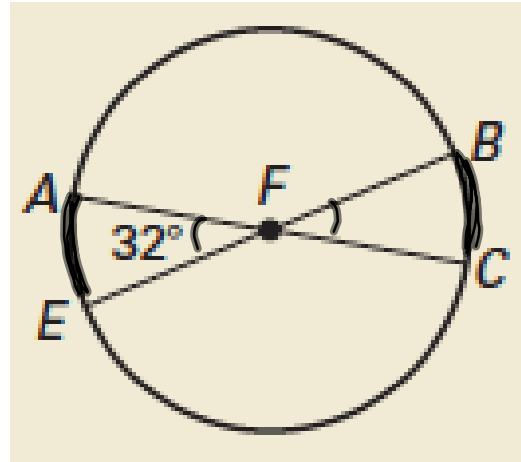


Bellwork

03/12/2012

Describe each arc as a minor arc, major arc, or semicircle.
Find the arc measure.

1. \widehat{BC} Minor
2. \widehat{CBE} Major
3. \widehat{BCE} Semi
4. Is $\widehat{AE} \cong \widehat{BC}$?
Yes!



Geometry

10.3 Properties of Chords

Standard(s): 3, 4

Vocabulary:

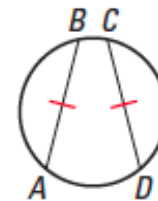
THEOREM

For Your Notebook

THEOREM 10.3

In the same circle, or in congruent circles, two minor arcs are congruent if and only if their corresponding chords are congruent.

Proof: Exs. 27–28, p. 669



$\widehat{AB} \cong \widehat{CD}$ if and only if $\overline{AB} \cong \overline{CD}$.

THEOREMS

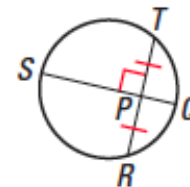
For Your Notebook

THEOREM 10.4

If one chord is a perpendicular bisector of another chord, then the first chord is a diameter.

If \overline{QS} is a perpendicular bisector of \overline{TR} , then \overline{QS} is a diameter of the circle.

Proof: Ex. 31, p. 670

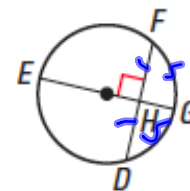


THEOREM 10.5

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

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

Proof: Ex. 32, p. 670



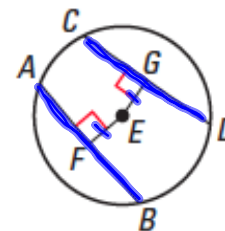
THEOREM

For Your Notebook

THEOREM 10.6

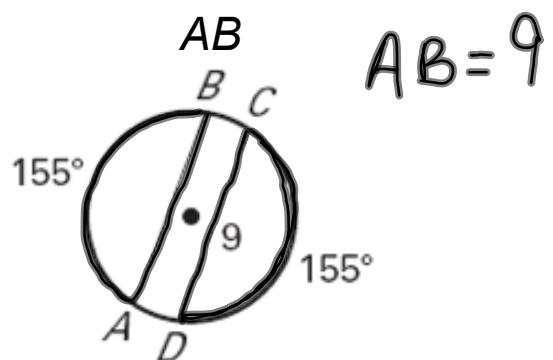
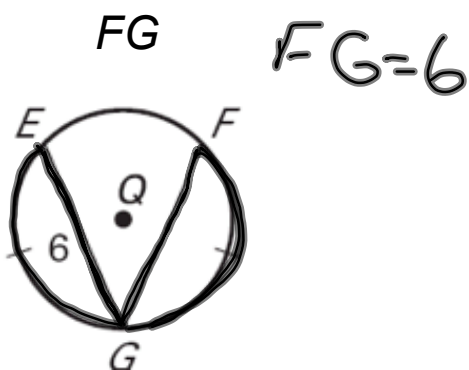
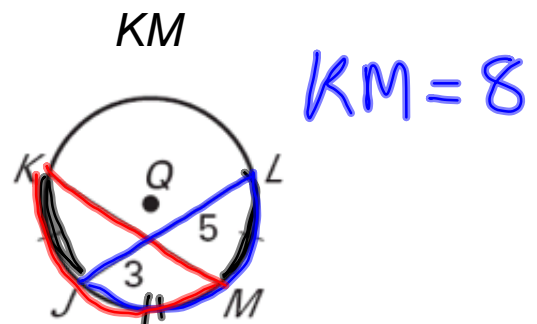
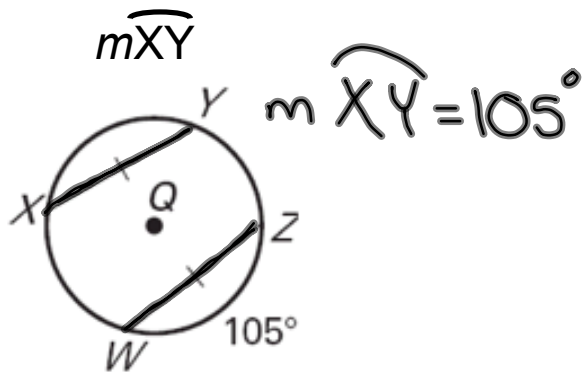
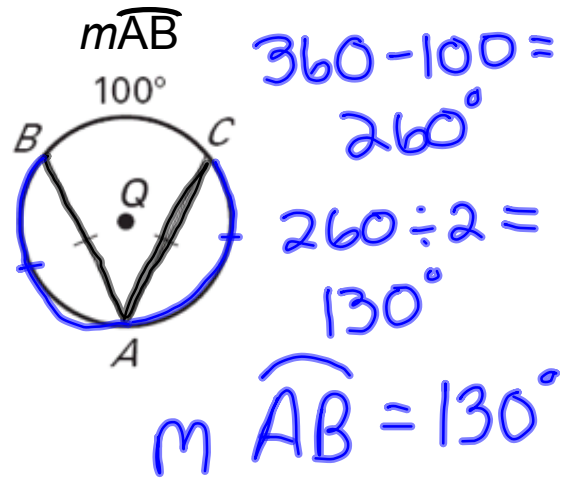
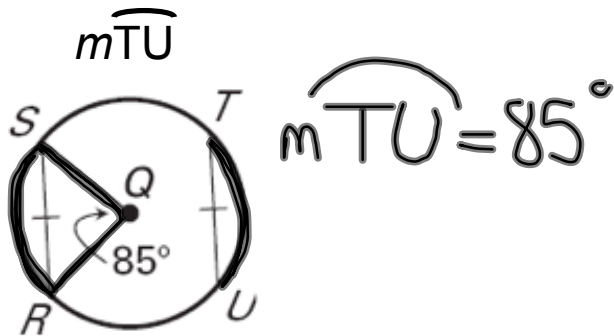
In the same circle, or in congruent circles, two chords are congruent if and only if they are equidistant from the center.

