NOTES 10.3 – ARCS & CHORDS
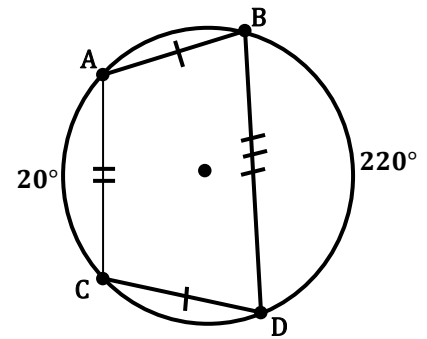
CHORD:

THEOREM: In a circle (or congruent circles), 2 minor arcs are congruent if and only if their corresponding chords are congruent.
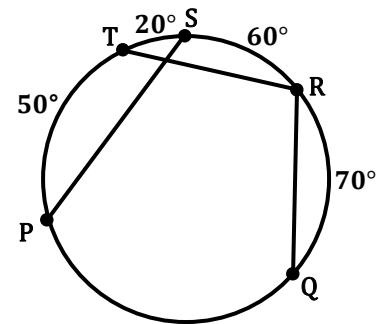
EXAMPLE 1: Use the figure to answer the questions below.

a) **Which two chords are congruent?**

_____

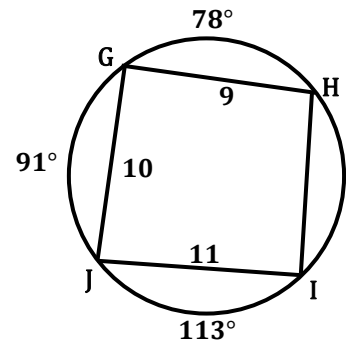b) **What are the measures of their**

   arcs? _____

EXAMPLE 2: If $PS = 12$ and $TR = 15$, then find QR.
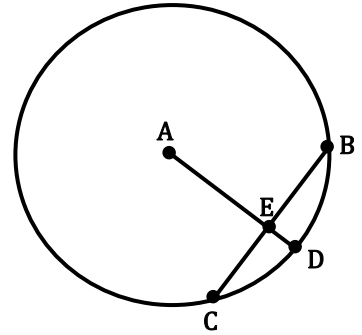

$QR =$ _____

EXAMPLE 3: Find HI.

$HI =$ _____

THEOREM: In a circle, if a diameter (or radius) is perpendicular to a
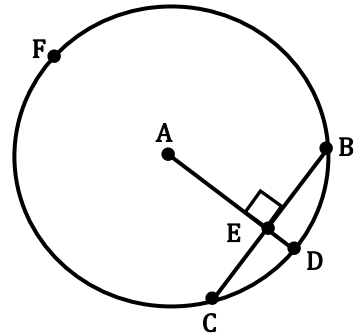chord, then it bisects the chord and its arc.

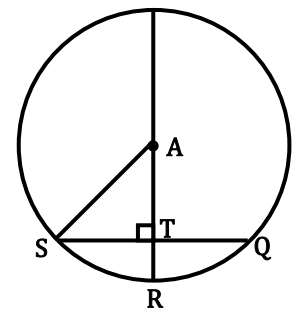**EXAMPLE 4:** $\overline{AD} \perp \overline{BC}$, $AE = 7.5$, and the radius is 8.5. **Find the following.**

a) ED = _____

b) AC = _____

c) AB = _____

d) EB = _____

e) EC = _____

f) BC = _____

EXAMPLE 5: If the measure of $\overparen{CFB} = 220°$, find the following.

a) $m\overparen{CB}$ = _____

b) $m\angle CAB$ = _____

c) $m\angle BAD$ = _____

d) $m\overparen{CD}$ = _____

EXAMPLE 6: In $circle\ A$, $SQ = 12$ and $AT = 8$. Find AR.

AR = _____

EXAMPLE 7: Using the diagram below, find the indicated values.

$x =$ _____

$y =$ _____

$m \overarc{AB} =$ _____
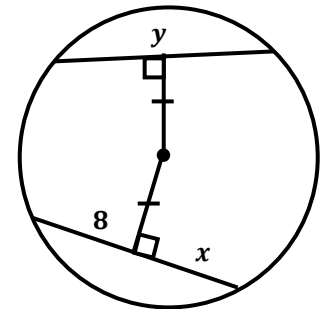
5   60°   y

A ____ x ____ B
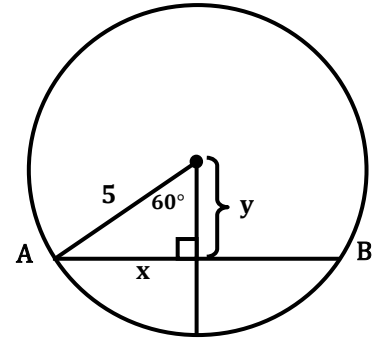
THEOREM: In a circle (or congruent circles), two chords are congruent if and only if they are equidistant from the center.

EXAMPLE 8: Find the values of 'x' and 'y'.

$x =$ _____

$y =$ _____

y

8   x

EXAMPLE 9: In $circle$ O, FL $= 3$, GO $= 5$, and OP $= 4$. Find HJ.

G
L
F
O
J
P
H

HJ $=$ _____