Answers for 6.6

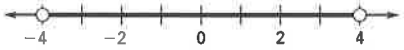
For use with pages 401–403

6.6 Skill Practice

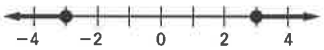
1. equivalent inequalities

2. Solving $|x| < 5$ involves solving a compound inequality with *and*, while solving $|x| > 5$ involves solving a compound inequality with *or*.

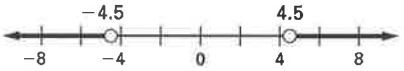
3. $-4 < x < 4$



4. $y \le -3$ or $y \ge 3$

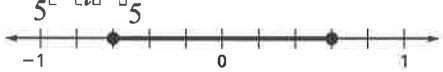


5. $h < -4.5$ or $h > 4.5$

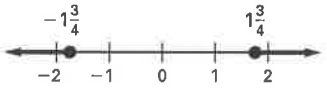


6. $-1.3 < p < 1.3$

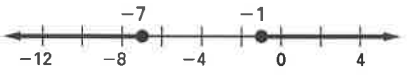
7. $-\frac{3}{5} \le t \le \frac{3}{5}$



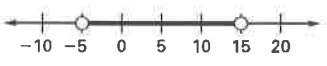
8. $j \le -1\frac{3}{4}$ or $j \ge 1\frac{3}{4}$



9. $d \le -7$ or $d \ge -1$

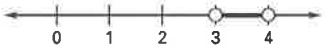


10. $-5 < b < 15$



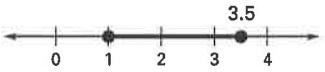
11. $m < -20$ or $m > 8$

12. $3 < s < 4$

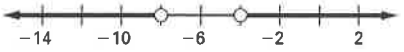


13. $c \le -3$ or $c \ge \frac{1}{2}$

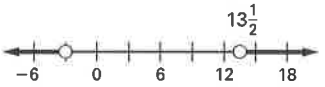
14. $1 \le n \le 3.5$



15. $r < -8$ or $r > -4$

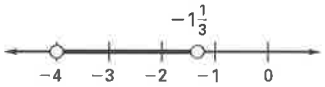


16. $s < -3$ or $s > 13\frac{1}{2}$

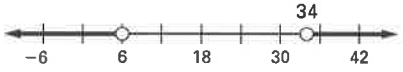


17. $u \le -3\frac{1}{5}$ or $u \ge 6\frac{2}{5}$

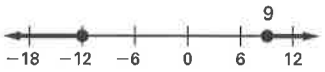
18. $-4 < w < -1\frac{1}{3}$



19. $v < 6$ or $v > 34$



20. $f \le -12$ or $f \ge 9$



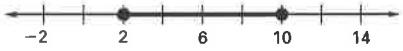
21. B

22. When the inequality has the absolute value expression isolated on the left side, the equivalent compound inequality will use *and* if the symbol is < or ≤, and it will use *or* if the symbol is > or ≥.

23. The compound inequality should use *or*: $x + 4 > 13$ *or* $x + 4 < -13$; $x > 9$ *or* $x < -17$.

24. Part of the compound inequality is missing; the compound inequality should be $-20 < x - 5 < 20$; $-15 < x < 25$.

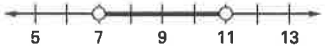
25. $|x - 6| \le 4$; $2 \le x \le 10$



26. $|2x + 7| \ge 15$; $x \le -11$ *or* $x \ge 4$

27. $|-4x - 7| + 3 > 10$; $x < -3.5$ *or* $x > 0$

28. $4|x - 9| < 8$; $7 < x < 11$



29. true

30. False. *Sample answer:* −20

31. False. *Sample anwser:* 20

32. true

33. $6 < x < 7$; solve each absolute value inequality by rewriting it as a compound inequality. Graph the solutions and find the intersection of the graphs.

34. No solution; all real numbers; because an absolute value cannot be negative, $|ax + b|$ is never less than any negative number c, and is always greater than any negative number c.

6.6 Problem Solving

35. at least 470 words and at most 530 words

36. greater than 0.5 or less than −0.5

37. $|t - 346| \le 2$, at least 344°F and at most 348°F; continue to preheat; the temperature is still below 350°F.

38. a.

Measured compression, p (lb)	275	325	375
Absolute deviation from 350 (lb)	75	25	25

Measured compression, p (lb)	425	475
Absolute deviation from 350 (lb)	75	125

38. b. $|p - 350| \leq 50$, at least 300 lb and at most 400 lb; 325, 375

39. a. 10.02 m/sec^2

b. 0.88 m/sec^2

40. a. 3600 antelope

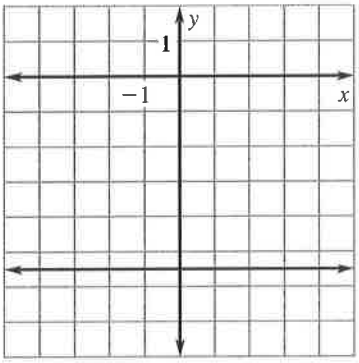
b. $|p - 18{,}000| \leq 3600$; at least 14,400 antelope and at most 21,600 antelope.

c. No; if the relative absolute deviation is 25%, then the actual population is between 13,500 and 22,500 antelope. For the 25% relative absolute deviation the actual population might be 14,000 antelope, which is less than any possible actual population for the 20% relative absolute deviation.

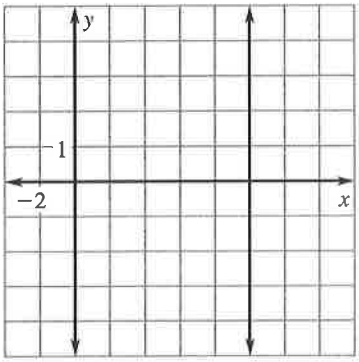
41. at least 3 minutes 10 seconds and less than 3 minutes 20 seconds, more than 3 minutes 40 seconds and at most 3 minutes and 50 seconds

6.6 Mixed Review

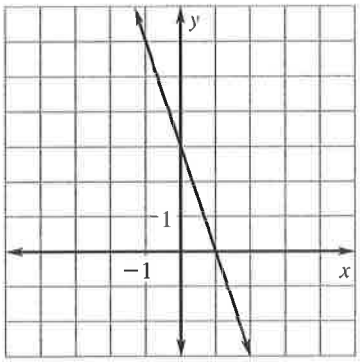
42.



