

I'd like to let you in on an open secret. Here it is. Mathematics is amazingly fun. If you would like to make a living one day, but don't want to have to grow up to do so; If you want to play for a living when you get older, or just do it as a hobby besides a dream job you've already decided on, you should do mathematics. If you are ready to believe this could be true, then welcome to this book. Keep reading!

If, however, you're sceptical, good for you! You should always doubt the things you hear, read, think you know or feel make sense. With that attitude, you're definitely the sort of person this book is intended for, but – who knows – perhaps not at this very moment.

There are books out there which are intended mainly or even purely to ignite your interest in this beautiful and awesome subject, but this is not one of them. I will be absolutely open about my love of the abstract world we will create and explore, and I'll do my very best to help you find the perspective from which our discoveries are best appreciated, but I will have an end goal in mind. I want you to get all the tools necessary to grasp the mathematics you learn at secondary school. Not just to perform the calculations – because who the heck cares about those in the age of calculators and smartphones – but to actually understand how everything fits together, and to see why this way of thinking gets so many people excited.

The enjoyment I get from it has always been sufficient reward for me to do mathematics. However, that's not exactly a reason to teach everyone. I'm sure you are already perfectly capable of enjoying yourself without maths, so why bother with a new hobby – particularly one which you need to invest time in before it gets really good – if you're already doing fine without it?

Here is the uncomfortable answer, which is better to confront, as it's the truth:

It's a horrible world out there. I mean, yes, there is love and friendship and music and dance. There are forests and mountain ranges and starry skies and flowery meadows. There is excitement, joy, passion and ecstasy (not the drug, although that's also out there). But you will struggle to revolve your life around them, because that's not how the world has been shaped by those who came before you.

Your life will be about debt, obligations, chores and work. Lots of meaningless work. No, really, loads. You may have noticed that your school is already starting to pile it up for you. Here's a fun activity. Ask a student in the year above you if they have less work. When they're finished laughing, have them ask someone in the year above them, and have that person ask someone in the year above them, and see what happens. Then, have the student cramming for finals – convinced no one has ever slaved away harder since the dawn of humanity, unless they're doing history – ask a first year at uni. And have them ask a second year. Keep going. As far as work is concerned, we're just warming you up. Welcome to life. Don't forget to enjoy a mountain range every now and then.

If you go with the flow, you will be exploited. You will work more than you need to, because that's what's best for certain others who can benefit from your work. However, if you want happiness and meaning in your life to be any kind of factor at all, you need to be able to resist the flow. You need to teach yourself to think: critically; logically; and creatively. And that's where maths comes in.

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