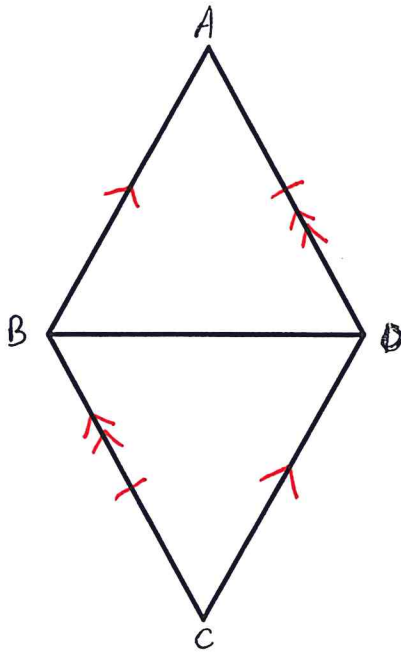


Geometric Proofs
Emphasis on Congruence by Angle – Angle – Side

Prove each of the following using Angle – Angle – Side:

1. Given: $\overline{AB} \parallel \overline{CD}$
 $\overline{DA} \parallel \overline{BC}$
 $\overline{AD} \cong \overline{CB}$

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

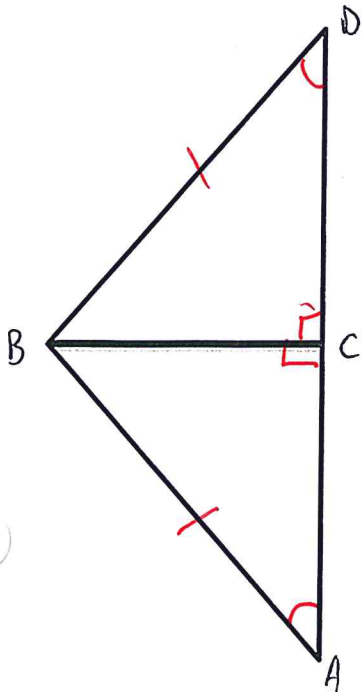


Statements	Reasons
① $\overline{AB} \parallel \overline{CD}; \overline{DA} \parallel \overline{BC};$ $\overline{AD} \cong \overline{CB}$	① Given
② $\angle ABD \cong \angle CDB$ $\angle ADB \cong \angle CBD$	② Alt. Int. Angles.
③ $\triangle ABC \cong \triangle DCB$	③ AAS.

2. Given: $\overline{BC} \perp \overline{AD}$

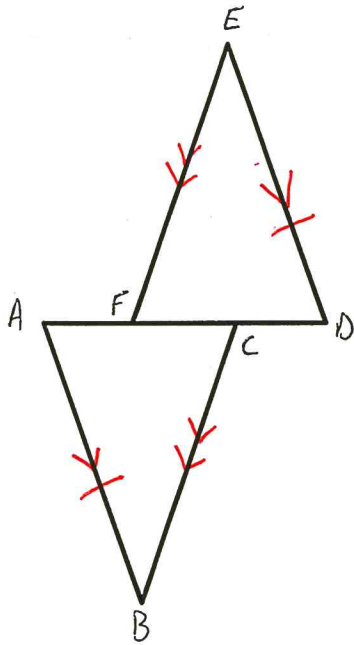
$\triangle ABD$ is an Isosceles Triangle

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



Statements	Reasons
① $\overline{BC} \perp \overline{AD}; \triangle ABD$ an isosceles.	① Given.
② $\angle BCD \cong \angle BCA$ Rt. \angle 's	② Def \perp
③ $\angle BCD \cong \angle BCA$	③ Rt. \angle 's \cong Thm.
④ $\angle A \cong \angle D; \overline{BD} \cong \overline{BA}$	④ Def. Isosceles \triangle .
⑤ $\triangle ABC \cong \triangle DCB$	⑤ AAS.

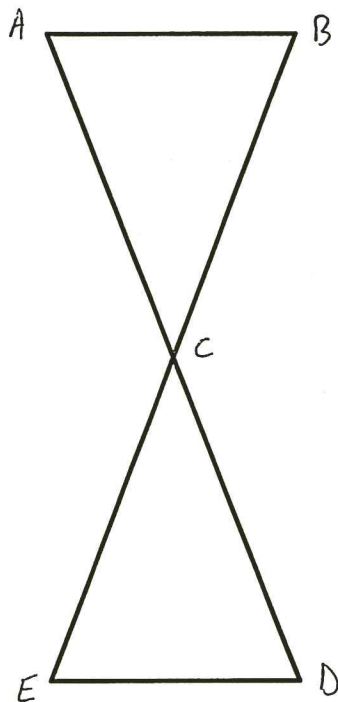
3. Given: $\overline{AB} \parallel \overline{ED}$
 $\overline{EF} \parallel \overline{CB}$
 $\overline{AB} \cong \overline{DE}$
 Prove: $\triangle ABC \cong \triangle DEF$



Statements	Reasons
① $\overline{AB} \parallel \overline{ED}; \overline{EF} \parallel \overline{CB};$ $\overline{AB} \cong \overline{DE}$	① Given.
② $\angle A \cong \angle D;$ $\angle EFD \cong \angle BCA$	② Alt. Int. \angle 's.
③ $\triangle ABC \cong \triangle DEF$	③ AAS.

4. Given: $\overline{AB} \parallel \overline{ED}$
 C is the midpoint of \overline{AD} & \overline{BE}

Prove: $\triangle ABC \cong \triangle DEC$



Statements	Reasons
① $\overline{AB} \parallel \overline{ED}; C \text{ midpt } \overline{AD} \& \overline{BE}$	① Given.
② $\angle A \cong \angle D; \angle B \cong \angle E$	② Alt. Int. \angle 's.
③ $\overline{AC} \cong \overline{DC}$ OR $\overline{BC} \cong \overline{CE}$	③ Def. midpt.
④ $\triangle ABC \cong \triangle DEC$	④ AAS.