Flexibility and Rigidness of the Construction of a Rhombus

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Theorem 1.5. How flexible or rigid is the construction solving conjecture 1.4? Can one use the construction to create many non-congruent rhombi or are there only a few options?

Proof. There are an infinite amount of congruent rhombi able to be constructed. When you change the length of the radii of the circles you would construct non-congruent rhombi. Also by changing the degree of the angle would also create different rhombi. Therefore, this construction is very flexible because whenever you change the radii of the circle and/or the degree of the angles you would construct a different rhombi.

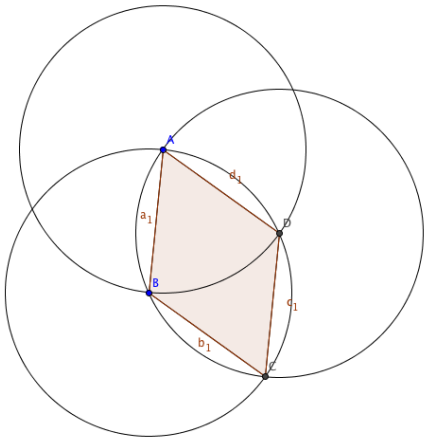

Figure 1: Mr. Baker's Construction of a Rhombus

According to conjecture E, there is only one way to make a congruent rhombus. This makes the construction of creating non-congruent rhombi very rigid.

There was a different construction made by Miss Brandenberg. This construction was able to make the rhombus more flexible when trying to create more rhombi. Here, there are four possible rhombi as you can rotate the point D to make four congruent rhombi that have the same side lengths and angle measurements. The construction is still rigid but less rigid as Mr. Baker's.

Refereed by Miss Jacobs □