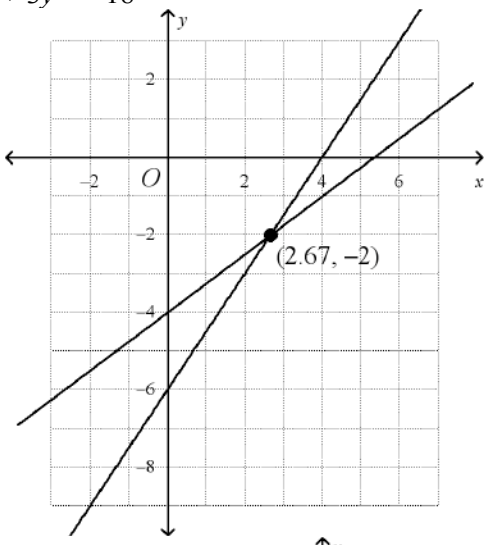
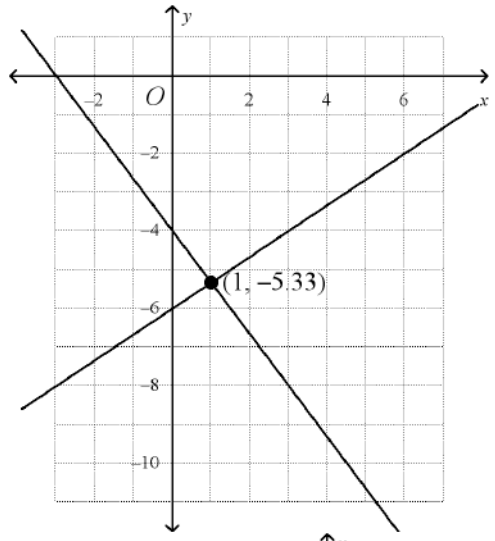
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

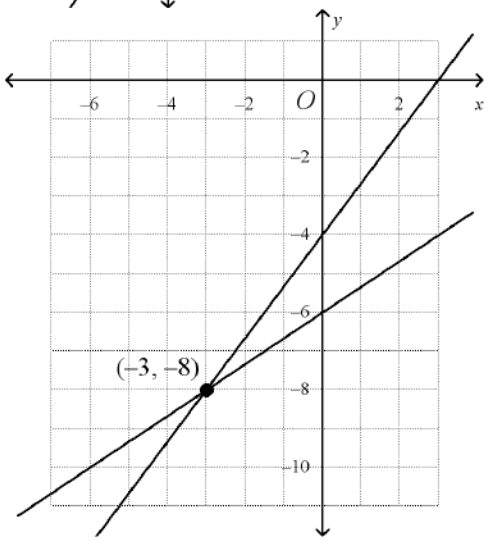
Algebra 1 Chapter 06 Review

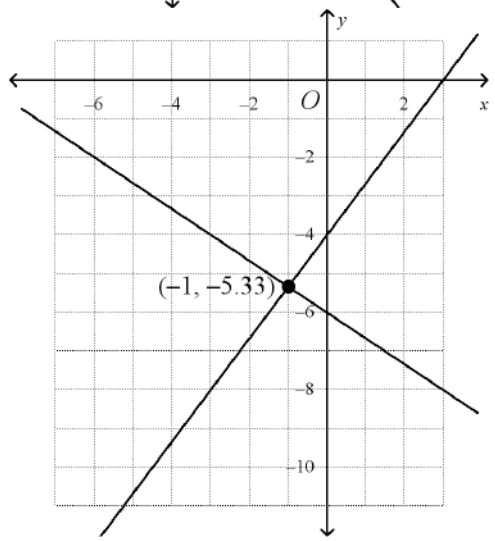
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Solve the following system of equations by graphing.
$-4x + 3y = -12$
$-2x + 3y = -18$

a.


c.


b.


d.


