

Lesson 8.4- SWBAT graph a linear function.

Kick off-

1) Solve for y in each of the following:

a) $y - 2x = 4$

$$\frac{+2x + 2x}{y} = \frac{+2x + 2x}{y}$$

$$y = \underline{2x + 4}$$

b) $3y + 12x = 18$

$$\frac{-12x - 12x}{3y} = \frac{-12x - 12x}{3y}$$

$$\frac{3y}{3} = \frac{-12x + 18}{3}$$

$$y = \underline{-4x + 6}$$

c) $5y = 15x - 20$

$$\frac{5}{5} \frac{5y}{5} = \frac{15x - 20}{5}$$

$$y = \underline{3x - 4}$$

2) $\{(1, -2), (2, 9), (3, 6), (-6, 4), (8, 4)\}$
 a. Domain: $\{1, 3, 6, 8\}$
 b. Range: $\{-2, 4, 6, 9\}$
 c. Function? Why or why not?
NO. because the domain or "X's" repeat

Linear Functions

Straight line that continues forever.

Slope-intercept form $\rightarrow y = mx + b$

Slope: (how steep the line is)
 rise (up/down)
 run (left/right)

Y-intercept (crosses the y-axis)

To graph linear functions, you can use two methods:

1) Slope and intercept method \rightarrow Counting
 2) Table of values
 \downarrow
 plug in!

Slope Intercept Method Steps:

- Solve for y!
- Graph the y-intercept (b)
- Count by the slope (Rise over Run)

* must have 3 points!
 * put arrows on the end!

1) Graph the function $y = 4x + 8$
 Fraction $\frac{4}{1}$ $\frac{1}{2}$
 $m = 4$
 $b = 8$
 $y = 2x + 4$

2) Graph the function: $2y - x + 4 = 0$
 $+x - 4 \quad x - 4$
 $\frac{2y}{2} = \frac{x - 4}{2}$
 $y = \frac{1}{2}x - 2$
 $m = \frac{1}{2}$
 $b = -2$

3) Graph the function: $y + 3x = 1$

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

$m = -3/1$
 $b = 1$

$\frac{-3}{1}$ down right

Graphing by a table Steps:

- Solve for y!
- Plug in a negative x-values, 0 and a positive x-values.
- Plot them and connect with a line!

4) Graph the function: $y = x - 4$

X	X-4	y
-2	(-2)-4	-6
0	(0)-4	-4
2	(2)-4	-2

$(-2, -6)$
 $(0, -4)$
 $(2, -2)$

5) Graph the function: $5y = -5x$
 $y = -x$

X	-x	y
-2	-(-2)	2
0	-0	0
2	-(2)	-2

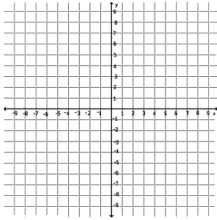
Graph each of the following using slope-intercept form.

1) $y = -x$
 $m = -1$
 $b = 0$

2) $3x + 2y = -10$

Graph each of the following using a table.

3) $3y + 6x = 9$



4) $2x + y = 1$

$$\begin{array}{r} -2x \quad -2x \\ \hline y = -2x + 1 \\ \hline \end{array}$$

x	-2x+1	y
-2	5	5
0	1	1
2	-3	-3

