

**PERT Review-inequalities, quadratics, systems, polynomials**

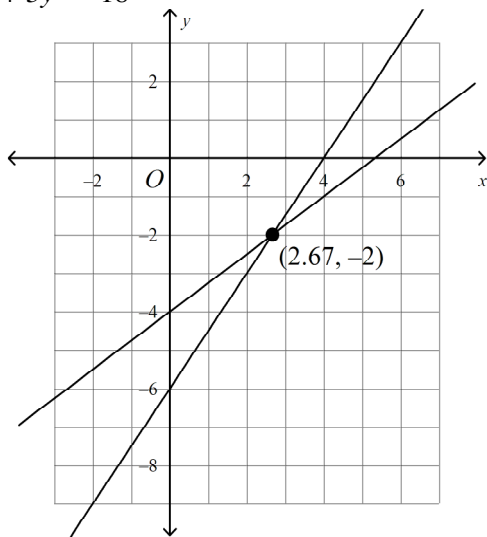
**Multiple Choice**

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

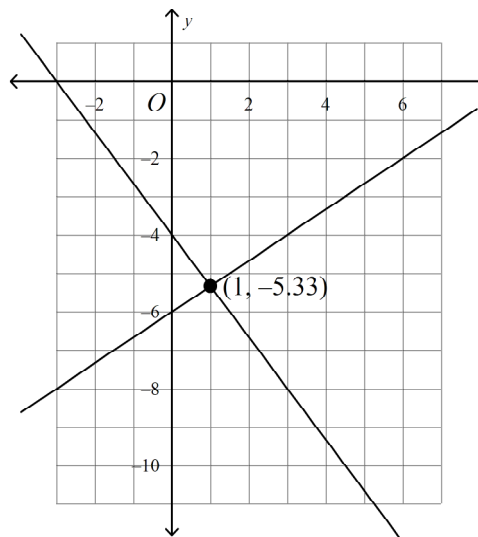
**What is the solution of the system? Use a graph.**

1.  $-4x + 3y = -12$   
 $-2x + 3y = -18$

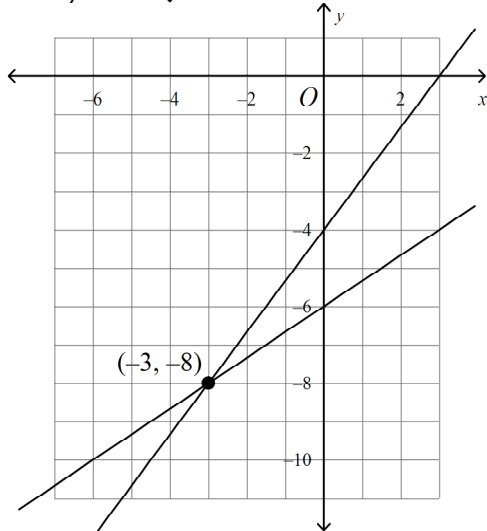
a.



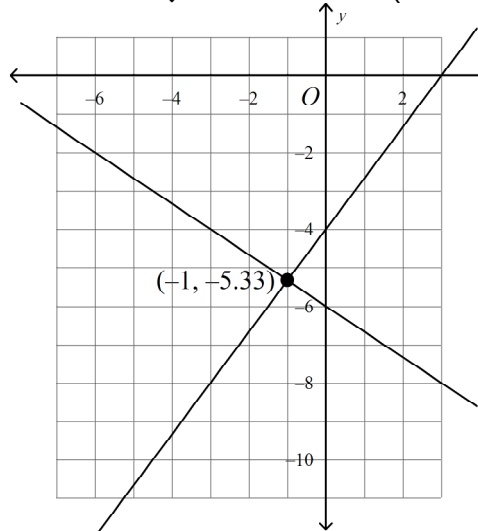
c.



b.

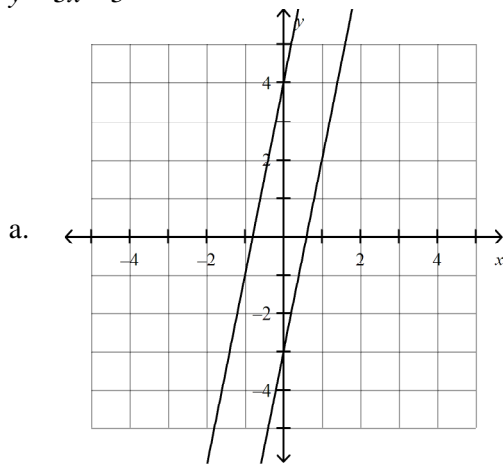


d.

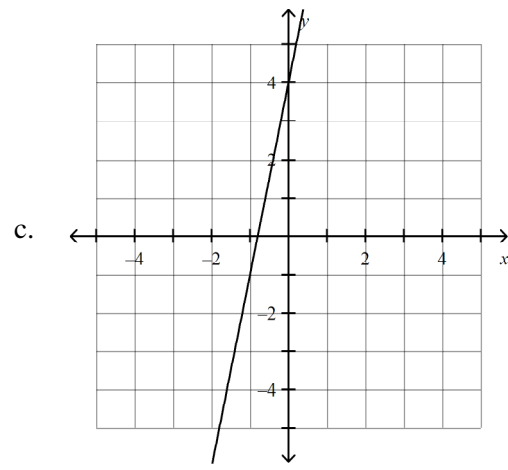


What is the solution of the system? Use a graph.

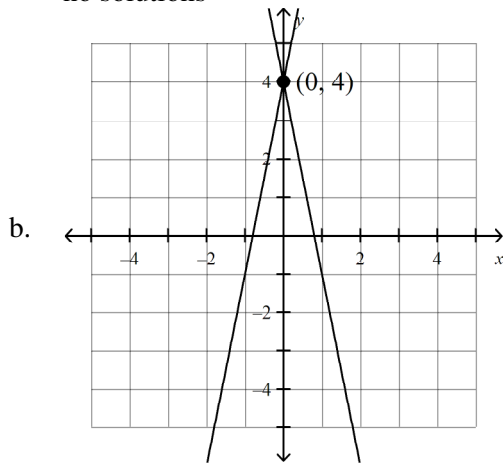
2.  $y = 5x + 4$   
 $y = 5x - 3$



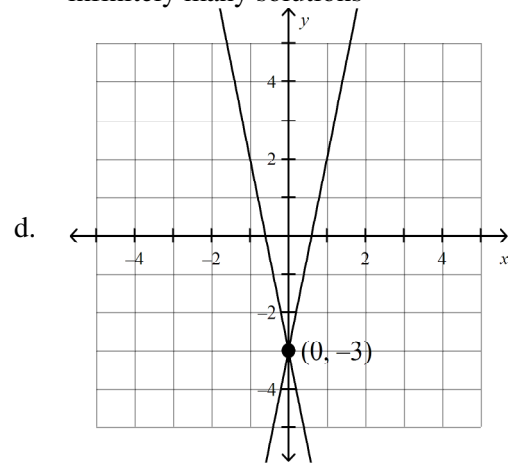
no solutions



infinitely many solutions



(0, 4)



(0, -3)

What is the solution of the system? Use substitution.

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

- a. (6, 12)      b. (-12, -6)      c. (-6, -12)      d. (2, 4)

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

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

**What is the solution of the system? Use substitution.**

5.  $2x - y = -7$

$4x - y = -4$

a.  $(-1.5, 4)$

b.  $(1.5, 10)$

c.  $(4, -1.5)$

d.  $(-1.5, -2)$

6.  $x - y = -6$

$6x - 3y = -9$

a.  $(1, 7)$

b.  $(3, 9)$

c.  $\left(-6, \frac{3}{2}\right)$

d.  $(4, -11)$

**What is the solution of the system? Use elimination.**

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

$x + 2y = -1$

a.  $(-14, 1)$

b.  $(1, 5)$

c.  $(-3, 1)$

d.  $(0, 4)$

**What is the solution of the system? Use elimination.**

8.  $5x + 8y = -29$

$7x - 2y = -67$

a.  $(-7, 9)$

b.  $\left(-10, \frac{21}{8}\right)$

c.  $(-1, -3)$

d.  $(-9, 2)$

**Which ordered pair is a solution of the inequality?**

9.  $y \geq 4x - 5$

a.  $(3, 4)$

b.  $(2, 1)$

c.  $(3, 0)$

d.  $(1, 1)$

10.  $3y - 6 < 12x$

a.  $(-3, 8)$

b.  $(4, 18)$

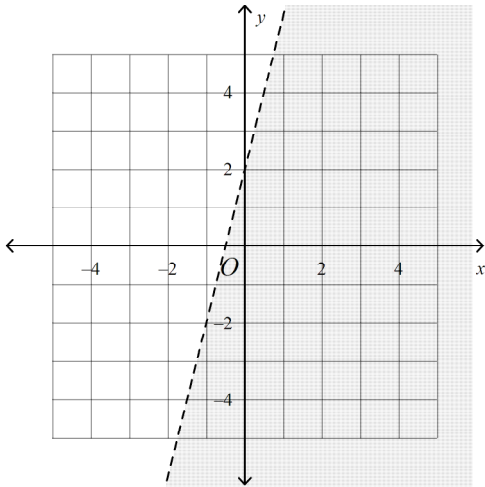
c.  $(4, -2)$

d.  $(0, 7)$

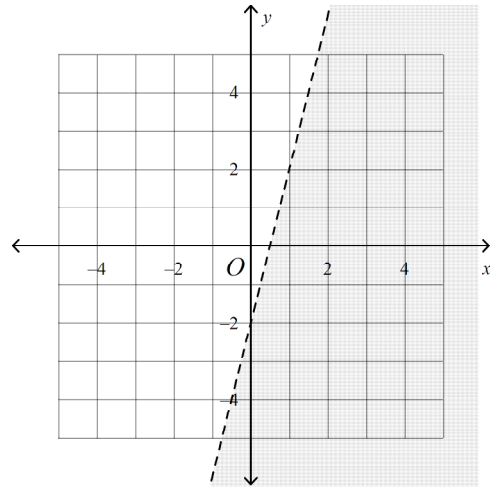
**Graph the inequality.**

11.  $y < 4x - 2$

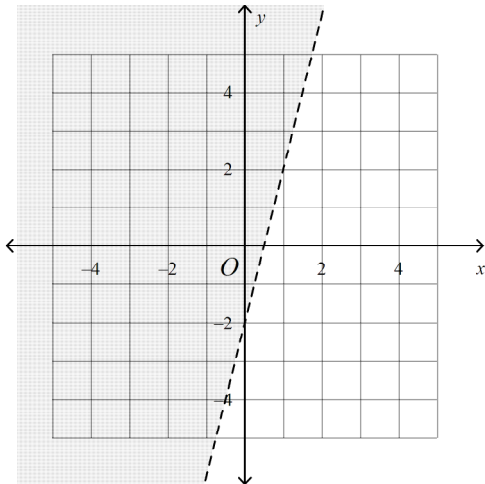
a.



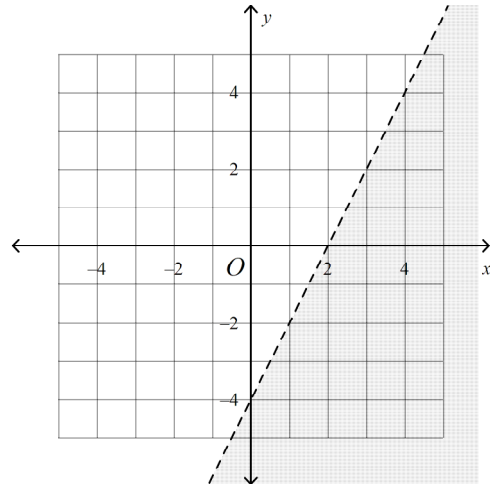
c.



b.

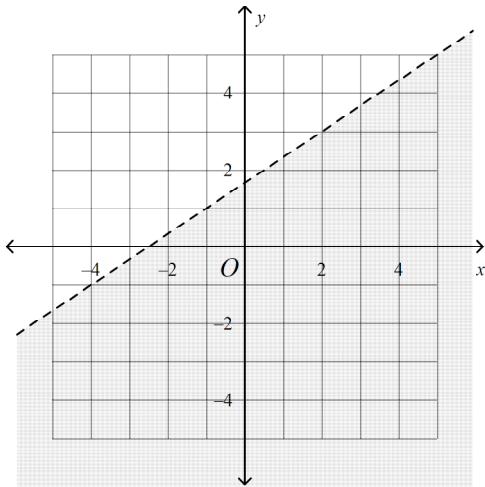


d.

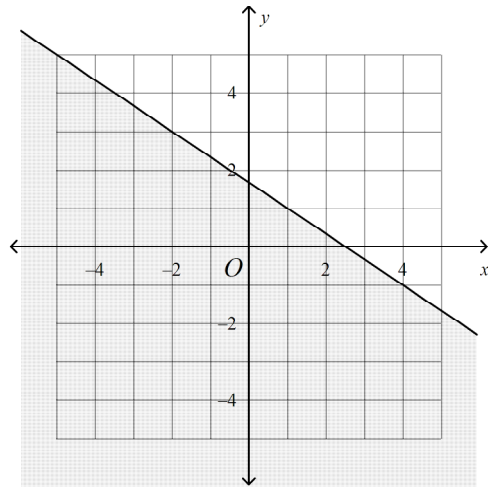


12.  $4x + 6y \geq 10$

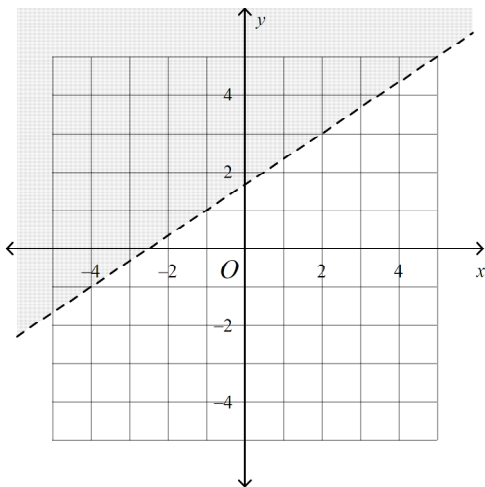
a.



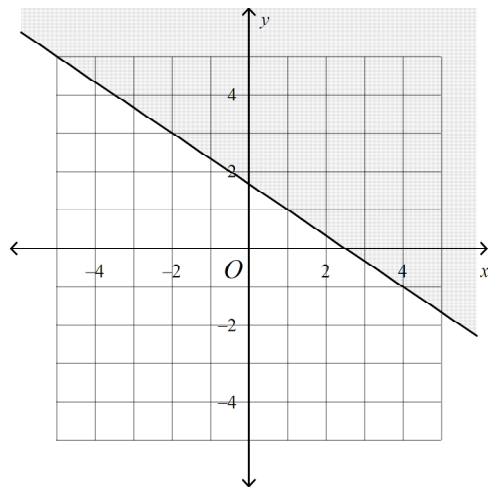
c.



b.

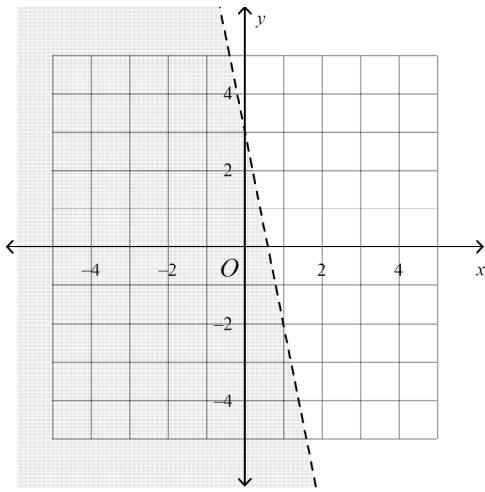


d.

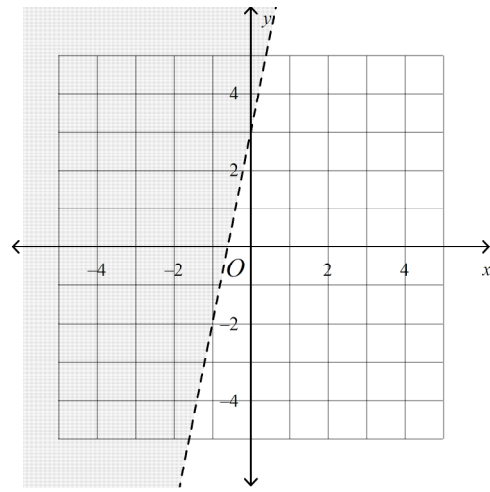


13.  $y > -5x + 3$

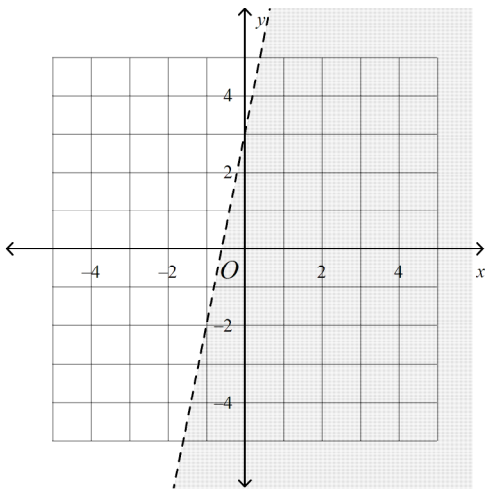
a.



