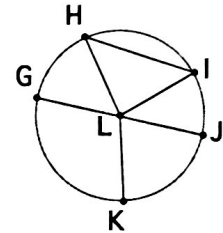


9.2: Central and Inscribed Angles

<p>Circle $\odot C$ means circle with center C</p>	
<p>Diameter Segment that goes through center of circle ex: \overline{BE}</p>	
<p>Radius Segment that goes from center to edge ex: \overline{BC}, \overline{CE}, \overline{CD}</p>	
<p>Chord Segment that doesn't go through center ex: \overline{AF}</p>	

1) Identify parts of the circle

- | | |
|--|---|
| <p>a. Name the circle</p> <p>b. Name a radius of the circle</p> <p>c. Name a chord of the circle</p> <p>d. Name a diameter of the circle</p> | <p>e. if $GL = 10$, $JL = \underline{\hspace{2cm}}$</p> <p>f. if $JG = 7$, $LG = \underline{\hspace{2cm}}$</p> <p>g. if $LK = 4.2$, $HL = \underline{\hspace{2cm}}$</p> |
|--|---|



<p>Central Angle: Angle with vertex as center of circle and endpoints on edge of circle</p>	<div style="display: flex; align-items: center;"> <div style="margin-left: 20px;"> <p>Arc measure is the same as angle measure</p> </div> </div>
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If you want to know the measure of an arc, you can look at the measure of the central angle because they are the same!

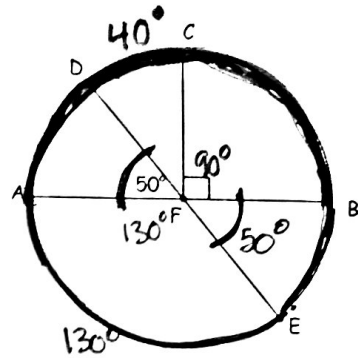
Type of Arc	Minor Arc	Major Arc	Semicircle
Example			
Named	\widehat{AC}	\widehat{DEF} * 3 letters	\widehat{JKL}
Arc Degree	110°	300°	180°

Circles add to 360°

2) In circle F, $m\angle DFA = 50$ and $CF \perp FB$. Find each measure

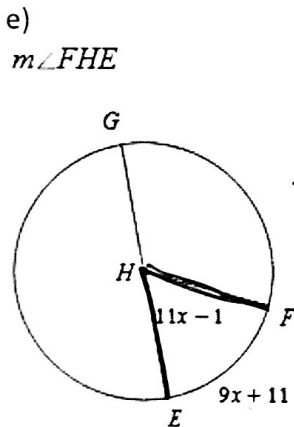
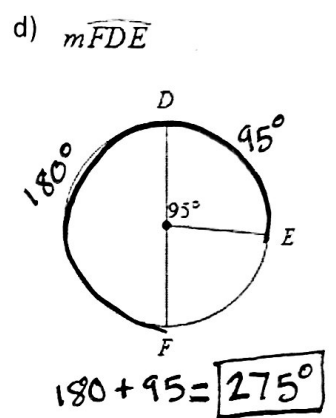
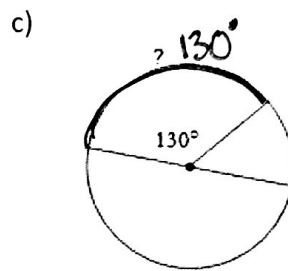
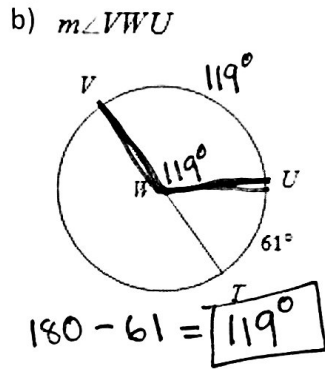
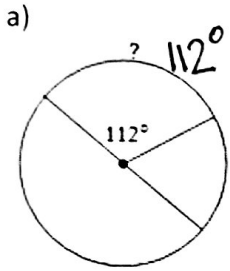
- $m\widehat{EA}$ $180 - 50 = 130^\circ$
- $m\widehat{CD}$ $180 - 90 - 50 = 40^\circ$
- $m\widehat{ACE}$
 $360 - 130 = 230^\circ$
- Find an arc that is congruent with \widehat{AD} .

