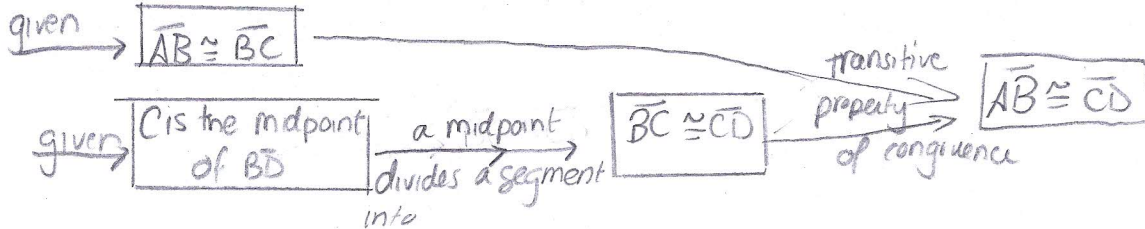
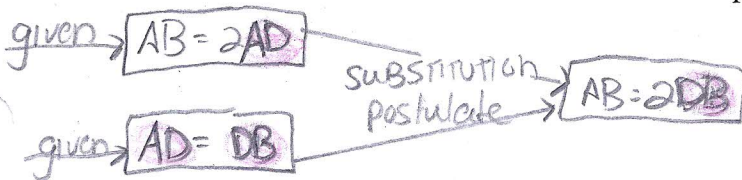
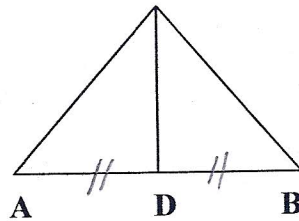


**Proving Statements in Geometry using Basic Postulates
 (Reflexive, Symmetric, Transitive, Addition, Subtraction, W=SOP)**

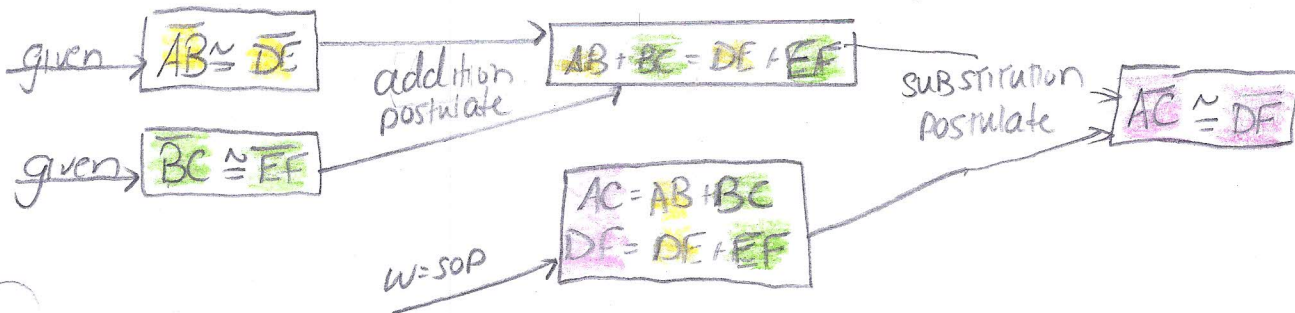
1. Given: $\overline{AB} \cong \overline{BC}$, C is the midpoint of BD
 Prove: $\overline{AB} \cong \overline{CD}$



2. Given: $AB = 2AD$
 $AD = DB$
 Prove: $AB = 2DB$



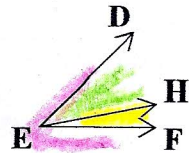
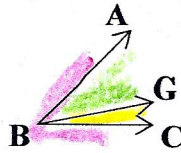
3. Given: \overline{ABC} and \overline{DEF} with $\overline{AB} \cong \overline{DE}$ and $\overline{BC} \cong \overline{EF}$
 Prove: $\overline{AC} \cong \overline{DF}$



Subtraction

4.

Given: $\angle ABC \cong \angle DEF$
 $\angle GBC \cong \angle HEF$
 Prove: $\angle ABG \cong \angle DEH$



given $\rightarrow \angle ABC \cong \angle DEF$ subtraction postulate $\rightarrow m\angle ABC - m\angle GBC = m\angle DEF - m\angle HEF$

given $\rightarrow \angle GBC \cong \angle HEF$ substitution postulate $\rightarrow \angle ABG \cong \angle DEH$

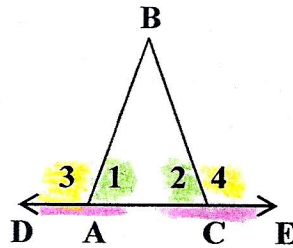
W=SOP \rightarrow

$m\angle ABG = m\angle ABC - m\angle GBC$
 $m\angle DEH = m\angle DEF - m\angle HEF$

addition

5.

Given: $m\angle 3 = m\angle 4$
 $m\angle 1 = m\angle 2$
 Prove: $m\angle DAC = m\angle ECA$



given $\rightarrow m\angle 3 = m\angle 4$ addition postulate $\rightarrow m\angle 3 + m\angle 1 = m\angle 4 + m\angle 2$

given $\rightarrow m\angle 1 = m\angle 2$ substitution postulate $\rightarrow m\angle DAC = m\angle ECA$

W=SOP \rightarrow

$m\angle 3 + m\angle 1 = m\angle DAC$
 $m\angle 4 + m\angle 2 = m\angle ECA$

