Key

Unit 3 Part 1 Circles Review: Angles and Arc Measures, Segment Lengths, Tangents, Inscribed Quads

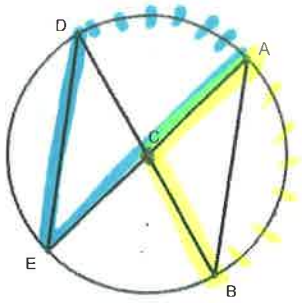
For each picture, write out the theorem or formula you would use to solve the problem.

$\angle$ = angle

$\overset{\frown}{AB}$ = arc

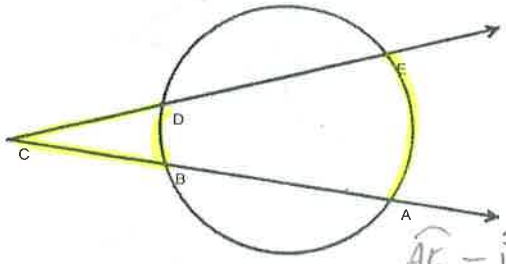
Where is the vertex?

In the picture to the right, point *C* is the center.

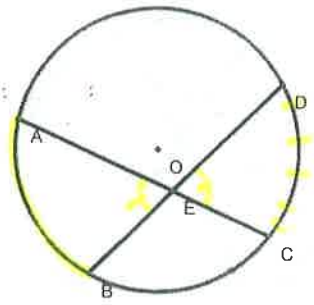


Central 1. You know $m\angle ACB$ and need $m\overset{\frown}{AB}$ $m\angle ACB = m\overset{\frown}{AB}$

Inscribed 2. You know $m\angle DEA$ and need $m\overset{\frown}{DA}$ $2(m\angle DEA) = m\overset{\frown}{DA}$ OR $m\angle DEA = \frac{m\overset{\frown}{DA}}{2}$



3. You are looking for $m\angle DCB$ $\frac{\overset{\frown}{AE} - \overset{\frown}{DB}}{2} = m\angle DCB$



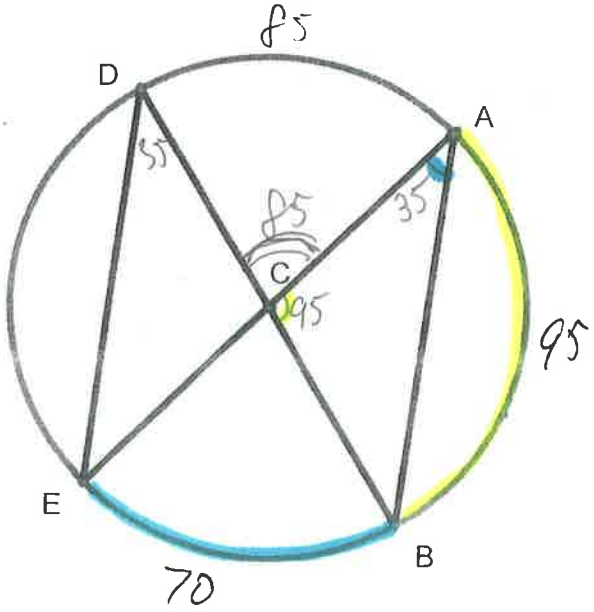
5. You are looking for $m\overset{\frown}{AB}$ $\angle AED = \frac{\overset{\frown}{AB} + \overset{\frown}{DC}}{2}$

$\overline{CD}$ = segment length

4. You are looking for $m\overline{CD}$ $(\overline{CD})(\overline{CE}) = (\overline{CB})(\overline{CA})$

6. You are looking for $m\overline{EC}$ $(\overline{EC})(\overline{AE}) = (\overline{BE})(\overline{ED})$

In the circle below, $m\angle CAB = 35^0$ and $m\angle ACB = 95^0$. Find the following measures. add to your image



7. $m\overset{\frown}{AB}$ = 95

8. $m\overset{\frown}{EB}$ = 70

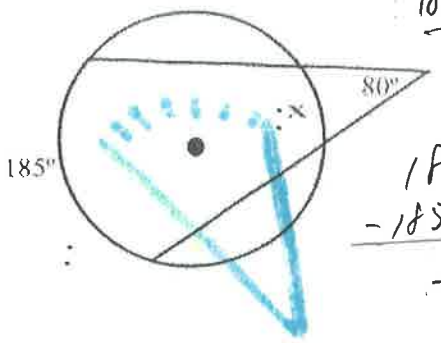
9. $m\angle EDB$ = 35

10. $m\overset{\frown}{DA}$ = 85

11. $m\angle ACD$ = 85

For the following problems, determine which theorem to use, write an equation, and solve.

