Answers

7.5 Warm Up
For use before Activity 7.5

1. $x = 24$ **2.** $x = 10$ **3.** $x = 20$

4. $x = 28$ **5.** $x = 80$ **6.** $x = 81$

7.5 Start Thinking!
For use before Lesson 7.5

Sample answer: You must first determine the scale. You will also need to use a measuring device to measure the distance you will be traveling. Then you need to convert the scale distance to actual distance.

7.5 Warm Up
For use before Lesson 7.5

1. 28 ft   **2.** 42 ft   **3.** 120 ft

4. 7.6 ft   **5.** 160 ft   **6.** 1700 ft

7.5 Practice A

1. a. 24 ft   **b.** 8 ft by 4 ft   **c.** 8 ft by 8 ft

   d. $33.\overline{3}\%$ **e.** $3 : 4$ **f.** $1 : 2$ **g.** no   **h.** $33.\overline{3}\%$

2. 15 ft   **3.** 35 m   **4.** 4 yd   **5.** 2.5 cm

6. a. 1 in. : 0.5 ft   **b.** $\dfrac{1}{6}$

7.5 Practice B

1. a. 12 ft by 20 ft   **b.** 8 ft by 6 ft   **c.** 14 ft   **d.** $8 : 7$

   e. $1 : 1$; They both have the same number of squares.

   f. closet   **g.** both the same   **h.** 144 ft^2

2. 25 km   **3.** 12.5 in.   **4.** 9.6 ft   **5.** 13 m

6. should be model : actual; $\dfrac{1}{8} = \dfrac{x \text{ ft}}{48 \text{ ft}}$

$$x = 6 \text{ ft}$$
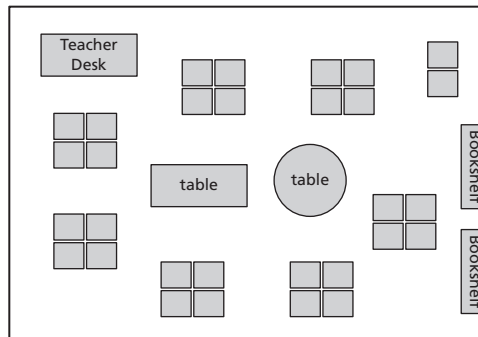
7.5 Enrichment and Extension

Answer should include, but is not limited to: The drawing should fit on the grid and a scale should be included. All items should be drawn to scale, and their lengths should be labeled.

7.5 Puzzle Time

MICE CUBES

Technology Connection

1. *Sample answer:*

2. *Answer should include, but it not limited to:* aspects of design such as sufficient walking space, teacher accessibility to all desks, ability or inability to see a particular chalkboard, ease of collaboration among peers, etc.

Chapter 8

8.1 Start Thinking!
For use before Activity 8.1

Check students' piems.

8.1 Warm Up
For use before Activity 8.1

1. 24 m   **2.** 40 cm   **3.** 36 yd

4. 120 ft   **5.** 16 in.   **6.** 60 mm

8.1 Start Thinking!
For use before Lesson 8.1

Sample answer: The circumference of a tree trunk is easier to measure. Unless the tree is cut down, you do not have access to the circular cross section in order to measure the diameter. The diameter of a quarter is easier to measure. You only need a ruler to measure across the quarter. In general, it is usually easier to measure the diameter of a circular object. The circumference is easier to measure only when you cannot access the diameter to measure it.

8.1 Warm Up
For use before Lesson 8.1

1. about 37.68 in.   **2.** about 12.56 ft

3. about 22 cm   **4.** about 62.8 ft

5. about 44 mm   **6.** about 3.14 in.

8.1 Practice A

1. 30 ft   **2.** 4 m   **3.** 32 mm

4. 5 cm   **5.** 12 in.   **6.** 3.5 yd

Answers

7. about 53.38 m   **8.** about 18.84 ft

9. about 88 in.   **10.** about 56.54 mm

11. about 20.56 in.   **12.** about 25.7 yd

13. a. 8 mm; 24 mm   **b.** 3 times greater

14. $131.56   **15.** about 5.14 ft

8.1 Practice B

1. about 81.64 m   **2.** about 37.68 ft

3. about 264 in.   **4.** about 72 yd

5. about 31.05 ft   **6.** about 28.27 cm

7.

Circle	A	B	C	D
Radius	2.5 ft	1 ft	32 ft	3.5 ft
Diameter	60 in.	24 in.	768 in.	84 in.

8. about 9.42 in.

9. yes; The diameter of each of the small circles in diagram B is 2 feet. Because there are 5 circles along each side of the square, the length of each side is $5 \cdot 2 = 10$ feet.

