Why the Math Stack Exchange is a waste of time

Peter Haggstrom

www.gotohaggstrom.com

mathsatbondibeach@gmail.com

December 10, 2017

1   Introduction

For students who are struggling with a maths problem they can go into Math Stack Exchange and be subjected to a tsunami of condescension, arrogance and in some cases, outright rudeness. In my view this "community" reflects many of the characteristics that put people off mathematics. Here is one gem:

"Question: In my algebra class, we learn that the maps $l_g(x) = gx$ for $x \in G$ and $r_g(x) = xg$ for $x \in G$ are bijective. The proof given uses the fact that $l_g \, l_{g^{-1}} = l_{g^{-1}} \, l_g = 1_G$, so both functions are bijective since 1_G is and therefore l_g is bijective. The proof for r_g is analogous. Is there are more intuitive approach to achieving this result? The proof, while elegant, doesn't provide intuition (in my opinion).

Answer: I don't understand what you mean by "a more intuitive approach to achieving this result"? What role is intuition supposed to play here? "

The poor guy then gets hosed on in a similar fashion by several other people. There are many responses much worse than the put down delivered to the questioner above who is actually seeking to understand something fundamental. Eventually someone without delusions of grandeur actually provides a useful and insightful answer. Respect ! I have looked at several areas that I know quite a lot about and I am shocked at how bad some of the answers are when one considers that you would only ask the question if you really didn't know how to proceed.

Here is an application of this result due to Putman (of the Putnam Prize): Let G be a finite subgroup of the linear group $GL_n(\mathbb{C})$ Let M be the sum of all matrices in G. Show that det M $\in \mathbb{Z}$.

Solution:

Let $G = \{A_1, \ldots A_t\}$ so that $M = A_1 + \cdots + A_t$.

Taking the square of M,

$$
\begin{aligned}
M^2 &= (A_1 + \cdots + A_t) \cdot (A_1 + \cdots + A_t) \\
&= A_1 \cdot (A_1 + \cdots + A_t) + \cdots + A_t \cdot (A_1 + \cdots + A_t) \\
&= (A_1 + \cdots + A_t) + \cdots + (A_1 + \cdots + A_t) \\
&= t \cdot M
\end{aligned}
\tag{1}
$$

And from $M^2 = t \cdot M$ we get $\det M^2 = t^n \det M$. Thus $\det M = 0$ or $\det M = t^n$ with $t = |G|$ Thus in both cases $\det M \in \mathbb{Z}$, as wished.

I invite interested readers to put the solution to Math Stack Exchange and ask for illumination!!

I have thought about submitting the following question to see what happens:

" Prove that a regular complex valued additive set function defined on a field of sets in a compact space is countably additive."

This question comes from Dunford and Schwartz's book "Linear Operators Part 1, General Theory" (page 170 Problem 20). Next to the problem is the name "Langlands" – none other than Robert Langlands and according to Schwartz when he and Dunford set the exercise they thought they could knock out the solution but it proved really hard. Langlands was a young graduate student and he went through the problems and provided a solution. That gives you an idea of how hard that problem is given the statures of the people involved. I bet someone in Math Stack Exchange would say "That's obvious".

The elephant in the room here is that within the mathematics, physics and computer science communities there are a significant proportion of people who are "on the spectrum". They lack empathy and are usually appalling teachers. If you are a student who has not "clicked" with the subject these people will never get you to a point where you understand it.

If you have laboured over a problem and go to the Stack Exchange for help and it is obvious you have had a serious go you may get a less aggressive response, but I wouldn't count on it. It is a lottery. Anyone can answer and it depends what kind of mood he or she is in. There are cultural dimensions as well.

By definition, if you have to ask the question, you are obviously not across the area and this means that someone who has mined some particular part of the area (and may or may not have a good PhD in the area) may present an answer that reflects a highly specialised level of knowledge which will undoubtedly be way above yours. I see that in a lot of responses and the questioner struggles his or her way the miasma of assumed specialised knowledge. The "helicopter" view of an area is actually the hardest to come by because you have to know so much. It is actually beyond most of the people who provide answers on Math Stack Exchange - I know because I have been taught by leaders in their fields and I can tell when someone knows a lot about a little.

When you read the terms and conditions of Stack Exchange (which is I see as nothing more than a vanity product for mathematically inclined people with delusions of grandeur), you realise what an outrageous system it is. The Stack Exchange owns all your intellectual property!! That is the ultimate vanity product dressed up as a selfless community-spirited venture. They can ride off the coat tails of all your work and ultimately publish aggregated material for a fee and you get nothing. You can put on your CV that you have such and such a reputation but it amounts to nothing in dollar terms for you. I have better things to do with my time than support a business model that is so offensive to people trying to understand mathematics. But given that stumbling on a good response (which do exist by the way) is a bit like a random walk, do you feel lucky?

2 History

Created

10/12/2017