

# Unit 4 Check Sheet

Name \_\_\_\_\_ Per \_\_\_\_\_

## Systems of Equations & Inequalities

(Print)

- Check sheet must be turned in to receive Homework & Quiz points.
- All quiz corrections must be done for test score to replace quiz scores.
- No check sheet = No Points.
- Write quiz scores as fractions
- Lost Quizzes count as a 0.
- Quiz ratio is total points scored on quizzes and pre-test out of total possible
- Order (from top to bottom)
  - Check sheet,
  - **Quiz 1, 2, Pre-Test**
  - **Quiz corrections**

Section	HMK
<b>4.1 Solving Systems by Graphing</b> Worksheet 4.1 #1-17 all or Math XL	
<b>4.2 Solving Systems by Substitution</b> Worksheet 4.2 #1-23 all or Math XL	
<b>4.3 Solving Systems by Elimination</b> Worksheet 4.3 #1-22 all or Math XL	
<b>4.4 Applications of Linear Systems</b> Worksheet 4.4 #1-12 all or Math XL <b>Quiz 1</b>	
<b>4.5 Linear Inequalities</b> Worksheet 4.5 #1-24 all or Math XL	
<b>4.6 Systems of Linear Inequalities</b> Worksheet #1-14 all or Math XL	
<b>4.1B Other Systems Graphing Homework</b> Worksheet 4.1B #1-5 all <b>Quiz 2</b>	
Stacking Cups Part 2	
<b>Review</b> Test Review Worksheet #1-24 all Unit 4 Pre-Assessment	
Unit Test	

Quiz 1: _____ Score/Possible
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Quiz 2: _____ Score/Possible
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Pre-Test: _____ Score/Possible
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Total Quiz Ratio: _____ Total Score/Total Possible
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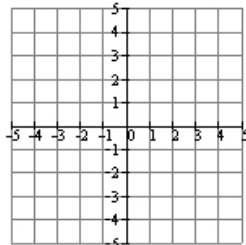
## 4.1 Practice

Form K

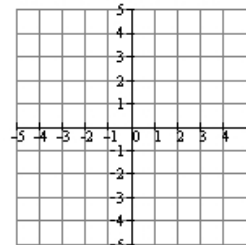
### Solving Systems by Graphing

Solve each system by graphing. Check your solution.

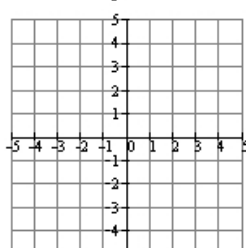
$$1. \begin{cases} y = x - 4 \\ y = 3x - 4 \end{cases}$$



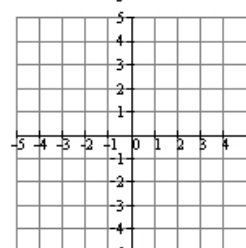
$$2. \begin{cases} y = -2x + 1 \\ y = x - 2 \end{cases}$$



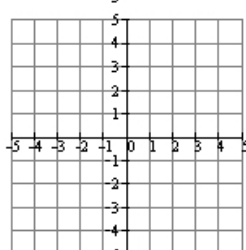
$$3. \begin{cases} y = -3x + 3 \\ y = 2x - 2 \end{cases}$$



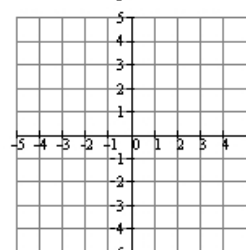
$$4. \begin{cases} y = x + 3 \\ y = -4x - 2 \end{cases}$$



$$5. \begin{cases} y = -3x + 2 \\ y = 2x - 3 \end{cases}$$



$$6. \begin{cases} y = \frac{1}{3}x \\ y = -\frac{4}{3}x + 5 \end{cases}$$



**7. Reasoning** If the graphs of two linear equations in a system do not intersect each other, what does that tell you about the solution of the system? Explain.

**8. Writing** Describe how to determine the solution of a system of two linear equations by graphing.

**9. Reasoning** Can you determine whether a system of two linear equations has one solution, an infinite number of solutions, or no solution by simply examining the equations without graphing the lines? Explain.

**10. Reasoning** Without graphing, decide whether the following system of linear equations has *one solution*, *infinitely many solutions*, or *no solution*. Explain.

$$\begin{cases} 8x = 2y - 16 \\ y = 4x \end{cases}$$

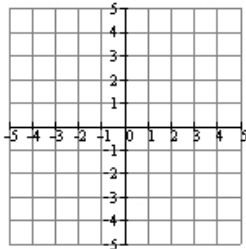
**Practice** (continued)

Form K

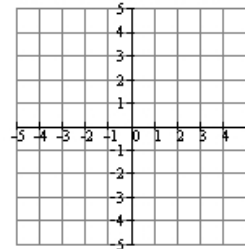
Solving Systems by Graphing

Solve each system by graphing. Tell whether the system has *one solution*, *infinitely many solutions*, or *no solution*.

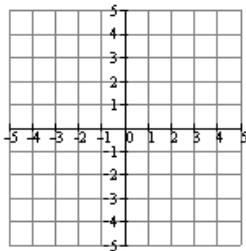
11. 
$$\begin{cases} y = -5x + 1 \\ y = -3x - 1 \end{cases}$$



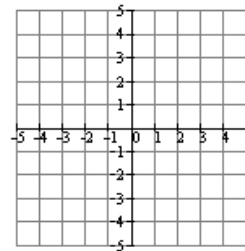
12. 
$$\begin{cases} y = 2x + 4 \\ y = \frac{1}{3}x - 1 \end{cases}$$



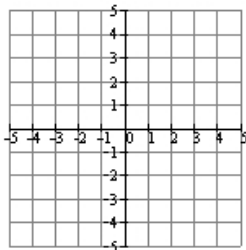
13. 
$$\begin{cases} 5x + y = -5 \\ 10x + 2y - 10 = 0 \end{cases}$$



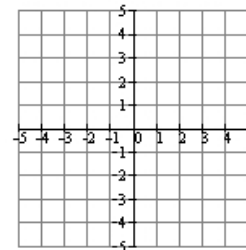
14. 
$$\begin{cases} y = 2x - 4 \\ y = -3x + 1 \end{cases}$$



15. 
$$\begin{cases} 3x - y = -2 \\ y = -\frac{1}{2}x + 2 \end{cases}$$



16. 
$$\begin{cases} y + 2x = 5 \\ 2y - 1 = -4x + 9 \end{cases}$$



17. **Writing** If two equations represent the same line, what can you conclude about the solution of the equations? Why? Explain.

