Habits of Mind for Mathematics Teachers

[High School Teachers]

Martha Siegel
Towson University, MD
What is Mathematics?

Our graduates should understand the central role of mathematics in intellectual history: in science and technology, in commerce, in philosophy, in architecture and engineering, in medicine, agriculture, etc.

Our graduates should see mathematics as a vibrant and developing field full of new discoveries and applications.
What is Mathematics?

Graduates should understand the structure of mathematics: axioms, theorems, proof.
Graduates should understand abstraction, generalization, and the processes used in “doing” mathematics.
Graduates should be aware of the many ways of representation – numerical, algebraic, geometric, analytical.
What is Mathematics?

- Our graduates should know basic logic – the nature of direct proof, indirect proof, proof by contradiction, counterexamples.
- Our graduates should have some feel for the differences in discrete and continuous mathematics.
- Our graduates should understand the proper role of technology in the classroom.
College-level Mathematics and the High School Curriculum

- Graduates should be able to relate topics in the high school curriculum to their college-level mathematical background and vice-versa.
- Graduates should be well-informed of career opportunities and paths for mathematics graduates at the Bachelor’s, Master’s and Doctoral levels.
What’s a Mathematics Teacher?

• Our graduates should think of themselves as professionals by being -
• aware of professional resources to help them develop new methods and materials,
• active in local professional organizations,
• able to develop their own materials and resources,
• actively involved in their own learning.
And above all....... 

- Teachers should LOVE the subject they teach so they communicate to students the joy of mathematics.
- Teachers should LOVE mathematical puzzles, challenges, and problem solving.
- Teachers should LOVE teaching!!!!