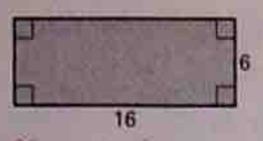
11 Lesson Practice Level B

LESSON 11.1

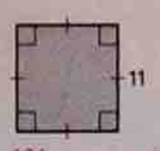
Practice B

For use with pages 720–726

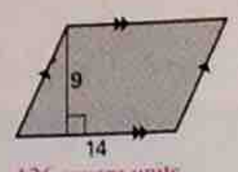
Find the area of the polygon.

1. 

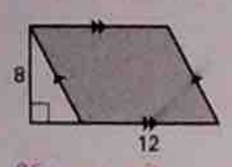
96 square units

2. 

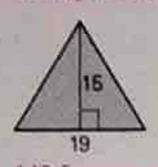
121 square units

3. 

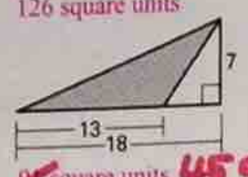
126 square units

4. 

96 square units

5. 

142.5 square units

6. 

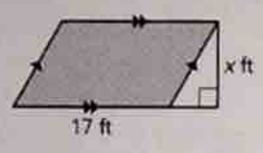
~~91~~ square units 45.5 u^2

The lengths of the hypotenuse and one leg of a right triangle are given. Find the perimeter and area of the triangle.

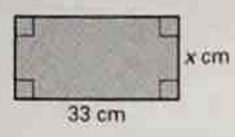
7. Hypotenuse: 26 cm; leg: 24 cm — 60 cm; 120 cm^2
8. Hypotenuse: 50 mm; leg: 14 mm — 112 mm; 336 mm^2
9. Hypotenuse: 37 ft; leg: 12 ft — 84 ft; 210 ft^2
10. Hypotenuse: 85 in.; leg: 77 in. — 198 in.; 1386 $in.^2$

Find the value of *x*.

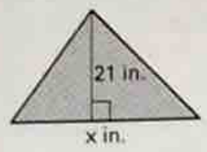
11. $A = 153\ ft^2$ 9



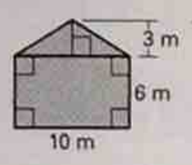
12. $A = 528\ cm^2$ 16



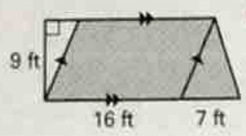
13. $A = 399\ in.^2$ 38



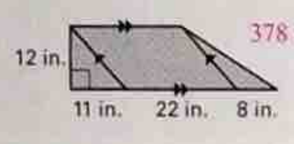
Find the area of the shaded polygon.

14. 

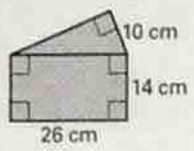
75 m^2

15. 

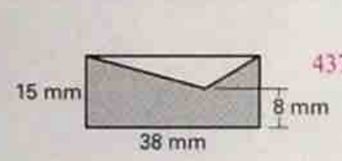
175.5 ft^2

16. 

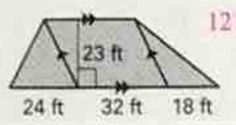
378 $in.^2$

17. 

484 cm^2

18. 

437 mm^2

19. 

1219 ft^2

LESSON 11.1

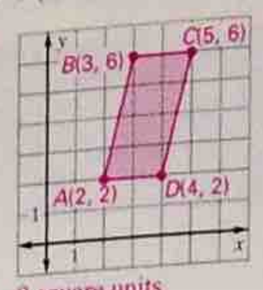
LESSON 11.1

Practice B *continued*

For use with pages 720–726

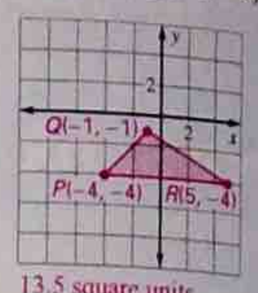
Graph the points and connect them to form a polygon. Find the area of the polygon.

20. $A(2, 2), B(3, 6), C(5, 6), D(4, 2)$



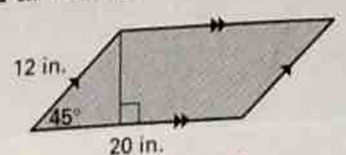
8 square units

21. $P(-4, -4), Q(-1, -1), R(5, -4)$

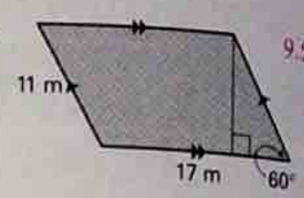


13.5 square units

Find the height and area of the polygon.

