Extra Practice

Chapter 1

1.1 **The frequency table shows the heights of 30 students.**

Height (inches)	54–55.9	56–57.9	58–59.9	60–61.9	62–63.9	64–65.9	66–67.9	68–69.9
Frequency	1	2	4	5	7	6	3	2

1. Make a histogram of the data shown in the frequency table.

2. Which height interval has the greatest number of students?

3. Can you use the histogram to determine the number of students who are between 60 and 69.9 inches tall? Explain.

1.2 **Evaluate the expression.**

4. $15 - 3 \cdot 2 + 4$

5. $42 \div [(5 - 2) \cdot (1 + 1)]$

6. $2 + \dfrac{100 - 36}{7 + 9}$

7. $4 \cdot 7 - 8 \cdot 3$

8. $3 + 10 \cdot 5 \div 2$

9. $(11 - 56 \div 8) \cdot 9$

1.3 **Evaluate the expression when $r = 1.5$ and $s = 2.4$.**

10. $10r + s$

11. $\dfrac{7s}{r + 0.5}$

12. $8rs$

13. $3(r + s)$

1.4 **Evaluate the expression.**

14. $24 - (2^3 + 1) \cdot 2$

15. $6^3 \div (2 + 1)^2 + 3$

16. $(8 - 5)^4 + 7 \cdot 5^2$

1.5 **In Exercises 17–24, solve the equation using mental math.**

17. $5n = 35$

18. $\dfrac{60}{t} = 4$

19. $12 + w = 75$

20. $41 - a = 23$

21. $9 + b = 17$

22. $63 - c = 10$

23. $6x = 54$

24. $\dfrac{m}{12} = 9$

1.6 25. Find the perimeter and area of a rectangular garden with a length of 13 feet and a width of 8 feet.

1.6 26. Ramon jogs at a rate of 5 miles per hour. How far does he jog in 1.5 hours?

1.6 27. Find the side length of a square that has a perimeter of 32 centimeters.

1.7 28. You do 5 hours of yard work each day for 4 days and earn $6 per hour. Then you buy 2 concert tickets for $12 each. Use the problem solving plan to find how much money you have left.

Chapter 2

2.1 Use a number line to order the integers from least to greatest.

1. 33, −24, −43, 7, 19, −2

2. −230, 157, −68, −146, 5, 94

2.1 Write the opposite and the absolute value of the integer.

3. −25   **4.** 467   **5.** 0   **6.** $|-2|$

2.2 Find the sum.

7. $342 + (-751)$ **8.** $-147 + 71$ **9.** $-89 + 268$

10. $-29 + (-51) + 36$ **11.** $-78 + 65 + 13$ **12.** $93 + (-57) + (-102)$

2.3 Find the difference.

13. $-12 - 4$ **14.** $10 - 13$ **15.** $34 - (-17)$ **16.** $-18 - (-17)$

17. $23 - 38$ **18.** $81 - (-16)$ **19.** $-9 - (-77)$ **20.** $-63 - 19$

2.4 Find the product.

21. $(-7)(-50)$ **22.** $25(-7)$ **23.** $-4(16)$ **24.** $(-12)(-21)$

25. $-95(0)(-58)$ **26.** $54(-1)(5)$ **27.** $8(-2)(-3)(5)$ **28.** $(-14)(4)(6)(9)$

2.5 In Exercises 29–32, find the quotient.

29. $\dfrac{96}{-8}$ **30.** $\dfrac{-48}{-12}$ **31.** $\dfrac{0}{4}$ **32.** $\dfrac{-80}{5}$

2.5 **33.** Find the mean of the data: $-8, 6, 3, -20, -9, 4$.

2.6 Evaluate the expression. Justify each step.

34. $-28 + (74 - 32)$ **35.** $7\left(2 \cdot \dfrac{3}{7}\right)$ **36.** $(-7.2 + 3.5) + (-3.5)$

2.7 Use the distributive property to evaluate or simplify the expression.

37. $-5(-3 + 8)$ **38.** $3(m - 4)$ **39.** $-1(4 + 9r)$ **40.** $8(-4j - 3)$

2.7 Simplify the expression by combining like terms.

41. $-x + 3y - 5y + 6x$ **42.** $2(3k - 6) + 4 + 5k$ **43.** $5a - 3(2a + b) - 7b$

2.8 Plot the point in a coordinate plane and describe its location.

44. $A(3, -2)$ **45.** $B(5, 1)$ **46.** $C(0, -4)$ **47.** $D(-1, -3)$

Chapter 3

3.1 **Solve the equation. Check your solution.**

1. $n - 3 = 5$ **2.** $36 = p + 20$ **3.** $-4 = h - 9$ **4.** $27 + z = 51$

3.2 **Solve the equation. Check your solution.**

5. $32 = \dfrac{x}{2}$ **6.** $11k = -55$ **7.** $76 = 19r$ **8.** $\dfrac{y}{-1.4} = -5$