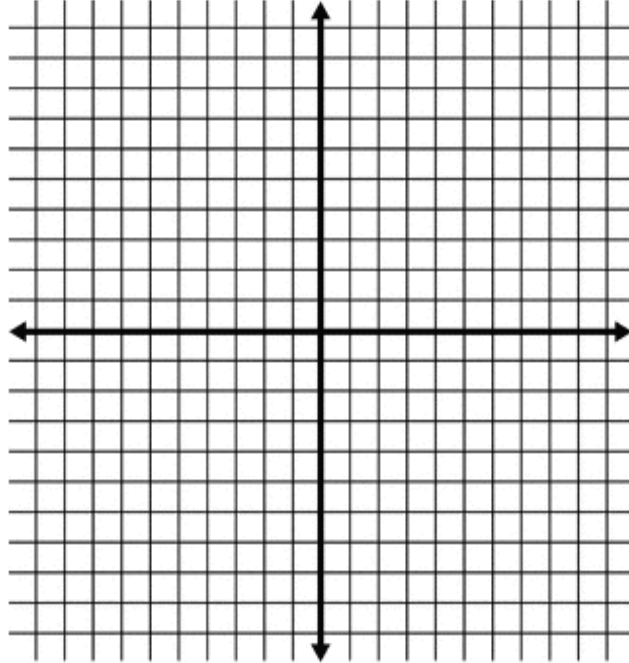
1. a. Solve  $-3x - 10 = 2x + 10$

b. set  $f(x) = y = -3x - 10$  and  $g(x) = y = 2x + 10$

for  $f(x)$   $m =$  \_\_\_\_\_  $b =$  \_\_\_\_\_ for  $g(x)$   $m =$  \_\_\_\_\_  $b =$  \_\_\_\_\_

graph  $f(x)$  and  $g(x)$  on the graph below.

What are the coordinates of the intersection of  $f(x)$  and  $g(x)$ ? (\_\_\_\_\_, \_\_\_\_\_)



$x =$  \_\_\_\_\_

c. Check your answer by substituting in your value of  $x$  in both sides of the original equation.

CHECK:

d. What do you notice about the coordinates of the intersection of  $f(x)$  and  $g(x)$  and the solution for  $x$  in 1a.

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\_\_\_\_\_

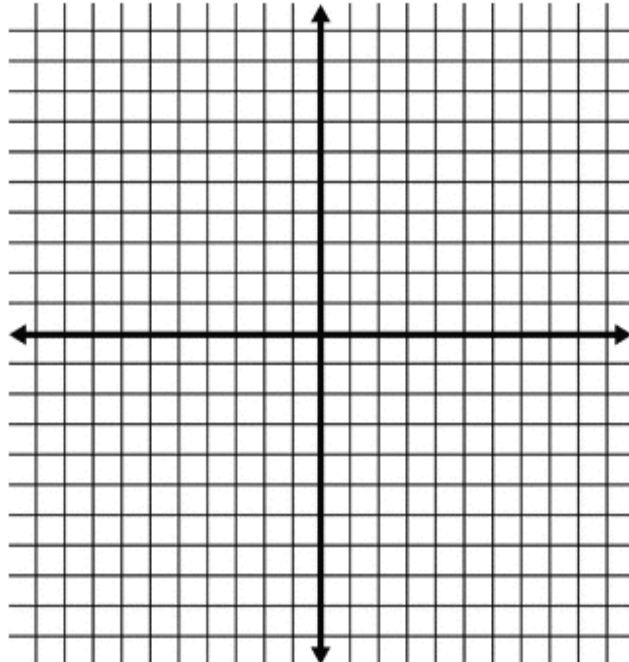
2. a. Solve  $x - 5 = \frac{1}{3}x - 1$

b. set  $f(x) = y = x - 5$  and  $g(x) = y = \frac{1}{3}x - 1$

for  $f(x)$   $m =$  \_\_\_\_\_  $b =$  \_\_\_\_\_ for  $g(x)$   $m =$  \_\_\_\_\_  $b =$  \_\_\_\_\_

graph  $f(x)$  and  $g(x)$  on the graph below.

What are the coordinates of the intersection of  $f(x)$  and  $g(x)$ ? (\_\_\_\_\_, \_\_\_\_\_)



$x =$  \_\_\_\_\_

c. Check your answer by substituting in your value of  $x$  in both sides of the original equation.

CHECK:

d. What do you notice about the coordinates of the intersection of  $f(x)$  and  $g(x)$  and the solution for  $x$  in 2a.

\_\_\_\_\_

\_\_\_\_\_

3.  $f(x)$  and  $g(x)$  are shown in the graph at the right.

a. Name all labeled points that are solutions of  $f(x)$

\_\_\_\_\_

b. Name all labeled points that are solutions of  $g(x)$

\_\_\_\_\_

c. For  $f(x)$  name the point of the y intercept where  $x = 0$  \_\_\_\_\_

d. Name the point that is the solution to the equation when  $f(x) = 0$  \_\_\_\_\_

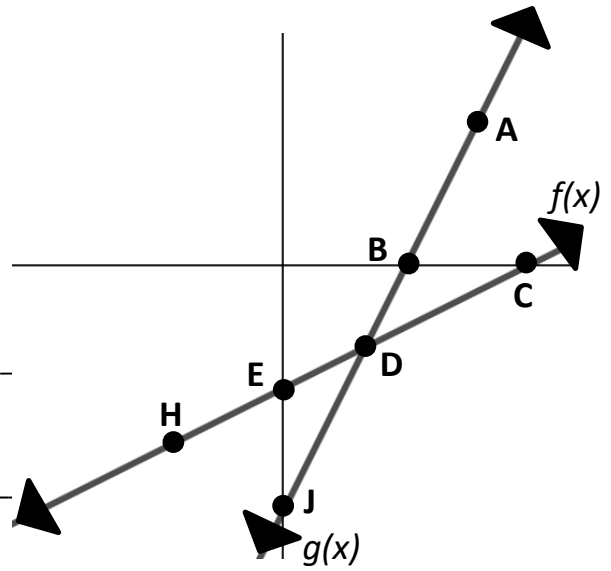
e. For  $g(x)$  name the point of the y intercepts where  $x = 0$  \_\_\_\_\_

f. Name the point that is the solution to the equation when  $g(x) = 0$  \_\_\_\_\_

g. Name the labeled points on  $f(x)$  where  $f(x) > g(x)$  \_\_\_\_\_

h. Name the labeled points on  $g(x)$  where  $g(x) > f(x)$  \_\_\_\_\_

i. Name the point where  $f(x) = g(x)$  \_\_\_\_\_



4.  $f(x)$  and  $g(x)$  are shown in the graph at the right.

