7. Given the function $b(x)=x^2+2x$,
find an equation of the secant line containing $(1,b(1))$
and $(6,b(6))$. Express the equation in slope-intercept form.

$w = -12 + 9x$

$w = 12 - 9x$

$w = -6 + 9x$

$w = -5 + \frac{46x}{5}$

Solution

The line passing through the two points has the slope:

$$\frac{b(6)-b(1)}{6-1}$$

$$= \frac{(1(6)^2+2(6))-(1(1)^2+2(1))}{5}$$

$$= \frac{48-3}{5}$$

$$= 9$$

using one of the points, say $(1,3)$ and the slope to get the equation of the secant line:

$w-3 = 9(x-1)$

The equation in slope-intercep form:

$w = -6 + 9x$