3.3 **Solve the equation. Check your solution.**

9. $5a - 2 = 33$ **10.** $\dfrac{d}{3} + 8 = -6$ **11.** $-1 = 14 - 2h$ **12.** $84 - z = 96$

13. $\dfrac{c}{4} + 7 = 12$ **14.** $47 = -6y + 5$ **15.** $73 = 15 - b$ **16.** $55 = 7t - 8$

3.4 **In Exercises 17 and 18, translate the statement into an equation. Then solve the equation.**

17. Five less than the product of 6 and a number is 13.

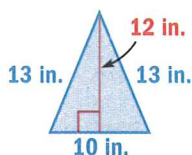**18.** The sum of 5 and the quotient of a number and 3 is -1.

3.4 **19.** An auto repair shop charges $48 per hour for labor plus the cost of parts. Your car needs new parts that cost $129, and the total cost is $201. How much time is required to repair the car?
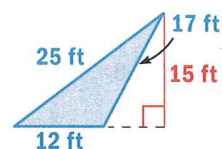
3.5 **Find the area and perimeter of the triangle.**

20.

20 cm   29 cm   21 cm

21.

12 in.   13 in.   13 in.   10 in.

22.

17 ft   25 ft   15 ft   12 ft
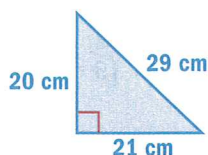
3.5 **23.** A rectangle has an area of 60 square meters and a length of 12 meters. What is the width of the rectangle? What is the perimeter?

3.5 **24.** A square has an area of 81 square feet. What is the length of each side?

3.6 **Solve the inequality. Then graph its solution.**

25. $4 + j \geq -1$ **26.** $0 < m - 6$ **27.** $z + 4.5 \leq 2$ **28.** $-38 > t - 46$

3.7 **Solve the inequality. Then graph its solution.**

29. $5x < -25$ **30.** $3 \leq -\dfrac{1}{3}y$ **31.** $2 \geq \dfrac{s}{4}$ **32.** $-13k > -65$

Chapter 4

4.1 **Write the prime factorization of the number.**

1. 72   **2.** 65   **3.** 153   **4.** 196

4.1 **Factor the monomial.**

5. $25pq$ **6.** $7a^3$ **7.** $22xy^2$ **8.** $54s^2t$

4.2 **Find the greatest common factor of the numbers or monomials.**

9. 45, 75   **10.** 108, 162   **11.** $6bc, 35abc^2$ **12.** $4p^2, 18qr$

13. $21mn, 9km^2$ **14.** $14x^2y^3, 28xy^2$ **15.** $34w^2z^2, 51w^5z^4$ **16.** $abcdf, a^2d^3gh$

4.3 **Write the fraction in simplest form.**

17. $\dfrac{32}{64}$ **18.** $\dfrac{-15}{39}$ **19.** $\dfrac{-22}{77}$ **20.** $\dfrac{17}{51}$

21. $\dfrac{10x}{45xy}$ **22.** $\dfrac{-16mn}{40mn}$ **23.** $\dfrac{-6ab}{4bc}$ **24.** $\dfrac{28rs}{7rst}$

4.4 **Find the least common multiple of the numbers or monomials.**

25. 30, 60   **26.** $4x, 18xy^2$ **27.** $5ab^2, 3bc^2$ **28.** $12x^3y, 8x^2y^4$

4.5 **Copy and complete the statement with <, >, or =.**

29. $\dfrac{7}{8}$? $\dfrac{9}{11}$ **30.** $3\dfrac{3}{5}$? $\dfrac{11}{3}$ **31.** $\dfrac{17}{6}$? $2\dfrac{13}{18}$ **32.** $1\dfrac{10}{15}$? $\dfrac{35}{21}$

33. $\dfrac{11}{10}$? $1\dfrac{1}{8}$ **34.** $\dfrac{4}{5}$? $\dfrac{6}{11}$ **35.** $\dfrac{50}{9}$? $5\dfrac{2}{7}$ **36.** $\dfrac{63}{15}$? $4\dfrac{5}{12}$

4.6 **Simplify the expression. Write your answer as a power.**

37. $z^5 \cdot z$ **38.** $5^8 \cdot 5^4$ **39.** $(-7)^6 \cdot (-7)^3$ **40.** $a^2 \cdot a^4$

41. $\dfrac{6^9}{6^5}$ **42.** $\dfrac{(-8)^{12}}{(-8)^2}$ **43.** $\dfrac{(-v)^7}{(-v)^4}$ **44.** $\dfrac{c^9}{c}$

4.7 **Simplify. Write the expression using only positive exponents.**

45. $6k^{-1}$ **46.** $a^3 \cdot a^{-3}$ **47.** $\dfrac{s^{-3}}{s^4}$ **48.** $n^{-4} \cdot n^{-2}$

4.8 **Write the number in scientific notation.**

49. 124,000,000   **50.** 0.0000005   **51.** 0.0000791   **52.** 32,100

4.8 **Write the number in standard form.**

53. 2.7×10^{-3} **54.** 9.09×10^2 **55.** 5.88×10^{11} **56.** 6.2×10^{-8}

Chapter 5

Find the sum or difference.