____ 2. What is the solution of the system of equations?
$y = 3x + 7$
$y = x - 9$
a. $(-1, -10)$ b. $(-17, -8)$ c. $(4, 19)$ d. $(-8, -17)$

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

____ 3. $y = 5x - 4$
$y = 5x - 5$
a. no solutions
b. one solution
c. infinitely many solutions

____ 4. $y = 2x - 3$
$y = -x + 3$
a. one solution
b. no solutions
c. infinitely many solutions

____ 5. The length of a rectangle is 3 centimeters more than 3 times the width. If the perimeter of the rectangle is 46 centimeters, find the dimensions of the rectangle.
a. length = 5 cm; width = 18 cm
b. length = 13 cm; width = 5 cm
c. length = 13 cm; width = 8 cm
d. length = 18 cm; width = 5 cm

Solve the system of equations using substitution.

____ 6. $y = 2x + 3$
$y = 3x + 1$
a. $(-2, -1)$ b. $(-1, -2)$ c. $(2, 7)$ d. $(-2, -5)$

____ 7. $3y = -\frac{1}{2}x + 2$
$y = -x + 9$
a. $(3, 6)$ b. $(20, -4)$ c. $(10, -1)$ d. $(-1, 8)$

____ 8. $y = 4x + 6$
$y = 2x$
a. $(-3, -6)$ b. $(3, 6)$ c. $(6, 3)$ d. $(1, 2)$

Solve the system using elimination.

____ 9. $-10x - 3y = -18$
$-7x - 8y = 11$
a. $(-7, -10)$ b. $(-4, 3)$ c. $(3, -4)$ d. $(2, -1)$

____ 10. $3x - y = 28$
$3x + y = 14$
a. $(8, -4)$ b. $(-7, 7)$ c. $(7, -7)$ d. $(-4, 8)$

____ 11. A jar containing only nickels and dimes contains a total of 60 coins. The value of all the coins in the jar is $4.45. Solve by elimination to find the number of nickels and dimes that are in the jar.
a. 30 nickels and 30 dimes
b. 31 nickels and 29 dimes
c. 29 nickels and 31 dimes
d. 28 nickels and 32 dimes

____ 12. An ice skating arena charges an admission fee for each child plus a rental fee for each pair of ice skates. John paid the admission fees for his six nephews and rented five pairs of ice skates. He was charged $32.00. Juanita paid the admission fees for her seven grandchildren and rented five pairs of ice skates. She was charged $35.25. What is the admission fee? What is the rental fee for a pair of skates?

a. admission fee: $3.25
skate rental fee: $2.50

b. admission fee: $3.50
skate rental fee: $3.00

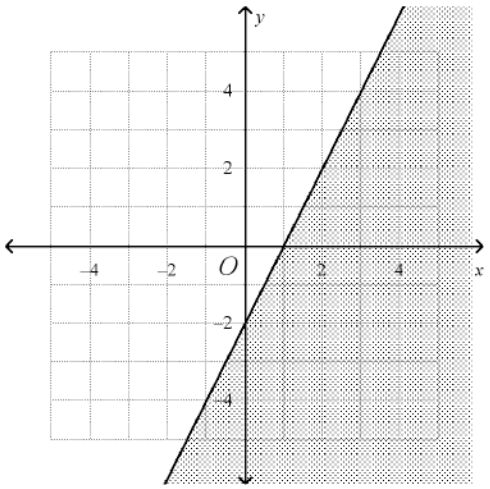
c. admission fee: $3.00
skate rental fee: $2.00

d. admission fee: $4.00
skate rental fee: $3.50

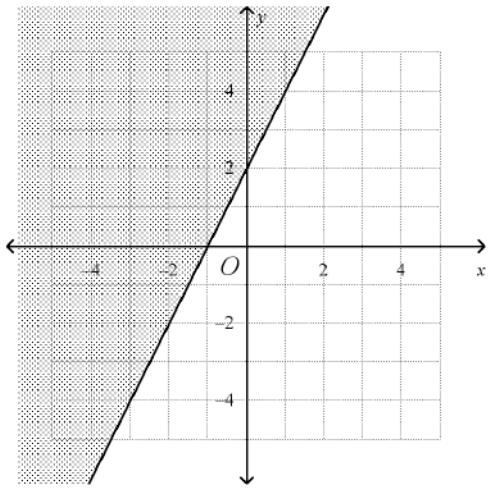
Graph the inequality.

