

Important Definitions:

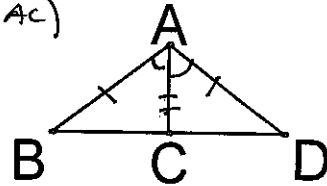
“Bisects”: divide into two equal parts.

“Midpoint”: A point on a line segment that divides it into two equal parts

Problem #1

Given:  $\overline{AC}$  bisects  $\angle BAD \rightarrow (\angle BAC \cong \angle DAC)$   
 $\overline{AB} \cong \overline{AD}$

Prove:  $\triangle ABC \cong \triangle ADC$

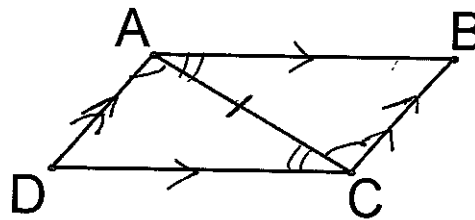


Method of  
Choice:  
SAS

Statements	Reasons
$\overline{AC}$ bisects $\angle BAD$	given
$\overline{AB} \cong \overline{AD}$	<del>reflexive</del> Given
$\overline{AC} \cong \overline{AC}$	Reflexive
$\angle BAC \cong \angle DAC$	Defn. of bisect
$\triangle ABC \cong \triangle ADC$	SAS

Problem #2

Given:  $\overline{AB} \parallel \overline{DC}$   
 $\overline{AD} \parallel \overline{BC}$   
 Prove:  $\triangle ABC \cong \triangle CDA$

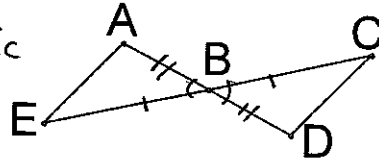


Method of  
 Choice:  
 ASA

Statements	Reasons
$\overline{AB} \parallel \overline{DC}$	Given
$\overline{AD} \parallel \overline{BC}$	Given
$\angle DAC \cong \angle BCA$	Alt Int Angles
$\angle CAB \cong \angle ACD$	Alt Int Angles
$\overline{AC} \cong \overline{AC}$	Reflexive
$\triangle ABC \cong \triangle CDA$	ASA

Problem #3

Given:  $\overline{AD}$  bisects  $\overline{EC} \rightarrow \overline{EB} \cong \overline{BC}$   
 $\overline{EC}$  bisects  $\overline{AD} \rightarrow \overline{AB} \cong \overline{BD}$   
 Prove:  $\triangle ABE \cong \triangle DBC$



Method of  
 Choice:  
 SAS

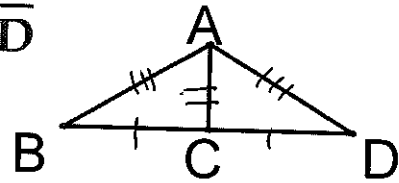
Statements	Reasons
$\overline{AD}$ bisects $\overline{EC}$	Given
$\overline{EC}$ bisects $\overline{AD}$	Given
$\overline{EB} \cong \overline{BC}$	Definition of Bisect
$\overline{AB} \cong \overline{BD}$	Definition of Bisect
$\angle ABE \cong \angle CBD$	Vertical Angles
$\triangle ABE \cong \triangle DBC$	SAS

Problem #4

Given: C is the midpoint of  $\overline{BD}$

$$\overline{AB} \cong \overline{AD}$$

Prove:  $\triangle ABC \cong \triangle ADC$



Method of  
Choice:

SSS

Statements	Reasons
C is the midpoint of $\overline{BD}$	Given
$\overline{AB} \cong \overline{AD}$	Given
$\overline{BC} \cong \overline{CD}$	Definition of Midpoint
$\overline{AC} \cong \overline{AC}$	Reflexive Property
$\triangle ABC \cong \triangle ADC$	SSS