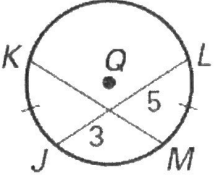
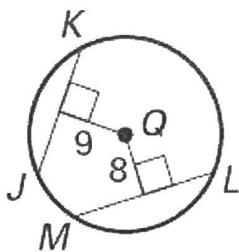
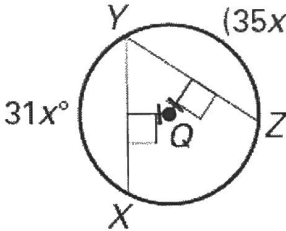
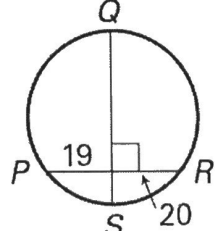
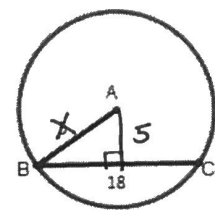
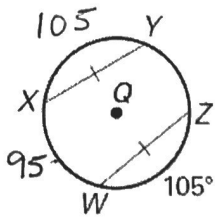


Theorems with Chords and Arcs

Theorem	Example
<p>If two chords are congruent then their arcs are congruent</p>	<p>Find the length of \overline{KM}.</p>  <p>If $\widehat{KJ} \cong \widehat{LM}$ then $\overline{KM} \cong \overline{JL}$ $KM = JL$ $8 = 8$</p>
<p>Two chords are congruent <u>if</u> they are <u>equidistant</u> from the center of the circle</p> <p>Same distance</p>	<p>Are \overline{JK} and \overline{ML} congruent?</p>  <p>No - The chords are a different distance from the center.</p>
<p>Two chords are congruent <u>if and only if</u> they are equidistant from the center of the circle.</p>	<p>Find the measure of \widehat{YX}.</p>  <p>$31x = 35x - 16$ $-4x = -16$ $x = 4$ $\widehat{YX} = 31(4) = 124^\circ$</p>
<p>To be a diameter the chord must be a <u>perpendicular bisector</u> of another chord.</p>	<p>Is \overline{QS} a diameter? Why or why not?</p>  <p><u>No</u> - it is Not a \perp bisector $19 \neq 20$</p>
<p>Pythagorean Theorem.</p>	<p>A chord in a circle is 18 cm long and is 5 cm from the center of the circle. What is the length of the radius of the circle?</p>  <p>$5^2 + 9^2 = x^2$ $x^2 = 106$ $x \approx 10.3$</p>

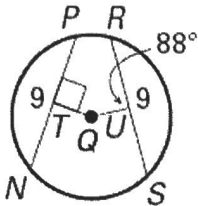
Chords Warm-up

1. Find the measure of arc YZ if the measure of arc XW = 95°



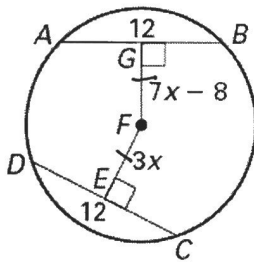
$$360 - 2(105) - 95 = \boxed{55^\circ}$$

1. Are segments TQ and UQ congruent?



no, they are not both 90° to the chord.

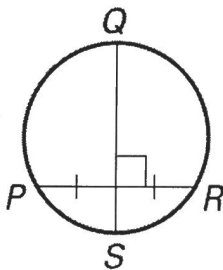
2. Find the measure of GF.



$$\begin{aligned} 3x &= 7x - 8 \\ -4x &= -8 \\ x &= 2 \end{aligned}$$

$$\begin{aligned} 7(2) - 8 &= \\ 14 - 8 &= \boxed{6} \end{aligned}$$

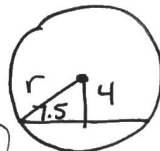
3. Is segment QS a diameter? Explain your reasoning.



Yes, \overline{QS} is a \perp bisector of \overline{PR} .

4. The chord of a circle is 15 inches and it is drawn 4 inches from the center of the circle. What is the length of the radius of the circle?

$$15/2$$



$$\begin{aligned} 4^2 + (7.5)^2 &= x^2 \\ 72.25 &= x^2 \end{aligned}$$

radius is 8.5 in

$$\boxed{8.5 \approx x}$$