Answers for 3.1

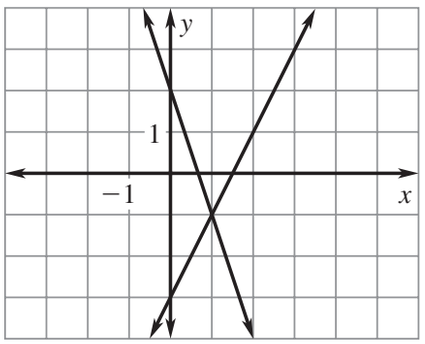
For use with pages 156–158

3.1 Skill Practice

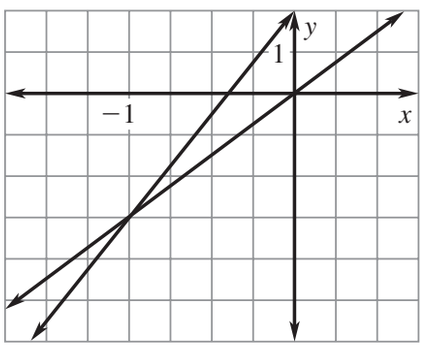
1. independent

2. The solution is the place(s) where the lines intersect.

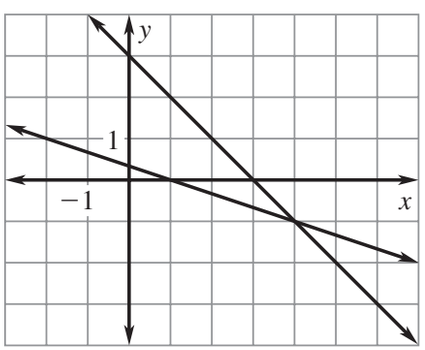
3. $(1, -1)$



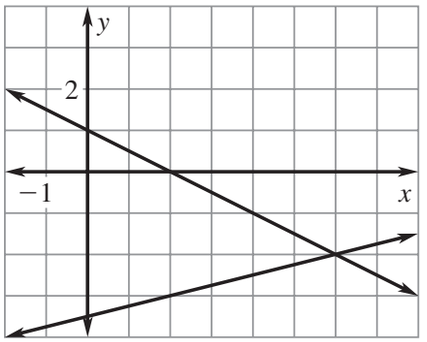
4. $(-1, -3)$



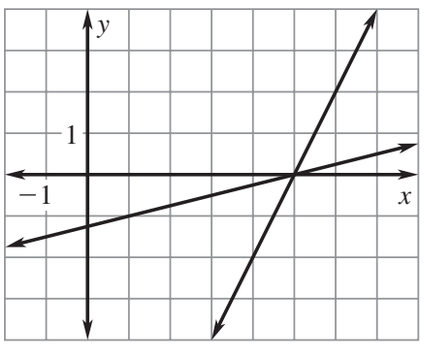
5. $(4, -1)$



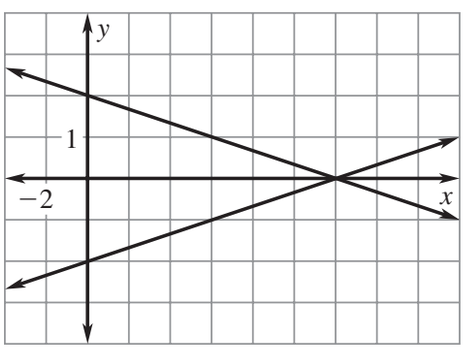
6. $(6, -2)$



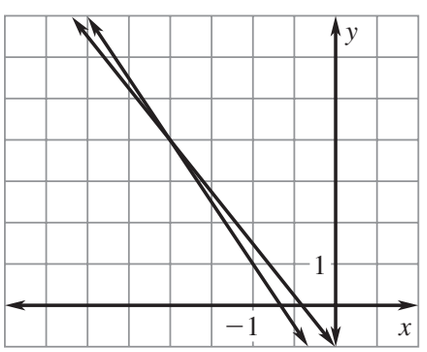
7. $(5, 0)$



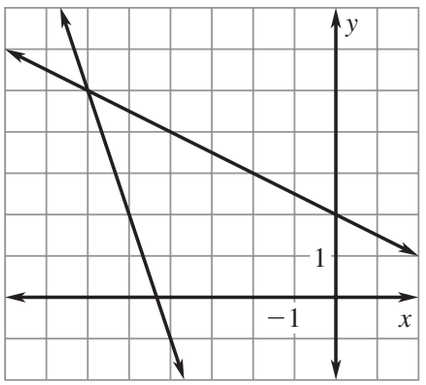
8. $(12, 0)$



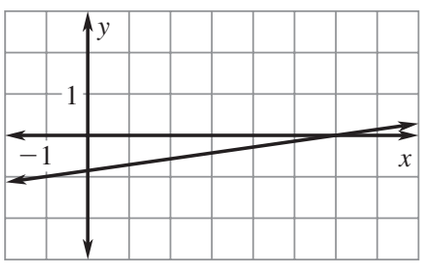
9. $(-2, 4)$



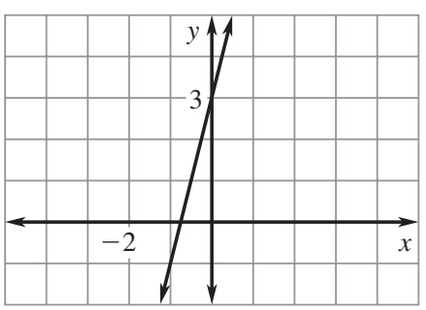
10. $(-6, 5)$



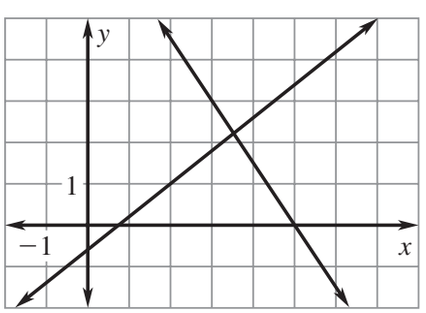
11. infinitely many solutions



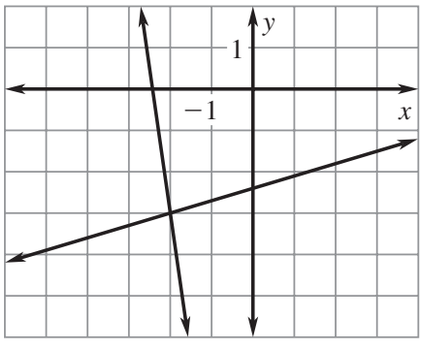
12. infinitely many solutions



13. $\left(\frac{81}{23}, \frac{51}{23}\right)$



14. $(-2, -3)$



15. C

16. The solution was not checked in the second equation; $0 + 2(-1) \stackrel{?}{=} 6$, $-2 \neq 6$, $(0, -1)$ is not a solution to the system.

17. $(2, -1)$; consistent and independent

18. $(3, 2)$; consistent and independent

