

Linear Functions

A linear function has the form of $f(x) = ax + b$ and its graph is a straight line. Since a linear function is a continuous straight line its domain and range would consist of all real numbers. Graphing a linear function can be accomplished by first finding the x- and y-intercepts. This will provide two points that can be used to draw the line.

Finding the intercepts:

1. To find the y-intercept let x equal zero and solve for y
2. To find the x-intercept let y equal zero and solve for x

Example 1: Graph $y = -2x + 6$.

Solution

Step 1: Find the y-intercept

Let $x = 0$ and solve for y

$$\begin{aligned} y &= -2x + 6 \\ y &= -2(0) + 6 \\ y &= 0 + 6 \\ y &= 6 \end{aligned}$$

The y-intercept is at (0, 6).

Step 2: Find the x-intercept

Let $y = 0$ and solve for x

$$\begin{aligned} y &= -2x + 6 \\ 0 &= -2x + 6 \\ -6 &= -2x \\ 3 &= x \end{aligned}$$

The x-intercept is at (3, 0).

Example 1 (Continued):

Step 3: Plot the intercepts and draw the line

