

Good morning!

1. "Here"
2. Go over some homework problems
3. Notes on INSCRIBED Angles
4. Upload Practice p. 11-12 to CTLS

Geometry

Circle Angles and Arcs

Practice

Name: _____ Date: _____

Central Angles Practice

1. Identify and name each of the following from $\odot O$. Be sure to use the correct notation. BD is a diameter.

_____ a. Two different central angles

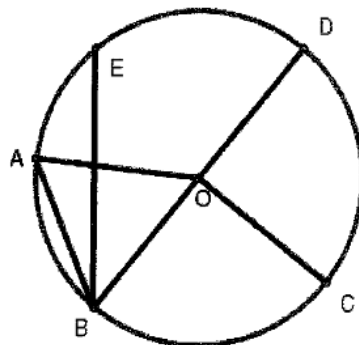
_____ b. A minor arc

_____ c. A major arc

_____ d. A semicircle

_____ e. Two different chords

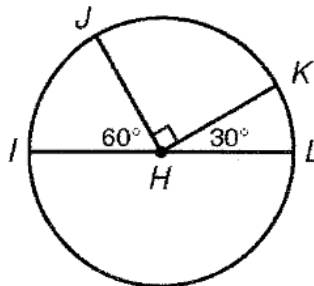
_____ f. The central angle the creates AD



Find each measure.

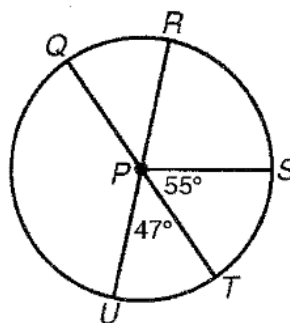
IL is a diameter.

2. $m\angle LK$ _____, $m\angle IK$ _____



RU & QT are diameters.

3. $m\angle OS$ _____, $m\angle RQT$ _____

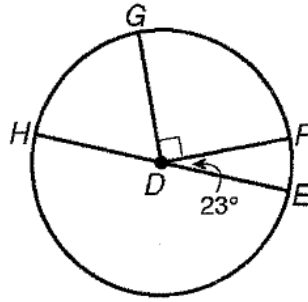


Geometry
HE is a diameter

Circle Angles and Arcs

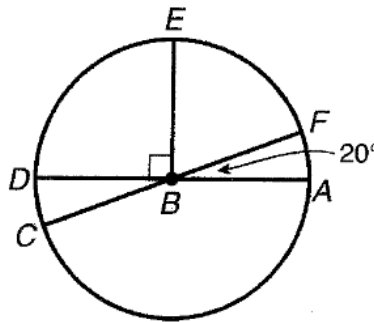
Practice

4. $m\widehat{HG}$ _____, $m\widehat{FEH}$ _____

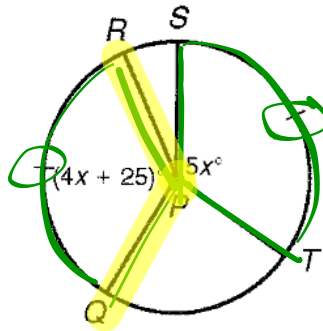


DA and FC are diameters.

5. $m\widehat{EF}$ _____, $m\widehat{CEA}$ _____



6. $\angle QPR$ 125°
 $4(25) + 25$
 $= 125$



$$\begin{array}{r} 4x + 25 = 5x \\ -4x \quad -4x \\ \hline x = 25 \end{array}$$

UX is a diameter.

