

benchmark in math definition

Benchmark in Math Definition: Understanding Its Role and Importance

Benchmark in math definition can seem straightforward at first glance, but it carries a depth of meaning and application that is essential for students, educators, and anyone involved in learning or teaching mathematics. In essence, a benchmark in math refers to a standard or reference point against which other numbers, calculations, or concepts are compared or measured. It serves as a mental anchor that helps simplify complex problems and improves number sense. But there's much more to this concept than just a simple point of comparison.

If you've ever heard teachers talk about benchmark numbers or used tools like number lines and estimation strategies, you've interacted with benchmarks in math without even realizing it. Let's dive deeper into what benchmark numbers really are, why they matter, and how they can be effectively applied to improve mathematical understanding and problem-solving skills.

What Is a Benchmark in Math?

At its core, the benchmark in math definition is about having a familiar, easy-to-work-with number that helps in estimating or simplifying calculations. These benchmarks are typically numbers that are easy to comprehend and use mentally, such as 10, 25, 50, 100, or 1,000. They act as reference points when you're trying to gauge the size, value, or order of magnitude of other numbers.

For example, if you want to estimate the sum of 47 and 56, using 50 as a benchmark makes it simpler: $50 + 50 = 100$, which is close to the actual sum of 103. This mental shortcut is invaluable, especially during quick calculations or when learning foundational math concepts.

Why Benchmarks Matter in Math Learning

Understanding benchmark numbers helps build a stronger number sense, a critical skill in mathematics that allows learners to grasp the relationships between numbers and perform mental math effectively. Rather than relying solely on calculators or written computations, benchmarks enable intuitive reasoning.

When students learn to use benchmarks, they become more confident in estimating answers, checking their work for reasonableness, and developing flexible thinking around numbers. This is especially useful in early math education but remains important throughout more advanced studies, including

algebra and beyond.

Common Benchmark Numbers and Their Uses

Certain numbers frequently serve as benchmarks because of their simplicity and familiarity. Let's look at some of the most common ones and how they are used in different contexts.

10 and Its Multiples

The number 10 is a fundamental benchmark in math due to our base-10 number system. It's easy to add, subtract, multiply, and divide around multiples of 10. For example, when estimating $38 + 47$, rounding both to the nearest 10 ($40 + 50$) provides a quick estimate of 90.

25, 50, and 100

Quarter, half, and full benchmarks (25, 50, 100) are especially useful in understanding fractions, percentages, and money. For example, 25 is a quarter of 100, so it becomes a handy reference point for estimating percentages or breaking down problems into manageable parts.

1,000 and Larger Benchmarks

In dealing with larger numbers, benchmarks like 1,000 or 10,000 help students grasp scale and magnitude. For example, estimating populations, distances, or data points becomes manageable when rounded to these benchmarks.

How to Use Benchmarks Effectively in Math

Knowing what benchmarks are is just the start. The real power comes from applying them strategically during problem-solving.

Rounding and Estimation

One of the most common applications of benchmarks is rounding numbers to the nearest benchmark to make mental calculations easier. This approach helps students quickly approximate sums, differences, products, or quotients without getting bogged down in exact figures.

Comparing Numbers

Benchmarks allow for quick comparisons between numbers. For example, when deciding which number is larger or by how much, rounding both to a common benchmark can clarify the difference.

Checking Answers for Reasonableness

After solving a problem, using benchmarks to estimate an answer provides a way to check whether the solution makes sense. If your exact answer is wildly different from your benchmark estimate, it might be time to revisit your calculations.

Benchmark Numbers and Curriculum Standards

In many educational systems, benchmarks also refer to performance standards or goals students are expected to meet at various stages of learning. While this is a different use of the term, it's worth noting how both meanings relate in math education.

Benchmarks as numbers help students develop skills, while benchmarks as standards help educators measure those skills. Together, they form a framework for consistent and effective math teaching and assessment.

