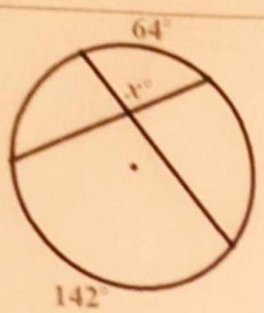
RELATED ANGLES FROM INSCRIBED ANGLES

#1-10, $x°$ is formed by the intersection of two chords. Use an auxiliary line and inscribed angles to ve for x.

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

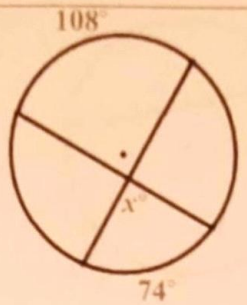
1.



$X = \frac{142+64}{2}$

$X = \frac{206}{2} = 103°$

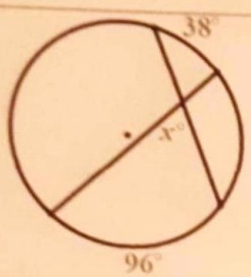
2.



$X = \frac{108+74}{2}$

$X = \frac{182}{2} = 91°$

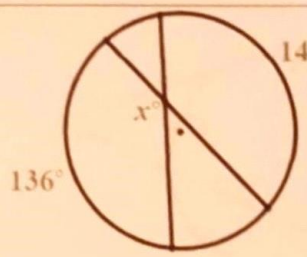
3.



$X = \frac{96+38}{2}$

$X = \frac{134}{2} = 67°$

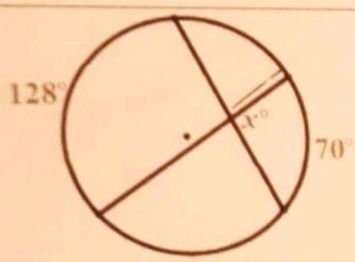
4.



$X = \frac{136+140}{2}$

$X = \frac{276}{2} = 138°$

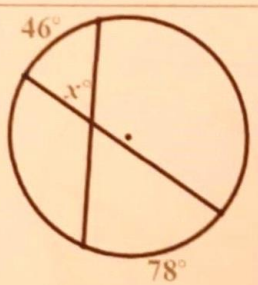
5.



$X = \frac{128+70}{2}$

$x = \frac{198}{2} = 99°$

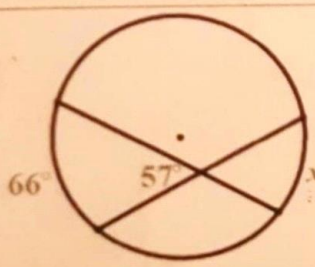
6.



$X = \frac{46+78}{2}$

$X = \frac{124}{2} = 62°$

7.



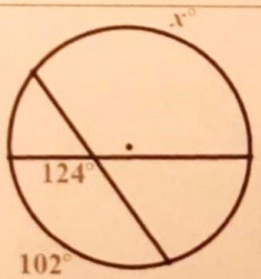
$57 = \frac{66+X}{2}$

$114 = 66 + X$

$-66 \quad -66$

$48° = X$

8.



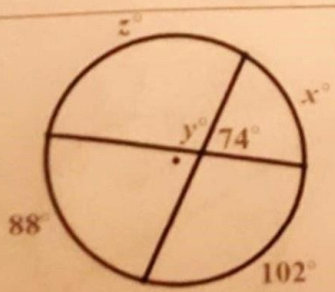
$124 = \frac{102+X}{2}$

$248 = 102 + X$

$-102 \quad -102$

$146° = x$

9.



$74 = \frac{88+X}{2}$

$148 = 88 + X$

$-88 \quad -88$

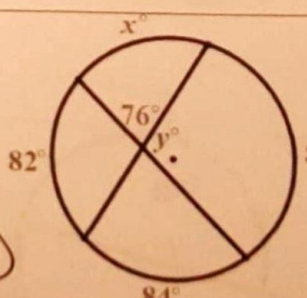
$60 = X$

$Y = 180 - 74 = 106°$

$Z = 360 - (60 + 102 + 88)$

$Z = 110°$

10.



