

Immediate Geometric Solution of Irregular Quadrilaterals: A Digital Tool Applied to Topography

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Abstract : The purpose of this research was to create a digital tool by which users can obtain an immediate and accurate solution of the angular characteristics of an irregular quadrilateral. The development of this project arose because of the frequent absence of a polygon's geometric information in land ownership accreditation documents. The researcher created a mathematical model using a linear approximation iterative method, employing various disciplines and techniques including trigonometry, geometry, algebra, and topography. This mathematical model uses as input data the surface of the quadrilateral, as well as the length of its sides, to obtain its interior angles and make possible its representation in a coordinate system. The results are as accurate and reliable as the user requires, offering the possibility of using this tool as a support to develop future engineering and architecture projects quickly and reliably.

Keywords : digital tool, geometry, mathematical model, quadrilateral, solution

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