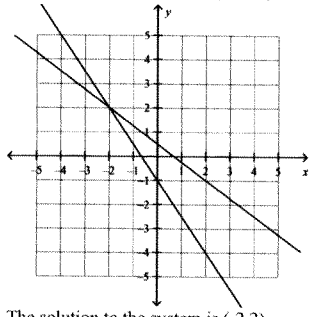
Name: _____ Period: _____ Date: _____ Version: A

Algebra 2: Ch 1-3 Common Assessment

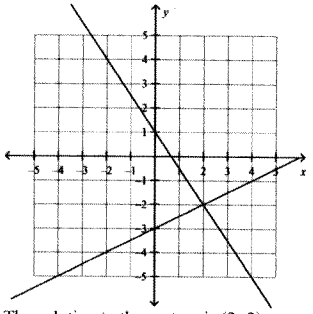
Multiple Choice

Identify the choice that best completes the statement or answers the question.

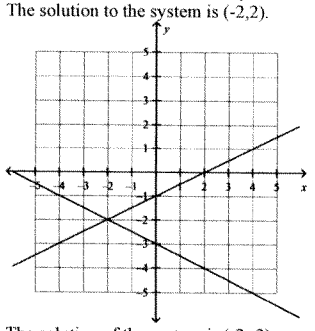
1. Use a graph to solve the system $\begin{cases} 3x + 2y = 2 \\ -x + 2y = -6 \end{cases}$. Check your answer.

a. 

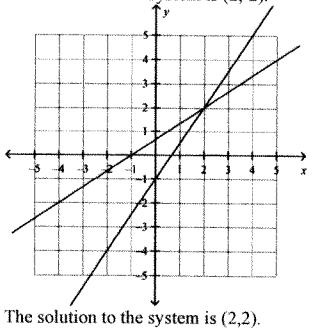
The solution to the system is (-2,2).

c. 

The solution to the system is (2,-2).

b. 

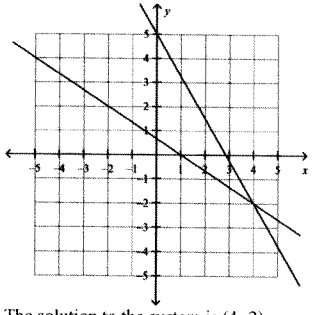
The solution of the system is (-2,-2).

d. 

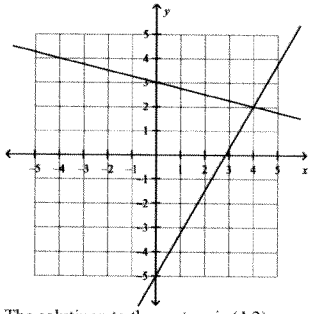
The solution to the system is (2,2).

Name: _____ Version: A

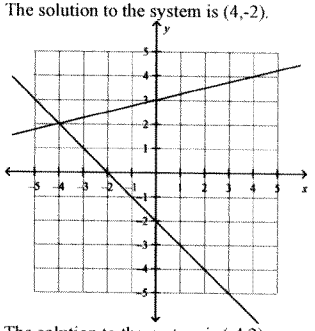
2. Use a graph to solve the system $\begin{cases} 4y - x = 12 \\ 3x + 3y = -6 \end{cases}$. Check your answer.

a. 

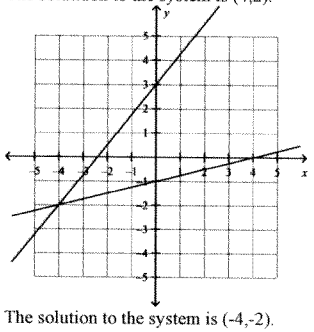
The solution to the system is (4,-2).

c. 

The solutiuon to the system is (4,2).

b. 

The solution to the system is (-4,2).

d. 

The solution to the system is (-4,-2).

3. Classify the system $\begin{cases} -7x - 7y = 1 \\ -3x - 4y = 2 \end{cases}$, and determine the number of solutions.

a. This system is consistent. It has one solution.
b. This system is inconsistent. It has infinitely many solutions.
c. This system is consistent. It has infinitely many solutions.
d. This system is inconsistent. It has no solutions.

4. Classify the system $\begin{cases} -8x + 3y = -5 \\ -32x + 12y = -20 \end{cases}$, and determine the number of solutions.

a. This system is inconsistent. It has no solutions.
b. This system is consistent. It has infinitely many solutions.
c. This system is inconsistent. It has infinitely many solutions.
d. This system is consistent. It has one solution.

