

Algebra II: Summer Assignment**Multiple Choice**

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

- _____ 1. Name the set(s) of numbers to which -5 belongs.
a. whole numbers, natural numbers, integers
b. rational numbers
c. whole numbers, integers, rational numbers
d. integers, rational numbers
- _____ 2. Which set of numbers is the most reasonable to describe the number of desks in a classroom?
a. whole numbers
b. irrational numbers
c. rational numbers
d. integers
- _____ 3. Name the set(s) of numbers to which 1.68 belongs.
a. rational numbers
b. natural numbers, whole numbers, integers, rational numbers
c. rational numbers, irrational numbers
d. none of the above
- _____ 4. A rational number is _____ a real number.
a. always
b. sometimes
c. never
- _____ 5. Evaluate the expression $(ab)^2$ for $a = 4$ and $b = 3$.
a. 36
b. 24
c. 81
d. 144
- _____ 6. Evaluate $u + xy$, for $u = 18$, $x = 10$, and $y = 8$.
a. 188
b. 36
c. 98
d. 224
- _____ 7. Evaluate $|-x - 2y|$ for $x = -2$ and $y = 3$.
a. 4
b. 8
c. -4
d. -8

Simplify the expression.

- _____ 8. $-\frac{1}{8} - \frac{2}{7}$
a. $\frac{1}{5}$
b. $-\frac{23}{56}$
c. $\frac{23}{56}$
d. $-\frac{1}{8}$
- _____ 9. $3[(15 - 3)^2 \div 4]$
a. 108
b. 36
c. 18
d. 9
- _____ 10. $13[6^2 \div (5^2 - 4^2) + 9]$
a. 585
b. 169
c. 26
d. 181
- _____ 11. $1.7m^2 + 6.5n - 4n + 2.5m^2 - n$
a. $4.2m^2 + 1.5n$
b. $4.2m^2 - 1.5n$
c. $1.5m^2 - 4.2n$
d. $1.5m^2 + 4.2n$

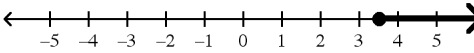
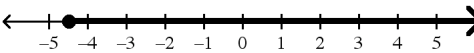
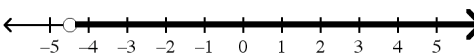
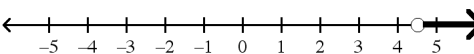
- _____ 12. $(-8.6)^0$
 a. -1 b. 0 c. -8.6 d. 1
- _____ 13. $7a^{-5}b^3$
 a. $7ab^{-15}$ b. $\frac{b^3}{7a^5}$ c. $\frac{7b^3}{a^5}$ d. $7a^5b^{-3}$
- _____ 14. $\frac{12}{c^{-8}d^2}$
 a. $\frac{12}{cd^{-6}}$ b. $\frac{96c}{d^2}$ c. $\frac{12}{c^8d^2}$ d. $\frac{12c^8}{d^2}$
- _____ 15. $2k^8 \cdot 3k^3$
 a. $5k^{24}$ b. $5k^{11}$ c. $6k^{11}$ d. $6k^{24}$
- _____ 16. $-4x^3 \cdot 2y^{-2} \cdot 5y^5 \cdot x^{-8}$
 a. $-\frac{x^2}{40y^3}$ b. $-\frac{40y^3}{x^5}$ c. $-\frac{2x^5}{5y^3}$ d. $-\frac{5y^3}{2x}$
- _____ 17. $(k^2)^4$
 a. k^6 b. $2k^8$ c. k^{16} d. k^8
- _____ 18. $(x^9)^0(x^7)^2$
 a. x^{18} b. 1 c. x^{14} d. x^{126}
- _____ 19. $(3xy^3)^2(xy)^6$
 a. $9x^8y^{12}$ b. $3x^8y^{12}$ c. $2x^3y^{12}$ d. $9x^8y^9$
- _____ 20. $\frac{x^5}{x^9}$
 a. $\frac{1}{x^{14}}$ b. x^4 c. x^{14} d. $\frac{1}{x^4}$
- _____ 21. $\left(\frac{m^{-1}m^5}{m^{-2}}\right)^{-3}$
 a. $-\frac{3m^4}{m^{-2}}$ b. $\frac{1}{m^{18}}$ c. m^{18} d. $-m^{216}$

Solve the equation.

