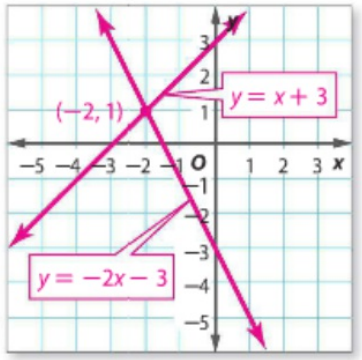
Guided Practice

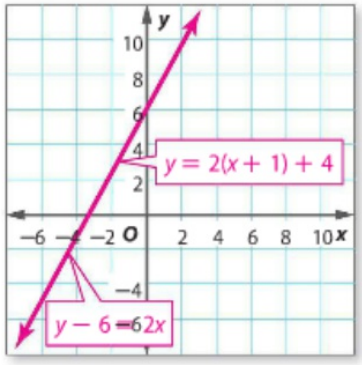
Solve each system of equations by graphing. (Examples 1, 4, and 5)

1. $y = x + 3$
$y = -2x - 3$ **(−2, 1)**



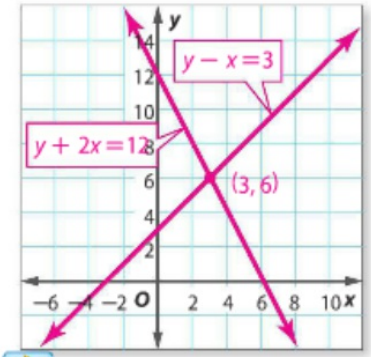
Show your work.

2. $y - 6 = 2x$
$y = 2(x + 1) + 4$ **an infinite number of solutions**



3. The sum of Sally's age plus twice Tomas' age is 12. The difference of Sally's age and Tomas' age is 3. Write and solve a system of equations to find their ages. Interpret the solution. (Examples 2 and 3)

Sample answer: Let x Tomas' age and y = Sally's age; $y + 2x = 12$, $y - x = 3$; Sally is 6 years old and Tomas is 3 years old.



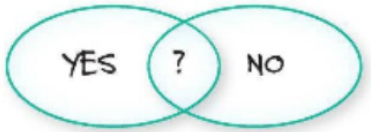
4. A system of equations consists of two lines. One line passes through (−1, 3) and (0, 1). The other line passes through (1, 4) and (0, 2). Determine if the system has *no solution*, *one solution*, or *an infinite number of solutions.* (Example 6) **one solution**

5. **Building on the Essential Question** How can you use a graph to solve a system of equations?

Sample answer: Graphing the two equations will show whether or not the two equations intersect. If they intersect, the point of intersection is the solution.

Rate Yourself!

Are you ready to move on?
Shade the section that applies.



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Tutor

FOLDABLES Time to update your Foldable!

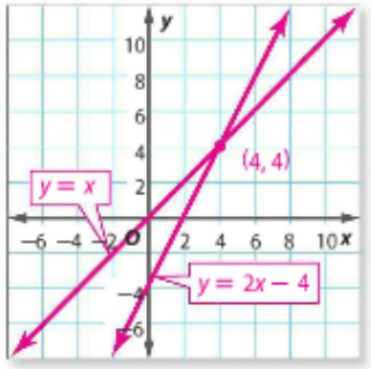
Independent Practice

Go online for Step-by-Step Solutions

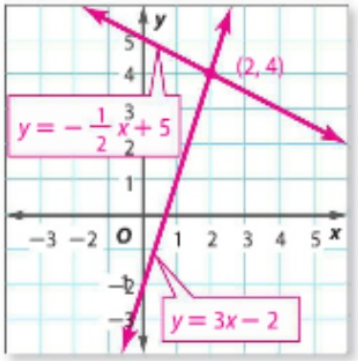
Solve each system of equations by graphing. (Examples 1, 4, and 5)

Show your work.