5. Rick is piloting a plane at an altitude of 15,500 feet. He begins to descend at a rate of 200 feet per minute. Amy is flying a different plane at an altitude of 8000 feet. At the same time Rick begins to descend, Amy begins to climb at a rate of 50 feet per minute. In how many minutes will the planes be at the same altitude? What will the altitude be?

a. 30 minutes; 11,000 feet
b. 30 minutes; 9,500 feet
c. 50 minutes; 11,000 feet
d. 50 minutes; 9,500 feet

6. David fills a tank that can hold 800 gallons of water. The tank already has 70 gallons of water in it when David starts filling it at the rate of 25 gallons per minute. Vivian fills a tank that can hold 900 gallons of water. That tank already has 250 gallons of water in it when Vivian starts filling it at the rate of 10 gallons per minute. David and Vivian start filling the tanks at the same time. How long after they start filling the tanks do the tanks have the same volume of water? What is that volume of water?

a. 12 minutes; 260 gallons
b. 12 minutes; 370 gallons
c. 15 minutes; 260 gallons
d. 15 minutes; 370 gallons

7. Use substitution to solve the system $\begin{cases} 2x + y = 1 \\ y = x - 5 \end{cases}$.

a. $(\frac{3}{2}, -2)$
b. $(3, -2)$
c. $(2, -3)$
d. $(-3, 2)$

8. Use substitution to solve the system $\begin{cases} 5x + y = -3 \\ y = x + 3 \end{cases}$.

a. $(-\frac{6}{5}, -3)$
b. $(2, -1)$
c. $(-1, 2)$
d. $(-\frac{3}{5}, 0)$

9. Use elimination to solve the system $\begin{cases} -6x - y = 7 \\ 3x + y = -7 \end{cases}$.

a. $(0, -7)$
b. $(-7, 0)$
c. $(-1, -1)$
d. $(-2, 5)$

10. Use elimination to solve the system $\begin{cases} -2x + 4y = -4 \\ -4x - 4y = 28 \end{cases}$.

a. $(-3, -4)$
b. $(-4, -3)$
c. $(8, 3)$
d. $(-16, -9)$

11. Classify the system $\begin{cases} 7x - 2y = 13 \\ 10y - 35x = -65 \end{cases}$, and determine the number of solutions.

a. The system has one solution.
b. The system has two solutions.
c. The system has infinitely many solutions.
d. The system has no solution.

12. Classify the system $\begin{cases} 9x - 6y = 14 \\ 30y - 45x = -70 \end{cases}$, and determine the number of solutions.

a. The system has one solution.
b. The system has no solution.
c. The system has infinitely many solutions.
d. The system has two solutions.

13. The system $\begin{cases} 4x - 7y = 12 \\ 16x - 28y = 44 \end{cases}$ is

a. inconsistent, with no solutions
b. dependent, with infinitely many solutions
c. independent, with one solution
d. dependent, with one solution

14. The system $\begin{cases} -3x + 4y = -5 \\ 6x - 8y = 10 \end{cases}$ is

a. inconsistent, with no solutions
b. dependent, with one solution
c. independent, with one solution
d. dependent, with infinitely many solutions

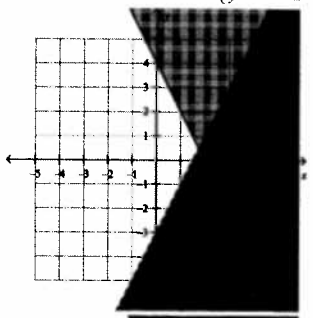
15. Classify the system $\begin{cases} 6x + 2y = -1 \\ -7x + y = 5 \end{cases}$, and determine the number of solutions.

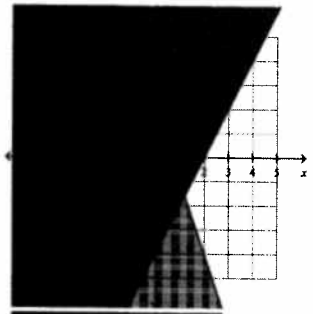
a. This system is consistent. It has infinitely many solutions.
b. This system is consistent. It has one solution.
c. This system is inconsistent. It has no solutions.
d. This system is inconsistent. It has infinitely many solutions.

