Exercise 41

In Exercises 41–58, find any intercepts and test for symmetry. Then sketch the graph of the equation.

$$y = 2x - 3$$

Solution

To find the y-intercept, plug $x = 0$ into the function.

$$y = 2(0) - 3 = -3$$

Therefore, the y-intercept is $(0, -3)$. To find the x-intercept(s), set $y = 0$ and solve the equation for x.

$$2x - 3 = 0$$

$$2x = 3$$

$$x = \frac{3}{2}$$

Therefore, the x-intercept is $\left(\frac{3}{2}, 0\right)$. Replacing x with $-x$ changes the equation, so there's no symmetry with respect to the y-axis.

$$y = 2(-x) - 3 = -2x - 3$$

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

$$-y = 2x - 3 \quad \rightarrow \quad y = -2x + 3$$

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

$$-y = 2(-x) - 3 \quad \rightarrow \quad y = 2x + 3$$

A graph of the function versus x is shown below.