

**Algebra 2 Summer Review**

1. Evaluate  $4v + 6w$  for  $v = 3$  and  $w = -2$ .

2. Evaluate the power.  $(-3)^5$

3. Evaluate  $\frac{42-z}{-2z+4}$  when  $z = -2$ .

4. Evaluate  $2a^3 + (2a)^2$  when  $a = -2$ .

**Simplify the expression.**

5.  $9(a - 1) + 4(a - 1)$

a.  $13a - 13$

b.  $9a - 13$

c.  $13a - 5$

d.  $9a - 5$

6.  $3r - 7r + 9r$

a.  $13r$

b.  $19r$

c.  $5r$

d.  $-19r$

7. Use the distributive property to simplify  $-(5c + 4d)$ .

**Determine which value is a solution of the equation.**

8.  $\frac{n}{5} = 26$

a. 135

b. 126

c. 134

d. 130

9.  $10 - 5w = 25$

a. 20

b. -7

c. -3

d. 15

**Solve the equation. Check your solution.**

10.  $8p + 4 = -20$

11.  $-\frac{p}{14} + 9 = 13$

12. Solve the equation.  $-x + 3 = 7x + 8$

13. Solve the equation.  $5(3 - 4x) = 7 - (4 - x)$

**Solve the equation.**

14.  $5x + 14 - 2x = 9 - (4x + 2)$

15.  $\frac{9x}{3} + 11x = 28$

16.  $5n - 2(2 - n) = -7$

17.  $\frac{x}{2} + \frac{x}{4} = 5$

18. Which equation is an identity? Which equation has no solutions?

A.  $15(p + 3) + 12 = 27p + 45$

B.  $6(6t + 3) = 9(4t + 2)$

C.  $24m - 30 = 2(15 + 3)$

D.  $18(w + 3) - 45 = 18 + 54$

19. Solve for  $t$  in the equation  $-9 = t + 4s$ .

a.  $t = -9 - 4s$

b.  $t = \frac{-9 + s}{4}$

c.  $t = \frac{-9 - s}{4}$

d.  $t = -9 - s - 4$

20. Solve for  $A$ :  $B = \frac{5}{7}(A - 11)$ 

a.  $\frac{7B + 55}{5}$

b.  $\frac{7B + 50}{7}$

c.  $\frac{7B + 77}{5}$

d.  $\frac{7B + 72}{7}$

**Solve.**

21.  $-3f + 8 < 11$

22.  $9x - 5 \leq 7x - 11$

a.  $x = 16$

b.  $x \leq -3$

c.  $x \leq 3$

d.  $x \geq 16$

Solve the absolute value equation.

\_\_\_\_\_ 23.  $|5a + 3| = 5$

a.  $1, -1$

c.  $\frac{2}{5}, -\frac{8}{5}$

b.  $\frac{2}{5}, \frac{8}{5}$

d.  $1, 2$

\_\_\_\_\_ 24. Find the slope of the line passing through the points  $(5, 7)$  and  $(-4, 2)$ .

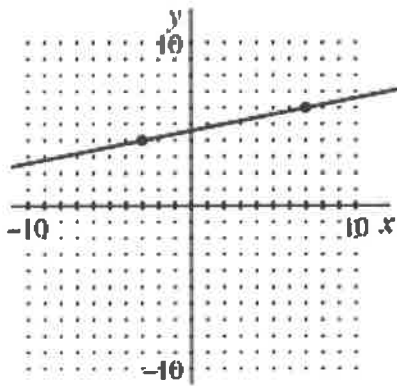
a.  $\frac{9}{5}$

c.  $\frac{1}{9}$

b.  $9$

d.  $\frac{5}{9}$

\_\_\_\_\_ 25. Find the slope of the line.



a.  $\frac{5}{2}$

b.  $5$

c.  $\frac{2}{5}$

d.  $\frac{1}{5}$

26. Find the slope of the line passing through  $(4, -1)$  and  $(5, -2)$ .

27. Tell whether **Line 1** and **Line 2** are *parallel*, *perpendicular*, or *neither*.

**Line 1** passes through  $(10, 7)$  and  $(13, 9)$

**Line 2** passes through  $(-4, 3)$  and  $(-1, 5)$

28. Line 1 contains  $(-3, 5)$  and  $(2, 0)$ . Line 2 contains  $(1, -3)$  and  $(-1, 3)$ . Are the lines parallel, perpendicular, or neither?

