Proving the Congruence of Triangles

Jonathan R. Bacolod

Sauyo High School

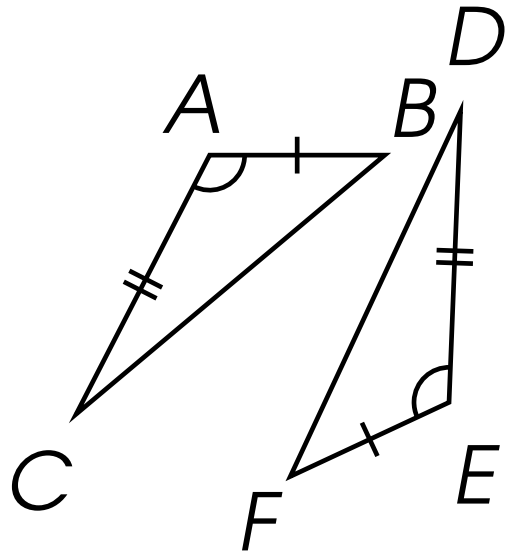
Example 1

Given: $\overline{AB} \cong \overline{EF}$

$\overline{AC} \cong \overline{ED}$

$\angle A \cong \angle E$

Prove: $\triangle ABC \cong \triangle EFD$



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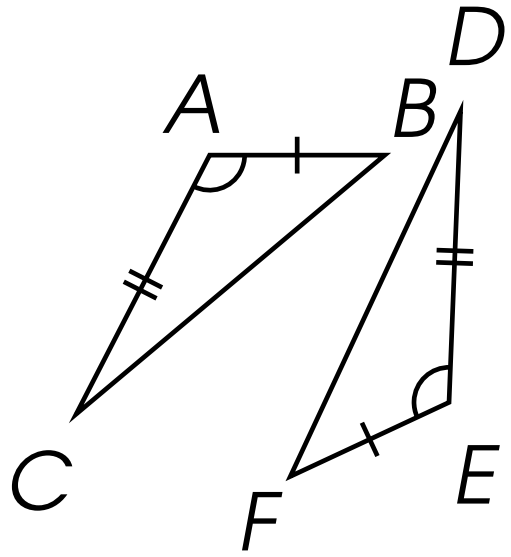
Proof:



Statements	Reasons

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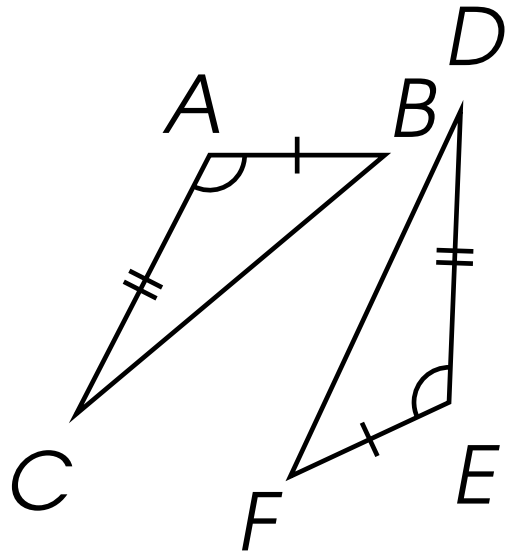

Statements	Reasons
1. $\overline{AB} \cong \overline{EF}$	1. Given

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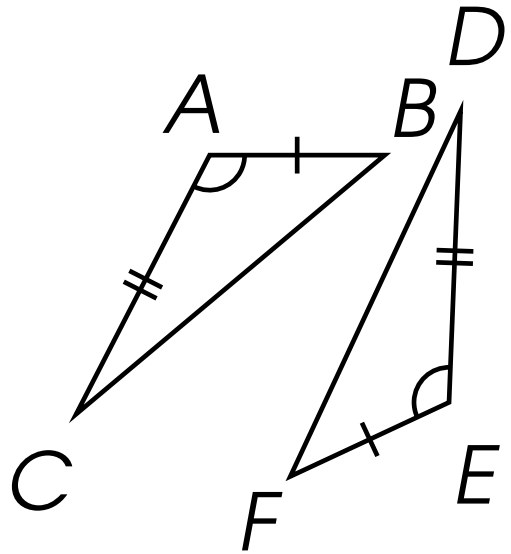