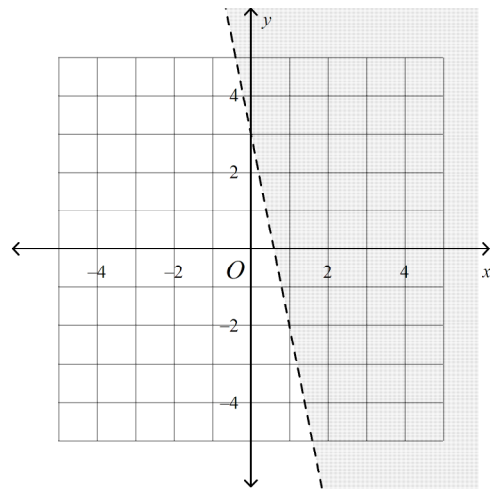
c.



b.

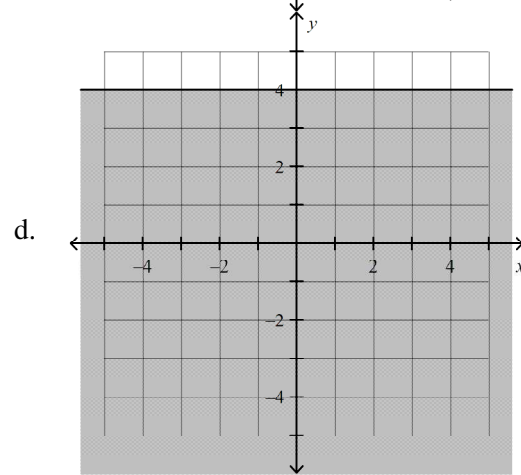
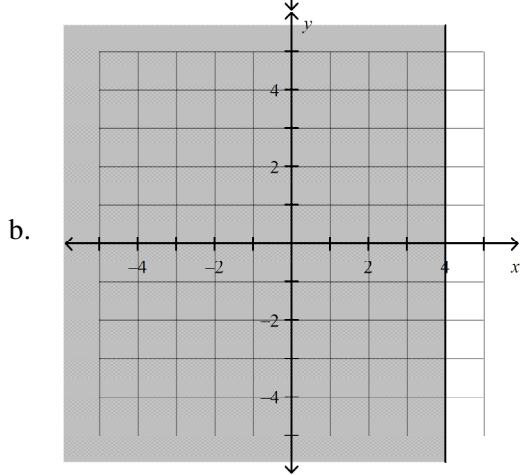
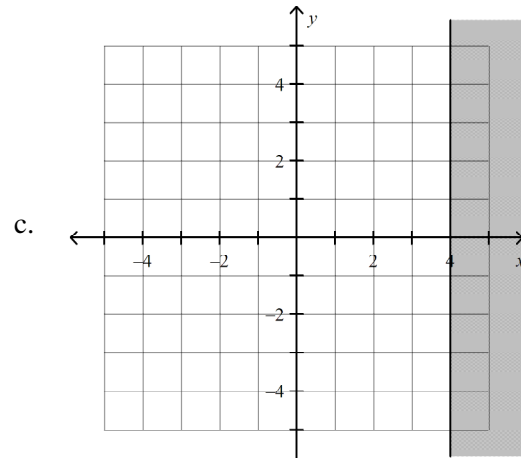
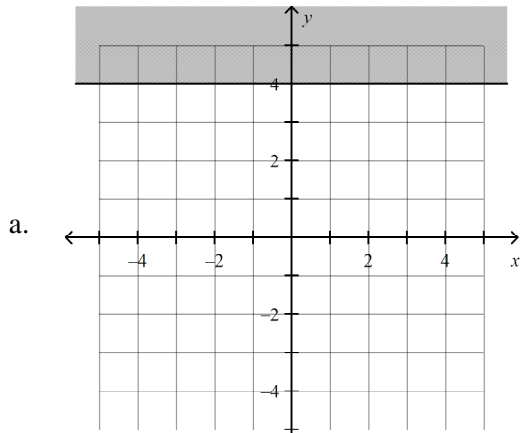


d.

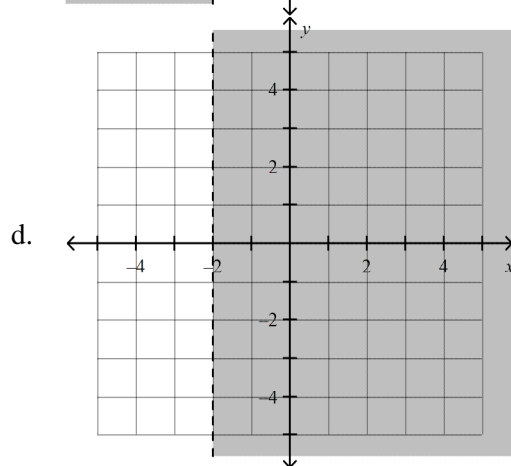
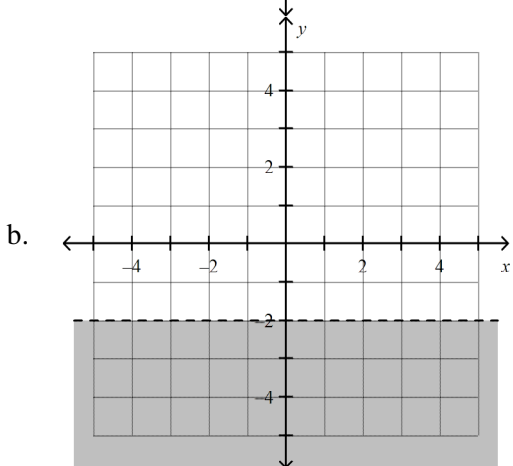
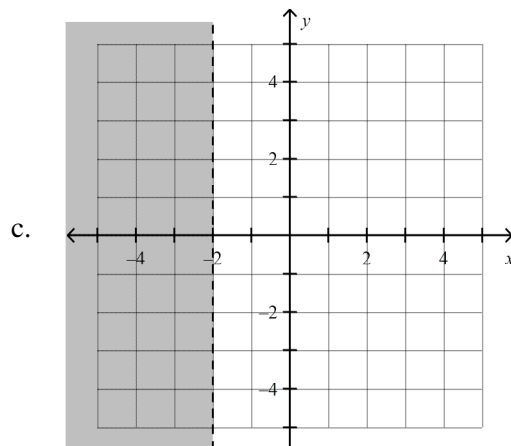
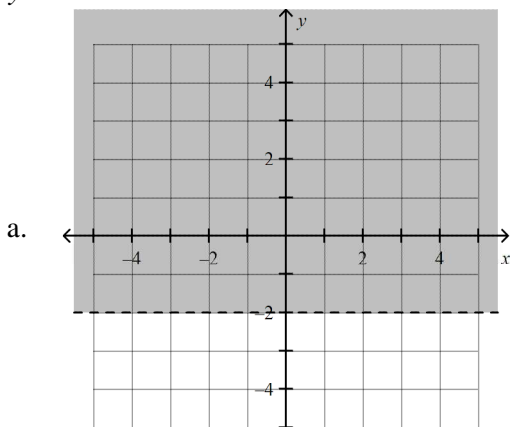


What is the graph of the inequality in the coordinate plane?

14.  $x \geq 4$

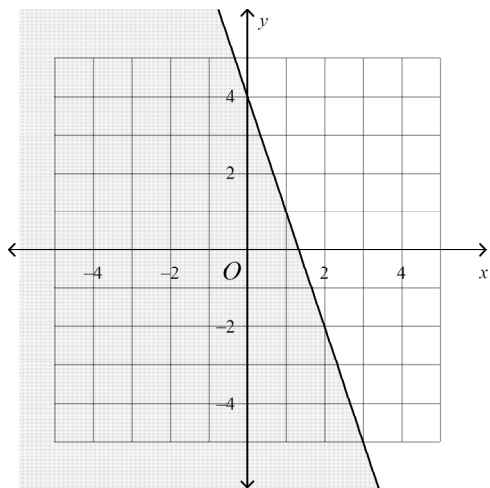


15.  $y < -2$



Which inequality represents the graph?

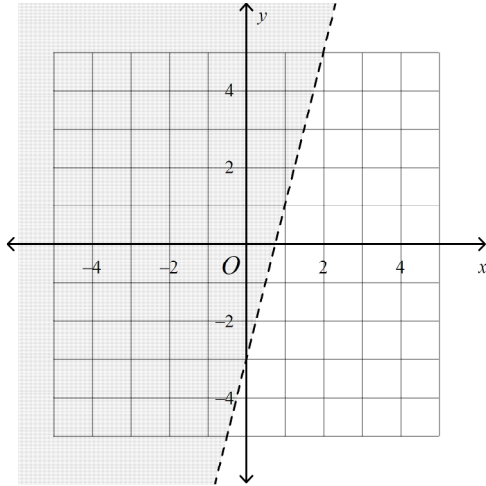
16.



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



17.



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

**Simplify the sum.**

18.  $(8u^3 + 2u^2 + 7) + (3u^3 - 7u + 8)$

- a.  $5u^3 - 7u^2 + 2u - 15$       c.  $15 - 7u + 2u^2 + 11u^3$   
 b.  $11u^3 + 2u^2 - 7u + 15$       d.  $5u^3 + 2u^2 - 7u + 15$

**Simplify the difference.**

19.  $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$

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

20.  $(2w^2 - 4w - 8) - (5w^2 + 3w - 2)$

- a.  $7w^2 - w - 10$       c.  $-3w^2 - 7w - 6$   
 b.  $7w^2 + 7w + 6$       d.  $-3w^2 - w - 10$

**Simplify the product.**

21.  $2n(n^2 + 3n + 4)$

- a.  $2n^3 + 6n^2 + 8n$       c.  $2n^3 + 6n + 8$   
 b.  $2n^3 + 3n + 4$       d.  $n^2 + 5n + 4$

22.  $5a^2(3a^4 + 3b + 2)$

- a.  $8a^4 + 8ab + 5a^2$       c.  $15a^6 + 15a^2b + 10a^2$   
 b.  $15a^8 + 3b + 10a^2$       d.  $8a^6 + 15a^2b + 5a^2$

**Factor the polynomial.**

23.  $2x^3 + 4x^2 + 8x$

- a.  $2x(x^2 + 2x + 4)$       c.  $2x(x^2 + 2x + 8)$   
 b.  $2x(x + 2)(x + 4)$       d.  $2x^3 + 4x^2 + 8x$

24.  $42w^{10} + 24w^6$
- a.  $w^6(42w^4 + 24)$                       c.  $6(7w^{10} + 4w^6)$   
b.  $6w^6(7w^4 + 4)$                       d.  $6w^5(7w^5 + 4w)$

**Simplify the product using the distributive property.**

25.  $(5h - 3)(3h + 7)$
- a.  $15h^2 - 44h + 21$                       c.  $15h^2 + 44h + 21$   
b.  $15h^2 - 26h - 21$                       d.  $15h^2 + 26h - 21$

26.  $(-2h + 5)(5h - 2)$
- a.  $-10h^2 - 21h + 10$                       c.  $-10h^2 - 29h - 10$   
b.  $-10h^2 + 21h + 10$                       d.  $-10h^2 + 29h - 10$

**Simplify the product using FOIL.**

27.  $(3x - 7)(3x - 5)$
- a.  $9x^2 + 6x + 35$                       c.  $9x^2 - 36x - 35$   
b.  $9x^2 + 36x + 35$                       d.  $9x^2 - 36x + 35$
28.  $(4x - 4)(3x - 4)$
- a.  $12x^2 - 28x + 16$                       c.  $12x^2 + 4x - 16$   
b.  $12x^2 - 4x - 16$                       d.  $12x^2 + 28x + 16$

**What is a simpler form of the expression?**

29.  $(2n^2 + 5n + 4)(2n - 4)$
- a.  $4n^3 - 2n^2 + 28n - 16$                       c.  $4n^3 + 2n^2 - 12n - 16$   
b.  $4n^3 + 12n^2 - 2n - 16$                       d.  $4n^3 + 18n^2 - 28n - 16$
30.  $(3k + 4)(3k^2 - 5k - 3)$
- a.  $9k^3 + 27k^2 - 11k - 12$                       c.  $9k^3 + 29k^2 - 3k - 12$   
b.  $9k^3 - 3k^2 - 29k - 12$                       d.  $9k^3 - 3k^2 + 11k - 12$

**What is a simpler form of each product?**

31.  $(2x - 6)^2$
- a.  $4x^2 - 24x + 36$                       c.  $4x^2 + 36$   
b.  $4x^2 - 8x + 36$                       d.  $4x^2 - 12x + 36$
32.  $(4x - 6y^3)^2$
- a.  $16x^2 - 24xy^3 + 36y^6$                       c.  $16x^2 + 36y^6$   
b.  $16x^2 - 48xy^3 + 36y^6$                       d.  $16x^2 - 4xy^3 + 36y^6$



**What is the factored form of the expression?**

43.  $d^2 + 18d + 81$   
a.  $(d + 9)(d - 9)$  c.  $(d - 81)(d - 1)$   
b.  $(d + 9)^2$  d.  $(d - 9)^2$
44.  $d^2 - 22d + 121$   
a.  $(d + 11)^2$  c.  $(d - 11)(d + 11)$   
b.  $(d - 11)^2$  d.  $(d - 121)(d - 1)$

**What is the factored form of the expression?**

45.  $r^2 - 49$   
a.  $(r - 7)(r + 7)$  c.  $(r - 7)(r - 7)$   
b.  $(r + 7)(r + 7)$  d.  $(r - 7)(r + 9)$
46.  $s^2 - 16$   
a.  $(s - 4)(s - 4)$  c.  $(s - 4)(s + 4)$   
b.  $(s + 4)(s + 4)$  d.  $(s - 4)(s + 6)$

**What is the factored form of the expression?**

47.  $4x^2 - 81y^2$   
a.  $(2x + 9)(2x - 9)$  c.  $(2x + 9y)^2$   
b.  $(2x + 9y)(2x - 9y)$  d.  $(2x - 9y)^2$
48.  $k^2 - 81h^2$   
a.  $(k - 9h^2)(k + 9)$  c.  $h^2(k + 9)(k - 9)$   
b.  $(k + 9h)(k + 9h)$  d.  $(k + 9h)(k - 9h)$
49.  $112x^2 - 63$   
a.  $7(4x + 3)^2$  c.  $7(4x - 3)^2$   
b.  $7(3x + 4)(3x - 4)$  d.  $7(4x + 3)(4x - 3)$
50.  $50x^2 + 80x + 32$   
a.  $2(5x + 4)^2$  c.  $2(5x - 4)^2$   
b.  $2(4x + 5)^2$  d.  $2(4x - 5)^2$

**What is the factored form of the expression?**

51.  $3x^3 + 3x^2 + x + 1$   
a.  $x(3x^2 + x + 1)$  c.  $3x^2(x + 1)$   
b.  $(x + 3)(3x^2 - 1)$  d.  $(x + 1)(3x^2 + 1)$

52.  $15g^3 + 20g^2 - 18g - 24$   
a.  $(5g^2 + 4)(3g - 6)$  c.  $(5g^2 + 6)(3g - 4)$   
b.  $(5g^2 - 6)(3g + 4)$  d.  $(5g^2 - 4)(3g + 6)$

**What is the factored form of the expression? Factor completely.**

53.  $6x^4 - 9x^3 - 36x^2 + 54x$   
a.  $3x(x^2 - 6)(2x - 3)$  c.  $6x(x^2 - 6)(2x - 3)$   
b.  $3x(x^2 + 6)(2x + 3)$  d.  $6x(x^2 + 6)(2x + 3)$
54.  $198k^3 - 165k^2 + 264k - 220$   
a.  $(3k^2 + 44)(6k - 55)$  c.  $11(3k^2 + 4)(6k - 5)$   
b.  $11(3k^2 - 4)(6k + 5)$  d.  $(33k^2 - 4)(66k + 5)$

**Solve the equation using the Zero-Product Property.**

55.  $(x - 9)(x + 7) = 0$   
a. 9, 7 c. -1, 1  
b. -9, -7 d. 9, -7
56.  $(2x - 4)(2x - 1) = 0$   
a. 2,  $-\frac{1}{2}$  c. -2, 2  
b. 2,  $\frac{1}{2}$  d. -2,  $\frac{1}{2}$
57.  $-9n(5n - 5) = 0$   
a.  $-\frac{1}{9}$ , 1 c.  $-\frac{1}{9}$ , -1  
b. 0, 1 d. 0, -1

**What are the solutions of the equation?**

58.  $z^2 - 6z - 27 = 0$   
a. 3, 9 c. -3, 9  
b. 3, -9 d. -3, -9
59.  $3z^2 + 3z - 6 = 0$   
a. 1, -2 c. 3, -2  
b. 1, 2 d. 3, 2
60.  $c^2 - 4c = 0$   
a. 0, -4 c. 0, 4  
b. 0,  $\sqrt{4}$  d. 1,  $-\sqrt{4}$

61.  $15 = 8x^2 - 14x$

a.  $-5, \frac{3}{8}$

b.  $-\frac{2}{5}, \frac{4}{3}$

c.  $-3, \frac{5}{8}$

d.  $-\frac{3}{4}, \frac{5}{2}$

62.  $x^2 + 3x = 18$

a.  $3, -6$

b.  $-3, 6$

c.  $4.42, -4.42$

d.  $18.75, -21.75$

Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.

