

Key Idea

A circle is a familiar plane figure that is not a polygon.

Vocabulary

- circle
- center
- radius
- diameter
- chord
- central angle

Materials

- compass
- ruler or straightedge
- protractor

**Think It Through**

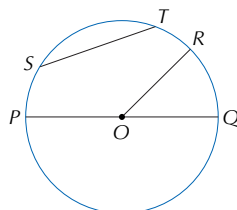
- I can **look for a pattern** to find relationships in a circle.
- I should try to **be accurate** with my measurements.

Segments and Angles Related to Circles

LEARN

What are the names of segments and angles related to a circle?

A **circle** is a closed plane figure made up of all the points the same distance from the center. A circle is named by its **center**. Circle O is shown at the right.



A **radius** (plural: radii) is any line segment that connects the center to a point on the circle. \overline{OR} is a radius.

A **diameter** is any line segment through the center that connects two points on the circle. \overline{PQ} is a diameter.

A **chord** is any line segment that connects two points on the circle. \overline{ST} is a chord.

A **central angle** is an angle whose vertex is the center. $\angle ROQ$ is a central angle.

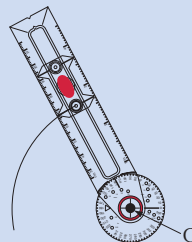
Activity

What are some special relationships?

- Follow the directions at the right to construct a circle with a radius equal in length to the length of \overline{AB} . **Check students' drawings.**
 $\overline{A} \qquad \qquad \overline{B}$
- Use a ruler to draw a diameter. Compare its length to that of the radius. **Twice as long as radius.**
- Draw another diameter. Measure the four central angles. What is the sum of the measures? **360°**
- Draw a third diameter. Measure the six central angles. What is the sum of the measures? **360°**
- Repeat steps **a–d** using a different radius.

To Construct a Circle with a Given Radius

Mark and label a point, the center of the circle, on your paper.



Set the compass opening to the length of \overline{AB} . Then place the compass point on the center and draw the circle.

WARM UP

Draw and label each figure.

1. Point D 2. \overline{GH}

3. $\angle XYZ$ 4. $\angle RSU$
Check students' drawings.