

1. Given the function $y(v)=2v^2+3v$,
find an equation of the secant line containing $(3,y(3))$
and $(5,y(5))$. Express the equation in slope-intercept form.

$$x = -84 + 19v$$

$$x = 84 - 19v$$

$$x = -30 + 19v$$

$$x = -29 + \frac{39v}{2}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned} & \frac{y(5)-y(3)}{5-3} \\ &= \frac{(2(5)^2+3(5))-(2(3)^2+3(3))}{2} \\ &= \frac{65-27}{2} \\ &= 19 \end{aligned}$$

using one of the points, say $(3,27)$ and the slope to get the equation of the secant line:

$$x-27 = 19(v-3)$$

The equation in slope-intercept form:

$$x = -30 + 19v$$