Exercise 35

In Exercises 29–40, test for symmetry with respect to each axis and to the origin.

$$y = 4 - \sqrt{x+3}$$

Solution

Replacing x with $-x$ changes the equation, so there's no symmetry with respect to the y-axis.

$$y = 4 - \sqrt{(-x)+3} = 4 - \sqrt{-x+3}$$

Replacing y with $-y$ changes the equation, so there's no symmetry with respect to the x-axis.

$$-y = 4 - \sqrt{x+3} \quad \rightarrow \quad y = -4 + \sqrt{x+3}$$

Replacing x with $-x$ and y with $-y$ changes the equation, so there's no symmetry with respect to the origin.

$$-y = 4 - \sqrt{(-x)+3} \quad \rightarrow \quad -y = 4 - \sqrt{-x+3} \quad \rightarrow \quad y = -4 + \sqrt{-x+3}$$