

4. Given the function $s(a)=2a^2+2a$, find an equation of the secant line containing $(2,s(2))$ and $(5,s(5))$. Express the equation in slope-intercept form.

$$h = -44 + 16a$$

$$h = 44 - 16a$$

$$h = -20 + 16a$$

$$h = -19 + \frac{49a}{3}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned} & \frac{s(5)-s(2)}{5-2} \\ &= \frac{(2(5)^2+2(5))-(2(2)^2+2(2))}{3} \\ &= \frac{60-12}{3} \\ &= 16 \end{aligned}$$

using one of the points, say $(2,12)$ and the slope to get the equation of the secant line:

$$h-12 = 16(a-2)$$

The equation in slope-intercept form:

$$h = -20 + 16a$$