Common Core Geometry Proof – Parallelograms_5

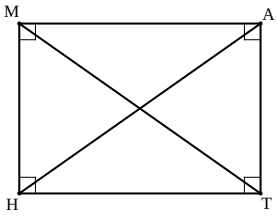
Diagonals of a Rectangle

Theorem: If a parallelogram is a rectangle, then the diagonals are congruent.

Given: Rectangle MATH with diagonals $\overline{MT}$ and $\overline{HA}$

Prove: $\overline{MT} \cong \overline{HA}$

Diagram:



Statements	Reasons
1. Rectangle MATH with diagonals $\overline{MT}$ and $\overline{HA}$	1. Given
2. ∠HMA and ∠TAM are right angles	2. Definition of Rectangle (i.e. a rectangle is a parallelogram with four right angles)
3. ∠HMA ≅ ∠TAM	3. Theorem: If two angles are right angles, then they are congruent.
4. $\overline{MH} \cong \overline{AT}$	4. Theorem: If a quadrilateral is a parallelogram, then the opposite sides are congruent.
5. $\overline{MA} \cong \overline{MA}$	5. Reflexive Axiom
6. △HMA ≅ △TAM	6. SAS ≅ SAS
7. $\overline{MT} \cong \overline{HA}$	7. Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

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