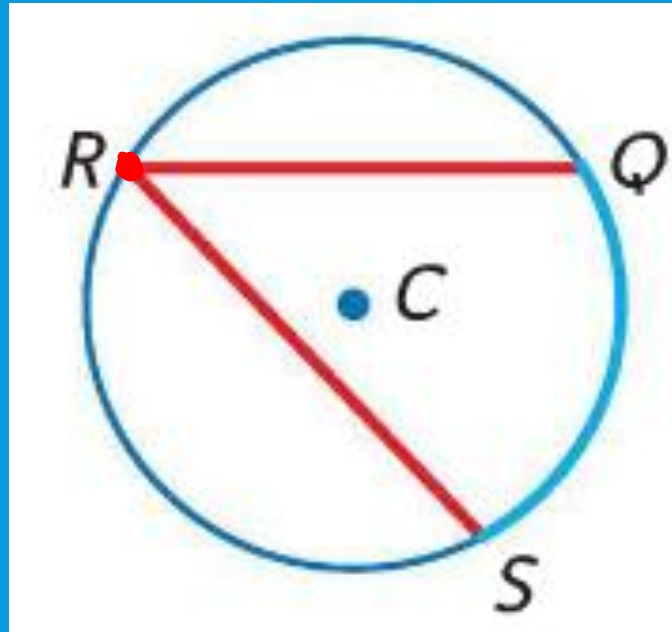


write

INSCRIBED ANGLES

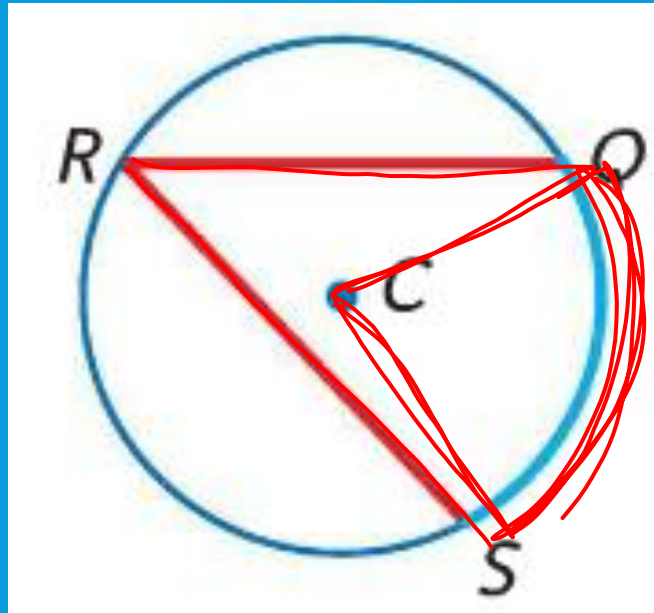
INSCRIBED ANGLES

- An inscribed angle has a vertex on a circle and sides that contain chords of the circle.



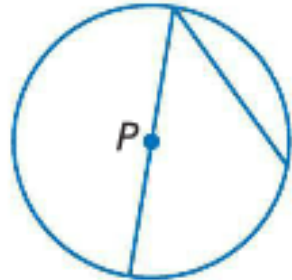
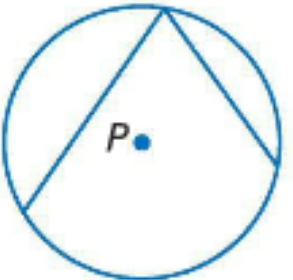
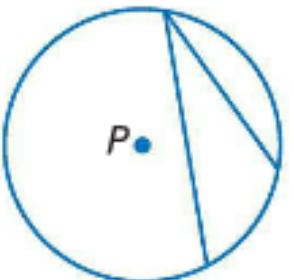
INTERCEPTED ARC

- An intercepted arc has endpoints on the sides of an inscribed angle and lies in the interior of the inscribed angle.



