

You Can Always Count on Word Problems

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You Can Always Count on Word Problems

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A source of fun for mathematicians (and concern for students), the word problem is an inescapable part of the mathematical world. Occupying a dimension partway between the abstract world and the real, the best word problems have a certain rhythm, a poetry of their own. This issue brings us a wealth of word problems and the methods they inspire, drawn from ancient texts and modern literature.

We start with the whale; Captain Ahab had a different sort of problem. Sarah B. Hart writes about the mathematical allusions that Melville placed in *Moby Dick*. Next Debra T. Bourdeau and Beverly L. Wood explore the problem of encouraging STEM students to engage with the humanities, and show us how to build a Humanistic STEM course from scratch.

Then Judith V. Grabiner walks us through how optimization came to play such an important role in problems from physics from antiquity onwards. The next article, by Michael Waters, covers problems of proportions and introduces the proportion bar as a way to understand them.

Dipak Jadhav describes two word problems embedded in a 12th century Indian text teaching mathematics to merchants, and the cultural context that influenced them. Jessica Mean and Wes Maciejewski then take on the problem of motivating students in gateway courses and take us through a motivation workshop intended to improve peer connections and peer mentoring in such contexts.

Our Report this issue comes from Jennifer Hall, who takes a look at how magazine advertisements have depicted mathematics over a decade of issues. Stephan Ramon Garcia then offers us an Exposition, a complete proof of the beautiful Prime Number Theorem, and shows how this can be an enlightening and invigorating capstone experience for students in a complex analysis course.

Our venture into the World of Mathematics in this issue begins with Salvatore J. Petrilli who takes us through the ups and downs of holistically changing the mathematics major at Adelphi University. Nicole L. Fonger considers the effects of a heart-centered stance for the high school algebra classroom.

Robert Weinhandl and Zsolt Lavicza bring up another way to bridge the abstract and the real as they explore how the real world can be a source of neat modelling problems for students. Kien H. Lim and Christopher Yakes pose a problem to themselves: how to express the notion of karma through mathematics.

Jon Jacobsen considers how instructors can keep mathematics fresh in the classroom in the same way that an actor approaches a play, proposing a technique of “teaching from the unknown.”

Isaac Elishakoff considers how instructors can use the history of algebra to spice up the presentation of differential equations in the classroom. Then Al Cuoco and E. Paul Goldenberg show how the use of a programming language such as *Snap!* can give students a visceral understanding of important mathematical ideas such as recursive definitions.

How did you first hear about Calculus? Bradley J. Lucier relates the story of seeing a Calculus problem embedded in a weekly comic strip, a story shared with engineering students to pique their interest in the subject.

Kris H. Green brings us two pieces this issue: a World of Mathematics piece on the mathematics of using AI for making political decisions, followed by a Fiction piece where the world has made such a move.

Kathleen M. Clark and Oksana M. Rubis share with us their reactions to the unusual book (both thematically and topologically) *A Guide to Higher Learning*. Arati Nanda Pati follows with a reflection of how the COVID outbreak looked in the early days of the pandemic.

In this issue's Memoirs & Remembrances piece, Richard Delaware reflects on the life of Peter Hilton and the impact it had on his own.

Our poetry this issue includes a folder of teachable limericks from Marion D. Cohen, and works by Angelina Schenck, Stan Raatz, Daniel W. Galef, Mike Curtis, and Marian Christie.

The Recreation piece for this issue is from Vijay Fafat, who invites us to solve the party problem; his version involves a quirky investigation into what a party full of mathematicians and other notables would be like.

The issue closes with a call for papers for a special issue on ethics to be edited by Catherine Buell and Victor Piercey and an invitation to contribute to a thematic collection around the issues that have come up with the COVID-19 pandemic. We look forward to seeing your contributions!