

FIVE MYTHS OF MATHEMATICS -- Shirley Hill, UMKC

This article is a summary of a talk given at the Twelfth Annual Mathematics Conference at Miami University September 28-29, 1984. The talk was shortened to four myths by a time constraint.

1. The Myth of the Neat and Complete

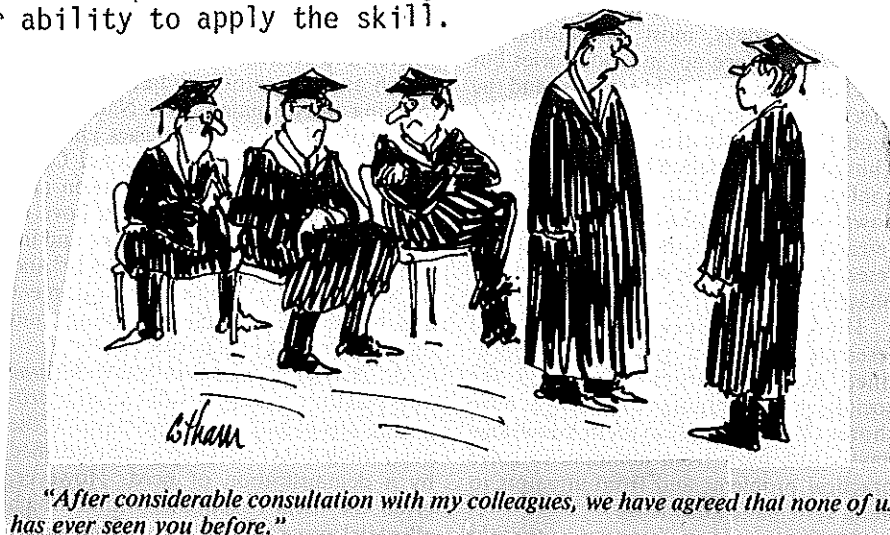
International research suggests that most people perceive mathematics as fixed and complete, exact, one correct answer. Most instruction tends to support this view of mathematics. Does this view attract those who are adventurous and looking for a risk? Where is the pattern; where is the joy of the "aha"; where is the joy?

2. The Myth of the Straight Arrow Solution

This myth is reinforced by the type of instruction which begins and progresses to the end without any branching or false starts. There is no trial and error. Instructors who proceed along the straight and narrow don't need erasers. We need to do some nonlinear thinking and some nonlinear problem solutions so the student gets some feel for what it is like to do mathematics.

3. The Myth of the Great Mathematics Machine

"Oh, Mike is a human computer." Many students are prone to view the instructor as well as the brighter students in the class as some sort of human machine when it comes to mathematics. There pleas often take the form of "Please program me.", "Where do I begin?", "I know there is a formula for this, but I can't remember it.", "Just tell me what to do and I'll do it.", "Is this the answer you wanted?". Mathematics for most is "algorithms and formulas". Mathematics as a series of learned skills is an incomplete characterization of the discipline. "You can't teach kids to think" is short of the real possibilities open to us to improve thinking skills of students. Formulas and algorithms do suffice for many problems, but surely not all. All levels of schooling reinforce this myth. The National Assessment of Skills in Mathematics does not support the premis that knowing the skills assures later ability to apply the skill.



4. The Myth of the Mysterious Magic Show

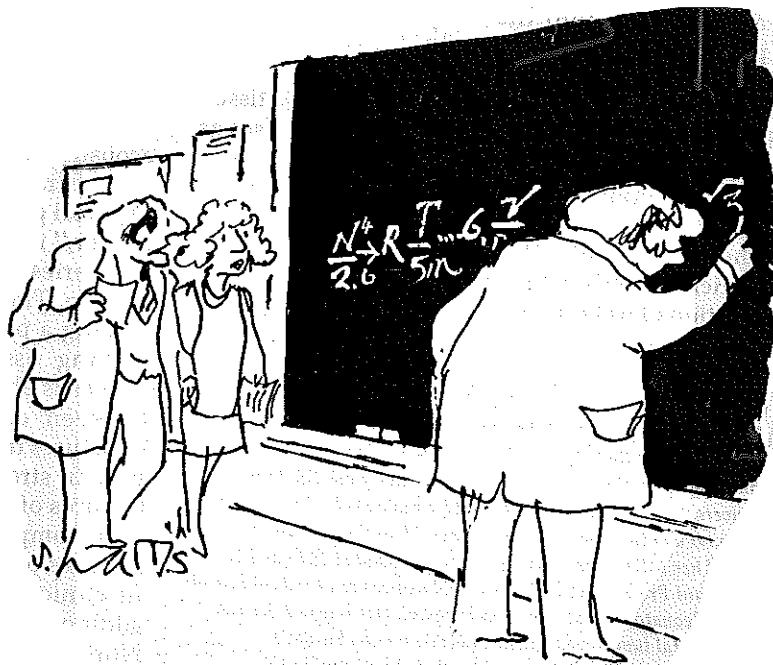
We should teach mathematics for everyone. Too many teachers still say students can't do mathematics and should be doing shop. These people tend to retard the teaching of mathematics to more students and continue to support the selection of students who require less effort to teach. Our approach tends to screen out and discard many capable students. If we stop pulling our solutions out of a hat and begin showing students how we sometimes struggle to find the starting place in a problem, or why we pull out a particular formula, we will be able to reach more students with the concepts we are trying to teach.

APPLIED MATHEMATICS MULTI-MEDIA -- Modules Now Available from the MAA

The MAA announced the availability of three multi-media learning modules for use in college classrooms. In these modules, which consist of video cassettes, written materials, and microcomputer software, real word industrial problems and their solutions are presented by industrial representatives who have actually encountered these problems in their work.

The modules were produced during the first year of a three-year project called Teaching Experimental Applied Mathematics (TEAM) funded by a grant to the MAA from the Fund for Improvement of Post-Secondary Education (FIPSE). Three additional modules will be developed during the second and third years of the project.

The TEAM learning modules are intended to help college instructors introduce into the undergraduate curriculum a viable component in a two-part video cassette in which the problem and a solution are presented, a Student Resource Book (which contains the problem setting and some related background information), and a Teacher Resource Book (which contains the solution to the problem in complete detail, alternative solutions and suggested teaching strategies). Two of the three completed learning modules also include software for the Apple II.



"I think he's crossed that thin line between science fiction and fantasy."