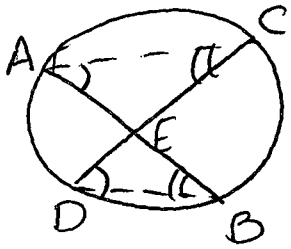
Chords

HINTS: 1) Must draw in lines
2) Prove $\triangle$s either $\sim$ or $\cong$

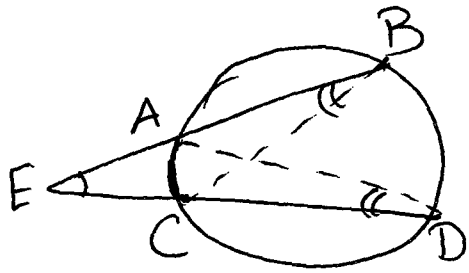


P: $EA \cdot EB = EC \cdot ED$

S	R
1. $\overline{AB}$ + $\overline{CD}$ intersect at E	1. Given
2. Draw $\overline{AC}$ + $\overline{BD}$	2. Through any pts. there is exactly 1 line
3. $\measuredangle A \cong \measuredangle D$, $\measuredangle C \cong \measuredangle B$	3. inscribed $\measuredangle$s that intercept the same arc are $\cong$
4. $\triangle AEC \sim \triangle DEB$	4. AA $\cong$ AA
5. $\frac{EA}{EC} = \frac{ED}{EB}$	5. Corresponding sides of $\sim\triangle$s are in proportion
6. $EA \cdot EB = EC \cdot ED$	6. In a proportion, the product of the means = the product of the extremes

- words
- algebra

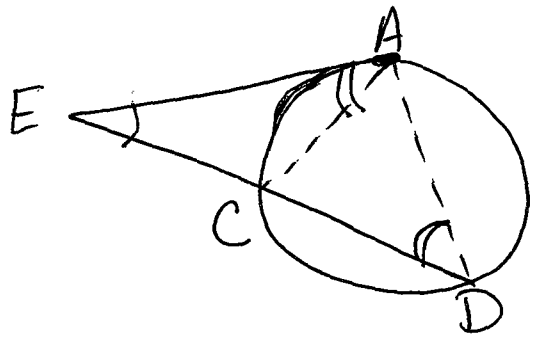
2 secs



P: $EA \cdot EB = EC \cdot ED$

S	R
1. secants $\overline{EB}$ + $\overline{ED}$	1. Given
2. Draw $\overline{AD}$ + $\overline{BC}$	2. Through any 2 pts. there is exactly 1 line
3. $\measuredangle E \cong \measuredangle E$	3. reflexive prop.
4. $\measuredangle B \cong \measuredangle D$	4. inscribed $\measuredangle$s that intercept the same arc are $\cong$
5. $\triangle EBC \sim \triangle EDA$	5 $AA \cong AA$
6. $\frac{EA}{EC} = \frac{ED}{EB}$	6. Corresponding sides of $\sim \triangle$s are in proportion
7. $EA \cdot EB = EC \cdot ED$	7. In a proportion, the product of the means = the product of the extremes.

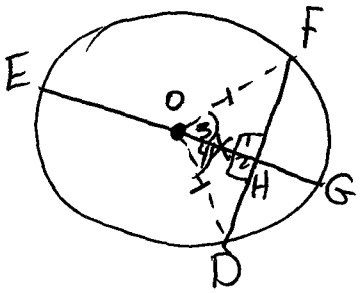
tan + sec



P: $EA^2 = EC \cdot ED$

S	R
1. tangent $\overline{EA}$ + secant $\overline{ECD}$	1. Given
2. Draw $\overline{AC}$ + $\overline{AD}$	2. Through any 2 pts. there is exactly 1 line
3. $\angle E \cong \angle E$	3. reflexive prop.
4. $\angle EAC \cong \angle D$	4. a tangent/chord $\angle$ + an inscribed $\angle$ that intercept the same arc are $\cong$
5. $\triangle EAC \sim \triangle EDA$	5. $AA \cong AA$
6. $\frac{EA}{EC} = \frac{ED}{EA}$	6. Corresponding sides of $\sim\triangle$s are in prop.
7. $EA^2 = EC \cdot ED$	7. In a prop., the product of the means = the product of the extremes

Diameter ⊥ to Chord



P: $\overline{HD} \cong \overline{HF}$
($\widehat{GD} \cong \widehat{GF}$)

S	R
1. diameter $\overline{EG}$ ⊥ to chord $\overline{FD}$	1. Given
1.5 → Draw radii $\overline{OF}$ + $\overline{OD}$	
2. ∡1 + ∡2 are right ∡s	1.3 2. ⊥ lines form rt. ∡s
3. ∡1 ≅ ∡2	3. all rt. ∡s are ≅
4. $\overline{OH} \cong \overline{OH}$	4. reflexive prop.
5. $\overline{FO} \cong \overline{DO}$	5. radii of the same circle are ≅
6. △FOH + △DOH are right △s	6. a △ w/ a rt. ∡ is a rt. △
7. △FOH ≅ △DOH	7. HL ≅ HL
8. $\overline{HD} \cong \overline{HF}$ ∡3 ≅ ∡4	8. CPCTC
(9. $\widehat{GD} \cong \widehat{GF}$	9. If 2 central ∡s are ≅, their intercepted arcs are ≅)