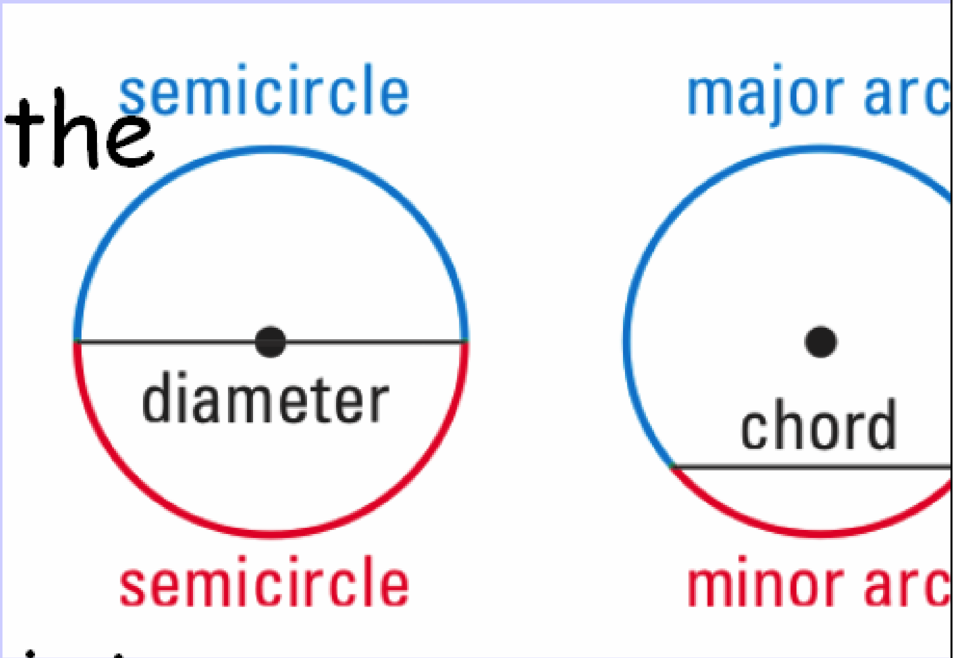
10.3 Apply Properties of Chords

call that a *chord* is a segment
endpoints on a circle.
ause its endpoints lie on the
e, any chord divides the
le into two arcs.

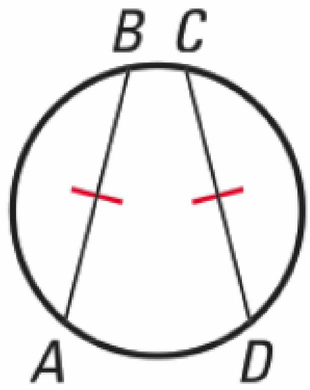


diameter divides a circle into
semicircles.

REM **For Your Notebook**

EM 10.3

same circle, or in congruent circles, two arcs are congruent if and only if their ponding chords are congruent.