a. Name all labeled points that are solutions of  $f(x)$

\_\_\_\_\_

b. Name all labeled points that are solutions of  $g(x)$

\_\_\_\_\_

c. For  $f(x)$  name the point of the y intercept where  $x = 0$  \_\_\_\_\_

d. Name the x value that is the solution to the equation when  $f(x) = 0$  \_\_\_\_\_

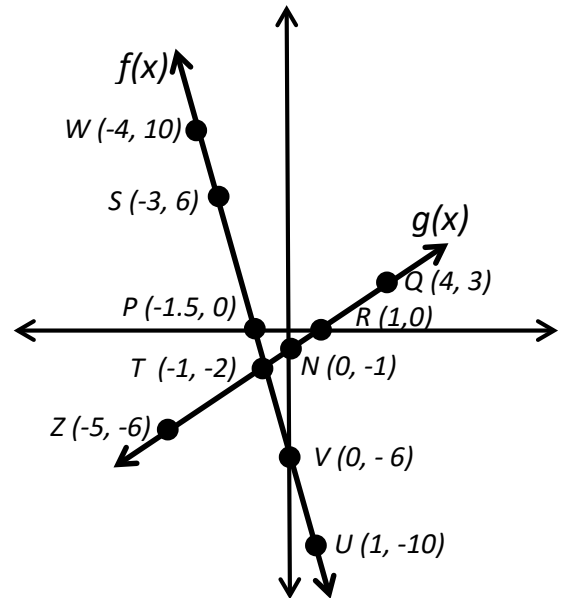
e. For  $g(x)$  name the point of the y intercept where  $x = 0$  \_\_\_\_\_

f. Name the x value that is the solution to the equation when  $g(x) = 0$  \_\_\_\_\_

g. Name **all** the values of x where  $g(x) > f(x)$  \_\_\_\_\_

h. Name **all** the values of x where  $f(x) > g(x)$  \_\_\_\_\_

i. Name the value of x that is the solution to  $f(x) = g(x)$  \_\_\_\_\_

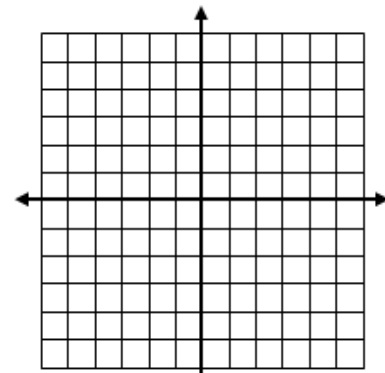


5. Graph  $y = 4x - 3$  and give the coordinates of three points on the graph that have x values between 0 and 1.

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**4.2 Practice**

Form K

## Solving Systems Using Substitution

**Solve each system using substitution. Check your solution.**

1. 
$$\begin{cases} x = y \\ x - 3y = 4 \end{cases}$$

2. 
$$\begin{cases} y = -2x + 5 \\ 3y = -x - 5 \end{cases}$$

3. 
$$\begin{cases} 4y = 5x - 1 \\ 6x - 4y = 2 \end{cases}$$

4. 
$$\begin{cases} 4x - y = -11 \\ 2y + x = 4 \end{cases}$$

5. 
$$\begin{cases} 2x + 3y = 13 \\ 2x = 4y - 8 \end{cases}$$

6. 
$$\begin{cases} x = 16 - 4y \\ x + 2y = 6 \end{cases}$$

**7. Writing** Explain how a solution found using substitution can be checked.

**8. Writing** With the substitution method, explain how you find the value of the second variable once you have determined the value of one of the variables.

**9. Reasoning** For the system of equations  $\begin{cases} x - 2y = -5 \\ 2x - 3y = -3 \end{cases}$ , which variable will you solve for first? Once you have solved for the first variable, which equation will you use to substitute into? Explain.

**10.** A first number is three times bigger than a second number. If the sum of the two numbers is -12, what are the two numbers?

**11.** David is 12 years older than Peter. If you double Peter's age, it is equal to eight less than David's age. How old are David and Peter?

**Practice** (continued)

Form K

## Solving Systems Using Substitution

12. If the width of the rectangle is three times the length and the perimeter of the rectangle is 72 ft, what are the length and width of the rectangle?
13. There are 785 male and female students in the senior class. If there are 77 more females in the class than males, how many male and female seniors are there in the class?

**Solve each system by substitution. Tell whether the system has *one solution*, *infinitely many solutions*, or *no solution*.**

14. 
$$\begin{cases} 6x - 3y = 15 \\ y = 2x - 5 \end{cases}$$

15. 
$$\begin{cases} 4x + y = -2 \\ -3x = y \end{cases}$$

16. 
$$\begin{cases} 5x + 3y = 9 \\ 3y = 2x + 9 \end{cases}$$

17. 
$$\begin{cases} x - 3y = 6 \\ 3y = x + 6 \end{cases}$$

18. 
$$\begin{cases} 4x = y \\ 2x - y = -12 \end{cases}$$

19. 
$$\begin{cases} 4x + 2y = 7 \\ y = -2x + 3.5 \end{cases}$$

20. 
$$\begin{cases} y = 5x - 1 \\ 5x + y = 1 \end{cases}$$

21. 
$$\begin{cases} y = 3x - 6 \\ -3x + y = 6 \end{cases}$$

## 4.3 Practice

Form K

### Solving Systems Using Elimination

Solve each system using elimination.

1. 
$$\begin{cases} x + y = 7 \\ x - y = 3 \end{cases}$$

2. 
$$\begin{cases} 2x + y = -5 \\ 3x - y = -10 \end{cases}$$

3. 
$$\begin{cases} x + 3y = 4 \\ -x + 2y = -4 \end{cases}$$

4. 
$$\begin{cases} 2x + 3y = -12 \\ -2x + y = 4 \end{cases}$$

5. 
$$\begin{cases} x - 3y = 27 \\ 3x - 3y = 39 \end{cases}$$

6. 
$$\begin{cases} 4x + 2y = 2 \\ 3x + y = 4 \end{cases}$$

7. **Writing** Solve the system 
$$\begin{cases} 3x + y = 5 \\ -2x - y = -5 \end{cases}$$
 using elimination. Explain how you can check the solution both algebraically and graphically.