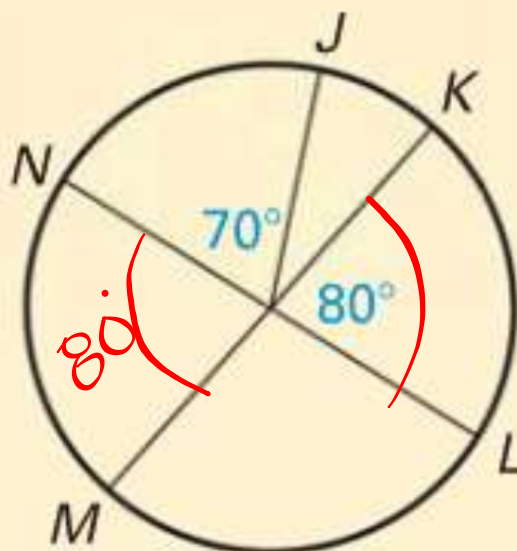
7. $\angle UTW$ 102°, $m\widehat{UV}$ 82°
 $m\widehat{UV} = 4x + 2$
 $4(20) + 2$
 82

$180 - 78 = 102$

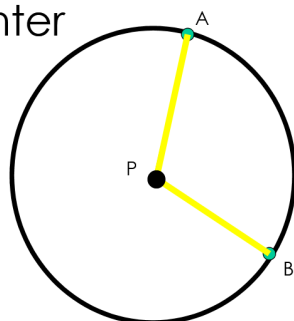
$$\begin{array}{r} 4x + 2 + x = 102 \\ 5x + 2 = 102 \\ -2 \quad -2 \\ \hline 5x = 100 \\ \frac{5x}{5} = \frac{100}{5} \\ \boxed{x = 20} \end{array}$$

Warm up

- a. $m\widehat{JK}$
- b. $m\widehat{NM}$
- c. $m\widehat{LM}$
- d. $m\widehat{KNM}$
- e. $m\widehat{NK}$
- f. $m\widehat{LJM}$



Case I: central Angle: Vertex is At the center

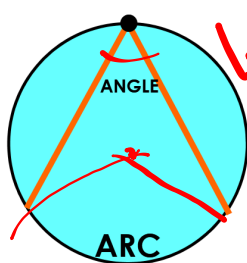


Central ANGLE = ARC

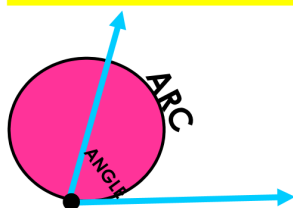
Central
SAME

Case II: Inscribed Angle:

Vertex is ON circle

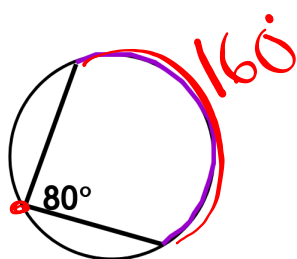


$$\text{Inscribed } \angle = \frac{\widehat{\text{arc}}}{2}$$



$$2(\text{inscribed } \angle) = \widehat{\text{arc}}$$

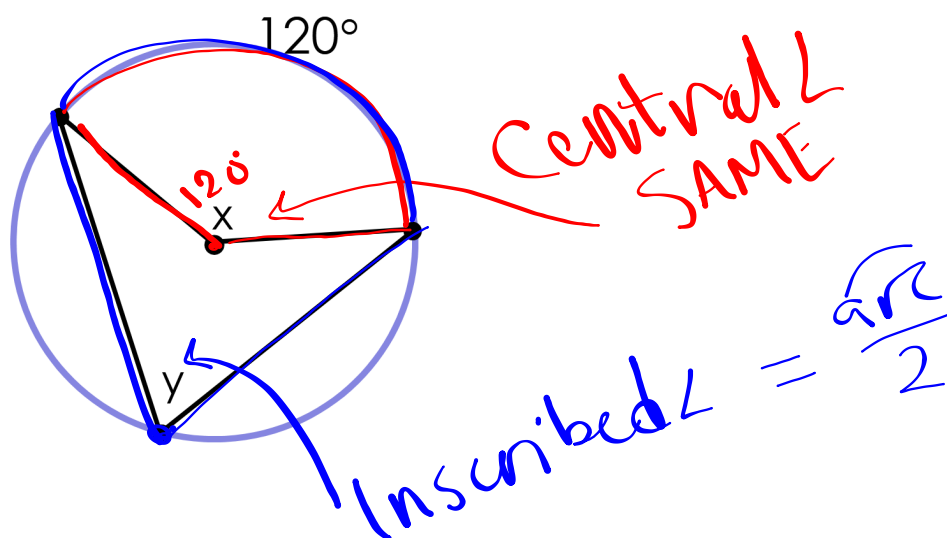
$$\text{Inscribed Angle} = \frac{\text{Intercepted Arc}}{2}$$



The arc is
twice as big as
the angle!!