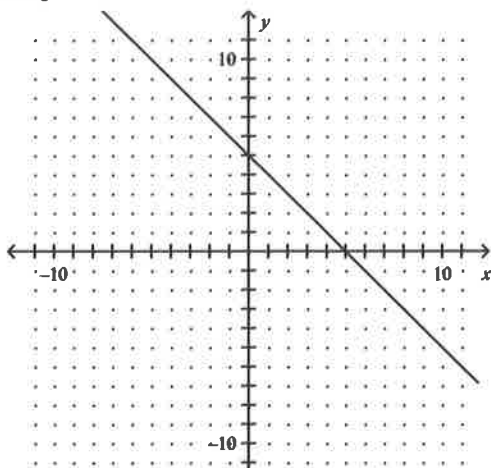
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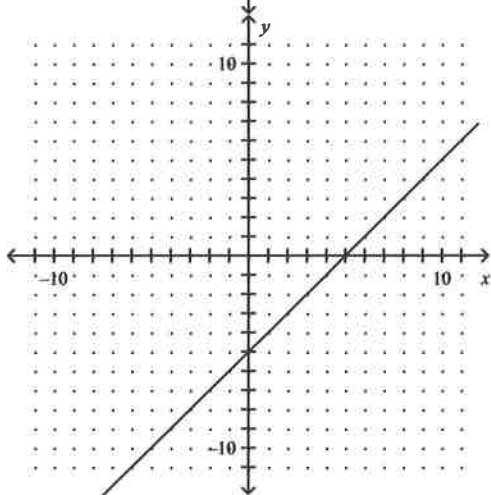
**Graph the equation.**

\_\_\_\_\_ 29.  $x + y = 5$

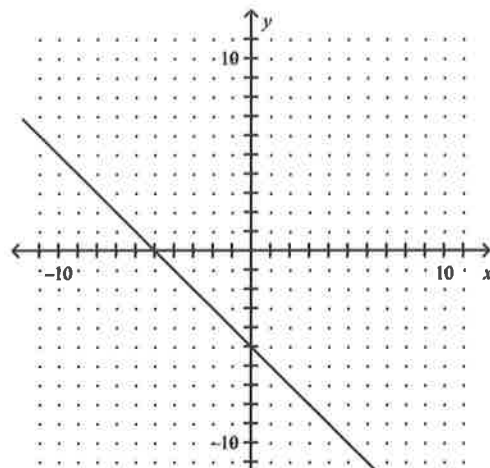
a.



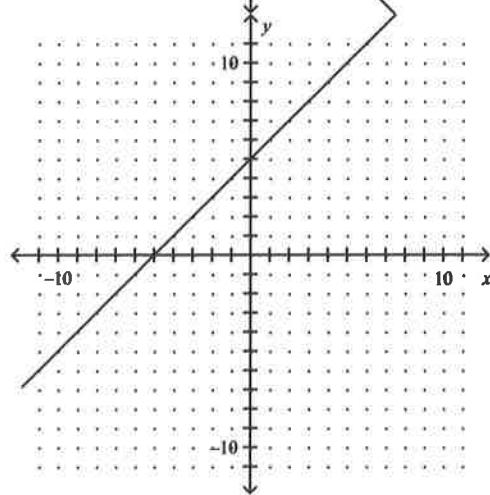
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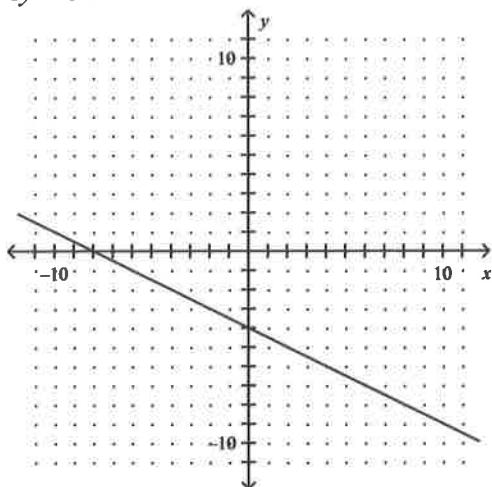


d.

