

Since ordered pairs are represented by (x, y) , an equation can be used to represent x and y . You can then substitute numbers for x , solve for y , plot the points (x, y) , and graph the line of the equation.

EXAMPLE 1 Graph $y = 2x$.

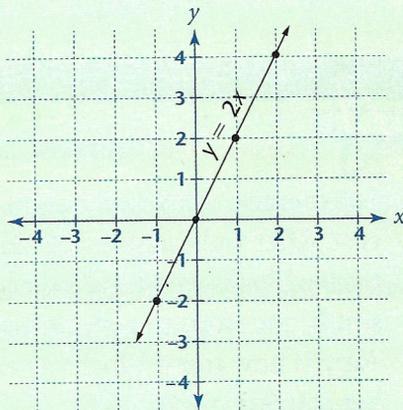
Step 1 Assign values for x . For example, let $x = -1, 0, 1,$ and 2 .

Step 2 Solve $y = 2x$ for y . Display the results in a table.

$y = 2x$	
x	y
-1	-2
0	0
1	2
2	4

Step 3 Plot the points shown in the table, then graph the line.

The graph of the equation $y = 2x$ forms a straight line.

**EXAMPLE 2**

Graph $y = 2x - 3$.

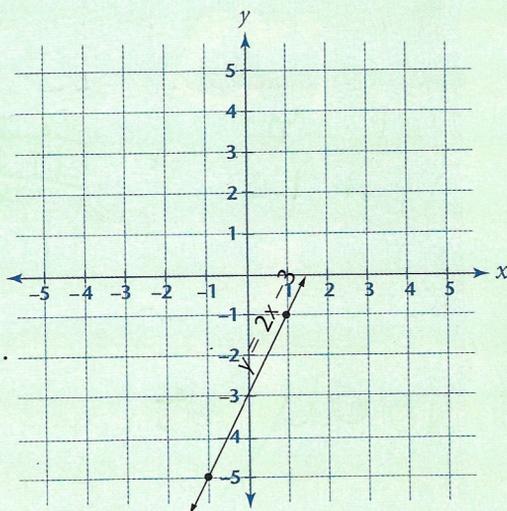
Step 1 Assign two values for x .
Let $x = -1$ and $x = 1$.

Step 2 Solve for y .

$$\begin{array}{ll} y = 2x - 3 & y = 2x - 3 \\ y = 2(-1) - 3 & y = 2(1) - 3 \\ y = -2 - 3 & y = 2 - 3 \\ y = -5 & y = -1 \end{array}$$

When $x = -1$, $y = -5$. When $x = 1$, $y = -1$.
 $(-1, -5)$ $(1, -1)$

Step 3 Plot the points $(-1, -5)$ and $(1, -1)$. Then graph and label the line.



Graphing Equations

Directions Solve for y to complete the table of values for each equation.

A.

$y = 3x - 1$	
x	y
-2	1.
-1	2.
0	3.
1	4.

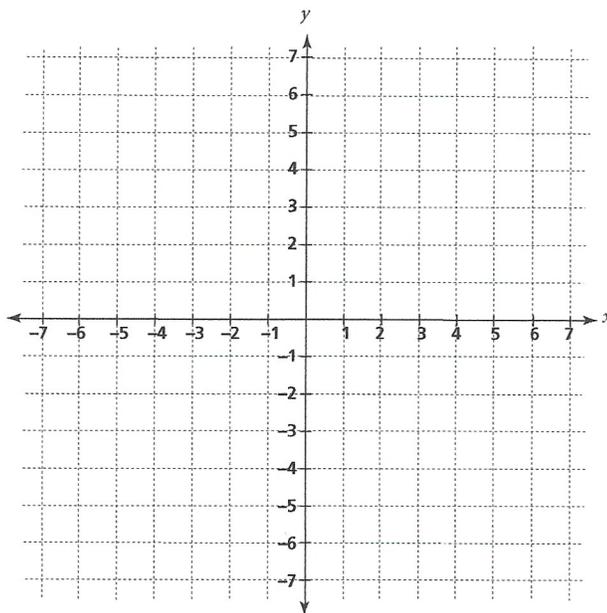
B.

$y = 2x - 2$	
x	y
-4	5.
-2	6.
0	7.
2	8.

C.

$y = x - 1$	
x	y
-3	9.
-1	10.
1	11.
3	12.

Directions Solve the problems. For help, view the graph.



13. Suppose a jogger runs 4 blocks north. Then she turns and runs 4 blocks east and stops. If the jogger's starting point is represented as point $(0, 0)$ on a graph, what quadrant has the jogger stopped in? (Hint: on a map, north is up, south is down, west is left, and east is right.)
- _____
14. Suppose you plotted the following points on a graph: $(4, 4)$, $(-4, 4)$, $(-4, -4)$, and $(4, -4)$. Then suppose you connected the 4 points with straight lines. What figure would you get?
- _____
15. If a point moves on a graph, without changing direction, such that the y -value increases and the x -value stays the same, what can you say about the direction of the movement?
- _____