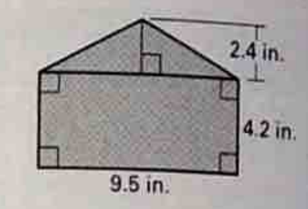
22. 

8.485 in.; 169.706 $in.^2$

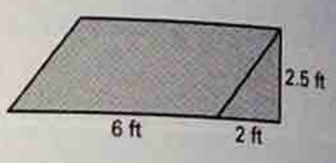
23. 

9.526 m; 161.947 m^2

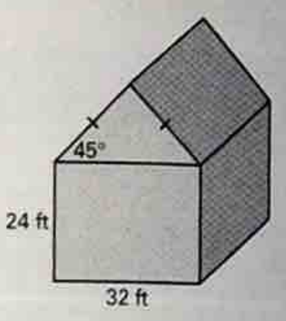
24. **Envelopes** You have an envelope that is 9.5 inches by 4.2 inches and has a triangular flap with a height of 2.4 inches. What is the area of the envelope shown in the diagram? 51.3 $in.^2$



25. **Floor Tile** You have a piece of floor tile in the shape of a parallelogram that has a base of 6 feet and a height of 2.5 feet. You cut a triangular piece of tile with a base of 2 feet to fit next to the other piece, as shown. Find the total area of the tile in square feet and square inches. 17.5 ft^2; 2520 $in.^2$



26. **Painting** A painter is painting the back of your garage, which has the measurements shown. The painter can paint 200 square feet per hour and charges $25 per hour. How much will you have to pay if the painter rounds the time spent painting to the nearest half hour? $125

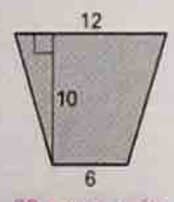


LESSON 11.2

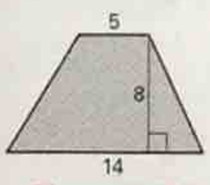
Practice B

For use with pages 729–736

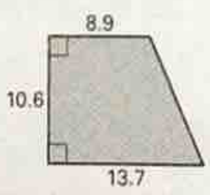
Find the area of the trapezoid.

1. 

90 square units

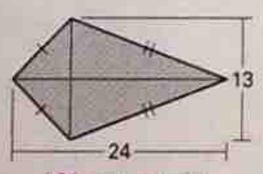
2. 

76 square units

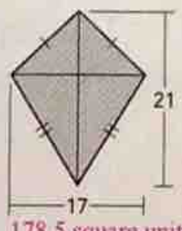
3. 

119.78 square units

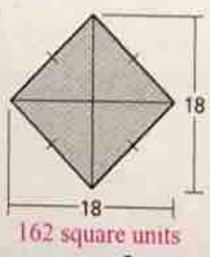
Find the area of the rhombus or kite.

4. 

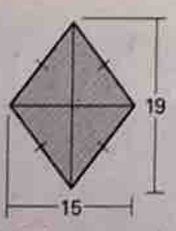
156 square units

5. 

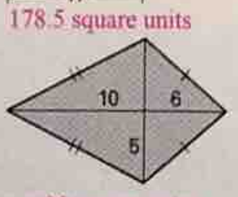
178.5 square units

6. 

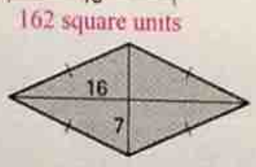
162 square units

7. 

142.5 square units

8. 

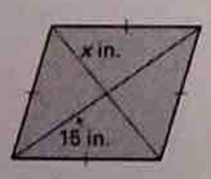
80 square units

9. 

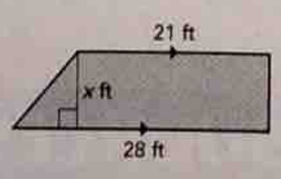
224 square units

Use the given information to find the value of *x*.

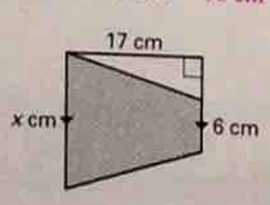
10. Area = 330 $in.^2$ 11 in.



