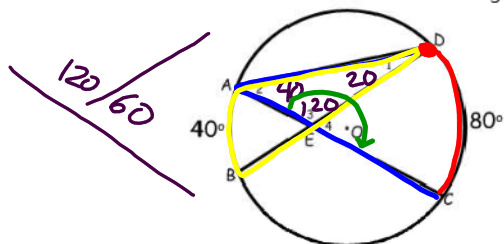


Geometry CC – Mr. Valentino  
 Unit 12 Day 5: Intersecting Chord Angles and Arc Relationships

Name: \_\_\_\_\_  
 Date: \_\_\_\_\_ Per: \_\_\_\_\_

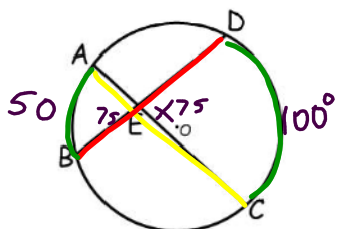
Aim: What are some chord/angle relationships?

Do Now: Find the measure of the following angles:



- <1 = 20
- <2 = 40
- <3 = 120
- <4 = 60

Angle Formed Inside of a Circle by Two Intersecting Chords



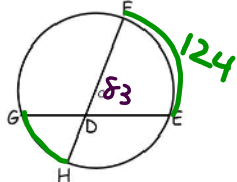
$$\angle DEC = \frac{1}{2}(\widehat{AB} + \widehat{DC})$$

1. If the  $m\widehat{AB} = 50^\circ$  and  $m\widehat{DC} = 100^\circ$ , what is the measure of  $\angle AEB$ ?

$$\angle AEB = \frac{1}{2}(50 + 100)$$

$$\angle AEB = \frac{1}{2}(150) = 75^\circ$$

2. If the measure of  $\angle FDE$  is  $83^\circ$  and the measure of  $\widehat{FE}$  is  $124^\circ$ , what is the measure of  $\widehat{GH}$ ?



$$\angle FDE = \frac{1}{2}(\widehat{FE} + \widehat{GH})$$

$$83 = \frac{1}{2}(124 + x)$$

$$166 = 124 + x$$

$$x = 42$$

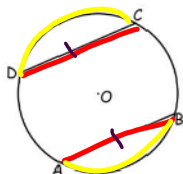
$$83 = 62 + \frac{1}{2}x$$

$$-62 \quad -62$$

$$21 = \frac{1}{2}x$$

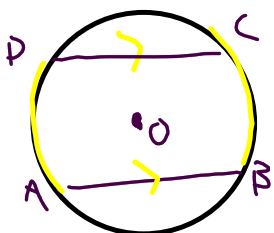
$$42 = x$$

★ In circle O, chords AB and CD are congruent. What can we say about  $\widehat{AB}$  and  $\widehat{DC}$ ?

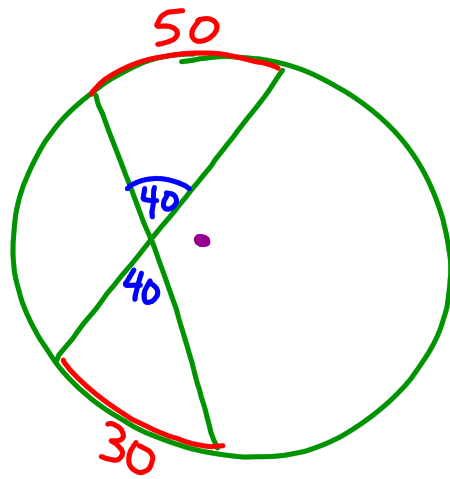


congruent chords have congruent arcs

If chords AB and CD are parallel, what can we say about  $\widehat{AD}$  and  $\widehat{CB}$ ?

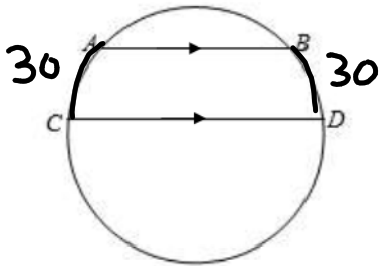


parallel chords intercept congruent arcs

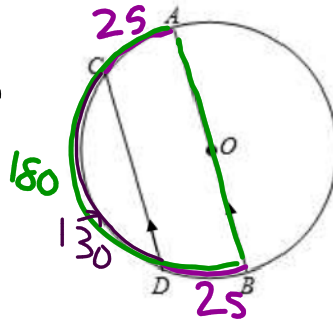


1

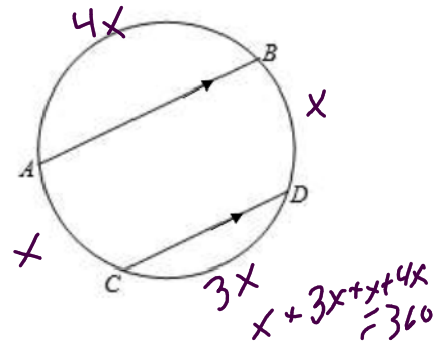
1a) If  $m\widehat{AC} = 30^\circ$ , what is  $m\widehat{BD}$ ?



