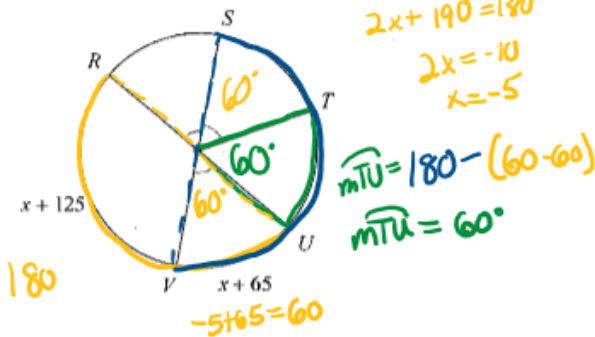


Inscribed Angles

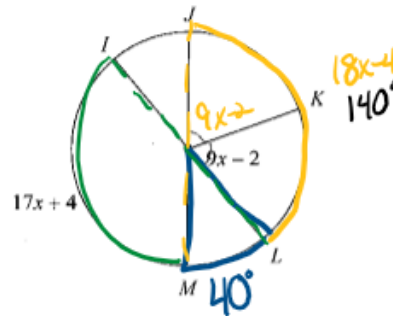
Date _____ Period _____

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

1) $m\widehat{TU} = 60^\circ$



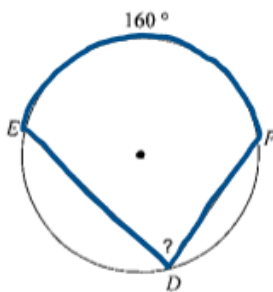
2) $m\widehat{LM} = 40^\circ$



$18x-4 = 17x+4$
 $x = 8$
 $18(8)-4 = 140$
 $180-140 = 40$

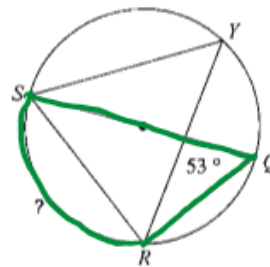
Find the measure of the arc or angle indicated.

3)



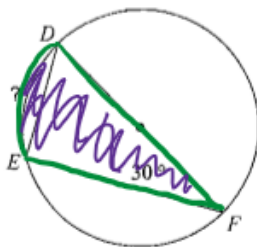
ON circle
 $2(\angle) = \text{arc}$
 $2(?) = 160$
 $? = 80$

4)



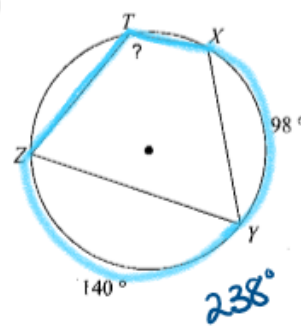
ON circle
 $2(\angle) = \text{arc}$
 $2(53) = ?$
 $106 = ?$

5)



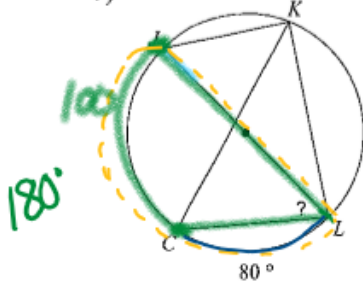
ON circle
 $2(\angle) = \text{arc}$
 $2(30) = ?$
 $60 = ?$

6)



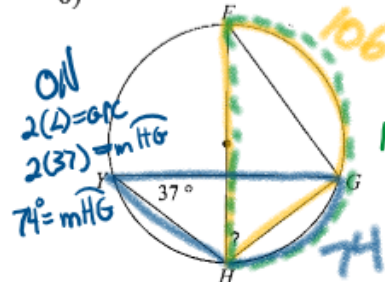
ON circle
 $2(\angle) = \text{arc}$
 $2(?) = 238$
 $? = 119$

7)