____ 13. $y \geq 2x - 2$

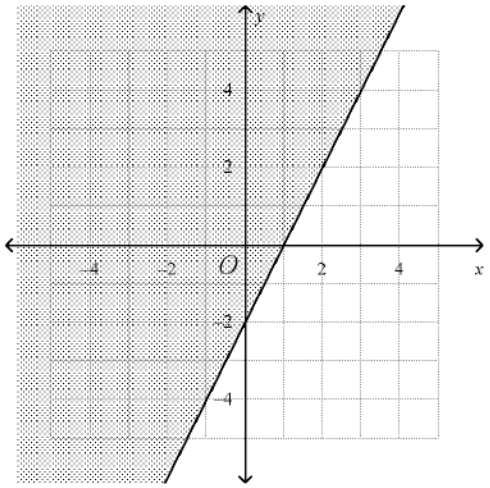
a.



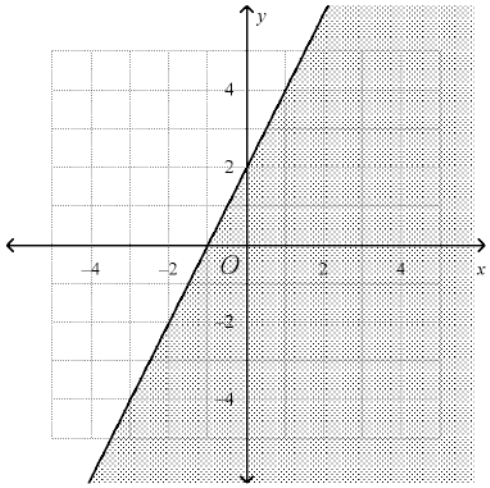
c.



b.

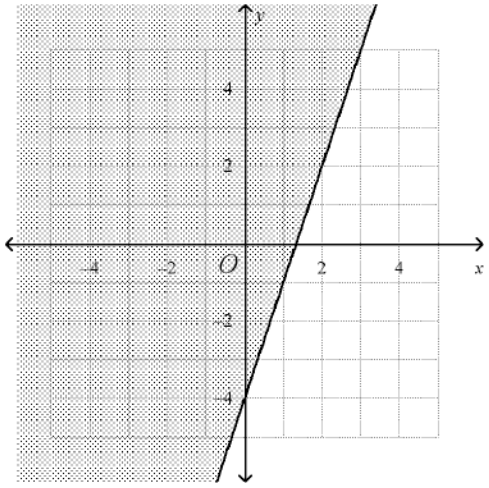


d.



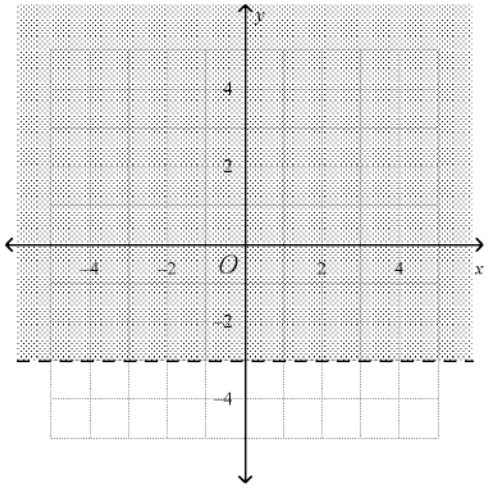
Write the linear inequality shown in the graph.

