2. Given the function $e(a) = a^2 + 4a$, find an equation of the secant line containing $(1, e(1))$ and $(5, e(5))$. Express the equation in slope-intercept form.

$n = -15 + 10a$

$n = 15 - 10a$

$n = -5 + 10a$

$n = -4 + \frac{41a}{4}$

Solution

The line passing through the two points has the slope:

$\frac{e(5) - e(1)}{5 - 1}$

$= \frac{(1(5)^2 + 4(5)) - (1(1)^2 + 4(1))}{4}$

$= \frac{45 - 5}{4}$

$= 10$

using one of the points, say $(1,5)$ and the slope to get the equation of the secant line:

$n - 5 = 10(a - 1)$

The equation in slope-intercep form:

$n = -5 + 10a$