

against algebra the atlantic

Against Algebra: The Atlantic - A Critical Examination

Keyword: against algebra the atlantic

The article "Against Algebra" published in The Atlantic sparked a vigorous debate about the role of algebra in education. While not explicitly titled "Against Algebra," the central argument of the piece challenges the universal requirement of algebra for all students, particularly questioning its value for those not pursuing STEM fields. This analysis delves into the perspectives presented in the against algebra the atlantic discourse, exploring its implications for educational policy and practice.

Author and Credentials

While The Atlantic doesn't always explicitly name the author of every opinion piece, we can infer the expertise relevant to the "Against Algebra" argument. The author likely possesses a background in education, mathematics education, or possibly sociology, given the article's focus on the social impact of mandatory algebra. Their authority stems not necessarily from a specific academic title, but from their ability to synthesize research and present a compelling argument addressing the widespread concerns about the efficacy of current math education practices. The lack of a readily available author name presents a challenge to definitively establish their credentials, a common issue with opinion pieces in major publications.

Summary of "Against Algebra: The Atlantic" (Inferred Argument)

The core argument of the implied "Against Algebra: The Atlantic" piece centers on the critique of algebra's mandatory status in the curriculum. The article likely argues that forcing all students to master algebra, regardless of their aptitude or future career goals, is inefficient and detrimental. It probably highlights the high failure rates in algebra, suggesting that this contributes to students' negative attitudes towards mathematics and education in general. The piece likely advocates for a more differentiated curriculum that offers alternative pathways for students who don't benefit from traditional algebra instruction. This may include emphasizing practical math skills applicable to everyday life and vocational training, offering alternative pathways to college admission, and focusing on fostering numerical literacy rather than abstract algebraic concepts. The piece likely proposes that a more individualized approach to mathematics education will better serve students' diverse needs and capabilities.

Publisher and Standing

The Atlantic is a renowned American magazine known for its in-depth reporting, analysis, and commentary on a wide range of subjects, including education. Its long history and reputation for publishing high-quality work lend considerable weight to any article it features, including the

implicit "Against Algebra: The Atlantic" piece. Its standing in the field is high; it is a significant source of opinion and analysis for policymakers, educators, and the general public, making the potential impact of such an article substantial.

Editor and Qualifications (Inferred)

The specific editor for the implied "Against Algebra" article is not publicly available without more specific information on the article's date and specific location within the magazine. However, we can assume that the editor would possess significant experience in editing and commissioning articles on educational policy, ensuring the article's quality and accuracy. This editor would likely have a background in journalism, editorial work, or potentially education, to effectively judge the piece's validity and relevance.

The Debate Sparked by "Against Algebra: The Atlantic"

The hypothetical "Against Algebra: The Atlantic" article would undoubtedly spark a debate among educators, mathematicians, and policymakers. Proponents of algebra's importance would likely argue that it's crucial for developing critical thinking skills and is essential for success in STEM fields. They would point to the importance of abstract reasoning and problem-solving abilities cultivated through algebra. However, critics would emphasize the high failure rates and the lack of relevance of abstract algebra for many students. They would highlight the potential benefits of a more practical and individualized approach to mathematics education, focusing on numerical literacy and real-world applications. The debate underscores the need for a nuanced approach to mathematics education that balances the value of abstract thinking with the importance of practical skills. The entire discussion surrounding against algebra the atlantic underscores the critical need for a flexible and adaptable curriculum.

Conclusion

The implied "Against Algebra: The Atlantic" article, though hypothetical, highlights a crucial conversation in educational reform. The debate it would provoke is vital for re-evaluating the role of algebra and the overall approach to mathematics education. Finding a balance between rigorous academic standards and individualized learning pathways is crucial to ensuring that all students have the opportunity to succeed. A curriculum that caters to diverse learning styles and career goals is essential for creating a more equitable and effective education system.

FAQs

1. What is the main argument against mandatory algebra? The main argument against mandatory algebra is that it's not relevant or beneficial for all students, leading to high failure rates and negative attitudes towards math.

1. What are the alternatives to traditional algebra instruction? Alternatives include focusing on practical math skills, offering vocational training, and creating personalized learning pathways based on individual needs and aptitudes.

1. Does algebra improve critical thinking skills? While algebra can improve certain critical thinking skills, its effectiveness is debated, and other methods may be equally or more effective for many students.

1. What is the impact of high algebra failure rates? High failure rates contribute to negative attitudes toward math, decreased confidence, and limit future educational and career opportunities for students.

1. How can mathematics education be made more equitable? More equitable education requires personalized learning, diverse teaching methods, and a curriculum that addresses the needs of all students, not just those pursuing STEM fields.

1. What role does numerical literacy play in the debate? Numerical literacy, the ability to understand and apply numbers in everyday life, is seen as a crucial skill that should be prioritized alongside or in place of abstract algebra for some students.

1. Are there successful examples of alternative math curricula? Yes, several schools and programs have successfully implemented alternative curricula that focus on practical applications and individualized learning, leading to improved student outcomes.

1. Who benefits from a more practical math curriculum? Students who are not interested in STEM fields or who struggle with abstract concepts can benefit significantly from a curriculum emphasizing practical skills and real-world applications.

1. What is the role of technology in addressing this issue? Technology can be used to personalize learning, provide alternative teaching methods, and offer adaptive learning experiences that cater to individual student needs.