____ 14.



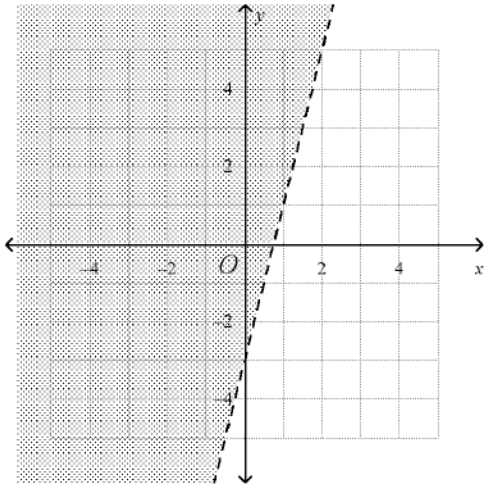
a. $y \leq 3x + 4$ b. $y \leq 3x - 4$ c. $y \geq 3x - 4$ d. $y \geq 3x + 4$

____ 15.



a. $x > -3$ b. $x \geq -3$ c. $y > -3$ d. $y \geq -3$

____ 16.



a. $y > 4x - 3$ b. $y \leq 4x + 3$ c. $y < 4x - 3$ d. $y \geq 4x + 3$

Find a solution of the system of linear inequalities.

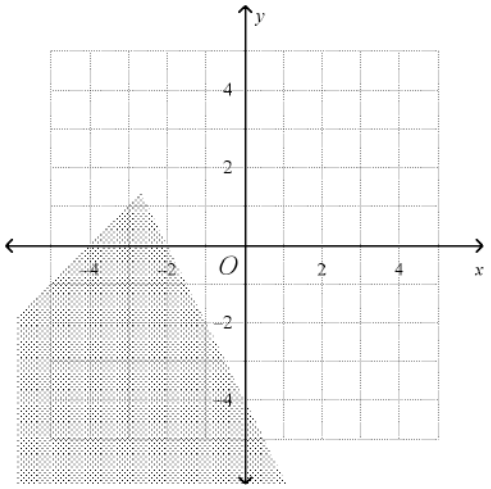
____ 17. $1.4x + 7y \geq 21$
$10x - 2y \geq 16$

a. (4, 1) b. (2, 2) c. (1, 2) d. (5, 2)

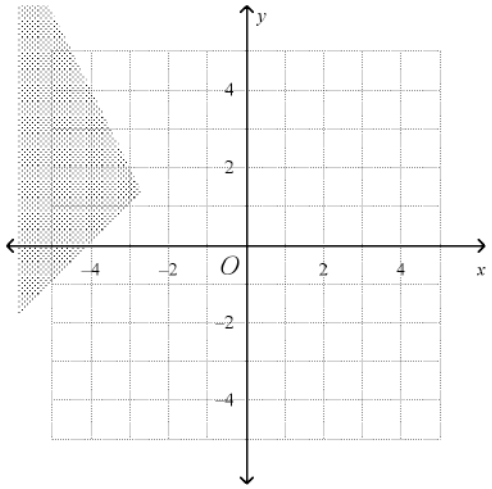
Solve the system of linear inequalities by graphing.

____ 18. $y \leq x + 4$
$2x + y \leq -4$

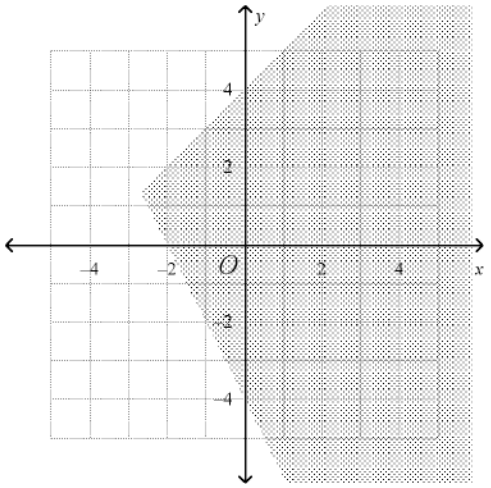
a.



