

# Preface

## FROM THE AUTHORS

### The Inspiration for Our Teaching

Bello: I was born in Havana, Cuba and encountered the same challenges of mathematics that many other students do: I failed freshman math. However, perseverance was one of my traits: I made 100% on the final exam the second time around.

I might still be in Cuba except that a police officer kindly informed my family that the members of a club to which I belonged were in jeopardy. Figuring out the obvious was another one of my traits: I left for the United States.

I came to the U.S. and, yes, I did know some English. After working in various jobs (roofer, sheetrock installer, dock worker), I went back to school, finishing high school in one year and receiving a college academic scholarship. I enrolled in Calculus and made a C. Never one to be discouraged, my perseverance again took over, so I became a math major and learned to excel in the courses that had previously frustrated me. While a graduate student at the University of South Florida (USF), I taught at a technical school, a decision that contributed to my resolve to teach math and make it come alive for my students the way brilliant instructors such as Jack Britton, Donald Rose, and Frank Cleaver had done for me.

### A Lively Approach to Reach Today's Students

Teaching math at the University of South Florida and Hillsborough Community College was a great new career for both of us, but we were disappointed by the materials we had to use. A rather imposing, mathematically correct but boring book was in vogue. Students hated it, professors hated it, and administrators hated it. Bello took the challenge to write a better book, a book that was not only mathematically correct, but student-oriented with **interesting applications**—many suggested by the students themselves—and even, dare we say, entertaining! That book's approach and philosophy proved an instant success and was a precursor to our current series.

Students fondly called Bello's class "The Bello Comedy Hour," but they worked hard, and they performed well. Because our students always ranked among the highest on the common final exam at USF/HCC, we knew we had found a way to motivate them through **common-sense language** and humorous, **realistic math applications**. We also wanted to show students they could overcome the same obstacles we had in math and become successful too.

If math has just never been a subject that some of your students have felt comfortable with, then they're not alone! We wrote this book with the **math-anxious** student in mind, so they'll find our tone is jovial, our explanations are patient, and instead of making math seem mysterious, we make it down-to-earth and easily digestible. For example, after we've explained the different methods for simplifying fractions, we speak directly to readers: "Which way should you simplify fractions? The way you understand!" Once students realize that math is within their grasp and not a foreign language, they'll be surprised at how much more confident they feel.

### A Real-World Approach: Applications, Student Motivation, and Problem Solving

What is a "real-world approach"? We found that most textbooks put forth "real-world" applications that meant nothing to the "real world" of our students. How many of our students

would really need to calculate the speed of a bullet (unless they're in its way) or cared to know when two trains traveling in different directions would pass by each other (disaster will certainly occur if they are on the same track)? For our students, both traditional and non-traditional, the real world consists of questions such as “How do I find the best cell phone plan?” and “How will I pay my tuition and fees if they increase by  $x\%$ ?” That is why we introduce mathematical concepts through everyday applications with **real data** and give homework using similar, well-grounded situations (see the “Getting Started” application that introduces every section's topic and the word problems in every exercise section).

Putting math in a real-world context has helped us to overcome one of the problems we all face as math educators: **student motivation**. Seeing math in the real world makes students perk up in a math class in a way we have never seen before, and realism has proven to be the best motivator we've ever used. In addition, the real-world approach has enabled us to enhance students' **problem-solving skills** since they are far more likely to tackle a real-world problem that matters to them than they would attempt a problem that seems contrived.

### Diverse Students and Multiple Learning Styles

We know we live in a pluralistic society, so how do you write one textbook for everyone? The answer is to build a flexible set of teaching tools that instructors and students can adapt to their own situation. Are any of your students members of a **cultural minority**? So is Bello! Did they learn **English as a second language**? So did Bello! You'll find our book speaks directly to them in a way that no other book ever has, and fuzzy explanations in other books will be clear and comprehensible in ours.

Do your students all have the same **learning style**? Of course not. That's why we wrote a book that will help students learn mathematics no matter what their personal learning style is. **Visual learners** will benefit from the text's clean page layout, careful use of color highlighting, “Web Its,” and the video lectures on the text's website. **Auditory learners** will profit from the audio “e-Professor” lectures on the text's website, and both **auditory** and **social learners** will be aided by the Collaborative Learning projects. **Applied** and **pragmatic learners** will find a bonanza of features geared to help them: Pretests, practice problems by every example, and Mastery Tests, to name just a few. **Spatial learners** will find the chapter Summary is designed especially for them, while **creative learners** will find the Research Questions to be a natural fit. Finally, **conceptual learners** will feel at home with features like “The Human Side of Algebra” and the “Write On” exercises. Every student who is accustomed to opening a math book and feeling like they've run into a brick wall will find in our book that a number of doors are standing open and inviting them inside.

### Listening to Student and Instructor Concerns

McGraw-Hill has given us a wonderful resource for making our textbook more responsive to the immediate concerns of students and faculty. In addition to sending our manuscript out for review by instructors at many different colleges, several times a year McGraw-Hill holds symposia and focus groups with math instructors where the emphasis is *not* on selling products but instead on the **publisher listening** to the needs of faculty and their students. These encounters have provided us with a wealth of ideas on how to improve my chapter organization, make the page layout of my books more readable, and fine tune exercises in every chapter so that students and faculty will feel comfortable using my book because it incorporates their specific suggestions and anticipates their needs.

### IMPROVEMENTS IN THE SECOND EDITION

Based on the valuable feedback of numerous reviewers and users over the years, the following improvements were made to the Second Edition of *Intermediate Algebra*.

#### Organizational Changes:

- Chapter 7 has been thoroughly re-written and reorganized to cover Graphs and Functions in Chapter 3.

- Solving Systems of Linear Equations now includes Systems of Linear Inequalities and has been moved from Chapter 8 to Chapter 4 and precedes the chapter on Polynomials
- Variation is now included at the end of Chapter 6 on Rational Expressions.
- Sequences and Series has been moved from a chapter to an appendix since we found that many instructors do not cover this material as part of their regular course.

### **Pedagogical Changes:**

- Many examples, applications, and real-data problems have been added or updated to keep the book's content current.
- The book is now produced as a paperback workbook to encourage students to write in their books as they do their homework.
- *Practice problems* with answers at the bottom of the page now appear adjacent to each example to give students immediate reinforcement of their own skills after they have read through the step-by-step solutions of the example.
- *Web Its* have been added to encourage students to visit math sites while they're web surfing and discover the many informative and creative sites that are dedicated to stimulating better education in math.
- *Pretests* with answer grids immediately following them have been added to the beginning of each chapter to serve as a diagnostic tool.
- *Calculate Its* and *Calculator Corners* have been updated with recent information and keystrokes relevant to currently popular calculators.
- *Applications* have been titled where appropriate to help orient students to the kind of word problem they are about to solve.
- The RSTUV approach to problem-solving has been expanded in this edition due to positive user response from the previous edition.
- Two *Collaborative Learning* exercises have been added to every chapter to encourage students to work in teams to solve fun and thought-provoking projects.
- A *Cumulative Review* has been added to the end of each chapter to continually reinforce material students have previously learned.

*I.B. and F.H.*

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