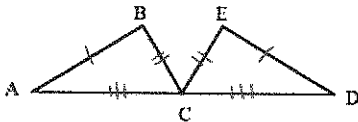


Independent Practice

Given: $\overline{AB} \cong \overline{DE}$, $\overline{BC} \cong \overline{EC}$,
C is the midpoint of \overline{AD}

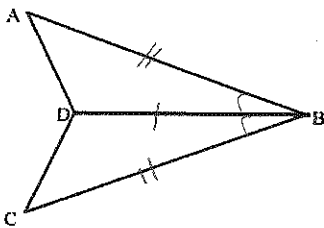
Prove: $\angle A \cong \angle D$



statement	Reason
① $\overline{AB} \cong \overline{DE}$	① given
② $\overline{BC} \cong \overline{EC}$	② given
③ C is the midpoint of \overline{AD}	③ given
④ $\overline{AC} \cong \overline{CD}$	④ A midpoint divides a line into 2 \cong segments
⑤ $\triangle ABC \cong \triangle DEC$	⑤ SSS \cong
⑥ $\angle A \cong \angle D$	⑥ CPCTC

Given: \overline{DB} bisects $\angle ABC$
 $\overline{AB} \cong \overline{CB}$

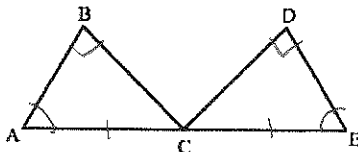
Prove: $\angle A \cong \angle C$



statement	Reason
① \overline{DB} bisects $\angle ABC$	① given
② $\overline{AB} \cong \overline{CB}$	② given
③ $\overline{BD} \cong \overline{BD}$	③ Reflexive property
④ $\angle ABD \cong \angle CBD$	④ angle bisectors divide a side length into 2 \cong parts
⑤ $\triangle ABD \cong \triangle CBD$	⑤ SAS \cong
⑥ $\angle A \cong \angle C$	⑥ CPCTC

Given: C bisects \overline{AE}
 $\angle B$ and $\angle D$ are right angles
 $\angle A \cong \angle E$

Prove: $\overline{BC} \cong \overline{DC}$



statement	Reason
① C bisects \overline{AE}	① given
② $\angle B$ and $\angle D$ are right \angle 's	② given
③ $\angle A \cong \angle E$	③ given
④ $\angle B \cong \angle D$	④ All right \angle 's are \cong
⑤ $\overline{AC} \cong \overline{CE}$	⑤ A segment bisector divides a line segment into 2 \cong parts
⑥ $\triangle ABC \cong \triangle DEC$	⑥ AAS \cong
⑦ $\overline{BC} \cong \overline{DC}$	⑦ CPCTC

Given: \overline{YW} bisects \overline{XZ}
 $\overline{XY} = \overline{YZ}$

Prove: \overline{YW} bisects $\angle Y$

statement	reason
① \overline{YW} bisects \overline{XZ}	① given
② $\overline{XY} = \overline{YZ}$	② given
③ $\overline{YW} \cong \overline{YW}$	③ Reflexive property
④ $\overline{XW} \cong \overline{WZ}$	④ Segment bisector divides a line into 2 \cong parts
⑤ $\triangle XYW \cong \triangle ZYW$	⑤ SSS \cong
⑥ $\angle XYW \cong \angle ZYW$	⑥ CPCTC
⑦ \overline{YW} bisects $\angle Y$	⑦ def. of angle bisector

Given: ~~AD bisects BE~~ $\angle A \cong \angle E$
 \overline{C} bisects \overline{BD}

Prove: C is the midpoint of \overline{AE}

statement	reason
① \overline{C} bisects \overline{BD}	① given
② $\angle A \cong \angle E$	② given
③ $\angle ACB \cong \angle DCE$	③ vertical \angle s are \cong
④ $\overline{CD} \cong \overline{CB}$	④ A segment bisector divides a line into 2 \cong segments
⑤ $\triangle ABC \cong \triangle EDC$	⑤ AAS \cong
⑥ $\overline{AC} \cong \overline{CE}$	⑥ given
⑦ C is the midpoint of \overline{AE}	⑦ def. of midpoint

Given: \overline{AD} bisects $\angle BAC$
 $\overline{AD} \perp \overline{BC}$

Prove: \overline{AD} is the median of triangle ABC

Prove: $BD \cong DC$