

Abstract Submitted
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Close relative equilibria of identical point vortices¹ TOBIAS DIRKSEN, Technical University of Denmark, HASSAN AREF, Virginia Tech — Via numerical solution of the classical problem of relative equilibria for identical point vortices on the unbounded plane we have found configurations that are very close to the analytically known, centered, symmetrically arranged, nested equilateral triangles. Numerical solutions of this kind were found for $3n + 1$ vortices, where $n = 2, 3, \dots, 30$. A sufficient, although apparently not necessary, condition for this phenomenon of close solutions is that the “core” of the configuration is marginally stable, as occurs for a central vortex surrounded by an equilateral triangle. The open, regular heptagon also has this property, and new relative equilibria close to the nested, symmetrically arranged, regular heptagons have been found. The centered regular nonagon is also marginally stable. Again, a new family of close relative equilibria has been found. The closest relative equilibrium pairs occur, however, for symmetrically nested equilateral triangles. The numerical evidence is surveyed and related recent work mentioned. A Letter in *Physics of Fluids* **23** (2011) 051706 is available.

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