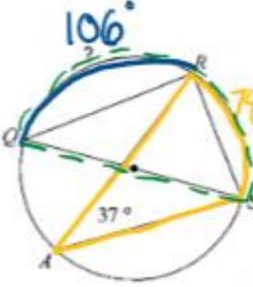


$\frac{180}{-80}$
 100
 ON circle
 $2(\angle) = \text{arc}$
 $2(?) = 100$
 $? = 50$

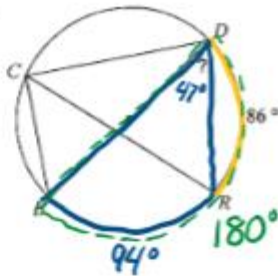
8)



ON circle
 $2(\angle) = \text{arc}$
 $2(37) = m\widehat{FH}$
 $74 = m\widehat{FH}$
 $\frac{180}{-74}$
 106
 180
 $2(?) = 106$
 $? = 53$

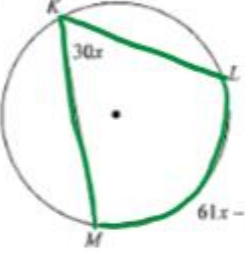
9)  ON circle
 $2(\angle) = \text{arc}$
 $2(37) = m\widehat{RS}$
 $74^\circ = m\widehat{RS}$

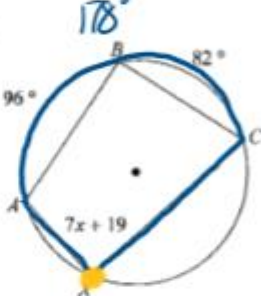
$$\begin{array}{r} 180 \\ - 74 \\ \hline ? = 106^\circ \end{array}$$

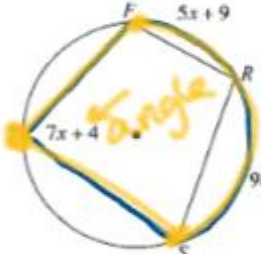
10)  ON circle
 $2(\angle) = \text{arc}$
 $2(?) = 94^\circ$
 $? = 47^\circ$

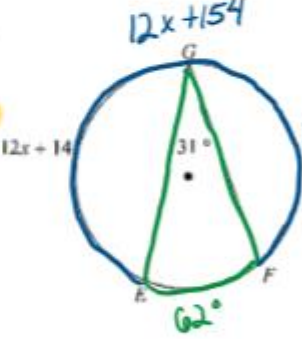
$$\begin{array}{r} 180 \\ - 86 \\ \hline 94^\circ \\ 2(\angle) = \text{arc} \\ 2(?) = 94^\circ \\ ? = 47^\circ \end{array}$$

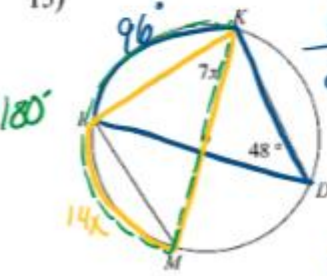
Solve for x.

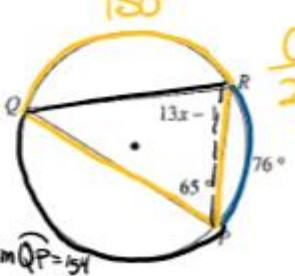
11)  ON circle
 $2(\angle) = \text{arc}$
 $2(30x) = 61x - 2$
 $60x = 61x - 2$
 $-x = -2$
 $x = 2$

