Sharyland ISD
Study Guide

Algebra I
Semester A

Student Name: _____

Student ID: _____

Algebra 1 Semester A CBE REVIEW

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

Solve the proportion.

____ 1. $\frac{4}{9} = \frac{13}{x}$

a. 5.8 b. 2.8 c. 117 d. 29.3

____ 2. $\frac{x-7}{11} = \frac{8}{5}$

a. $\frac{123}{5}$ b. $\frac{88}{5}$ c. $\frac{111}{8}$ d. 19

Write the inequality in words.

____ 3. $5n - 10 > 26$

a. Five times *n* less than ten is twenty-six.
b. Ten plus five times a number is less than or equal to twenty-six.
c. Ten less than five times a number is greater than twenty-six.
d. Ten less than a number is less than or equal to twenty-six.

____ 4. The function $j(x) = 39x$ represents the number of jumping jacks $j(x)$ you can do in x minutes. How many jumping jacks can you do in 5 minutes?

a. 195 jumping jacks
b. 7 jumping jacks
c. 144 jumping jacks
d. 234 jumping jacks

What is the solution of the system? Use substitution.

____ 5. $y = 4x + 3$
$y = 5x$

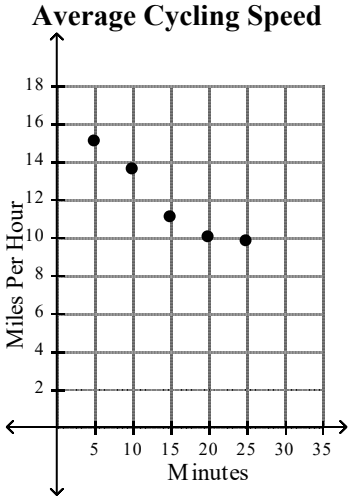
a. (–3, –15) b. (–15, –3) c. (0.3, 1.7) d. (3, 15)

____ 6. $3x + 2y = 7$
$y = –3x + 11$

a. (6, –3) b. (6, –7) c. $\left(-4, \frac{19}{2}\right)$ d. (5, –4)

Determine whether the graph shows a positive correlation, a negative correlation, or no correlation. If there is a positive or negative correlation, describe its meaning in the situation.

____ 7.



a. no correlation
b. negative; as time passes, speed decreases
c. positive; as time passes, speed increases
d. positive; as time passes, speed decreases

Solve the equation.

____ 8. $-6p - 21 = 3p - 12$

a. 1 b. 3 c. –3 d. –1

____ 9. $6 = 2(x + 8) - 5x$

a. $\frac{2}{3}$ b. $3\frac{1}{3}$ c. $-\frac{2}{3}$ d. $-3\frac{1}{3}$

____ 10. $f(x) = 9x + 5$, find $f(5c - 2)$.

a. 36c + 5
b. 45c – 13
c. 45c + 5
d. 45c + 13

____ 11. Solve the area formula for a triangle, $A = \frac{1}{2}bh$, for *h*.

a. $h = \frac{2b}{A}$ b. $h = \frac{b}{2A}$ c. $h = \frac{2A}{b}$ d. $h = \frac{A}{2b}$

____ 12. What is an equation, in standard form, of the line through (1, 7) and (–2, –3)?

a. $-10x + y = 11$
b. $3x - 10y = 11$
c. $3x - y = 11$
d. $-10x + 3y = 11$

Write an equation in point-slope form for the line through the given point with the given slope.

____ 13. $(3, -10)$; $m = -0.83$

a. $y - 10 = -0.83(x + 3)$
b. $y - 10 = -0.83(x - 3)$
c. $y - 3 = -0.83(x + 10)$
d. $y + 10 = -0.83(x - 3)$

Solve the equation.

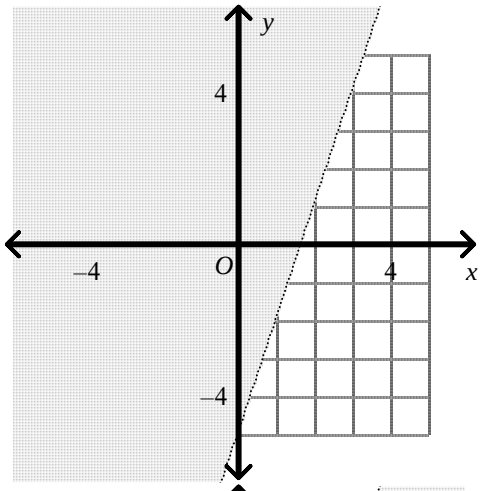
____ 14. $45 + 2 + 3w = 83$

a. -12 b. 12 c. 15 d. 11

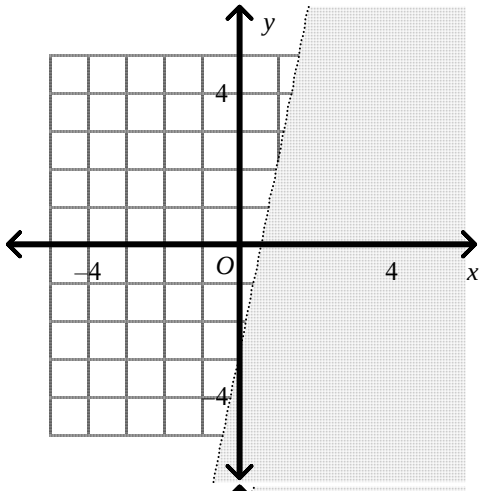
Graph the inequality.

____ 15. $y < 3x - 5$

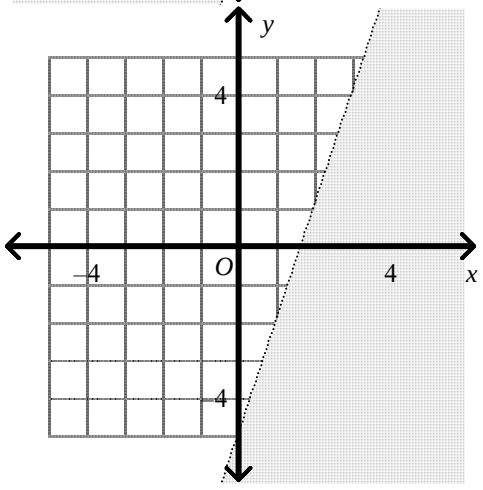
a.



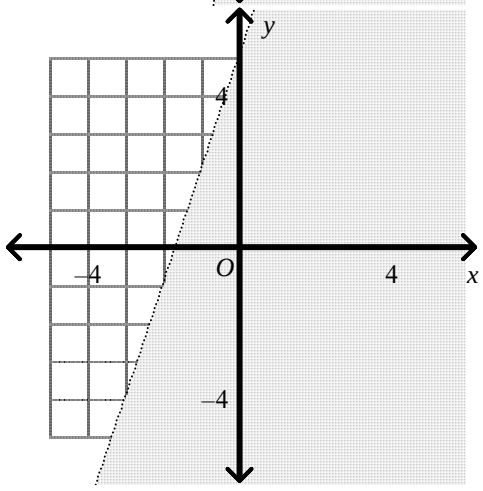
c.



b.

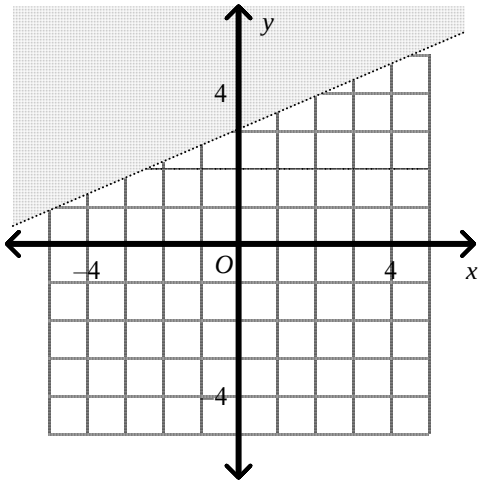


d.

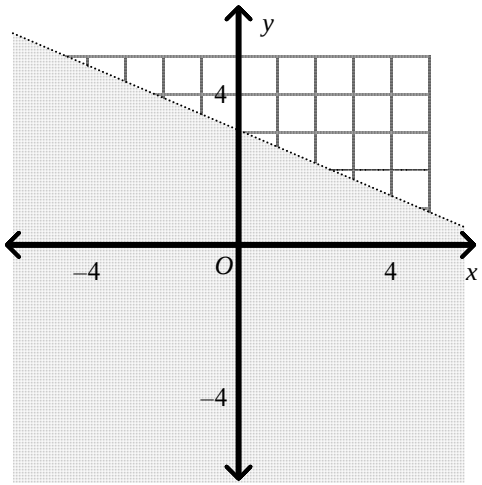


____ 16. $3x - 7y < -21$

a.



c.