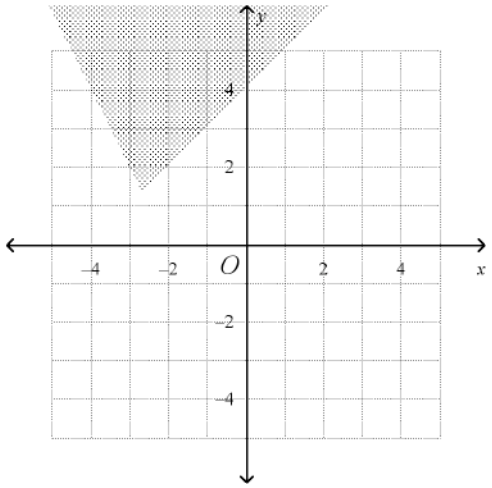
c.



b.

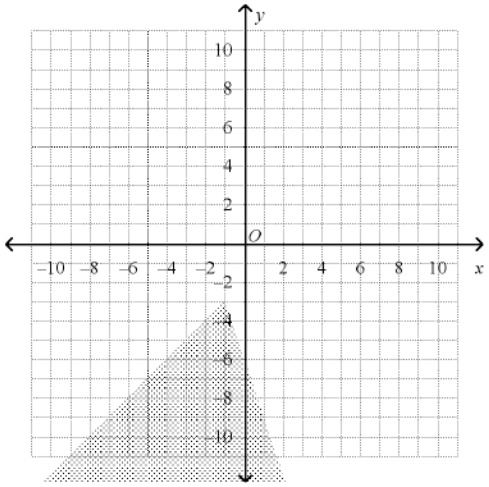


d.



Write a system of inequalities for the graph.