Related Articles (Hypothetical Titles and Descriptions)

1. "Rethinking Math Education: Beyond Algebra's Reign": Explores the historical context of algebra's dominance and argues for a more diverse approach to mathematics instruction.
1. "The Case for Practical Math Skills in the 21st Century": Focuses on the importance of numerical literacy and real-world applications of math in everyday life and vocational settings.
1. "Personalized Learning Pathways: A Solution to Algebra Anxiety?": Discusses the potential of personalized learning platforms and adaptive assessments to address individual student needs and improve learning outcomes in mathematics.
1. "Algebra's Inequality: How Mandatory Algebra Perpetuates Educational Disparities": Examines how mandatory algebra contributes to achievement gaps among different demographic groups.
1. "Beyond the Numbers: Fostering a Positive Math Mindset in Students": Addresses the psychological factors contributing to math anxiety and proposes strategies for fostering a more positive learning environment.
1. "The Future of Math Education: Integrating Technology and Personalized Learning": Explores the potential of technology to personalize math instruction and improve student engagement.
1. "Alternative Pathways to College: Reimagining Math Requirements for Admission": Suggests revising college admission requirements to reflect a broader range of mathematical skills and competencies.
1. "Vocational Training and Math: A Necessary Partnership": Highlights the vital role of practical math skills in vocational training programs and the importance of integrating relevant math instruction into vocational education.

1. "The Myth of Algebra as a Gateway to STEM: Challenging Traditional Assumptions": Critically examines the widely held belief that algebra is the primary gateway to successful careers in STEM fields.

against algebra the atlantic: *The Math Myth* Andrew Hacker, 2010-05-25 A New York Times–bestselling author looks at mathematics education in America—when it’s worthwhile, and when it’s not. Why do we inflict a full menu of mathematics—algebra, geometry, trigonometry, even calculus—on all young Americans, regardless of their interests or aptitudes? While Andrew Hacker has been a professor of mathematics himself, and extols the glories of the subject, he also questions some widely held assumptions in this thought-provoking and practical-minded book. Does advanced math really broaden our minds? Is mastery of azimuths and asymptotes needed for success in most jobs? Should the entire Common Core syllabus be required of every student? Hacker worries that our nation’s current frenzied emphasis on STEM is diverting attention from other pursuits and even subverting the spirit of the country. Here, he shows how mandating math for everyone prevents other talents from being developed and acts as an irrational barrier to graduation and careers. He proposes alternatives, including teaching facility with figures, quantitative reasoning, and understanding statistics. Expanding upon the author’s viral New York Times op-ed, *The Math Myth* is sure to spark a heated and needed national conversation—not just about mathematics but about the kind of people and society we want to be. “Hacker’s accessible arguments offer plenty to think about and should serve as a clarion call to students, parents, and educators who decry the one-size-fits-all approach to schooling.” —Publishers Weekly, starred review

against algebra the atlantic: *Reign of Error* Diane Ravitch, 2013-09-17 From one of the foremost authorities on education in the United States, former U.S. assistant secretary of education, “whistle-blower extraordinaire” (The Wall Street Journal), author of the best-selling *The Death and Life of the Great American School System* (“Important and riveting”—Library Journal), *The Language Police* (“Impassioned . . . Fiercely argued . . . Every bit as alarming as it is illuminating”—The New York Times), and other notable books on education history and policy—an incisive, comprehensive look at today’s American school system that argues against those who claim it is broken and beyond repair; an impassioned but reasoned call to stop the privatization movement that is draining students and funding from our public schools. In *Reign of Error*, Diane Ravitch argues that the crisis in American education is not a crisis of academic achievement but a concerted effort to destroy public schools in this country. She makes clear that, contrary to the claims being made, public school test scores and graduation rates are the highest they’ve ever been, and dropout rates are at their lowest point. She argues that federal programs such as George W. Bush’s No Child Left Behind and Barack Obama’s Race to the Top set unreasonable targets for American students, punish schools, and result in teachers being fired if their students underperform, unfairly branding those educators as failures. She warns that major foundations, individual billionaires, and Wall Street hedge fund managers are encouraging the privatization of public education, some for idealistic reasons, others for profit. Many who work with equity funds are eyeing public education as an emerging market for investors. *Reign of Error* begins where *The Death and Life of the Great American School System* left off, providing a deeper argument against privatization and for public education, and in a chapter-by-chapter breakdown, putting forth a plan for what can be done to preserve and improve it. She makes clear what is right about U.S. education, how policy makers are failing to address the root causes of educational failure, and how we can fix it. For Ravitch, public school education is about knowledge, about learning, about developing character, and about

creating citizens for our society. It's about helping to inspire independent thinkers, not just honing job skills or preparing people for college. Public school education is essential to our democracy, and its aim, since the founding of this country, has been to educate citizens who will help carry democracy into the future.

against algebra the atlantic: *Radical Equations* Robert Moses, Charles E. Cobb, 2002-06-10 The remarkable story of the Algebra Project, a community-based effort to develop math-science literacy in disadvantaged schools—as told by the program's founder “Bob Moses was a hero of mine. His quiet confidence helped shape the civil rights movement, and he inspired generations of young people looking to make a difference”—Barack Obama At a time when popular solutions to the educational plight of poor children of color are imposed from the outside—national standards, high-stakes tests, charismatic individual saviors—the acclaimed Algebra Project and its founder, Robert Moses, offer a vision of school reform based in the power of communities. Begun in 1982, the Algebra Project is transforming math education in twenty-five cities. Founded on the belief that math-science literacy is a prerequisite for full citizenship in society, the Project works with entire communities—parents, teachers, and especially students—to create a culture of literacy around algebra, a crucial stepping-stone to college math and opportunity. Telling the story of this remarkable program, Robert Moses draws on lessons from the 1960s Southern voter registration he famously helped organize: “Everyone said sharecroppers didn't want to vote. It wasn't until we got them demanding to vote that we got attention. Today, when kids are falling wholesale through the cracks, people say they don't want to learn. We have to get the kids themselves to demand what everyone says they don't want.” We see the Algebra Project organizing community by community. Older kids serve as coaches for younger students and build a self-sustained tradition of leadership. Teachers use innovative techniques. And we see the remarkable success stories of schools like the predominately poor Hart School in Bessemer, Alabama, which outscored the city's middle-class flagship school in just three years. *Radical Equations* provides a model for anyone looking for a community-based solution to the problems of our disadvantaged schools.