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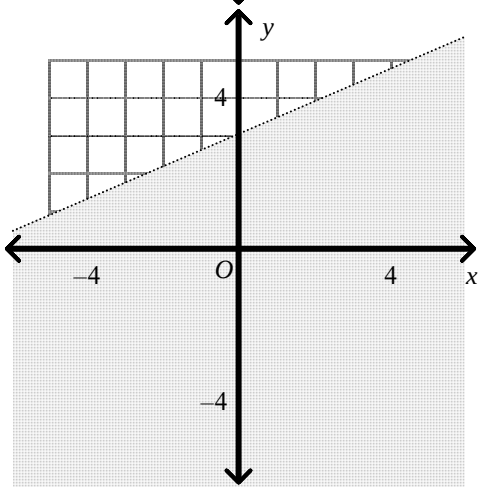

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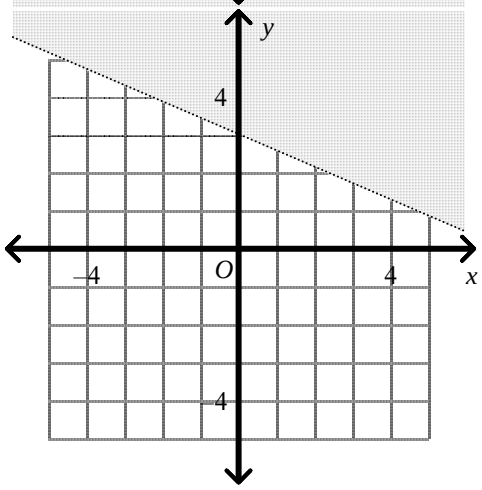
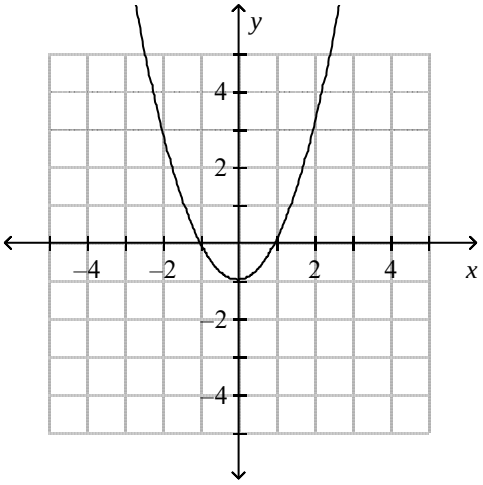


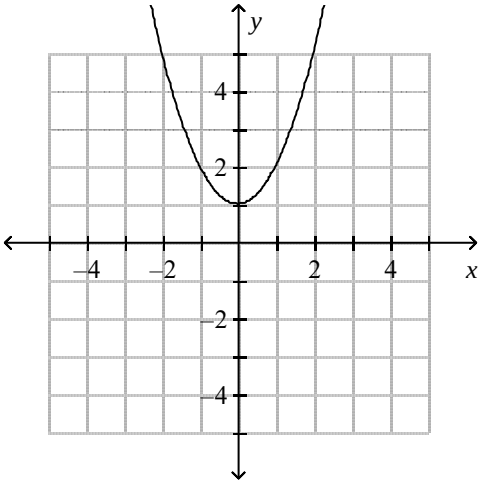
What is the graph of each function rule?

____ 17. $y = x^2 + 1$

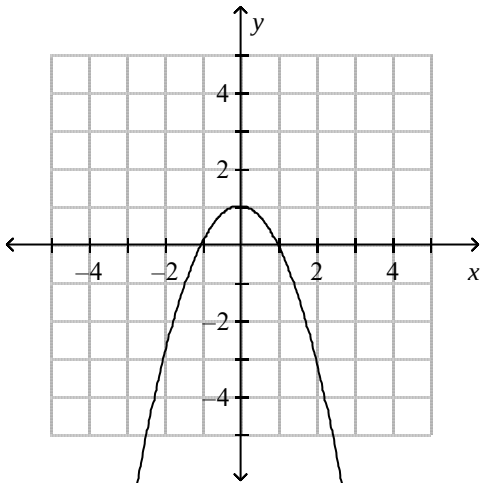
a.



c.



b.



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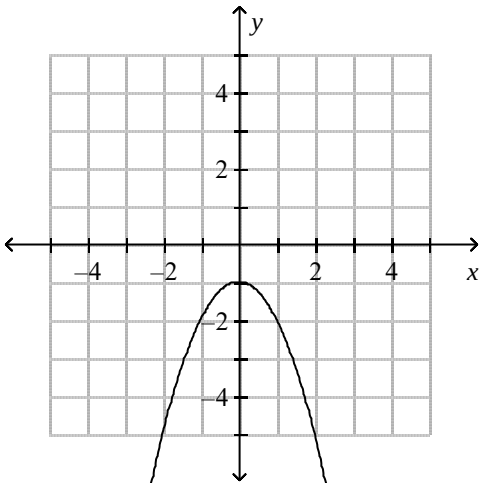
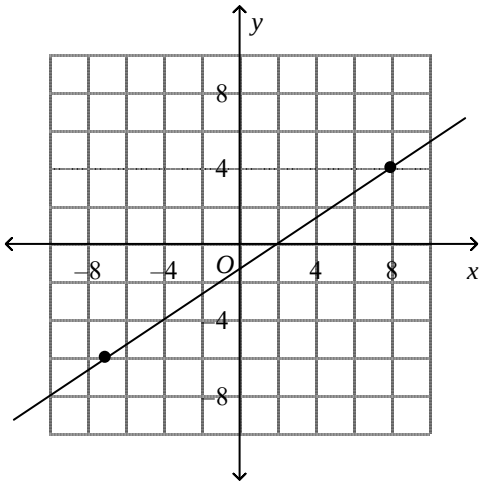


Find the slope of the line through the pair of points.

____ 18. (1, 12) and (0, –8)

a. $\frac{1}{20}$ b. $-\frac{1}{20}$ c. 20 d. –20

____ 19.

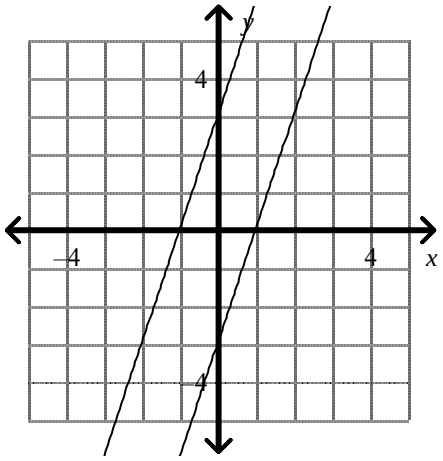


a. $\frac{3}{2}$ b. $-\frac{2}{3}$ c. $-\frac{3}{2}$ d. $\frac{2}{3}$

What is the solution of the system? Use a graph.

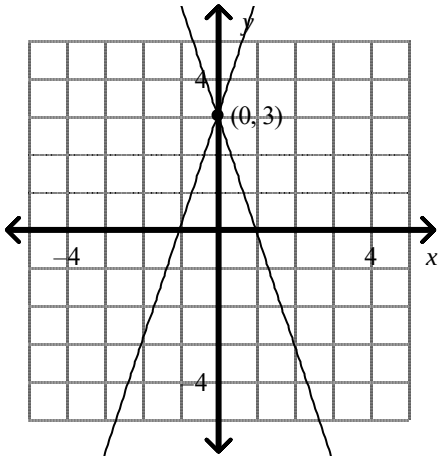
____ 20. $y = 3x + 3$
$y = 3x - 3$

a.



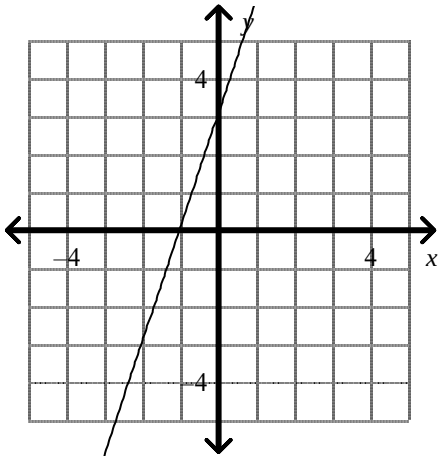
no solutions

b.



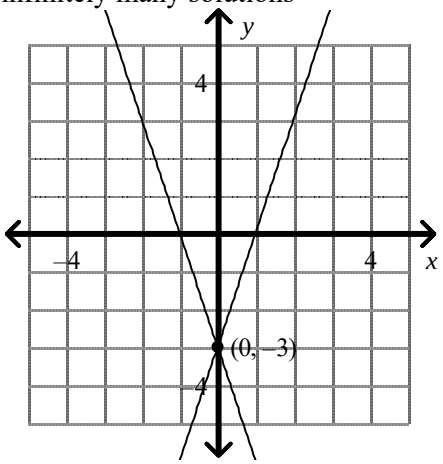
(0, 3)

c.



infinitely many solutions

d.

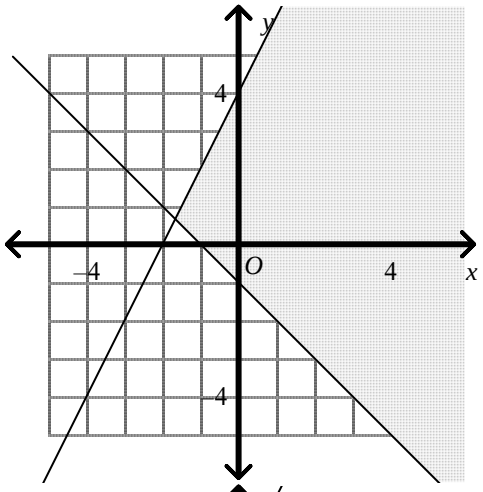


(0, –3)

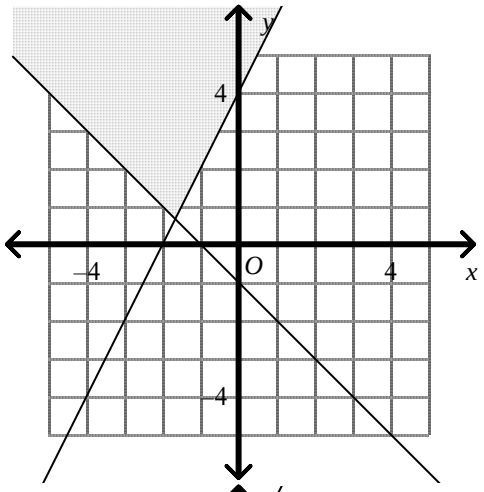
What is the graph of the system?