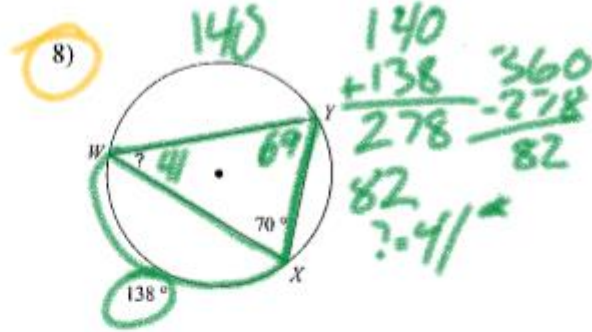
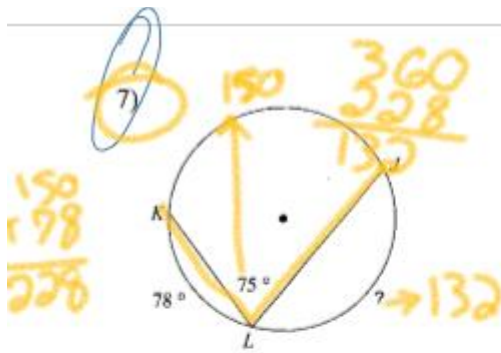
12)  ON circle
 $2(\angle) = \text{arc}$
 $2(7x+19) = 178^\circ$
 $14x + 38 = 178^\circ$
 $14x = 140$
 $x = 10$

13)  ON
 $2(\angle) = \text{arc}$
 $2(7x+4) = 5x+9+98$
 $14x+8 = 5x+107^\circ$
 $9x = 99$
 $x = 11$

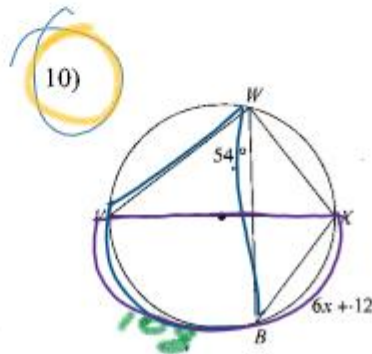
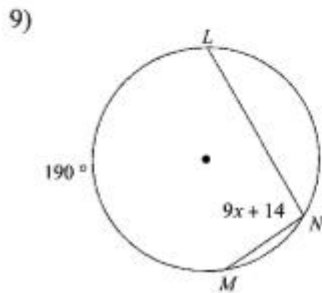
14)  ON
 $2(\angle) = \text{arc}$
 $2(31) = m\widehat{EF}$
 $62^\circ = m\widehat{EF}$
 $12x+154+62 = 360$
 $12x+216 = 360$
 $12x = 144$
 $x = 12$

15)  ON
 $2(\angle) = \text{arc}$
 $2(48) = m\widehat{KL}$
 $96^\circ = m\widehat{KL}$
 ON
 $2(7x) = m\widehat{LM}$
 $14x = m\widehat{LM}$
 $96 + 14x = 180$
 $14x = 84$
 $x = 7$

16)  ON
 $2(\angle) = \text{arc}$
 $2(65) = m\widehat{QR}$
 $130 = m\widehat{QR}$
 $2(13x-1) = 154$
 $26x-2 = 154$
 $26x = 156$
 $x = 6$
 $m\widehat{QP} = 154$
 $130 + 76 + m\widehat{QP} = 360$
 $m\widehat{QP} = 154^\circ$



Solve for x .



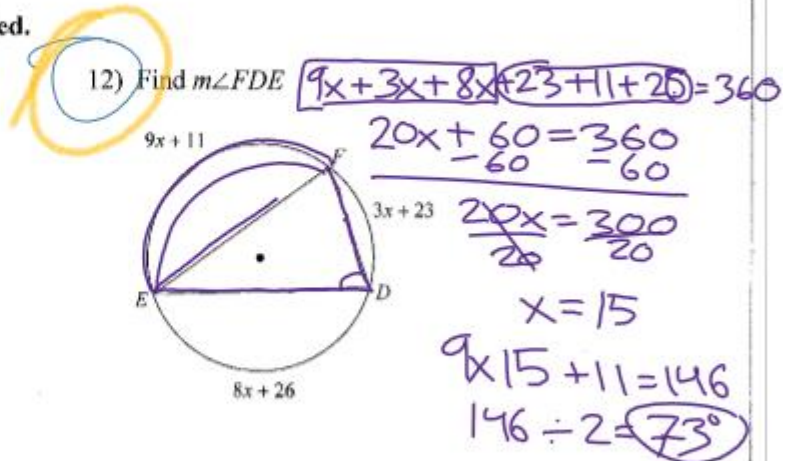
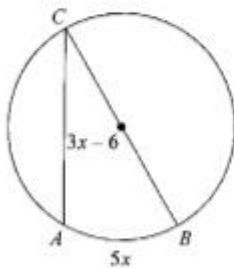
$$120 + 6x = 180$$

$$6x = 60$$

$$x = 10$$

Find the measure of the arc or angle indicated.

