



Conversations for the Math Community

WEBINAR SERIES



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The Definition of a Mathematician

math·e·ma·ti·cian

/,maTH(ə)mə'tiSHən/ noun.

presented by Rosalie Bélanger-Rioux & Sara Rezvi

The Definition of a Mathematician

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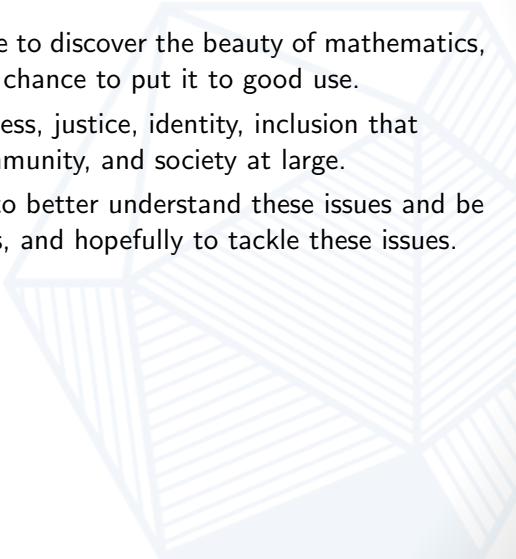
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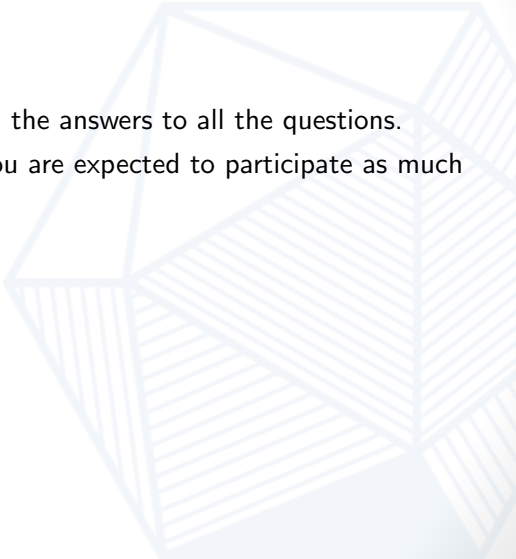
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April 21, 2026

Goals

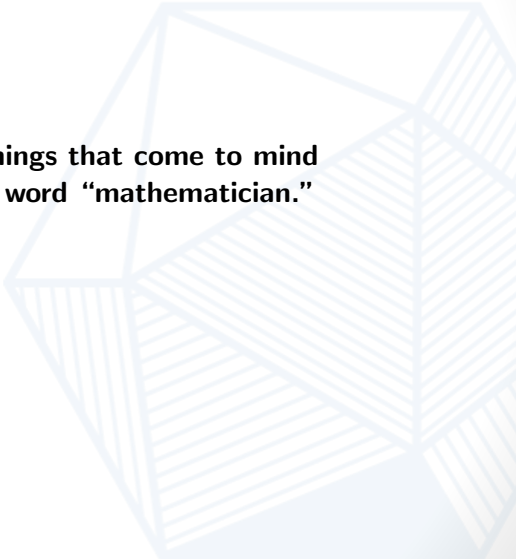
- Everyone should have a chance to discover the beauty of mathematics, and everyone should have the chance to put it to good use.
 - There are issues of equity, access, justice, identity, inclusion that pervade our mathematics community, and society at large.
 - Our goal is to give you tools to better understand these issues and be able to explain them to others, and hopefully to tackle these issues.
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Disclaimers

- We do not pretend to have all the answers to all the questions.
 - We will use active learning, you are expected to participate as much as possible.
 - “Three before me”
- 

Definition of “mathematician”

**List the first few things that come to mind
when you hear the word “mathematician.”**



Definitions influence... everything

Our mathematical theories are built on our definitions of the mathematical objects we want to study.

Our mathematical communities are built upon our definition of the word “mathematician.”

Think for a minute or so, and type in the chat a few ways in which the words you listed in the previous activity influence our mathematical community.

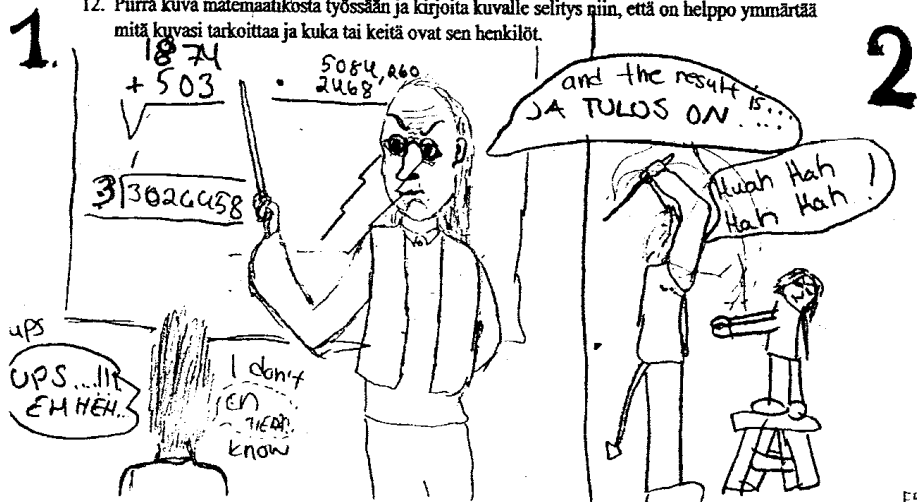
Effects on our mathematical community

- We reject (or are seen to reject) people who could be in math.
- Some people who are interested in math do not want to be part of our community.
- Some people who are interested in math hit a lot of barriers and switch fields.
- Some people stick to math but are not comfortable, not as successful as they could be, not supported, etc.