____ 21. $y \leq -x - 1$
$y \geq 2x + 4$

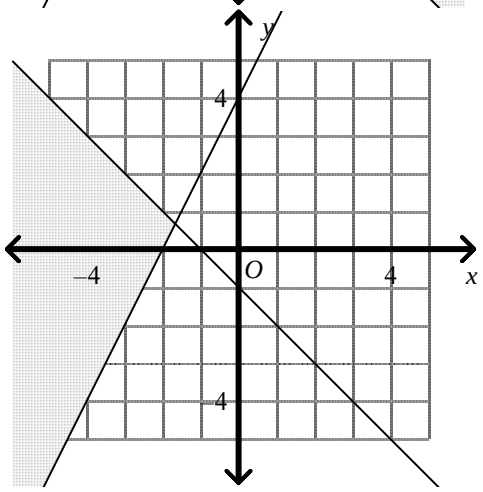
a.



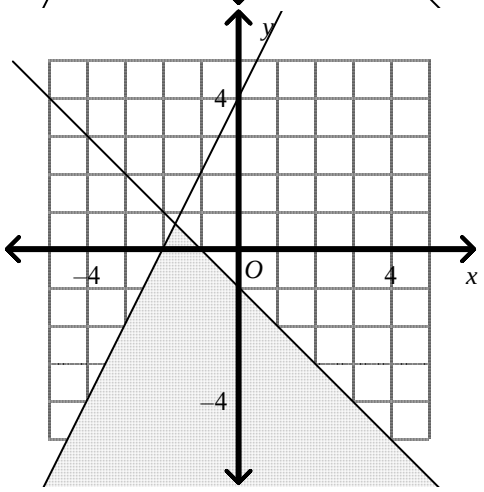
c.



b.



d.



What is the solution of the system? Use substitution.

____ 22. $8x - 2y = 18$
$3x - y = 5$

a. (2, –1) b. (4, 7) c. (–5, –28) d. (2, 1)

____ 23. The table below shows the distance traveled by a person driving at the rate of 60 miles per hour.

Hours	1	2	3	4	5
Distance (miles)	60	120	180	240	300

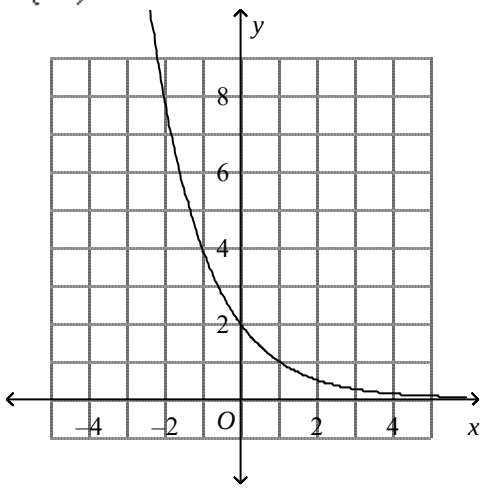
Write an equation to describe the relationship.

a. $d = 60t$
b. $d = 60 \div t$
c. $d = 60 + t$
d. $d = 60 - t$

Graph the function. Then state if the function represents exponential growth or exponential decay.

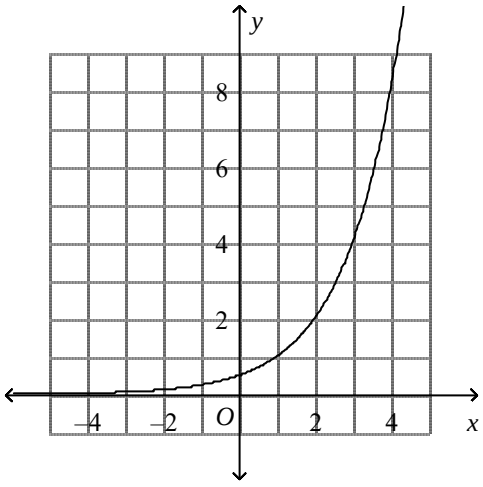
____ 24. $y = 2(0.5)^x$

a.



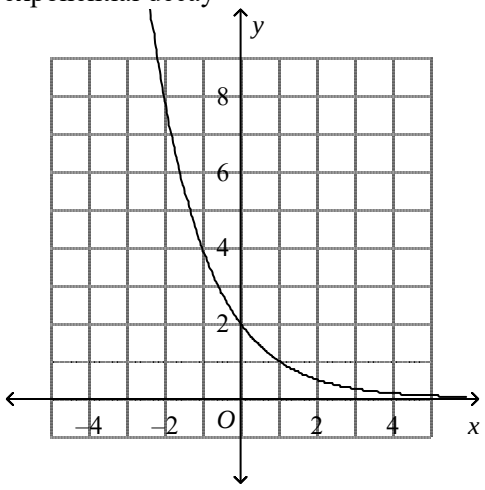
exponential decay

c.



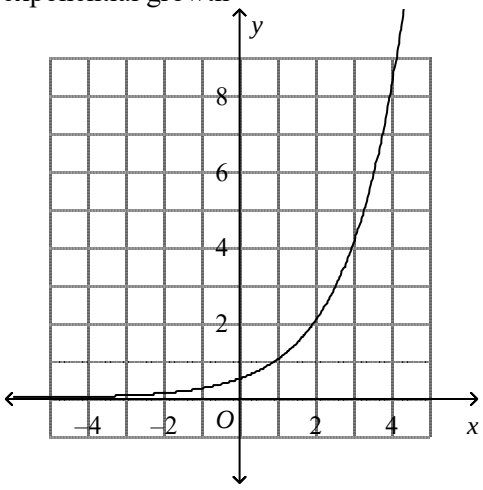
exponential growth

b.



exponential growth

d.

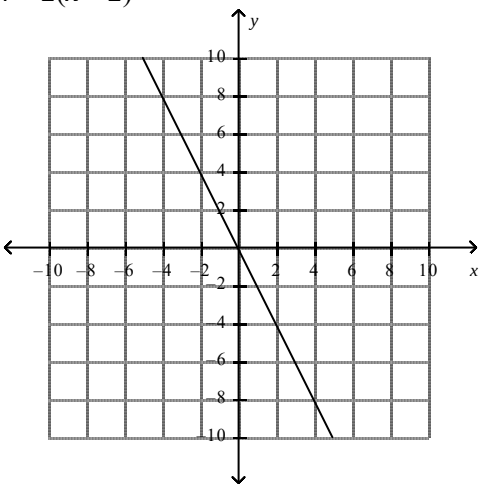


exponential decay

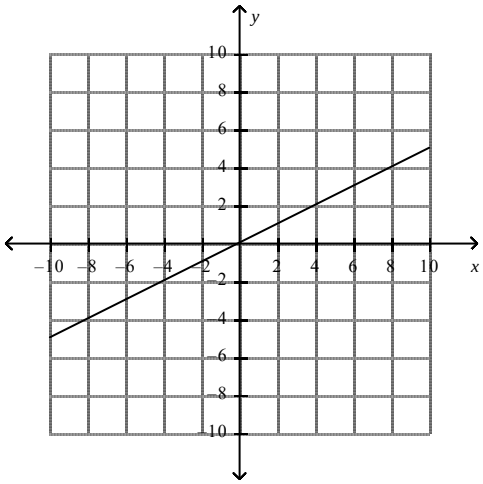
Graph the equation.

____ 25. $y - 4 = 2(x - 2)$

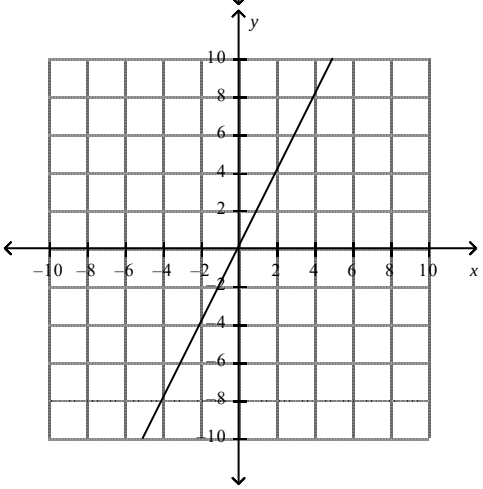
a.



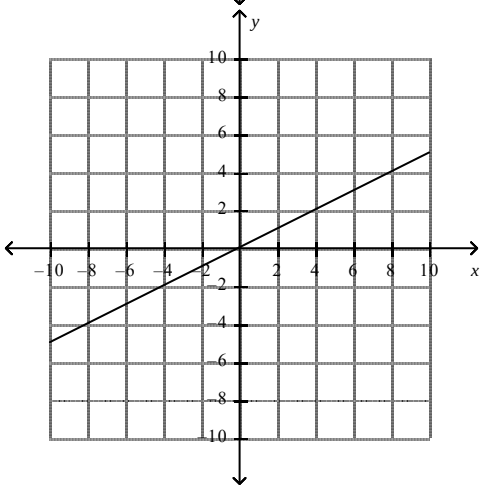
c.



b.

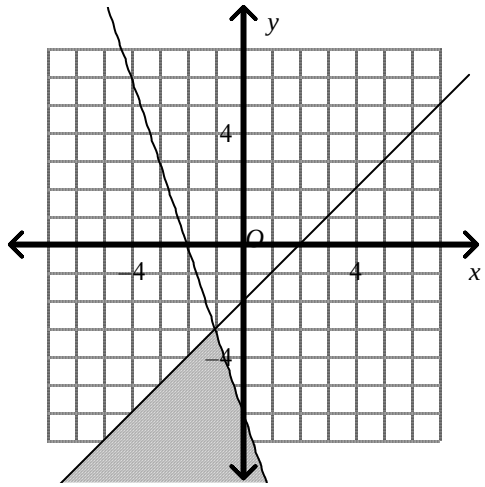


d.



What system of inequalities is represented by the graph?

____ 26.



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

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

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

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

Write an equation for the line that is parallel to the given line and passes through the given point.

