

# The Math Gene: A Ticket to Wealth or Nerdiness?

To say that a person has the Math Gene<sup>1</sup> is to attribute to him an unusual propensity to handle numbers and the advanced algorithmic processes by which experts manipulate them. Among the people who possess these special talents, there is no biological or neurological evidence for any of it. And yet, those of us who exhibit these traits are easily identified among the general population.

My gene became evident at a young age and has remained conspicuous during all of my professional life. Throughout my journey, I have naturally and consciously surrounded myself with others like me. This is not surprising. Human beings always seek companions and colleagues who not only think and behave like they do, but inhabit a world of ideas, attitudes, and habits similar to their own.

In fact we mathematicians stand out. We don't think and behave like the vast majority of our fellow citizens. John Q. Public knows us when he sees us, and—at the risk of overgeneralization—here are some of the more striking of our singular characteristics:

- We're often socially awkward. We generally don't pay much attention to clothes, fashion, or what's in or hot or cool. Our homes, cars, and bodies are often unkempt, and we do poorly at small talk. We tend to be introverted, soft-spoken, and not terribly athletic.
- We excel at abstract thinking, but are notoriously weak at practical affairs.
- We are amazing problem solvers, especially those of the abstract or theoretical variety; but please don't ask us to change a tire or balance a checkbook.
- We sometimes find it hard to look you straight in the eye, and we are easily embarrassed when we find ourselves the center of attention.

I cannot tell you how many times in my life when, in casual conversation with someone I've just met, after I reveal that I am a mathematician, the reaction is: "Omi-god, math was my worst subject in school; it was soooo hard. You must be a genius." But at the same time, the one who has just uttered the confession/paeon gives a furtive look at a fellow conversant which screams: "What a nerd! I wouldn't have been like this guy for my weight in gold."

However, in recent years, I detect another partially hidden reaction—both in stolen glances as well as in meekly asked follow-up questions, such as "So do you have a software or consulting company? I bet that you do OK?"

<sup>1</sup>The title of this essay "The Math Gene" is the same as the title of Keith Devlin's fascinating 2001 book. But the essay takes a different point of view. Whereas Devlin's book deals with the nature of mathematical thought, the workings of the human mind, and an intricate comparison of innate mathematical ability with innate language ability, this essay deals solely with the nature and behavior of mathematicians themselves—in particular, their social manifestations and economic motivations.

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This is a result of society's increasing fascination with technology and the seeming nerds who have pioneered its development. The names Bill Gates, Steve Jobs, Sergey Brin, and Mark Zuckerberg come to mind. Which leads to the question posed in the title: Is the Math Gene a ticket to wealth or nerdiness?

Alas, if there is a definitive answer, it is far closer to the latter than the former. Of the four names cited, only Brin can lay any claim to being a mathematician, and in fact his academic pedigree is more computer science than mathematics. Indeed, I know of only one academic mathematician—a former professor at Stony Brook University—who parlayed his math talent into a fortune. There might be others, but I doubt very many. For, generally speaking, the qualities that I have identified, which characterize mathematicians, are not those that equip a person with the skills needed to acquire great wealth.

Although the depiction of Mark Zuckerberg in the opening scene of "The Social Network" suggests some of the math nerd characteristics that I've specified, it would be a mistake to suppose that those traits helped Zuckerberg to attain the phenomenal wealth that he enjoys today. No, the traits that enabled him and the other great modern technological entrepreneurs to do the things that garnered massive wealth for them were otherwise. They certainly include: extraordinary creativity and originality—as opposed to mere problem-solving skills; a willingness, indeed eagerness, to take great risks; an aggressive, self-confident, and strong-willed personality; persistence and single-mindedness; an ability to read people and gauge their desires; and an inclination to defy convention and a lack of concern about what others think of them.

Not exactly the characteristics of your typical mathematician. But, if I might address a wider audience than just the normal *Notices'* readership: Not to despair, all ye parents and grandparents of a budding mathematician. Your progeny will not be cool, not trendy, probably not a leader of men, and almost certainly not rich. But a life of mathematics will yield: the satisfaction of cracking numerous mathematical puzzles; a professional life of honesty, fulfillment, a sense of doing something worthy, and occasional serenity; a camaraderie with others who are similarly endowed; and the respect, if not admiration, from the people one serves.

So, if your kid can swing a golf club as well as he can juggle numbers, and if you think that he would prefer riches to the contentment of a life filled with numbers, then take away his calculator and jam a putter in his hand. But, if he does have the Math Gene and you encourage it to flourish, then I promise you that he will lead a life in which he enjoys what he does for a living, often feels the joy of solving problems—even if they are theoretical and not practical—and finally, through teaching and research, he will take pride and pleasure in his role in the advancement of human knowledge.

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