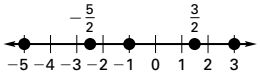
Selected Answers

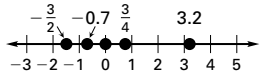
CHAPTER 1

SKILL REVIEW (p. 2) **1.** 11 **2.** –70 **3.** 8 **4.** 9 **5.** 24 **6.** –7 **7.** –10 **8.** –8 **9.** 60 units^2 **10.** 121 units^2 **11.** 165 units^2 **12.** 20.25π units^2, or about 63.6 units^2

1.1 PRACTICE (pp. 7–10)

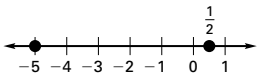
5. 

3

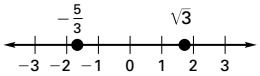
7. 

3.2

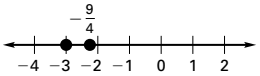
9. inverse property of addition **11.** commutative property of multiplication **13.** inverse property of multiplication

15. 

; $\frac{1}{2} > -5$ **17.** $2.3 > -0.6$

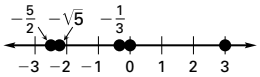
19. 

$-\frac{5}{3} < \sqrt{3}$

21. 

$-\frac{9}{4} > -3$

23. $\sqrt{5} > 2$ **25.** $\sqrt{8} > 2.5$ **27.** $-6, -3, -\frac{1}{2}, 2, \frac{13}{4}$

29. 

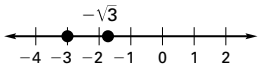
; $-\frac{5}{2}, -\sqrt{5}, -\frac{1}{3}, 0, 3$

31. $-\sqrt{12}, -\frac{12}{5}, -1.5, 0, 0.3$ **33.** inverse property of addition **35.** commutative property of multiplication **37.** identity property of multiplication **39.** Yes; the associative property of addition is true for all real numbers a, b, and c. **41.** Yes; the associative property of multiplication is true for all real numbers a, b, and c. **43.** $32 + (-7) = 25$ **45.** $-5 - 8 = -13$ **47.** $9 \cdot (-4) = -36$ **49.** $-5 \div \left(-\frac{1}{2}\right) = 10$ **51.** 13 ft **53.** \$612.50 **55.** Honolulu, HI; New Orleans, LA; Jackson, MS; Seattle-Tacoma, WA; Norfolk, VA; Atlanta, GA; Detroit, MI; Milwaukee, WI; Albany, NY; Helena, MT; three **57.** Yes; the result of performing the given operations is 9, the check digit. **59.** Sky Central Plaza: 352 yd, 12,672 in., 0.2 mi; Petronas Tower I: about 494.3 yd, 17,796 in., about 0.2809 mi **61.** yes **63.** \$214 **65.** –15°F

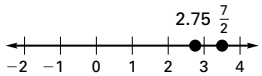
1.1 MIXED REVIEW (p. 10) **69.** 63 **71.** –30 **73.** 19 **75.** –34 **77.** $x - 3$ **79.** $\frac{1}{4}x$ **81.** 10.5 in.^{2} **83.** 750 in.^{2}

1.2 PRACTICE (pp. 14–16) **7.** 5 **9.** 27 **11.** $9x + 9y$ **13.** $8x^2 - 8x$ **15.** 8^3 **17.** 5^n **19.** 256 **21.** –32 **23.** 125 **25.** 256 **27.** 24 **29.** 19 **31.** 0 **33.** –5 **35.** 125 **37.** –8 **39.** 76 **41.** $\frac{9}{5}$ **43.** $-\frac{5}{13}$ **45.** 16 **47.** $6x^2 - 28x$ **49.** $16n - 88$ **51.** $-5x - y$ **53.** $\frac{1}{2}n(n + 10)$; 1000 **55.** $(x + y)^2$; 289 **57.** about 1,200,000; about 238,000 **59.** $149 + 3.85(12)n$, where n is the number of movies rented each month; \$426.20 **61.** $[4n + 8(3 - n)]15$, or $360 - 60n$, where n is the number of hours spent walking; \$240

1.2 MIXED REVIEW (p. 17) **69.** 20 **71.** 15 **73.** 105

75. 

$-\sqrt{3} > -3$

77. 

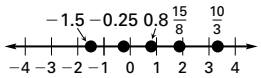
$2.75 < \frac{7}{2}$

79. inverse property of addition **81.** identity property of multiplication **83.** $\frac{8}{7}$ **85.** $-\frac{4}{5}$ **87.** –9 **89.** $-\frac{1}{14}$

QUIZ 1 (p. 17)

1. 

