Algebra I

8-2

Graphing Equations: Plotting Points

Graph each equation. (pg 357)

*1) $x + y = 5$

IF domain isn't specified, then use $\mathbb{R}$

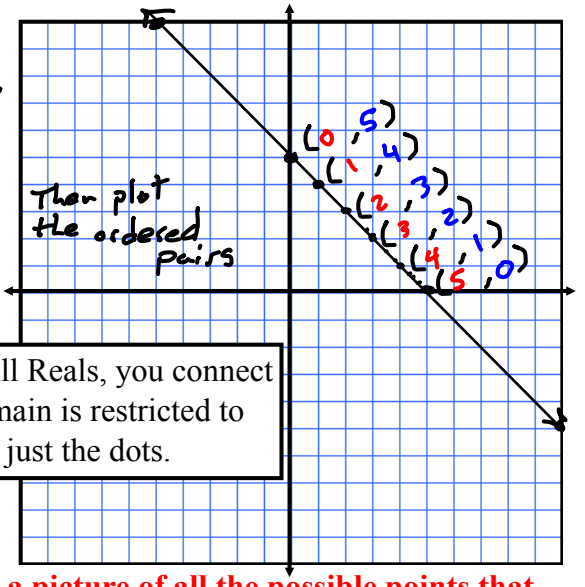
x	y
0	5
1	4
2	3
3	2
4	1
5	0

Choose any value for x

then solve for the matching y

$(0)+y=5$ $y=5$

$(1)+y=5$ $y=4$



When the domain is All Reals, you connect the dots, when the domain is restricted to single numbers, graph just the dots.

Remember, a graph represents a picture of all the possible points that make the equation true, therefore an inaccurate graph is an incorrect solution.

*2) $2x + y = 6$

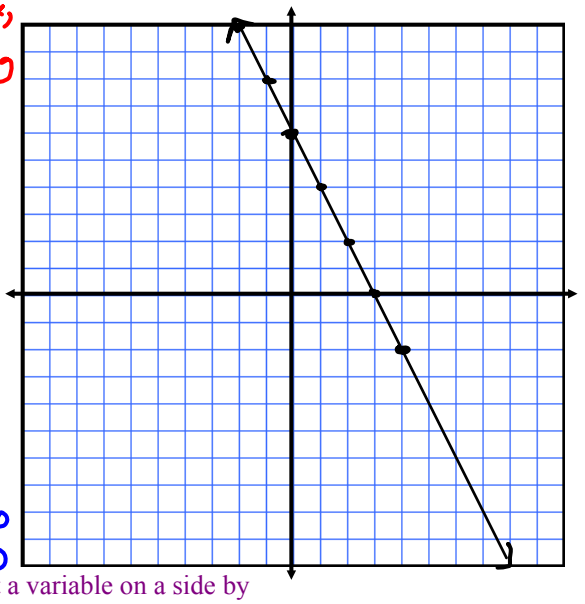
x	y
0	6
1	4
2	2
3	0
4	-2
-1	8

choose any value for x, Figure out the matching y

$2(0)+y=6$
$2(1)+y=6$
$2(2)+y=6$
$2(3)+y=6$

$2x+y=6$
$2x-2x+y=-2x+6$
$y=-2x+6$

$y=-2(0)+6 = 6 = y$
$y=-2(1)+6 = 4 = y$



It may be easier to find the points if you get a variable on a side by itself. You don't need to do this. It is personal preference.