63.  $x^2 + 3 = -4x$

a.  $1, 3$

b.  $-1, -3$

c.  $1, -3$

d.  $1, -3$

64.  $x^2 + 3 = 9x$

a.  $0.35, -8.65$

b.  $-0.35, -8.65$

c.  $0.35, 8.65$

d.  $-0.35, 8.65$

Simplify the rational expression. State any excluded values.

65.  $\frac{2x - 8}{x - 4}$

a.  $2$ ; where  $x \neq 4$

b.  $x$

c.  $-\frac{3}{2}$

d.  $8$ ; where  $x \neq 2$

66.  $\frac{4x - 8}{4x + 20}$

a.  $\frac{x - 2}{4x + 20}$ ; where  $x \neq -5$

b.  $\frac{x + 5}{x - 2}$ ; where  $x \neq 2$

c.  $\frac{x - 2}{x + 5}$ ; where  $x \neq -5$

d.  $4\left(\frac{x + 2}{x - 5}\right)$ ; where  $x \neq 5$

67.  $\frac{x}{4x + x^2}$

a.  $\frac{1}{4}$

b.  $\frac{1}{x + 4}$ ; where  $x \neq -4, 0$

c.  $\frac{1}{4} + \frac{1}{x}$ ; where  $x \neq 0$

d.  $\frac{1}{x}$ ; where  $x \neq 0$

68.  $\frac{-14x^3}{x^3 - 5x^4}$

a.  $\frac{-14}{5x - 1}$ ; where  $x \neq \frac{1}{5}, 0$

b.  $\frac{-14x}{1 - 5x}$ ; where  $x \neq \frac{1}{5}, 0$

c.  $\frac{1 - 5x}{-14x}$ ; where  $x \neq 0$

d.  $\frac{-14}{1 - 5x}$ ; where  $x \neq \frac{1}{5}, 0$

69.  $\frac{x+7}{x^2+4x-21}$

a.  $\frac{1}{x-3}$ ; where  $x \neq 3, -7$

b.  $x-3$ ; where  $x \neq 3$

c.  $\frac{1}{x-7}$ ; where  $x \neq 7$

d.  $x-7$

70.  $\frac{x^2-3x-10}{x+2}$

a.  $x-5$ ; where  $x \neq -2$

b.  $x-5$ ; where  $x \neq 5$

c.  $\frac{1}{x-2}$ ; where  $x \neq 2$

d.  $x-2$

**Multiply. State any excluded values.**

71.  $\frac{2}{3a} \cdot \frac{2}{a^2}$

a.  $\frac{4}{3a^2}$ ; where  $a \neq 0$

b.  $\frac{1}{a^2}$ ; where  $a \neq 0$

c.  $\frac{4}{3a^3}$ ; where  $a \neq 0$

d.  $\frac{4}{3a^2}$

72.  $\frac{q-3}{-5} \cdot \frac{3q}{q-4}$

a.  $\frac{3q^2-9q}{-5}$ ; where  $q \neq 5$

b.  $\frac{3q-9q^2}{-4q+20}$ ; where  $q \neq 5$

c.  $\frac{q^2-9q}{-5q}$ ; where  $q \neq 0$

d.  $\frac{3q^2-9q}{-5q+20}$ ; where  $q \neq 4$

**Multiply.**

73.  $\frac{y^2-9}{2y} \cdot \frac{5y}{y-3}$

a.  $\frac{5(y+3)}{2}$

b.  $\frac{y+3}{2}$

c.  $\frac{(y-3)}{2}$

d.  $\frac{5(y-3)}{2}$

**Divide.**

74.  $\frac{x^2-4}{x-8} \div \frac{(x-2)}{x-3}$

a.  $\frac{(x-2)(x-3)}{x-8}$

b.  $\frac{(x-2)(x-3)}{x-8}$

c.  $\frac{x-2}{(x-8)(x-3)}$

d.  $\frac{(x+2)(x-3)}{x-8}$

75.  $(8m^7 - 10m^5) \div 2m^3$   
 a.  $4m^7 - 5m^5$  c.  $8m^7 - 10m^2$   
 b.  $4m^4 - 10m^5$  d.  $4m^4 - 5m^2$
76.  $(-6m^9 - 6m^8 - 16m^6) \div 2m^3$   
 a.  $-3m^9 - 3m^8 - 8m^6$  c.  $-3m^6 - 3m^5 - 8m^3$   
 b.  $-3m^6 - 6m^8 - 16m^3$  d.  $-3m^6 - 3m^5 - 16m^6$
77.  $(x^2 - 4x + 8) \div (x - 2)$   
 a.  $x - 2 - \frac{4}{x - 2}$  c.  $x - 4 - \frac{8}{x - 2}$   
 b.  $x - 4 - 4$  d.  $x - 2 + \frac{4}{x - 2}$
78.  $(9x^2 - 27x + 25) \div (3x - 5)$   
 a.  $3x - 9 - \frac{25}{3x - 5}$  c.  $3x - 4 + \frac{5}{3x - 5}$   
 b.  $3x - 4 - \frac{5}{3x - 5}$  d.  $3x - 9 - 5$

**What is the simplified form of each expression?**

79.  $5(14 - 2)^2 \div 2$   
 a. 60 b. 30 c. 72 d. 360
80.  $4(20 + 12) \div (4 - 3)$   
 a. 29 b. 80 c. 128 d. 92
81.  $3^3 \cdot 32 + 12 \div 4$   
 a. 291 b. 219 c. 437 d. 867
82.  $13 \left[ 6^2 \div (5^2 - 4^2) + 9 \right]$   
 a. 585 b. 169 c. 26 d. 181
83. Evaluate  $u + xy$ , for  $u = 18$ ,  $x = 10$ , and  $y = 8$ .  
 a. 188 b. 36 c. 98 d. 224
84. Evaluate  $\frac{u}{z} + xy^2$ , for  $u = 20$ ,  $x = 4$ ,  $y = 7$ , and  $z = 10$ .  
 a. 294 b. 198 c. 900 d. 786
85. Evaluate  $(ab)^2$  for  $a = 4$  and  $b = 3$ .  
 a. 36 b. 24 c. 81 d. 144



**Simplify each expression.**

86.  $\frac{4sg}{-5g}$

a.  $-\frac{4}{5}s$

c.  $-\frac{5}{4}s$

b.  $\frac{4}{5}g$

d.  $-\frac{5}{4}g$

87.  $(7 + 5b) + 1$

a.  $7 + 6b$

c.  $13b$

b.  $8 + 6b$

d.  $8 + 5b$

88. What is the value of  $\frac{x}{y}$  when  $x = \frac{9}{4}$  and  $y = \frac{3}{5}$ ?

a.  $\frac{15}{4}$

c.  $\frac{27}{20}$

b.  $\frac{4}{3}$

d.  $-\frac{15}{4}$

**What is the simplified form of each expression?**

89.  $\frac{1}{3}(21m + 27)$

a.  $63m + 9$

c.  $7m + 81$

b.  $7m + 9$

d.  $7m + 27$

90.  $1.7m^2 + 6.5n - 4n + 2.5m^2 - n$

a.  $4.2m^2 + 1.5n$

c.  $1.5m^2 - 4.2n$

b.  $4.2m^2 - 1.5n$

d.  $1.5m^2 + 4.2n$

91.  $2.5m^2 + 7.8n - 3.2n + 5.3m^2 - 5.9n$

a.  $7.8m^2 - 1.3n$

c.  $7.8m^2 + 10.5n$

b.  $-2.8m^2 - 1.3n$

d.  $-2.8m^2 + 10.5n$

**What sum or difference is equivalent to the expression?**

92.  $\frac{3x+2}{8}$

a.  $\frac{3}{8}x + \frac{1}{4}$

b.  $\frac{1}{4}x + \frac{3}{8}$

c.  $\frac{5}{8}x$

d.  $\frac{1}{4}$

93.  $\frac{3x-2}{9}$

a.  $\frac{1}{3}x - \frac{2}{9}$

b.  $\frac{2}{9}x - \frac{1}{3}$

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

d.  $\frac{2}{9}$

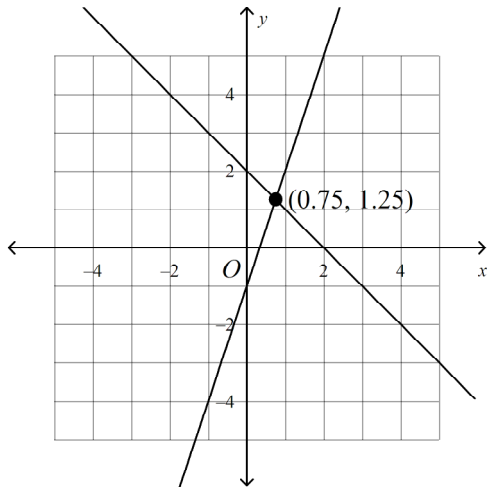
**Multiple Response**

Identify one or more choices that best complete the statement or answer the question.

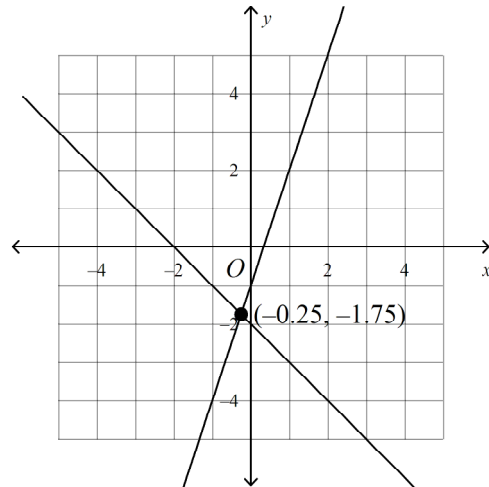
What is the solution of the system? Use a graph.

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

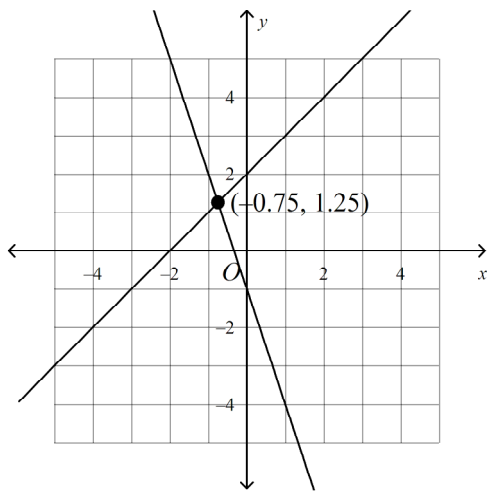
a.



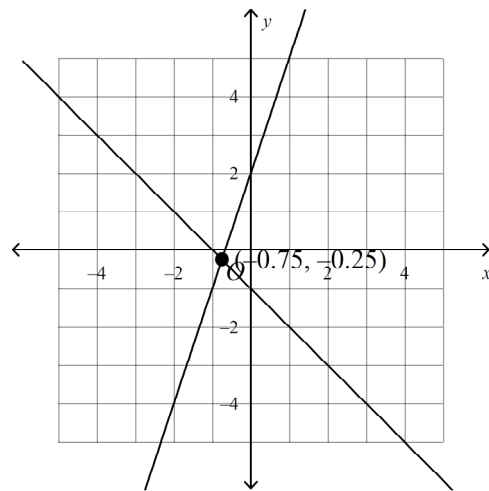
c.



b.



d.

**Numeric Response**

95. Is  $x = -7$  a solution of the equation  $-9 = 3x + 9$ ?

**PERT Review-inequalities, quadratics, systems, polynomials**  
**Answer Section**

**MULTIPLE CHOICE**

1. B
2. A
3. A
4. D
5. B
6. B
7. C
8. D
9. D
10. C
11. C
12. D
13. D
14. C
15. B
16. B
17. A
18. B
19. D
20. C
21. A
22. C
23. A
24. B
25. D
26. D
27. D
28. A
29. C
30. B
31. A
32. B
33. C
34. C
35. A
36. A
37. A
38. D
39. B

- 40. C
- 41. C
- 42. A
- 43. B
- 44. B
- 45. A
- 46. C
- 47. B
- 48. D
- 49. D
- 50. A
- 51. D
- 52. B
- 53. A
- 54. C
- 55. D
- 56. B
- 57. B
- 58. C
- 59. A
- 60. C
- 61. D
- 62. A
- 63. B
- 64. C
- 65. A
- 66. C
- 67. B
- 68. D
- 69. A
- 70. A
- 71. C
- 72. D
- 73. A
- 74. D
- 75. D
- 76. C
- 77. D
- 78. C
- 79. D
- 80. C
- 81. D
- 82. B
- 83. C
- 84. B

- 85. D
- 86. A
- 87. D
- 88. A
- 89. B
- 90. A
- 91. A
- 92. A
- 93. A

**MULTIPLE RESPONSE**

- 94. A

**NUMERIC RESPONSE**

- 95. no

**PERT Review-inequalities, quadratics, systems, polynomials**

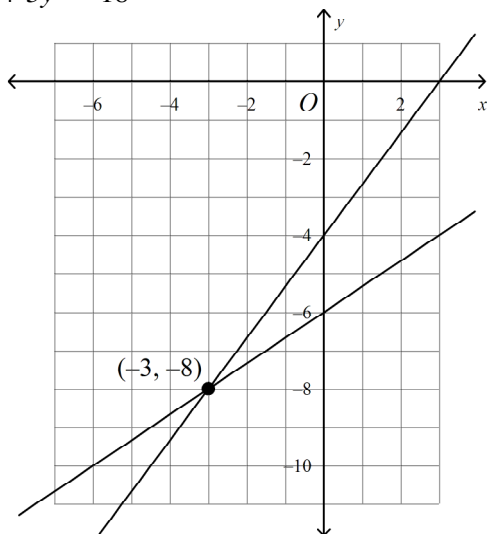
**Multiple Choice**

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

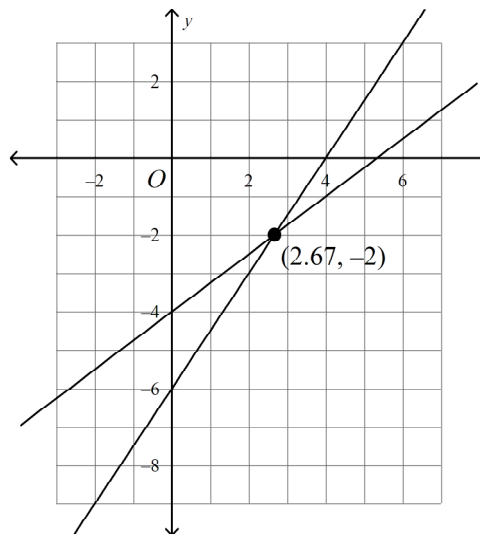
What is the solution of the system? Use a graph.

1.  $-4x + 3y = -12$   
 $-2x + 3y = -18$

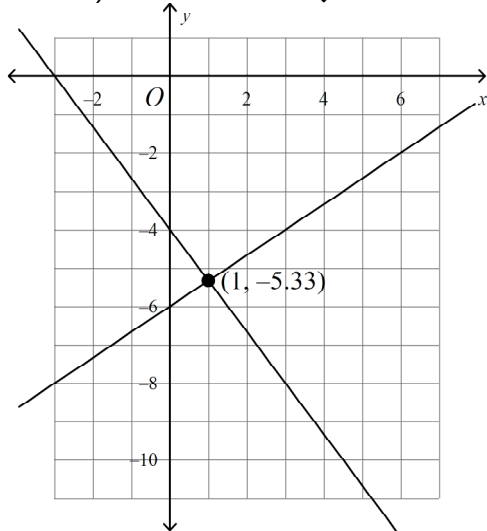
a.



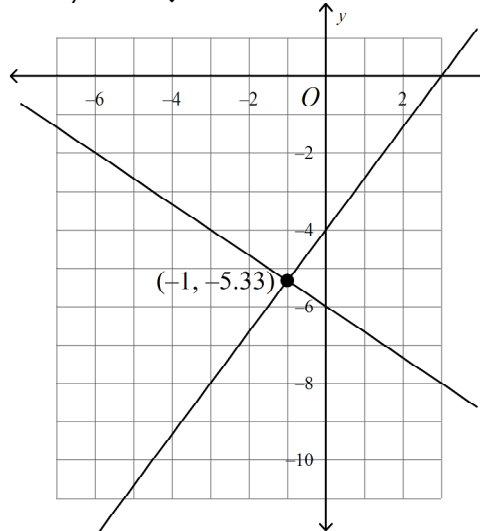
c.



b.

