ALGEBRA 1

STUDENT WORKBOOK 2

TOPICS 4-6

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After

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5.2 Direct Variation
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5.3 Slope-Intercept Form
QUIZ 15
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QUIZ 19
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STUDY ISLAND TOPICS

PA CORE 8
Proportional Relationships Solving Linear Equations Systems of Equations
Functions Linear VS Nonlinear Linear Relationships
PA KEYSTONE
Rate of Change Linear Equations Write or Identify Linear Equation
System of Linear Equations Patters Linear Functions

Name: _____ Period ____

Name _____ Class _____ Date _____

5-1 Practice

Form G

Rate of Change and Slope

Determine whether each rate of change is constant. If it is, find the rate of change and explain what it represents.

1.

Hockey Team's Offense

Games	Goals
1	2
2	4
3	6

2.

Miles Per Gallon

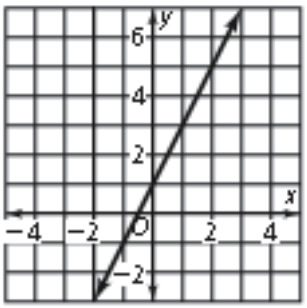
Gallons	Miles
1	28
3	84
5	140
7	196

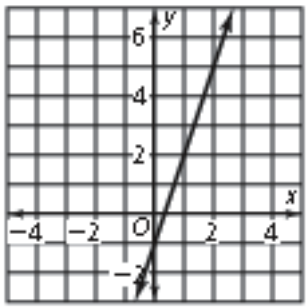
3.

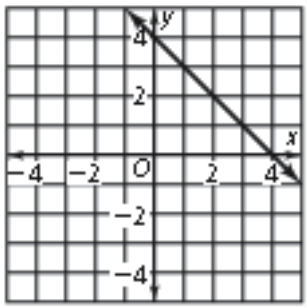
Cars Washed

Hours	Cars
1	4
2	8
3	12
4	16

Find the slope of each line.

4. 

5. 

6. 

Find the slope of the line that passes through each pair of points.

7. (2, 1), (0, 0)

8. (4, 5), (6, 2)

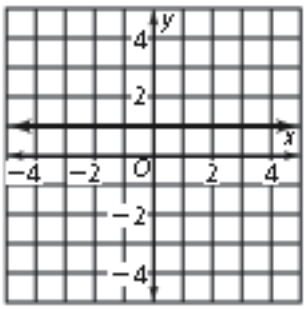
9. (3, 8), (7, 3)

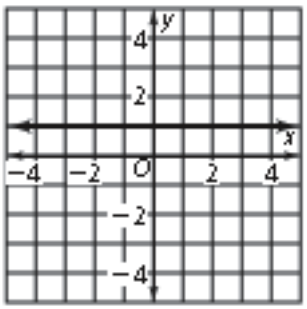
10. (1, 0), (–4, 2)

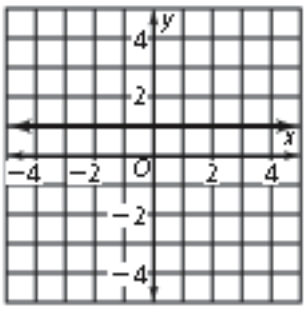
11. (8, –4), (–6, –3)

12. (–2, –3), (6, 5)

Find the slope of each line.

13. 

14. 

15. 

Name _____ Class _____ Date _____

5-1 Practice (continued) *Form G*

Rate of Change and Slope

Without graphing, tell whether the slope of a line that models each situation is *positive, negative, zero,* or *undefined*. Then find the slope.

16. The cost of tickets to the amusement park is $19.50 for 1 ticket and $78 for 4 tickets.

17. The late fee is $2 regardless of the number of days the movie is late.

18. On the trip, Jerry had his cruise control set at 60 mi/h for 4 hours.

19. The contract states that every day past the agreed upon completion date the project is not finished, the price is reduced by $25.

State the independent variable and the dependent variable in each situation. Then find the rate of change for each situation.

20. Shelly delivered 12 newspapers after 20 minutes and 36 papers after 60 minutes.

21. Two pounds of apples cost $3.98. Six pounds cost $11.94.

22. An airplane ascended 3000 feet in 10 minutes and 4500 feet in 15 minutes.

Find the slope of the line that passes through each pair of points.

23. (–5, 0), (–5, 5)

24. (–2, –4), (–1.5, –1.5)

25. (4.75, –3.575), (2.25, 1.425)

26. $\left(-\frac{1}{4}, \frac{3}{4}\right), \left(\frac{1}{2}, -\frac{3}{4}\right)$

27. $\left(\frac{2}{5}, \frac{3}{7}\right), \left(\frac{1}{5}, \frac{4}{7}\right)$

28. (–3.35, 6.5), (5.65, –3.5)

29. Writing Explain why the slope of a horizontal line is always zero.

30. Writing Describe how to draw a line that passes through the origin and has a slope of $\frac{2}{3}$.

Each pair of points lies on a line with the given slope. Find *x* or *y*.

31. (7, 4), (3, *y*); slope = $\frac{1}{4}$

32. (5, *y*), (6, 4); slope = 0

33. (*x*, 5), (–3, 6); slope = –1

34. (–12, 9), (*x*, –2); slope = $-\frac{1}{2}$

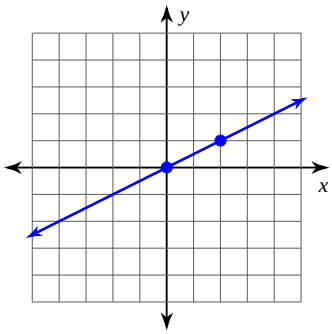
Kuta Software - Infinite Algebra 1 Name_____

Finding Slope From a Graph

Date_____ Period____

Find the slope of each line.

1)



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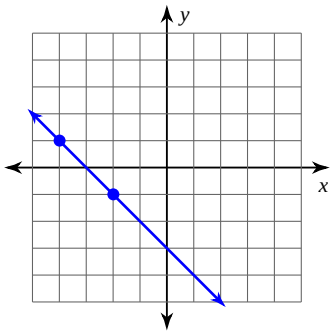

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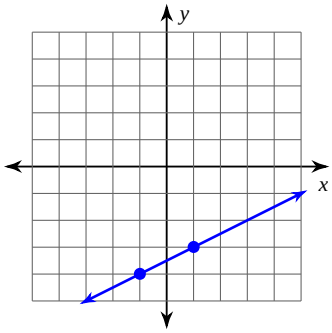

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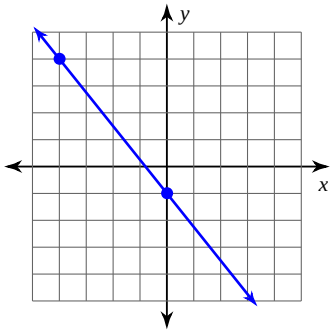

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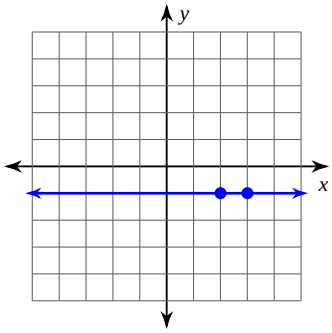

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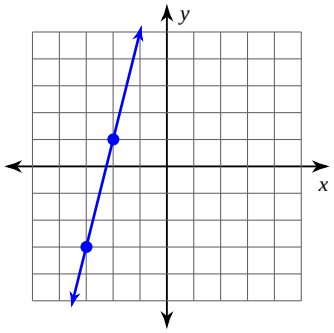

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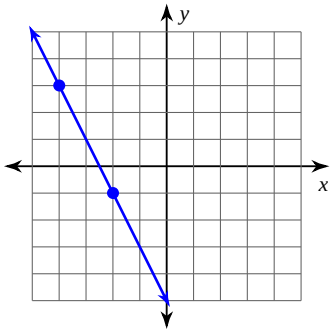

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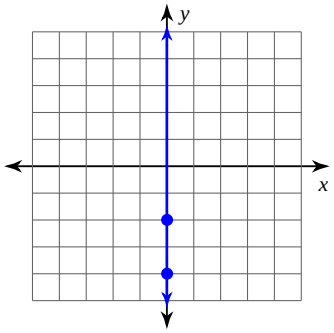

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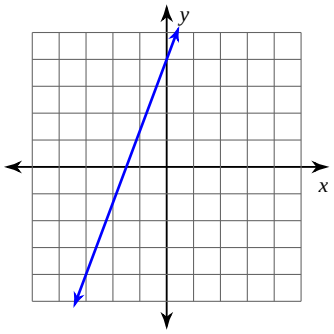

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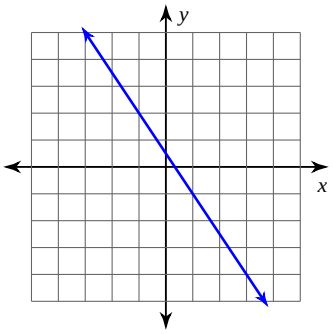

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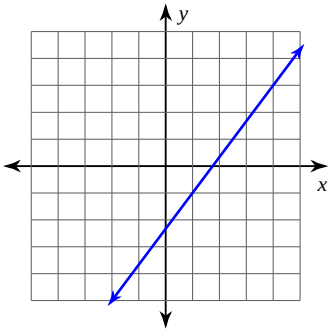

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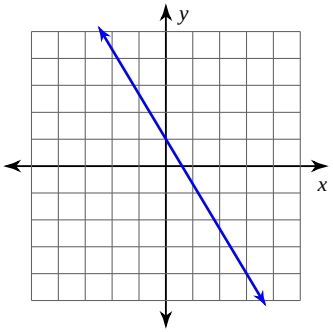

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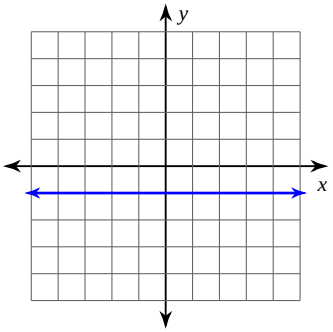

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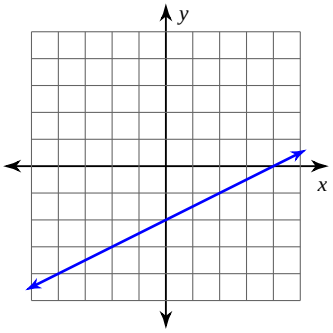

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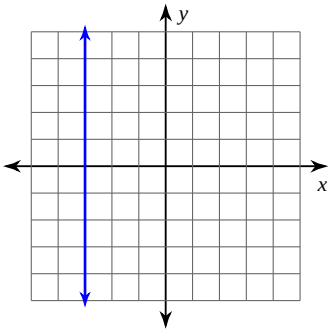

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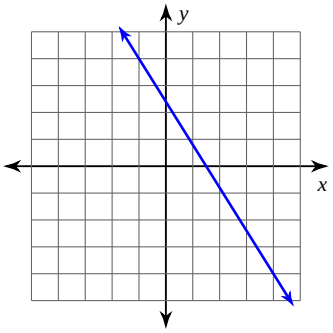


5

Finding Slope From Two Points

Date_____ Period____

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

1) $(19, -16), (-7, -15)$

2) $(1, -19), (-2, -7)$

3) $(-4, 7), (-6, -4)$

4) $(20, 8), (9, 16)$

5) $(17, -13), (17, 8)$

6) $(19, 3), (20, 3)$

7) $(3, 0), (-11, -15)$

8) $(19, -2), (-11, 10)$

9) $(6, -10), (-15, 15)$

10) $(12, -18), (-15, -18)$

11) $(3, -20), (5, 8)$

12) $(15, 8), (-17, 9)$

13) $(-19, 12), (-9, 1)$

14) $(12, 2), (-7, 5)$

15) $(6, -12), (15, -3)$

16) $(9, 3), (19, -17)$

 Name_____

Finding Slope From an Equation

Date_____ Period____

Find the slope of each line.

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

2) $y = -\frac{4}{3}x - 1$

3) $y = -x + 3$

4) $y = -4x - 1$

5) $2x - y = 1$

6) $x + 2y = -8$

7) $8x + 3y = -9$

8) $4x + 5y = -10$

9) $x - y = -2$

10) $4x - 3y = 9$

11) $3x + 2y = 6$

12) $4x - 5y = 0$

13) $y = -1$

14) $x + 5y = -15$

15) $-2y - 10 + 2x = 0$

16) $x + 5 + y = 0$

17) $3x + 20 = -4y$

18) $-15 - x = -5y$

19) $-1 = -2x + y$

20) $-x - 1 = y$

21) $0 = 5y - x$

22) $-30 + 10y = -2x$

9

Name _____ Class _____ Date _____

5-2 Practice

Form G

Direct Variation

Determine whether each equation represents a direct variation. If it does, find the constant of variation.

1. $-8y = 2x$

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

3. $12x = -36y$

4. $-7 + 9y + 7 = 2x$

5. $y - 12 = 12x$

6. $5x + 12.5y = 0$

Suppose y varies directly with x. Write a direct variation equation that relates x and y. Then find the value of y when $x = 8$.

7. $y = 10$ when $x = 2$.

8. $y = 6$ when $x = 18$.

9. $y = 2$ when $x = 5$.

10. $y = 9.92$ when $x = 12.8$.

11. $y = 1.85$ when $x = 0.925$.

12. $y = 1\frac{2}{9}$ when $x = 3\frac{2}{3}$.

Graph each direct variation equation.

13. $y = 5x$

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

15. $y = \frac{3}{4}x$

16. An equilateral triangle is a triangle with three equal sides. The perimeter of an equilateral triangle varies directly with the length of one side. What is an equation that relates the perimeter p and length l of a side? What is the graph of the equation?

17. The amount a you fill a tub varies directly with the amount of time t you fill it. Suppose you fill 25 gallons in 5 minutes. What is an equation that relates a and t? What is the graph of the equation?

Name _____ Class _____ Date _____

5-2 Practice (continued) *Form G*

Direct Variation

For the data in each table, tell whether *y* varies directly with *x*. If it does, write an equation for the direct variation.

18.

x	*y*
2	−2.5
−7	8.75
5	−6.25

19.

x	*y*
9	10.8
12	14.4
−3	3.6

20.

x	*y*
−6.5	−19.5
−5.2	−15.6
4.8	14.4

Suppose *y* varies directly with *x*. Write and graph a direct variation equation that relates *x* and *y*.

21. $y = -6$ when $x = 3$.

22. $y = -\frac{4}{3}$ when $x = -4$.

23. $y = \frac{5}{8}$ when $x = \frac{1}{2}$.

Tell whether the two quantities vary directly. Explain your reasoning.

24. the total number of miles run and the number of miles you run per day when training for a race

25. Jackson's age and Dylan's age

26. a recipe that calls for 2 cups of sugar for each cup of flour

27. **Writing** In a direct variation equation, describe how the slope of the graph of the line is related to the constant of variation.

28. Janine gets paid $16.75 per hour at her job. Write a direct variation equation where *h* represents the number of hours she works and *d* represents the amount of money she earns. Graph the equation.

Name _____ Class _____ Date _____

5-3 Practice

Form G

Slope-Intercept Form

Find the slope and *y*-intercept of the graph of each equation.

1. $y = 3x - 5$

2. $y = -5x + 13$

3. $y = -x - 1$

4. $y = -11x + 6$

5. $y = -5$

6. $y = \frac{1}{2}x + 6$

7. $y = -6.75x + 8.54$

8. $y = -\frac{2}{3}x - \frac{1}{9}$

9. $y = 2.25$

Write an equation of a line with the given slope *m* and *y*-intercept *b*.

10. $m = -1, b = 3$

11. $m = 4, b = -2$

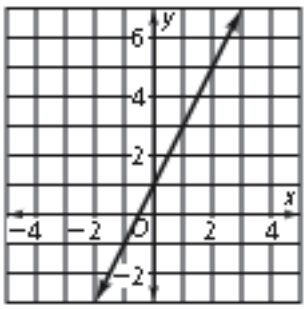
12. $m = -5, b = -8$

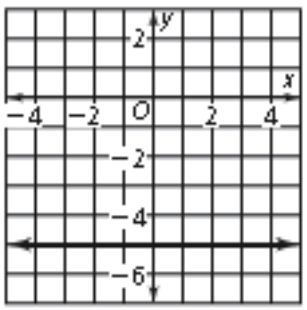
13. $m = 0.25, b = 6$

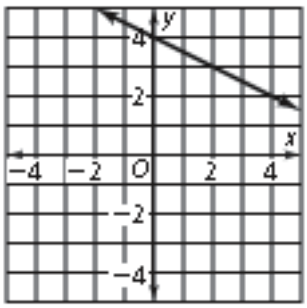
14. $m = 0, b = -11$

15. $m = 1, b = \frac{3}{8}$

Write an equation in slope-intercept form of each line.

16. 

17. 

18. 

Write an equation in slope-intercept form of the line that passes through the given points.

19. (3, 5) and (0, 4)

20. (2, 6) and (−4, −2)

21. (−1, 3) and (−3, 1)

22. (−7, 5) and (3, 0)

23. (10, 2) and (−2, −2)

24. (0, −1) and (5, 6)

25. (3, 2) and (−1, 6)

26. (−4, −3) and (3, 4)

27. (2, 8) and (−3, 6)

Name _____ Class _____ Date _____

5-3 Practice (continued) *Form G*

Slope-Intercept Form

Graph each equation.

28. $y = x + 3$

29. $y = 4x - 1$

30. $y = -x + 6$

31. $y = 3x - 2$

32. $y = -5x + 1$

33. $y = -7x - 4$

34. Hudson is already 40 miles away from home on his drive back to college. He is driving 65 mi/h. Write an equation that models the total distance d travelled after h hours. What is the graph of the equation?

35. When Phil started his new job, he owed the company $65 for his uniforms. He is earning $13 per hour. The cost of his uniforms is withheld from his earnings. Write an equation that models the total money he has m after h hours of work. What is the graph of the equation?

Find the slope and the *y*-intercept of the graph of each equation.

36. $y + 4 = -6x$

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

38. $3y - 12x + 6 = 0$

39. $y - 5 = \frac{1}{3}(x - 9)$

40. $y - \frac{2}{5}x = 0$

41. $2y + 6a - 4x = 0$

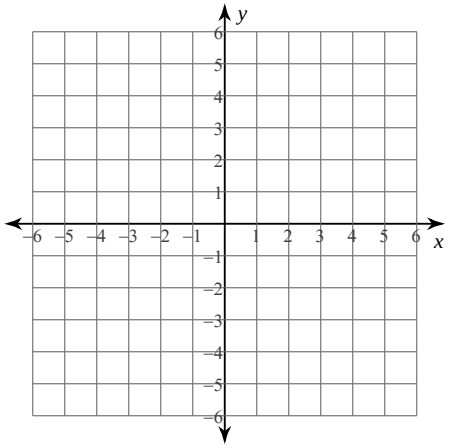
Name_____

Graphing Lines

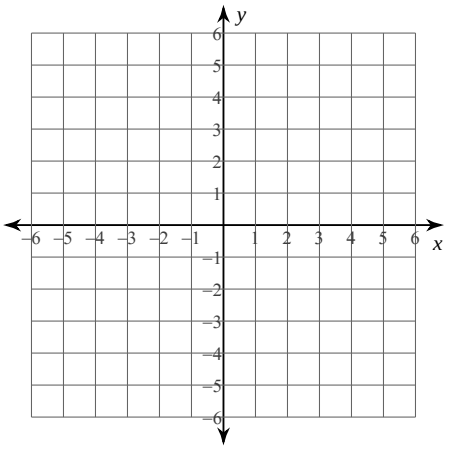
Date_____ Period____

Sketch the graph of each line.