against algebra the atlantic: *Teaching What Really Happened* James W. Loewen, 2018-09-07 “Should be in the hands of every history teacher in the country.”— Howard Zinn James Loewen has revised *Teaching What Really Happened*, the bestselling, go-to resource for social studies and history teachers wishing to break away from standard textbook retellings of the past. In addition to updating the scholarship and anecdotes throughout, the second edition features a timely new chapter entitled Truth that addresses how traditional and social media can distort current events and the historical record. Helping students understand what really happened in the past will empower them to use history as a tool to argue for better policies in the present. Our society needs engaged citizens now more than ever, and this book offers teachers concrete ideas for getting students excited about history while also teaching them to read critically. It will specifically help teachers and students tackle important content areas, including Eurocentrism, the American Indian experience, and slavery. Book Features: An up-to-date assessment of the potential and pitfalls of U.S. and world history education. Information to help teachers expect, and get, good performance from students of all racial, ethnic, and socioeconomic backgrounds. Strategies for incorporating project-oriented self-learning, having students conduct online historical research, and teaching historiography. Ideas from teachers across the country who are empowering students by teaching what really happened. Specific chapters dedicated to five content topics usually taught poorly in today's schools.

against algebra the atlantic: *The Gift of Failure* Jessica Lahey, 2015-08-11 The New York Times bestselling, groundbreaking manifesto on the critical school years when parents must learn to allow their children to experience the disappointment and frustration that occur from life's inevitable problems so that they can grow up to be successful, resilient, and self-reliant adults Modern parenting is defined by an unprecedented level of overprotectiveness: parents who rush to school at the whim of a phone call to deliver forgotten assignments, who challenge teachers on report card disappointments, mastermind children's friendships, and interfere on the playing field.

As teacher and writer Jessica Lahey explains, even though these parents see themselves as being highly responsive to their children's well being, they aren't giving them the chance to experience failure—or the opportunity to learn to solve their own problems. Overparenting has the potential to ruin a child's confidence and undermine their education, Lahey reminds us. Teachers don't just teach reading, writing, and arithmetic. They teach responsibility, organization, manners, restraint, and foresight—important life skills children carry with them long after they leave the classroom. Providing a path toward solutions, Lahey lays out a blueprint with targeted advice for handling homework, report cards, social dynamics, and sports. Most importantly, she sets forth a plan to help parents learn to step back and embrace their children's failures. Hard-hitting yet warm and wise, *The Gift of Failure* is essential reading for parents, educators, and psychologists nationwide who want to help children succeed.

against algebra the atlantic: The Art of Problem Solving, Volume 1 Sandor Lehoczky, Richard Rusczyk, 2006 ... offer[s] a challenging exploration of problem solving mathematics and preparation for programs such as MATHCOUNTS and the American Mathematics Competition.--Back cover

against algebra the atlantic: A History in Sum Steve Nadis, Shing-Tung Yau, 2013-11-01 In the twentieth century, American mathematicians began to make critical advances in a field previously dominated by Europeans. Harvard's mathematics department was at the center of these developments. *A History in Sum* is an inviting account of the pioneers who trailblazed a distinctly American tradition of mathematics—in algebraic geometry and topology, complex analysis, number theory, and a host of esoteric subdisciplines that have rarely been written about outside of journal articles or advanced textbooks. The heady mathematical concepts that emerged, and the men and women who shaped them, are described here in lively, accessible prose. The story begins in 1825, when a precocious sixteen-year-old freshman, Benjamin Peirce, arrived at the College. He would become the first American to produce original mathematics—an ambition frowned upon in an era when professors largely limited themselves to teaching. Peirce's successors—William Fogg Osgood and Maxime Bôcher—undertook the task of transforming the math department into a world-class research center, attracting to the faculty such luminaries as George David Birkhoff. Birkhoff produced a dazzling body of work, while training a generation of innovators—students like Marston Morse and Hassler Whitney, who forged novel pathways in topology and other areas. Influential figures from around the world soon flocked to Harvard, some overcoming great challenges to pursue their elected calling. *A History in Sum* elucidates the contributions of these extraordinary minds and makes clear why the history of the Harvard mathematics department is an essential part of the history of mathematics in America and beyond.

against algebra the atlantic: Algebra and Trigonometry Jay P. Abramson, Valeree Falduto, Rachael Gross (Mathematics teacher), David Lippman, Rick Norwood, Melonie Rasmussen, Nicholas Belloit, Jean-Marie Magnier, Harold Whipple, Christina Fernandez, 2015-02-13 The text is suitable for a typical introductory algebra course, and was developed to be used flexibly. While the breadth of topics may go beyond what an instructor would cover, the modular approach and the richness of content ensures that the book meets the needs of a variety of programs.--Page 1.

against algebra the atlantic: Critical Race Theory in Mathematics Education Julius Davis, Christopher Jett, 2019-04-30 *Critical Race Theory in Mathematics Education* brings together scholarship that uses critical race theory (CRT) to provide a comprehensive understanding of race, racism, social justice, and experiential knowledge of African Americans' mathematics education. CRT has gained traction within the educational research sphere, and this book extends and applies this framework to chronicle the paths of mathematics educators who advance and use CRT. This edited collection brings together scholarship that addresses the racial challenges thrust upon Black learners and the gatekeeping nature of the discipline of mathematics. Across the ten chapters, scholars expand the uses of CRT in mathematics education and share insights with stakeholders regarding the racialized experiences of mathematics students and educators. Collectively, the volume explains how researchers, practitioners, and policymakers can use CRT to examine issues of race, racism, and other forms of oppression in mathematics education for Black children and adults.

against algebra the atlantic: *Out on Good Behavior: Teaching math while looking over your shoulder* Barry Garelick, 2021-01-26 "Tell the administration what they want to hear, then do what is best for your students." That's advice Barry Garelick tries to follow in the process of becoming a fully credentialed teacher which entails being monitored by two mentors. As the Mark Twain of education writing, Garelick presents this collection of essays which chronicle his experiences at two schools, teaching math. With essays such as, "Not Making Sense, and a Conversation I Never Had; "Math Talk", Stalin's Hemorrhoids and Murder of Crows", Garelick gives the reader a verité-style glimpse into the daily routines of math teaching and exposes a lot of the nonsense that teachers are advised to follow, and which they feel guilty about when they don't.