Using Benchmarks to Track Progress

Teachers often use benchmark assessments to gauge student proficiency in math concepts. These assessments align with curriculum goals and help identify areas where students excel or need support. Understanding benchmark numbers aids students in meeting these goals by reinforcing foundational skills.

Tips for Students to Master Benchmark Numbers

Mastering benchmarks can transform how students approach math. Here are some practical tips to get the most out of these powerful tools:

- **Practice Mental Math:** Regularly practice rounding and estimating with benchmark numbers to boost confidence.
- **Use Visual Aids:** Number lines, charts, and grids can help visualize benchmarks and their relationships.

- **Relate to Real Life:** Connect benchmarks to everyday situations, like money or time, to make them more meaningful.
- **Check Work:** Use benchmarks to quickly verify answers, reinforcing accuracy and self-correction.
- **Ask “Is this reasonable?”:** Before finalizing solutions, compare with benchmark estimates to avoid mistakes.

Beyond Numbers: Benchmarking in Mathematical Thinking

While the benchmark in math definition primarily revolves around numbers, the concept extends to mathematical thinking and problem-solving strategies. Benchmarks help students develop estimation skills, recognize patterns, and build logical reasoning.

For instance, in algebra, benchmarks might involve using simple values to test equations or functions before diving into complex calculations. This approach helps identify errors and builds intuition about how mathematical relationships work.

Similarly, in geometry, benchmarks could be standard shapes or angles that serve as reference points for measuring and comparing other figures.

Encouraging Flexible Thinking

Using benchmarks encourages students not to rely solely on rote methods but to think flexibly and adapt strategies based on context. This adaptability is crucial for tackling unfamiliar problems and developing deeper mathematical understanding.

Integrating Benchmarks with Technology and Tools

In today’s classrooms and at home, technology plays a big role in learning math. Many digital tools and apps incorporate benchmarks to help students practice estimation and mental math.

For example, interactive games might challenge students to round numbers to benchmarks quickly or estimate sums and products. Educational software often provides instant feedback, reinforcing correct use of benchmarks and building

confidence.

Moreover, calculators and spreadsheets allow users to apply benchmarks by rounding results or comparing data to standard values, making these concepts relevant in real-world applications and higher education.

Whether you're a parent helping with homework, a student aiming to improve your math skills, or an educator designing lessons, understanding the benchmark in math definition opens doors to more effective learning and teaching. By using benchmarks as reliable reference points, math becomes less intimidating, more intuitive, and ultimately, more enjoyable.

Frequently Asked Questions

What is the definition of a benchmark in math?

In math, a benchmark is a familiar number or reference point that helps to estimate or compare other numbers more easily.

Why are benchmarks important in mathematics?

Benchmarks are important because they provide a standard or reference that simplifies the process of estimating, comparing, and understanding numbers.

Can you give an example of a benchmark number?

Yes, common benchmark numbers include 0, $\frac{1}{2}$, 1, 10, 100, and 1000, which are often used to estimate or compare other values.

How are benchmarks used in fraction comparisons?

Benchmarks like $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{3}{4}$ are used to quickly assess whether a fraction is less than, greater than, or close to these familiar values.

What role do benchmarks play in teaching math to students?

Benchmarks help students develop number sense by providing easy reference points for estimating, comparing, and understanding numerical relationships.

Is a benchmark always a whole number?

No, benchmarks can be whole numbers, fractions, or decimals, as long as they serve as familiar reference points for estimation or comparison.

How can benchmarks help in mental math?

Benchmarks allow for quick estimation and easier calculations by comparing numbers to familiar reference points instead of exact values.

Are benchmarks used only in basic math or also in advanced math?

While benchmarks are commonly used in basic math for estimation and comparison, the concept of using reference points is also applied in advanced mathematics for approximations and problem-solving.

How do benchmarks relate to number lines?

Benchmarks on number lines act as key reference points that help visualize and compare the position of numbers relative to these familiar values.