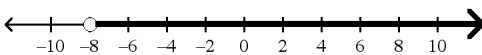
- _____ 22. $v - \frac{4}{5} = \frac{3}{8}$
 a. $\frac{1}{2}$ b. $1\frac{7}{40}$ c. $\frac{7}{13}$ d. $\frac{17}{40}$

- _____ 23. $\frac{3}{7}x + 5 = 8$
- a. 7 b. $1\frac{2}{7}$ c. -7 d. $7\frac{2}{3}$
- _____ 24. $3(y + 6) = 30$
- a. 5 b. 16 c. 4 d. -16
- _____ 25. $3p - 1 = 5(p - 1) - 2(7 - 2p)$
- a. 3 b. 0 c. -9 d. -10
- _____ 26. $8d - 4d - 6d - 8 = 2d$
- a. 0 b. -1 c. -2 d. -4
- _____ 27. Which equation is an identity?
- a. $11 - (2v + 3) = -2v - 8$ c. $7m - 2 = 8m + 4 - m$
 b. $5w + 8 - w = 6w - 2(w - 4)$ d. $8y + 9 = 8y - 3$
- _____ 28. You made two deposits to your bank account this month. One deposit was \$17.92, and the second deposit was \$15.33. Your balance at the end of the month is \$72.31, and you made no withdrawals. Write and evaluate an expression for your balance at the beginning of the month.
- a. $\$72.31 + (\$17.92 - \$15.33)$; \$74.90
 b. $\$72.31 - \$17.92 - \$15.33$; \$39.06
 c. $\$72.31 + \$17.92 + \$15.33$; \$105.56
 d. $\$72.31 - (\$17.92 - \$15.33)$; \$69.72
- _____ 29. A customer went to a garden shop and bought some potting soil for \$17.50 and 4 shrubs. The total bill was \$53.50. Write and solve an equation to find the price of each shrub.
- a. $4p + \$17.50 = \53.50 ; $p = \$9.00$ c. $4p + 17.5p = \$53.50$; $p = \$2.49$
 b. $4(p + \$17.50) = \53.50 ; $p = \$4.00$ d. $4p + \$17.50 = \53.50 ; $p = \$11.25$

Graph the inequality.

- _____ 30. $k > \frac{9}{2}$
- a.  c. 
- b.  d. 

Write an inequality for the graph.

- _____ 31. 
- a. $x \leq -8$ b. $x < -8$ c. $x > -8$ d. $x < 8$

Which number is a solution of the inequality?

_____ 32. $3x - 15 \geq 3$

a. $-\frac{9}{11}$

b. 5

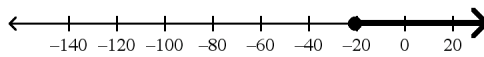
c. $\frac{6}{11}$

d. 6

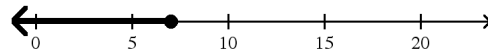
Solve the inequality. Then graph your solution.

_____ 33. $-\frac{1}{3}h \leq 7$

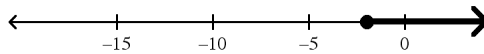
a. $h \geq -21$



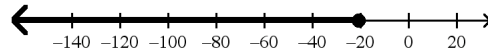
c. $h \leq 7\frac{1}{3}$



b. $h \geq -2\frac{1}{3}$



d. $h \leq -21$



Solve the inequality.

_____ 34. $a + 8 - 2(a - 12) > 0$

a. $a < 32$

b. $a > -16$

c. $a < -16$

d. $a > 32$

_____ 35. $12x - 3x + 11 > 4x - (17 - 9x)$

a. $x > -7$

b. $x < 7$

c. $x < -\frac{14}{11}$

d. $x > -\frac{14}{11}$

Write a function rule for the table.

