1) Identify the axes by labeling one the "x axis" and one the "y axis."

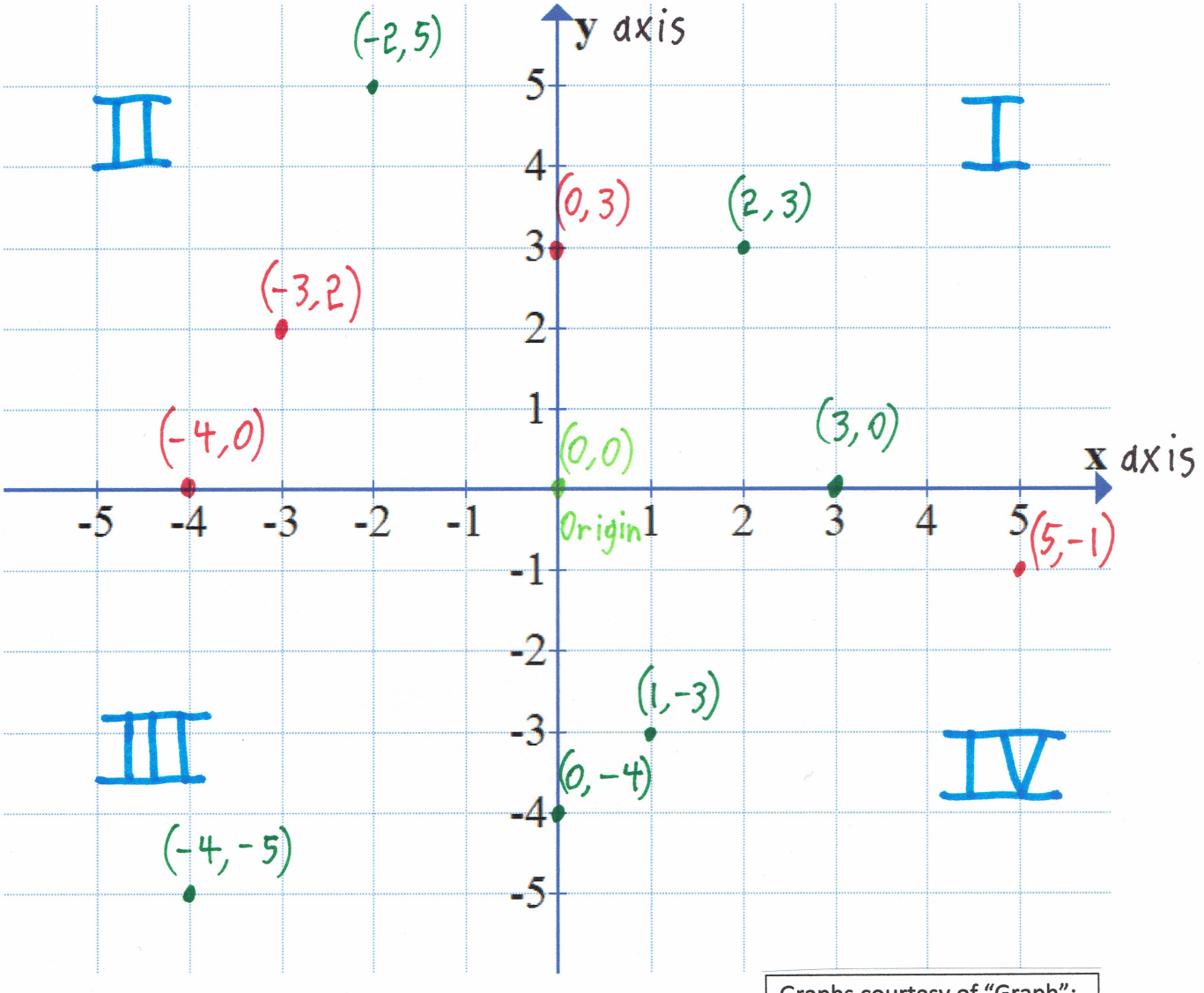
2) Identify the quadrants with Roman numerals I through IV.

3) Identify the origin.

