

# Geogebra Demonstration

## *01 Problem 6: A Quibble*

### The Demonstration

If opposite sides of a quadrilateral are equal it is true that the quadrilateral is a parallelogram, as long as we are clear that polygons (including quadrilaterals) do not include cases that cross over themselves. The figure constructed here is constrained so that opposite sides (non-adjacent sides in the case of quadrilaterals) are equal. Yet as the vertices are moved around it is possible that the sides will cross. The resulting figure is not a quadrilateral, in the usual sense, and not a parallelogram.

### Geogebra Notes

[No new Geogebra features are used in this demonstration.]

### On Your Own

Show that higher order "polygons" determined only by specifying all the sides, suffer this same weakness, except for triangles. You could extend the Quadrilateral Sandbox (Chapter 3 Projects Demonstration 02e) as a starting point.