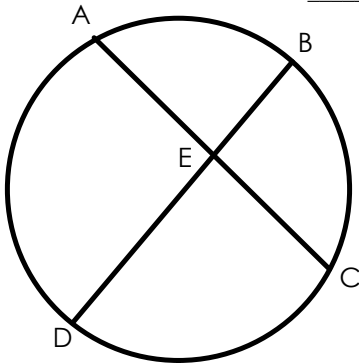


9.2 Angles Inside and Outside Circles

Objective: Students will learn the relationship between angles and arcs in a circle

Intersecting Chords Angle Theorem

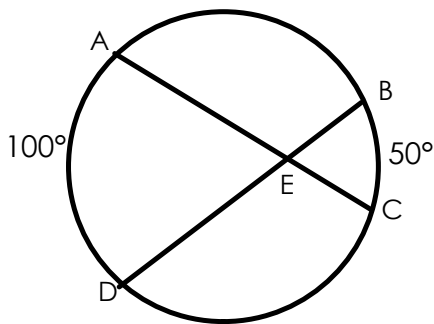
The measure of the angle formed by two _____ that intersect inside a circle is the _____ of the measures of the intercepted arcs.



Intersecting Chords Angle Theorem

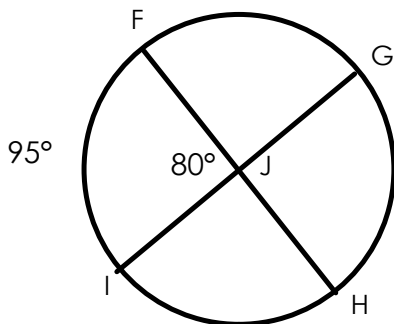
$$\text{Angle} = \frac{\text{Intercepted Arc 1} + \text{Intercepted Arc 2}}{2}$$

Find the value of $\angle AED$



$$(\quad) = \frac{(\quad) + (\quad)}{2}$$

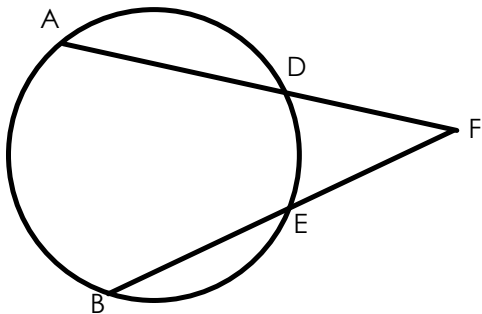
Find the value of \widehat{GH}



$$(\quad) = \frac{(\quad) + (\quad)}{2}$$

Secant Secant Theorem:

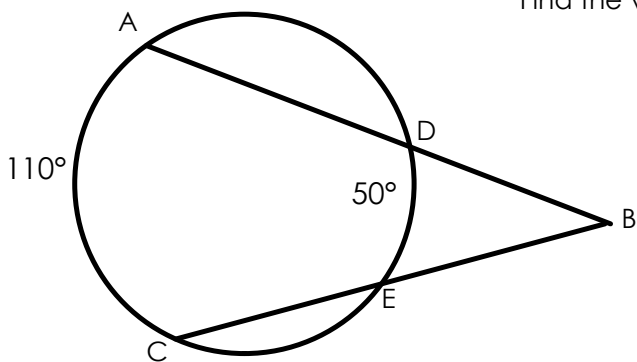
The measure of an angle at a point outside the circle is _____ the **difference** of the measures of the intercepted arcs.



Secant Secant Theorem:

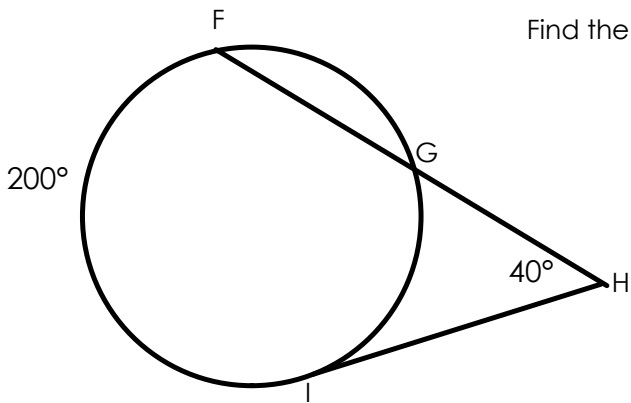
$$\text{Angle} = \frac{\text{Big Arc} - \text{Small Arc}}{2}$$

