ANY QUESTIONS?*

Desmond MacHale

Recently, I attended a mathematical lecture given by a guest speaker where absolutely nobody, except possibly the speaker, had the remotest idea what was going on. Normally, one can absorb at least some of the preliminary definitions and follow, say, the first blackboard full of development of the theory, but on this occasion everyone was completely lost after the first definition. After the speaker had finished over an hour later to an enthusiastic round of applause, the chairman asked for questions, and, of course, there was a deathly and highly embarrassing silence. Then and there I resolved to put together a collection of universal questions for use in such situations. Such questions must sound sensible, but they are designed to cover up the total ignorance of the questioner rather than to elicit information from the speaker. The following is the list I came up with.

1. Can you produce a series of counterexamples to show that if any of the conditions of the main theorem are dropped or weakened, then the theorem no longer holds?
   [The speaker can almost always do so - if not you may have presented him with a stronger theorem!]

2. What inadequacies of the classical treatment of this subject are now becoming obvious?

3. Can your results be unified and generalized by expressing them in the language of Category Theory?
   [The answer to this question is always NO!]

4. Isn't there a suggestion of Theorem 3 in an early paper of Gauss?
   [The answer to this question is almost always YES!]

5. Isn't the constant 4.15 in Theorem 2 suspiciously close to $4\pi/3$?
   [This question can clearly be generalized for any constant k - "Isn't k suspiciously close to $(p/q)\pi$ (for suitable integers p and q)?"]

6. I'm not sure I understand the proof of Lemma 3 - could you outline it for us again?
   [Lemma 3 should be just a little nontrivial, yet not more than one third of a blackboard in length.]

7. Are you familiar with a joint paper of Besovik and Bombialdi which might explain why the converse of Theorem 5 is false without further assumptions?
   [This is a dangerous question to ask unless you like living dangerously. The answer is always "NO" unless the speaker is playing the same game as you are, because Besovik and Bombialdi do not exist, and even if by some unfortunate chance they do exist, it is very unlikely that they have written a joint paper. If the speaker calls your bluff and asks for details and a reference, tell him the paper is available only in Albanian with Portuguese summaries. Promise to mail him a copy but forget to do so.]

8. Why not get a graduate student to perform the horrendous calculations mentioned in Theorem 1 in the case $n = 4$?
   [The answer is always "I've a student doing just that at the moment."]

9. Could you draw us a simple diagram to show what the situation looks like for $n = 2$?
   [Be careful that he hasn't already done so.]

10. What textbook would you recommend for someone who wishes to get students interested in this area?
    [The speaker has almost invariably written such a textbook himself and will be delighted you asked this question. If he hasn't, then you can ask the next question.]

11. When can we expect your definitive textbook on this subject?

12. Why do you think there was such a flurry of activity in this area around the turn of the century and then nothing until your paper of 1979?

    [The true answer is that people in the period in between had more sense.]

    In general, a good ploy is to stop halfway through a totally meaningless question you are asking and pretend you have suddenly seen the answer yourself. However, never, *never*

13. What are the applications of these results?

The speaker is probably embarrassed enough already!

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Department of Mathematics,
University College,
Cork,
Ireland.

CONFERENCE REPORT

THE ROLE OF MATHEMATICS IN ENGINEERING EDUCATION

The conference was held on June 7 and 8 at NIHE, Limerick and was attended by over fifty engineers and mathematicians from Universities, Polytechnics, NIHEs, RTCs and Colleges of Education throughout Ireland as well as a number of representatives from industry. The aim of the conference was to discuss whether the importance of a mathematical education for engineers lies in the development of a formal language for the expression of engineering problems or in the provision of a problem solving tool kit. The six sessions were each addressed by a keynote speaker and followed by lengthy discussion periods.

The conference was set in motion by that 'honorary Irishman' Professor Avi Bajpai of Loughborough University of Technology who reviewed the development of engineering education in the last ten years, stressing the greater emphasis on computers which has led to more numerical and statistical techniques, control theory, optimisation and operations research. He suggested that the teaching of modelling by means of case studies could lead to an integrated approach which could be implemented by team teaching. At the conclusion of his talk Professor Bajpai demonstrated some material developed for computer assisted learning in the MIME project (Micros in Mathematical Education).

Professor Eamonn McQuade, NIHE, Limerick, looked into his crystal ball and considered the implications of new technology, e.g. CAD, CAM and expert systems, on the skills required of engineers. He concluded that in the future engineers will need a strong fundamental knowledge of the underlying principles of their technology and insisted that mathematics teaching should concentrate on principles and concepts rather than solution techniques.