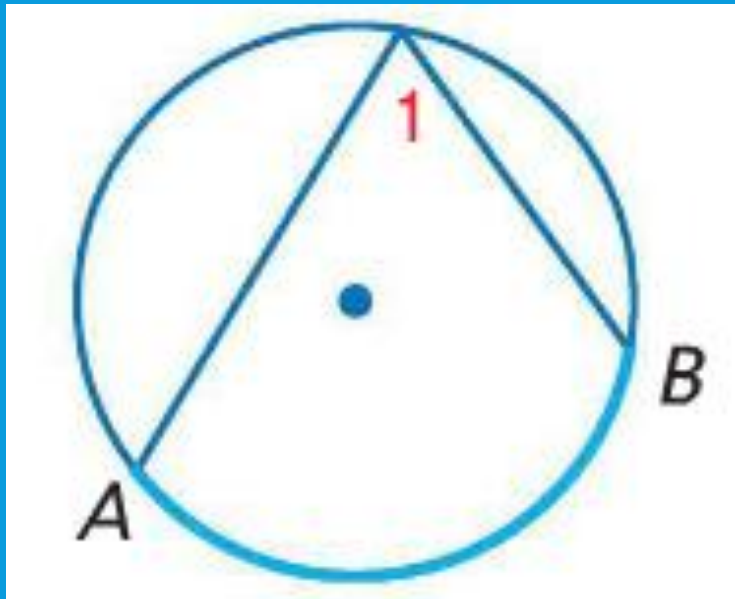
INSCRIBED ANGLE

- There are three ways that an angle can be inscribed in a circle.

Case 1	Case 2	Case 3
 <p data-bbox="397 1071 830 1165">Center P is on a side of the inscribed angle.</p>	 <p data-bbox="1003 1071 1498 1165">Center P is inside the inscribed angle.</p>	 <p data-bbox="1607 1071 2079 1165">The center P is in the exterior of the inscribed angle.</p>

INSCRIBED ANGLE THEOREM

- If an angle is inscribed in a circle, then the measure of the angle equals one half the measure of its intercepted arc.



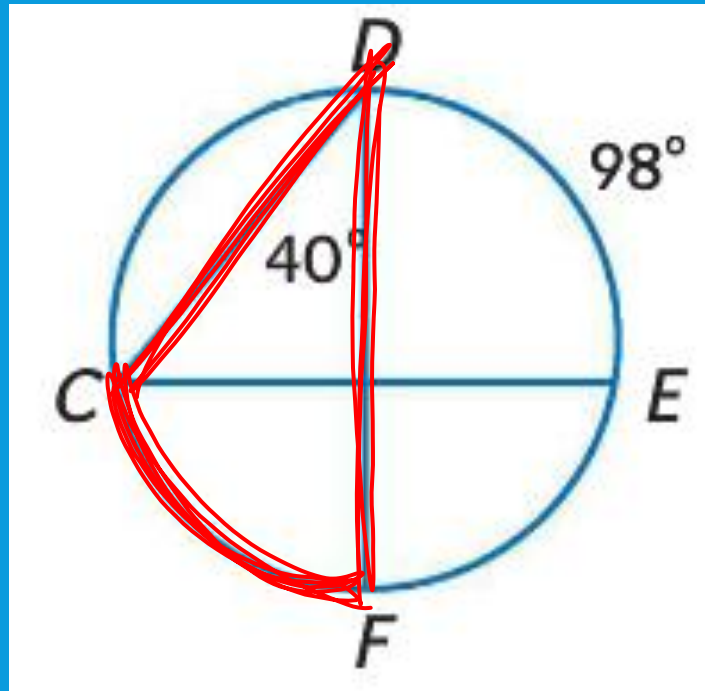
$$m\angle 1 = \frac{1}{2} m\widehat{AB}$$

