Common Core Geometry Proof – Triangles_2

Isosceles Triangle – Base Angles

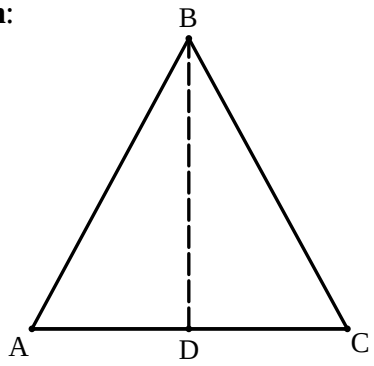
Theorem: If a triangle is an isosceles triangle, then the angles opposite the congruent sides (i.e., base angles) are congruent.

Given: Isosceles △ABC, with base $\overline{AC}$

Construction: $\overline{BD}$ bisects ∠ABC

Prove: ∠BAC ≅ ∠BCA

Diagram:



Statements	Reasons
1. Isosceles △ABC, with base $\overline{AC}$	1. Given
2. $\overline{BD}$ bisects ∠ABC	2. Construction
3. $\overline{BA} \cong \overline{BC}$	3. Definition of Isosceles Triangle
4. ∠ABD ≅ ∠CBD	4. Definition of Angle Bisector
5. $\overline{AD} \cong \overline{AD}$	5. Reflexive Axiom
6. △BAD ≅ △BCD	6. SAS ≅ SAS
7. ∠BAC ≅ ∠BCA	7. Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

Developed through the PISC Project (www.pisc.udel.edu) with funding support from the National Science Foundation.