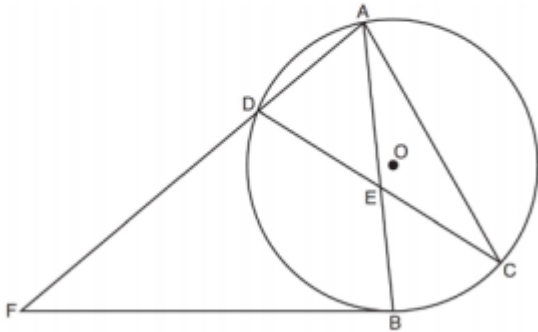




Aim: How can I use my circle strategies to solve for missing values in Super Circles?

1. Chords  $\overline{AB}$  and  $\overline{CD}$  intersect at  $E$  in circle  $O$ , as shown in the diagram below. Secant  $\overline{FDA}$  and tangent  $\overline{FB}$  are drawn to circle  $O$  from external point  $F$  and chord  $\overline{AC}$  is drawn. The  $m\widehat{DA} = 56$ ,  $m\widehat{DB} = 112$ , and the ratio of  $m\widehat{AC} : m\widehat{CB} = 3 : 1$ .



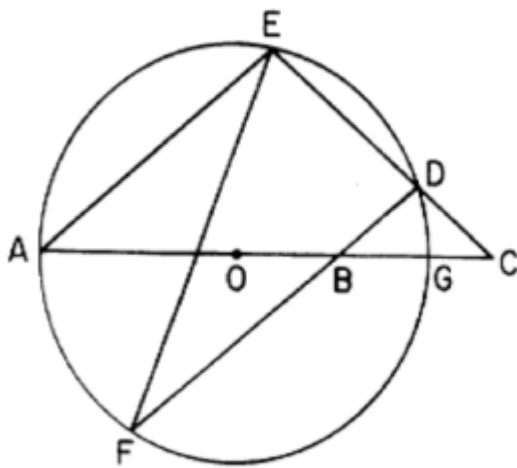
$\angle CEB =$

$\angle F =$

$\angle DAC =$

Determine  $m\angle CEB$ . Determine  $m\angle F$ . Determine  $m\angle DAC$ .

2. In the accompanying diagram of circle  $O$ ,  $\overline{AE}$  and  $\overline{FD}$  are chords,  $\overline{AOBG}$  is a diameter and is extended to  $C$ ,  $\overline{CDE}$  is a secant,  $\overline{AE} \parallel \overline{FD}$ , and  $m\widehat{AE} : m\widehat{ED} : m\widehat{DG} = 5 : 3 : 1$ .



$m\widehat{DG} =$

$\angle AEF =$

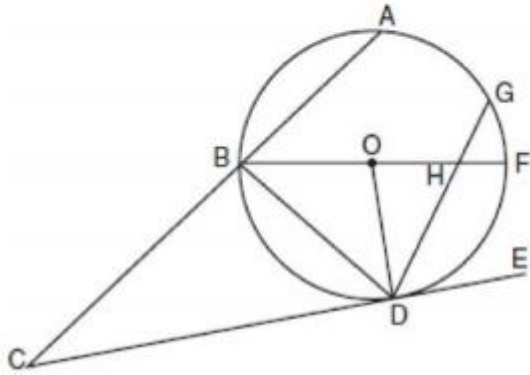
$\angle DBG =$

$\angle DCA =$

$\angle CDF =$

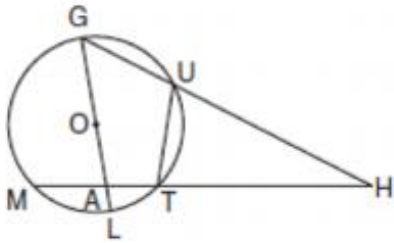
Find  $m\widehat{DG}$ ,  $m\angle AEF$ ,  $m\angle DBG$ ,  $m\angle DCA$ , and  $m\angle CDF$

3. In the accompanying diagram, circle  $O$  has radius  $\overline{OD}$ , diameter  $\overline{BOHF}$ , secant  $\overline{CBA}$ , and chords  $\overline{DHG}$  and  $\overline{BD}$ ;  $\overline{CE}$  is tangent to circle  $O$  at  $D$ ;  $m\widehat{DF} = 80$ ; and  $m\widehat{BA} : m\widehat{AG} : m\widehat{GF} = 3 : 2 : 1$ . Find  $m\widehat{GF}$ ,  $m\angle BHD$ ,  $m\angle BDG$ ,  $m\angle GDE$ ,  $m\angle C$ , and  $m\angle BOD$ .



