

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

$$j = -36 + 13p$$

$$j = 36 - 13p$$

$$j = -16 + 13p$$

$$j = -15 + \frac{27p}{2}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned} & \frac{t(4)-t(2)}{4-2} \\ &= \frac{(2(4)^2+1(4))-(2(2)^2+1(2))}{2} \\ &= \frac{36-10}{2} \\ &= 13 \end{aligned}$$

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

$$j-10 = 13(p-2)$$

The equation in slope-intercept form:

$$j = -16 + 13p$$