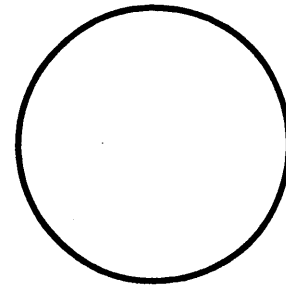


What is an inscribed angle and how do you find its measure?

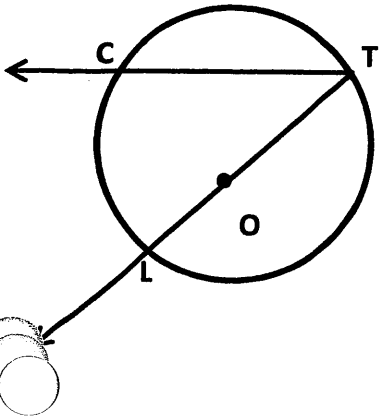
**Remember:** When naming an angle using 3 letters, the letter in the middle is the vertex!!

**Inscribed Angle:**

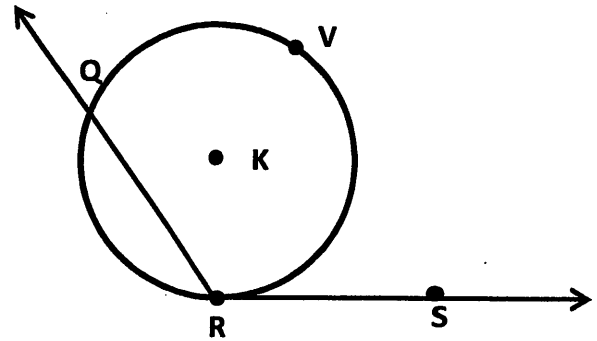


Determine whether each angle is an inscribed angle. Name the intercepted arc for the angle.

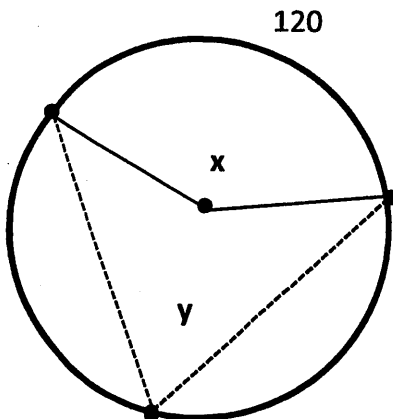
1.



2.



What do we call this type of angle?



What is the value of  $x$ ?

How do we solve for  $y$ ?

The measure of the inscribed angle is \_\_\_\_\_ the measure of the intercepted arc!!

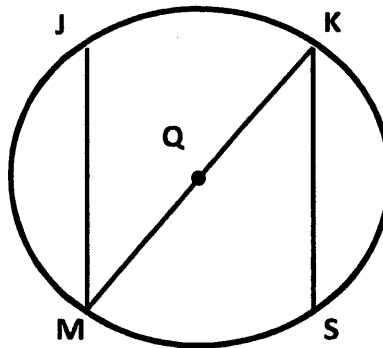
To find the measure of the inscribed angle...

**Inscribed Angle =**

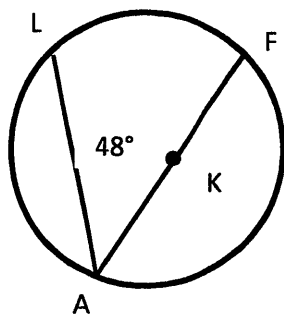
Examples:

3. If  $m \widehat{JK} = 80^\circ$ , find  $m \angle JMK$

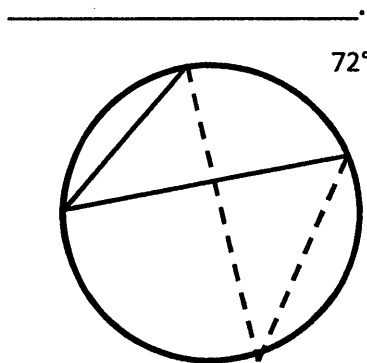
4. If  $m \angle MKS = 56^\circ$ , find  $m \widehat{MS}$



Find the measure of  $\angle L$ .

