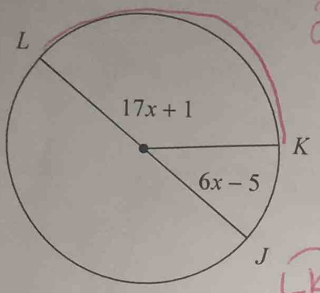


# Central and Inscribed Angles

Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

Key

1)  $m\widehat{LK}$



$$17x + 1 + 6x - 5 = 180$$

$$23x - 4 = 180$$

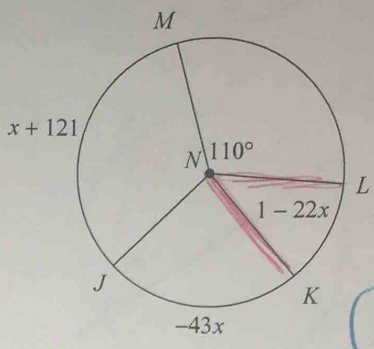
$$23x = 184$$

$$x = 8$$

$$\widehat{LK} = 17(8) + 1$$

$$\widehat{LK} = 137^\circ$$

2)  $m\angle LNK$



$$110 + 1 - 22x - 43x + x + 121 = 360$$

$$-64x + 232 = 360$$

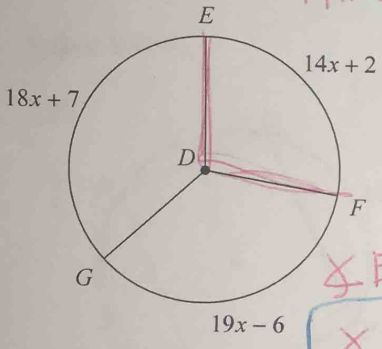
$$-64x = 128$$

$$x = -2$$

$$\angle LNK = 1 - 22(-2)$$

$$\angle LNK = 45^\circ$$

3)  $m\angle EDF$



$$14x + 2 + 19x - 6 + 18x + 7 = 360$$

$$51x + 3 = 360$$

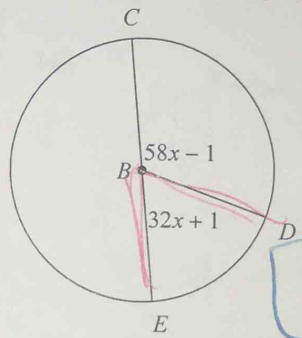
$$51x = 357$$

$$x = 7$$

$$\angle EDF = 14(7) + 2$$

$$\angle EDF = 100^\circ$$

4)  $m\angle DBE$



$$58x - 1 + 32x + 1 = 180$$

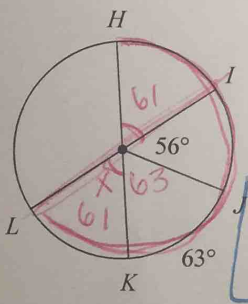
$$90x = 180$$

$$x = 2$$

$$\angle DBE = 32(2) + 1$$

$$\angle DBE = 65^\circ$$

5)  $m\widehat{HJL}$



$$56 + 63 + x = 180$$

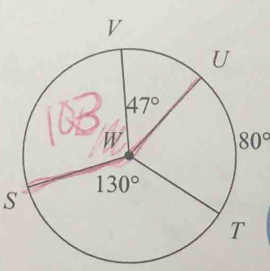
$$119 + x = 180$$

$$x = 61$$

