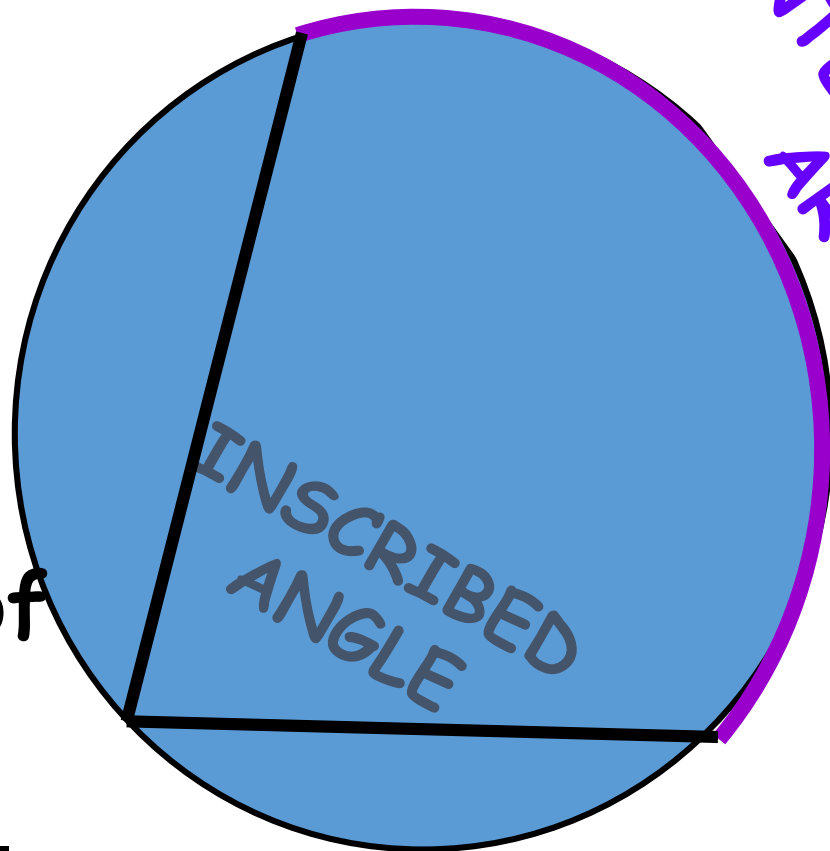




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## Inscribed Angle:

An angle whose **vertex** is on the circle and whose **sides** are **chords** of the circle

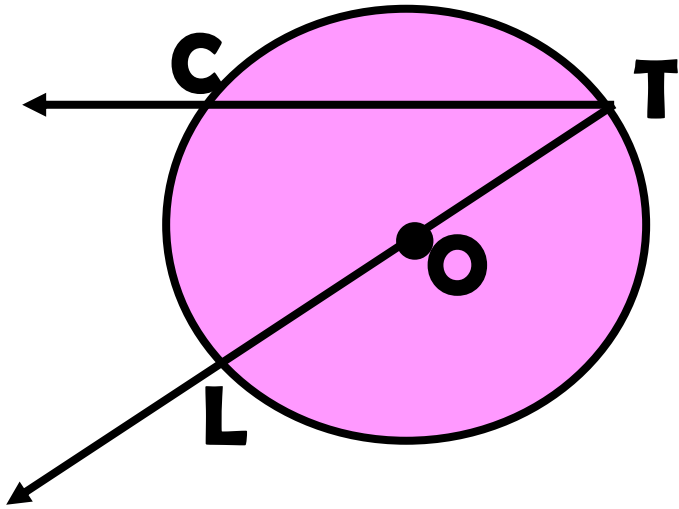




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Determine whether each angle is an inscribed angle. Name the intercepted arc for the angle.

1.

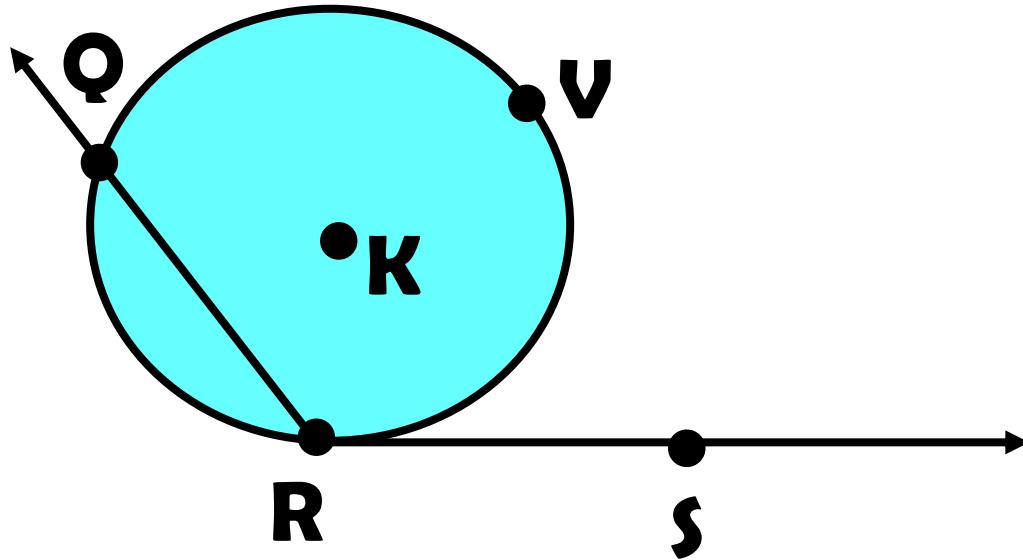


**YES;**  
**CL**



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

2.