_____ 36.

x	$f(x)$
2	-8
3	-12
4	-16
5	-20

a. $f(x) = -4x$

b. $f(x) = 4x$

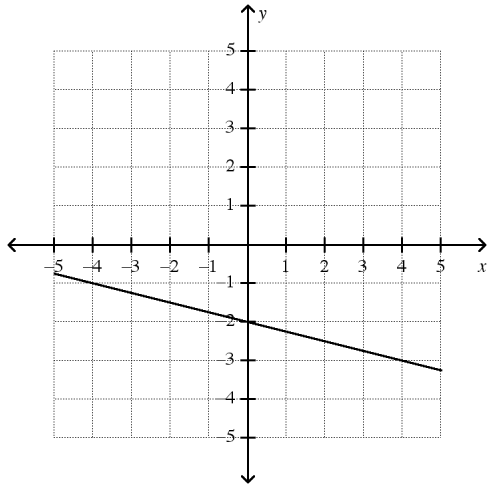
c. $f(x) = x - 4$

d. $f(x) = x + 4$

- _____ 37. Crystal earns \$5.50 per hour mowing lawns.
- a. Write a rule to describe how the amount of money m earned is a function of the number of hours h spent mowing lawns.
- b. How much does Crystal earn if she works 3 hours and 45 minutes?
- a. $m(t) = 3h + 45$; \$61.50 c. $m(t) = 5.50h$; \$18.98
- b. $m(t) = \frac{h}{5.50}$; \$0.68 d. $m(t) = 5.50h$; \$20.63

Find the slope of the line.

_____ 38.



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

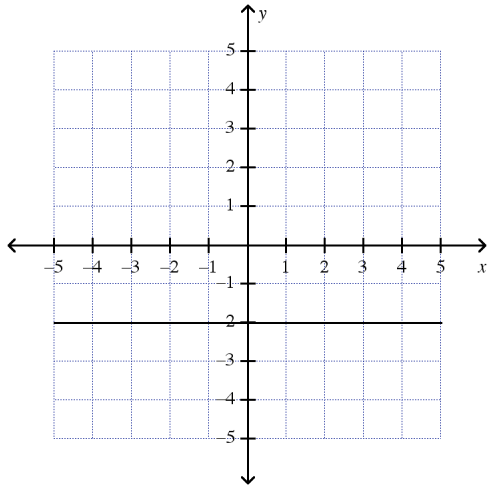
Find the slope of the line that passes through the pair of points.

_____ 39. $(1, 7), (10, 1)$

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

State whether the slope is 0 or undefined.

_____ 40.



a. undefined

b. 0

Find the slope and y-intercept of the line.

