

4. Given the function $e(x)=2x^2+4x$,
find an equation of the secant line containing $(3,e(3))$
and $(5,e(5))$. Express the equation in slope-intercept form.

$$u = -90 + 20x$$

$$u = 90 - 20x$$

$$u = -30 + 20x$$

$$u = -29 + \frac{41x}{2}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned} & \frac{e(5)-e(3)}{5-3} \\ &= \frac{(2(5)^2+4(5))-(2(3)^2+4(3))}{2} \\ &= \frac{70-30}{2} \\ &= 20 \end{aligned}$$

using one of the points, say $(3,30)$ and the slope to get the equation of the secant line:

$$u-30 = 20(x-3)$$

The equation in slope-intercept form:

$$u = -30 + 20x$$