# EDITORIAL

Often problems that are easy to state turn out to be hard to solve. But the less background required to understand the problem, the more tempting it is to try to break it: after all, it seems anyone should be able to do it. I see many examples of such problems in my outreach ventures and these puzzles often inspire my university classroom exercises. One particular puzzle I mentioned in my Editorial in *Crux* 40(8), called Ariadne's String (see http://mathpickle.com), goes even beyond that: it is an open problem and hence can be of interest for a problem solver of any level. In fact, my editorial prompted some work on the problem and the known results have been extended further. So here is the problem again:

Suppose you have an $n \times n$ grid with vertices at lattice points. The rules of the game are as follows: draw a continuous zigzag line, where each line segment starts and ends at lattice points; line segments cannot touch (even at a vertex) and each subsequent line segment must be longer than the previous one. The goal: get as many line segments in as possible. Try it out for yourself on small grids.

At the time of my editorial, the largest known result was for the 9×9 grid. Through correspondence with Stan Wagon, we now have the following extensions: Joseph DeVincentis has solved the problem for the 10×10, 11×11 and 12×12 grids, while Charles Greathouse computed the result for the 13×13 grid. Here are the pictures for the two largest grids:
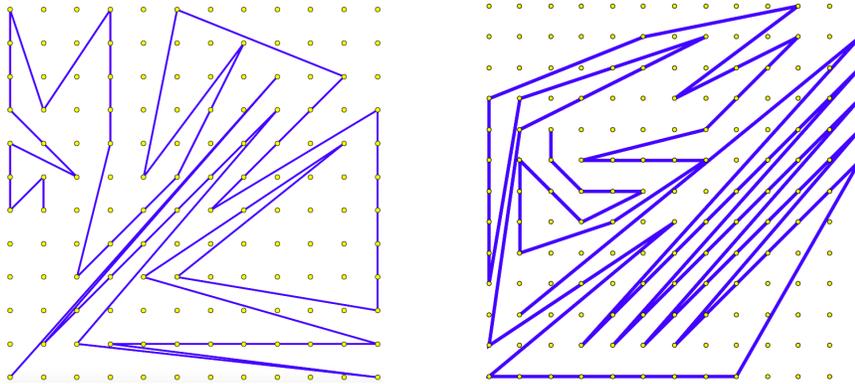
So we have the following results for all square grids from 1×1 to 13×13:

$$0, 2, 4, 7, 9, 12, 15, 17, 20, 24, 27, 29, 33.$$

It is now sequence A226595 in *The On-Line Encyclopedia of Integer Sequences*. The next value is still unknown. Also unknown is the general formula or algorithm. I could probably figure it out, but, much like in Fermat's case, these margins are a bit too small to contain the proof.

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