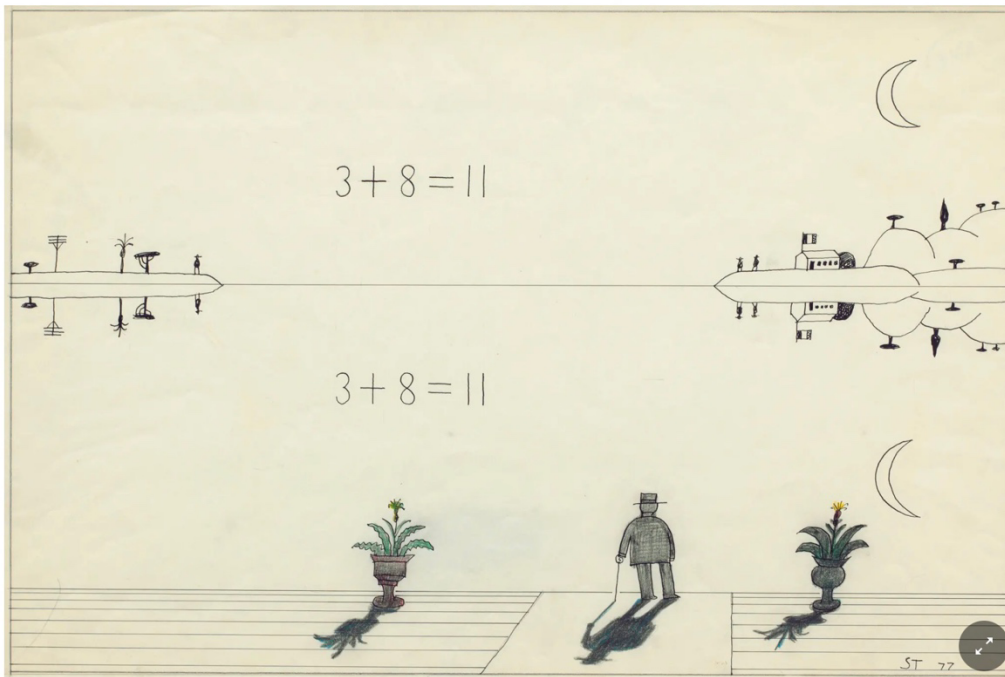# Math Is the Answer to More Than One Question

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Saul Steinberg, Untitled, 1977. Saul Steinberg Foundation/Artists Rights Society (ARS), NY

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By Alec Wilkinson
Mr. Wilkinson is the author of "A Divine Language: Learning Algebra, Geometry, and Calculus at the Edge of Old Age."

I am surprised at this late stage, in my 70s, to be thinking about God. In my defense, I might say that I did not arrive at these thoughts by reflecting on my own inevitable end or from a religion or a Scripture or the example of a holy figure. I arrived by means of mathematics, specifically simple mathematics — algebra, geometry and calculus, the kind of mathematics that adolescents do.

Several years ago, I decided that I needed to know something of mathematics, a subject that had roughed me up cruelly as a boy. I believed that not knowing mathematics had limited my ability to think and solve problems and to see the world in complex ways, and I thought that if I understood even a little of it, I would be smarter. My acquaintance with mathematics is still slight. I am only a mathematical tourist, but my experience has led me to believe that mathematics is rife with intimations of a divine presence.

This is no observation of my own. Mathematicians have been finding suggestions of divinity in mathematics at least since Pythagoras, in the sixth century B.C. For many mathematicians, there is no question that God is somehow involved. Newton, for example, believed that mathematics exemplified thoughts in the mind of God.

A couple of simple mysteries, available to anyone, help explain why this might be so. The first is the question of whether mathematics is created or discovered. Some mathematicians believe that mathematics is a system invented by human beings and that it is shaped as it is by the tendencies of human beings toward particular types of thinking. This is a minority view. The majority believe that mathematics exists as if independently of human thought and that the discoveries that mathematicians make are a mapping of an independent and timeless territory, a sort of parallel world where nothing is good or evil but everything is true.

There is also the observation by the Canadian mathematician Robert Langlands that mathematics is not complete, and because of its nature may never be. Mathematics, which attempts to define infinity, may itself be infinite.

For theologians in antiquity, infinity was a property of God. Being finite, humans were believed to be incapable of conceiving of infinity on their own. God gave us the ability, they thought, as a means of understanding his nature. Theologians were even a little touchy about his sole possession of it. In "Leaders of the Reformation," published in London in 1859, John Tulloch quotes Martin Luther, sounding a little piqued in a dispute at a conference in 1529, saying: "I will have nothing to do with your mathematics! God is above mathematics!"

Toward the end of the 19th century, the mathematician Georg Cantor, the creator of set theory, discovered that infinity is not a static description. Some infinities, he said, are larger than others. For each infinity there is a larger one, an infinity to which something has been added. There are in fact a multitude of infinities, and infinities themselves can be added to one another.

Eventually, one arrives at the infinity that contains all other infinities. What surpasses all, Cantor wrote to a friend, was "the Absolute, incomprehensible to the human understanding. This is the Actus Purissimus, which by many is called God."

When I was a small child, I did not think about God so much as I felt him or her or them, however you care to frame it. Not infrequently, and especially when I was in the woods, I had a sense of there being an accompanying presence, of there being, that is, something immaterial behind everything. I know now but I didn't then that this feeling is sufficiently common that it has a name: immanence. I never talked about it with anyone; I simply assumed that everyone felt the way that I did.

Immanence is a second cousin once removed to pantheism, of course, the notion that God is in everything, and closer to the Greeks than to Christian monotheism. Perhaps not surprisingly, I was separated from this notion in Sunday school. There I was taught that God inhabited a book and the form of a singular man. It isn't so much that I resisted these premises as that they didn't stir anything within me. I didn't connect them to the feelings that I had had alone in the woods. I gave up.

I am grateful to have a sense of mystery returned to me by mathematics. I am pleased to have been given, from an unexpected source, a reason both humbling and human to feel that there is more to life than I might believe there to be. And even if created by men and women, mathematics, as I read somewhere, is the longest continuous human thought, a circumstance that is itself worth regarding with awe.

https://www.nytimes.com/2024/02/09/opinion/math-god-numbers.html

Makes me think fondly of "Uncle Doug." After a career in the Canadian military, starting in the Air Force in WWII, he retired as a Wing Commander in Ottawa, and when not delivering Meals on Wheels, he went to University to obtain an Honours degree in, I believe, Astrophysics (or Double Honours in Math and Physics). As a young man on the prairies, Uncle Doug had during the Depression travelled around the prairies fixing people's radios. Undeniable intelligence and unquenchable curiosity. (He was married to one of my father's five sisters; Bearance talent has consisted mostly in marrying smart people.)

Uncle Doug did all of this plagued with a stutter. (When asked if it bothered him, he would reply "Only when I open my mouth.") Further, his life had more than his share of adversity and sorrow: an alcoholic wife; one of two (adopted) sons killed himself with a gun as a teenager in his bedroom; a grandson from the other climbed an Ontario Hydro fence and deliberately electrocuted himself. I'm not sure Uncle Doug would go so far as Mr. Wilkinson in seeing "God" in Mathematics and the Universe, but given how gracious the man was, I could see him "forgiving" God just as God surely has understood, commiserated with, and (as if it was necessary) forgiven Uncle Doug for any doubts and grievances. TJB