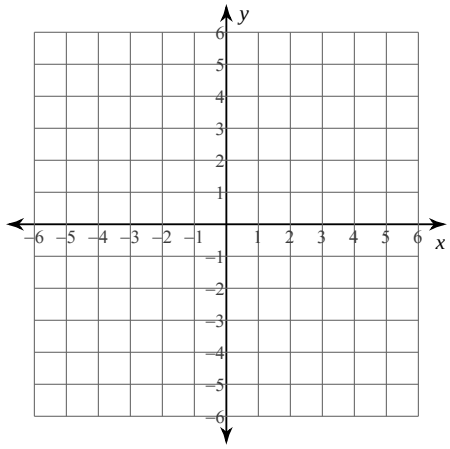
1) $y = \frac{7}{2}x - 2$



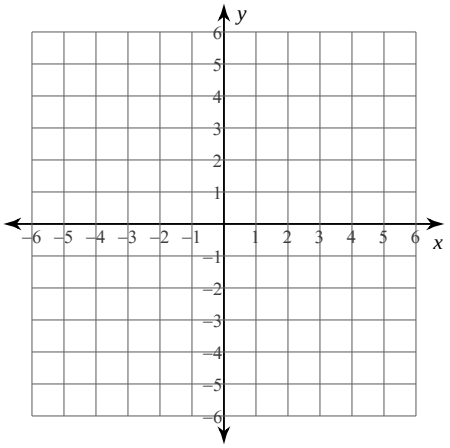
2) $y = -6x + 3$



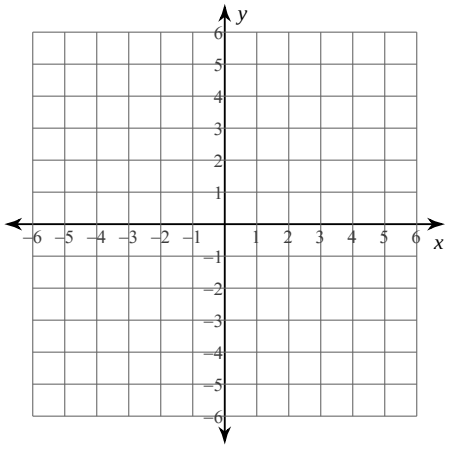
3) $y = -5$



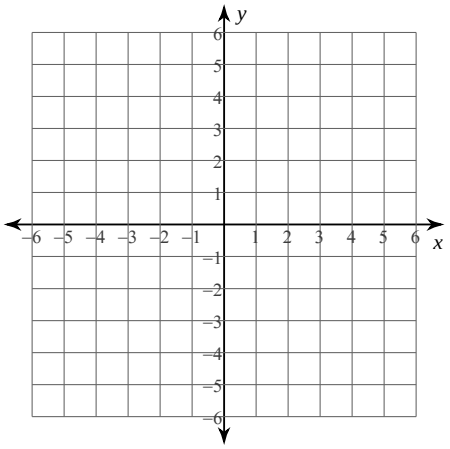
4) $y = \frac{6}{5}x + 1$



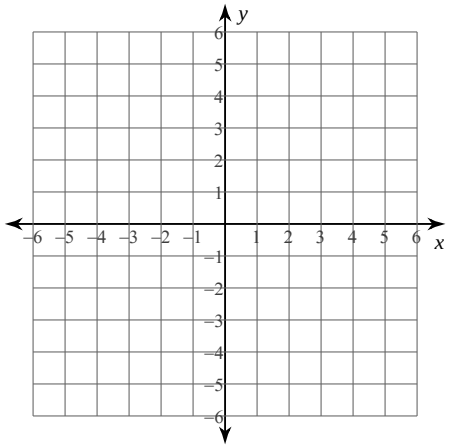
5) $y = \frac{1}{4}x + 2$



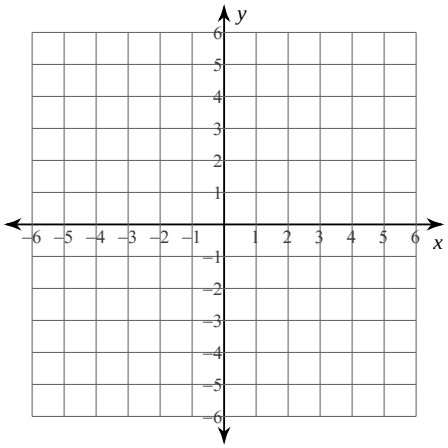
6) $x = 5$



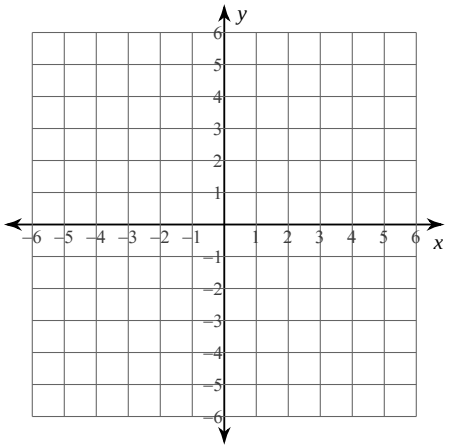
7) $y = \frac{5}{3}x$



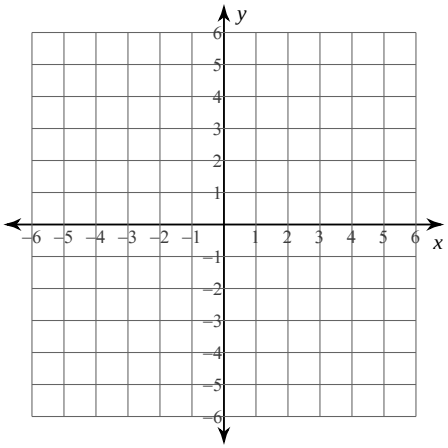
8) $x = 0$



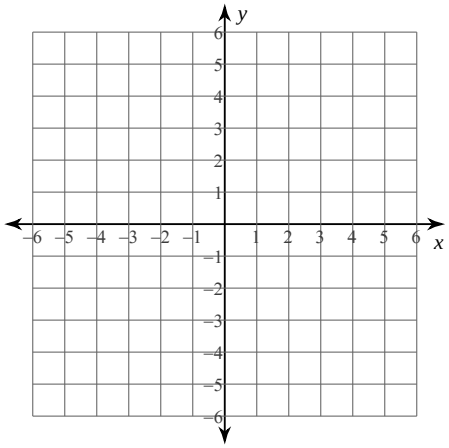
9) $y = -\frac{1}{3}x + 3$



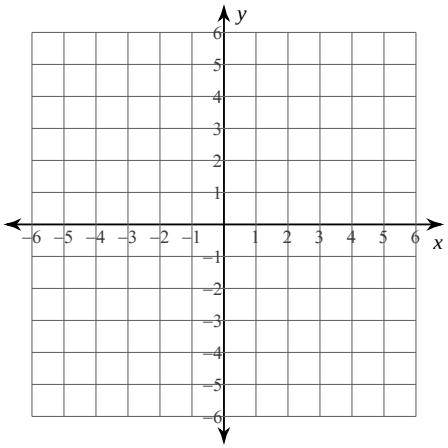
10) $y = \frac{1}{5}x - 4$



11) $y = \frac{1}{2}x - 2$



12) $y = 2x + 5$



15

Name _____ Class _____ Date _____

5-4 Practice

Form G

Point-Slope Form

Write an equation of the line in slope-intercept form through the given point and with the given slope *m*.

1. (2, 1); $m = 3$

2. (–3, –5); $m = -2$

3. (–4, 11); $m = \frac{3}{4}$

4. (0, –3); $m = -\frac{2}{3}$

Graph each equation.

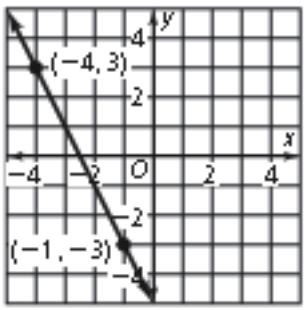
5. $y - 2 = 2(x + 3)$

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

7. $y + 1 = -\frac{3}{5}(x + 5)$

Write an equation in point-slope form for each line.

8.



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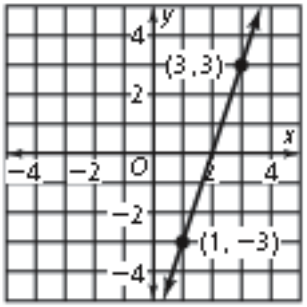
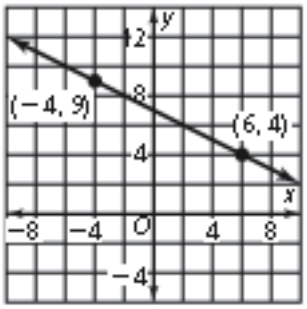


10.



Write an equation in point-slope form of the line through the given points. Then write the equation in slope-intercept form.

11. (4, 0), (–2, 1)

12. (–3, –2), (5, 3)

13. (–5, 1), (3, 4)

14. Open-Ended Write an equation of a line that has a slope of $-\frac{1}{2}$ in each form.

a. point-slope form

b. slope-intercept form

Name _____ Class _____ Date _____

5-4 Practice (continued) *Form G*

Point-Slope Form

Model the data in each table with a linear equation in slope-intercept form. What do the slope and *y*-intercept represent?

15.

Time Washing (hr)	Cars washed
3	18
5	30
6	36
8	48

16.

Time Flying (hr)	Distance from Airport (mi)
2	3600
4	2700
6	1800
8	900

Graph the line that passes through the given point and has the given slope *m*.

17. (–3, –4); $m = 6$

18. (–2, 1), $m = -3$

19. (–4, –2); $m = \frac{1}{2}$

20. **Writing** Describe what you know about the graph of a line represented by the equation $y - 3 = -\frac{2}{3}(x + 4)$.

21. **Writing** Describe how you would use the point-slope form to write the equation of a line that passes through the points (–1, 4) and (–3, –5) in slope-intercept form.

22. **Writing** Describe how linear data given in a table can help you write an equation of a line in slope-intercept form.

23. A sign says that 3 tickets cost $22.50 and that 7 tickets cost $52.50. Write an equation in point-slope form that represents the cost of tickets. What is the graph of the equation?

Name_____ Class_____ Date_____

5-5 Practice

Form G

Standard Form

Find the *x*- and *y*-intercepts of the graph of each equation.

1. $x + y = 7$

2. $x - 3y = 9$

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

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

5. $5x - 4y = -12$

6. $-2x + 7y = 11$

Draw a line with the given intercepts.

7. *x*-intercept: 4
y-intercept: 5

8. *x*-intercept: −3
y-intercept: 1

9. *x*-intercept: −6
y-intercept: −8

Graph each equation using *x*- and *y*-intercepts.

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

11. $-3x - 6y = 12$

12. $4x - 12y = -24$

For each equation, tell whether its graph is a *horizontal* or a *vertical* line.

13. $y = -2$

14. $x = 0$

15. $y = -0.25$

16. $x = -\frac{3}{5}$

Graph each equation.

17 $y = 6$

18. $x = -2$

19. $y = -7$

20. $x = 3$

Name_____ Class_____ Date_____

5-5 Practice (continued) *Form G*

Standard Form

Write each equation in standard form using integers.

21. $y = x - 4$

22. $y - 4 = 5(x - 8)$

23. $y + 6 = -3(x + 1)$

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

25. $y = \frac{1}{2}x - 10$

26. $y - 3 = -\frac{7}{9}(x + 4)$

27. You have only nickels and dimes in your piggy bank. When you ran the coins through a change counter, it indicated you have 595 cents. Write and graph an equation that represents this situation. What are three combinations of nickels and dimes you could have?

For each graph, find the *x*- and *y*-intercepts. Then write an equation in standard form using integers.

28.

29.

Find the *x*- and *y*-intercepts of the line that passes through the given points.

30. (4, –2), (5, –4)

31. (1, 1), (–5, 7)

32. (–3, 2), (–4, 10)

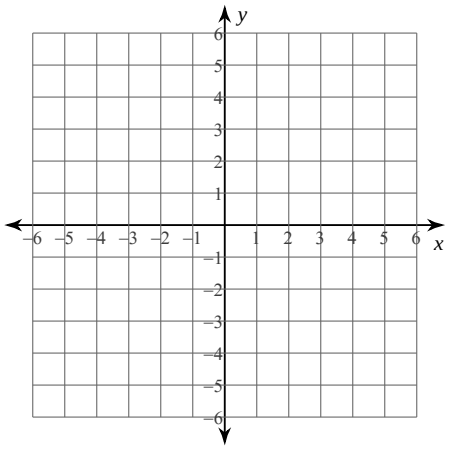
Name_____

Graphing Lines

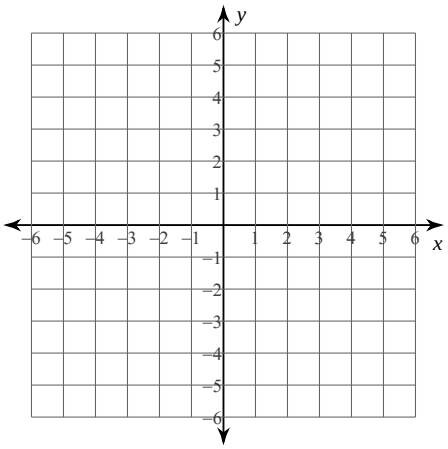
Date_____ Period____

Sketch the graph of each line.

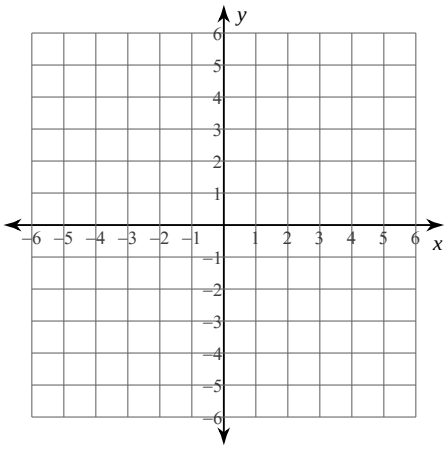
1) $7x + y = 5$



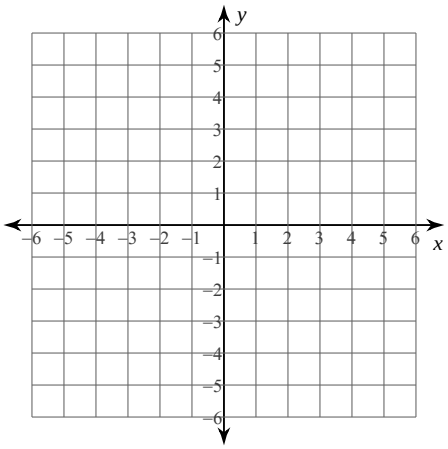
2) $3x + 5y = -5$



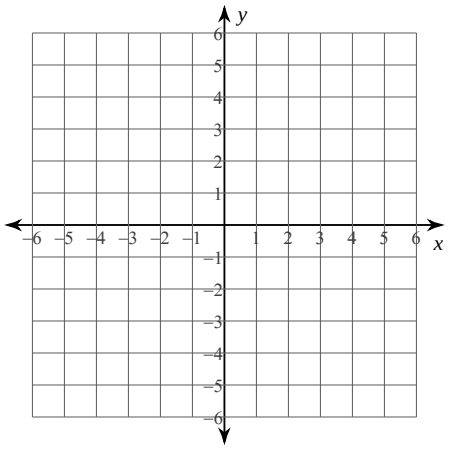
3) $y = 4$



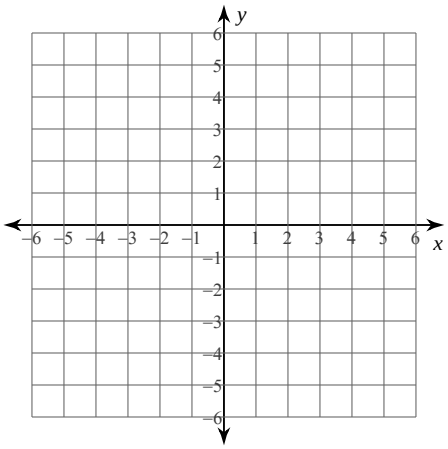
4) $6x + 5y = 20$



5) $x = -3$



6) $2x + y = 4$



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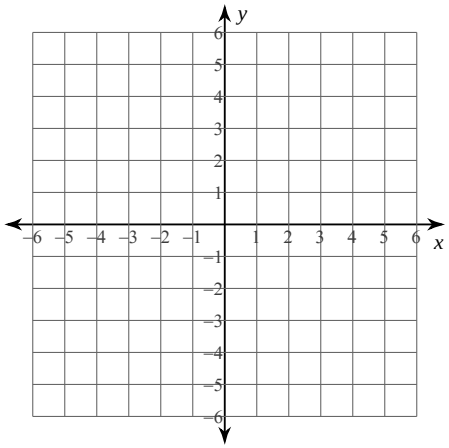
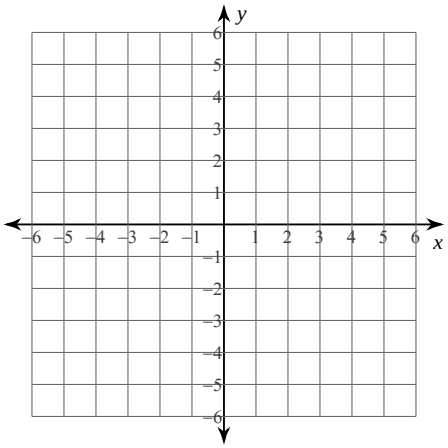
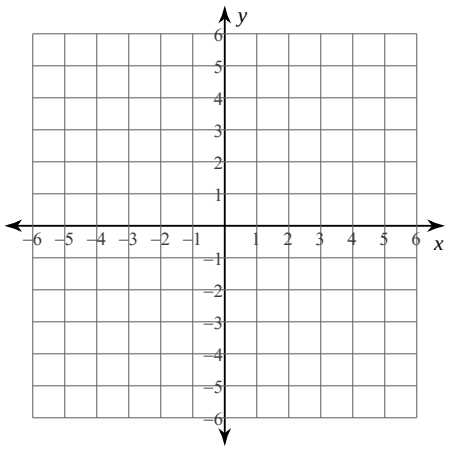
7) $x + y = 3$



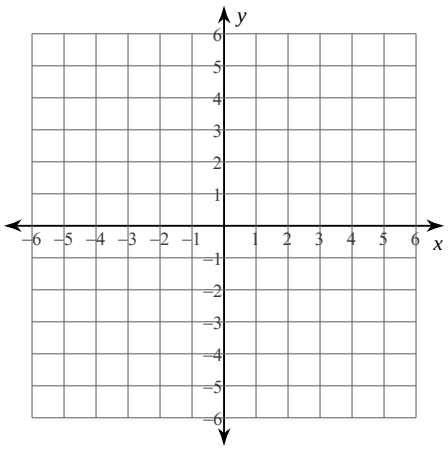
8) $10x - 3y = 15$



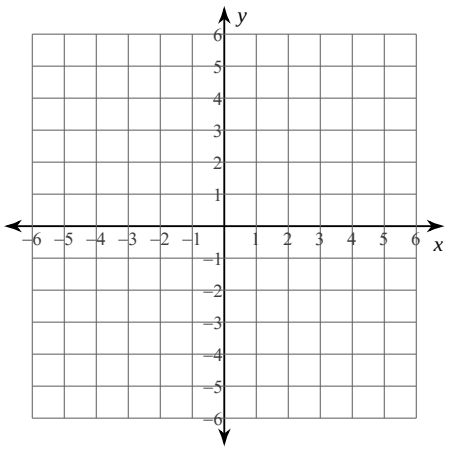
9) $x - y = 3$



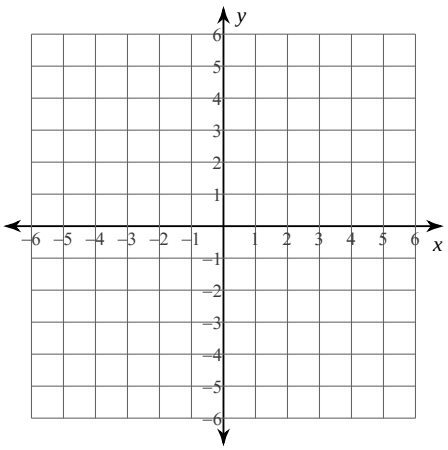
10) $y = 0$



11) $x + y = -3$



12) $x + y = -1$



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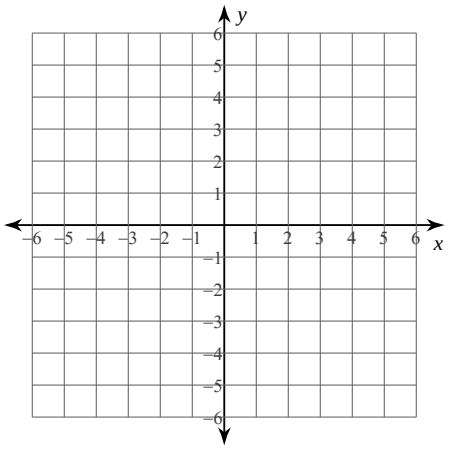
Name_____

Review of Linear Equations

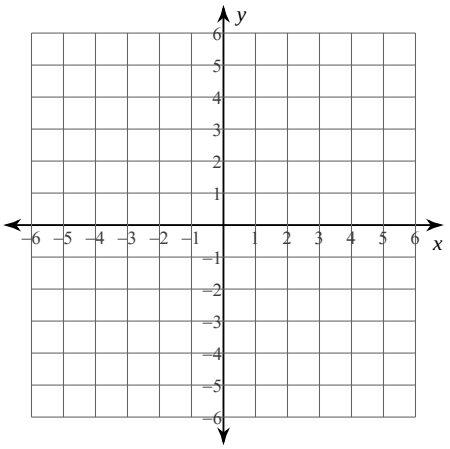
Date_____ Period____

Sketch the graph of each line.

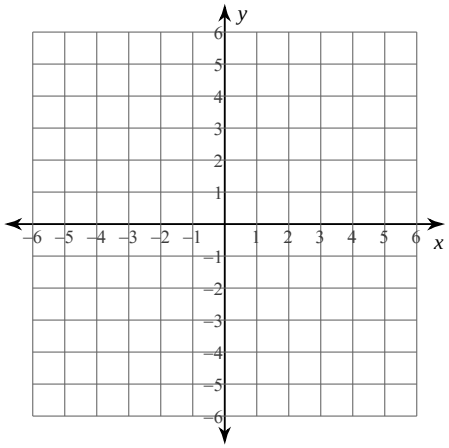
1) $y = -2x - 2$



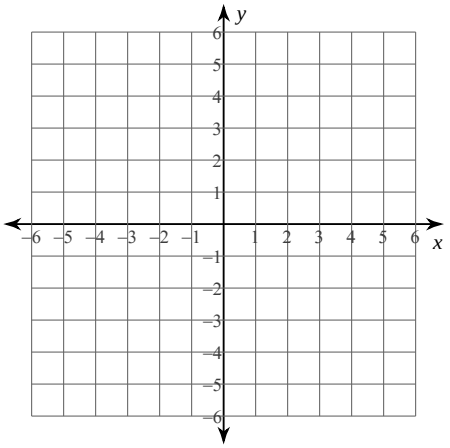
2) $y = -x - 2$



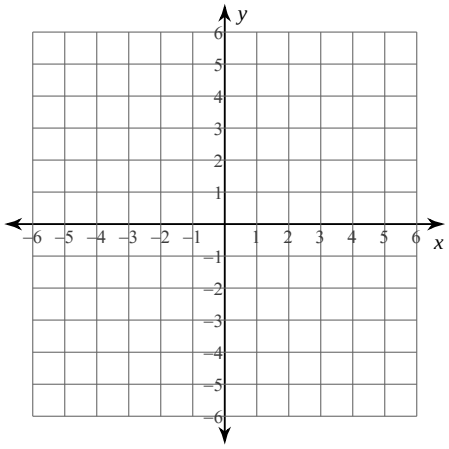
3) $2x - 5y = 5$



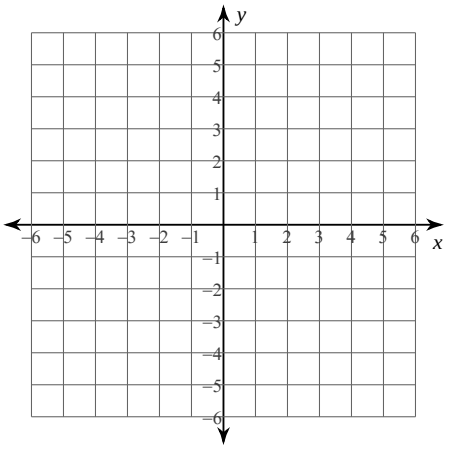
4) $x = -1$



5) $32 - 2x = 8y$



6) $0 = x + \frac{1}{4}y + \frac{1}{2}$



Write the standard form of the equation of each line given the slope and y-intercept.

7) Slope = $-\frac{3}{5}$, y-intercept = 5

8) Slope = 9, y-intercept = 4

Write the standard form of the equation of each line.

9) $y = -\frac{7}{5}x + 1$

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

11) $y + 4 = -7(x - 1)$

12) $y + 1 = -(x + 3)$

13) $-10x - y = -5$

14) $-4 - 2y = -x$

Write the standard form of the equation of the line through the given point with the given slope.

15) through: $(4, -2)$, slope = -1

16) through: $(-2, 4)$, slope = $-\frac{1}{7}$

Write the standard form of the equation of the line through the given points.

17) through: $(-3, 2)$ and $(0, -1)$

18) through: $(0, 4)$ and $(-1, -1)$

Write the standard form of the equation of the line described.

19) through: $(2, 0)$, parallel to $y = \frac{2}{3}x$

20) through: $(-2, 4)$, parallel to $y = -\frac{3}{2}x + 3$

21) through: $(2, 4)$, perp. to $y = -\frac{2}{7}x - 5$

22) through: $(5, 0)$, perp. to $y = -x + 5$

Writing Linear Equations

Date_____ Period____

Write the slope-intercept form of the equation of each line.

1) $3x - 2y = -16$

2) $13x - 11y = -12$

3) $9x - 7y = -7$

4) $x - 3y = 6$

5) $6x + 5y = -15$

6) $4x - y = 1$

7) $11x - 4y = 32$

8) $11x - 8y = -48$

Write the standard form of the equation of the line through the given point with the given slope.

9) through: $(1, 2)$, slope = 7

10) through: $(3, -1)$, slope = -1

11) through: $(-2, 5)$, slope = -4

12) through: $(3, 5)$, slope = $\frac{5}{3}$

13) through: $(2, -4)$, slope = -1

14) through: $(2, 5)$, slope = undefined

15) through: $(3, 1)$, slope = $\frac{1}{2}$

16) through: $(-1, 2)$, slope = 2

Write the point-slope form of the equation of the line described.