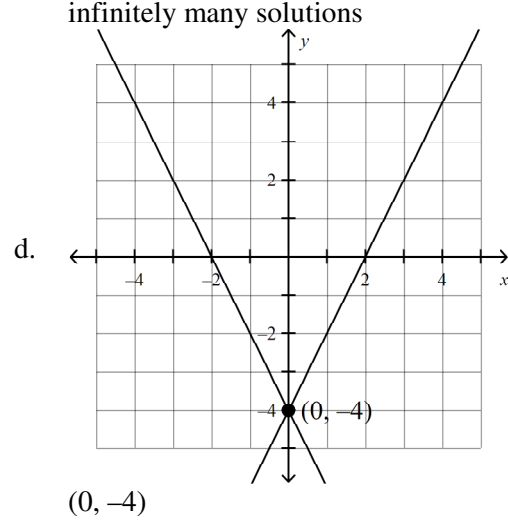
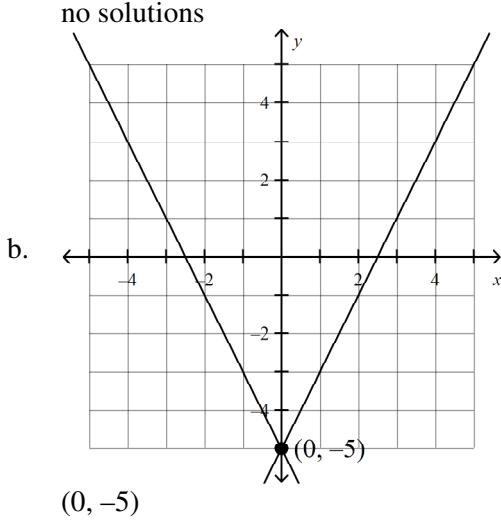
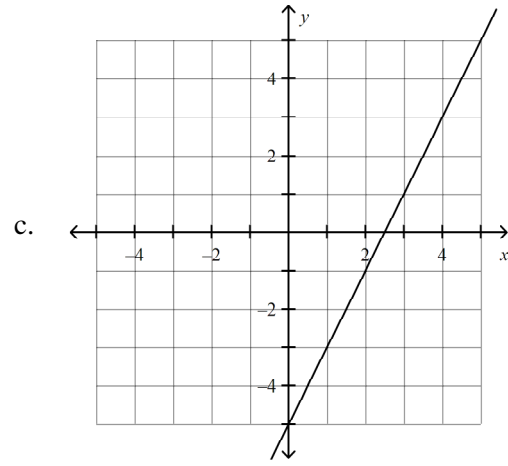
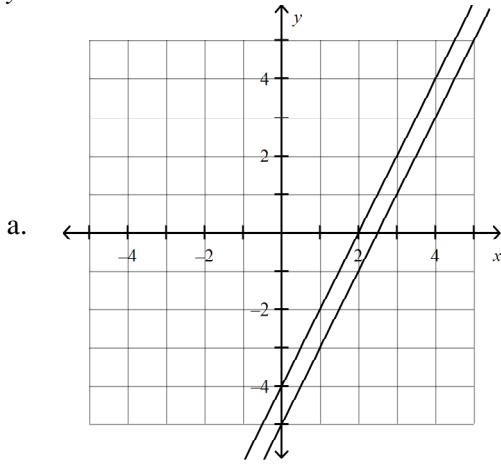


d.



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

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



What is the solution of the system? Use substitution.

3.  $y = 3x + 7$   
 $y = 4x$

- a.  $(-7, -28)$       b.  $(-28, -7)$       c.  $(1, 4)$       d.  $(7, 28)$

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

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

**What is the solution of the system? Use substitution.**

5.  $4x - y = -4$   
 $2x - y = -1$   
a. (1.5, 10)      b. (-1.5, -2)      c. (10, 1.5)      d. (1.5, 4)
6.  $x - y = -6$   
 $6x - 3y = -9$   
a. (1, 7)      b. (4, -11)      c.  $\left(-6, \frac{3}{2}\right)$       d. (3, 9)

**What is the solution of the system? Use elimination.**

7.  $2x - 2y = -8$   
 $x + 2y = -1$   
a. (0, 4)      b. (1, 5)      c. (-3, 1)      d. (-14, 1)

**What is the solution of the system? Use elimination.**

8.  $5x + 8y = -29$   
 $7x - 2y = -67$   
a. (-1, -3)      b. (-9, 2)      c.  $\left(-10, \frac{21}{8}\right)$       d. (-7, 9)

**Which ordered pair is a solution of the inequality?**

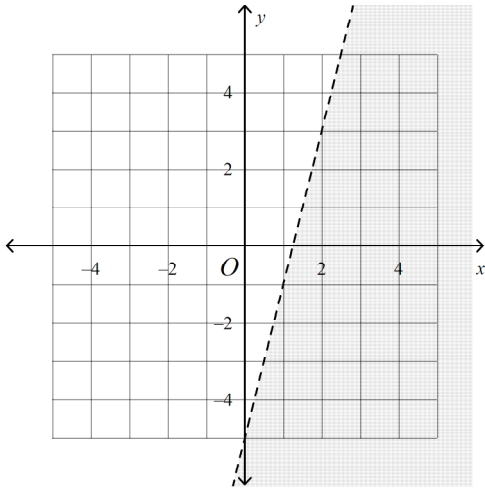
9.  $y \geq 4x - 5$   
a. (3, 4)      b. (1, 1)      c. (3, 0)      d. (2, 1)
10.  $2y - 4 < 8x$   
a. (-4, 4)      b. (-3, 11)      c. (0, 2)      d. (0, -6)



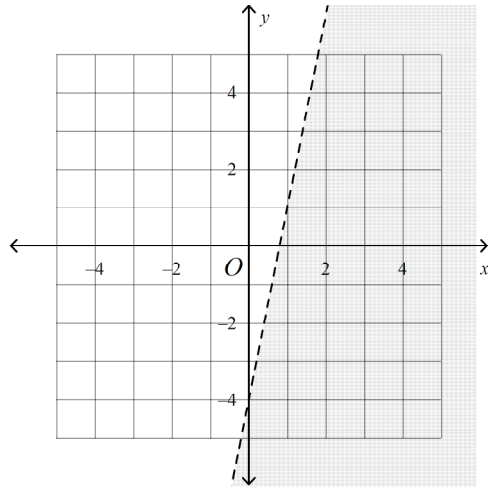
**Graph the inequality.**

11.  $y < 5x - 4$

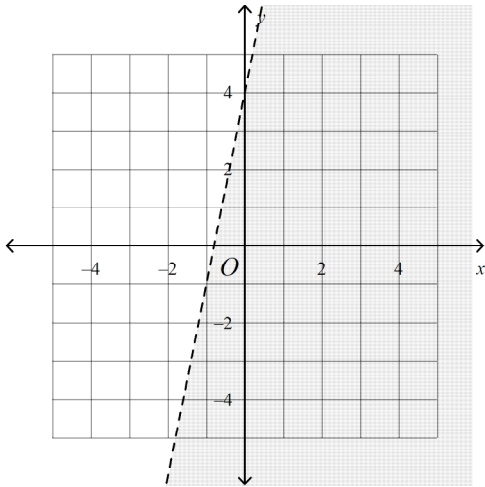
a.



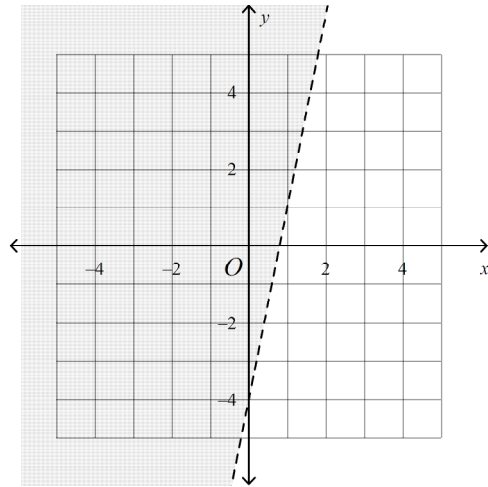
c.



b.

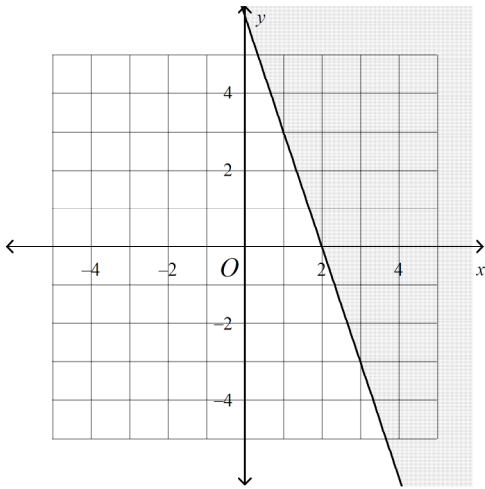


d.

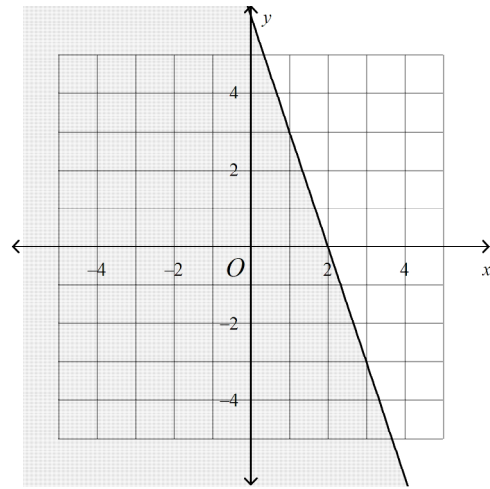


12.  $6x + 2y \geq 12$

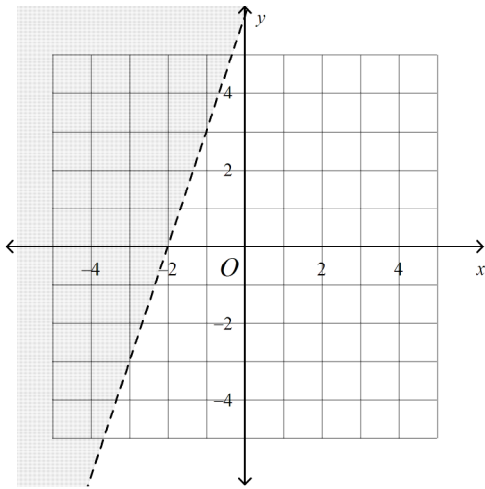
a.



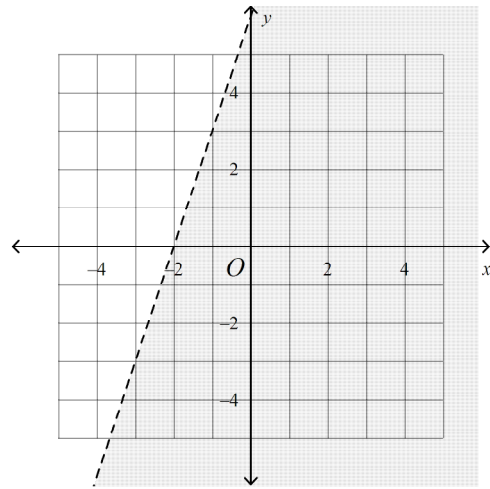
c.



b.

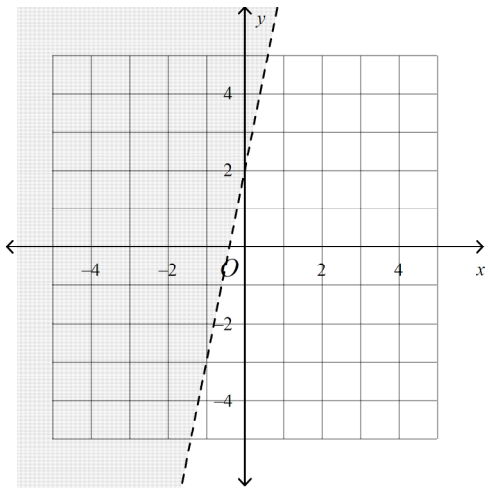


d.

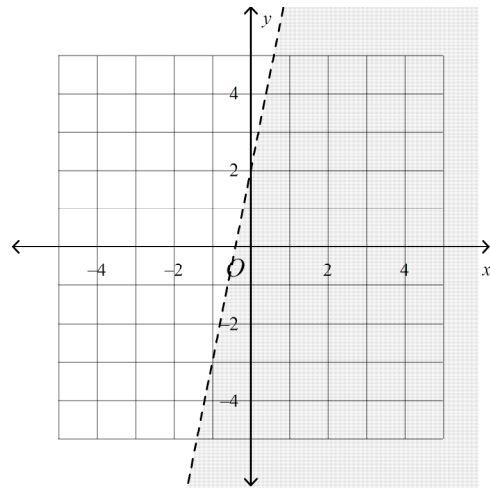


13.  $y > -5x + 2$

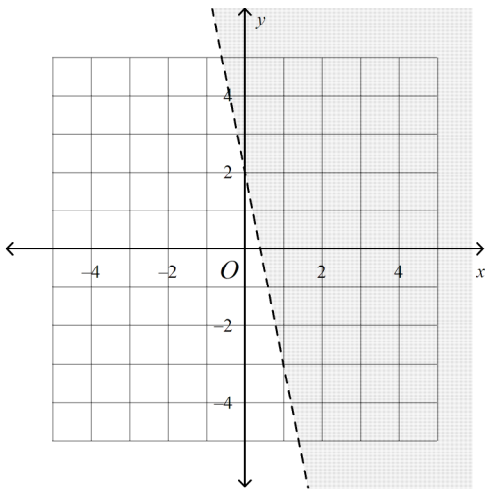
a.



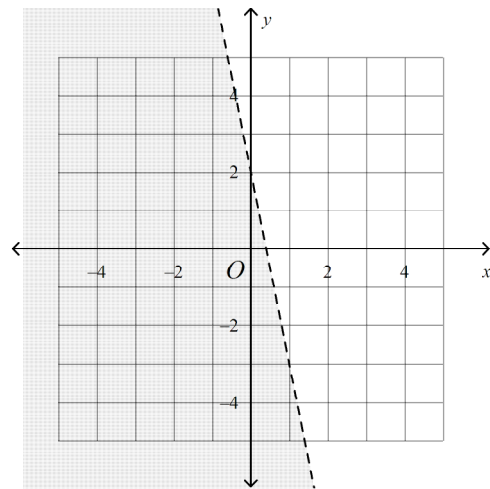
c.



b.

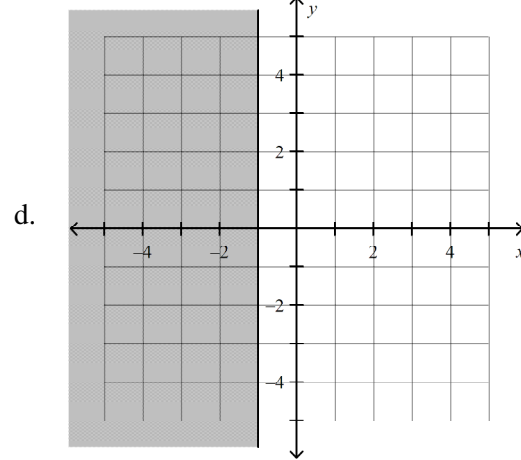
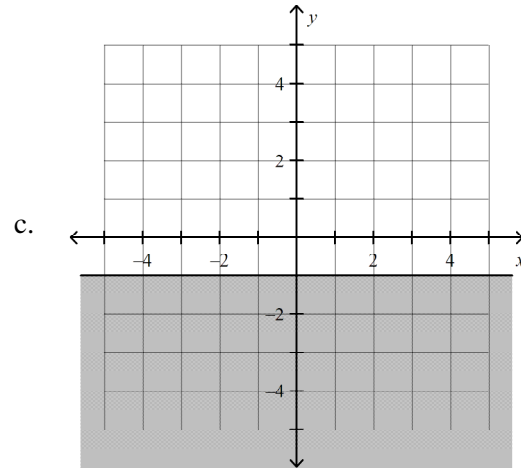
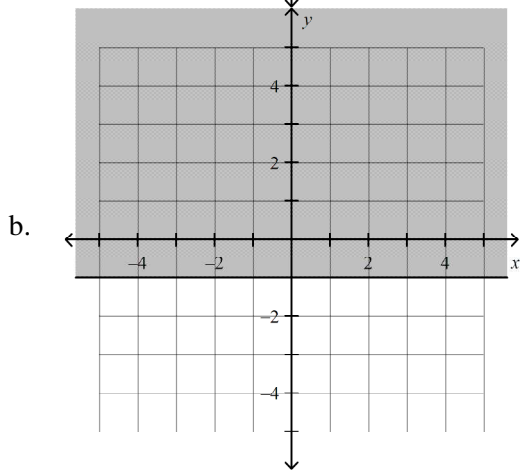
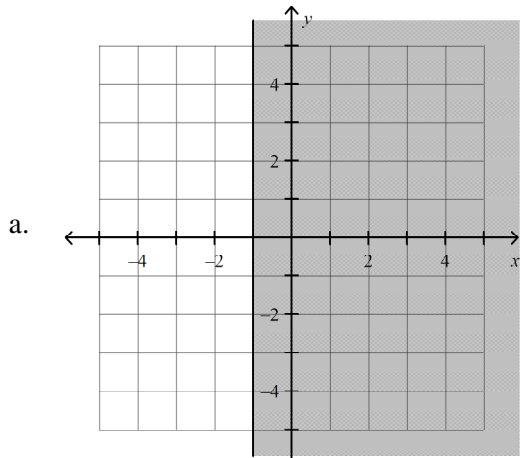


d.