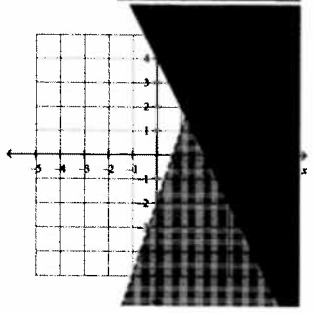
16. Classify the system $\begin{cases} 4x + 5y = 8 \\ -7x - 5y = 1 \end{cases}$, and determine the number of solutions.

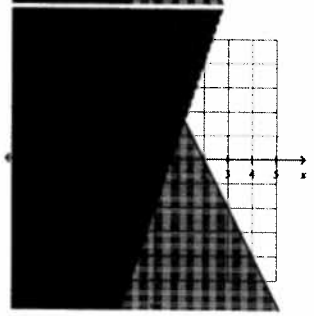
a. This system is inconsistent. It has no solutions.
b. This system is consistent. It has infinitely many solutions.
c. This system is inconsistent. It has infinitely many solutions.
d. This system is consistent. It has one solution.

17. Graph the system of inequalities $\begin{cases} y \geq -2x + 4 \\ y < 3x - 2 \end{cases}$.

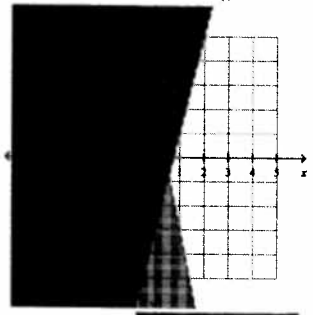
a. 

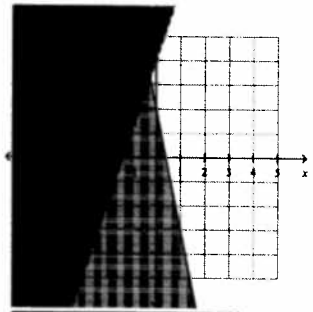
c. 

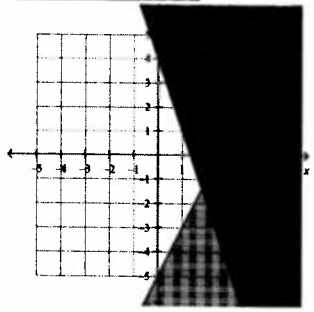
b. 

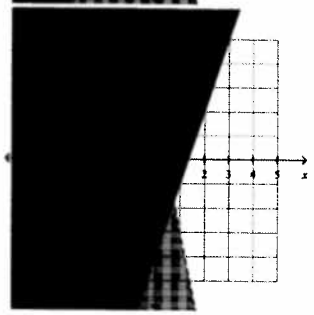
d. 

18. Graph the system of inequalities $\begin{cases} y < -5x + 2 \\ y \geq 3x - 4 \end{cases}$.

a. 

c. 

b. 

d. 

19. Use elimination to solve the system of equations $\begin{cases} x + 4y - z = 20 \\ 3x + 2y + z = 8 \\ 2x - 3y + 2z = -16 \end{cases}$.

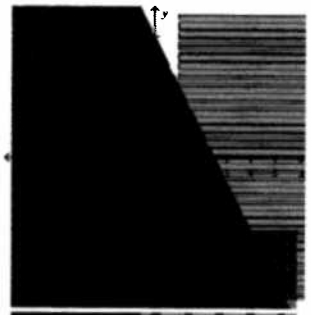
a. (1, 6, -5)
b. (7, 3 , -1)
c. (1, 4, -3)
d. (2, 4, -2)

20. Use elimination to solve the system of equations $\begin{cases} 2x + y - 2z = -1 \\ 3x - 3y - z = 5 \\ x - 2y + 3z = 6 \end{cases}$.

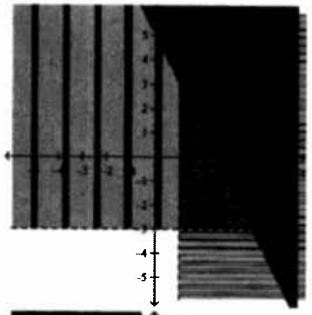
a. (1, 3, 3)
b. (5, -1, 5)
c. (2, 1, 3)
d. (1, -1, 1)

21. Graph the system of inequalities $\begin{cases} x > 1 \\ y \le -2x + 5 \\ y > -3 \end{cases}$

a.