_____ 41. $14x + 4y = 24$

a. $-\frac{2}{7}; 6$

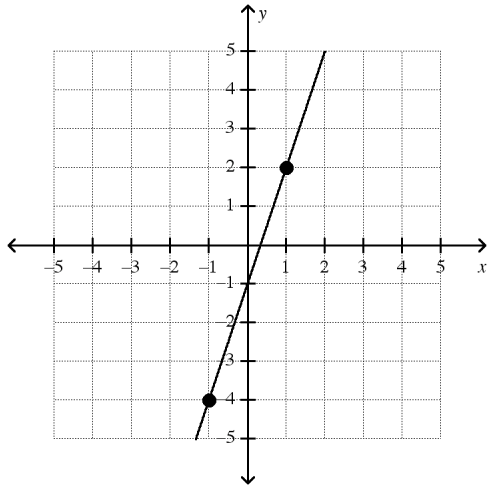
c. $-\frac{7}{2}; \frac{1}{6}$

b. $-\frac{7}{2}; 6$

d. $\frac{7}{2}; -6$

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

_____ 42.



a. $y = 3x - 1$

b. $y = -3x - 1$

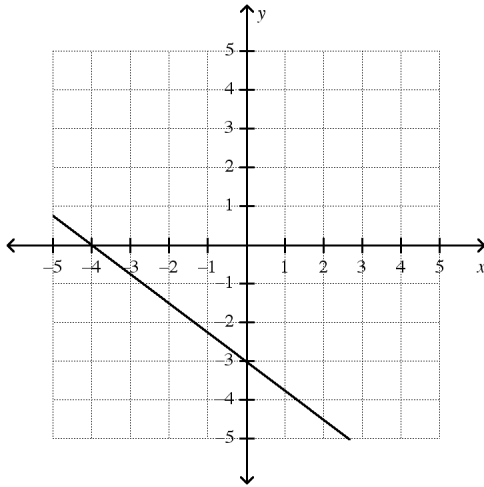
c. $y = \frac{1}{3}x + 1$

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

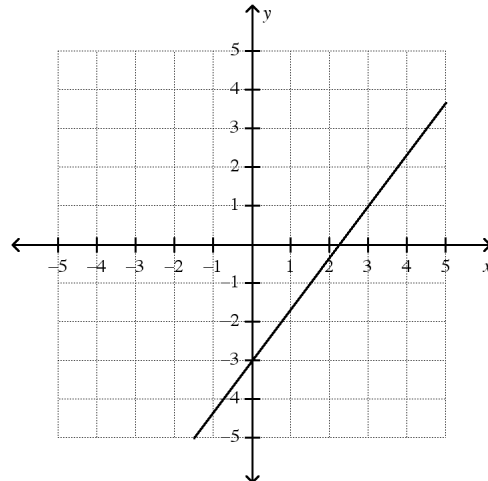
_____ 43. Use the slope and y-intercept to graph the equation.

$$y = \frac{3}{4}x - 3$$

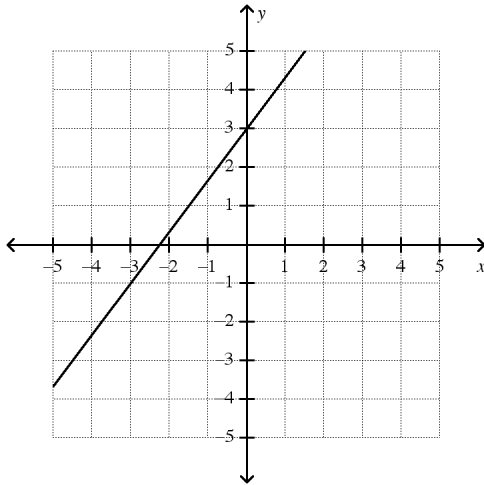
a.



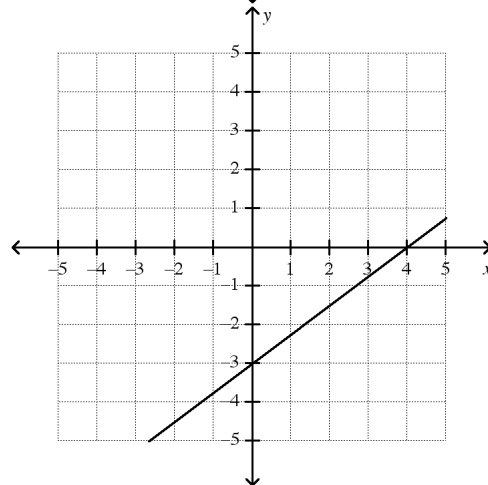
c.



b.



d.



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

_____ 44. $2x + 3y = -18$

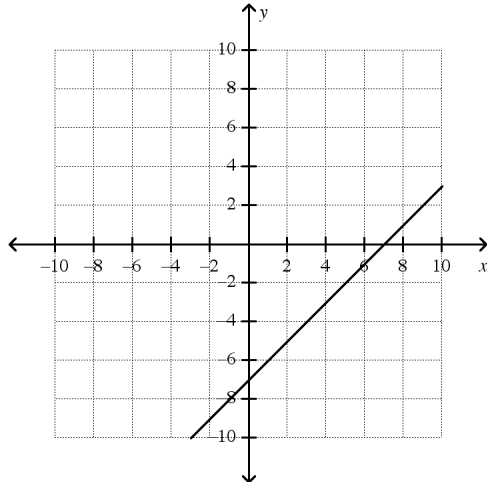
- a. x -intercept is 18; y -intercept is 18.
- b. x -intercept is -6 ; y -intercept is -9 .

- c. x -intercept is 2; y -intercept is 3.
- d. x -intercept is -9 ; y -intercept is -6 .

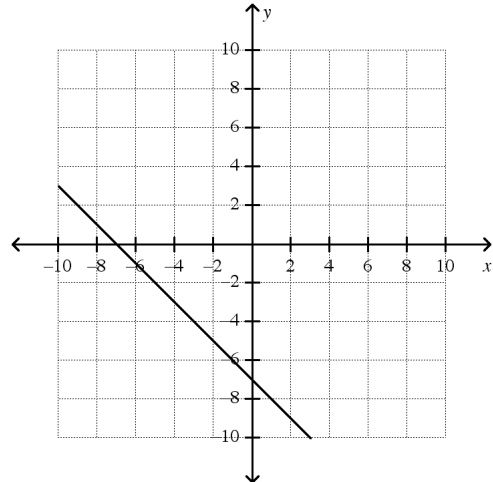
Match the equation with its graph.