4) Graph and label the ordered pairs:

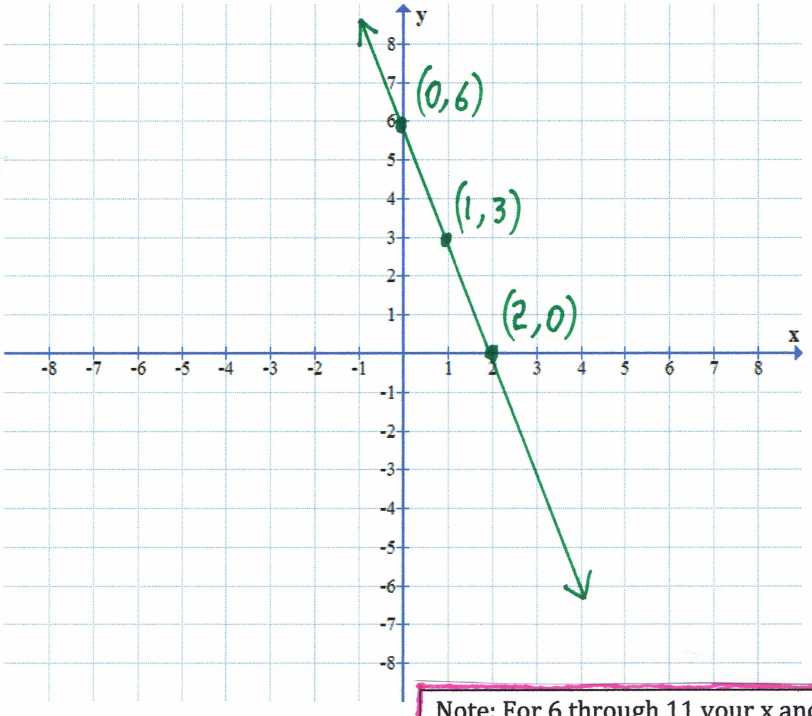
(-2, 5), (3, 0), (-4, -5), (1, -3), (0, -4), (2, 3).

5) Label the four red points that are already on the graph.



Graphs courtesy of "Graph": http://www.padowan.dk

6) Create an "x, y table" of solutions, including x and y intercepts, and graph the equation: $9x + 3y = 18$



x	y	
2	0	(2, 0) x intercept
0	6	(0, 6) y intercept
1	3	

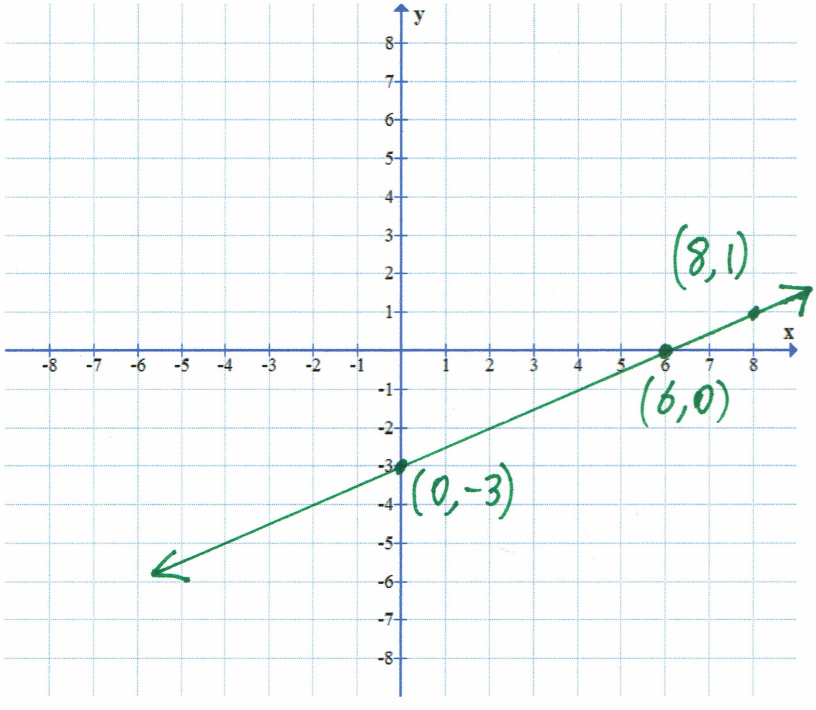
$9x + 3y = 18$
$9x + 3(0) = 18$
$\frac{9x}{9} = \frac{18}{9}$
$x = 2$