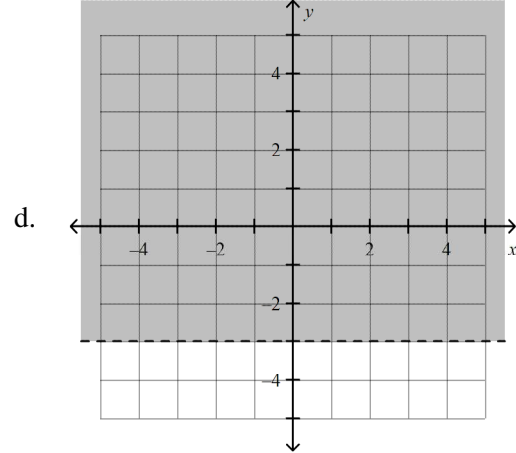
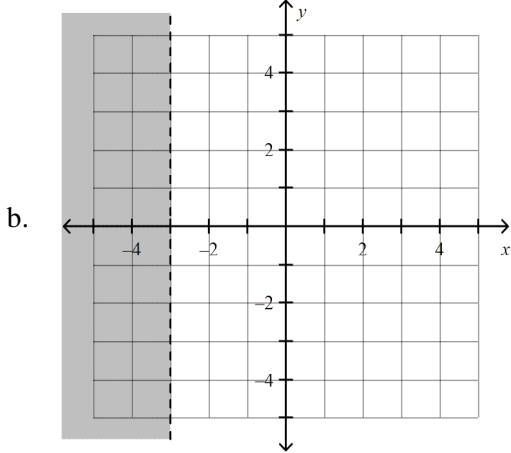
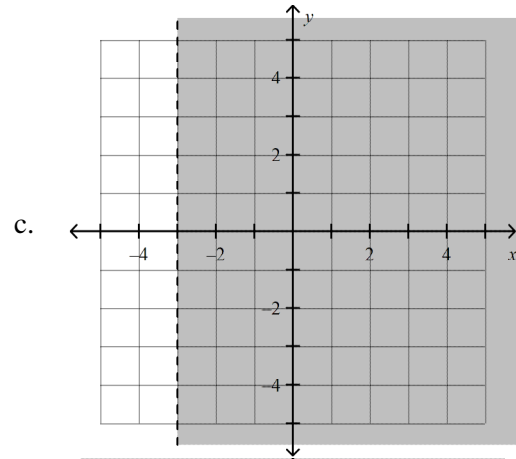
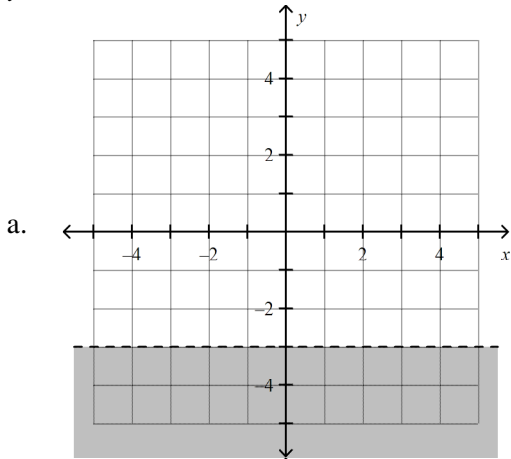


What is the graph of the inequality in the coordinate plane?

14.  $x \geq -1$

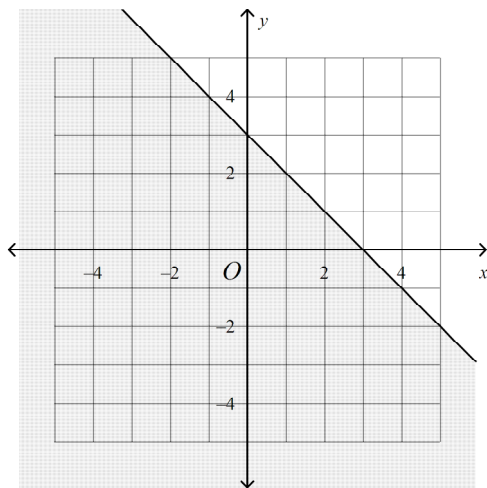


15.  $y < -3$



Which inequality represents the graph?

16.



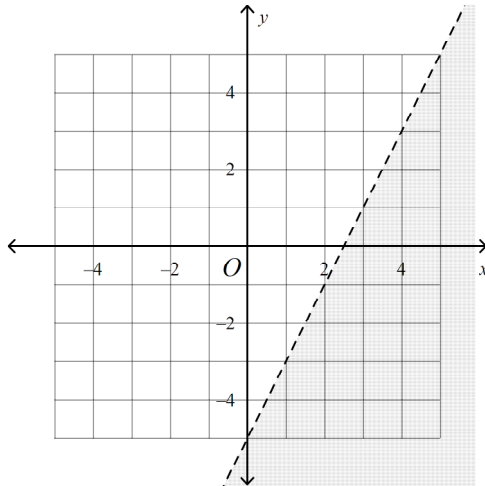
a.  $y \leq -x - 3$

b.  $y \geq -x + 3$

c.  $y \leq -x + 3$

d.  $y \geq -x - 3$

17.



- a.  $y \geq 2x - 5$       b.  $y < 2x - 5$       c.  $y > 2x + 5$       d.  $y \leq 2x + 5$

**Simplify the sum.**

18.  $(4u^3 + 3u^2 + 7) + (8u^3 - 5u + 8)$

- a.  $-4u^3 - 5u^2 + 3u - 15$       c.  $12u^3 + 3u^2 - 5u + 15$   
 b.  $15 - 5u + 3u^2 + 12u^3$       d.  $-4u^3 + 3u^2 - 5u + 15$

**Simplify the difference.**

19.  $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$

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

20.  $(3w^2 - 8w - 8) - (6w^2 + 4w - 5)$

- a.  $-3w^2 - 4w - 13$       c.  $9w^2 + 12w + 3$   
 b.  $9w^2 - 4w - 13$       d.  $-3w^2 - 12w - 3$

**Simplify the product.**

21.  $2n(n^2 + 3n + 4)$

- a.  $n^2 + 5n + 4$       c.  $2n^3 + 6n + 8$   
 b.  $2n^3 + 3n + 4$       d.  $2n^3 + 6n^2 + 8n$

22.  $5a^2(3a^4 + 3b + 2)$

- a.  $8a^4 + 8ab + 5a^2$       c.  $15a^6 + 15a^2b + 10a^2$   
 b.  $8a^6 + 15a^2b + 5a^2$       d.  $15a^8 + 3b + 10a^2$

**Factor the polynomial.**

23.  $2x^3 + 4x^2 + 8x$

- a.  $2x(x^2 + 2x + 8)$       c.  $2x(x^2 + 2x + 4)$   
 b.  $2x^3 + 4x^2 + 8x$       d.  $2x(x + 2)(x + 4)$







**What is the factored form of the expression?**

43.  $d^2 + 12d + 36$   
a.  $(d + 6)(d - 6)$  c.  $(d - 36)(d - 1)$   
b.  $(d + 6)^2$  d.  $(d - 6)^2$
44.  $d^2 - 28d + 196$   
a.  $(d + 14)^2$  c.  $(d - 14)(d + 14)$   
b.  $(d - 196)(d - 1)$  d.  $(d - 14)^2$

**What is the factored form of the expression?**

45.  $r^2 - 49$   
a.  $(r - 7)(r + 7)$  c.  $(r - 7)(r - 7)$   
b.  $(r + 7)(r + 7)$  d.  $(r - 7)(r + 9)$
46.  $s^2 - 100$   
a.  $(s - 10)(s + 10)$  c.  $(s + 10)(s + 10)$   
b.  $(s - 10)(s - 10)$  d.  $(s - 10)(s + 12)$

**What is the factored form of the expression?**

47.  $4x^2 - 81y^2$   
a.  $(2x - 9y)^2$  c.  $(2x + 9)(2x - 9)$   
b.  $(2x + 9y)(2x - 9y)$  d.  $(2x + 9y)^2$
48.  $k^2 - 25h^2$   
a.  $(k - 5h^2)(k + 5)$  c.  $(k + 5h)(k - 5h)$   
b.  $h^2(k + 5)(k - 5)$  d.  $(k + 5h)(k + 5h)$
49.  $40x^2 - 160$   
a.  $10(2x + 4)^2$  c.  $10(4x + 2)(4x - 2)$   
b.  $10(2x - 4)^2$  d.  $10(2x + 4)(2x - 4)$
50.  $36x^2 + 120x + 100$   
a.  $4(3x + 5)^2$  c.  $4(3x - 5)^2$   
b.  $4(5x + 3)^2$  d.  $4(5x - 3)^2$

**What is the factored form of the expression?**

51.  $3x^3 + 3x^2 + x + 1$   
a.  $x(3x^2 + x + 1)$  c.  $3x^2(x + 1)$   
b.  $(x + 3)(3x^2 - 1)$  d.  $(x + 1)(3x^2 + 1)$

52.  $15g^3 + 20g^2 - 6g - 8$   
a.  $(5g^2 - 2)(3g + 4)$  c.  $(5g^2 - 4)(3g + 2)$   
b.  $(5g^2 + 2)(3g - 4)$  d.  $(5g^2 + 4)(3g - 2)$

**What is the factored form of the expression? Factor completely.**

53.  $6x^4 - 9x^3 - 36x^2 + 54x$   
a.  $6x(x^2 + 6)(2x + 3)$  c.  $3x(x^2 + 6)(2x + 3)$   
b.  $3x(x^2 - 6)(2x - 3)$  d.  $6x(x^2 - 6)(2x - 3)$
54.  $80k^3 - 100k^2 + 120k - 150$   
a.  $(20k^2 - 3)(40k + 5)$  c.  $10(2k^2 + 3)(4k - 5)$   
b.  $(2k^2 + 30)(4k - 50)$  d.  $10(2k^2 - 3)(4k + 5)$

**Solve the equation using the Zero-Product Property.**

55.  $(x + 5)(x + 4) = 0$   
a.  $-5, -4$  c.  $-1, 1$   
b.  $-5, 4$  d.  $5, -4$
56.  $(4x - 4)(2x + 8) = 0$   
a.  $1, 4$  c.  $-4, 2$   
b.  $-1, -4$  d.  $1, -4$
57.  $7n(4n + 5) = 0$   
a.  $\frac{1}{7}, -\frac{5}{4}$  c.  $0, -\frac{5}{4}$   
b.  $\frac{1}{7}, \frac{5}{4}$  d.  $0, \frac{5}{4}$

**What are the solutions of the equation?**

58.  $z^2 + 4z - 21 = 0$   
a.  $3, -7$  c.  $-3, -7$   
b.  $-3, 7$  d.  $3, 7$
59.  $3z^2 + 8z - 16 = 0$   
a.  $4, -4$  c.  $\frac{1}{3}, -4$   
b.  $\frac{1}{3}, 4$  d.  $4, 4$
60.  $c^2 - 9c = 0$   
a.  $0, 9$  c.  $0, -9$   
b.  $0, \sqrt{9}$  d.  $1, -\sqrt{9}$

61.  $15 = 8x^2 - 14x$

a.  $-3, \frac{5}{8}$

b.  $-5, \frac{3}{8}$

c.  $-\frac{3}{4}, \frac{5}{2}$

d.  $-\frac{2}{5}, \frac{4}{3}$

62.  $x^2 + 4x = 21$

a.  $3, -7$

b.  $23, -27$

c.  $4.8, -4.8$

d.  $-3, 7$

Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.

63.  $x^2 + 4 = 4x$

a.  $-2, 2$

b.  $2, 2$

c.  $-2, 2$

d.  $-2, -2$

64.  $x^2 - 18 = -x$

a.  $4.77, 3.77$

b.  $4.77, -3.77$

c.  $-4.77, -3.77$

d.  $-4.77, 3.77$

Simplify the rational expression. State any excluded values.

65.  $\frac{2x - 6}{x - 3}$

a.  $6$ ; where  $x \neq 2$

b.  $x$

c.  $2$ ; where  $x \neq 3$

d.  $-\frac{4}{3}$

66.  $\frac{3x - 3}{3x + 15}$

a.  $\frac{x - 1}{x + 5}$ ; where  $x \neq -5$

b.  $3\left(\frac{x + 1}{x - 5}\right)$ ; where  $x \neq 5$

c.  $\frac{x + 5}{x - 1}$ ; where  $x \neq 1$

d.  $\frac{x - 1}{3x + 15}$ ; where  $x \neq -5$

67.  $\frac{10x}{2x + x^2}$

a.  $5$

b.  $\frac{10}{x + 2}$ ; where  $x \neq -2, 0$

c.  $5 + \frac{1}{x}$ ; where  $x \neq 0$

d.  $\frac{10}{x}$ ; where  $x \neq 0$

68.  $\frac{14x^5}{x^5 - 4x^6}$

a.  $\frac{14}{1 - 4x}$ ; where  $x \neq \frac{1}{4}, 0$

b.  $\frac{1 - 4x}{14x}$ ; where  $x \neq 0$

c.  $\frac{14}{4x - 1}$ ; where  $x \neq \frac{1}{4}, 0$

d.  $\frac{14x}{1 - 4x}$ ; where  $x \neq \frac{1}{4}$

69.  $\frac{x-3}{x^2-8x+15}$

a.  $x-5$ ; where  $x \neq 5$

b.  $\frac{1}{x-5}$ ; where  $x \neq 5, 3$

c.  $\frac{1}{x^3}$ ; where  $x \neq -3$

d.  $x^3$

70.  $\frac{x^2+3x-10}{x-2}$

a.  $x+5$ ; where  $x \neq -5$

b.  $\frac{1}{x^2}$ ; where  $x \neq -2$

c.  $x^2$

d.  $x+5$ ; where  $x \neq 2$

**Multiply. State any excluded values.**

71.  $\frac{3}{2a} \cdot \frac{1}{2a^2}$

a.  $\frac{3}{4a^2}$ ; where  $a \neq 0$

b.  $\frac{3}{4a^2}$

c.  $\frac{3}{4a^3}$ ; where  $a \neq 0$

d.  $\frac{1}{a^2}$ ; where  $a \neq 0$

72.  $\frac{q-5}{3} \cdot \frac{2q}{q+5}$

a.  $\frac{2q^2-10q}{3}$ ; where  $q \neq -3$

b.  $\frac{2q-10q^2}{5q+15}$ ; where  $q \neq -3$

c.  $\frac{q^2-10q}{3q}$ ; where  $q \neq 0$

d.  $\frac{2q^2-10q}{3q+15}$ ; where  $q \neq -5$

**Multiply.**

73.  $\frac{y^2-9}{5y} \cdot \frac{4y}{y+3}$

a.  $\frac{4(y+3)}{5}$

b.  $\frac{4(y-3)}{5}$

c.  $\frac{y-3}{5}$

d.  $\frac{(y+3)}{5}$

**Divide.**

74.  $\frac{x^2 - 4}{x - 8} \div \frac{(x - 2)}{x - 3}$

a.  $\frac{(x - 2)(x - 3)}{x - 8}$

b.  $\frac{(x - 2)(x - 3)}{x - 8}$

c.  $\frac{x - 2}{(x - 8)(x - 3)}$

d.  $\frac{(x + 2)(x - 3)}{x - 8}$

75.  $(10m^8 + 8m^7) \div 2m^2$

a.  $5m^6 + 8m^7$

b.  $10m^8 + 8m^5$

c.  $5m^6 + 4m^5$

d.  $5m^8 + 4m^7$

76.  $(-10m^8 + 20m^5 + 18m^4) \div 2m^2$

a.  $-5m^6 + 10m^3 + 9m^2$

b.  $-5m^8 + 10m^5 + 9m^4$

c.  $-5m^6 + 20m^5 + 18m^2$

d.  $-5m^6 + 10m^3 + 18m^4$

77.  $(x^2 - 7x + 14) \div (x - 2)$

a.  $x - 7 - \frac{14}{x - 2}$

b.  $x - 5 - \frac{4}{x - 2}$

c.  $x - 7 - 7$

d.  $x - 5 + \frac{4}{x - 2}$

78.  $(8x^2 - 16x + 9) \div (2x - 3)$

a.  $4x - 2 + \frac{3}{2x - 3}$

b.  $4x - 8 - \frac{9}{2x - 3}$

c.  $4x - 2 - \frac{3}{2x - 3}$

d.  $4x - 8 - 3$

**What is the simplified form of each expression?**

79.  $4(13 - 7)^2 \div 4$

a. 36

b. 6

c. 12

d. 9

80.  $4(1 + 16) \div (6 - 5)$

a. 1

b. 68

c. 20

d. 6

81.  $3^3 \cdot 32 + 12 \div 4$

a. 867

b. 291

c. 437

d. 219

82.  $13 \left[ 6^2 \div (5^2 - 4^2) + 9 \right]$

a. 26

b. 169

c. 585

d. 181

83. Evaluate  $u + xy$ , for  $u = 13$ ,  $x = 9$ , and  $y = 7$ .

a. 29

b. 154

c. 76

d. 124

84. Evaluate  $\frac{u}{z} + xy^4$ , for  $u = 15$ ,  $x = 8$ ,  $y = 8$ , and  $z = 5$ .  
 a. 32771                      b. 16777219                      c. 45056                      d. 20151121
85. Evaluate  $(ab)^2$  for  $a = 3$  and  $b = 4$ .  
 a. 144                      b. 256                      c. 48                      d. 24

**Simplify each expression.**

86.  $\frac{8yk}{-5k}$   
 a.  $-\frac{5}{8}k$                       c.  $-\frac{8}{5}y$   
 b.  $-\frac{5}{8}y$                       d.  $\frac{8}{5}k$
87.  $(10 + 8y) + 4$   
 a.  $14 + 8y$                       c.  $14 + 12y$   
 b.  $10 + 12y$                       d.  $22y$
88. What is the value of  $\frac{x}{y}$  when  $x = \frac{8}{5}$  and  $y = \frac{9}{5}$ ?  
 a.  $\frac{17}{10}$                       c.  $\frac{72}{25}$   
 b.  $\frac{8}{9}$                       d.  $-\frac{8}{9}$

**What is the simplified form of each expression?**

89.  $\frac{1}{2}(12m + 16)$   
 a.  $36m + 8$                       c.  $6m + 16$   
 b.  $6m + 8$                       d.  $6m + 48$
90.  $1.7m^2 + 6.5n - 4n + 2.5m^2 - n$   
 a.  $4.2m^2 - 1.5n$                       c.  $1.5m^2 - 4.2n$   
 b.  $4.2m^2 + 1.5n$                       d.  $1.5m^2 + 4.2n$
91.  $9.5d^2 + 7.5m - 6.3m + 5.2d^2 - 8.3m$   
 a.  $14.7d^2 - 7.1m$                       c.  $14.7d^2 + 9.5m$   
 b.  $4.3d^2 - 7.1m$                       d.  $4.3d^2 + 9.5m$

**What sum or difference is equivalent to the expression?**

92.  $\frac{6x + 2}{10}$   
 a.  $\frac{4}{5}x$                       b.  $\frac{1}{5}$                       c.  $\frac{1}{5}x + \frac{3}{5}$                       d.  $\frac{3}{5}x + \frac{1}{5}$

93.  $\frac{9x-7}{6}$

a.  $\frac{7}{6}$

b.  $\frac{3}{2}x - \frac{7}{6}$

c.  $\frac{1}{3}x$

d.  $\frac{7}{6}x - \frac{3}{2}$

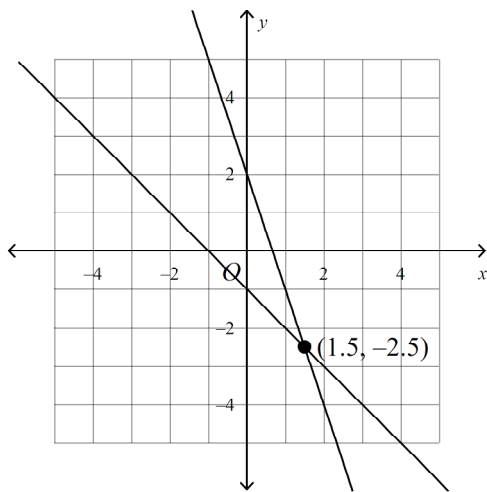
**Multiple Response**

Identify one or more choices that best complete the statement or answer the question.