Find the value of $\angle B$



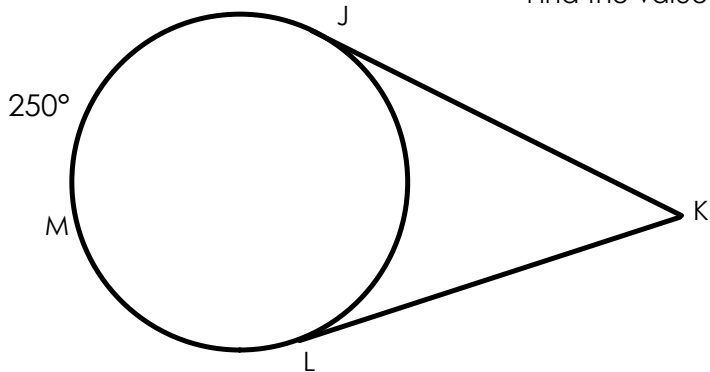
$$(\quad) = \frac{(\quad) - (\quad)}{2}$$

Find the value of \widehat{GI}



$$(\quad) = \frac{(\quad) - (\quad)}{2}$$

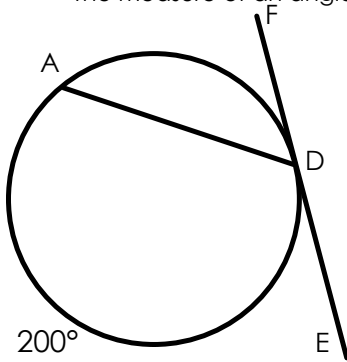
Find the value of $\angle K$



$$(\quad) = \frac{(\quad) - (\quad)}{2}$$

Tangent Chord Theorem

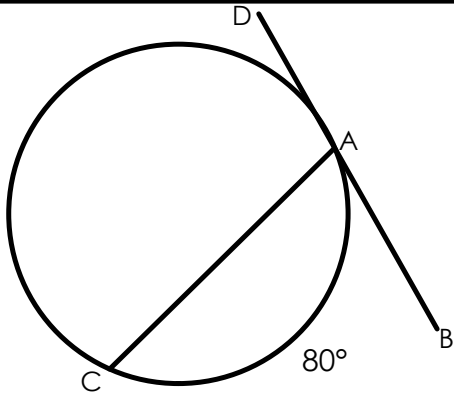
The measure of an angle at a point outside the circle is _____ the **difference** of the measures of the intercepted arcs.



Tangent Chord Theorem

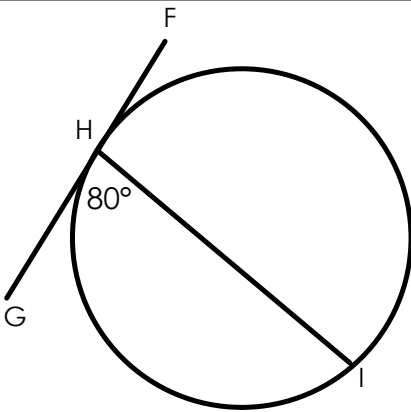
$$\text{Angle} = \frac{\text{Intercepted Arc}}{2}$$