$-2.5, -\frac{3}{4}, 0, 1, \frac{9}{2}$

2. 

$-1.5, -0.25, 0.8, \frac{15}{8}, \frac{10}{3}$

3. distributive property **4.** associative property of addition **5.** 15 **6.** $-\frac{17}{3}$ **7.** –14 **8.** 76 **9.** –124 **10.** $8x - 11y + 4$ **11.** $2x - 10$ **12.** $-2x^2 + 5x - 6$ **13.** $-2x^2 + 14x$ **14.** $0.35n + 13.95(15 - n)$, or $209.25 - 13.60n$, where n is the number of regular floppy disks bought

TECHNOLOGY ACTIVITY 1.2 (p. 18) **1.** $(-4)^2 - 5$; 11 **3.** $(1 + 4)^6$; 15,625 **5.** 4.32 **7.** 160.989 **9.** 7.833 **11.** 5912.099 **13.** 0.81

1.3 PRACTICE (pp. 22–24) **7.** 5 **9.** 5 **11.** $\frac{5}{4}$ **13.** –3 **15.** 28 **17.** Subtract 5 from each side. **19.** Multiply each side by $-\frac{7}{4}$. **21.** Subtract 2 from each side; then multiply each side by 3. **23.** 5 **25.** $\frac{7}{2}$ **27.** $\frac{4}{5}$ **29.** –1 **31.** 0 **33.** 4 **35.** $\frac{85}{12}$ **37.** 3.2 **39.** 7.5 **41.** length: 36, width: 14 **43.** –78.5°C **45.** 5 h **47.** \$635,000 **49.** 16.25 ft

1.3 MIXED REVIEW (p. 24) **57.** 25π in.^{2}, or about 78.5 in.^{2} **59.** 49π in.^{2}, or about 154 in.^{2} **61.** 8 **63.** 21 **65.** 11 **67.** –28 **69.** $21 - 5x$ **71.** $7x - 6$ **73.** $x + 35$ **75.** $3x^2 - x + 11$ **77.** $4x^2 + 16x$

TECHNOLOGY ACTIVITY 1.3 (p. 25) **1.** False; $y_1 = y_2$ when $x = -2$, not when $x = 2$. **3.** –2 **5.** 1 **7.** 1

1.4 PRACTICE (pp. 29–32) **5.** $y = \frac{5}{3}x - 3$ **7.** $y = -\frac{3}{20}x + 4$ **9.** $y = \frac{4}{3}x - 24$ **11.** 20 in. **13.** –1 **15.** $\frac{16}{9}$ **17.** $\frac{35}{3}$ **19.** 1 **21.** –4 **23.** $\frac{11}{2}$ **25.** $h = \frac{3V}{\pi r^2}$ **27.** $P = \frac{I}{rt}$ **29.** $b_2 = \frac{2A}{h} - b_1$ **31.** $h = \frac{S - 2\pi r^2}{2\pi r}$; $\frac{35 - 6\pi}{2\pi}$, or about 2.57 in. **33.** $L = \frac{T}{m} + 21$

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35. $W \approx \dfrac{TR^2}{R^2 + A^2}$ **37.** $R = p_1V + p_2C$ **39.** *Sample answer:* 210 sun visors, 550 baseball caps; 490 sun visors, 430 baseball caps; 700 sun visors, 340 baseball caps

41. a. $A = \dfrac{\sqrt{3}}{4}b^2$ **b.** $A = \dfrac{\sqrt{3}}{3}h^2$

1.4 MIXED REVIEW (p. 32) **47.** $30 - x$ **49.** $250 + x$ **51.** $2x$ **53.** 8736 h **55.** $4\frac{3}{8}$ L **57.** \$165 **59.** -6 **61.** 4 **63.** -7 **65.** 40 **67.** 3

