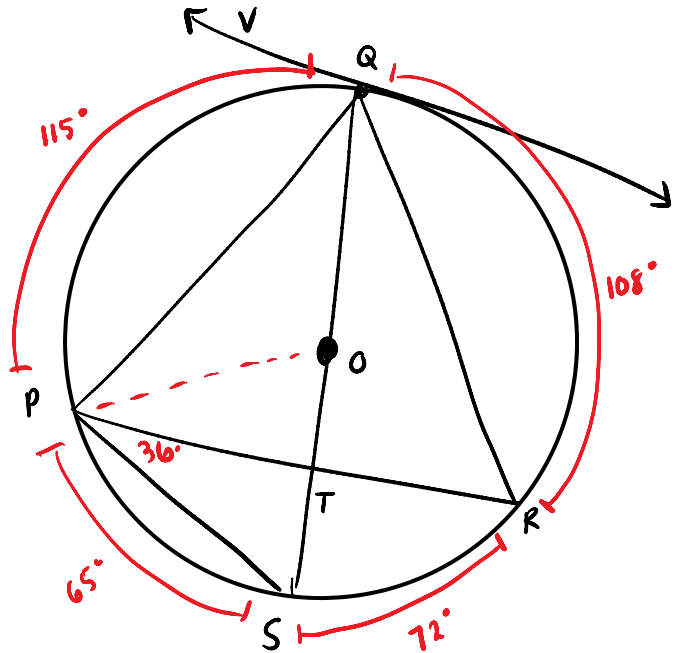


- #18
- $\angle R = 57.5^\circ$
 - $\angle S = 57.5^\circ$
 - $\widehat{SR} = 72^\circ$
 - $\widehat{QR} = 108^\circ$
 - $\angle QPR = 54$
 - $\angle QPS = 90^\circ$
 - $\angle QTP = \frac{115 + 72}{2} = 93.5$
 - $\angle PQV = 57.5$
 - $\widehat{PRQ} = 245$
 - $\widehat{RSP} = 137$
 - $\angle VQS = 90^\circ$
 - $\angle QOP = 115^\circ$



#20 The major arc cut off by 2 tangents to a circle from an outside point is $\frac{5}{3}$ of the minor arc. find the angle formed by the tangents

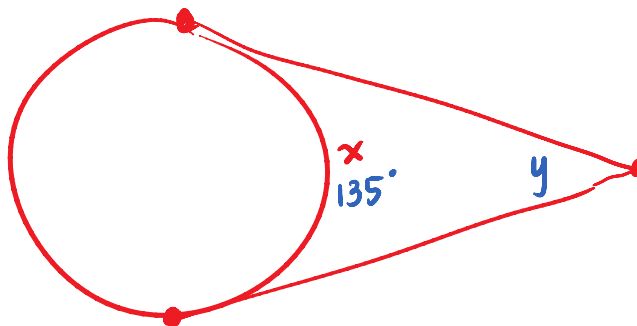
$$x + \frac{5}{3}x = 360$$

$$\frac{8}{3}x = 360$$

$$x = 320$$

$$\frac{5}{3}x$$

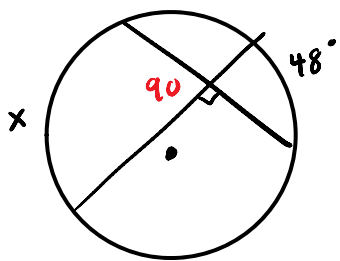
225



$$y = \frac{225 - 135}{2}$$

$$= \boxed{45}$$

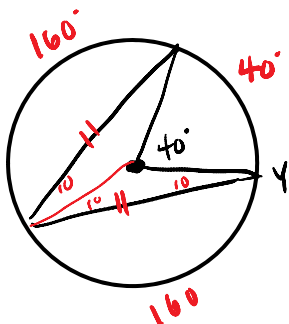
#21



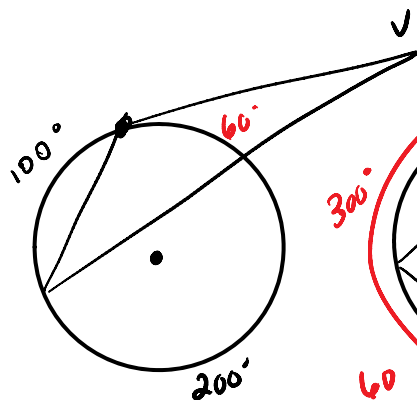
$$\frac{x + 48}{2} = 90$$

$$x + 48 = 180$$

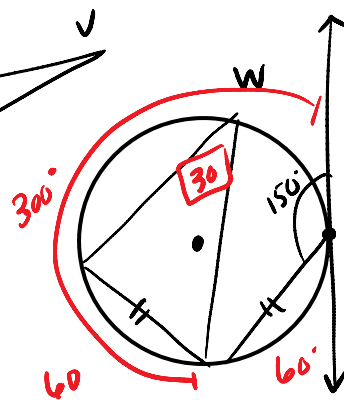
$$x = 132$$



$$x + y = 10$$



$$\angle V = \frac{100 - 60}{2} = 20^\circ$$

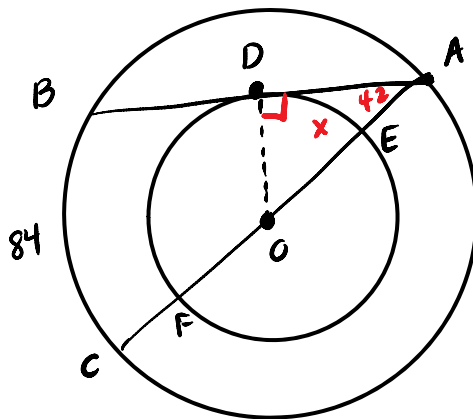


#22 Given arcs concentric at O , \overline{AB} tangent to the inner circle, and $\widehat{BC} = 84^\circ$, find the measures of $\angle A$, \widehat{DE} , and \widehat{DF}