$$m\widehat{HJL} = 61 + 56 + 63 + 61$$

$$m\widehat{HJL} = 241^\circ$$

6)  $m\angle SWU$

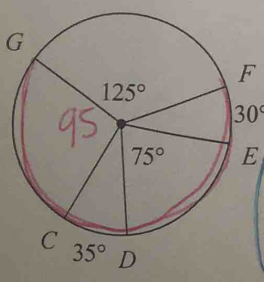


$$360 - 80 - 130 - 47 = 103$$

$$\angle SWU = 103 + 47$$

$$\angle SWU = 150^\circ$$

7)  $m\widehat{FDG}$

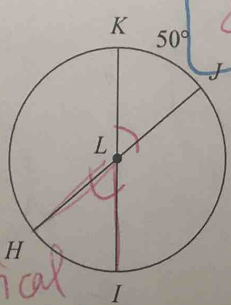


$$360 - 30 - 75 - 35 - 125$$

$$m\widehat{FDG} = 75 + 35 + 95$$

$$m\widehat{FDG} = 205^\circ$$

8)  $m\angle ILH$

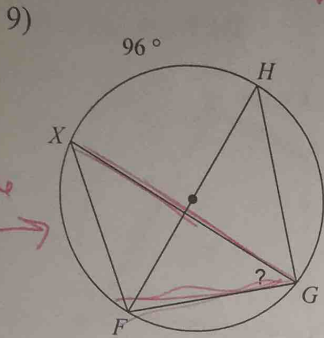


$$\angle ILH = 50^\circ$$

vertical angles  
-1-

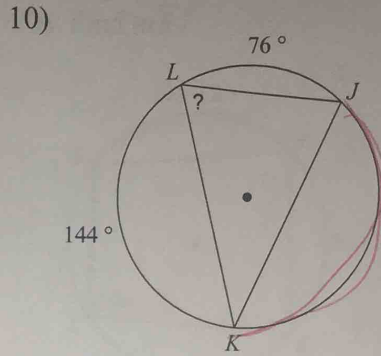
Find the measure of the arc or angle indicated.

*inscribed angle*



$\angle XGF = \frac{1}{2}(84)$

**42°**

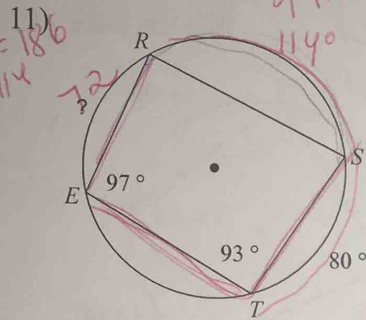


$\angle L = \frac{1}{2}(140)$

**70°**

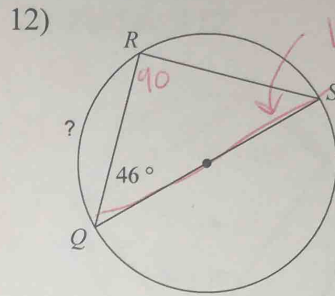
$360 - 144 - 76 = 140$

$180 - 96 = 84$



$97 \times 2 = 194 \Rightarrow 194 - 80 = 114$

**72°**



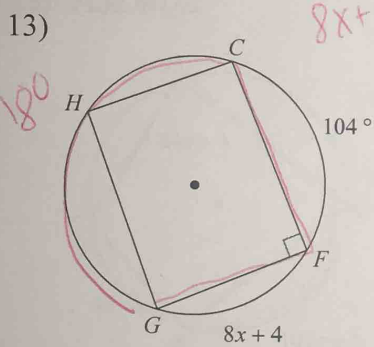
$180 - 90 - 46 = 44$

$? = 44(2)$

**88°**

$93 \times 2 = 186$   
 $186 - 114 = 72$

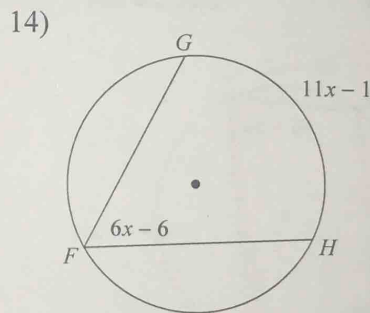
Solve for x.



