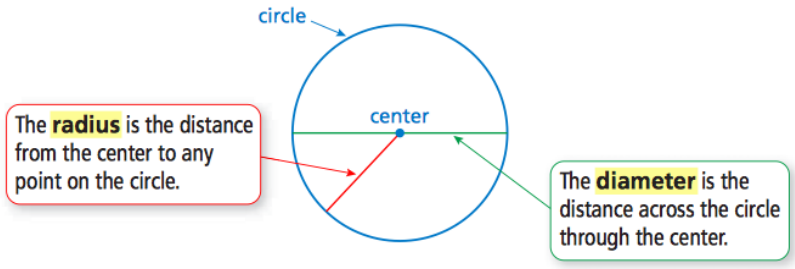
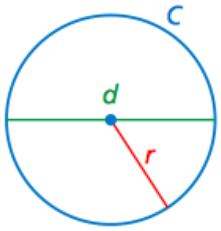
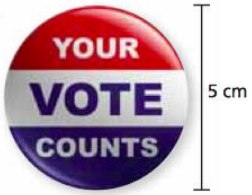
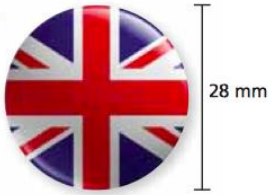
Name _____ **Ms. Abadie's** _____ **Period**

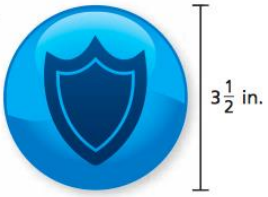
Chapter 8	Circles and Area
MAFS.7.G.2.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
Essential Question	How can you find the circumference of a circle? *In this lesson I am learning about circles and circumference so I can use them to help me find the circumference of a circle.*
8.1 Circles and Circumference	A **circle** is the set of all points in a plane that are the same distance from a point called the **center**. 
	Radius and Diameter **Words** The diameter d of a circle is twice the radius r. The radius r of a circle is one-half the diameter d. **Algebra** **Diameter:** $d = 2r$ **Radius:** $r = \frac{d}{2}$
	The distance around a circle is called the **circumference**. The ratio $\frac{\text{circumference}}{\text{diameter}}$ is the same for *every* circle and is represented by the Greek letter π, called **pi**. The value of π can be approximated as 3.14 or $\frac{22}{7}$.
	Circumference of a Circle **Words** The circumference C of a circle is equal to π times the diameter d or π times twice the radius r. **Algebra** $C = \pi d$ or $C = 2\pi r$ 
	Vocabulary and Concept Check 1. **VOCABULARY** What is the relationship between the radius and the diameter of a circle? 2. **WHICH ONE DOESN'T BELONG?** Which phrase does *not* belong with the other three? Explain your reasoning. the distance around a circle π times twice the radius π times the diameter the distance from the center to any point on the circle

Homework 8.1 Practice A #4-6

Find the radius of the button.

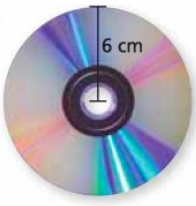
3. 

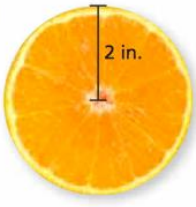
4. 

5. 

Homework 8.1 Practice A #1-3

Find the diameter of the object.

6. 

7. 

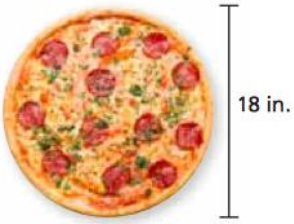
8. 

Homework 8.1 Practice A #7-9

Find the circumference of the pizza. Use 3.14 or $\frac{22}{7}$ for π.

9. 

10. 

11. 

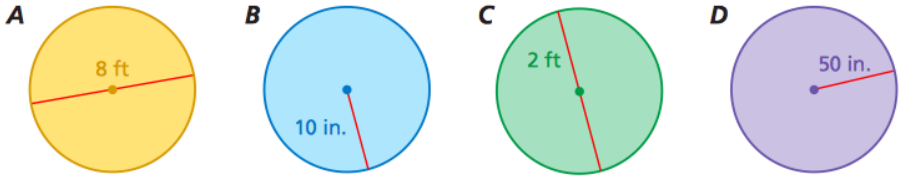
12. **CHOOSE TOOLS** Choose a real-life circular object. Explain why you might need to know its circumference. Then find the circumference.