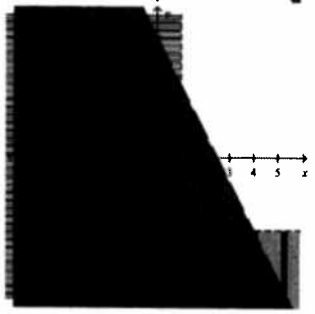


c.



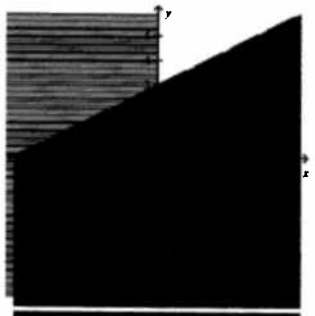
b.

d.

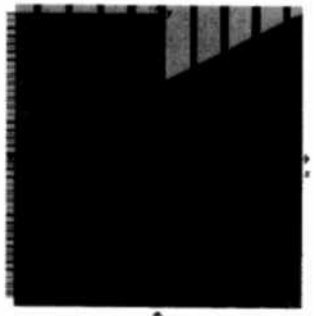


22. Graph the system of inequalities $\begin{cases} y \ge -4 \\ x \le 0 \\ y \le \frac{1}{2}x + 3 \end{cases}$

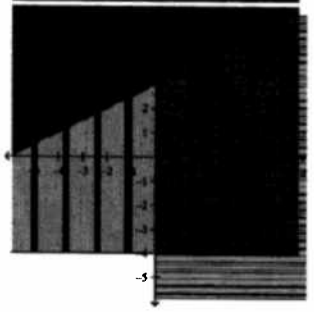
a.



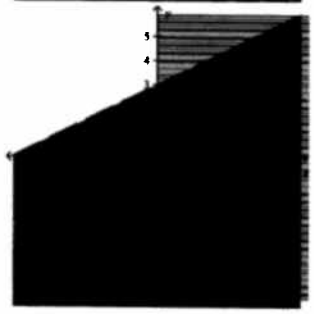
c.



b.



d.



23. Simplify the expression $\sqrt{\frac{32}{98}}$.

a. $\frac{4}{7}\sqrt{2}$

c. $\frac{4}{7}$

b. $\frac{16}{49}$

d. $\frac{\sqrt{16}}{\sqrt{49}}$

24. Simplify the expression $\sqrt{\frac{98}{128}}$.

a. $\frac{\sqrt{49}}{\sqrt{64}}$
c. $\frac{49}{64}$
b. $\frac{7}{8}$
d. $\frac{7}{8}\sqrt{2}$

25. Simplify $\frac{\sqrt{10}}{\sqrt{7}}$ by rationalizing the denominator.

a. $\frac{10}{7}$
c. $\frac{\sqrt{10}}{7}$
b. $\frac{10}{\sqrt{70}}$
d. $\frac{\sqrt{70}}{7}$

26. Simplify $\frac{\sqrt{13}}{\sqrt{3}}$ by rationalizing the denominator.

a. $\frac{\sqrt{13}}{3}$
c. $\frac{13}{\sqrt{39}}$
b. $\frac{\sqrt{39}}{3}$
d. $\frac{13}{3}$

27. Simplify the expression $(1)^{-1}(4)^0$.

a. 1
c. 4
b. 0
d. –1

28. Simplify the expression $(-4)^{-1}(2)^0$.

a. 4
c. 0
b. $-\frac{1}{4}$
d. $-\frac{1}{2}$

29. Simplify the expression $(-7a)^2(a^2b)^4$. Assume all variables are nonzero.

a. $-49a^{16}b^4$
c. $-49a^{10}b^4$
b. $49a^{16}b^4$
d. $49a^{10}b^4$

30. Simplify the expression $(-3a)^4(a^2b)^5$. Assume all variables are nonzero.

a. $-81a^{40}b^5$
c. $81a^{14}b^5$
b. $81a^{40}b^5$
d. $-81a^{14}b^5$

31. For $f(x) = -6x + 8$, evaluate $f(4)$.

a. –22
c. –72
b. –16
d. 32

32. For $f(x) = -9x + 9$, evaluate $f(-3)$.

a. 36
c. –54
b. –18
d. 27

33. Dan paid a total of $25.29 last month for his international calls. He makes international calls only to England. Dan pays $0.05 per minute in addition to $9.54 fixed monthly payment. How many minutes of international calls did Dan make last month?

a. 295 minutes
c. 506 minutes
b. 315 minutes
d. 697 minutes

34. John paid a total of $45.50 last month for his international calls. He makes international calls only to France. John pays $0.07 per minute in addition to $7.56 fixed monthly payment. How many minutes of international calls did John make last month?

a. 758 minutes
c. 542 minutes
b. 650 minutes
d. 266 minutes

35. A sawyer (person who cuts down trees) wants to know the height of a tree. The sawyer measures the shadow of his friend, who is 3 feet tall and standing beside the tree, and measures the shadow of the tree. If his friend's shadow is 15 feet long and the tree's shadow is 45 feet long, how tall is the tree?