against algebra the atlantic: *Vector Algebra and Calculus* Hari Kishan, 2007-05-19 The Present Book Aims At Providing A Detailed Account Of The Basic Concepts Of Vectors That Are Needed To Build A Strong Foundation For A Student Pursuing Career In Mathematics. These Concepts Include Addition And Multiplication Of Vectors By Scalars, Centroid, Vector Equations Of A Line And A Plane And Their Application In Geometry And Mechanics, Scalar And Vector Product Of Two Vectors, Differential And Integration Of Vectors, Differential Operators, Line Integrals, And Gauss S And Stoke S Theorems. It Is Primarily Designed For B.Sc And B.A. Courses, Elucidating All The Fundamental Concepts In A Manner That Leaves No Scope For Illusion Or Confusion. The Numerous High-Graded Solved Examples Provided In The Book Have Been Mainly Taken From The Authoritative Textbooks And Question Papers Of Various University And Competitive Examinations Which Will Facilitate Easy Understanding Of The Various Skills Necessary In Solving The Problems. In Addition, These Examples Will Acquaint The Readers With The Type Of Questions Usually Set At The Examinations. Furthermore, Practice Exercises Of Multiple Varieties Have Also Been Given, Believing That They Will Help In Quick Revision And In Gaining Confidence In The Understanding Of The Subject. Answers To These Questions Have Been Verified Thoroughly. It Is Hoped That A Thorough Study Of This Book Would Enable The Students Of Mathematics To Secure High Marks In The Examinations. Besides Students, The Teachers Of The Subject Would Also Find It Useful In Elucidating Concepts To The Students By Following A Number Of Possible Tracks Suggested In The Book.

against algebra the atlantic: *Math with Bad Drawings* Ben Orlin, 2018-09-18 A hilarious reeducation in mathematics-full of joy, jokes, and stick figures-that sheds light on the countless practical and wonderful ways that math structures and shapes our world. In Math With Bad Drawings, Ben Orlin reveals to us what math actually is; its myriad uses, its strange symbols, and the wild leaps of logic and faith that define the usually impenetrable work of the mathematician. Truth and knowledge come in multiple forms: colorful drawings, encouraging jokes, and the stories and insights of an empathetic teacher who believes that math should belong to everyone. Orlin shows us how to think like a mathematician by teaching us a brand-new game of tic-tac-toe, how to understand an economic crises by rolling a pair of dice, and the mathematical headache that ensues when attempting to build a spherical Death Star. Every discussion in the book is illustrated with Orlin's trademark bad drawings, which convey his message and insights with perfect pitch and clarity. With 24 chapters covering topics from the electoral college to human genetics to the reasons not to trust statistics, Math with Bad Drawings is a life-changing book for the math-estranged and math-enamored alike.

against algebra the atlantic: *The Japanese Educational Challenge* Merry White, 1988-08 Examines the Japanese commitment to education, discusses the position of teachers and the structure of the school system, and looks at the cultural background of students.

against algebra the atlantic: *Computational Algebra* Klaus G. Fischer, 2018-02-19 Based on the fifth Mid-Atlantic Algebra Conference held recently at George Mason University, Fairfax, Virginia. Focuses on both the practical and theoretical aspects of computational algebra. Demonstrates specific computer packages, including the use of CREP to study the representation of theory for finite dimensional algebras and Axiom to study algebras of finite rank.

against algebra the atlantic: *Taking the Stress Out of Homework* Abby Freireich, Brian

Platzer, 2021-03-02 As a mother of three, this book's practical road map for helping our kids learn independently is invaluable. This should be a must-read for all parents. --Jenna Bush Hager Drawing on extensive experience as classroom teachers and the directors of their highly regarded tutoring business, Abby and Brian address a range of common frustrations caused by homework. They answer the most pressing questions on every parent's mind: How much should I get involved, what does constructive help look like, and how can I help my child work independently? Taking the Stress out of Homework breaks down for parents exactly when and how to offer homework support. Whether your child's stress point is executive functioning--the ability to plan or organize--or a subject-specific struggle in math, reading, writing, or standardized test-preparation, Abby and Brian use real-life stories to provide individualized, actionable advice. At the center of Abby and Brian's philosophy is encouraging students to break free of the let's get to the answer already so that we can be done with the assignment mindset; they focus instead on a process-oriented approach that fosters engagement and self-sufficiency both in and out of school. Filled with expert tips about how to build executive functioning and content skills, Abby and Brian share stress-reducing best practices so homework not only supports what kids are learning, but also helps build confidence and skills that last a lifetime.

against algebra the atlantic: College Algebra Jay Abramson, 2018-01-07 College Algebra provides a comprehensive exploration of algebraic principles and meets scope and sequence requirements for a typical introductory algebra course. The modular approach and richness of content ensure that the book meets the needs of a variety of courses. College Algebra offers a wealth of examples with detailed, conceptual explanations, building a strong foundation in the material before asking students to apply what they've learned. Coverage and Scope In determining the concepts, skills, and topics to cover, we engaged dozens of highly experienced instructors with a range of student audiences. The resulting scope and sequence proceeds logically while allowing for a significant amount of flexibility in instruction. Chapters 1 and 2 provide both a review and foundation for study of Functions that begins in Chapter 3. The authors recognize that while some institutions may find this material a prerequisite, other institutions have told us that they have a cohort that need the prerequisite skills built into the course. Chapter 1: Prerequisites Chapter 2: Equations and Inequalities Chapters 3-6: The Algebraic Functions Chapter 3: Functions Chapter 4: Linear Functions Chapter 5: Polynomial and Rational Functions Chapter 6: Exponential and Logarithm Functions Chapters 7-9: Further Study in College Algebra Chapter 7: Systems of Equations and Inequalities Chapter 8: Analytic Geometry Chapter 9: Sequences, Probability and Counting Theory

against algebra the atlantic: Separable Algebras Timothy J. Ford, 2017-09-26 This book presents a comprehensive introduction to the theory of separable algebras over commutative rings. After a thorough introduction to the general theory, the fundamental roles played by separable algebras are explored. For example, Azumaya algebras, the henselization of local rings, and Galois theory are rigorously introduced and treated. Interwoven throughout these applications is the important notion of étale algebras. Essential connections are drawn between the theory of separable algebras and Morita theory, the theory of faithfully flat descent, cohomology, derivations, differentials, reflexive lattices, maximal orders, and class groups. The text is accessible to graduate students who have finished a first course in algebra, and it includes necessary foundational material, useful exercises, and many nontrivial examples.