8. **Open-Ended** Write a system of equations that can be solved using elimination without multiplication.

9. There are 72 members of the show choir. There are 6 more boys than girls in the choir.

a. Write the model of a system for the above situation.

b. Do you need to multiply any of the equations by a constant before solving by elimination? Explain.

10. **Writing** Explain the process you use to determine which variable is the best variable to eliminate in a system of two equations in two variables.



**Practice** (continued)

Form K

## Solving Systems Using Elimination

11. The sum of two numbers is 19, and their difference is 55. What are the two numbers?
12. For the fundraiser, Will sold 225 candy bars. He earns \$1 for each almond candy bar he sells and \$0.75 for each caramel candy bar he sells. If he earned a total of \$187.50, how many of each type of candy bar did he sell for the fundraiser?
13. There were 155 people at the basketball game. Tickets for the game are \$2.50 for students and \$4 for adults. If the total money received for admission was \$492.50, how many students and adults attended the game?
14. Jocelyn has \$1.95 in her pocket made up of 27 nickels and dimes. How many of each type of coin does she have?

**Solve each system using elimination. Tell whether the system has *one solution*, *infinitely many solutions*, or *no solution*.**

15. 
$$\begin{cases} x - 2y = -1 \\ 2x + y = 4 \end{cases}$$

16. 
$$\begin{cases} x + 3y = 4 \\ 2x - 6y = 8 \end{cases}$$

17. 
$$\begin{cases} y = -\frac{1}{2}x - 3 \\ x + 2y = -6 \end{cases}$$

18. 
$$\begin{cases} 6x - 3y = -18 \\ -2x + 4y = 18 \end{cases}$$

19. 
$$\begin{cases} 2x - 8y = -16 \\ y = \frac{1}{4}x - 2 \end{cases}$$

20. 
$$\begin{cases} 3x - y = -1 \\ y = 3x - 5 \end{cases}$$

21. 
$$\begin{cases} 2x - y = 3 \\ 5x + 2y = 30 \end{cases}$$

22. 
$$\begin{cases} 12x - 8y = 18 \\ 6x = 4y + 9 \end{cases}$$

## 4.4 Practice

Form K

### Applications of Linear Systems

#### Solve each word problem.

1. The concession stand is selling hot dogs and hamburgers during a game. At halftime, they sold a total of 78 hot dogs and hamburgers and brought in \$105.50. How many of each item did they sell if hamburgers sold for \$1.50 and hot dogs sold for \$1.25?
2. The sum of two numbers is 67. The smaller number is 3 less than the larger number. What are the two numbers?
3. There are two different jobs Jordan is considering. The first job will pay her \$4200 per month plus an annual bonus of \$4500. The second job pays \$3100 per month plus \$600 per month toward her rent and an annual bonus of \$500. Which job should she take?
4. The perimeter of a rectangle is 66 cm and its width is half its length. What are the length and the width of the rectangle?
5. A chemist is mixing one solution that is 32% sodium and another solution that is 12% sodium. How many liters of each type should the chemist use to produce 50 liters of the solution that is 20% sodium?

**Practice** (continued)

Form K

## Applications of Linear Systems

6. A community sponsored a charity square dance where admission was \$3 for adults and \$1.50 for children. If 168 people attended the dance and the money raised was \$432, how many adults and how many children attended the dance?
- What are the two systems of equations that you could write to solve this problem?
  - What method would you use to solve the system? Why?
  - How many adults and how many children attended the dance?

**Solve each system. Explain why you chose the method you used.**

7.  $3y = 4x + 1$   
 $8x - 2y = 10$

8.  $-2y = -4x - 2$   
 $3x + 2y = 9$

9.  $3x - 3y = -3$   
 $-2x - 3y = 17$

10.  $x - 2y = 9$   
 $x + 3y = -1$

11. **Open-Ended** Write a system of equations for which you would use substitution to solve.

12. A student invested \$5000 in two different savings accounts. The first account pays an annual interest rate of 3%. The second account pays an annual interest rate of 4%. At the end of one year, she had earned \$185 in interest. How much money did she invest in each account?

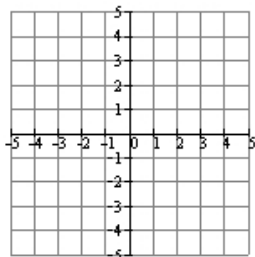
# 4.5 Practice

Form K

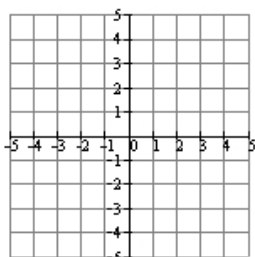
## Linear Inequalities

Graph each linear inequality.

