

Chords of Circle—Parallel Chords, Perpendicular Bisectors and
chords equidistant from the center of the circle

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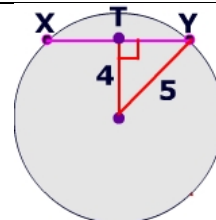
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If the distance from the center of the circle to \overline{XY} is 4, what is the measure of

- 1) \overline{TY}
- 2) \overline{XY}



Theorems

1) If two chords are equidistant from the center, then the chords _____.

Corollary: Congruent chords are _____ from the center

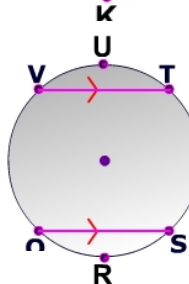
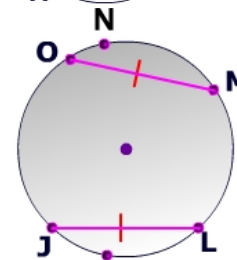
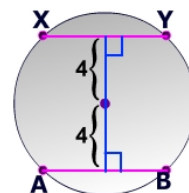
2) The perpendicular bisector of a chord contains the _____

3) If two different chords, intercept congruent arcs, then

ex. $\widehat{ONM} \cong \widehat{JKL}$, therefore $\underline{\quad} \cong \underline{\quad}$

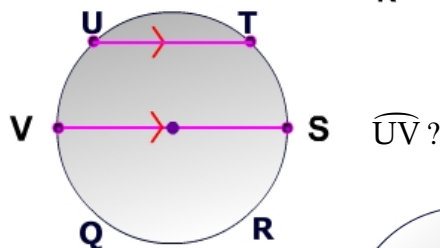
4) Parallel chords cut off _____ arcs

ex. $VT \parallel QS$, therefore



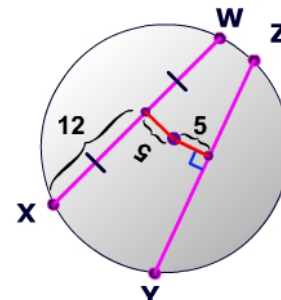
Model Problems

1) If $\widehat{UT} = 30^\circ$, what is the measure of



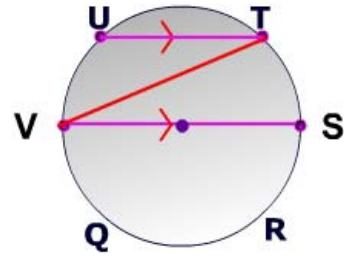
2) What is the radius of the circle on the right?

3) What is the length of \overline{YZ} ?



4) $m\angle UTV = 30^\circ$, what is the measure of \widehat{TS} ?

5) What is the measure of \widehat{UT} ?

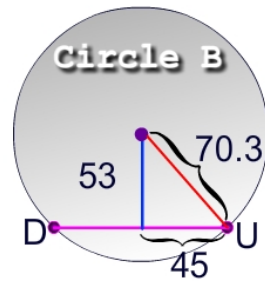
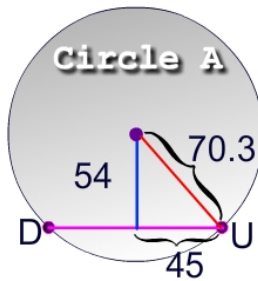


Class Practice

<p>In the picture on the right, the chords are equidistant from the center of the circle whose radius is 25</p> <p>1) How large is X?</p> <p>2) What is the length of either of the chords?</p>	
<p>The chords in the circle on the right are equidistant from the center of the circle.</p> <p>3) What is the measure of the radius?</p>	

