1970-2022.3 TOPIC INDEX

for

The College Mathematics Journal

(including the ***Two Year College Mathematics Journal***)

prepared by

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Each item in this index is listed under the topics for which it might be used in the classroom or for enrichment after the topic has been presented. Within each topic entries are listed in chronological order of publication. Each entry is given in the form:

Title, author, volume:issue, year, page range, [C or F], [other topic cross-listings]

where C indicates a classroom capsule or short note and F indicates a Fallacies, Flaws and Flimflam note. If there is nothing in this position the entry refers to an article unless it is a book review.

The topic headings in this index are numbered and grouped as follows:

3.4 Software for discrete mathematics

4 Linear Algebra
- 4.1 Matrices, systems of linear equations, and matrix algebra
- 4.2 Determinants (also see 5.5)
- 4.3 Vector spaces and inner product spaces (also see 5.5)
- 4.4 Linear transformations
- 4.5 Eigenvalues and eigenvectors
- 4.6 Numerical methods of linear algebra
- 4.7 Other topics in linear algebra
- 4.8 Software for linear algebra

5 Calculus
- 5.1 Limits and differentiation
- 5.1.1 Limits (including l'Hopital's rule)
- 5.1.2 The derivative and mean value theorems
- 5.1.3 Tangents, differentials, and differentiation
- 5.1.4 Maxima and minima
- 5.1.5 Graphs of functions
- 5.2 Integration
- 5.2.1 Definition of integrals and the fundamental theorem
- 5.2.2 Numerical integration
- 5.2.3 Change of varible (substitution)
- 5.2.4 Partial fraction decomposition
- 5.2.5 Integration by parts
- 5.2.6 Area
- 5.2.7 Volume
- 5.2.8 Arc length
- 5.2.9 Other theory and applications of integration
- 5.2.10 Improper integrals
- 5.3 Elementary and special functions
- 5.3.1 Inverse trigonometric functions
- 5.3.2 Exponential and logarithmic functions
- 5.3.3 Hyperbolic functions and their inverses
- 5.3.4 Special functions
- 5.4 Sequences and series
- 5.4.1 Sequences
- 5.4.2 Numerical series (convergence tests and summation)
- 5.4.3 Taylor polynomials and power series

- 5.5 Vector algebra and geometry (and 3x3 determinants)

- 5.6 Curves and surfaces
- 5.6.1 Parametric and polar curves
- 5.6.2 Surfaces and coordinate systems in space

5.7 Multivariable calculus
- 5.7.1 Multivariable differential calculus
- 5.7.2 Multiple integrals
- 5.7.3 Line and surface integrals and vector analysis

5.8 Software for calculus

6 Differential Equations and Dynamical Systems
- 6.1 First order equations
- 6.2 Higher order linear equations and linear systems
- 6.3 Difference equations, dynamical systems, and fractals
- 6.4 Nonlinear differential equations
- 6.5 Numerical methods for differential equations
- 6.6 Other topics in differential equations
- 6.7 Software for differential equations and dynamical systems

7 Probability and Statistics
- 7.1 Games of chance (also see 9.2)
- 7.2 Probability
- 7.3 Statistics (also see 9.10)
- 7.4 Software for probability and statistics

8 Computer Science
- 8.1 Programming and algorithms
- 8.2 Data structures
- 8.3 Computer graphics
- 8.4 Other topics in computer science

9 Other Topics
- 9.1 Set theory and logic (also see 0.9)
- 9.2 Recreational mathematics (also see 7.1)
- 9.3 Number theory (also see 0.1)
- 9.4 Abstract algebra
- 9.5 Analysis
- 9.6 Numerical analysis
- 9.7 Modern and non-Euclidean geometry
- 9.8 Topology and differential geometry
- 9.9 Operations research, including linear programming
- 9.10 Mathematical modelling and simulation
- 9.11 Software for advanced topics