5.1 **1.** $\dfrac{7}{8} + \dfrac{5}{8}$ **2.** $5\dfrac{1}{5} - 3\dfrac{4}{5}$ **3.** $-\dfrac{11m}{15} + \dfrac{m}{15}$ **4.** $-\dfrac{5a}{9b} - \dfrac{4a}{9b}$

5.2 **5.** $\dfrac{9}{10} - \dfrac{5}{6}$ **6.** $\dfrac{2}{5} - \dfrac{3}{7}$ **7.** $4\dfrac{1}{4} + 3\dfrac{7}{8}$ **8.** $-\dfrac{5}{12} + \dfrac{11}{16}$

5.3 **Find the product.**

9. $\dfrac{7}{8} \cdot \dfrac{3}{14}$ **10.** $5 \cdot \left(-3\dfrac{1}{4}\right)$ **11.** $-\dfrac{5}{18} \cdot 1\dfrac{1}{3}$ **12.** $-1\dfrac{3}{5} \cdot \left(-2\dfrac{1}{4}\right)$

5.4 **Find the quotient.**

13. $\dfrac{5}{9} \div 2$ **14.** $-\dfrac{7}{12} \div \dfrac{2}{3}$ **15.** $4\dfrac{1}{8} \div \left(-1\dfrac{1}{3}\right)$ **16.** $-2\dfrac{1}{2} \div (-10)$

5.5 **Write the fraction or mixed number as a decimal. Write the decimal as a fraction or mixed number.**

17. $-\dfrac{48}{125}$ **18.** $4\dfrac{11}{12}$ **19.** -0.28 **20.** $0.\overline{72}$

21. 0.006 **22.** -8.34 **23.** $3\dfrac{7}{8}$ **24.** $-\dfrac{16}{250}$

5.5 **Order the numbers from least to greatest.**

25. $-\dfrac{7}{3}, -2\dfrac{5}{12}, -2.43, -2.5, -2\dfrac{2}{5}$ **26.** $\dfrac{18}{5}, 3\dfrac{1}{3}, 3.8, 3.55, 3\dfrac{7}{12}$

27. $\dfrac{26}{5}, 5.3, 5\dfrac{2}{9}, 5.21, 5\dfrac{3}{8}$ **28.** $-4.2, -4\dfrac{1}{6}, -\dfrac{59}{14}, -4\dfrac{3}{7}, -4.04$

5.6 **Find the sum or difference.**

29. $7.21 + (-3.4)$ **30.** $-9.8 + (-3.7)$ **31.** $0.8 - (-12.3)$ **32.** $8.217 - 9.68$

33. $-10.2 + (-6.35)$ **34.** $-8.78 + 3.9$ **35.** $3.28 - 11.395$ **36.** $-0.04 - 5.789$

5.7 **Find the product or quotient.**

37. $-8.32 \cdot (-0.47)$ **38.** $-20.51 \cdot 3.14$ **39.** $0.435 \div 0.29$ **40.** $2.072 \div (-0.74)$

41. $4.7 \cdot (-6.78)$ **42.** $-0.14 \cdot (-9.43)$ **43.** $-19.27 \div 2.35$ **44.** $0.224 \div 5.6$

5.8 **Find the mean, median, mode(s), and range of the data.**

45. Finishing times for a race in minutes: 24, 37, 57, 81, 31, 25, 43, 39, 33, 40, 34, 65, 50

46. Daily low temperatures: $-6°F, -7°F, -6°F, 5°F, 3°F, 0°F, -3°F$

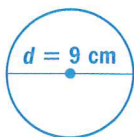**47.** Grades on quizzes: 93, 84, 100, 95, 89, 78, 78, 85, 83, 95
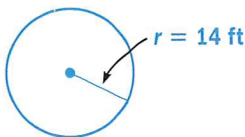
Chapter 6

Solve the equation. Then check the solution.