43.



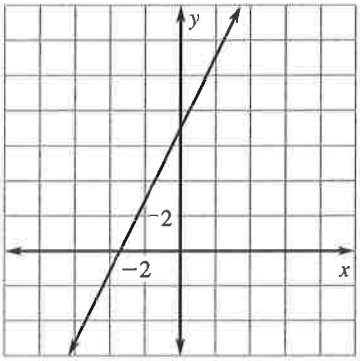
44.



Answers for 6.6 *continued*

For use with pages 401–403

45.



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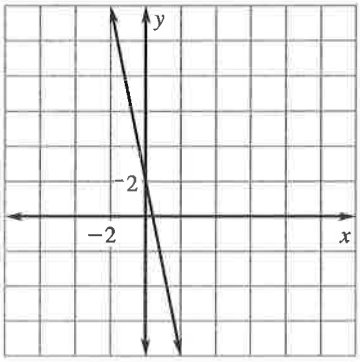
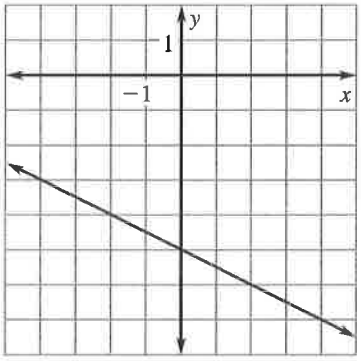


47.



48. solution

49. not a solution

50. solution

51. not a solution

52. not a solution

53. not a solution

Answers for 6.7

For use with pages 409–413

6.7 Skill Practice

1. solution

2. Graphing a linear inequality in two variables involves graphing the boundary line (as either a solid or dashed line) and then shading the appropriate half-plane. Graphing a linear equation in two variables involves only the graphing of one (solid) line.

3. not a solution **4.** solution

5. not a solution **6.** solution

7. not a solution **8.** solution

9. solution **10.** not a solution

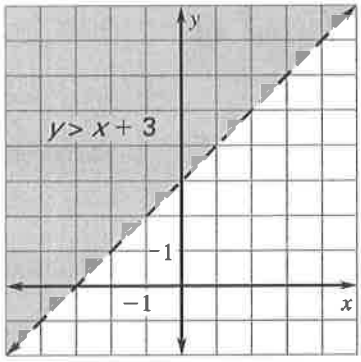
11. not a solution

12. solution

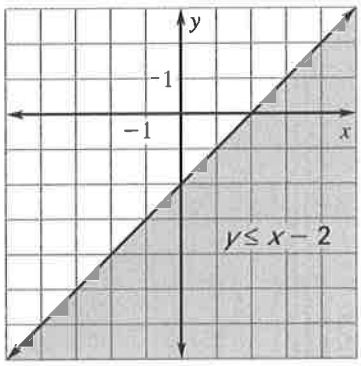
13. solution **14.** solution

15. C **16.** A

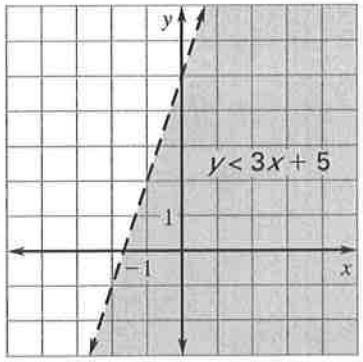
17.



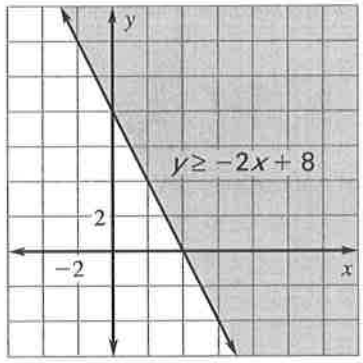
18.



19.



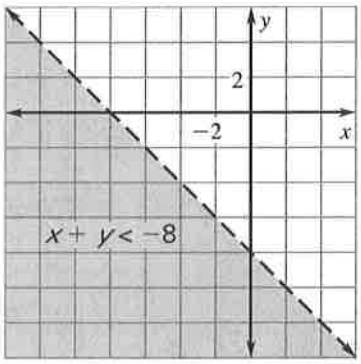
20.



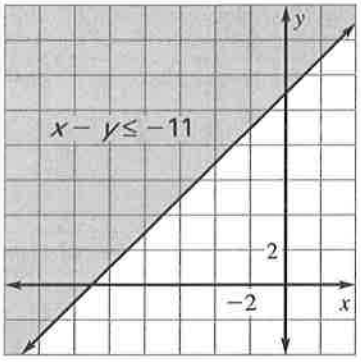
Answers for 6.7 *continued*

For use with pages 409–413

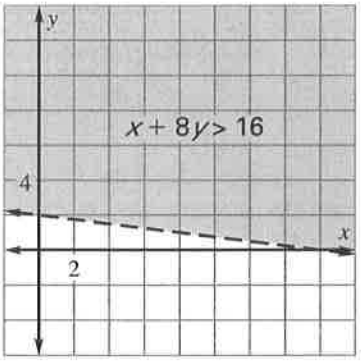
21.



22.



23.



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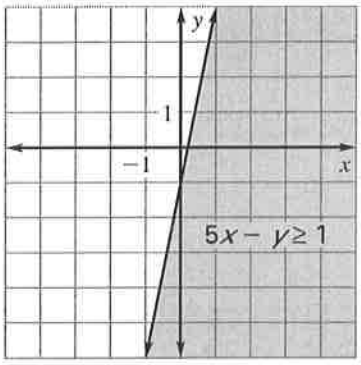

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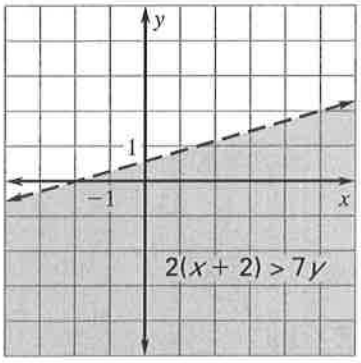

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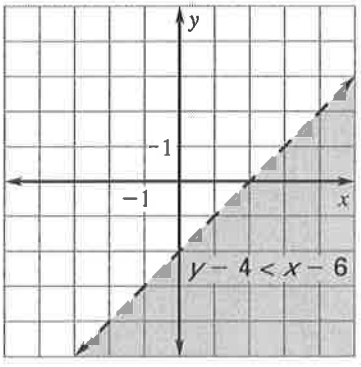
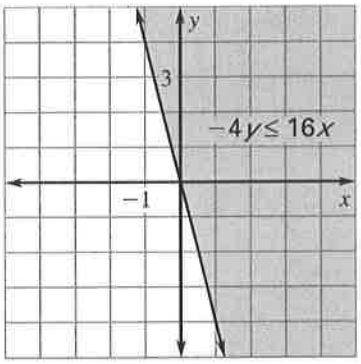


Answers for 6.7 *continued*

For use with pages 409–413

27.



