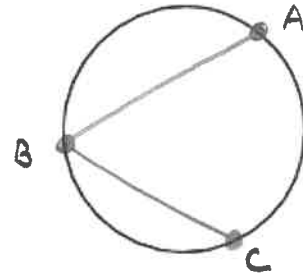
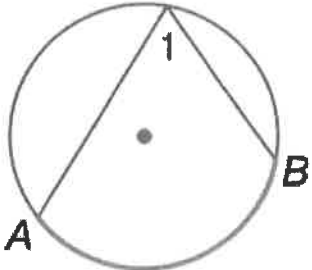


Inscribed Angle: has a vertex on a circle and sides that contain chords of the circle
ex) $\angle ABC$



Intercepted Arc: has endpoints on the sides of an inscribed angle and lies in the interior of the inscribed angle
ex) \widehat{AC}

<p>Measure of an Inscribed Angle</p>	<p>If an angle is inscribed in a circle, then its measure is half the measure of its intercepted arc</p>	 $m\angle 1 = \frac{1}{2}m\widehat{AB}$
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Inscribed Angle vs. Central Angle!

vertex on circle
 $\frac{1}{2}$ arc measure

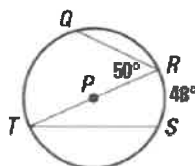
vertex @ center
equal to arc measure

Examples:

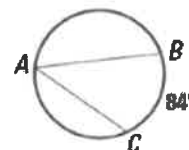
1. Find the measure of:

a. $\angle T = 24^\circ$

b. $\widehat{QT} = 100^\circ$

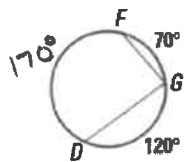


2. $m\angle A = 42^\circ$



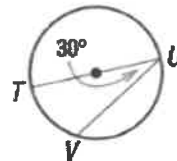
10.4 Inscribed Angles
Geometry CP

3. $m\angle G = 85^\circ$



$$360 = \widehat{FD} + 70 + 120$$

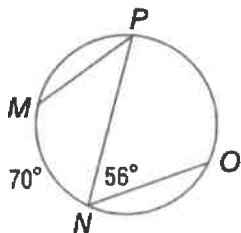
4. Measure of $\widehat{VT} = 60^\circ$



5. Find the measure of:

a. $\angle P = 35^\circ$

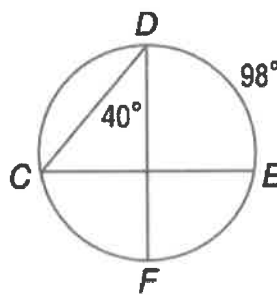
b. $\widehat{PO} = 112^\circ$



6. Find the measure of:

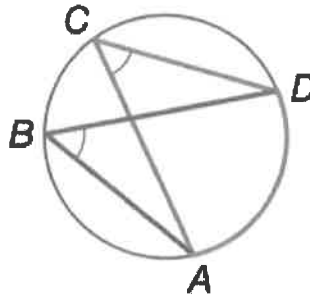
a. $\angle C = 49^\circ$

b. $\widehat{CF} = 80^\circ$

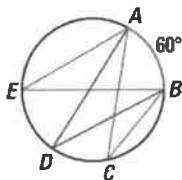


$$\angle C = \frac{1}{2}(98^\circ)$$

$$\widehat{CF} = 2(40)$$

<p>Theorem 10.9</p>	<p>If two inscribed angles of a circle intercept the same arc, then the angles are congruent</p>	 <p>$\angle B$ and $\angle C$ both intercept \widehat{AD}. So, $\angle B \cong \angle C$.</p>
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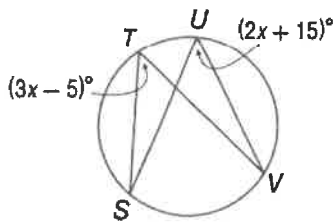
7. Find $m\angle ACB$, $m\angle ADB$, $m\angle AEB$



$$m\angle ACB = m\angle ADB = m\angle AEB = 30^\circ$$

10.4 Inscribed Angles
Geometry CP

8. Find the $m\angle T$



$$m\angle T = m\angle U$$

$$3x - 5 = 2x + 15$$

$$x = 20$$

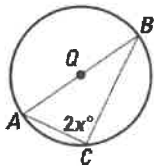
$$m\angle T = 3(20) - 5 = 55^\circ$$

<p>Theorem 10.8</p>	<p>An inscribed angle of a triangle intercepts a diameter or semicircle if and only if the angle is a right angle.</p>	<p>$\angle G = 90^\circ$</p>
<p>Theorem 10.9</p>	<p>If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.</p>	

why!
 $\angle G$ inscribed angle and intercepted arc is 180°

why!
 $\angle M$ and $\angle K$ intercept entire circle and they are inscribed angles
so $\frac{1}{2}(360) = 180$

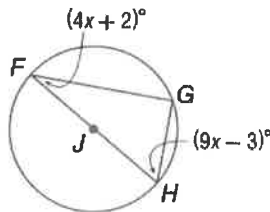
9. Find the value of the variable:



$$2x = 90^\circ$$

$$x = 45^\circ$$

10. Find $m\angle F$



$$4x + 2 + 9x - 3 + 90 = 180$$

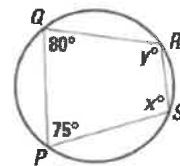
$$13x + 89 = 180$$

$$13x = 91$$

$$x = 7$$

$$m\angle F = 4(7) + 2 = 30^\circ$$

11. Find the value of each variable:



$$y + 75 = 180$$

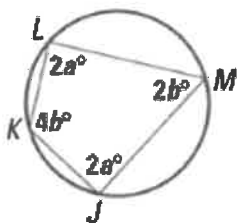
$$y = 105^\circ$$

$$x + 80 = 180$$

$$x = 100$$

10.4 Inscribed Angles
Geometry CP

12. Find the value of each variable:



$$4b + 2b = 180$$

$$6b = 180$$

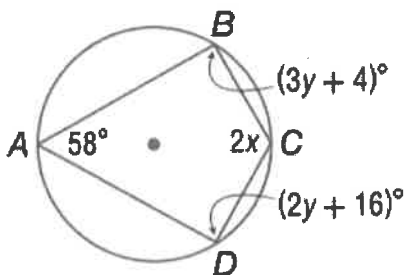
$$b = 30$$

$$2a + 2a = 180$$

$$4a = 180$$

$$a = 45$$

13. Find the measure of $\angle C$ and $\angle D$



$$58 + 2x = 180$$

$$2x = 122$$

$$x = 61$$

$$m\angle C = 2(61)$$

$$= 122^\circ$$

$$3y + 4 + 2y + 16 = 180$$

$$5y + 20 = 180$$

$$5y = 160$$

$$y = 32$$

$$m\angle D = 2(32) + 16$$

$$= 80^\circ$$