

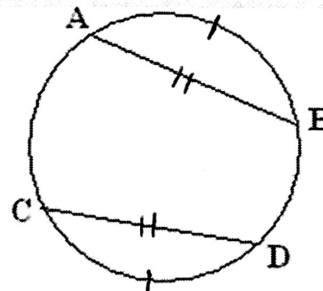
10.3 Arcs and Chords

G.CI.3 Identify and describe relationships among inscribed angles, radii and chords.

Theorem 10.2

In a circle or in congruent circles, two minor arcs are congruent if and only if their corresponding chords are congruent.

Symbols: If $\overline{AB} \cong \overline{CD}$, then $\widehat{AB} \cong \widehat{CD}$.
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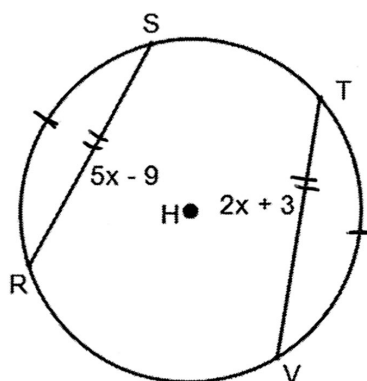


Ex 1:

In $\odot H$, $\widehat{RS} \cong \widehat{TV}$. Find RS.

$$\begin{array}{r} 5x - 9 = 2x + 3 \\ -2x \quad -2x \\ \hline 3x - 9 = 3 \\ +9 \quad +9 \\ \hline 3x = 12 \\ x = 4 \end{array}$$

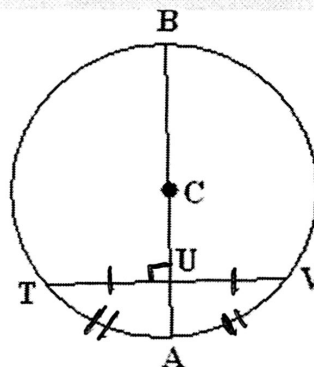
$$\begin{array}{r} 3x = 12 \\ \frac{3x}{3} = \frac{12}{3} \\ x = 4 \end{array}$$



Theorem 10.3

In a circle, if a diameter (or radius) is perpendicular to a chord, then it bisects the chord and its arc.

Example: If $\overline{BA} \perp \overline{TV}$, then $\overline{UT} \cong \overline{UV}$ and $\widehat{AT} \cong \widehat{AV}$.



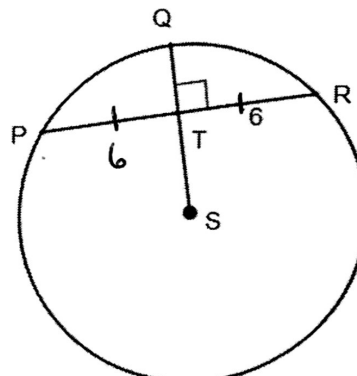
Ex 2:

In $\odot S$, find PR.

TR = 6

PT = 6

PR = 12



Ex 3:

In circle W, the radius is 10 cm, $HJ = 8$ cm and $m\widehat{HL} = 53^\circ$. Radius \overline{WL} is perpendicular to chord \overline{HK} . Find each measure. Round to the nearest hundredth, if necessary.

a) $m\widehat{MK}$

$$\begin{array}{r} 7 \\ 180 \\ -53 \\ \hline 127^\circ \end{array}$$

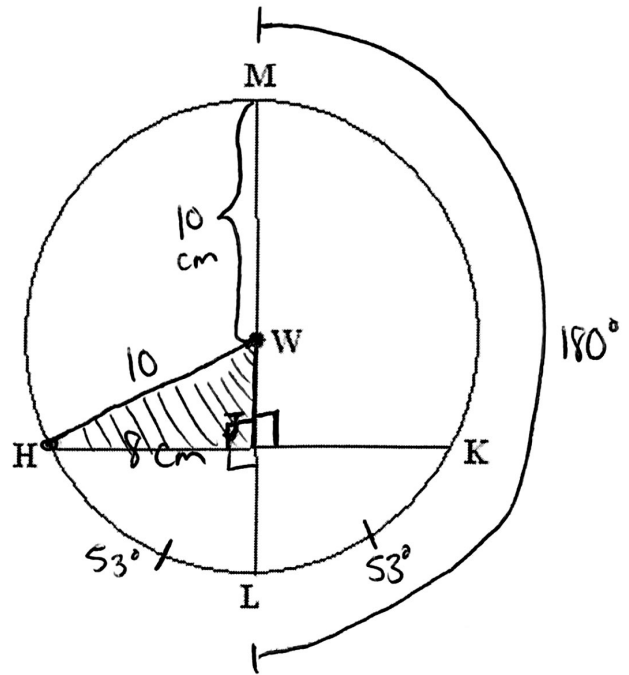
b) WJ $(WJ)^2 + (JH)^2 = (WH)^2$

$$(WJ)^2 + 8^2 = 10^2$$

$$(WJ)^2 + 64 = 100$$

$$\sqrt{(WJ)^2} = \sqrt{36}$$

$$WJ = 6 \text{ cm}$$



Remember