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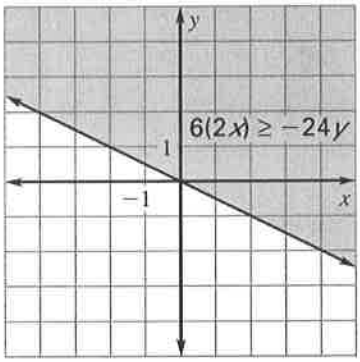

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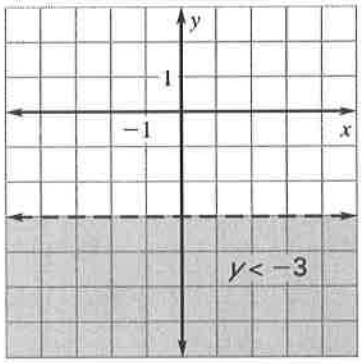

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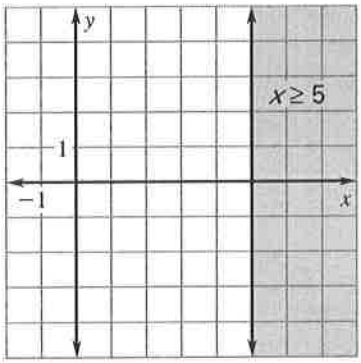

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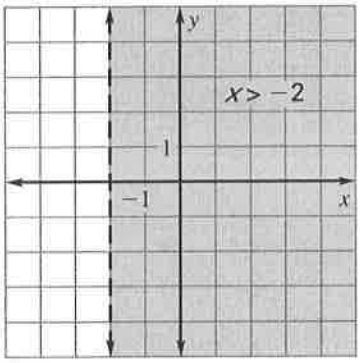

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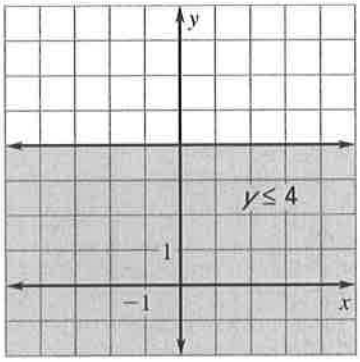
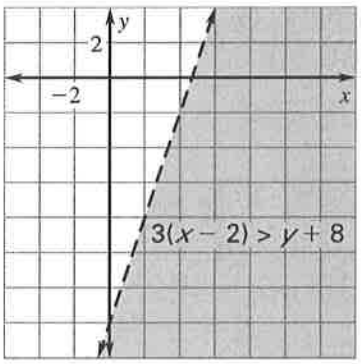


Answers for 6.7 *continued*

For use with pages 409–413

33.



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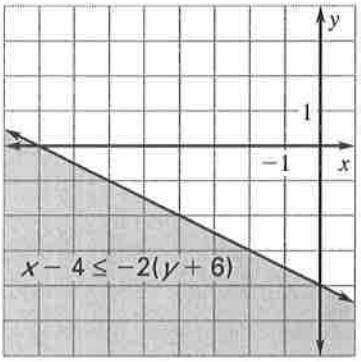
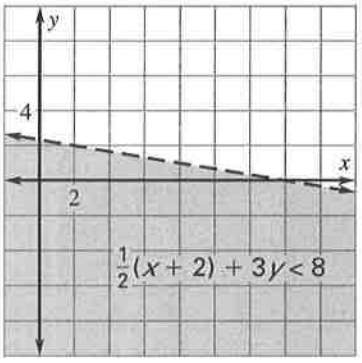
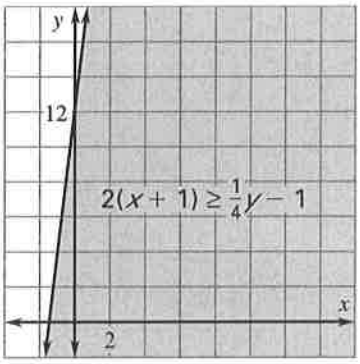


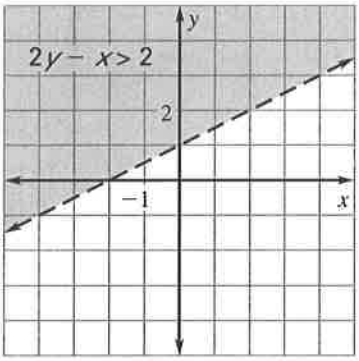
35.



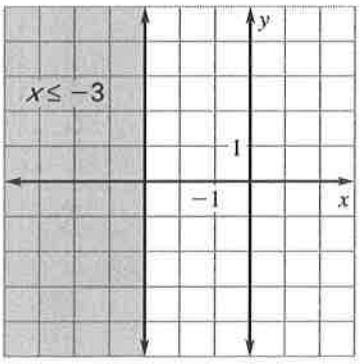
36.