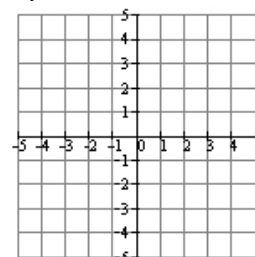
1.  $x \geq -4$



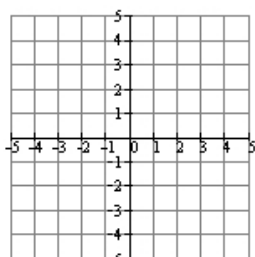
2.  $y < -3$



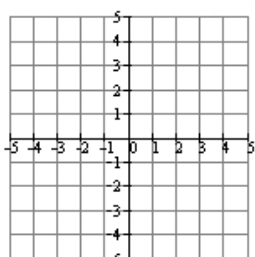
3.  $-x + y \geq 2$



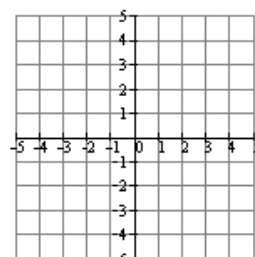
4.  $-4x + 5y < -3$



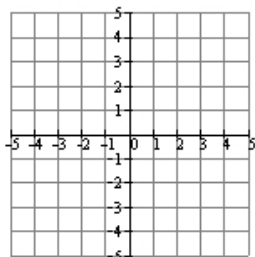
5.  $x - y \geq -4$



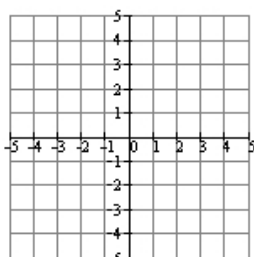
6.  $2x + 3y > 9$



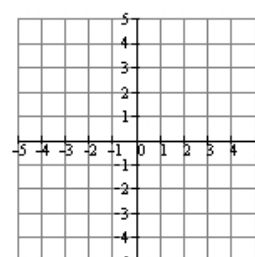
7.  $y \geq x$



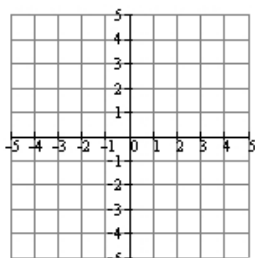
8.  $3x > y$



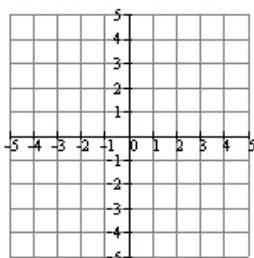
9.  $x - 2y > -4$



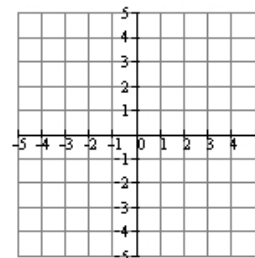
10.  $5x + 5y > -10$



11.  $4x - y < 3$



12.  $x \leq -3y$



**Practice** (continued)

Form K

Linear Inequalities

**13. Writing** How can you check to see that you have shaded the correct half of the coordinate plane after graphing a linear inequality? Explain.

**Determine whether the ordered pair is a solution of the linear inequality.**

**14.**  $4x + 3y > -2$ ;  $(-3, -1)$

**15.**  $x + y > -3$ ;  $(-2, 2)$

**16.**  $y - 4x \leq 0$ ;  $(1, 4)$

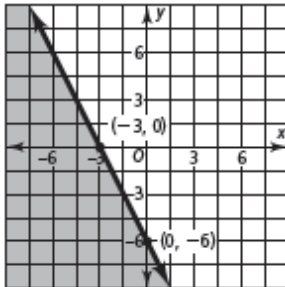
**17.**  $2x - 4y > 5$ ;  $(5, -1)$

**18.**  $y \leq 2x - 3$ ;  $(-1, -4)$

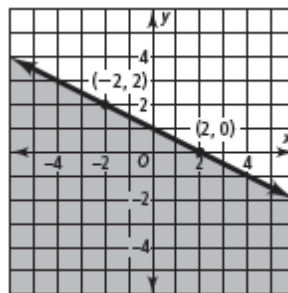
**19.**  $y < -3x + 1$ ;  $(3, 5)$

**Write a linear inequality that represents each graph.**

**20.**



**21.**



**22.** A friend has \$75 to buy some new shirts and pants. Each shirt  $s$  costs \$11. Each pair of pants  $p$  costs \$19.

**a.** Write and graph an inequality that shows how many shirts and pants your friend can buy.

**b.** Which side of the boundary line should you shade?

**c.** What inequality symbol did you use? Explain.

**23.** Admission to the movie theater costs \$7.50 for adults and \$3.50 for students. The theater must bring in at least \$200 per movie. Write an inequality for the number of tickets the theater needs to sell to make a profit. If the theater sells 15 adult tickets, how many student tickets do they need to sell to make a profit?

**24.** Each child at the birthday party was given \$5 to spend at the arcade on games and rides. Each game costs \$0.25 and each ride costs \$0.50. Write an inequality for the number of games and rides a child can enjoy for \$5. What is the maximum number of games or rides each child can enjoy?

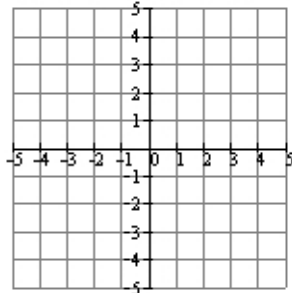
## 4.6 Practice

Form K

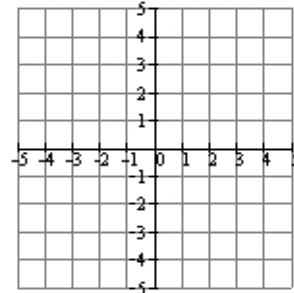
### Systems of Linear Inequalities

Solve each system of inequalities by graphing.

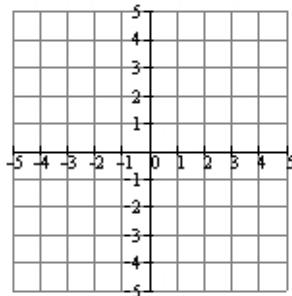
1.  $y \leq 2x - 1$   
 $y \geq -x + 3$



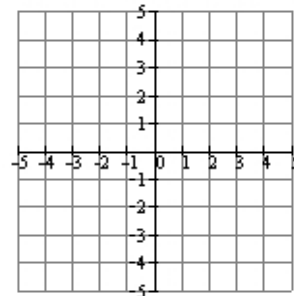
2.  $3x - 2y \leq 4$   
 $x + 3y \leq 6$



3.  $x + y \geq -3$   
 $2x + 2y \leq -2$



4.  $-y \leq 3x - 4$   
 $-3x + 3y \leq -9$



5. **Writing** Describe when you use a solid line or a broken line when graphing inequalities. What does each type of line mean?

6. **Open-Ended** Create a system of inequalities that has no solution. Demonstrate by drawing a graph.

7. The owner of an ice cream stand needs to order waffle cones and sugar cones. There is room to store 10 boxes of cones. Each box of sugar cones costs \$100, and each box of waffle cones costs \$150. He has \$1250 budgeted for the purchase of cones.

- What variables will you use?
- How will you decide which inequality signs to use and where to shade?
- What system of inequalities represents the information?

**Practice** (continued)

Form K

**Systems of Linear Inequalities**

**Determine whether the ordered pair is a solution of the given system.**

8.  $(2, -1); -3y \leq 3x$   
 $3y \leq 2x + 1$

9.  $(-3, -3); 5x + 4y > -4$   
 $2x + 3y > 2$

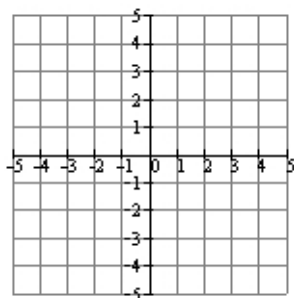
10. A friend makes \$15 per hour at his first job and \$11 per hour at his second job. His goal is to make at least \$600 per week. He does not want to work any more than 55 hours in a week. Write a system of inequalities for the given situation.