17) through: $(4, 2)$, parallel to $y = -\frac{3}{4}x - 5$

18) through: $(-3, -3)$, parallel to $y = \frac{7}{3}x + 3$

19) through: $(-4, 0)$, parallel to $y = \frac{3}{4}x - 2$

20) through: $(-1, 4)$, parallel to $y = -5x + 2$

21) through: $(2, 0)$, parallel to $y = \frac{1}{3}x + 3$

22) through: $(4, -4)$, parallel to $y = -x - 4$

23) through: $(-2, 4)$, parallel to $y = -\frac{5}{2}x + 5$

24) through: $(-4, -1)$, parallel to $y = -\frac{1}{2}x - 1$

Name _____ Class _____ Date _____

6-1 Practice

Form G

Solving Systems by Graphing

Solve each system by graphing. Check your solution.

1. $x + y = 3$
$2x + 5y = 12$

2. $4x + 3y = 2$
$3x - 2y = 10$

3. $5x - 8y = -4$
$2x - 7y = 6$

4. $x + 6y = 11$
$2x - 3y = 7$

5. $3x = y$
$2x + 3y = 10$

6. $3x - 5y + 1 = 0$
$x - y + 3 = 0$

7. $x + 3y = 0$
$2x + 3y = 12$

8. $2x + 4y = 6$
$x + 2y = 3$

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

10. Reasoning Can there be more than one point of intersection between the graphs of two linear equations? Why or why not?

11. Reasoning If the graphs of the equations in a system of linear equations coincide with each other, what does that tell you about the solution of the system? Explain.

12. Writing Explain the method used to graph a line using the slope and y-intercept.

13. Reasoning If the ordered pair $(3, -2)$ satisfies one of the two linear equations in a system, how can you tell whether the point satisfies the other equation of the system? Explain.

14. Writing If the graphs of two lines in a system do not intersect at any point, what can you conclude about the solution of the system? Why? Explain.

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

$y = 3x - 5$
$6x = 2y + 10$

16. Five years from now, a father's age will be three times his son's age, and 5 years ago, he was seven times as old as his son was. What are their present ages?

Name _____ Class _____ Date _____

6-1 Practice (continued)

Form G

Solving Systems by Graphing

17. The denominator of a fraction is greater than its numerator by 9. If 7 is subtracted from both its numerator and denominator, the new fraction equals $\frac{2}{3}$. What is the original fraction?

18. The sum of the distances two hikers walked is 53 mi, and the difference is 25 mi. What are the distances?

19. The result of dividing a two-digit number by the number with its digits reversed is $\frac{7}{4}$ If the sum of the digits is 12, what is the number?

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

20. $x + y + 3 = 0$
$3x - 2y + 4 = 0$

21. $x + 2y = 7$
$2x - y = -1$

22. $2x + y = 8$
$x + 1 = 2y$

23. $x + y = -2$
$3x - 4y = 15$

24. $3x - 5y = -18$
$3x + 5y = 12$

25. $2x - y = 3$
$x + 3y = 5$

26. $5x - y = 15$
$5x - 6y = -10$

27. $y = 6x + 4$
$-2 + y = 6x$

28. $5x - y = 2$
$2x - \frac{1}{2}y = 3$

29. $18x - 3y = 21$
$-y = -6x + 7$

30. $7x - y = -1$
$-x + 2y = 6$

31. $-x + 2y = 5$
$x + y = 1$

32. The measure of one of the angles of a triangle is 35. The sum of the measures of the other two angles is 145 and the difference between their measures is 15. What are the measures of the unknown angles?

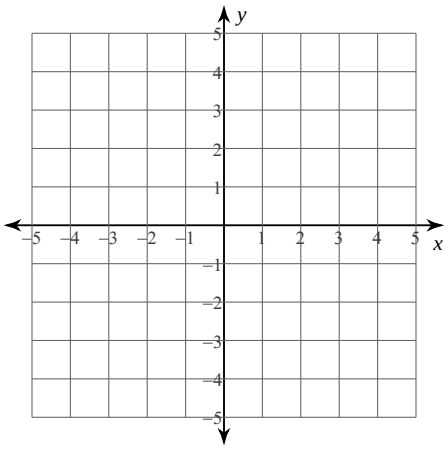
Solving Systems of Equations by Graphing

Date_____ Period____

Solve each system by graphing.

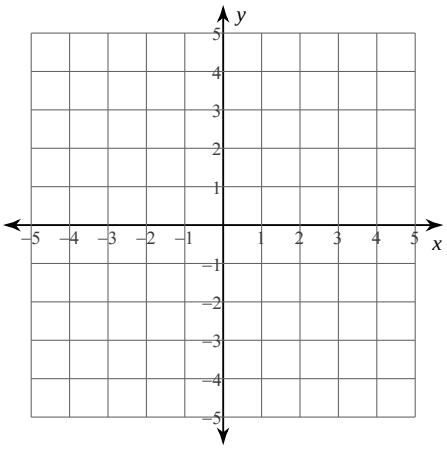
1) $y = -\frac{5}{3}x + 3$

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



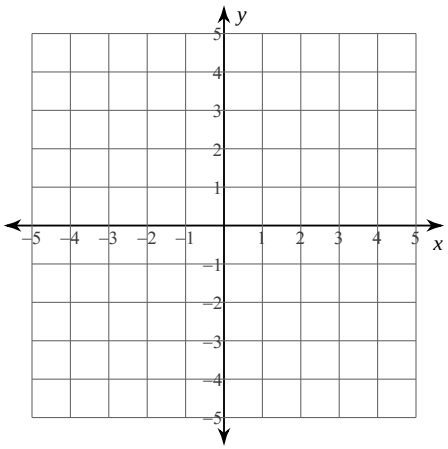
2) $y = 4x + 3$

$y = -x - 2$



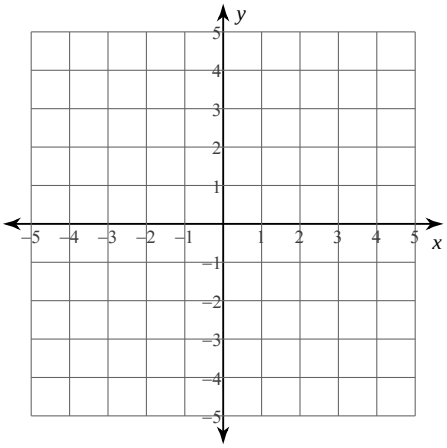
3) $y = -\frac{1}{2}x - 1$

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



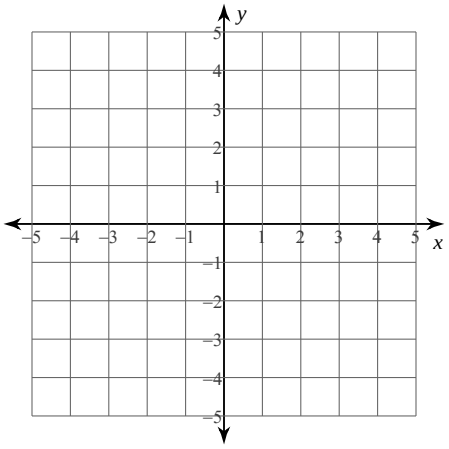
4) $y = -1$

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



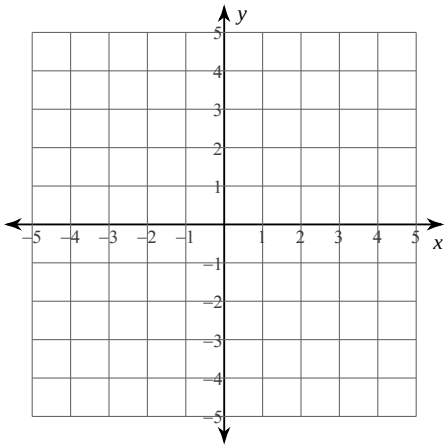
5) $y = 3x - 4$

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



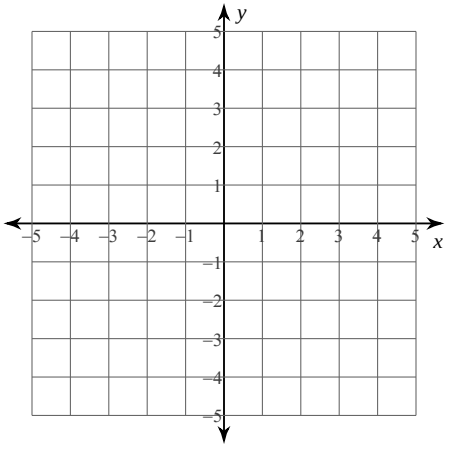
6) $y = -2x + 2$

$y = -2x - 2$



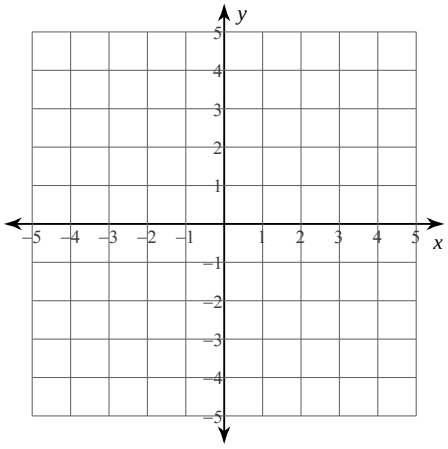
7) $y = -\frac{1}{2}x - 2$

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



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

$y = -x + 1$



Name _____ Class _____ Date _____

6-2 Practice

Form G

Solving Systems Using Substitution

Solve each system by substitution. Check your solution.

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

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

3. $y = 2x - 10$
$2y = x - 8$

4. $2y = x + 1$
$-2x - y = 7$

5. $x + 2y = 14$
$y = 3x - 14$

6. $2x - 3y = 13$
$y = \frac{1}{2}x - \frac{7}{2}$

7. $-3x - 2y = 5.5$
$x + 3y = 7.5$

8. $6x - 4y = 54$
$-9x + 2y = -69$

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

10. Writing How do you know that substitution gives the answer to a system of equations? Explain.

11. Reasoning With the substitution method, which variable should you solve for first? Explain.

12. Writing How can you use substitution method to solve a system of equations that does not have a variable with a coefficient of 1 or –1?

13. Writing When solving the system of equations $\begin{matrix} 6y + 2x = 3 \\ 2x + y = 8 \end{matrix}$ using substitution, which variable will you solve for and which equation will you use to substitute into?

14. Reasoning Can you tell that there is no solution for a system by just looking at the equations? Explain and give an example.

15. If the difference in the side lengths of two squares is 10, and the sum of the side lengths is 18, what are the side lengths?

16. A shopper purchased 8 T-Shirts and 5 pairs pants for $220. The next day, he purchased 5 T-shirts and 1 pair of pants for $112. How much does each T-shirt and each pair of pants cost?

Name _____ Class _____ Date _____

6-2 Practice (continued)

Form G

Solving Systems Using Substitution

17. 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?

18. Suppose you got 8 mangoes and 3 apples for $18 and 3 mangoes and 5 apples for $14.50. How much does each mango and each apple cost?

19. A shopper purchased 4 tables and 2 chairs for $200 and 2 tables and 7 chairs for $400. What is the cost of each table and each chair?

20. If the length of the rectangle is twice the width, and the perimeter of the rectangle is 30 cm, what is length and width of the rectangle?

21. The population of a city is 2,500. If the number of males is 240 more than the number of females, how many males and females are there in the city?

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

22. $7x + 2y = -13$
$-3x - 8y = -23$

23. $x - 9y = -10$
$6x + y = -5$

24. $x = \frac{y}{4} + 1$
$y = 4x - 5$

25. $x - 2y - 1 = 0$
$y - 5x + 14 = 0$

26. $y = -8x - 37$
$x + 3y = 4$

27. $3x + 6y = 18$
$3y = -\frac{3}{2}x + 9$

28. $5x - 9y = 29$
$12x + y = 47$

29. $2x = 3y - 9$
$-3x + y = 10$

30. $5y = 7x + 22$
$x = -6y + 17$

31. $x = 6y + 16$
$9x - 2y = -12$

32. $4x - y - 4 = 0$
$3x + 2y - 14 = 0$

33. $x + 3y = -5$
$-2x - y = 5$

Solving Systems of Equations by Substitution

Date_____ Period____

Solve each system by substitution.

1) $y = 6x - 11$
$-2x - 3y = -7$

2) $2x - 3y = -1$
$y = x - 1$

3) $y = -3x + 5$
$5x - 4y = -3$

4) $-3x - 3y = 3$
$y = -5x - 17$

5) $y = -2$
$4x - 3y = 18$

6) $y = 5x - 7$
$-3x - 2y = -12$

7) $-4x + y = 6$
$-5x - y = 21$

8) $-7x - 2y = -13$
$x - 2y = 11$

9) $-5x + y = -2$
$-3x + 6y = -12$

10) $-5x + y = -3$
$3x - 8y = 24$

11) $x + 3y = 1$
$-3x - 3y = -15$

12) $-3x - 8y = 20$
$-5x + y = 19$

13) $-3x + 3y = 4$
$-x + y = 3$

14) $-3x + 3y = 3$
$-5x + y = 13$

15) $6x + 6y = -6$
$5x + y = -13$

16) $2x + y = 20$
$6x - 5y = 12$

17) $-3x - 4y = 2$
$3x + 3y = -3$

18) $-2x + 6y = 6$
$-7x + 8y = -5$

19) $-5x - 8y = 17$
$2x - 7y = -17$

20) $-2x - y = -9$
$5x - 2y = 18$

Name _____ Class _____ Date _____

6-3 Practice

Form G

Solving Systems Using Elimination

Solve each system using elimination.

1. $x + y = 2$
$x - y = 4$

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

3. $2x - y = 4$
$3x - y = 2$

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

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

6. $x + 2y = -4$
$x + y = 2$

7. $3x - 2y = 8$
$2x - 2y = 5$

8. $x - 2y = 3$
$3x - y = 2$

9. $2x - 4y = -6$
$x - y = -1$

10. Writing For the system $\begin{matrix} 3x-5y=9 \\ 2x+y=3 \end{matrix}$, which variable should you eliminate first and why? How will you eliminate that variable?

11. Open-Ended If you do not have equal coefficients for both variables, can you still use the elimination method? Explain.

12. In a class, 45 students take the SAT exam. The number of boys is 8 more than the number of girls.

a. Write a system that models the above situation.

b. Do you need to multiply any of the equations by a constant? If so, which equation and what is the constant?

13. Open-Ended Write a system for which using the elimination method to solve the system is easier than the substitution method. Explain.

14. Error Analysis A student solved a system of linear equations using the elimination method as follows. Describe and correct the error made by the student.

$3x-5y=4$	$6x-10y=8$	Multiply equation 1 by 2.
$-2x+3y=2$	$-6x+3y=6$	Multiply equation 2 by 3.
	$-7y=14$	Add the equations.
	$y=-2$	Divide by -7.

Name _____ Class _____ Date _____

6-3 Practice (continued)

Form G

Solving Systems Using Elimination

15. A farm raises a total of 220 chickens and pigs. The number of legs of the stock in the farm totals 520. How many chickens and pigs are at the farm?

16. You drive a car that runs on ethanol and gas. You have a 20-gallon tank to fill and you can buy fuel that is either 25 percent ethanol or 85 percent ethanol. How much of each type of fuel should you buy to fill your tank so that it is 50 percent ethanol?

17. Your math test has 38 questions and is worth 200 points. The test consists of multiple-choice questions worth 4 points each and open-ended questions worth 20 points each. How many of each type of question are there?

18. A student bought 3 boxes of pencils and 2 boxes of pens for $6. He then bought 2 boxes of pencils and 4 boxes of pens for $8. Find the cost of each box of pencils and each box of pens.

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

19. $x - 3y = 27$
$2x = 6y - 14$

20. $3x - 5y = -2$
$x + 3y = 4$

21. $x + 2y = 6$
$2x - 4y = -12$

22. $5x + y = 15$
$3y = -15x + 6$

23. $3x = 4y - 5$
$12y = 9x + 15$

24. $3x - y = -2$
$-2x + 2y = 8$

25. $x + 2y = -4$
$-3x + 2y = 4$

26. $x + y = -2$
$-x - y = 4$

27. $3x - 2y = -3$
$6y = 9x + 9$

28. $-4x - 3y = 5$
$3x - 2y = -8$

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

30. $-4x - 2y = 20$
$2x + y = 19$

31. How is the multiplication or division property of equality used in the elimination method? Are the properties always needed? Explain.

Solving Systems of Equations by Elimination

Date_____ Period____

Solve each system by elimination.

1) $-4x - 2y = -12$
$4x + 8y = -24$

2) $4x + 8y = 20$
$-4x + 2y = -30$

3) $x - y = 11$
$2x + y = 19$

4) $-6x + 5y = 1$
$6x + 4y = -10$

5) $-2x - 9y = -25$
$-4x - 9y = -23$

6) $8x + y = -16$
$-3x + y = -5$

7) $-6x + 6y = 6$
$-6x + 3y = -12$

8) $7x + 2y = 24$
$8x + 2y = 30$

9) $5x + y = 9$
$10x - 7y = -18$

10) $-4x + 9y = 9$
$x - 3y = -6$

11) $-3x + 7y = -16$
$-9x + 5y = 16$

12) $-7x + y = -19$
$-2x + 3y = -19$

13) $16x - 10y = 10$
$-8x - 6y = 6$

14) $8x + 14y = 4$
$-6x - 7y = -10$

15) $-4x - 15y = -17$
$-x + 5y = -13$

16) $-x - 7y = 14$
$-4x - 14y = 28$

17) $-7x - 8y = 9$
$-4x + 9y = -22$

18) $5x + 4y = -30$
$3x - 9y = -18$

19) $-4x - 2y = 14$
$-10x + 7y = -25$

20) $3x - 2y = 2$
$5x - 5y = 10$

21) $5x + 4y = -14$
$3x + 6y = 6$

22) $2x + 8y = 6$
$-5x - 20y = -15$

23) $-14 = -20y - 7x$
$10y + 4 = 2x$

24) $3 + 2x - y = 0$
$-3 - 7y = 10x$

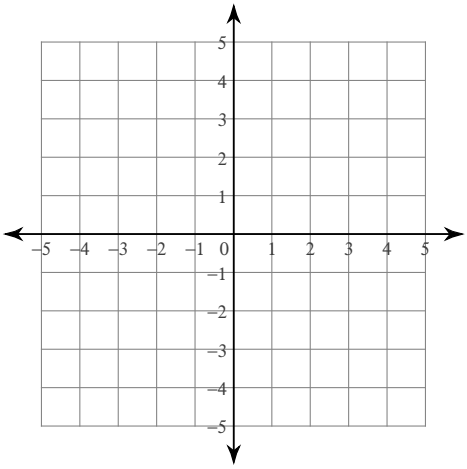
Name_____

Systems of Two Equations

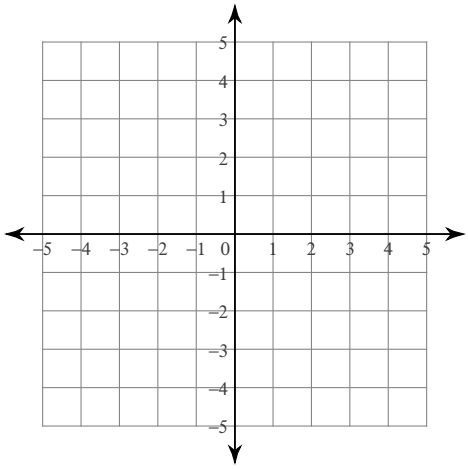
Date_____ Period____

Solve each system by graphing.

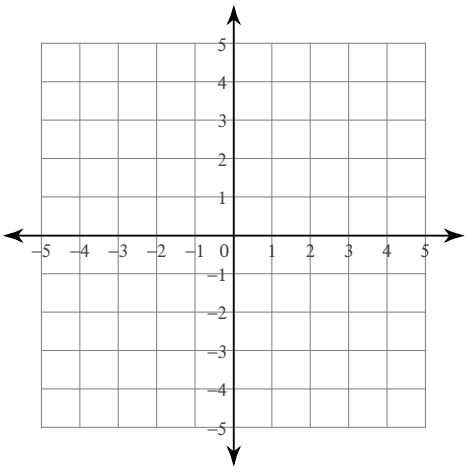
1) $y = -3x + 4$
$y = 3x - 2$



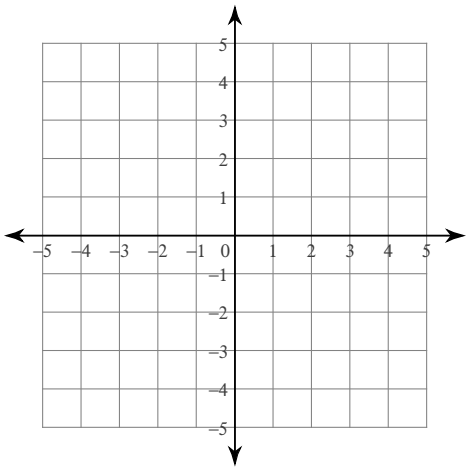
2) $y = x + 2$
$x = -3$



3) $x - y = 3$
$7x - y = -3$



4) $4x + y = 2$
$x - y = 3$



Solve each system by substitution.

5) $y = 4x - 9$
$y = x - 3$

6) $4x + 2y = 10$
$x - y = 13$

7) $y = -5$
$5x + 4y = -20$

8) $x + 7y = 0$
$2x - 8y = 22$

9) $6x + 8y = -22$
$y = -5$

10) $-7x + 2y = 18$
$6x + 6y = 0$

11) $7x + 2y = -19$
$-x + 2y = 21$

12) $3x - 5y = 17$
$y = -7$

13) $-7x + 4y = 24$
$4x - 4y = 0$

14) $4x - y = 20$
$-2x - 2y = 10$

Solve each system by elimination.

15) $8x - 6y = -20$
$-16x + 7y = 30$

16) $6x - 12y = 24$
$-x - 6y = 4$

17) $-8x - 10y = 24$
$6x + 5y = 2$

18) $-24 - 8x = 12y$
$1 + \frac{5}{9}y = -\frac{7}{18}x$

19) $-4y - 11x = 36$
$20 = -10x - 10y$

20) $-9 + 5y = -4x$
$-11x = -20 + 9y$

21) $0 = -2y + 10 - 6x$
$14 - 22y = 18x$

22) $-16y = 22 + 6x$
$-11y - 4x = 15$

23) $-16 + 20x - 8y = 0$
$36 = -18y - 22x$

24) $-\frac{5}{7} - \frac{11}{7}x = -y$
$2y = 7 + 5x$

Critical thinking questions:

25) Write a system of equations with the solution $(4, -3)$.

Systems of Equations Word Problems

Date_____ Period____

1) Find the value of two numbers if their sum is 12 and their difference is 4.

2) The difference of two numbers is 3. Their sum is 13. Find the numbers.

3) Flying to Kampala with a tailwind a plane averaged 158 km/h. On the return trip the plane only averaged 112 km/h while flying back into the same wind. Find the speed of the wind and the speed of the plane in still air.

4) The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of $38. The school took in $52 on the second day by selling 3 senior citizen tickets and 2 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

5) The sum of the digits of a certain two-digit number is 7. Reversing its digits increases the number by 9. What is the number?

6) A boat traveled 210 miles downstream and back. The trip downstream took 10 hours. The trip back took 70 hours. What is the speed of the boat in still water? What is the speed of the current?

