It is known that trapezoids consisting of 1, 3, and 5 equilateral triangles in a line can tile an equilateral triangle.

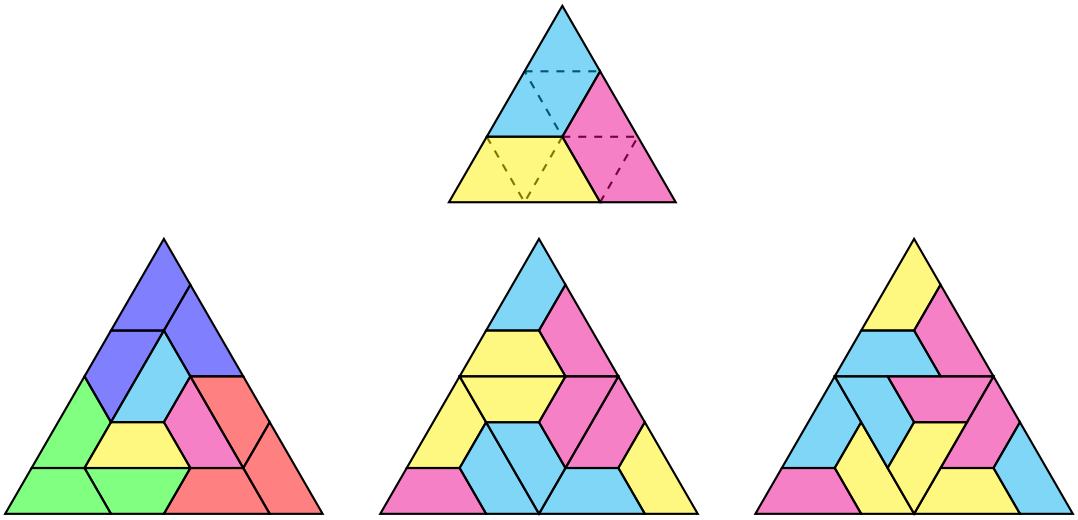

Figure 1: A equilateral triangle made of 3-trapezoids.

Question. Can all $(2n-1)$-trapezoids be arranged to form an equilateral triangle?

Related.

1. What is the smallest triangle that can be formed this way?
2. Is there a construction that makes such triangles given some k-trapezoid?
3. How many such tilings exist for a given size trapezoid and triangle?
4. Can other shapes be tiled (e.g. hexagon, arbitrary trapezoid)?
5. Does this generalize to square/hexagonal tilings? Multiple dimensions?

Note. If $c(n)$ counts the number of distinct minimal covering sets of n-ominoes, then $c(1) = c(2) = c(3) = 1$, $c(4) = c(5) = 2$, and $c(6) = 14$.

References.

Problem 85

`https://math.stackexchange.com/q/2215781/121988`