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Dissecting the square into seven or nine congruent parts. (English) [Zbl 07488427]
Discrete Math. 345, No. 5, Article ID 112800, 9 p. (2022)

Summary: We give a computer-based proof of the following fact: If a square is divided into seven or nine convex polygons, congruent among themselves, then the tiles are rectangles. This confirms a new case of a conjecture posed first by L. Yuan et al. [Discrete Math. 339, No. 1, 288-298 (2016; Zbl 1322.05038)] and later by Rao, Ren and Wang. Our method allows us to explore other variants of this question, for example, we also prove that no rectangle can be tiled by five or seven congruent non-rectangular polygons.

MSC:
52B45 Dissections and valuations (Hilbert’s third problem, etc.)
52C20 Tilings in 2 dimensions (aspects of discrete geometry)
05B45 Combinatorial aspects of tessellation and tiling problems

Keywords:
tiling; congruent; equiangular; computational geometry

Full Text: DOI

References:
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