2005 UAB MATH TALENT SEARCH REPORT

The third annual UAB MTS (Math Talent Search) Contest took place on campus on Saturday, February 19, 2005.

Students began arriving at the 15th Classroom Building at 8 a.m. There were 157 students, grades 10 and 11, from 21 high schools participating. With coaches and chaperones, we had a crowd of more than 200 people.

At 9:00 a.m. students began the two hour and a half test, and their teachers and chaperones enjoyed the hospitality room.

At 11:30, when the test was over, students and teachers were treated to donuts and juice. The UAB math faculty and students began the challenging task of grading and judging the answers of the 157 students. The graders did an excellent job of determining winners. By 1:15pm the outcome of the contest was decided.

During the grading of the tests, students gathered in the Hill University Center Alumni Auditorium, for a motivating presentation, "Billiards and Illuminating Rooms", by Dr Nikolai Chernov from UAB. Before the lecture, Dr Gray from Computer Science Department informed students about the upcoming in May Programming Contest and Dr Lewis from Department of Mathematics talked to students about the Department of Mathematics Fast Track Program. Then Dr Lewis introduced Dr Chernov and the lecture started.

In his lecture Dr Chernov described several beautiful and on the other hand elementary problems that arise in the theory of billiards (let us note that Dr Chernov is a world-renown expert in the field of ergodic theory, of which the theory of billiards is an important part). Some problems he considered and in some cases solved were, for example, as follows: a) given a pool table with a positive angle at a corner, how many times a a point (a degenerate ball of zero size) can reflect off the sides of this angle before it moves out of it?, b) what if in the situation above the sides are curves forming zero angle? (the problem not solved until now), and c) given a room with mirror walls, how many light bulbs does one need to illuminate it entirely? (note, that here rooms are not necessarily convex, and the answer is that depending on the room one may need arbitrarily many light bulbs).

The Awards Ceremony began at 1:45 with prizes presented by Dr Blokh as Dr Weikard read the list of winners. Schools who won the contest received trophies while the student winners received certificates and books about mathematics.

The following individual prizes for top scores were awarded:

10th grade Individual Winners

1st place: Johny Hu (Grissom); Evan Zhao (Vestavia); Andrew Chou (Vestavia)

2nd place: Chris Thomas (Vestavia)

3rd place: Zhenya Kaliberova (Vestavia); Ryan Muller (Vestavia); Seva Tchernov (Vestavia); Jennifer Berry (Grissom)

School Winners in the 10th grade

1st place - Vestavia

2nd place - Grissom

3rd place - Hoover

11th grade Individual Winners

1st place: Sara Katherine Clay (Vestavia)

2nd place: Jeanette Dooley (Vestavia)

3rd place: Scott Atkinson (Hoover)

4rh place: Abhay Kulkarni (Vestavia)
School Winners in the 11th grade

1st place - Vestavia

2nd place - Hoover

3rd place - JCIB

Schools trophies were awarded based on the composite score of 3 highest individuals.

All in all, it was a full day of activities for student visitors and the UAB Math Department.

Our thanks to the sponsors of this event: Dean Wenger (who supported our efforts in all respects from the very beginning) and our chairman Dr Weikard (who encouraged us and helped us all along in our efforts to run the contest).

Our thanks also to all the students, members of our Department, and members of their families, who helped this year's MTS Contest succeed.

Until UAB MTS 2006,

Best wishes,

Carolyn Wailes, Coordinator

Alexander Blokh, Outreach Director