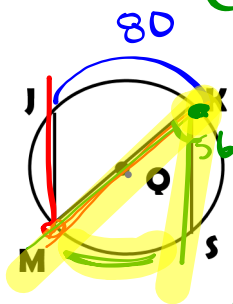
Find the value of x and y



Examples

1. If $m \widehat{JK} = 80^\circ$ and $\angle JMK = 2x - 4$, find x

2. If $m \angle MKS = 56^\circ$, find $m \widehat{MS} = 112^\circ$



$x = 22$

$\angle JMK = \frac{\text{arc}}{2}$

$2x - 4 = \frac{80}{2}$

$2x - 4 = 40$
 $+4 \quad +4$

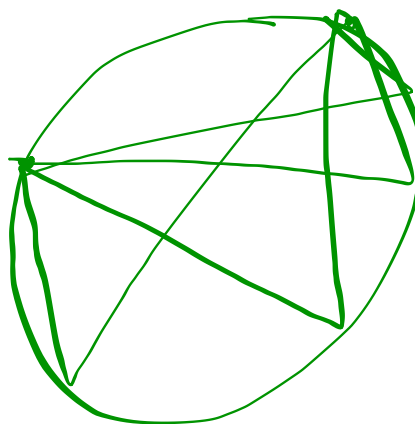
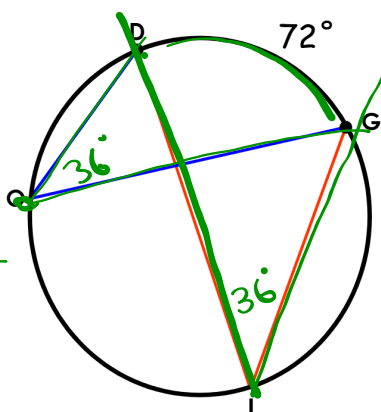
$\frac{2x}{2} = \frac{44}{2}$

$x = 22$

inscribed $\angle = \frac{\text{arc}}{2}$
 $2(\text{inscribed}) = \text{arc}$
 $2(56) = 112$

Find the measure of $\angle DOG$ and $\angle DIG$.

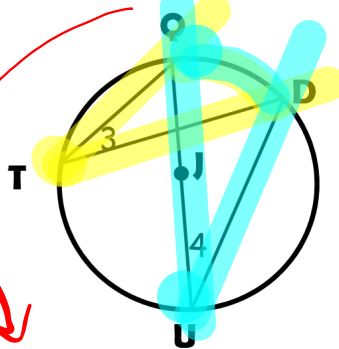
If two inscribed angles intercept the same arc, then they are **CONGRUENT**



Example 3

In $\odot J$, $m\angle 3 = 5x$ and $m\angle 4 = 2x + 9$.

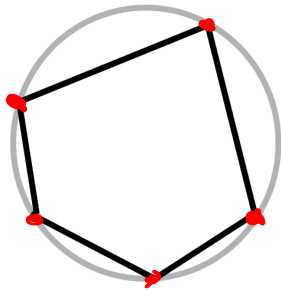
Find the value of x .