$9x + 3y = 18$
$9(0) + 3y = 18$
$\frac{3y}{3} = \frac{18}{3}$
$y = 6$

$9x + 3y = 18$
$9(1) + 3y = 18$
$9 + 3y = 18$
$-9 \quad -9$
$\frac{3y}{3} = \frac{9}{3}$
$y = 3$

Note: For 6 through 11 your x and y intercepts must match exactly; the other point(s) can be anywhere on the line.

7) Create an "x, y table" of solutions, including x and y intercepts, and graph the equation: $x - 2y = 6$



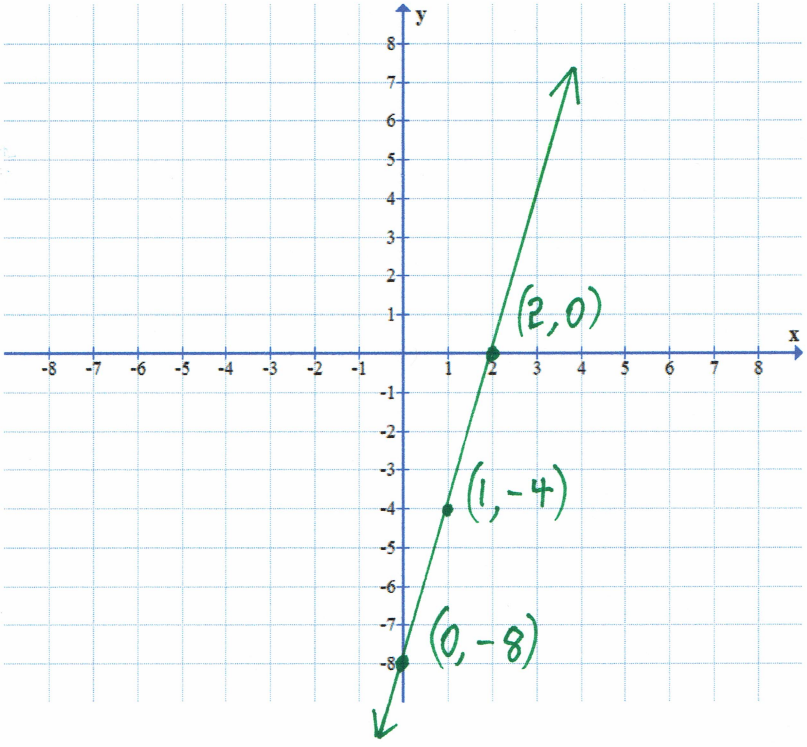
x	y	
6	0	(6, 0) x intercept
0	−3	(0, −3) y intercept
8	1	

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

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

$x - 2y = 6$
$x - 2(1) = 6$
$x - 2 = 6$
$+2 \quad +2$
$x = 8$

8) Create an "x, y table" of solutions, including x and y intercepts, and graph the equation: $y = 4x - 8$



