Graphing Linear Equations

April-20-17
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Mathematics 9
Linear Relations
Graphing Linear Equations

A. Definition

1) Linear equation: an equation that when graphed forms a straight line.

B. Graphing a Linear Equation

In order to graph a linear equation you must first create a table of values with at least 3 acceptable points.

Example 1

Step #1 Use the equation to complete the table of values.

$$x+2y=10$$

x	y
2	4
-6	8
6	2
-4	7

$x + 2y = 10$
$(2) + 2y = 10$
$-2 \quad -2$
$\frac{2y}{2} = \frac{8}{2}$
$y = 4$

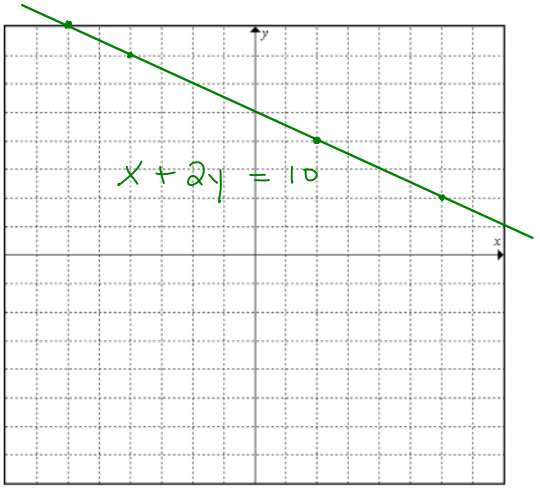
$x + 2y = 10$
$(-6) + 2y = 10$
$+6 \quad +6$
$\frac{2y}{2} = \frac{16}{2}$
$y = 8$

$x + 2y = 10$
$(6) + 2y = 10$
$-6 \quad -6$
$\frac{2y}{2} = \frac{4}{2}$
$y = 2$

$x + 2y = 10$
$(-4) + 2y = 10$
$+4 \quad +4$
$\frac{2y}{2} = \frac{14}{2}$
$y = 7$

Step #2 Once the table is complete, use the points in the table to plot on the graph. Connect the points together with a straight line from end to end on the graph and label the line with the equation.

(2, 4)
(-6, 8)
(6, 2)
(-4, 7)

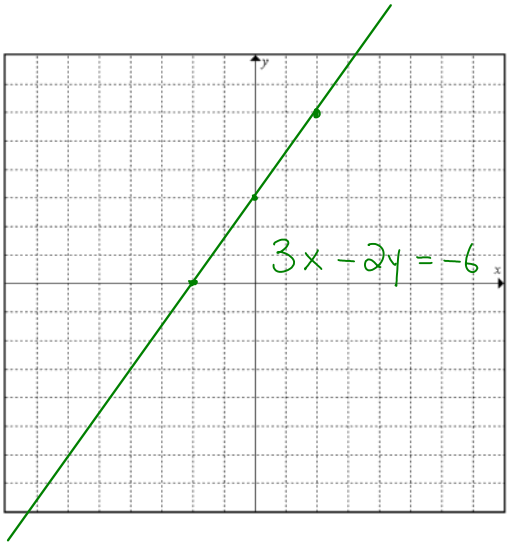


Example 2

$$3x-2y=-6$$

x	y
2	6
-2	0
0	3
4	9

(2, 6)
(-2, 0)
(0, 3)
(4, 9)
Won't fit on the graph.



$3x-2y=-6$
$3(2)-2y=-6$
$6-2y=-6$
$-6 \quad -6$
$\frac{-2y}{-2}=\frac{-12}{-2}$
$y=6$

$3x-2y=-6$
$3(-2)-2y=-6$
$-6-2y=-6$
$+6 \quad +6$
$\frac{-2y}{-2}=\frac{0}{-2}$
$y=0$

$3x-2y=-6$
$3(0)-2y=-6$
$0-2y=-6$
$\frac{-2y}{-2}=\frac{-6}{-2}$
$y=3$

$3x-2y=-6$
$3(4)-2y=-6$
$12-2y=-6$
$-12 \quad -12$
$\frac{-2y}{-2}=\frac{-18}{-2}$
$y=9$

Assignment: Graphing Linear Equations Assignment

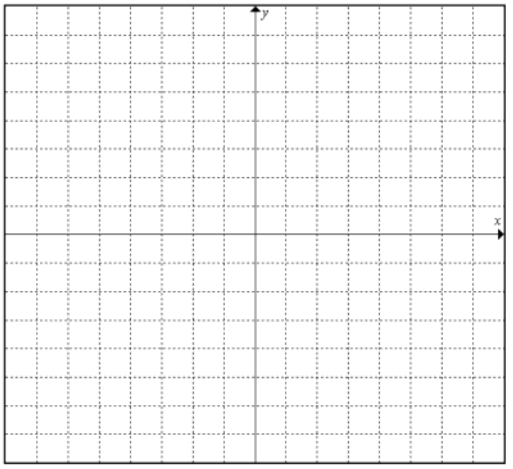
Name:_____

Graphing Linear Equations Assignment

A. For each of the following, complete the table of values and then graph and label the linear equations on the graph provided.