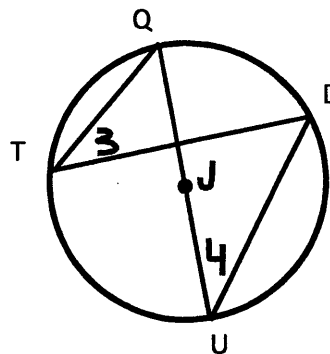


If two inscribed angles intercept the same arc, then they are



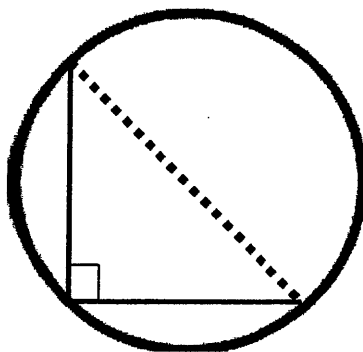
Example 5

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



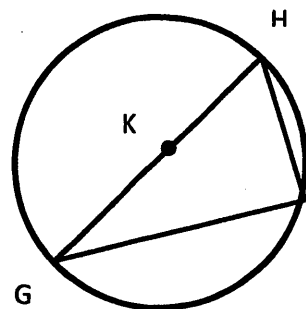
If a right triangle is inscribed in a circle then the

\_\_\_\_\_ is the  
\_\_\_\_\_ diameter of the circle.



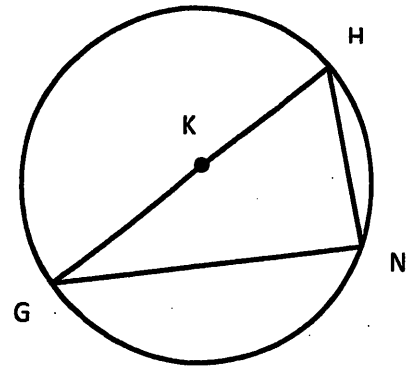
Example 6

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



**Example 7**

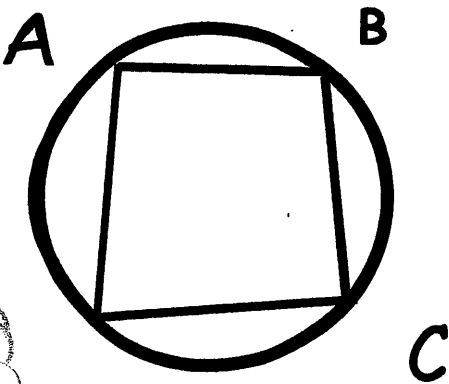
In  $\odot K$ ,  $m\angle 1 = 6x - 5$  and  $m\angle 2 = 3x - 4$ . Find the value of  $x$ .



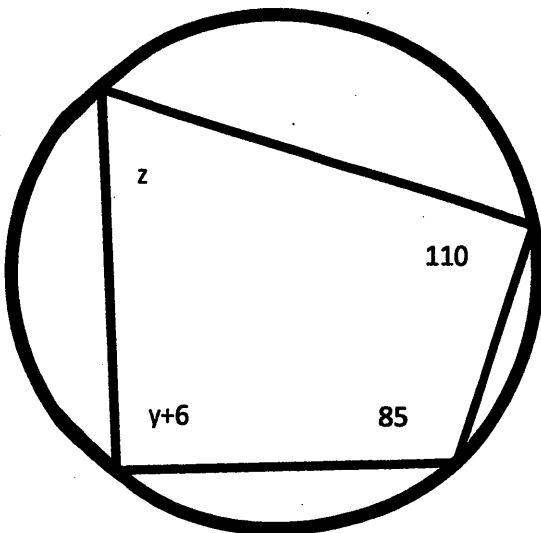
A circle can be circumscribed around a quadrilateral if and only if its opposite angles are supplementary.

