

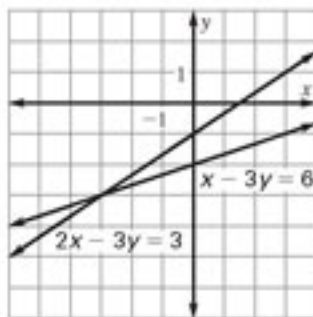
Selected Answers

Chapter 6

6.1 Skill Practice 1. solution 3. solution

5. not a solution 9. (4, 2)

11. The solution (3, -1) does not satisfy Equation 2. The graph of Equation 2 is incorrect; if properly graphed, the lines would intersect at (-3, -3).



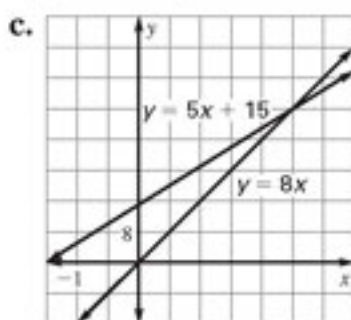
13. (4, 0) 15. (-3, -5) 17. (10, -15) 19. (7, -5)

21. (-5, 2) 23. (3, 6) 25. (4, 6) 27. *Sample answer:* $m = 0$ and $b = 2$ 29. a. 4 b. (4, 5) c. *Sample answer:* Each side of the equation is set equal to y . d. *Sample answer:* Set each side of the equation equal to y to create a system of two equations. Then solve the system using the graph-and-check method. The x -coordinate of the system's solution is the solution of the original equation.

6.1 Problem Solving 31. 2040 33. 15 small cards and 10 large cards 35. a. $y = 5x + 15$, $y = 8x$

b.

Tickets	Cost for members	Cost for nonmembers
1	\$20	\$8
2	\$25	\$16
3	\$30	\$24
4	\$35	\$32
5	\$40	\$40
6	\$45	\$48



When you view 6 or more movies. *Sample answer:* The graph for a non-member is below the graph for a member up through 4 movies. For 5 movies, the cost is the same. The graph for members is lower than the graph for nonmembers for 6 or more movies.

6.1 Graphing Calculator Activity

1. (-1.5, 2.5) 3. (0.2, -1.44)

6.2 Skill Practice 1. *Sample answer:*

$y = x + 1$, $y = 2x + 1$ 3. (5, 3) 5. (2, -1) 7. (-4, 5)
9. (6, 7) 11. (2, -2) 13. (5, -8) 15. (0, 2) 17. (1.4, -4.4)
19. *Sample answer:* In Step 3, 6 is substituted for y instead of x ; $y = 9 - 3(6)$, $y = -9$, the solution is (6, -9). 21. (4, -120) 23. (3, 7) 25. (6, -3) 27. (0, -6)

29. *Sample answer:* The graphs of the equations should intersect at the solution you found using the substitution method.

6.2 Problem Solving 31. 96 bags of popcorn; 48 pretzels 33. 4 in. *Sample answer:* (4, 5) is the solution to the appropriate linear system, so x should equal 4. 35. 50 milliliters of 1% hydrochloric acid solution and 50 milliliters of 5% hydrochloric acid solution 37. Yes. *Sample answer:* The cheetah would have to run at 88 feet per second for 23.3 seconds to catch the gazelle.

6.2 Problem Solving Workshop 1. 5 mi

6.3 Skill Practice 1. *Sample answer:* $x + y = 10$, $x - y = 5$ 3. (1, 6) 5. (-1, -5) 7. (5, 7) 9. (-1, 2)
11. (5, 3) 13. (4, 5) 17. (2, -3) 19. (-18, 4)
21. (4, -3) 23. *Sample answer:* The two equations should be subtracted rather than added; $6x = 8$, $x = \frac{4}{3}$.
25. (26, 14) 27. (-4, 12) 29. (-2, 5) 31. (5, 25)
33. (-2, 8) 35. $l = 4.5$ ft, $w = 2.5$ ft

6.3 Problem Solving 39. speed in still water: 4.6 m/sec, speed of current: 0.3 m/sec
41. monophonic ring tone: \$1.95, polyphonic ring tone: \$3.50 43. a. flight to Phoenix: 400 mi/h, flight to Charlotte: 450 mi/h b. $s + w = 450$, $s - w = 400$; plane: 425 mi/h, wind: 25 mi/h

6.4 Skill Practice 1. 36 3. (1, 1) 5. (5, -4) 7. (2, 1)
9. (-7, -12) 11. (5, 6) 13. (4, 4) 15. (5, -3)
17. $(4\frac{2}{7}, 5)$ 19. *Sample answer:* The two equations should be subtracted rather than added; $-x = -9$, $x = 9$. 21. (2, -1) 23. $(-4\frac{5}{22}, -2\frac{1}{11})$ 25. (5, 4)
27. (10, 2) 29. (2, -1) 31. $(\frac{1}{3}, -\frac{2}{3})$ 33. a. $2l + 2w = 18$, $6l + 4w = 46$; length: 5 in., width: 4 in. b. length: 15 in., width: 8 in.

