

8. Given the function $d(f)=2f^2+3f$,
find an equation of the secant line containing $(1,d(1))$
and $(6,d(6))$. Express the equation in slope-intercept form.

$$q = -22 + 17f$$

$$q = 22 - 17f$$

$$q = -12 + 17f$$

$$q = -11 + \frac{86f}{5}$$

Solution

The line passing through the two points has the slope:

$$\begin{aligned}\frac{d(6)-d(1)}{6-1} \\&= \frac{(2(6)^2+3(6))-(2(1)^2+3(1))}{5} \\&= \frac{90-5}{5} \\&= 17\end{aligned}$$

using one of the points, say $(1,5)$ and the slope to get the equation of the secant line:

$$q-5 = 17(f-1)$$

The equation in slope-intercept form:

$$q = -12 + 17f$$