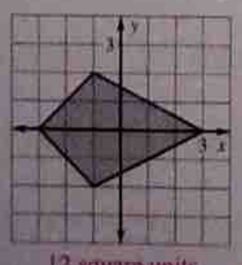
11. Area = 196 ft^2 8 ft



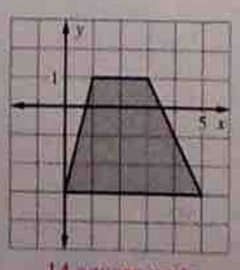
12. Area = 187 cm^2 16 cm



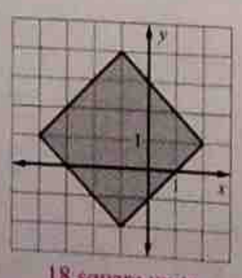
Find the area of the figure.

13. 

12 square units

14. 

14 square units

15. 

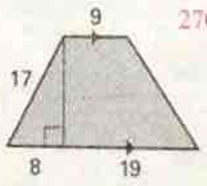
18 square units

LESSON 11.2

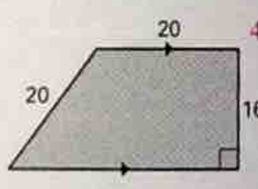
Practice B *continued*

For use with pages 729–736

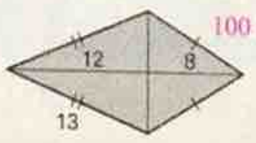
Find the area of the polygon.

16. 

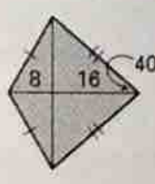
270 square units

17. 

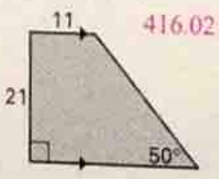
416 square units

18. 

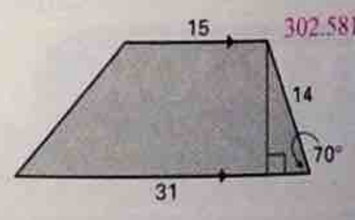
100 square units

19. 

322.2143 square units

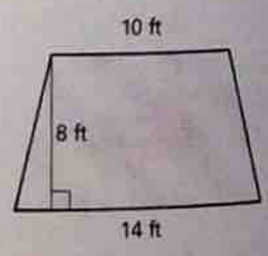
20. 

416.0215 square units

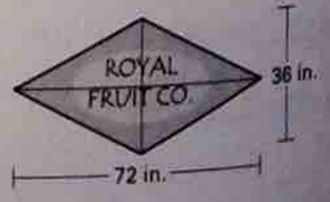
21. 

302.5810 square units

22. **Washing Windows** You are going to wash a large glass window in the shape of a trapezoid. The lengths of the bases of the window are 10 feet and 14 feet. The height is 8 feet. You can wash 6 square feet of the window in 1 minute. How long will it take you to wash the entire window? 16 min



23. **Company Logo** A company has a logo that is in the shape of a rhombus. The company wants to put its logo on a sign outside the building. On the sign, the diagonals of the rhombus will be 72 and 36 inches long. Find the area of the logo. 1296 $in.^2$



24. **Flower Decoration** You are making a flower decoration for your house in the shape of a kite. The area of the decoration is 450 square centimeters and the length of one diagonal is 25 centimeters. Find the length of the other diagonal. 36 cm

LESSON 11.3

Practice B

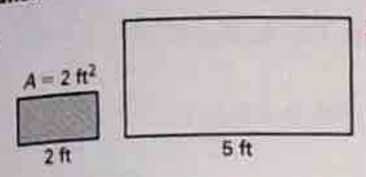
For use with pages 737–743

Complete the table of ratios for similar polygons.

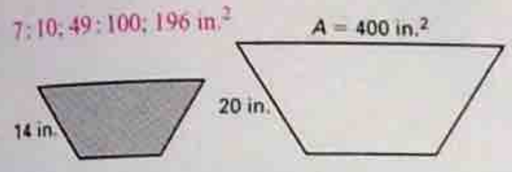
	Ratio of corresponding side lengths	Ratio of perimeters	Ratio of areas
1.	5 : 8	5 : 8	25 : 64
2.	4 : 7	4 : 7	16 : 49
3.	13 : 6	13 : 6	169 : 36
4.	66 : 18 = ? 11 : 3	11 : 3	121 : 9

Corresponding lengths in similar figures are given. Find the ratios (shaded to unshaded) of the perimeters and areas. Find the unknown area.