13. **SINKHOLE** A circular sinkhole has a circumference of 75.36 meters. A week later, it has a circumference of 150.42 meters.

    a. Estimate the diameter of the sinkhole each week.

    b. How many times greater is the diameter of the sinkhole now compared to the previous week?

14. REASONING Consider the circles A, B, C, and D.



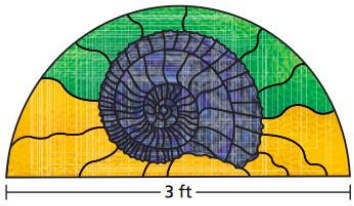
a. Without calculating, which circle has the greatest circumference?

b. Without calculating, which circle has the least circumference?

Homework
8.1 Practice A
#10-12, 15

Find the perimeter of the window.

15.



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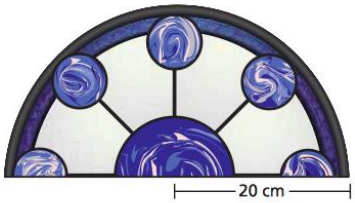
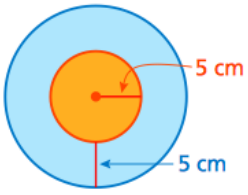


Find the circumferences of both circles.

17.



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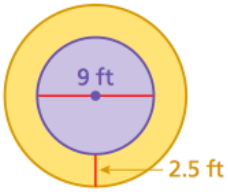

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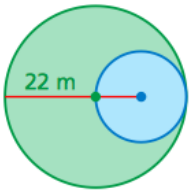
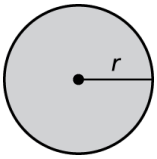


20. STRUCTURE Because the ratio $\frac{\text{circumference}}{\text{diameter}}$ is the same for every circle, is the ratio $\frac{\text{circumference}}{\text{radius}}$ the same for every circle? Explain.

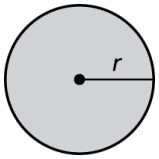
21. WIRE A wire is bent to form four semicircles. How long is the wire?

Find the missing dimension of the circle.

22. Diameter = 24 in.

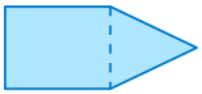
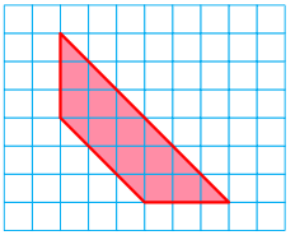
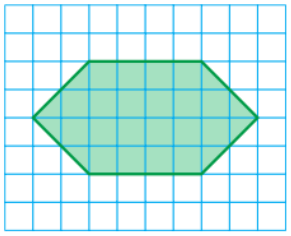
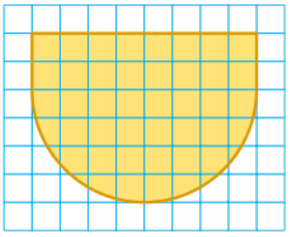
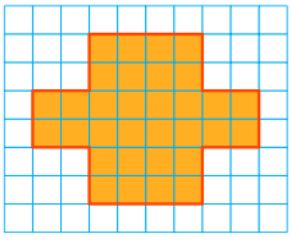
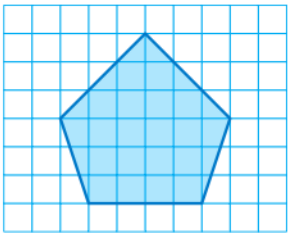
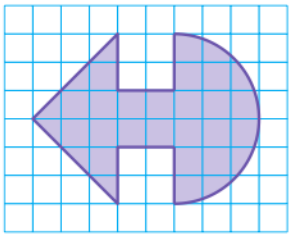


23. Circumference = 314 m



24. The radius of a circle is 18 meters. What is the diameter?

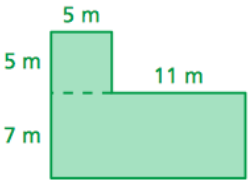
25. Your kitchen clock has a radius of 5 inches. What is the circumference?

MAFS.7.G.2.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
Essential Question	How can you find the perimeter of a composite figure? *In this lesson I am learning how to use what I know about perimeter and circumference so I can find the distance around a figure.*
8.2 Perimeters of Composite Figures	**Vocabulary and Concept Check** 1. **REASONING** Is the perimeter of the composite figure equal to the sum of the perimeters of the individual figures? Explain. 2. **OPEN-ENDED** Draw a composite figure formed by a parallelogram and a trapezoid. 
Homework **8.2 Practice A** **#1-3**	**Estimate the perimeter of the figure.** 3.  4.  5.  6.  7.  8. 