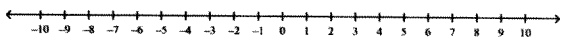
a. 33 feet
c. 225 feet
b. 9 feet
d. 1 foot

36. A sawyer (person who cuts down trees) wants to know the height of a tree. The sawyer measures the shadow of his friend, who is 4 feet tall and standing beside the tree, and measures the shadow of the tree. If his friend's shadow is 12 feet long and the tree's shadow is 48 feet long, how tall is the tree?

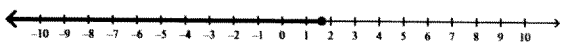
a. 40 feet
c. 9 feet
b. 12 feet
d. 16 feet

37. Solve and graph $4(5 + 2x) \le 2(4x + 3)$.

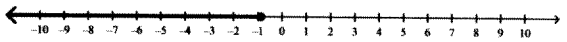
a. The inequality has no solution. The solution set is the empty set.



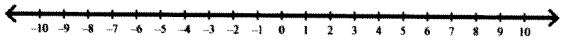
b. $x \le \frac{13}{8}$



c. $x \le -\frac{7}{8}$

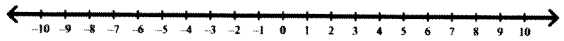


d. The solution set is the set of all real numbers.

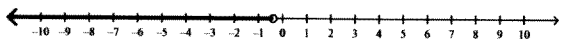


38. Solve and graph $3(6 - 5x) > -3(5x + 2)$.

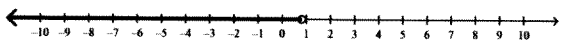
a. The solution set is the set of all real numbers.



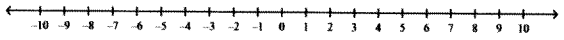
b. $x < -\frac{2}{5}$



c. $x < \frac{4}{5}$

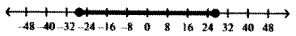


d. The inequality has no solution. The solution set is the empty set.



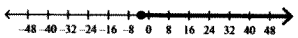
39. Solve $\frac{|x - 12|}{3} \le 5$ and graph the solution set.

a. $-27 \le x \le 27$

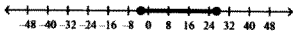


b. $-3 \ge x$ and $27 \le x$
No solution.

c. $-3 \le x$ and $27 \le x$



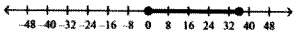
d. $-3 \le x \le 27$



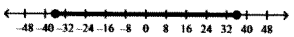
40. Solve $\frac{|x - 18|}{3} \le 6$ and graph the solution set.

a. $0 \ge x$ and $36 \le x$
No solution.

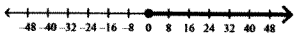
b. $0 \le x \le 36$



c. $-36 \le x \le 36$



d. $0 \le x$ and $36 \le x$



41. In slope-intercept form, write the equation of the line that is parallel to $y = -3x + 5$ and passes through $(3, -6)$.

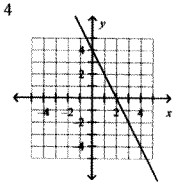
a. $y = -\frac{1}{3}x - 5$
b. $y = -3x + 3$
c. $y = \frac{1}{3}x - 7$
d. $y = -3x + 0$

42. In slope-intercept form, write the equation of the line that is parallel to $y = 5x + 16$ and passes through $(-2, 4)$.

