

## Unit 11 Review

For 1-3, find the measure of each dimension.

1. A rectangle has a perimeter of 28 inches and a width of 5 inches. What is the length of the rectangle?
  2. A triangle has an area of 12 square centimeters and a height of 12 centimeters. What is the base of the triangle?
  3. A rectangle has an area of 84 square feet and a width of 7 feet. What is the length of the rectangle?
  4. **ABSTRACT REASONING** How is the area formula for a parallelogram derived from the area formula for a rectangle?
5. Convert each of the following angle measures from degrees to radians.

Degrees	Radians	Degrees	Radians
0		180	
30		210	
45		225	
60		240	
90		270	
120		300	
135		315	
150		330	

6. Convert each radian measure to degrees.

Radians	Degrees	Radians	Degrees
$\frac{5\pi}{12}$		3	
$\frac{\pi}{10}$		$\frac{5\pi}{3}$	
$\frac{13\pi}{6}$		$\pi$	

7. A circle has radius 6. A) Find the exact circumference, B) find the circumference as a decimal, C) find the length of the arc subtended by a central angle of 120 degrees, D) find the area of the circle, F) find the area of the sector described in C.

8. A circle has circumference  $24\pi$ . A) Find the diameter and radius, B) find the circumference as a decimal, C) find the length of the arc subtended by a central angle of 210 degrees in terms of pi, D) find the area of the circle in terms of pi, E) find the area of the sector described in C as a decimal.

9. A circle has an area  $144\pi$ . A) Find the diameter and radius, B) find the exact circumference, C) find the length of the arc subtended by a central angle of 90 degrees as a decimal, E) find the area of the sector described in C as a decimal.

10. A circle has circumference 50.24. A) Find the diameter and radius, B) find the circumference as a decimal, C) find the length of the arc subtended by a central angle of 70 degrees in terms of pi, D) find the area of the circle in terms of pi, E) find the area of the sector described in C as a decimal.

11. Describe in words an angle in radians.

12. Explain why  $\pi$  radians is equal to 180 degrees.

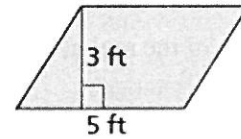
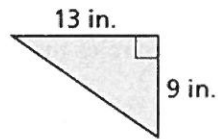
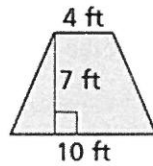
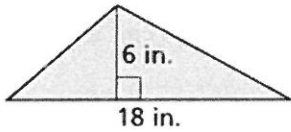
13. Given two of the following, find the third.  $s$  is arc length,  $r$  is radius,  $x$  is an angle in radians.

a.  $s = 10$ ,  $r = 3$ ,  $x = ?$

b.  $s = ?$ ,  $r = 7$ ,  $x = 1.5$

c.  $s = 3$ ,  $r = ?$ ,  $x = 1/4$

14. Find the area of the figure.



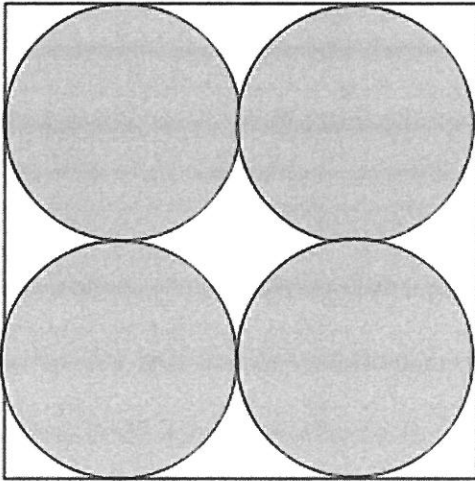
15. Find the exact area of an equilateral triangle with perimeter 48.

16. Find the area of a regular pentagon with side length 12 rounded to the nearest tenth.

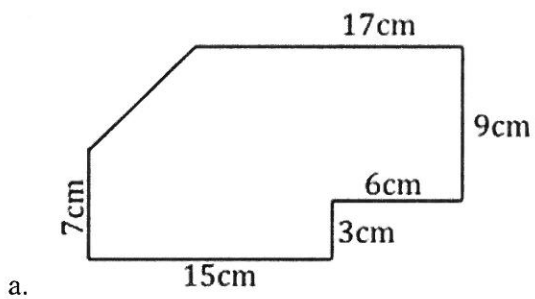
17. Find the exact area of a regular hexagon with radius length 6.