11. For the school fundraiser, a class is selling stationery and greeting cards. The goal for the class is to sell at least 100 items. The school receives \$2.50 for each stationery set that is sold and \$3 for each set of greeting cards that is sold. The goal is to raise at least \$300. Write a system of inequalities for the given situation.

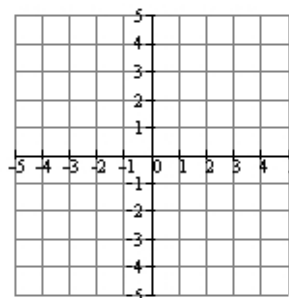
12. A woman is purchasing fruit for some pies she is making for a party. She wants to purchase at least 10 pounds of strawberries and blueberries. Strawberries are sold for \$2 per pound, and blueberries are sold for \$3 per pound. She does not want to spend more than \$25 total for the fruit. Write a system of inequalities for the given situation.

**Solve each system of inequalities by graphing.**

13.  $3x + 4y < -8$   
 $x - 3y \geq -3$



14.  $x - 5y + 15 \geq 0$   
 $5x + 4y + 1 \leq -7$



Clear the fractions or decimals in each system. Then solve the system.

$$1. \begin{cases} \frac{2}{3}x + \frac{y}{2} = 14 \\ 4x - 3y = -12 \end{cases}$$

$$2. \begin{cases} \frac{1}{10}x + \frac{3}{8}y = 1 \\ \frac{2}{5}x + \frac{y}{4} = -1 \end{cases}$$

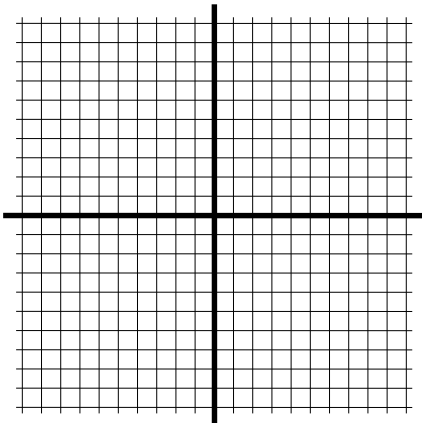
$$3. \begin{cases} 0.4x + 0.3y = 1 \\ 0.2x - 0.1y = 0 \end{cases}$$

$$4. \begin{cases} 0.5x - 0.25y = -0.5 \\ 0.2x + 0.75y = 6.6 \end{cases}$$

Solve the system by graphing.