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

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



**Example 8: Find  $y$  and  $z$ .**

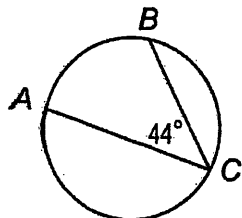


# 10-4 Practice

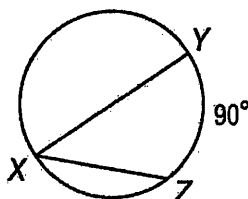
## Inscribed Angles

Find each measure.

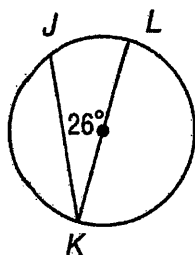
1.  $m\widehat{AB}$



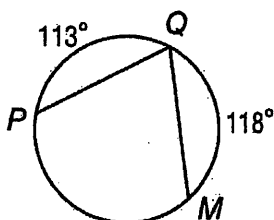
2.  $m\angle X$



3.  $m\widehat{JK}$

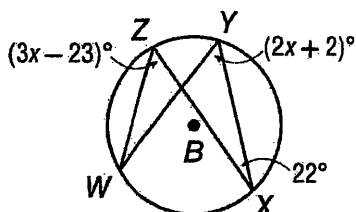


4.  $m\angle Q$

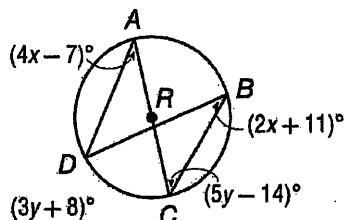


**ALGEBRA** Find each measure.

5.  $m\angle W$



7.  $m\angle A$

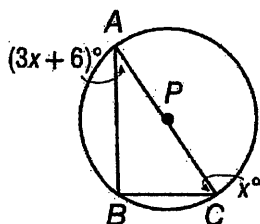


6.  $m\angle Y$

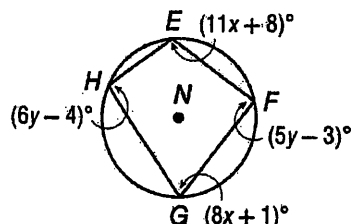
8.  $m\angle D$

**ALGEBRA** Find each measure.

9.  $m\angle A$



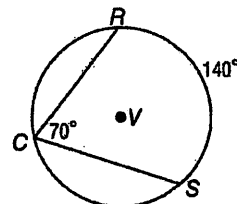
11.  $m\angle G$



10.  $m\angle C$

12.  $m\angle H$

**13. PROBABILITY** In  $\odot V$ , point  $C$  is randomly located so that it does not coincide with points  $R$  or  $S$ . If  $m\widehat{RS} = 140$ , what is the probability that  $m\angle RCS = 70$ ?



LESSON  
6.4

## Exercise Set A

MM2G3b Understand and use properties of central, inscribed, and related angles.

MM2G3d Justify measurements and relationships in circles using geometric and algebraic properties.

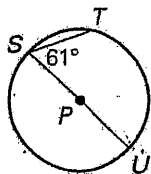
1. Multiple Choice In the figure shown, which statement is true?

- A.  $\angle SPR \cong \angle PSQ$       B.  $\angle RQS \cong \angle RPS$   
C.  $\angle RPS \cong \angle PRQ$       D.  $\angle PRQ \cong \angle SQR$

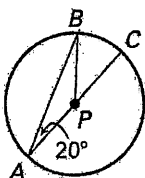


Find the measure of the indicated angle or arc in  $\odot P$ .