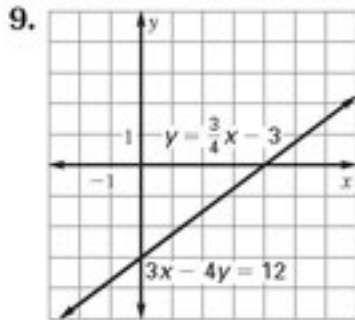
6.4 Problem Solving 37. 5 hardcover books
39. 21 pies, 16 batches of applesauce 41. \$16.50; a small costs \$2.90, and a large costs \$3.90; $3(2.90) + 2(3.90) = 16.50$. 43. \$800; \$1200

Graphing Calculator Activity 1. (-2, 3) 3. (6, -3)
5. (4, 1) 7. The solution (2, 4) found using the graphing calculator has coordinates that are given by the equations resulting from using linear combinations to eliminate one of the variables from the original system. 9. a. You get a false equation such as $5 = 3$. b. The lines are parallel. c. When you

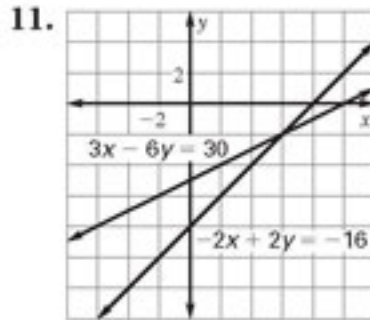
Selected Answers

add the equations, you don't get an equation that can be graphed, so the method does not work.

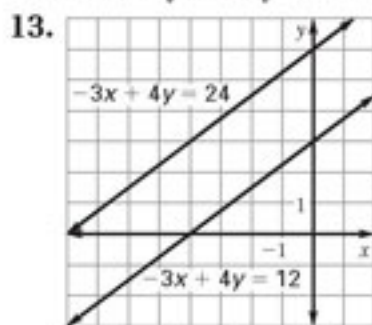
6.5 Skill Practice 1. inconsistent 3. *Sample answer:* The lines have the same slope but different y-intercepts. 5. B; one solution 7. A; infinitely many solutions



infinitely many solutions



one solution

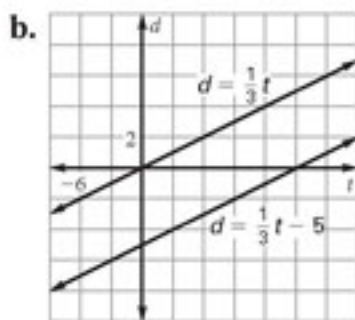


no solution

15. (-3, 4) 17. (3, 7) 19. (2, 2) 21. no solution
23. (0, 3) 27. infinitely many solutions 29. infinitely many solutions 31. infinitely many solutions
33. *Sample answer:* $7x - 8y = -9$, $7x - 8y = 4$

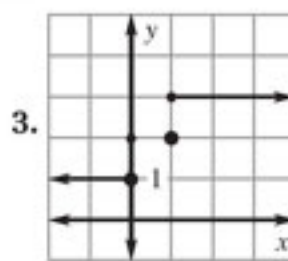
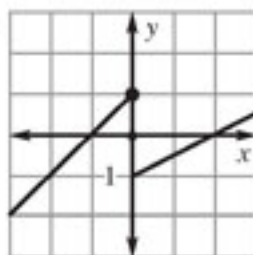
6.5 Problem Solving 37. Yes. *Sample answer:* There is one solution to the resulting linear system.

39. a. $d = \frac{t}{3}$, $d = \frac{t}{3} - 5$



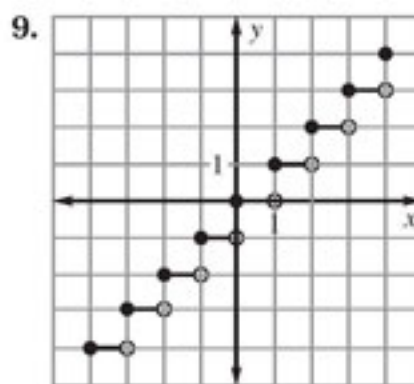
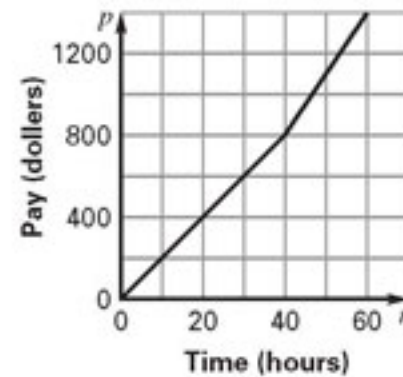
Sample answer: No, since the lines are parallel, the two climbers will never be at the same distance at the same time.