37. The wrong half-plane is shaded.



38. The boundary line should be solid.

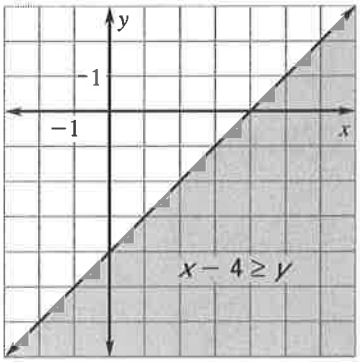


39. No; (0, 0) is a point on the boundary line $2x = -5y$.

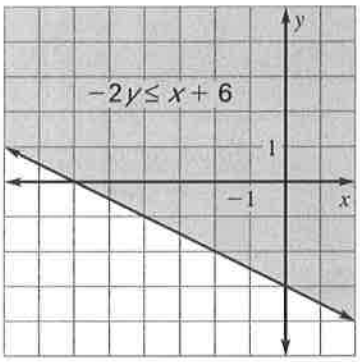
Answers for 6.7 *continued*

For use with pages 409–413

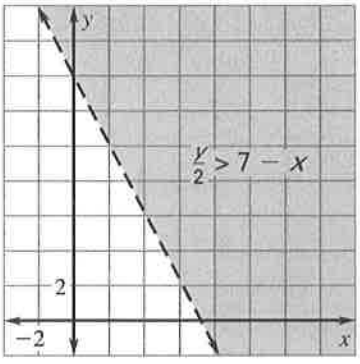
40. $x - 4 \geq y$



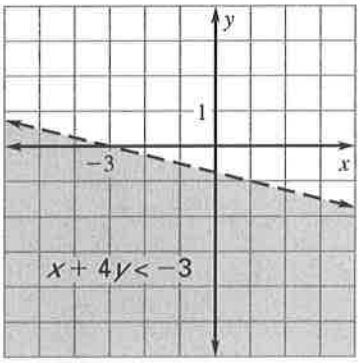
41. $-2y \leq x + 6$



42. $\frac{y}{2} > 7 - x$



43. $x + 4y < -3$



44. $y > -\frac{5}{4}x + \frac{7}{4}$

45. $y \leq \frac{5}{7}x - \frac{9}{7}$

46. $y > \frac{1}{2}x + 2$

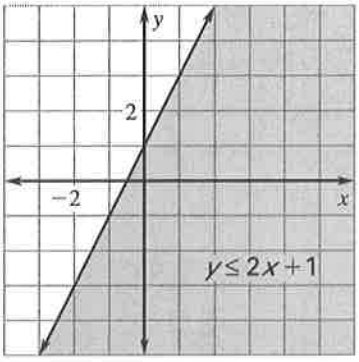
47. $y > 0$

48. $x < 0$

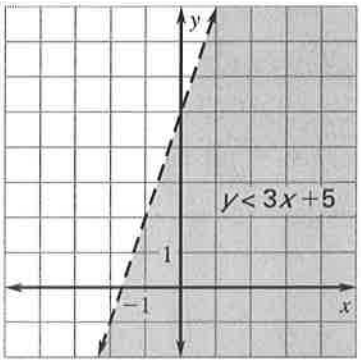
49. $y < 0$

50. $x > 0$

51. $y \leq 2x + 1$

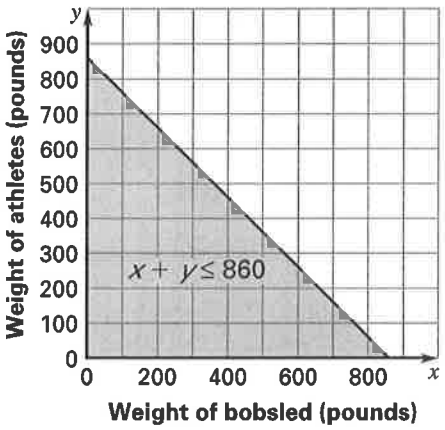


52. $y < 3x + 5$



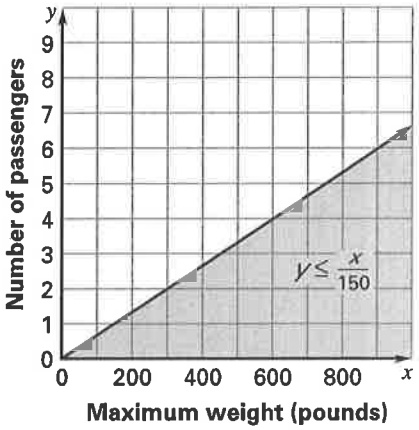
6.7 Problem Solving

53.



Sample answer: The solution (450, 400) means that the bobsled can weigh 450 pounds when the combined weight of the athletes is 400 pounds.

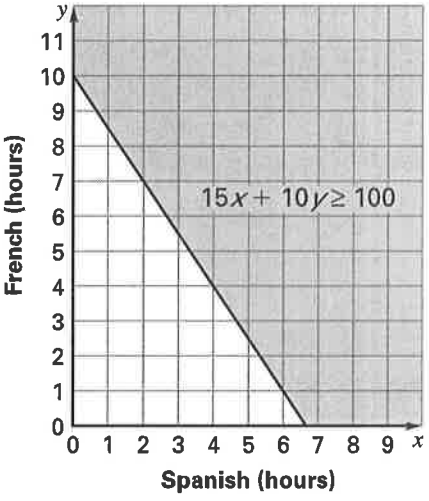
54.



Sample answer: The solution (1200, 8) means that the elevator can have 8 passengers when the elevator's maximum weight capacity is 1200 pounds.

55. a. $15x + 10y \geq 100$

b.



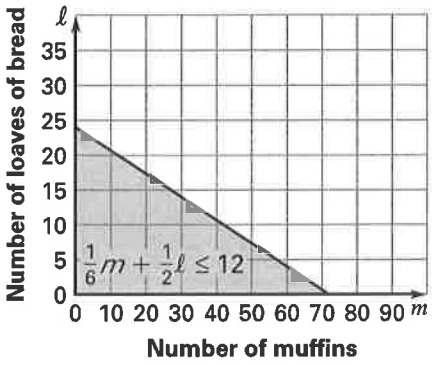
(4, 8), (5, 3), (6, 1)

55. c. *Sample answer:*

Spanish time (hours)	4	5	6
French time (hours)	8	3	1
Total earnings (dollars)	140	105	100

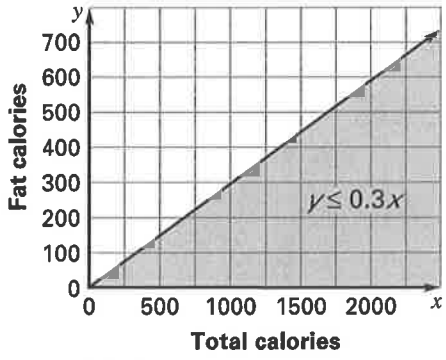
56. B

57. a. $\frac{1}{6}m + \frac{1}{2}\ell \leq 12$



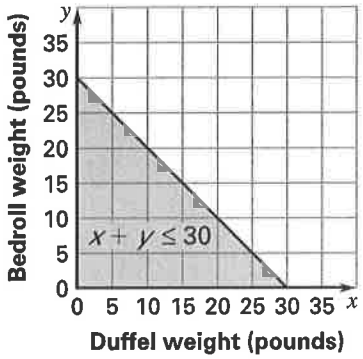
b. $m \leq 60$

58. a. $y \leq 0.3x$



b. $y \leq 500$

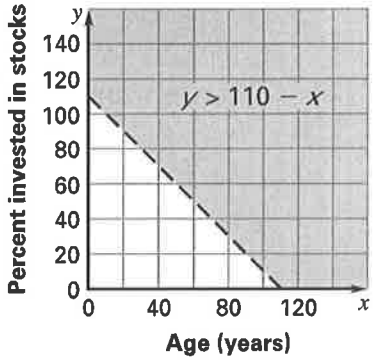
59. a. $x + y \leq 30$



Sample answer:
(20, 4), (25, 5), (26, 2)

b. Yes; no; (0, 30) means that you do not take a duffel and have a 30 pound bedroll, while (30, 0) means you take a 30 pound duffel and do not take a bedroll. You need to bring both a duffel and a bedroll.

