# Big Ideas Math: Red Accelerated

# Parent Newsletter

## Chapter 8: Circles and Area

## Standards

**Common Core:**

**7.G.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.

**7.G.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.

## Key Terms

A ***circle*** is the set of all points in a plane that are the same distance from a point called the ***center***.

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 $\pi$, called ***pi***.

A ***semicircle*** is one-half of a circle.

A ***composite figure*** is made up of triangles, squares, rectangles, semicircles, and other two-dimensional figures.

## Students will...

Describe a circle in terms of radius and diameter.

Understand the concept of pi.

Find circumferences of circles and perimeters of semicircles.

Find perimeters of composite figures.

Find areas of circles and semicircles.

Find areas of composite figures by separating them into familiar figures.

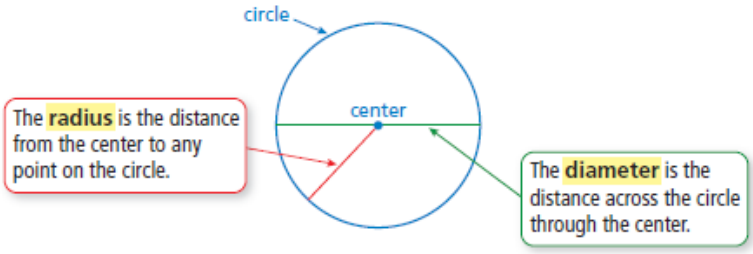
Solve real-life problems.


## Key Ideas

### Radius and Diameter

The diameter $d$ of a circle is twice the radius $r$. The radius $r$ of a circle is one-half the diameter $d$.

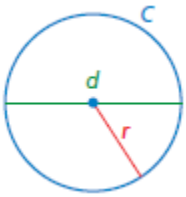
**Diameter:** $d = 2r$ **Radius:** $r = \frac{d}{2}$




### Circumference of a Circle

The circumference $C$ of a circle is equal to $\pi$ times the diameter $d$ or $\pi$ times twice the radius $r$.

$C = \pi d$ or $C = 2\pi r$




### Area of a Circle

The area $A$ of a circle is the product of $\pi$ and the square of the radius.

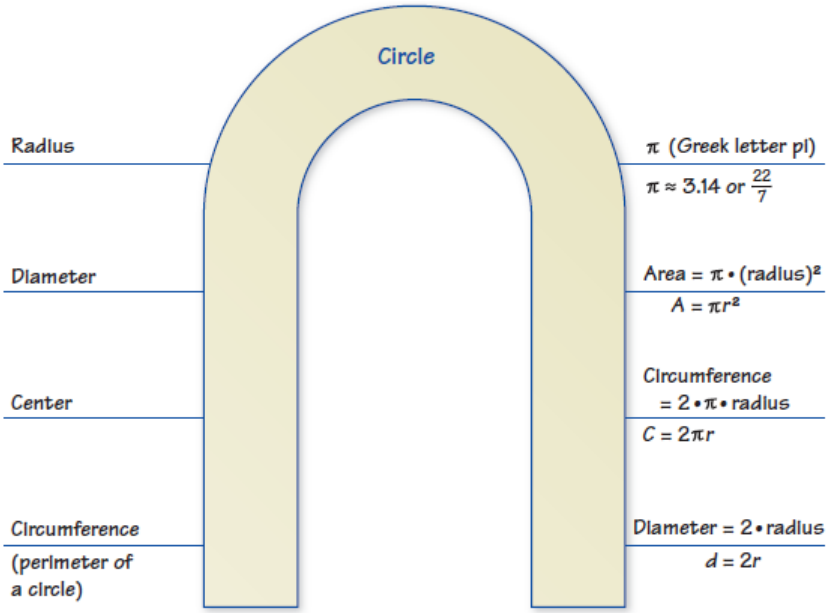
$A = \pi r^2$

### Composite Figures

- A composite figure is made up of triangles, squares, rectangles, semicircles, and other two-dimensional figures.
- To find the perimeter of a composite figure, find the distance around the figure.
- To find the area of a composite figure, separate it into figures with areas you know how to find. Then find the sum of the areas of those figures.

## Reference Tools

A **Word Magnet** can be used to organize information associated with a vocabulary word or term. As shown, write the word or term inside the magnet. Write associated information on the blank lines that "radiate" from the magnet. Associated information can include, but is not limited to: other vocabulary words or terms, definitions, formulas, procedures, examples, and visuals. This type of organizer serves as a good summary tool because any information related to a topic can be included.




## Essential Questions

How can you find the circumference of a circle?

How can you find the perimeter of a composite figure?

How can you find the area of a circle?

How can you find the area of a composite figure?

## Quick Review

- Pi ($\pi$) is a constant whose value is approximately 3.14 or $\frac{22}{7}$.
- Area includes everything inside the figure.
- The radius is half the diameter.
- The symbol ≈ means *approximately equal to*.
- To find the perimeter of a composite figure, find the distance around the figure.

## Games

- Math Card War
- Pick your Polygon

These are available online in the *Game Closet* at www.bigideasmath.com.

## What's the Point?

The ability to use properties of circles and area is very useful in real life for events like putting up a pool. Have your student measure their yard. What size of a circular swimming pool would fit best? How many square feet would be needed to add a deck?


The STEM Videos available online show ways to use mathematics in real-life situations. The Chapter 8: Track and Field STEM Video is available online at www.bigideasmath.com.