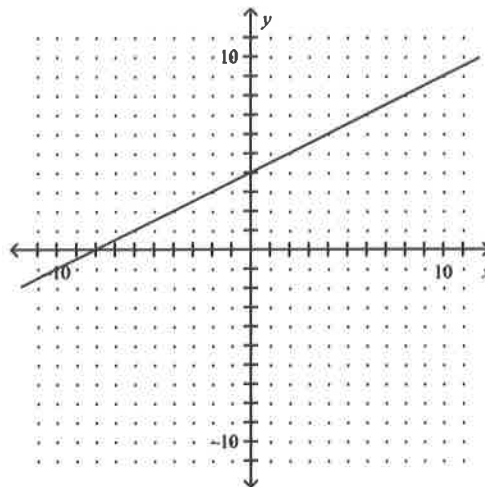


\_\_\_\_\_ 30.  $4x + 8y = 32$

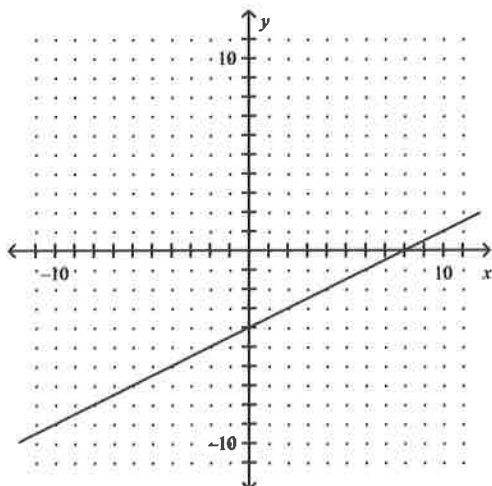
a.



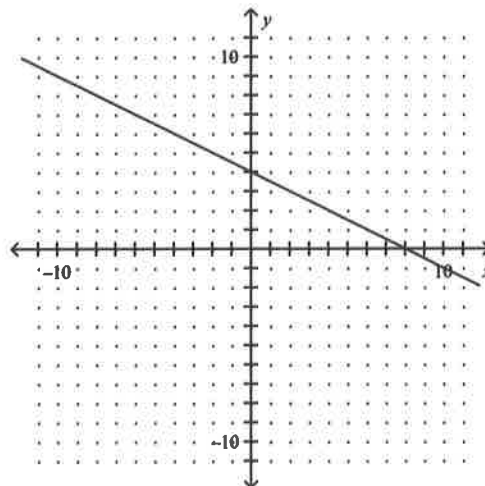
c.



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\_\_\_\_\_ 31. Find the  $x$ - and  $y$ -intercepts of  $y = -8x - 7$ .

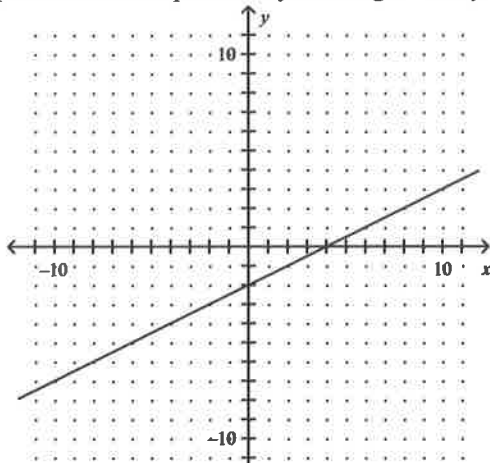
a.  $x$ -intercept:  $-\frac{7}{8}$ ;  $y$ -intercept:  $-7$ c.  $x$ -intercept:  $-7$ ;  $y$ -intercept:  $-8$ b.  $x$ -intercept:  $-7$ ;  $y$ -intercept:  $-\frac{7}{8}$ d.  $x$ -intercept:  $-8$ ;  $y$ -intercept:  $-7$

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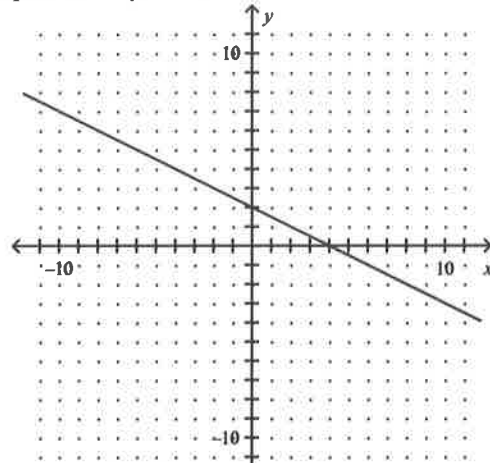
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\_\_\_\_ 32. Graph the linear equation by finding  $x$ - and  $y$ -intercepts.  $2x - 4y = -8$

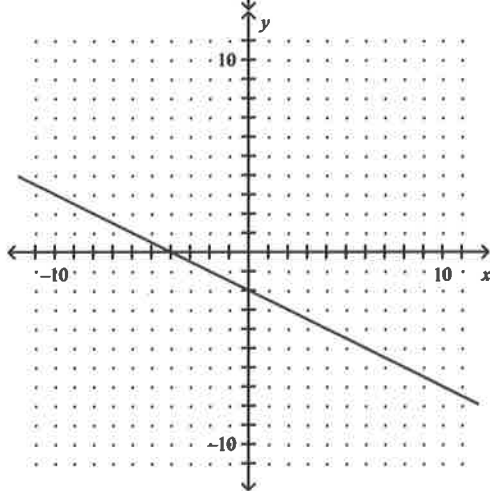
a.