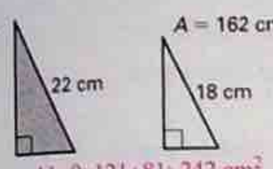
5. 2 : 5; 4 : 25; 12.5 ft²



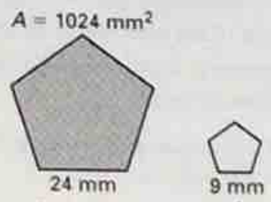
6. 7 : 10; 49 : 100; 196 in.²



7. 11 : 9; 121 : 81; 242 cm²



8. 8 : 3; 64 : 9; 144 mm²



The ratio of the areas of two similar figures is given. Write the ratio of the lengths of corresponding sides.

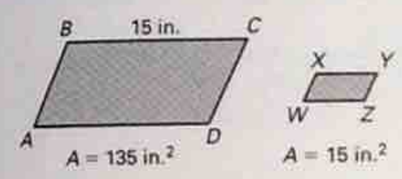
9. Ratio of areas = 16 : 81 — 4 : 9

10. Ratio of areas = 25 : 196 — 5 : 14

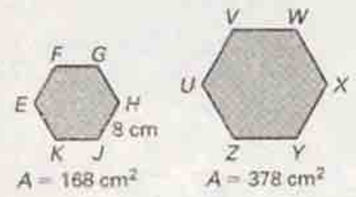
11. Ratio of areas = 144 : 49 — 12 : 7

Use the given area to find *XY*.

12. $ABCD \sim WXYZ$ 5 in.



13. $EFGHJK \sim UVWXYZ$ 12 cm



LESSON 11.3

LESSON 11.3 **Practice B** *continued*

For use with pages 737–743

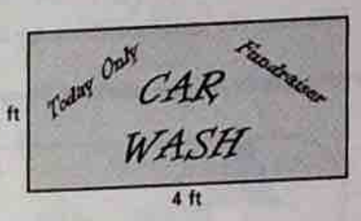
14. Regular octagon *ABCDEFGH* has a side length of 10 millimeters and an area of 160 square millimeters. Regular octagon *JKLMNOPQ* has a perimeter of 200 millimeters. Find its area. 1000 mm²

15. Kites *RSTU* and *VWXY* are similar. The area of *RSTU* is 162 square feet. The diagonals of *VWXY* are 32 feet long and 18 feet long. Find the area of *VWXY*. Then use the ratio of the areas to find the lengths of the diagonals of *RSTU*. 288 ft²; 24 ft and 13.5 ft

16. $\triangle ABC$ and $\triangle DEF$ are similar. The height of $\triangle ABC$ is 42 inches. The base of $\triangle DEF$ is 7 inches and the area is 42 square inches. Find the ratio of the area of $\triangle ABC$ to the area of $\triangle DEF$. 49 : 4

17. Rectangles *ABCD* and *EFGH* are similar. The width of *ABCD* is 18 centimeters and the perimeter is 120 centimeters. The length of *EFGH* is 91 centimeters. Find the ratio of the side lengths of *ABCD* to the side lengths of *EFGH*. 6 : 13

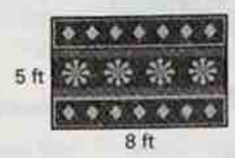
18. **Posters** Your school had a car wash to raise money. A poster that was used to attract customers is shown. You decide that you will have the car wash again next year. You will have a similar poster but you will increase the length to 6 feet to try to attract more customers. Find the area of the new poster. 18 ft²

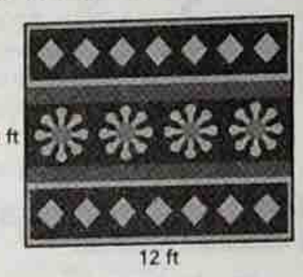


19. **Rug Costs** You are comparing the two rugs shown below. You want to be sure that the large rug is priced fairly. The price of the small rug is $84. The price of the large rug is $210.

a. What are the areas of the two rugs? What is the ratio of the area of the small rug to the area of the large rug? 40 ft² and 120 ft²; 1 : 3

b. Compare the rug costs. Do you think the large rug is a good buy? *Explain.* Yes; the area of the larger rug is 3 times the area of the smaller rug, but it is only 2.5 times the cost.