Additional Resources

Benchmark in Math Definition: Understanding Its Role and Importance in Mathematical Learning

benchmark in math definition refers to a standard or reference point used to measure or compare mathematical understanding, skills, or performance. In educational contexts, benchmarks serve as critical tools that guide curriculum development, assessment design, and instructional strategies. They represent specific levels of proficiency or learning milestones that students are expected to achieve at various stages of their educational journey.

The concept of benchmarks in math is essential not only for educators but also for students, parents, and policymakers. By establishing clear and measurable goals, benchmarks provide a structured pathway for mastering mathematical concepts and skills. They help in identifying gaps in knowledge, tracking progress, and ensuring consistency across different educational settings.

In-depth Analysis of Benchmarks in Mathematics

Benchmarks in math are often embedded within broader educational standards, such as the Common Core State Standards in the United States or other national curricula worldwide. These benchmarks define what students should know and be able to do at particular grade levels, ranging from basic numeracy in early grades to more complex problem-solving and reasoning skills in higher grades.

The role of benchmarks extends beyond mere expectations; they function as

diagnostic tools that inform teaching methods and learning interventions. For instance, a benchmark might specify that by the end of third grade, students should fluently add and subtract within 1,000. Teachers can use this benchmark to assess individual and class performance, adapting lessons to address areas where students struggle.

Historical Context and Evolution of Mathematical Benchmarks

Historically, the establishment of benchmarks in math evolved alongside educational reforms aimed at standardizing learning outcomes. Prior to widespread standardization, math instruction varied significantly between schools and regions, leading to inconsistent student achievement. The introduction of benchmarks helped unify educational goals and provided a common language for discussing student progress.

Over time, benchmarks have become more detailed, reflecting advances in cognitive research and pedagogical approaches. Modern benchmarks emphasize not only procedural fluency but also conceptual understanding, application, and reasoning. This shift acknowledges that mastering math involves more than performing calculations; it requires the ability to think critically and solve real-world problems.

Key Features of Effective Math Benchmarks

Effective benchmarks in mathematics share several characteristics that enhance their utility:

- **Clarity:** Benchmarks should be precisely worded to avoid ambiguity, ensuring educators and students understand the expectations clearly.
- **Measurability:** They must be assessable through tests, quizzes, or practical demonstrations to track student achievement objectively.
- **Relevance:** Benchmarks should align with real-life applications of math, making learning meaningful and engaging.
- **Progressiveness:** They need to be structured in a sequential manner that reflects cognitive development and builds on prior knowledge.
- **Inclusivity:** Effective benchmarks account for diverse learning styles and abilities, supporting differentiated instruction.

These features ensure that benchmarks serve as reliable indicators of student

learning and help maintain high educational standards.

Comparing Benchmarks with Other Educational Metrics

It is important to distinguish benchmarks from related terms such as standards, learning objectives, and assessments. Standards are broad educational goals, while benchmarks are specific, measurable checkpoints within those standards. Learning objectives are more granular and often tied to individual lessons or units, whereas benchmarks encompass wider competencies expected over a longer period.

Assessments, on the other hand, are tools used to evaluate whether benchmarks have been met. For example, a standardized test may assess multiple benchmarks to provide a comprehensive picture of a student's math proficiency. Understanding this hierarchy clarifies how benchmarks fit into the overall educational framework and support targeted instruction.

The Impact of Benchmarks on Curriculum and Instruction

Benchmarks profoundly influence curriculum design by dictating which mathematical concepts should be covered and when. Curriculum developers use benchmarks to sequence topics logically, ensuring foundational skills are mastered before introducing advanced material. This alignment helps prevent gaps in understanding that can hinder future learning.

In the classroom, benchmarks guide teachers in lesson planning and assessment. They enable educators to focus on essential skills and identify students who need additional support. Moreover, benchmarks facilitate communication between teachers, students, and parents by setting transparent expectations.

Pros and Cons of Implementing Math Benchmarks

While benchmarks offer numerous advantages, they also present challenges that educators and institutions must navigate.

