Exercise 15

For the following exercises, find the domain of each function using interval notation.

$$f(x) = \frac{3x+1}{4x+2}$$

Solution

You cannot divide by zero, so it's necessary that

$$4x + 2 \neq 0$$

Subtract 2 from both sides.

$$4x \neq -2$$

Divide both sides by 4.

$$x \neq -\frac{1}{2}$$

Therefore, the domain is $\left(-\infty, -\frac{1}{2}\right) \cup \left(-\frac{1}{2}, \infty\right)$. This is reflected in the graph of $f(x)$ versus x.