6.1 **1.** $6k - 8 - 4k = 6$ **2.** $16 = 2(s + 9) - 4$ **3.** $5(n + 7) + 1 = -9$

   4. $-8 = -3m + 2 + 5m$ **5.** $\dfrac{7a - 2}{3} = 4$ **6.** $2 = \dfrac{3 - 4t}{5}$

6.2 **7.** $3a + 2 = 7a + 10$ **8.** $9y - 8 = 6y + 7$ **9.** $5x + 7 = 8(x - 1)$

   10. $13v = 7(9 - v)$ **11.** $5(w + 3) = -10w$ **12.** $2(z + 5) = 3z + 14$

6.3 **13.** $2.8y + 8.6 = 9.12 - 1.2y$ **14.** $7.25p - 3 + p = 14.325$ **15.** $7 - 2.65z = -4.4z$

   16. $x - \dfrac{2}{3}x = \dfrac{3}{4}$ **17.** $\dfrac{9}{10}n + \dfrac{1}{5} = \dfrac{7}{10}n - \dfrac{3}{5}$ **18.** $\dfrac{6}{4}r - \dfrac{21}{8} = \dfrac{3}{4}r$

6.4 **Find the indicated measurement, where r = radius, d = diameter, and C = circumference. Use 3.14 or $\dfrac{22}{7}$ for π. Explain your choice of value for π.**

   19. $r = \underline{\ ?\ }$ **20.** $C = \underline{\ ?\ }$ **21.** $r = \underline{\ ?\ }$ **22.** $d = \underline{\ ?\ }$

d = 9 cm

r = 14 ft

C = 44 yd
r
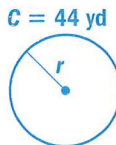
C = 15.7 in.
d
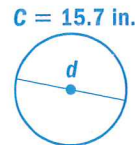
6.5 **Solve the inequality. Then graph the solution.**

   23. $19 - 8c > 3$ **24.** $2(7 + n) \le -10$ **25.** $5s + 3 \ge -7 - 5s$

   26. $20 - 11x \ge -2$ **27.** $4(b - 3) > 20$ **28.** $-6y - 13 < 11 + 2y$

6.6 **In Exercises 29–32, write the sentence as an inequality. Let n represent the unknown number. Then solve the inequality.**

   29. Twelve more than half a number is at most 8.

   30. The difference of 3 times a number and 2 is greater than 7.

   31. Four times a number is no less than 16.

   32. The quotient of 18 and 6 times a number is less than 3.

6.6 **33.** You want to ride your bike for at least 28 miles. You have already biked for 10 miles. If you bike at a speed of 12 miles per hour, how much longer do you need to bike?

6.6 **34.** Nathan has $20 to spend at a carnival. The carnival has a $10 entrance fee. Ride tickets cost $.75 each. What number of tickets can Nathan buy?

Chapter 7

7.1 **A baseball team had 12 wins, 4 losses, and 2 ties in one season. Write the ratio as a fraction in simplest form and two other ways.**

   1. wins to losses   **2.** losses to games played   **3.** wins to games played

7.1 **Write the equivalent rate.**

   4. $\dfrac{9000 \text{ tickets}}{6 \text{ hours}} = \dfrac{? \text{ tickets}}{\text{hour}}$ **5.** $\dfrac{240 \text{ tickets}}{\text{hour}} = \dfrac{? \text{ tickets}}{\text{minute}}$ **6.** $\dfrac{7 \text{ meters}}{\text{second}} = \dfrac{? \text{ meters}}{\text{minute}}$

7.2 **Solve the proportion. Then check your solution.**

   7. $\dfrac{x}{18} = \dfrac{25}{2}$ **8.** $\dfrac{4}{9} = \dfrac{5}{y}$ **9.** $\dfrac{3.6}{n} = \dfrac{4.8}{12.4}$ **10.** $\dfrac{m}{6} = \dfrac{35}{42}$

7.3 **Use a percent proportion.**

   11. 9 is what percent of 75?   **12.** 42 is 25% of what number?

   13. What number is 7% of 128?   **14.** 7 is what percent of 56?

7.4 **Write the decimal or fraction as a percent.**

   15. 0.125   **16.** 1.42   **17.** $\dfrac{18}{25}$ **18.** $\dfrac{197}{200}$

7.4 **Write the percent as a decimal and as a fraction.**

   19. 31%   **20.** 55%   **21.** 175%   **22.** 1.28%

7.5 **In Exercises 23–25, tell whether the change is an *increase* or *decrease*. Then find the percent of change.**

   23. Original amount: 25   **24.** Original amount: 144   **25.** Original amount: 5000
   New amount: 28   New amount: 126   New amount: 4950

7.6 **26.** A pair of shoes has a wholesale price of $28. The percent markup is 110%. What is the retail price?

7.6 **27.** Your food bill at a restaurant is $18.40. You leave a 15% tip. The sales tax is 5%. Find the total cost of the meal.

