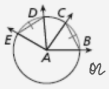
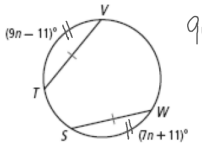
Geometry Notes Section 12-2 (see workbook pages 499-501) April 22

Arcs and Chords

Congruent circles are circles that have equal radii.

THEOREM	HYPOTHESIS	CONCLUSION
In a circle or congruent circles:		
(1) Congruent central angles have congruent chords.	 $\angle EAD \cong \angle BAC$	$\overline{DE} \cong \overline{BC}$
(2) Congruent chords have congruent arcs.	 $\overline{ED} \cong \overline{BC}$ or $\overset{\frown}{ED} \cong \overset{\frown}{BC}$	$\overset{\frown}{DE} \cong \overset{\frown}{BC}$ then $\overline{ED} \cong \overline{BC}$
(3) Congruent arcs have congruent central angles.	 $\overset{\frown}{ED} \cong \overset{\frown}{BC}$	$\angle DAE \cong \angle BAC$

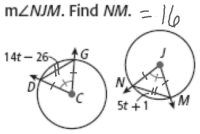
1. $\overline{TV} \cong \overline{WS}$. Find m $\overset{\frown}{WS}$ = 88



$9n - 11 = 7n + 11$

$n = 11$

2. $\odot C \cong \odot J$, and $m\angle GCD \cong m\angle NJM$. Find NM. = 16

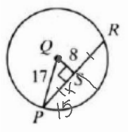


$14t - 26 = 5t + 1$

$t = 3$

THEOREM	HYPOTHESIS	CONCLUSION
In a circle, if a radius (or diameter) is perpendicular to a chord, then it bisects the chord and its arc.	 $\overline{CD} \perp \overline{EF}$	$\overline{CD}$ bisects $\overline{EF}$ and $\overset{\frown}{EF}$.

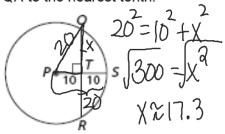
3. Find PR. = 30 $x^2 + 64 = 289$



$\sqrt{x^2} = \sqrt{225}$

$x = 15$

4. Find QR to the nearest tenth.

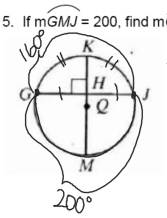


$20^2 = 10^2 + x^2$

$\sqrt{300} = \sqrt{x^2}$

$x \approx 17.3$

5. If $m\overset{\frown}{GMJ} = 200$, find $m\overset{\frown}{GK}$. = 80°



$360° - 200° = 160° = m\overset{\frown}{GJ}$

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