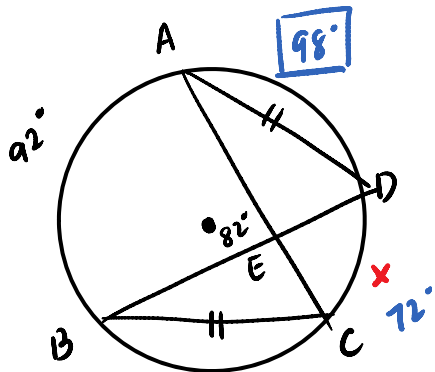
$$\angle A = 42^\circ$$

$$\widehat{DE} = 48^\circ$$

$$\widehat{DF} = 90 + 42 = 132^\circ$$



#23

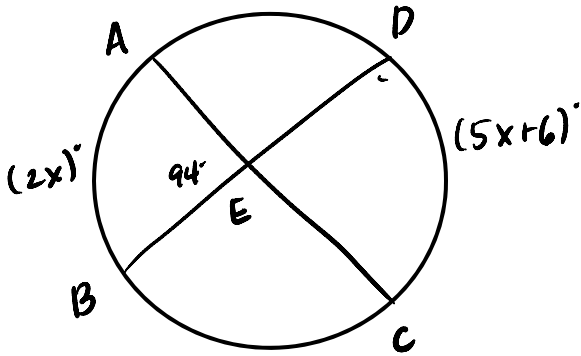


$$\frac{92 + x}{2} = 82$$

$$92 + x = 164$$

$$x = 72$$

#26



$$\frac{2x + 5x + 6}{2} = 94$$

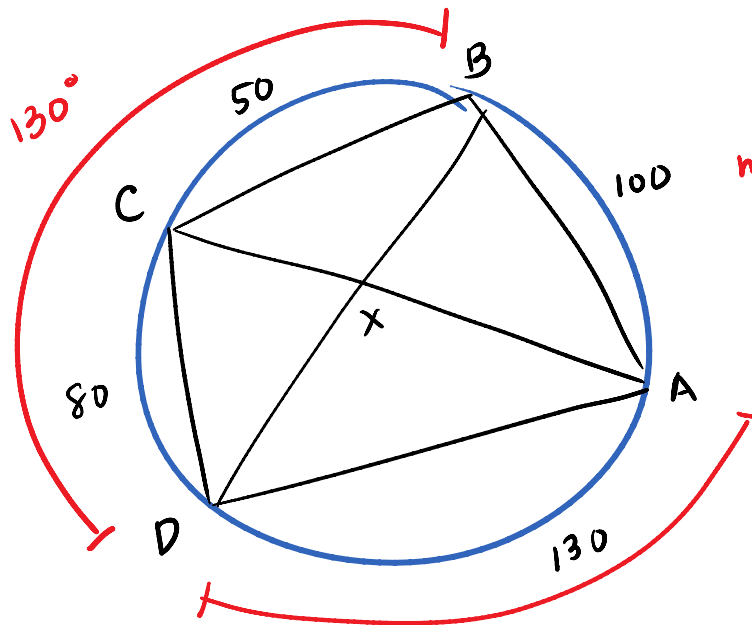
$$7x + 6 = 188$$

$$7x = 182$$

$$x = 26$$

$$\boxed{\widehat{AB} = 52}$$

#32 A quadrilateral ABCD is inscribed in a circle. Its diagonals intersect at X. If $\widehat{AB} = 100^\circ$, $\widehat{BC} = 50^\circ$, $\overline{AD} \cong \overline{BD}$, find $m\angle DXC$

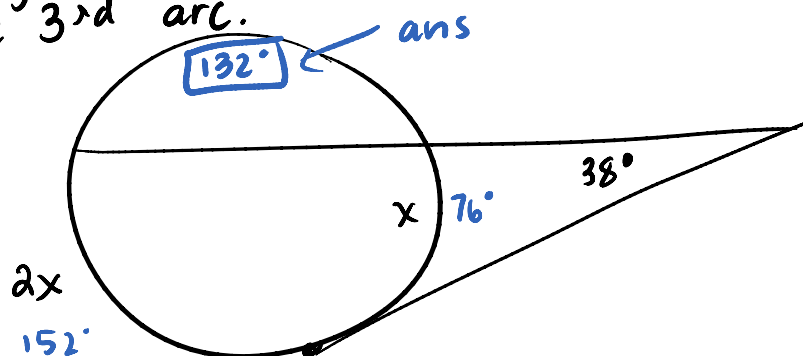


$$m\angle DXC = \frac{100 + 80}{2}$$

$$= \frac{180}{2}$$

$$= \boxed{90^\circ}$$

#34 A secant and a tangent to a circle intersect to form an angle of 38° . If the measures of the arcs intercepted by this angle are in a ratio of 2:1, find the measure of the 3rd arc.



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

$$2x - x = 76$$

$$x = 76$$