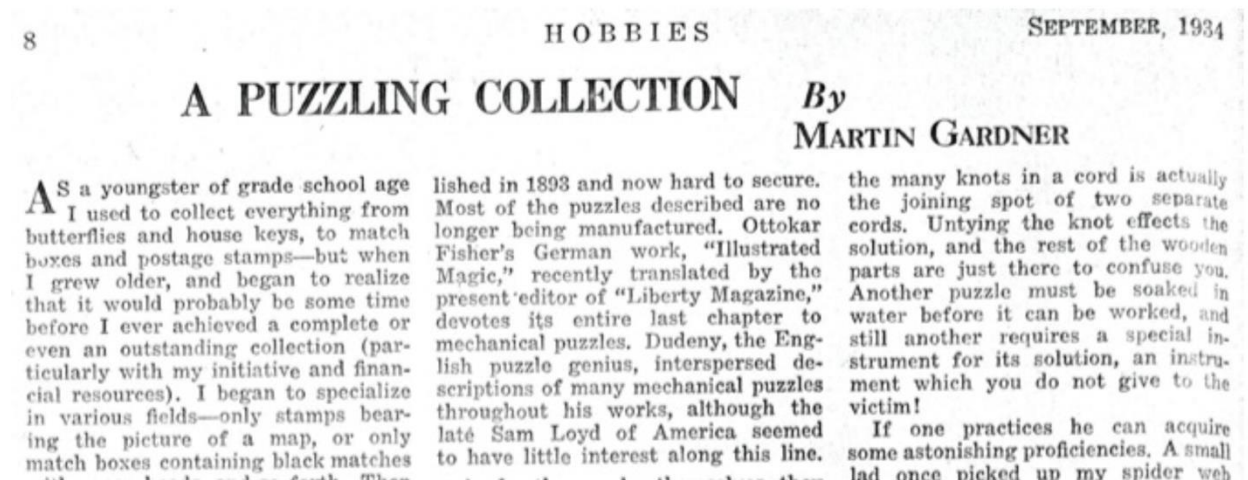# Are You a Mathematician?

Dana Richards

> I first met Asimov on the sidewalk and introduced myself.
> He asked "Are you a mathematician?"
> "No, I never took any courses in math."
> He said "You mean you are working the same racket as I am?"

While it is not true that Martin Gardner never took any course in mathematics (there is one on his University of Chicago transcript) the question remains: was Gardner a mathematician? We approach this question from several directions.

Gardner never claimed to be a mathematician and always referred to himself as a "reporter." His non-fiction writing reported on what others had discovered. He often said that it is precisely because he struggled with mathematics that he was able explain it so well to others. He knew where the pitfalls were. But with his struggles he got his hands dirty and made some discoveries on the way.

In high school he wanted to be a physicist and was strong in math. Also, he had a phenomenal collection of mechanical and mathematical puzzles.

8   HOBBIES   SEPTEMBER, 1934

A PUZZLING COLLECTION By MARTIN GARDNER

AS a youngster of grade school age I used to collect everything from butterflies and house keys, to match boxes and postage stamps—but when I grew older, and began to realize that it would probably be some time before I ever achieved a complete or even an outstanding collection (particularly with my initiative and financial resources). I began to specialize in various fields—only stamps bearing the picture of a map, or only match boxes containing black matches

lished in 1893 and now hard to secure. Most of the puzzles described are no longer being manufactured. Ottokar Fisher's German work, "Illustrated Magic," recently translated by the present editor of "Liberty Magazine," devotes its entire last chapter to mechanical puzzles. Dudeny, the English puzzle genius, interspersed descriptions of many mechanical puzzles throughout his works, although the late Sam Loyd of America seemed to have little interest along this line.

the many knots in a cord is actually the joining spot of two separate cords. Untying the knot effects the solution, and the rest of the wooden parts are just there to confuse you. Another puzzle must be soaked in water before it can be worked, and still another requires a special instrument for its solution, an instrument which you do not give to the victim!