____ 27. $y = 5x + 8$; (2, 16)

a. $y = 5x - 78$

c. $y = -\frac{1}{5}x - 6$

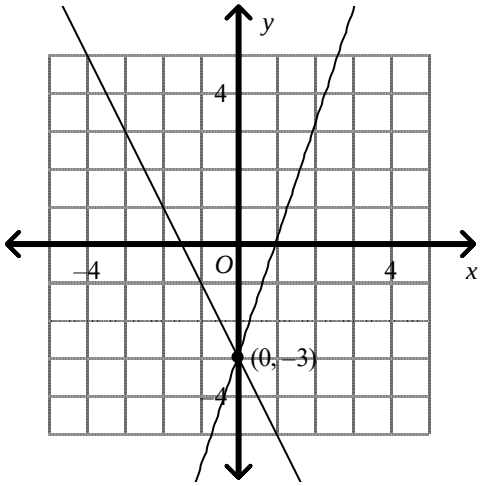
b. $y = 5x + 6$

d. $y = \frac{1}{5}x + 6$

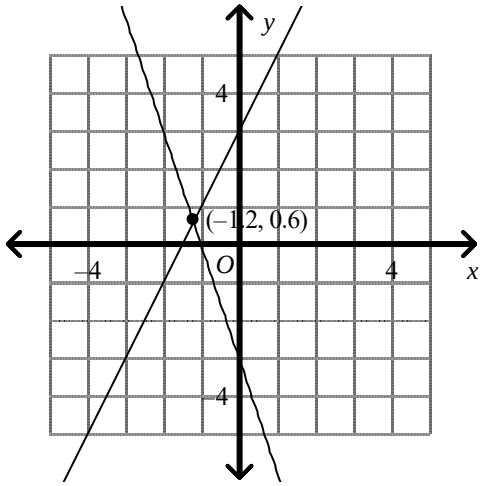
What is the solution of the system? Use a graph.

____ 28. $y = -2x + 3$
$y = 3x - 3$

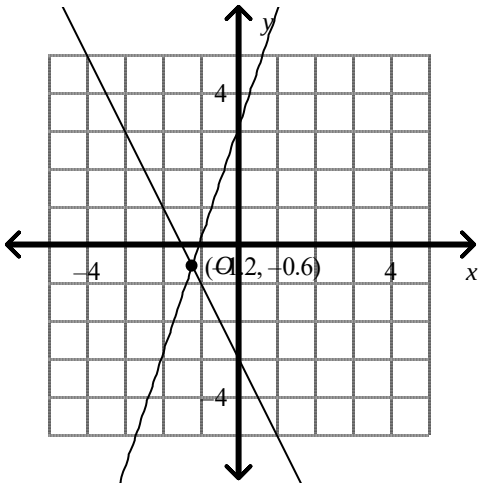
a.



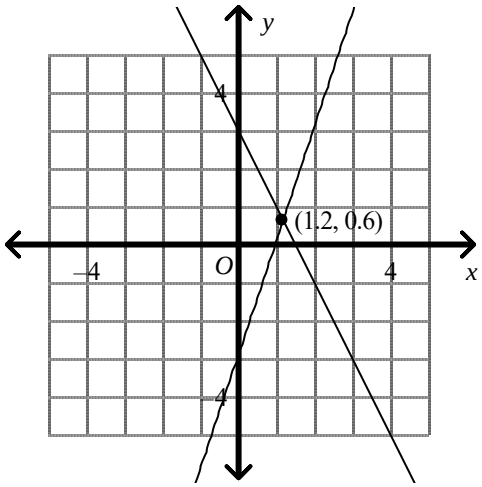
c.



b.



d.

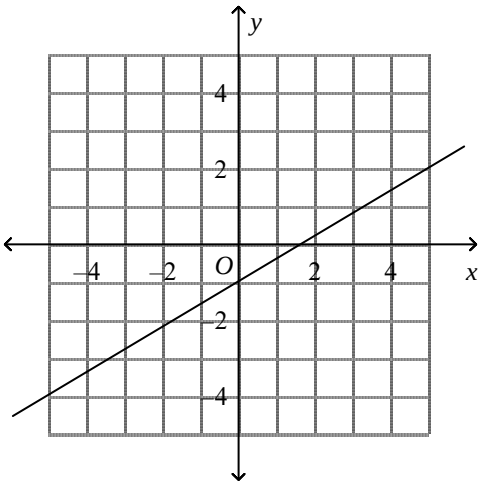


____ 29. A customer went to a garden shop and bought some potting soil for $17.00 and 7 shrubs. The total bill was $104.50. Write and solve an equation to find the price of each shrub.

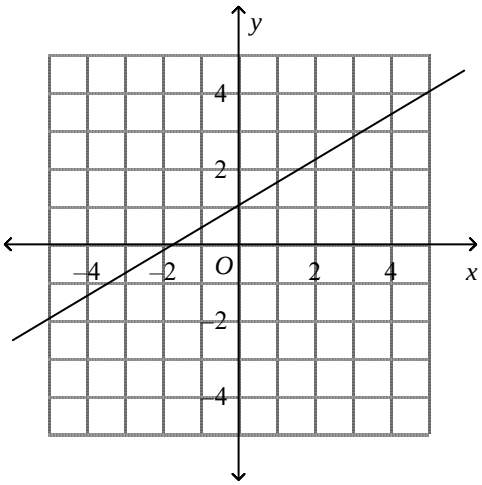
a. $7p + \$17.00 = \$104.50$; $p = \$15.75$
b. $7p + \$17.00 = \$104.50$; $p = \$12.50$
c. $7(p + \$17.00) = \$104.50$; $p = \$9.50$
d. $7p + 17p = \$104.50$; $p = \$4.35$

____ 30. Graph the equation $y = \frac{3}{5}x - 1$.

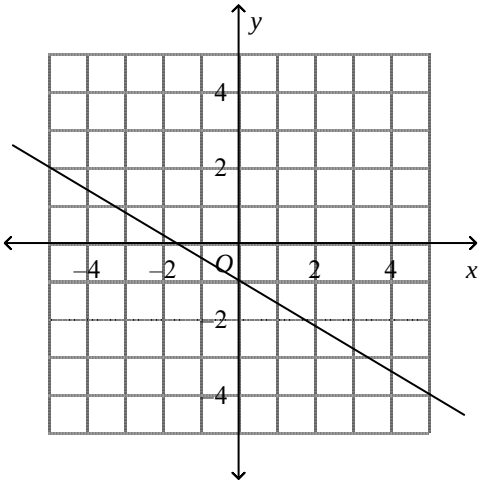
a.



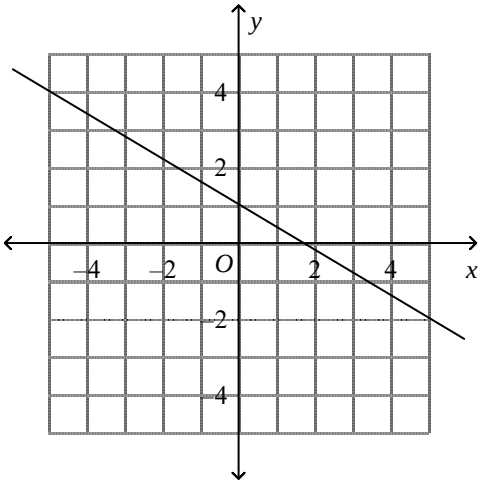
c.



b.



d.



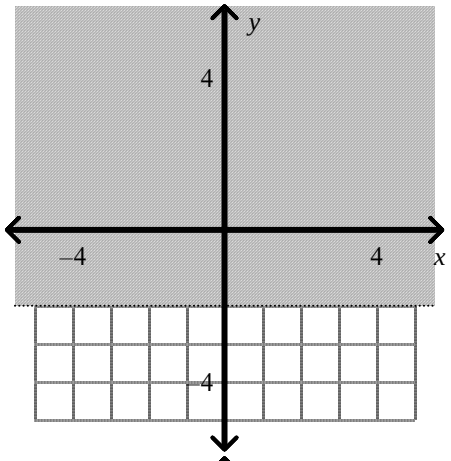
____ 31. You can use the formula $C = \frac{5}{9}(F - 32)$ to convert temperature in degrees Fahrenheit, *F*, to temperature in degrees Celsius, *C*. What is 68°F in degrees Celsius? Round your answer to the nearest tenth.

a. 5.8°C b. 55.6°C c. 20°C d. 36°C

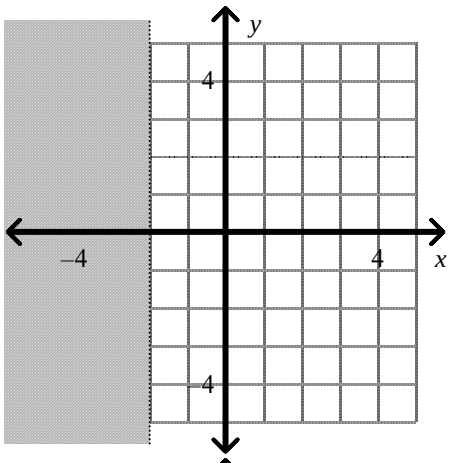
What is the graph of the inequality in the coordinate plane?

____ 32. $y < -2$

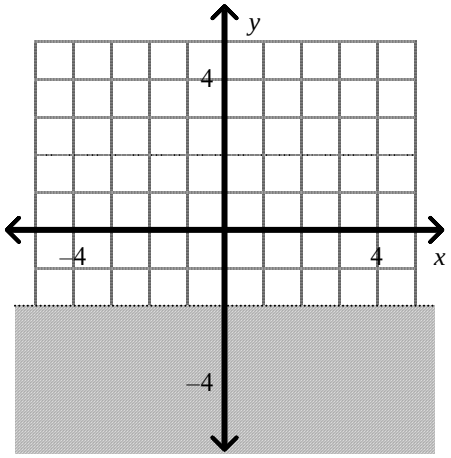
a.



