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

$u = -78 + 17n$

$u = 78 - 17n$

$u = -24 + 17n$

$u = -23 + 18n$

Solution

The line passing through the two points has the slope:

$$\frac{w(4)-w(3)}{4-3}$$

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

$$= \frac{44-27}{1}$$

$$= 17$$

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

$u-27 = 17(n-3)$

The equation in slope-intercep form:

$u = -24 + 17n$