}{4 - (-2)} &= \frac{[5 - 2(4)^2] - [5 - 2(-2)^2]}{4 + 2} \\
&= \frac{[5 - 2(16)] - [5 - 2(4)]}{6} \\
&= \frac{(-27) - (-3)}{6} \\
&= \frac{-27 + 3}{6} \\
&= \frac{-24}{6} \\
&= -4.
\end{aligned}$$