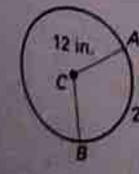
LESSON 11.4

Practice B

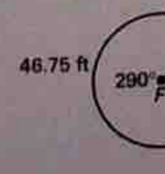
For use with pages 746–752

Use the diagram to find the indicated measure.

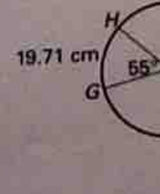
1. Find the circumference. 50.27 ft



2. Find the circumference. 40.84 in.



3. Find the radius. 10.50 cm



Find the indicated measure.

4. The exact radius of a circle with circumference 42 meters $\frac{21}{\pi}$ m

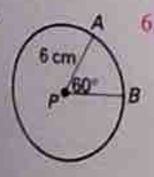
5. The exact diameter of a circle with circumference 39 centimeters $\frac{39}{\pi}$ cm

6. The exact circumference of a circle with diameter 15 inches 15π in.

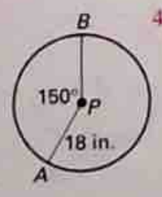
7. The exact circumference of a circle with radius 27 feet 54π ft

Find the length of $\overset{\frown}{AB}$.

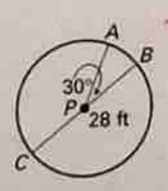
8. 6.28 cm



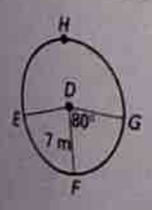
9. 47.12 in.



10. 7.33 ft



In $\odot D$ shown below, $\angle EDF \cong \angle FDG$. Find the indicated measure.



11. $m\overset{\frown}{EFG}$ 160°

12. $m\overset{\frown}{EHG}$ 200°

13. Length of $\overset{\frown}{EFG}$ 19.55 m

14. Length of $\overset{\frown}{EHG}$ 24.43 m

15. $m\overset{\frown}{EHF}$ 280°

16. Length of $\overset{\frown}{FEG}$ 34.21 m

Find the indicated measure.

17. $m\overset{\frown}{AB}$ 114.02°

18. Circumference of $\odot F$ 58.03 ft

19. Radius of $\odot J$ 20.53 cm

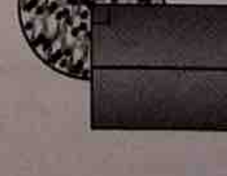
LESSON 11.4

LESSON 11.4 **Practice B** *continued*

For use with pages 746–752

Find the perimeter of the region.

20. 45.71 mm

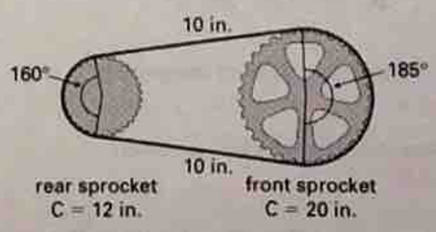


21. 138.56 in.

22. In the table below, $\overset{\frown}{AB}$ refers to the arc of a circle. Complete the table.

Radius	4	11	9.79	4.81	9.5	10.7
$m\overset{\frown}{AB}$	30°	43.02°	105°	75°	88.24°	270°
Length of $\overset{\frown}{AB}$	2.09	8.26	17.94	6.3	14.63	50.42

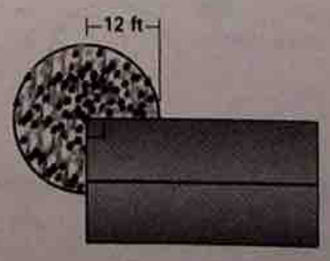
23. **Bicycles** The chain of a bicycle travels along the front and rear sprockets, as shown. The circumference of each sprocket is given.



a. About how long is the chain? about 35.61 in.

b. On a chain, the teeth are spaced in $\frac{1}{2}$ inch intervals. About how many teeth are there on this chain? about 71 teeth

24. **Enclosing a Garden** You have planted a circular garden adjacent to one of the corners of your garage, as shown. You want to fence in your garden. About how much fencing do you need? about 56.55 ft



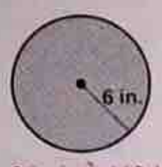
11 Lesson Practice Level B

LESSON 11.5

Practice B

For use with pages 755–761

Find the exact area of the circle. Then find the area to the nearest hundredth.

1. 

