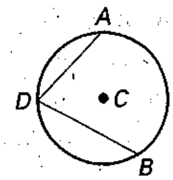
6.4 Use Inscribed Angles and Polygons

THEOREM 6.9: MEASURE OF AN INSCRIBED ANGLE THEOREM

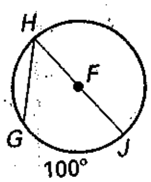


The measure of an inscribed angle is one half the measure of its intercepted arc.

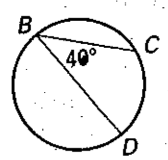
$m\angle ADB = \frac{1}{2}$________

Checkpoint **Find the indicated measure.**

1. $m\angle GHJ$



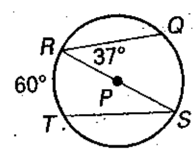
2. $m\widehat{CD}$



Find the indicated measure in $\odot P$.

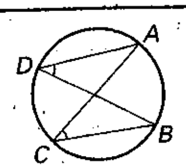
a. $m\angle S$

b. $m\widehat{RQ}$



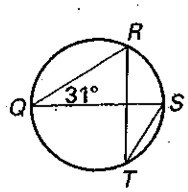
THEOREM 6.10

If two inscribed angles of a circle intercept the same arc, then the angles are congruent.



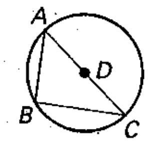
$\angle ADB \cong \angle$______

3. Find $m\angle RTS$.



THEOREM 6.11

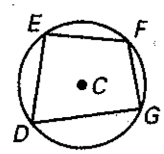
If a right triangle is inscribed in a circle, then the hypotenuse is a diameter of the circle. Conversely, if one side of an inscribed triangle is a diameter of the circle, then the triangle is a right triangle and the angle opposite the diameter is the right angle.



$m\angle ABC = 90°$ if and only if $\overline{\quad}$ is a diameter of the circle.

THEOREM 6.12

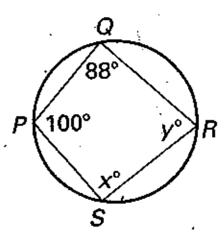
A quadrilateral can be inscribed in a circle if and only if its opposite angles are supplementary.



D, E, F, and G lie on $\odot C$ if and only if $m\angle D + m\angle F = m\angle E + m\angle G =$ ____.

Find the value of each variable.

a.



b.