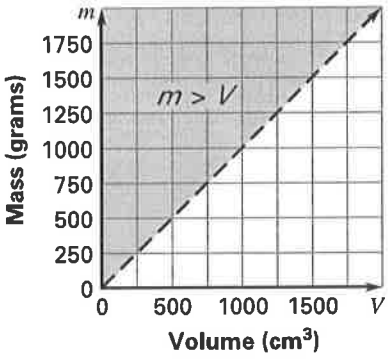
60. a. $y > 110 - x$



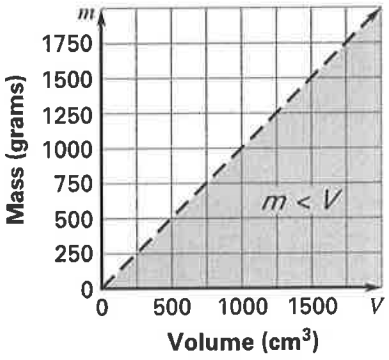
60. b. Greater than 80% and up to 100%; substitute $x = 30$ into the inequality to get $y > 110 - 30$, so the investor should invest more than 80% of his money in stocks. The investor cannot invest more than 100% of his money in stocks.

c. Less than or equal to 10 years; when x is less than 10 years, y will be greater than 100%. You cannot invest more than 100% of your money.

61. a. sinks:



floats:



b. Sink; the volume of the cylindrical can is $\pi r^2 h = \pi(25)(10) \approx 785.40$ cubic centimeters. Since the mass, 2119.5 grams, is greater than the volume, 785.40 cubic centimeters, the can will sink.

6.7 Mixed Review

62. -5 **63.** 3

64. $\frac{1}{2}$ **65.** $-2\frac{1}{2}$

66. $p \geq -6$ **67.** $s > 3\frac{1}{3}$

68. $x < 2$ or $x \geq 4$

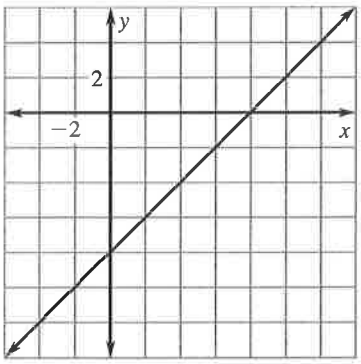
69. $0 \leq y \leq \frac{7}{9}$

70. $g \leq -8$ or $g \geq 22$

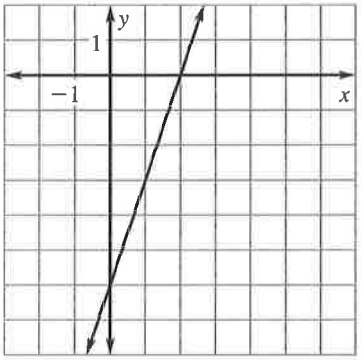
Answers for 6.7 *continued*

For use with pages 409–413

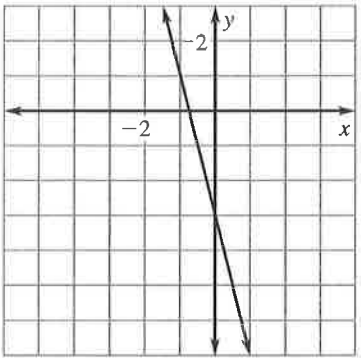
71.



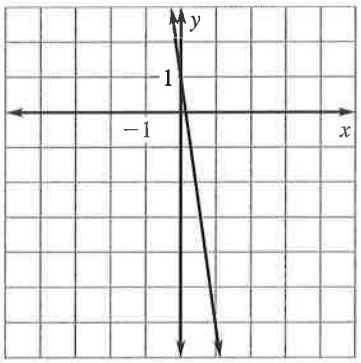
72.



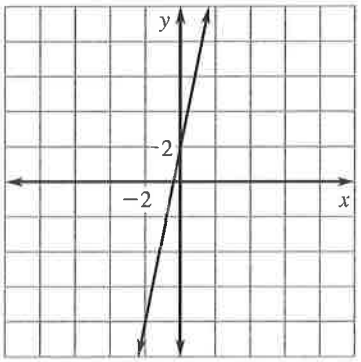
73.



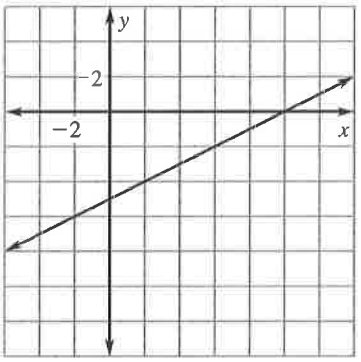
74.



75.



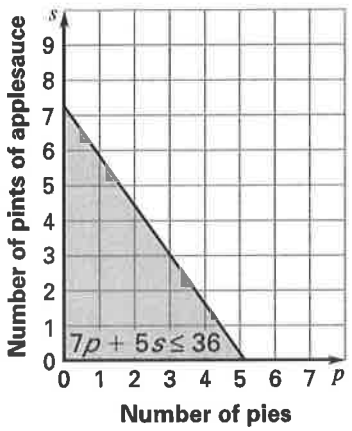
76.



6.5–6.7 Mixed Review of Problem Solving

1. a. $7p + 5s \leq 36$

b.