$8x + 4 + 104 = 180$   
 $8x + 108 = 180$

$8x = 72$

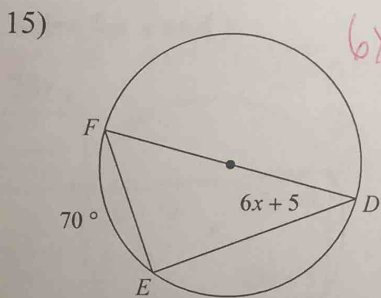
**x = 9**



$6x - 6 = \frac{1}{2}(11x - 1)$

$12x - 12 = 11x - 1$

**x = 11**

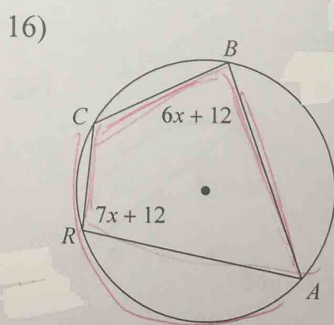


$6x + 5 = \frac{1}{2}(70)$

$6x + 5 = 35$

$6x = 30$

**x = 5**

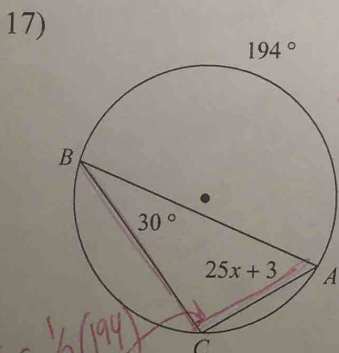


$6x + 12 + 7x + 12 = \frac{1}{2}(360)$

$13x + 24 = 180$

$13x = 156$

**x = 12**

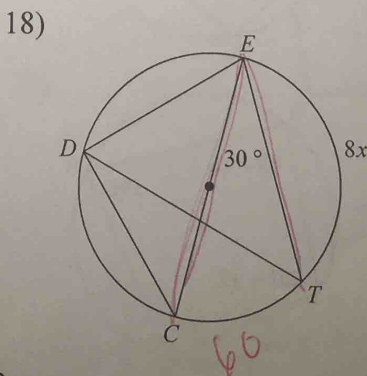


$30 + 97 + 25x + 3 = 180$

$25x + 130 = 180$

$25x = 50$

**x = 2**



$60 + 8x = 180$

$8x = 120$

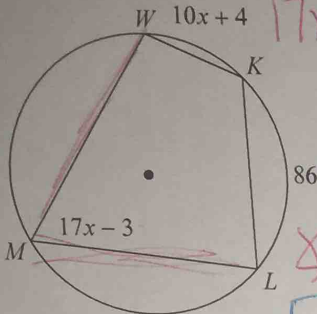
**x = 15**

$\angle C = \frac{1}{2}(194)$   
 $\angle C = 97$



Find the measure of the arc or angle indicated.

