

# MAKING THE PEAKS HIGHER

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## **Abstract**

We propose to offer a prize of \$10,000 and several smaller prizes to a student under 17 who does best on an exam on a graduate level mathematics book specified a year in advance. The slogan is *Make the peaks higher*. The prize will encourage someone who will do extremely well in mathematics to do even better.

The project undertakes get some young people who are likely to do well in mathematics to do even better. It fits under the slogan *Make the peaks higher!* of one of the major American foundations at the beginning of the 20th century.

Here's the plan.

1. A \$10,000 prize is announced in year in advance for the best score on an examination on a mathematics textbook announced in advance. Ten subsidiary prizes of \$1,000 are also offered.
2. The peaks of mathematical talent include teenagers who can learn a subject from a book without help from a teacher. It is these peaks that we hope to make higher by motivating hard study at an early age.
3. The upper age limit is 17 (or maybe 16) at the time of the examination.

4. One suitable book might be van der Waerden's *Modern Algebra*. In successive years (if any) different books may be used.
5. Courant and Robbins and E. T. Bell's *Men of Mathematics* are recommended as orientation material. The exam wouldn't cover their material.
6. No help is offered beyond the name of the book. However, candidates may use any help they can obtain in preparing.
7. The money is paid without any conditions on what a winner may do with it.
8. Unless a winner objects, his name will be publicized.
9. Maybe we call it the Ramanujan prize in memory of that self-educated mathematician.
10. The prize will be announced on a web page. The likely candidates are likely to run into it there. Other publicity will be sought, but no money will be spent on publicity.
11. Two exams are offered on the same material. The first is unproctored but graded, and the grades are returned to the candidates. A score is announced such that a candidate who scored lower hasn't significant chances of winning a prize on the second exam. The exams are presented on a web page, taken on the web page. The readers of the exams get them from the pages.

The second exam is proctored and determines the prize. The object of the first exam is to reduce the number who will attempt the second exam.

12. Mathematicians throughout the world are solicited to help administer the final exam.

The idea is that the prize will motivate a mathematically talented youth to study a graduate level subject harder than he otherwise would have done. Those who don't win will also benefit from the study.

I (John McCarthy) have money to do it once but not to endow it. If the prize is to be continued, more money must be found.

Help is needed to

- Choose the book.
- Make up and grade the examination.
- Administer the exam.

None of the above ideas are chiselled in stone.

It's a different project, but it would be nice if teenagers already motivated to program computers would be inspired to put in more mathematics. If I knew how to motivate hard study of artificial intelligence, I'd have been inclined in that direction.