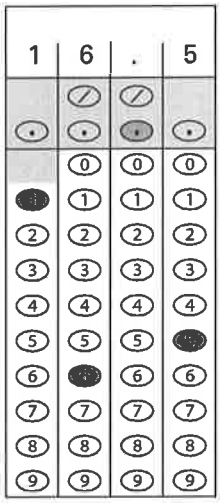


c. *Sample answer:* 1 pie and 5 pints of applesauce, 3 pies and 3 pints of applesauce, 4 pies and 1 pint of applesauce

2. a. $|x - 4| \leq 0.5$

b. Yes; the solution of the inequality from part (a) is $3.5 \leq x \leq 4.5$. For at least 80% of your scoops to meet the weight requirement, at least 8 scoops must weigh at least 3.5 ounces and at most 4.5 ounces. Because 8 out of 10 of your scoops are in the required range of weights, you can start working at the shop.

3. 16.5 min;

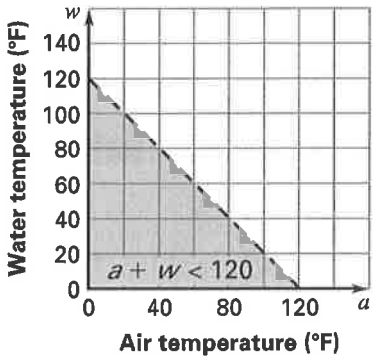


4. *Sample answer:* During a portion of time spent driving on the highway, your average speed is 50 miles per hour with an absolute deviation of your actual speed from your average speed of 10 miles per hour. What are your minimum and maximum speeds during this time? 40, 60; your minimum speed was 40 miles per hour and your maximum speed was 60 miles per hour.

Answers for 6.7 *continued*

For use with pages 409–413

5. a. $a + w < 120$



b. $a < 80°\text{F}$

c. Move the line so that its x- and y-intercepts are 100 instead of 120. The linear inequality that describes the situations in which a protective suit is required is $a + w < 100$.

6. a. \$220.25

b. $|x - 220.25| \leq 50$; from \$170.25 up to \$270.25

c. 6 phones

6 CHAPTER REVIEW

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- Multi-Language Glossary
- Vocabulary practice

REVIEW KEY VOCABULARY

- graph of an inequality, *p. 356*
- equivalent inequalities, *p. 357*
- compound inequality, *p. 380*
- absolute value equation, *p. 390*
- absolute deviation, *p. 392*
- linear inequality in two variables, *p. 405*
- solution of an inequality in two variables, *p. 405*
- graph of an inequality in two variables, half-plane, *p. 405*

VOCABULARY EXERCISES

1. Translate the verbal sentence into an absolute value equation: "The absolute deviation of x from 19 is 8." $|x - 19| = 8$
2. Identify three ordered pairs that are solutions of $2x - 3y \geq -10$.
   Sample answer: (1, 1), (−2, 1), (4, 2)
3. **WRITING** When you graph a linear inequality in two variables, how do you know whether the boundary line is a solid line or a dashed line? How do you know which half-plane to shade? **The boundary line is solid if the inequality symbol is ≤ or ≥, the boundary line is dashed if the inequality symbol is < or >; choose a test point that is not on the boundary line. If the ordered pair is a solution to the inequality, shade the half-plane that contains the test point; if it not a solution, shade the other half-plane.**

REVIEW EXAMPLES AND EXERCISES

Use the review examples and exercises below to check your understanding of the concepts you have learned in each lesson of Chapter 6.

6.1 Solve Inequalities Using Addition and Subtraction *pp. 356–361*

EXAMPLE

Solve $x - 2.1 \leq 1.4$. Graph your solution.

$x - 2.1 \leq 1.4$	Write original inequality.
$x - 2.1 + 2.1 \leq 1.4 + 2.1$	Add 2.1 to each side.
$x \leq 3.5$	Simplify.

▶ The solutions are all real numbers less than or equal to 3.5.

EXERCISES

EXAMPLES 1, 2, 3, and 4 on pp. 356–358 for Exs. 4–7

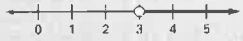
4. **GEOGRAPHY** The lowest elevation in Mexico is −10 meters at Laguna Salada. Write and graph an inequality that describes all elevations in Mexico that are greater than the lowest elevation. $x > -10$; **see margin for art.**

Solve the inequality. Graph your solution. 5–7. **See margin for art.**

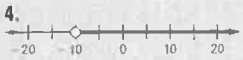
5. $x + 5 > -13$ $x > -18$
6. $m - 9 \geq -4$ $m \geq 5$
7. $s + 3.7 < 1$ $s < -2.7$

Extra Example 6.1

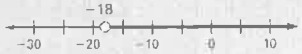
Solve $x + 6 > 9$. Graph your solution. **all real numbers greater than 3**



4.



5.



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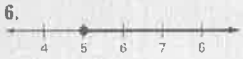
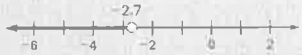


7.

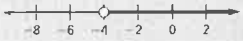


Extra Example 6.2

Solve $\frac{x}{-6} \geq 4$. Graph your solution. **all real numbers less than or equal to −24**

Extra Example 6.3

Solve $-3x - 2 < 10$. Graph your solution. **all real numbers greater than −4**



8.


9.


10.


11.

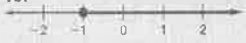

13.


14.


15.


16.


17.


18.


6 CHAPTER REVIEW

6.2 Solve Inequalities Using Multiplication and Division *pp. 363–368*

EXAMPLE

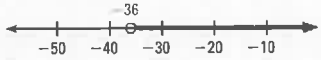
Solve $\frac{x}{-4} < 9$. Graph your solution.

$\frac{x}{-4} < 9$ Write original inequality.

$-4 \cdot \frac{x}{-4} > -4 \cdot 9$ Multiply each side by −4. Reverse inequality symbol.

$x > -36$ Simplify.

▶ The solutions are all real numbers greater than −36.



EXERCISES

EXAMPLES 1, 2, 3, 4, and 5 on pp. 363–365 for Exs. 8–12

Solve the inequality. Graph your solution. 8–11. See margin for art.

8. $\frac{p}{2} \leq 5$ $p \leq 10$

9. $\frac{n}{-4.5} < -8$ $n > 36$

10. $-3x > 27$ $x < -9$

11. $2y \geq 18$ $y \geq 9$

12. **GYMNASTICS** In men's gymnastics, an athlete competes in 6 events. Suppose that an athlete's average score per event is at most 9.7 points. Write and solve an inequality to find the possible total scores for the athlete.
$\frac{x}{6} \leq 9.7$, at most 58.2 points

6.3 Solve Multi-Step Inequalities *pp. 369–374*

EXAMPLE

Solve $4x + 7 \geq -13$. Graph your solution.

