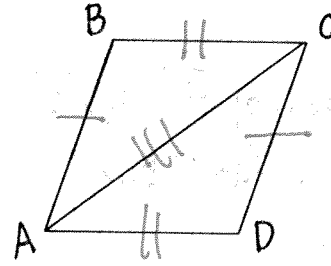


# Proofs on Proving Triangles Congruent

Name \_\_\_\_\_  
Date \_\_\_\_\_ Block \_\_\_\_\_

For each problem, mark the picture, state why the triangles are congruent, and do the 2-column proof.

1. Given:  $\overline{AB} \cong \overline{CD}, \overline{BC} \cong \overline{AD}$   
Prove:  $\triangle ABC \cong \triangle CDA$

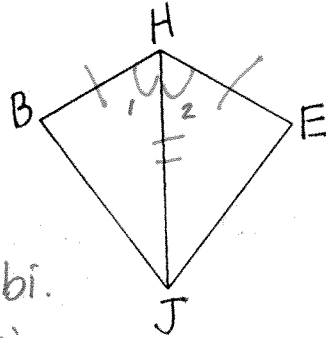


1. Given
2. Reflexive
3. SSS

SSS

1.  $\overline{AB} \cong \overline{CD}, \overline{BC} \cong \overline{AD}$
2.  $\overline{AC} \cong \overline{AC}$
3.  $\triangle ABC \cong \triangle CDA$

2. Given:  $\overline{BH} \cong \overline{EH}, \overline{JH}$  bisects  $\angle BHE$   
Prove:  $\triangle BHJ \cong \triangle EHJ$

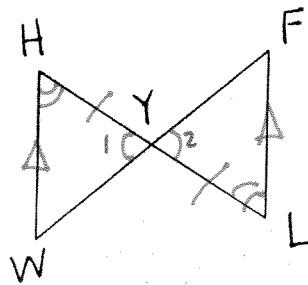


1. Given
2. Def of bi.
3. Reflexive
4. SAS

SAS

1.  $\overline{BH} \cong \overline{EH}, \overline{JH}$  bi.  $\angle BHE$
2.  $\angle 1 \cong \angle 2$  ( $\angle BHJ \cong \angle EHJ$ )
3.  $\overline{HJ} \cong \overline{HJ}$
4.  $\triangle BHJ \cong \triangle EHJ$

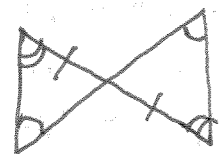
3. Given:  $\overline{HY} \cong \overline{LY}, \overline{WH} \parallel \overline{LF}$   
Prove:  $\triangle WHY \cong \triangle FLY$



1. Given
2. If  $\parallel$  lines, alt. int.  $\angle$ s  $R \cong$
3. Vert.  $\angle$ s  $R \cong$
4. ASA

ASA

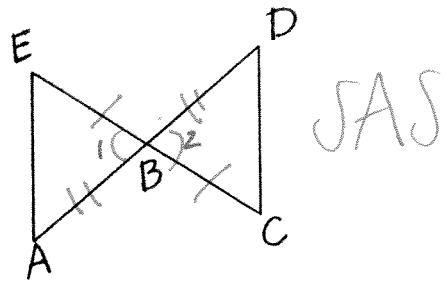
1.  $\overline{HY} \cong \overline{LY}, \overline{WH} \parallel \overline{LF}$
2.  $\angle H \cong \angle L$  (or  $\angle W \cong \angle F$ )
3.  $\angle 1 \cong \angle 2$
4.  $\triangle WHY \cong \triangle FLY$



OR  
AAS

omit #3 & have both statements in #2

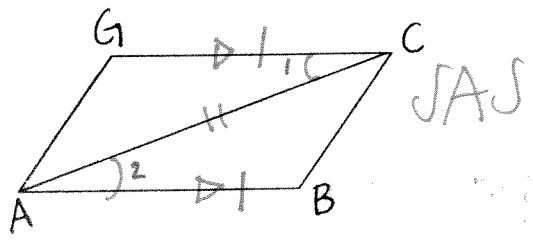
4. Given: B is the midpoint of  $\overline{EC}$   
 B is the midpoint of  $\overline{AD}$   
 Prove:  $\triangle EBA \cong \triangle DBC$



1. B is the mdpt. of  $\overline{EC}$  &  $\overline{AD}$
2.  $\overline{EB} \cong \overline{BC}$ ,  $\overline{AB} \cong \overline{BD}$
3.  $\angle 1 \cong \angle 2$
4.  $\triangle EBA \cong \triangle DBC$

1. Given
2. Def. mdpt.
3. vert.  $\angle$ s  $R \cong$
4. SAS

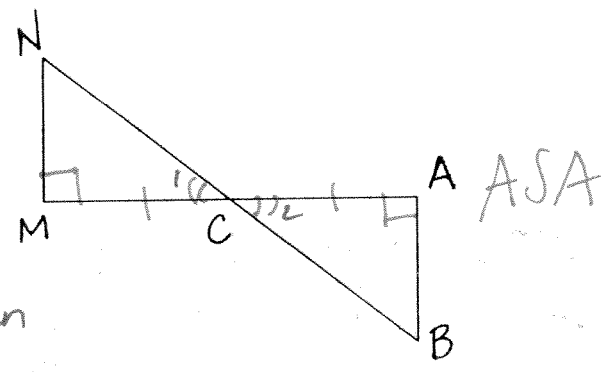
5. Given:  $\overline{AB} \parallel \overline{GC}$ ,  $\overline{GC} \cong \overline{AB}$   
 Prove:  $\angle G \cong \angle B$



1.  $\overline{AB} \parallel \overline{GC}$ ,  $\overline{GC} \cong \overline{AB}$
2.  $\angle 1 \cong \angle 2$
3.  $\overline{CA} \cong \overline{CA}$
4.  $\triangle GCA \cong \triangle BAC$
5.  $\angle G \cong \angle B$

1. Given
2. If  $\parallel$  lines, alt. int  $\angle$ s  $R \cong$ .
3. Reflexive
4. SAS
5. CPCTC (or def  $\cong \Delta$ s)

6. Given:  $\overline{NM} \perp \overline{MA}$ ,  $\overline{MA} \perp \overline{AB}$   
 C is the midpoint of  $\overline{MA}$   
 Prove:  $\overline{NM} \cong \overline{BA}$



1.  $\overline{NM} \perp \overline{MA}$ ,  $\overline{MA} \perp \overline{AB}$   
 C is the mdpt. of  $\overline{MA}$
2.  $\angle M$  &  $\angle A$  are rt.  $\angle$ s
3.  $\angle M \cong \angle A$
4.  $\overline{MC} \cong \overline{CA}$
5.  $\angle 1 \cong \angle 2$
6.  $\triangle NMC \cong \triangle BAC$
7.  $\overline{NM} \cong \overline{BA}$

1. Given
2. Def.  $\perp$  lines
3. All rt.  $\angle$ s  $R \cong$
4. Def. mdpt.
5. vert.  $\angle$ s  $R \cong$
6. ASA
7. CPCTC (or def  $\cong \Delta$ s)