

Exercise 73

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

Where is $f(x)$ greater than $g(x)$? Where is $g(x)$ greater than $f(x)$?

Solution

Find where $f(x)$ is greater than $g(x)$.

$$f(x) > g(x)$$

$$-0.1x + 200 > 20x + 0.1$$

$$-0.1x - 20x > -200 + 0.1$$

$$-20.1x > -199.9$$

$$x < \frac{199.9}{20.1}$$

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

Therefore, $f(x) > g(x)$ when $x < 1999/201$, and $f(x) < g(x)$ when $x > 1999/201$.