

Abstract Submitted
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Relative equilibria of point vortices and the fundamental theorem of algebra¹ HASSAN AREF, DTU and Virginia Tech — The fundamental theorem of algebra implies that every non-zero single-variable polynomial with complex coefficients has exactly as many complex roots as its degree, if each root is counted with its multiplicity. This result may be applied to the generating polynomial for a relative equilibrium of point vortices and used to derive differential equations for this polynomial in various situations, e.g., when the vortices are on a line or all on a circle. The derivations thus obtained are quite elegant and compact compared to the corresponding derivations found in the literature. A new formula that provides the basis for application of the fundamental theorem to vortex equilibria is outlined and a number of the further derivations demonstrated.

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Hassan Aref
DTU and Virginia Tech

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