\widehat{BE}



*** Look for diameters ***

3) Find the arc measure or angle indicated:



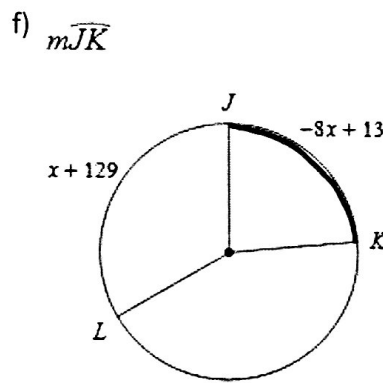
$$11x - 1 = 9x + 11$$

$$-9x + 1 \quad -9x + 1$$

$$\frac{2x}{2} = \frac{12}{2}$$

$$x = 6$$

$$11(6) - 1 = 66 - 1 = 65^\circ$$



$$-8(-9) + 13$$

$$72 + 13 = 85^\circ$$

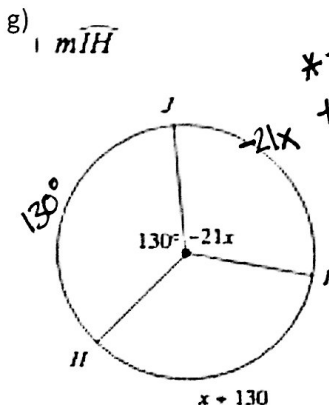
$$(x + 129) + (-8x + 13) + (-17x + 2) = 360$$

$$-24x + 144 = 360$$

$$-144 \quad -144$$

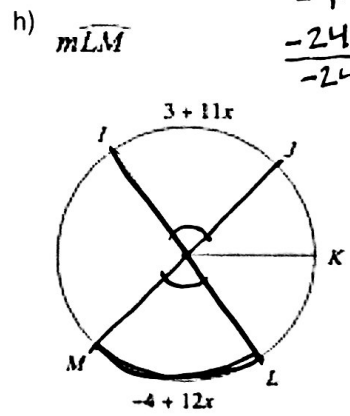
$$-24x = 216$$

$$-24 \quad -24$$



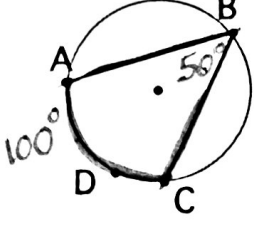
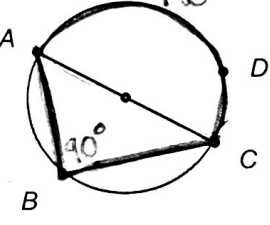
*If you have all the pieces of the circle, you can set them equal to 360

$$130 + x + 130 - 21x = 360$$

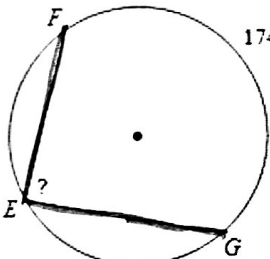


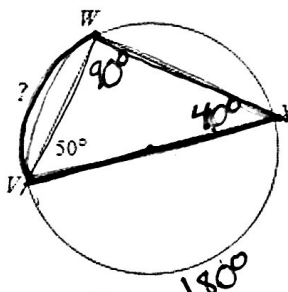
$$3 + 11x = -4 + 12x$$

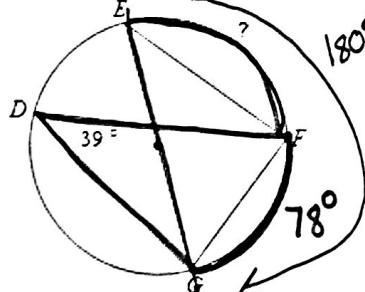
An **inscribed angle** is an angle that is formed by two chords that share a common endpoint. You will see inscribed angles in two different ways:

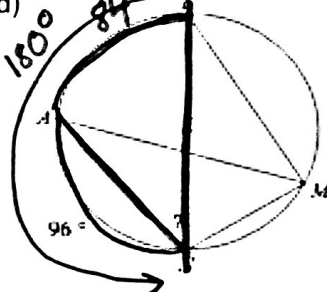
Example of inscribed angle	Rule
	<p>The measure of the inscribed angle is half the measure of its arc</p>
	<p>The measure the arc is twice the measure of the inscribed angle</p>

4) Find the measure of the missing arc or inscribed angle.

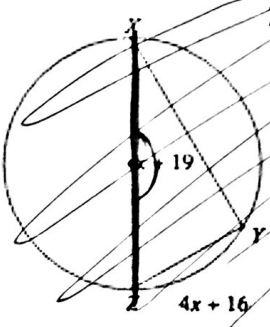
a)  $\frac{174}{2} = \boxed{87^\circ}$

b)  Δ is 180°
 $180 - 90 - 50 = 40$
 $40(2) = \boxed{80^\circ}$

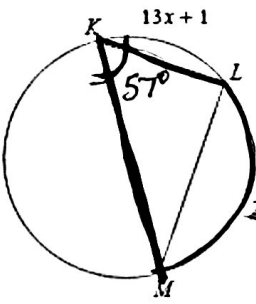
c)  $180 - 78 = \boxed{102^\circ}$

d)  $180 - 96 = 84$
 $\frac{84}{2} = \boxed{42^\circ}$

e) Find $m\angle ZXY$

 $x + 19 = 180$
 $-19 \quad -19$
 $x = 161$

f) Find $m\angle MKL$

 $13x + 1 + 21x + 9 = 180$
 $34x + 10 = 180$
 $-10 \quad -10$
 $\frac{34x}{34} = \frac{170}{34}$
 $x = 5$
 $21(5) + 9 = 105 + 9 = 114$
 $\frac{114}{2} = \boxed{57^\circ}$