Proof: Ex. 33, p. 670



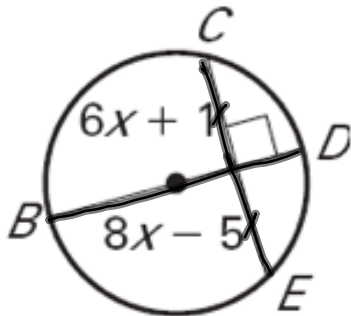
$\overline{AB} \cong \overline{CD}$ if and only if $EF = EG$.

Find Measures of Arcs and Chords

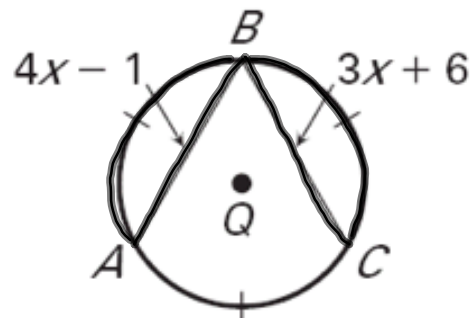


Find the Value of x

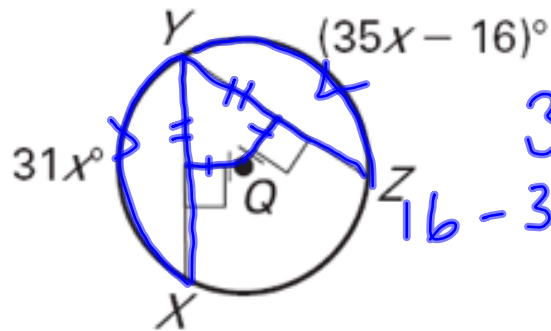
Find the value of x.



$$\begin{aligned}
 6x + 1 &= 8x - 5 \\
 -6x + 5 &-6x + 5 \\
 2x &= 6 \\
 \boxed{x = 3}
 \end{aligned}$$



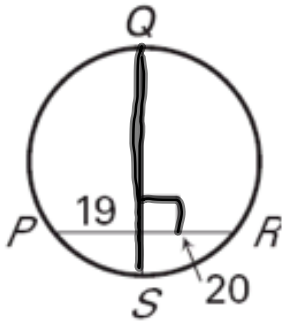
$$\begin{aligned}
 4x - 1 &= 3x + 6 \\
 -3x + 1 &-3x + 1 \\
 \boxed{x = 7}
 \end{aligned}$$



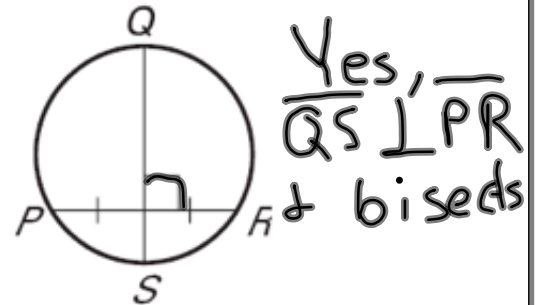
$$\begin{aligned}
 31x &= 35x - 16 \\
 16 - 31x &-31x + 16 \\
 4x &= 16 \\
 \boxed{x = 4}
 \end{aligned}$$

Identify the Diameter

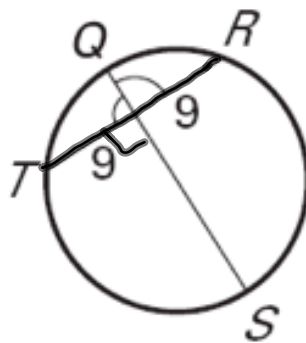
Tell whether \overline{PR} is the diameter of the circle. *Explain.*



No, \overline{QS} does not bisect \overline{PR} .



Yes, $\overline{QS} \perp \overline{PR}$ & bisects



Yes, $\overline{QS} \perp \overline{TR}$ & bisects

Homework Assignment

Worksheet 10.3B

