

I CAN'T SEE THE MATH FOR THE PROBLEMS

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The student of mathematics is often called upon to acquire both understanding and computational skill in areas for which he or she has only the slightest notion of underlying purpose. Not always expressed, such frustrations center around the questions, "Why study this topic?" or "What is this topic good for?" In the judgment of many, the obvious standard of importance is that of immediate practicality and routine application in the world of everyday living. If the learner concludes that man cannot build a bridge, erect a skyscraper, or even buy a car with the tools afforded by the various concepts, immediate suspicions generally arise as to topical worth.

Perhaps a basic philosophy is at play here, namely, *mathematics is merely a routine tool*: it is inherently subservient to the other existing disciplines, and is thus not important in its own right. Teacher disposition of the question, "What is this topic good for?" may take undesirable forms as well. Such responses as

"Justification of the topic is beyond the level of this course," or

"You'll learn about that later on"

are of little satisfaction. If the teaching technique is simply that of "getting on with the problems," deep student concern as to topical worth will persist.

The word "problems," at least to many, suggest some of the more unpleasant aspects of mathematics. No doubt, in the sense of routine and non-appealing manipulation, such an impression is easily obtained. Accordingly, and unfortunately, the golden opportunity called "problem solving" often becomes the stumbling block on the path to learning. Is the student thus justified in his thoughts to the effect that he or she cannot see the "math" for the problems? Or is there a point of view that dispels these negative thoughts and wherein problems may be seen in a vastly different light?

The very nature of mathematics strongly suggests that the answer to the latter question is an emphatic YES. Consideration of various of the frequent encounters within this broad area of problems and problem solving lends support to such a position.

One cannot deny the important place of immediate mathematical application. Yet one of the challenges of mathematics is that of presenting a fair and balanced picture as opposed to a distorted or unbalanced one. This point of view encompasses much and leads into many areas of opportunity. It may be the appeal that goes hand-in-hand with intellectual curiosity. Perhaps it is the thrill of exploring the unknown, reaching out into domains of unforeseen application. To some, it may result in regarding mathematics as an art, thus giving the discipline a standard of beauty and elegance all its own. And of course,