7.7 **Solve using the percent equation.**

   28. What number is 121% of 412?   **29.** 13 is 15.6% of what number?

   30. 57 is what percent of 76?   **31.** What number is 0.3% of 28?

7.8 **A bag contains 12 slips of paper numbered from 1 through 12. A slip of paper is chosen at random. Find the probability of the event.**
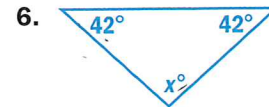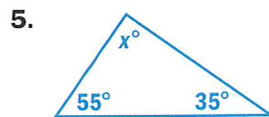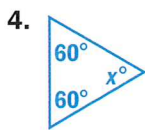
   32. Drawing a number greater than 4   **33.** Drawing a number that is divisible by 5
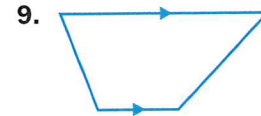
Chapter 8
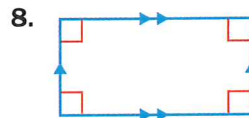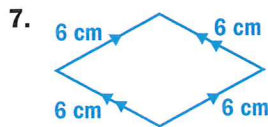
8.1 **Find the measure(s) of the numbered angle(s).**

1.

2.

3.
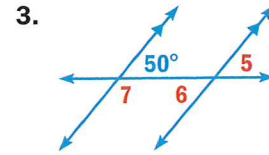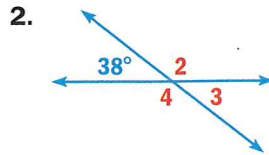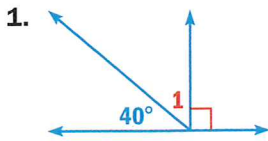
8.2 **Find the value of *x*. Classify the triangle by its angles.**

4.

5.

6.

8.3 **In Exercises 7–9, classify the quadrilateral.**

7.

8.

9.

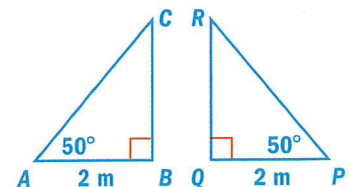**8.4** **10.** Find the sum of the angle measures in an 11-gon.

8.4 **11.** Find the measure of one angle in a regular 18-gon.

8.5 **In Exercises 12–14, use the diagrams.**

12. Name all pairs of congruent sides.

13. Name all pairs of congruent angles.

14. Explain how you know that $\triangle ABC \cong \triangle PQR$.

Graph $\triangle ABC$ with vertices $A(-2, 4)$, $B(0, 2)$, and $C(-2, -6)$. Then graph its image after the given transformation.

8.6 **15.** Reflect $\triangle ABC$ in the *x*-axis.

8.6 **16.** Reflect $\triangle ABC$ in the *y*-axis.

8.7 **17.** Translate $\triangle ABC$ using $(x, y) \rightarrow (x - 1, y + 4)$.

8.7 **18.** Translate $\triangle ABC$ using $(x, y) \rightarrow (x + 2, y - 3)$.

8.7 **19.** Rotate $\triangle ABC$ 90° clockwise.

8.8 **20.** Dilate $\triangle ABC$ by a scale factor of 2.

8.8 **21.** Dilate $\triangle ABC$ by a scale factor of $\frac{1}{2}$.

Chapter 9

9.1 **Use a calculator to approximate the square root. Round to the nearest tenth.**

1. $\sqrt{52}$ **2.** $\sqrt{9.6}$ **3.** $-\sqrt{738}$ **4.** $-\sqrt{2037}$

9.1 **Solve the equation. Check your solutions.**

5. $k^2 = 900$ **6.** $h^2 - 5 = 44$ **7.** $153 + z^2 = 378$ **8.** $168 = v^2 - 1$

9. $a^2 + 7 = 88$ **10.** $m^2 = 3600$ **11.** $x^2 - 11 = 53$ **12.** $w^2 + 78 = 478$

9.2 **In Exercises 13–16, graph the pair of numbers on a number line. Then copy and complete the statement with <, >, or =.**

13. $\sqrt{18}$ _?_ 4 **14.** $\sqrt{\dfrac{9}{16}}$ _?_ $\dfrac{3}{4}$ **15.** -8 _?_ $-\sqrt{70}$ **16.** $\dfrac{2}{3}$ _?_ $\sqrt{\dfrac{1}{9}}$

9.2   **17.** Order the decimals 0.12, $0.\overline{1}$, $0.\overline{12}$, 0.123, and $0.\overline{123}$.

9.2   **18.** Order the decimals 0.34, $0.\overline{3}$, $.\overline{34}$, and 0.334 from least to greatest.