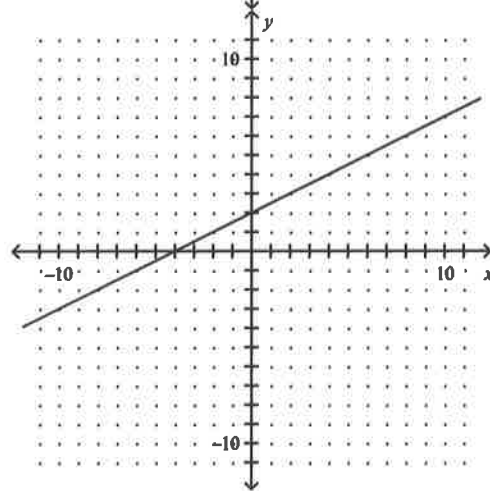
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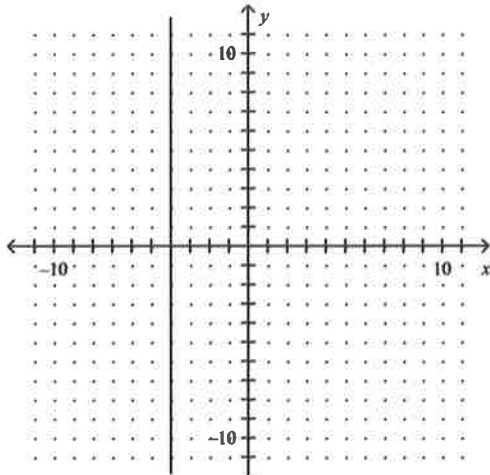


33. Find the slope and  $y$ -intercept of the graph of  $3x - 7y = 42$ .

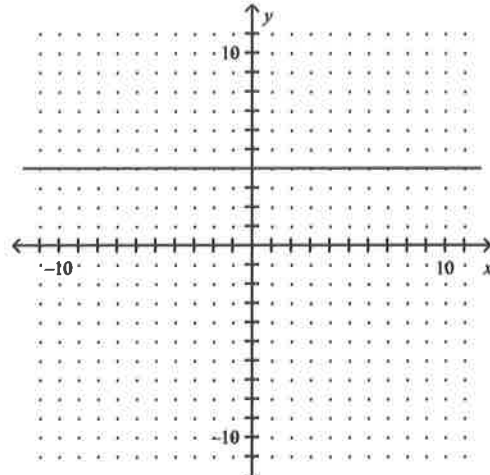
Identify the graph of the linear equation.

\_\_\_\_\_ 34.  $y = 4$

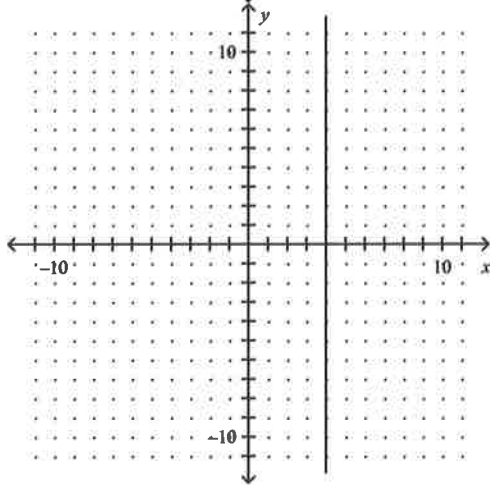
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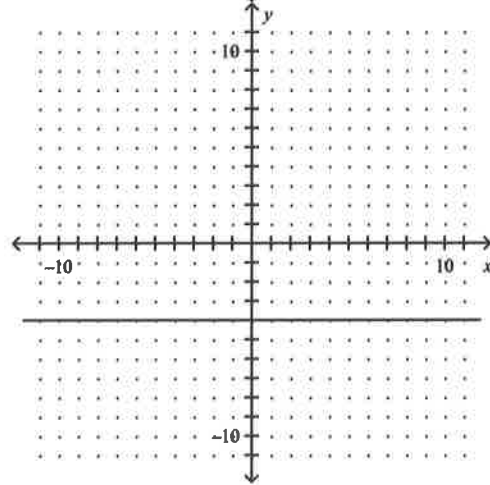
c.



b.



d.