10 Book Reviews

1970 – 2022.3 Topic Index
for the *College Mathematics Journal*

0 Precalculus Mathematics (also see 9)

0.1 Arithmetic (also see 9.3)

Remedial or Developmental? Confusion over Terms, Don Ross, 1:2, 1970, 27-31, 1.2
Two-Pan Weighings, Chris Burditt, 3:2, 1972, 80-81, C
Cyclically Permuted Code: A Variation on Binary Arithmetic, J. Maurice Kingston, 5:1, 1974, 29-36
Computation of Repeating Decimals, James E. McKenna, 7:2, 1976, 55-58
Smith Numbers, A. Wilansky, 13:1, 1982, 21, 9.3
Cryptology: From Ceasar Ciphers to Public-Key Cryptosystems, Dennis Luciano and Gordon Prichett, 18:1, 1987, 2-17, 7.2, 9.3
What's Significant about a Digit?, David A. Smith, 20:2, 1989, 136-139, C, 9.6
FFF #85. Unto Everyone That Hath Shall Be Given, John W. Kenelly, 26:1, 1995, 36, F
Number Words in English, Steven Schwartzman, 26:3, 1995, 191-195
The Mathematical Judge: A Fable, William G. Frederick and James R. Hersberger, 26:5, 1995, 377-381, 1.1
The Square of Any Odd Number is the Difference Between Two Triangular Numbers (Proof Without Words), Roger B. Nelsen, 27:2, 1996, 118, C, 9.3
Fractions with Cycling Digit Patterns, Dan Kalman, 27:2, 1996, 109-115, 9.3
FFF #112. United in Purpose, Bruce Yoshiwara, 28:2, 1997, 119, F
FFF #121. A Case of Black and White - But Not So Much Black, Peter Rosenthal, 28:5, 1997, 377, F
FFF #125. Effects of Changing Temperature, Dave Trautman, 29:1, 1998, 35, F
More Coconuts, Sidney H. Kung, 29:4, 1998, 312-313, C, 9.3
FFF #138. Fifty per cent more for fifty per cent less, Norton Starr, 30:1, 1999, 39-40, F
Interval Arithmetic and Analysis, James Case, 30:2, 1999, 106-111, 9.5
FFF #140. Whose Real World?, Elizabeth Berman Appelbaum, 30:2, 1999, 130, F
FFF #144. Spoiled for Choice, Norton Starr, 30:3, 1999, 210, F, 3.2
Saving Digits, Mark McKinzie, 31:2, 2000, 146, C
FFF #167. Double from nothing, Richard Askey, 32:1, 2001, 48, F
FFF #173. Loss of face, R. Askey, 32:1, 2001, 50-51, F
Word Problems, Lawrence Braden, 32:1, 2001, 70-71, C
Miscellanea: The Doctor and the Mathematician, Edwin Rosenberg, 32:4, 2001, 318, C
Powers Made Easy, James Kirby, 32:5, 2001, 329, C, 9.3
FFF #191. Syllabus Innumeracy and the Easy A, Charles Redmond, 33:2, 2002, 138-139, F
FFF #192. Addition by juxtaposition, Brendan Kelly, 33:3, 2002, 226, F
FFF #193. Slide into poverty, by student, 33:3, 2002, 226-227, F
FFF #194. Hitting the sales, the editor, 33:3, 2002, 227, F
Musharraf Exposed, Margaux Marie Siegel, 33:3, 2002, 229, C
Introducing Binary and Ternary Codes via Weighings, James Tanton, 33:4, 2002, 313-314, C, 3.2
Adding Fractions, Dan Kalman, 34:1, 2003, 41, C, 5.1.2
A large square consisting only of digits 7, 8 and 9, Hisanori Mishima, 34:4, 2003, 303, C, 9.3
FFF #219. A faulty test question, Joseph G. R. Martinez, 35:1, 2004, 41-42, F
A Generalized Magic Trick from Fibonacci: Designer Decimals, Mrjorie Bicknell-Johnson, 35:2, 2004, 125-126, C, 9.5
Linearizing Mile Run Times, Garrett I. Ash, J. Marshall Ash, and Stefan Catoiu, 35:5, 2004, 370-374, 9.2
FFF #231. Solar Power, Ed Dubinsky, 36:1, 2005, 49-50, F
How Many Checks?, Ted Ridgway, 36:2, 2005, 113, C