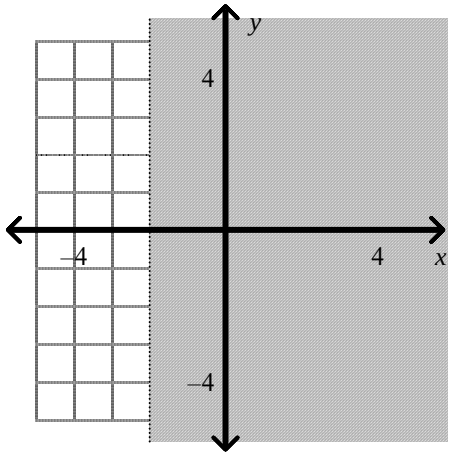
c.



b.



d.



Write a direct variation equation that relates x and y. Assume that y varies directly as x. Then solve.

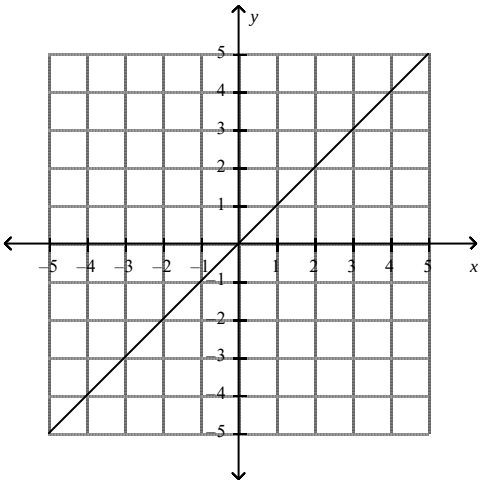
____ 33. If $y = 9$ when $x = -1$, find y when $x = -9$.

a. $y = -9x$; 81
b. $y = 9x$; –81
c. $y = -9x$; 72
d. $y = -10x$; 81

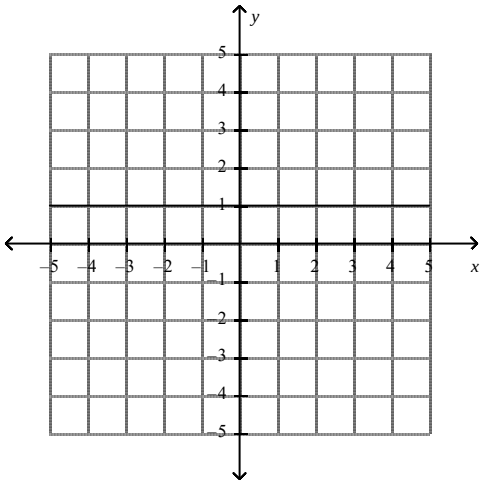
What is the graph of the equation?

____ 34. $x = 1$

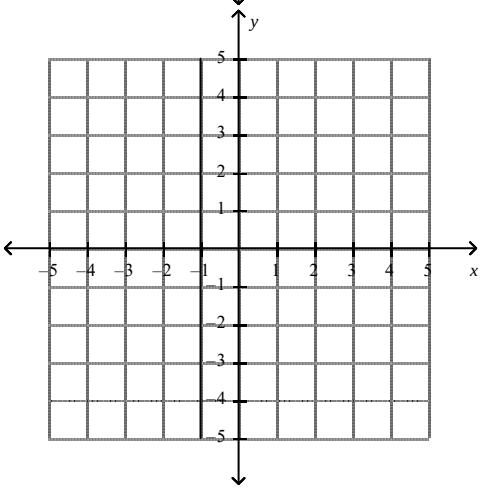
a.



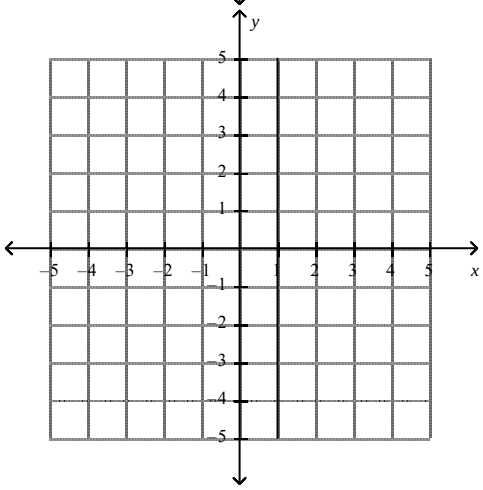
c.



b.



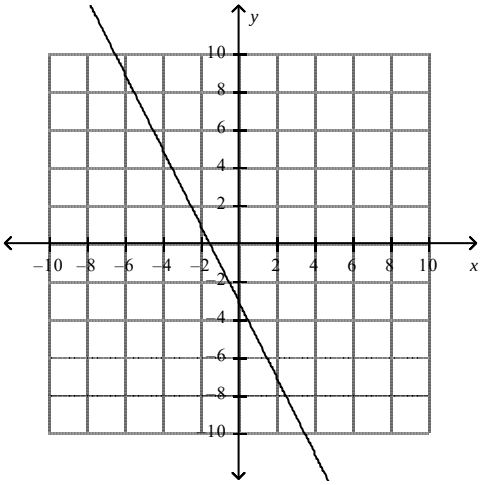
d.



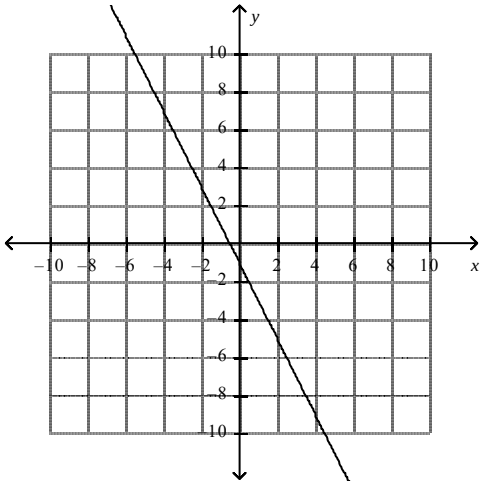
Graph the equation.

____ 35. $y = -2x - 3$

a.



c.



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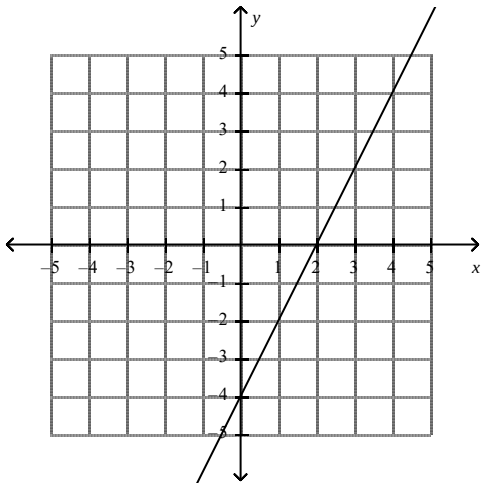
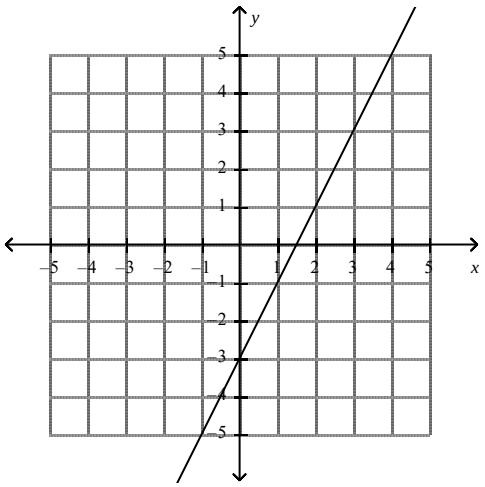


d.



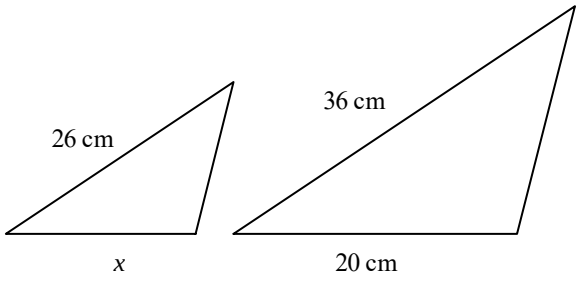
Write a linear equation in slope-intercept form to model the situation.

____ 36. The temperature is 38° and is expected to rise at a rate of 3° per hour.

a. $T = 3 + 38h$
b. $T = 38 + 3h$
c. $T = 38 - 3h$
d. $h = 38 + 3T$

The pair of figures is similar. Find *x*. Round to the nearest tenth if necessary.

____ 37.



Drawing not to scale

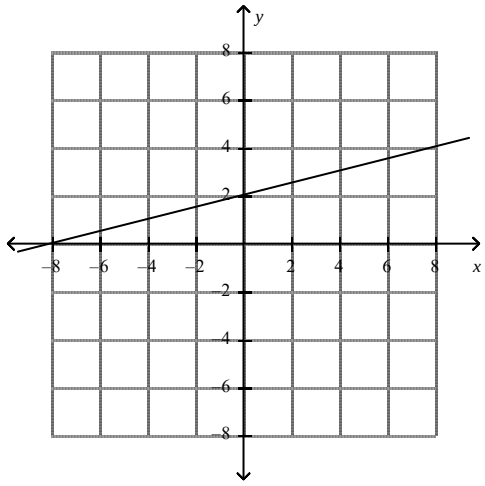
a. 22.2 cm
b. 27.7 cm
c. 30 cm
d. 14.4 cm

Write the equation of a line that is perpendicular to the given line and that passes through the given point.

