

Exercise 19

For the following exercises, use the function $h(t) = -16t^2 + 80t$ to find the values.

$$\frac{h(a) - h(1)}{a - 1}$$

Solution

Plug 2 and 1 into the given formula.

$$\begin{aligned}\frac{h(a) - h(1)}{a - 1} &= \frac{[-16(a)^2 + 80(a)] - [-16(1)^2 + 80(1)]}{a - 1} \\ &= \frac{(-16a^2 + 80a) - [-16(1) + 80]}{a - 1} \\ &= \frac{(-16a^2 + 80a) - (-16 + 80)}{a - 1} \\ &= \frac{-16a^2 + 80a - 64}{a - 1} \\ &= -\frac{16a^2 - 80a + 64}{a - 1} \\ &= -\frac{16(a^2 - 5a + 4)}{a - 1} \\ &= -\frac{16(a - 4)(a - 1)}{a - 1} \\ &= -16(a - 4)\end{aligned}$$