How can a linear equation be represented graphically?

Linear Equations and Functions

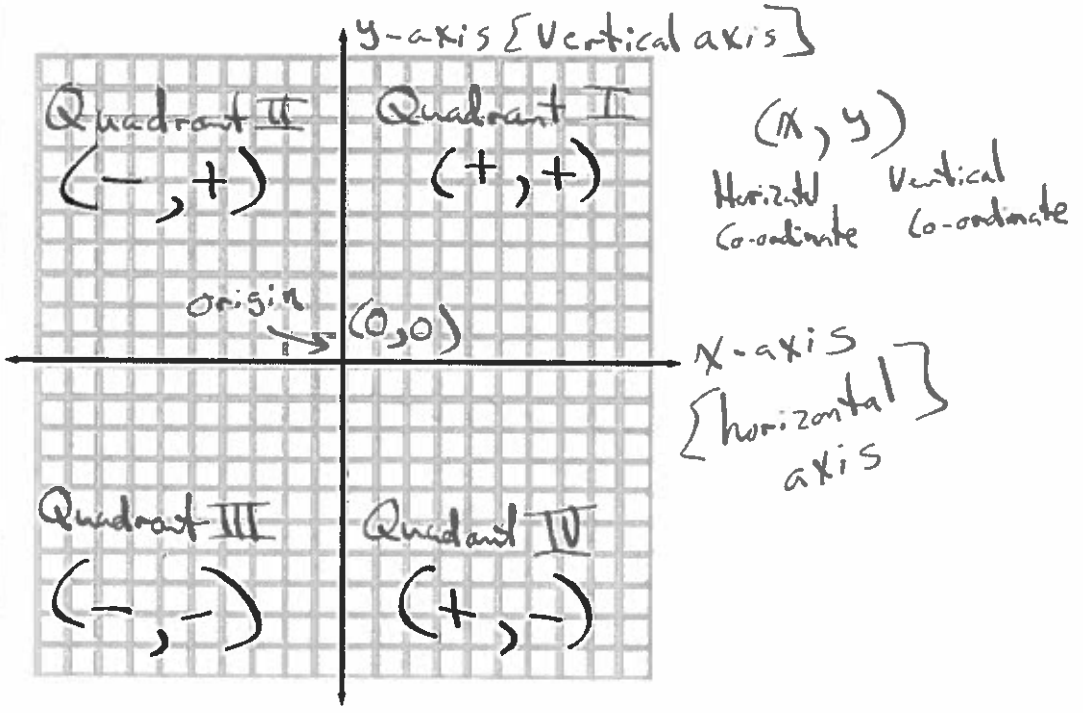
$y = 2x - 1$	Function of x
$x = 3y + 2$	Function of y
$y = 5$ [$y = 0x + 5$]	Function of x

Solve: Find all values that make a sentence true!

☆ A solution to a linear equation/function is a set of coordinates that makes the sentence true.

☆ A solution to a linear equation/function is also a point on the line!

Coordinate Plane



Find three solutions to $y = 2x - 1$.

$(0,-1)$	$(1,1)$	$(42,83)$
$-1 = 2(0) - 1$	$1 = 2(1) - 1$	$83 = 2(42) - 1$
$-1 = -1$	$1 = 2 - 1$	$83 = 84 - 1$
✓	$1 = 1$ ✓	$83 = 83$ ✓

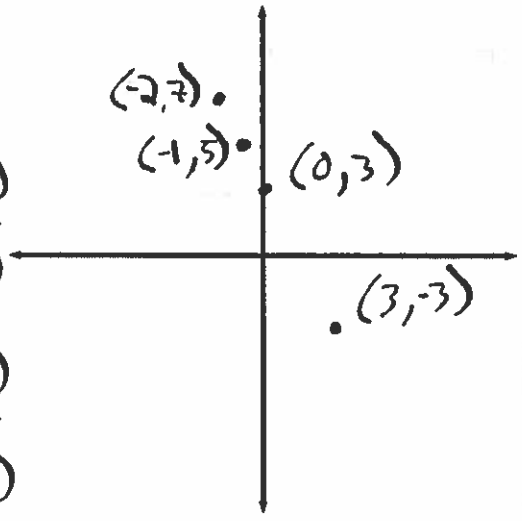
Find a point that is not a solution to $y = 2x - 1$.

$(2,1)$	$(1,2)$
$1 = 2(2) - 1$	$2 = 2(1) - 1$
$1 = 4 - 1$	$2 = 1 - 1$
$1 \neq 3$	$2 \neq 0$

Graph the Function using the given domain.

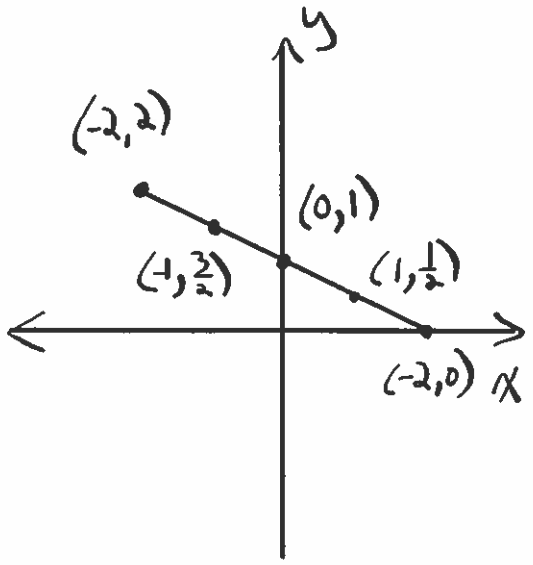
Function: $y = -2x + 3$ Domain: $[-2, -1, 0, 3]$

Domain x	Range $y = -2x + 3$	Solution (x, y)
-2	$y = -2(-2) + 3$ $y = 4 + 3 = 7$	$(-2, 7)$
-1	$y = -2(-1) + 3$ $y = 2 + 3 = 5$	$(-1, 5)$
0	$y = -2(0) + 3$ $y = 0 + 3 = 3$	$(0, 3)$
3	$y = -2(3) + 3$ $y = -6 + 3 = -3$	$(3, -3)$



Function: $y = -\frac{1}{2}x + 1$ Domain: $\{-2 \le x \le 2\}$

Domain x	Range $y = -\frac{1}{2}x+1$	Solutions (x, y)
-2	$y = -\frac{1}{2}(-2)+1$ $y = 1+1 = 2$	$(-2, 2)$
-1	$y = -\frac{1}{2}(-1)+1$ $y = \frac{1}{2}+1 = \frac{3}{2}$	$(-1, \frac{3}{2})$
0	$y = -\frac{1}{2}(0)+1$ $y = 1$	$(0, 1)$
1	$y = -\frac{1}{2}(1)+1$ $y = -\frac{1}{2}+1 = \frac{1}{2}$	$(1, \frac{1}{2})$
2	$y = -\frac{1}{2}(2)+1$ $y = -1+1 = 0$	$(2, 0)$



Assignment #14:

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