

10.2 Angles and Arcs

10.4 Inscribed Angles

Goals Aligned to TNCore State Standards:

You will identify central angles, major arcs, minor arcs, semicircles, and inscribed angles and find their measures.

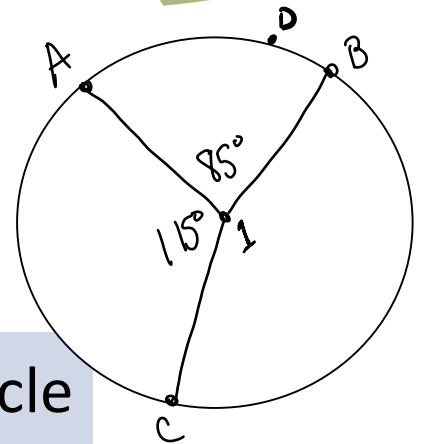
MP 6, 8



Central Angle: The angles formed with two radii in a circle

Sum of the measures of the central angles is 360° .

Ex.



Minor Arc

$$0 < x < 180$$

$$m \widehat{AB} = 85$$

Major Arc

$$180 < x < 360$$

$$m \widehat{BCA} = 275$$

Semicircle

$$x = 180$$

$$m \widehat{cd} = 180$$

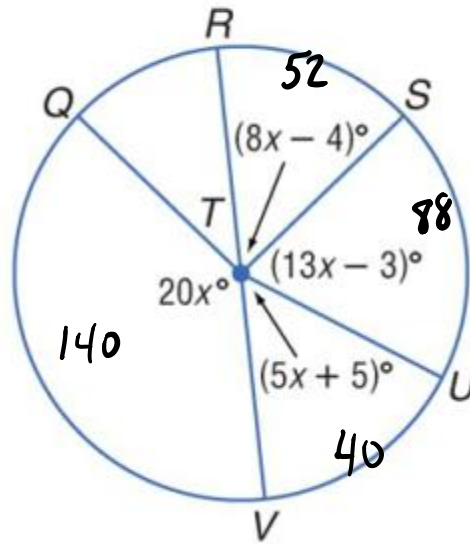
Find the value of x.

$$8x - 4 + 13x - 3 + 5x + 5 = 180$$

$$26x - 2 = 180$$

$$26x = 182$$

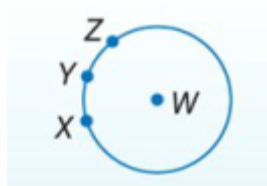
$$x = 7$$



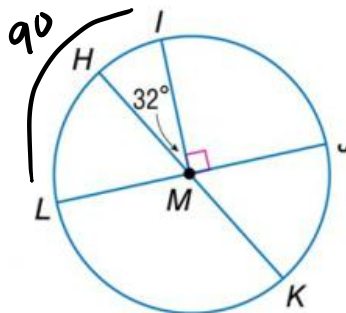
Thm: 2 arcs are \cong if their central \angle 's are \cong

Arc Addition Postulate:

$$m\widehat{XYZ} = m\widehat{XY} + m\widehat{YZ}$$

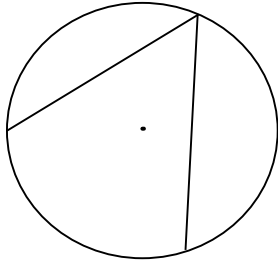


A. Find $m\widehat{LHI}$ in $\odot M$.



B. Find $m\widehat{IJK}$ in $\odot M$.

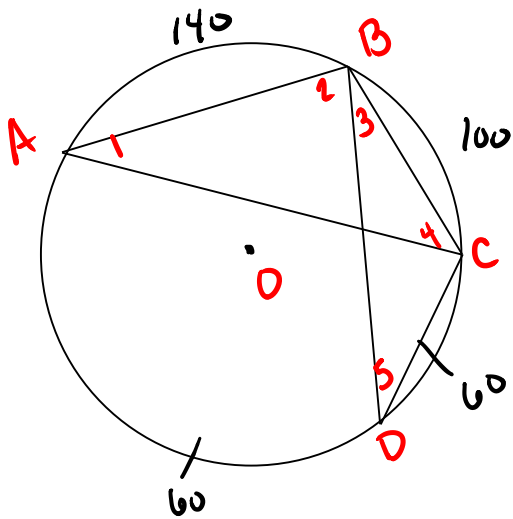
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$$m\angle 1 = \frac{1}{2}m\widehat{AB} \text{ and } m\widehat{AB} = 2m\angle 1$$

*** Arc AB **subtends** the angle***

EX. The picture below is not drawn to scale!

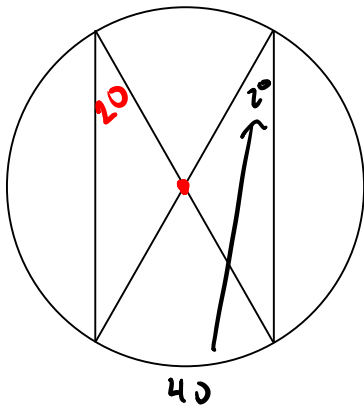


$$\begin{aligned} m\widehat{AB} &= 140 \\ m\widehat{BC} &= 100 \\ m\widehat{AD} &= m\widehat{DC} \end{aligned}$$

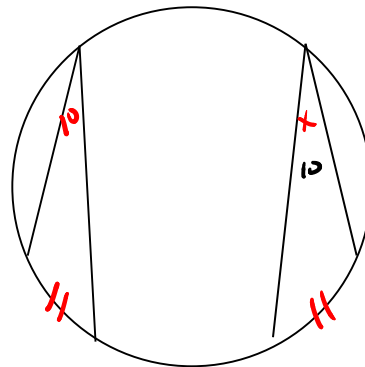
$$\begin{aligned} m\angle 1 &= 50 \\ m\angle 2 &= 30 \\ m\angle 3 &= 30 \\ m\angle 4 &= 70 \\ m\angle 5 &= 50 \end{aligned}$$

Find $m\angle 1-5$.

Thms

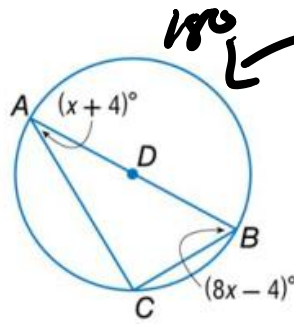


Inscribed \angle 's of same arc are \cong



Inscribed \angle s of \cong arcs are \cong

Find $m\angle B$.



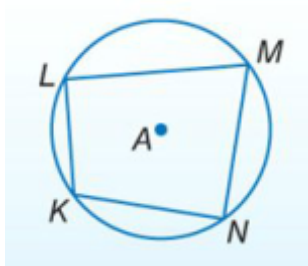
$\angle C = 90$

$x + 4 + 8x - 4 = 90$

$9x = 90$

$x = 10$

$m\angle B = 76$



What is the relationship of the opposite angles in the quadrilateral inscribed in a circle?

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

Goals Aligned to Common Core State Standards:

You can identify central angles, major arcs, minor arcs, semicircles, and inscribed angles and find their measures.

