Thursday, April 30, 2020

Sec 12-3: Inscribed Angles

Central Angle: Angle whose vertex is the center of a circle.

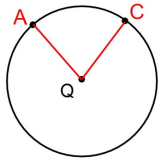
It's formed by two radii.

Inscribed Angle: Angle whose vertex is a point on the circle.

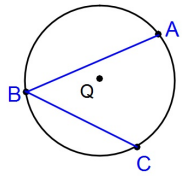
It's formed by two chords that meet at a point on the circle.

Q is the center of both circles.

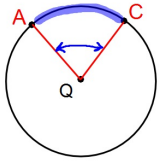
Central $\angle AQC$



Inscribed $\angle ABC$



Relationship between the measure of a Central $\angle$ and it's intercepted arc.



$\overset{\frown}{AC}$ is the arc that is intercepted by $\angle AQC$

$m\angle AQC = m\overset{\frown}{AC}$

Measure of a Central Angle is equal to the measure of its intercepted arc.

The converse of this statement is also true.

Relationship between the measure of an Inscribed ∠ and it's intercepted arc.

Theorem 12-9 **Inscribed Angle Theorem**

The measure of an inscribed angle is half the measure of its intercepted arc.

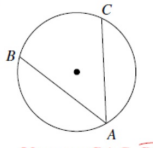
$m\angle B = \frac{1}{2}m\overset{\frown}{AC}$

In reverse:

The measure of an intercepted arc is found by doubling the Central ∠ .

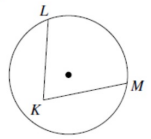
State if each angle is an inscribed angle.
If it is, name the angle and the intercepted arc.

1)



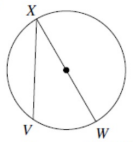
Yes; $m\angle BAC$, $\overset{\frown}{BC}$

2)



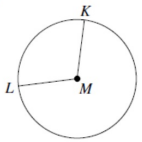
No, the vertex isn't ON the circle

3)



Yes; $m\angle WXV$, $\overset{\frown}{WV}$

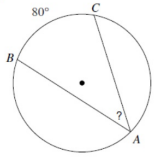
4)



No, this is a Central Angle.

Find the measure of each?.

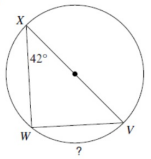
5)



$? = \angle CAB = \frac{1}{2}m\overset{\frown}{CB}$

$= \frac{1}{2} \cdot 80 = \boxed{40°}$

6)

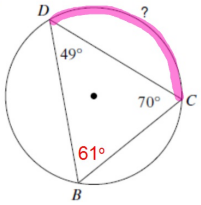


$? = m\overset{\frown}{WV} = 2 \cdot \angle WXV$

$= 2 \cdot 42 = \boxed{84°}$

There are two ways to find the value of ? in this problem.

8)



1st method:

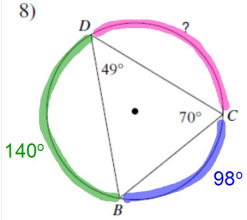
The sum of the ∠'s in ΔBCD = 180°

∠B = 180 - 49 - 70 = 61°

$? = m\widehat{DC} = 2 \cdot \angle DBC$

$= 2 \cdot 61 = 122°$

8)



2nd method:

Find the measures of $\overset{\frown}{CB}$ and $\overset{\frown}{DB}$:

$m\widehat{CB} = 2 \cdot \angle CDB$

$= 2 \cdot 49 = 98°$

$m\widehat{DB} = 2 \cdot \angle DCB$

$= 2 \cdot 70 = 140°$

$? = m\widehat{DC} = 360° - 98° - 140° = 122°$

You can now finish the rest of Practice #22.

This practice will be due by 10:00 pm on Saturday, May 2.