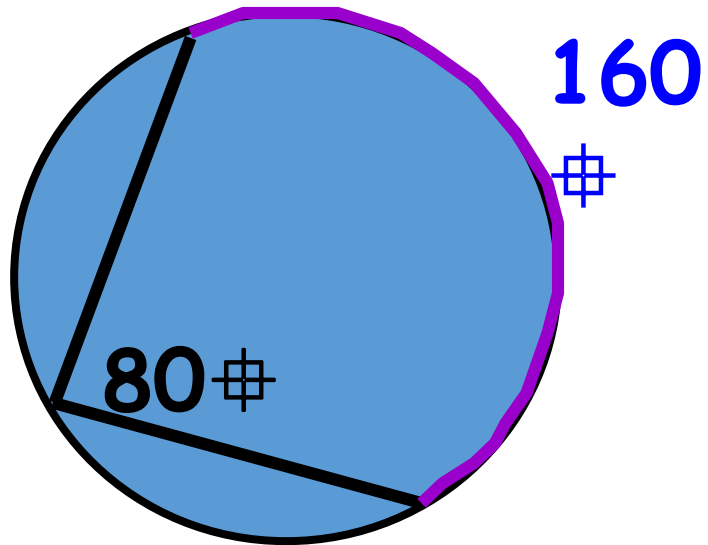
**NO;**  
**QVR**



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To find the measure of an inscribed angle...

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

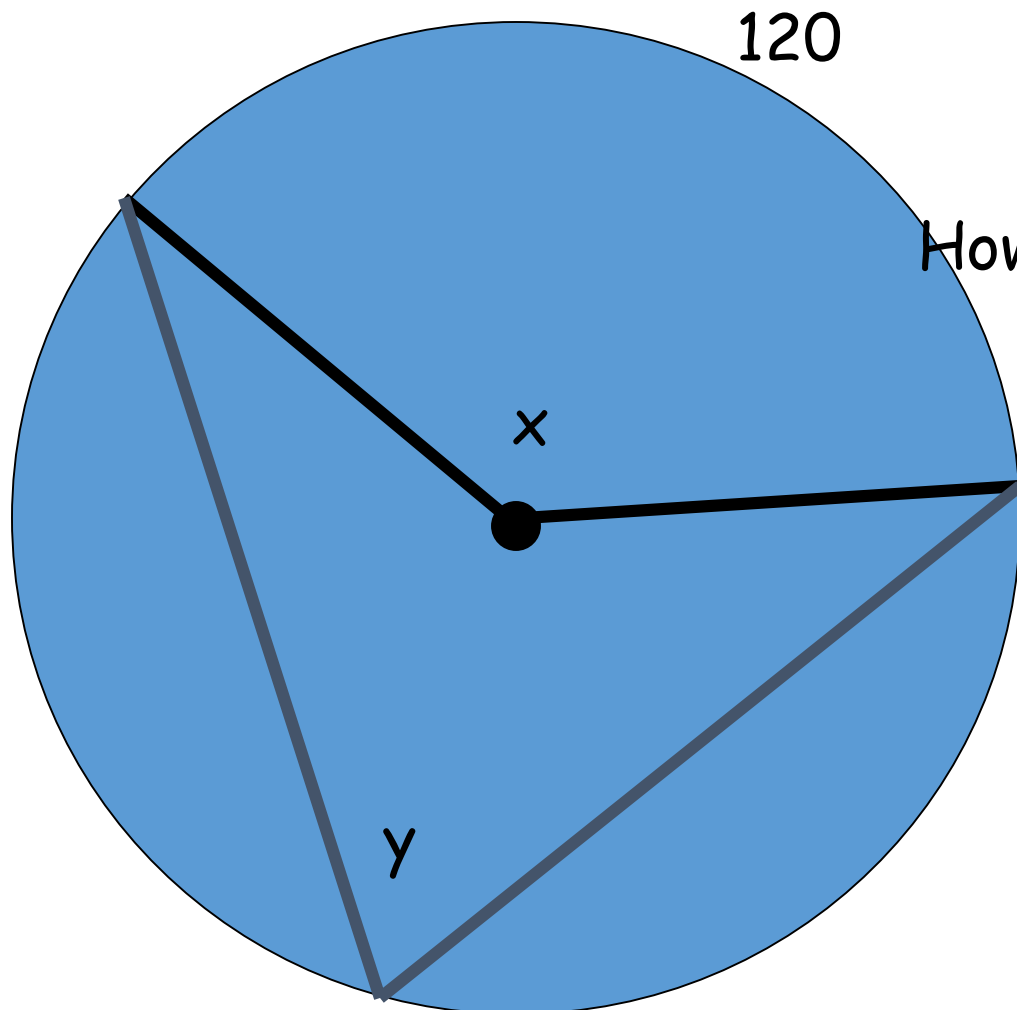




What do we call this type of angle?

The measure of the inscribed angle is HALF the measure of the inscribed arc!!

What is the value of  $x$ ?



How do we solve for  $y$ ?

What do we call this type of angle?