$-4x + 7 \geq -13$ Write original inequality.

$-4x \geq -20$ Subtract 7 from each side.

$x \leq 5$ Divide each side by −4. Reverse inequality symbol.

▶ The solutions are all real numbers less than or equal to 5.

EXERCISES

EXAMPLES 1, 2, 3, and 4 on pp. 369–370 for Exs. 13–19

Solve the inequality, if possible. Graph your solution. 13–18. See margin for art.

13. $2g + 11 < 25$ $g < 7$

14. $\frac{2}{3}r - 4 \geq 1$ $r \geq 7\frac{1}{2}$

15. $1 - 3x \leq -14 + 2x$ $x \geq 3$

16. $3(q + 1) < 3q + 7$ all real numbers

17. $8(t - 1) > -8 + 8t$ no solution

18. $-3(2n - 1) \geq 1 - 8n$ $n \geq -1$

19. **TICKET PURCHASES** You can order discount movie tickets from a website for $7 each. You must also pay a shipping fee of $4. You want to spend no more than $40 on movie tickets. Find the possible numbers of movie tickets that you can order. at most 5 tickets

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Chapter Review Practice

6.4 Solve Compound Inequalities

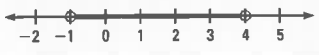
pp. 380–387

EXAMPLE

Solve $-1 < -2x + 7 < 9$. Graph your solution.

$-1 < -2x + 7 < 9$	Write original inequality.
$-8 < -2x < 2$	Subtract 7 from each expression.
$4 > x > -1$	Divide each side by -2. Reverse both inequality symbols.
$-1 < x < 4$	Rewrite in the form $a < x < b$.

▶ The solutions are all real numbers greater than -1 *and* less than 4.



EXERCISES

EXAMPLES 3, 4, and 5 on pp. 381–382 for Exs. 20–23

Solve the inequality. Graph your solution. 20–23. See margin for art.

20. $-6 \le 2t - 5 \le -3$ $-\frac{1}{2} \le t \le 1$

21. $-3 < -3x + 8 < 11$ $-1 < x < 3\frac{2}{3}$

22. $9s - 6 < 12$ *or* $3s + 1 > 13$ $s < 2$ or $s > 4$

23. $-4w + 12 \ge 10$ *or* $5w - 14 > -4$ $w \le \frac{1}{2}$ or $w > 2$

6.5 Solve Absolute Value Equations

pp. 390–395

EXAMPLE

Solve $4|5x - 3| + 6 = 30$.

First, rewrite the equation in the form $|ax + b| = c$.

$4\|5x - 3\| + 6 = 30$	Write original equation.
$4\|5x - 3\| = 24$	Subtract 6 from each side.
$\|5x - 3\| = 6$	Divide each side by 4.

Next, solve the absolute value equation.

$5x - 3 = 6$ *or* $5x - 3 = -6$	Rewrite as two equations.
$5x = 9$ *or* $5x = -3$	Add 3 to each side.
$x = 1.8$ *or* $x = -0.6$	Divide each side by 5.

▶ The solutions are -0.6 and 1.8.

EXERCISES

EXAMPLES 1, 2, 3, 4, and 5 on pp. 390–392 for Exs. 24–30

Solve the equation, if possible.

24. $|r| = 7$ 7, −7

25. $|a + 6| = 2$ −4, −8

26. $|2c + 5| = 21$ 8, −13

27. $2|x - 3| + 1 = 5$ 5, 1

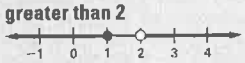
28. $3|2q + 1| - 5 = 1$ 0.5, −1.5

29. $4|3p - 2| + 5 = 11$ $1\frac{1}{6}, \frac{1}{6}$

30. **BOWLING** In tenpin bowling, the height of each bowling pin must be 15 inches with an absolute deviation of 0.03125 inch. Find the minimum and maximum possible heights of a bowling pin. 14.96875 in., 15.03125 in.

Extra Example 6.4

Solve $2x + 3 \le 5$ *or* $5x + 2 > 12$. Graph your solution. all real numbers less than or equal to 1 *or* greater than 2



Extra Example 6.5

Solve $3|4x + 2| - 5 = 13$. 1, −2

20.

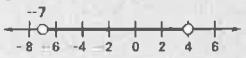
21.

22.

23.

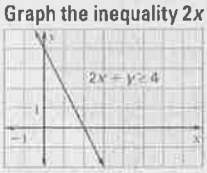
Extra Example 6.6

Solve $|-2x - 3| + 6 < 17$. Graph your solution. **all real numbers greater than −7 and less than 4**



Extra Example 6.7

Graph the inequality $2x + y \geq 4$.



6 CHAPTER REVIEW

6.6 Solve Absolute Value Inequalities

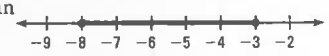
pp. 398–403

EXAMPLE

Solve $3|2x + 11| + 2 \leq 17$. Graph your solution.

$3\|2x + 11\| + 2 \leq 17$	Write original inequality.
$3\|2x + 11\| \leq 15$	Subtract 2 from each side.
$\|2x + 11\| \leq 5$	Divide each side by 3.
$-5 \leq 2x + 11 \leq 5$	Rewrite as compound inequality.
$-16 \leq 2x \leq -6$	Subtract 11 from each expression.
$-8 \leq x \leq -3$	Divide each side by 2.

▶ The solutions are all real numbers greater than or equal to -8 *and* less than or equal to -3.



EXERCISES

EXAMPLES 1, 2, and 3 on pp. 398–399 for Exs. 31–36

Solve the inequality. Graph your solution. 31–36. See margin for art.

31. $|m| \geq 8$ $m \geq 8$ *or* $m \leq -8$

32. $|6k + 1| \geq 2$ $k \geq \frac{1}{6}$ *or* $k \leq -\frac{1}{2}$

33. $|3g - 2| < 5$ $-1 < g < 2\frac{1}{3}$

34. $6|3x + 5| \leq 14$ $-2\frac{4}{9} \leq x \leq -\frac{8}{9}$

35. $|2j - 9| - 2 > 10$ $j < -1\frac{1}{2}$ or $j > 10\frac{1}{2}$

36. $5|d + 8| - 7 > 13$ $d < -12$ or $d > -4$

6.7 Graph Linear Inequalities in Two Variables

pp. 405–412

EXAMPLE

Graph the inequality $y < 3x - 1$.