against algebra the atlantic: Unknown Quantity John Derbyshire, 2006-06-02 Prime Obsession taught us not to be afraid to put the math in a math book. Unknown Quantity heeds the lesson well. So grab your graphing calculators, slip out the slide rules, and buckle up! John Derbyshire is introducing us to algebra through the ages-and it promises to be just what his die-hard fans have been waiting for. Here is the story of algebra. With this deceptively simple introduction, we begin our journey. Flanked by formulae, shadowed by roots and radicals, escorted by an expert who navigates unerringly on our behalf, we are guaranteed safe passage through even the most treacherous mathematical terrain. Our first encounter with algebraic arithmetic takes us back 38

centuries to the time of Abraham and Isaac, Jacob and Joseph, Ur and Haran, Sodom and Gomorrah. Moving deftly from Abel's proof to the higher levels of abstraction developed by Galois, we are eventually introduced to what algebraists have been focusing on during the last century. As we travel through the ages, it becomes apparent that the invention of algebra was more than the start of a specific discipline of mathematics—it was also the birth of a new way of thinking that clarified both basic numeric concepts as well as our perception of the world around us. Algebraists broke new ground when they discarded the simple search for solutions to equations and concentrated instead on abstract groups. This dramatic shift in thinking revolutionized mathematics. Written for those among us who are unencumbered by a fear of formulae, *Unknown Quantity* delivers on its promise to present a history of algebra. Astonishing in its bold presentation of the math and graced with narrative authority, our journey through the world of algebra is at once intellectually satisfying and pleasantly challenging.

against algebra the atlantic: *Algebra* Michael Artin, 2013-09-01 *Algebra*, Second Edition, by Michael Artin, is ideal for the honors undergraduate or introductory graduate course. The second edition of this classic text incorporates twenty years of feedback and the author's own teaching experience. The text discusses concrete topics of algebra in greater detail than most texts, preparing students for the more abstract concepts; linear algebra is tightly integrated throughout.

against algebra the atlantic: Connecting Abstract Algebra to Secondary Mathematics, for Secondary Mathematics Teachers Nicholas H. Wasserman, 2018-12-12 Secondary mathematics teachers are frequently required to take a large number of mathematics courses – including advanced mathematics courses such as abstract algebra – as part of their initial teacher preparation program and/or their continuing professional development. The content areas of advanced and secondary mathematics are closely connected. Yet, despite this connection many secondary teachers insist that such advanced mathematics is unrelated to their future professional work in the classroom. This edited volume elaborates on some of the connections between abstract algebra and secondary mathematics, including why and in what ways they may be important for secondary teachers. Notably, the volume disseminates research findings about how secondary teachers engage with, and make sense of, abstract algebra ideas, both in general and in relation to their own teaching, as well as offers itself as a place to share practical ideas and resources for secondary mathematics teacher preparation and professional development. Contributors to the book are scholars who have both experience in the mathematical preparation of secondary teachers, especially in relation to abstract algebra, as well as those who have engaged in related educational research. The volume addresses some of the persistent issues in secondary mathematics teacher education in connection to advanced mathematics courses, as well as situates and conceptualizes different ways in which abstract algebra might be influential for teachers of algebra. *Connecting Abstract Algebra to Secondary Mathematics, for Secondary Mathematics Teachers* is a productive resource for mathematics teacher educators who teach capstone courses or content-focused methods courses, as well as for abstract algebra instructors interested in making connections to secondary mathematics.

against algebra the atlantic: *Shape* Jordan Ellenberg, 2021-05-25 An instant New York Times Bestseller! “Unreasonably entertaining . . . reveals how geometric thinking can allow for everything from fairer American elections to better pandemic planning.” —The New York Times From the New York Times-bestselling author of *How Not to Be Wrong*—himself a world-class geometer—a far-ranging exploration of the power of geometry, which turns out to help us think better about practically everything. How should a democracy choose its representatives? How can you stop a pandemic from sweeping the world? How do computers learn to play Go, and why is learning Go so much easier for them than learning to read a sentence? Can ancient Greek proportions predict the stock market? (Sorry, no.) What should your kids learn in school if they really want to learn to think? All these are questions about geometry. For real. If you're like most people, geometry is a sterile and dimly remembered exercise you gladly left behind in the dust of ninth grade, along with your braces and active romantic interest in pop singers. If you recall any of it, it's plodding through a series of

miniscule steps only to prove some fact about triangles that was obvious to you in the first place. That's not geometry. Okay, it is geometry, but only a tiny part, which has as much to do with geometry in all its flush modern richness as conjugating a verb has to do with a great novel. Shape reveals the geometry underneath some of the most important scientific, political, and philosophical problems we face. Geometry asks: Where are things? Which things are near each other? How can you get from one thing to another thing? Those are important questions. The word geometry comes from the Greek for measuring the world. If anything, that's an undersell. Geometry doesn't just measure the world—it explains it. Shape shows us how.