\_\_\_\_\_ 35. Write an equation of a line that has slope 4 and y-intercept 6.

a.  $y = 4x + 6$

c.  $y = \frac{1}{4}x + 6$

b.  $x = 4y + 6$

d.  $y = 4x - 6$

\_\_\_\_\_ 36. Write the equation of the line, in slope-intercept form, that passes through the point  $(-2, 3)$  and has slope 3.

a.  $y = -3x + 9$

c.  $y = -3x - 9$

b.  $y = 3x - 9$

d.  $y = 3x + 9$

Choose the equation of the line that is parallel to the given line and passes through the given point.

\_\_\_\_\_ 37.  $y = 3x + 1$ ;  $(0, -2)$

a.  $y = 3x - 2$

c.  $y = 3x + 6$

b.  $y = -3x + 2$

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

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

38.  $y = \frac{2}{3}x + \frac{4}{5}; \left(0, -\frac{9}{2}\right)$

a.  $y = -\frac{3}{2}x + \frac{9}{2}$

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

b.  $y = \frac{2}{3}x - \frac{32}{3}$

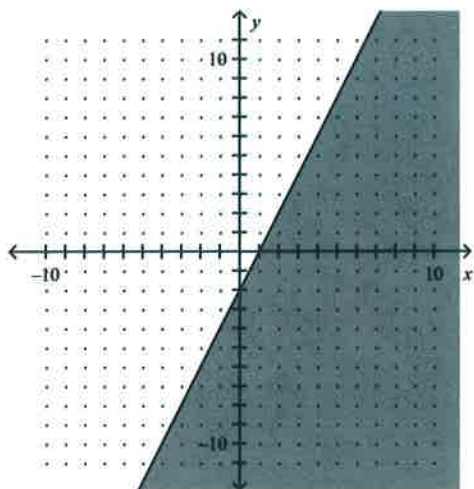
d.  $y = \frac{2}{3}x + \frac{32}{3}$

39. Find the slope-intercept equation of the line passing through the points  $(-3, -5)$  and  $(6, -2)$ .

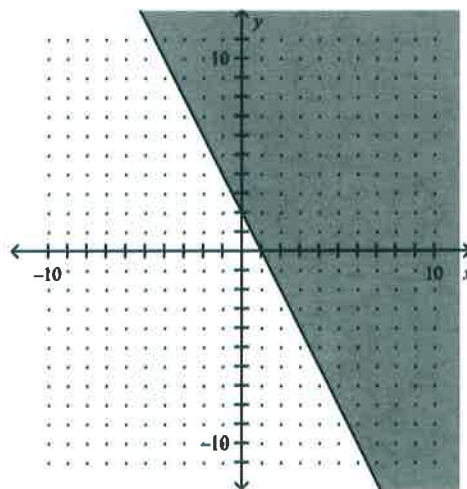
Graph the inequality in a coordinate plane.

40.  $y \leq 2x - 2$

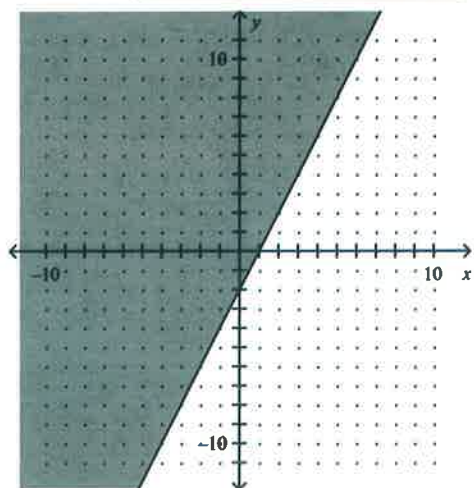
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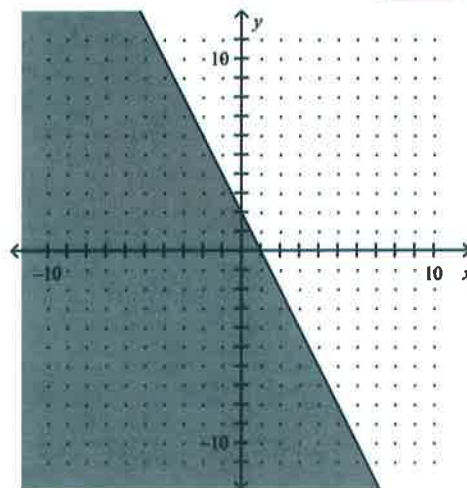
c.



