



Math Virtual Learning

Geometry/Honors Geometry

Circles and Angles of Tangent Lines

May 8, 2020



Geometry

Lesson: May 8, 2020

Objective/Learning Target:

Students will find the measure angles formed by two tangent lines.

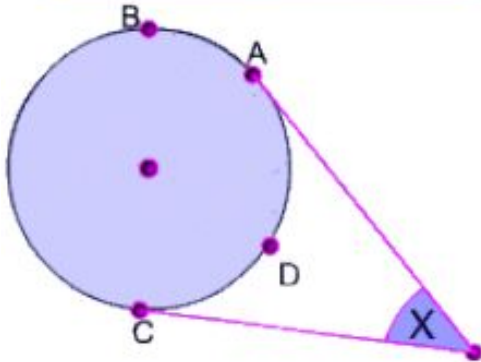
Warm-Up:

Watch Video: [Circles and Tangent Lines](#)

Notes:

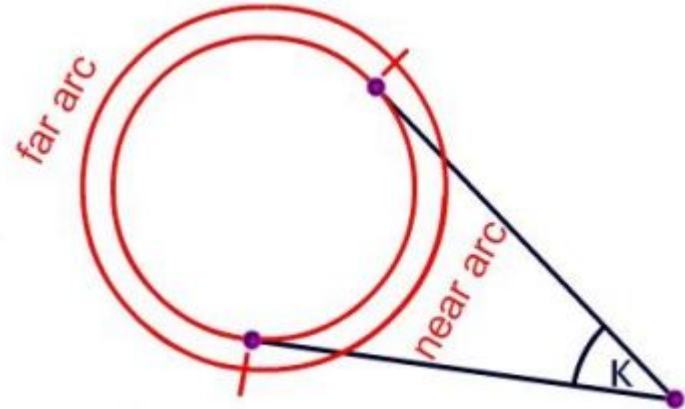
Formula

$$m\angle X = \frac{1}{2}(\widehat{ABC} - \widehat{CDA})$$



The Easy Way To Remember It

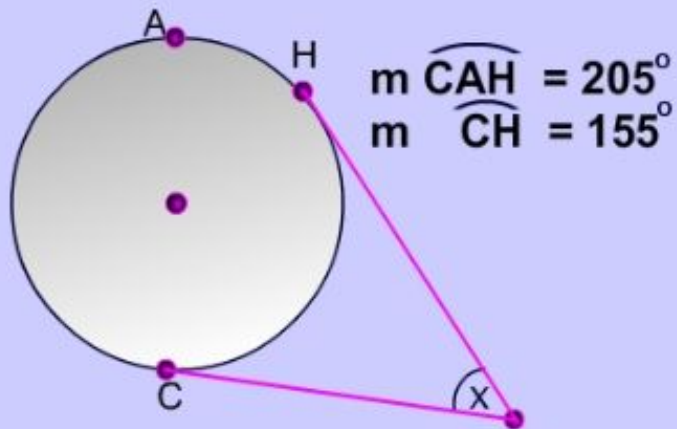
$$m\angle K = \frac{(\text{far arc} - \text{near arc})}{2}$$



Example:

What is the measure of x in the picture on the left. (Both lines in the picture are tangent to the circle)

HIDE ANSWER



Apply the formula .

$$m\angle x = \frac{1}{2} (\widehat{Farc} - \widehat{Narc})$$

$$m\angle x = \frac{1}{2} (\widehat{CAH} - \widehat{CH})$$

$$m\angle x = \frac{1}{2} (205 - 155)$$

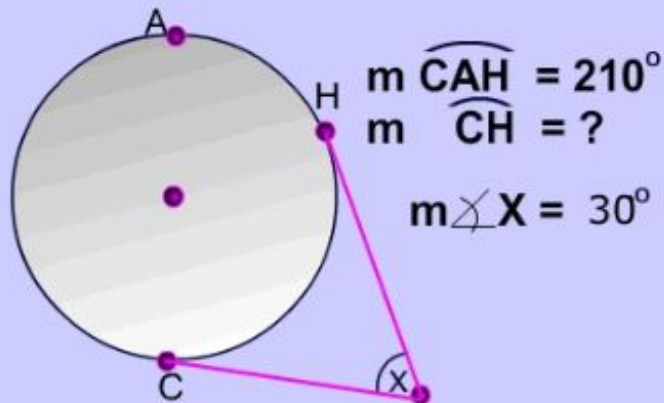
$$m\angle x = \frac{1}{2} (50)$$

$$m\angle x = 25^\circ$$

Example:

What is the measure of \widehat{CH} ?