____ 38. $x + 3y = 16$; (–3, –4)

a. $y = 3x + 5$
b. $y = \frac{1}{3}x + 9$
c. $y = \frac{1}{3}x + 5$
d. $y = -3x + 5$

____ 39. The graph of a linear function is represented below. Identify the *x*-intercept, *y*-intercept, and slope of the graph, and the zero of the function.



a. *x*-intercept: –4; *y*-intercept: 1; slope: $\frac{1}{2}$; zero: $x = -4$

b. *x*-intercept: –8; *y*-intercept: 2; slope: $\frac{1}{4}$; zero: $x = -8$

c. *x*-intercept: 2; *y*-intercept: –8; slope: $\frac{1}{4}$; zero: $x = -8$

d. *x*-intercept: 1; *y*-intercept: –4; slope: $-\frac{1}{2}$; zero: $x = -4$

Write an equation of the line with the given slope and y-intercept

____ 40. slope: $-\frac{4}{7}$, *y*-intercept: 8

a. $y = -\frac{4}{7}x + 8$

b. $y = -\frac{4}{7}x - 8$

c. $y = \frac{4}{7}x + 8$

d. $y = -\frac{7}{4}x + 8$

Beach Bike Rentals charges $5.00 plus $0.20 per mile to rent a bicycle.

____ 41. Write an equation for the total cost *C* of renting a bicycle and riding for *m* miles.

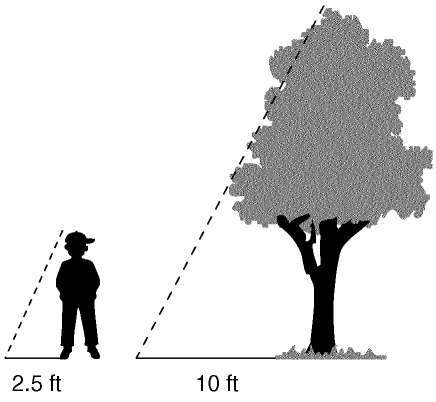
a. $C = 5 + 0.2m$

b. $C = 0.2 + 5m$

c. $m = 5 + 0.2C$

d. $C = 5 + 2m$

____ 42. A tree casts a shadow 10 ft long. A boy standing next to the tree casts a shadow 2.5 ft. long. The triangle shown for the tree and its shadow is similar to the triangle shown for the boy and his shadow. If the boy is 5 ft. tall, how tall is the tree?



Drawing not to scale

a. 18 ft b. 12.5 ft c. 15 ft d. 20 ft

What equation in slope intercept form represents the line that passes through the two points?

____ 43. (2, 5), (9, 2)

a. $y = \frac{3}{7}x - \frac{41}{7}$

c. $y = \frac{7}{3}x + \frac{41}{7}$

b. $y = -\frac{7}{3}x - \frac{41}{7}$

d. $y = -\frac{3}{7}x + \frac{41}{7}$

Tell whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*.

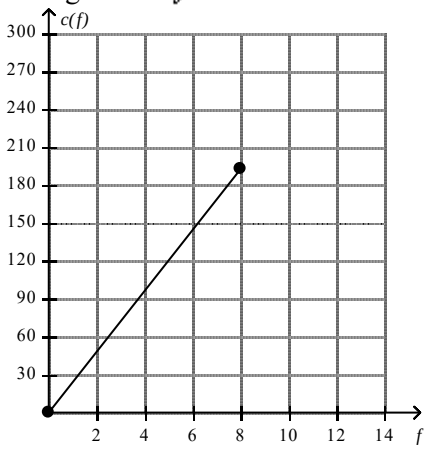
____ 44. $y = \frac{5}{3}x + 3$

$20x + 12y = 12$

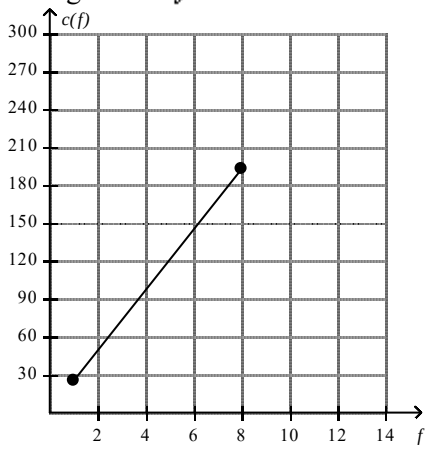
a. parallel b. perpendicular c. neither

____ 45. You have 8 cups of flour. It takes 1 cup of flour to make 24 cookies. The function $c(f) = 24f$ represents the number of cookies, c, that can be made with f cups of flour. What domain and range are reasonable for the function? What is the graph of the function?

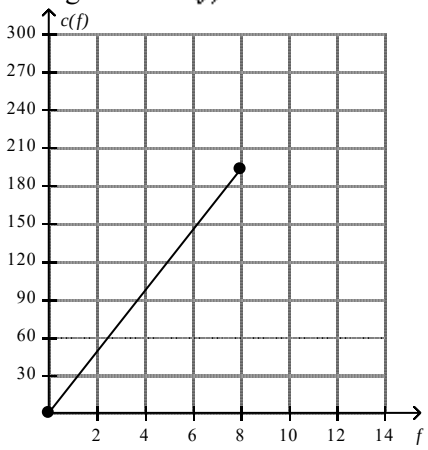
a. The domain is $0 \le c(f) \le 192$.
The range is $0 \le f \le 8$.



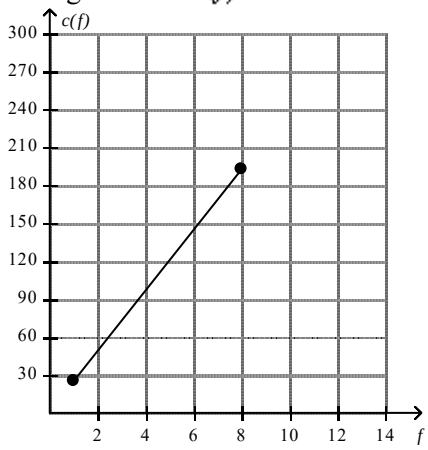
c. The domain is $24 \le c(f) \le 192$.
The range is $1 \le f \le 8$.



b. The domain is $0 \le f \le 8$.
The range is $0 \le c(f) \le 192$.



d. The domain is $1 \le f \le 8$.
The range is $24 \le c(f) \le 192$.



Write a function for the situation. Is the graph *continuous* or *discrete*?

____ 46. A movie store sells DVDs for \$11 each. What is the cost, C, of n DVDs?

a. $C = 11n$; continuous
b. $C = 11 + n$; discrete
c. $C = 11 + n$; continuous
d. $C = 11n$; discrete

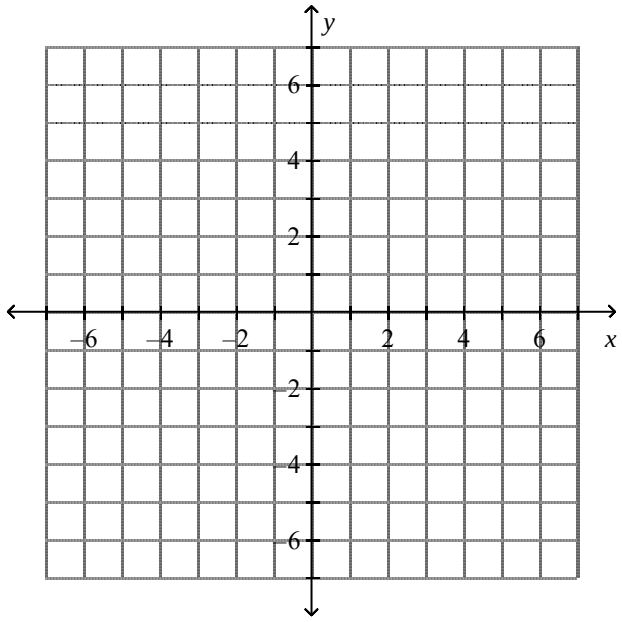
Short Answer

47. Identify the domain and range of the relation.
$\{(-9, 2), (-4, 2), (3, 2), (9, 2)\}$

48. Kate pays $203 in advance on her account at the athletic club. Each time she uses the club, $9 is deducted from the account. Find the value remaining in the account after 12 visits.

49. Model the function rule $y = -11x + 6$ with a table of values and a graph.

x	*y*
–1	
0	
1	



Other

50. Do the values in the table represent a direct variation? Explain your answer.

x	4	5	7
y	13.1	16.3	22.6

Algebra 1 Semester A CBE **REVIEW**
Answer Section

MULTIPLE CHOICE

1. ANS: D PTS: 1 DIF: L2 REF: 3-4 Ratio and Proportion
   OBJ: 3-4.2 Solving Proportions
   NAT: NAEP 2005 N4b | NAEP 2005 N4c | NAEP 2005 M1 | NAEP 2005 M2b | NAEP 2005 A2f | ADP I.1.2 | ADP J.5.1 | ADP K.8.1 STA: TX TEKS 8.1B | TX TEKS 8.3B
   TOP: 3-4 Example 4 KEY: proportion
2. ANS: A PTS: 1 DIF: L2 REF: 3-4 Ratio and Proportion
   OBJ: 3-4.2 Solving Proportions
   NAT: NAEP 2005 N4b | NAEP 2005 N4c | NAEP 2005 M1 | NAEP 2005 M2b | NAEP 2005 A2f | ADP I.1.2 | ADP J.5.1 | ADP K.8.1 STA: TX TEKS 8.1B | TX TEKS 8.3B
   TOP: 3-4 Example 5 KEY: proportion
3. ANS: C PTS: 1 DIF: L3 REF: 4-1 Inequalities and Their Graphs
   OBJ: 4-1.2 Graphing and Writing Inequalities in One Variable NAT: NAEP 2005 A3a | ADP J.3.1
   KEY: translating an inequality | inequality
4. ANS: A PTS: 1 DIF: L2
   REF: 2-6 Formalizing Relations and Functions
   OBJ: 2-7.1 To find domain and range and use function notation STA: (12)(A)
   TOP: 2-7 Problem 1 Evaluating a Function KEY: function notation
5. ANS: D PTS: 1 DIF: L2
   REF: 4-2 Solving Systems Using Substitution
   OBJ: 4-2.1 To solve systems of equations using substitution STA: (2)(I)| (3)(G)| (5)(C)
   TOP: 4-2 Problem 1 Using Substitution
   KEY: substitution method | exact solution of a system of linear equations
6. ANS: D PTS: 1 DIF: L3
   REF: 4-2 Solving Systems Using Substitution
   OBJ: 4-2.1 To solve systems of equations using substitution STA: (2)(I)| (3)(G)| (5)(C)
   TOP: 4-2 Problem 1 Using Substitution
   KEY: substitution method | exact solution of a system of linear equations
7. ANS: B
   A scatter plot is a graph in which two sets of data are plotted as ordered pairs in a coordinate plane. There is a positive correlation when as *x* increases, *y* increases. There is a negative correlation when as *x* increases, *y* decreases. There is no correlation when *x* and *y* are not related.