Find the value of $\angle A$



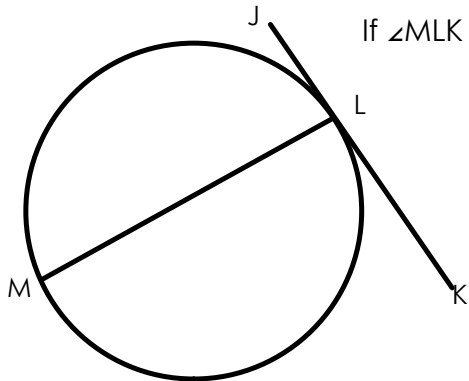
$$(\quad) = \frac{(\quad)}{2}$$

If $\angle GHI$ is 80° , find the measure of \widehat{HI}



$$(\quad) = \frac{(\quad)}{2}$$

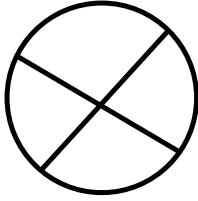
If $\angle MLK$ is 140° , find the measure of \widehat{ML}



$$(\quad) = \frac{(\quad)}{2}$$

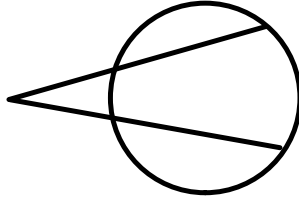
Independent Practice

Intersecting Chords



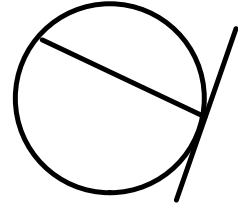
FORMULA:

Secant Secant Theorem



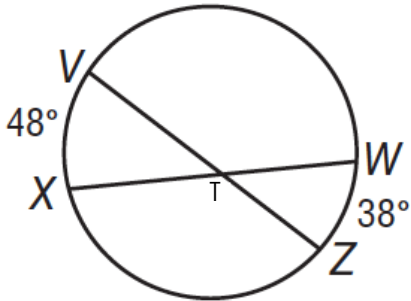
FORMULA:

Chord Tangent

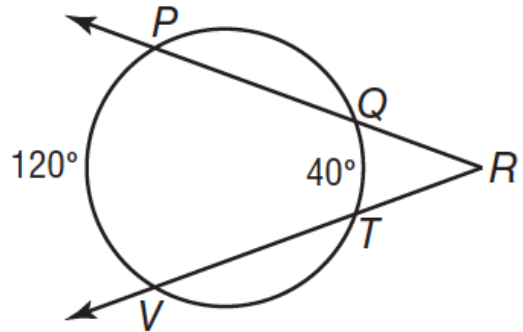


FORMULA:

