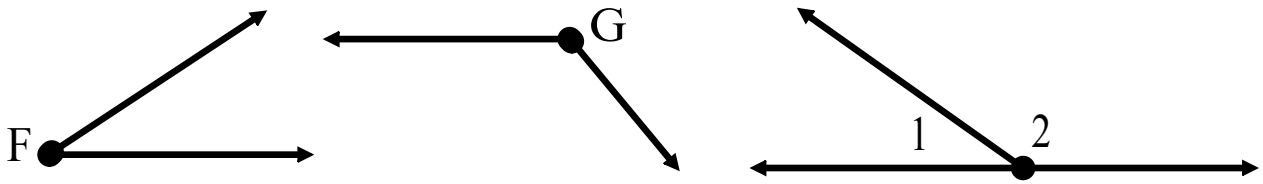
Theorem 5: If angles are supplementary to congruent angles, then they are congurent.

Given: $\angle F$ is supp. to $\angle G$; $\angle 1$ is supp. to $\angle 2$: $\angle G \cong \angle 2$

Prove: $\angle F \cong \angle 1$



1. $\angle F$ is supp. to $\angle G$; $\angle 1$ is supp. to $\angle 2$: $\angle G \cong \angle 2$	1. **Given**
2. m $\angle F$ + m $\angle G$ = 180 ° m $\angle 1$ + m $\angle 2$ = 180 °	2. The sum of the measures of supplementary angles is 180 °.
3. m $\angle F$ = 180 - m $\angle G$ m $\angle 1$ = 180 - m $\angle 2$	3. Subtraction
4. m $\angle 1$ = 180 - m $\angle G$	4. Substitution ($\angle F \cong \angle 1$)
5. $\angle F \cong \angle 1$	5. If the measures of two angles are equal, then the angles are congruent.