

Objective

After studying this section, you will be able to

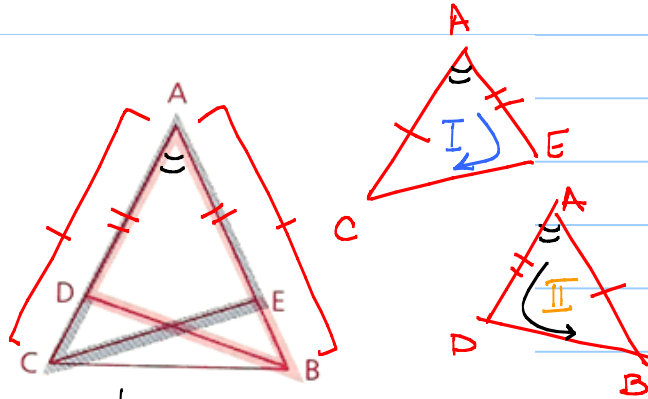
- Use overlapping triangles in proofs

$\cong \Delta$ POSTULATES: SAS, ASA, SSS

Problem 1

Given: $\overline{AC} \cong \overline{AB}$,
 $\overline{AE} \cong \overline{AD}$

Conclusion: $\overline{CE} \cong \overline{BD}$



SSS
SAS
ASA

Proof

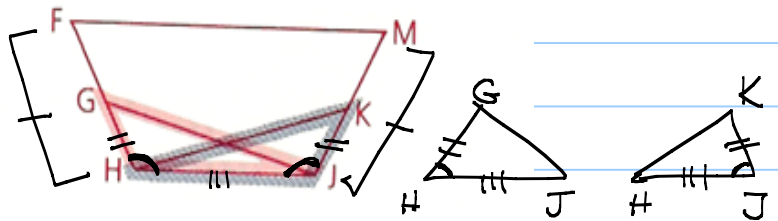
Statements	Reasons	S	R
1 $\overline{AC} \cong \overline{AB}$	1	(S) 1. $\overline{AC} \cong \overline{AB}$	1. Given
2 $\overline{AE} \cong \overline{AD}$	2	(A) 2. $\angle A \cong \angle A$	2. Reflexive
3 $\angle A \cong \angle A$	3	(S) 3. $\overline{AE} \cong \overline{AD}$	3. Given
4 $\triangle ADB \cong \triangle AEC$	4	4. $\triangle AEC \cong \triangle ADB$	4. SAS (1 2 3)
5 $\overline{CE} \cong \overline{BD}$	5	5. $\overline{CE} \cong \overline{BD}$	5. CPCTC (4)

Rewrite

Problem 2

Given: $\overline{FH} \cong \overline{MJ}$;
G is the midpt. of \overline{FH} .
K is the midpt. of \overline{MJ} .
 $\angle GHJ \cong \angle KJH$

Prove: $\overline{GJ} \cong \overline{HK}$



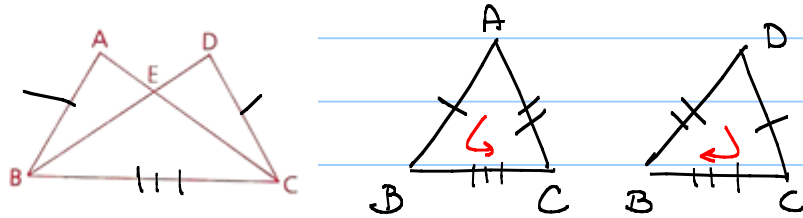
Proof

Statements	Reasons
1 $\overline{FH} \cong \overline{MJ}$	1 GIVEN
2 G is the midpt. of \overline{FH} .	2 GIVEN
3 K is the midpt. of \overline{MJ} .	3 GIVEN
(S) 4 $\overline{GH} \cong \overline{KJ}$	4 \div (1 2 3)
(A) 5 $\angle GHJ \cong \angle KJH$	5 GIVEN
(S) 6 $\overline{HJ} \cong \overline{HJ}$	6 REFLEXIVE Prop.
7 $\triangle GHJ \cong \triangle KJH$	7 SAS (4 5 6)
8 $\overline{GJ} \cong \overline{HK}$	8 CPCTC (7)

Problem Set A

1 Given: $\overline{AB} \cong \overline{DC}$,
 $\overline{AC} \cong \overline{DB}$

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



S

R

S 1. $\overline{AB} \cong \overline{DC}$

1. GIVEN

S 2. $\overline{AC} \cong \overline{DB}$

2. GIVEN

S 3. $\overline{BC} \cong \overline{CB}$

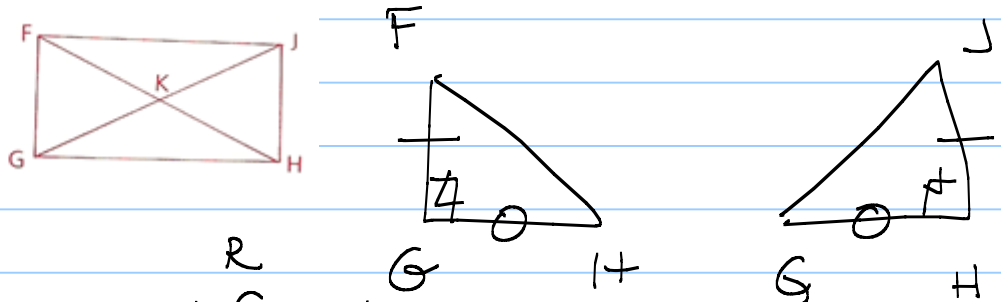
3. REFLEXIVE

4. $\triangle ABC \cong \triangle DCB$

4. SSS (123)

2 Given: $\angle FGH$ is a right \angle .
 $\angle JHG$ is a right \angle .
 $\overline{FG} \cong \overline{JH}$

Prove: $\triangle FGH \cong \triangle JHG$



S

R

S 1. $\overline{FG} \cong \overline{JH}$

1. GIVEN

2. $\angle FGH$ & $\angle JHG$ are right \angle s

2. GIVEN

S 3. $\angle FGH \cong \angle JHG$

3. right \angle s \Rightarrow \cong \angle s (2)

S 4. $\overline{GH} \cong \overline{HG}$

4. Ref

S $\triangle FGH \cong \triangle JHG$

5. SAS (134)