Homework 8.2 Practice A #4-9

Find the perimeter of the figure.

9.



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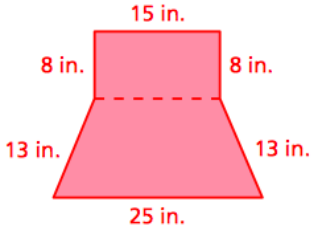

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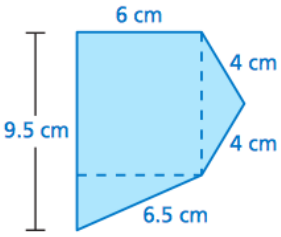
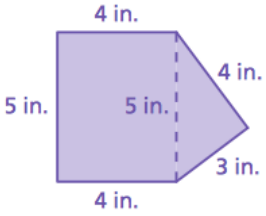


12. ERROR ANALYSIS Describe and correct the error in finding the perimeter of the figure.

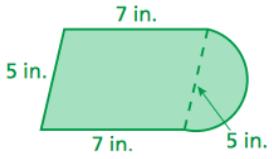


✗ Perimeter = 4 + 3 + 4 + 5 + 4 + 5
= 25 in.

Homework 8.2 Practice A #10-11

Find the perimeter of the figure.

13.



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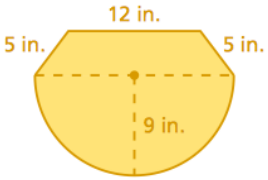

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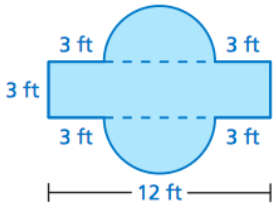
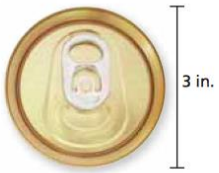
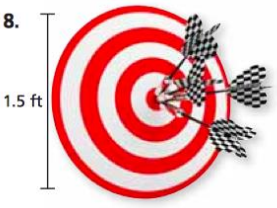


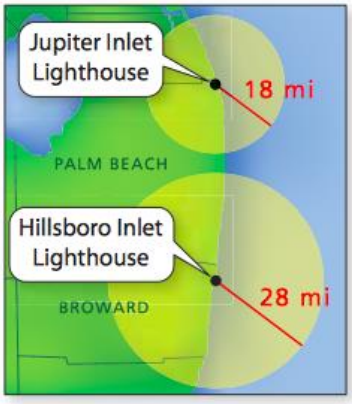
MAFS.7.G.2.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
Essential Question	How can you find the area of a circle? *In this lesson I will learn the formula for the area of a circle so I can find the area of a circle.*
8.3 Areas of Circles	**Area of a Circle** **Words** The area A of a circle is the product of π and the square of the radius. **Algebra** $A = \pi r^2$
	Vocabulary and Concept Check 1. **VOCABULARY** Explain how to find the area of a circle given its diameter. 2. **DIFFERENT WORDS, SAME QUESTION** Which is different? Find "both" answers. What is the area of a circle with a diameter of 1 m? What is the area of a circle with a diameter of 100 cm? What is the area of a circle with a radius of 100 cm? What is the area of a circle with a radius of 500 mm?
Homework **8.3 Practice A** **#1-9**	**Find the area of the circle. Use 3.14 or $\frac{22}{7}$ for π.** 3.  4.  5.  6.  7.  8. 

9. Find the area of a circle with a diameter of 56 millimeters.

10. Find the area of a circle with a radius of 5 feet.

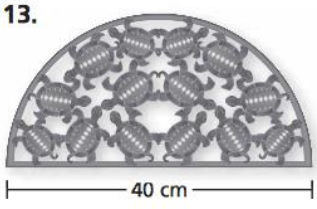
11. TORTILLA The diameter of a flour tortilla is 12 inches. What is the area?

12. LIGHTHOUSE The Hillsboro Inlet Lighthouse lights up how much more area than the Jupiter Inlet Lighthouse?



Find the area of the semicircle.

13.



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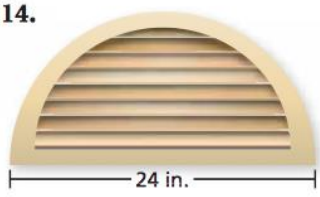

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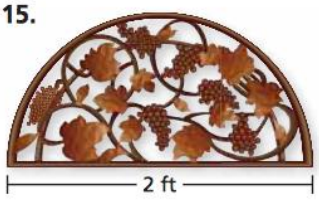

Find the perimeter and area of the semicircle.