$$m\widehat{AB} = 2m\angle 1$$

EXAMPLES

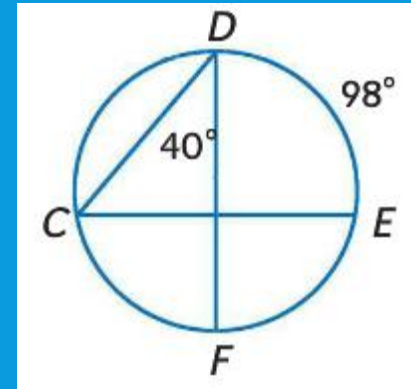
- Find each measure.
- $m\widehat{CF}$

$$2 \cdot 40 = 80$$



EXAMPLES

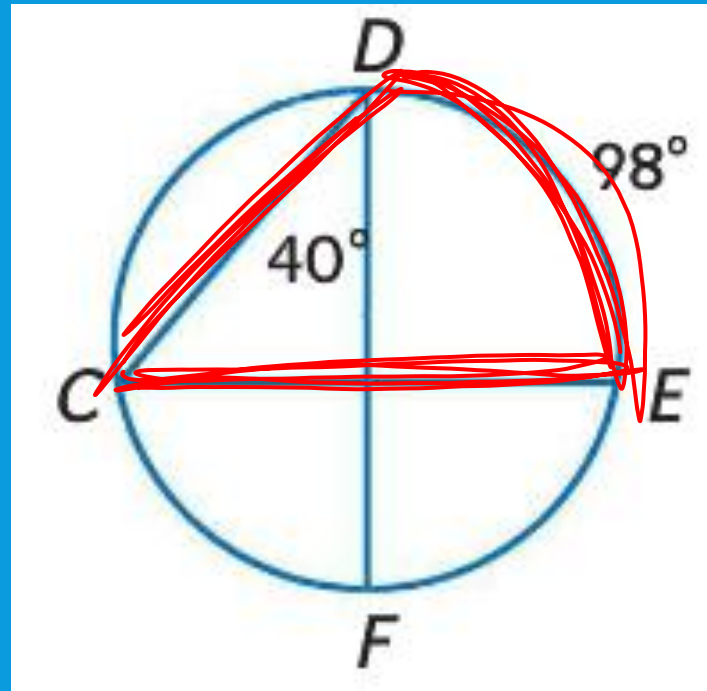
- Find each measure.
- $m\widehat{CF}$
- $m\widehat{CF}$ intercepts $\angle CDF$
- $m\angle CDF = 40$
- $m\widehat{CF} = 2 * 40$
- $m\widehat{CF} = 80$



