8. Given the function $c(q)=q^2+2q$,
find an equation of the secant line containing $(3,c(3))$
and $(6,c(6))$. Express the equation in slope-intercept form.

$g = -48 + 11q$

$g = 48 - 11q$

$g = -18 + 11q$

$g = -17 + \frac{34q}{3}$

Solution

The line passing through the two points has the slope:

$$\frac{c(6)-c(3)}{6-3}$$

$$= \frac{(1(6)^2+2(6))-(1(3)^2+2(3))}{3}$$

$$= \frac{48-15}{3}$$

$$= 11$$

using one of the points, say $(3,15)$ and the slope to get the equation of the secant line:

$g-15 = 11(q-3)$

The equation in slope-intercep form:

$g = -18 + 11q$