Defining the Origins of Conic Sections

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Abstract

This paper explores the development of conic sections and the eventual creation of their corresponding equations involving the letters *a*, *b*, *x*, and *y*. During the development of the conic section equations, one realizes that Apollonius plays a major role in proving the equations of each conic section in the form used today. This paper retraces the calculations to prove Apollonius' equations true for any corresponding conic section. Realizing the proof involved only two-dimensional planes, I explored the possibility of developing an equation for the conic sections using three-dimensional coordinates. After similar calculations to proving the equation for an ellipse, I successfully found a functional equation for an ellipse given its three-dimensional coordinates.