

My relationship with math has changed over the course of my life and has gone through about 3 major phases.

The first was from early childhood through middle school. At this point, math was a skill that my dad was adamant that I acquire - something that I should be GOOD at, emphasizing speed and memorization above all. Almost like a personal trainer, he would buy textbooks from a used bookstore within our local library and direct me to pages of practice problems to complete in my free time. Alongside homework, these practice problems were something to be completed before leisure - which would realistically only last an hour, but felt like eons to me back then. My dad seemed to always want more; if I found the math that we were learning in school to be easy, then I was expected to go ahead and try to self learn some of the higher level math to prepare for upcoming years. Despite this, I don't think I grew to resent math, probably because it made schoolwork a breeze and gave a bit of bragging rights.

The second phase was through high school. At this point, I was able to realize how useful it was to have all that raw practice with math growing up, seeing how math is so reliant on having a solid foundation. I noticed others struggling, getting frustrated, and growing a resentment to math in high school. Two things really stood out during this period: a growing appreciation for math, and a love for applying it in useful ways. Outside of class, I almost obsessively worked out proofs and derivations - for a more thorough understanding than just memorization of formulas. Usually the teachers wouldn't put the students through the "suffering" of drawn out derivations and understanding the motivations behind concepts so I would attempt to read the textbook, or online articles, and sometimes even work things out and discover them myself. Physics, Calculus, Statistics, and Computer Science really took me through the journey of discovering the utilities of math irl. Physics and Calculus worked with more practical problems than the theoreticals from prior math subjects. Statistics showed me the potential of using math to make decisions and predictions. Computer Science is where I discovered how useful programming could be to, not only perform calculations and run analyses, but also to create an interface for users for even more practicality. Side projects of mine involved a projectile motion calculator with a menu system written in java and a google spreadsheet collecting item drops from pokemon go and reverse engineering the item drop rates using stats functions built into google sheets formulas. [Link to the google sheets if interested](#) At the end of the year, there were awards given for each subject to students showing particular aptitude or enthusiasm for said subject. The math department ended up choosing me for the award - much to my dad's approval? pride? I'm not really sure, but I just knew that at that point it was more my own genuine interest than a need for approval that drove me.

The third phase was my college experiences up to now. This is the point where I kind of "fell off". First time being away from home and engaging in more social activities, my academics fell behind. Also college classes lack the rigid schedule and professors don't really hover/cater to individual students as much as high school students. Lack of structure, discipline, and even interest (in favor of social events) led to me falling very behind in all classes. The strong foundation I built over middle and high school let me coast through most of the introductory courses without developing a solid understanding and with half decent notes. Eventually though, this weak early college math foundation caught up to me and I found myself struggling to understand concepts such as linear algebra, fourier transforms, etc. This would go on to impact my understanding of circuits, machine learning, etc. I still like math, but I don't feel like I have as strong of an understanding as I had in high school.