11) Find $m\angle BCA$



The following triangles are similar.

What is the value of x?

$\frac{10}{x} = \frac{3}{7.5}$

$x = 25$

1

Inscribed Quadrilaterals and Right Triangles

2

If all the vertices of a polygon touch the edge of the circle, the polygon is inscribed and the circle is circumscribed.

3

A circle can be circumscribed around a quadrilateral if and only if its opposite angles are supplementary = 180° .

$m\angle A + m\angle C = 180^\circ$
 $m\angle B + m\angle D = 180^\circ$

Explain why.

The sum of their intercepted arcs are 360° , so the angles is half of 360

4

Example 1
Find the value of y and z.

$y + 89 = 180$
 $y = 91^\circ$

$z + 99 = 180$
 $z = 81^\circ$

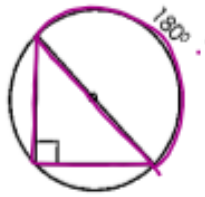
5

Example 2
Find the value of x, y, and z.

$126 = 180 - 54$
 $117 = 180 - 63$
 $103 = 180 - 77$

6

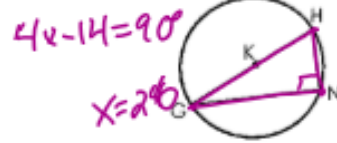
If a right triangle is inscribed in a circle, then the hypotenuse is the diameter of the circle.



7

Example 10

In $\odot K$, $m\angle GNH = 4x - 14$ and \overline{GN} is a diameter. Find the value of x .

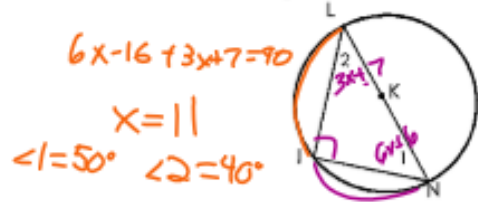


8

Example 11

In $\odot K$, $m\angle 1 = 6x - 16$ and $m\angle 2 = 3x + 7$ and \overline{LN} is a diameter. Find the value of x and each angle measure.

Find the value of x and each angle measure.

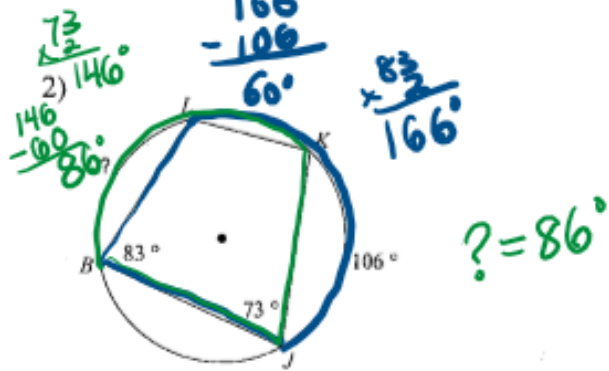
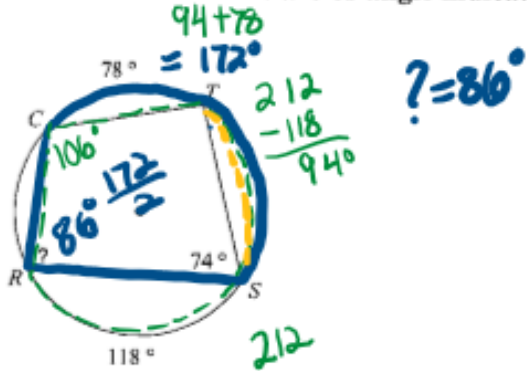