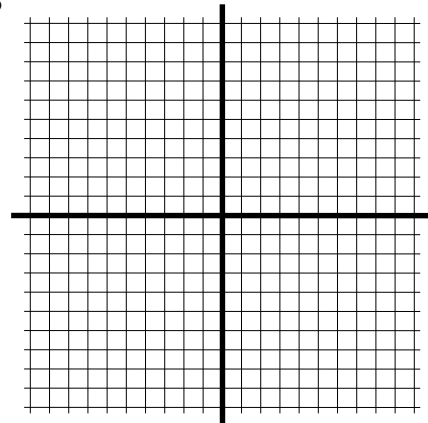
$$5. y = x + 2$$

$$y = -x + 4$$



$$6. y = -3x$$

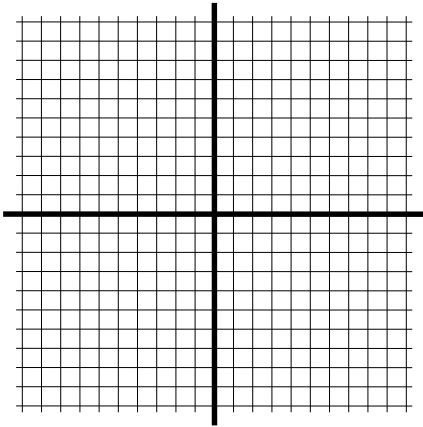
$$y = -\frac{1}{2}x + 5$$





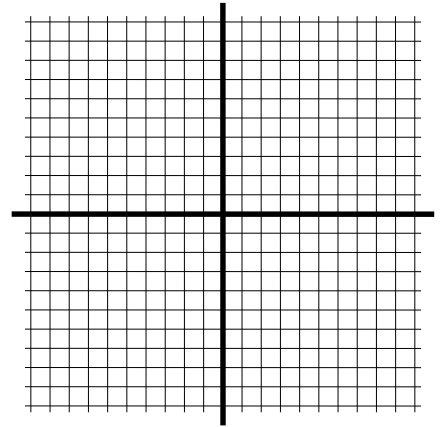
7.  $y = -\frac{2}{3}x - 7$

$y = \frac{1}{3}x - 1$



8.  $y = \frac{3}{4}x - 5$

$y = 2x$



**Solve each pair of equations algebraically.**

9.  $x - y = 3$   
 $x + y = 5$

10.  $x + 2y = 11$   
 $12x - 6y = 12$

11.  $y = 5x - 7$   
 $10x - 2y = 8$

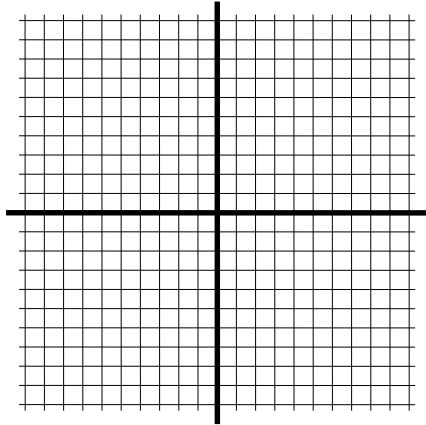
12.  $2x + y = 3$   
 $4x + 3y = 1$

13.  $2x - 3y = 6$   
 $y = 6x + 14$

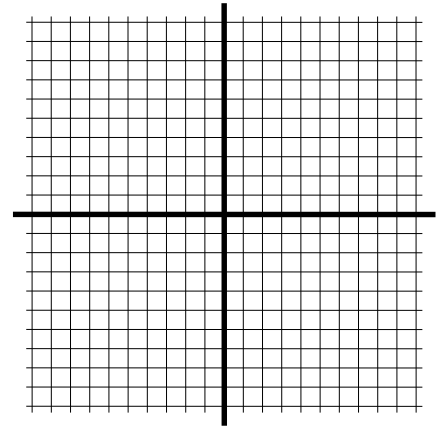
14.  $3x + 5y = 17$   
 $2x + 3y = 11$

**Solve the following by graphing.**

1.  $y = -x$   
 $y = x - 6$



2.  $y = -x + 2$   
 $y = 5x + 2$



**Solve each system algebraically.**

3.  $x + y = 10$   
 $x - y = 8$

4.  $x + 3y = 7$   
 $3x + 3y = 9$

5.  $3x + 2y = -1$   
 $4x - 5y = -32$

6.  $3x = 2y - 3$   
 $6y = 9x + 9$

**Clear the fractions or decimals in each system. Then solve the system.**

$$7. \quad \begin{cases} \frac{x}{2} + \frac{y}{3} = 7 \\ \frac{x}{4} - \frac{y}{9} = 1 \end{cases}$$

$$8. \quad \begin{cases} \frac{x}{2} + \frac{y}{3} = 3 \\ 3x + 5y = 36 \end{cases}$$

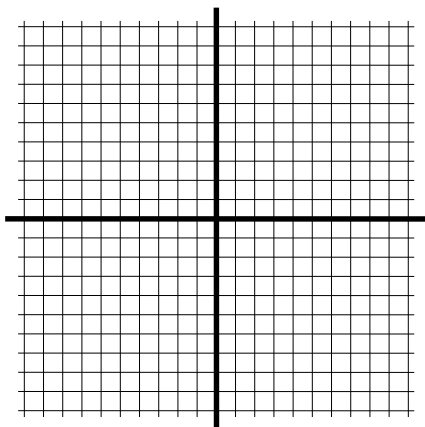
$$9. \quad \begin{cases} 1.5x + 1.2y = 0.6 \\ 0.8x - 0.2y = 2 \end{cases}$$

$$10. \quad \begin{cases} 0.4x + 0.9y = -1.9 \\ 0.8x + 0.7y = -0.5 \end{cases}$$

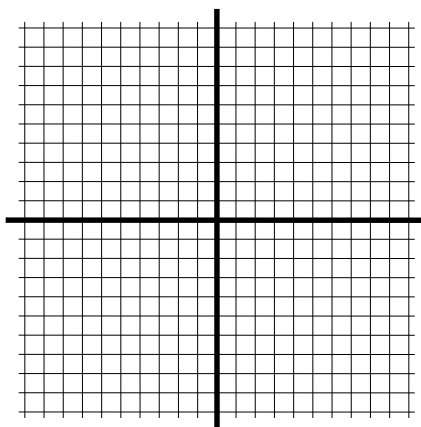
11. A student bought 1 box of crayons and 5 reams of paper for \$54. She bought 5 boxes of crayons and 3 reams of paper for \$50. What is the cost of each box of crayons and each ream of paper? Write two equations and solve algebraically.
12. Suppose you bought 4 mangoes and 3 apples for \$18 and 3 mangoes and 5 apples for \$19. How much does each mango and each apple cost? Write two equations and solve algebraically.

Solve each system by the graphing method.

1.  $y = x$   
 $y = 6 - x$



2.  $y = \frac{1}{2}x + 1$   
 $4x - 8y = -8$



Solve each system algebraically.

3.  $2x + y = 9$   
 $x + 4y = 1$

4.  $y = 4x - 5$   
 $8x - 2y = 20$

5.  $a = 3b$   
 $a - b = 12$

6.  $2x - y = 1$   
 $3y + 3 = 6x$

7.  $3n + 5m = 7$   
 $m - 4n = 6$

8.  $y = 4x$   
 $x - y = 3$

**Solve each system algebraically.**

9. 
$$\begin{cases} \frac{x}{2} + \frac{3}{5}y = 17 \\ \frac{x}{5} + \frac{3}{4}y = 17 \end{cases}$$

10. 
$$\begin{cases} 0.4x - 0.7y = 1.3 \\ 0.2x - 0.7y = 0.3 \end{cases}$$

**Write two equations and solve each system algebraically.**

11. Susan's dance team is doing a show to raise money for a trip. Susan sold 21 tickets. Tickets for children cost \$5.00 and adult tickets cost \$7.00 each. Susan collected a total of \$129.

How many of each type of ticket did Susan sell?

12. There are 20 coins on a table, some quarters and some dimes. The value of the coins is \$3.05. How many of each coin are there?

13. Three pizzas and four sandwiches cost \$34. Three pizzas and seven sandwiches cost \$41.50. How much does each cost?

**Unit 4 Review Worksheet**

Show all work neatly.

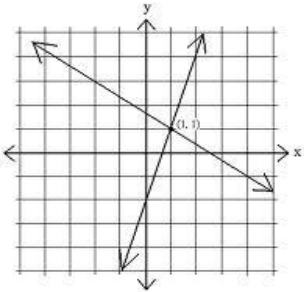
1. Which graph best represents the system:

$$y = -3x + 1$$

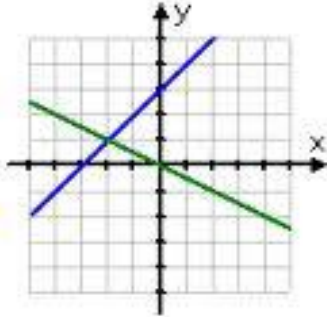
$$y = 2x - 4$$

1. \_\_\_\_\_

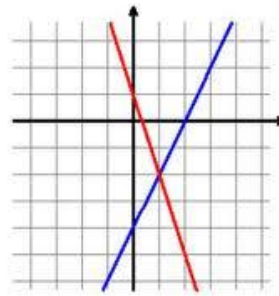
A.



B.



C.