	Feedback
A	Are the variables related?
B	Correct!
C	Is the speed increasing?
D	What is meant by positive correlation?

   PTS: 1 DIF: Average REF: Lesson 4-6
   OBJ: 4-6.1 Interpret points on a scatter plot. STA: A.1(E) | A.2(D) | A.3(B) | A.6(D)
   TOP: Interpret points on a scatter plot KEY: Scatter Plot | Interpret Data
8. ANS: D PTS: 1 DIF: L2
   REF: 7-5 Solving Equations With Variables on Both Sides
   OBJ: 7-5.1 Solving Equations With Variables on Both Sides NAT: NAEP 2005 A4a | NAEP 2005 A4c

STA: TX TEKS 8.4 | TX TEKS 8.5A TOP: 7-5 Example 1
KEY: combining like terms | solving equations with variables on both sides

9. ANS: B PTS: 1 DIF: L3 REF: 7-2 Solving Multi-Step Equations
OBJ: 7-2.2 Using the Distributive Property NAT: NAEP 2005 A4a | NAEP 2005 A4c
STA: TX TEKS 8.2C | TX TEKS 8.5A TOP: 7-2 Example 3
KEY: combining like terms | solving multi-step equations | Distributive Property

10. ANS: B
The function value $f(a)$ is found by substituting a for x in the equation.

	Feedback
A	Did you multiply carefully?
B	Correct!
C	Did you evaluate carefully after substituting?
D	Be careful with signs.

PTS: 1 DIF: Average REF: Lesson 3-2 OBJ: 3-2.2 Find functional values.
STA: A.4(A) | A.4(C) | A.5(C) TOP: Find functional values
KEY: Functions | Functional Values

11. ANS: C PTS: 1 DIF: L2 REF: 7-7 Transforming Formulas
OBJ: 7-7.1 Solving Formulas for a Given Variable NAT: NAEP 2005 A4e
STA: TX TEKS 8.5A TOP: 7-7 Example 2
KEY: transforming a formula

12. ANS: D PTS: 1 DIF: L3 REF: 3-5 Standard Form
OBJ: 3-5.2 To write linear equations in standard form
STA: (2)(A)| (2)(B)| (2)(C)| (2)(G)| (3)(A)| (3)(C)
TOP: 3-5 Problem 4 Writing Linear Equations in Standard Form
KEY: standard form of a linear equation

13. ANS: D PTS: 1 DIF: L3 REF: 3-4 Point-Slope Form
OBJ: 3-4.1 To write and graph linear equations using point-slope form
STA: (2)(B)| (2)(C)| (3)(A)| (3)(B)| (3)(C)| (12)(E)
TOP: 3-4 Problem 1 Writing an Equation in Point-Slope Form KEY: point-slope form

14. ANS: B PTS: 1 DIF: L2 REF: 3-2 Solving Multi-Step Equations
OBJ: 3-2.1 Using the Distributive Property to Combine Like Terms
NAT: NAEP 2005 A3b | NAEP 2005 A3c | NAEP 2005 A4a | NAEP 2005 A4c | ADP J.3.1 | ADP J.5.1
STA: TX TEKS A.4A | TX TEKS A.7B TOP: 3-2 Example 1
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | solving equations | multi-step equation

15. ANS: B PTS: 1 DIF: L3 REF: 4-5 Linear Inequalities
OBJ: 4-5.1 To graph linear inequalities in two variables STA: (2)(H)| (3)(D)
TOP: 4-5 Problem 2 Graphing an Inequality in Two Variables KEY: linear inequality

16. ANS: A PTS: 1 DIF: L4 REF: 4-5 Linear Inequalities
OBJ: 4-5.1 To graph linear inequalities in two variables STA: (2)(H)| (3)(D)
TOP: 4-5 Problem 2 Graphing an Inequality in Two Variables KEY: linear inequality

17. ANS: C PTS: 1 DIF: L2 REF: 2-4 Graphing a Function Rule
OBJ: 2-4.1 To graph equations that represent functions STA: (3)(C)| (2)(A)| (3)(A)
TOP: 2-4 Problem 4 Graphing Nonlinear Function Rules KEY: continuous graph

18. ANS: C PTS: 1 DIF: L2 REF: 2-2 Linear Equations
OBJ: 2-2.1 Graphing Linear Equations TOP: 2-2 Example 3
KEY: slope

19. ANS: D PTS: 1 DIF: L2 REF: 2-2 Linear Equations
OBJ: 2-2.1 Graphing Linear Equations TOP: 2-2 Example 3
KEY: slope

20. ANS: A PTS: 1 DIF: L3 REF: 4-1 Solving Systems By Graphing
OBJ: 4-1.1 To analyze special systems STA: (2)(I)| (3)(F)| (5)(C)
TOP: 4-1 Problem 3 Systems With Infinitely Many Solutions or No Solution
KEY: system of linear equations | solution of a system of linear equations | inconsistent

21. ANS: B PTS: 1 DIF: L3 REF: 4-6 Systems of Linear Inequalities
OBJ: 4-6.1 To solve systems of linear inequalities by graphing STA: (2)(H)| (3)(D)| (3)(H)
TOP: 4-6 Problem 1 Graphing a System of Inequalities KEY: system of linear inequalities

22. ANS: B PTS: 1 DIF: L3
REF: 4-2 Solving Systems Using Substitution
OBJ: 4-2.1 To solve systems of equations using substitution STA: (2)(I)| (3)(G)| (5)(C)
TOP: 4-2 Problem 2 Solving for a Variable and Using Substitution
KEY: substitution method | exact solution of a system of linear equations

23. ANS: A
Find the difference of the values for *t* and *d*. Use the relationship between them to write an equation.

	Feedback
A	Correct!
B	Check the operator.
C	Check your answer.
D	Look at the hint and try again!

PTS: 1 DIF: Basic REF: Lesson 3-5
OBJ: 3-5.1 Write an equation for a proportional or nonproportional relationship.
STA: A.3(B) | A.5(C)
TOP: Write an equation for a proportional or nonproportional relationship.

24. ANS: A PTS: 1 DIF: L2 REF: 13-3 Exponential Growth and Decay
OBJ: 13-3.2 Exponential Decay NAT: NAEP 2005 A2g
TOP: 13-3 Example 3 KEY: function | exponential decay

25. ANS: B PTS: 1 DIF: L3 REF: 3-4 Point-Slope Form
OBJ: 3-4.1 To write and graph linear equations using point-slope form
STA: (2)(B)| (2)(C)| (3)(A)| (3)(B)| (3)(C)| (12)(E)
TOP: 3-4 Problem 2 Graphing Using Point-Slope Form KEY: point-slope form

26. ANS: C PTS: 1 DIF: L3 REF: 4-6 Systems of Linear Inequalities
OBJ: 4-6.1 To solve systems of linear inequalities by graphing STA: (2)(H)| (3)(D)| (3)(H)
TOP: 4-6 Problem 2 Writing a System of Inequalities From a Graph
KEY: system of linear inequalities

27. ANS: B PTS: 1 DIF: L2 REF: 3-6 Parallel and Perpendicular Lines
OBJ: 3-6.2 To write equations of parallel lines and perpendicular lines
STA: (2)(B)| (2)(C)| (2)(E)| (2)(F)| (3)(A) TOP: 3-6 Problem 1 Writing an Equation of a Parallel Line
KEY: parallel lines

28. ANS: D PTS: 1 DIF: L2 REF: 4-1 Solving Systems By Graphing
OBJ: 4-1.2 To solve systems of equations by graphing STA: (2)(I)| (3)(F)| (5)(C)
TOP: 4-1 Problem 1 Solving a System of Equations by Graphing
KEY: system of linear equations | approximate solution of a system of linear equations | consistent | independent

29. ANS: B PTS: 1 DIF: L2 REF: 3-1 Solving Two-Step Equations
OBJ: 3-1.1 Solving Two-Step Equations
NAT: NAEP 2005 N5e | NAEP 2005 A2e | NAEP 2005 A4a | NAEP 2005 A4c | ADP J.3.1 | ADP J.5.1
STA: TX TEKS A.4A | TX TEKS A.7A | TX TEKS A.7C TOP: 3-1 Example 2
KEY: Addition and Subtraction Properties of Equality | Multiplication and Division Properties of Equality | two-step equation | equivalent equations | inverse operations | solution of the equation | solving equations | problem solving | word problem

30. ANS: A PTS: 1 DIF: L2 REF: 2-2 Linear Equations
OBJ: 2-2.1 Graphing Linear Equations TOP: 2-2 Example 1
KEY: linear equation | graphing

31. ANS: C PTS: 1 DIF: L3
REF: 1-2 Exponents and Order of Operations
OBJ: 1-2.2 Simplifying and Evaluating Expressions With Grouping Symbols
NAT: NAEP 2005 A3b | ADP I.1.3 | ADP J.1.6 | ADP K.8.2 TOP: 1-2 Example 7
KEY: order of operations | word problem | problem solving

32. ANS: B PTS: 1 DIF: L3 REF: 4-5 Linear Inequalities
OBJ: 4-5.1 To graph linear inequalities in two variables STA: (2)(H)| (3)(D)
TOP: 4-5 Problem 3 Graphing a Linear Inequality in One Variable
KEY: linear inequality

33. ANS: A
A direct variation is described by an equation of the form $y = kx$, where $k \neq 0$. We say that y varies directly with x or y varies directly as x. In the equation $y = kx$, k is the constant of variation.