_____ 45. $-7x + 7y = -49$

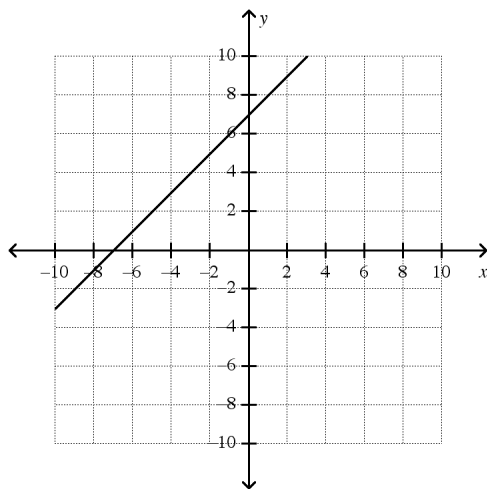
a.



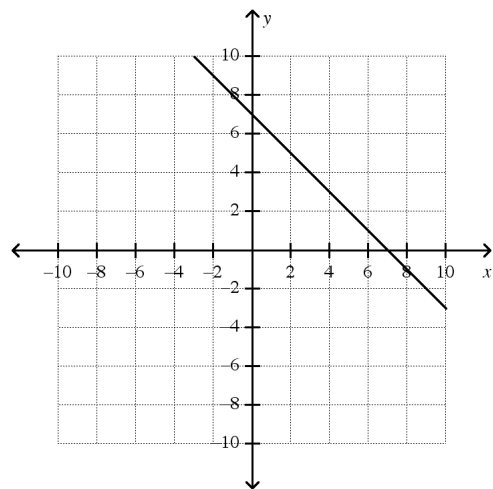
c.



b.



d.



_____ 46. Write $y = \frac{2}{3}x + 7$ in standard form using integers.

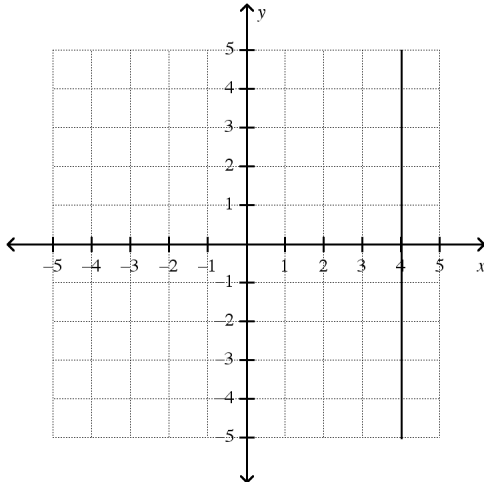
- a. $-2x + 3y = 21$
- b. $3x - 2y = 21$

- c. $-2x - 3y = 21$
- d. $-2x + 3y = 7$

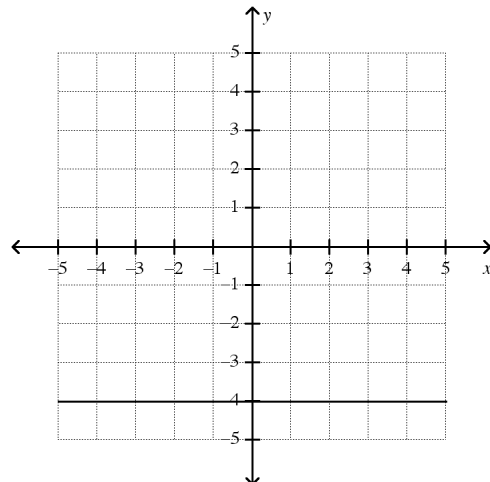
Graph the equation.

_____ 47. $x = -4$

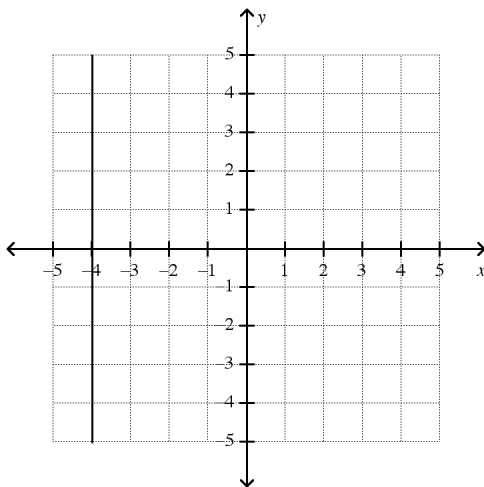
a.



