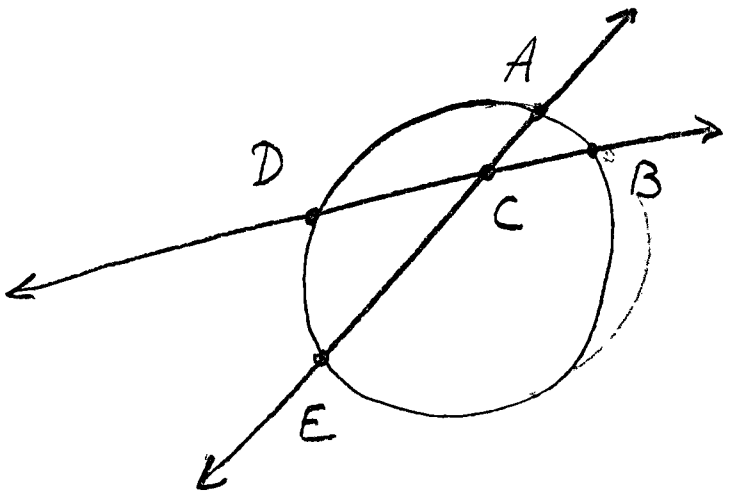
Geometry Monday 1-7-13 Class Notes

Ch 12-2 Arcs and Chords

Ch 12-4 Inscribed Angles

Ch 12-5 Angle Relationships in Circles

2 SECANTS that intersect somewhere INSIDE A circle

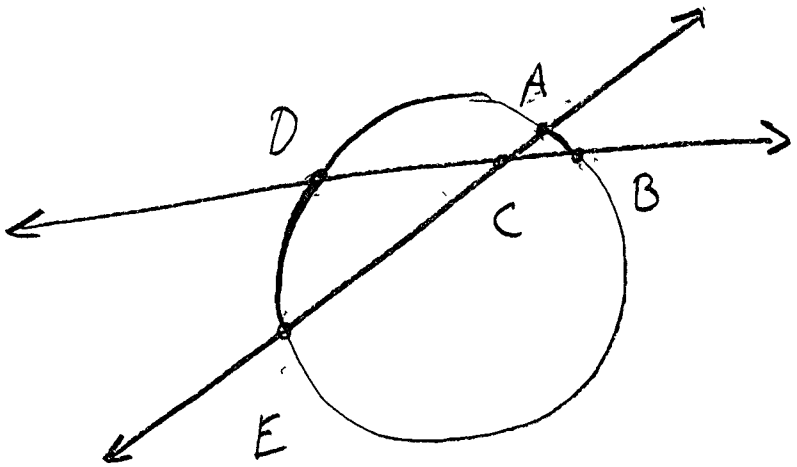


Arc $\overset{\frown}{AB}$ ⇒ MINOR ARC (smallest)

Arc $\overset{\frown}{ADB}$ ⇒ MAJOR ARC

↑ NEED A 3RD POINT SO it is NOT MIXED UP WITH MINOR ARC

MAJOR ARC + MINOR ARC = 360°



Key relationship:

$$m\angle DCE = m\angle ACB = \frac{m\overset{\frown}{AB} + m\overset{\frown}{DE}}{2}$$

(vertical angles)

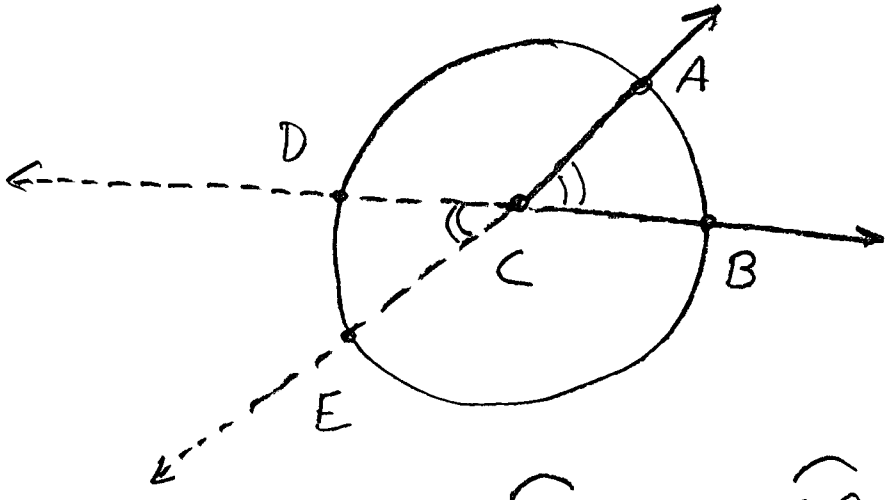
(Ex) $m\overset{\frown}{DE} = 40^\circ$, $m\overset{\frown}{AB} = 10^\circ$

$$m\angle DCE = m\angle ACB = \frac{40+10}{2} = \boxed{25^\circ}$$

(Ex) ...

