Chapter 8

Practice 8-1

1. Sample answer: 10 yd **2.** Sample answer: 10 yd **3.** Sample answer: 15 yd **4.** Sample answer: 13 yd **5.** 12 ft; a truck cab is quite tall **6.** 8 in.; a book is not very wide **7.** 8 in.; a pizza is not very big **8.** 2 ft; a bathtub is not very deep **9.** Sample answer: about 9 cm^2 **10.** Sample answer: about 19 cm^2 **11.** Sample answer: about 12 cm^2 **12.** Sample answer: about 20 cm^2 **13.** ft **14.** in. **15.** mi^2

Guided Problem Solving 8-1

1. Explain how to use a piece of string to estimate the perimeter of the puzzle piece. **2.** The perimeter of an object is the distance around the object. **3.** Wrap it around the puzzle piece. **4.** Take the length of string used and lay it beside a ruler. Read the measurement from the ruler. **5.** Because it is difficult to lay the string out exactly around the puzzle piece. **6.** Because it is difficult to find the perimeter of the curves of the puzzle piece with a ruler. **7.** Sample answer: Estimate the length and width of the rectangular center. Calculate the area of the rectangle. The puzzle piece's area will be more than the area of the rectangle.

Practice 8-2

1. 16 m^2 **2.** 115 cm^2 **3.** 32 $in.^2$ **4.** 80 mm^2 **5.** 192 mm^2 **6.** 322 km^2 **7.** 3,120 mi^2 **8.** 285 $in.^2$ **9.** 1, 6; 2, 3 **10.** 320 m^2 **11.** 1,152 yd^2; 136 yd **12.** 17 ft^2, 32 ft^2, 45 ft^2, 56 ft^2, 65 ft^2, 72 ft^2, 77 ft^2, 80 ft^2, 81 ft^2

Guided Problem Solving 8-2

1. Estimate the area of Tennessee from the map shown. **2.** a parallelogram **3.** Use the formula $A = bh$ where b is the base and h is the height. **4.** 110 mi **5.** 380 mi **6.** $A = 110 \cdot 380$ **7.** 41,800 mi^2 **8.** More; the southeast corner of Tennessee does not fill the parallelogram completely, so the estimate is more than the actual area. **9.** 21,875 ft^2

Practice 8-3

1. 8.2 ft **2.** 23.9 in. **3.** 34.6 cm **4.** 416 ft **5.** 299 cm^2 **6.** 59.22 mi^2 **7.** 26.8 km^2 **8.** 1,325 yd^2 **9.** 4, 4, 4; 5, 5, 2; 3, 3, 6; 2, 2, 8; 1, 1, 10 **10.** Area: 12.7 m^2; perimeter: 16.2 m

Guided Problem Solving 8-3

1. Find the perimeter of the rhombus. **2.** Measure the length of each side and add the lengths together. **3.** An equilateral triangle is a triangle whose sides are all equal lengths. **4.** Check students' answers. **5.** Check students' answers. **6.** Check students' answers. **7.** 24 in. **8.** 4×6 in. = 24 in.; yes **9.** 20 in.

Practice 8-4

1. 135 ft^2 **2.** 199.82 mm^2 **3.** 240 $in.^2$ **4.** 96.25 mi^2 **5.** 88 m^2 **6.** 144 $in.^2$ **7.** 1,001 ft^2 **8.** 86 cm^2 **9.** 2,848 m^2 **10a.** 1,125 cm^2 **10b.** 2,475 cm^2 **11.** 1, 7; 2, 6; 3, 5; 4, 4

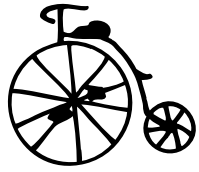
Guided Problem Solving 8-4

1. 17 in. long; 39 in. long; 16 in. **2.** Find the area of the dulcimer. **3.** Use the formula $A = \frac{1}{2}h(b_1 + b_2)$. **4.** 16 in. **5.** 17 in. and 39 in. **6.** $A = \frac{1}{2}(16)(39 + 17)$ **7.** 448 $in.^2$ **8.** The bases are the parallel sides. **9.** $A = \frac{1}{2}(16)(20 + 36) = 448$ $in.^2$; they are equal because $17 + 39 = 20 + 36 = 56$.

Practice 8-5

1. 9.4 in.; 7.1 $in.^2$ **2.** 12.6 m; 12.6 m^2 **3.** 22.0 ft; 38.5 ft^2 **4.** 37.7 km; 113.1 km^2 **5.** 25.1 mi; 50.3 mi^2 **6.** 94.2 in.; 706.9 $in.^2$ **7.** 98.0 m; 764.5 m^2 **8.** 53.4 yd; 227.0 yd^2 **9.** 52.8 m; 221.7 m^2 **10.** 12.7 km **11.** 14.6 ft **12.** 66.8 in. **13.** 192 $in.^2$

Guided Problem Solving 8-5

1. 60 in.; circumference; area **2.**  **3.** Find the circumference and area of the front wheel of a high-wheel bicycle. **4.** 60 in. **5.** 30 in. **6.** Use the formula $C = 2\pi r$. **7.** 188.5 in. **8.** Use the formula $A = \pi r^2$. **9.** 2,827.4 $in.^2$ **10.** Divide the area by π and find the square root; divide the circumference by 2π. **11.** $C = 75.4$ in.; $A = 452.4$ $in.^2$

Practice 8-6

1. 8 **2.** 9 **3.** 10 **4.** 11 **5.** 1 **6.** 6 **7.** 5 **8.** 4 **9.** 16 **10.** 14 **11.** 7 **12.** 15 **13.** rational **14.** irrational **15.** rational **16.** rational **17.** rational, integer, whole **18.** irrational **19.** 8 km **20.** 9 m **21.** 11 ft **22.** 15 in. **23.** 14 yd **24.** 13 cm **25.** 0 or 3 **26.** 56 yd **27.** 8, 9 **28.** 7, 8 **29.** 11, 12 **30.** 8, 9 **31.** 13, 14 **32.** 14, 15

Guided Problem Solving 8-6

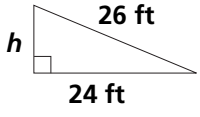
1. Write three irrational numbers between 4 and 5. **2.** An irrational number is a number that cannot be written as a ratio of two integers. As decimals, irrational numbers neither terminate nor repeat. **3.** 16; 25; Sample answer: $\sqrt{17}$ **4.** Sample answer: 4.12112111211112… **5.** Sample answers: $\sqrt{19}$, 4.71771777177771… **6.** infinitely many **7.** yes; no; no **8.** Sample answers: $\sqrt{5}$, 2.30330333033330…, 2.52552555255552…

Practice 8-7

1. 13 ft **2.** 15.8 cm **3.** 12.1 m **4.** $x = 22$ cm **5.** $x = 51$ in. **6.** $x = 16$ ft **7.** $x = 25$ m **8.** $x = 111$ yd **9.** $x = 18$ mi **10.** $x = 23.0$ m **11.** $x = 39.8$ ft **12.** $x = 12.6$ mi **13.** 70.7 yd **14.** 67.4 ft

Guided Problem Solving 8-7

1. 26 ft; 24 ft; height **2.** Find the height of the pole.

3. 

4. $a^2 + b^2 = c^2$ **5.** c **6.** a or b

7. 10 ft **8.** $10^2 + 24^2 = 26^2$; yes **9.** 8 in.

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