	Feedback
A	Correct!
B	Be careful with sign rules.
C	Are you sure about the solution to the equation?
D	Does that equation work for the given values?

PTS: 1 DIF: Basic REF: Lesson 4-2
OBJ: 4-2.1 Write and graph direct variation equations. STA: A.5(C) | A.6(F) | A.6(G) | A.7(A)
TOP: Write and graph direct variation equations
KEY: Direct Variation | Graphs | Equations

34. ANS: D PTS: 1 DIF: L3 REF: 3-5 Standard Form
OBJ: 3-5.1 To graph linear equations using intercepts
STA: (2)(A)| (2)(B)| (2)(C)| (2)(G)| (3)(A)| (3)(C)
TOP: 3-5 Problem 3 Writing Equations for Horizontal and Vertical Lines
KEY: standard form of a linear equation

35. ANS: A PTS: 1 DIF: L3 REF: 3-3 Slope-Intercept Form
OBJ: 3-3.2 To graph linear equations in slope-intercept form STA: (2)(B)| (2)(C)| (3)(A)| (3)(B)| (3)(C)
TOP: 3-3 Problem 5 Graphing a Linear Function
KEY: linear equation | y-intercept | slope-intercept form

36. ANS: B
If a quantity changes at a constant rate over time, it can be modeled by a linear equation. The y-intercept represents a starting point, and the slope represents the rate of change.

	Feedback
A	What is the starting temperature?
B	Correct!
C	Is the temperature decreasing?

D	Which variable is the independent variable?

PTS: 1 DIF: Basic REF: Lesson 4-3
OBJ: 4-3.2 Model real-world data with an equation in slope-intercept form.
STA: A.1(D) | A.5(C) | A.6(D) | A.7(A) | A.7(B) | A.7(C)
TOP: Model real-world data with an equation in slope-intercept form
KEY: Slope-Intercept Form | Equations | Real-World Problems

37. ANS: D PTS: 1 DIF: L2 REF: 3-5 Proportions and Similar Figures
OBJ: 3-5.1 Similar Figures
NAT: NAEP 2005 N4c | NAEP 2005 M1 | ADP K. | NAEP 2005 M2f | NAEP 2005 M2g | NAEP 2005 G2e | ADP I.1.2 | ADP J.5.1 | ADP K.3 | ADP K.7
STA: TX TEKS 8.3B | TX TEKS 8.6A | TX TEKS 8.9B TOP: 3-5 Example 1
KEY: similar figures | proportion

38. ANS: A PTS: 1 DIF: L3 REF: 3-6 Parallel and Perpendicular Lines
OBJ: 3-6.2 To write equations of parallel lines and perpendicular lines
STA: (2)(B)| (2)(C)| (2)(E)| (2)(F)| (3)(A)
TOP: 3-6 Problem 3 Writing an Equation of a Perpendicular Line
KEY: perpendicular lines

39. ANS: B PTS: 1 DIF: L3 REF: 3-5 Standard Form
OBJ: 3-5.1 To graph linear equations using intercepts
STA: (2)(A)| (2)(B)| (2)(C)| (2)(G)| (3)(A)| (3)(C)
TOP: 3-5 Problem 6 Identifying Features of a Linear Function KEY: x-intercept | zero of a function

40. ANS: A
The linear equation $y = mx + b$ is written in slope-intercept form, where m is the slope and b is the y-intercept.

	Feedback
A	Correct!
B	What is the y-intercept?
C	What is the slope of the line?
D	What is the slope?

PTS: 1 DIF: Basic REF: Lesson 4-3
OBJ: 4-3.1 Write and graph linear equations in slope-intercept form.
STA: A.1(D) | A.5(C) | A.6(D) | A.7(A) | A.7(B) | A.7(C)
TOP: Write and graph linear equations in slope-intercept form
KEY: Slope-Intercept Form | Linear Equations | Graphs

41. ANS: A
If a quantity changes at a constant rate over time, it can be modeled by a linear equation. The y-intercept represents a starting point, and the slope represents the rate of change.

	Feedback
A	Correct!
B	Which number would be the y-intercept in the linear equation?
C	Which variable should be the independent variable?
D	What is the rate of change?

PTS: 1 DIF: Basic REF: Lesson 4-3
OBJ: 4-3.2 Model real-world data with an equation in slope-intercept form.
STA: A.1(D) | A.5(C) | A.6(D) | A.7(A) | A.7(B) | A.7(C)

TOP: Model real-world data with an equation in slope-intercept form
KEY: Slope-Intercept Form | Equations | Real-World Problems

42. ANS: D PTS: 1 DIF: L2 REF: 3-5 Proportions and Similar Figures
OBJ: 3-5.2 Indirect Measurement and Scale Drawings
NAT: NAEP 2005 N4c | NAEP 2005 M1 | ADP K. | NAEP 2005 M2f | NAEP 2005 M2g | NAEP 2005 G2e | ADP I.1.2 | ADP J.5.1 | ADP K.3 | ADP K.7
STA: TX TEKS 8.3B | TX TEKS 8.6A | TX TEKS 8.9B TOP: 3-5 Example 3
KEY: indirect measurement | similar figures | proportion | problem solving | word problem

43. ANS: D PTS: 1 DIF: L2 REF: 3-3 Slope-Intercept Form
OBJ: 3-3.1 To write linear equations using slope-intercept form STA: (2)(B)| (2)(C)| (3)(A)| (3)(B)| (3)(C)
TOP: 3-3 Problem 4 Writing an Equation From Two Points
KEY: linear equation | y-intercept | slope-intercept form

44. ANS: C PTS: 1 DIF: L3 REF: 3-6 Parallel and Perpendicular Lines
OBJ: 3-6.1 To determine whether lines are parallel, perpendicular, or neither
STA: (2)(B)| (2)(C)| (2)(E)| (2)(F)| (3)(A) TOP: 3-6 Problem 2 Classifying Lines
KEY: perpendicular lines | parallel lines | compare properties of two functions

45. ANS: B PTS: 1 DIF: L3
REF: 2-6 Formalizing Relations and Functions
OBJ: 2-7.1 To find domain and range and use function notation STA: (12)(A)
TOP: 2-7 Problem 3 Identifying a Reasonable Domain and Range
KEY: domain | range | function notation | choosing the correct scale

46. ANS: D PTS: 1 DIF: L3 REF: 2-4 Graphing a Function Rule
OBJ: 2-4.1 To graph equations that represent functions STA: (3)(C)| (2)(A)| (3)(A)
TOP: 2-4 Problem 3 Identifying Continuous and Discrete Graphs
KEY: continuous graph | discrete graph

SHORT ANSWER

47. ANS:
The domain is {–9, –4, 3, 9}.
The range is {2}.

PTS: 1 DIF: L3 REF: 2-6 Formalizing Relations and Functions
OBJ: 2-7.1 To find domain and range and use function notation STA: (12)(A)
TOP: 2-6 Problem 1 Identifying Functions Using Mapping Diagrams
KEY: relation | domain | range

48. ANS:
$95

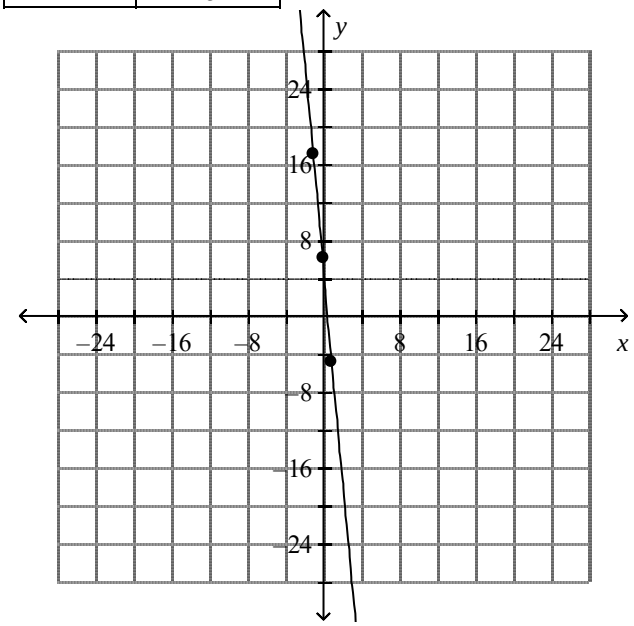
To find the remaining amount, subtract the amount deducted after 12 visits from the initial amount deposited in the account.

PTS: 1 DIF: Advanced REF: Lesson 3-4 OBJ: 3-4.3 Solve multi-step problems.
STA: A.3(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving

49. ANS:

x	*y*
–1	17

0	6
1	–5



PTS: 1 DIF: L3 REF: 2-4 Graphing a Function Rule
OBJ: 2-4.1 To graph equations that represent functions STA: (3)(C)| (2)(A)| (3)(A)
TOP: 2-4 Problem 1 Graphing a Function Rule KEY: continuous graph

OTHER

50. ANS:
No; there is no constant of variation *k* such that $y = kx$.

$$\frac{13.1}{4} \neq \frac{16.3}{5} \neq \frac{22.6}{7}$$

PTS: 1 DIF: L3 REF: 2-3 Direct Variation
OBJ: 2-3.1 Writing and Interpreting a Direct Variation STA: TX TEKS 2A.10G
TOP: 2-3 Example 1
KEY: direct variation | constant of variation | writing in math | reasoning