36π in.^{2}; 113.10 in.^{2}

2. 

110.25π ft^2; 346.36 ft^2

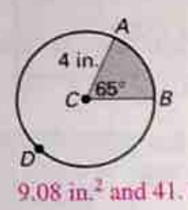
3. 

153.76π cm^2; 483.05 cm^2

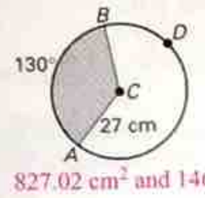
Find the indicated measure.

4. The area of a circle is 173 square inches. Find the radius. 7.42 in.
5. The area of a circle is 290 square meters. Find the radius. 9.61 m
6. The area of a circle is 654 square centimeters. Find the diameter. 28.86 cm
7. The area of a circle is 528 square feet. Find the diameter. 25.93 ft

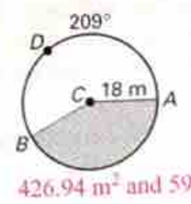
Find the areas of the sectors formed by $\angle ACB$.

8. 

9.08 in.^{2} and 41.19 in.^{2}

9. 

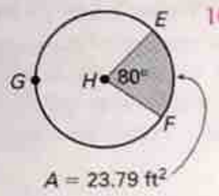
827.02 cm^2 and 1463.20 cm^2

10. 

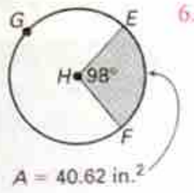
426.94 m^2 and 590.93 m^2

Use the diagram to find the indicated measure.

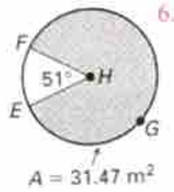
11. Find the area of $\odot H$. 107.06 ft^2



12. Find the radius of $\odot H$. 6.89 in.

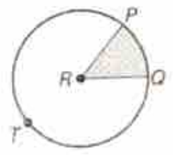


13. Find the diameter of $\odot H$. 6.83 m



The area of $\odot R$ is 295.52 square inches. The area of sector PRQ is 55 square inches. Find the indicated measure.

14. Radius of $\odot R$ 9.70 in.
15. Circumference of $\odot R$ 60.94 in.
16. $m\widehat{PQ}$ 67°
17. Length of $\widehat{PQ}$ 11.34 in.
18. Perimeter of shaded region 30.74 in.
19. Perimeter of unshaded region 69.01 in.

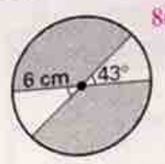


LESSON 11.5

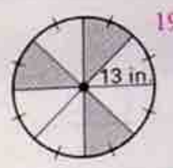
Practice B *continued*

For use with pages 755–761

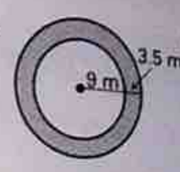
Find the area of the shaded region.

20. 

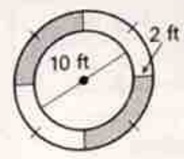
86.08 cm^2

21. 

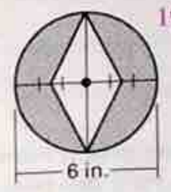
199.11 in.^{2}

22. 

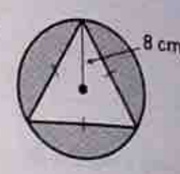
236.40 m^2

23. 

37.70 ft^2

24. 

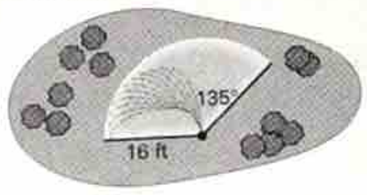
19.27 in.^{2}

25. 

117.92 cm^2

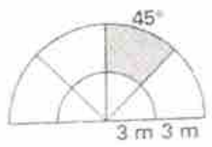
26. **Fountain** A circular water fountain has a diameter of 42 feet. Find the area of the fountain. 1385.44 ft^2

27. **Landscaping** The diagram at the right shows the area of a lawn covered by a water sprinkler.



   a. What is the area of the lawn that is covered by the sprinkler? 301.59 ft^2
   b. The water pressure is weakened so that the radius is 10 feet. What is the area of lawn that will be covered? 117.81 ft^2

28. **Window Design** The window shown is in the shape of a semicircle. Find the area of the glass in the shaded region. 10.60 m^2



LESSON 11.6

Practice B

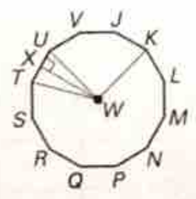
For use with pages 762–769

Find the measure of a central angle of a regular polygon with the given number of sides. Round answers to the nearest tenth of a degree, if necessary.