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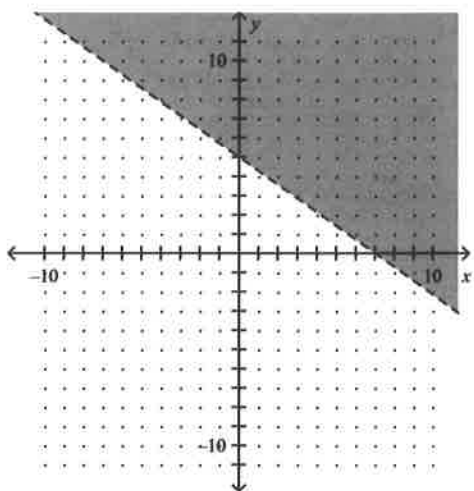


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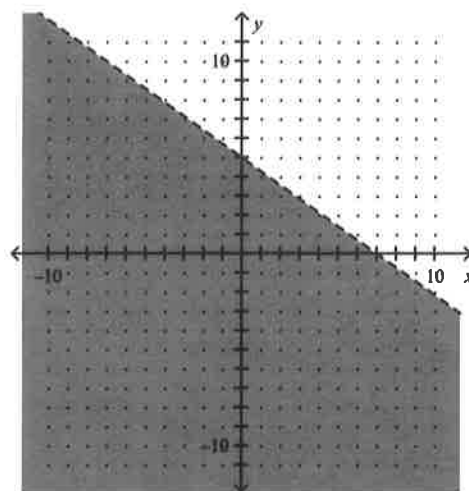
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\_\_\_\_\_ 41.  $5x - 7y < -35$

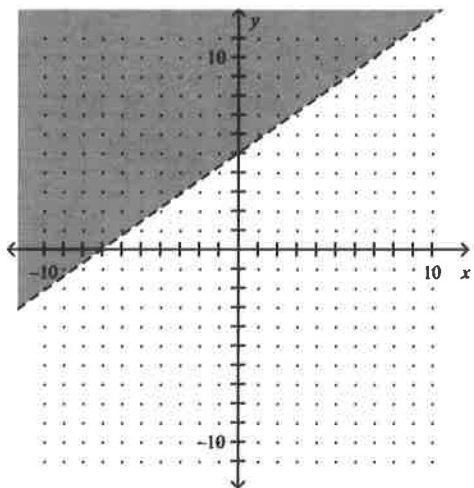
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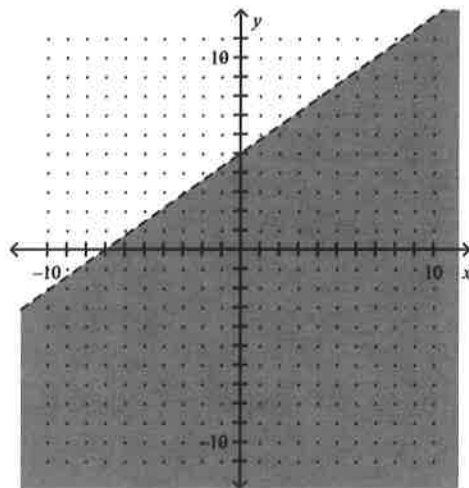
c.



b.



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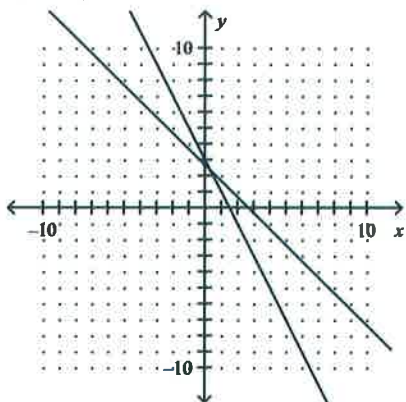
42. Graph the inequality in a coordinate plane.  $y \geq \frac{2}{3}x + 2$

43. Graph the inequality in a coordinate plane.  $3x + 2y < -6$

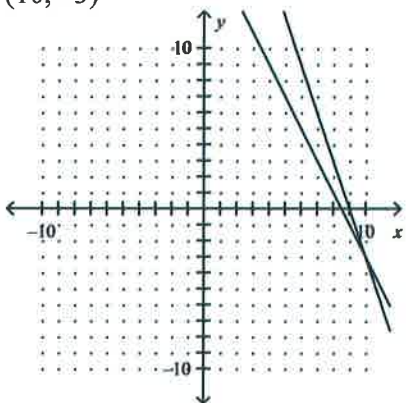
Solve the system by graphing.