And who are we losing more specifically?

This even affects how children think of mathematicians

12. Piirrä kuva matemaatikosta työssään ja kirjoita kuvalle selitys niin, että on helppo ymmärtää mitä kuvasi tarkoittaa ja kuka tai keitä ovat sen henkilöt.



F57

Susan Picker, John Berry: *Investigating pupils' images of mathematicians.*

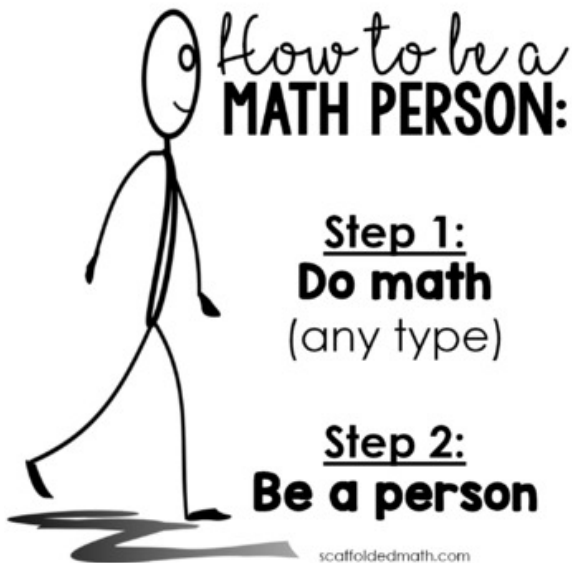
Alternate definitions? Alternate communities?

If there are some things we want to change about our mathematical communities, we need to start at the root: our definition of “mathematician.”

What could be a new definition of “mathematician”?

What would you like to first come to mind when you hear the word “mathematician”?

From the Cambridge Dictionary: “someone who studies, teaches, or is an expert in mathematics.”



How to be a **MATH PERSON:**

Step 1:

Do math
(any type)

Step 2:

Be a person

More on definitions

We have two contending definitions of a mathematician:

- The “official” definition: the definition anyone would give if asked (someone who does math).
- The “operational” definition: the definition we use on a daily basis without thinking about it (all the things you put in the chat at the start).

**What causes this difference between our
“official” definition of a mathematician, and our
“operational” definition of a mathematician?**

Think about this for a minute and type your answer in the chat.

Causes of our differing definitions

- Biases and stereotypes about mathematicians: who they are, what their work is like, what it “takes” to be a math person, etc.
- Lack of understanding in society about what math is, that it takes creativity for example, or that new math gets discovered, or that math can be useful, or that mathematicians collaborate.
- Beliefs about math ability: are you born with it, can you learn to be good at it, do you get stuck at a certain “level”?
- Gate-keeping from within: sink-or-swim, “I had to work hard to get here, it shouldn’t be easy for others to learn math”.
- Impostor syndrome, need to conform to this idea of being a “genius” or fear of being pushed out.

Where does this all come from?

There's an expression for this: oppression

The **Four I's of Oppression**:

Ideological, Institutional, Interpersonal, and Internal.

Today, we discussed the *ideological* level:

- Any oppressive system has at its core the *idea* that one group is better than other groups. For this reason this group feels it has the right to control or dominate the other groups.
- The dominant group thinks of itself as more intelligent, harder working, more advanced, superior, etc.
- The opposite qualities are attributed to the other groups.

The Four I's of Oppression

We also discussed the *internal* level:

- The idea that a group might rightfully dominate over others is *internalized* by everyone in that culture or system, including those in the non-dominant group(s).
- This means people in that system come to believe the dominance of one group as normal, or natural, or as making sense.

Those ideas of dominance are often reinforced by *institutions* through laws, practices, rules, policy, etc. That's the *institutional* level of oppression.

In our day-to-day we tend to notice more the *interpersonal* aspect of oppression in mathematics. That's when someone poses a direct act towards someone else, and that act is oppressive (whether the person intended or not for the action to be oppressive).

Recap

Let's reflect on what we did together today. This work takes intellectual humility, open-mindedness and acceptance of different perspectives.

Take a quiet minute or two to yourself to think about this:

- What is something that you have a better understanding of now?
- What is something that you need to unpack more for yourself, and how do you intend on doing so?
- What is something from today you will take back to your work, classroom, colleagues, department, or family?

Feel free to type your answers in the chat if you wish.

Take-aways

- We are humans doing math, not just mathematical brains doing math without thinking about anything else.
- Our biases, assumptions, stereotypes have an impact on us and our community, and on those who are not part of our community: in terms of people not feeling welcome, not joining us, leaving us, not being as successful as they could be, etc.

Thank you!

Join MAA Connect and look for “Conversations for the Mathematics Community ” for more webinars, resources, “assignments,” readings, etc!