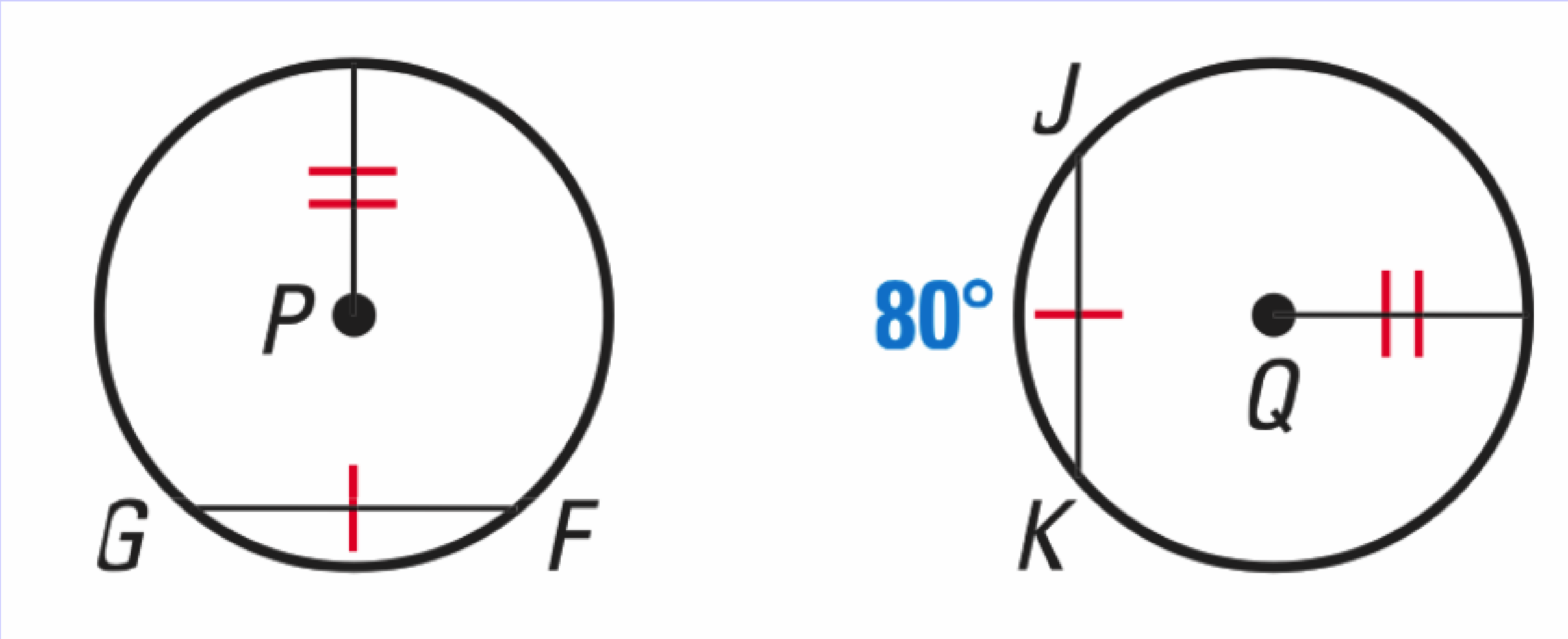


Exs. 27–28, p. 669

$\overset{\frown}{AB} \cong \overset{\frown}{CD}$ if and only if $\overline{AB} \cong \overline{CD}$

AMPLE 1 Use congruent chords to find an arc measu

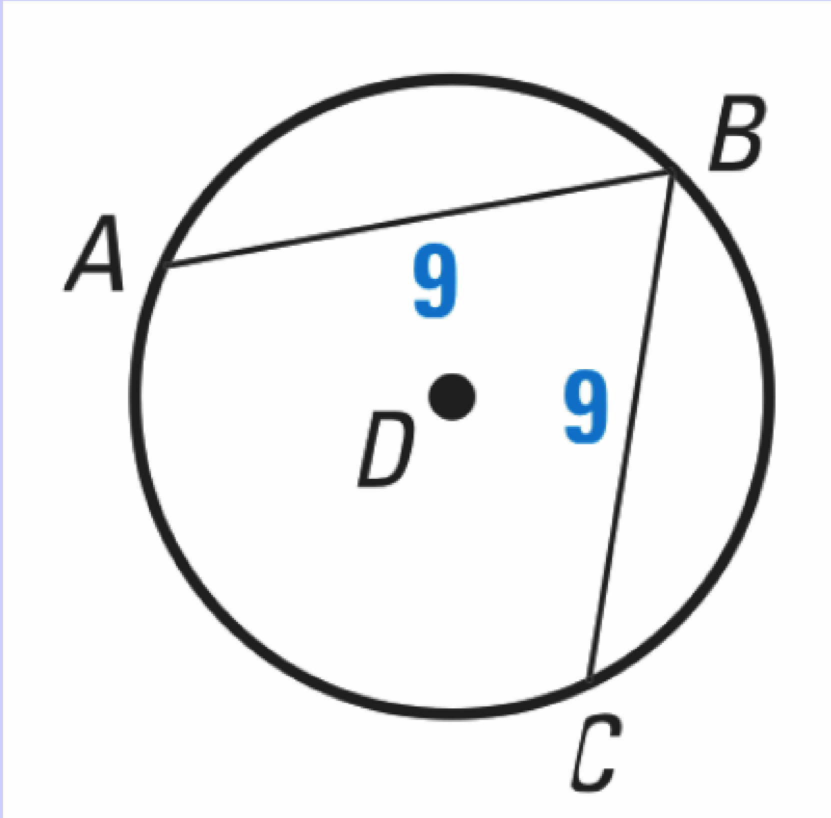
e diagram, $\odot P \cong \odot Q$, $\overline{FG} \cong \overline{JK}$,
$m\overset{\frown}{JK} = 80°$. Find $m\overset{\frown}{FG}$.



