

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

$$j = -40 + 15s$$

$$j = 40 - 15s$$

$$j = -20 + 15s$$

$$j = -19 + \frac{46s}{3}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned} & \frac{z(5)-z(2)}{5-2} \\ &= \frac{(2(5)^2+1(5))-(2(2)^2+1(2))}{3} \\ &= \frac{55-10}{3} \\ &= 15 \end{aligned}$$

using one of the points, say $(2,10)$ and the slope to get the equation of the secant line:

$$j-10 = 15(s-2)$$

The equation in slope-intercept form:

$$j = -20 + 15s$$