7) The state fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 8 vans and 8 buses with 240 students. High School B rented and filled 4 vans and 1 bus with 54 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

8) The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 1 van and 6 buses with 372 students. High School B rented and filled 4 vans and 12 buses with 780 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

9) Brenda's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 senior citizen tickets and 9 child tickets for a total of $75. The school took in $67 on the second day by selling 8 senior citizen tickets and 5 child tickets. What is the price each of one senior citizen ticket and one child ticket?

10) Matt and Ming are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Matt sold 3 small boxes of oranges and 14 large boxes of oranges for a total of $203. Ming sold 11 small boxes of oranges and 11 large boxes of oranges for a total of $220. Find the cost each of one small box of oranges and one large box of oranges.

11) A boat traveled 336 miles downstream and back. The trip downstream took 12 hours. The trip back took 14 hours. What is the speed of the boat in still water? What is the speed of the current?

Name _____ Class _____ Date _____

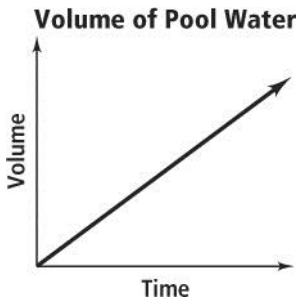
4-1 Practice

Form G

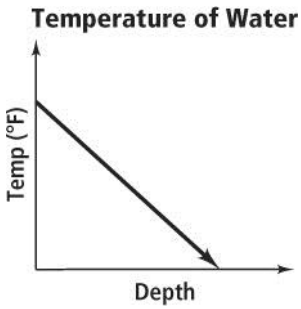
Using Graphs to Relate Two Quantities

What are the variables in each graph? Describe how the variables are related at various points on the graph.

1.



2.



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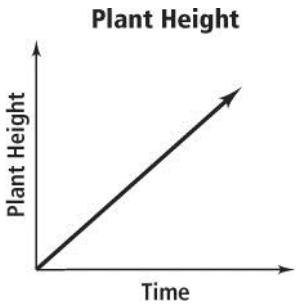
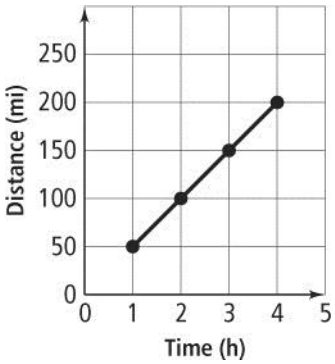


Match each graph with its related table. Explain your answers.

4.



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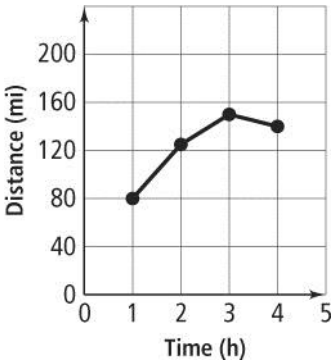

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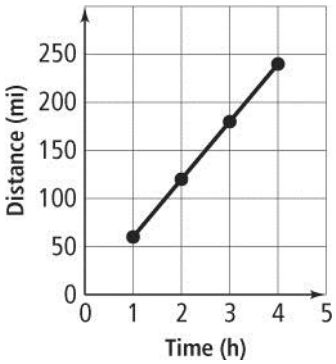


A.

Time (h)	Distance (mi)
1	60
2	120
3	180
4	240

B.

Time (h)	Distance (mi)
1	80
2	125
3	150
4	140

C.

Time (h)	Distance (mi)
1	50
2	100
3	150
4	200

Name _____ Class _____ Date _____

4-1 Practice (continued)

Using Graphs to Relate Two Quantities

Form G

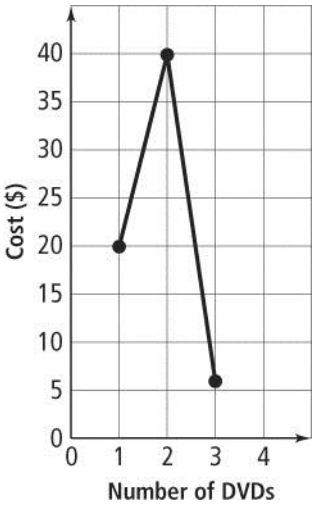
Sketch a graph to represent the situation. Label each section.

7. You buy two shirts. The third one is free.

8. You warm up for gym class, play basketball, and then cool down.

9. The temperature warms up during the day and then decreases at night.

10. **Error Analysis** DVDs cost $19.99 each for the first 2 purchased. After that, they cost $5.99 each. Describe and correct the error in sketching a graph to represent the relationship between the total cost and the number of DVDs purchased.



11. Sketch a graph of each situation. Are the graphs the same? Explain.

a. your distance from school as you leave your house and walk to school

b. your distance from school as you leave school and walk to your house

Name _____ Class _____ Date _____

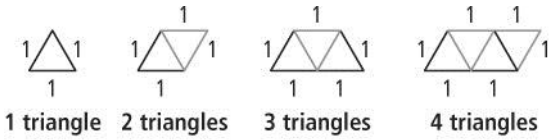
4-2 Practice

Form G

Patterns and Linear Functions

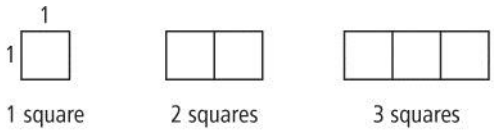
For each diagram, find the relationship between the number of shapes and the perimeter of the figure they form. Represent this relationship using a table, words, an equation, and a graph.

1.



Triangles	1	2	3	4	5	6		*n*
Perimeter	3	4	5				12	

2.



Squares	1	2	3	4	5	6		*n*
Perimeter	4	6	8				22	

For each table, determine whether the relationship is a function. Then represent the relationship using words, an equation, and a graph.

3.

x	y
0	1
1	3
2	5
3	7

4.

x	*y*
0	6
1	7
2	8
3	9

Name _____ Class _____ Date _____

4-2 Practice (continued) *Form G*

Patterns and Linear Functions

For each table, determine whether the relationship is a function. Then represent the relationship using words, an equation, and a graph.

5. **Distance Traveled**

Time (h)	Distance (mi)
0	0
1	55
2	110
3	165

6. **Calories Burned**

Minutes (min)	Calories (C)
0	0
10	50
20	100
30	150

7. **Reasoning** Graph the set of ordered pairs (0, 2), (1, 4), (2, 6), (3, 8). Determine whether the relationship is a linear function. Explain how you know.

8. You can make a bubble solution by mixing 1 cup of liquid soap with 4 cups of water. Represent the relationship between the cups of liquid soap and the cups of bubble solution made using a table, an equation, and a graph. Is the amount of bubble solution made a function of the amount of liquid soap used? Explain.

Name _____ Class _____ Date _____

4-3 Practice

Form G

Patterns and Nonlinear Functions

1. A student's earnings E, in dollars, is a function of the number h of hours worked. Graph the function shown by the table. Tell whether the function is *linear* or *nonlinear*.

Hours, h	2	4	6	8	10
Earnings ($), E	18	36	54	72	90

Graph the function shown by each table. Tell whether the function is *linear* or *nonlinear*.

2.

x	y
0	3
1	5
2	7
3	9

3.

x	y
0	0
1	2
2	−4
3	7

Name _____ Class _____ Date _____

4-3 Practice (continued) *Form G*

Patterns and Nonlinear Functions

Each set of ordered pairs represents a function. Write a rule that represents the function.

4. (0, 1), (1, 3), (2, 9), (3, 27), (4, 81)

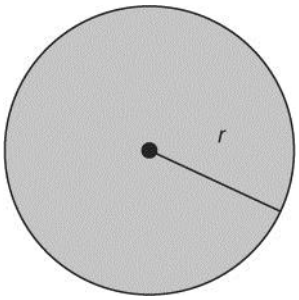
5. (0, 0), (1, 1), (2, 4), (3, 9), (4, 16)

6. (0, 1), (1, 0.5), (2, 0.25), (3, 0.125), (4, 0.0625)

7. (0, 0), (1, 1), (2, 8), (3, 27), (4, 64)

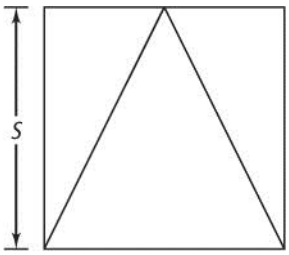
8. Reasoning A certain function fits the following description: *As the value of x increases by 1 each time, the value of y decreases by the square of x.* Is this function *linear* or *nonlinear*? Explain your reasoning.

9. Writing The rule $C = 6.3r$ gives the approximate circumference C of a circle as a function of its radius r. Identify the independent and dependent variables in this relationship. Explain your reasoning.



10. Open-Ended What is a rule for the function represented by (0, –2), (1, –1), (2, 2), (3, 7)? Explain your reasoning.

11. A landscape architect wants to make a triangular garden inside a square of land as shown at the right. What is a rule for the area A of the garden as a function of s?



Name _____ Class _____ Date _____

4-4 Practice

Form G

Graphing a Function Rule

Graph each function rule.

1. $y=2-x$

2. $y=\frac{1}{2}x$

3. $y=3x+1$

Graph each function rule. Tell whether the graph is *continuous* or *discrete*.

4. The cost C, in dollars, for a health club membership depends on the number m of whole months you join. This situation is represented by the function rule $C = 49 + 20m$.

5. The cost C, in dollars, for bananas depends on the weight w, in pounds, of the bananas. This situation is represented by the function rule $C = 0.5w$.

Name _____ Class _____ Date _____

4-4 Practice (continued) *Form G*

Graphing a Function Rule

Graph each function rule.

6. $y = |x| + 1$

7. $y = x^3$

8. $y = |x| - 2$

9. $y = |x - 1| + 2$

10. $y = -x^2$

11. $y = x^3 - 3$

12. Open-Ended Sketch a graph of a quadratic function that has x-intercepts at 0 and 4.

13. Writing Describe the general shape of the graphs of functions of the form $y = ax^3$.

Name _____ Class _____ Date _____

4-5 Practice

Form G

Writing a Function Rule

Write a function rule that represents each sentence.

1. 5 less than one fourth of x is y.

2. 7 more than the quotient of a number n and 4 is 9.

3. P is 9 more than half of q.

4. 8 more than 5 times a number is –27.

5. 1.5 more than the quotient of a and 4 is b.

For Exercises 6–10, write a function rule that represents each situation.

6. The price p of an ice cream is \$3.95 plus \$0.85 for each topping t on the ice cream.

7. A babysitter's earnings e are a function of the number of hours n worked at a rate of \$7.25 per hour.

8. The price p of a club's membership is \$30 for an enrollment fee and \$12 per week w to be a member.

9. A plumber's fees f are \$75 for a house call and \$60 per hour h for each hour worked.

10. A hot dog d costs \$1 more than one-half the cost of a hamburger h.

11. José is 3 years younger than 3 times his brother's age. Write a rule that represents José's age j as a function of his brother's age b. How old is José if his brother is 5?

12. A taxicab charges \$4.25 for the first mile and \$1.50 for each additional mile. Write a rule for describing the total rate r as a function of the total miles m. What is the taxi rate for 12 miles?

Name _____ Class _____ Date _____

4-5 Practice (continued) *Form G*

Writing a Function Rule

13. Write a function rule for the area of a rectangle whose length is 4 in. more than its width. What is the area of the rectangle when its width is 8 in.?

14. Write a function rule for the area of a rectangle with a length 3 ft more than two times its width. What is the area of the rectangle when its width is 4 ft?

15. Write a function rule for the area of a triangle with a base 2 m less than 4 times its height. What is the area of the triangle when its height is 8 m?

16. **Reasoning** Write a rule that is an example of a nonlinear function that fits the following description.

When b is 49, a is 7, and a is a function of b.

17. **Open-Ended** Describe a real-world situation that represents a nonlinear function.

18. **Writing** Explain whether or not the relationship between inches and feet represents a function.

19. **Multiple Representations** Use the table shown at the right.

x	*y*
1	6
2	8
3	10
4	12

a. Graph the ordered pairs on a coordinate plane.

b. Write an equation that can be used to find *y* for any *x* value.

c. Is the equation a function? Explain.

Name _____ Class _____ Date _____

4-6 Practice

Form G

Formalizing Relations and Functions

Identify the domain and range of each relation. Use a mapping diagram to determine whether the relation is a function.

1. {(3, 6), (5, 7), (7, 7) (8, 9)}

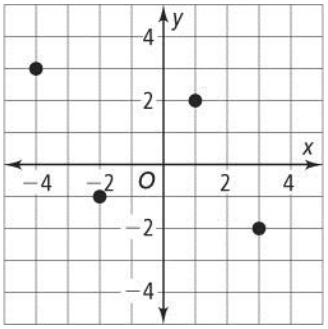
2. {(0, 0.4), (1, 0.8), (2, 1.2), (3, 1.6)}

3. { (5, –4), (3, –5), (4, –3), (6, 4)}

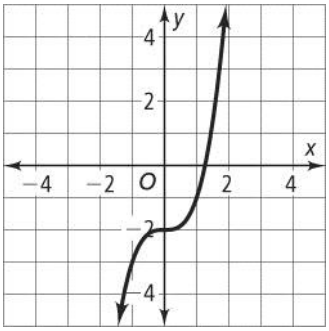
4. {(0.3, 0.6), (0.4, 0.8), (0.3, 0.7), (0.5, 0.5)}

Use the vertical line test to determine whether the relation is a function.

5.



6.



7. The function $w(x) = 60x$ represents the number of words $w(x)$ you can type in x minutes. How many words can you type in 9 minutes?

8. Sound travels about 343 meters per second. The function $d(t) = 343t$ gives the distance $d(t)$ in meters that sound travels in t seconds. How far does sound travel in 8 seconds?

4-6 Practice (continued) Form G

Formalizing Relations and Functions

Find the range of each function for the given domain.

9. $f(x) = -3x + 2$; $\{-2, -1, 0, 1, 2\}$

10. $f(x) = x^3$; $\{-1, -0.5, 0, 0.5, 1\}$

11. $f(x) = 4x + 1$; $\{-4, -2, 0, 2, 4\}$

12. $f(x) = x^2 + 2; \{0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1\}$

Find a reasonable domain and range for each function. Then graph the function.

13. A high school is having a pancake breakfast fundraiser. They have 3 packages of pancake mix that each feed 90 people. The function $N(p) = 90p$ represents the number of people $N(p)$ that p packages of pancake mix feed.

14. A charter boat travels at a maximum rate of 25 miles per hour. The function $d(x) = 25x$ represents the distance $d(x)$, in miles, that the boat can travel in x hours. The charter boat travels a maximum distance of 75 miles from the shore.

15. Reasoning If $f(x) = x^2 - 3$ and $f(a) = 46$, what is the value of a? Explain.

16. Open-Ended What is a value of x that makes the relation $\{(2, 4), (3, 6), (8, x)\}$ a function?

Domain and Range
Worksheet

Identify the domain and range of each situation. Then determine if the situation represents a function.

1. {(2, 5), (2, -3), (5, 7)}

domain _____

range _____

function? _____

2. {(8, 5), (6, 5), (7, 2)}

domain _____

range _____

function? _____

3. {(6, 4), (8, -4), (9, 10)}

domain _____

range _____

function? _____

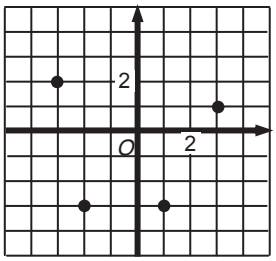
4. {(9, 9), (9, 8), (9, 7)}

domain _____

range _____

function? _____

5.

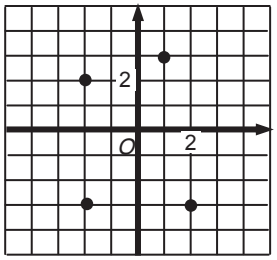


domain _____

range _____

function? _____

6.

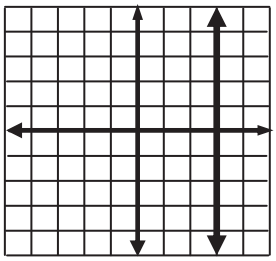


domain _____

range _____

function? _____

7.

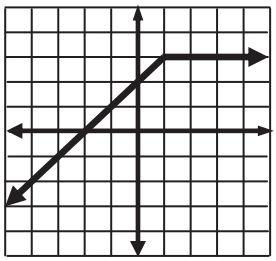


domain _____

range _____

function? _____

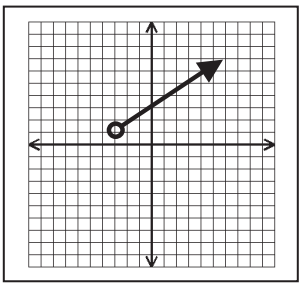
8.



domain _____

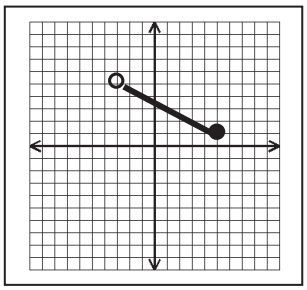
range _____

function? _____

9. 

domain _____

range _____

10. 

domain _____

range _____

11. For g = { (-5,2) , (-4, -1) , (3, -8) , (-2, 0) , (4, -9) } find the indicated value

a) g(-4) = _____ b) g(4) = _____

c) g(3) = _____ d) g(-5) = _____

12. Justin, Mr. Quarterback, collected data on the average number of passing yards he made to each of his receivers in one football game. Determine the domain and range of the data and if it represents a functional relationship.

Receiver	Galindo	Hemphill	Harley	Carrillo	Segovia	Jenkins
Yards	30	42	5	12	10	12

domain _____

range _____ functional relationship? _____

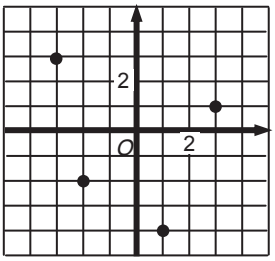
13. The heights and shoe sizes of several people are recorded in the table below. Determine the domain and range of the data and if it represents a functional relationship.

Height	5'10"	5'11"	5'9"	6'1"	5'11"	6'0"
Shoe Size	9	9.5	8.5	12	10	11.5

domain _____

range _____ functional relationship? _____

14. What is the range of the function shown in the graph?



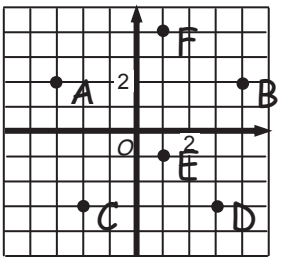
A. {–3, –2, 1, 3}
B. {–4, –2, 1, 3}
C. {–3, –2, 1, 2}
D. {–4, –3, –2, 1}

15. How is the following set of ordered pairs related?

{(0, 2), (1, –1), (2, –4), (3, –7), (4, –10)}

A. The first number is multiplied by –2 to obtain the second number.
B. The second number is obtained by multiplying the first number by 2 and then subtracting 1.
C. The second number is obtained by multiplying the first number by –3 and then adding 2.
D. The second number is obtained by squaring the first number and then subtracting 3.

16. Which of the following points, when deleted from the coordinate grid, will result in a relationship that represents a function?

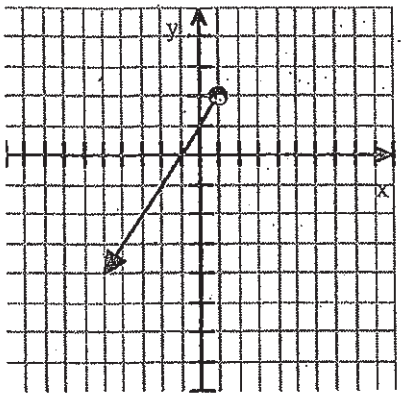


A. Point A
B. Point B
C. Point D
D. Point F

Domain and Range Worksheet #7

For each of the following, determine if the graph represents a function, the domain, and the range.

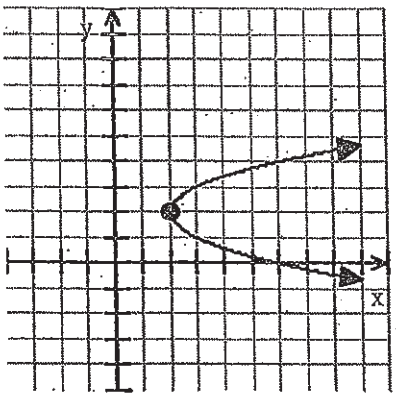
1)



Function? Domain:

Range:

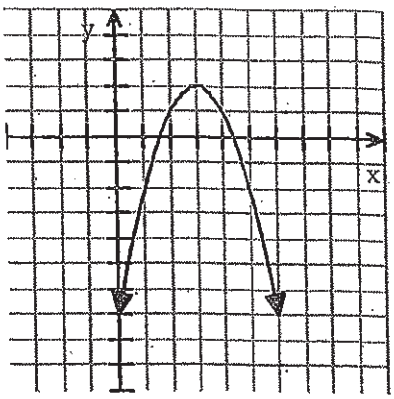
2)



Function? Domain:

Range:

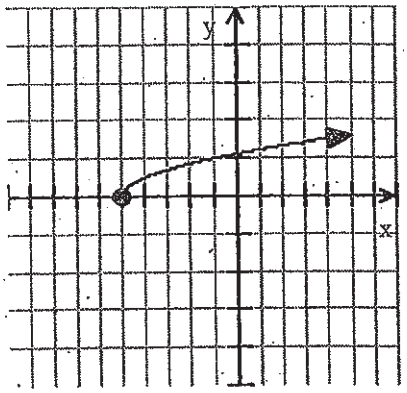
3)



Function? Domain:

Range:

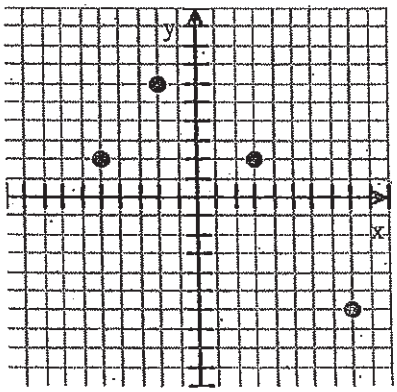
4)



Function? Domain:

Range:

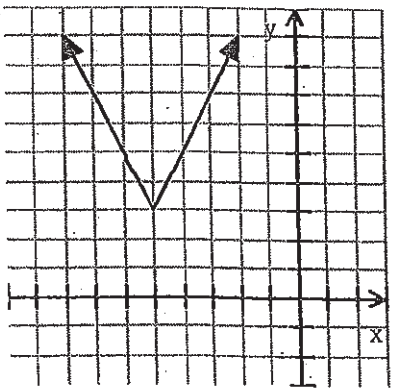
5)



Function? Domain:

Range:

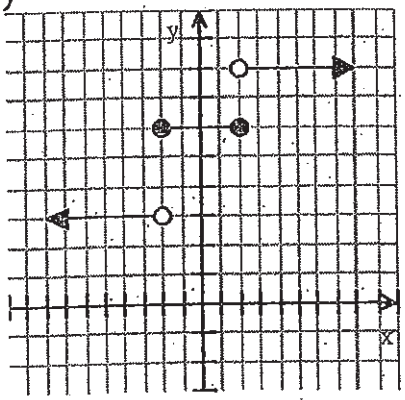
6)



Function? Domain:

Range:

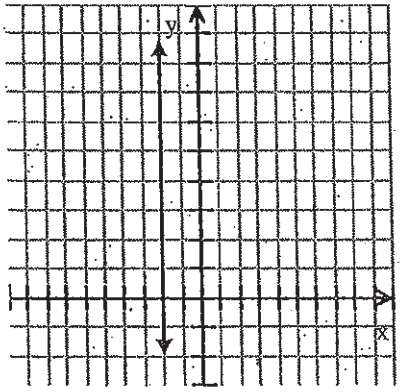
7)



Function? Domain:

Range:

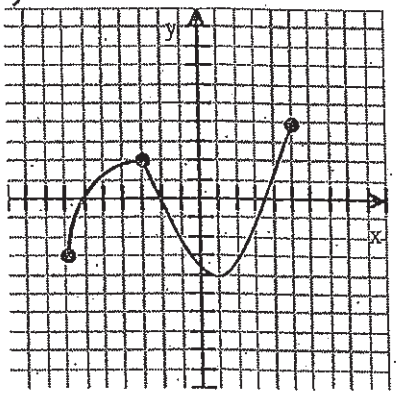
8)



Function? Domain:

Range:

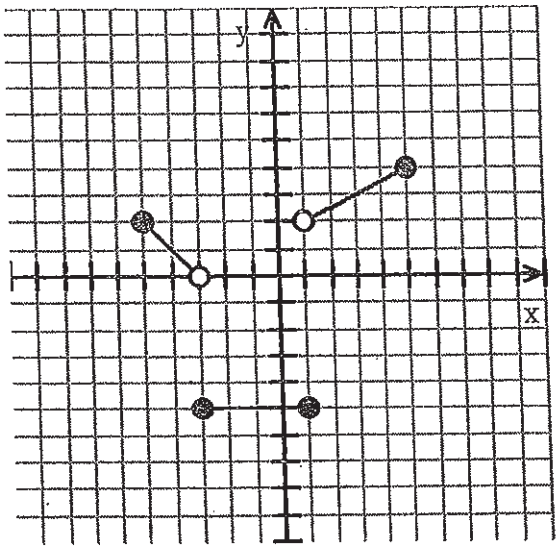
9)



Function? Domain:

Range:

10) Given the graph, find the following:



a) f(0) b) f(1) c) f(-5)

d) f(3) e) f(-3) f) f(5)

g) f(-2) h) f(6)

11) Suppose $f(x) = 4x - 10$, $g(x) = 2x^2 - 7$, $h(x) = 3 - 5x$. Evaluate each of the following:

a) f(2) b) g(2) c) h(2)

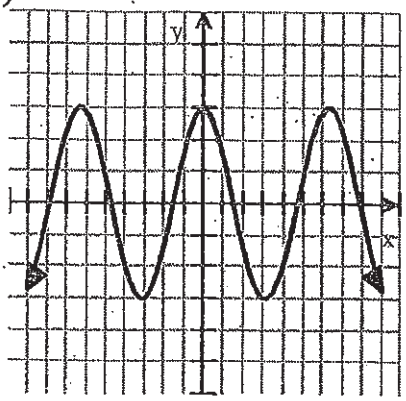
d) f(-2) e) g(-2) f). h(-2)

g) f(0) h) g(6)

Domain and Range Worksheet #8

For each of the following, determine if the graph represents a function, the domain, and the range.

