Mathematics: the BIG game behind the little tricks

Marta Maria Casetti - @mmcasetti on Twitter

Some links!

A debate on Quora about "what's the most beautiful equation"
www.quora.com/What-is-the-most-beautiful-equation
But even a Google search returns a lot of links. The popular choice
seems to be Euler's Equation: $e^{i\pi} + 1 = 0$

The most comprehensive collection of biographies of mathematicians.
There are posters, quotes, "mathematician of the day" and so on.
www-history.mcs.st-and.ac.uk

Six Habits of Highly Mathematical People - by Jeremy Kun
medium.com/@jeremyjkun/habits-of-highly-mathematical-people-
b719df12d15e#.jzc62ukwz

The poetry and process behind every mathematical proof.
A good insight on what goes on in the mind of a mathematician at work,
including the contradictions. Especially the contradictions.
http://www.forbes.com/sites/quora/2016/07/29/the-poetry-and-process-
behind-every-mathematical-proof/#169b74551ae7

A good (even if technical) example of mathematics as a method to face
reality without lying to yourself: using mathematics to detect and quantify
sexist assumptions in everyday language - and correct them with AI.
https://www.technologyreview.com/s/602025/how-vector-space-
mathematics-reveals-the-hidden-sexism-in-language/

Would you like to try more maths?

The next step is usually **the basics of set theory**. You can find it as chapter 1 of most maths textbooks.

Now: did you like the proof before? It's **logic**. It can become very abstract very fast - and the consequences are mind-blowing.

Do you like to play with patterns? Are you the person that always wanted to study Klingon? **Abstract algebra** might be the thing for you. I think it's one of the most beautiful things on Earth.

Do you like to look at shapes? Try geometry. **Euclidean geometry** is nice and full of proofs that become more and more complex. From there you can get to trigonometry, which is a great tool (and not that bad).

If you want to have a lysergic trip, **topology** is the most abstract branch of geometry. It's a place where a mug and a donut are the same thing. You'll need some background first, but it's very rewarding.

Do you want to feel like you control the infinite? **Calculus**. You need linear algebra first, which many think is boring – but it's a matter of taste.

Remember...

Don't expect to get everything straight away. You'll spend a lot of time trying to figure out how things work. This is normal. Most of the work of a mathematician consists at staring at whiteboards.

Look at **definitions** first. Think of **examples and counterexamples** that apply.

If you don't follow a passage, **move on** for a couple of steps then go back – but if you're completely stuck start again. Don't panic.

And Wikipedia is often a good place to look for ideas... :-)