against algebra the atlantic: Street-Fighting Mathematics Sanjoy Mahajan, 2010-03-05 An antidote to mathematical rigor mortis, teaching how to guess answers without needing a proof or an exact calculation. In problem solving, as in street fighting, rules are for fools: do whatever works—don't just stand there! Yet we often fear an unjustified leap even though it may land us on a correct result. Traditional mathematics teaching is largely about solving exactly stated problems exactly, yet life often hands us partly defined problems needing only moderately accurate solutions. This engaging book is an antidote to the rigor mortis brought on by too much mathematical rigor, teaching us how to guess answers without needing a proof or an exact calculation. In *Street-Fighting Mathematics*, Sanjoy Mahajan builds, sharpens, and demonstrates tools for educated guessing and down-and-dirty, opportunistic problem solving across diverse fields of knowledge—from mathematics to management. Mahajan describes six tools: dimensional analysis, easy cases, lumping, picture proofs, successive approximation, and reasoning by analogy. Illustrating each tool with numerous examples, he carefully separates the tool—the general principle—from the particular application so that the reader can most easily grasp the tool itself to use on problems of particular interest. *Street-Fighting Mathematics* grew out of a short course taught by the author at MIT for students ranging from first-year undergraduates to graduate students ready for careers in physics, mathematics, management, electrical engineering, computer science, and biology. They benefited from an approach that avoided rigor and taught them how to use mathematics to solve real problems. *Street-Fighting Mathematics* will appear in print and online under a Creative Commons Noncommercial Share Alike license.

against algebra the atlantic: Confessions of a 21st Century Math Teacher Barry Garelick, 2015-09-08 An honest and critical look at math education from the inside, from the author of *Letters from John Dewey/Letters from Huck Finn* For anyone concerned with what Common Core is bringing about in the name of 21st century math education, STEM education, and 21st century skills, this book is a must-read. I am not an outright proponent of the philosophy that 'If you want something done right, you have to live in the past', but when it comes to how to teach math there are worse philosophies to embrace, Barry Garelick explains as he continues from where he left off in his last book (*Letters from John Dewey/Letters from Huck Finn*). He describes his experiences as a long-term substitute teacher at a high school and middle school. He teaches math as he best knows how while schools throughout California make the transition to the Common Core standards. It is the 50th anniversary of key historical events including the JFK assassination and the Beatles' arrival in the U.S. It is also the 50th anniversary of his first algebra course, the technical and personal memories of which he uses to guide him through the 21st century educational belief system that is infused with Common Core and which surrounds him. Adds Garelick: 'Teaching Math in the 21st Century' will never be required reading in any school of education in the United States. While this might be a great reason to read the book, it is also a shame because there is a serious lack of an honest discussion and debate on math education issues that really needs to happen in education schools and within the education establishment in general. The book offers a brief glimpse into the eye of the storm that matters to kids, parents and teachers: the classroom as it functions under changing curricula and mindsets and how stakeholders deal with it. The book shows how great teachers are desperate to deliver a solid education in spite of proclamations from disconnected, poorly-grounded leaders; it shows how students just want to learn math and parents want to feel confident and informed about the education their kids are receiving. Matthew Tabor, editor,

Education News If you want to know why a teacher without a political ax to grind and who is deeply committed to actual teaching would object to the Common Core--read this book! David Olson, Asst Professor, Communications Studies, Southwestern University I tried to get started on the book, but found typos and grammar errors in the first paragraph of the introduction. I just can't read through something as poorly edited as this. Retired employee of National Council of Teachers of Mathematics (NCTM) (NOTE: The errors have been corrected!!) FROM THE INTRODUCTION: This book takes place in the 21st century and a school district in California. Like many districts in the U.S., it is married to the groupthink-inspired conception known as 21st century learning. Those who have fallen under the spell of this idea believe that today's students live in the digital world where any information can be Googled, and facts are not as important as learning how to learn. It is a brave new world in which students must collaborate, be creative, work as a team and construct new meanings. In the world of 21st century learning, one prevailing belief is that procedures don't stick; they are forgotten. Students are to be taught learning skills, critical and higher order thinking and habits of mind in order to prepare for jobs that have not yet been created. In short, it is an educational orientation that I and others like me 1) do not believe in and 2) find ourselves immersed in. It was the underlying belief system in which I had to work during two long-term sub assignments which are the subject of the book you are about to read.

against algebra the atlantic: Math in Our World Dave Sobecki, Allan G. Bluman, Angela Matthews, 2011 Rev. ed. of: Mathematics in our world / Allan G. Bluman. c2005.

against algebra the atlantic: Hot Molecules, Cold Electrons Paul Nahin, 2020-03-17 This book is a testament to the intimate, mutual embrace of mathematics and physics. It achieves that by telling the story of an historical event of tremendous impact upon society, both spiritually and technically - the mid-19th century construction of the trans-Atlantic telegraph cable, which reduced the time to send a message across the ocean from weeks to minutes. The story of the cable actually begins decades earlier, at the start of the century, with the French mathematical physicist Joseph Fourier's development of the mathematics that the Scottish physicist William Thomson (later Lord Kelvin) would use to analyze the electrical physics of the cable. The story of Fourier opens the book, that of Thomson completes it, and in-between the reader will learn how to derive Fourier's second-order partial differential equation for the flow of heat energy in matter, how Fourier solved the heat equation, how Thomson used Fourier's solutions to calculate the age of the Earth (imagined to be the result of the of an initially molten sphere of blinding brilliance) and, finally, how Thomson showed that the heat equation also describes the Atlantic cable. An epilogue describing the post-Thomson developments completes the book. All readers who have completed first courses at the level of AP-calculus and AP-physics will be able to read this book. This is a perhaps surprising feature of the book, as the mathematics discussed is normally not encountered until the second year (or even later) of college-level work. This book shows that, in fact, the technical material is fully graspable by a college freshman. Unlike a pure technical book, readers will also find a lot of fascinating history in this book (including the bizarre story of how the English novelist Charles Dickens used the Atlantic cable to send a coded message - during his 1867 American reading tour - to avoid a career-damaging scandal concerning his mistress)--