EXAMPLES

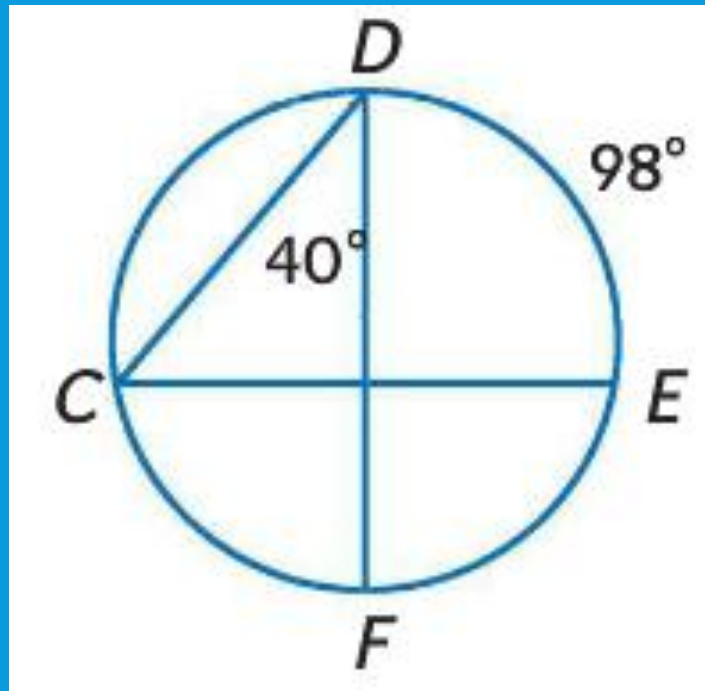
- Find each measure.
- $m\angle C$

$$\frac{98}{2} = 49$$



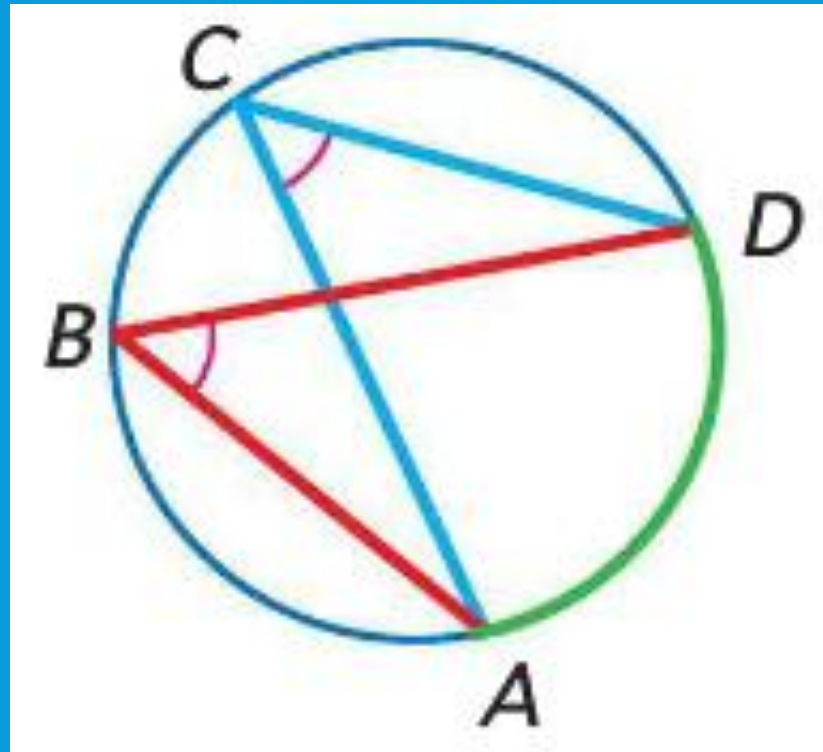
EXAMPLES

- Find each measure.
- $m\angle C$
- $m\angle C$ intercepts \widehat{DE}
- $\widehat{DE} = 98$
- $m\angle C = \frac{1}{2} * 98$
- $m\angle C = 49$



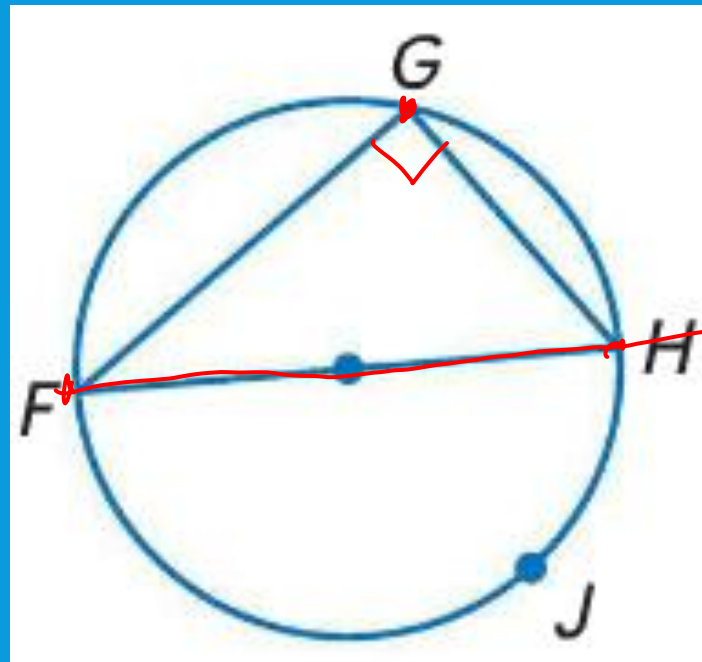
INTERCEPTED ARC THEOREM

- If two inscribed angles of a circle intercept the same arc or congruent arcs, then the angles are congruent.



INSCRIBED TRIANGLE THEOREM

- An inscribed angle of a triangle intercepts a diameter or semicircle if and only if the angle is a right angle.

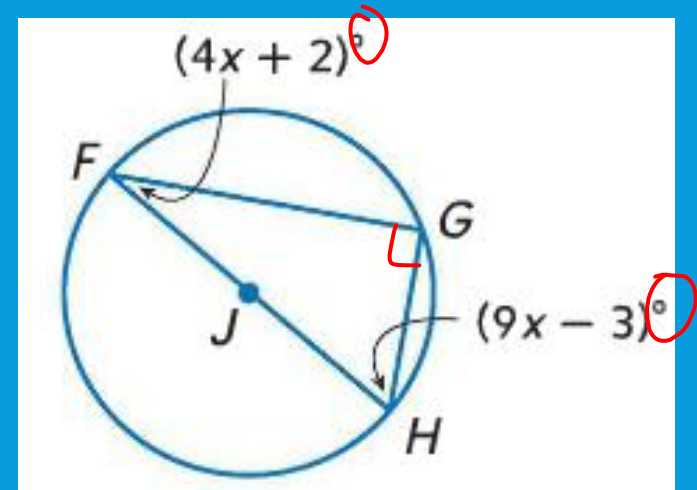


$$A^2 + B^2 = C^2$$

EXAMPLES

- If $m\angle F = 4x + 2$ and $m\angle H = 9x - 3$, find x .

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



EXAMPLES

- If $m\angle F = 4x + 2$ and $m\angle H = 9x - 3$, find x .