x	y	
2	0	(2, 0) x intercept
0	-8	(0, −8) y intercept
1	-4	

$y = 4x - 8$

$0 = 4x - 8$

$+8 \quad +8$

$\frac{8}{4} = \frac{4x}{4}$

$2 = x$

$y = 4x - 8$

$y = 4(0) - 8$

$y = -8$

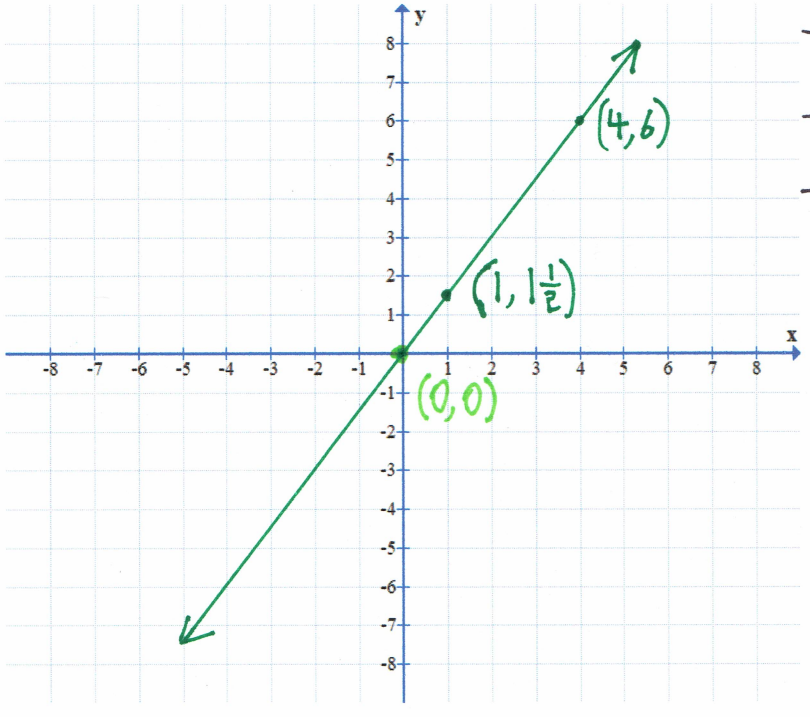
$y = 4x - 8$

$y = 4(1) - 8$

$y = 4 - 8$

$y = -4$

9) Create an "x, y table" of solutions, including x and y intercepts, and graph the equation: $3x - 2y = 0$



x	y	
0	0	(0, 0) x intercept
1	1½	(0, 0) y intercept
4	6	

$3x - 2y = 0$

$3x - 2 \cdot 0 = 0$

$\frac{3x}{3} = \frac{0}{3}$

$x = 0$

$3x - 2y = 0$

$3 \cdot 1 - 2y = 0$

$3 - 2y = 0$

$-3 \quad -3$

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

$y = \frac{3}{2}$ or $1\frac{1}{2}$

$3x - 2y = 0$

$3 \cdot 4 - 2y = 0$

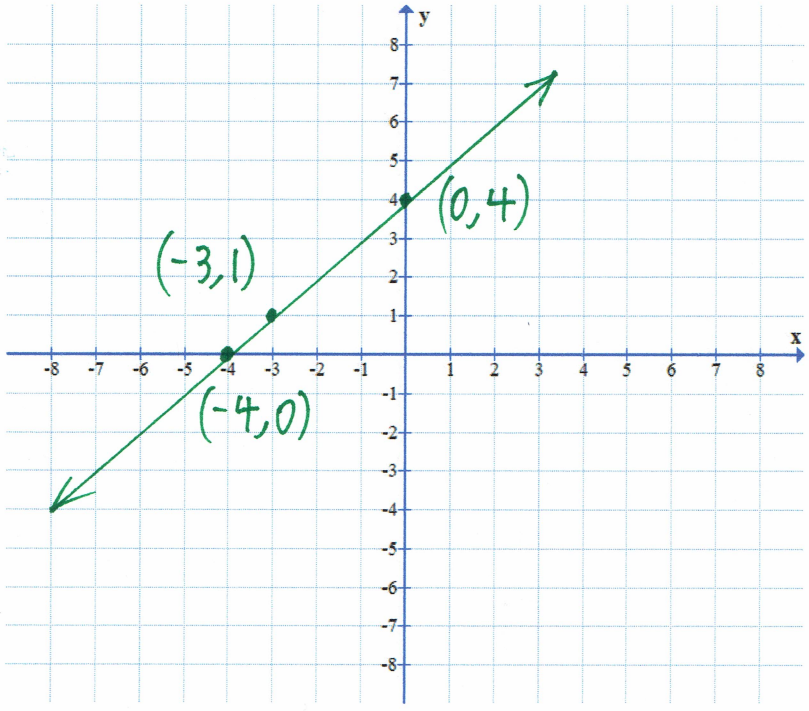
$12 - 2y = 0$

$-12 \quad -12$

$\frac{-2y}{-2} = \frac{-12}{-2}$

$y = 6$

10) Create an "x, y table" of solutions, including x and y intercepts, and graph the equation: $x - y = -4$