9.3 **Let a and b represent the lengths of the legs of a right triangle, and let c represent the length of the hypotenuse. Find the unknown length.**

19. $a = 21$, $b = 28$, $c = $ _?_   **20.** $a = $ _?_, $b = 63$, $c = 65$ **21.** $a = 56$, $b = $ _?_, $c = 65$

22. $a = 1.5$, $b = 3.6$, $c = $ _?_   **23.** $a = $ _?_, $b = 100$, $c = 125$ **24.** $a = 32$, $b = $ _?_, $c = 68$

9.4 **Determine whether the numbers form a Pythagorean triple.**
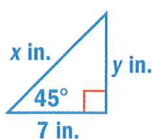
25. 40, 42, 58   **26.** 37, 39, 54   **27.** 15, 112, 113   **28.** 12, 35, 38
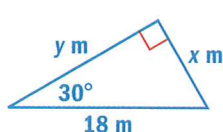
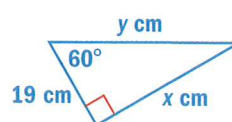**9.5** **Find the values of the variables. Give exact answers.**

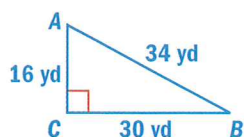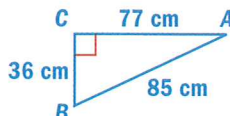**29.**

30.

31.

9.6 **In $\triangle ABC$, write the sine, cosine, and tangent ratios for $\angle A$ and $\angle B$.**
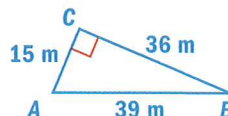
32.

33.

34.

9.6   **35.** Use a calculator to approximate the sine, cosine, and tangent of $62°$. Round your answers to four decimal places.

Chapter 10

10.1 **Sketch a parallelogram with base *b* and height *h* and find its area.**

1. $b = 15$ in., $h = 13$ in.   **2.** $b = 9.4$ ft, $h = 4.8$ ft   **3.** $b = 8\frac{1}{3}$ cm, $h = 1\frac{1}{5}$ cm

10.1 **Sketch a trapezoid with bases b_1 and b_2 and height *h* and find its area.**

**4.** $b_1 = 9$ m, $b_2 = 16$ m, $h = 18$ m   **5.** $b_1 = 40$ yd, $b_2 = 28$ yd, $h = 10.5$ yd

10.2 **In Exercises 6–13, find the area of the circle given its radius *r* or diameter *d*. Use 3.14 for π.**

6. $r = 18$ mi   **7.** $d = 80$ in.   **8.** $d = 11$ mm   **9.** $r = 2.9$ ft

10. $d = 7.8$ in.   **11.** $r = 0.3$ cm   **12.** $r = 11$ ft   **13.** $d = 16$ mi

10.3 **14.** How many faces, edges, and vertices does a hexagonal pyramid have?

10.3 **15.** Show two ways to represent a cylinder. Tell whether it is a polyhedron.

10.4 **Draw a net for the solid. Then find the surface area. Round to the nearest tenth.**

16.

6 m, 8 m, 15 m

17.

13 in., 5 in., 11 in., 12 in.

18.

20 yd, 26 yd
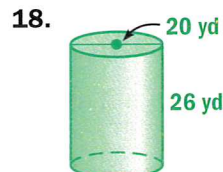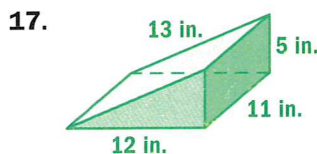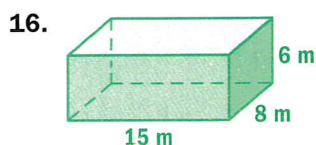
10.5 **Find the surface area of the solid. Round to the nearest tenth.**

19. A square pyramid with base side length 12 m and slant height 9 m

20. A cone with radius 8 cm and slant height 9 cm

21. A cone with diameter 15 m and slant height 8.2 m

10.6 **Find the volume of the solid. Round to the nearest tenth.**

22. The prism in Exercise 16

23. The prism in Exercise 17

24. The cylinder in Exercise 18

10.7 **Find the volume of the solid. Round to the nearest tenth.**

25. A square pyramid with base side length 10 ft and height 8 ft

26. A cone with radius 18 m and height 6 m

27. The triangular pyramid shown at the right

14 cm, 12 cm, 9 cm
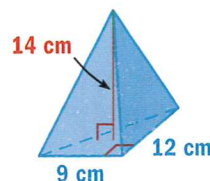
Chapter 11

11.1   **1.** Decide whether the relation $(-3, 3)$, $(-2, 2)$, $(-1, 1)$, $(0, 0)$, $(1, 1)$ is a function. Explain your answer.

11.1   **2.** Make an input-output table for the function $y = 0.5x$. Use a domain of $-4, -2, 0, 2$, and 4. Identify the range.