Pros:

- **Standardization:** Benchmarks create consistent learning goals across different schools and districts.
- **Accountability:** They provide measurable targets that hold educators and students accountable for progress.

- **Guidance:** Benchmarks help teachers design focused instruction and identify areas needing remediation.
- **Progress Tracking:** They enable systematic monitoring of student growth over time.

Cons:

- **Overemphasis on Testing:** Reliance on benchmarks can lead to teaching to the test rather than fostering deep understanding.
- **Inflexibility:** Rigid benchmarks may not accommodate diverse learning paces or styles.
- **Pressure on Students:** High-stakes benchmarks can increase anxiety and reduce motivation.
- **Resource Intensive:** Developing and implementing benchmarks requires significant time and expertise.

Balancing these pros and cons is critical for effective educational practice.

Integrating Benchmark Data into Educational Technology

The rise of educational technology has transformed how benchmarks are utilized in math instruction. Digital platforms can track student performance in real-time, providing immediate feedback aligned with benchmark goals. Adaptive learning software adjusts difficulty based on benchmark achievement, personalizing instruction to meet individual needs.

Data analytics derived from benchmark assessments allow educators to identify trends, predict outcomes, and tailor interventions. This integration enhances the precision and responsiveness of math education, promoting better learning outcomes.

Future Trends in Benchmarking Mathematics

Looking forward, benchmarks in math are likely to become more dynamic and multifaceted. Emerging frameworks emphasize competencies such as mathematical modeling, data analysis, and technology use. These reflect the changing demands of the modern world and the need for students to apply math

creatively.

Moreover, there is growing interest in formative benchmarking—ongoing assessments that inform instruction continuously rather than relying solely on summative tests. This approach supports a more holistic and student-centered understanding of math proficiency.

In conclusion, the benchmark in math definition encompasses a fundamental concept that underpins effective math education. By serving as clear, measurable standards, benchmarks provide essential guidance for teaching, learning, and assessment. Their thoughtful implementation, combined with technological advancements, promises to enhance mathematical understanding and achievement for students across diverse contexts.

Benchmark In Math Definition

benchmark in math definition: Mastering Grade 4 Math Reza Nazari, 2023-09-02 Dive into Grade 4 Math with Mastery Remember those days when math was all about counting apples and oranges? By fourth grade, mathematics takes on a new form. It starts challenging young minds with multi-digit multiplication, fractions, and complex geometrical shapes. Imagine the thrill of multiplying for the first time or the magic of understanding how fractions work. Exciting, isn't it? The Need for a Comprehensive Guide With the heightened complexity of topics, the real challenge lies in understanding these concepts deeply and applying them. But how does one make this journey smooth and enjoyable? Challenges Faced by Fourth Graders Let's be real; the jump from third to fourth grade can be daunting. Students encounter bigger numbers, unfamiliar concepts, and a world where math is no longer just about counting. It's about reasoning, logic, and application. Why Mastering Grade 4 Math is the Solution This is where our guide, Mastering Grade 4 Math, comes into play. Like a trusty friend, it walks students through every topic, making the challenging ones seem like a piece of cake. Dive Deep into Key Features Attaining Conceptual Clarity Remember the joy of finally getting a tricky concept? Each chapter in our book aims to provide that 'aha' moment. With simple, clear explanations, it breaks down even the most complex topics into digestible chunks. The Power of Practice Ever heard the saying, Practice makes perfect? Our guide believes in it wholeheartedly. With a wide array of exercises, it's like a gym for the brain, flexing and strengthening those math muscles. Math in the Real World Why do we learn math anyway? Our guide bridges the gap between classroom learning and real-world applications, showing students the magic of using math in everyday life. The Joy of Interactive Learning Why should learning be boring? With puzzles, games, and quizzes, our book transforms learning into a fun adventure. The Progressive Pathway Just like building a house brick by brick, our guide ensures that each concept builds on the previous one, ensuring a strong foundation for the mathematical mansion. Embracing Expert Tips Who wouldn't love some insider information? With tips from experts, those tricky problems won't stand a chance! The Benefits of Using This Guide For Parents Seeking the perfect resource to support your child's mathematical journey? This guide promises to be the co-pilot you've been looking for. For Teachers Need effective teaching material that resonates with your students? Look no further! Our guide not only teaches but inspires. For Students Aiming for the stars in 4th-grade math? With this guide, not only will you reach the stars, but you'll also understand their mathematical patterns! In the vast sea of educational resources, Mastering Grade 4 Math stands out as a beacon for all those seeking clarity, understanding, and a genuine love for math. Dive in, explore, and let the magic of math wash over you.

