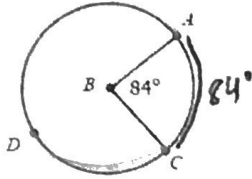


Central Angles



A **central angle** is an angle with its vertex at the Center of the circle and its two sides are radii. The sum of all central angles in a circle is 360°.

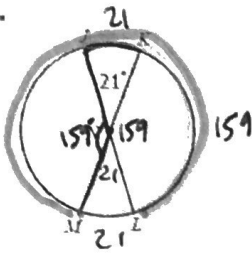
Example: ∠ABC

The **degree of the arc** formed by the endpoints of a central angle is equal to the degree of the central angle.

$m\widehat{AC} = 84^\circ$; $m\widehat{ADC} = 276^\circ$

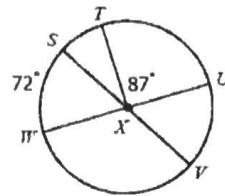
Directions: Find each angle and arc measures.

1.



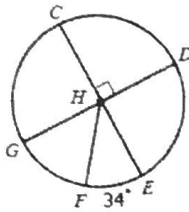
$m\widehat{JK} = 21^\circ$
 $m\angle JNM = 159^\circ$
 $m\widehat{KL} = 159^\circ$
 $m\widehat{JKM} = 201^\circ$
 $m\widehat{MKL} = 339^\circ$

2.



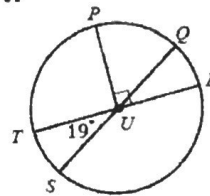
$m\angle UXV = 72^\circ$
 $m\widehat{ST} = 21^\circ$
 $m\widehat{WV} = 108^\circ$
 $m\widehat{TW} = 93^\circ$
 $m\widehat{TVW} = 267^\circ$

3.



$m\widehat{CD} = 90^\circ$
 $m\widehat{FD} = 124^\circ$
 $m\widehat{DCF} = 236^\circ$
 $m\widehat{GDF} = 304^\circ$

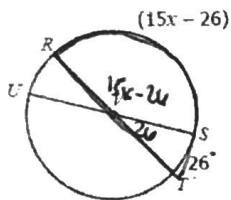
4.



$m\widehat{PQ} = 71^\circ$
 $m\widehat{SR} = 161^\circ$
 $m\widehat{QRT} = 199^\circ$
 $m\widehat{PSR} = 270^\circ$
 $m\widehat{PS} = 109^\circ$

Directions: Find each value or measure.

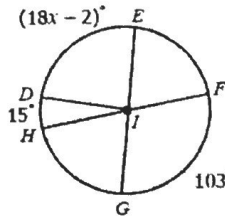
5.



$15x - 26 + 26 = 180$
 $15x = 180$

$x = 12$

6.



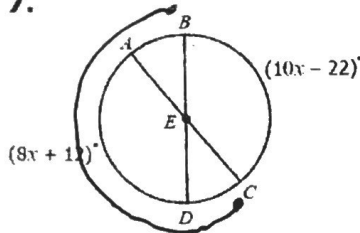
$15 + 18x - 2 = 103$

$18x = 90$

$x = 5$

$x =$ _____

7.

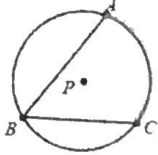
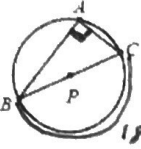



$10x - 22 = 8x + 12$

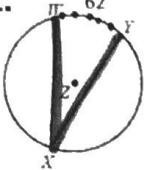
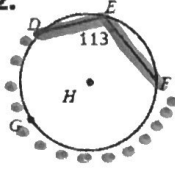
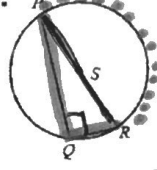
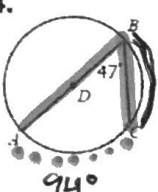
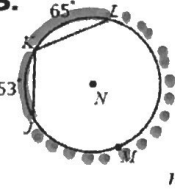
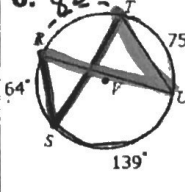
$2x = 34$

$x = 17$

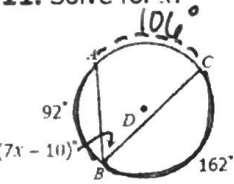
$x = 17$
 $m\widehat{AD} = 148^\circ$
 $m\widehat{CD} = 32^\circ$
 $m\widehat{BDC} = 212^\circ$

<p>Inscribed Angles</p>  <p>$m\angle ABC = \frac{1}{2} m\widehat{AC}$</p>	<ul style="list-style-type: none"> An inscribed angle is an angle with its vertex <u>ON</u> the circle with two sides that are <u>chords</u>. An intercepted arc is the arc that lies between the <u>endpoints</u> of an inscribed angle. The degree of the inscribed angle is equal to <u>half</u> the measure of its intercepted arc.
<p>Intercepting a Diameter</p>	 <p>If an inscribed angle intercepts a diameter, then then it is a <u>right</u> angle.</p> <p>$m\angle BAC = \underline{90^\circ}$</p>
<p>Overlapping Arcs</p>	 <p>If two inscribed angles intercept the <u>same arc</u>, then the angles are <u>congruent</u>.</p> <p>$m\angle ABD = m\angle ACD$</p>

Directions: Find each angle and arc measures.

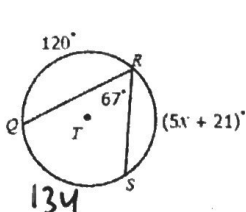
<p>1. </p> <p>$m\angle WXY = \underline{31^\circ}$</p>	<p>2. </p> <p>$m\widehat{DGF} = \underline{226^\circ}$</p>	<p>3. </p> <p>$m\angle PQR = \underline{90^\circ}$</p>
<p>4. </p> <p>$m\widehat{BC} = \underline{86^\circ}$</p>	<p>5. </p> <p>$m\angle JKL = \underline{121^\circ}$</p>	<p>6. </p> <p>$m\angle RST = \underline{41^\circ}$ $m\angle RUT = \underline{41^\circ}$</p>

11. Solve for x.



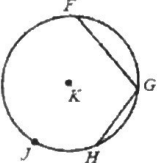
$$\begin{array}{r} 360 \\ -92 \\ -162 \\ \hline 7x - 10 = 53^\circ \\ 7x = 63^\circ \end{array}$$

12. Solve for x.



$$\begin{array}{l} 5x + 21 = 106 \\ 5x = 85 \\ x = 17 \end{array}$$

13. If $m\angle FGH = (6x + 21)^\circ$ and $m\widehat{FJH} = (17x - 28)^\circ$, find $m\widehat{FJH}$.



$$\begin{array}{l} 2(6x + 21) = 17x - 28 \\ 12x + 42 = 17x - 28 \\ 70 = 5x \\ 14 = x \end{array}$$

Therefore,
 $m\widehat{FJH} = 210^\circ$