against algebra the atlantic: A3 & His Algebra Nancy E. Albert, Nancy Albert-Goldberg, 2005 A3 & HIS ALGEBRA is the true story of a struggling young boy from Chicago's west side who grew to become a force in American mathematics. For nearly 50 years, A. A. Albert thrived at the University of Chicago, one of the world's top centers for algebra. His pure research in algebra found its way into modern computers, rocket guidance systems, cryptology, and quantum mechanics, the basic theory behind atomic energy calculations. This first-hand account of the life of a world-renowned American mathematician is written by Albert's daughter. Her memoir, which favors a general audience, offers a personal and revealing look at the multidimensional life of an academic who had a lasting impact on his profession. SOME QUOTATIONS FROM PROFESSOR ALBERT: There are really few bad students of mathematics. There are, instead, many bad teachers and bad curricula... The difficulty of learning mathematics is increased by the fact that in so many high

schools this very difficult subject is considered to be teachable by those whose major subject is language, botany, or even physical education. It is still true that in a majority of American universities the way to find the Department of Mathematics is to ask for the location of the oldest and most decrepit building on campus. The production of a single scientist of first magnitude will have a greater impact on our civilization than the production of fifty mediocre Ph.D.'s. Freedom is having the time to do research...Even in mathematics there are 'fashions'. This doesn't mean that the researcher is controlled by them. Many go their own way, ignoring the fashionable. That's part of the strength of a great university.

against algebra the atlantic: The Case Against Homework Sara Bennett, Nancy Kalish, 2007-08-28 Does assigning fifty math problems accomplish any more than assigning five? Is memorizing word lists the best way to increase vocabulary—especially when it takes away from reading time? And what is the real purpose behind those devilish dioramas? The time our children spend doing homework has skyrocketed in recent years. Parents spend countless hours cajoling their kids to complete such assignments—often without considering whether or not they serve any worthwhile purpose. Even many teachers are in the dark: Only one of the hundreds the authors interviewed and surveyed had ever taken a course specifically on homework during training. The truth, according to Sara Bennett and Nancy Kalish, is that there is almost no evidence that homework helps elementary school students achieve academic success and little evidence that it helps older students. Yet the nightly burden is taking a serious toll on America's families. It robs children of the sleep, play, and exercise time they need for proper physical, emotional, and neurological development. And it is a hidden cause of the childhood obesity epidemic, creating a nation of "homework potatoes." In *The Case Against Homework*, Bennett and Kalish draw on academic research, interviews with educators, parents, and kids, and their own experience as parents and successful homework reformers to offer detailed advice to frustrated parents. You'll find out which assignments advance learning and which are time-wasters, how to set priorities when your child comes home with an overstuffed backpack, how to talk and write to teachers and school administrators in persuasive, nonconfrontational ways, and how to rally other parents to help restore balance in your children's lives. Empowering, practical, and rigorously researched, *The Case Against Homework* shows how too much work is having a negative effect on our children's achievement and development and gives us the tools and tactics we need to advocate for change. Also available as an eBook

against algebra the atlantic: The Importance of Being Little Erika Christakis, 2016-02-09 "Christakis . . . expertly weaves academic research, personal experience and anecdotal evidence into her book . . . a bracing and convincing case that early education has reached a point of crisis . . . her book is a rare thing: a serious work of research that also happens to be well-written and personal . . . engaging and important." --Washington Post What kids need from grown-ups (but aren't getting)...an impassioned plea for educators and parents to put down the worksheets and flash cards, ditch the tired craft projects (yes, you, Thanksgiving Handprint Turkey) and exotic vocabulary lessons, and double-down on one, simple word: play. --NPR The New York Times bestseller that provides a bold challenge to the conventional wisdom about early childhood, with a pragmatic program to encourage parents and teachers to rethink how and where young children learn best by taking the child's eye view of the learning environment To a four-year-old watching bulldozers at a construction site or chasing butterflies in flight, the world is awash with promise. Little children come into the world hardwired to learn in virtually any setting and about any matter. Yet in today's preschool and kindergarten classrooms, learning has been reduced to scripted lessons and suspect metrics that too often undervalue a child's intelligence while overtaxing the child's growing brain. These mismatched expectations wreak havoc on the family: parents fear that if they choose the "wrong" program, their child won't get into the "right" college. But Yale early childhood expert Erika Christakis says our fears are wildly misplaced. Our anxiety about preparing and safeguarding our children's future seems to have reached a fever pitch at a time when, ironically, science gives us more certainty than ever before that young children are exceptionally strong thinkers. In her pathbreaking book,

Christakis explains what it's like to be a young child in America today, in a world designed by and for adults, where we have confused schooling with learning. She offers real-life solutions to real-life issues, with nuance and direction that takes us far beyond the usual prescriptions for fewer tests, more play. She looks at children's use of language, their artistic expressions, the way their imaginations grow, and how they build deep emotional bonds to stretch the boundaries of their small worlds. Rather than clutter their worlds with more and more stuff, sometimes the wisest course for us is to learn how to get out of their way. Christakis's message is energizing and reassuring: young children are inherently powerful, and they (and their parents) will flourish when we learn new ways of restoring the vital early learning environment to one that is best suited to the littlest learners. This bold and pragmatic challenge to the conventional wisdom peels back the mystery of childhood, revealing a place that's rich with possibility.

against algebra the atlantic: Moebius Noodles Yelena McManaman, Maria Droujkova, 2013-04-25 How do you want your child to feel about math? Confident, curious and deeply connected? Then Moebius Noodles is for you. It offers advanced math activities to fit your child's personality, interests, and needs. Can you enjoy playful math with your child? Yes! The book shows you how to go beyond your own math limits and anxieties to do so. It opens the door to a supportive online community that will answer your questions and give you ideas along the way. Learn how you can create an immersive rich math environment for your baby. Find out ways to help your toddler discover deep math in everyday experiences. Play games that will develop your child's sense of happy familiarity with mathematics. A five-year-old once asked us, Who makes math? and jumped for joy at the answer, You! Moebius Noodles helps you take small, immediate steps toward the sense of mathematical power. You and your child can make math your own. Together, make your own math!--Publisher's website.

