Section 9.4 - More Angle Relationships in Circles



Line k is tangent to the circle.



Ex 2:

a) \overrightarrow{BC} is tangent to the circle. Find m $\angle CBD$.



Intersecting Chords and Angles Theorem

If two chords intersect in the interior of a circle, then the measure of each angle is one half the sum of the measures of the arcs inside the angle and its vertical angle.



$$m \angle 1 = \frac{1}{2} (\widehat{mCD} + \widehat{mAB}), \quad m \angle 2 = \frac{1}{2} (\widehat{mBC} + \widehat{mAD})$$

Ex 3:

Find the value of x. Note: \angle SOT is <u>NOT</u> a central angle.



Tangents and Secant Angles Theorem

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



Easy Method: Take the big arc inside the angle minus the small arc inside the angle and multiply the result by one-half.