Extension 1.



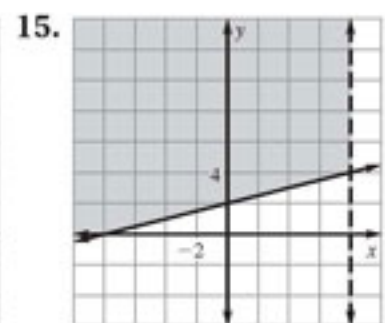
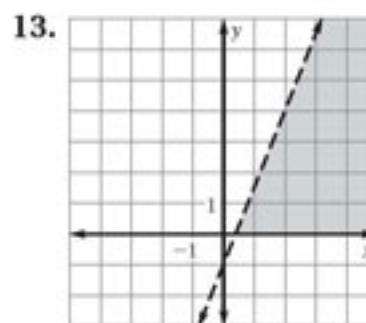
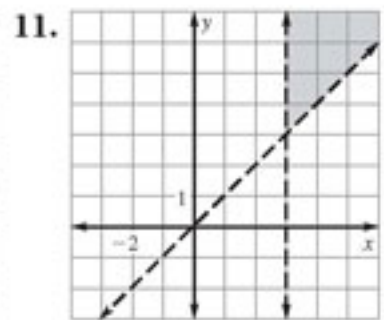
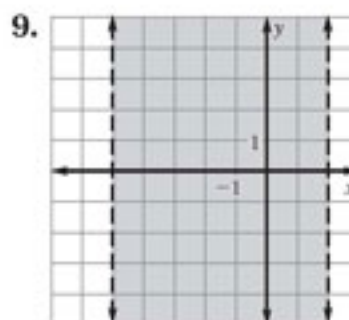
$$5. y = \begin{cases} 1, & \text{if } x < -1 \\ 2x, & \text{if } x - 1 \leq 0 \\ -\frac{1}{2}x + 2, & \text{if } x > 0 \end{cases}$$

$$7. P = \begin{cases} 20t, & \text{if } 0 \leq t \leq 40 \\ 30(t - 40) + 800, & \text{if } t > 40 \end{cases}$$

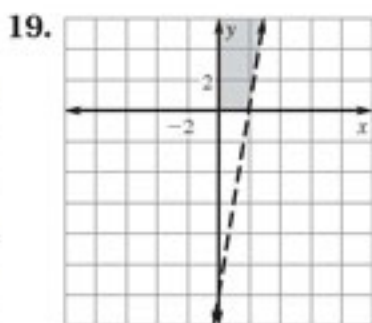
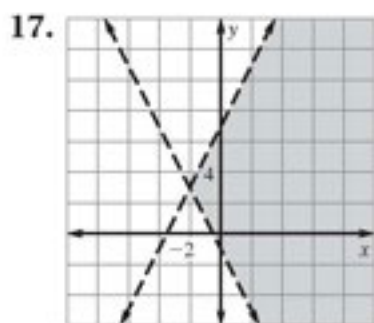


Yes; yes; the function is a piecewise function because, for every integer value of n , there is a unique equation that applies to the part of the domain defined by $n \leq x < n + 1$. The function is a step function because it is defined by a constant value over each part of its domain.

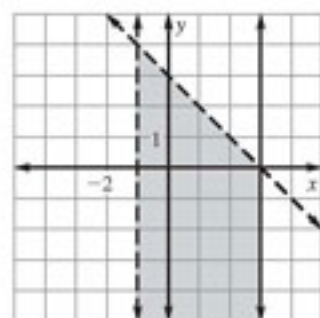
6.6 Skill Practice 1. solution 3. not a solution
5. not a solution 7. A



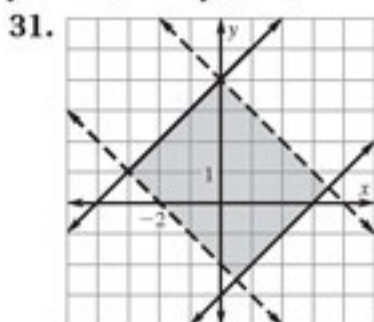
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23. The graph is shaded to include $x + y > 3$, not $x + y < 3$.



