

Lesson 6.2: Graphing Linear Relationships

Date: Nov 17, 2025

Learning Goal: We are learning to create a table of values from a linear equation and use that table to create a list of ordered pairs that can be plotted on a coordinate grid.

Once again, we will begin with some new vocabulary:

Independent Variable x It is a variable which does not have to depend on anything for its values i.e. no restriction on the values of x

Dependent Variable y It is the variable dependent for its values on the value of independent variable x .

Linear Relationship $y = Ax + B$ It is the relationship between x and y which graphically represents a line.
Number values

Table of Values

$$y = 2x + 1$$

x	y
-2	$2(-2) + 1 = -3$
-1	
0	
1	
2	

$$x = -2 \Rightarrow y = 2(-2) + 1 = -3$$

The goal for today's lesson is to graph a linear relationship using this algorithm:

1. Rearrange the equation so it is dependent variable = everything else (or $y = \underline{\hspace{2cm}}$)
2. Create a Table of Values and choose an appropriate set of x -coordinates.
3. Use that set and calculate the corresponding y -coordinates.
4. Create the point (x, y) .
5. Plot the points.
6. Draw a line through the points (do not just connect them).

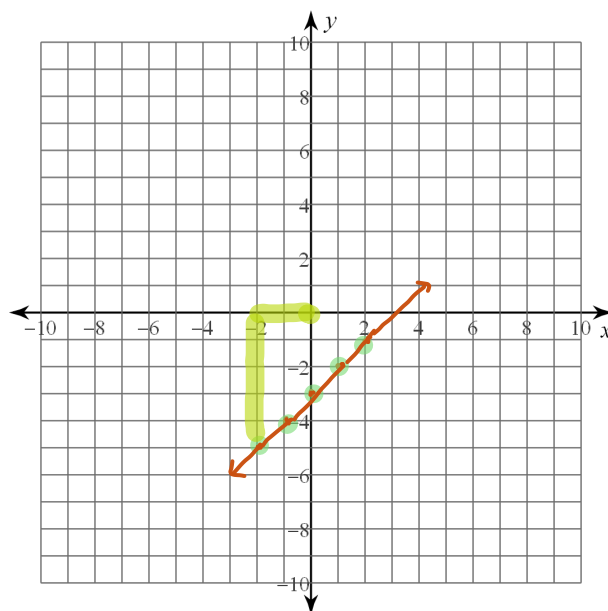
Your table of values should look like this:

x	y	(x, y)
Set of x -coordinates	Corresponding y -coordinates	Set of points to plot

Examples:

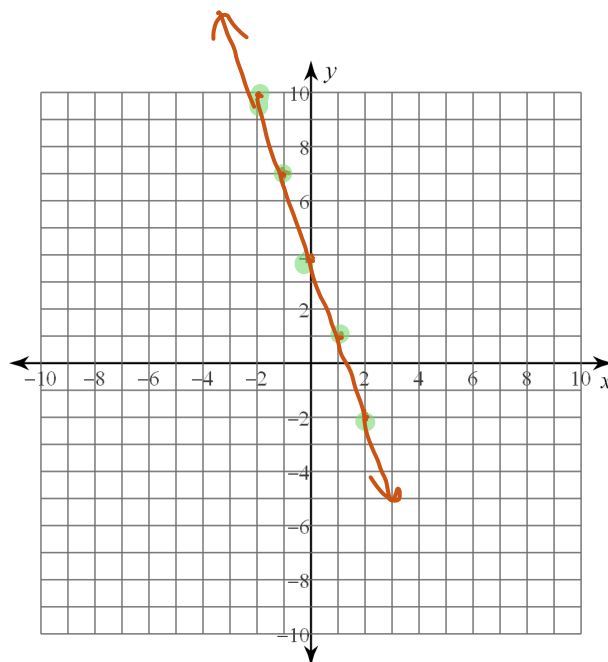
1. $y = x - 3$

x	$y = x - 3$	$P(x, y)$
-2	$-2 - 3 = -5$	$(-2, -5)$
-1	$-1 - 3 = -4$	$(-1, -4)$
0	$0 - 3 = -3$	$(0, -3)$
1	$1 - 3 = -2$	$(1, -2)$
2	$2 - 3 = -1$	$(2, -1)$



2. $y = -3x + 4$

x	$y = -3x + 4$	$P(x, y)$
-2	$-3(-2) + 4 = 10$	$(-2, 10)$
-1	$-3(-1) + 4 = 7$	$(-1, 7)$
0	$-3(0) + 4 = 4$	$(0, 4)$
1	$-3(1) + 4 = 1$	$(1, 1)$
2	$-3(2) + 4 = -2$	$(2, -2)$



Strategies for converting to y=

1)

$$y + 3 = x - 5$$

$$y + 3 = x - 5$$

$$y = x - 5 - 3$$

$$y = x - 8$$

2)

$$3y + 2 = 5x + 1$$

$$3y = 5x + 1 - 2$$

$$\frac{3y}{3} = \frac{5x}{3} - \frac{1}{3}$$

$$y = \frac{5x}{3} - \frac{1}{3}$$

3)

$$2y = 7(x - 1)$$

$$\frac{2y}{2} = \frac{7x}{2} - \frac{7}{2}$$

$$y = \frac{7x}{2} - \frac{7}{2}$$

Convert each equation into y=

2)

$$4x + y = -34$$

$$y = -34 - 4x$$

3)

$$3x + 2y = -20$$

$$\frac{2y}{2} = \frac{-20 - 3x}{2}$$

$$y = -10 - \frac{3x}{2}$$

4)

$$4x - y = 28$$

$$\frac{-y}{-1} = \frac{28 - 4x}{-1}$$

$$y = -28 + 4x$$

5)

$$5x - 3y = 3$$

$$\frac{-3y}{-3} = \frac{3 - 5x}{-3}$$

$$y = -1 + \frac{5x}{3}$$