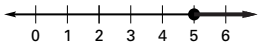
1.5 PRACTICE (pp. 37–39) **3.** The diagram helps you see how to express the numbers of gallons used in town in terms of x, the label given to the number of gallons used on the highway. **5.** water pressure = 2184 (lb/ft^2); pressure per ft of depth = 62.4 (lb/ft^2 per ft); depth = d (ft) **7.** 35 ft **9.** $547 = 32t$ **11.** about 17 h **13.** $80t = (180)(3)$ **15.** total calories = (calories/gram of fat)(number of grams of fat) + (calories/gram of protein)(number of grams of protein) + (calories/gram of carbohydrate)(number of grams of carbohydrate) **17.** 4.1 g **19.** Great Britain: 22.4 km, France: 15.5 km; Dec. 1, 1990 **21.** \$1.68 per page **23.** length: 135 ft, width: 105 ft **25.** 4.5 m **27.** 4 bounces

1.5 MIXED REVIEW (p. 39) **31.** true **33.** false **35.** -55, -10, -5, -1, 4 **37.** -2.9, -2.1, -1.2, 2, 2.09 **39.** 2 **41.** $\frac{4}{7}$

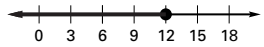
QUIZ 2 (p. 40) **1.** 4 **2.** -8 **3.** $\frac{17}{3}$ **4.** 160 **5.** $y = -\frac{3}{5}x + \frac{9}{5}$; $\frac{3}{5}$ **6.** $y = \frac{4}{3}x - \frac{14}{3}$; -2 **7.** $d_1 = \frac{2A}{d_2}$ **8.** 49 boxes

1.6 PRACTICE (pp. 45–47)

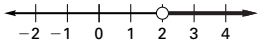
5. $x \geq 5$;



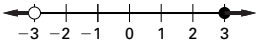
7. $x \leq 12$;



9. $x > 2$;

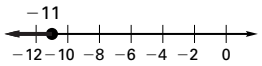


11.

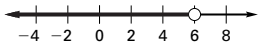


13. C **15.** D **17.** F **19.** no **21.** no **23.** yes **25.** $x > 5$

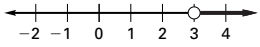
27. $x \leq -11$;



29. $x < 6$;

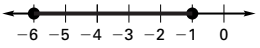


31. $x > 3$;

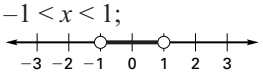


33. $x < 6$ **35.** $x < 0$

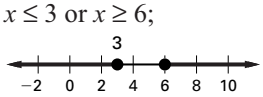
37. $5 \leq x \leq 18$ **39.** $-6 \leq n \leq -1$;



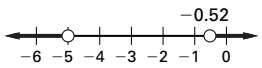
41. $-1 < x < 1$;



43. $x \leq 3$ or $x \geq 6$;



45. $x < -5$ or $x > -0.52$;



47. $0.5 \leq x < 2.5$

49. Your sales must be greater than or equal to \$5000.

51. Her score must be between 93 and 100, inclusive.

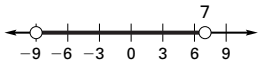
53. $184 \leq K \leq 242$ **55.** $c > 2.83$

1.6 MIXED REVIEW (p. 47) **61.** associative property of multiplication **63.** commutative property of addition **65.** $-\frac{10}{7}$ **67.** -1 **69.** $1\frac{1}{5}$ h, or 1 h 12 min

TECHNOLOGY ACTIVITY 1.6 (p. 48) **1.** $x \leq 4$ **3.** $x > 3$ **5.** $x \leq -6$ **7.** $x < 2$ **9.** $x < 6$ **11.** $x \leq 9$ **13.** $x < -7$

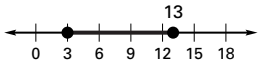
1.7 PRACTICE (pp. 53–55) **5.** yes **7.** no **9.** no **11.** $11 - 2x \leq -13$ or $11 - 2x \geq 13$ **13.** $-9 \leq x + 5 \leq 9$ **15.** $-18 < \frac{1}{4}x + 10 < 18$ **17.** $x - 8 = 11$ or $x - 8 = -11$ **19.** $6n + 1 = \frac{1}{2}$ or $6n + 1 = -\frac{1}{2}$ **21.** $2x + 1 = 5$ or $2x + 1 = -5$ **23.** $15 - 2x = 8$ or $15 - 2x = -8$ **25.** $\frac{2}{3}x - 9 = 18$ or $\frac{2}{3}x - 9 = -18$ **27.** no **29.** no **31.** yes **33.** 2, 3 **35.** 6, -1 **37.** $\frac{26}{7}, \frac{34}{7}$ **39.** 12, -18 **41.** $-15 \leq 3 + 4x \leq 15$ **43.** $-7 < 3x + 2 < 7$ **45.** $-18 \leq 8 - 3n \leq 18$