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benchmark in math definition: A History of Mathematics in the United States and Canada David E. Zitarelli, Della Dumbaugh, Stephen F. Kennedy, 2022-07-28 This is the first truly comprehensive and thorough history of the development of a mathematical community in the United States and Canada. This second volume starts at the turn of the twentieth century with a mathematical community that is firmly established and traces its growth over the next forty years, at the end of which the American mathematical community is pre-eminent in the world. In the preface to the first volume of this work Zitarelli reveals his animating philosophy, "I find that the human factor lends life and vitality to any subject." History of mathematics, in the Zitarelli conception, is not just a collection of abstract ideas and their development. It is a community of people and practices joining together to understand, perpetuate, and advance those ideas and each other. Telling the story of mathematics means telling the stories of these people: their accomplishments and triumphs; the institutions and structures they built; their interpersonal and scientific interactions; and their failures and shortcomings. One of the most hopeful developments of the period 1900–1941 in American mathematics was the opening of the community to previously excluded populations. Increasing numbers of women were welcomed into mathematics, many of whom—including Anna Pell Wheeler, Olive Hazlett, and Mayme Logsdon—are profiled in these pages. Black mathematicians were often systemically excluded during this period, but, in spite of the obstacles, Elbert Frank Cox, Dudley Woodard, David Blackwell, and others built careers of significant accomplishment that are described here. The effect on the substantial community of European immigrants is detailed through the stories of dozens of individuals. In clear and compelling prose Zitarelli, Dumbaugh, and Kennedy spin a tale accessible to experts, general readers, and anyone interested in the history of science in North America.

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across the United States, they point to Common Core State Standards as being a key step in creating a more level playing field for all students. William H. Schmidt is University Distinguished Professor at Michigan State University and co-director of the Education Policy Center. Curtis C. McKnight is emeritus professor of mathematics at the University of Oklahoma.

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benchmark in math definition: International Handbook of Mathematical Learning Difficulties Annemarie Fritz, Vitor Geraldi Haase, Pekka Räsänen, 2019-01-30 This comprehensive volume provides teachers, researchers and education professionals with cutting edge knowledge developed in the last decades by the educational, behavioural and neurosciences, integrating cognitive, developmental and socioeconomic approaches to deal with the problems children face in learning mathematics. The neurocognitive mechanisms and the cognitive processes underlying acquisition of arithmetic abilities and their significance for education have been the subject of intense research in the last few decades, but the most part of this research has been conducted in non-applied settings and there's still a deep discrepancy between the level of scientific knowledge and its implementation into actual educational settings. Now it's time to bring the results from the laboratory to the classroom. Apart from bringing the theoretical discussions to educational settings, the volume presents a wide range of methods for early detection of children with risks in mathematics learning and strategies to develop effective interventions based on innovative cognitive test instruments. It also provides insights to translate research knowledge into public policies in order to address socioeconomic issues. And it does so from an international perspective, dedicating a whole section to the cultural diversity of mathematics learning difficulties in different parts of the world. All of this makes the International Handbook of Mathematical Learning Difficulties an essential tool for those involved in the daily struggle to prepare the future generations to succeed in the global knowledge society.

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mathematics, we advance the idea that engaging students with what we metaphorically call the personality of math. That is, we think that students who engage with the math's (1) human champions, (2) with its history and philosophy, and (3) with the nature of its problems and inferential challenges, are more likely to have a positive attitude toward math that will encourage greater learning.