- $m\angle F + m\angle H = 90$

$m\angle G = 90$

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

Substitute the angles

- $13x - 1 = 90$

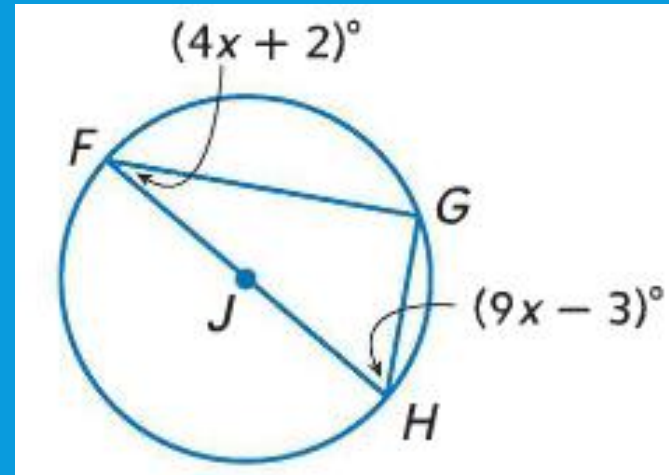
Simplify

- $13x = 91$

Add 1 to both sides

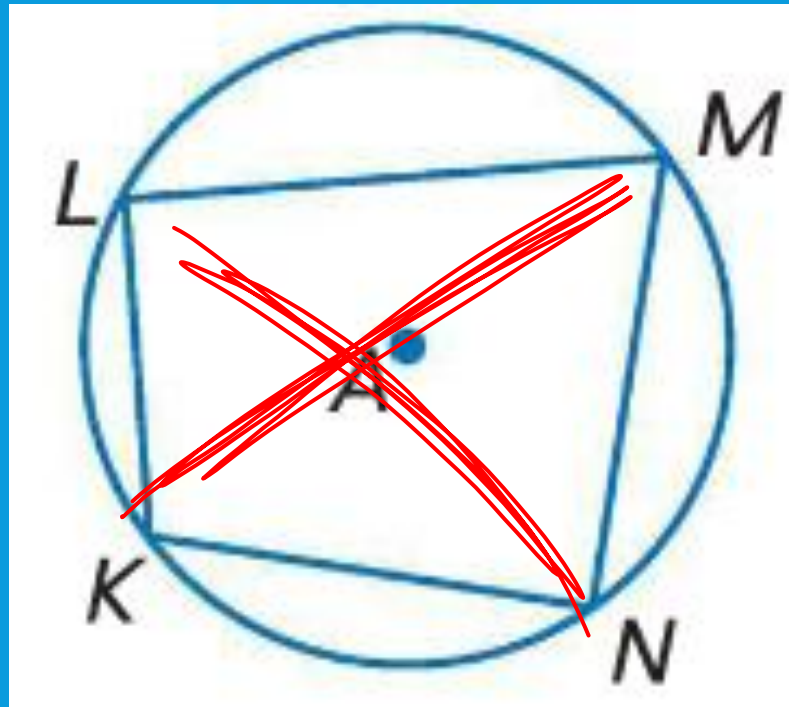
- $x = 7$

Divide both sides by 13



INSCRIBED QUADRILATERAL THEOREM

- If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary

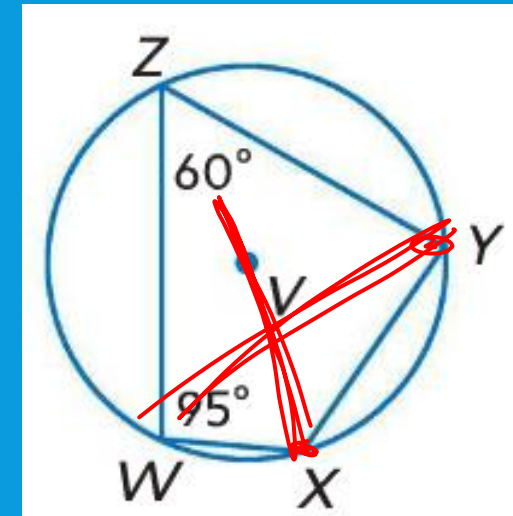


EXAMPLES

- Quadrilateral $WXYZ$ is inscribed in V . find $m\angle X$ and $m\angle Y$.

$$X = 120$$

$$Y = 85$$



EXAMPLES

- Quadrilateral WXYZ is inscribed in $\odot V$. find $m\angle X$ and $m\angle Y$.

- $m\angle Z + m\angle X = 180$

- $60 + m\angle X = 180$

- $m\angle X = 120$

- $m\angle W + m\angle Y = 180$

- $95 + m\angle Y = 180$

- $m\angle Y = 85$