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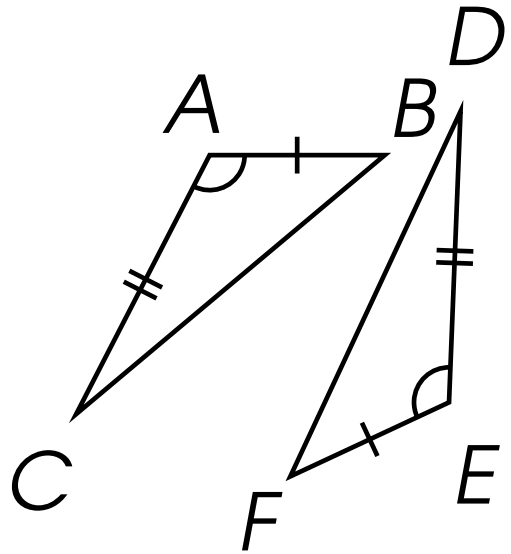

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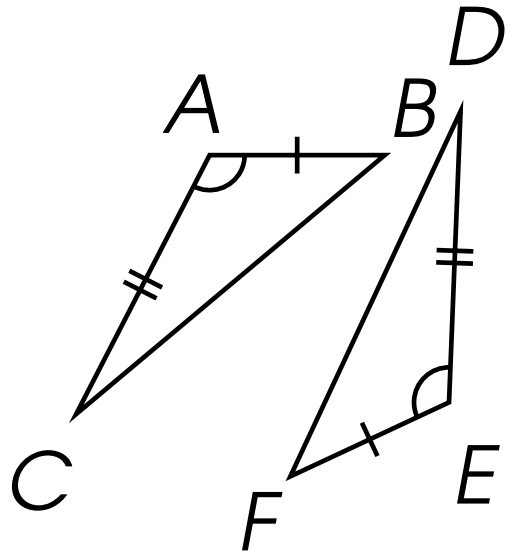
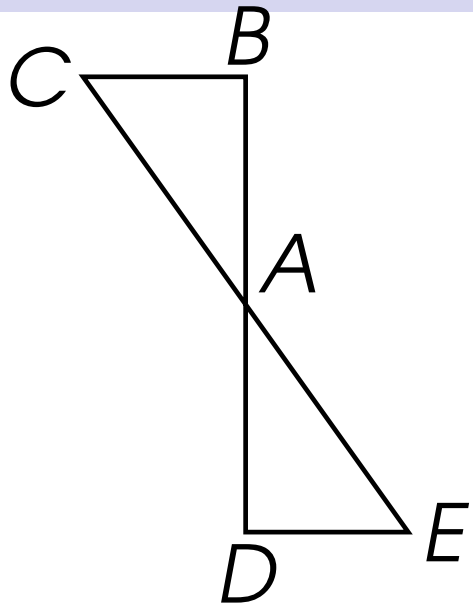


Statements	Reasons
1. $\overline{AB} \cong \overline{EF}$	1. Given
2. $\overline{AC} \cong \overline{ED}$	2. Given
3. $\angle A \cong \angle E$	3. Given
4. $\triangle ABC \cong \triangle EFD$	4. SAS Triangle Congruence Postulate