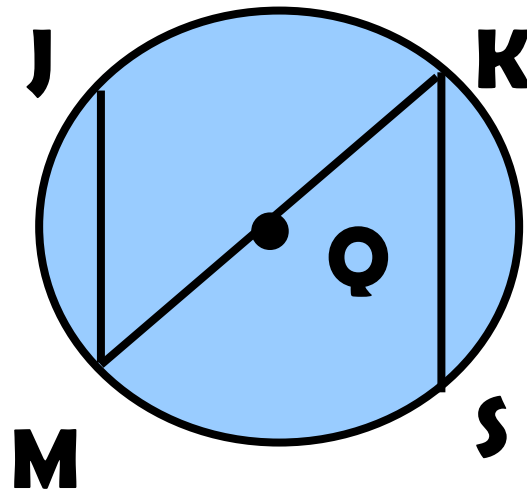


3. If  $m \widehat{JK} = 80^\circ$ , find  $m \sphericalangle JMK$ .

**$40^\circ$**

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

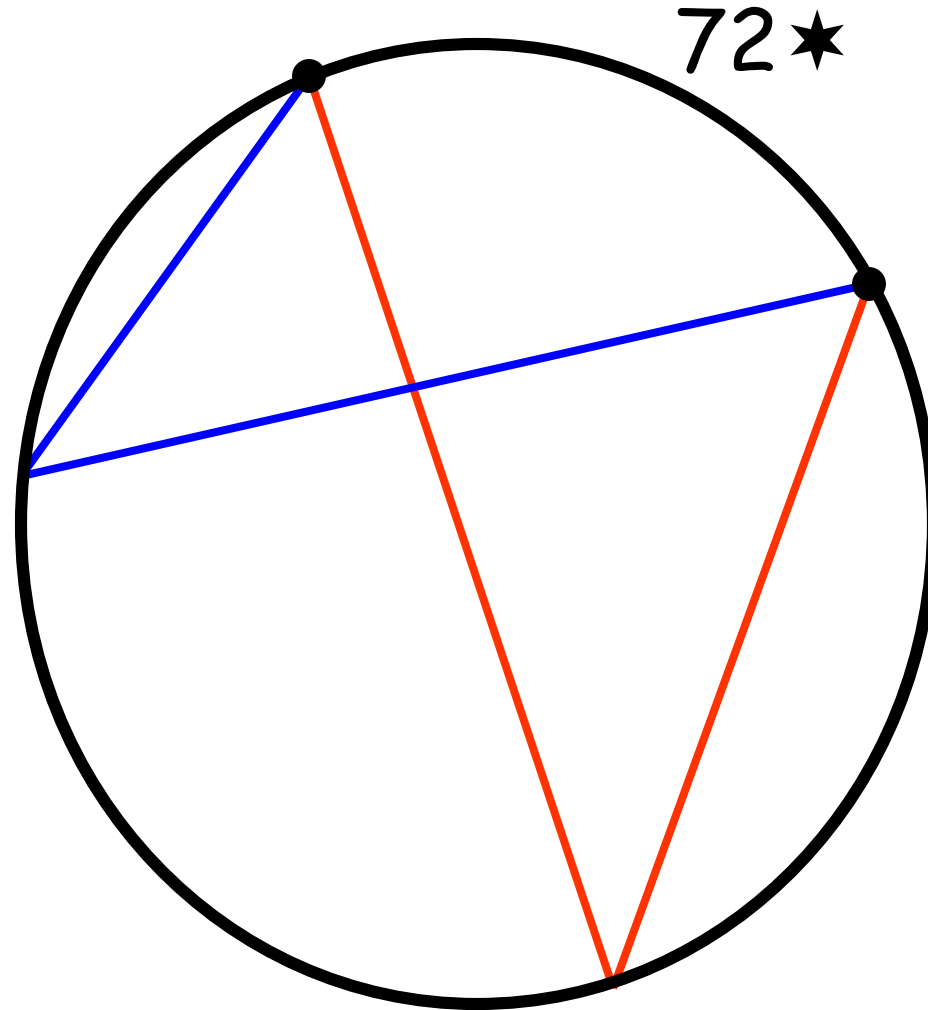
**$112^\circ$**





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

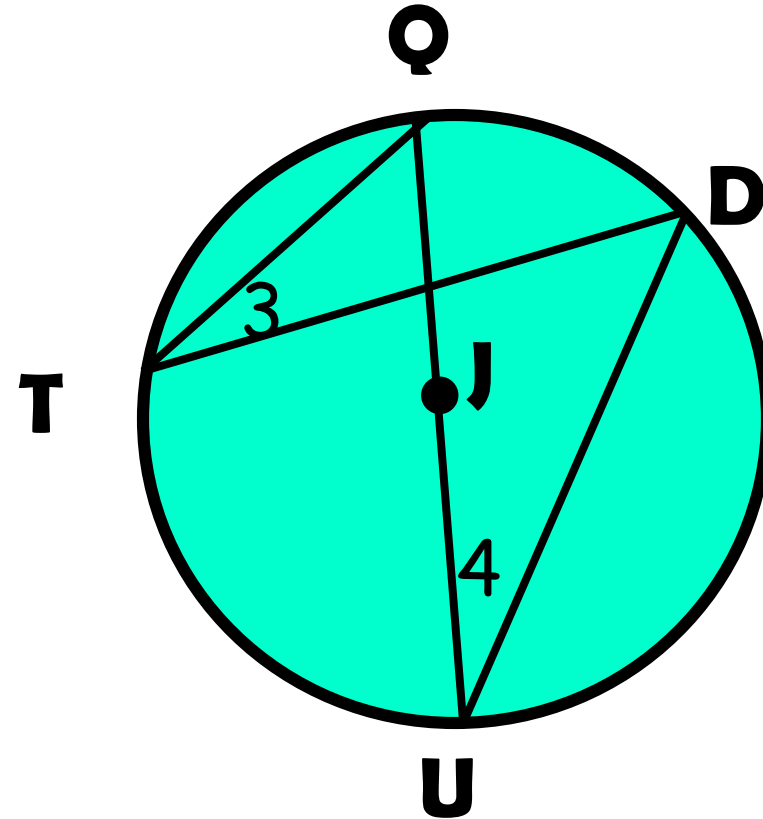




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In  $\odot J$ ,  $m\angle 3 = 5x$  and  $m\angle 4 = 2x + 9$ .  
Find the value of  $x$ .

