

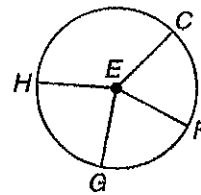
10-2 Study Guide and Intervention

Measuring Angles and Arcs

Angles and Arcs A central angle is an angle whose vertex is at the center of a circle and whose sides are radii. A central angle separates a circle into two arcs, a **major arc** and a **minor arc**.

Here are some properties of central angles and arcs.

- The sum of the measures of the central angles of a circle with no interior points in common is 360.
- The measure of a minor arc equals the measure of its central angle.
- The measure of a major arc is 360 minus the measure of the minor arc.
- Two arcs are congruent if and only if their corresponding central angles are congruent.
- The measure of an arc formed by two adjacent arcs is the sum of the measures of the two arcs. (**Arc Addition Postulate**)



\widehat{CF} is a minor arc.
 \widehat{CHG} is a major arc.
 $\angle CEF$ is a central angle.

$$m\angle HEC + m\angle CEF + m\angle FEG + m\angle GEH = 360$$

$$m\widehat{CF} = m\angle CEF$$

$$m\widehat{CGF} = 360 - m\widehat{CF}$$

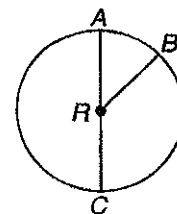
$$\widehat{CF} \cong \widehat{FG} \text{ if and only if } \angle CEF \cong \angle FEG.$$

$$m\widehat{CF} + m\widehat{FG} = m\widehat{CG}$$

Example

In $\odot R$, $m\angle ARB = 42$ and \overline{AC} is a diameter. Find $m\widehat{AB}$ and $m\widehat{ACB}$.

$\angle ARB$ is a central angle and $m\angle ARB = 42$, so $m\widehat{AB} = 42$.
 Thus $m\widehat{ACB} = 360 - 42$ or 318.



Exercises

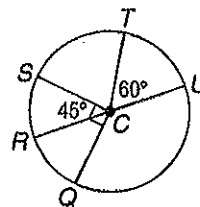
Find each measure.

1. $m\angle SCT$

2. $m\angle SCU$

3. $m\angle SCQ$

4. $m\angle QCT$



In $\odot O$, $m\angle BOA = 44$. Find each measure.

5. $m\widehat{BA}$

6. $m\widehat{BC}$

7. $m\widehat{CD}$

8. $m\widehat{ACB}$

9. $m\widehat{BCD}$

10. $m\widehat{AD}$

