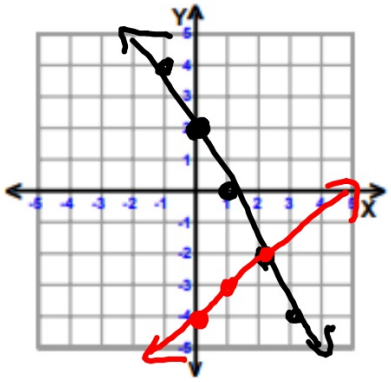
Solve each system by graphing.

1)



2x + y = 2

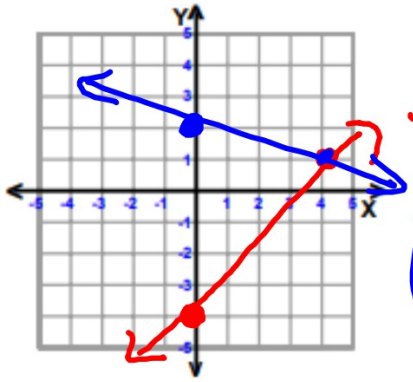
$y = -2x + 2$

-x + y = -4

$y = 1x - 4$

(2, -2)

2)



-5x + 4y =

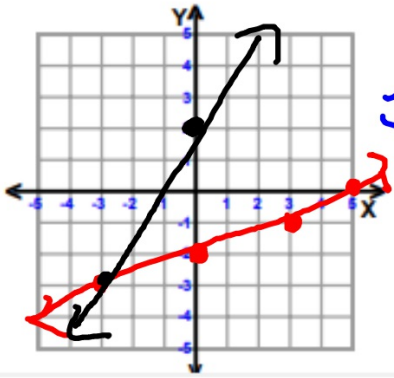
$y = \frac{5}{4}x +$

x + 4y = 8

$y = -\frac{1}{4}x +$

(4, 1)

3)



-x + 3y = 6

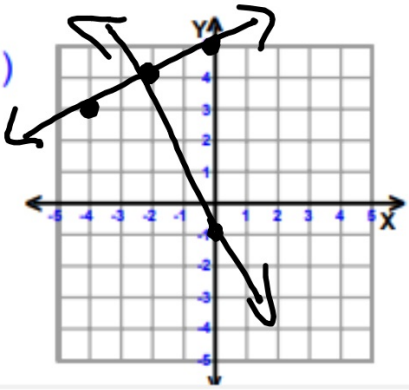
$y = \frac{1}{3}x + 2$

-5x + 3y = 6

$y = \frac{5}{3}x + 2$

(-3, -3)

4)



$y = \frac{1}{2}x + 5$

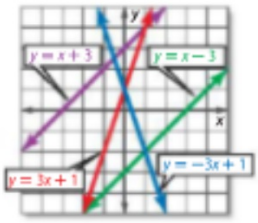
$y = -\frac{5}{2}x - 1$

(-2, 4)

ck Your Understanding

= Step-by-Step Solutions begin on page R13.

e 1 Use the graph at the right to determine whether each system is *consistent* or *inconsistent* and if it is *independent* or *dependent*.



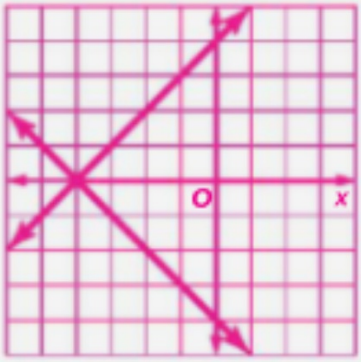
1. $y = -3x + 1$
   $y = 3x + 1$ consistent and independent
2. $y = 3x + 1$ consistent and
   $y = x - 3$ independent
3. $y = x - 3$
   $y = x + 3$ inconsistent
4. $y = x + 3$ consistent and
   $x - y = -3$ dependent
5. $x - y = -3$ consistent and independent
   $y = -3x + 1$
6. $y = -3x + 1$ consistent and independent
   $y = x - 3$

e 2 Graph each system and determine the number of solutions that it has. If it has one solution, name it. 7–8. See margin.

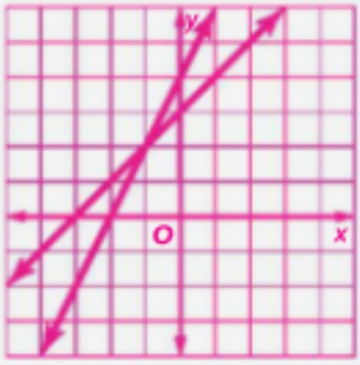
7. $y = x + 4$
   $y = -x - 4$
8. $y = x + 3$
   $y = 2x + 4$

Additional Answers

7. 1 solution, (−4, 0)



8. 1 solution, (−1, 2)



9. CCSS **MODELING** Alberto and Ashanti are reading a graphic novel.

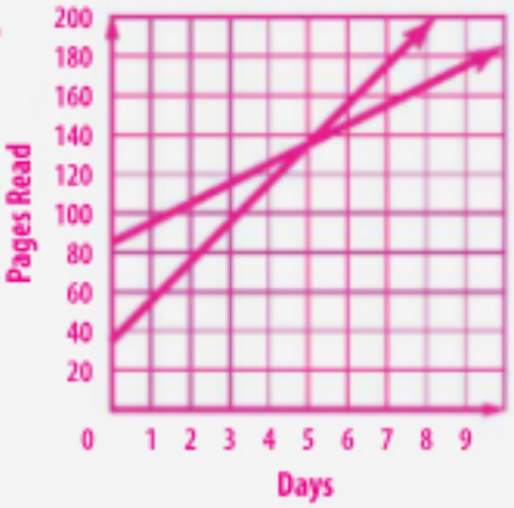
9a. Alberto: $y = 20x + 35$; Ashanti: $y = 10x + 85$

a. Write an equation to represent the pages each boy has read.

b. Graph each equation. **See margin.**

c. How long will it be before Alberto has read more pages than Ashanti? Check and interpret your solution. **(5, 135); Alberto will have read more after 5 days.**

9b.



