

# MATHEMATICS

## 7-12 GENERAL LEARNING GOALS

As outlined in the NCTM Standards, the intent of these goals is that students will become mathematically literate. That is to say that students will be able to explore, to make conjectures, to reason logically, and to use a variety of mathematical tools to solve problems.

Students will learn to value mathematics and become confident in their ability to do mathematics. They will see that mathematics is more than a set of skills to be learned and facts to be internalized, that it has applications in many social and cultural contexts, and that it empowers individuals to be successful in a variety of pursuits. They will realize that mathematical thinking is crucial to their understanding of the increasingly complex technological world.

Students will learn to reason mathematically and become effective problem solvers. They will learn to solve problems by gathering evidence, making conjectures based on evidence, and then supporting the conjecture with logically developed arguments. They will learn to apply mathematical skills and concepts to problems across disciplines. They will meet problems that cannot be solved by a few simple steps, but rather require the organized application of a variety of techniques. They will learn to work on problems as members of a team, working together to solve a problem and to build a general solution.

Students will learn to communicate mathematically. They will have regular opportunities to discuss, read or write about applications of mathematics in a variety of areas. Students will analyze and discuss problems, and record how they arrive at solutions. In addition, students will be challenged to demonstrate their understanding of mathematical concepts both orally and in writing.

## **STATEMENT ON MULTICULTURAL EDUCATION**

The Mathematics Department of the Amherst Regional Schools has high expectations for all students. The department recommends that students study four years of high school mathematics and actively encourages students from traditionally underrepresented groups to choose to work at the honors level in mathematics.

We encourage our students with some of the following:

1. Recommending students for participation in the Project Challenge Program, in which students who opt to challenge themselves for the first time with honors level courses are scheduled into a special academic support period.
2. Employing a variety of instructional strategies that address the wide array of learning styles represented by students from all segments of the population.
3. Arranging tutorials, when necessary, through the UMASS Talent Search Program, the 9/10 Study Center, or National Honor Society during a student's study period.
4. Providing a greater level of historical reference in courses, especially concerning contributions from traditionally underrepresented groups, by enhancing our departmental reference library to include these kinds of materials.

The department uses data from a variety of sources to monitor the achievement of all students in math courses to determine whether the achievement patterns of students from traditionally underrepresented groups matches the achievement patterns of other students.