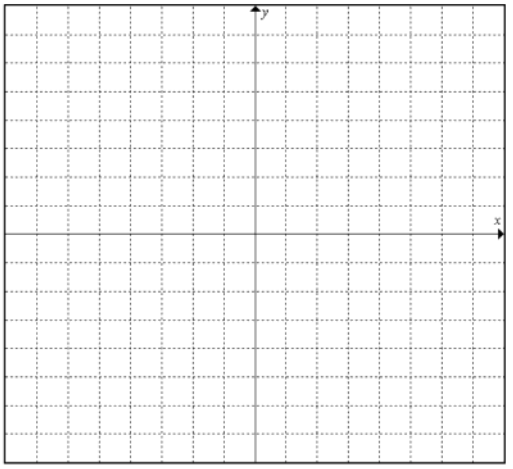
1) $x + y = 7$

x	y
3	
-3	
0	
5	



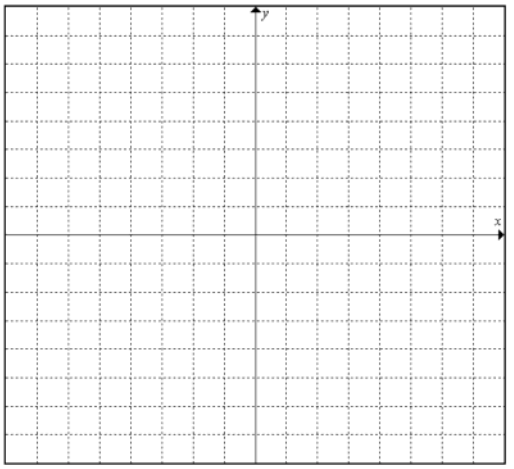
2) $3x + y = -10$

x	y
-1	
-3	
0	
-5	



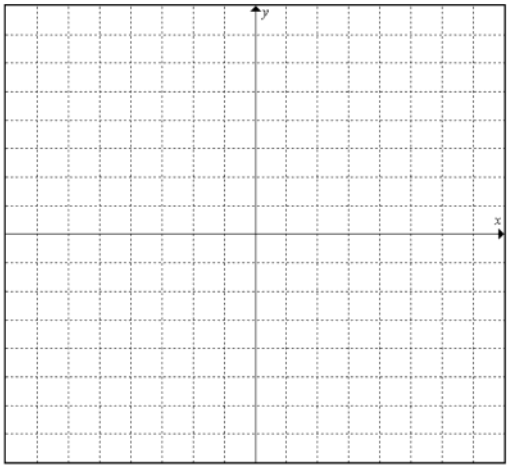
3) $-x+2y=-8$

x	y
2	
-2	
0	
-4	



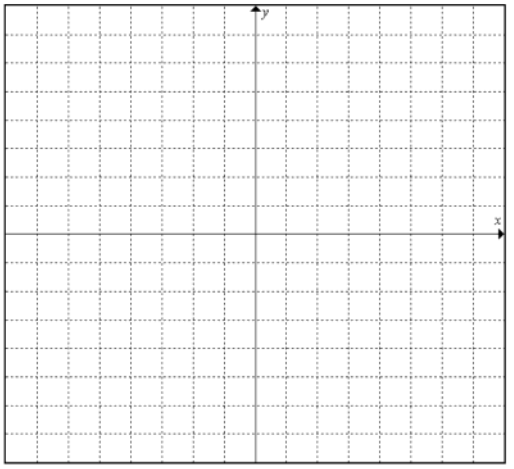
4) $\frac{1}{2}x + y = 4$

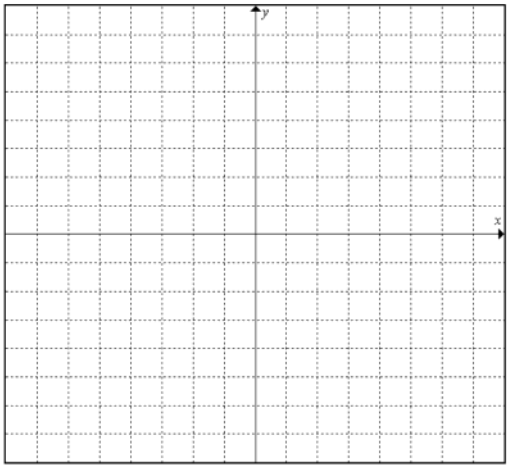
x	y
6	
-2	
4	
-6	



5) $3x - y = 6$

x	y
3	
-1	
0	
1	



6) $\frac{2}{3}x - 2y = -8$

x	y
3	
0	
-3	
-6