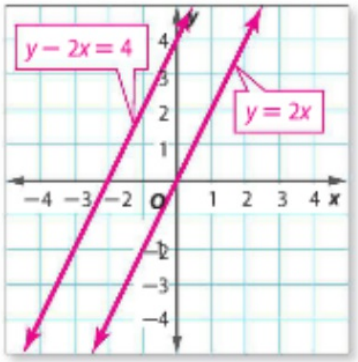
1. $y = x$
$y = 2x - 4$ **(4, 4)**



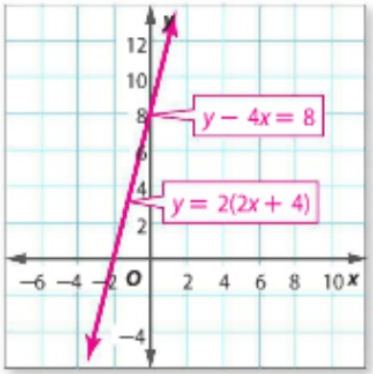
2. $y = -\frac{1}{2}x + 5$
$y = 3x - 2$ **(2, 4)**



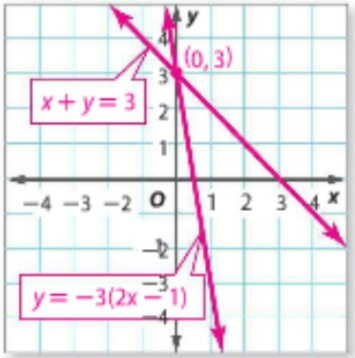
3 $y - 2x = 4$
$y = 2x$ **no solution**



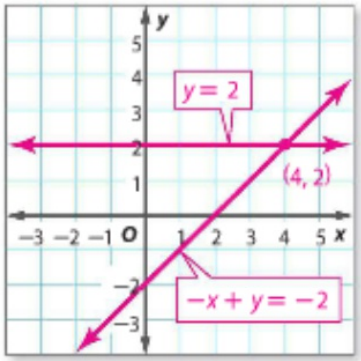
4. $y - 4x = 8$
$y = 2(2x + 4)$ **an infinite number of solutions**



5. $x + y = 3$
$y = -3(2x - 1)$ **(0, 3)**



6. $-x + y = -2$
$y = 2$ **(4, 2)**



7. Copy and Solve A pet store currently has a total of 45 cats and dogs. There are 7 more cats than dogs. Find the number of cats and dogs in the store. On a separate sheet of paper, write and solve a system of equations that represents the situation. Interpret the solution. (Examples 2 and 3)

See Answer Appendix.

Copy and Solve A line passes through each pair of points. Determine if the system has *no solution, one solution,* or *an infinite number of solutions*. Show your work on a separate piece of paper. (Example 6)

8. (0, 3) and (−2, 5); (5, −2) and (0, 3)

an infinite number of solutions

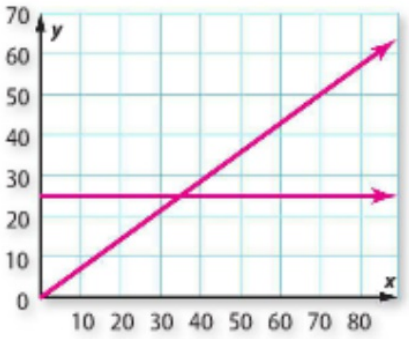
9. (4, 1) and (0, 1); (0, −4) and (4, 4)

one solution

10. (−2, −2) and (0, 2); (1, 1) and (0, −1)

no solution

a. The equation $y = 0.71x$ represents the total cost y of x tickets at the rate of 7 tickets for \$5. The equation $y = 25$ represents the cost of a wristband. Graph each equation on the same coordinate plane.



b. How many rides must each person ride for the wristband to be the better deal? **18 or more rides**

H.O.T. Problems Higher Order Thinking

12. CCSS **Persevere with Problems** One equation in a system of equations is $y = 2x + 1$.

a. Write a second equation so that the system has (1, 3) as its only solution. **Sample answer: $y = -x + 4$**

b. Write an equation so that the system has no solution.
Sample answer: $y = 2x - 1$

c. Write an equation so that the system has infinitely many solutions.
Sample answer: $y - 2x = 1$

13. CCSS **Persevere with Problems** Determine whether the following statement is *always, sometimes,* or *never* true. Explain your reasoning.

If the system $y = ax + b$ and $y = cx + d$ has exactly one solution, then $b = d$.

sometimes; Sample answer: $y = 2x + 1$ and $y = 5x + 1$ intersect at (0, 1) and $b = d$. However, $y = 2x + 1$ and $y = x + 2$ intersect at (1, 3), but $b \neq d$.