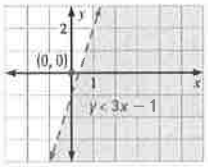
STEP 1 **Graph** the equation $y = 3x - 1$. The inequality is $<$, so use a dashed line.

STEP 2 **Test** $(0, 0)$ in $y < 3x - 1$.

$0 \overset{?}{<} 3(0) - 1$

$0 < -1$ ✗

STEP 3 **Shade** the half-plane that does not contain $(0, 0)$, because $(0, 0)$ is *not* a solution of the inequality.



EXERCISES

EXAMPLES 1, 2, 3, 4, and 5 on pp. 405–407 for Exs. 37–44

Tell whether the ordered pair is a solution of $-3x + 2y \geq 16$.

37. $(-2, 8)$ solution

38. $(-1, -1)$ not a solution

39. $(-2, 10)$ solution

40. $(9, -5)$ not a solution

Graph the inequality. 41–44. See margin.

41. $y > 2x + 3$

42. $y \leq \frac{1}{2}x - 1$

43. $3x - 2y < 12$

44. $y \geq 3$

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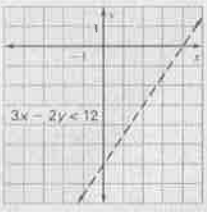

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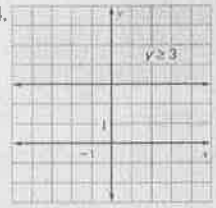

Chapter Test

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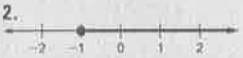

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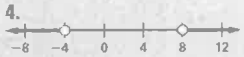

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6 CHAPTER TEST

Translate the verbal phrase into an inequality. Then graph the inequality. 1–4. See margin for art.

1. All real numbers that are less than 5 $x < 5$
2. All real numbers that are greater than or equal to -1 $x \geq -1$
3. All real numbers that are greater than -2 *and* less than or equal to 7 $-2 < x \leq 7$
4. All real numbers that are greater than 8 *or* less than -4 $x > 8$ *or* $x < -4$

Solve the inequality, if possible. Graph your solution. 5–22. See margin for art.

5. $x - 9 \geq -5$ $x \geq 4$
6. $-2 > 5 + y$ $y < -7$
7. $-0.8 \leq z + 7.7$ $z \geq -8.5$
8. $5m \geq 35$ $m \geq 7$
9. $\frac{n}{6} < -1$ $n < -6$
10. $\frac{r}{-3} \leq 4$ $r \geq -12$
11. $-4s < 6s + 1$ $s > -0.1$
12. $4t - 7 \leq 13$ $t \leq 5$
13. $-8 > 5 - v$ $v > 13$
14. $3(5w + 4) < 12w - 11$ $w < -7\frac{2}{3}$
15. $4p - 3 > 2(2p + 1)$ no solution
16. $9q - 12 \geq 3(3q - 4)$ all real numbers
17. $-2 \leq 4 - 3a \leq 13$ $-3 \leq a \leq 2$
18. $-7 < 2c - 1 < 10\frac{1}{2}$ $-3 < c < 5.75$
19. $-5 \leq 2 - h$ *or* $6h + 5 \geq 71$ $h \leq 7$ or $h \geq 11$
20. $|2d + 8| > 3$ $d < -5.5$ *or* $d > -2.5$
21. $2|3f - 7| + 5 < 11$ $1\frac{1}{3} < f < 3\frac{1}{3}$
22. $|j - 7| - 1 \leq 3\frac{5}{6}$ $2\frac{1}{6} \leq j \leq 11\frac{5}{6}$

Solve the equation, if possible.

23. $-\frac{3}{4}|x - 3| = \frac{1}{4}$ no solution
24. $|3y + 1| - 6 = -2$ $1, -\frac{2}{3}$
25. $4|2z + 5| + 9 = 5$ no solution

Check whether the ordered pair is a solution of the inequality.

26. $2x - y < 4$; $(2, -1)$ not a solution
27. $y + 3x \geq -5$; $(-3, -4)$ not a solution
28. $y \leq -3$; $(4, -7)$ solution

Graph the inequality. 29–31. See margin.

29. $y < x + 4$
30. $y \geq 2x - 5$
31. $y \geq -6$

32. **BUSINESS** Your friend is starting a small business baking and decorating cakes and wants to make a profit of at least \$250 for the first month. The expenses for the first month are \$155. What are the possible revenues that your friend can earn in order to meet the profit goal? at least \$405

33. **BICYCLES** A manufacturer of bicycle parts requires that a bicycle chain have a width of 0.3 inch with an absolute error of at most 0.0003 inch. Find the possible widths of bicycle chains that the manufacturer will accept. 0.2997 in. up to 0.3003 in.

34. **HORSES** You are planning to ride a horse to a campsite. The sum of your weight x (in pounds) and the combined weight y (in pounds) of your camping supplies can be at most 20% of the weight of the horse.

   a. Suppose that the horse weighs 1000 pounds. Write and graph an inequality that describes the possible combinations of your weight and the combined weight of the camping supplies. $x + y \leq 200$; see margin for art.

   b. Identify and interpret one of the solutions of the inequality in part (a). *Sample answer:* (130, 60); if you weigh 130 pounds and the combined weight of your camping supplies is 60 pounds, the combined weight is 190, so you will be able to ride the horse to the campsite.

Additional Resources

Assessment Book

- Chapter Test, Levels A, B, C, pp. 78–83
- Standardized Chapter Test, pp. 84–85
- SAT/ACT Chapter Test, pp. 86–87
- Alternative Assessment, pp. 88–89

Test Generator CD-ROM

Chapter Test

Easily-readable reduced copies (with answers) of Chapter Test B, the Standardized Chapter Test, and the Alternative Assessment from the Assessment Book can be found on pp. 354G–354H.

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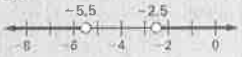
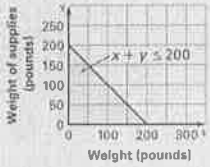


21.

22.

29–31. See Additional Answers beginning on p. AA1.

34a.



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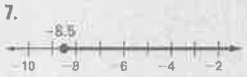

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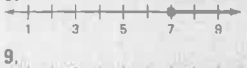

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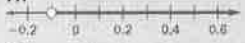

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