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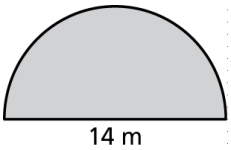

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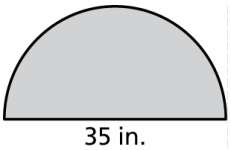
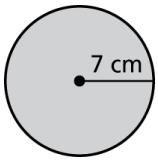


Find the circumference and area of the circle. Use 3.14 or $\frac{22}{7}$ for π.

18.



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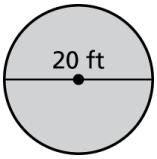
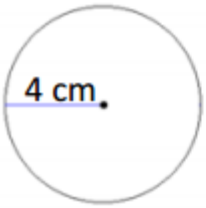


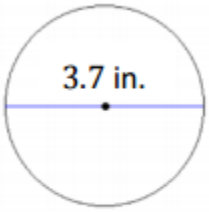
20. The top of a glass coffee table is a circle. The circumference is 15.7 feet.

a. What is the radius of the table?

b. What is the area of the table?



What is the area of the circle in square centimeters?



What is the area of half of the circle in square inches?

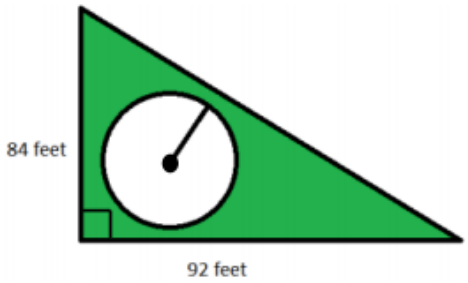
A picture of a gong is shown.

It is composed of 3 different-sized circles.

- The circumference of the smallest circle is 15.7 inches.
- The diameter of the whole gong is 21 inches.

What is the area of the middle circle? (Use $\pi = 3.14$)

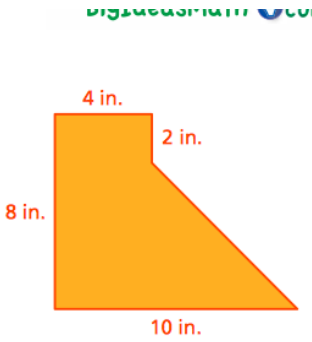
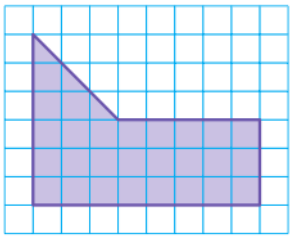
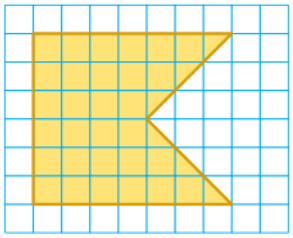
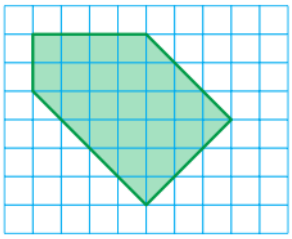
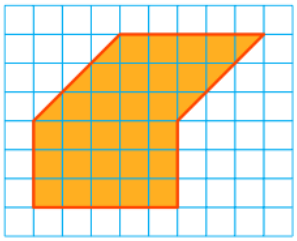
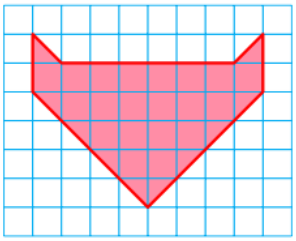
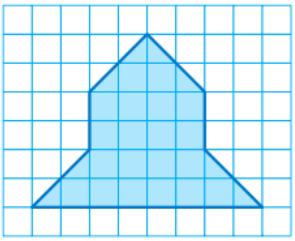
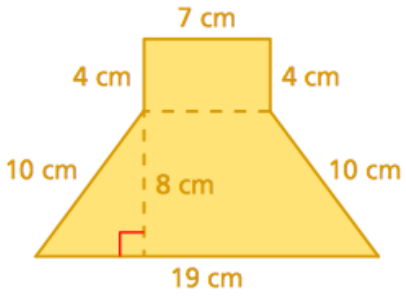
Mark placed a pool in his backyard, which is enclosed by a triangular fence.



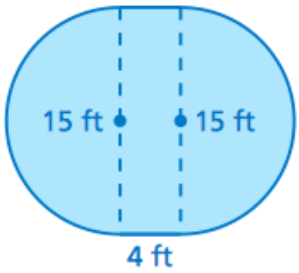
The radius of the pool is 20.5 feet. How much of the backyard area is not covered by the pool?