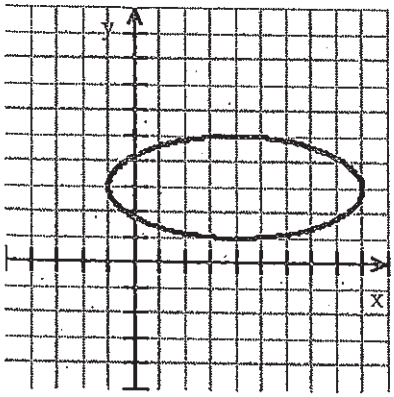
1)



Function? Domain:

Range:

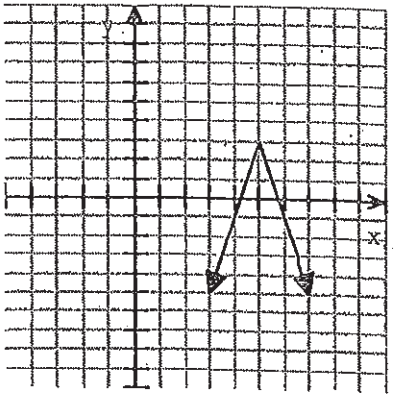
2)



Function? Domain:

Range:

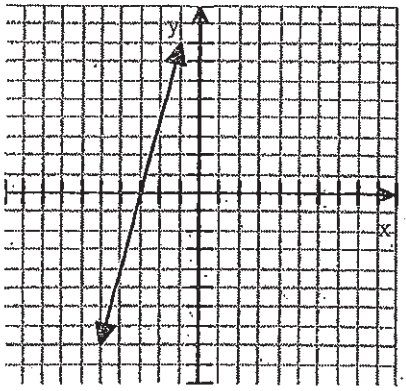
3)



Function? Domain:

Range:

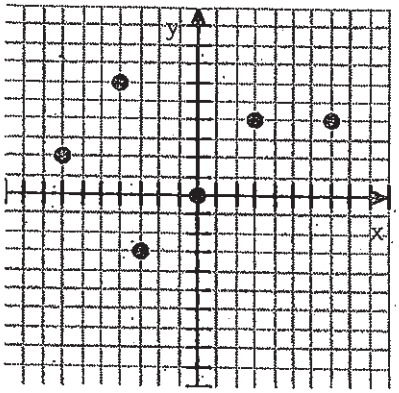
4)



Function? Domain:

Range:

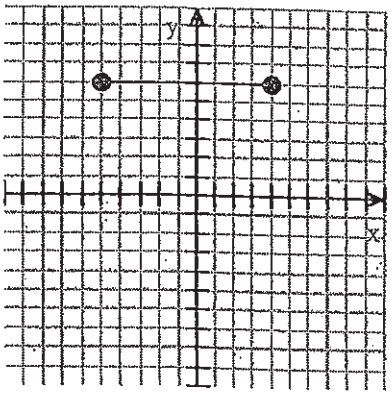
5)



Function? Domain:

Range:

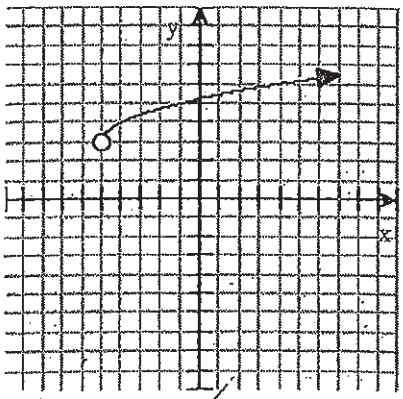
6)



Function? Domain:

Range:

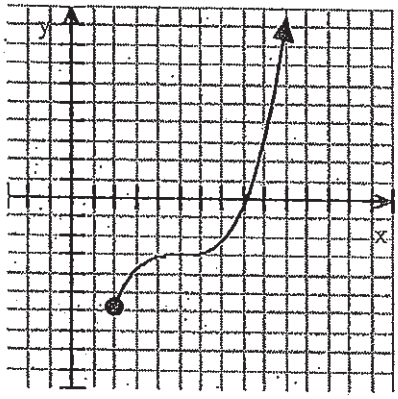
7)



Function? Domain:

Range:

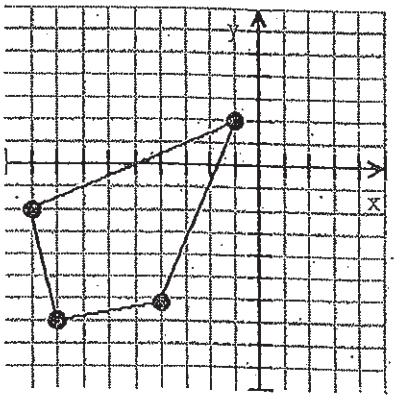
8)



Function? Domain:

Range:

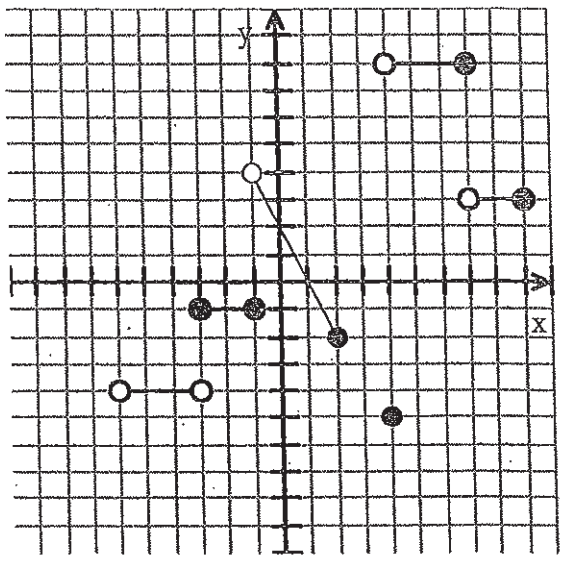
9)



Function? Domain:

Range:

10) Given the graph, find the following:



a) f(0) b) f(1) c) f(-5)

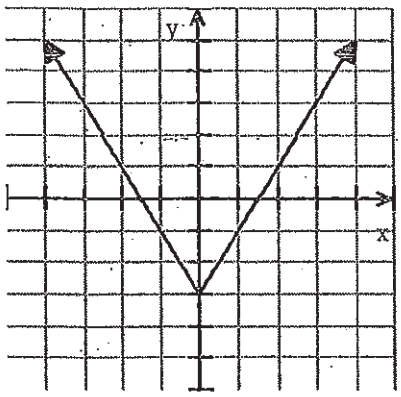
d) f(3) e) f(-3) f) f(5)

g) f(-2) h) f(6)

Domain and Range Worksheet #9

For each of the following, determine if the graph represents a function, the domain, and the range.

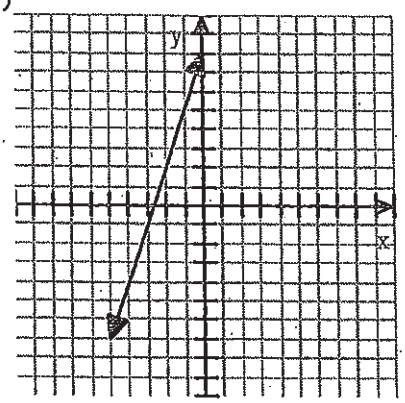
1)



Function? Domain:

Range:

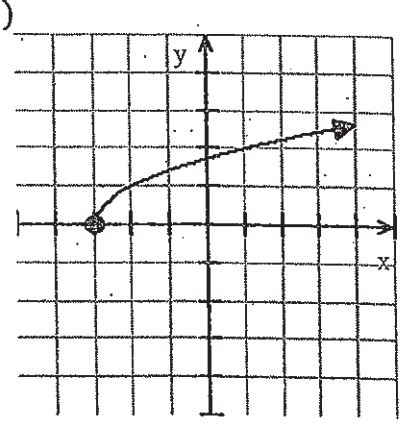
2)



Function? Domain:

Range:

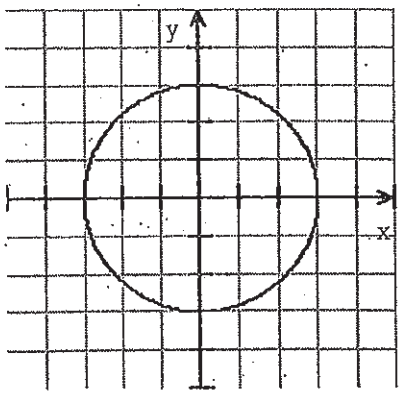
3)



Function? Domain:

Range:

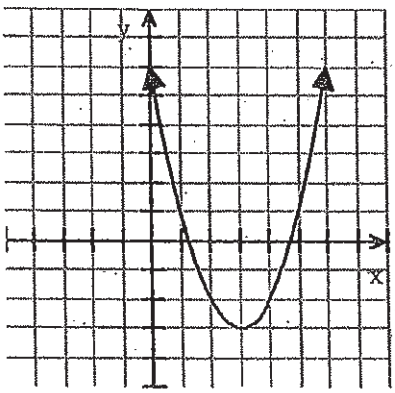
4)



Function? Domain:

Range:

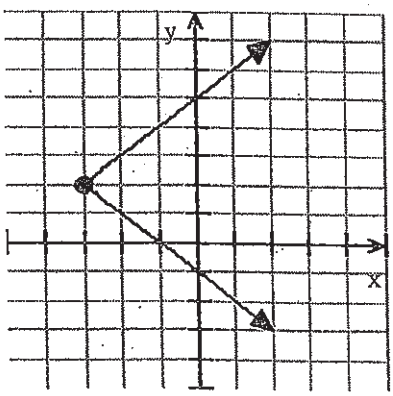
5)



Function? Domain:

Range:

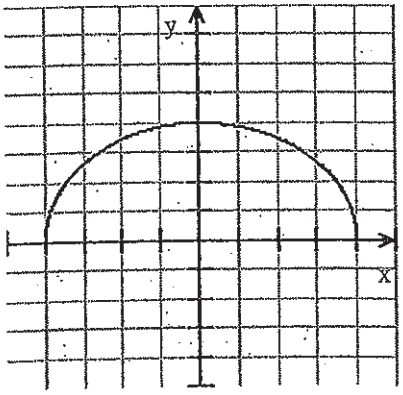
6)



Function? Domain:

Range:

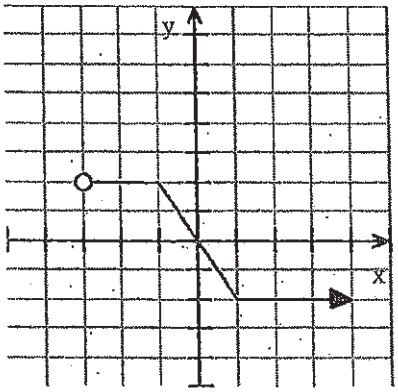
7)



Function? Domain:

Range:

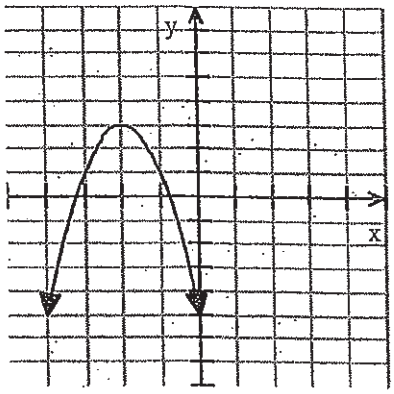
8)



Function? Domain:

Range:

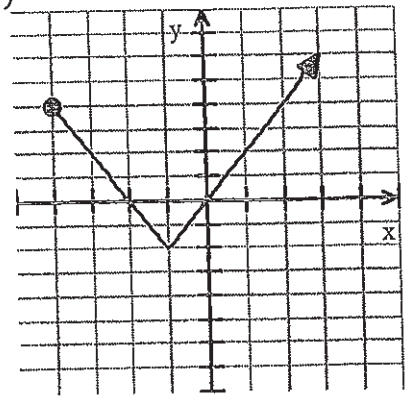
9)



Function? Domain:

Range:

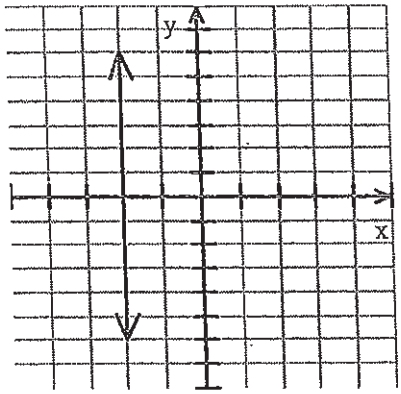
10)



Function? Domain:

Range:

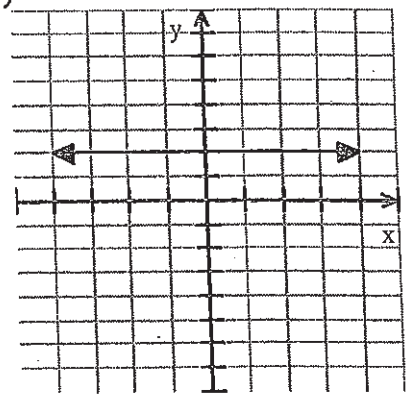
11)



Function? Domain:

Range:

12)

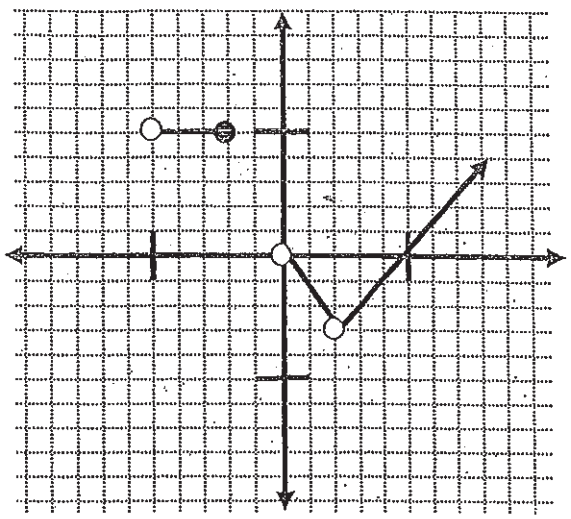


Function? Domain:

Range:

Domain and Range Worksheet #10

1.

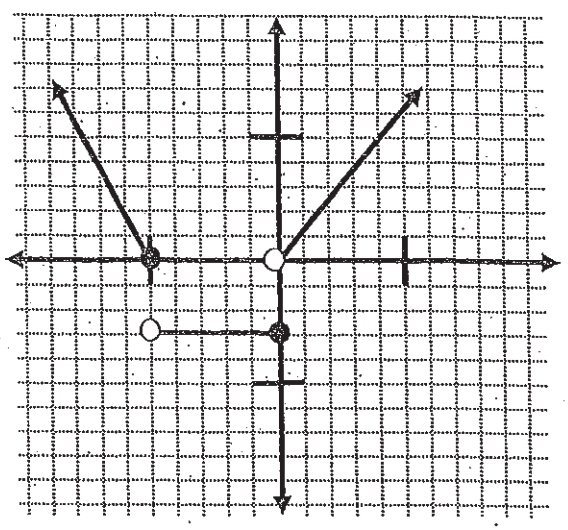


Function?

Domain:

Range:

2.

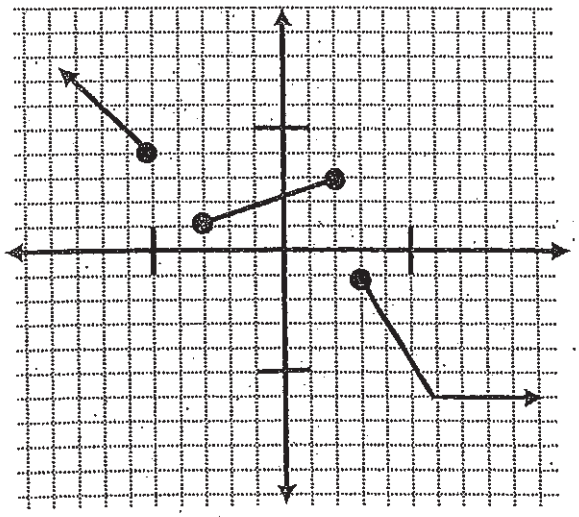


Function?

Domain:

Range:

3.

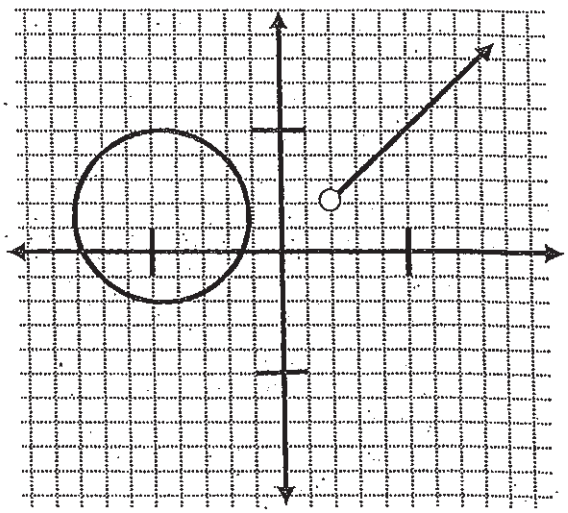


Function?

Domain:

Range:

4.



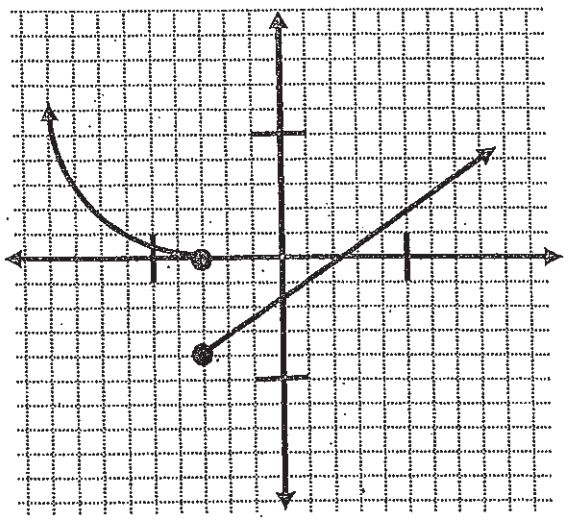
Function?

Domain:

Range:

Domain and Range Worksheet #11

1.

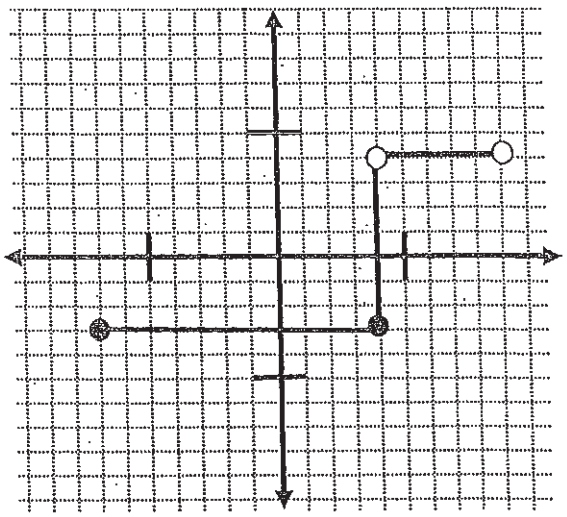


Function?

Domain:

Range:

2.

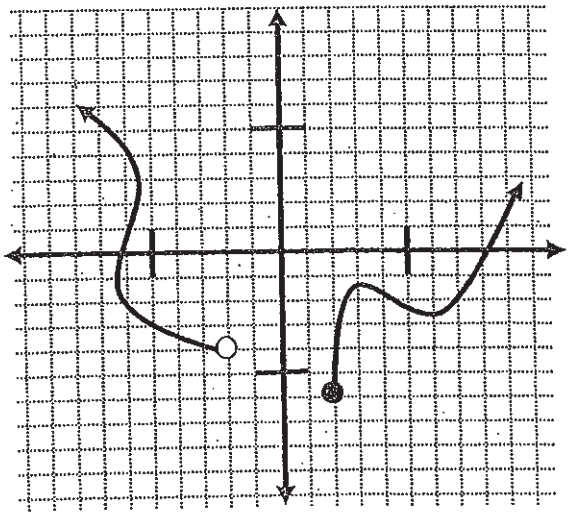


Function?

Domain:

Range:

3.

