Common Core Geometry Proof – Parallelograms_2

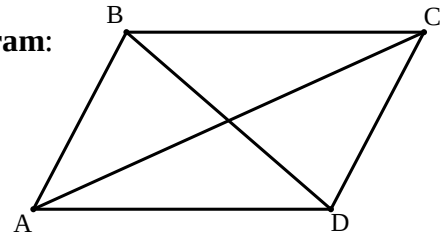
Opposite Angles

Conjecture: If a quadrilateral is a parallelogram, then the opposite angles are congruent.

Given: Parallelogram ABCD
Diagonals $\overline{AC}$ and $\overline{DB}$

Prove: ∠ABC ≅ ∠CDA; ∠BAD ≅ ∠DCB

Diagram:



Statements	Reasons
1. Parallelogram ABCD; Diagonals $\overline{AC}$ and $\overline{BD}$	1. Given
2. $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{AD}$	2. Theorem: If a quadrilateral is a parallelogram, then both pairs of opposite sides are congruent.
3. $\overline{AC} \cong \overline{AC}$ and $\overline{BD} \cong \overline{BD}$	3. Reflexive Axiom
4. △ABC ≅ △CDA and △BCD ≅ △DAB	4. SSS ≅ SSS
5. ∠ABC ≅ ∠CDA and ∠BCD ≅ ∠DAB	5. Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

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