11.1   **3.** Write a function rule that relates x and y.

Input x	-5	-3	-1	1
Output y	-6	-4	-2	0

11.2   **4.** Make a scatter plot of the data in Exercise 3. Describe the relationship between x and y.

11.3 **Tell whether the ordered pair is a solution of the equation.**

   5. $y = 3x - 7$; $(1, 4)$ **6.** $4x + y = 5$; $(2, -1)$ **7.** $y = \frac{1}{2}x + \frac{1}{2}$; $(-3, -1)$

11.3 **List four solutions of the equation.**

   8. $y = -x - 3$ **9.** $y = 7 + 2x$ **10.** $y = -\frac{2}{3}x$ **11.** $y = -x$

   12. $-x + y = 1$ **13.** $3x + y = -2$ **14.** $x + 2y = 8$ **15.** $-3y + 4x = 7$

11.4 **Graph the linear equation.**

   16. $y = -3$ **17.** $y = \frac{1}{4}x - 2$ **18.** $x = 4$ **19.** $3x + y = 4$

11.5 **In Exercises 20–23, find the intercepts of the graph of the equation.**

   20. $y = -2x + 4$ **21.** $y = 5x - 1$ **22.** $x + 5y = -5$ **23.** $2x - 3y = 12$

11.5   **24.** Graph the line with an x-intercept of 4 and a y-intercept of -1.

11.5   **25.** Graph the line with an x-intercept of -2 and a y-intercept of 10.

11.6 **Find the slope of the line passing through the points.**

   26. $(-2, 3)$, $(6, 1)$ **27.** $(5, 0)$, $(5, -9)$ **28.** $(6, -4)$, $(2, -4)$ **29.** $(7, -5)$, $(-2, -14)$

   30. $(-7, 8)$, $(-9, 5)$ **31.** $(-3, -2)$, $(-7, 2)$ **32.** $(4, 9)$, $(3, 13)$ **33.** $(0, 7)$, $(-3, -10)$

11.7 **Find the slope and y-intercept of the graph of the equation.**

   34. $y = 3x - 5$ **35.** $y = 2$ **36.** $y = -\frac{1}{3}x + 1$ **37.** $2x - y = 8$

11.8 **Graph the inequality.**

   38. $y > -x - 3$ **39.** $6 \leq 3y$ **40.** $5 + 2x > y$ **41.** $4x + 3y \leq -12$

Chapter 12

In Exercises 1–3, use the following lengths, in inches, of alligators at an alligator farm: 140, 127, 103, 140, 118, 100, 117, 101, 116, 129, 130, 105, 99, 143.

12.1   **1.** Make an ordered stem-and-leaf plot of the data. Identify the interval that includes the most data values.

12.1   **2.** Find the median and range of the data.

12.2   **3.** Make a box-and-whisker plot of the data. What conclusions can you make?

12.3   **4.** In a survey about favorite kinds of movies, 20 people chose dramas, 4 chose horror movies, 8 chose science fiction, and 18 chose comedies. Represent the data in a circle graph.

12.3   **5.** You want to display the average monthly price of a stock for each month in 2001. What type of display would you use? Explain.

12.4   **6.** You can take one of three different classes in the morning or the afternoon. Make a tree diagram to find the number of choices that are possible.

12.4   **7.** A license plate has 3 digits followed by 3 letters. How many different license plates are possible?

12.5   **In Exercises 8–11, find the number of permutations.**

8. $_7P_2$ **9.** $_{11}P_1$ **10.** $_8P_5$ **11.** $_{10}P_3$

12.5   **12.** There are 8 students in the school play. How many different ways can the cast be arranged in a row?

12.6   **In Exercises 13–16, find the number of combinations.**

13. $_5C_4$ **14.** $_{20}C_2$ **15.** $_6C_3$ **16.** $_{12}C_9$

12.6   **17.** A CD case holds 30 CDs. How many ways can you select 3 CDs from the case?

12.7   **18.** A telephone number is chosen at random. Find the odds that the last digit is greater than 3.

12.8   **19.** You flip two coins. Find the probability that you do *not* get two heads.

12.8   **20.** You and two friends each roll a number cube. What is the probability that all of you roll a 3?

12.8   **21.** Ten slips of paper numbered 1 through 10 are placed in a bag. You draw a slip at random and draw another without replacing the first. Find the probability that both numbers are odd.

Chapter 13

13.1 In Exercises 1–3, simplify the polynomial and write it in standard form.

1. $3 + 5x - x^2 - 7x + 4$ **2.** $2t^4 + t^3 - 6 - 3t^3 + t^2$ **3.** $4(5 - k) + 4k - k^2 + 1$

13.1 **4.** The height, in feet, of a falling pebble after t seconds of falling from a height of 45 feet can be found using the polynomial $-16t^2 + 45$. Find the pebble's height after 1.5 seconds.

