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Stationary Configurations of Four Vortices.

The stationary configurations of four point vortices (configurations which do not change shape or size) consist of equilibria, uniformly rotating relative equilibria, and rigidly translating configurations. We investigate the finiteness of such configurations for any four nonzero vorticities. Along the way some upper and lower bounds for such configurations are also found, as well as some open questions. The techniques used in the proofs include computational algebra (resultants, Groebner bases) and BKK theory. (Received August 02, 2005)