

# Adjacent Angles in a Rhombus

Grace Freking

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**Theorem A.** Assuming a rhombus' four angles taken together make four right angles, if rhombus ABCD is not a square, then angle BDC is not congruent to angle BAC.

*Proof.* Let rhombus ABCD have angle DAB and angle DCB be greater than right angles, and have angle ADC and angle ABC be less than right angles. We assume that opposite angles in a rhombus are congruent, so angle ADC is congruent to angle ABC. Similarly, angle DAB is congruent to angle DCB. Then, half of angle ADC is congruent to angle BDC, and half of angle DAB is congruent to angle BAC. Since angle DAB is greater than a right angle, and angle ADC is less than a right angle, each of their half angles cannot be congruent. Therefore, angle BDC is not congruent to angle BAC.

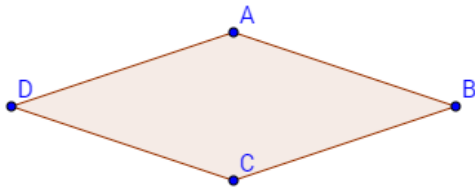


Figure 1: Rhombus ABCD

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