Exercise 72

For the following exercises, describe how the formula is a transformation of a toolkit function. Then sketch a graph of the transformation.

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

Solution

Start with the parent function.

$$\sqrt{x}$$

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

$$-\sqrt{x}$$

Multiplying by 3 vertically stretches the function by a factor of 3.

$$-3\sqrt{x}$$

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

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