44.  $x + y = 7$   
 $y = -3x + 15$

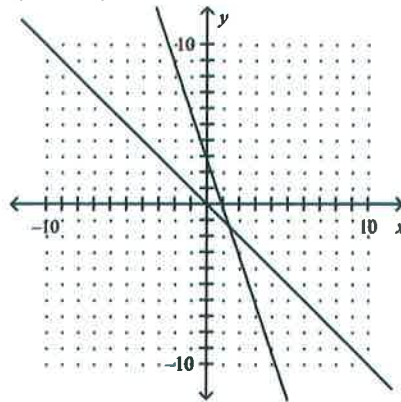
a.  $\left(\frac{1}{3}, \frac{7}{3}\right)$



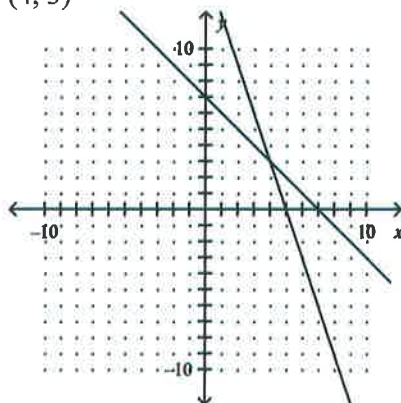
b.  $(10, -3)$



c.  $\left(\frac{7}{5}, -\frac{7}{5}\right)$



d.  $(4, 3)$



Solve the linear system.

45.  $-4x - 3y = -27$   
 $-4x + 4y = 8$

a.  $(-5, -5)$

b.  $(-1, -5)$

c.  $(3, 5)$

d. no solution

46.  $2x + 2y = -5$   
 $y = -x$

a.  $(-2, -4)$

b.  $(2, -2)$

c.  $(1, -1)$

d. no solution

47.  $4x + 5y = 6$   
 $3x - 5y = 22$

48.  $3x + 4y = -3$   
 $2x + y = 8$

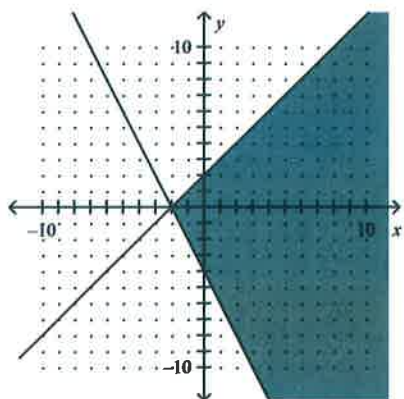
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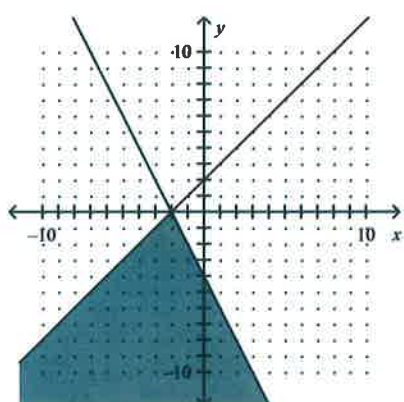
**Graph the system of inequalities.**

49.  $y \leq -2x - 4$   
 $y \geq x + 2$

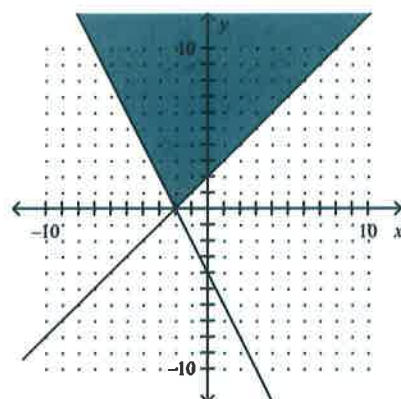
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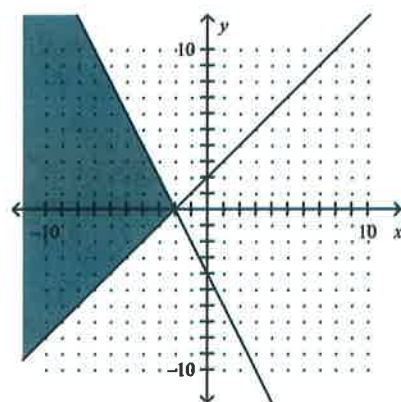
b.



c.

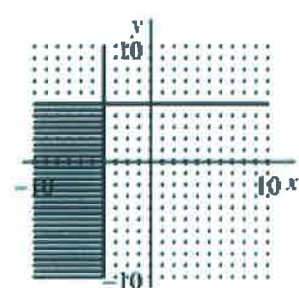


d.

