

Learning Algebra: One Step at a Time

September 28, 2021

Upon completion of my Doctorate in 1987, my first project was to write a basic algebra book that would be easy for students to understand, especially students who had trouble with math. My theme was to integrate the explanations with examples and exercises in a worktext format. Traditional textbooks of the day presented lengthy explanations for a section with long sets of exercises at the end of it. Explanations were formally written by mathematicians, very hard to understand by average students and even harder to understand by struggling students. My idea was to present math concepts one at a time with a brief explanation, followed by one or more examples, then partially solved exercises or exercises with hints with space provided for students to complete the work. Finally, carefully graded exercises from simple to challenging were provided. Imagine a child learning ride a bicycle. First, he/she rides with training wheels. Then comes that happy (or scary!) day when it is time to remove the training wheels. A good mom/dad holds the bike while the child takes off. Gradually mom/dad lets go! Suddenly, the child is riding the bike—that is, until the crash comes! At that point, hopefully mom/dad runs over to pick the child up and to encourage another attempt to ride. This is how it is learning mathematics! We all fall down! It's okay! We don't get hurt too badly, so we get up, and we try again!! Things are never as bad as they seem. We don't need people yelling at us and telling us that we are no good at bike riding (or at doing mathematics!)

The result of my first project was the worktext *Basic Algebra: One Step at a Time*, so named because of my attempt present math concepts “one” at a time. Some of my critics accused me of “spoon feeding” the students. I asked them, if not a spoon, what should we use? Would students be better off if we used shovels instead of spoons to feed them?

A year or so later, our students were having a difficult time in College Algebra. Over the past years, we had used several textbooks, none of which we liked very well, but this current book seemed much worse for our students, who complained that they just could not understand the explanations in the book. In a department meeting, we discussed the situation. Many people argued that the problem was a result of lack of rigor in Intermediate Algebra, that we should make the prerequisite course harder! Without much support, I proposed that we find or write a College Algebra book that was easier for students to understand. Not being one to let other people tell me what to do, I began immediately to rewrite College Algebra, beginning with the hardest chapters first—that is, Logarithms! So, I replaced the hardest sections of College Algebra with my own pages printed in the College Print Shop. My success rate went from about 25% passing College Algebra using that horrible book to about 80% passing my classes using my replacement pages. In about 1993, I replaced the entire College Algebra book with my own called *College Algebra: One Step at a Time*. I also moved to a different campus, where I taught College Algebra from my own book.

The next need was Intermediate Algebra! Not enough of our students were passing Intermediate Algebra, so in 1998, I introduced *Intermediate Algebra: One Step at a Time*. Until my retirement in 2007, I taught from all three of my *One Step* books, which were printed in the College Print

Shop and sold in the College Bookstore. Students were able to save some money since the price of the books was limited to printing costs plus 10% profit for the bookstore. Since there were no royalties EVER, we added a scholarship fee to fund what we called the “One Step for SuCCess Scholarship” to offer scholarships to the top student(s) in the classes. If I remember correctly, it seems that the total cost in 1988 was \$1.80. When printing costs increased over the next 20 years, we increased the scholarship fee to \$5. Sometimes this scholarship money qualified for matching funds from the State of Florida. We were able to offer a total of \$50,000 in scholarships to my own students. It was sad to me that other instructors did not participate in this project.

It was about year 2000 that instructors at Seminole Community College were allowed instructor sub-websites on a particular server of the College website. For the last 2 years of my career (I was teaching from my Basic, Intermediate, and College Algebra books!), I asked my students, when they had questions on the homework, to send me an Email, and I would reply by posting the solutions to these problems on my website! In this way, over the years, I built an on-line solutions manual, with over 800 problems solved IN COLOR, to the most frequently asked questions in my algebra books! When one student had questions on a problem, it is likely that other students would have questions about that same problem. Solving these problems for one student could be helpful to many other students as well. And once the solutions were posted, these solutions remained year after year after year! In fact, these solutions that were posted in 2005-2007 (and more!) are still on my website today in 2021.