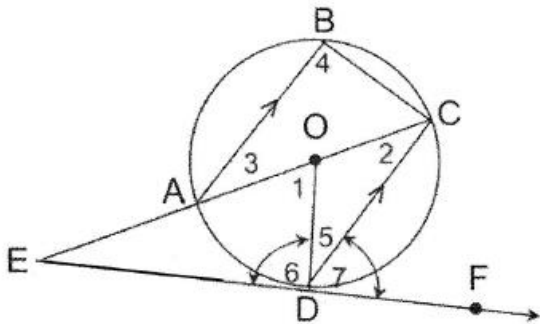
- $m\widehat{GF} =$   
 $\angle BHD =$   
 $\angle BDG =$   
 $\angle GDE =$   
 $\angle C =$   
 $\angle BOD =$

4. Given circle  $O$  with diameter  $\overline{GOAL}$ ; secants  $\overline{HUG}$  and  $\overline{HTAM}$  intersect at point  $H$ ;  $m\widehat{GM} : m\widehat{ML} : m\widehat{LT} = 7 : 3 : 2$ ; and chord  $\overline{GU} \cong$  chord  $\overline{UT}$ . Find the ratio of  $m\angle UGL$  to  $m\angle H$ .



- $\angle UGL =$   
 $\angle H =$   
 $\angle UGL : \angle H$  is \_\_\_\_\_

5. Given tangent  $\overline{EDF}$  at  $D$ , secant  $\overline{EAC}$  through center,  $\overline{AB} \parallel \overline{DC}$ , and  $m\angle E = 40^\circ$ .



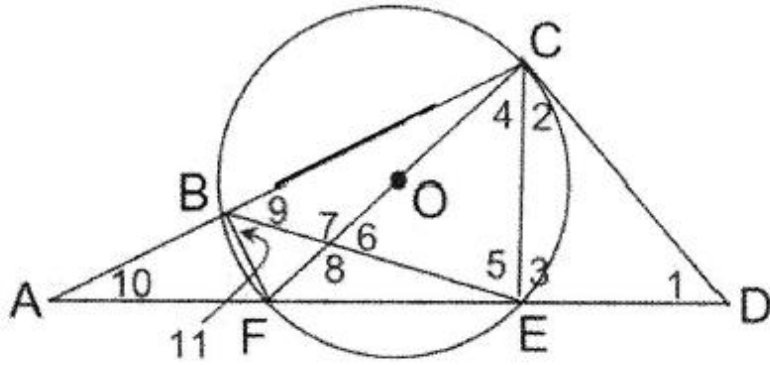
- $\angle 1 =$   
 $\angle 2 =$   
 $\angle 3 =$   
 $\angle 4 =$   
 $\angle 5 =$   
 $\angle 6 =$   
 $\angle 7 =$

EXTRA PRACTICE

6. Given tangent  $\overline{CD}$  at  $C$ .

$$m\widehat{BF} = x, m\widehat{FE} = 4x - 30,$$

$$m\widehat{EC} = 3x, m\widehat{CB} = 6x - 30.$$



$\sphericalangle 1 =$

$\sphericalangle 7 =$

$\sphericalangle 2 =$

$\sphericalangle 8 =$

$\sphericalangle 3 =$

$\sphericalangle 9 =$

$\sphericalangle 4 =$

$\sphericalangle 10 =$

$\sphericalangle 5 =$

$\sphericalangle 11 =$

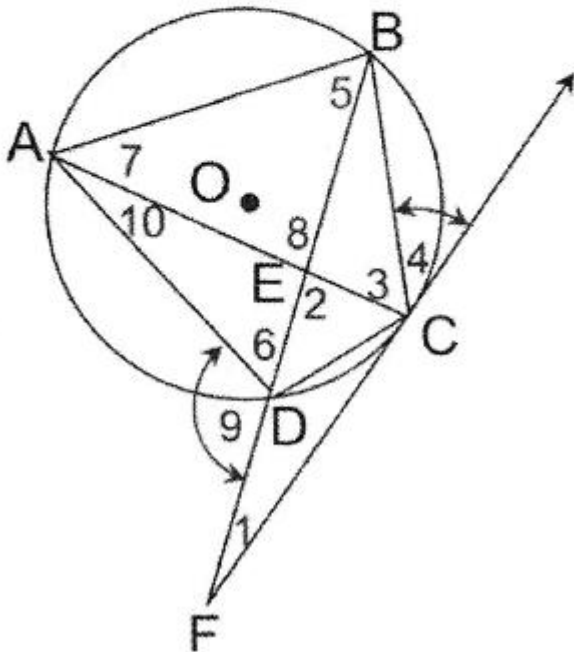
$\sphericalangle 6 =$

7. Given tangent  $\overline{FC}$  at  $C$ .

secant  $\overline{FEB}$ , chord  $\overline{AC}$ ,

isosceles  $\triangle DAB$  with  $\overline{AB} \cong \overline{AD}$ ,

$m\widehat{AB} = 120^\circ$  and  $m\angle BDC = 42^\circ$ .



$\sphericalangle 1 =$

$\sphericalangle 7 =$

$\sphericalangle 2 =$

$\sphericalangle 8 =$

$\sphericalangle 3 =$

$\sphericalangle 9 =$

$\sphericalangle 4 =$

$\sphericalangle 10 =$

$\sphericalangle 5 =$

$\sphericalangle 6 =$