9

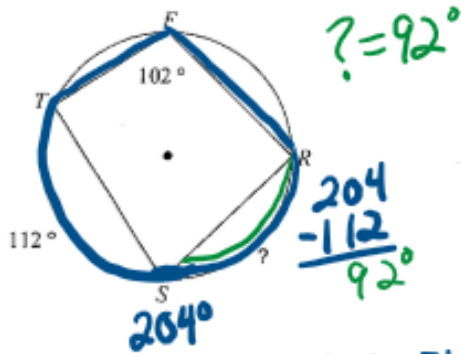
Inscribed Quadrilaterals and Triangles

Find the measure of the arc or angle indicated.

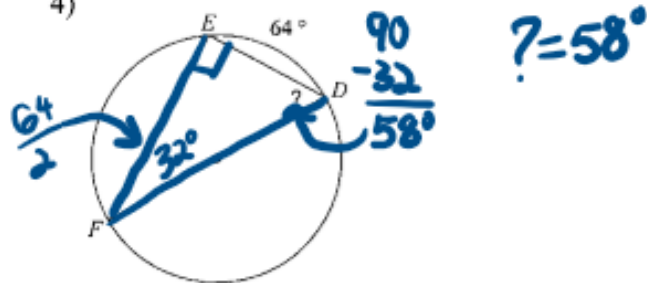
1)



3)

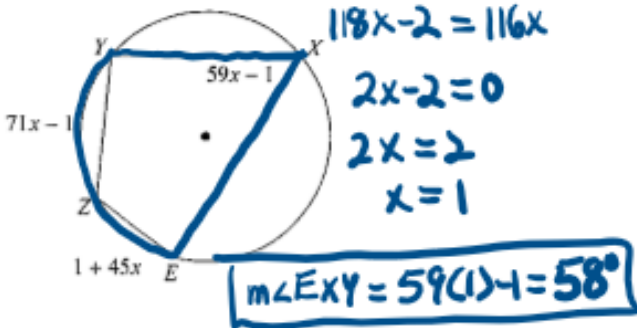


4)

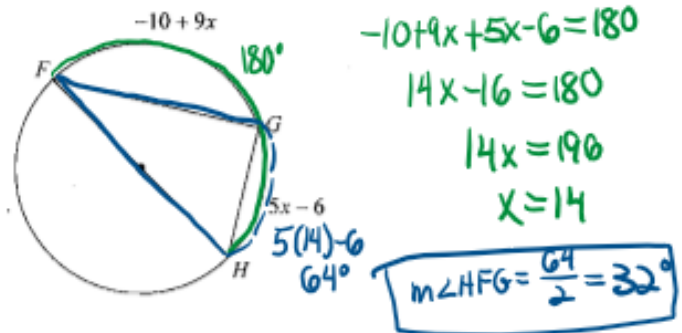


5) Find $m\angle EXY$

$2(59x - 1) = 71x - 1 + 45x$

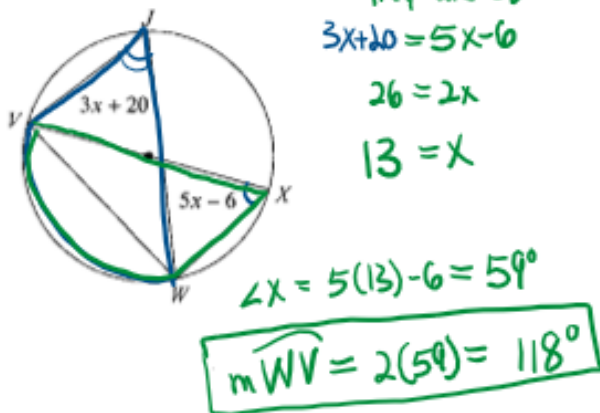


6) Find $m\angle HFG$



7) Find $m\widehat{WV}$

Same arc so they are equal.



8) Find $m\widehat{LJ}$

