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Sibling curves and complex roots 1: looking back.

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Summary: This paper, the first of a two-part article, follows the trail in history of the development of a graphical representation of the complex roots of a function. Root calculation and root representation are traced through millennia, including the development of the notion of complex numbers and subsequent graphical representation thereof. The concepts of the Cartesian and Argand planes prove to be central to the theme. We specifically pause to look at efforts of representing complex roots of a function on the real plane, first, by superimposing the Argand plane onto the Cartesian plane, and secondly, by keeping the planes side by side and moving between the two, and thirdly, by taking the modulus of the function value and hence eliminating one dimension to enable drawing of the complex function as a surface in three dimensions.

Classification: H30 A30 F50 U70

Keywords: history of mathematics; fundamental theorem of algebra; quadratic equations; cubic equations; algebraic equations; graphical methods; visualization; graph of a function; polynomials

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