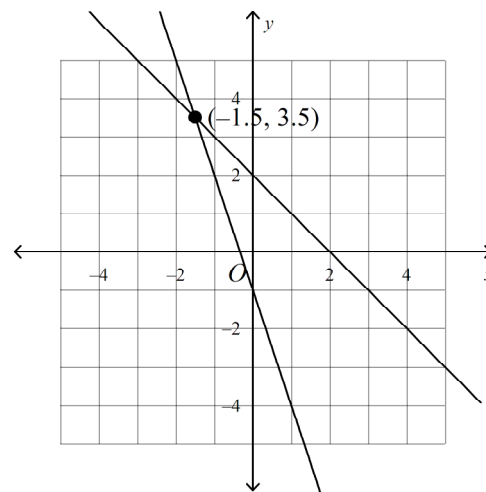
**What is the solution of the system? Use a graph.**

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

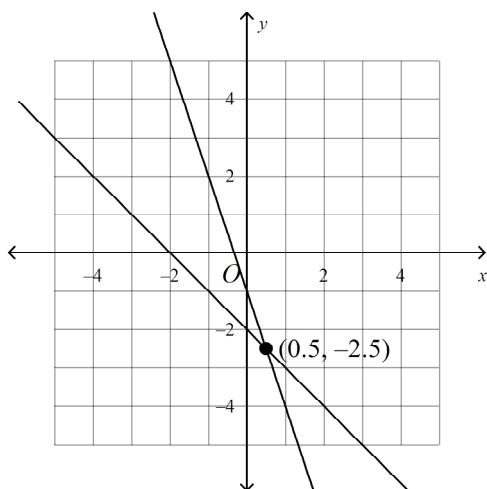
a.



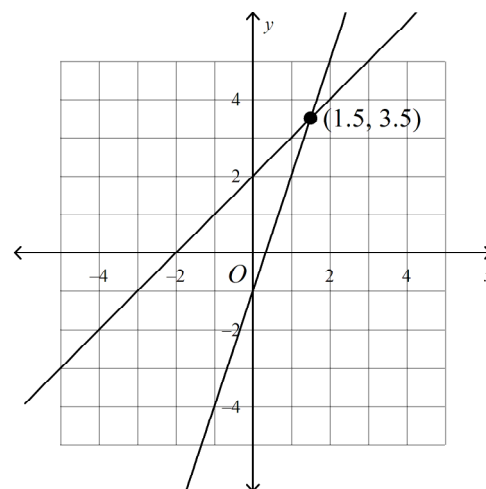
c.



b.



d.

**Numeric Response**

95. Is  $x = 1$  a solution of the equation  $4 = -9x + 4$ ?

**PERT Review-inequalities, quadratics, systems, polynomials**  
**Answer Section**

**MULTIPLE CHOICE**

1. A
2. A
3. D
4. D
5. B
6. D
7. C
8. B
9. B
10. D
11. C
12. A
13. B
14. A
15. A
16. C
17. B
18. C
19. D
20. D
21. D
22. C
23. C
24. C
25. B
26. D
27. D
28. B
29. A
30. C
31. B
32. D
33. B
34. B
35. C
36. A
37. C
38. C
39. A



- 40. B
- 41. C
- 42. B
- 43. B
- 44. D
- 45. A
- 46. A
- 47. B
- 48. C
- 49. D
- 50. A
- 51. D
- 52. A
- 53. B
- 54. C
- 55. A
- 56. D
- 57. C
- 58. A
- 59. C
- 60. A
- 61. C
- 62. A
- 63. B
- 64. D
- 65. C
- 66. A
- 67. B
- 68. A
- 69. B
- 70. D
- 71. C
- 72. D
- 73. B
- 74. D
- 75. C
- 76. A
- 77. D
- 78. A
- 79. A
- 80. B
- 81. A
- 82. B
- 83. C
- 84. A

- 85. A
- 86. C
- 87. A
- 88. B
- 89. B
- 90. B
- 91. A
- 92. D
- 93. B

**MULTIPLE RESPONSE**

- 94. C

**NUMERIC RESPONSE**

- 95. no

**PERT Review-inequalities, quadratics, systems, polynomials**

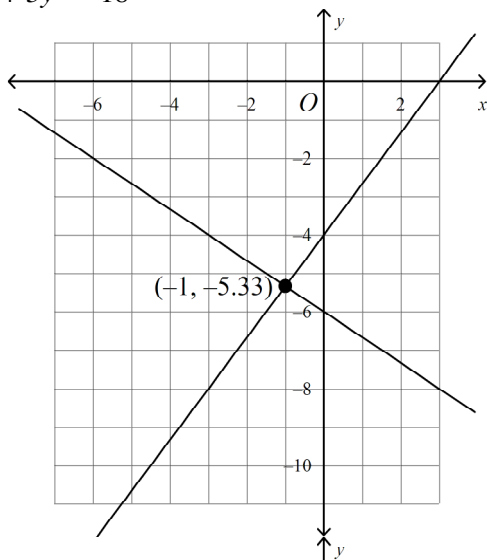
**Multiple Choice**

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

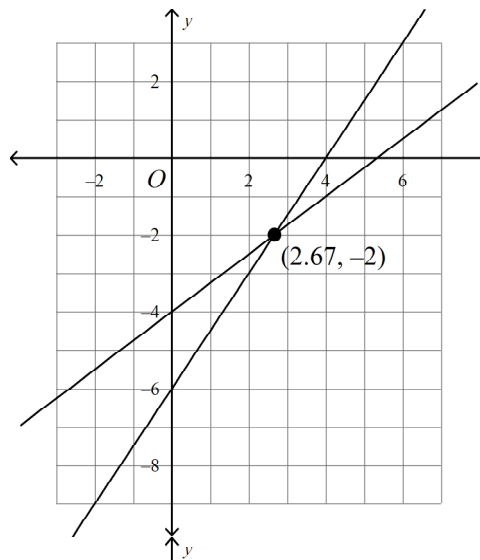
What is the solution of the system? Use a graph.

1.  $-4x + 3y = -12$   
 $-2x + 3y = -18$

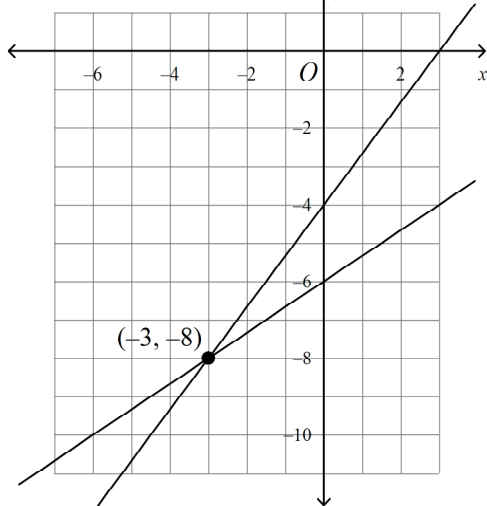
a.



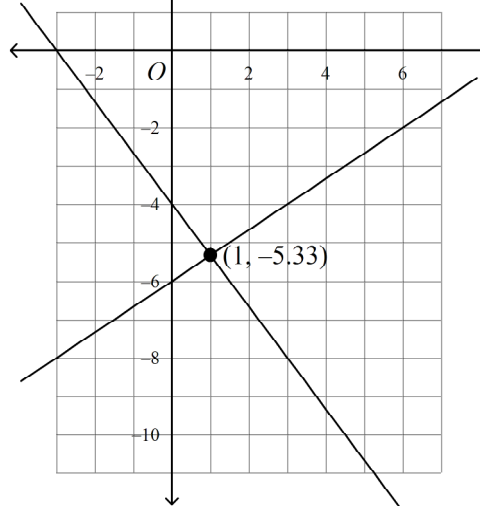
c.



b.

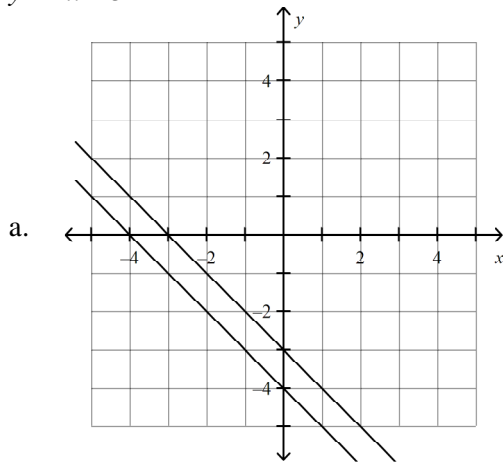


d.

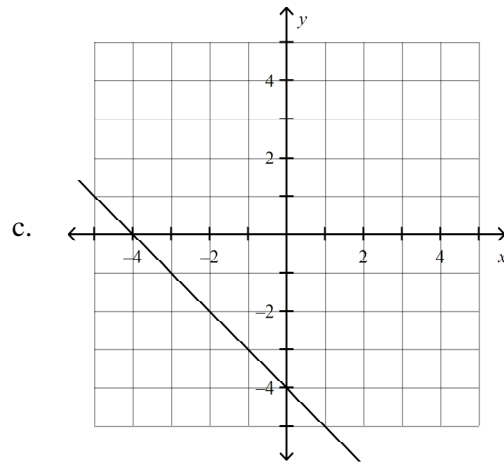


What is the solution of the system? Use a graph.

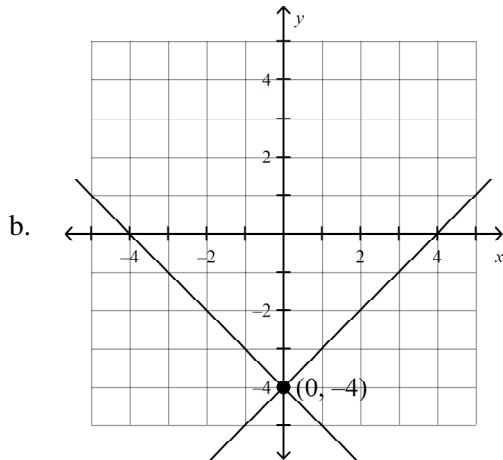
2.  $y = -x - 4$   
 $y = -x - 3$



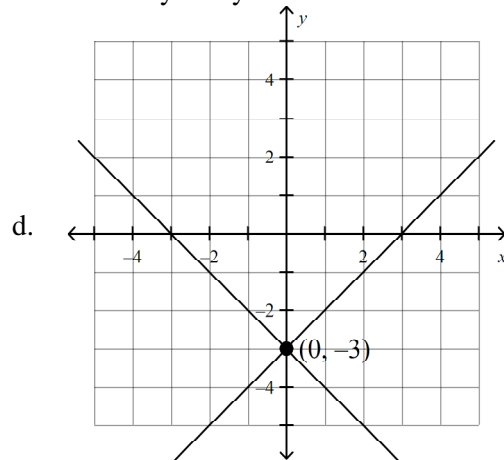
no solutions



infinitely many solutions



$(0, -4)$



$(0, -3)$

What is the solution of the system? Use substitution.

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

a.  $(-5, -20)$

b.  $(-20, -5)$

c.  $(5, 20)$

d.  $(1.7, 6.7)$

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

a.  $(6, -7)$

b.  $(5, -4)$

c.  $(6, -3)$

d.  $\left(-4, \frac{19}{2}\right)$

**What is the solution of the system? Use substitution.**

5.  $4x - y = -5$

$3x - y = -9$

a.  $(4, 21)$

b.  $(-4, -11)$

c.  $(-11, -4)$

d.  $(-4, -3)$

6.  $x - y = -6$

$6x - 3y = -9$

a.  $\left(-6, \frac{3}{2}\right)$

b.  $(3, 9)$

c.  $(4, -11)$

d.  $(1, 7)$

**What is the solution of the system? Use elimination.**

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

$x + 2y = -1$

a.  $(-3, 1)$

b.  $(0, 4)$

c.  $(1, 5)$

d.  $(-14, 1)$

**What is the solution of the system? Use elimination.**

8.  $5x + 8y = -29$

$7x - 2y = -67$

a.  $(-7, 9)$

b.  $(-9, 2)$

c.  $\left(-10, \frac{21}{8}\right)$

d.  $(-1, -3)$

**Which ordered pair is a solution of the inequality?**

9.  $y \geq 4x - 5$

a.  $(2, 1)$

b.  $(3, 0)$

c.  $(3, 4)$

d.  $(1, 1)$

10.  $2y + 6 < 4x$

a.  $(-5, 5)$

b.  $(3, 3)$

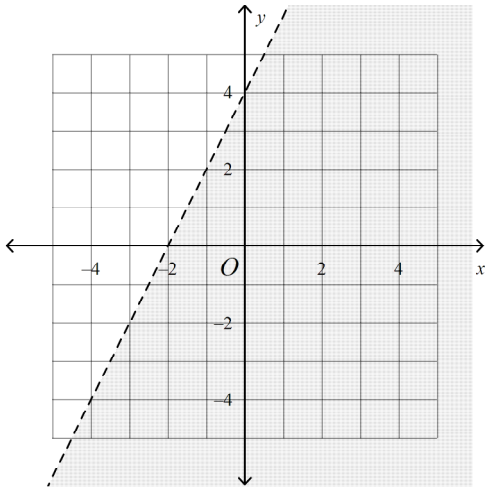
c.  $(3, 0)$

d.  $(0, 0)$

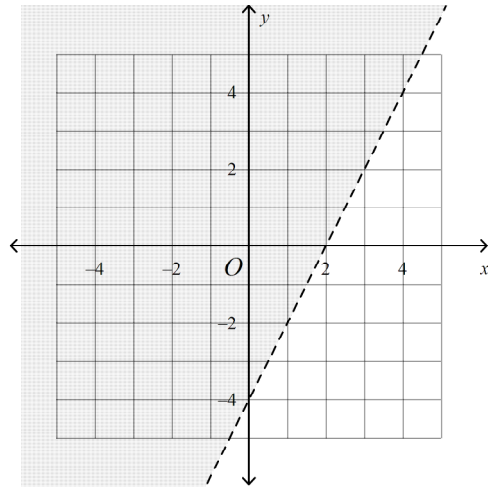
**Graph the inequality.**

11.  $y < 2x - 4$

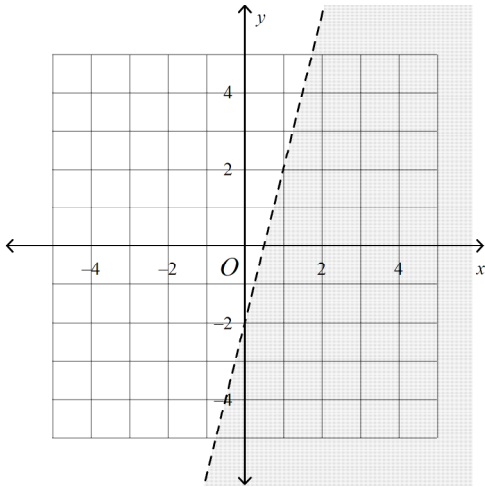
a.