Special Case: Secants Meet at Center

$\Rightarrow$ **Central Angles**

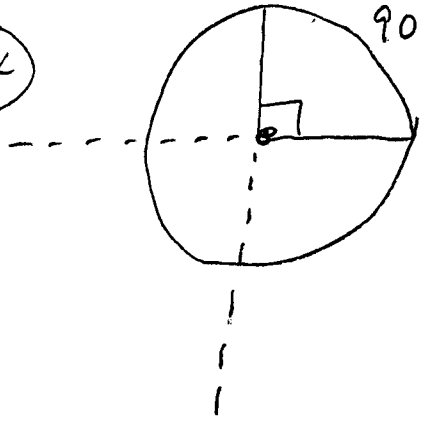


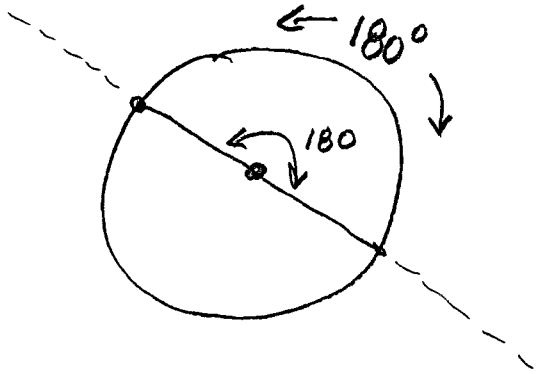
Since $m\widehat{DE} = m\widehat{AB}$

$$m\angle DCE = \frac{m\widehat{AB} + m\widehat{AB}}{2} = m\widehat{AB}$$

In other words, for central Angles the Arc = Angle.

Ex

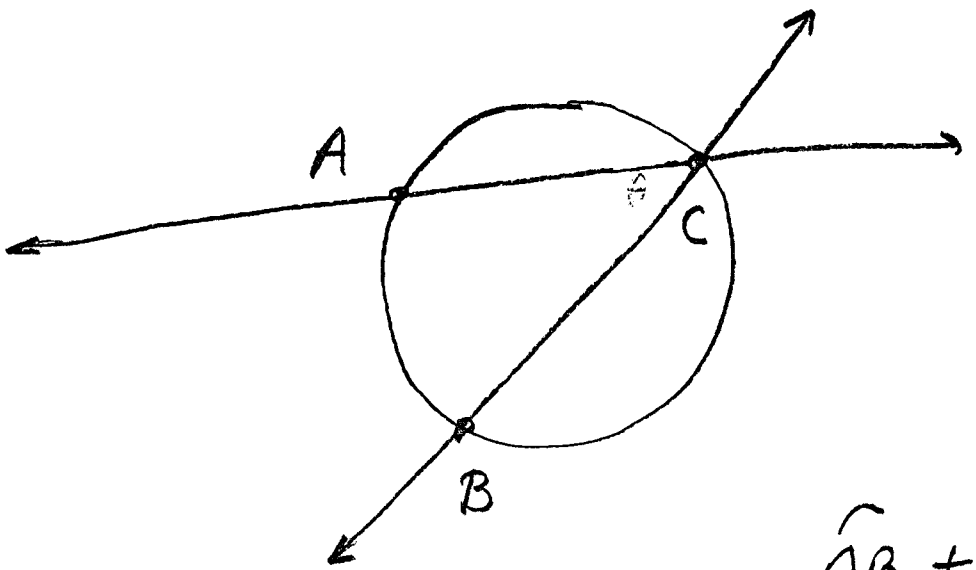




Special Case: The secants intersect ON the circle

"Inscribed Angle"