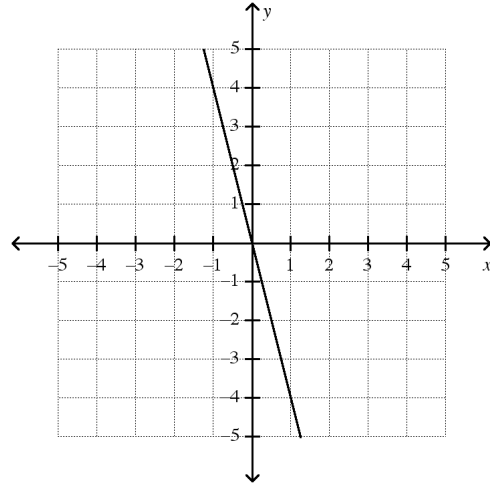
c.



b.



d.



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

_____ 48. $(10, -9); m = -2$

a. $y - 10 = -2(x + 9)$

c. $y - 9 = -2(x - 10)$

b. $y - 9 = -2(x + 10)$

d. $y + 9 = -2(x - 10)$

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

_____ 49. $y = -5x + 3; (-6, 3)$

a. $y = -5x + 27$

c. $y = 5x - 9$

b. $y = -5x - 27$

d. $y = -5x + 9$

_____ 50. Find a solution to the following system of equations.

$$-5x + y = -5$$

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

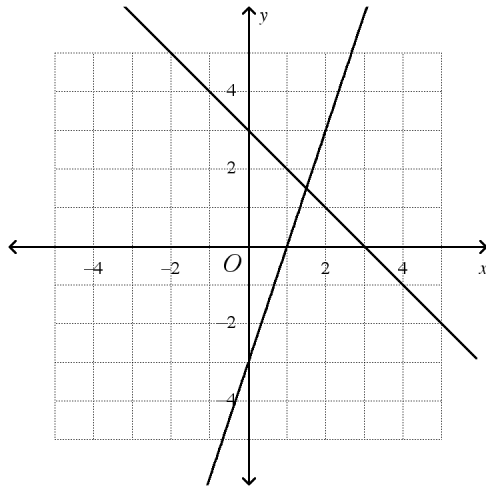
- a. $(-8, -15)$ b. $(-2, -15)$ c. $(0, 1)$ d. $(2, 5)$

_____ 51. Which graph represents the following system of equations?

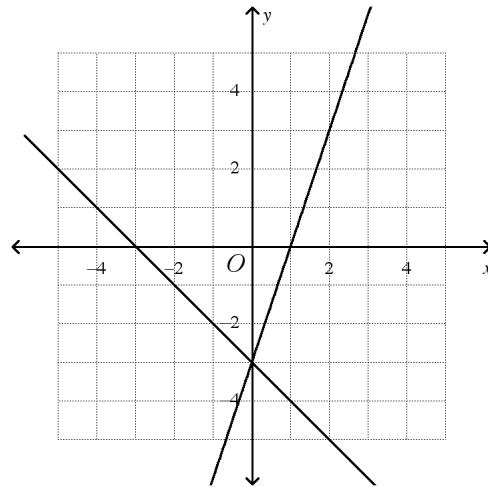
$$y = 3x + 3$$

$$y = -x - 3$$

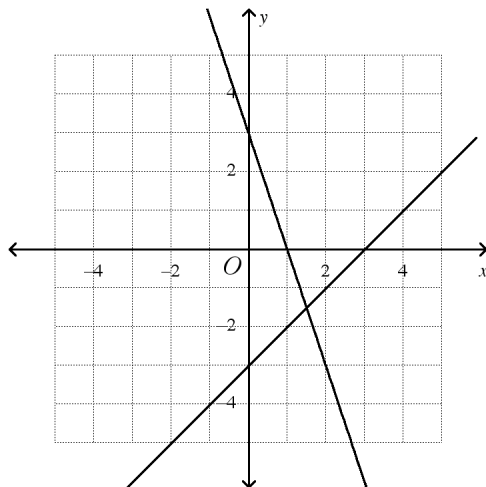
a.



