The Pentagram Map

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Abstract

We consider the pentagram map on the space of plane convex pentagons obtained by drawing a pentagon's diagonals, recovering unpublished results of Conway and proving new ones. We generalize this to a "pentagram map" on convex polygons of more than five sides, showing that iterated images of any initial polygon converge exponentially fast to a point. We conjecture that the asymptotic behavior of this convergence is the same as under a projective transformation. Finally, we show a connection between the pentagram map and a certain flow defined on parametrized curves.