13.2 Find the sum or difference.

5. $(3x^2 + 5x - 4) + (-2x^3 + x^2 + 9x)$ **6.** $(-8x^2 - x + 1) - (7x^2 - 5x + 1)$

7. $(4x^3 - 8x^2 + 2) - (x^3 + x^2 - 6x + 5)$ **8.** $(-x^2 - 3x + 7) + (x^2 + 4x - 9)$

9. $(2x^3 - 2x^2 + 1) + (-x^3 + 9x + 5)$ **10.** $(3x^2 - 5x - 10) - (5x^3 + x - 2)$

13.3 Simplify the expression.

11. $(4z)(-7z^5)$ **12.** $(-r^2)(-3r^2)$ **13.** $-3n(2n - 5)$ **14.** $q^3(-q + 2)$

15. $(5ab)^3$ **16.** $(-rst)^4$ **17.** $(p^6)^4$ **18.** $(3y^5)^2$

13.4 Find the product and simplify.

19. $(2x + 1)(x - 5)$ **20.** $(m - 3)(-m + 4)$ **21.** $(d + 6)(d + 4)$

22. $(4y - 3)(4y + 3)$ **23.** $(a - 8)(a - 7)$ **24.** $(5x + 2)(2x - 1)$

13.5 Rewrite using function notation.

25. $y = 2x - 5$ **26.** $y = 3x^2$ **27.** $y = 5x^2 + 1$
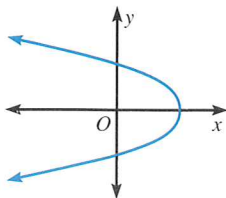
13.5 Evaluate the function for $x = -2, -1, 0, 1,$ and 2.

28. $f(x) = 2x^2 + x$ **29.** $f(x) = \frac{1}{4}x^2$ **30.** $f(x) = \frac{1}{2}x^2 - x$

31. $f(x) = -3x^2 + 2x$ **32.** $f(x) = x^2 + 4x$ **33.** $f(x) = -x^2 - 3$
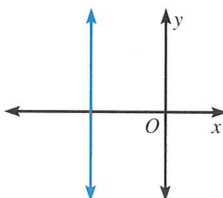
13.5 Graph the function using a table of values.

34. $f(x) = 3x^2$ **35.** $f(x) = -x^2 + 2$ **36.** $f(x) = 2x^2 - 4$

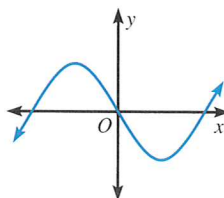**13.5** Tell whether the graph represents a function.

37.

38.

39.

Table of Symbols

Symbol	Meaning	Page
28.6	decimal point	4
=	equals, is equal to	10, 28
$3 \cdot x$ $3(x)$ $3x$	3 times x	10, 15
$\frac{14}{2}$	14 divided by 2	11
( )	parentheses—a grouping symbol	11
[ ]	brackets—a grouping symbol	11
4^3	$4 \cdot 4 \cdot 4$	20
$\stackrel{?}{=}$	is equal to?	26, 29
$\neq$	is not equal to	29
⌐	right angle	33, 375
$\approx$	is approximately equal to	39
...	continues on	53
-3	negative 3	53
-3	the opposite of 3	54
$|a|$	the absolute value of a number a	54
(x, y)	ordered pair	91
$<$	is less than	141, 302
$>$	is greater than	141, 302
$\leq$	is less than or equal to	141, 302
$\geq$	is greater than or equal to	141, 302

Symbol	Meaning	Page
$1.1\overline{6}$	repeating decimal 1.16666...	242
π	pi—a number approximately equal to 3.14	290
$a:b, \frac{a}{b}$	ratio of a to b	317
%	percent	327
°	degree(s)	375, 721
$\angle A$	angle with vertex point A	375, 719
$m\angle B$	the measure of angle B	375
$\perp$	is perpendicular to	376
$\parallel$	is parallel to	377
⟷⟷	parallel lines	377
$\cong$	is congruent to	397
$\overline{AB}$	line segment AB	397
$\triangle ABC$	triangle with vertices A, B, and C	398
A'	the image of point A	404
$\sim$	is similar to	416
$\sqrt{a}$	the positive square root of a number a where $a \geq 0$	431
$\pm$	plus or minus	433
$\nleq$	is not less than or equal to	583
3!	3 factorial, or $3 \cdot 2 \cdot 1$	623
$f(x)$	the function of f at x	680
$\overleftrightarrow{AB}$	line AB	718
$\overrightarrow{AB}$	ray AB	718