

MATH 1314

Section 1.3

Graphing Equations

$$4x - 3y = 6$$

Example 1: Determine which of the points $(3, 2)$, $(-1, 3)$ and $(0, 2)$ are on the graph of the equation $4x - 3y = 6$.

$$(3, 2)$$

$$4(3) - 3(2) = 6$$

$$12 - 6 = 6$$

$$6 = 6 \checkmark$$

Yes!

$$(-1, 3)$$

$$4(-1) - 3(3) = 6$$

$$-4 - 9 = 6$$

$$-13 = 6$$

No

$$(0, 2)$$

$$4(0) - 3(2) = 6$$

$$0 - 6 = 6$$

$$-6 = 6$$

No

Example 2: Determine which of the points $(-1, 1)$, $(2, -1)$ and $(-2, -1)$ are on the graph of the equation $x^2 + 3xy + 2 = 0$

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$$(-1, 1)$$

$$(-1)^2 + 3(-1)(1) + 2 = 0$$

$$1 - 3 + 2 = 0$$

$$-2 + 2 = 0$$

$$0 = 0$$

Yes

$$(2, -1)$$

$$(2)^2 + 3(2)(-1) + 2 = 0$$

$$4 - 6 + 2 = 0$$

$$-2 + 2 = 0$$

$$0 = 0$$

Yes

$$(-2, -1)$$

$$(-2)^2 + 3(-2)(-1) + 2 = 0$$

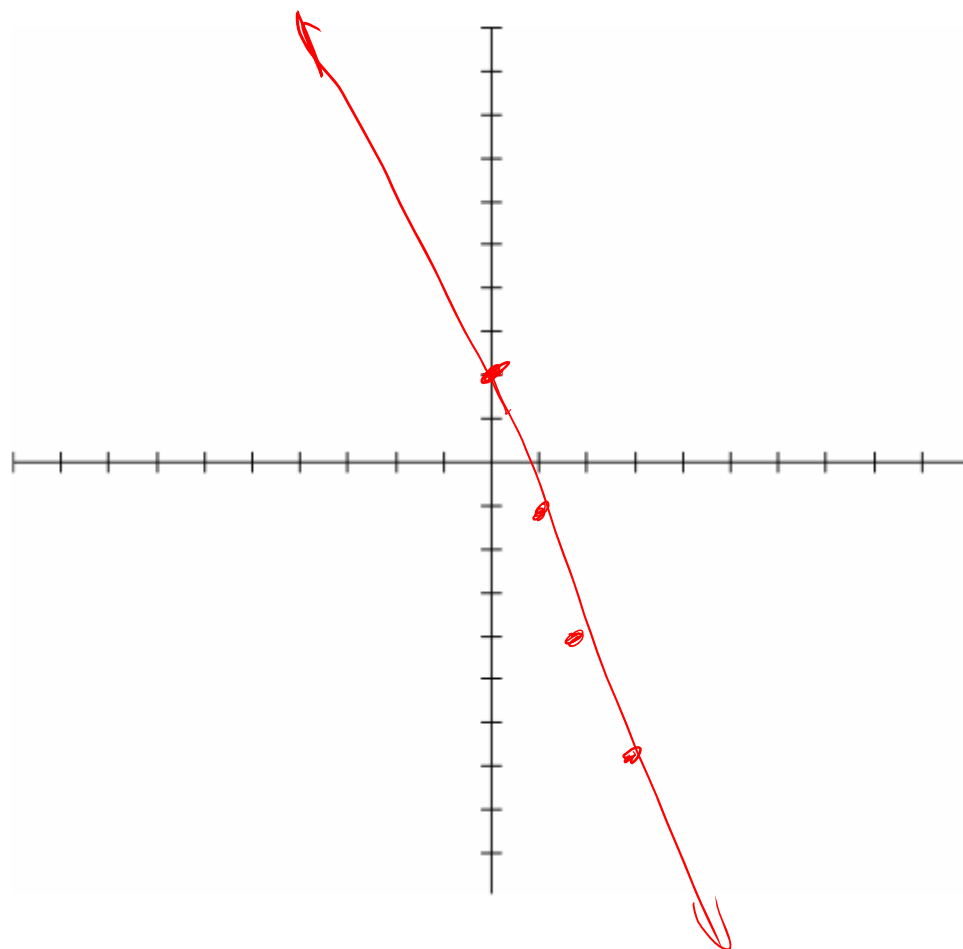
$$4 + 6 + 2 = 0$$

$$12 = 0$$

No

When we graphing an equation, it will be helpful to have more points than just the x and y intercepts of the graph. We can create a table of values with more choices for x and find the corresponding y values.