2.  $m\widehat{ST}$



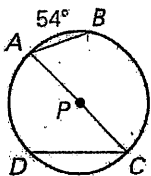
3.  $m\widehat{AB}$



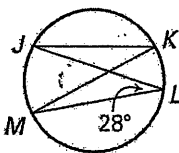
4.  $m\angle JLM$



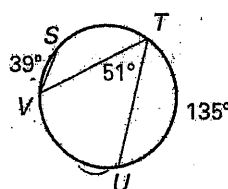
5.  $m\angle A$



6.  $m\angle K$



7.  $m\widehat{VST}$



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

8.  $m\angle JKL$

9.  $m\angle MKL$

10.  $m\angle KMN$

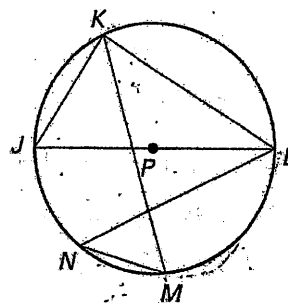
11.  $m\angle JKM$

12.  $m\angle KLN$

13.  $m\angle LNM$

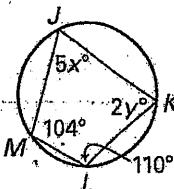
14.  $m\widehat{MJ}$

15.  $m\widehat{LKJ}$

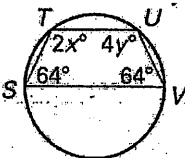


In Exercises 16–18, find the values of the variables.

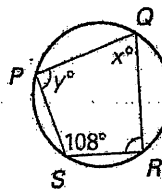
16.



17.



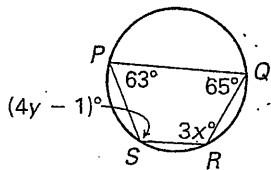
18.



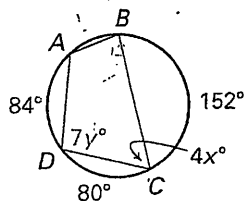
## Exercise Set A (continued)

In Exercises 19–21, find the values of the variables.

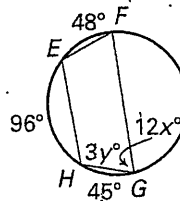
19.



20.



21.



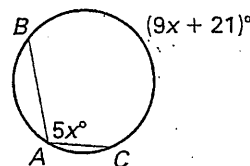
22. Multiple Choice What is the value of  $x$  in the figure shown?

A. 7

B. 12

C. 16

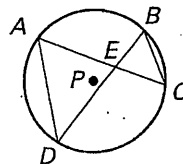
D. 21



23. Proof Copy and complete the proof.

GIVEN:  $\odot P$

PROVE:  $\triangle AED \sim \triangle BEC$



Statements

Reasons

1.  $\odot P$

1. Given

2.  $\underline{\hspace{1cm}}$

2. Vertical Angles Theorem (Two angles are vertical angles if their sides form two pairs of opposite rays. The Vertical Angles Theorem states that vertical angles are congruent.)

3.  $\angle CAD \cong \angle DBC$

3.  $\underline{\hspace{1cm}}$

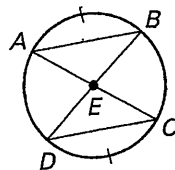
4.  $\triangle AED \sim \triangle BEC$

4.  $\underline{\hspace{1cm}}$

24. Proof Copy and complete the proof.

GIVEN:  $\widehat{AB} \cong \widehat{CD}$

PROVE:  $\triangle ABE \cong \triangle DCE$



Statements

Reasons

1.  $\widehat{AB} \cong \widehat{CD}$

1.  $\underline{\hspace{1cm}}$

2.  $\underline{\hspace{1cm}}$

2. Theorem 6.5

3.  $\underline{\hspace{1cm}}$

3. Vertical Angles Theorem (Two angles are vertical angles if their sides form two pairs of opposite rays. The Vertical Angles Theorem states that vertical angles are congruent.)

4.  $\angle BDC \cong \angle CAB$

4.  $\underline{\hspace{1cm}}$

5.  $\triangle ABE \cong \triangle DCE$

5.  $\underline{\hspace{1cm}}$