$$x = 3$$

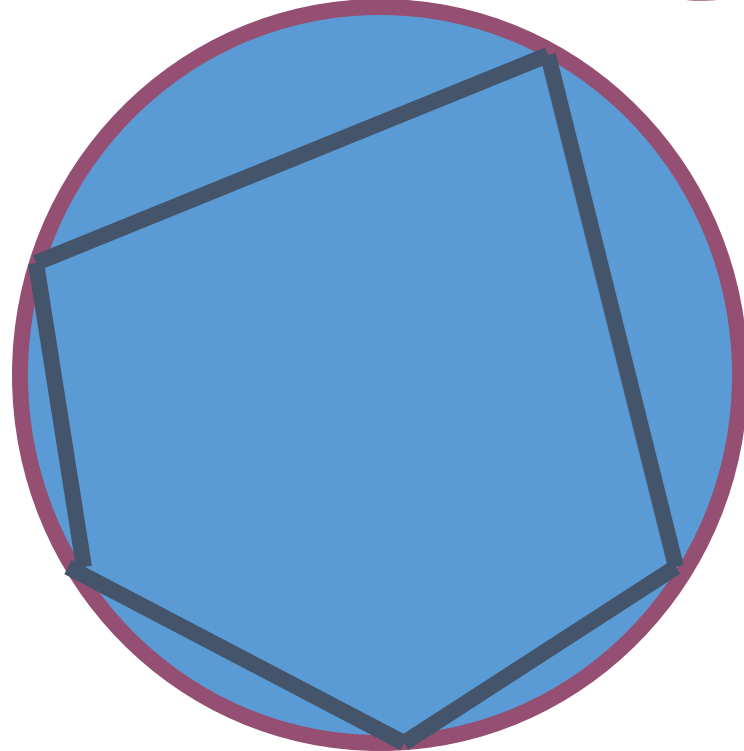




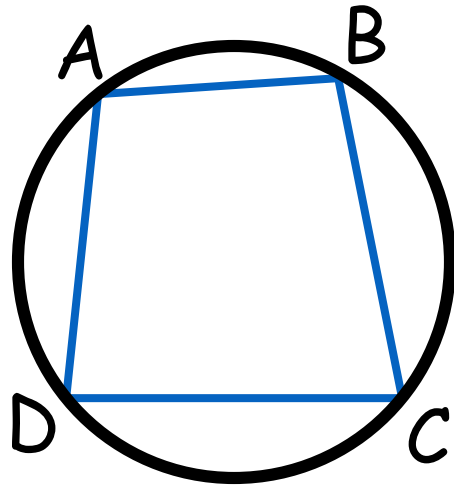


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If all the vertices of a polygon touch the edge of the circle, the polygon is **INSCRIBED** and the circle is **CIRCUMSCRIBED**.