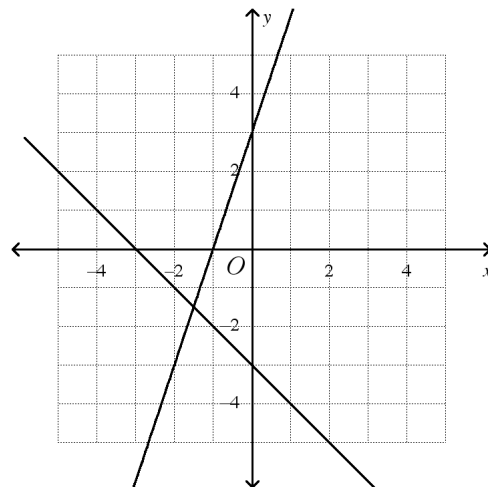
c.



b.



d.



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

_____ 52. $y = x + 4$

$$y - 4 = x$$

- a. infinitely many solutions
 b. no solutions
 c. one solution

Solve the system of equations using substitution.

_____ 53. $3x + 2y = 7$
 $y = -3x + 11$

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

Solve the system using elimination.

_____ 54. $5x + 8y = -29$
 $7x - 2y = -67$

- a. $(-7, 9)$ b. $\left(-10, \frac{21}{8}\right)$ c. $(-1, -3)$ d. $(-9, 2)$

_____ 55. A jar containing only nickels and dimes contains a total of 60 coins. The value of all the coins in the jar is \$4.45. Solve by elimination to find the amount of nickels and dimes that are in the jar.

- a. 30 nickels and 28 dimes c. 29 nickels and 31 dimes
 b. 31 nickels and 29 dimes d. 30 nickels and 32 dimes

_____ 56. Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms.

$$2 - 11x^2 - 8x + 6x^2$$

- a. $-5x^2 - 8x + 2$; quadratic trinomial c. $-6x^2 - 8x - 2$; cubic polynomial
 b. $5x^2 - 8x - 2$; quadratic trinomial d. $6x^2 - 8x + 2$; cubic trinomial

Simplify the difference.

_____ 57. $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$

- a. $2x^4 + 2x + 8$ c. $-14x^4 - 10x + 10$
 b. $-14x^4 + 10x + 10$ d. $2x^4 + 2x + 10$

_____ 58. Simplify the sum.

$$(4u^3 + 4u^2 + 2) + (6u^3 - 2u + 8)$$

- a. $10 - 2u + 4u^2 + 10u^3$ c. $-2u^3 + 4u^2 - 2u + 10$
 b. $-2u^3 - 2u^2 + 4u - 10$ d. $10u^3 + 4u^2 - 2u + 10$

Simplify the product.

_____ 59. $3p^4(4p^4 + 7p^3 + 4p + 1)$

- a. $12p^8 + 3p^7 + 4p^5 + p^4$ c. $7p^8 + 10p^7 + 7p^5 + 4p^4$
 b. $12p^8 + 21p^7 + 12p^5 + 3p^4$ d. $12p^{16} + 21p^{12} + 15p^4$

_____ 60. $8p(-3p^2 + 6p - 2)$

- a. $-5p^3 + 14p^2 - 6p$ c. $14p^2 - 6p - 5p^3$
 b. $48p^2 - 16p - 24p^3$ d. $-24p^3 + 48p^2 - 16p$

Factor the expression.

- _____ 67. $w^2 + 18w + 77$
a. $(w - 7)(w + 11)$ c. $(w + 7)(w + 11)$
b. $(w - 7)(w - 11)$ d. $(w + 1)(w + 77)$
- _____ 68. $d^2 + 10d + 9$
a. $(d + 9)(d - 1)$ c. $(d - 9)(d - 1)$
b. $(d - 9)(d + 1)$ d. $(d + 9)(d + 1)$
- _____ 69. $x^2 - x - 42$
a. $(x - 7)(x + 6)$ c. $(x + 7)(x - 6)$
b. $(x + 7)(x + 6)$ d. $(x - 7)(x - 6)$

Short Answer

70. Graph the points on the same coordinate plane.
 $A(4, 4), B(3, -1), C(-4, -1)$

