Chapter 13 answers

13.1

1. (3, 1) 3. No solution 5. Infinite solutions 7. (-3, -2/5) 9. (7, 2)
11. $(\frac{140}{13}, -\frac{50}{13})$ 13. (3, 1) 15. No solution 17. Infinite solutions 19. (-3, -2/5)
21. (7, 2) 23. $(\frac{140}{13}, -\frac{50}{13})$ 25. (-1, 0) 27. (10, 31) 29. (-1, 2) 31. (4, -3)
33. $(\frac{5}{7}, -\frac{30}{7})$ 35. $(\frac{17}{29}, \frac{9}{29})$ 37. No solution 39. $(-\frac{9}{19}, \frac{23}{38})$ 41. (-2, 3)
43. (0, 0) 45. Boat: 10.5 mph, Current: 1.5 mph 47. 36 g
49. 32 shirts at $8.50, 13 shirts at $9.75 51. Plane: 187.4 mph, Wind: 62.5 mph
53. Team: 12 mph, Current: 3 mph 55. 120 ml of 8% 57. $2000 in 11.4% account
59. $8000 in 10% account, $10,000 in 8% account 61. 36 g 63. $5500
65. 570 mi.

13.2

1. $(-\frac{14}{3}, \frac{5}{3}, 3)$ 3. $(-\frac{41}{15}, \frac{13}{6}, -5)$ 5. (10, -14, 2) 7. (3, 6, -1) 9. (1, 2, 4)
11. (1, 2, 3) 13. No solution 15. Infinite solutions 17. (-2, 4, 1) 19. No solution
21. $(\frac{3}{10}, \frac{2}{5}, 0)$ 23. (1, -1, 3) 25. (0, 2, 0) 27. (1, 5, 2) 29. (-2, 1, 1) 31. (2, 1, 3)
33. (20, 62, 100) 35. Infinite solutions 37. Infinite solutions 39. Infinite solutions
41. a = 1, b = -4, c = 3 43. a = -1, b = 2, c = 0 45. D = -3, E = -2, F = 0
47. D = -2, E = -4, F = -20 49. a = -32, v_0 = 0, s_0 = 144 51. a = -32, v_0 = 48, s_0 = 0
53. Air Cond.: $375, Power Wind.: $520, Auto Trans.: $865
55. John: 20, Andrew: 24, Ethan: 30 57. 6 3-pointers, 30 2-pointers, 12 foul shots
59. 10 nickels, 6 dimes, 3 quarters 61. 4 runs of three, 3 double runs, 1 double-double run

13.4

1. (1, 1) 3. (3, 0), (0, 5) 5. (-2, 1) 7. $(\frac{13}{3}, \frac{5}{3})$, (-5, -3)
9. (3, -3), $(-\frac{3}{5}, \frac{21}{5})$ 11. (2, 4), (-2, 4) 13. $(-\frac{2}{3}, -\frac{8}{9})$, (3, 4) 15. (-2, 3), (2, 3)
17. (4, 3), (-4, 3), (4, -3), (-4, -3) 19. No solution 21. (2, 4), (-2, 4), (2, -4), (-2, -4)
23. $(-1, \frac{9}{2})$, $(3, -\frac{3}{2})$ 25. (0, -4), (-3, 5), (3, 5) 27. $(\frac{1}{2}, \frac{1}{3})$, $(\frac{1}{3}, \frac{1}{2})$
29. $(\frac{11}{4}, -\frac{9}{8})$, (1, -2) 31. (-2, -1), (-1, -2), (1, 2), (2, 1) 33. (2, 5), (-2, -5) 35. $(1, \frac{1}{4})$
37. $\left(\frac{\sqrt{209}}{11}, \frac{\sqrt{133}}{7}\right)$, $\left(-\frac{\sqrt{209}}{11}, \frac{\sqrt{133}}{7}\right)$, $\left(\frac{\sqrt{209}}{11}, -\frac{\sqrt{133}}{7}\right)$, $\left(-\frac{\sqrt{209}}{11}, -\frac{\sqrt{133}}{7}\right)$
39. (1, 2), (-1, 2), $(\sqrt{2}, 5)$, $(-\sqrt{2}, 5)$ 41. $\left(\frac{5+\sqrt{5}}{2}, \frac{-\sqrt{10+2\sqrt{5}}}{2}\right)$, $\left(\frac{5-\sqrt{5}}{2}, \frac{-\sqrt{10-2\sqrt{5}}}{2}\right)$
43. (2, 4) 45. $\left(\frac{1}{2}\ln 3, 9\right)$ 47. (0, 2) 49. $\left(\frac{1}{2}, \log_9\left(\frac{3}{2}\right)\right)$