

Name: Kelly

Date: _____

UNIT 3

LESSON 4

AIM: HOW DO WE WRITE FORMAL PROOFS USING THE SSS AND SAS SHORTCUTS?

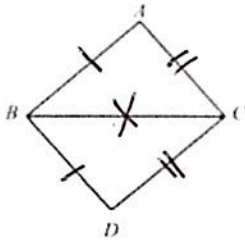
STEPS TO WRITING A FORMAL PROOF:

1. Mark up your diagram using the given information and visual freebies
2. Make a plan
 - Identify what method you are using (HL, SSS, SAS, ASA, AAS) with the information you are given
3. Create your Statement/Reason columns
 - #1 is always your "Given" information!
4. Be sure to write a statement and reason for all three pieces needed to prove triangles congruent
5. The last statement is your congruence statement (BE CAREFUL WITH CORRESPONDING PARTS) followed by your method (HL, SSS, SAS, ASA, AAS)

EXAMPLE #1:

Given: $\overline{AB} \cong \overline{BD}$ and $\overline{AC} \cong \overline{CD}$

Prove: $\triangle ABC \cong \triangle DCB$



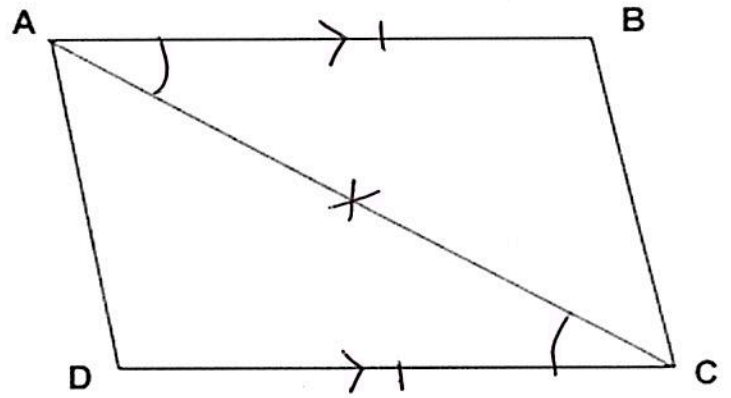
PLAN:

- HL Ⓢ √1.) $\overline{AB} \cong \overline{BD}$
 SSS Ⓢ √2.) $\overline{AC} \cong \overline{CD}$
 SAS
 ASA
 AAS Ⓢ 3.) $\overline{BC} \cong \overline{BC}$

STATEMENT	REASON
1. $\overline{AB} \cong \overline{BD}$ and $\overline{AC} \cong \overline{CD}$	1. Given
2. $\overline{BC} \cong \overline{BC}$	2. Reflexive Property
3. $\triangle ABC \cong \triangle DCB$	3. SSS \cong SSS

EXAMPLE #2

Given: $\overline{AB} \parallel \overline{CD}$ and $\overline{AB} \cong \overline{CD}$
 Prove: $\triangle ABC \cong \triangle CDA$



PLAN:

SSS

✓ (S) 1) $\overline{AB} \cong \overline{CD}$

SAS

✓ (A) 2) $\angle BAC \cong \angle DCA$

AAS

ASA

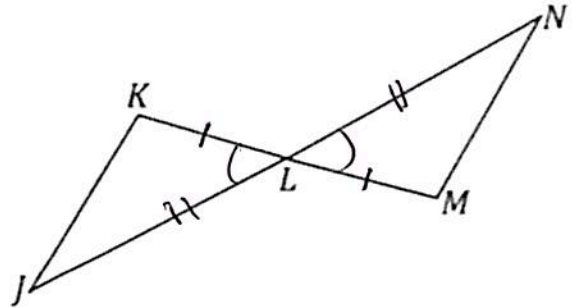
HL

✓ (S) 3) $\overline{AC} \cong \overline{AC}$

STATEMENT	REASON
1. $\overline{AB} \parallel \overline{CD}$ and $\overline{AB} \cong \overline{CD}$	1. Given
2. $\angle BAC \cong \angle DCA$	2. Alt. int. \angle 's are \cong
3. $\overline{AC} \cong \overline{AC}$	3. Reflexive Property
4. $\triangle ABC \cong \triangle CDA$	4. SAS \cong SAS

EXAMPLE #3

Given: \overline{JN} and \overline{KM} bisect each other at L
 Prove: $\triangle JKL \cong \triangle NML$



PLAN:

(S) $KL \cong LM$

(A) $\angle K LJ \cong \angle M LN$

(S) $JL \cong LN$

STATEMENT	REASON
1. \overline{JN} & \overline{KM} bisect each other at L	1. Given
2. $\overline{JL} \cong \overline{LN}$ and $\overline{KL} \cong \overline{LM}$	2. A bisector creates 2 \cong segs.
3. $\angle K LJ \cong \angle M LN$	3. Vertical Angles are Congruent
4. $\triangle JKL \cong \triangle NML$	4. SAS \cong SAS

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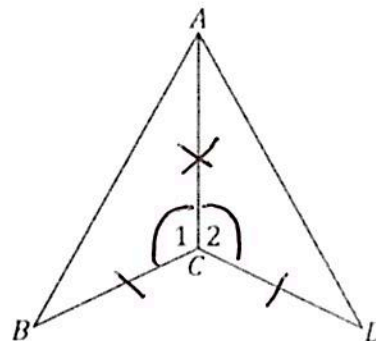
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HOMEWORK

1. Given: $\angle 1 \cong \angle 2$, $\overline{BC} \cong \overline{DC}$
 Prove: $\triangle ABC \cong \triangle ADC$

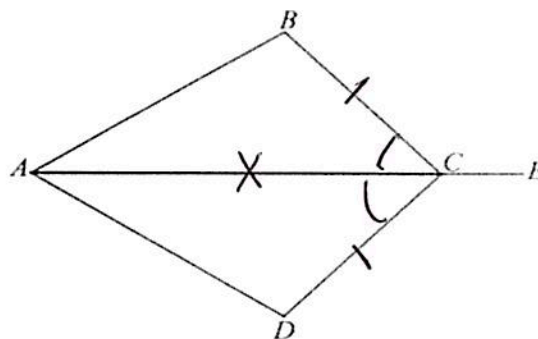
PLAN: (S) $\overline{BC} \cong \overline{DC}$
 (A) $\angle 1 \cong \angle 2$
 (S) $\overline{AC} \cong \overline{AC}$



STATEMENT	REASON
1. $\angle 1 \cong \angle 2$, $\overline{BC} \cong \overline{DC}$	1. Given
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Property
3. $\triangle ABC \cong \triangle ADC$	3. SAS \cong SAS

2. Given: \overline{AE} bisects $\angle BCD$ and $\overline{BC} \cong \overline{DC}$
 Prove: $\triangle CAB \cong \triangle CAD$

PLAN: (S) $\overline{BC} \cong \overline{DC}$
 (A) $\angle ACB \cong \angle ACD$
 (S) $\overline{AC} \cong \overline{AC}$



STATEMENT	REASON
1. \overline{AE} bisects $\angle BCD$ $\overline{BC} \cong \overline{DC}$	1. Given
2. $\angle ACB \cong \angle ACD$	2. A bisector creates two congruent angles
3. $\overline{AC} \cong \overline{AC}$	3. Reflexive Property
4. $\triangle CAB \cong \triangle CAD$	4. SAS \cong SAS