10. about 9.6 times

8.1 Enrichment and Extension

1. 25.12 in., 50.24 in.   **2.** 43.96 ft, 87.92 ft

3. 47.1 cm, 94.2 cm

4. The circumference is multiplied by 2.

5. The circumference is multiplied by n.

6. 12.85 mm, 6.425 mm   **7.** 5.14 in., 2.57 in.

8. 51.4 m, 25.7 m

9. The perimeter is multiplied by $\dfrac{1}{2}$.

10. The perimeter is multiplied by n.

8.1 Puzzle Time

HE HAD TOO MUCH TIME ON HIS HANDS

8.2 Start Thinking!
For use before Activity 8.2

Sample answer: To find the perimeter of an irregular shape, you can add all of the different straight sections (or circular sections). To find a distance on a map, assuming that the route traveled is not along a straight line, you must add all of the straight sections to estimate the total distance.

8.2 Warm Up
For use before Activity 8.2

1. 16 cm   **2.** 17 ft   **3.** 52 in.

4. 25 m   **5.** about 56.52 in.   **6.** about 62.8 ft

8.2 Start Thinking!
For use before Lesson 8.2

Sample answer: yes; It is made up of a rectangle and two semicircles. Some examples: windows (rectangle and semicircle), some company and organization logos, a first place ribbon (circle and rectangles), some flowers

8.2 Warm Up
For use before Lesson 8.2

1. 24 units   **2.** 24 units

3. about 15 units   **4.** about 13.71 units

5. about 20.5 units   **6.** about 22.28 units

8.2 Practice A

1. about 24 in.   **2.** about 28 in.   **3.** about 21.42 in.

4. 34 yd   **5.** 24 in.   **6.** 60 mm

7. 31 m   **8.** 24 ft   **9.** 64 cm

10. about 23.42 ft   **11.** $3685.90

8.2 Practice B

1. about 22 in.   **2.** 28 in.

3. about 22 in.   **4.** 27 m

5. about 140.76 cm   **6.** 28 in.

7. The perimeter calculation included the circumference of the circle instead of the perimeter of the semicircle.

Perimeter $\approx 2 + 7 + 2 + 10.99$
$$= 21.99 \text{ ft}$$

8. about $211.31

9. *Sample answer:*
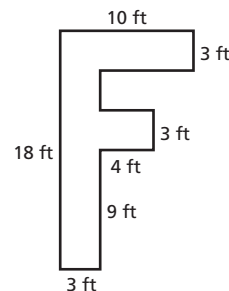
yes; For example, if the 11 ft by 3 ft rectangle on the bottom of the F is shortened to be a 6 ft by 3 ft rectangle, the perimeter decreases by 10 ft.

Answers

8.2 Enrichment and Extension

1. about 25.12 in. **2.** about 18.84 m

3. about 34.26 ft **4.** about 30.26 yd

5. about 55.4 cm **6.** about 50.24 mm

8.2 Puzzle Time

LIBRARY

8.3 Start Thinking!
For use before Activity 8.3

Sample answer: **1.** You can divide it into several triangles each with a vertex at the center of the circle. **2.** You can put it on grid paper and estimate the number of squares that are covered. **3.** You can divide it into tall, narrow rectangles.

8.3 Warm Up
For use before Activity 8.3

1. 63 in.^{2} **2.** 14 m^2 **3.** 66 yd^2

4. 50 cm^2 **5.** 22.4 m^2 **6.** 1 mm^2

8.3 Start Thinking!
For use before Lesson 8.3

Sample answer: It is easier to use $\dfrac{22}{7}$ if the radius is a multiple of 7. It is easier to use 3.14 in all other instances. Check students' word problems.

8.3 Warm Up
For use before Lesson 8.3

1. about 50.24 in.^{2} **2.** about 154 ft^2

3. about 3.14 cm^2

8.3 Practice A

1. about 78.5 m^2 **2.** about 7850 mm^2

3. about 1256 in.^{2} **4.** about 38.5 ft^2

5. about 1386 mm^2 **6.** about 3850 cm^2

7. about 50.24 ft^2 **8.** about 15,400 cm^2

9. about 113.04 in.^{2} **10.** about 28.26 in.^{2}

11. $\dfrac{99}{224}$ in.^{2} **12.** about 153.86 in.^{2}

8.3 Practice B

1. about 962.5 in.^{2} **2.** about 19.625 m^2

3. about 7234.56 mm^2 **4.** about 157 in.^{2}

5. about 100.48 m^2 **6.** about 693 ft^2

7. about 2464 ft^2 **8.** about 28.26 ft^2

9. a. $A = \pi r^2$ **b.** $A = \pi\left(\dfrac{r}{2}\right)^2$

  c. The circle's area is one fourth of the area of the circle whose radius is twice as large; The area formula for the smaller circle can be rewritten as $A = \pi\left(\dfrac{r}{2}\right)^2 = \dfrac{1}{4}\pi r^2$; this is one fourth of the area of the larger circle.

