Section 4.2 Graphing Linear Equations

Steps to Graph a Linear Equation (Using a Table of Values)

Step 1: Rewrite the equation in function form, if necessary. (y = ...) Solve for y

Step 2: Choose a minimum of 3 values of x and make a table of values.

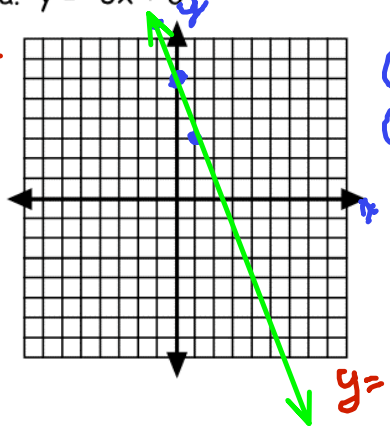
Step 3: Plot the points from the table of values. A line through these points is the graph of the equation.

EXAMPLES

1. Use a table of values to graph the following equations.

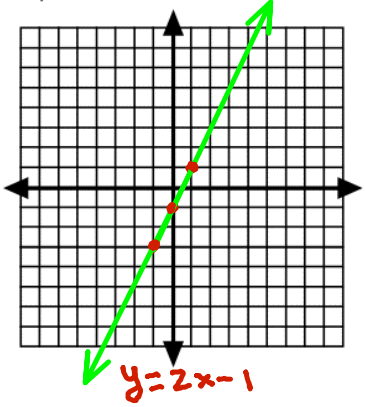
a. y = -3x + 6

x	-3x+6	y
-1	3+6	9
0	0+6	6
1	-3+6	3



(-1, 9)
(0, 6)
(1, 3)

b. y = 2x - 1



x	2x-1	y
-1	-2-1	-3
0	0-1	-1
1	2-1	1

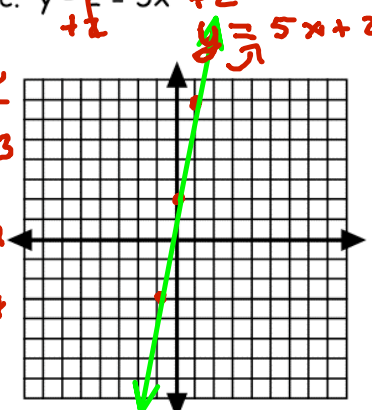
(-1, -3)
(0, -1)
(1, 1)

c. y - 2 = 5x + 2

+2 +2

y = 5x + 2

x	5x+2	y
-1	-5+2	-3
0	0+2	2
1	5+2	7



(-1, -3) (0, 2) (1, 7)

d. -3x + 2y = 6

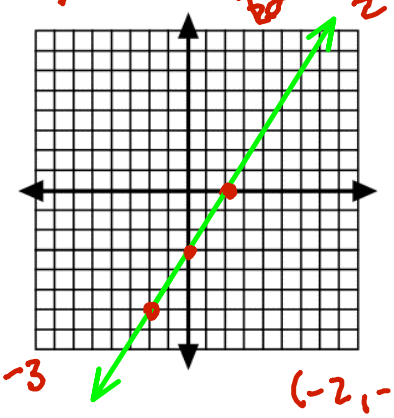
-3x -3x

2y = -3x + 6

+3x

2y = 3x - 6

y = 3/2 x - 3



x	3/2 x - 3	y
-2	3/2(-2) - 3 -3 - 3	-6
0	0 - 3	-3
2	3/2(2) - 3 3 - 3	0

(-2, -6) (0, -3) (2, 0)

2. Are (1, 4) and (3, 4) solutions of the equation $4x + y = 8$?

x y x y

$4(1) + 4 = 8$

$4 + 4 = 8$

$8 = 8$ ✓ yes

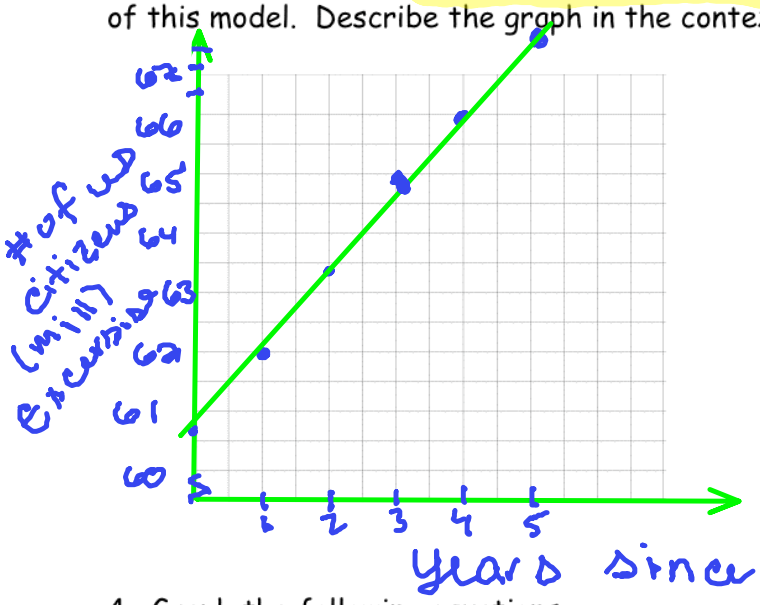
$4(3) + 4 = 8$

$12 + 4 = 8$

$16 \neq 8$

No

3. The number n of U.S. citizens (in millions) who exercise can be modeled by $n = 1.38t + 60.6$, where t represents the number of years since 1987. Sketch a grap of this model. Describe the graph in the context of the real-life situation.



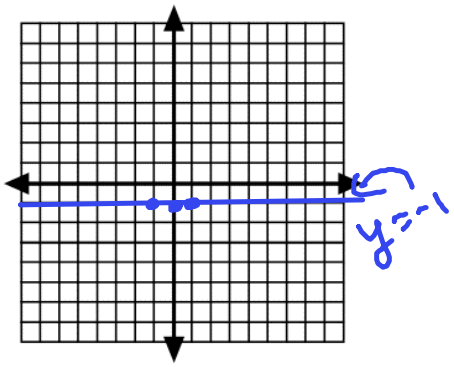
$t = 0$ in 1987

t	$1.38t + 60.6$	n
1	$1.38 + 60.6$	61.98
2	$2.76 + 60.6$	63.36
3	$4.14 + 60.6$	64.74
4	$5.52 + 60.6$	66.12
5	$6.9 + 60.6$	67.5
0		60.6

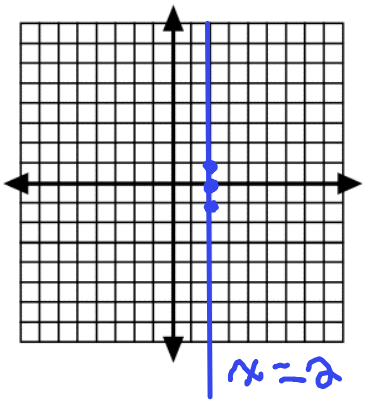
4. Graph the following equations.

a. $y = -1$

x	y
-1	-1
0	-1
1	-1



b. $x = 2$



x	y
2	-1
2	0
2	1