HIDE ANSWER



Apply the formula [↗](#).

$$m\angle x = \frac{1}{2}(\widehat{Farc} - \widehat{Narc})$$

$$m\angle x = \frac{1}{2}(\widehat{CAH} - \widehat{CH})$$

$$30 = \frac{1}{2}(210 - \widehat{CH})$$

$$2 \cdot 30 = 2 \cdot \frac{1}{2}(210 - \widehat{CH})$$

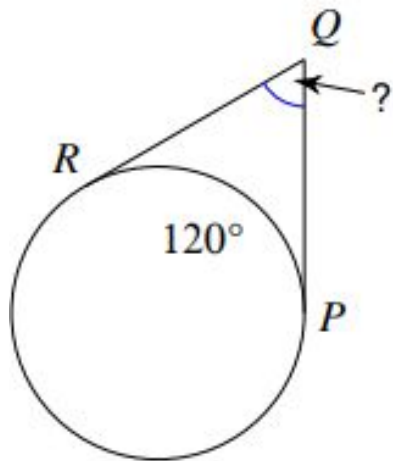
$$2 \cdot 30 = (210 - \widehat{CH})$$

$$60 = 210 - \widehat{CH}$$

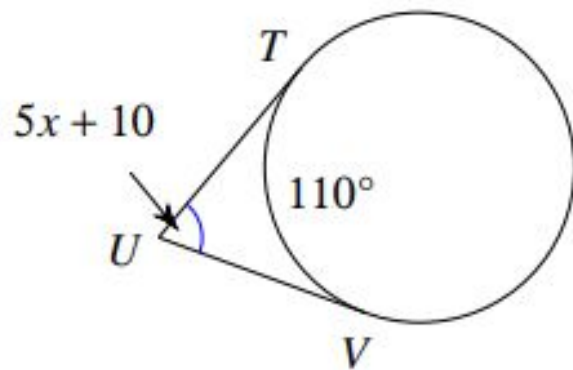
$$150^\circ = \widehat{CH}$$

Practice:

1)



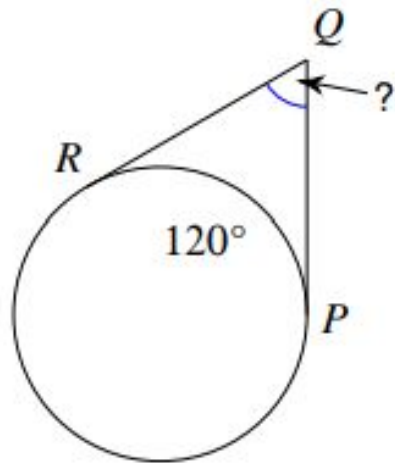
2)



Answer Key:

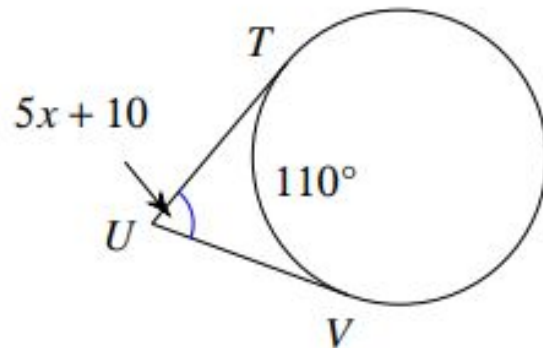
Once you have completed the problems, check your answers here.

1)



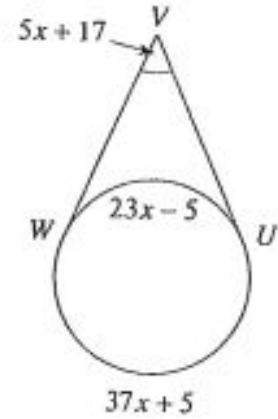
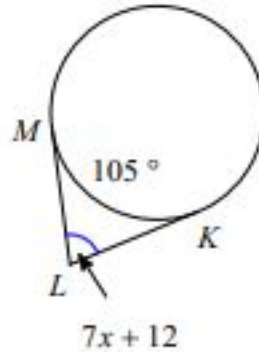
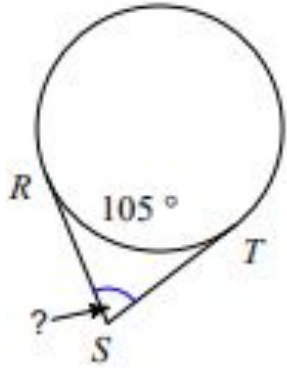
60°

2)

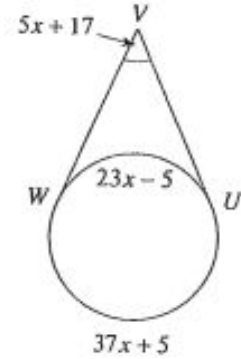
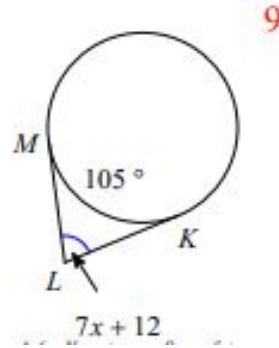
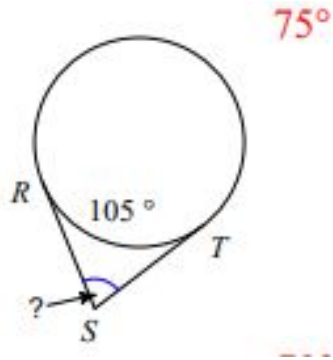


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Additional Practice:



Additional Practice Answers:



$$\begin{aligned}
 5x + 17 &= \frac{1}{2} (37x + 5 - (23x - 5)) \\
 10x + 34 &= 37x + 5 - 23x + 5 \\
 10x + 34 &= 14x + 10 \\
 -4x &= -24 \\
 x &= 6
 \end{aligned}$$