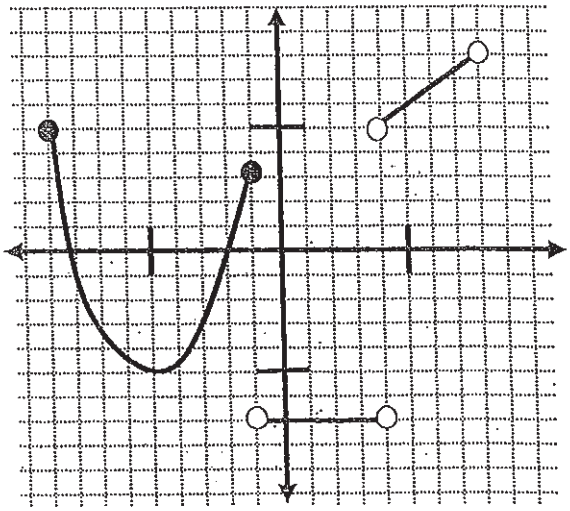


Function?

Domain:

Range:

4.



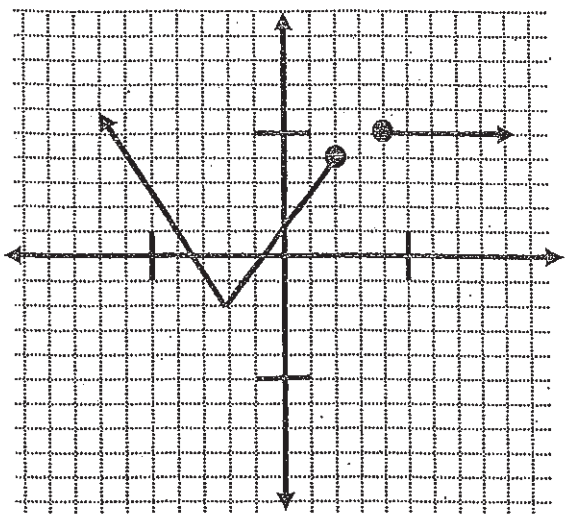
Function?

Domain:

Range:

Domain and Range Worksheet #12

1.

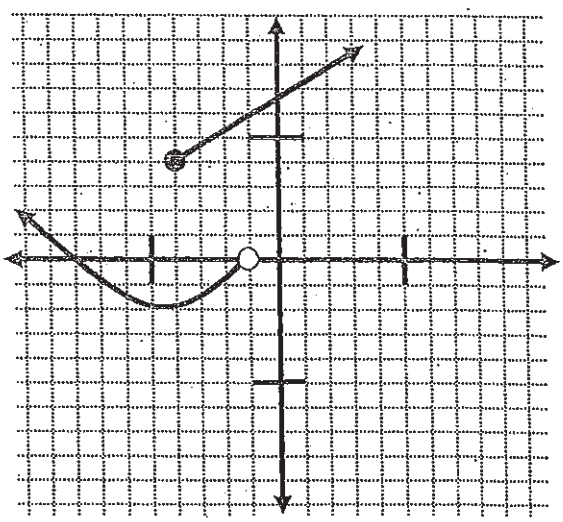


Function?

Domain:

Range:

2.

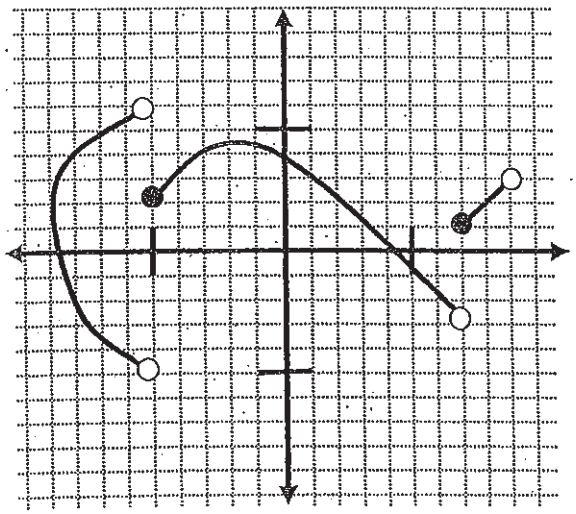


Function?

Domain:

Range:

3.

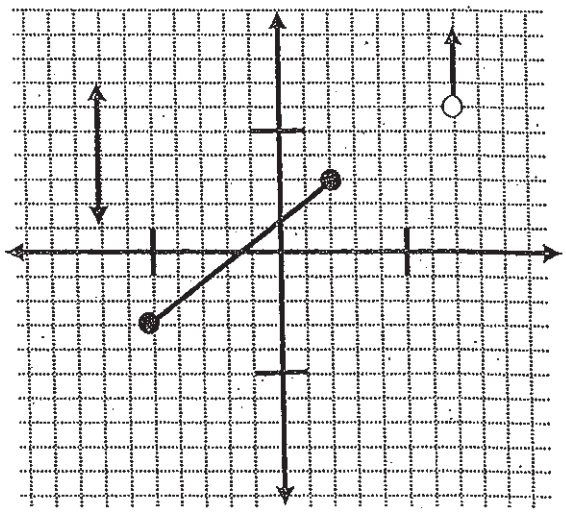


Function?

Domain:

Range:

4.



Function?

Domain:

Range:

Functions & Relations

Algebra for Students

Guided Practice Worksheet

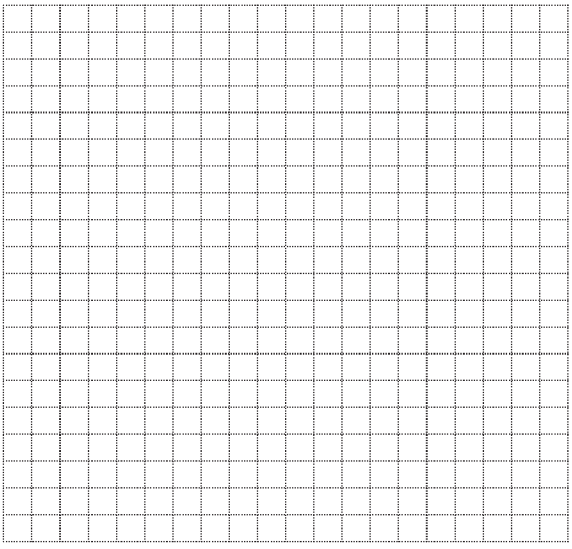
Exploring Functions & Relations

1. The refreshment stand at the amusement park sells lemonade according to the following price structure:

Drink Size (oz)	Price ($)
12	0.99
16	1.19
24	1.49
48	1.89

(a) Construct a mapping diagram that illustrates the connection between the drink size and price.

(b) Make a graph that illustrates the connection between the drink size (*x*-axis) and price (*y*-axis).



(c) Determine the domain, range, dependent variable and independent variable.

(d) Based on the information given, can you determine the price of a 64-ounce cup of lemonade? Explain your answer.

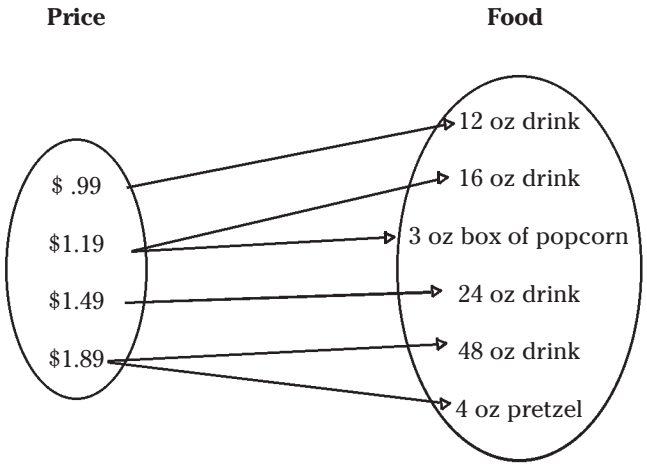
Functions & Relations

Algebra for Students

Guided Practice Worksheet

Exploring Functions & Relations (cont'd.)

2. Examine the mapping diagram below, which shows the price of various food items at an amusement park refreshment stand. Determine whether or not the mapping diagram represents a function. Explain your answer.



3. Examine the table below, which shows the estimated wait time, in minutes, for riding an amusement park roller coaster at various times throughout the day.

(a) Determine whether or not the relation is a function. Explain your answer.

(b) Is this relation a function if the domain and range are reversed? Explain your answer.

Time of Day	Estimated Wait Time (minutes)
10 am	5
11 am	10
12 pm	15
1 pm	35
2 pm	45
3 pm	45
4 pm	35
5 pm	20
6 pm	15
7 pm	10
8 pm	15
9 pm	20
10 pm	25
11 pm	20

Functions & Relations

Algebra for Students

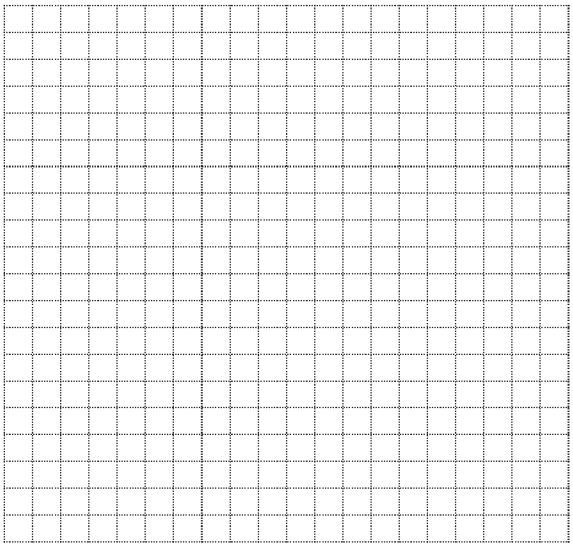
Guided Practice Worksheet

Applying the Vertical Line Test

The data in the table below shows a rider's height above the ground, in feet, during the first 60 seconds of a 120-second Ferris wheel ride.

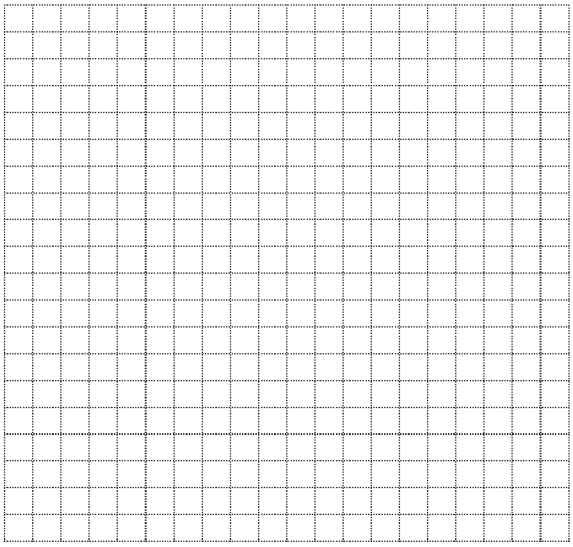
Time (seconds)	Height Above Ground (feet)
0	10
5	50
10	90
15	50
20	10
25	50
30	90
35	50
40	10
45	50
50	90
55	50
60	10

1. Make a graph of the rider's height above ground (*y*-axis) versus the time on the ride (*x*-axis) during the first 60 seconds of the Ferris wheel ride.



2. Use the vertical line test to determine whether or not the graph from Question #1 represents a function. Explain your answer.

3. Make a graph of the time on the ride (*y*-axis) versus the rider's height above ground (*x*-axis) during the first 60 seconds of the Ferris wheel ride.



4. Use the vertical line test to determine whether or not the graph from Question #3 represents a function. Explain your answer.

Functions & Relations

Algebra for Students

Guided Practice Worksheet

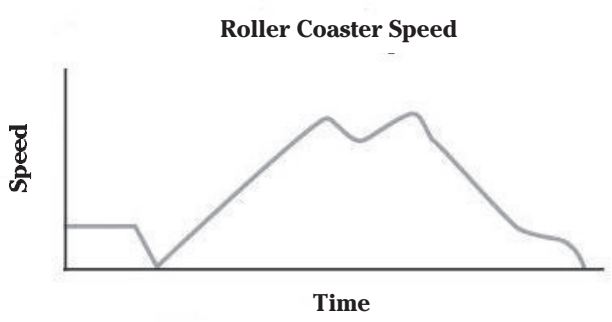
Is It a Function?

1. Examine each set of ordered pairs. Construct a mapping diagram that illustrates the connection between each domain and range. Determine whether or not each set represents a function. Explain your answer.

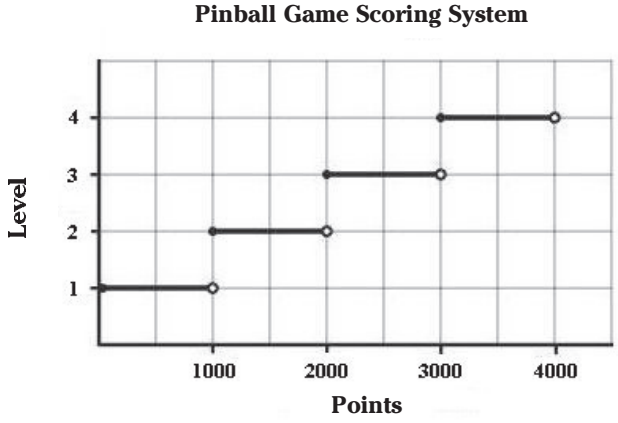
(a) (2,3)
(4,-2)
(2,-2)
(6,5)

(b) (2,3)
(4,-2)
(3,-2)
(6,5)

2. Examine the graph below, which shows the speed of a roller coaster car during the course of a ride. Determine whether or not the graph represents a function. Explain your answer.



3. Examine the graph below, which shows the number of points earned in an arcade pinball game and the game level. Determine whether or not the graph represents a function. Explain your answer.



Slope and Rate of Change Quiz 14
Multiple Choice
Identify the choice that best completes the statement or answers the question.
The rate of change is constant in each table. Find the rate of change. Explain what the rate of change means for the situation.

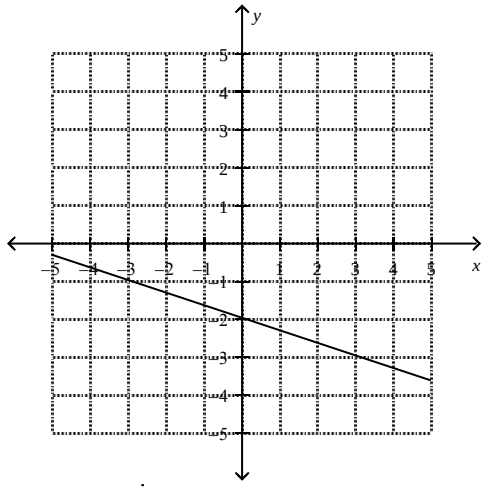
____ 1. The table shows the cost of a ski rental package for a given number of people.

People	Cost ($)
4	200
5	250
6	300
7	350

a. $\frac{50}{1}$ dollars per person; the cost is $50 for each person.
b. $\frac{200}{1}$ dollars per person; the cost is $200 for each person.
c. $\frac{1}{50}$ dollars per room; the cost is $50 for each person.
d. $\frac{1}{350}$ dollars per person; the cost is $1 for 350 people.

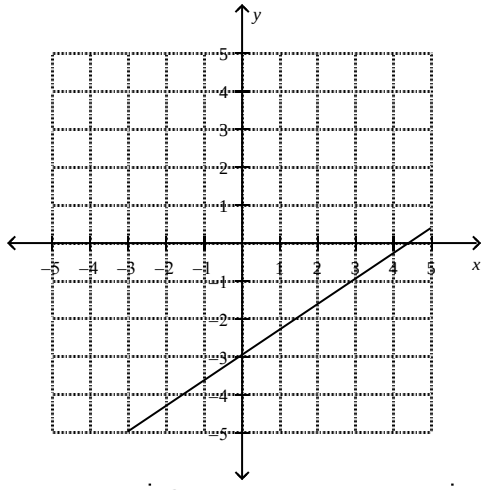
Find the slope of the line.

____ 2.



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

____ 3.



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

What is the slope of the line that passes through the pair of points?

____ 4. (–8.9, –8.6), (–3.9, 11.4)

a. –4 b. 0.25 c. 4 d. –0.25

____ 5. $(\frac{3}{4}, -\frac{6}{7}), (-\frac{7}{9}, 5)$

a. $-\frac{385}{1476}$ b. $\frac{1476}{385}$ c. $-\frac{1476}{385}$ d. $\frac{385}{1476}$

Short Answer

The rate of change is constant in each table. Find the rate of change. Explain what the rate of change means for the situation.

1. The table shows the number of miles driven over time.

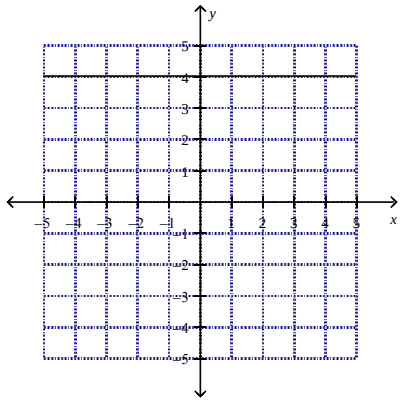
Time (hours)	Distance (miles)
4	232
6	348
8	464
10	580

What is the slope of the line that passes through the pair of points?

2. (4, 8), (10, –2)

What is the slope of the line?

3.



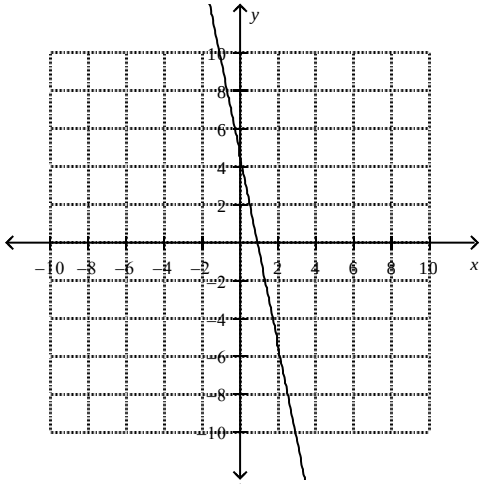
Graphs of Linear Equations Quiz 15

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

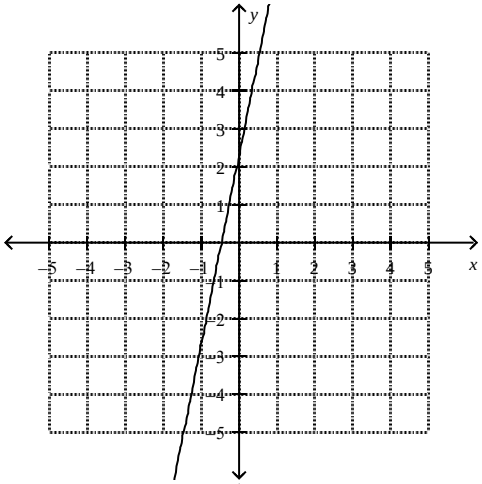
Graph the equation.

____ 1. $y = -5x + 3$

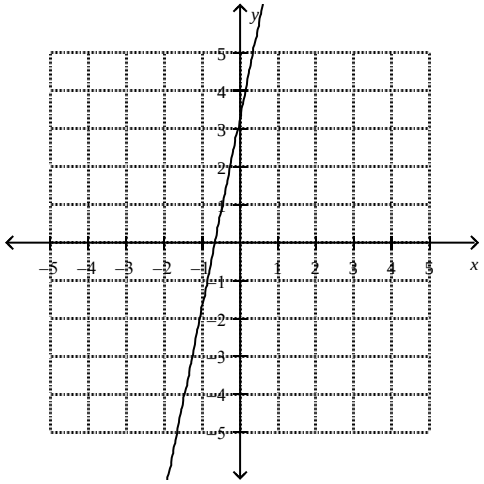
a.



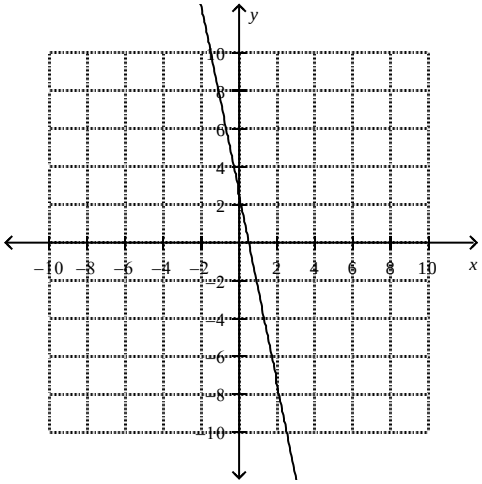
c.



b.

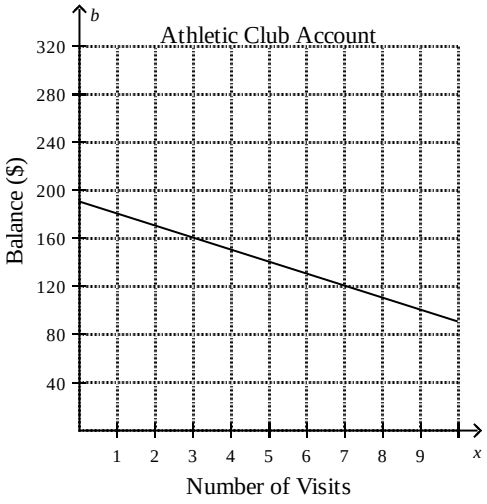


d.



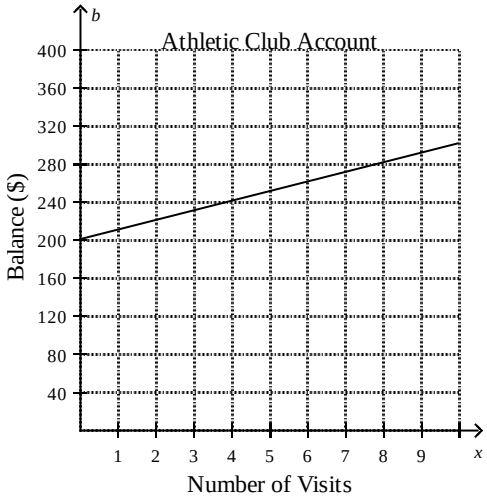
____ 2. Giselle pays $200 in advance on her account at the athletic club. Each time she uses the club, $10 is deducted from the account. Model the situation with a linear function and a graph.

a.



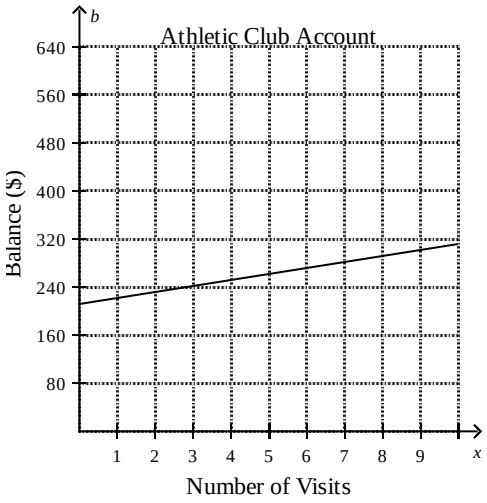
$b = 190 - 10x$

c.



