Exercise 3

In Exercises 1–6, find the domain and range of each function.

$$F(x) = \sqrt{5x + 10}$$

Solution

Only values of $5x + 10$ that are zero or positive can be plugged into a square root function:

$$5x + 10 \geq 0$$

$$5x \geq -10$$

$$x \geq -2$$

As a result,

$$\text{Domain:} \quad \{x \mid x \geq -2\}.$$

The $\sqrt{5x + 10}$ term can be either zero or higher than that, so the lowest value of F is 0 and the highest value of F is ∞.

$$\text{Range:} \quad \{y \mid 0 \leq y < \infty\}$$