

Name: _____ # _____

Geometry: Period _____

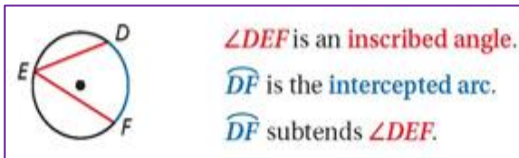
Ms. Pierre

Date: _____

Inscribed Angles & Polygons

Today's Objective

SWBAT use the properties of inscribed angles and polygons to find the measure of arcs and angles.



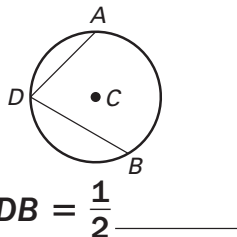
An _____ angle is an angle whose vertex is on a circle and whose sides contain chords of the circle.

An _____ arc is the part of the circle enclosed by the endpoints of the inscribed angle.

An angle _____ to an arc if the arc lies between the endpoints of the angle.

THEOREM : MEASURE OF AN INSCRIBED ANGLE THEOREM

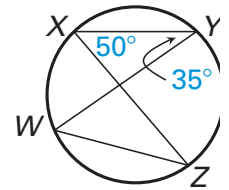
The measure of an inscribed angle is one half the measure of its intercepted arc.



Example 1

Find the given measures.

a) $m\widehat{YZ}$

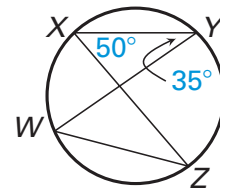


b) $\angle YWZ$

Check for Understanding

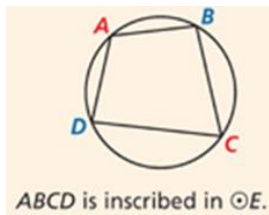
Use the diagram from Example 1 to find the given measures.

a) $m\widehat{WX}$



b) $\angle WZX$

A polygon is an **inscribed polygon** if all of its vertices lie on a circle.

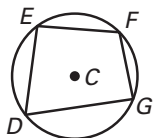


The circle that contains the vertices is a **circumscribed circle**.

THEOREM

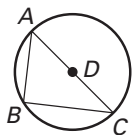
A quadrilateral can be inscribed in a circle if and only if its opposite angles are supplementary.

$D, E, F,$ and G lie on $\odot C$ if and only if $m\angle D + m\angle F = m\angle E + m\angle G = \underline{\hspace{2cm}}$.



THEOREM

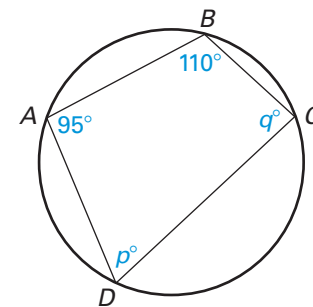
If a right triangle is inscribed in a circle, then the hypotenuse is a diameter of the circle. Conversely, if one side of an inscribed triangle is a diameter of the circle, then the triangle is a right triangle and the angle opposite the diameter is the right angle.



$m\angle ABC = 90^\circ$ if and only if $\underline{\hspace{2cm}}$ is a diameter of the circle.

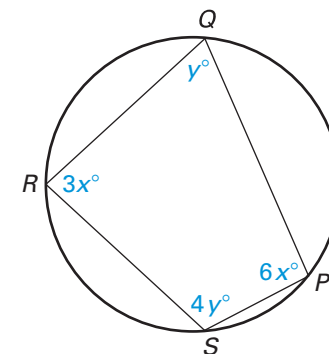
Example 2

Find the value of each variable.



☑ Check for Understanding

Find the measure of each interior angle of the quadrilateral.

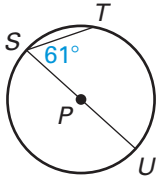




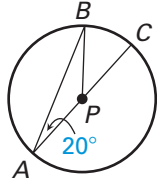
Guided Practice

Find the measure of the indicated angle or arc in $\odot P$.

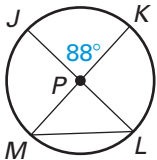
1. $m\widehat{ST}$



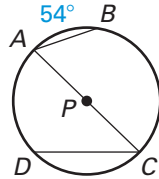
2. $m\widehat{AB}$



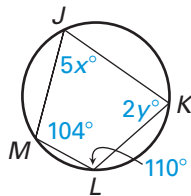
3. $m\angle JLM$



4. $m\angle A$



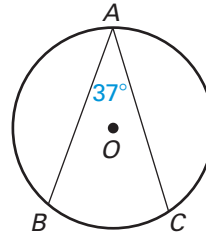
5. Find the values of the variables.



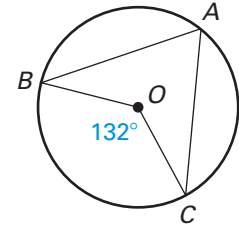
Independent Practice

Find the indicated measure in $\odot O$.

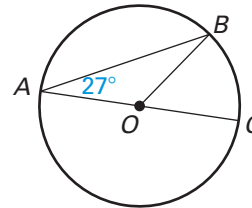
1. $m\widehat{BC}$



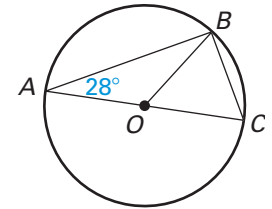
2. $m\angle A$



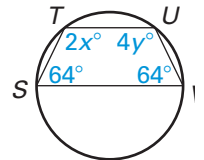
3. $m\widehat{AB}$



4. $m\angle C$

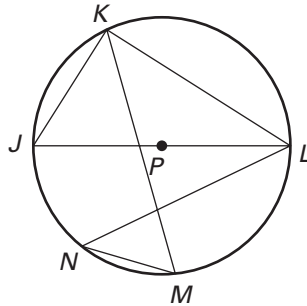


5. Find the values of the variables.



Home Work

Find the measures of the indicated angle or arc in $\odot P$, given $m\widehat{LM} = 84^\circ$ and $m\widehat{KN} = 116^\circ$



1. $m\angle JKL$

2. $m\angle MKL$

3. $m\angle KMN$

4. $m\angle JKM$

5. $m\angle KLN$

6. $m\angle LNM$

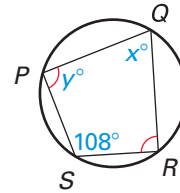
7. $m\widehat{MJ}$

8. $m\widehat{LKJ}$

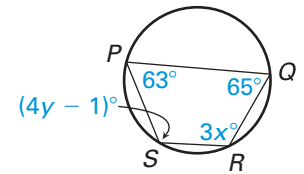
Home Work

Find the values of the variables.

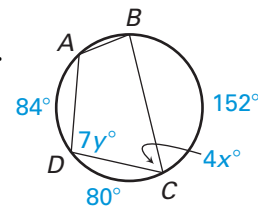
9.



10.



11.



12.

