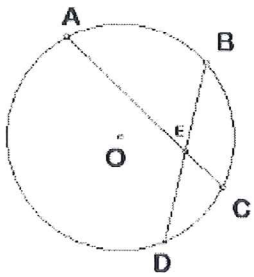
Name: Key

ACC: Notes
Special Segments 10-7

Two Chord Interior Conjecture:

If two chords intersect in the interior of a circle, then the **products** of the measures of the chord segments are equal.

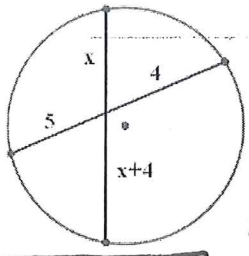


$AE \cdot EC = BE \cdot ED$

Quadratic Formula Review

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Example 1: find x.



$x(x+4) = 5 \cdot 4$

$x^2 + 4x = 20$

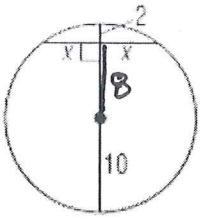
$x^2 + 4x - 20 = 0$

$x = \frac{-4 \pm \sqrt{4^2 - 4 \cdot 1 \cdot (-20)}}{2(1)}$

$x = \frac{-4 \pm \sqrt{96}}{2} = \frac{-4 \pm 4\sqrt{6}}{2}$

$\boxed{x = -2 + 2\sqrt{6}}$

Example 2: find x.



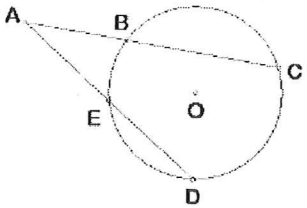
$x \cdot x = 18 \cdot 2$

$x^2 = 36$

$\boxed{x = 6}$

Two Secants Exterior Conjecture:

If 2 secants meet at an exterior points of the circle, then the product of the measures of the secant and the external secant is equal to the product of the other secant and the external secant.

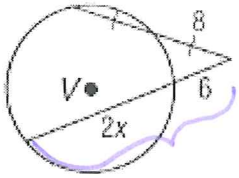


$AB(AB + BC) = AE(AE + ED)$

OR

$AB \cdot AC = AE \cdot AD$

example:



$8 \cdot 16 = 6(2x + 6)$

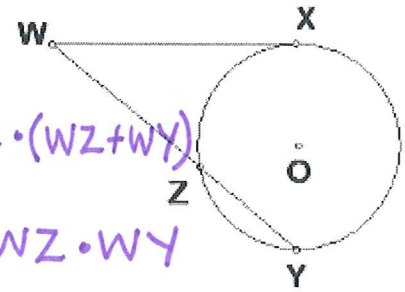
$128 = 12x + 36$

$92 = 12x$

$x = \frac{92}{12} =$

Tangent & Secant Exterior Conjecture:

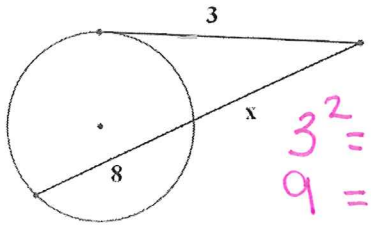
If a secant and tangent meet at an exterior points of the circle, then the product of the measures of the secant and the external secant is equal to the square of the tangent.



$(WX)^2 = WZ \cdot (WZ + WY)$

OR

$(WX)^2 = WZ \cdot WY$



$3^2 = x(x+8)$

$9 = x^2 + 8x$

$0 = x^2 + 8x - 9$

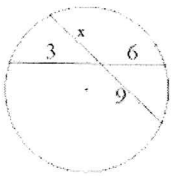
$(x-1)(x+9) = 0$

$\boxed{x = 1}$ NOT -9

In Class- Special Segments 10-6& 10-7

Directions: Complete the following questions to **find x** using the conjectures we have discovered in chapter 10.

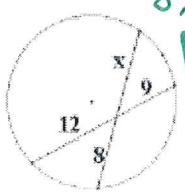
1.



$9x = 18$

$\boxed{x = 2}$

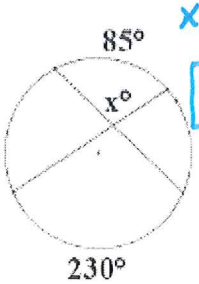
2.



$8x = 108$

$\boxed{x = 13.5}$

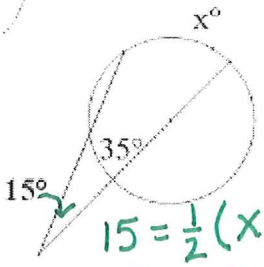
3.



$x = \frac{1}{2}(230 + 85)$

$\boxed{x = 157.5°}$

4.

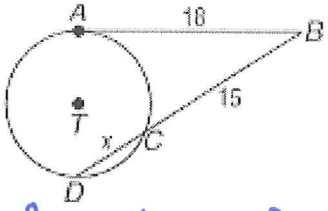


$15 = \frac{1}{2}(x - 35)$

$30 = x - 35$

$\boxed{65° = x}$

5.



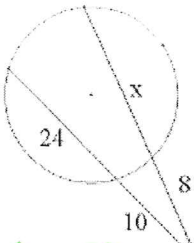
$18^2 = 15(15 + x)$

$324 = 225 + 15x$

$99 = 15x$

$\boxed{x = 6.6}$

6.



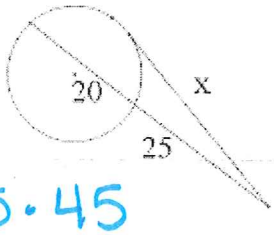
$8(x+8) = 10 \cdot 34$

$8x + 64 = 340$

$8x = 276$

$\boxed{x = 34.5}$

7.

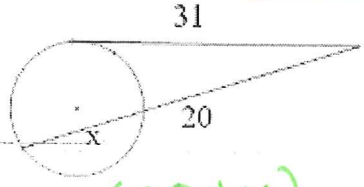


$x^2 = 25 \cdot 45$

$x^2 = 1125$

$\boxed{x = 15\sqrt{5}}$

8.



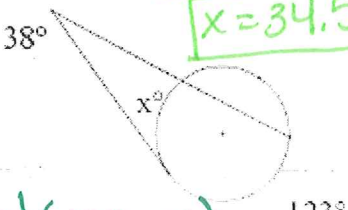
$31^2 = 20(20 + x)$

$961 = 400 + 20x$

$561 = 20x$

$\boxed{x = 28.05}$

9.



$38 = \frac{1}{2}(123 - x)$

$76 = 123 - x$

$-47 = -x$

$\boxed{x = 47°}$