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Greiner-Petter, 2022-12-31 This Open-Access-book addresses the issue of translating mathematical expressions from LaTeX to the syntax of Computer Algebra Systems (CAS). Over the past decades, especially in the domain of Sciences, Technology, Engineering, and Mathematics (STEM), LaTeX has become the de-facto standard to typeset mathematical formulae in publications. Since scientists are generally required to publish their work, LaTeX has become an integral part of today's publishing workflow. On the other hand, modern research increasingly relies on CAS to simplify, manipulate, compute, and visualize mathematics. However, existing LaTeX import functions in CAS are limited to simple arithmetic expressions and are, therefore, insufficient for most use cases. Consequently, the workflow of experimenting and publishing in the Sciences often includes time-consuming and error-prone manual conversions between presentational LaTeX and computational CAS formats. To address the lack of a reliable and comprehensive translation tool between LaTeX and CAS, this thesis makes the following three contributions. First, it provides an approach to semantically enhance LaTeX expressions with sufficient semantic information for translations into CAS syntaxes. Second, it demonstrates the first context-aware LaTeX to CAS translation framework LaCAST. Third, the thesis provides a novel approach to evaluate the performance for LaTeX to CAS translations on large-scaled datasets with an automatic verification of equations in digital mathematical libraries. This is an open access book.

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Education , 2017-08-24 The Development of Early Childhood Mathematics Education, Volume 53 in the Advances in Child Development and Behavior series, includes chapters that highlight some of the most recent research in the field of developmental psychology. Users will find updated chapters on a variety of topics, including sections on The DREME Network: Research and Interventions in Early Childhood Mathematics, The Use of Concrete Experiences in Early Childhood Mathematics Instruction, Interventions in Early Mathematics: Avoiding Pollution and Dilution, Coaching in Early Mathematics, and Designing Studies to Test Causal Questions About Early Math: The Development of Making Pre-K Count. Each chapter provides in-depth discussions, with this volume serving as an invaluable resource for developmental or educational psychology researchers, scholars and students. - Contains chapters that highlight some of the most recent research in the area of child development and behavior - Presents a wide array of topics that are discussed in detail

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Jorgensen, 2020-08-12 'This is an outstanding book: it should be high on the list of any primary school teacher's set of references and a required text for pre-service teachers.' Australian Primary Mathematics Classroom In our technology-rich world, numeracy is just as important as the smartphone in your pocket. Students need to develop mathematical ways of seeing the world and strong problem-solving skills, and those foundations are taught in the primary school classroom. Teaching Mathematics in Primary Schools covers the mathematical content taught in primary and middle years, always emphasising how students can connect what they learn in mathematics with other curriculum areas and with the world beyond the classroom. The authors draw on the latest international research to show how teachers can develop a rich repertoire of classroom teaching techniques, and effective planning, assessment and reporting methods. They outline approaches to creating supportive learning environments for all students, and to building their knowledge and confidence in using mathematics. This third edition has been updated throughout and includes a new chapter on numeracy. Evidence-based uses of digital technologies to support learning and teaching are included in every chapter. With practical strategies that can be implemented in the classroom, this book is an invaluable resource for pre-service and early career primary and middle

years mathematics teachers.