The circumference of a circle is 53.38 centimeters.

What is the area in square centimeters? Use 3.14 for π.

MAFS.7.G.2.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
Essential Question	How can you find the area of a composite figure? *In this lesson I will learn how to use what I know about finding area of basic shapes to find the area of a composite figure.*
8.4 Areas of Composite Figures	**Vocabulary and Concept Check** 1. **REASONING** Describe two different ways to find the area of the figure. Name the types of figures you used and the dimensions of each. 2. **REASONING** Draw a trapezoid. Explain how you can think of the trapezoid as a composite figure to find its area. 
Homework 8.4 Practice A #1-3	**Find the area of the figure.** 3.  4.  5.  6.  7.  8. 
Homework 8.4 Practice A #4-9	**Find the area of the figure.** 9. 

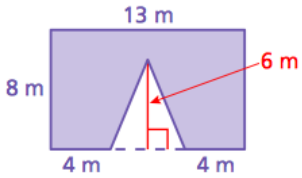
10.



11. OPEN-ENDED Trace your hand and your foot on grid paper. Then estimate the area of each. Which one has the greater area?

Find the area of the figure.

12.



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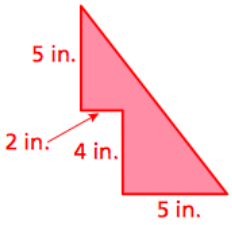
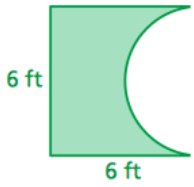
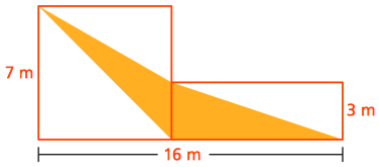


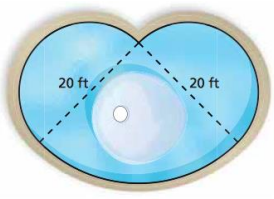
14.



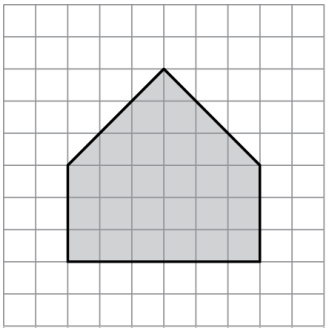
15. STRUCTURE The figure is made up of a square and a rectangle. Find the area of the shaded region.

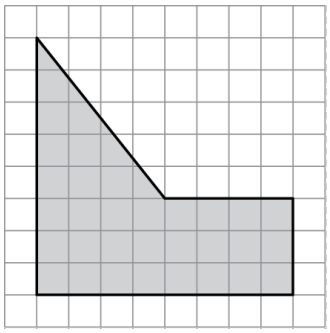


16. FOUNTAIN The fountain is made up of two semicircles and a quarter circle. Find the perimeter and the area of the fountain.

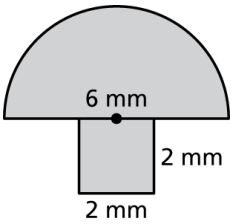


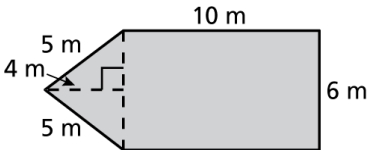
Find the area of the figure.

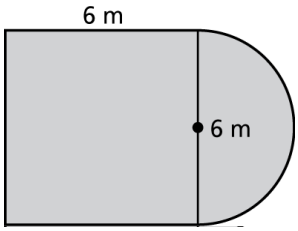
17. 

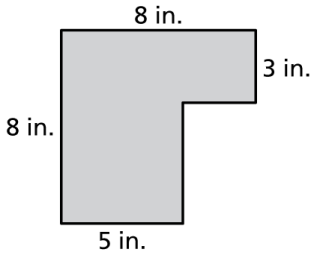
18. 

Find the perimeter and area of the figure.

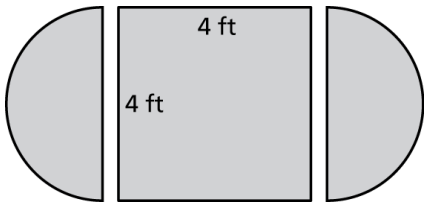
19. 

20. 

21. 

22. 

23. A square table 4 feet on each side has two drop leaves, each a semicircle 4 feet in diameter.



a. Find the area of the table with and without the drop leaves.

b. Find the perimeter of the table with and without the drop leaves.