19) Find  $m\angle WML$



$$17x-3 = \frac{1}{2}(10x+4+86)$$

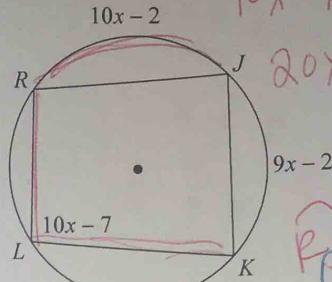
$$12x = 48$$

$$x = 4$$

$$\angle WML = 17(4) - 3$$

$$\angle WML = 65^\circ$$

20) Find  $m\widehat{RJ}$



$$10x-7 = \frac{1}{2}(10x-2+9x-2)$$

$$10x-7 = \frac{1}{2}(19x-4)$$

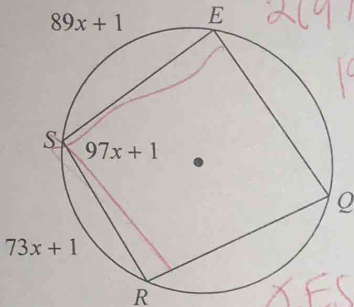
$$20x-14 = 19x-4$$

$$x = 10$$

$$\widehat{RJ} = 10(10) - 2$$

$$\widehat{RJ} = 98^\circ$$

21) Find  $m\angle ESR$



$$2(97x+1) + 89x+1 + 73x+1 = 360$$

$$194x + 2 + 162x + 2 = 360$$

$$356x + 4 = 360$$

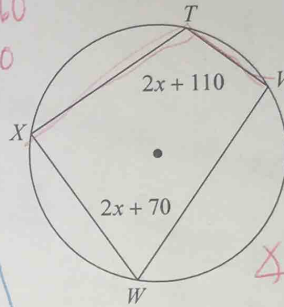
$$356x = 356$$

$$x = 1$$

$$\angle ESR = 97(1) + 1$$

$$\angle ESR = 98^\circ$$

22) Find  $m\angle VTX$



$$2x+110 + 2x+70 = \frac{1}{2}(360)$$

$$4x + 180 = 180$$

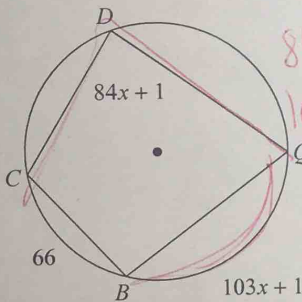
$$4x = 0$$

$$x = 0$$

$$\angle VTX = 2(0) + 110$$

$$\angle VTX = 110^\circ$$

23) Find  $m\widehat{QB}$



$$84x+1 = \frac{1}{2}(66 + 103x+1)$$

$$168x+2 = 103x+67$$

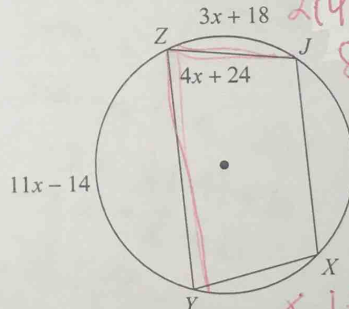
$$65x = 65$$

$$x = 1$$

$$\widehat{QB} = 103(1) + 1$$

$$\widehat{QB} = 104^\circ$$

24) Find  $m\angle JZY$



$$2(4x+24) + 3x+18 + 11x-14 = 360$$

$$8x+48 + 14x+4 = 360$$

$$22x+52 = 360$$

$$22x = 308$$

$$x = 14$$

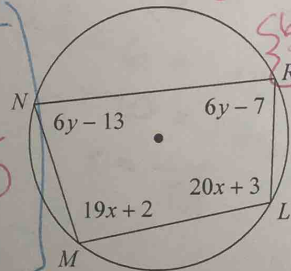
$$\angle JZY = 4(14) + 24$$

$$\angle JZY = 80^\circ$$

Solve for x and y.

Opposite angles are SUPPLEMENTARY

25)



$$6y-13 + 20x+3 = 180$$

$$19x+2 + 6y-7 = 180$$

$$\begin{cases} 20x+6y = 190 \\ 19x+6y = 185 \end{cases}$$

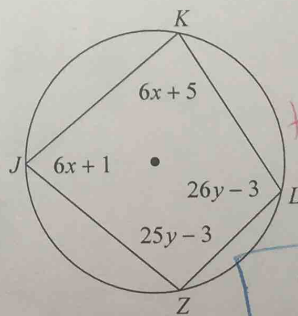
$$\begin{cases} 20x+6y = 190 \\ -19x-6y = -185 \end{cases}$$

$$x = 5$$

$$x = 5$$

$$y = 15$$

26)

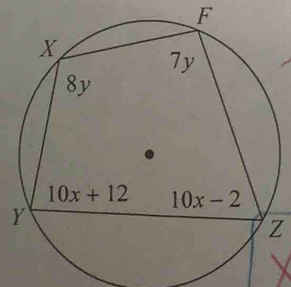


$$\begin{cases} 6x+25y = 178 \\ -6x-25y = -182 \end{cases}$$

$$-y = -4$$

$$y = 4 \quad x = 13$$

27)

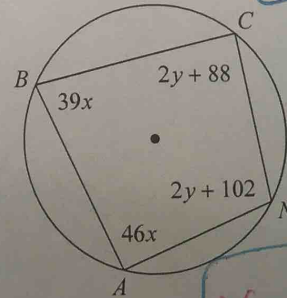


$$\begin{cases} 10x+8y = 182 \\ -10x-7y = -168 \end{cases}$$

$$y = 14$$

$$x = 7 \quad y = 14$$

28)



$$\begin{cases} 39x+2y = 78 \\ -46x-2y = -92 \end{cases}$$

$$-7x = -14$$

$$x = 2 \quad y = 0$$