18. Find the area of an octagon with perimeter 72 to the nearest tenth.

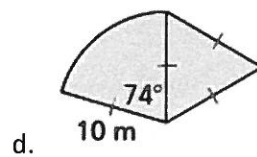
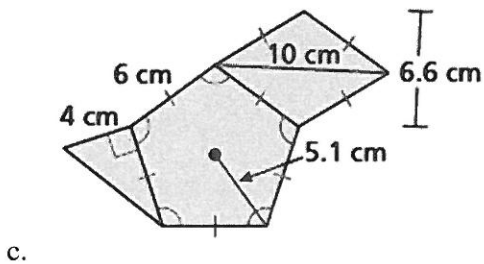
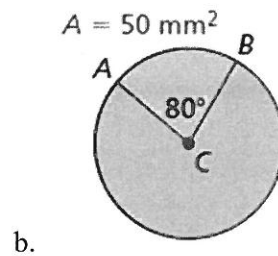
19. Find the area of the region in between the circles inside the square given the area of the square is  $64 \text{ cm}^2$  and the circles are externally tangent.



20. Find the area of each figure.



Find the area of  $\odot C$ .

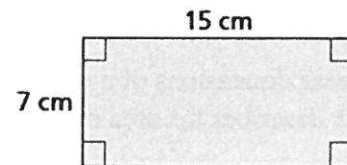


21. Find the area of an isosceles triangle with vertex angle measure 70 degrees and base length 10.

22. Describe how the change affects the perimeter and the area of the rectangle.

Ⓐ multiplying the width by 3

Ⓑ multiplying the length by  $\frac{1}{5}$  and the width by 4



23. A triangle has area  $300 \text{ ft}^2$  and perimeter 200ft. Each dimension is changed by multiplying it by some number  $k$ . The new area is  $75 \text{ ft}^2$ . What is the new perimeter?

24. A rhombus has area  $24 \text{ cm}^2$  and perimeter 16 cm. Each dimension is changed by multiplying it by some number  $k$ . The new perimeter is 48 cm. What is the new area?

25. About 6200 people live in one-fourth of a region with a 5-mile radius. What is the most reasonable estimate for the population density in people per square mile? (TEKS G.12.C)

Ⓐ 80 people per square mile

Ⓑ 250 people per square mile

Ⓒ 315 people per square mile

Ⓓ 425 people per square mile

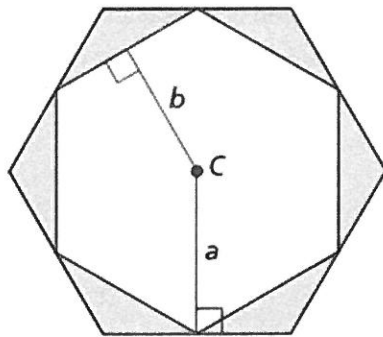
26. The point  $(1, \sqrt{3})$  lies on the circle centered at the origin and containing which point? (TEKS G.12.E)

- Ⓕ (3, 4)                      Ⓖ (4, 0)  
 Ⓗ (0, 2)                      Ⓙ (5, 3)

27. All the linear dimensions of a rectangle are multiplied by  $\frac{1}{4}$ . Which of the following statements describes the area of the new rectangle? (TEKS G.10.B)

- Ⓐ The area of the new rectangle is  $\frac{1}{64}$  times the area of the original rectangle.  
 Ⓑ The area of the new rectangle is  $\frac{1}{16}$  times the area of the original rectangle.  
 Ⓒ The area of the new rectangle is  $\frac{1}{8}$  times the area of the original rectangle.  
 Ⓓ The area of the new rectangle is  $\frac{1}{4}$  times the area of the original rectangle.

28. The figure shows two regular hexagons with center  $C$  and apothems  $a$  and  $b$ . Each vertex of the smaller hexagon is a midpoint of a side of the larger hexagon. What is the total area of the shaded regions when  $a = 8\sqrt{3}$  centimeters and  $b = 12$  centimeters? (TEKS G.11.A)



- Ⓕ  $24\sqrt{3} \text{ cm}^2$                       Ⓖ  $96\sqrt{3} \text{ cm}^2$   
 Ⓗ  $288\sqrt{3} \text{ cm}^2$                       Ⓙ  $672\sqrt{3} \text{ cm}^2$