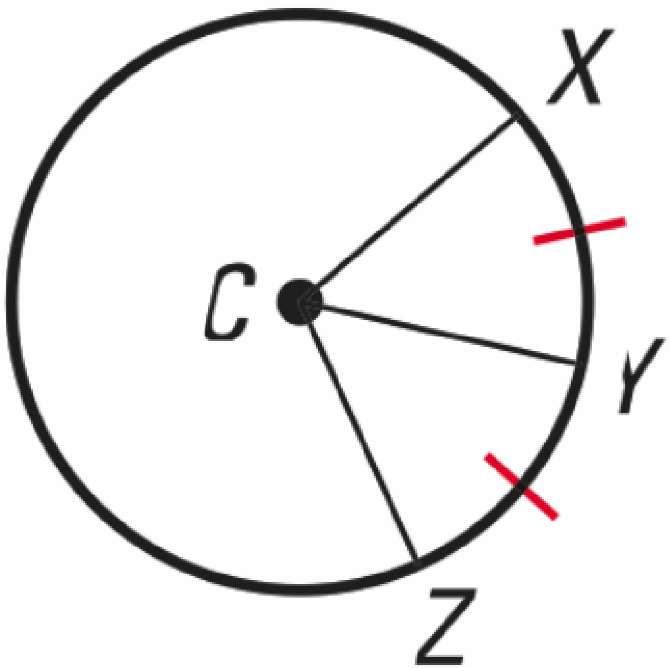
Use the diagram of $\odot D$.

$\overset{\frown}{AB} = 110°$, find $m\overset{\frown}{BC}$.

$\overset{\frown}{AC} = 150°$, find $m\overset{\frown}{AB}$.



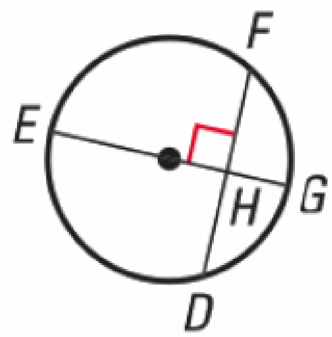
ECTING ARCS If $\overparen{XY} \cong \overparen{YZ}$, then the point *Y*, l any line, segment, or ray that contains *Y*, ects $\overparen{XYZ}$.



$\overline{CY}$ bisects $\overparen{XYZ}$.

OREM 10.5

liameter of a circle is perpendicular to a chord,
the diameter bisects the chord and its arc.

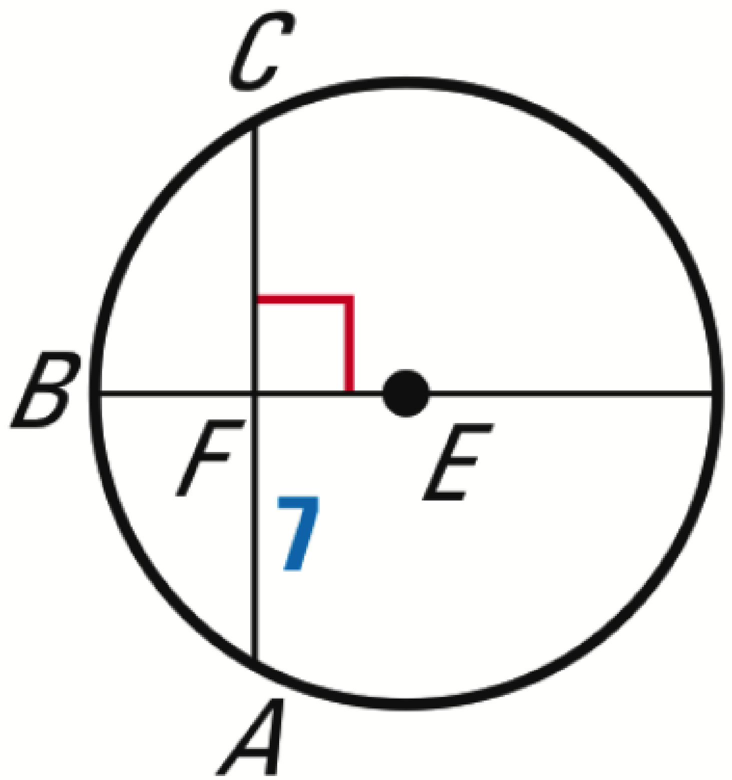


is a diameter and $\overline{EG} \perp \overline{DF}$, then $\overline{HD} \cong \overline{HF}$
$\widehat{GD} \cong \widehat{GF}$.

f: Ex. 32, p. 670

EXAMPLE 3 Use a diameter

the diagram of $\odot E$ to find the length of $\overline{AC}$.
what theorem you use.

