

Mathematics, the Big Picture

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This article is intended mainly for those people who mistakenly take into consideration the fact that mathematics is all about calculating.

Well mathematics is more about how to avoid calculations and make life easier. Yes at times calculations are performed but they are not mathematics but just a part of it (the very reason why humans built the computer and calculator was to avoid calculations and save time). Mathematics, on the contrary, is similar to solving a puzzle whose solution would give a hint to our very existence and the hint to the supreme reality.

It is quite difficult to define mathematics or who a mathematician is. According to wikipedia mathematics is "the science of quantity (numbers), structure, space and change." Infact there is an entire page out on wikipedia on the [Definition of Mathematics](#). Anyways, for me mathematics is finding the patterns of nature.

Mathematics lies on a platform supported by universal truth and not by opinion. In such a situation the minority can rule out the majority(as opposed to the system of voting) if they are mathematically correct. For example Maxwell's mathematics showed that Faraday was correct in considering light to be related to electricity and magnetism when almost everyone else considered Faraday wrong.

Mathematics is based on a set of trivially true assumptions(appear to be) known as axioms. Theorems are logically proved statements by using axioms or other theorems. A lemma is a non-trivial result required to prove a theorem. A corollary is a direct consequence of a theorem. A conjecture is a statement that appears to be true but has not been proven yet.

It might seem that mathematics is a field totally abstract but in fact mathematics is finding a place in reality at a very fast pace. At many a times I have been asked by my friends that what is there to be researched in mathematics. I am aware that they aren't aware of the process with which something is created. An example would be that the engineers are responsible for making the applications of science based on the works of scientists. Here comes the use of mathematics as it is the language in which science is written. And I repeat here that any theory that is not backed by some concrete mathematics is most likely to be a flaw.

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It is a great unified theory. It has applications in not only physics, chemistry, engineering, computer science but also biology, economics, finance and even language and music. Hence mathematics is both the mother as well as the servant.

In today's world the notion of a mathematician being an applied or pure mathematician does not exist.

Infact today it is quite difficult to term someone as a mathematician as fields such as quantum mechanics and hydrodynamics.

Mathematics should be read and appreciated according to the readers' interest and capacity. When mathematics was created it was not divided into courses. That happened much later. However a bit of discipline is required to polish the concepts. Reading some topic in chronological order of the results would be good as along with the subject one will also be acquainted with the historical background. It is always good to know some history.

It is said that problems are the heart of any subject. So practicing a variety of problems would give a good grasp over the topic. However the interest in solving problems should not develop a killer attitude such that one loses the love for theory. Hence there should be a balance between problem solving and theory study.

Note : The above article is a manifestation of my idea of mathematics.

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