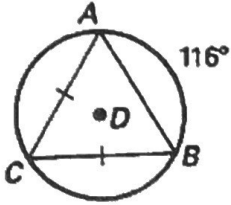
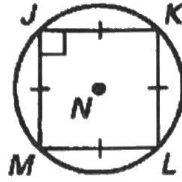


Find the measure of the given arc or chord.

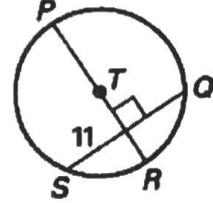
1.  $m\widehat{BC} = 122^\circ$



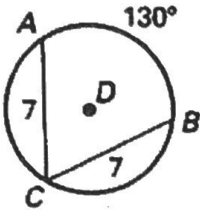
2.  $m\widehat{LM} = 90^\circ$



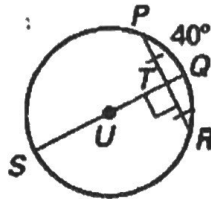
3.  $\overline{QS} = 22$



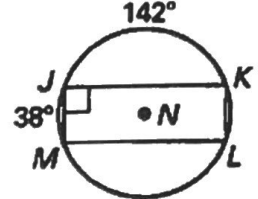
4.  $m\widehat{AC} = 115^\circ$



5.  $m\widehat{PQR} = 80^\circ$

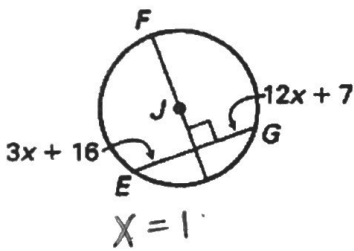


6.  $m\widehat{KLM} = 180^\circ$

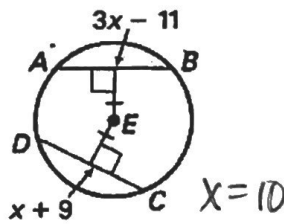


Find the value of  $x$ .

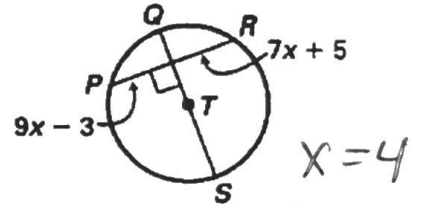
7.



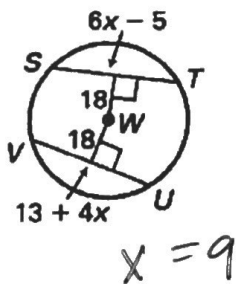
8.



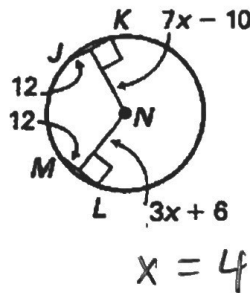
9.



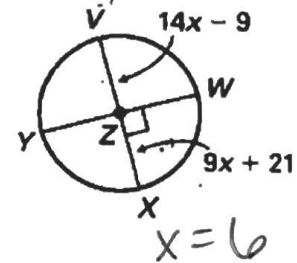
10.



11.



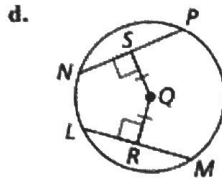
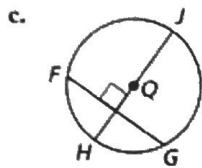
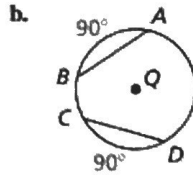
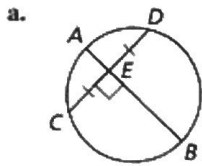
12.



### 7.3 Properties of Chords

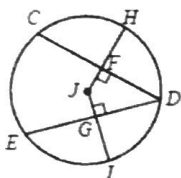
Name: \_\_\_\_\_

**HOW DO YOU SEE IT?** What can you conclude from each diagram? Name a theorem that justifies your answer.



a. $\widehat{AC} \cong \widehat{AD}$	If a radius is $\perp$ to a chord it bisects the chord and arc
b. $\overline{AD} \cong \overline{CD}$	If arcs are $\cong$ then the chords forming them are $\cong$
c. $\widehat{FH} \cong \widehat{HG}$	If a radius is $\perp$ to a chord it bisects the chord and arc
d. $\overline{NP} \cong \overline{LM}$	If chords are equidistant from the center then they are $\cong$ .

9. If  $JG = JF$ ,  $GD = 13$ , and  $m\widehat{CD} = 136^\circ$ , find each measure.



$$ED = 26$$

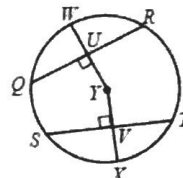
$$CF = 13$$

$$m\widehat{ED} = 136^\circ$$

$$m\widehat{HD} = 68^\circ$$

$$m\widehat{CE} = 88^\circ$$

10. If  $YU = YV$ ,  $ST = 16$ ,  $m\widehat{QS} = 34^\circ$ , and  $m\widehat{RT} = 98^\circ$ , find each measure.



$$QU = 8$$

$$QR = 16$$

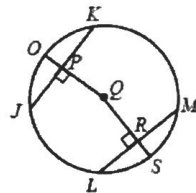
$$m\widehat{ST} = 114^\circ$$

$$m\widehat{QR} = 114^\circ$$

$$m\widehat{XT} = 57^\circ$$

11. If  $PQ = QR$ ,  $JK = 3x + 23$  and  $LM = 9x - 19$ , find  $PK$ .

$$x = 7$$



$$PK = 22$$

12. If  $DH = HE$ ,  $m\widehat{BG} = (9x - 20)^\circ$  and  $m\widehat{GC} = (5x + 28)^\circ$ , find  $m\widehat{AB}$ .

$$x = 12$$

$$m\widehat{AB} = 176^\circ$$

