

Name: \_\_\_\_\_ # \_\_\_\_\_

Geometry: Period \_\_\_\_\_

Ms. Pierre

Date: \_\_\_\_\_

## Intersecting Secants & Tangents

### Today's Objective

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

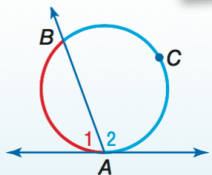
Recall that the measure of an inscribed angle is half the measure of its intercepted arc. If one of the sides of this angle is tangent to the circle, this relationship still holds true.

#### Theorem 10.13

For Your  
FOLDABLE

**Words** 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.

**Example**  $m\angle 1 = \frac{1}{2}m\widehat{AB}$  and  $m\angle 2 = \frac{1}{2}m\widehat{ACB}$



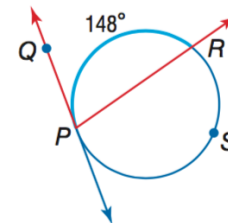
### Example 1

Find  $\angle QPR$ .

$$\begin{aligned} m\angle QPR &= \frac{1}{2}m\widehat{PR} \\ &= \frac{1}{2}(148) \text{ or } 74 \end{aligned}$$

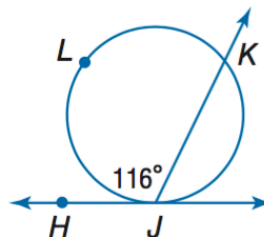
Theorem 10.13

Substitute and simplify.



### Check for Understanding

Find  $m\widehat{LK}$ .



## Example 2

Find  $m\widehat{DEF}$

$$m\angle CDF = \frac{1}{2}m\widehat{FD}$$

**Theorem 10.13**

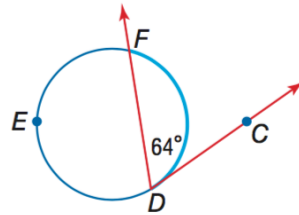
$$64 = \frac{1}{2}m\widehat{FD}$$

**Substitution**

$$128 = m\widehat{FD}$$

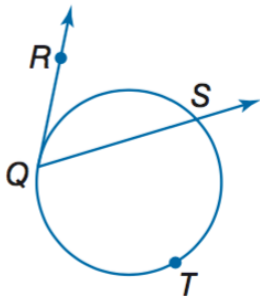
**Multiply each side by 2.**

$$m\widehat{DEF} = 360 - m\widehat{FD} = 360 - 128 \text{ or } 232$$



## ☑ Check for Understanding

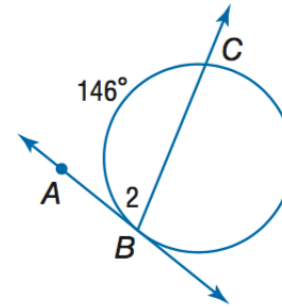
Find  $m\angle RQS$  if  $m\widehat{QTS} = 238$ .



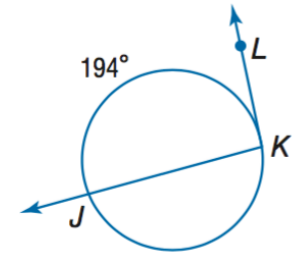
## Guided Practice

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

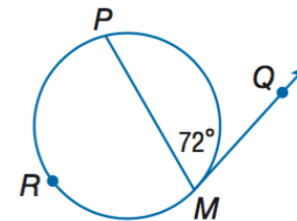
1.  $m\angle 2$



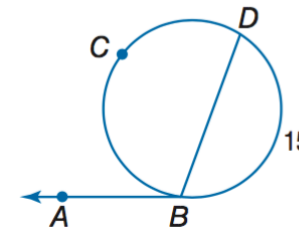
2.  $m\angle K$



3.  $m\widehat{PM}$



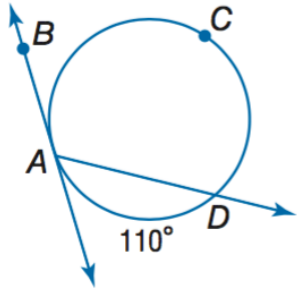
4.  $m\angle ABD$



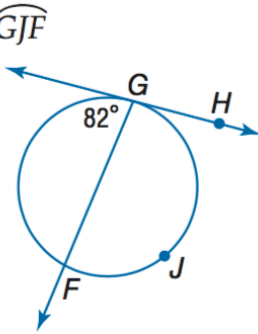
## Independent Practice

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

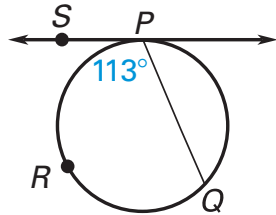
1.  $m\angle DAB$



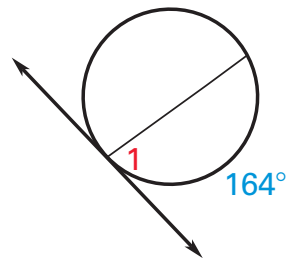
2.  $m\widehat{GJF}$



3.  $m\widehat{PRQ}$



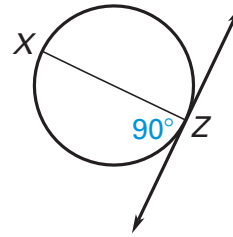
4.  $m\angle 1$



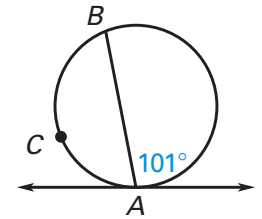
## Home Work

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

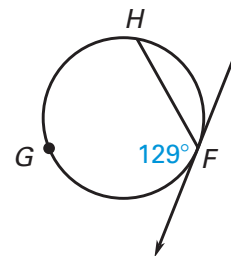
1.  $m\widehat{XZ}$



2.  $m\widehat{AB}$



3.  $m\widehat{FH}$



4.  $\angle 1$

