### OPEN EVENTS

#### TOPICS

**Algebra**
- Complex numbers.

**Geometry**
- Problems with numerical answers involving similar and congruent figures. Questions based on a sophomore plane geometry course.

**Trigonometry**
- Trigonometric and inverse trigonometric functions. Values of trigonometric functions.

**Mental Arithmetic**
- Problems employing basic operations of arithmetic will be presented by use of flash cards. The only writing done by students will be to write answers.

**Computational Mathematics**

**Elementary Data Analysis**
- Measures of central tendency, variability and correlation, data transformations, best-line fit, graphical summaries.

**Sets and Logic**

**Number Theory**

**Probability**

**Hand Calculators**

**Non-Routine Problem Solving**

**Level I (9th & 10th Grades)**
- Interesting problems requiring ingenuity rather than high mathematical skills to solve. Arithmetic, basic algebra, knowledge of intuitive geometry, and number sense are used.

**Level II (11th & 12th Grades)**
- Intriguing problems requiring ingenuity, logic, number theory, basic algebra, geometrical relations to solve rather than depending on highly developed technical skill in a branch of mathematics.

### 9th GRADE EVENTS

**Word Problems**
- Problems that can be solved by a linear equation or a linear inequality. Types found in most traditional Algebra I books.

**Number Bases**
- Computations in bases other than 10. Change from one base to another.
10th GRADE EVENTS

Algebra I

Geometry
Problems with numerical answers involving similar and congruent figures. Length, area and volume. Angles in circles. Pythagorean Theorem. Questions based on a sophomore plane geometry course.

11th GRADE EVENTS

Algebra II

Word Problems
Problems that can be solved by a linear equation (inequality), quadratic equation (inequality), or by a system of equations.

Exponential and Log Functions

12th GRADE EVENTS

Matrices and Determinants
Properties of matrices and determinants. Computation and applications.

Analytic Geometry

Calculus
Derivatives and integrals of algebraic functions with applications.

TEAM EVENTS

Algebra I
Same topics as on the 10th Grade Algebra I test.

Algebra II
Same topics as on the 11th Grade Algebra II test plus questions on absolute value, arithmetic and geometric sequences, logarithmic and exponential functions, and word problems.

Geometry
Same topics as on the 10th Grade Geometry test. Questions based on a sophomore plane geometry course.

Trigonometry
Same topics as on the Open Trigonometry test.

Medley