$Y = 180 - 76 = 104°$

$76 = \frac{84+X}{2}$

$152 = 84 + X$

$-84 \quad -84$

$68° = X$

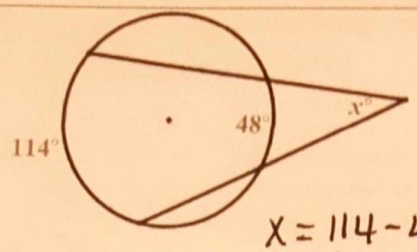
$Z = 360 - (82 + 84 + 68)$

$Z = 126°$

For #11-20, $x°$ is formed by the intersection of two secants or by the intersection of a secant and tangent. Use an auxiliary line and inscribed angles to solve for x.

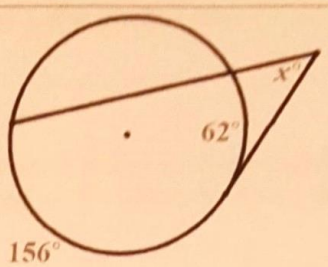
$$m\angle x = \frac{1}{2}(Big\ Arc - Small\ Arc)$$

11.



$x = \frac{114-48}{2} = \frac{66}{2} = 33°$

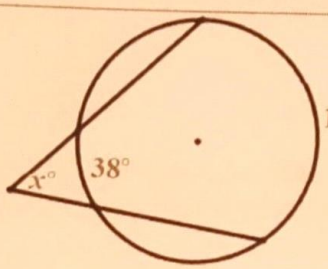
12.



$x = \frac{156-62}{2}$

$x = \frac{94}{2} = 47°$

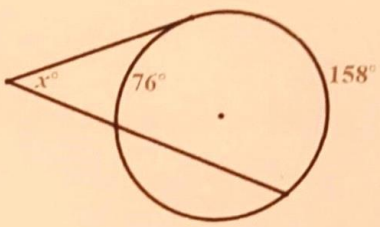
13.



$x = \frac{144-38}{2}$

$x = \frac{106}{2}$ $53°$

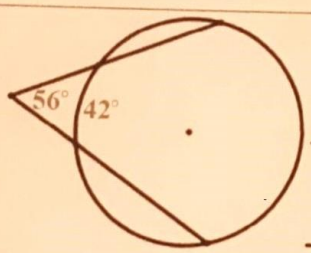
14.



$x = \frac{158-76}{2}$

$x = 82/2 = 41°$

15.



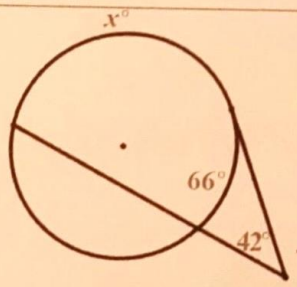
$56 = \frac{x-42}{2}$

$112 = x - 42$

$+42 \quad +42$

$154 = x$

16.



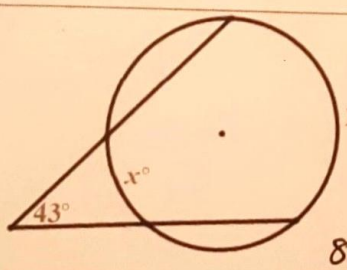
$42 = \frac{x-66}{2}$

$84 = x - 66$

$+66 \quad +66$

$150° = x$

17.



$43 = \frac{136-x}{2}$

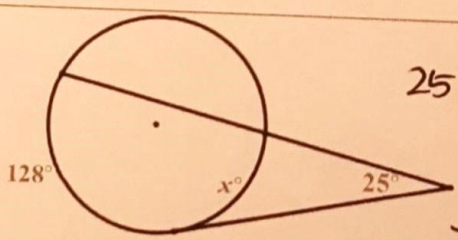
$86 = 136 - x$

$-136 \quad -136$

$-50 = -x$

$x = 50°$

18.



$25 = \frac{128-x}{2}$

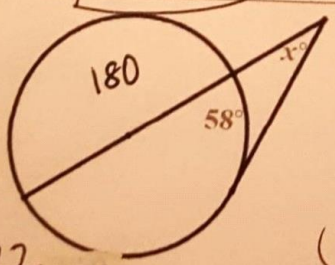
$50 = 128 - x$

$-128 \quad -128$

$-78 = -x$

$x = 78°$

19.

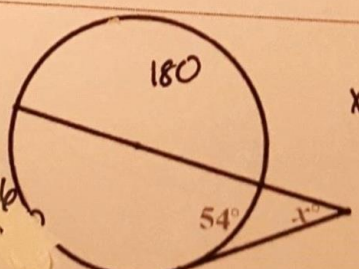


$x = \frac{122-58}{2}$

$x = \frac{64}{2}$

$x = 32°$

20.



$x = \frac{126-54}{2}$

$x = \frac{72}{2}$

$x = 36°$