benchmark in math definition: The Princeton Companion to Mathematics Timothy Gowers, June Barrow-Green, Imre Leader, 2010-07-18 The ultimate mathematics reference book This is a one-of-a-kind reference for anyone with a serious interest in mathematics. Edited by Timothy Gowers, a recipient of the Fields Medal, it presents nearly two hundred entries—written especially for this book by some of the world's leading mathematicians—that introduce basic mathematical tools and vocabulary; trace the development of modern mathematics; explain essential terms and concepts; examine core ideas in major areas of mathematics; describe the achievements of scores of famous mathematicians; explore the impact of mathematics on other disciplines such as biology, finance, and music—and much, much more. Unparalleled in its depth of coverage, *The Princeton Companion to Mathematics* surveys the most active and exciting branches of pure mathematics. Accessible in style, this is an indispensable resource for undergraduate and graduate students in mathematics as well as for researchers and scholars seeking to understand areas outside their specialties. Features nearly 200 entries, organized thematically and written by an international team of distinguished contributors Presents major ideas and branches of pure mathematics in a clear, accessible style Defines and explains important mathematical concepts, methods, theorems, and open problems Introduces the language of mathematics and the goals of mathematical research Covers number theory, algebra, analysis, geometry, logic, probability, and more Traces the history and development of modern mathematics Profiles more than ninety-five mathematicians who influenced those working today Explores the influence of mathematics on other disciplines Includes bibliographies, cross-references, and a comprehensive index Contributors include: Graham Allan, Noga Alon, George Andrews, Tom Archibald, Sir Michael Atiyah, David Aubin, Joan Bagaria, Keith Ball, June Barrow-Green, Alan Beardon, David D. Ben-Zvi, Vitaly Bergelson, Nicholas Bingham, Béla Bollobás, Henk Bos, Bodil Branner, Martin R. Bridson, John P. Burgess, Kevin Buzzard, Peter J. Cameron, Jean-Luc Chabert, Eugenia Cheng, Clifford C. Cocks, Alain Connes, Leo Corry, Wolfgang Coy, Tony Crilly, Serafina Cuomo, Mihalis Dafermos, Partha Dasgupta, Ingrid Daubechies, Joseph W. Dauben, John W. Dawson Jr., Francois de Gandt, Persi Diaconis, Jordan S. Ellenberg, Lawrence C. Evans, Florence Fasanelli, Anita Burdman Feferman, Solomon Feferman, Charles Fefferman, Della Fenster, José Ferreirós, David Fisher, Terry Gannon, A. Gardiner, Charles C. Gillispie, Oded Goldreich, Catherine Goldstein, Fernando Q. Gouvêa, Timothy Gowers, Andrew Granville, Ivor Grattan-Guinness, Jeremy Gray, Ben Green, Ian Grojnowski, Niccolò Guicciardini, Michael Harris, Ulf Hashagen, Nigel Higson, Andrew Hodges, F. E. A. Johnson, Mark Joshi, Kiran S. Kedlaya, Frank Kelly, Sergiu Klainerman, Jon Kleinberg, Israel Kleiner, Jacek Klinowski, Eberhard Knobloch, János Kollár, T. W. Körner, Michael Krivelevich, Peter D. Lax, Imre Leader, Jean-François Le Gall, W. B. R. Lickorish, Martin W. Liebeck, Jesper Lützen, Des MacHale, Alan L. Mackay, Shahn Majid, Lech Maligranda, David Marker, Jean Mawhin, Barry Mazur, Dusa McDuff, Colin McLarty, Bojan Mohar, Peter M. Neumann, Catherine Nolan, James Norris, Brian Osserman, Richard S. Palais, Marco Panza, Karen Hunger Parshall, Gabriel P. Paternain, Jeanne Peiffer, Carl Pomerance, Helmut Pulte, Bruce Reed, Michael C. Reed, Adrian Rice, Eleanor Robson, Igor Rodnianski, John Roe, Mark Ronan, Edward Sandifer, Tilman Sauer, Norbert Schappacher, Andrzej Schinzel, Erhard Scholz, Reinhard Siegmund-Schultze, Gordon Slade, David J. Spiegelhalter, Jacqueline Stedall, Arild Stubhaug, Madhu Sudan, Terence Tao, Jamie Tappenden, C. H. Taubes, Rüdiger Thiele, Burt Totaro, Lloyd N. Trefethen, Dirk van Dalen, Richard Weber, Dominic Welsh, Avi Wigderson, Herbert Wilf, David Wilkins, B. Yandell, Eric Zaslow, and Doron Zeilberger

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