1. 20 sides 18°
2. 36 sides 10°
3. 120 sides 3°
4. 23 sides 15.7°

Find the given angle measure for the regular dodecagon shown.

5. $m\angle TWU$ 30°
6. $m\angle TWX$ 15°
7. $m\angle XUW$ 75°
8. $m\angle TWK$ 120°
9. $m\angle UWK$ 90°
10. $m\angle XWK$ 105°

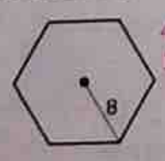


11. **Multiple Choice** Which expression gives the apothem for a regular nonagon with side length 10.5? C

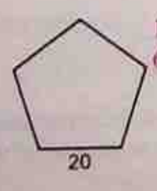
   A. $a = \frac{5.25}{\tan 40^\circ}$
   B. $a = \frac{10.5}{\tan 20^\circ}$
   C. $a = \frac{5.25}{\tan 20^\circ}$
   D. $a = 5.25 \cdot \tan 20^\circ$

12. A regular hexagon has a diameter 22 inches. What is the length of its apothem? Round your answer to the nearest tenth. 9.5 in.
13. A regular octagon has a diameter 8.5 feet. What is the length of its apothem? Round your answer to the nearest tenth. 3.9 ft

Find the perimeter and area of the regular polygon. Round answers to the nearest tenth, if necessary.

14. 

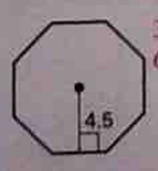
48 units; 165.6 square units

15. 

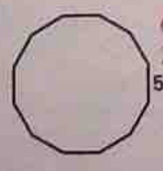
100 units; 690 square units

16. 

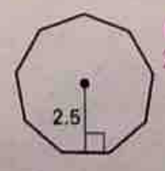
30.8 units; 69.3 square units

17. 

30.4 units; 68.4 square units

18. 

60 units; 279 square units

19. 

16.2 units; 20.3 square units

20. What is the area of a regular 18-gon with a side length of 8 meters? Round your answer to the nearest tenth, if necessary. 1634.4 m^2

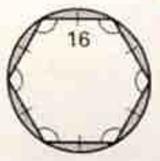
LESSON 11.6

Practice B *continued*

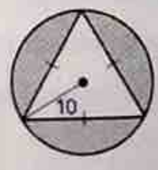
For use with pages 762–769

21. What is the area of a regular 24-gon with a side length of 10 inches? Round your answer to the nearest tenth, if necessary. 4560 in.^{2}
22. What is the area of a regular 30-gon with a radius of 20 feet? Round your answer to the nearest tenth, if necessary. 1253.7 ft^2
23. Find the area of a regular pentagon inscribed in a circle whose equation is given by $(x - 4) + (y - 6) = 16$. 38.4 square units
24. Find the area of a regular octagon inscribed in a circle whose equation is given by $(x - 2) + (y + 3) = 25$. 69.9 square units

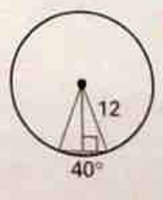
Find the area of the shaded region. Round answers to the nearest tenth, if necessary.

25. 

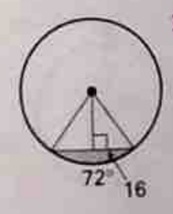
139.1 square units

26. 

183.7 square units

27. 

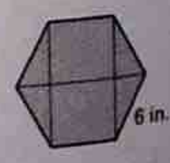
4 square units

28. 

28.2 square units

In Exercises 29 and 30, use the following information.

Tiles You are tiling the floor of a hallway with tiles that are regular hexagons as shown.



29. What is the area of each tile? 93.6 in.^{2}
30. The hallway has a width of 5 feet and a length of 12 feet. At least how many tiles will you need? 8
31. A cup saucer is shaped like a regular decagon with a diameter of 5.5 inches as shown. at least 93 tiles

   a. What is the length of the apothem of the saucer? Round your answer to the nearest tenth. 2.6 in.
   b. What is the perimeter and area of the saucer? Round your answers to the nearest tenth. 17.9 in.; 23.3 square units