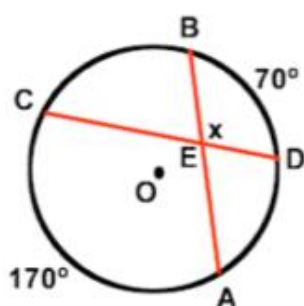


## In the Circle

## Circle Properties

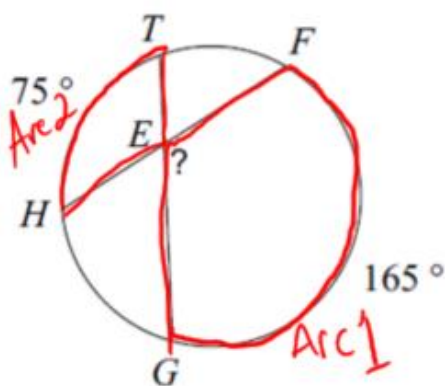
Angles: Chord - Chord (Vertex Inside)



$$\widehat{\text{Arc 1}} + \widehat{\text{Arc 2}} = 2(\text{Angle})$$

## Circle Properties

Ex. 1: Solve for x



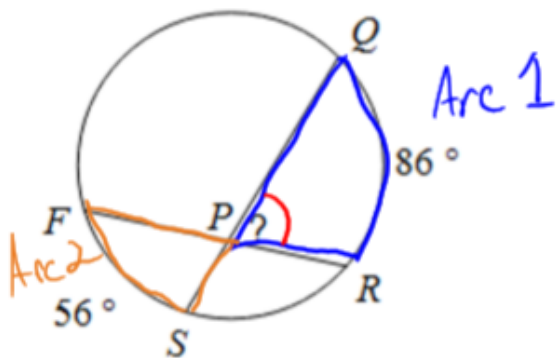
$$75 + 165 = 2(?)$$

$$240 = 2(?)$$

$$? = 120^\circ$$

## Circle Properties

Ex 2: Solve for x

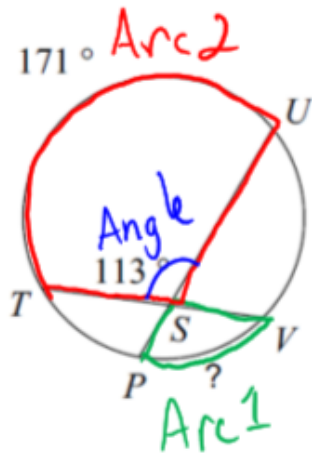


$$86 + 56 = 2(?)$$

$$142 = 2(?)$$

$$? = 71^\circ$$

Ex. 3: Solve for x



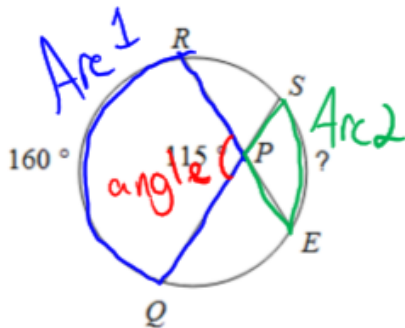
Circle Properties

$$? + 171 = 2(113)$$

$$? + 171 = 226$$

$$? = 55$$

Ex 4: Solve for x



Circle Properties

$$160 + ? = 2(115)$$

$$160 + ? = 230$$

$$? = 70$$

Circle Properties

## Outside the circle

Secant-Secant

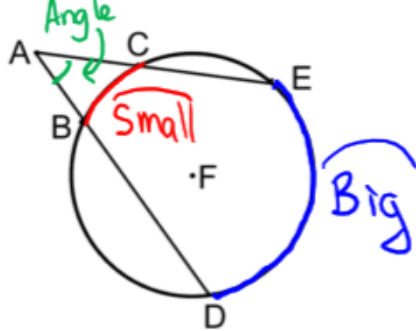
Secant - Tangent

Tangent - Tangent

(Circumscribed)

