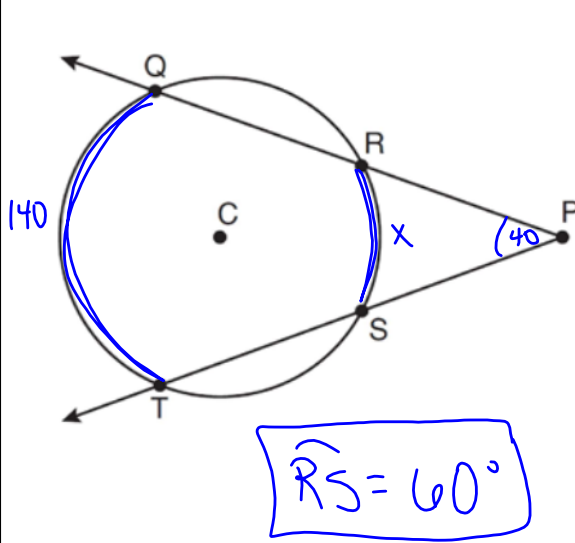


**DO NOW**

In the diagram below of circle  $C$ ,  $m\widehat{QT} = 140$ , and  $m\angle P = 40$ . What is  $m\widehat{RS}$ ?



$$m\angle P = \frac{1}{2} (\widehat{QT} - \widehat{RS})$$

$$2 \cdot 40 = \frac{1}{2} (140 - x)$$

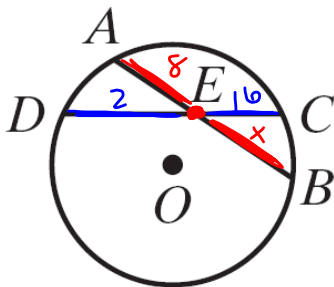
$$80 = 140 - x$$

$$\frac{-60}{-1} = \frac{-x}{-1}$$

$$60 = x$$

May 3-8:27 AM

Segments Formed by Two Intersecting Chords



$$(AE)(EB) = (CE)(ED)$$

"part" · "part" = "part" · "part"

**EX:** If  $CE = 16$ ,  $ED = 2$  and  $AE = 8$ , find  $EB$

$$8 \cdot x = 2 \cdot 16$$

$$8x = 32$$

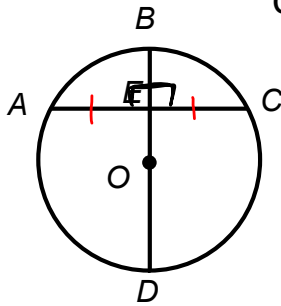
$$x = 4$$

$EB = 4$

Mar 23-10:08 AM

### Chords and Diameters

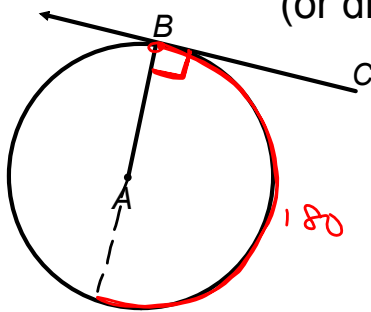
If a diameter is perpendicular to a chord, then the diameter bisects the chord



If  $\overline{AC} \perp \overline{BD}$ , then  $\overline{AE} \cong \overline{EC}$

### Tangents and Diameters

A tangent is ALWAYS perpendicular to the radius (or diameter) of a circle



tangent  $\overline{CB} \perp$  radius  $\overline{AB}$

Mar 18-9:57 AM

1) If  $\overline{MK} \perp \overline{JL}$  and  $MK = 8$ , and  $JN = 3$ , find  $MJ$ .

Diameter  $\perp$  chord  $\rightarrow$  diameter bisects the chord

$3^2 + 4^2 = x^2$   
 $\sqrt{25} = \sqrt{x^2}$   
 $5 = x$       **MJ = 5**

2) Given tangent  $\overline{PQ}$ , with  $PR = 12$  and  $QP = 8$ , find the length of  $QR$ , the radius of circle R.

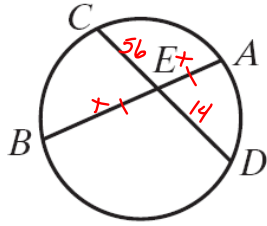
Tangent  $\perp$  to radius

$8^2 + x^2 = 12^2$   
 $64 + x^2 = 144$   
 $x^2 = \sqrt{80}$   
 $x = \sqrt{80}$   
 $\sqrt{16} \cdot \sqrt{5}$   
 **$4\sqrt{5}$**

$\begin{matrix} x & y \\ 0 & 4 \\ 1 & 1 \\ 2 & 4 \\ 3 & 9 \\ 4 & 16 \\ 5 & 25 \end{matrix}$   $\rightarrow$

Mar 18-9:59 AM

3) If  $CE = 56$ ,  $ED = 14$ , and  $AE = EB$ , find  $EB$ .



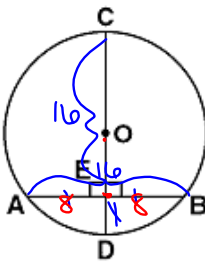
$$56 \cdot 14 = x \cdot x$$

$$\sqrt{784} = \sqrt{x^2}$$

$$28 = x$$

$EB = 28$

4) In circle  $O$ , diameter  $\overline{CD}$  is perpendicular to chord  $\overline{AB}$ .  
If  $AB = 16$  and  $CE = 16$ , find  $ED$ .



$\downarrow$   
 $\overline{CD}$  bisects  $\overline{AB}$

$$16 \cdot x = 8 \cdot 8$$

$$16x = 64$$

$$x = 4$$

$ED = 4$

Mar 24-10:14 AM