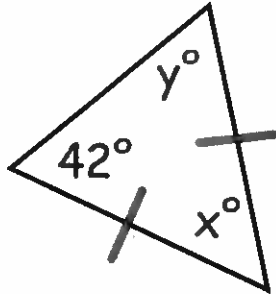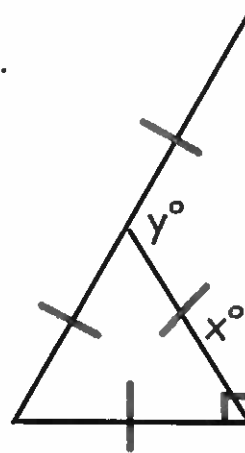# Geometry: Please clear your desk except for...

1. Assignment #33
2. SNB - Find the value of each variable.
   Justify all equations and answers.
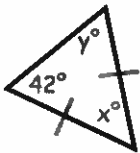
1.
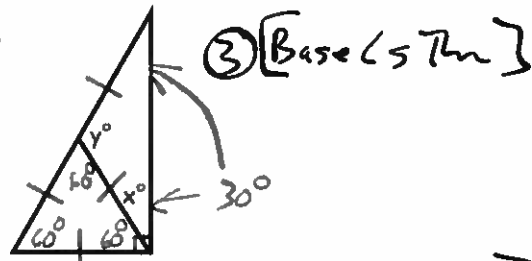

2.

1.

① $y = 42$ {Base ∠s Thm}

② $42 + 42 + x = 180$ {Δ Sum Thm}

$x = 96$

2.

③ {Base ∠s Thm}

← 30°

① {Equilateral → 3 60° ∠s}

② $60 + x = 90$ {Ext side ⊥ → Comp. ∠s}

$x = 30$

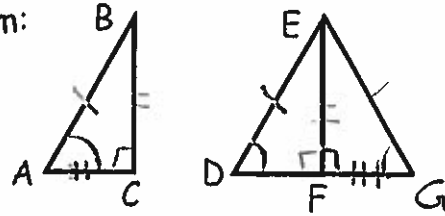④ $y + 30 + 30 = 180$ {Δ Sum Thm}

$y = 120$

Hypotenuse-Leg Congruence Theorem:
(HL $\cong$ Thrm)

Given: Rt Triangles ABC and DEF
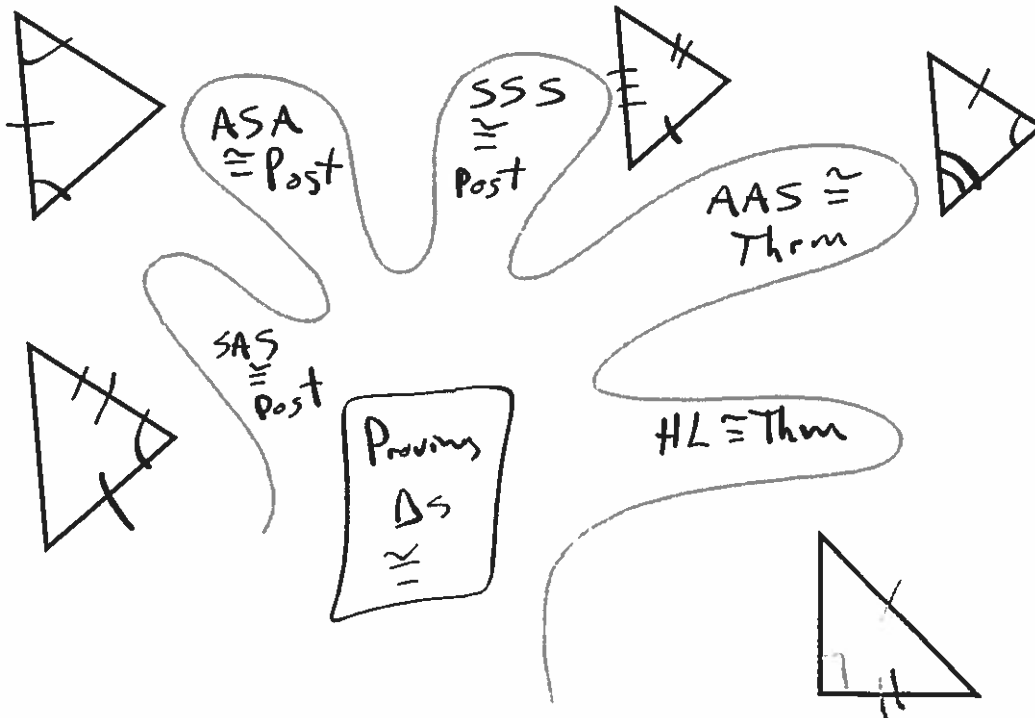$AB \cong DE, BC \cong EF$

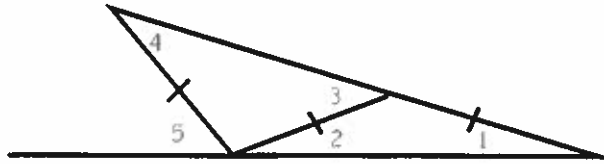Prove: $\triangle ABC \cong \triangle DEF$