If one practices he can acquire some astonishing proficiencies. A small lad once picked up my spider web

We can find in his magic writings (nearly every year from 1930 to 2010) an early acquaintance with the popular math books. In fact, when he moved to New York after the war he attended a lecture series sponsored by Yeshiva University led by Jekuthiel Ginsburg. Ginsburg was a strong proponent of popularizing mathematics. The time period was 1948 to 1952. He was seeking ideas for magic and satisfying his interest in math. It was for this audience he wrote a series of four articles for *Scripta Mathematics*, which were later expanded into his *Mathematics, Magic and Mystery* (1956).

One way he showed that he working through an issue rather than just reporting on it, is his proposing open problems in mathematics journals. He did this for decades, starting as early as 1947. An example is:

Dissection of a Regular Pentagram into a Square

E 1309 [1958, 205]. *Proposed by Martin Gardner, New York, N. Y.*

Dissect a regular pentagram (five-pointed star) into no more than nine pieces which can be reassembled to form a square. Pieces may be turned over.

Occasionally he would offer cash prizes,

His sole-authored math articles were fewer in number and reported on his experimentation.

TILING THE BENT TROMINO WITH *N* CONGRUENT SHAPES

MARTIN GARDNER

However, he did coauthor several articles with well-known mathematicians. His contributions were often suggestions and examples that kept the work going forward with the occasional theorem. It should be remembered that Gardner was almost never a coauthor. In these cases he was just happy to contribute for the experience of working with his creative friends.

Steiner Trees on a Checkerboard
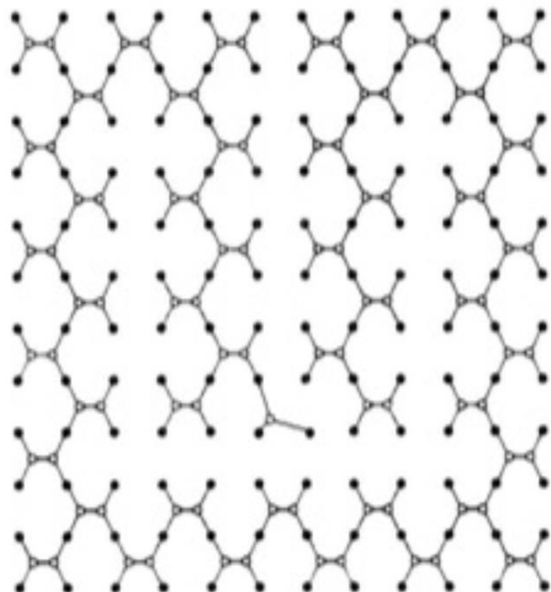
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$$47x + t = 130.33824\ldots$$

Sylanus Thompson text on calculus was reissued my Gardner, *Calculus Made Easy*. The text used an older approach based on infinitesimals rather than limits. Rather than just adding an introduction Gardner added several chapters explaining the background for the modern reader. In addition to all the above Gardner also wrote about the Philosophy of Mathematics, starting in 1950 with "Mathematics and the Folkways" (*Journal of Philosophy*).

The prevalent view is that Gardner was no mathematician and that when he started with *Scientific American* in 1957 it was all new to him. In fact, he was always interested in math, but not as a job. He enjoyed it. He played with it and studied it. Obviously, his early columns were less sophisticated and his grasp of issues blossomed over the years. As this happened his circle of correspondents expanded. To keep up his end of the discussions his mathematical knowledge also expanded,

If a "mathematician" is someone who derives theorems he was not one. However, very few theorems are fundamental, they instead advance the field in a incremental fashion. Gardner, on the other hand, acquired a broad knowledge and used that to propel mathematics forward, influencing countless people to enter the field. If a "mathematician" is some who contributes to the success of mathematics, then Martin Gardner was one.