19. no solution; inconsistent

20. infinitely many solutions; consistent and dependent

21. infinitely many solutions; consistent and dependent

22. $(5, 4)$; consistent and independent

23. $(2, 0)$; consistent and independent

24. $(-3, 3)$; consistent and independent

25. $(3, -1)$; consistent and independent

26. $(8, -2)$; consistent and independent

27. infinitely many solutions; consistent and dependent

28. no solution; inconsistent

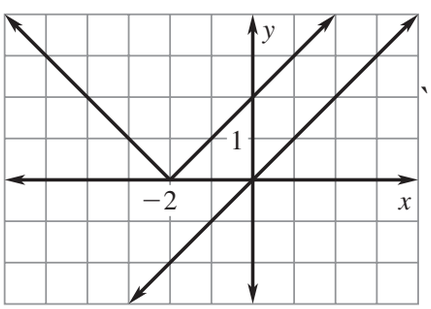
29. A

30. **a.** *Sample answer*:
$2x + 3y = 8$
$4x - y = 2$

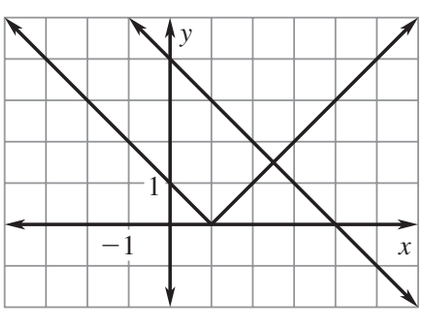
b. *Sample answer:*
$y = 3x - 4$
$y = 3x + 2$

c. *Sample answer:*
$x - 5y = 10$
$2x - 10y = 20$

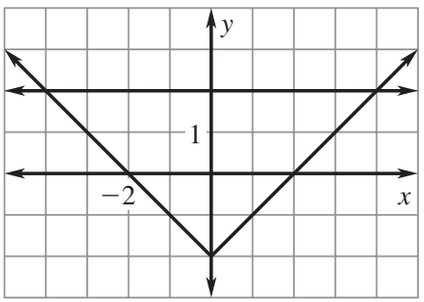
31. no solution



32. (2.5, 1.5)



33. (4, 2) and (−4, 2)



34. **a.** The values of a and c must be different. The values of b and d can be any number.

b. The values of a and c must be the same. The values of b and d must also be the same, but not necessarily the same as the value for a and c.

c. The values of a and c must be the same. The values of b and d must be different.