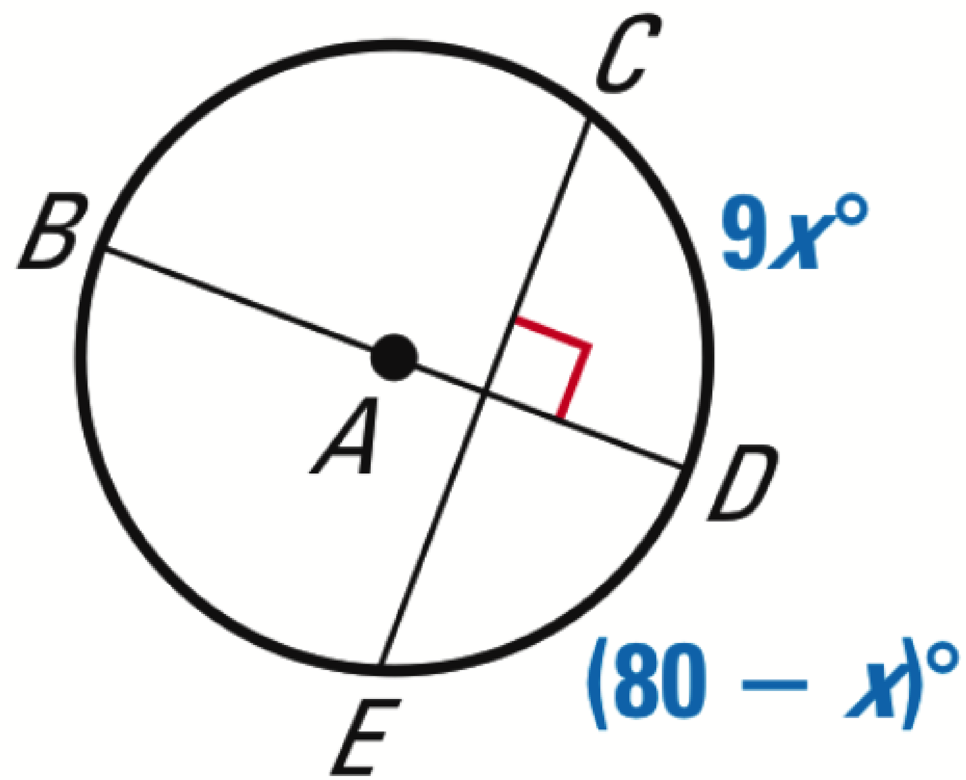


d the measure of the indicated arc in the diagram.

$\widehat{CD}$

$\widehat{DE}$

$\widehat{CE}$

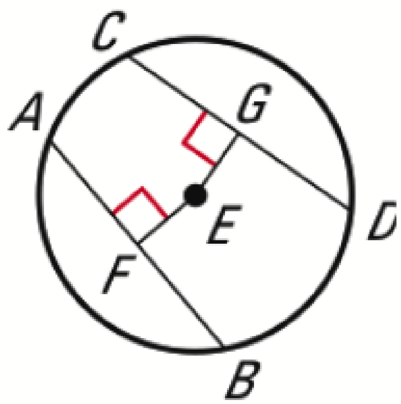


HEOREM

For Your Notebook

HEOREM 10.6

the same circle, or in congruent circles, o chords are congruent if and only if they e equidistant from the center.

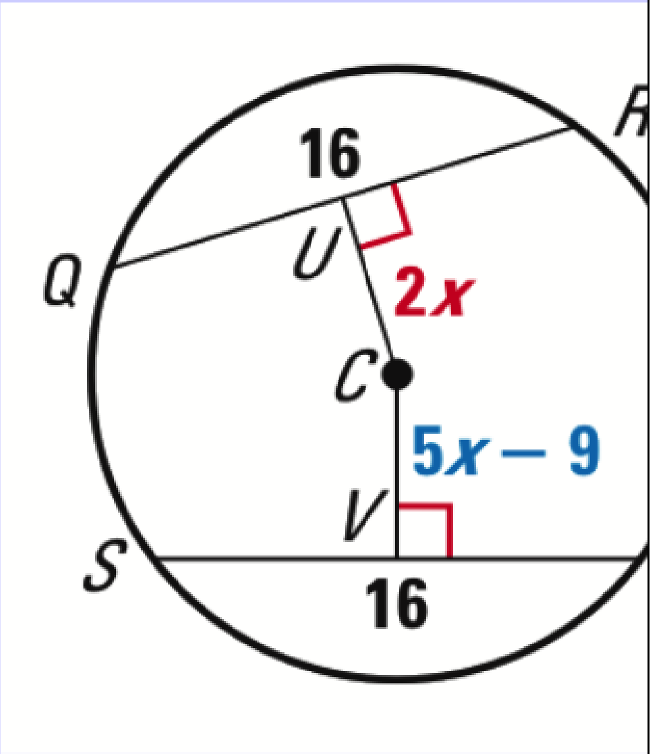


oof: Ex. 33, p. 670

$\overline{AB} \cong \overline{CD}$ if and only if $EF = EG$.

EXAMPLE 4 Use Theorem 10.6

ne diagram of $\odot C$, $QR = ST = 16$. Find CU.



Assignment:

p. 667 (3-14, 18-20, 25)