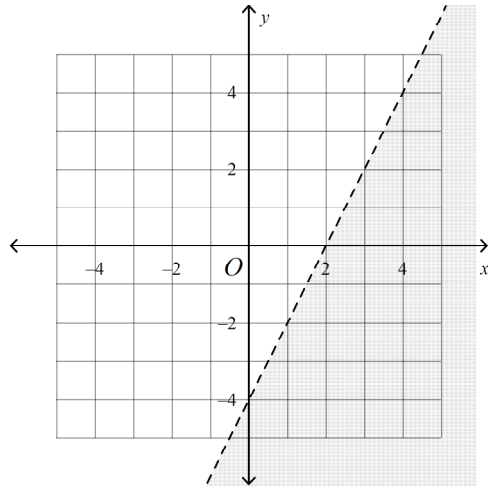
c.



b.

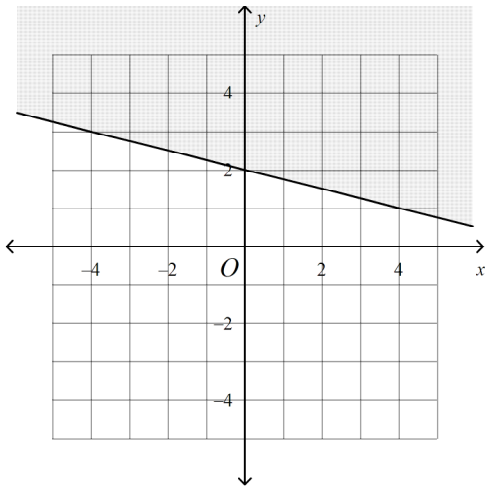


d.

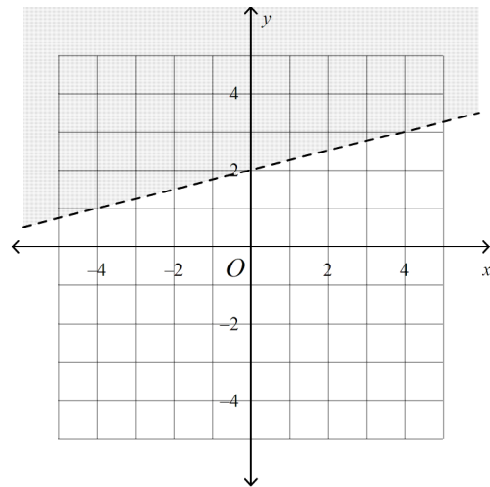


12.  $2x + 8y \geq 16$

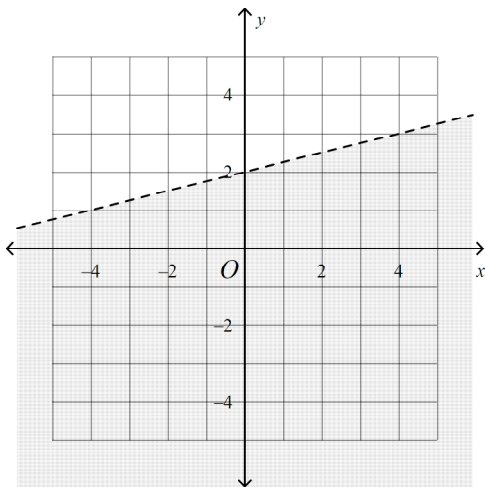
a.



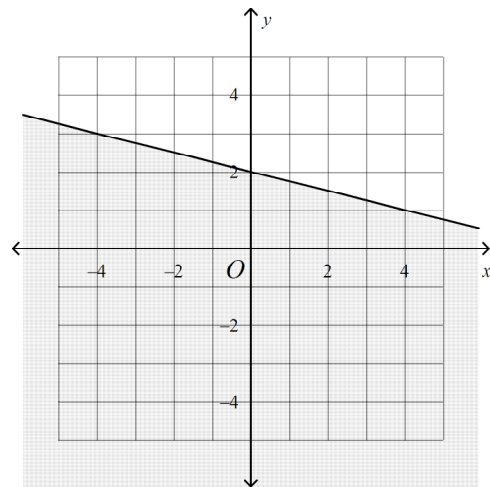
c.



b.

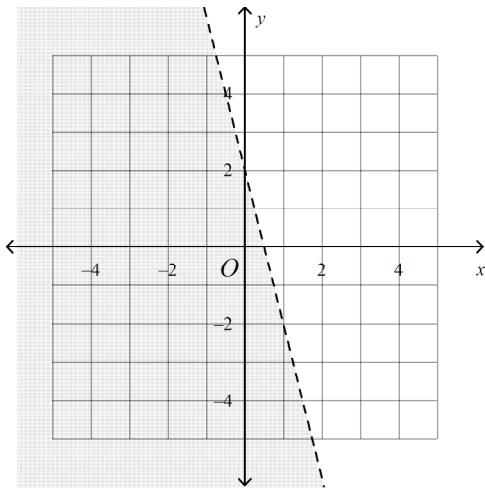


d.

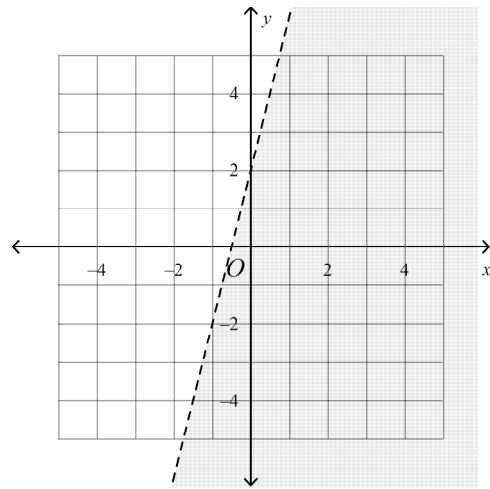


13.  $y > -4x + 2$

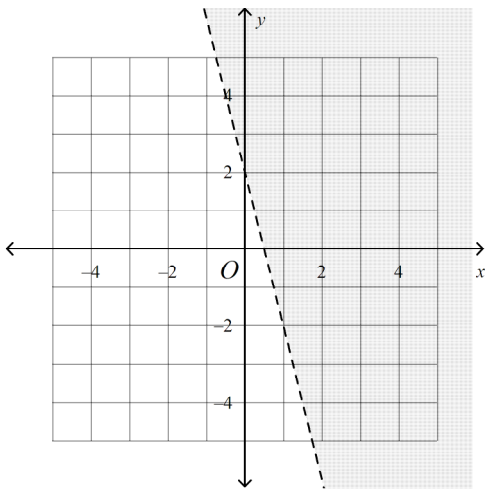
a.



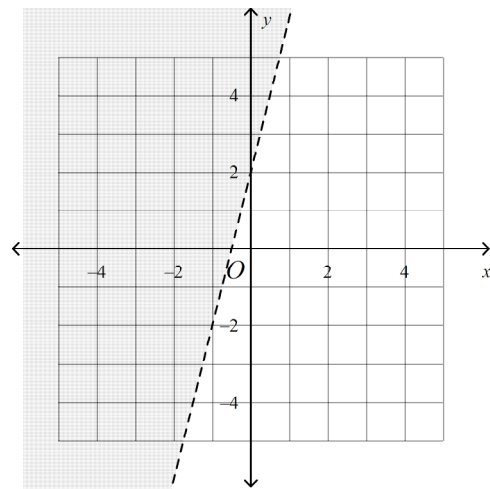
c.



b.



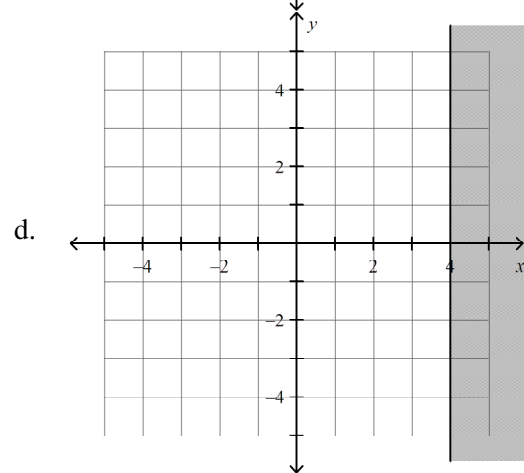
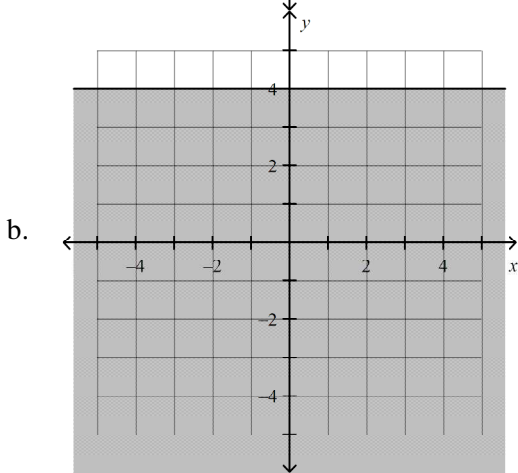
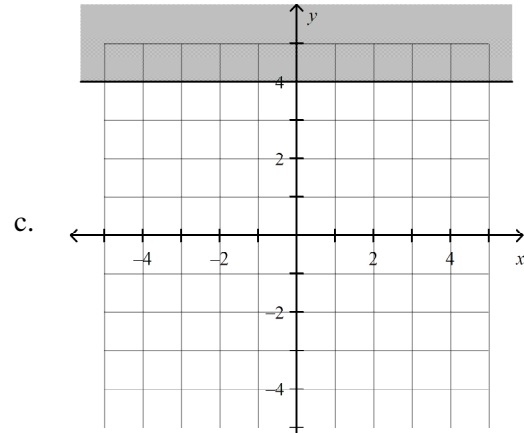
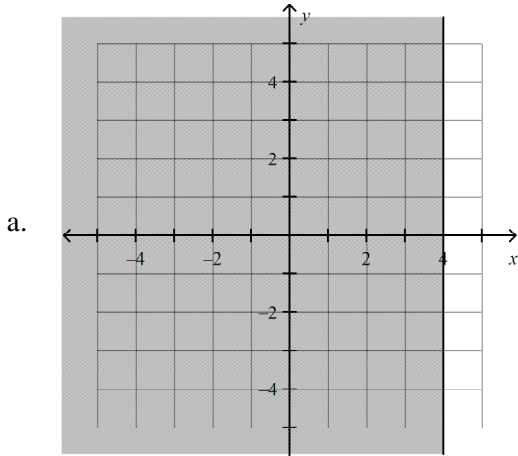
d.



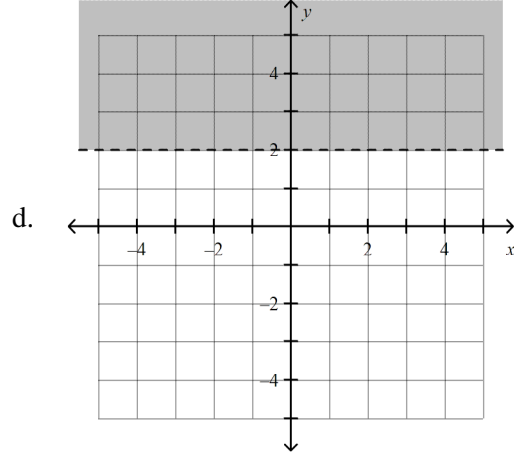
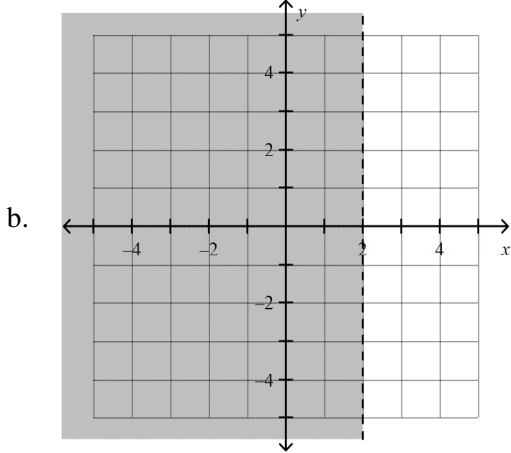
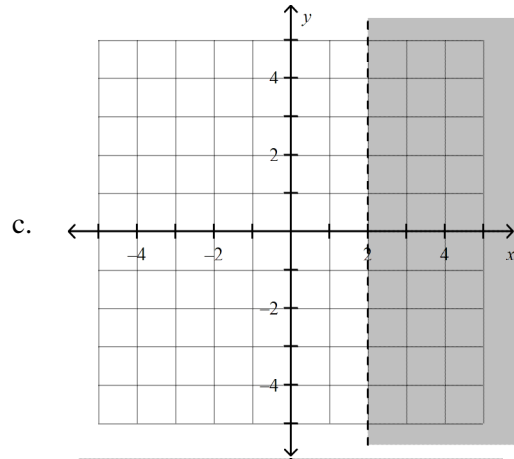
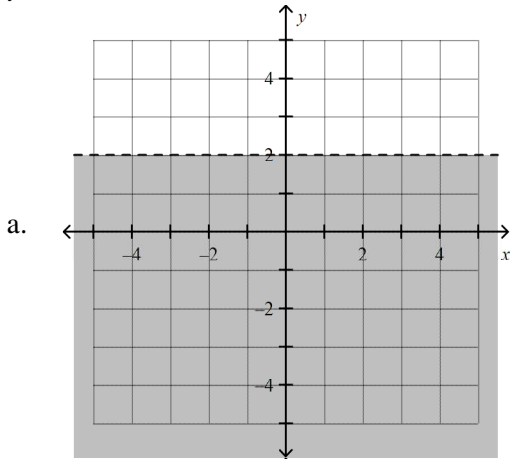


What is the graph of the inequality in the coordinate plane?

14.  $x \geq 4$

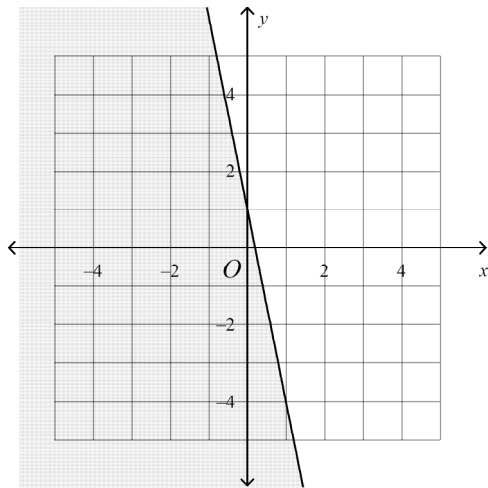


15.  $y < 2$



Which inequality represents the graph?

16.



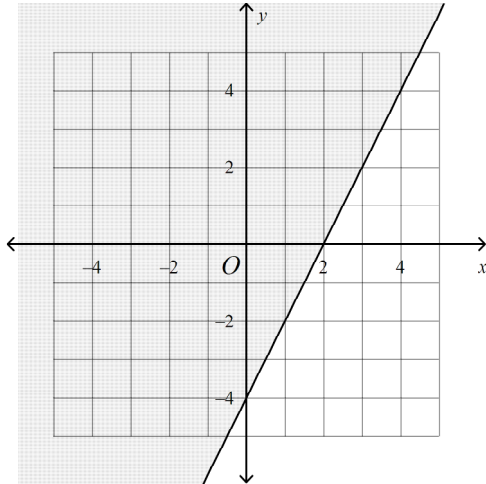
a.  $y \geq -5x - 1$

b.  $y \leq -5x - 1$

c.  $y \geq -5x + 1$

d.  $y \leq -5x + 1$

17.



