Expanding Ideas of the Past: Redefining the Cairo Pentagon

Kristie Kim

Mathematical Evolutions

Jennifer McCarthy and Jonathan Phillips

Summer Ventures in Science and Mathematics

The University of North Carolina at Charlotte

Abstract

The Cairo pentagon is a polygon foreign to the majority of people. It possesses qualities not yet explored. This unique polygon is defined in many ways by different sources. Aside from its required four congruent sides and two right angles, the Cairo pentagon may require other characteristics in order to fulfill the purpose for which it is most famous: its ability to tessellate. The angles contained in the Cairo pentagon may be an important factor in determining whether the pentagon tessellates. This aspect is explored in this paper along with the dilemma of creating the true definition of a Cairo pentagon. Also investigated was the derivation of a general area formula for the Cairo pentagon. An area formula was successfully created utilizing two different methods. This formula was useful in finding relationships between an octagon and a Cairo pentagon.