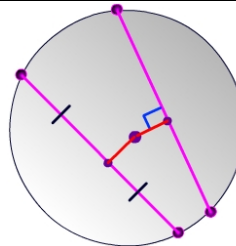
Think-Pair-Share #1

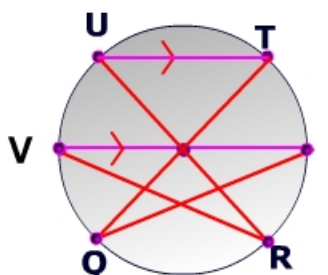
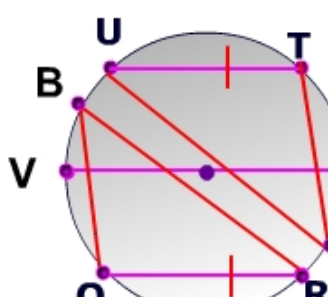
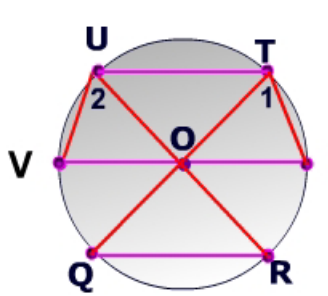
In only one of the two circles is the line a perpendicular bisector of \overline{DU} . Which circle contains the perpendicular bisector and **most importantly explain why.**



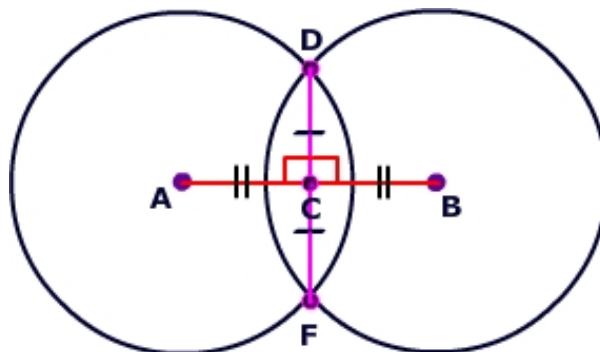
Think-Pair-Share: #2

Must the two chords on the right be congruent?
Explain your answer



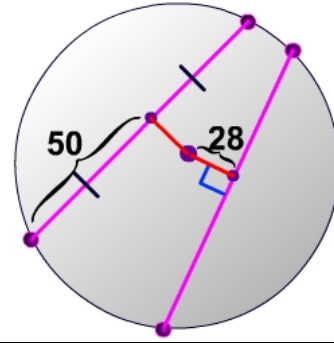
<p>The measure of $\widehat{UT} = 52^\circ$</p> <p>4) What is the measure of \widehat{UV} ?</p> <p>5) What is the measure of \widehat{TS} ?</p> <p>6) What is the $m\angle TQS$?</p> <p>7) What is the $m\angle URV$?</p>	
<p>measure of $\widehat{QR} = 80^\circ$</p> <p>Determine the measure of</p> <p>8) $\angle UAT$</p> <p>9) $\angle QBR$</p> <p>10) \widehat{UT}</p>	
<p>$\angle 1 \cong \angle 2$ and $\widehat{QR} = 70^\circ$</p> <p>Determine the measure of</p> <p>11) $\angle 1$</p> <p>12) $\angle 2$</p> <p>13) $\angle QOR$</p> <p>14) Is $VS \parallel QR$? Explain your answer?</p>	

Extension Circles are congruent if they have equal radii. In the circles on the right, \overline{DF} is a chord in both circles. Are the two circles congruent? Explain how you could prove your answer.



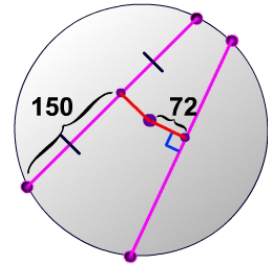
14) The chords are equidistant from the center of the circle.

15) What is the length of the circle's radius?



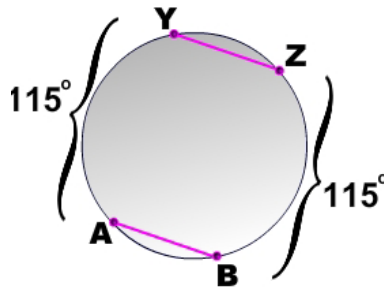
Part III

1) What is the length of the circle's radius? Assume the chords are equidistant from the center



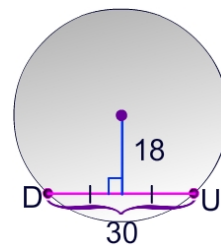
2) What is $m \widehat{YZ}$?

3) What is $m \widehat{AB}$?



4) What is the length of the circle's radius?

5) What is the length of the circle's diameter?



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