



Paradoxes and Sophisms in Calculus (Classroom Resource Materials)

By Sergiy Klymchuk, Susan G. Staples



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Paradoxes and Sophisms in Calculus offers a delightful supplementary resource to enhance the study of single variable calculus. By the word paradox the authors mean a surprising, unexpected, counter-intuitive statement that looks invalid, but in fact is true. The word sophism describes intentionally invalid reasoning that looks formally correct, but in fact contains a subtle mistake or flaw. In other words, a sophism is a false proof of an incorrect statement. A collection of over fifty paradoxes and sophisms showcases the subtleties of this subject and leads students to contemplate the underlying concepts. A number of the examples treat historically significant issues that arose in the development of calculus, while others more naturally challenge readers to understand common misconceptions. Sophisms and paradoxes from the areas of functions, limits, derivatives, integrals, sequences, and series are explored.

The book could be useful for high school teachers and university faculty as a teaching resource; high school and college students as a learning resource; and a professional development resource for calculus instructors.



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Editorial Review

About the Author

Sergiy Klymchuk is an Associate Professor of the School of Computing and Mathematical Sciences at the Auckland University of Technology, New Zealand. He is a Fellow of the Institute of Mathematics and its Applications and a member of the Royal Society of New Zealand (RSNZ). He has more than 160 publications including three books on popular mathematics and science - Money Puzzles, Science Puzzles and Shape Puzzles, that have been, or are being, published in 11 countries. His book Counterexamples in Calculus (MAA) received Outstanding Academic Title award from the Choice Magazine of the American Library Association in 2010.

Susan Staples is an Associate Professor in Mathematics at Texas Christian University. She served for ten years as graduate director of the TCU MAT program and continues to enjoy working with local teachers. She is the proud recipient of teaching awards from The University of Michigan, The University of Texas, and TCU. Her professional memberships include the MAA, AMS, AWM, NCTM, and the AAUW. Her graduate work was supported by an AAUW fellowship. Currently Susan holds positions on two editorial boards for the MAA - the American Mathematical Monthly and the Classroom Resources Material book series.

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