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Countable decompositions of \mathbb{R}^2 and \mathbb{R}^3 . (In English)

Discrete Comput. Geom. 5, No.4, 325-331 (1990). [0179-5376]

The authors prove that if the continuum hypothesis holds, then \mathbb{R}^2 can be decomposed into countably many pieces, none spanning a right-angled triangle. They also obtain some partial results concerning the conjecture that the given result is also true when ‘right-angled’ is replaced by ‘isosceles’. Finally, they show that \mathbb{R}^3 can be coloured with countably many colours with no monochromatic rational distance.

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Classification:

52C10 Erdos problems and related topics of discrete geometry

51M15 Geometric constructions

Keywords:

decomposition; right-angled triangle; isosceles