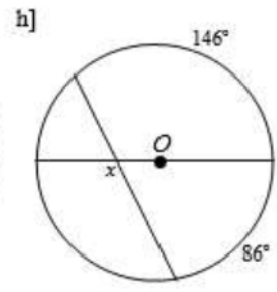
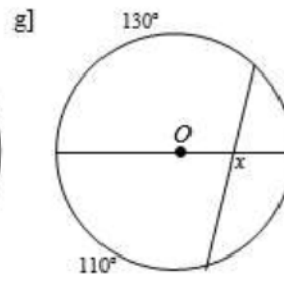
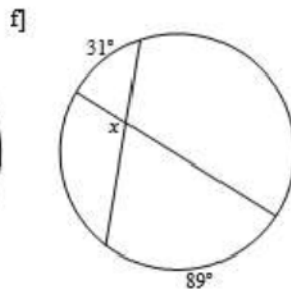
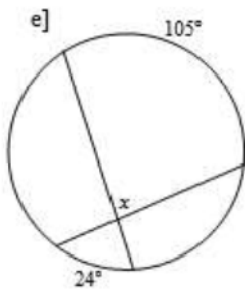
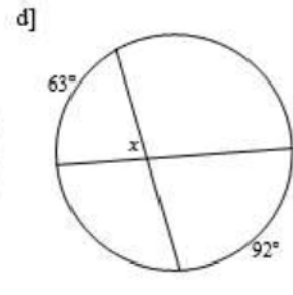
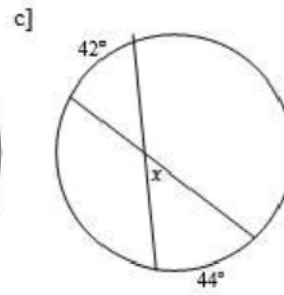
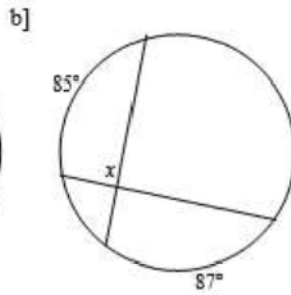
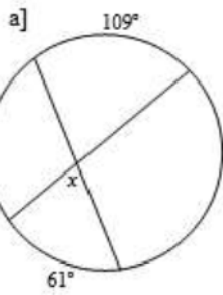
b) If  $m\widehat{AC} = 25^\circ$ , what is  $m\widehat{CD}$ ?

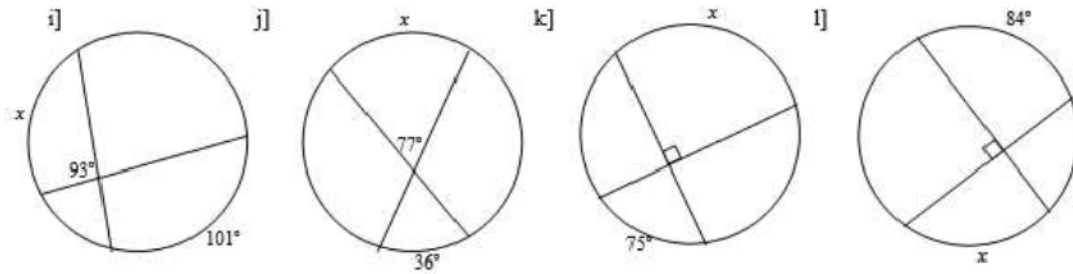


c)  $m\widehat{AC} : m\widehat{CD} : m\widehat{AB} = 1:3:4$   
Find all arc measures.



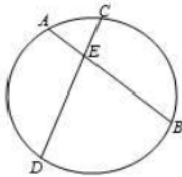
2. Find the value of x:



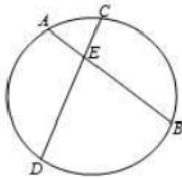


3) Chords  $\overline{AB}$  and  $\overline{CD}$  of the circle intersect at  $E$ .

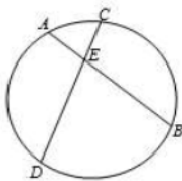
a) If  $m\widehat{CB} = 120^\circ$ , and  $m\widehat{AD} = 130^\circ$ , find  $m\angle AED$ .



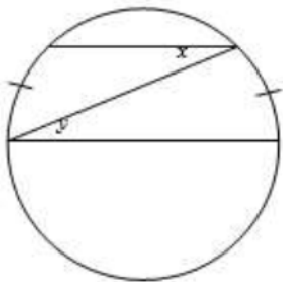
b) If  $m\widehat{AC} = 30^\circ$ , and  $m\angle AEC = 55^\circ$ , find  $m\widehat{BD}$ .



c) If  $m\angle AED = 80^\circ$ , and  $m\widehat{CB} : m\widehat{DA} = 3:5$ , find  $m\widehat{DA}$ .



4. Are angles  $x$  and  $y$  congruent? If so, how do you know?



5. Find the missing angle/arc indicated