13.



Bare - Same / 2 = 80

$\frac{185 - x}{2} = 80$

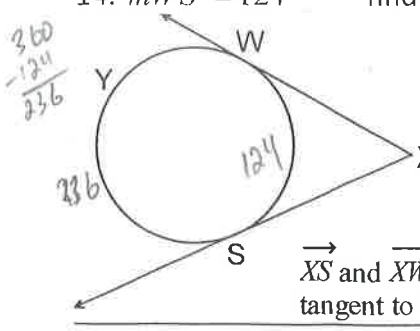
$185 - x = 160$

$-185 \quad -185$

$-x = -25$

$x = 25$

14. $m\widehat{WS} = 124^0$ find $\angle WXS$



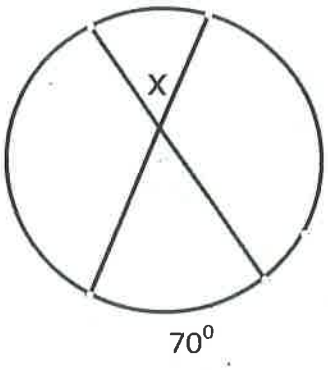
360 − 124 = 236

$\frac{236 - 124}{2} = x$

$56 = x$

$\overrightarrow{XS}$ and $\overrightarrow{XW}$ are tangent to the circle

15.

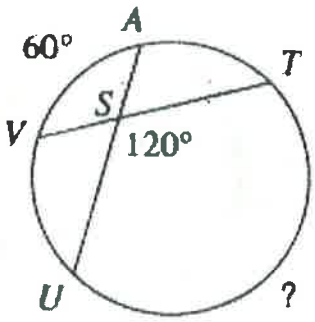


$\frac{70 + 20}{2} = x$

$\frac{90}{2} = x$

$45 = x$

16.



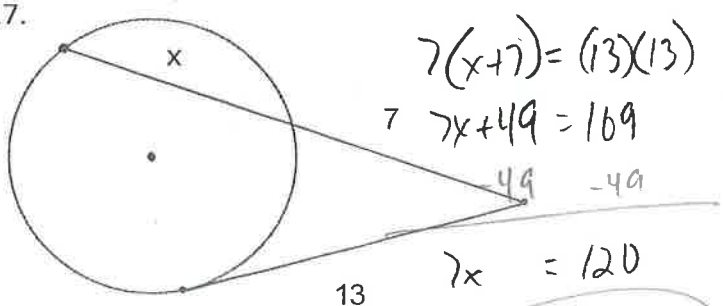
$120 = \frac{60 + x}{2}$

$240 = 60 + x$

$180 = x$

* Be careful - you will use the outside twice

17.



$7(x+7) = (13)(13)$

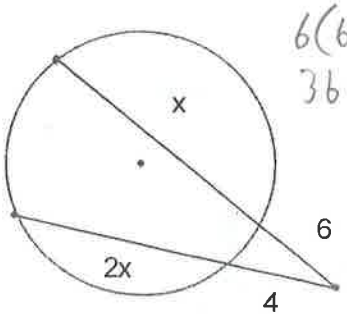
$7x + 49 = 169$

$-49 \quad -49$

$7x = 120$

$x = 17.14$

18.



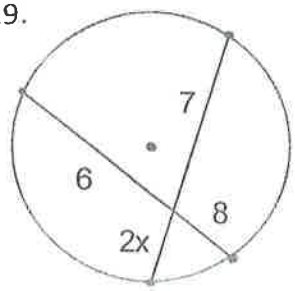
$6(6+x) = 4(2x+4)$

$36 + 6x = 8x + 16$

$20 = 2x$

$2 = x$

19.

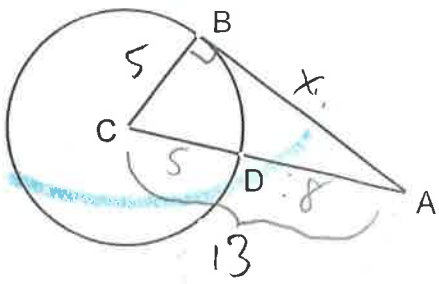


$4 \cdot 6 = 7 \cdot 2x$

$48 = 14x$

$3.4 = x$

20. $\overline{AD} = 8$ and $\overline{CB} = 5$ find $\overline{AB}$



$A^2 + B^2 = c^2$

$5^2 + A^2 = 13^2$

$25 + B^2 = 169$

$\sqrt{B^2} = \sqrt{144}$

$B = 12$