47. $-9 < x < 7$;

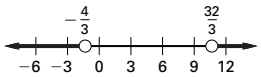


49. $x \leq 6$ or $x \geq 26$

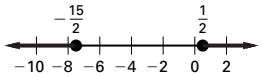
51. $3 \leq x \leq 13$;



53. $x < -\frac{4}{3}$ or $x > \frac{32}{3}$;



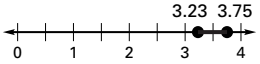
55. $x \leq -\frac{15}{2}$ or $x \geq \frac{1}{2}$;



57. $-4 < x < \frac{18}{7}$ **59.** $-4 < x < 2$

61. $x < -3$ or $x > 7$ **63.** $x < 1$ or $x > 4$

65. $|p - 3.49| \leq 0.26$;



67. $|x - p| \leq \frac{3}{16}$; between $8\frac{15}{16}$ in. and $9\frac{5}{16}$ in., inclusive.

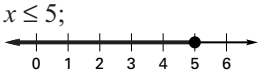
69. $|t - 98.6| \leq 1$ **71.** 393.6 oz; 374.4 oz; $|c - 384| \leq 9.6$

73. volleyball: $|v - 270| > 10$, basketball: $|b - 625| > 25$, water polo: $|w - 425| > 25$, lacrosse: $|l - 145.5| > 3.5$, football: $|f - 14.5| > 0.5$ **75.** 2 L: $|c - 2000| > 9$, 1 L: $|c - 1000| > 5$, 500 mL: $|c - 500| > 2$

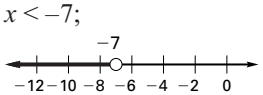
1.7 MIXED REVIEW (p. 56) **91.** False; if $x = -7$, then $2x = 2(-7) = -14$, not 14. **93.** 21 **95.** -27 **97.** -14 **99.** 10 **101.** $x > \frac{1}{3}$ **103.** $x \geq -5$ **105.** $-14 < x < -2$

QUIZ 3 (p. 56)

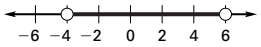
1. $x \leq 5$;



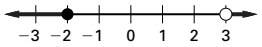
2. $x < -7$;



3. $-4 < x < 6$;

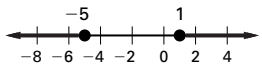


4. $x \leq -2$ or $x > 3$;

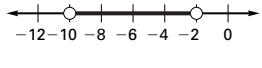


5. $-1, -9$ **6.** 5, 1 **7.** -3, 15 **8.** $5, -\frac{3}{2}$ **9.** $\frac{16}{3}, -8$ **10.** 1, 9

11. $y \leq -5$ or $y \geq 1$;



12. $-10 < x < -2$;



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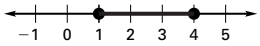
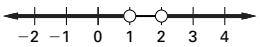
13. $x < -4$ or $x > 10$;

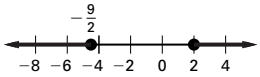
14. $1 \le y \le 4$;



15. $x < 1$ or $x > 2$;



16. $x \le -\frac{9}{2}$ or $x \ge 2$;

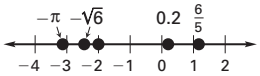


17. $20 \le e \le 28$; between 320 mi and 448 mi, inclusive

18. $|d - 30| \le 0.045$; between 29.955 mm and 30.045 mm, inclusive

CHAPTER 1 REVIEW (pp. 58–60)

1.



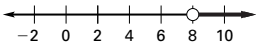
; $-\pi, -\sqrt{6}, -2, 0.2, \frac{6}{5}$

3. distributive property **5.** -18 **7.** 4 **9.** $5x + 4y$

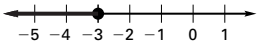
11. $11x^2 - x$ **13.** -3 **15.** -32 **17.** 4 **19.** $y = 5x - 10$

21. $y = -0.2x + 7$ **23.** $y = \frac{5}{6}x + 2$ **25.** $l = \frac{P - 2w}{2}$

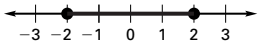
27. about 5 h 55 min **29.** $x > 8$;



31. $x \le -3$;



33. $-2 \le y \le 2$;



35. $-5, 3$ **37.** $-\frac{8}{3}, 6$ **39.** $-2 < x < 7$

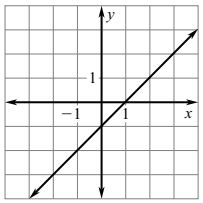
CHAPTER 2

SKILL REVIEW (p. 66)