16–24 See Ch. 6 Answer Appendix for

r of solutions that it has.
rgin.

18. $y = x - 6$
$y = x + 2$

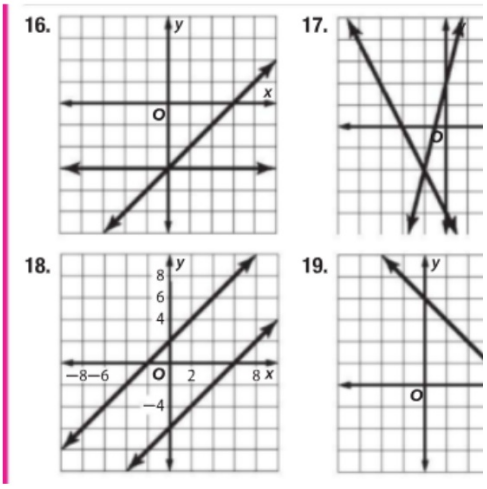
21. $x + 2y = 3$
$x = 5$

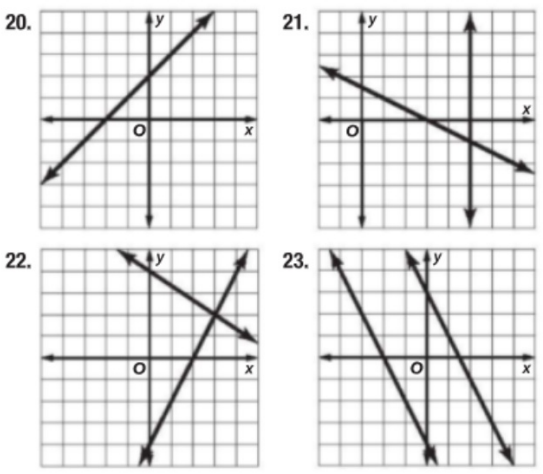
24. $2x + 2y = 6$
$5y + 5x = 15$

10. consistent and independent
11. consistent and independent
12. inconsistent
13. consistent and independent
14. consistent and dependent
15. consistent and independent

16–24. See Ch. 6 Answer Appendix for graphs.

16. 1 solution, (0, −3)
17. 1 solution; (−1, −2)
18. no solution
19. infinitely many
20. infinitely many
21. 1 solution; (5, −1)
22. 1 solution; (3, 2)
23. no solution
24. infinitely many





Linear Systems: SUBSTITUTION METHOD

Guided Notes

s for solving systems using SUBSTITUTION:

- Step 1: Isolate one of the variables.
- Step 2: Substitute the expression from Step 1 into the OTHER equation.
  - The resulting equation should have only one variable, not both x and y.
- Step 3: Solve the new equation.
  - This will give you one of the coordinates.
- Step 4: Substitute the result from Step 3 into either of the original equations.
- Step 5: Solve for the other coordinate.
- Step 6: Write the solution as an ordered pair. (x, y)

$x+3=y$ $\quad$ $x=12+y$

Example:

a) $y = 2x - 1$

b) $3x + 2y = 26$

- Step 1: Isolate one of the variables.
- Step 2: Substitute the expression from Step 1 into the OTHER equation.
  - The resulting equation should have only one variable, not both x and y.
- Step 3: Solve the new equation.
  - This will give you one of the coordinates.
- Step 4: Substitute the result from Step 3 into either of the original equations.
- Step 5: Solve for the other coordinate.
- Step 6: Write the solution as an ordered pair. (x, y)

- Step 1: equation a already has y isolated
- Step 2: $3x+2(2x-1)=26$
- Step 3: $3x+4x-2=26$

$7x-2=26$

$+2 \quad +2$

$\frac{7x}{7} = \frac{28}{7}$

$x=4$

- Step 4: $y=2(4)-1$
- Step 5: $y=7$
- Step 6: $(4, 7)$

xample: a) $-4x + y = 6$
b) $-5x - y = 21$

Step 1: Isolate one of the variables.
Step 2: Substitute the expression from Step 1 into the OTHER equation.
- The resulting equation should have only one variable, not both x and y.

Step 3: Solve the new equation.
- This will give you one of the coordinates.

Step 4: Substitute the result from Step 3 into either of the original equations.
Step 5: Solve for the other coordinate.
Step 6: Write the solution as an ordered pair. (x, y)

◉ Step 1: Isolate Equation **a** because y has a coefficient of positive 1.

$-4x + y = 6$
$+4x \quad +4x$
$y = 4x + 6$

◉ Step 2: $-5x - (4x + 6) = 21$

◉ Step 3: $-5x - 4x + -6 = 21$
$-9x + -6 = 21$
$+6 \quad +6$
$\frac{-9x}{-9} = \frac{27}{-9}$
$x = -3$

◉ Step 4: $y = 4(-3) + 6$

◉ Step 5: $y = -6$

◉ Step 6: $(-3, -6)$

$y = 2x$

$y = 3x + 7$

$2x = 3x + 7$