

## Exercise 72

For the following exercises, use the functions  $f(x) = -0.1x + 200$  and  $g(x) = 20x + 0.1$ .

Find the point of intersection of the lines  $f$  and  $g$ .

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### Solution

To find the point of intersection of the two lines, set the two equations equal and solve the equation for  $x$ .

$$-0.1x + 200 = 20x + 0.1$$

$$-0.1x - 20x = -200 + 0.1$$

$$-20.1x = -199.9$$

$$x = \frac{1999}{201}$$

Obtain the corresponding  $y$ -value by plugging this value of  $x$  into either equation.

$$y = 20 \left( \frac{1999}{201} \right) + 0.1 = \frac{400\,001}{2010}$$

Therefore, the point of intersection is

$$\left( \frac{1999}{201}, \frac{400\,001}{2010} \right).$$