SAME
arc
so congruent

$$\begin{array}{r} 5x = 2x + 9 \\ -2x \quad -2x \\ \hline 3x = 9 \\ \boxed{x = 3} \end{array}$$

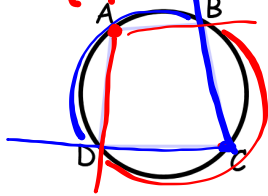
If all the vertices of a polygon touch the edge of the circle, the polygon is Inscribed and the circle is CIRCUMSCRIBED.





a quadrilateral inscribed in a circle: opposite angles are

Supplementary

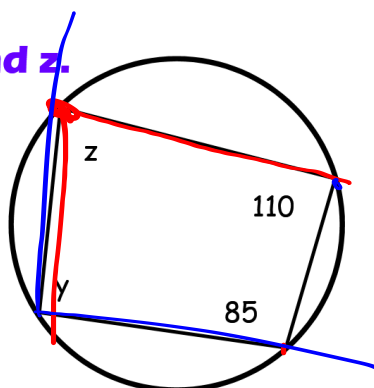


$$m\angle A + m\angle C = 180$$

$$m\angle B + m\angle D = 180$$

- arcs form a circle 360°
- Inscribed \angle are $\frac{\widehat{\text{arc}}}{2}$
- angles add up to $\frac{360}{2}$
- $\hookrightarrow 180^\circ$

Example 4 Find y and z .



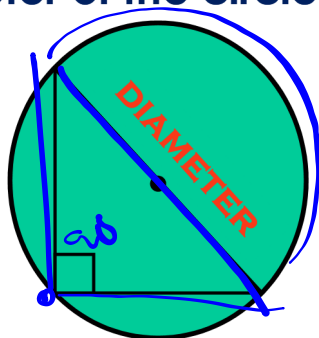
$$\begin{array}{r} z + 85 = 180 \\ - 85 \quad - 85 \\ \hline \end{array}$$

$$\begin{array}{r} y + 110 = 180 \\ - 110 \quad - 110 \\ \hline \end{array}$$

$$\boxed{m\angle y = 70}$$

$$\begin{array}{r} m\angle z = 180 - 85 \\ \boxed{m\angle z = 95} \end{array}$$

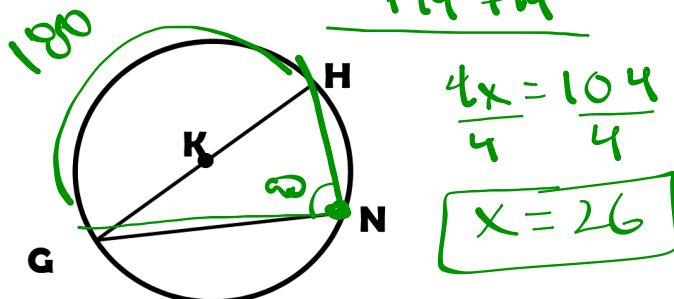
If a right triangle is inscribed in a circle then the hypotenuse will be the diameter of the circle.



*Semi-circle
180*

Example 5

In $\odot K$, \overline{GH} is a diameter and $m\angle GNH = 4x - 14 = 90$
Find the value of x .



Bonus: What type of triangle is this? Why?

RIGHT, 90

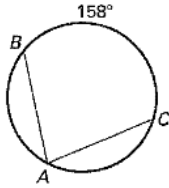
Name WS 103

Date _____

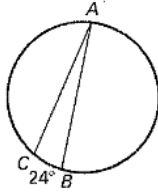
LESSON 6.4 Practice

Find the indicated measure.

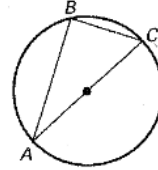
1. $m\angle A$



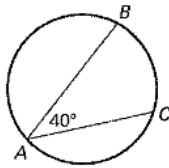
2. $m\angle A$



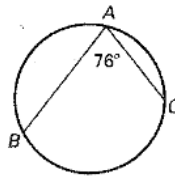
3. $m\angle B$



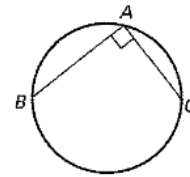
4. $m\widehat{BC}$



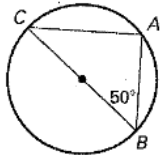
5. $m\widehat{BC}$



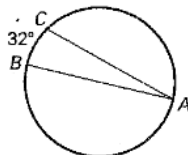
6. $m\widehat{BC}$



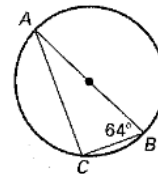
7. $m\angle C$



8. $m\angle A$



9. $m\widehat{BC}$



Name _____

Date _____

LESSON 6.4 Practice *continued*

Find the indicated measure in $\odot M$.