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



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

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



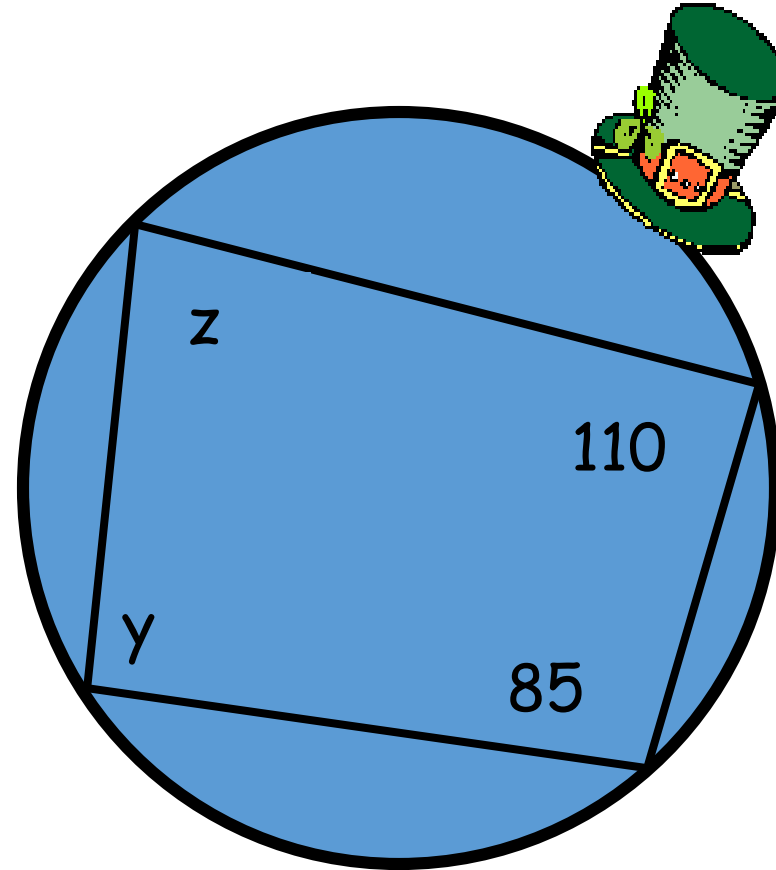
**Find  $y$  and  $z$ .**

$$110 + y = 180$$

$$y = 70$$

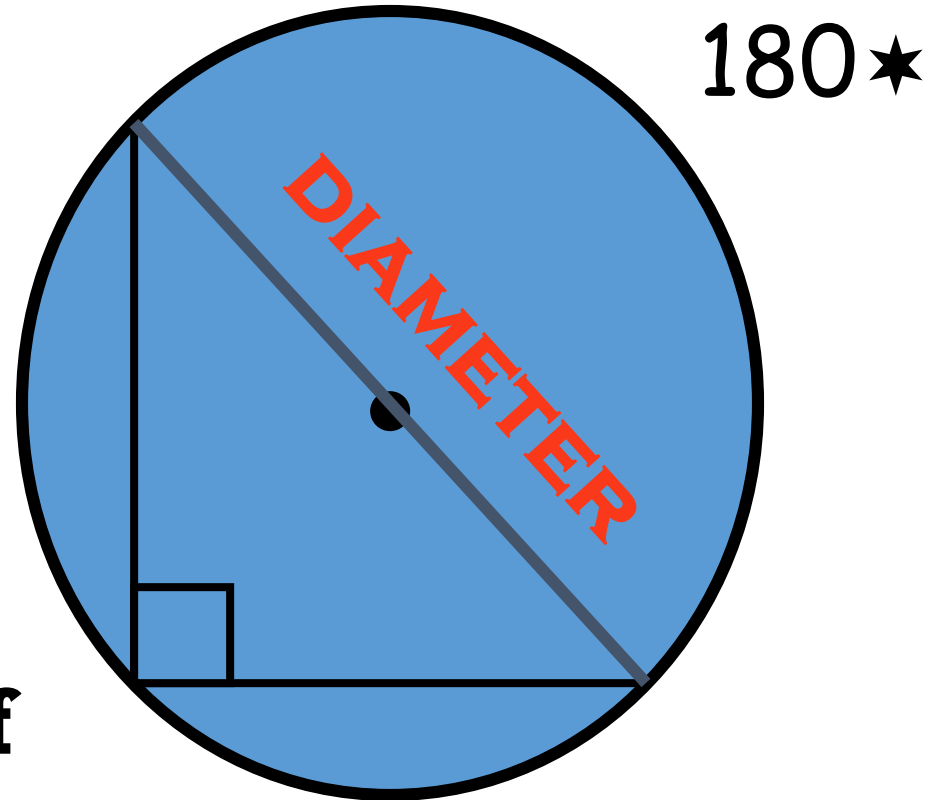
$$z + 85 = 180$$

$$z = 95$$





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

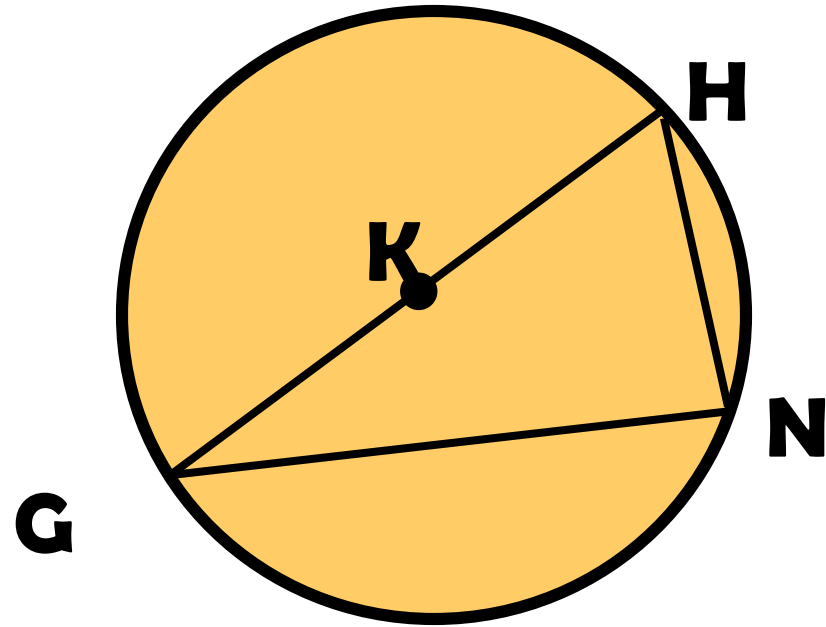




In  $\odot K$ ,  $\overline{GH}$  is a diameter and  $m\angle GNH = 4x - 14$ .  
Find the value of  $x$ .

