Survey Report 2

Ordinals

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Q47 - Please elaborate your previous answer: How do you see the role of visualization in mathematics?

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to aid in the understanding of the concept
Helping to me to visualize a functions by running numbers in my head and see how the function respond to it then I can tell how the graph will look like. If I have f(x) then I visualize x as an infinite set of numbers instead of a variable
Some people that are good in mathematics can imagine the visualisations but for people who find it difficult, it is important to give a familiar tool(other than confusing symbols and numbers) and to organize all the information in a clear and easy to remember way.
Visualisation requires understanding. If you can create an accurate visual stimulus in your mind, the understanding must fall into place quickly.
It helps with understanding depth of mathematics (I.e vector spaces) or with simple calculation and "lined" explanations (I.e 3+m not equal to m+3)
It can help us understand theoreticall ideas and proves of rules
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It makes understanding theoretical knowledge in a more down to earth way
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visualizations often help understand a complex subject in a simpler way that our brain can process more easily. If we'll use more visual aids in teaching and learning mathematics we can help people study it faster, more efficiantly, and even to attract more people into the ,athe,atics and various sciences fields.
Very importanat!
Helps to understand abstract concepts such as numbers beyond infinity
Good
Short explanatory videos
Provides the ability to prove informally and understand theorems without getting stuck technical issues
As a complimentary explanation

Please elaborate your previous answer: How do you see the role of visualiza...

For me I always need it to understand more logistical mathematical notions

Visualisation can be a good way to develop early intuition of a new subject, Wich can help students feel more comfortable, less threatened by the new subject and develop a mathematical sense

It should be included in the school system

I think that (at the very least) every new term or definition taught should be explained with a visual example.

A visualisation is useful for a specific example - such as the visualisation added of a specific ordinal number or the graph of a function - as opposed to a visualisation trying to capture the entire definition of a subject\term (which is often imposibble).

I think its an important role cause by "live example" people can understand better how to solve this kind of questions

I think it creates some connection between abstract concepts to something I can grasp, and in addition, help me remember definitions, how to calculate things and more.

Many mathematical concepts are highly complex and involve use of either graphs or geometric figures, these are thus much easier to represent visually than in text.

I think it would help reach another level of understanding, beyond just learning what is requested and knowing formulas by heart for example. i would help have a mental representation of what different mathematical manipulations represent 'in real life's.

I think it depends. Some people are more visual, others auditive...

Help to see the problem then solve it, but even more important in physics

Makes the learning of math more ingaging and fun

As an enhancer to the actual rigorous proofs

its not nessecery but very useful. it depends on what subject in math you are talking about. (calculus-sure , set theory-not really..)

Crunching numbers is always easier when writing it down than not

I do think visualisation is one of the basic process we need to pass by before proving something: we first need to know how stuff work before using it

To solve almost any question I visualize it in my head. Even with very abstract math I can use small examples which are easy to visualize. Learning with visualizations (such as in YouTube videos) helps me the most. It fails only when it comes to math that requires more than 3 dimensions.

in many cases, there is a clear geometric "meaning" to something. however, in the more advanced and general math - this gets less and less so, and trying to understand things in "visual" terms is shoving a metaphor into a box that does not quite fix: the edges are cut out. (tl;dr basic math for non-math can greatly be helped by visualisations. advanced math trying to be other the the math itself ends up shooting itself in the foot by doing so)

I see the role of visualization in mathematics as an integral part of the learning process. However, I think it is extremely important for the student to come up with his own, original visual representation of the material.

Demonstrate difficult theoretical new concepts

Please elaborate your previous answer: How do you see the role of visualiza...

Showing the importance of the learned material, applications

mathematics has many visualizations

I think at every level, the role of visualization might fall on the "teachers". They should be careful not to visualize everything and leave some room for "imagination practice.

Visualization is extremely helpful when being introduced with new abstract mathematical concepts, and usually leads to quicker attainment and understanding of the theory.

I see math not only for numbers, and I believe that the geometry of math is something that i can find almost in any math questions, so thinking about numbers and questions as something that ica see makes it a-lot easy. And i think it’s beautiful, to “see math” or “see numbers”.

It is very important

A bit helper material, a bit intuition. Not more

Very important but I don't use it enough.

I see it as a way to help explain proofs, as long as they are generalized and don't provide only examples

Visualisation I believe gives more permanent understanding. A function behaves in a certain way geometrically, vectors span a space, etc., and visualizations represent their actions. Otherwise math learning is just computation.

Some concepts (especially completely new one) are hard to understand, some are because they are hard to visualize (like Flux), but some confuses us because they redefine things we previously learned (such as ordinal numbers, or set-theory in general). In the latter, visual aid helps clarify the new definitions and the innate contradiction we have.

Its can help understanding

It's easier to understand what the aim of each equation.

Helping students gain a visual intuition on abstract concepts

When I think about mathematics, especially in topics that I know well, I will have developed some semi-graphical representation of the mathematical steps I'm doing. Like doing in-head animations for swapping sides in equations etc. So for me learning to visualize math in my head is a necessary part of the learning process if that makes sense.

It cain aid in concretizing some key concepts, but is not always necessary

It allows to get a more intuitive understanding of the concepts

Of an extreme importance as it gives the intuition behind the concept.

That’s what amphis should be about. Professors helping you visualize the content of their mathematics notebook instead of copying it on a board

It helps give intuition to learners, as most o the time concepts may he tough to grasp in an abstract setting..

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Please elaborate your previous answer: How do you see the role of visualiza...

Mathematical ideas are abstract, but also oftentimes non-verbal. A visualization speaks more than a sea of symbols, although non-rigorously.

I think its important to ground the subject and make it more real, math has a tendency to become too abstract very fast

One can understand a mathematical idea only after one has visualized it

Useful to explain concepts and work out what problems mean, and how to solve them

Actually im not sure about visualization in set theory, but it might be because I've never seen one. I can say that I believe that in infinitesimal calculus it has segnificant role, also in geomtry and topology. In algebra or set thoery I think it has a a bit less meaning, but of course it helps to model problems (Although I think we ahould notice that we don't stick only to visualise specific problems).

I think to add intuation after having a formal understanding is the way to go

I have found that when the mathematical concept is visualized in class, I do not need to read a lot more about it after. If we have just mentioned a concept and then explained it solely theoretically, I would need a lot more time to truly understand it.

I belive that visual learning is so underrepresented in our learning of mathematics even though it would make it so much easier to understand for the majority of learners. Inability to do mathematics easily is one of the biggest reasons why students give up on science and I think that if we would just change the way we taught mathematics and let students actually understand how these theorems work visually, I feel like the mental jump to understand the concept wouldn't be so difficult..

End of Report