10. $m\angle PNO$

11. $m\angle QNP$

12. $m\widehat{PQ}$

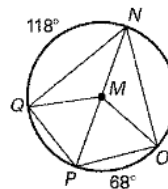
13. $m\widehat{QO}$

14. $m\angle NMO$

15. $m\widehat{NOP}$

16. $m\angle QMP$

17. $m\widehat{OQN}$



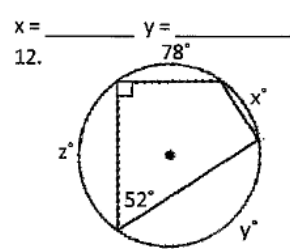
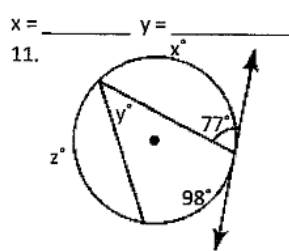
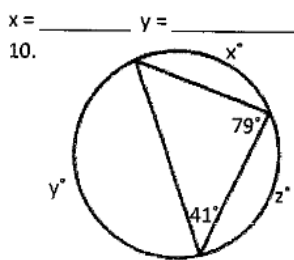
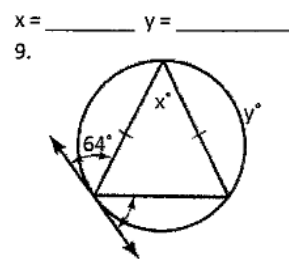
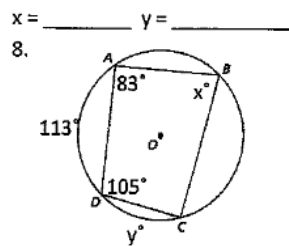
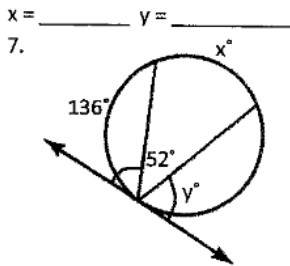
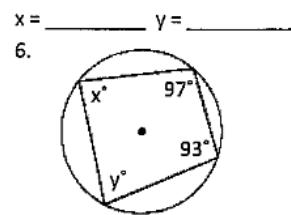
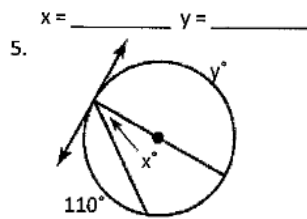
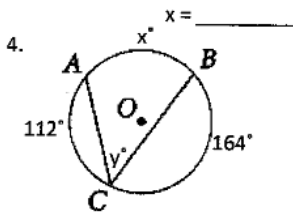
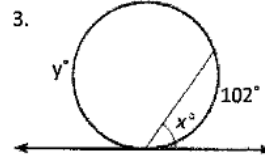
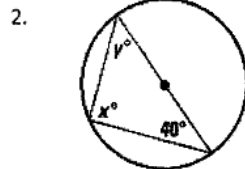
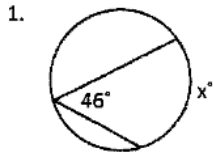
Geometry

SHOW WORK

Name _____

$$\text{Inscribed angle} = \frac{1}{2} \cdot \text{intercepted arc}$$

Find the value of each variable.



$x =$ _____ $y =$ _____ $z =$ _____ $x =$ _____ $y =$ _____ $z =$ _____ $x =$ _____ $y =$ _____ $z =$ _____

