Opposite Angles Theorem Proof

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Theorem . Angle ABC is congruent to angle ADC for any rhombus ABCD.

Proof. Let figure ABCD be a rhombus. For rhombus ABCD, we know that all the sides are congruent as the definition of a rhombus. Also, if we connect points A and C, we can create triangle ACB and triangle ACD. In these triangles, we know that edges AB, BC,CD, and DA are congruent. Also, they share edge AC, so we can deduce that the triangles have sides AB, BC, and CA congruent to AD, DC, and CA respectively. Therefore we know by Euclid I.8 that the triangles have congruent angles as well. We can conclude then that angle ABC is congruent to angle ADC.
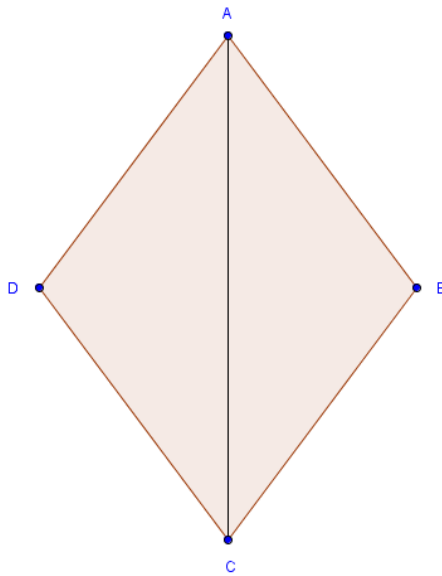

Figure 1: Rhombus ABCD

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Refereed by Ms. Megan King