____ 19.



a. $y \geq x - 2$
$y \geq -3x - 6$

b. $y \leq x + 3$
$y \geq 2x - 6$

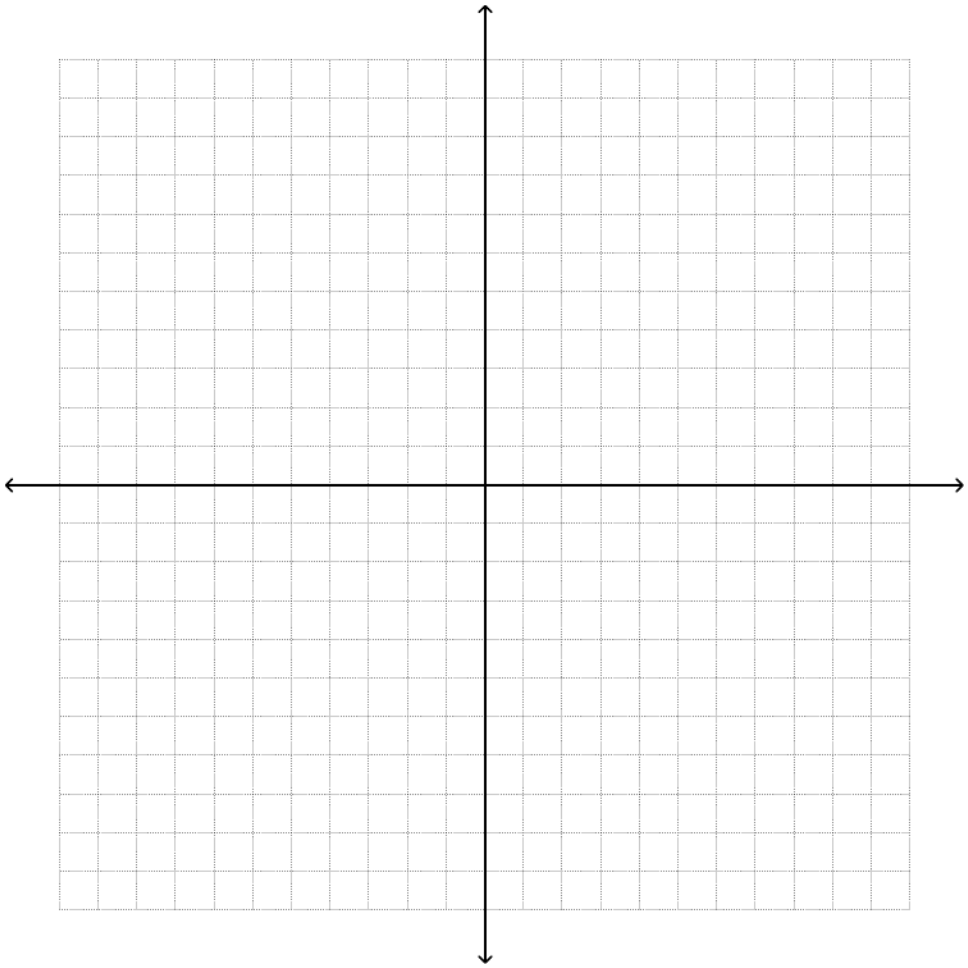
c. $y \leq x - 2$
$y \leq -3x - 6$

d. $y \geq x + 3$
$y \leq 2x - 6$

Short Answer

20. Graph the following linear inequalities on the same coordinate plane. What figure does the solution to all three inequalities make?

$y \geq -5$
$y \leq 2x + 5$
$y \leq -2x + 5$



Essay

21. A motorboat can go 16 miles downstream on a river in 20 minutes. It takes 30 minutes for this boat to go back upstream the same 16 miles.
Let x = the speed of the boat.
Let y = the speed of the current.
a. Write an equation for the motion of the motorboat downstream.
b. Write an equation for the motion of the motorboat upstream.
c. Find the speed of the current.

22. Niki has 8 coins worth $1.40. Some of the coins are nickels and some are quarters.
    a. Let q = the number of quarters and n = the number of nickels. Write an equation relating the number of quarters and nickels to the total number of coins.
    b. Write an equation relating the value of the quarters and the value of the nickels to the total value of the coins.
    c. How many of each coin does Niki have?

23. Amy's restaurant has budgeted at most $60 to spend this month on gourmet coffee. All international blends cost $8.50 per package and all house blends cost $6.00 per package. She would like to purchase some international blends and at least 3 packages of the house blends. How can Amy spend $60 on x international blends and y house blends?
    a. Write a system of linear inequalities that describes this situation.
    b. Graph the system.
    c. Give a possible solution and describe what it means.

