

## Lesson 8-2

### Example 1 Find Solutions

Find four solutions of  $y = 3x + 2$

Choose four values for  $x$ . Then substitute each value into the equation and solve for  $y$ .

$x$	$y = 3x + 2$	$y$	$(x, y)$
0	$y = 3(0) + 2$	2	(0, 2)
1	$y = 3(1) + 2$	5	(1, 5)
2	$y = 3(2) + 2$	8	(2, 8)
3	$y = 3(3) + 2$	11	(3, 11)

Four solutions are (0, 2), (1, 5), (2, 8), (3, 11).

### Example 2 Solve an Equation for $y$

a. Find four solutions of  $-4x + y = -2$ .

First, rewrite the equation by solving for  $y$ .

$$\begin{aligned} -4x + y &= -2 \\ -4x + 4x + y &= -2 + 4x \\ y &= -2 + 4x \end{aligned}$$

Write the equation.  
Add  $4x$  to each side.  
Simplify.

Choose four  $x$  values and substitute them into  $y = -2 + 4x$ .

$x$	$y = -2 + 4x$	$y$	$(x, y)$
0	$y = -2 + 4(0)$	-2	(0, -2)
1	$y = -2 + 4(1)$	2	(1, 2)
2	$y = -2 + 4(2)$	6	(2, 6)
3	$y = -2 + 4(3)$	10	(3, 10)

Four solutions are (0, -2), (1, 2), (2, 6), (3, 10).

**b. Find four solutions of  $5x + y = 13$ .**

First, rewrite the equation by solving for  $y$ .

$$\begin{array}{ll} 5x + y = 13 & \text{Write the equation.} \\ 5x - 5x + y = 13 - 5x & \text{Subtract } 5x \text{ from each side.} \\ y = 13 - 5x & \text{Simplify.} \end{array}$$

Choose four  $x$  values and substitute them into  $y = 13 - 5x$ .

$x$	$y = 13 - 5x$	$y$	$(x, y)$
0	$y = 13 - 5(0)$	13	(0, 13)
1	$y = 13 - 5(1)$	8	(1, 8)
2	$y = 13 - 5(2)$	3	(2, 3)
3	$y = 13 - 5(3)$	-2	(3, -2)

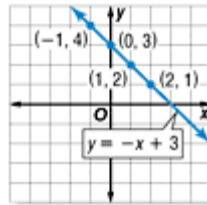
Four solutions are (0, 13), (1, 8), (2, 3), and (3, -2).

**Example 3 Graph a Linear Equation**  
**Graph  $y = -x + 3$  by plotting ordered pairs.**

First, find ordered pair solutions.

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

Four solutions are (-1, 4), (0, 3), (1, 2), and (2, 1). Plot these ordered pairs and draw a line through them. Note that the ordered pair for any point on this line is a solution of  $y = -x + 3$ . The line is a complete graph of the function.



**CHECK** It appears from the graph that (4, -1) is also a solution. Check this by substitution.

$$\begin{array}{ll} y = -x + 3 & \text{Write the equation.} \\ -1 = -(4) + 3 & \text{Replace } x \text{ with } 4 \text{ and } y \text{ with } -1. \\ -1 = -1 \checkmark & \text{Simplify.} \end{array}$$