

Name: _____

Date: _____

UNIT 3

LESSON 4

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

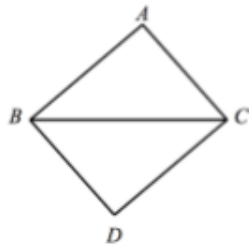
STEPS TO WRITING A FORMAL PROOF:

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:

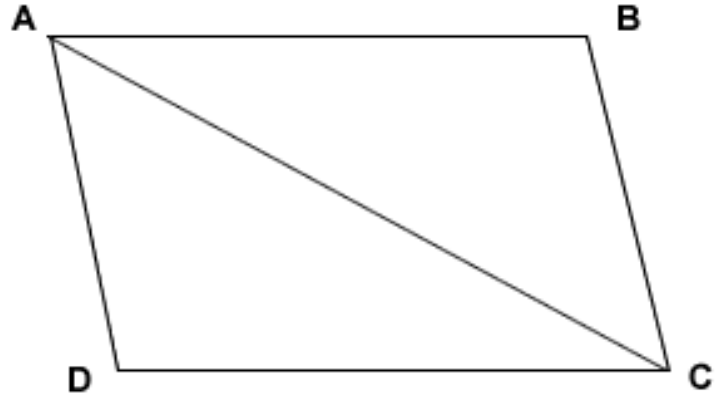
- HL 1.)
- SSS
- SAS 2.)
- ASA
- AAS 3.)

| STATEMENT | REASON |
|--|----------|
| 1. | 1. Given |
| 2. $\overline{BC} \cong \overline{BC}$ | 2. |
| 3. $\triangle ABC \cong \triangle DCB$ | 3. |

EXAMPLE #2

Given: $\overline{AB} \parallel \overline{CD}$ and $\overline{AB} \cong \overline{CD}$

Prove: $\triangle ABC \cong \triangle CDA$

**PLAN:**

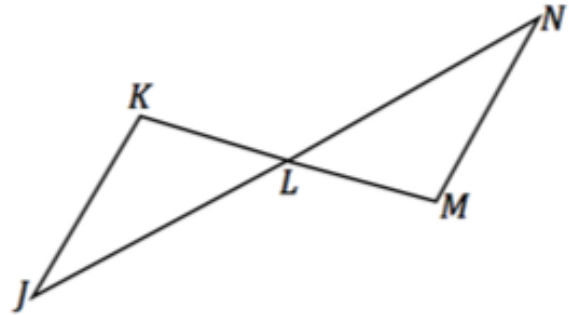
- SSS 1)
- SAS
- AAS 2)
- ASA
- HL 3)

| STATEMENT | REASON |
|--|-----------------------|
| 1. $\overline{AB} \parallel \overline{CD}$ and $\overline{AB} \cong \overline{CD}$ | 1. |
| 2. $\angle BAC \cong \angle DCA$ | 2. |
| 3. | 3. Reflexive Property |
| 4. | 4. |

EXAMPLE #3

Given: \overline{JN} and \overline{KM} bisect each other at L

Prove: $\triangle JKL \cong \triangle NML$

PLAN:

| STATEMENT | REASON |
|--|----------------------------------|
| 1. | 1. |
| 2. $\overline{JL} \cong \overline{LN}$ and $\overline{KL} \cong \overline{LM}$ | 2. |
| 3. | 3. Vertical Angles are Congruent |
| 4. | 4. |

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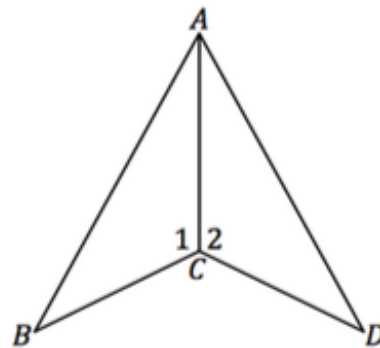
UNIT 3

LESSON 4

HOMEWORK

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

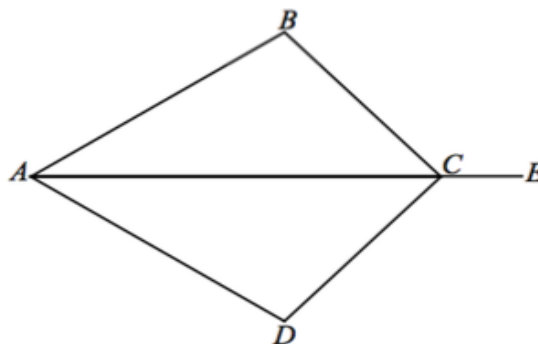
PLAN:



| STATEMENT | REASON |
|--|--------|
| 1. $\angle 1 \cong \angle 2$, $\overline{BC} \cong \overline{DC}$ | 1. |
| 2. $\overline{AC} \cong \overline{AC}$ | 2. |
| 3. $\triangle ABC \cong \triangle ADC$ | 3. |

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

PLAN:



| STATEMENT | REASON |
|-----------|--|
| 1. | 1. Given |
| 2. | 2. A bisector creates two congruent angles |
| 3. | 3. Reflexive Property |
| 4. | 4. $SAS \cong SAS$ |