x	y	
-4	0	(−4, 0) x intercept
0	4	(0, 4) y intercept
-3	1	

$x - y = -4$

$x - 0 = -4$

$x = -4$

$x - y = -4$

$0 - y = -4$

$-1 \quad -1$

$y = 4$

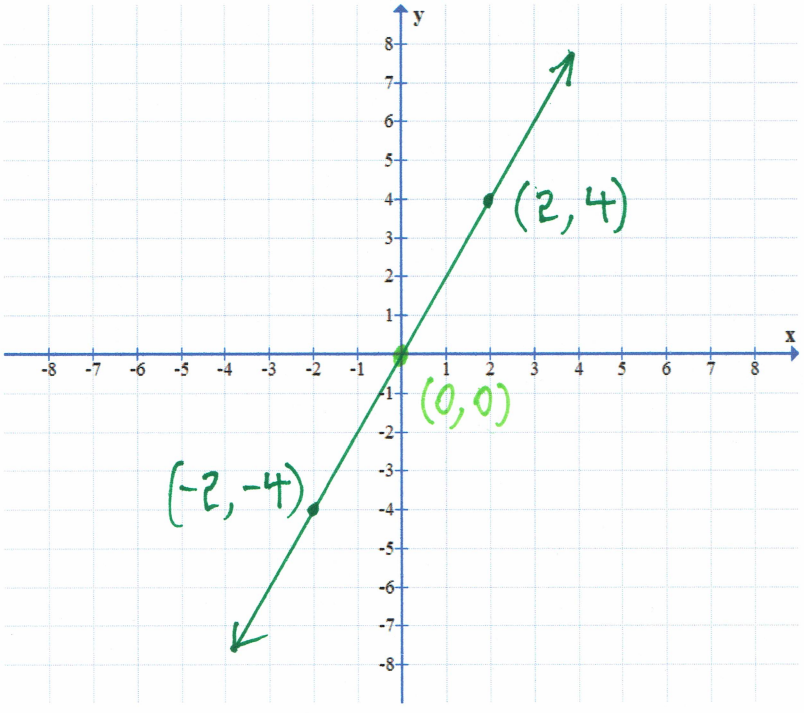
$x - y = -4$

$x - 1 = -4$

$+1 \quad +1$

$x = -3$

11) Create an "x, y table" of solutions, including x and y intercepts, and graph the equation: $3y = 6x$