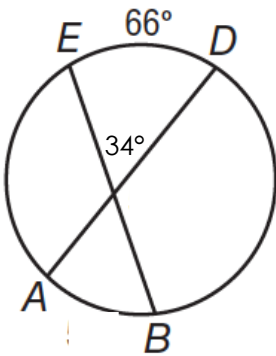
Find the value of $\angle VTX$



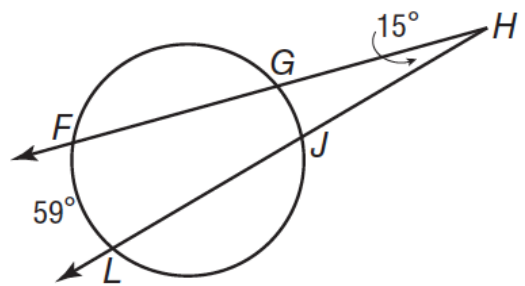
Find the value of $\angle R$



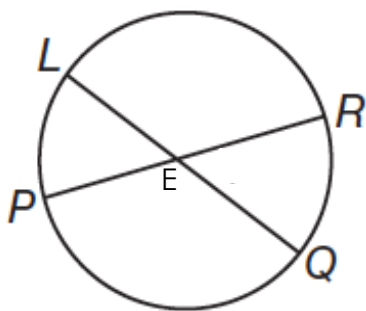
Find the value of \widehat{AB}



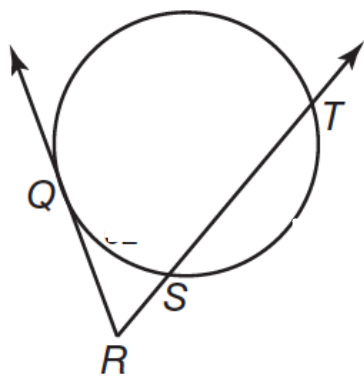
Find the value of \widehat{GJ}



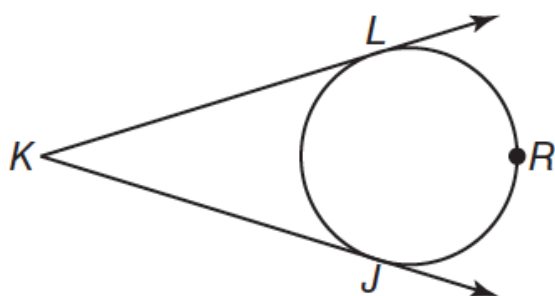
In the accompanying diagram, \overline{LQ} and \overline{PR} are chords and intersect at E. If $m\widehat{LP} = 50^\circ$ and $m\widehat{RQ} = 56^\circ$, find $m\angle LER$.



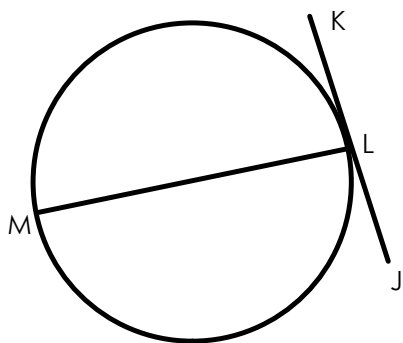
\overline{RT} is a secant line and \overline{RQ} is a tangent line. If $m\widehat{QS} = 62^\circ$ and $m\angle R = 42^\circ$, what is the $m\widehat{ST}$?



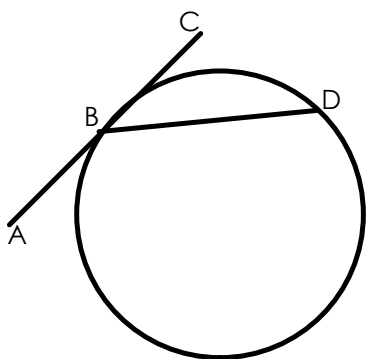
Both \overline{KL} and \overline{KJ} are secant lines. If $m\widehat{LRJ} = 270^\circ$, what is the $m\angle K$?



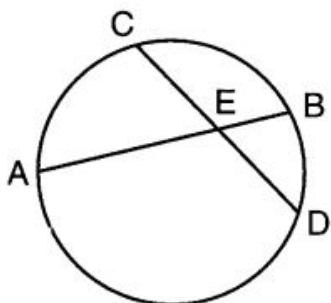
In the circle below $m\widehat{ML} = 210^\circ$. What is the $m\angle MLJ$?



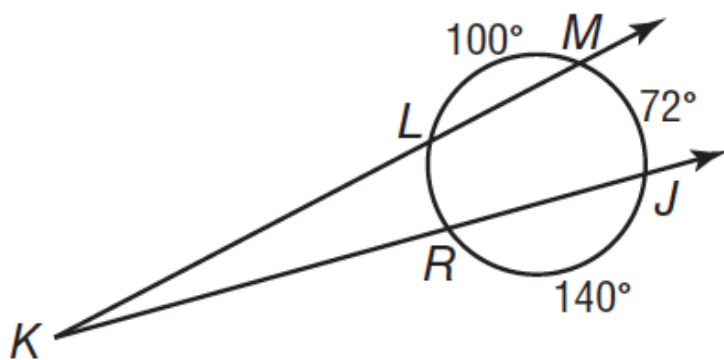
If $m\widehat{BD} = 58^\circ$, find $m\angle CBD$.



In the accompanying diagram, chords \overline{AB} and \overline{CD} intersect at E . If $m\widehat{AC} = 75$ and $m\widehat{DB} = 45$, find $m\angle AED$.



In the circle below $ML = 100^\circ$, $MJ = 72^\circ$, and $JR = 140^\circ$. What is the $m\angle K$



A small fragment of something brittle, such as pottery, is called a shard. The accompanying diagram represents the outline of a shard from a small round plate that was found at an archaeological dig.



If \overrightarrow{BC} is a tangent to \widehat{AB} at B and $m\angle ABC = 45$, what is the measure of \widehat{AB} , the outside edge of the shard?