$$4x - 14 = 90$$

$$x = 26$$



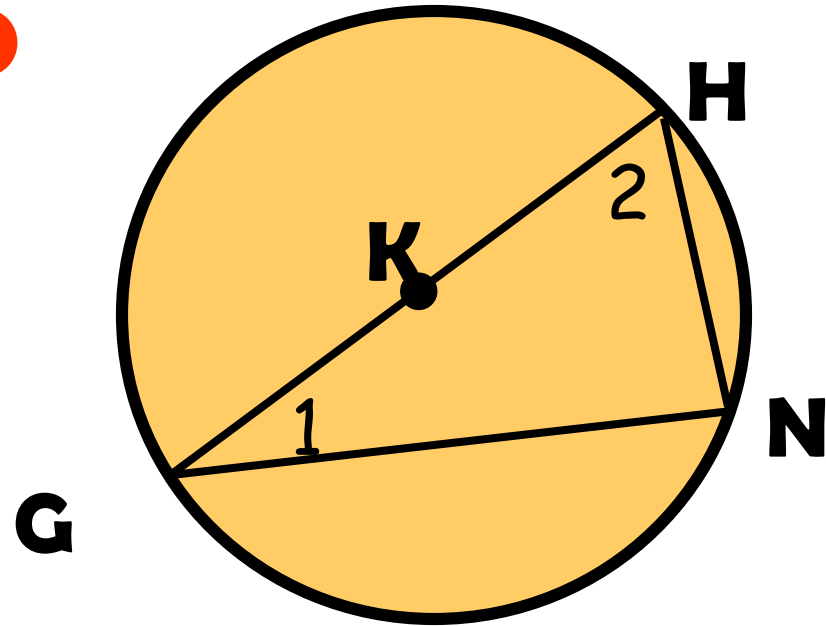


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In  $\odot K$ ,  $m\angle 1 = 6x - 5$  and  $m\angle 2 = 3x - 4$ . Find the value of  $x$ .

$$6x - 5 + 3x - 4 = 90$$

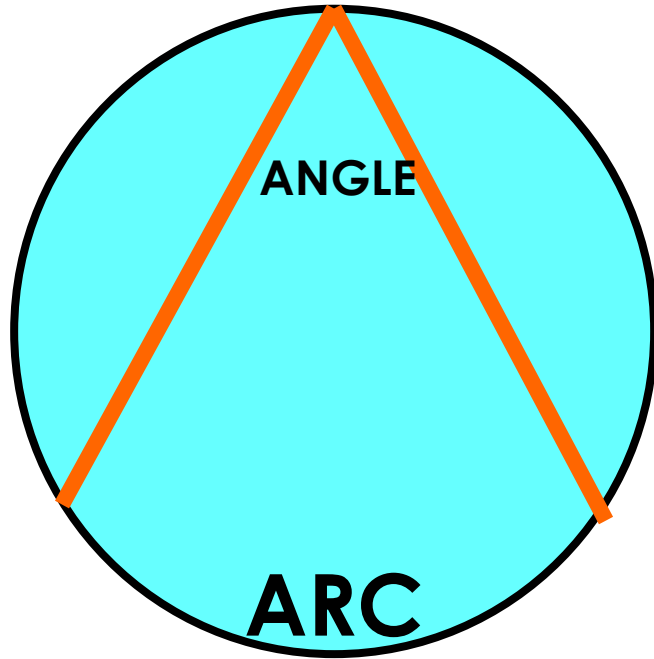
$$x = 11$$



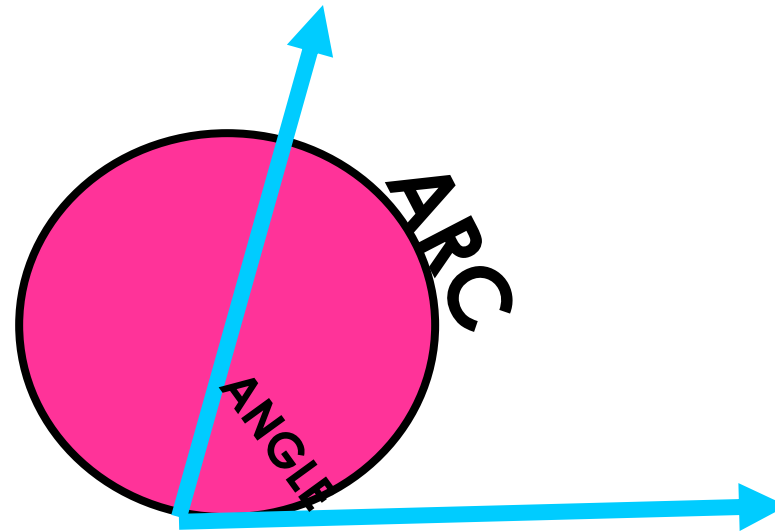


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# Case I: Vertex is ON the circle

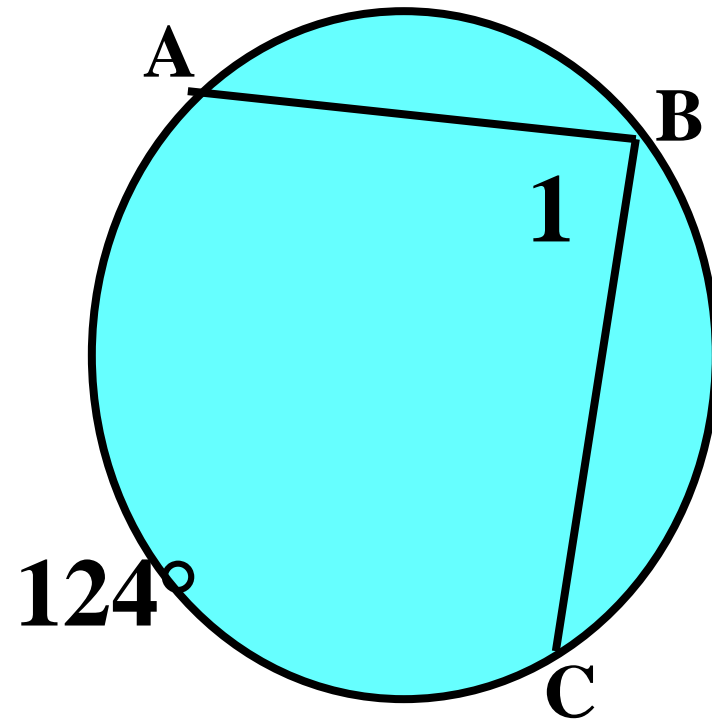


$$\text{ANGLE} = \frac{\text{ARC}}{2}$$





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HIGH SCHOOL **Ex. 1 Find  $m\angle 1$ .**