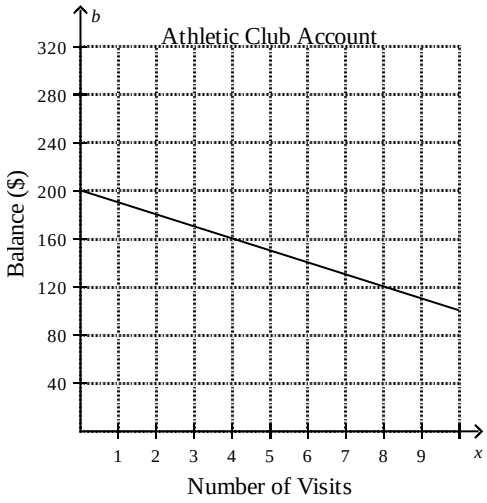
$b = 200 + 10x$

b.



$b = 190 + 10x$

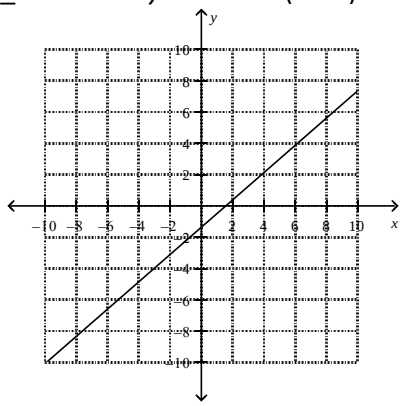
d.



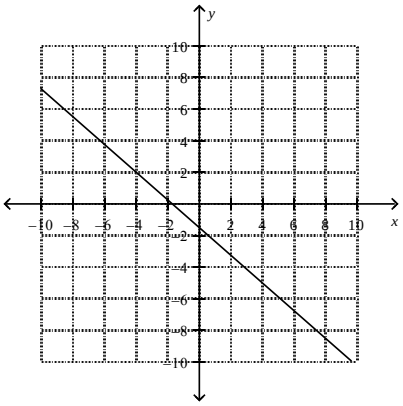
$b = 200 - 10x$

____ 3. $y + 5 = -0.9(x - 4)$

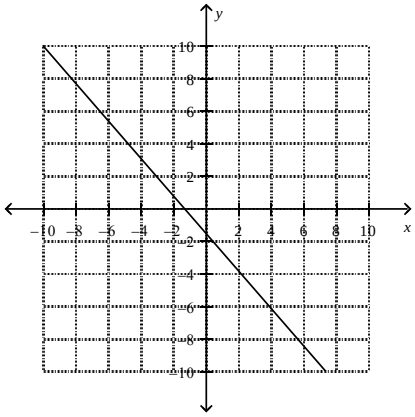
a.



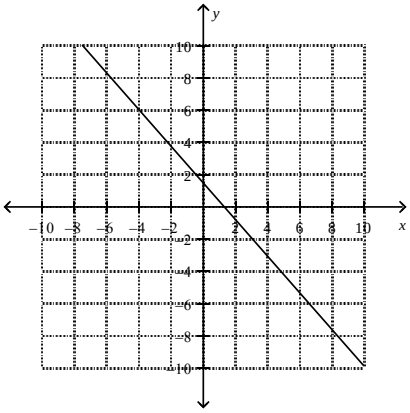
c.



b.

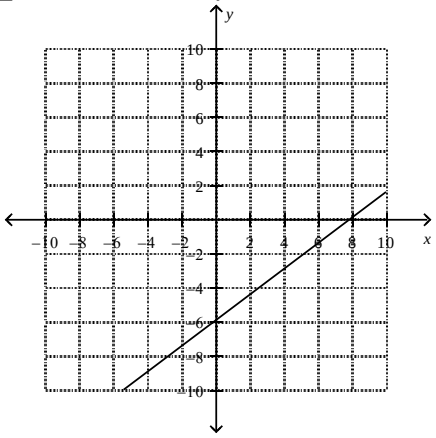


d.

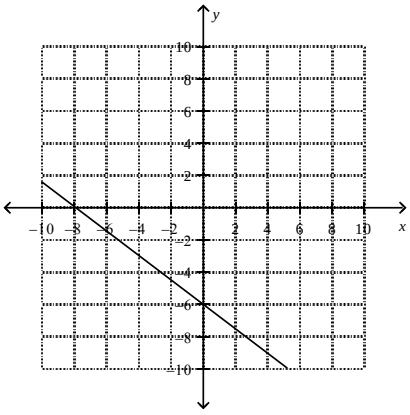


____ 4. $6x - 8y = -48$

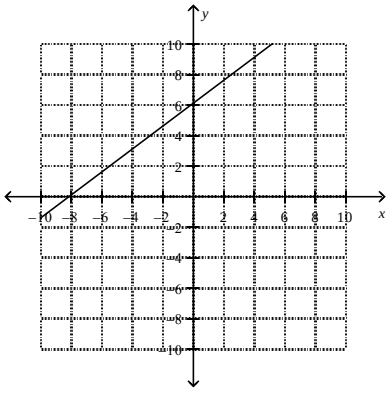
a.



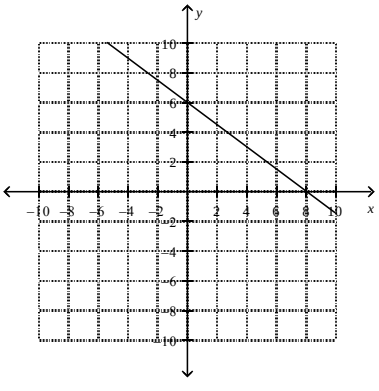
c.



b.

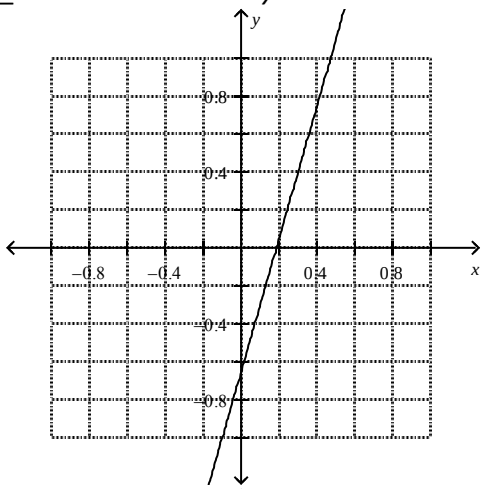


d.

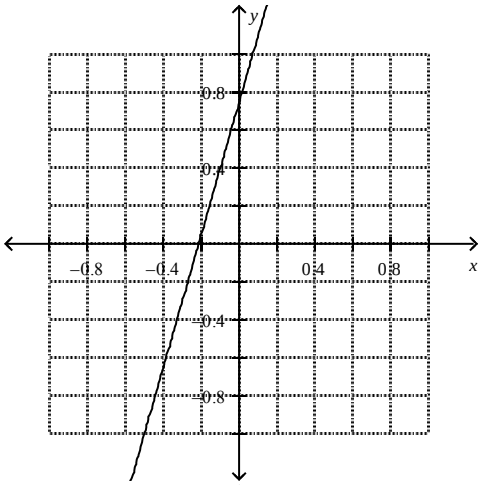


____ 5. $0.7x - 0.2y = -0.14$

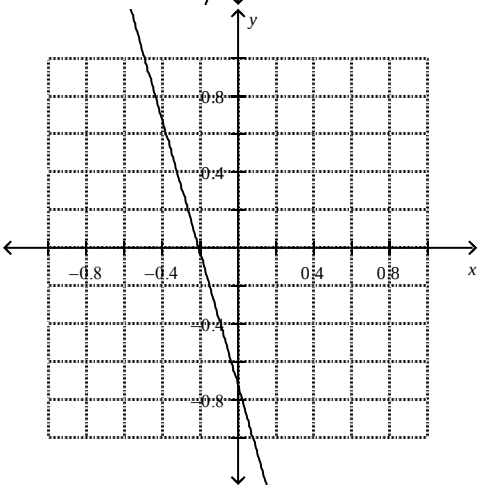
a.



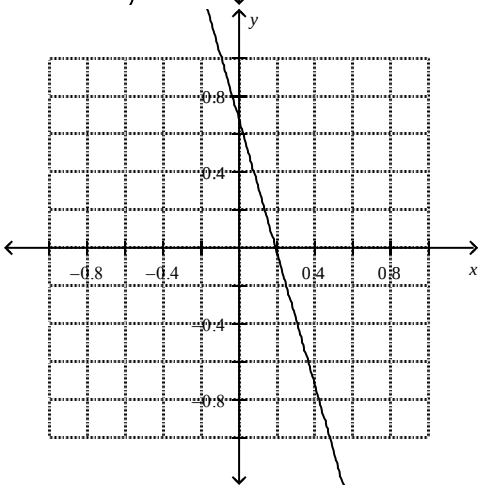
c.



b.

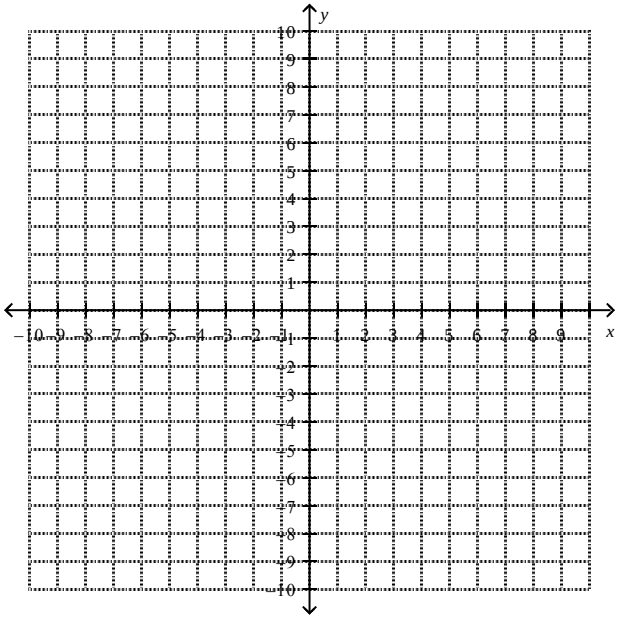


d.

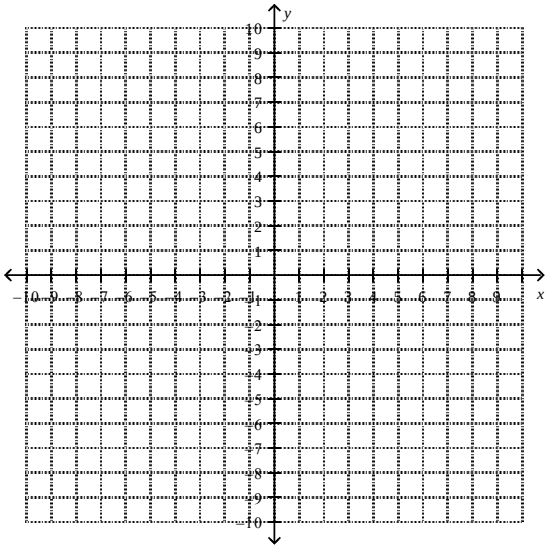


Graph the equation.

6. $y = 3x + 4$

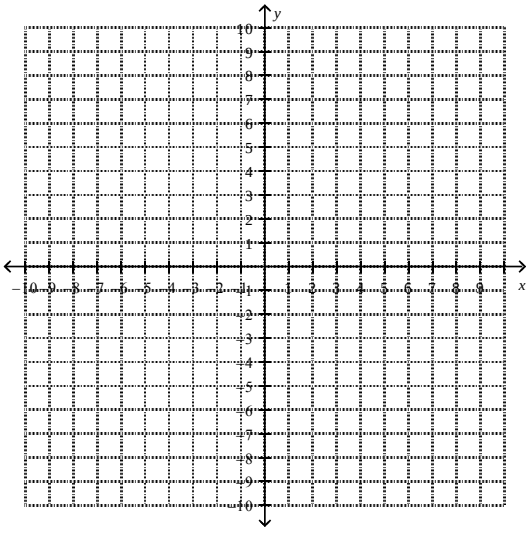


7. $y = -4$

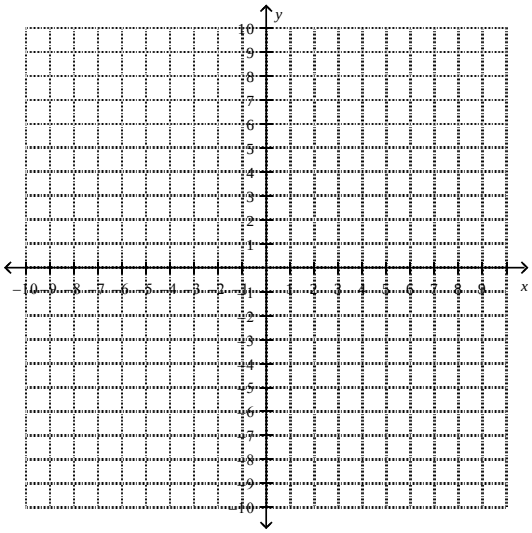


Graph the equation

8. $x = -2$



9. $y + 1 = -\frac{4}{3}(x - 3)$



Standard Form Quiz 16

Multiple Choice

What are the slope and *y*-intercept of the graph of the given equation?

____ 1. $y = \frac{7}{4}x - \frac{1}{2}$

a. The slope is $\frac{7}{4}$ and the *y*-intercept is $-\frac{1}{2}$.

b. The slope is $\frac{1}{2}$ and the *y*-intercept is $\frac{7}{4}$.

c. The slope is $\frac{4}{7}$ and the *y*-intercept is $\frac{1}{2}$.

d. The slope is $-\frac{1}{2}$ and the *y*-intercept is $\frac{7}{4}$.

____ 2. $y = 1.5x + 7.5$

a. The slope is –7.5 and the *y*-intercept is 1.5.

b. The slope is 7.5 and the *y*-intercept is 1.5.

c. The slope is –1.5 and the *y*-intercept is –7.5.

d. The slope is 1.5 and the *y*-intercept is 7.5.

____ 3. $y = 2x - 7$

a. The slope is 7 and the *y*-intercept is 2.

b. The slope is –7 and the *y*-intercept is 2.

c. The slope is 2 and the *y*-intercept is –7.

d. The slope is –2 and the *y*-intercept is 7.

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

____ 4. $m = -\frac{4}{5}$, $b = 1$

a. $y = -\frac{4}{5}x + 1$

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

c. $y = -\frac{5}{4}x + 1$

d. $y = -\frac{4}{5}x - 1$

____ 5. $m = -3.9$, $b = 8.8$

a. $y = -3.9x - 8.8$

b. $y = 8.8x - 3.9$

c. $y = -3.9x + 8.8$

d. $y = 3.9x + 8.8$

____ 6. $m = 3$, $b = 4$

a. $y = 4x + 3$

b. $y = 3x + 4$

c. $y = 3x - 4$

d. $y = -3x + 4$

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

____ 7. $(-\frac{3}{5}, \frac{4}{5}), (-\frac{5}{2}, \frac{7}{5})$

a. $y = -\frac{19}{6}x + \frac{19}{6}$
c. $y = -\frac{6}{19}x + \frac{58}{95}$
b. $y = -\frac{19}{6}x - \frac{19}{6}$
d. $y = -\frac{6}{19}x - \frac{58}{95}$

____ 8. (5.8, –7.7), (7.8, 2.3)

a. $y = 5x - 36.7$
c. $y = 0.2x + 36.7$
b. $y = -5x - 36.7$
d. $y = -0.2x + 36.7$

____ 9. (2, 6), (10, 1)

a. $y = \frac{5}{8}x - \frac{29}{4}$
c. $y = \frac{8}{5}x + \frac{29}{4}$
b. $y = -\frac{8}{5}x - \frac{29}{4}$
d. $y = -\frac{5}{8}x + \frac{29}{4}$

Find the *x*- and *y*-intercept of the line.

____ 10. $-6x + 9y = 72$

a. *x*-intercept is –12; *y*-intercept is 8
c. *x*-intercept is –6; *y*-intercept is 9
b. *x*-intercept is 9; *y*-intercept is –6
d. *x*-intercept is 8; *y*-intercept is –12

____ 11. $-x + \frac{5}{2}y = 6$

a. *x*-intercept is 6; *y*-intercept is $-\frac{12}{5}$
c. *x*-intercept is 6; *y*-intercept is $\frac{12}{5}$
b. *x*-intercept is $\frac{12}{5}$; *y*-intercept is -6
d. *x*-intercept is -6; *y*-intercept is $\frac{12}{5}$

____ 12. Write $y = \frac{1}{8}x + 11$ in standard form using integers.

a. $-x + 8y = 11$
c. $-x + 8y = 88$
b. $8x - y = 88$
d. $-x - 8y = 88$

____ 13. Write $y = 0.2x + 0.3$ in standard form using integers.

a. $-2x - 10y = 3$
c. $2x + 10y = 3$
b. $-2x + 10y = 3$
d. $2x - 10y = 3$

____ 14. A paint store sells exterior paint for $34.00 a gallon and paint rollers for $5.50 each. Write an equation in standard form for the number of gallons *p* of paint and rollers *r* that a customer could buy with $145.

a. $34p + 5.5r = 145$
c. $34p = 5.5r + 145$
b. $34r + 5.5p = 145$
d. $34 + 5.5 = p$

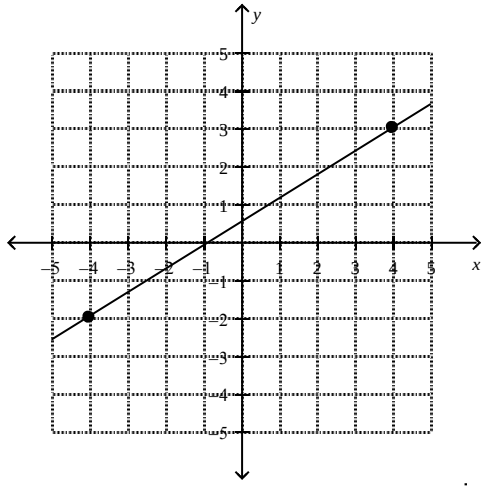
____ 15. The video store rents DVDs for $5.00 each and video games for $2.25 each. Write an equation in standard form for the number of DVDs *d* and video games *g* that a customer could rent with $16.

a. $5 + 2.25 = d$
c. $5d + 2.25g = 16$
b. $5g + 2.25d = 16$
d. $5d = 2.25g + 16$

interpret Linear Functions Quiz 17

Write the slope-intercept form of the equation for the line.

____ 1.



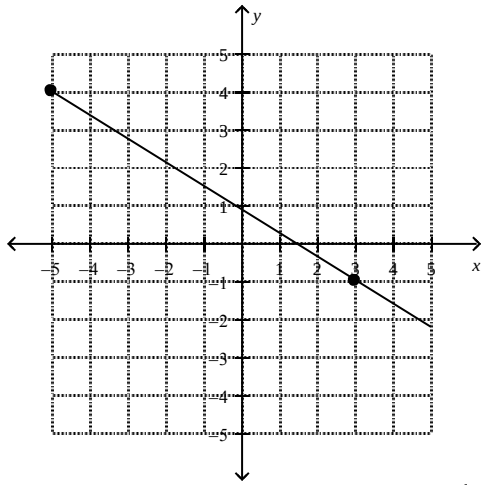
a. $y = -\frac{5}{8}x + \frac{1}{2}$

b. $y = \frac{8}{5}x - \frac{1}{2}$

c. $y = \frac{5}{8}x + \frac{1}{2}$

d. $y = \frac{8}{5}x + \frac{1}{2}$

____ 2.



a. $y = -\frac{5}{8}x + \frac{7}{8}$

b. $y = \frac{5}{8}x + \frac{7}{8}$

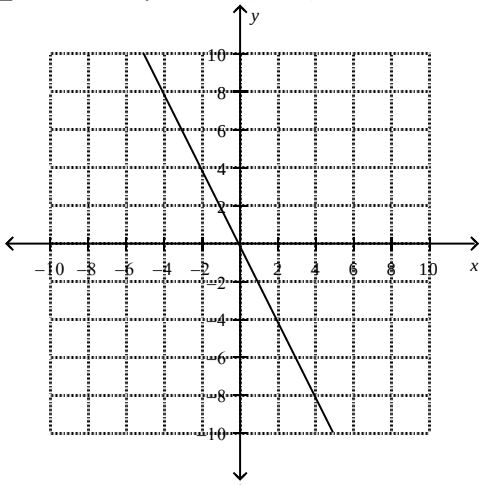
c. $y = \frac{7}{8}x + \frac{5}{8}$

d. $y = -\frac{8}{5}x + \frac{7}{8}$

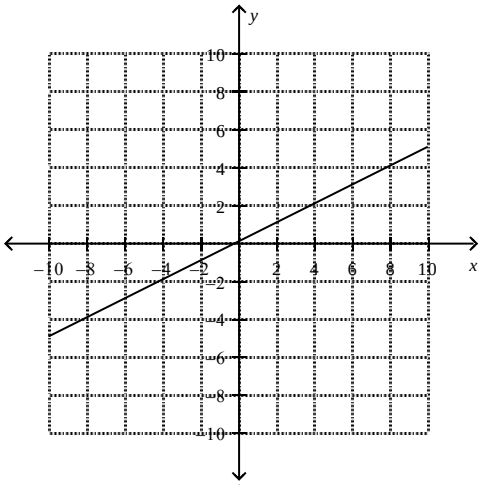
Graph the equation.

____ 3. $y - 4 = 2(x - 2)$

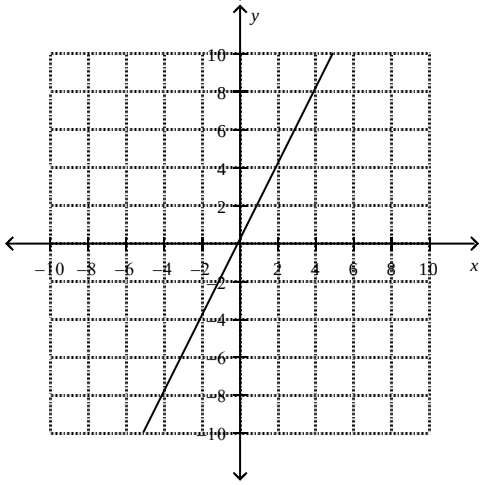
a.



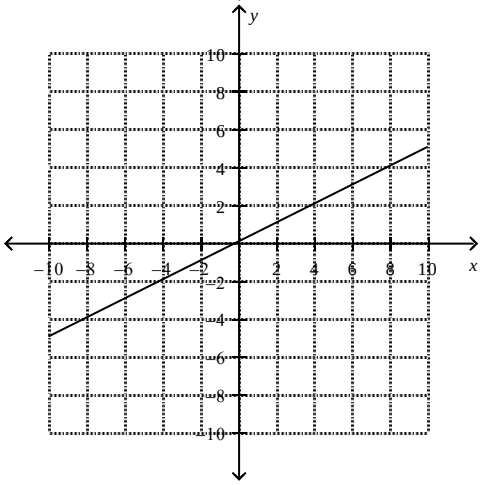
c.



b.

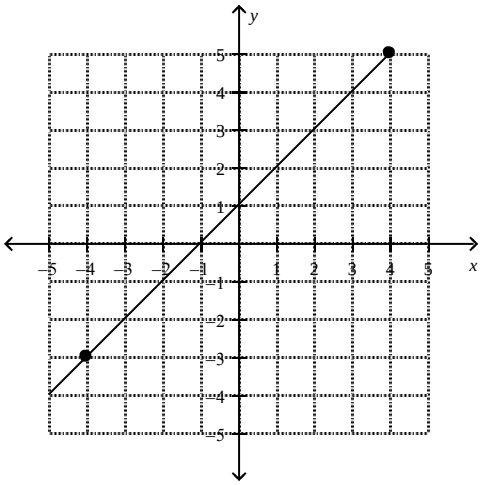


d.



