Life in the math lane

I think that the most important thing for the instructor to do in a math course at JHU is to promote experience, flexibility and self-reliance. The last two are absent from the math courses in most high schools. I have expressed this idea in published articles about mathematics education. Note that I omitted “teaching the material to the students.” It’s true that the instructor should explain things to the student, but the student is also to pick up things from reading the textbook and by engaging their brains. “Flexibility” refers to the ability to apply what has been learned in new situations.

One fixed idea that students often come into college with, based on their experience in high school, is that they should be able to follow the lectures without preparation. To me, that is anathema; it is a sly way of trying to pressure the instructor into putting a low cap on what the students will learn in the course.

There is no reason why you should feel that you had to follow today’s lecture in order to learn from it. There was no quiz at the end of class, was there? After all, you had no means of anticipating what I would talk about in advance, so you did not know what to look at in the book beforehand. It is of immediate relevance that you read Telling Tale #12. (Enjoy the other tales too! Two are about me.)

When I did the regular Linear Algebra course a couple of years ago, there was a student who complained that I was teaching to the students who already had the course. My best guess is that those students had not, but rather they had looked at the book before each lecture, as recommended. Some things they understood, other things they didn’t quite. They guided what I wanted to tell—not just to them—but the whole class, with input from students. I aspire that the students get to that level, whether or not some people happen to be closer to it already.

Today’s lecture was about integers and rational numbers. What can be so difficult about that?! To answer this question, I would say that I was asking you to take a new point of view. I’m quite certain that virtually all of you can understand it pretty well, provided you take the time to look at your notes and think about them.