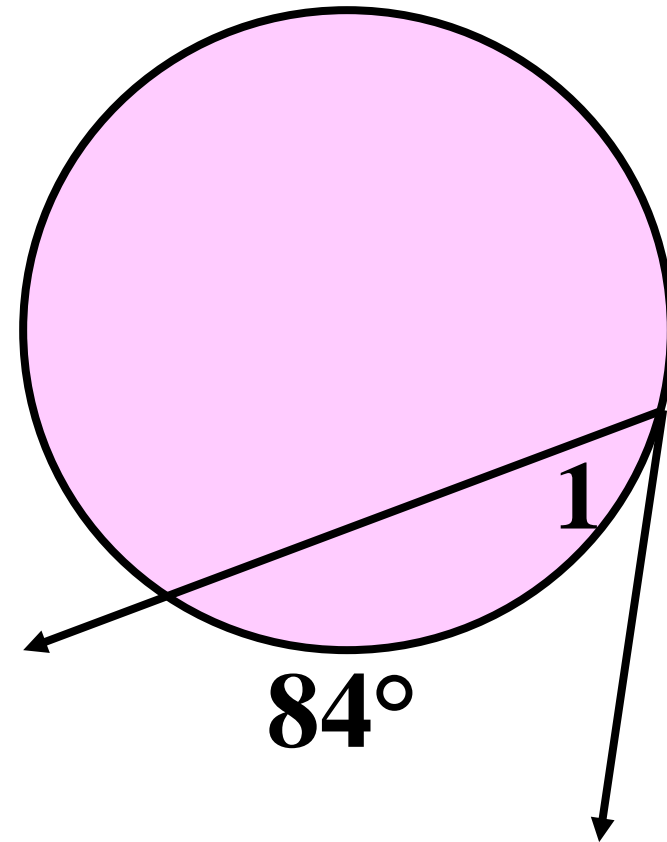
$$m\angle 1 = 62^\circ$$





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Ex. 2 Find  $m\angle 1$ .



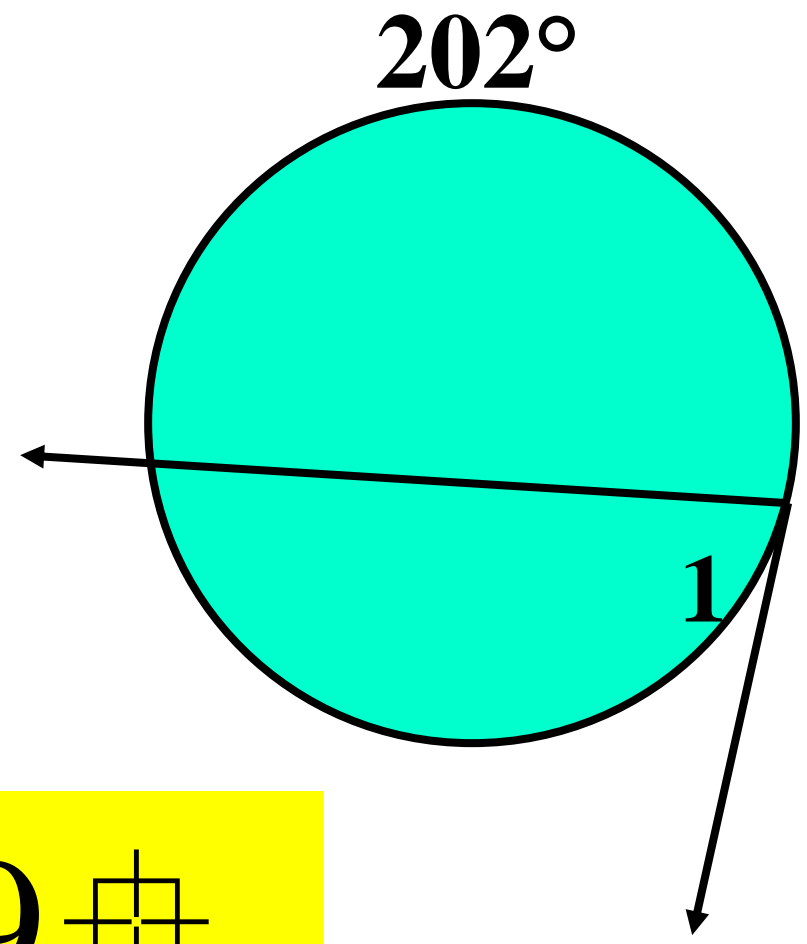
$$m1 = 42 \text{ } \oplus$$



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Ex. 3

Find  $m\angle 1$ .