Algebra 1 Chapter 06 Review
Answer Section

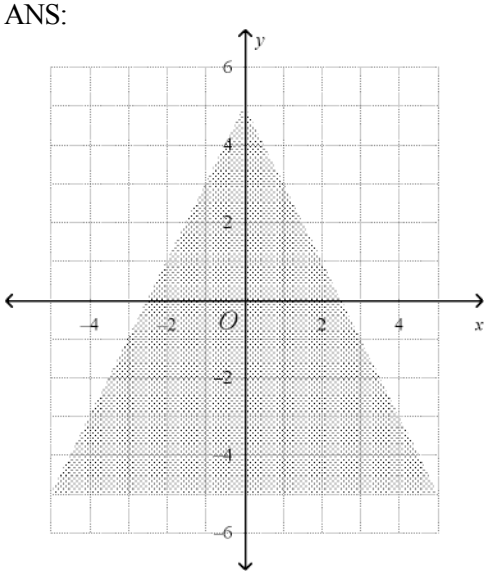
MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: L2 REF: 6-1 Solving Systems By Graphing
   OBJ: 6-1.1 Solving Systems By Graphing STA: CA A1 9.0
   TOP: 6-1 Example 1
   KEY: system of linear equations | graphing a system of linear equations
2. ANS: D PTS: 1 DIF: L2 REF: 6-1 Solving Systems By Graphing
   OBJ: 6-1.1 Solving Systems By Graphing STA: CA A1 9.0
   TOP: 6-1 Example 1
   KEY: system of linear equations | graphing a system of linear equations
3. ANS: A PTS: 1 DIF: L2 REF: 6-1 Solving Systems By Graphing
   OBJ: 6-1.2 Analyzing Special Types of Systems STA: CA A1 9.0
   TOP: 6-1 Example 4 | 6-1 Example 5
   KEY: system of linear equations | graphing a system of linear equations | no solution | infinitely many solutions
4. ANS: A PTS: 1 DIF: L2 REF: 6-1 Solving Systems By Graphing
   OBJ: 6-1.2 Analyzing Special Types of Systems STA: CA A1 9.0
   TOP: 6-1 Example 4 | 6-1 Example 5
   KEY: system of linear equations | graphing a system of linear equations | no solution | infinitely many solutions
5. ANS: D PTS: 1 DIF: L2
   REF: 6-2 Solving Systems Using Substitution OBJ: 6-2.1 Using Substitution
   STA: CA A1 9.0 TOP: 6-2 Example 3
   KEY: word problem | problem solving | system of linear equations | substitution method
6. ANS: C PTS: 1 DIF: L2
   REF: 6-2 Solving Systems Using Substitution OBJ: 6-2.1 Using Substitution
   STA: CA A1 9.0 TOP: 6-2 Example 1
   KEY: system of linear equations | substitution method
7. ANS: C PTS: 1 DIF: L3
   REF: 6-2 Solving Systems Using Substitution OBJ: 6-2.1 Using Substitution
   STA: CA A1 9.0 TOP: 6-2 Example 2
   KEY: system of linear equations | substitution method
8. ANS: A PTS: 1 DIF: L2
   REF: 6-2 Solving Systems Using Substitution OBJ: 6-2.1 Using Substitution
   STA: CA A1 9.0 TOP: 6-2 Example 1
   KEY: system of linear equations | substitution method
9. ANS: C PTS: 1 DIF: L2
   REF: 6-3 Solving Systems Using Elimination
   OBJ: 6-3.2 Multiplying First to Solve Systems STA: CA A1 9.0
   TOP: 6-3 Example 5
   KEY: system of linear equations | elimination method | adding or subtracting equations

10. ANS: C PTS: 1 DIF: L2
REF: 6-3 Solving Systems Using Elimination
OBJ: 6-3.1 Adding or Subtracting to Solve Systems STA: CA A1 9.0
TOP: 6-3 Example 1
KEY: system of linear equations | elimination method | adding or subtracting equations
11. ANS: B PTS: 1 DIF: L2
REF: 6-3 Solving Systems Using Elimination
OBJ: 6-3.2 Multiplying First to Solve Systems STA: CA A1 9.0
TOP: 6-3 Example 4
KEY: word problem | problem solving | system of linear equations | elimination method | adding or subtracting equations
12. ANS: A PTS: 1 DIF: L3
REF: 6-4 Applications of Linear Systems
OBJ: 6-4.1 Writing Systems of Linear Equations STA: CA A1 9.0 | CA A1 15.0
KEY: word problem | problem solving | system of linear equations | graphing a system of linear equations | substitution method | elimination method
13. ANS: B PTS: 1 DIF: L2 REF: 6-5 Linear Inequalities
OBJ: 6-5.1 Graphing Linear Inequalities STA: CA A1 6.0
TOP: 6-5 Example 1 KEY: linear inequality | graphing
14. ANS: C PTS: 1 DIF: L2 REF: 6-5 Linear Inequalities
OBJ: 6-5.1 Graphing Linear Inequalities STA: CA A1 6.0
TOP: 6-5 Example 1 KEY: linear inequality | graphing
15. ANS: C PTS: 1 DIF: L2 REF: 6-5 Linear Inequalities
OBJ: 6-5.1 Graphing Linear Inequalities STA: CA A1 6.0
TOP: 6-5 Example 1 KEY: linear inequality | graphing
16. ANS: A PTS: 1 DIF: L3 REF: 6-5 Linear Inequalities
OBJ: 6-5.1 Graphing Linear Inequalities STA: CA A1 6.0
TOP: 6-5 Example 1 KEY: linear inequality | graphing
17. ANS: D PTS: 1 DIF: L2 REF: 6-6 Systems of Linear Inequalities
OBJ: 6-6.1 Solving Systems of Linear Inequalities by Graphing
STA: CA A1 9.0 TOP: 6-6 Example 1
KEY: linear inequality | graphing | system of linear inequalities | graphing a system of linear inequalities
18. ANS: A PTS: 1 DIF: L2 REF: 6-6 Systems of Linear Inequalities
OBJ: 6-6.1 Solving Systems of Linear Inequalities by Graphing
STA: CA A1 9.0 TOP: 6-6 Example 1
KEY: linear inequality | graphing | system of linear inequalities | graphing a system of linear inequalities
19. ANS: C PTS: 1 DIF: L2 REF: 6-6 Systems of Linear Inequalities
OBJ: 6-6.1 Solving Systems of Linear Inequalities by Graphing
STA: CA A1 9.0 TOP: 6-6 Example 2
KEY: linear inequality | graphing | system of linear inequalities | graphing a system of linear inequalities