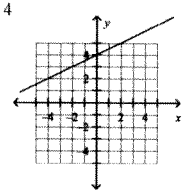
a. $y = \frac{1}{5}x + 4\frac{2}{5}$
b. $y = 5x + 14$
c. $y = -\frac{1}{5}x + 3\frac{3}{5}$
d. $y = 5x + 17$

43. Write the function $-3x - 6y = -24$ in slope-intercept form. Then graph the function.

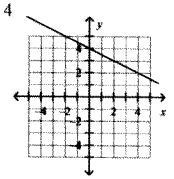
a. $y = -\frac{1}{2}x + 4$



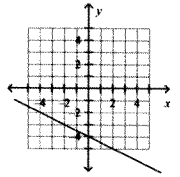
c. $y = -\frac{1}{2}x + 4$



b. $y = -\frac{1}{2}x + 4$

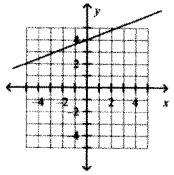


d. $y = -\frac{1}{2}x + 4$

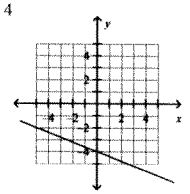


44. Write the function $2x - 5y = 20$ in slope-intercept form. Then graph the function.

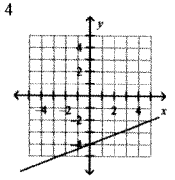
a. $y = \frac{2}{5}x - 4$



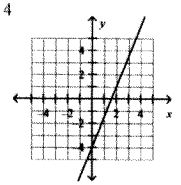
c. $y = \frac{2}{5}x - 4$



b. $y = \frac{2}{5}x - 4$

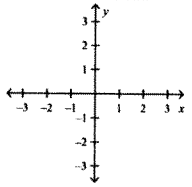


d. $y = \frac{2}{5}x - 4$

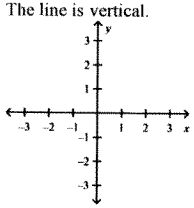


45. Determine if $x = 5$ is vertical or horizontal. Then graph.

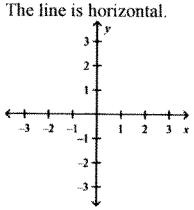
a. The line is vertical.



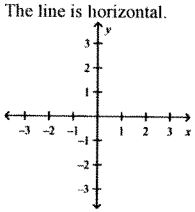
c. The line is vertical.



b. The line is horizontal.

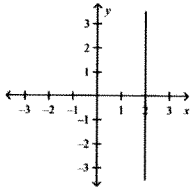


d. The line is horizontal.

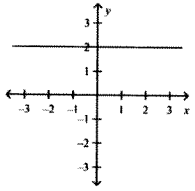


46. Determine if $y = 2$ is vertical or horizontal. Then graph.

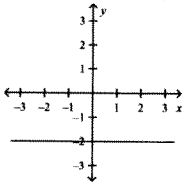
a. The line is vertical.



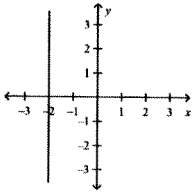
c. The line is horizontal.



b. The line is horizontal.



d. The line is vertical.



Numeric Response

47. Manuel works 35 hours per week. He must work for his parents where he earns \$16 per hour. He also works for a computer company where he earns \$40 per hour. What is the minimum number of hours Manuel can work for the computer company to earn a total of \$1160 per week from both jobs?

Set-up/formula:

Solution:

Answer:

48. Maria works 25 hours per week. She must work for her parents where she earns \$12 per hour. she also works for 3M company where she earns \$18 per hour. What is the minimum number of hours Maria can work for 3M company to earn a total of \$642 per week from both jobs?

Set-up/formula:

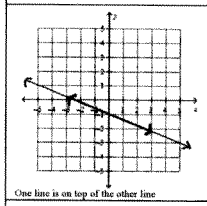
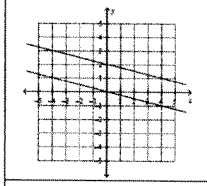
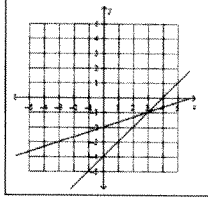
Solution:

Answer:

Name: _____ Version: A

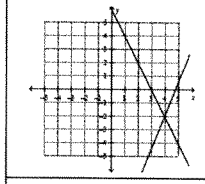
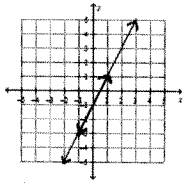
Short Answer

49. Place an "X" on the correct box for each picture.

	no solution	one solution	Infinitely many solutions
 One line is on top of the other line			
			
			

Name: _____ Version: A

50. Place an "X" on the correct box for each picture.

	no solution	one solution	Infinitely many solutions
			
 One line is on top of the other line