2. Which coordinate represents the solution of the systems of equations?

$$2x + 4y = 8$$

$$5x + y = -7$$

2. \_\_\_\_\_

A. (-2, 3)

B. (2, 3)

C. (-1, 1)

D. (1, 1)

3. Which coordinate represents the solution of the systems of equations?

$$9x + 5y = 34$$

$$8x - 2y = -2$$

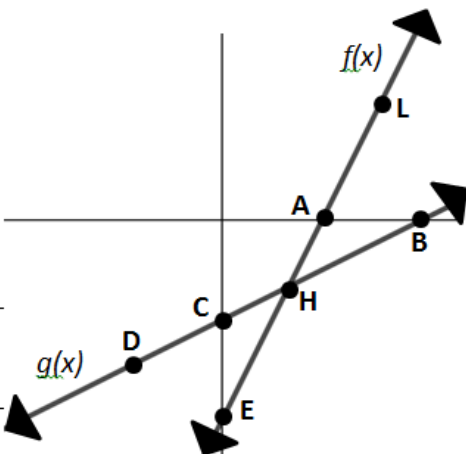
3. \_\_\_\_\_

A. (0, 5)

B. (-6, 7)

C. (8, 0)

D. (1, 5)



4. For  $f(x)$  name the point of the y intercept where  $x = 0$

4. \_\_\_\_\_

5. For  $g(x)$  name the point of the y intercept where  $x = 0$

5. \_\_\_\_\_

6. Name the labeled points on  $g(x)$  where  $g(x) > f(x)$

6. \_\_\_\_\_

7. Name the labeled points on  $f(x)$  where  $f(x) > g(x)$

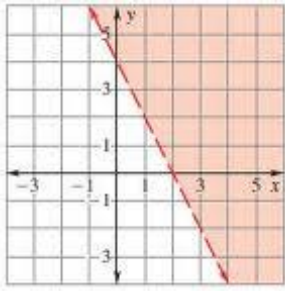
7. \_\_\_\_\_

8. Name the point where  $f(x) = g(x)$ .

8. \_\_\_\_\_

9. Which inequality is shown on the graph below? Name a point in the solution set.

9. \_\_\_\_\_

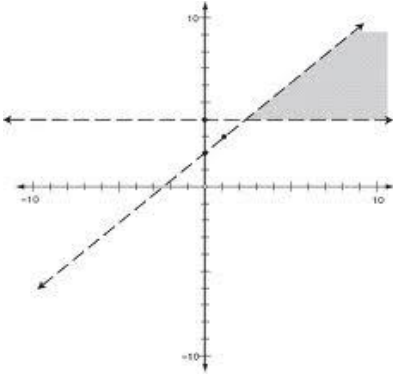


- A.  $y \leq -2x + 4$
- B.  $y \geq -2x + 4$
- C.  $y > -2x + 4$
- D.  $y < -2x + 4$

point \_\_\_\_\_

10. Which set of inequalities is represented by the shaded region on the graph? Name a point in the solution set.

10. \_\_\_\_\_



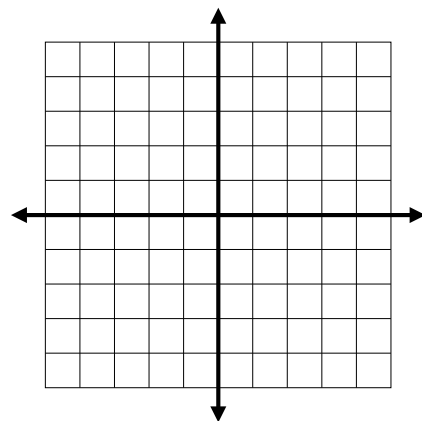
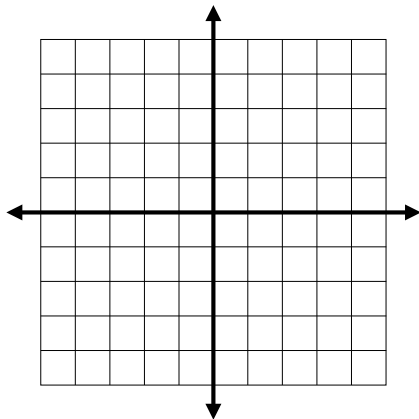
- A.  $y > -4$   
 $-x + y > 2$
- B.  $y < -4$   
 $-x + y < 2$
- C.  $y < 4$   
 $-x + y > 2$
- D.  $y > 4$   
 $-x + y < 2$

point \_\_\_\_\_

Solve each system of inequalities by graphing. Name a point in the solution.

11.  $y \leq 2x - 4$

12.  $y < \frac{x}{3} - 1$   
 $-2y \leq 4x + 8$



Point \_\_\_\_\_

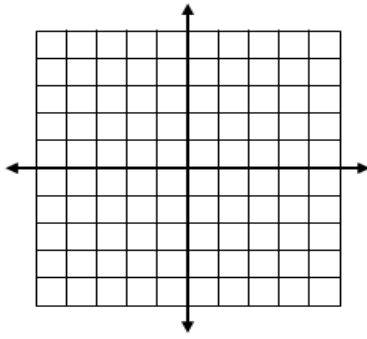
Point \_\_\_\_\_

Work the following problems in the space provided. Show all work.

14. Solve by graphing.

$$y = 3x - 1$$

$$y = -x + 3$$



14. \_\_\_\_\_

Solve each system algebraically. Circle whether the system has one solution, infinitely many solutions, or no solution.

15.  $x = 5y - 8$   
 $3y + 2x = -3$

16.  $y = 5x - 7$   
 $10x - 2y = 8$

15. \_\_\_\_\_  
 one solution  
 no solution  
 infinitely many solutions

16. \_\_\_\_\_  
 one solution  
 no solution  
 infinitely many solutions

17.  $\begin{cases} \frac{x}{2} + \frac{y}{4} = 6 \\ 2x - y = 12 \end{cases}$

18.  $\begin{cases} 1.5x + 1.2y = 0.6 \\ 0.8x - 0.2y = 2 \end{cases}$

17. \_\_\_\_\_  
 one solution  
 no solution  
 infinitely many solutions

18. \_\_\_\_\_  
 one solution  
 no solution  
 infinitely many solutions



**Translate into a system of equations and solve:**

19. The sum of two numbers is 114, and their difference is 32.  
Find the two numbers.

19. \_\_\_\_\_

20. Sarah has 26 coins in her purse. All the coins are quarters and nickels,  
and are worth \$4.10. How many nickels does she have?

Identify the variables and write a system of equations to model the situation, then solve.

20. \_\_\_\_\_

21. John paid \$34 for two algebra and three geometry books. He paid \$36 for  
three algebra and two geometry books. What is the cost of each book?

Write a system of equations. Explain the meaning of the variables in the context of the problem.

algebra book \_\_\_\_\_

geometry book \_\_\_\_\_