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W. Michael Gentry* (mgentry@mbc.edu), 31 Cedar Cove Road, Pelham, NC 27311. *Properties of Regular Polygon Rings.*

A Type I regular polygon ring (RPR) is a closed ring formed by identical regular polygons surrounding a central convex regular polygon with each of its vertices formed by the intersection of three sides. Before the days of probabilistically checkable proofs, Albrecht Durer incorrectly showed that it is impossible to construct a Type I RPR using regular pentagons. In 1997 R. A. Dunlap demonstrated that such a ring can be constructed, and developed general criteria for constructing both Type I and Type II rings. This article presents a pedagogical method, conjectural inductivism using Geometer's Sketchpad, that is designed to introduce under-prepared, math-anxious college algebra students to the basic properties of Type I regular polygon rings. In particular, students explore Albrecht Durer's "proof" that it is impossible to construct a Type I RPR using regular pentagons, and along the way they discover the actual algebraic criteria that must be satisfied for the construction of Type I regular polygon rings. (Received January 06, 2007)