Exercise 11

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

$$f(x) = \sqrt{x^2 + 4}$$

Solution

You can't take the square root of a negative number, so it's necessary that

$$x^2 + 4 \geq 0.$$

Subtract 4 from both sides.

$$x^2 \geq -4$$

This inequality is true for any value of x, so the domain is $(-\infty, \infty)$. This is reflected in the graph of $f(x)$ versus x.