x	y	
0	0	(0, 0) x intercept
		(0, 0) y intercept
2	4	
-2	-4	

$3y = 6x$

$3 \cdot 0 = 6x$

$\frac{0}{6} = \frac{6x}{6}$

$0 = x$

$3y = 6x$

$3y = 6 \cdot 2$

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

$y = 4$

$3y = 6x$

$3y = 6(-2)$

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

$y = -4$

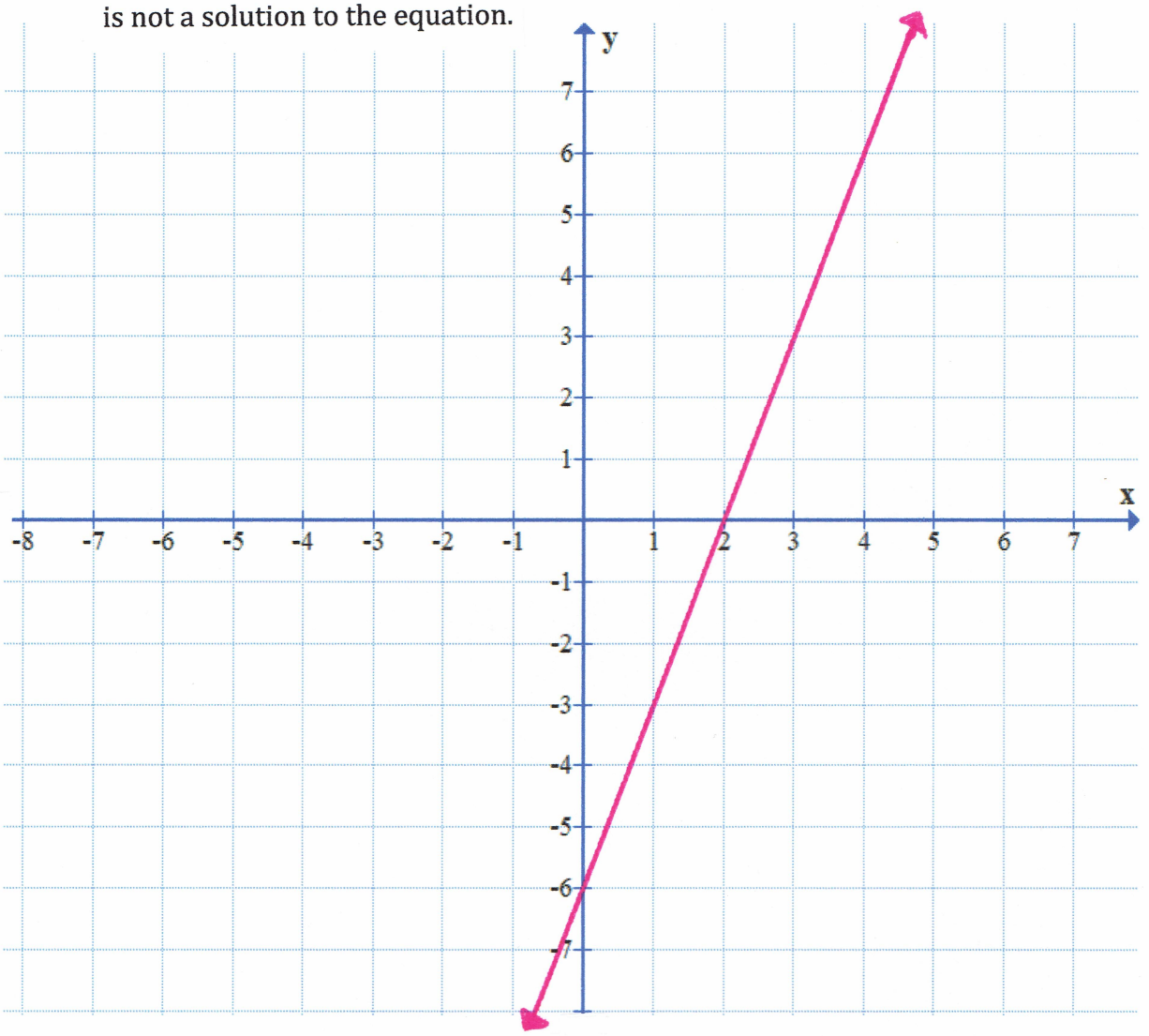
I plotted the line for the equation $y = 3x - 6$. By reading the graph, answer the following two questions:

12) Is the point (4, 6) a solution to the equation? Yes or ~~No~~

13) Is the point (1, -2) a solution to the equation? ~~Yes~~ or No

14) How can you check your answers to #12 and #13?

Plug the values of the ordered pair into the equation; if you get a true statement (like $4 = 4$) then the ordered pair is a solution, a false statement (like $8 = 5$) means that the ordered pair is not a solution to the equation.



15) Check your answer to #12 algebraically. (4, 6)

$y = 3x - 6$

$6 \stackrel{?}{=} 3(4) - 6$

$6 \stackrel{?}{=} 12 - 6$

$6 = 6$ ✓

Since $6 = 6$ is a true statement, the point (4, 6) is a solution to the equation.

16) Check your answer to #13 algebraically. (1, -2)

$y = 3x - 6$

$-2 \stackrel{?}{=} 3(1) - 6$

$-2 \stackrel{?}{=} 3 - 6$

$-2 \neq -3$

Since $-2 = -3$ is not a true statement, the point $(1, -2)$ is not a solution to the equation.