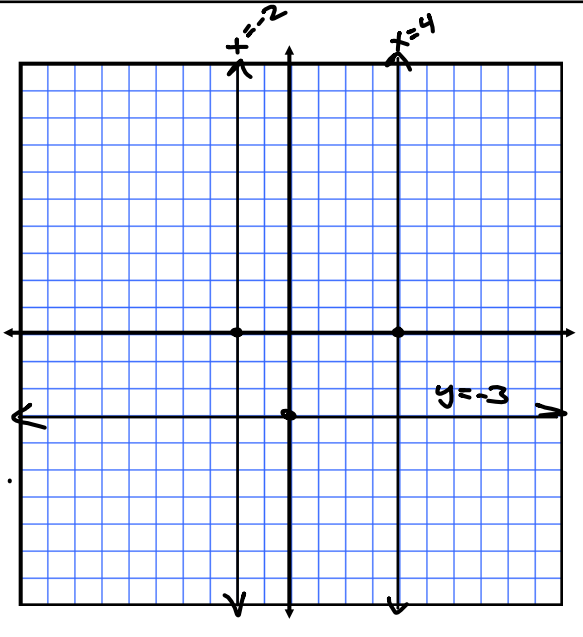
*3) $x = 4$

x= line, it has to cross the x-axis, and it will be vertical.

*4) $x = -2$

*5) $y = -3$

y= lines must cross the y-axis and will be horizontal.



*6) $\frac{1}{3}x - \frac{1}{6}y = 1$ ×6

multiply by the common denominator to eliminate fractions

x	y
0	-6
1	-4
2	-2
3	0

$2x - y = 6$

$2x - 2x - y = -2x + 6$

$\frac{-y}{-1} = \frac{-2x}{-1} + \frac{6}{-1}$

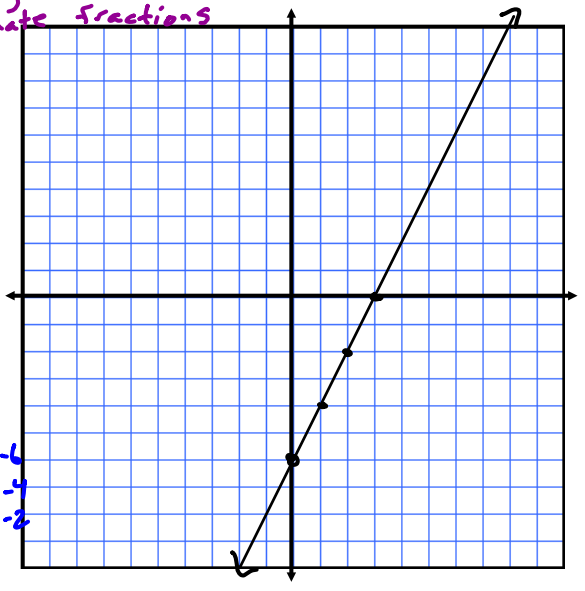
$y = 2x - 6$

use either to plot points

$y = 2(0) - 6 = -6$

$y = 2(1) - 6 = -4$

$y = 2(2) - 6 = -2$



*7) $y = x^2 - 3$

x	y
0	-3
1	-2
2	1
3	6
-1	-2
-2	1
-3	6

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

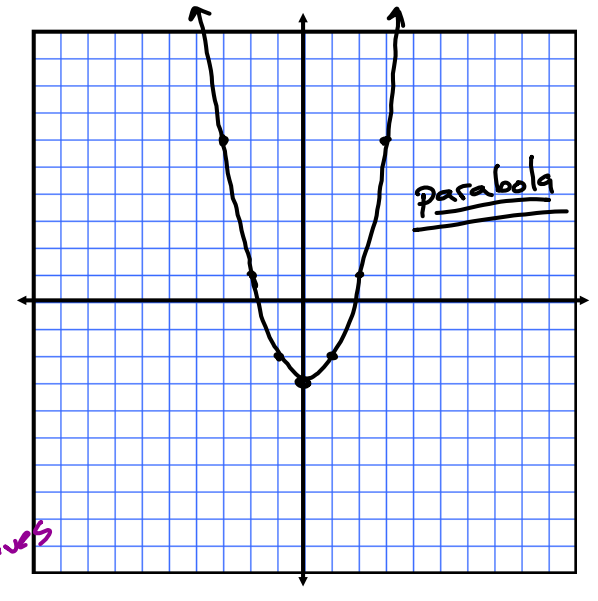
$y = (1)^2 - 3 = -2$

$y = (2)^2 - 3 = 1$

$y = (-1)^2 - 3 = -2$

$y = (-2)^2 - 3 = 1$

The x^2 causes the graph to curve. Be sure to plot enough points! Try negatives



Handout
1-12 all