Exercise 23

For the following exercises, determine the interval(s) on which the function is increasing and decreasing.

$$k(x) = -3\sqrt{x} - 1$$

Solution

To get $k(x)$, start with the parent function.

$$\sqrt{x}$$

Multiplying it by 3 stretches the graph vertically by a factor of 3.

$$3\sqrt{x}$$

Multiplying it by -1 reflects the graph over the x-axis.

$$-3\sqrt{x}$$

Subtracting 1 from it shifts the graph down by 1 unit.

$$-3\sqrt{x} - 1$$

The function decreases on $[0, \infty)$ and never increases.