

1. Given the function $t(s)=2s^2+2s$, find an equation of the secant line containing $(1,t(1))$ and $(4,t(4))$. Express the equation in slope-intercept form.

$$k = -16 + 12s$$

$$k = 16 - 12s$$

$$k = -8 + 12s$$

$$k = -7 + \frac{37s}{3}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned} & \frac{t(4)-t(1)}{4-1} \\ &= \frac{(2(4)^2+2(4))-(2(1)^2+2(1))}{3} \\ &= \frac{40-4}{3} \\ &= 12 \end{aligned}$$

using one of the points, say $(1,4)$ and the slope to get the equation of the secant line:

$$k-4 = 12(s-1)$$

The equation in slope-intercept form:

$$k = -8 + 12s$$