

10-6

Secants, Tangents and Angle Measures

Secant

A line that intersects a circle at exactly two points.

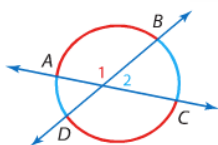


Theorem 10.12

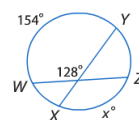
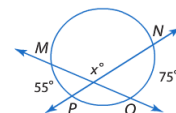
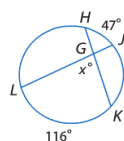
If two secants or chords intersect in the interior of a circle, then the measure of an angle formed is one half the *sum* of the measure of the arcs intercepted by the angle and its vertical angle.

$$m\angle 1 = \frac{1}{2}(m\widehat{AB} + m\widehat{CD})$$

$$m\angle 2 = \frac{1}{2}(m\widehat{DA} + m\widehat{BC})$$



Solve for x.

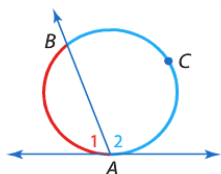


Theorem 10.13

If a secant and a tangent intersect at the point of tangency, then the measure of each angle formed is one half the measure of its intercepted arc.

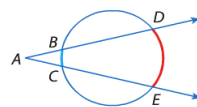
$$m\angle 1 = \frac{1}{2} m\widehat{AB}$$

$$m\angle 2 = \frac{1}{2} m\widehat{ACB}$$



Theorem 10.14

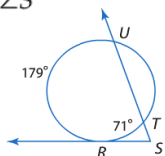
If two secants, a secant and a tangent, or two tangents intersect in the exterior of a circle, then the measure of the angle formed is one half the *difference* of the measures of the intercepted arcs.



$$m\angle A = \frac{1}{2} (m\widehat{DE} - m\widehat{BC})$$

Solve for the unknown angle

$m\angle S$



$m\angle L$