Ch 12-4 Inscribed Angles

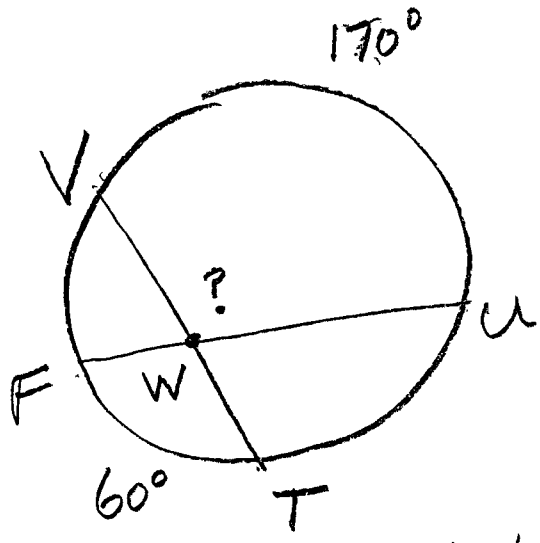


$$m\angle ACB = \frac{m\overset{\frown}{AB} + 0}{2}$$

In other words, the angle is half of the arc.

(Ex) ...

(12.)



$$m\angle VWU = \frac{170+60}{2}$$

$$= \frac{230}{2}$$

$$= \boxed{115^\circ}$$

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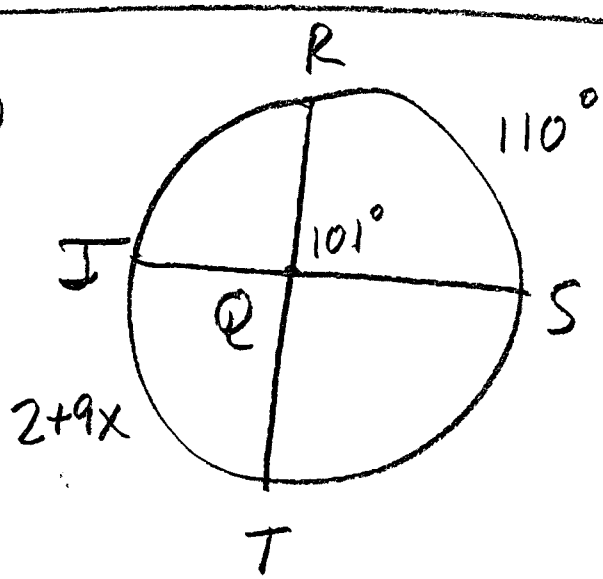
(23)



Find X

$$\frac{110+(2+9x)}{2} = 101$$

$$112+9x = 202$$

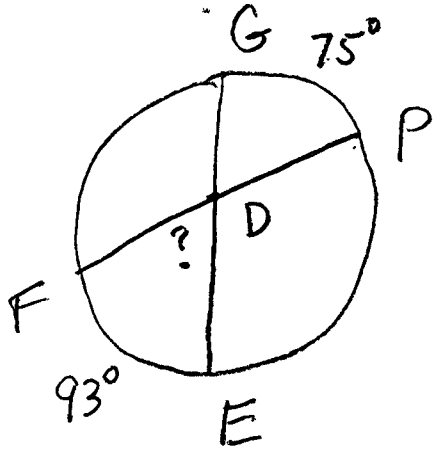
$$-112 \qquad -112$$

$$\frac{9x}{9} = \frac{90}{9}$$

$$\boxed{x=10}$$

Worksheet Practice

(11)



$m\angle FDE = \frac{m\overset{\frown}{GP} + m\overset{\frown}{FE}}{2}$

$= \frac{75+93}{2} = \frac{168}{2}$

$m\angle FDE = 84°$

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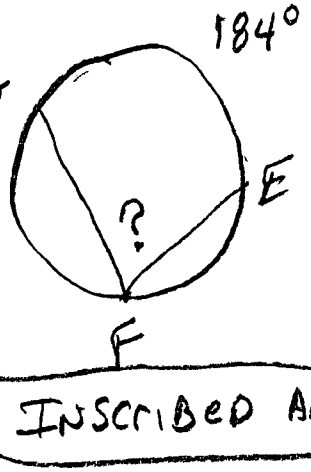
(35)



$m\angle GFE = \frac{m\overset{\frown}{GE}}{2}$

$= \frac{184}{2} = 92°$

INSCRIBED ANGLE

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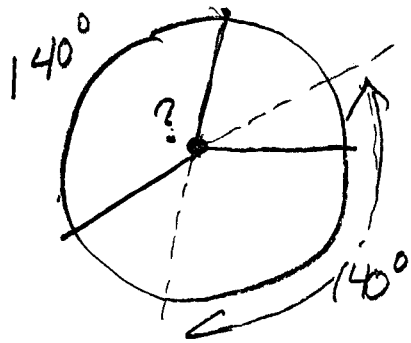
(49)



$? = 140°$

CENTRAL ANGLE