SHORT ANSWER

20. ANS:



The figure is an isosceles triangle.

PTS: 1 DIF: L4 REF: 6-5 Linear Inequalities
OBJ: 6-5.1 Graphing Linear Inequalities STA: CA A1 6.0
KEY: linear inequality | graphing

ESSAY

21. ANS:

[4] **a.** $(x + y)\frac{1}{3} = 16$

b. $(x - y)\frac{1}{2} = 16$

c. 8 mph

[3] minor computation error
[2] misapplication of $rt = d$ formula
[1] correct answer, but no equations shown

PTS: 1 DIF: L3 REF: 6-4 Applications of Linear Systems
OBJ: 6-4.1 Writing Systems of Linear Equations STA: CA A1 9.0 | CA A1 15.0
KEY: extended response | rubric-based question | word problem | problem solving | system of linear equations | graphing a system of linear equations | substitution method | elimination method | motion problem

22. ANS:

[4] **a.** $n + q = 8$

b. $5n + 25q = 140$

c. 5 quarters and 3 nickels

[3] minor computation error

[2] (a) and (b) correct

[1] correct answer, but no equations shown

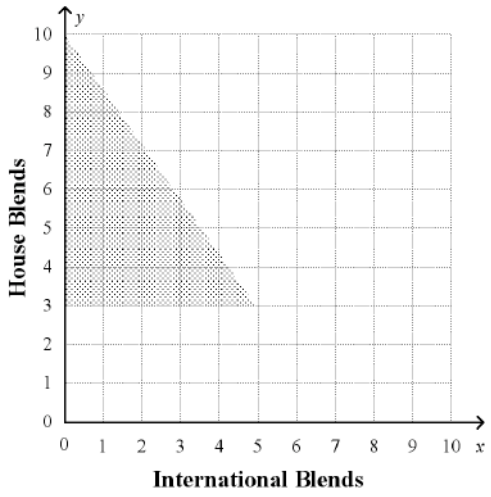
PTS: 1 DIF: L3 REF: 6-4 Applications of Linear Systems
OBJ: 6-4.1 Writing Systems of Linear Equations STA: CA A1 9.0 | CA A1 15.0
KEY: extended response | rubric-based question | word problem | problem solving | system of linear equations | graphing a system of linear equations | substitution method | elimination method

23. ANS:

[4] **a.** $8.5x + 6y \leq 60$

$y \geq 3$

b.



c. Answers may vary. Sample: (2,7); Amy can buy 2 international blends and 7 house blends for $59.

[3] minor error in graph

[2] minor error in inequalities

[1] a correct solution given, with no inequality or graph

PTS: 1 DIF: L2 REF: 6-6 Systems of Linear Inequalities
OBJ: 6-6.2 Writing and Using Systems of Linear Inequalities
STA: CA A1 9.0 TOP: 6-6 Example 4
KEY: extended response | rubric-based question | word problem | problem solving | linear inequality | graphing | system of linear inequalities | graphing a system of linear inequalities