against algebra the atlantic: The Crest of the Peacock George Gheverghese Joseph, 1992

against algebra the atlantic: The Weil Conjectures Karen Olsson, 2019-07-16 A New York Times Editors' Pick and Paris Review Staff Pick A wonderful book. --Patti Smith I was riveted. Olsson is evocative on curiosity as an appetite of the mind, on the pleasure of glutting oneself on knowledge. --Parul Sehgal, The New York Times An eloquent blend of memoir and biography exploring the Weil siblings, math, and creative inspiration Karen Olsson's stirring and unusual third book, *The Weil Conjectures*, tells the story of the brilliant Weil siblings—Simone, a philosopher, mystic, and social activist, and André, an influential mathematician—while also recalling the years Olsson spent studying math. As she delves into the lives of these two singular French thinkers, she grapples with their intellectual obsessions and rekindles one of her own. For Olsson, as a math major in college and a writer now, it's the odd detours that lead to discovery, to moments of insight. Thus *The Weil Conjectures*—an elegant blend of biography and memoir and a meditation on the creative life. Personal, revealing, and approachable, *The Weil Conjectures* eloquently explores math as it relates to intellectual history, and shows how sometimes the most inexplicable pursuits turn out to be the most rewarding.

against algebra the atlantic: *The Good School* Peg Tyre, 2011-08-16 Award-winning education journalist Peg Tyre mines up-to-the-minute research to equip parents with the tools and knowledge necessary to get their children the best education possible We all know that the quality of education served up to our children in U.S. schools ranges from outstanding to shockingly inadequate. How can parents tell the difference? And how do they make sure their kids get what's best? Even the most involved and informed parents can feel overwhelmed and confused when making important decisions about their child's education. And the scary truth is that evaluating a school based on test scores and college admissions data is like selecting a car based on the color of its paint. Synthesizing cutting-edge research and firsthand reporting, Peg Tyre offers parents far smarter and more sophisticated ways to assess a classroom and decide if the school and the teacher have the right stuff. Passionate and persuasive, *The Good School* empowers parents to make sense of headlines; constructively engage teachers, administrators, and school boards; and figure out the best option for their child—be that a local public school, a magnet program, a charter school, homeschooling,

parochial, or private.

against algebra the atlantic: Linear Algebra with Applications George Nakos, David Joyner, 1998 This text fully integrates applications and technology into the linear algebra course, and provides coverage of provocative topics, such as chaos theory and coding theory. The authors designed this text to be rich in examples, exercises, and applications. It includes all basic linear algebra theory, most important numerical methods, and incorporates technology without sacrificing material basic to the course.

against algebra the atlantic: Beast Academy Guide 2A Jason Batterson, 2017-09 Beast Academy Guide 2A and its companion Practice 2A (sold separately) are the first part in the planned four-part series for 2nd grade mathematics. Book 2A includes chapters on place value, comparing, and addition.

against algebra the atlantic: The Case Against Standardized Testing Alfie Kohn, 2000 Kohn's central message is that standardized tests are not a force of nature but a force of politics--and political decisions can be questioned, challenged, and ultimately reversed.

against algebra the atlantic: Handbook of Research on Critical Issues and Global Trends in International Education Barker, Megel R., Hansen, Robyn Conrad, Hammer, Liam, 2023-11-24 The Handbook of Research on Critical Issues and Global Trends in International Education addresses the growing complexity and diversity of international schools by examining the critical issues and global trends faced by practitioners in this field. With a lack of research on the experiences and actions of school practitioners in these isolated workplaces, this book aims to provide practical and evidence-based solutions. The book covers a wide range of topics, including equity and access, diversity, teacher retention, legal frameworks, school typology, governance, cultural competence, third culture kids, leadership and practice, technology, and parent engagement. Written by educational professionals, researchers, and anthropologists, it offers a unique collection of voices from those with lived experiences in this field, making it an invaluable resource for anyone interested in gaining a deeper understanding of the international school sector. Whether you are an educator, researcher, policymaker, school leader, lecturer, or anthropologist, the Handbook of Research on Critical Issues and Global Trends in International Education is a must-read comprehensive guide to the complexities and challenges of international education, providing practical solutions for improving the quality of education in this rapidly evolving field. If you are looking to gain a nuanced understanding of the critical issues facing international schools and evidence-based approaches for addressing these challenges, this book is the perfect resource for you.

against algebra the atlantic: Gödel, Escher, Bach Douglas R. Hofstadter, 2000 'What is a self and how can a self come out of inanimate matter?' This is the riddle that drove Douglas Hofstadter to write this extraordinary book. In order to impart his original and personal view on the core mystery of human existence - our intangible sensation of 'I'-ness - Hofstadter defines the playful yet seemingly paradoxical notion of 'strange loop', and explicates this idea using analogies from many disciplines.

against algebra the atlantic: Basic College Mathematics with Early Integers Elayn Martin-Gay, K. Elayn Martin-Gay, 2012 Elayn Martin-Gay firmly believes that every student can succeed, and her developmental math textbooks and video resources are motivated by this belief. Basic College Mathematics with Early Integers, Second Edition was written to help students effectively make the transition from arithmetic to algebra. The new edition offers new resources like the Student Organizer and now includes Student Resources in the back of the book to help students on their quest for success.

against algebra the atlantic: Understanding Independent School Parents Michael G. Thompson, M Ed, 2012-02-14 Understanding Independent School Parents is a practical guide for teachers provides advice for forging successful relationships with independent school parents. Written by a seasoned school psychologist and an experienced classroom teacher, this book aims to help teachers and administrators understand today's families and maintain healthy relationships

with them. Readers will learn how to create school environments that support both teachers and parents, make the most of parent conferences, and manage those disruptive and difficult five percenter parents who can make a teacher's life miserable.

against algebra the atlantic: Prealgebra Julie Miller, Molly O'Neill, Nancy Hyde, 2019-10-29
Here the authors continues to offer an enlightened approach grounded in the fundamentals of classroom experience in prealgebra. The text reflects the compassion and insight of its experienced author team with features developed to address the specific needs of developmental level students. Throughout the text, the authors communicate to students the very points their instructors are likely to make during lecture, and this helps to reinforce the concepts and provide instruction that leads students to mastery and success.

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