



Consider convex polygons with integer vertices and minimal area.

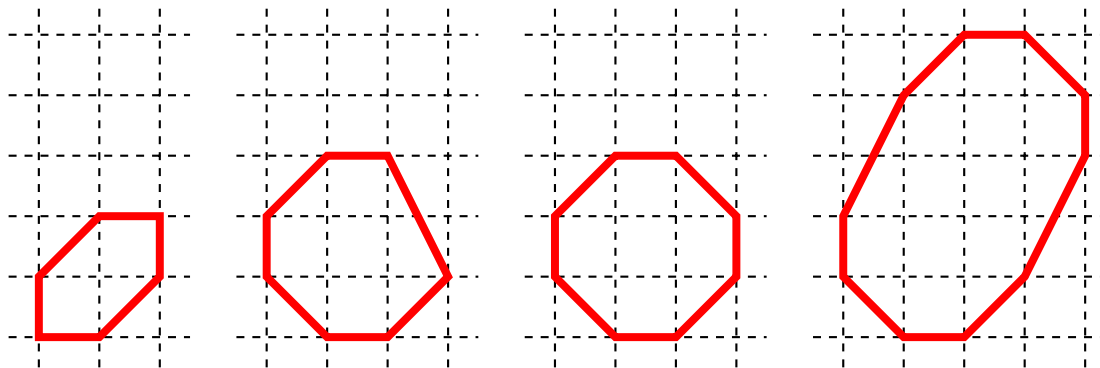


Figure 1: Candidates for minimal area 6, 7, 8 and 10-gons.

Question. What is the minimal area of a convex lattice n -gon.

Related.

1. What if the sum of side lengths is minimized instead? Measured via the taxicab metric?
2. What if the polygons are minimized with respect to the height/width of the smallest grid? Or the number of complete cells they contain? (e.g. the examples contain 0, 4, 5, and 10 cells respectively) The number of partial cells they contain? (e.g. 4, 9, 9, 18) respectively?
3. What if the polygons can be concave?
4. What if the concave polygons cannot have any acute angles?
5. What if the concave polygons can be decomposed into polyabolos?
6. What if the polygons must have 180° or horizontal symmetry?

References.

<https://en.wikipedia.org/wiki/Polyabolo>

Problem 5, Problem 7, and Problem 88.