

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

$$p = -42 + 10 r$$

$$p = 42 - 10 r$$

$$p = -18 + 10 r$$

$$p = -17 + \frac{31 r}{3}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned} & \frac{e(6)-e(3)}{6-3} \\ &= \frac{(1(6)^2+1(6))-(1(3)^2+1(3))}{3} \\ &= \frac{42-12}{3} \\ &= 10 \end{aligned}$$

using one of the points, say $(3,12)$ and the slope to get the equation of the secant line:

$$p-12 = 10(r-3)$$

The equation in slope-intercept form:

$$p = -18 + 10 r$$