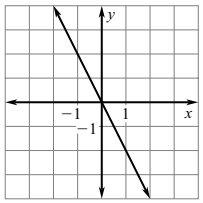
1. 2 **2.** 2 **3.** 3 **4.** $y = -3x + 4$ **5.** $y = \frac{1}{2}x - 5$ **6.** $y = -\frac{5}{6}x - 10$ **7.** $x < \frac{9}{2}$ **8.** $y \ge -26$ **9.** $x < \frac{5}{2}$

2.1 PRACTICE (pp. 71–74)

5.



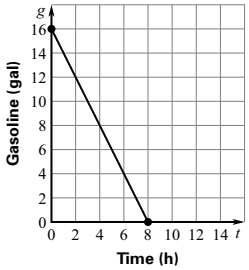
9.



11. 3 **13.** 9 **15.** 1

17. domain: $0 \le t \le 8$; range: $0 \le g \le 16$;

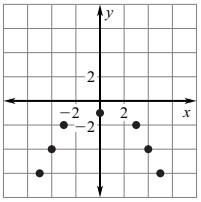
Gasoline Remaining



19. domain: $-1, 2, 5, 6$; range: $-2, 3$

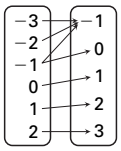
21. domain: 1, 2, 3, 4; range: 1, 2, 3, 4

23.



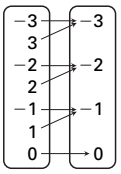
; yes

25.



; no

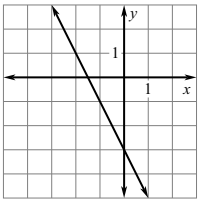
27.



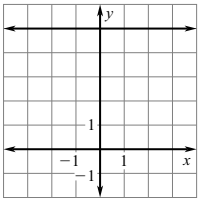
; yes

29. If a relation is a function, then no vertical line intersects the graph of the relation at more than one point. If no vertical line intersects the graph of a relation at more than one point, then the relation is a function. **31.** yes

39.



41.



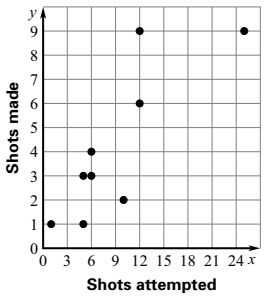
43. linear; -7 **45.** not linear; 1 **47.** not linear; -25

49. 125; the volume of a cube with sides of length 5 units

51. No. *Sample answer:* Not every age corresponds to exactly one place. For example, there were 24-year-olds with finishes of first and third.

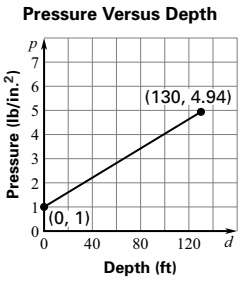
53. domain: 1, 5, 6, 10, 12, 25; range: 1, 2, 3, 4, 6, 9;

Jazz Shooting



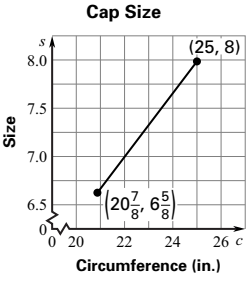
55. domain: $0 \le d \le 130$; range: $1 \le p \le 4\frac{31}{33}$;

Pressure Versus Depth



57. domain: $20\frac{7}{8} \le c \le 25$; range: $6\frac{5}{8} \le s \le 8$;

Cap Size



2.1 MIXED REVIEW (p. 74)

65. 1 **67.** $\frac{1}{2}$ **69.** $\frac{1}{4}$ **71.** -7.5 **73.** $-4\frac{11}{16}$ **75.** $-\frac{12}{11}$ **77.** yes **79.** yes **81.** yes

2.2 PRACTICE (pp. 79–81)

5. undefined; vertical **7.** -1; falls **9.** 2; rises **11.** line 2 **13.** neither **15.** parallel **17.** 1 **19.** undefined **21.** 10; rises **23.** $\frac{1}{2}$; rises **25.** -1; falls **27.** undefined; vertical **29.** $-\frac{1}{2}$; falls **31.** undefined; vertical **33.** C **35.** A **37.** line 1 **39.** line 2 **41.** parallel

SELECTED ANSWERS