Name: _____ # _____

Geometry: Period _____
Ms. Pierre
Date: _____

Intersecting Secants & Tangents Continued

Today's Objective

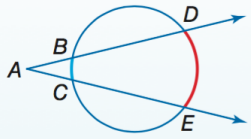
SWBAT determine the measure of angles formed by lines intersecting outside a circle.

Secants and tangents can also meet outside a circle. The measure of the angle formed also involves half of the measures of arcs they intercept.

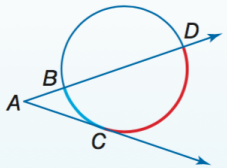
Theorem 10.14 — For Your FOLDABLE

Words 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.

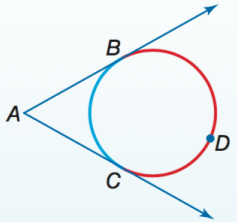
Examples



Two Secants
$m\angle A = \frac{1}{2}(m\overset{\frown}{DE} - m\overset{\frown}{BC})$



Secant-Tangent
$m\angle A = \frac{1}{2}(m\overset{\frown}{DC} - m\overset{\frown}{BC})$

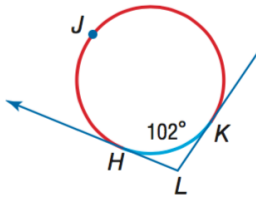


Two Tangents
$m\angle A = \frac{1}{2}(m\overset{\frown}{BDC} - m\overset{\frown}{BC})$

Example 1

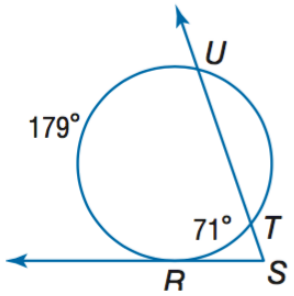
Find $\angle L$

$$m\angle L = \frac{1}{2}(m\overset{\frown}{HJK} - m\overset{\frown}{HK}) \quad \text{Theorem 10.14}$$
$$= \frac{1}{2}(360 - 102) - 102 \quad \text{Substitution}$$
$$= \frac{1}{2}(258 - 102) \text{ or } 78 \quad \text{Simplify.}$$



☑ Check for Understanding

Find $\angle S$



Example 2

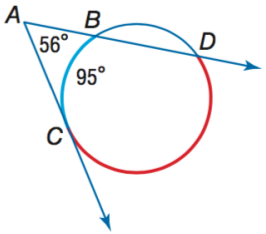
Find $m\widehat{CD}$

$m\angle A = \frac{1}{2}(m\widehat{CD} - m\widehat{BC})$ **Theorem 10.14**

$56 = \frac{1}{2}(m\widehat{CD} - 95)$ **Substitution**

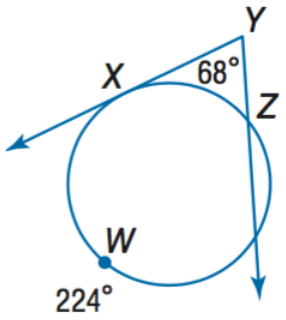
$112 = m\widehat{CD} - 95$ **Multiply each side by 2.**

$207 = m\widehat{CD}$ **Add 95 to each side.**



☑ Check for Understanding

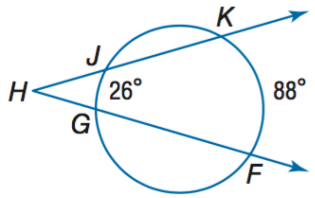
Find $m\widehat{XZ}$



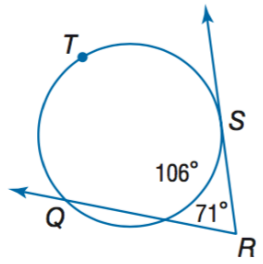
Guided Practice

Find each measure. Assume that segments that appear to l tangent are tangent.

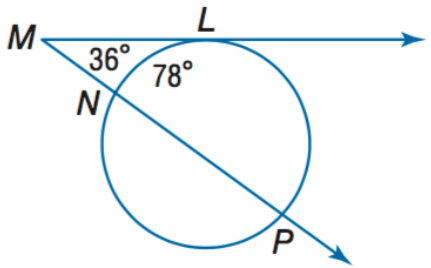
1. $m\angle H$



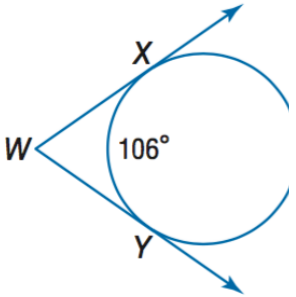
2. $m\widehat{QTS}$



3. $m\widehat{LP}$



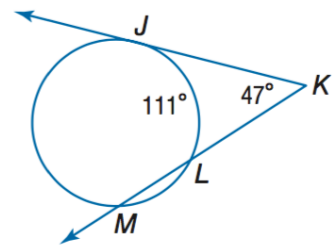
4. $m\angle W$



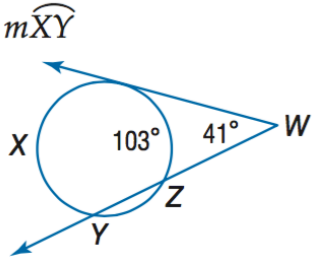
Independent Practice

Find each measure. Assume that segments that appear to be tangent are tangent.

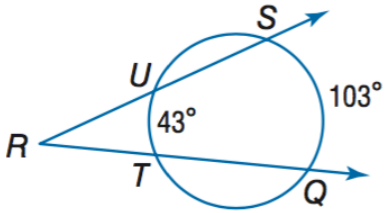
1. $m\widehat{JM}$



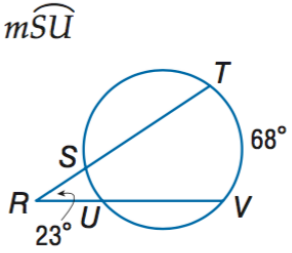
2. $m\widehat{XY}$



3. $m\angle R$



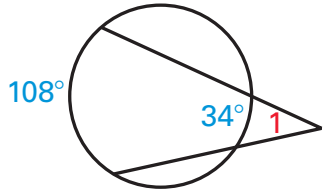
4. $m\widehat{SU}$



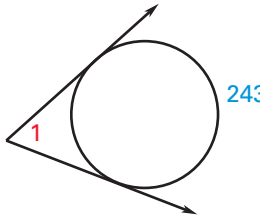
Home Work

Find the given measure. Assume that segments that appea to be tangent are tangent.

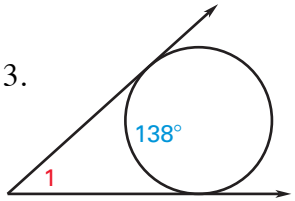
1.



2.



3.



4.