Example 3: Sketch the graph of the equation by plotting points: $y = -3x + 2$.



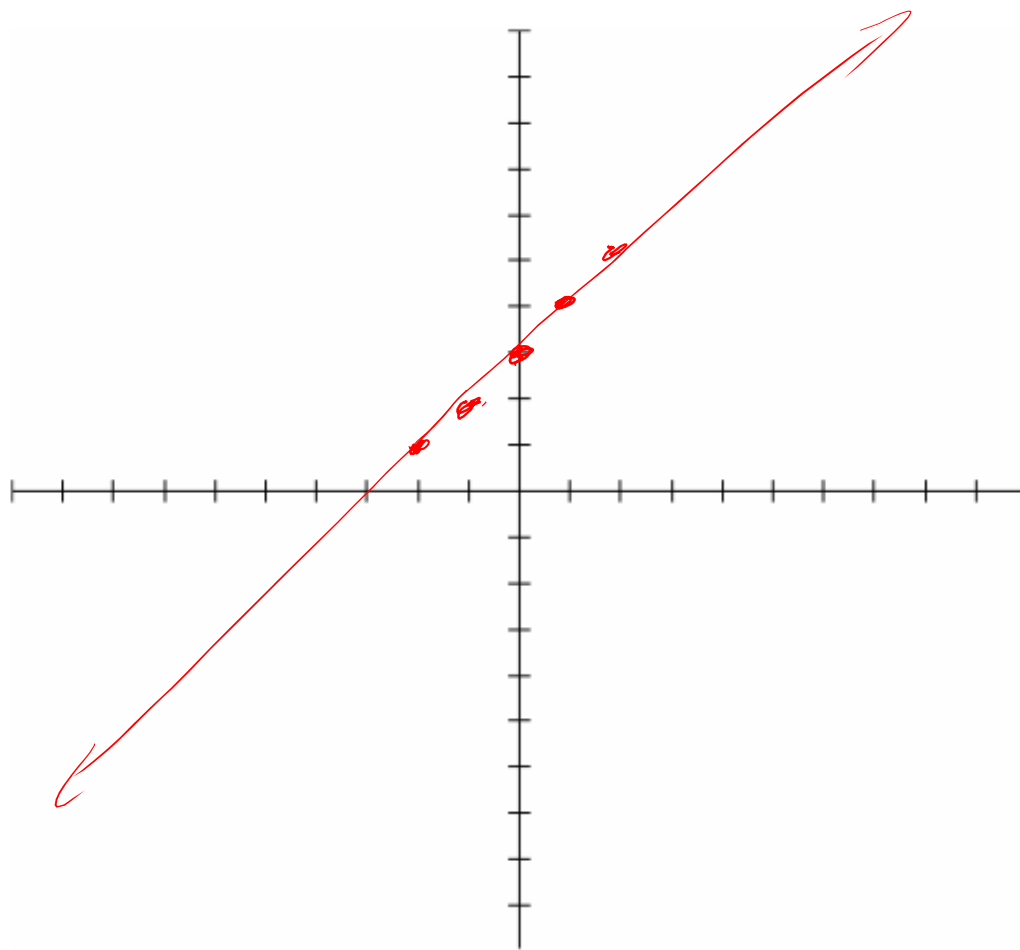
$$y = -3x + 2$$

$$y = mx + b$$

$$m = -3 = \frac{-3}{1} \rightarrow \text{rise} \downarrow$$

$$b = 2 \rightarrow (0, 2)$$

Example 4: Sketch the graph of the equation by plotting points: $y = x + 3$



x	$y = x + 3$	y	(x, y)
0	$y = 0 + 3 = 3$	3	(0, 3)
1	$y = 1 + 3 = 4$	4	(1, 4)
2	$y = 2 + 3 = 5$	5	(2, 5)
-1	$y = -1 + 3 = 2$	2	(-1, 2)
-2	$y = -2 + 3 = 1$	1	(-2, 1)