Example 2

Given: $\overline{AB} \cong \overline{AD}$
$\angle B \cong \angle D$

Prove: $\triangle ABC \cong \triangle ADE$



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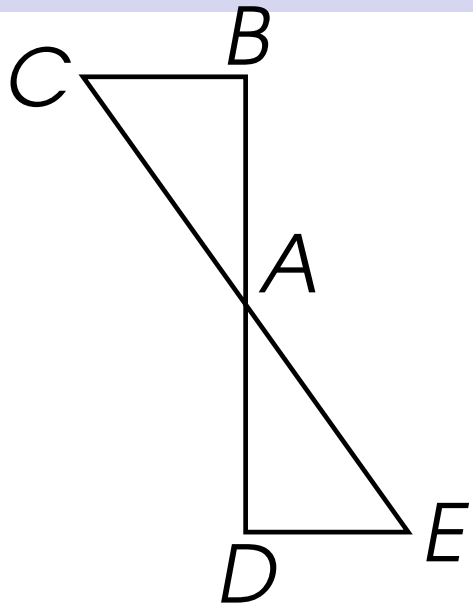

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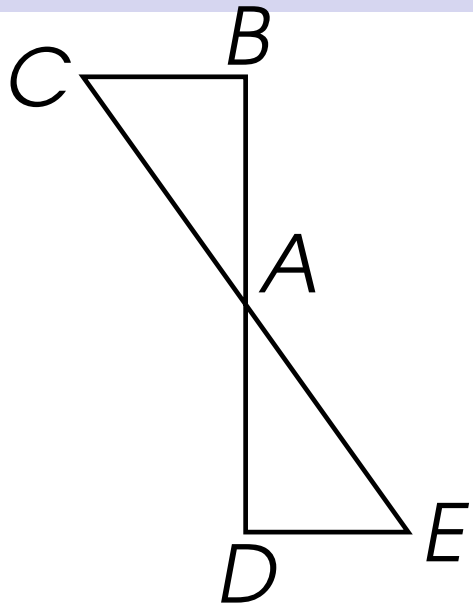

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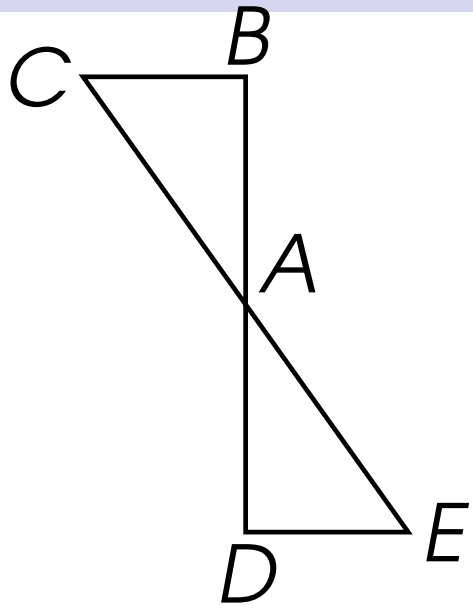

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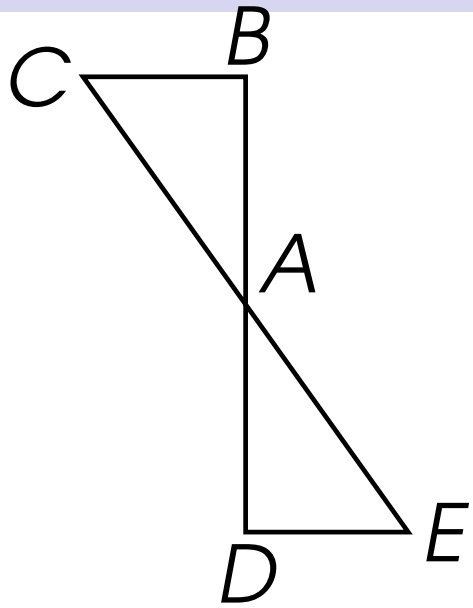

Proof:

Statements	Reasons
1. $\overline{AB} \cong \overline{AD}$	1. Given
2. $\angle B \cong \angle D$	2. Given
3. $\angle BAC \cong \angle ADE$	3. Vertical Angle Theorem