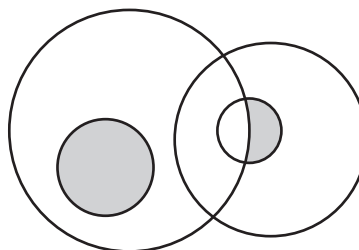**10.** The radius is 2 units; Set the circumference equal to the area to get $2\pi r = \pi r^2$.
So $\pi \bullet r \bullet 2 = \pi \bullet r \bullet r$; the value of r must be 2.

8.3 Enrichment and Extension

1. 1.5625 **2.** 2.25 **3.** 16% **4.** $\dfrac{1}{9}$

5. a. $3.\overline{5}\%$

  b.

  13,816 mi^2

  c.
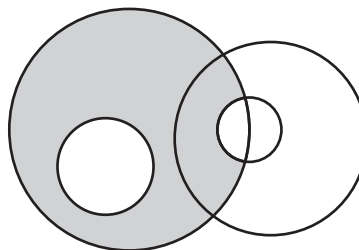
  56,834 mi^2

8.3 Puzzle Time

HAMWORK

8.4 Start Thinking!
For use before Activity 8.4

Answers will vary. *Sample answer:* If you are planning on painting a room, you will need to calculate the area of each section of wall to figure out how much paint to buy. The windows and doorways make some walls composite figures.

Answers

8.4 Warm Up
For use before Activity 8.4

1. 100 ft^2 **2.** 256 in.^2

3. 150 m^2 **4.** 30 cm^2

5. about 314 ft^2 **6.** about 7850 yd^2

8.4 Start Thinking!
For use before Lesson 8.4

Check students' drawings and calculations.

8.4 Warm Up
For use before Lesson 8.4

1. 21 units^2 **2.** 20 units^2

3. 12 units^2 **4.** about 12.53 units^2

5. 18 units^2 **6.** about 17.72 units^2

8.4 Practice A

1. 30 units^2 **2.** 33 units^2 **3.** 16 units^2

4. 48 in.^2 **5.** about 178.5 mm^2

6. 402 ft^2 **7.** 210 cm^2

8. 60 yd^2 **9.** 40 m^2

10. perimeter: about 37.85 ft; area: about 69.625 ft^2

11. a. 144 in.^2 **b.** 72 in.^2 **c.** $\$172.80$

8.4 Practice B

1. perimeter: about 23.42 ft; area: about 38.13 ft^2

2. perimeter: 18 mm; area: 16 mm^2

3. perimeter: 26.6 cm; area: 42.6 cm^2

4. 27.98 in.^2 **5.** about 4.55 m^2 **6.** 6.63 yd^2

7. The area calculation included the area of the circle instead of the area of the semicircle.

$$\text{Shaded area} \approx (4 \bullet 4) - \left(\frac{3.14 \bullet 2^2}{2} \right)$$
$$= 16 - 6.28$$
$$= 9.72 \text{ ft}^2$$

8. a. 39 in. **b.** 54 in.^2

  c. no; The dimensions of the logo are 10.5 in. by 12 in., but the dimensions of the notebook cover are 8.5 in. by 11 in.

8.4 Enrichment and Extension

1. I: 78 m^2 **2.** P: about 50.7 m^2

3. M: 50 m^2 **4.** S: about 75.36 m^2

5. C: about 21.98 m^2 **6.** T: 82.775 m^2

7. O: about 58.875 m^2 **8.** E: 98.935 m^2

9. O: about 37.68 m^2 **10.** COMPOSITE

8.4 Puzzle Time

DO WE WALK OR HOP ON A DOG

Technology Connection

1. 260.62 cm **2.** 260.8571429 cm

3. 260.7521902 cm

4. no; They would be 260.62, 260.86, and 260.75.

5. *Sample answer:* In this example, rounding to the nearest integer would give a consistent value.

6. 433 mi or 434 mi

Chapter 9

9.1 Start Thinking!
For use before Activity 9.1

Sample answer: Measure the length, width, and height of the box and find the sum of the areas of each side. Take the box apart and find the area of the net.

9.1 Warm Up
For use before Activity 9.1

1. 62 **2.** 28 **3.** 54

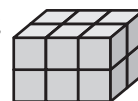**4.** 142 **5.** 40 **6.** 304

9.1 Start Thinking!
For use before Lesson 9.1

Sample answer: Area is the amount of space a two-dimensional object takes up. Surface area is the sum of the areas of each surface of a three-dimensional object. Surface area is measured in square units.
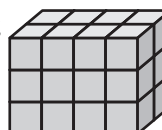
9.1 Warm Up
For use before Lesson 9.1

1. 32 in.^2; **2.** 22 in.^2;

3. 52 in.^2; **4.** 46 in.^2;