For the last several years, we have been following the ministry of the First Baptist Church of Orlando with Dr. David Uth. Each year around New Year’s Day, the ministerial staff prays for a “word the year.” Then, when such a word comes to a person, he/she studies that word and applies it to his/her life for that year. Sometimes, the word might continue for a second year, or the “word” for next year might build upon the previous year’s word. As we approached the New Year in 2012, I thought to myself, “I wonder if the Lord would give ME a word!” Immediately the word “PUBLISH” came to my mind. So, I thought to myself, “That’s ridiculous!” [Did you ever react like that when the Lord plants an idea in YOUR mind??] Here I was in 2012; I had been retired for 5 years, hadn’t taught any classes for the past 2 years, I was completely out of touch with any math departments, any publishers, or any students. How in the world would I ever “publish” anything?? Now, I must admit that for my entire career, my goal was to get a publisher for my work, to become a rich and famous author. Then I remembered the Biblical situation in which the word “publish” was used. At the birth of Jesus Christ, the angels “published glad tidings.” That is, the angels took what the Lord had given them (the good news of the birth of Christ!), and they gave it away to the world! The angels didn’t become rich and famous. As I think back over the years that I wrote this curriculum, I always thought that the Lord was giving me this new approach to explaining math, step by step. As I would write a section, I couldn’t wait to see what it was going to look like. So, I decided to “publish” my algebra curriculum, giving away what the Lord had given to me, by posting it on the website, making it available to be used by students and teachers around the world who might find it helpful.

One issue that needed resolution was the College’s name for the instructor sub-website. Originally, my website was the horrible www2.scc-fl.edu/rrapalje. With all the dots, dashes, and

slashes, this was an impossible link to remember, even for me! So, I established an easy-to-remember and easy-to-spell website of my own with GoDaddy at mathinlivingcolor.com. This enabled me to have a link to my math website with the College, but enable me to post two of the loves of my life: Bible verses and Dahlia pictures. My original website with the College remained after my retirement until the instructor sub-websites were discontinued in December, 2015. In 2016, it was necessary for me to learn how to use pdf files to post the math pages to the GoDaddy website.

Since the website is now my own and I am well into my retirement years, it is my pleasure to focus on what is REALLY important in life. In math, I have posted my entire Algebra: One Step at a Time curriculum for Basic, Intermediate, and College Algebra. The frequently asked questions from this curriculum are solved in color, section by section, on the corresponding Math in Living Color pages. There are over 300 practice exams with detailed solutions for every course I taught from Pre-Algebra to Calculus and Differential Equations. Thanks to my son Rob, some videos are available of me teaching certain topics in my YOUNGER days! In my teaching career, I created and used a LOT of HANDOUTS in my classes as learning supplements and formula sheets. When they saw me coming, the Print Shop staff used to call me "Trouble!"

I was very blessed in my teaching career. I believe the Lord gave me a gift of teaching, a gift of writing, and a gift of making math easier than most people thought it would be! I retired with quite a few math resources. Since these were FREELY given to me, it seems entirely appropriate that I give them away FREE on this website! If you like the website, please visit it often and recommend it to family and friends.

HOWEVER, THE MOST IMPORTANT PAGE ON THIS WEBSITE IS NOT MATH! IT IS THE [APOLOGETICS PAGE](#)! THERE IS LOGICAL AND HISTORICAL EVIDENCE FOR THE TRUTH OF THE BIBLE! If you are a "believer," you will LOVE these pages. If you are NOT, then these pages are even more important for you! I pray you will be blessed with this information, as I was when I discovered Josh McDowell's book *Evidence that Demands a Verdict* in 1975!

[Return to website](#)

Dr. Robert J. Rapalje, Retired
Seminole State College of Florida
Altamonte Springs Campus
Email: rapaljer@mathinlivingcolor.com