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Golden-Ratio-Based Rectangular Tilings,
Fibonacci Quart. **55** (2017), no. 2, 137–146.

Abstract

A golden-ratio-based rectangular tiling of the first quadrant of the Euclidean plane is constructed by drawing vertical and horizontal grid lines which are located at all even powers of ϕ along one axis, and at all odd powers of ϕ on the other axis. The vertices of the rectangles formed by these lines can be connected by rays starting at the origin having slopes that are odd powers of ϕ . A refinement of this tiling results in the familiar one with horizontal and vertical grid lines at every power of ϕ along each axis. Geometric proofs of the convergence of several known power series in ϕ are provided.