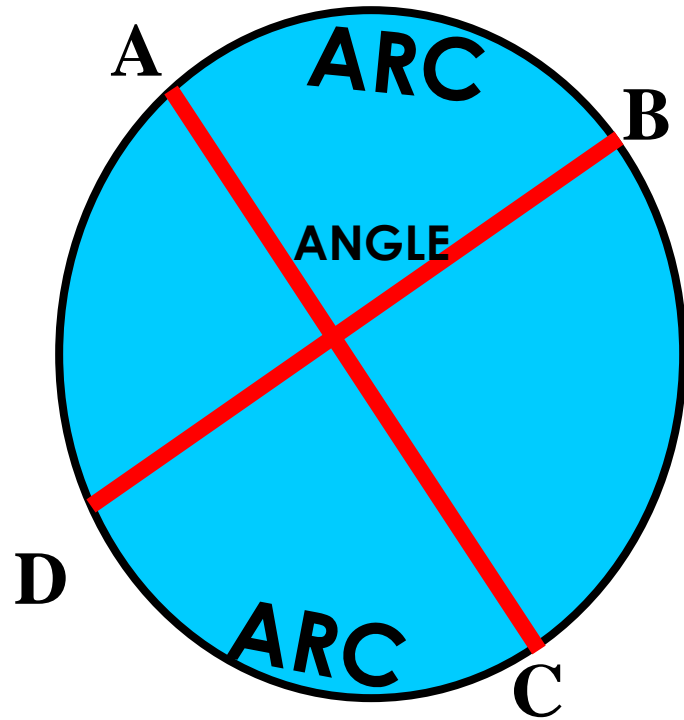


$$m\angle 1 = 79^\circ$$



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# Case II: Vertex is **inside** the circle



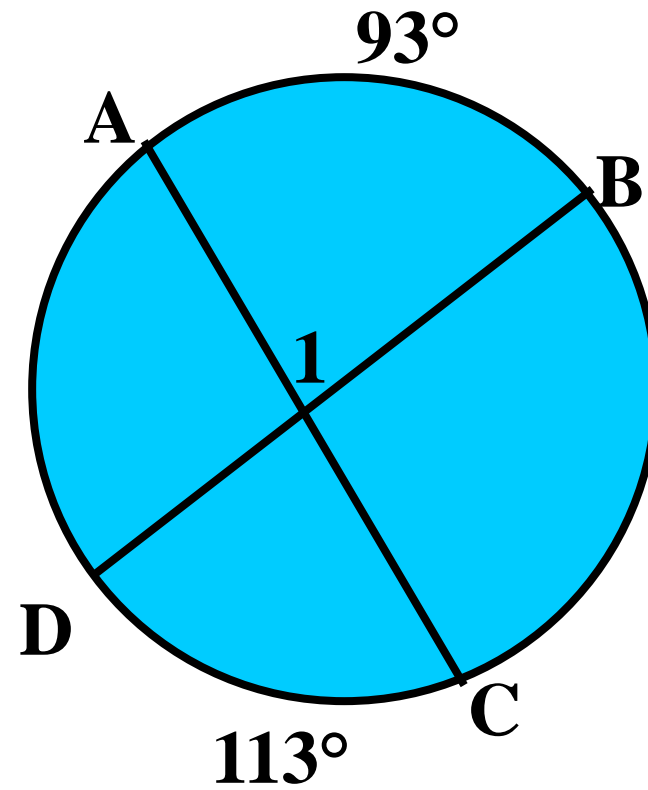
$$\text{ANGLE} = \frac{(\text{ARC} + \text{ARC})}{2}$$

Looks like a PLUS sign!



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Ex. 4 Find  $m\angle 1$ .

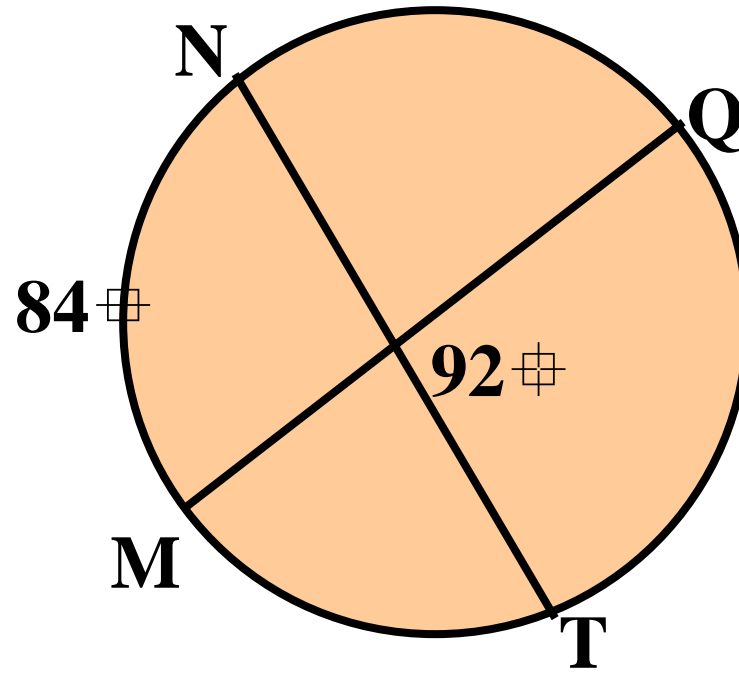


$$m\angle 1 = 103$$



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Ex. 5 Find  $m\widehat{QT}$ .



$$\widehat{mQT} = 100^\circ$$