3.1 Problem Solving

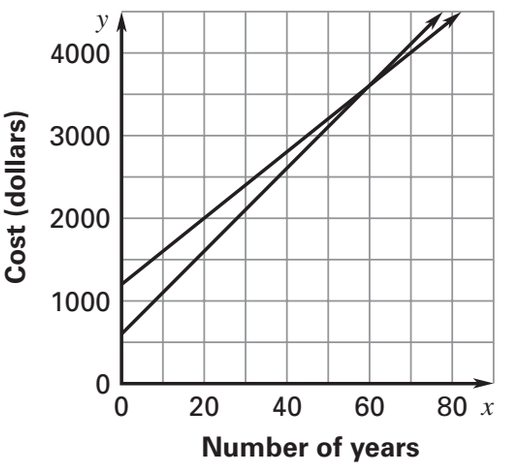
35. lifeguard: 6 h, cashier: 8 h

36. warnings: 206,
speeding tickets: 169

37. 11 days; the number of days will decrease; the number of days will be divided by a larger number, which will decrease the quotient, which is the number of days.

38. a. $y = 50x + 600$, where x represents the number of years, and y represents the cost; $y = 40x + 1200$ where x represents the number of years, and y represents the cost.

b.



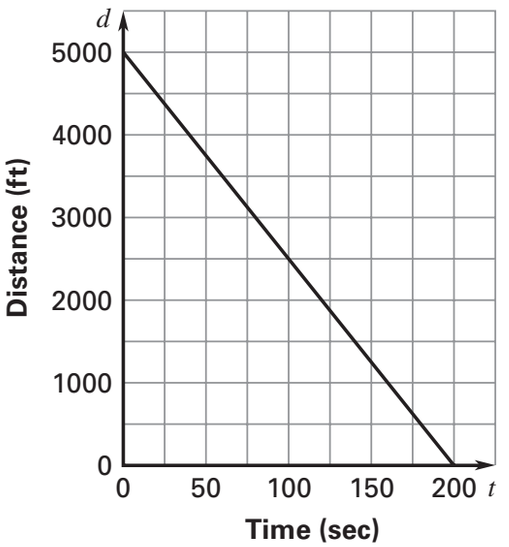
39. a. $m = -0.0958x + 50.8$

b. $w = -0.124x + 57.1$

c. in the year 2195

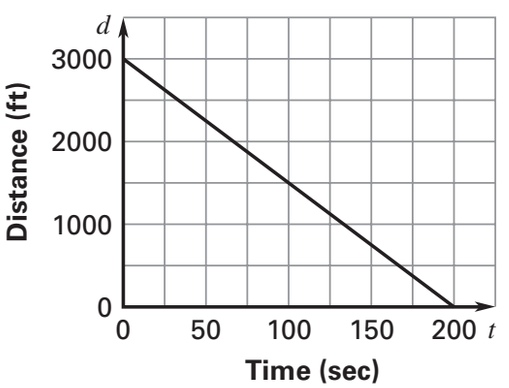
d. No. *Sample answer:* It is not likely that the same linear models will apply indefinitely.

40. a. $d = 5000 - 25t$;



b. 15 ft/sec. *Sample answer*: Since we both use the same amount of time and it took me 200 seconds, it also took my friend 200 seconds, so I solved the equation $3000 = 200r$.

c. $d = 3000 - 15t$;



3.1 Mixed Review

41. -3

42. $-2\frac{1}{3}$

43. $6\frac{1}{2}$

44. 27, 9

45. $-8\frac{1}{2}, 3\frac{1}{2}$

46. $7, \frac{1}{5}$

47. $y = \frac{3}{2}x - 4; -7$

48. $y = 5x - 12; 33$

49. $y = \frac{8}{3}x - \frac{10}{3}; 18$

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

51. $y = -\frac{16}{9}x - \frac{8}{3}; 8$

52. $y = \frac{4}{3}x - \frac{20}{3}; -16$

53. No; 101°F is equivalent to $38\frac{1}{3}$°C, so the dog's temperature is normal.