# Outside the circle

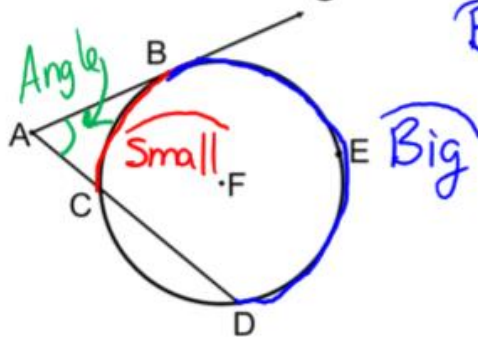
## Secant-Secant



$$\widehat{\text{Big}} - \widehat{\text{Small}} = 2(\text{Angle})$$

# Outside the circle

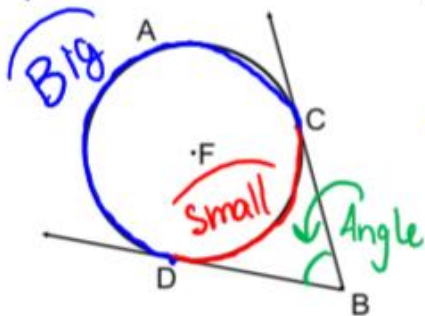
## Secant - Tangent



$$\widehat{\text{Big}} - \widehat{\text{Small}} = 2(\text{Angle})$$

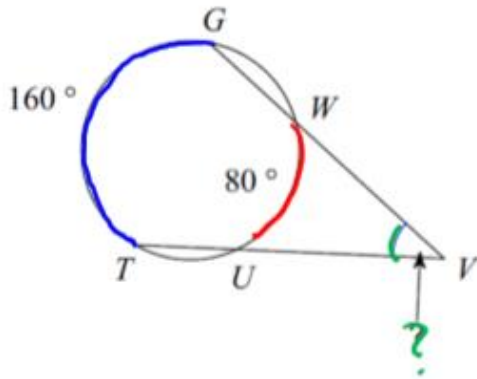
# Outside the circle

## Tangent - Tangent (Circumscribed)



$$\widehat{\text{Big}} - \widehat{\text{Small}} = 2(\text{Angle})$$

Ex.1: Solve for x



Circle Properties

$$\widehat{\text{Big}} - \widehat{\text{Small}} = 2(\text{angle})$$

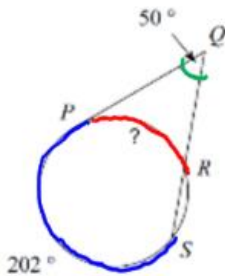
$$160 - 80 = 2(?)$$

$$80 = 2(?)$$

$$? = 40^\circ$$

Ex.2: Solve for x

Circle Properties



$$202 - ? = 2(50)$$

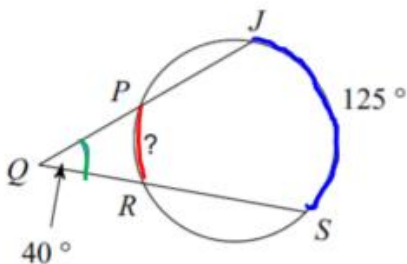
$$202 - ? = 100$$

$$- ? = -102$$

$$? = 102^\circ$$

Ex.3: Solve for x

Circle Properties



$$125 - ? = 2(40)$$

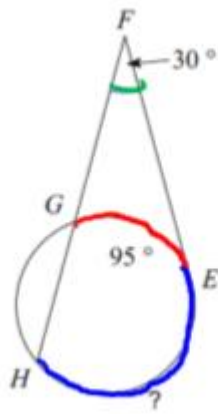
$$125 - ? = 80$$

$$- ? = -45$$

$$? = 45^\circ$$

Ex.4: Solve for x

## Circle Properties



$$\begin{aligned} ? - 95 &= 2(30) \\ ? - 95 &= 60 \\ ? &= 155^\circ \end{aligned}$$

## Circle Properties

Where can chords, tangents, and secants intersect? Inside, outside and on the circle

What is the equation for each point of intersection?

On  $2(\angle) = \widehat{\text{arc}}$

Inside  $2(\angle) = \widehat{1} + \widehat{2}$

Outside  $2(\angle) = \widehat{\text{Big}} - \widehat{\text{Small}}$