- a.  $y \leq 2x - 4$       b.  $y \geq 2x - 4$       c.  $y < 2x + 4$       d.  $y > 2x + 4$

**Simplify the sum.**

18.  $(4u^3 + 5u^2 + 5) + (6u^3 - 5u + 8)$

- a.  $-2u^3 + 5u^2 - 5u + 13$       c.  $13 - 5u + 5u^2 + 10u^3$   
 b.  $-2u^3 - 5u^2 + 5u - 13$       d.  $10u^3 + 5u^2 - 5u + 13$

**Simplify the difference.**

19.  $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$

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

20.  $(5w^2 - 7w - 6) - (3w^2 + 2w - 5)$

- a.  $8w^2 + 9w + 1$       c.  $2w^2 - 9w - 1$   
 b.  $8w^2 - 5w - 11$       d.  $2w^2 - 5w - 11$

**Simplify the product.**

21.  $2n(n^2 + 3n + 4)$

- a.  $2n^3 + 3n + 4$       c.  $2n^3 + 6n + 8$   
 b.  $2n^3 + 6n^2 + 8n$       d.  $n^2 + 5n + 4$

22.  $5a^2(3a^4 + 3b + 2)$

- a.  $8a^4 + 8ab + 5a^2$       c.  $15a^6 + 15a^2b + 10a^2$   
 b.  $15a^8 + 3b + 10a^2$       d.  $8a^6 + 15a^2b + 5a^2$

**Factor the polynomial.**

23.  $2x^3 + 4x^2 + 8x$

- a.  $2x^3 + 4x^2 + 8x$       c.  $2x(x + 2)(x + 4)$   
 b.  $2x(x^2 + 2x + 4)$       d.  $2x(x^2 + 2x + 8)$

24.  $49w^{13} + 14w^8$
- a.  $7w^8(7w^5 + 2)$                       c.  $7(7w^{13} + 2w^8)$   
b.  $w^8(49w^5 + 14)$                       d.  $7w^7(7w^6 + 2w)$

**Simplify the product using the distributive property.**

25.  $(5h + 5)(3h - 7)$
- a.  $15h^2 - 20h - 35$                       c.  $15h^2 + 50h + 35$   
b.  $15h^2 + 20h - 35$                       d.  $15h^2 - 50h + 35$

26.  $(-3h + 2)(5h - 7)$
- a.  $-15h^2 - 11h + 14$                       c.  $-15h^2 - 31h - 14$   
b.  $-15h^2 + 11h + 14$                       d.  $-15h^2 + 31h - 14$

**Simplify the product using FOIL.**

27.  $(3x - 7)(3x - 5)$
- a.  $9x^2 + 6x + 35$                       c.  $9x^2 - 36x + 35$   
b.  $9x^2 - 36x - 35$                       d.  $9x^2 + 36x + 35$
28.  $(3x - 4)(5x + 6)$
- a.  $15x^2 - 38x + 24$                       c.  $15x^2 + 38x + 24$   
b.  $15x^2 - 2x - 24$                       d.  $15x^2 + 2x - 24$

**What is a simpler form of the expression?**

29.  $(2n^2 + 4n + 4)(4n - 5)$
- a.  $8n^3 + 6n^2 - 4n - 20$                       c.  $8n^3 + 26n^2 - 36n - 20$   
b.  $8n^3 - 6n^2 + 36n - 20$                       d.  $8n^3 + 4n^2 - 6n - 20$
30.  $(2k + 3)(2k^2 - 5k - 3)$
- a.  $4k^3 + 21k^2 - 4k - 9$                       c.  $4k^3 - 4k^2 + 9k - 9$   
b.  $4k^3 + 16k^2 - 9k - 9$                       d.  $4k^3 - 4k^2 - 21k - 9$

**What is a simpler form of each product?**

31.  $(2x - 6)^2$
- a.  $4x^2 - 24x + 36$                       c.  $4x^2 - 8x + 36$   
b.  $4x^2 - 12x + 36$                       d.  $4x^2 + 36$
32.  $(4x - 6y^3)^2$
- a.  $16x^2 - 24xy^3 + 36y^6$                       c.  $16x^2 - 48xy^3 + 36y^6$   
b.  $16x^2 - 4xy^3 + 36y^6$                       d.  $16x^2 + 36y^6$





52.  $18g^3 + 12g^2 - 15g - 10$

a.  $(6g^2 - 2)(3g + 5)$

b.  $(6g^2 + 2)(3g - 5)$

c.  $(6g^2 - 5)(3g + 2)$

d.  $(6g^2 + 5)(3g - 2)$

**What is the factored form of the expression? Factor completely.**

53.  $6x^4 - 9x^3 - 36x^2 + 54x$

a.  $3x(x^2 - 6)(2x - 3)$

b.  $6x(x^2 - 6)(2x - 3)$

c.  $3x(x^2 + 6)(2x + 3)$

d.  $6x(x^2 + 6)(2x + 3)$

54.  $84k^3 - 126k^2 + 70k - 105$

a.  $7(6k^2 - 5)(2k + 3)$

b.  $(6k^2 + 35)(2k - 21)$

c.  $(42k^2 - 5)(14k + 3)$

d.  $7(6k^2 + 5)(2k - 3)$

**Solve the equation using the Zero-Product Property.**

55.  $(x - 6)(x + 3) = 0$

a. 6, 3

b. 6, -3

c. -6, -3

d. -1, 1

56.  $(2x - 4)(6x + 3) = 0$

a.  $-2, -\frac{1}{2}$

b.  $2, -\frac{1}{2}$

c.  $-2, 6$

d.  $2, \frac{1}{2}$

57.  $7n(10n - 7) = 0$

a.  $\frac{1}{7}, -\frac{7}{10}$

b.  $0, \frac{7}{10}$

c.  $0, -\frac{7}{10}$

d.  $\frac{1}{7}, \frac{7}{10}$

**What are the solutions of the equation?**

58.  $z^2 + 3z - 54 = 0$

a. 6, -9

b. -6, -9

c. -6, 9

d. 6, 9

59.  $2z^2 + 3z - 2 = 0$

a.  $\frac{1}{2}, 2$

b. 1, 2

c. 1, -2

d.  $\frac{1}{2}, -2$

60.  $c^2 - 6c = 0$

a. 0, 6

b. 0, -6

c.  $0, \sqrt{6}$

d.  $1, -\sqrt{6}$

61.  $15 = 8x^2 - 14x$

- a.  $-\frac{3}{4}, \frac{5}{2}$       b.  $-5, \frac{3}{8}$       c.  $-3, \frac{5}{8}$       d.  $-\frac{2}{5}, \frac{4}{3}$

62.  $x^2 - 3x = 18$

- a. 4.06, -4.06      b. 21.75, -18.75      c. -6, 3      d. 6, -3

**Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.**

63.  $x^2 + 20 = -9x$

- a. 4, 5      b. 4, -5      c. -4, -5      d. 4, -5

64.  $x^2 + 13 = 10x$

- a. -1.54, -8.46      b. 1.54, -8.46      c. -1.54, 8.46      d. 1.54, 8.46

**Simplify the rational expression. State any excluded values.**

65.  $\frac{5x - 10}{x - 2}$

- a.  $-\frac{5}{2}$       c. 5; where  $x \neq 2$   
 b.  $x$       d. 10; where  $x \neq 5$

66.  $\frac{5x - 40}{5x + 10}$

- a.  $\frac{x - 8}{x + 2}$ ; where  $x \neq -2$       c.  $\frac{x - 8}{5x + 10}$ ; where  $x \neq -2$   
 b.  $\frac{x + 2}{x - 8}$ ; where  $x \neq 8$       d.  $5\left(\frac{x + 8}{x - 2}\right)$ ; where  $x \neq 2$

67.  $\frac{7x}{-4x + x^2}$

- a.  $\frac{7}{x - 4}$ ; where  $x \neq 4, 0$       c.  $-\frac{7}{4}$   
 b.  $-\frac{7}{4} + \frac{1}{x}$ ; where  $x \neq 0$       d.  $\frac{7}{x}$ ; where  $x \neq 0$

68.  $\frac{-15x^6}{x^6 - 4x^7}$

- a.  $\frac{-15}{4x - 1}$ ; where  $x \neq \frac{1}{4}, 0$       c.  $\frac{1 - 4x}{-15x}$ ; where  $x \neq 0$   
 b.  $\frac{-15}{1 - 4x}$ ; where  $x \neq \frac{1}{4}, 0$       d.  $\frac{-15x}{1 - 4x}$ ; where  $x \neq \frac{1}{4}$



69.  $\frac{x-4}{x^2-x-12}$

a.  $x^4$

b.  $\frac{1}{x+3}$ ; where  $x \neq -3, 4$

c.  $\frac{1}{x^4}$ ; where  $x \neq -4$

d.  $x+3$ ; where  $x \neq -3$

70.  $\frac{x^2+11x+28}{x+4}$

a.  $\frac{1}{x-4}$ ; where  $x \neq 4$

b.  $x+7$ ; where  $x \neq -4$

c.  $x-4$

d.  $x+7$ ; where  $x \neq -7$

**Multiply. State any excluded values.**

71.  $\frac{5}{2a} \cdot \frac{5}{4a^2}$

a.  $\frac{25}{8a^3}$ ; where  $a \neq 0$

b.  $\frac{25}{8a^2}$

c.  $\frac{1}{a^2}$ ; where  $a \neq 0$

d.  $\frac{25}{8a^2}$ ; where  $a \neq 0$

72.  $\frac{q-5}{-3} \cdot \frac{-3q}{q+4}$

a.  $\frac{-3q^2+15q}{-3}$ ; where  $q \neq 3$

b.  $\frac{-3q+15q^2}{4q-12}$ ; where  $q \neq 3$

c.  $\frac{q^2+15q}{-3q}$ ; where  $q \neq 0$

d.  $\frac{-3q^2+15q}{-3q-12}$ ; where  $q \neq -4$

**Multiply.**

73.  $\frac{y^2-4}{5y} \cdot \frac{4y}{y+2}$

a.  $\frac{4(y+2)}{5}$

b.  $\frac{4(y-2)}{5}$

c.  $\frac{(y+2)}{5}$

d.  $\frac{y-2}{5}$

**Divide.**

74.  $\frac{x^2 - 4}{x - 8} \div \frac{(x - 2)}{x - 3}$

a.  $\frac{x - 2}{(x - 8)(x - 3)}$

b.  $\frac{(x - 2)(x - 3)}{x - 8}$

c.  $\frac{(x + 2)(x - 3)}{x - 8}$

d.  $\frac{(x - 2)(x - 3)}{x - 8}$

75.  $(-12m^7 - 14m^6) \div 2m^2$

a.  $-12m^7 - 14m^4$

b.  $-6m^5 - 7m^4$

c.  $-6m^7 - 7m^6$

d.  $-6m^5 - 14m^6$

76.  $(20m^9 - 10m^8 + 4m^5) \div 2m^2$

a.  $10m^9 - 5m^8 + 2m^5$

b.  $10m^7 - 5m^6 + 4m^5$

c.  $10m^7 - 10m^8 + 4m^3$

d.  $10m^7 - 5m^6 + 2m^3$

77.  $(x^2 - 6x + 12) \div (x - 2)$

a.  $x - 6 - 6$

b.  $x - 4 - \frac{4}{x - 2}$

c.  $x - 6 - \frac{12}{x - 2}$

d.  $x - 4 + \frac{4}{x - 2}$

78.  $(25x^2 - 30x + 12) \div (5x - 2)$

a.  $5x - 6 - \frac{12}{5x - 2}$

b.  $5x - 4 - \frac{4}{5x - 2}$

c.  $5x - 6 - 6$

d.  $5x - 4 + \frac{4}{5x - 2}$

**What is the simplified form of each expression?**

79.  $3(10 - 6)^2 \div 2$

a. 6

b. 12

c. 24

d. 8

80.  $9(20 + 4) \div (4 - 2)$

a. 52

b. 182

c. 179

d. 108

81.  $3^3 \cdot 32 + 12 \div 4$

a. 437

b. 867

c. 219

d. 291

82.  $13 \left[ 6^2 \div (5^2 - 4^2) + 9 \right]$

a. 169

b. 585

c. 181

d. 26

83. Evaluate  $u + xy$ , for  $u = 4$ ,  $x = 8$ , and  $y = 8$ .

a. 68

b. 40

c. 96

d. 20

84. Evaluate  $\frac{u}{z} + xy^4$ , for  $u = 3$ ,  $x = 3$ ,  $y = 3$ , and  $z = 3$ .  
 a. 324                      b. 10000                      c. 244                      d. 6562
85. Evaluate  $(ab)^2$  for  $a = 3$  and  $b = 5$ .  
 a. 625                      b. 30                      c. 75                      d. 225

**Simplify each expression.**

86.  $\frac{-4rq}{3q}$   
 a.  $\frac{4}{3}q$                       c.  $-\frac{3}{4}r$   
 b.  $-\frac{3}{4}q$                       d.  $-\frac{4}{3}r$
87.  $(-8 + 5q) + 5$   
 a.  $-3 + 5q$                       c.  $-8 + 10q$   
 b.  $-3 + 10q$                       d.  $2q$
88. What is the value of  $\frac{x}{y}$  when  $x = \frac{7}{2}$  and  $y = \frac{8}{3}$ ?  
 a.  $\frac{21}{16}$                       c. 3  
 b.  $\frac{28}{3}$                       d.  $-\frac{21}{16}$

**What is the simplified form of each expression?**

89.  $\frac{3}{4}(28m + 32)$   
 a.  $21m + 32$                       c.  $21m + 24$   
 b.  $84m + 24$                       d.  $21m + 96$
90.  $1.7m^2 + 6.5n - 4n + 2.5m^2 - n$   
 a.  $1.5m^2 - 4.2n$                       c.  $4.2m^2 + 1.5n$   
 b.  $1.5m^2 + 4.2n$                       d.  $4.2m^2 - 1.5n$
91.  $4.9s^2 + 2.4k - 6.1k + 7.4s^2 - 3.7k$   
 a.  $12.3s^2 - 7.4k$                       c.  $12.3s^2 + 4.440892098501e-016k$   
 b.  $-2.5s^2 - 7.4k$                       d.  $-2.5s^2 + 4.440892098501e-016k$

**What sum or difference is equivalent to the expression?**

92.  $\frac{5x + 3}{10}$   
 a.  $\frac{1}{2}x + \frac{3}{10}$                       b.  $\frac{3}{10}x + \frac{1}{2}$                       c.  $\frac{3}{10}$                       d.  $\frac{4}{5}x$

93.  $\frac{6x-2}{7}$

a.  $\frac{4}{7}x$

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

c.  $\frac{2}{7}x - \frac{6}{7}$

d.  $\frac{2}{7}$

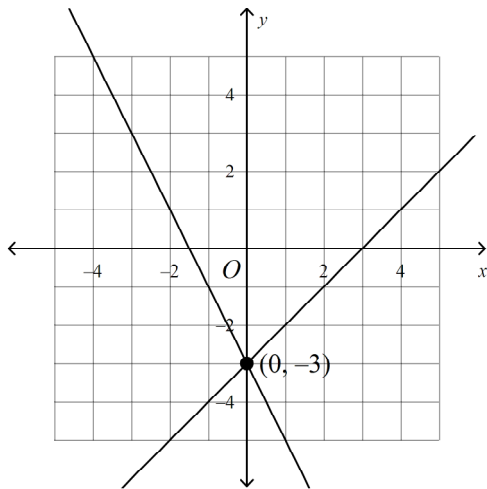
**Multiple Response**

Identify one or more choices that best complete the statement or answer the question.

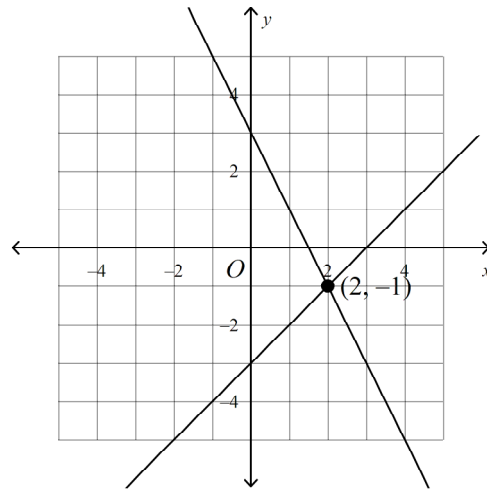
**What is the solution of the system? Use a graph.**

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

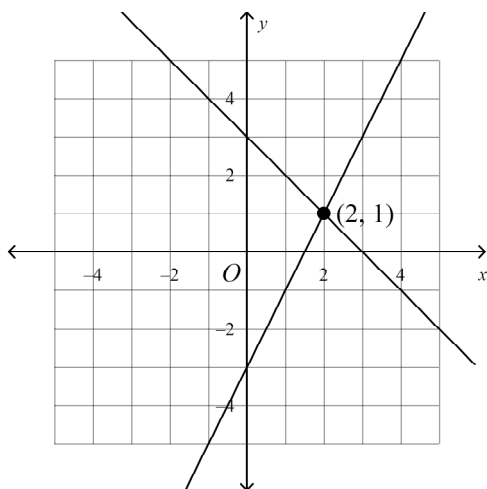
a.



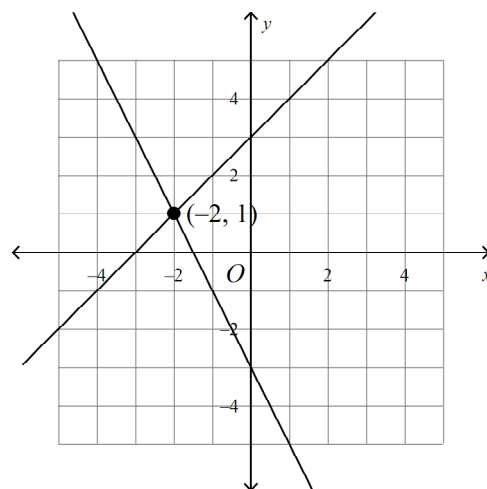
c.



b.



d.

**Numeric Response**

95. Is  $x = 4$  a solution of the equation  $7 = 2x + 1$ ?

**PERT Review-inequalities, quadratics, systems, polynomials  
Answer Section****MULTIPLE CHOICE**

1. B
2. A
3. C
4. B
5. A
6. B
7. A
8. B
9. D
10. C
11. D
12. A
13. B
14. D
15. A
16. D
17. B
18. D
19. B
20. C
21. B
22. C
23. B
24. A
25. A
26. D
27. C
28. B
29. A
30. D
31. A
32. C
33. C
34. A
35. D
36. A
37. A
38. B
39. A

- 40. D
- 41. B
- 42. A
- 43. D
- 44. B
- 45. C
- 46. C
- 47. B
- 48. D
- 49. D
- 50. B
- 51. A
- 52. C
- 53. A
- 54. D
- 55. B
- 56. B
- 57. B
- 58. A
- 59. D
- 60. A
- 61. A
- 62. D
- 63. C
- 64. D
- 65. C
- 66. A
- 67. A
- 68. B
- 69. B
- 70. B
- 71. A
- 72. D
- 73. B
- 74. C
- 75. B
- 76. D
- 77. D
- 78. D
- 79. C
- 80. D
- 81. B
- 82. A
- 83. A
- 84. C

- 85. D
- 86. D
- 87. A
- 88. A
- 89. C
- 90. C
- 91. A
- 92. A
- 93. B

**MULTIPLE RESPONSE**

- 94. D

**NUMERIC RESPONSE**

- 95. no