3. Given the function $e(b) = b^2 + 3b$,
find an equation of the secant line containing $(1, e(1))$
and $(4, e(4))$. Express the equation in slope-intercept form.

$d = -12 + 8b$

$d = 12 - 8b$

$d = -4 + 8b$

$d = -3 + \frac{25b}{3}$

Solution

The line passing through the two points has the slope:

$\frac{e(4) - e(1)}{4 - 1}$

$= \frac{(1(4)^2 + 3(4)) - (1(1)^2 + 3(1))}{3}$

$= \frac{28 - 4}{3}$

$= 8$

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

$d - 4 = 8(b - 1)$

The equation in slope-intercep form:

$d = -4 + 8b$