

Name _____ Date _____

Graphing Systems of Equations

(Pages 446–449)

A set of two or more equations is called a **system of equations**. When you find an ordered pair that is a solution of all the equations in the system, you have solved the system.

Solving Systems of Two Equations by Graphing The ordered pair that names the point where the two lines intersect (or cross each other) is the solution of the system of equations. The coordinates of this ordered pair make the equations of each of the lines true. Check your solution in both equations.

EXAMPLE

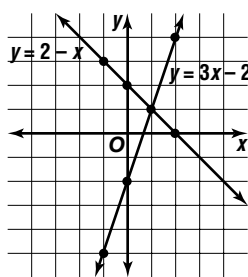
Solve this system of equations by graphing.

$y = 3x - 2$ and $y = 2 - x$

First make a function table for each equation.

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

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



Find the coordinates of the point where the lines cross by looking at the graph. $(1, 1)$
 Check this solution in both equations.
 Does $1 = 3(1) - 2$? yes
 Does $1 = 2 - 1$? yes
 The solution of this systems is $(1, 1)$.

Graph the ordered pairs for each table and draw each line.

Try These Together

- Find the solution of this system by graphing: $y = 2x + 3$ and $y = x + 1$.
HINT: The lines intersect in Quadrant III.
- Find the solution of this system by graphing: $y = x + 2$ and $y = 2x + 2$.
HINT: Choose at least 3 values for x in each equation.

PRACTICE

Solve each system of equations by graphing.

- $y = 4x + 4$
 $y = 3x + 2$
- $x + y = 9$
 $y = 13 - 2x$
- $2 - x = y$
 $3x + 14 = y$



6. Standardized Test Practice You are walking along the path of $y = 6x + 8$ and your friend Ramon is walking on the path of $y = 8x + 12$. At what point do your paths cross?

- A** $(0, 8)$ **B** $(-1, 4)$ **C** $(-2, -4)$ **D** $(1, 14)$

Answers: 1–5. See Answer Key for graphs. 1. $(-2, -1)$ 2. $(0, 2)$ 3. $(-2, -4)$ 4. $(4, 5)$ 5. $(-3, 5)$ 6. C