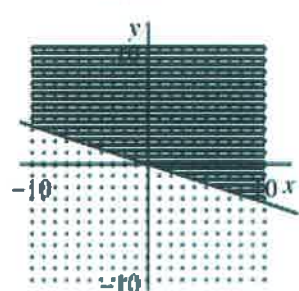


50.  $x \geq -4$   
 $y \leq 5$

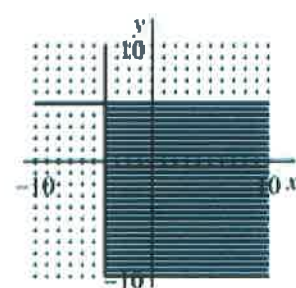
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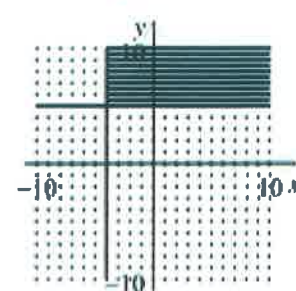
b.



c.



d.



51.  $y \geq x + 4$   
 $y \leq -2x + 4$

52.  $y \geq x + 6$   
 $3x + y \geq 8$

**Simplify the expression. Give your answer in exponential form.**

\_\_\_\_ 53.  $(7^3 \cdot 8^6)^6$   
a.  $56^{54}$                       b.  $7^9 \cdot 8^{12}$                       c.  $56^{15}$                       d.  $7^{18} \cdot 8^{36}$

**Simplify the expression.**

\_\_\_\_ 54.  $(-3c^3 d^4 e^6)^2$   
a.  $-9c^6 d^8 e^{12}$                       b.  $9c^5 d^6 e^8$                       c.  $-9c^5 d^6 e^8$                       d.  $9c^6 d^8 e^{12}$

\_\_\_\_ 55.  $\left(\frac{m^6}{n^3}\right)^6$   
a.  $\frac{m^{36}}{n^3}$                       b.  $\frac{m^{12}}{n^3}$                       c.  $\frac{m^{36}}{n^{18}}$                       d.  $\frac{m^{12}}{n^9}$

\_\_\_\_ 56.  $\left(\frac{y^2}{z^4}\right)^5$   
a.  $y^{10} + z^{20}$                       b.  $\frac{y^7}{z^9}$                       c.  $\frac{y^{10}}{z^4}$                       d.  $\frac{y^{10}}{z^{20}}$

57.  $3b^2 \cdot 4b$

58.  $(bc^3)^4$

59.  $(-3x^{-2})^3$

60.  $(-2x^{-3})^2$

61.  $\frac{6x^2}{y^3} \cdot \frac{y^{-2}x^3}{9x^2}$

**Find the sum or difference.**

\_\_\_\_\_ 62.  $(5h^3 + 8h - 9) - (6h^3 + 6h - 4)$

a.  $-h^3 + 2h - 5$

b.  $-h^3 + 2h - 13$

c.  $-h^3 + 14h - 13$

d.  $-h^3 - 2h - 5$

63.  $(-7x^2 + 3) + (4x^2 + 2x - 1)$

64.  $(-8s^2 - 7s) - (-9s - 1 - 2s^2)$

**Find the product.**

\_\_\_\_\_ 65.  $(u + 4)(u^2 - 3u + 3)$

a.  $u^3 + u^2 + 15u + 12$

b.  $u^3 - 3u^2 + 12$

c.  $u^3 + u^2 - 9u + 12$

d.  $u^3 + 7u^2 - 9u + 12$

**Factor the polynomial completely.**

\_\_\_\_\_ 66.  $9y^2 - 64$

a.  $(9y + 1)(y - 64)$

b.  $(3y - 8)(3y - 8)$

c.  $(3y + 8)(3y - 8)$

d.  $(3y + 8)(3y + 8)$

67.  $12x^4 - 42x^6$

**Factor:**

\_\_\_\_\_ 68.  $x^2 - 9x + 18$

a.  $(x - 6)(x - 3)$

b.  $(x - 6)(x + 3)$

c.  $(x + 6)(x - 3)$

d.  $(x + 6)(x + 3)$

69.  $x^2 - 12x + 27$

70.  $v^2 - v - 42$

**Find the product and simplify.**

\_\_\_\_\_ 71.  $(3x + 4)(x + 5)$

a.  $3x^2 + 12x + 20$

b.  $3x^2 + 19x + 20$

c.  $3x^2 + 15x + 20$

d.  $4x^2 + 12x + 5$

