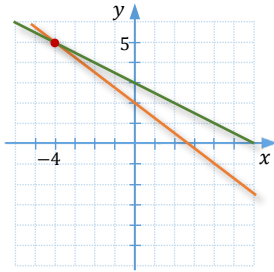


Systems of Linear Equations - ANSWERS

E1 Exercises

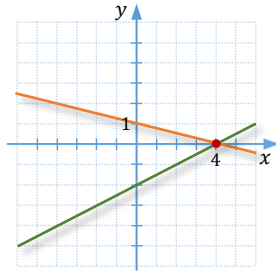
1. Parallel lines

7. $(-4, 5)$
consistent;
independent



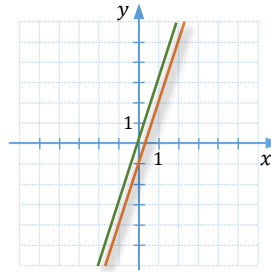
3. yes

9. $(4, 0)$
consistent;
independent

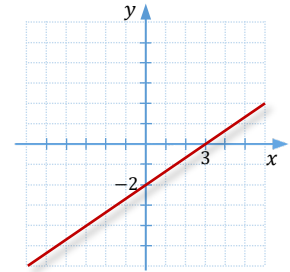


5. no

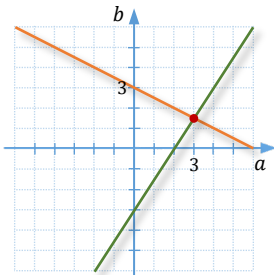
11. no solution;
inconsistent;
independent



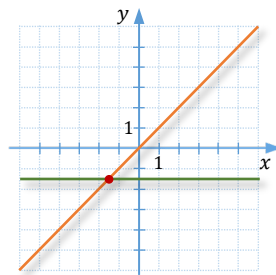
13. $\{(x, y) | 2x - 3y = 6\}$
consistent;
dependent



15. $(3, \frac{3}{2})$
consistent;
independent



17. $(-\frac{3}{2}, -\frac{3}{2})$
consistent;
independent



19. $(-1, -1)$

21. $(\frac{7}{3}, \frac{1}{3})$

23. no solution;
parallel lines

25. $(5, 1)$

27. $(4, 6)$

29. $(4.2, -4.4)$

31. $(12, 8)$

33. $(4, -1)$

35. $(-1, 1)$

37. infinitely many
solutions; same line

39. $(\frac{140}{13}, -\frac{50}{13})$

41. $(\frac{10}{21}, \frac{11}{14})$

43. No; two lines will always intersect 0, 1, or infinitely many times. So if there are two solutions, there are infinitely many more.

45. $\begin{cases} y = -\frac{2}{3}x + \frac{1}{3} \\ y = -\frac{2}{3}x + \frac{1}{3} \end{cases}$, infinitely many solutions

47. $(-3, 2)$

49. $(9, 4)$

51. No solution.

53. $(\frac{2}{3}, \frac{1}{3})$

55. $(-5, -\frac{5}{3})$

57. $(-\frac{2}{a}, 2)$

59. $(\frac{1}{a}, \frac{1}{b})$

61. $(-\frac{3}{5a}, \frac{7}{5})$

63. $[0, 30)$

65. 2017

67. since 2006; $\sim 7\%$

E2 Exercises

1. 8 liters

3. $9.25n$

5. $r + c; r - c$

7. $69^\circ, 21^\circ$

9. base = 154 cm; height = 77 cm

11. 35 km

13. 13 gold; 11 silver; 9 bronze

15. 113 espressos; 339 cappuccinos

17. 322 adult tickets; 283 youth tickets

19. 2.49 \$/egg salad sandwich; 3.99 \$/meat sandwich

21. 416 \$/week in New York; 340 \$/week in Paris

23. \$2300 at 3.25%; \$2500 at 2.75%

25. \$2800 at 3.7%; \$5600 at 8.2%

27. 9 L of 4% brine; 3 L of 20% brine

29. $66\frac{2}{3}$ g of cottage cheese; 40 g of vanilla yogurt

31. 5 loonies; 9 quarters

33. houseboat: 12 km/h; current: 3 km/h

35. plane: 275 km/h; wind: 25 km/h

37. plane: 315 km/h; wind: 45 km/h

39. 480 km

41. 0.7 L