

Ait-Haddou, Rachid; Herzog, Walter; Nomura, Taishin

Complex Bézier curves and the geometry of polygons. (English) Zbl 1217.68233
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Summary: We associate to every planar polygon a complex polynomial, in which the blossom of the polynomial function captures the process in which linear transformations applied to the polygon lead to regular structures. In particular, we prove, in a purely algebraic way several well-known theorems on polygons such as the Napoleon-Barlotti Theorem, the Petr-Douglas-Neumann Theorem, and the Fundamental Decomposition Theorem of polygons to regular polygons.

MSC:

68U07 Computer science aspects of computer-aided design
30C10 Polynomials and rational functions of one complex variable
65D17 Computer-aided design (modeling of curves and surfaces)

Cited in 2 Documents

Keywords:

Bézier curve; polar forms; geometry of polygons; discrete Fourier transform; Napoleon-Barlotti theorem; Petr-Douglas-Neumann theorem

Full Text: [DOI](#)

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