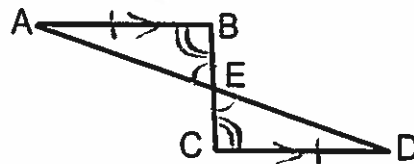|	Statements	Reasons
1	Rt Triangles ABC and DEF $\overline{AB} \cong \overline{DE}, \overline{BC} \cong \overline{EF}$	Given
2	Draw $\overline{FG} \perp \overline{EF}$ and $\overline{FG} \cong \overline{AC}$	$\perp$ Post and Ruler Post
3	$\angle C \cong \angle DFE \cong \angle GFE$	Rt. $\angle$s Thm
4	$\triangle ABC \cong \triangle GEF$	SAS $\cong$ Post
5	$\overline{AB} \cong \overline{GE}, \angle A \cong \angle G$	CPCTC
6	$\overline{DE} \cong \overline{GE}$	Trans. Prop of $\cong$
7	$\angle D \cong \angle G$	Base $\angle$s Thm
8	$\angle A \cong \angle D$	Trans. Prop of $\cong$
9	$\triangle ABC \cong \triangle DEF$	AAS $\cong$ Thm

What guarantees triangle congruence?

ASA $\cong$ Post

SSS $\cong$ Post

AAS $\cong$ Thrm

SAS $\cong$ Post

Proving $\triangle$s $\cong$

HL $\cong$ Thm

p. 138 WE #23

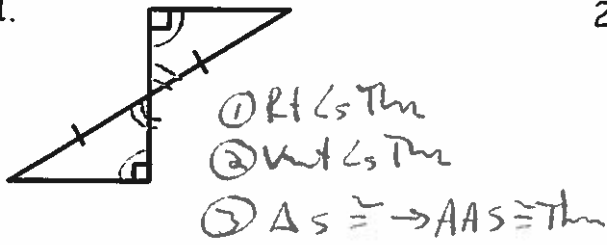| a. Statement $m\angle 1 - 20''$	Reason Given	b. Statement $m\angle 1 = x^\circ$
$m\angle 2 = 20^\circ$	Base $\angle s$ Thm	$m\angle 2 = x^\circ$
$m\angle 3 = 40^\circ$	Ext. $\angle s$ Δ Thm	$m\angle 3 = 2x^\circ$
$m\angle 4 = 40^\circ$	Base $\angle s$ Thm	$m\angle 4 = 2x^\circ$
$m\angle 5 = 60^\circ$	Ext. $\angle$ of Δ Thm	$m\angle 5 = 3x^\circ$

Given: $\overline{AB} \perp \overline{BC}, \overline{AB} // \overline{CD}, \overline{AB} \cong \overline{DC}$ → Not needed
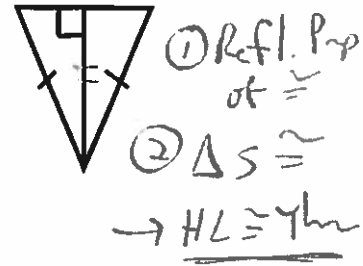Prove: $\overline{AE} \cong \overline{DE}$

	Statements	Reasons
1	$\overline{AB} \perp \overline{BC}, \overline{AB} // \overline{CD}, \overline{AB} \cong \overline{DC}$	Given
2	$\angle BEA \cong \angle CED$	Vert. $\angle s$ Thm
3	$\angle B \cong \angle C$	Alt. Int. $\angle s$ Thm
4	$\Delta ABE \cong \Delta DCE$	AAS $\cong$ Thm
5	$\overline{AE} \cong \overline{DE}$	CPCTC

3

p. 142 CE #1-4

1.

① Rt ∠s Thm
② Vert ∠s Thm
③ Δs ≅ → AAS ≅ Thm

2.

① Refl. Prop
    of ≅
② Δs ≅
→ HL ≅ Thm

3.

① Vert ∠s Thm
② Δs ≅
→ ASA ≅
    Post

4.

Not
enough
Info
{No AAA}
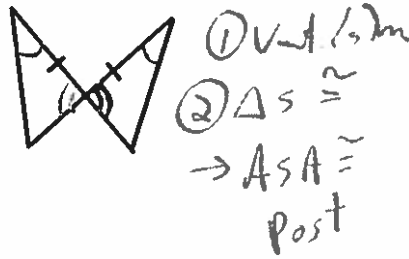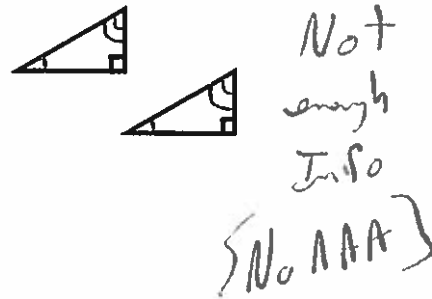
Assignment #34
Read and Take Notes p. 140-141

Part I: Draw diagrams and provide reasons.
        p. 138-139 #24-25, 27-29

Part II: Write 2-column Proofs for the following:
        p. 142-145 CE #11-13 and WE #1-4, 11-15