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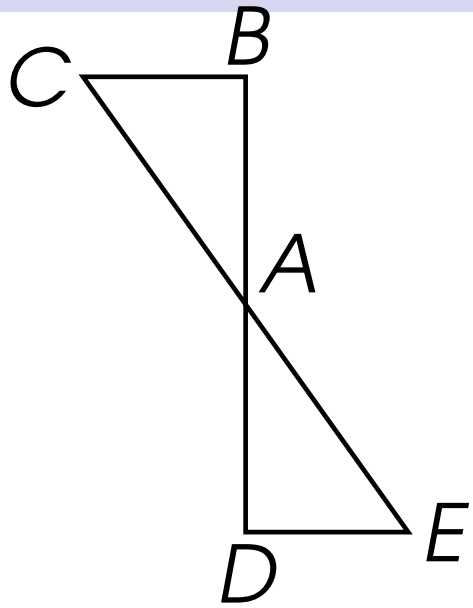

Proof:

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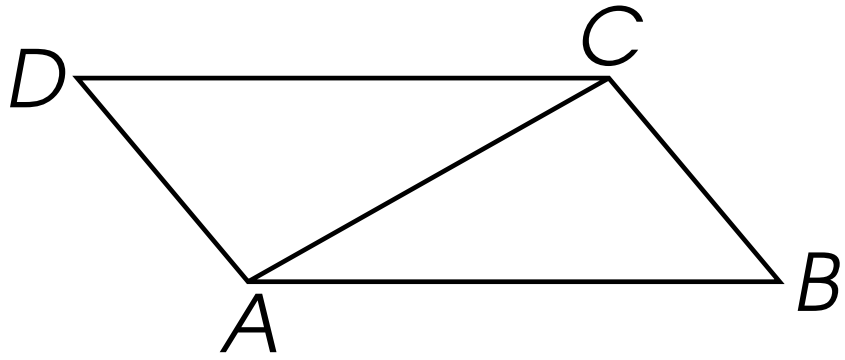
4. $\triangle ABC \cong \triangle ADE$	4. ASA Triangle Congruence Postulate

Example 3

Given: $\overline{AB} \cong \overline{CD}$
$\overline{AD} \cong \overline{CB}$

Prove: $\triangle ABC \cong \triangle CDA$



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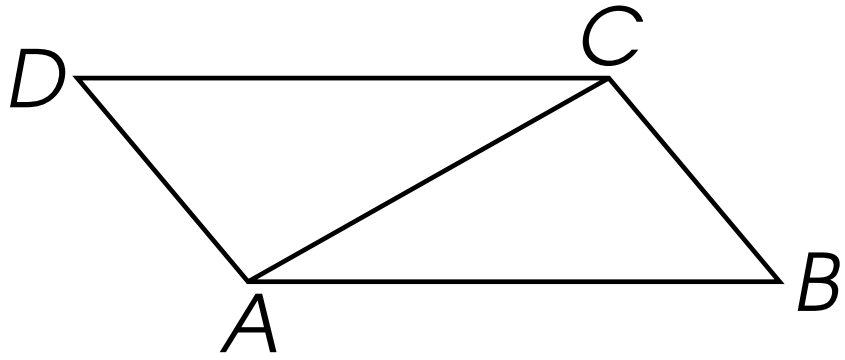

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Proof:

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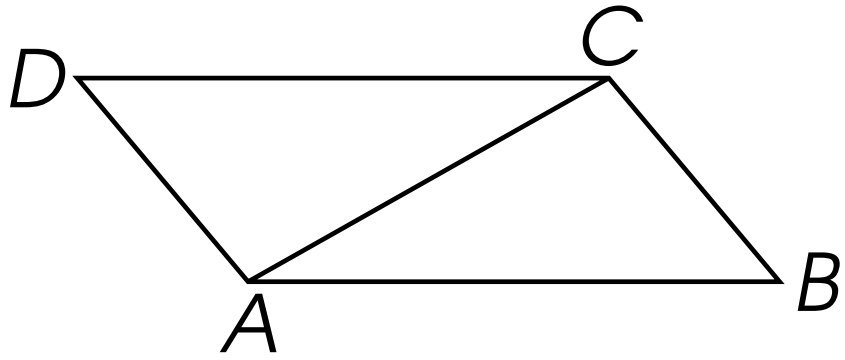

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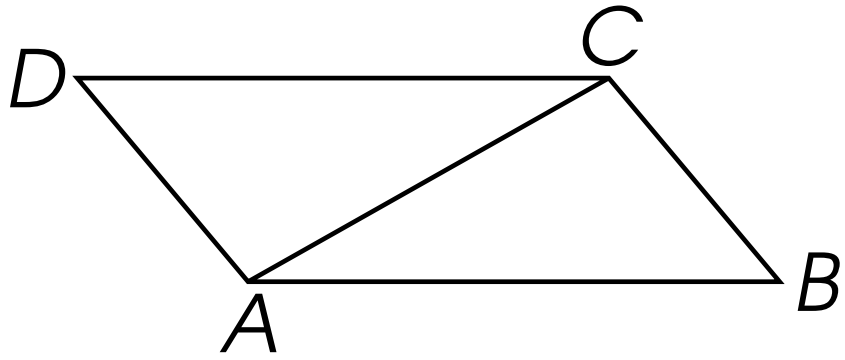

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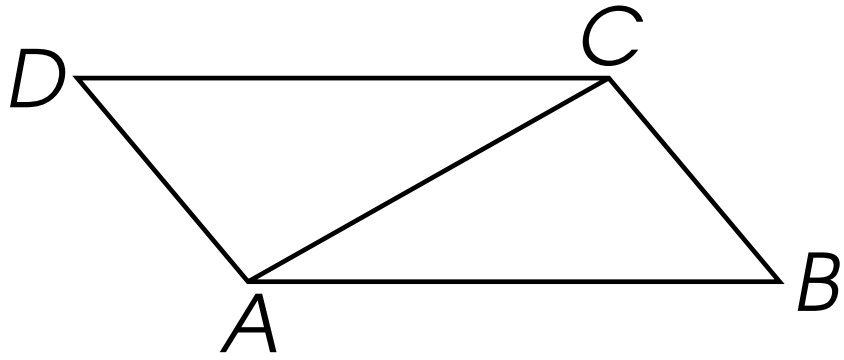

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1. $\overline{AB} \cong \overline{CD}$	1. Given
2. $\overline{AD} \cong \overline{CB}$	2. Given
3. $\overline{AC} \cong \overline{CA}$	3. Reflexive Property

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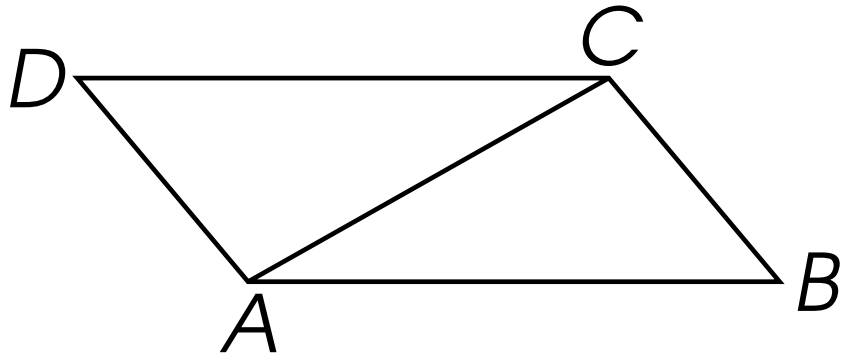

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Thank you for watching.