What is an equation of the line?

____ 4.



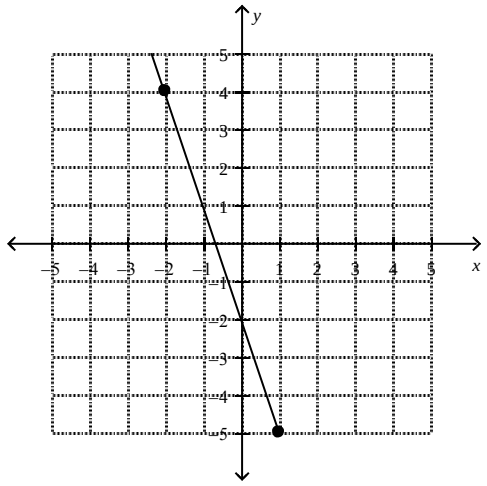
a. $y + 3 = (x + 4)$

b. $y - 3 = 2(x - 4)$

c. $y + 3 = -(x - 4)$

d. $y + 5 = 2(x + 4)$

____ 5.



a. $y - 4 = -3(x + 2)$

b. $y - 4 = -\frac{1}{3}(x + 2)$

c. $y - 2 = -2(x + 4)$

d. $y - 5 = 3(x + 2)$

____ 6. The table shows the height of a plant as it grows. What equation in point-slope form gives the plant's height at any time? Let *y* stand for the height of the plant in cm and let *x* stand for the time in months.

Time (months)	Plant Height (cm)
3	15
5	25
7	35
9	45

a. $y - 15 = \frac{5}{2}(x - 3)$

b. $y - 15 = 5(x - 3)$

c. $y - 3 = \frac{5}{2}(x - 15)$

d. The relationship cannot be modeled.

____ 7. The table shows the height above the ground of a helicopter taking off from the top of a building. What equation in point-slope form gives the helicopter's height at any time? Let *y* stand for the height of the helicopter in m and let *x* stand for the time in seconds.

Time (s)	Height (m)
3	24
5	40
7	56
9	72

a. $y - 24 = 8(x - 3)$

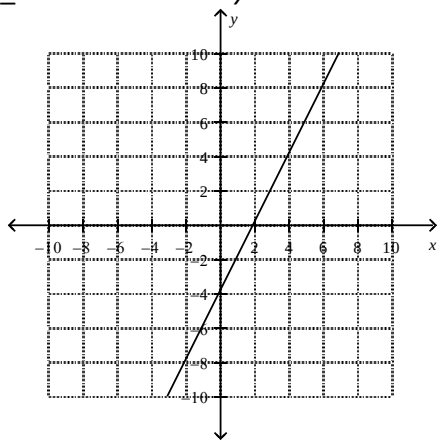
b. $y - 3 = 4(x - 24)$

c. $y - 24 = 4(x - 3)$

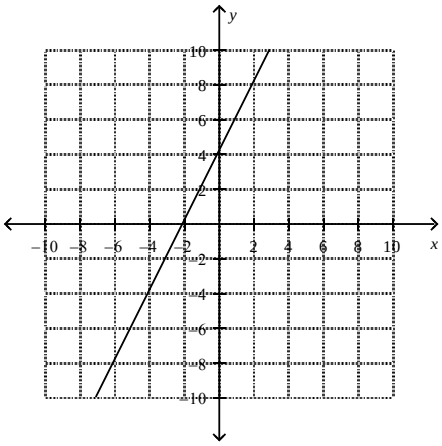
d. The relationship cannot be modeled.

____ 8. $-4x - 2y = 8$

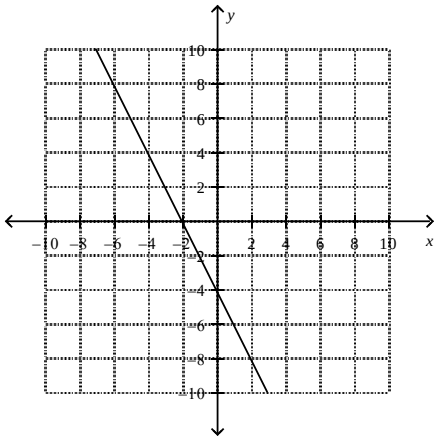
a.



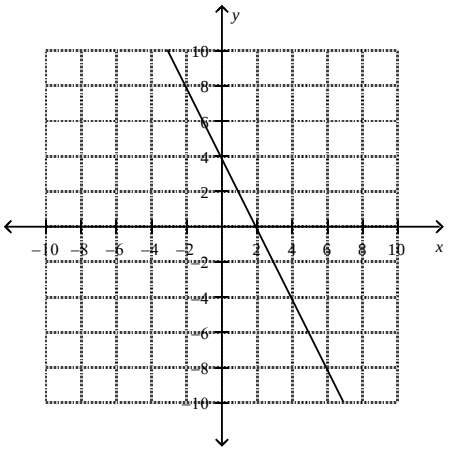
c.



b.

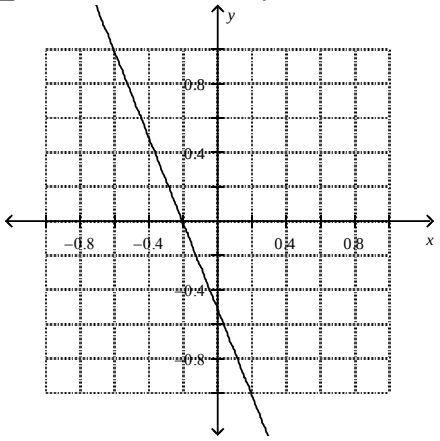


d.

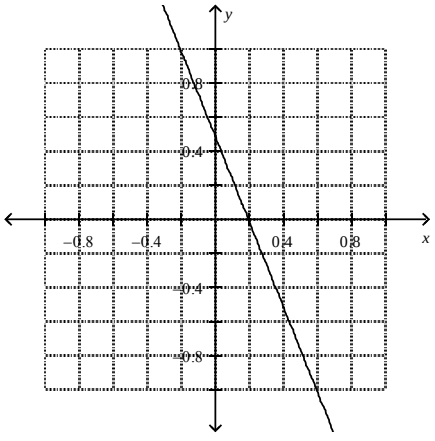


____ 9. $0.5x + 0.2y = 0.1$

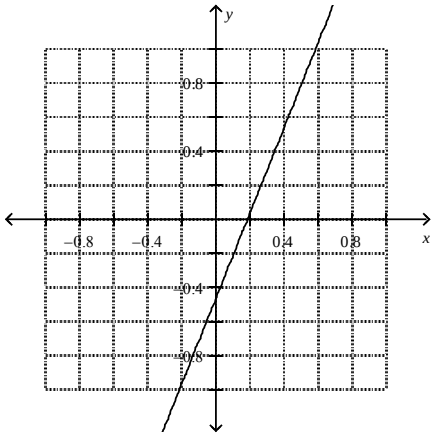
a.



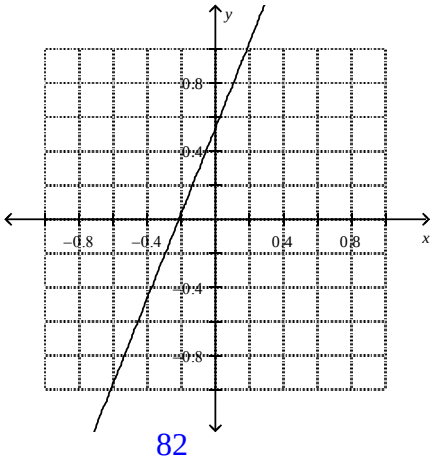
c.



b.



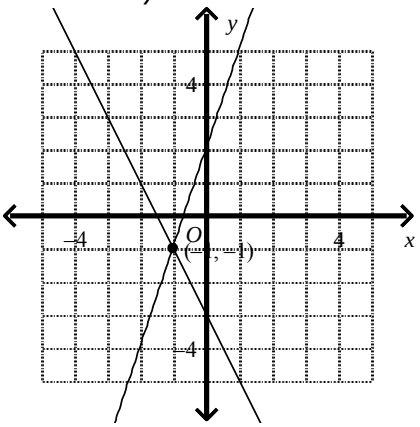
d.



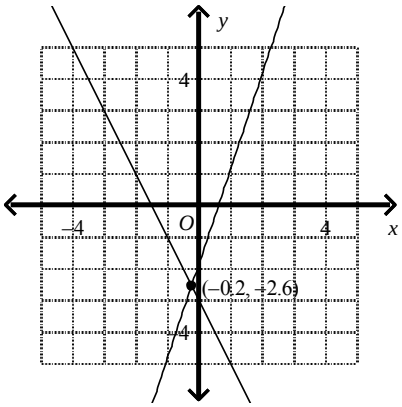
Graphing Systems of Equations Quiz 18

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

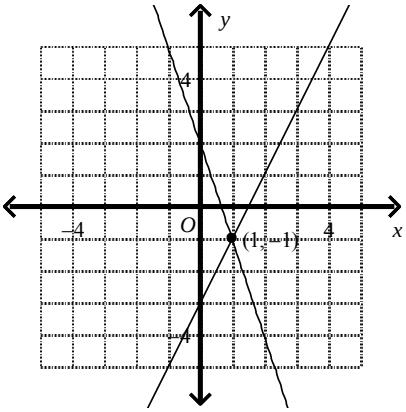
a.



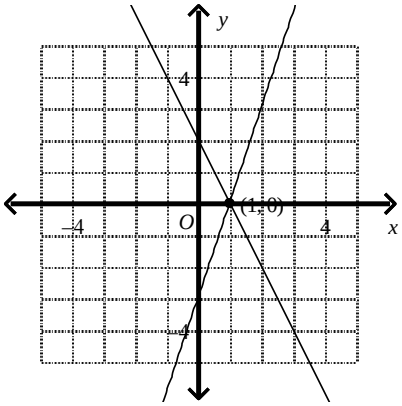
c.



b.

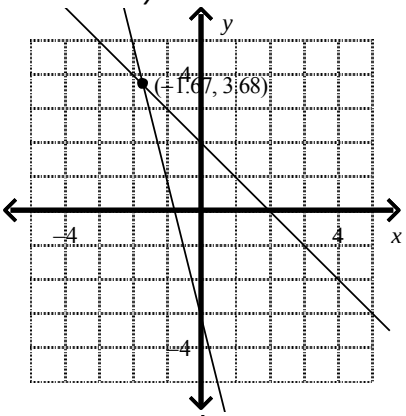


d.

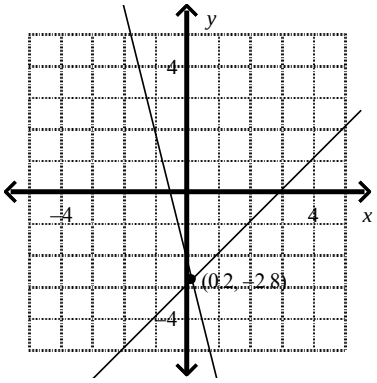


____ 2. $y = -4x + 2$
$y = x - 3$

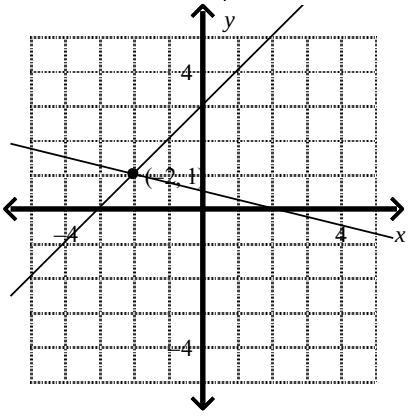
a.



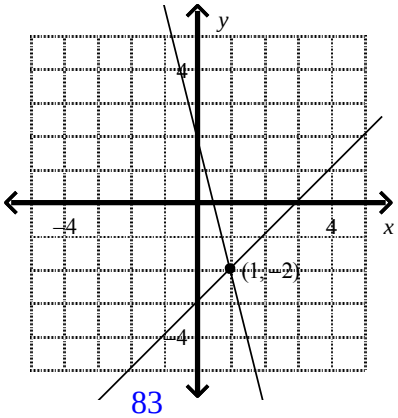
c.



b.



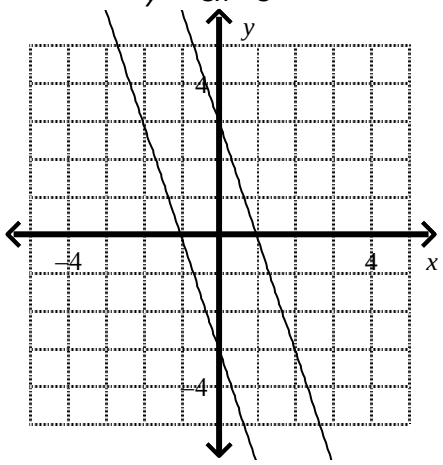
d.



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

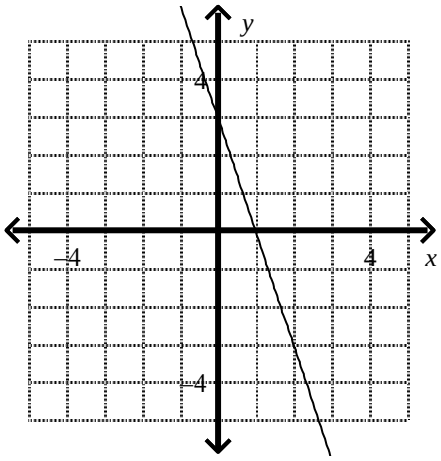
____ 3. $y = -3x + 3$
$y = -3x - 3$

a.



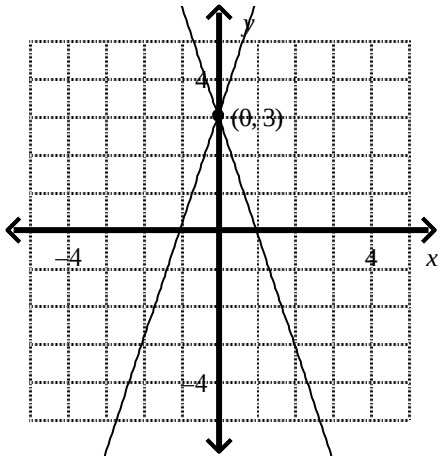
no solutions

c.



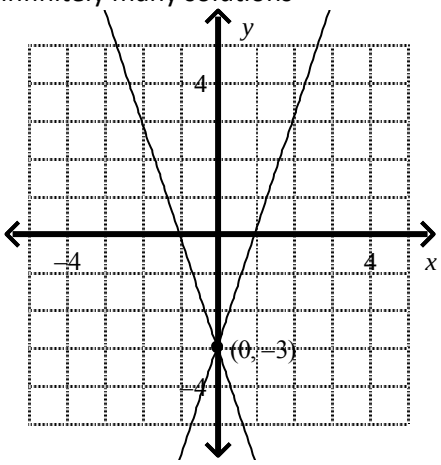
infinitely many solutions

b.



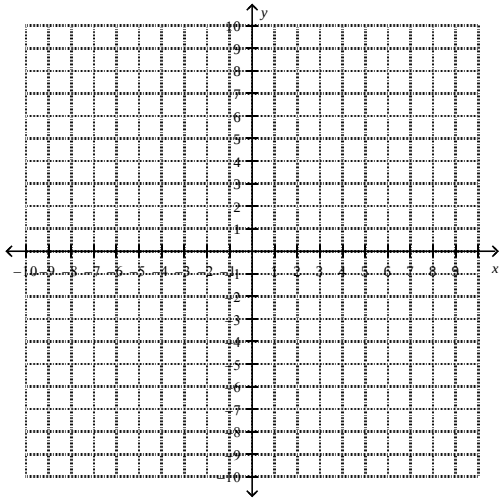
(0, 3)

d.

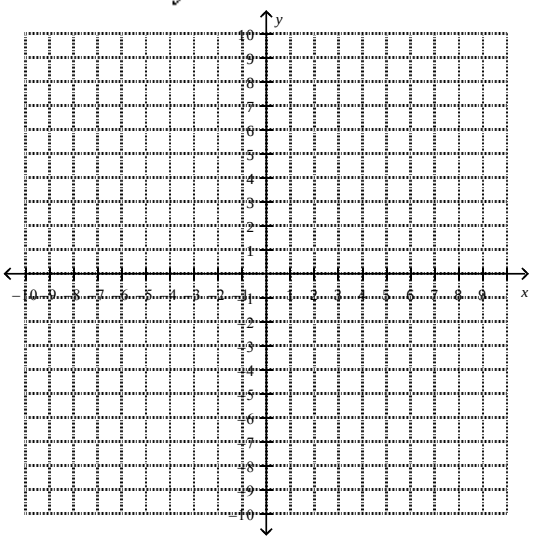


(0, –3)

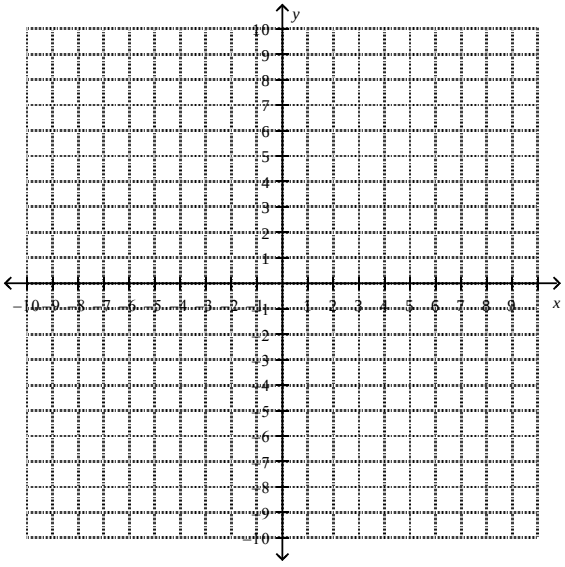
4. $-4x + 3y = -12$
$-2x + 3y = -18$



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



6. $y = -x + 4$
$y - 4 = -x$



Systems of Equations by Substitution Quiz 19

____ 1. $y = 4x + 3$
$y = 5x$
a. (–15, –3) b. (–3, –15) c. (3, 15) d. (0.3, 1.7)

____ 2. $3x + 2y = 7$
$y = -3x + 11$
a. (6, –3) b. (6, –7) c. $\left(-4, \frac{19}{2}\right)$ d. (5, –4)

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

____ 4. $2x - y = -8$
$3x - y = -7$
a. (1, 10) b. (6, –1) c. (–1, 4) d. (–1, 6)

____ 5. $6x - 2y = 2$
$4x - y = 6$

a. (1, 2) b. (5, 14) c. (1, –2) d. (4, 12)

____ 6. $x - y = -6$
$6x - 3y = -9$

a. (1, 7) b. (3, 9) c. $\left(-6, \frac{3}{2}\right)$ d. (4, –11)

Systems of Equations by Elimination Quiz 20

____ 1. $2x - 2y = -8$
$x + 2y = -1$

a. (–14, 1) b. (1, 5) c. (–3, 1) d. (0, 4)

____ 2. $2x + 5y = -16$
$2x - 5y = 4$

a. (–2, –3) b. (–2, –2.4) c. (5, 2) d. (–3, –2)

____ 3. $-27x - y = 9$
$31x + y = 3$

a. (90, –3) b. (3, –90) c. (–90, 3) d. (–3, 90)

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

a. (3, 9) b. (–27, –9) c. (–3, –6) d. (–9, –9)

____ 5. $x + y = -7$
$4x + 3y = -23$

a. (–5, –2) b. (–2, –5) c. (–2, 3) d. (4, 1)

____ 6. $4x = -15 + 3y$
$12y = 18 + 2x$

a. (4, 12) b. (–3, 4) c. (1, –3) d. (–3, 1)

____ 7. $6x + 10y = 50$
$4x + 9y = 38$

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

____ 8. $7x + 6y = 19$
$-5x - 4y = -13$

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

____ 9. $4.8x + 0.4y = -9.2$
$-0.1x - 0.3y = -0.1$

a. (1, –2) b. (–5, 37) c. (–2, 1) d. (–0.1, 4.8)

Interpret Systems of Equations Quiz 21

____ 1. Tom has a collection of 21 CDs and Nita has a collection of 14 CDs. Tom is adding 3 CDs a month to his collection while Nita is adding 4 CDs a month to her collection. Find the number of months after which they will have the same number of CDs.

a. 42 months
b. 2 months
c. 1 month
d. 7 months

____ 2. 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

____ 3. A corner store sells two kinds of baked goods: cakes and pies. A cake costs $10 and a pie costs $11. In one day, the store sold 9 baked goods for a total of $92. How many cakes did they sell?

a. 6 cakes
b. 2 cakes
c. 7 cakes
d. 4 cakes

____ 4. Sharon has some one-dollar bills and some five-dollar bills. She has 14 bills. The value of the bills is $30. Solve a system of equations using elimination to find how many of each kind of bill she has.

a. 4 five-dollar bills, 10 one-dollar bills
b. 3 five-dollar bills, 15 one-dollar bills
c. 5 five-dollar bills, 5 one-dollar bills
d. 5 five-dollar bills, 9 one-dollar bills

____ 5. The school cafeteria sells two kinds of wraps: vegetarian and chicken. The vegetarian wrap costs $1.00 and the chicken wrap costs $3.40. Today they made $199.60 from the 106 wraps sold. How many of the wraps sold were vegetarian?

a. 80 wraps
b. 39 wraps
c. 67 wraps
d. 28 wraps

____ 6. Mike and Kim invest $18,000 in equipment to print yearbooks for schools. Each yearbook costs $6 to print and sells for $18. How many yearbooks must they sell before their business breaks even?

a. 1,750 yearbooks b. 3000 yearbooks c. 1,500 yearbooks d. 1,000 yearbooks

____ 7. At the local ballpark, the team charges $4 for each ticket and expects to make $1,100 in concessions. The team must pay its players $1,500 and pay all other workers $1,700. Each fan gets a free bat that costs the team $2 per bat. How many tickets must be sold to break even?

a. 1050 tickets b. 525 tickets c. 2150 tickets d. 350 tickets

____ 8. The local zoo is filling two water tanks for the elephant exhibit. One water tank contains 26 gal of water and is filled at a constant rate of 9 gal/h. The second water tank contains 16 gal of water and is filled at a constant rate of 4 gal/h. When will the two tanks have the same amount of water? Explain. Let x = the number of hours the tanks are filling and let y = the number of gallons in the tank.

a. In 2 hours, because the solution to the system is (2,8).
b. They will never have the same amount of water because the solution to the system is (–2,8). It is not possible to have time be –2 hours.
c. In –2 hours, because the solution to the system is (–2,8).
d. They will never have the same amount of water because the solution to the system is (–2,8). It is not possible to have –2 gallons in the tanks.

9. Kendra owns a restaurant. She charges $3.00 for 2 eggs and one piece of toast, and $1.80 for one egg and one piece of toast. How much does Kendra charge for an egg? A piece of toast?

10. The local zoo has two water tanks for the elephant exhibit that are leaking One water tank contains 15 gal of water and is leaking at a constant rate of 4 gal/h. The second water tank contains 9 gal of water and is leaking at a constant rate of 7 gal/h. When will the two tanks have the same amount of water? Explain. Let x = the number of hours the tanks are filling and let y = the number of gallons in the tank.