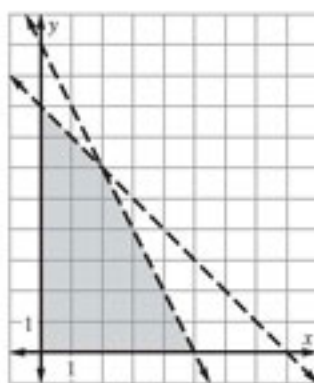
25. $y > -1$, $y < 4$ 27. $y \leq 5x + 1$, $y > x - 2$ 29. $y \leq x - 3$, $y > -2x - 1$, $y > -6$



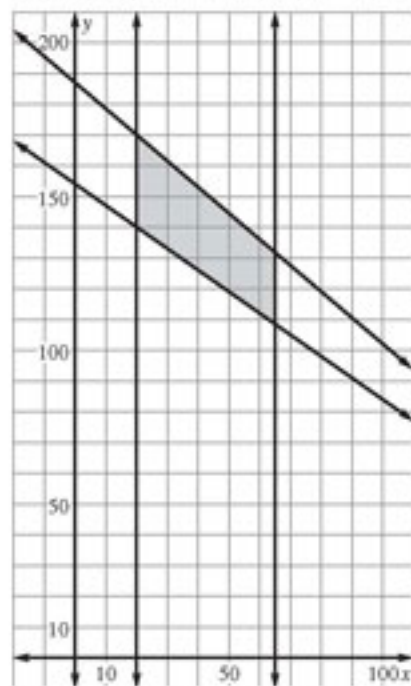
33. No; there are no possible values for x and y that satisfy both equations.

6.6 Problem Solving

37. $14x + 7y < 70$,
 $x + y < 8$, $x \geq 0$, $y \geq 0$



39. a. $20 \leq x \leq 65$, $154 - 0.7x \leq y \leq 187 - 0.85x$



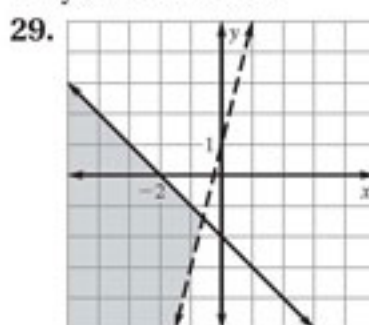
b. No. *Sample answer:* The heart rate is below 70% of the maximum heart rate.

Chapter Review 1. system of linear inequalities

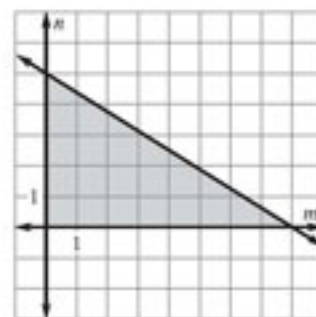
3. *Sample answer:* Graph each inequality then shade the region that is the intersection of the solutions to each inequality. Then check the solution with a test point. 5. (2, -5) 7. (4, -1) 9. (5, 1)

11. 4 tubes of paint, 8 brushes 13. (1, -2) 15. (6, 10)

17. (-7, 8) 19. (-2, 5) 21. (4, 5) 23. (1, 6) 25. No solution. *Sample answer:* When the variables are eliminated, a false statement remains, which means there is no solution. 27. One solution. *Sample answer:* The lines have different slopes, so there is only one solution.

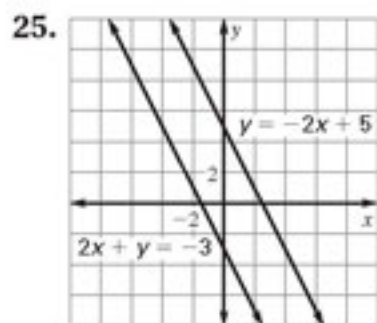


31. Let m represent the number of matinee movies and n represent the number of evening movies; $5m + 8n \leq 40$, $m \geq 0$, $n \geq 0$.

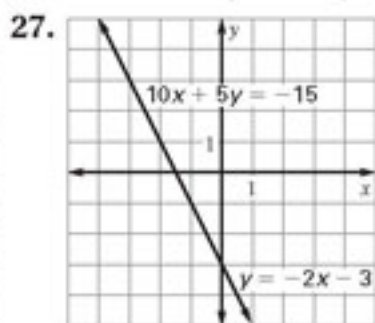


Chapter 6 Extra Practice

1. (3, 2) 3. (1, -3) 5. (-3, -2) 7. (-3, 0)
 9. (9, 7) 11. (3, -7) 13. (-4, 3) 15. (-9, -2)
 17. (-3, -5) 19. (-6, 3) 21. (11, 9) 23. $(10, -\frac{3}{2})$



no solution



infinitely many solutions

29. (20, 48) 31. no solution 33. (-30, 0)

