

Graphing

Do you remember equations with two variables? When an equation has two variables (like the equation $y = 2x - 3$), it usually has an infinite number of solutions. In other words, there is an infinite number of values for x and y that make the equation true.

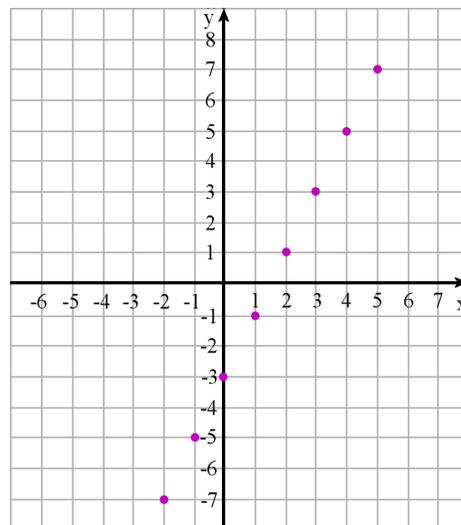
For example, if $x = 0$, then we can calculate the value of y using the equation: $y = 2 \cdot 0 - 3 = -3$. So when $x = 0$ and $y = -3$, the equation is true. The **number pair** $(x, y) = (0, -3)$ is a solution.

Similarly, if x is 3, then $y = 2 \cdot 3 - 3 = 3$. The number pair $(3, 3)$ is *also* a solution.

In this way we could generate an infinite number of solutions. Each solution is a number pair that can be plotted on a coordinate grid.

This table lists some x and y values, plotted at the right, for the equation $y = 2x - 3$:

x	-2	-1	0	1	2	3	4	5
y	-7	-5	-3	-1	1	3	5	7



Notice the pattern in the table and in the graph: as the x -values increase by 1, the y -values increase by 2. The plot shows a pattern, as well: the dots form a line that is rising upwards.

1. Plot the points from the equations for the values of x listed in the table. Graph both (a) and (b) in the same grid.

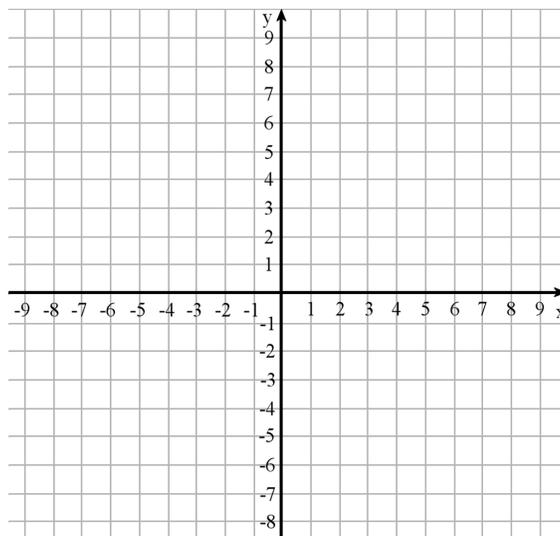
a. $y = x + 4$

x	-9	-8	-7	-6	-5	-4	-3	-2
y								

x	-1	0	1	2	3	4	5
y							

b. $y = 2x - 1$

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



2. Which equation matches the plot on the right?

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

$y = (\frac{1}{2})x$

$y = (\frac{1}{2})x - 1$