FFF #234. A multiplicity of multiplications, Hyman Bass, 36:2, 2005, 141, F (see also Shirley B. Gray, 37:3, 2006, 214-215, F and Yves Nievergelt, 39:2, 2008, 137-138, F)
Federal Money, Joseph Crukshank, 36:3, 2005, 208, C
FFF #242. Lighter than air, Marie S. Wilcox, 36:4, 2005, 316-317, F
Wrong, Wrong, and Wrong: Math Guides Are Recalled, *New York Times*, 36:5, 2005, 362, C
Where are the missing "8-terms"?, Johann Hoehn and Larry Hoehn, 37:1, 2006, 68, C
Watch Your Units!, Stan Wagon, 37:2, 2006, C
Teaching Tip: How large is n!?, Leonard J. Lipkin, 37:2, 2006, 109, C
Alligation, Joseph Crukshank, 37:2, 2006, 113, C
FFF #251. Hot stuff in Canada, Neal Madras, 27:2, 2006, 123, F
FFF #254. Computing the cost of a fence, Johnny Lott and Georgia Cobbs, 37:4, 2006, 291, F
Bad Ad Arithmetic, Stan Lipovetsky, 37:5, 2006, 363, C
FFF #262. Attributed to Vladimir Putin, Andre Toom, 38:1, 2007, 44, F
Freaky fractions, Rick Kreminsky, 38:1, 2007, 46, C, 9.3
Misusing "percent", Ted Ridgway, 38:2, 2007, 95, C
Kong size percent, Art Friedel, 38:2, 2007, 123, C
Was He Serious?, Julian Fleron, 38:2, 2007, 130, C
Literate maybe, but numerate?, Alfinio Flores, 38:4, 2007, 277, C
Compound Addition, Joseph Crukshank, 38:5, 2007, 377 and 387, C
Remainder Wheels and Group Theory, Lawrence Brenton, 39:2, 2008, 129-135, 9.3, 9.4
It Was Only a Sign Error, David Cox, 39:2, 2008, 135, C
One-Upmanship in Creating Designer Decimals, James Smoak, 39:3, 2008, 211, C
Missteps in Mathematics Books, Jerome Dancis, 39:5, 2008, 280-382, F, 0.2
Proof Without Words: Powers of Two, James Tanton, 40:2, 2009, 86, C, 5.4.2
Three Poems, Caleb Emmons, 40:3, 2009, 188, 9.2
Family Occasion, Ian Stewart, 40:3, 2009, 203, C
Teaching Tip: Accepting that .999… = 1, David W. Cohen and James M. Henle, 40:4, 2009, 258, C
Brown Sharpie: .999… = 1 (Cartoon), Courtney Gibbars, 40:4, 2009, 262, C
Fallacies, Flaws and FlimFlam: What's *Your* Version of Two-Thirds?, Mary Ann Bragg, 40:5, 2009, 343, C
341 is a Brilliant Number, P. D. James, 40:5, 2009, 368, C, 9.3
Visualizing Elections using Saari Triangles, Mariah Birgen, 41:4, 2010, 325-328, 0.3, 3.3
A Talmudic Fair-Division Problem, Theodore Hill, 41:4, 2010, 338, C, 3.3
A Pumping Lemma for Invalid Reductions of Fractions, Michael N. Fried and Mayer Goldberg, 41:5, 2010, 357-364, 9.3
The Rascal Triangle, Alif Anggoro, Eddy Liu, and Angus Tulloch, 41:5, 2010, 393-395, 3.2
Sum-Difference Numbers, Yixun Shi, 41:5, 2010, 404-405, C, 9.3
Flaws, Fallacies, and Flimflam: Who's Right?, Fred Graf, Megan McArdle, and Ed Barbeau, 42:1, 2011, 55, C
Flaws, Fallicies, and Flimflam: What Day Is It?, Allen Schwenk, 42:3, 2011, 205, F (see also 5. The International Dateline, 42:5, 2011, 430-431)
Minuend & Subtrahend, Merriam-Webster Dictionary, 42:4, 2011, 316, C
Student Research Project: Making Change Efficiently, Jack E. Graver, 42:4, 2011, 317-322, 3.2, 5.1.4, 9.9
Just Take the Limit!, Jody Picoult, 42:5, 2011, 431, C, 0.8, 9.10
A Numerical Challenge, Robert Wainright, 43:1, 2012, 19, 63, C
Triangular Numbers, Gaussian Integers, and KenKen, John J. Watkins, 43:1, 2012, 37-42, 9.2, 9.3
Carryless Arithmetic Mod 10, David Applegate, Marc LeBrun, and N. J. A. Sloane, 43:1, 2012, 43-50, 5.4.1, 9.2, 9.4
Squaring, Cubing, and Cube Rooting, Arthur T. Benjamin, 43:1, 2012, 58-63, 0.2, 9.2
50 Percent Plus One: Innumeracy or Mendacity?, William J. Polley, 44:3, 2013, 176, C

Proof Without Words: Triangular Sums, Yuko Kobayashi, 44:3, 2013, 189, C, 9.3
Zbikowski's Divisibility Criterion, Yonah Cherniavsky and Artour Mouftakhov, 45:1, 2014, 17-21, 9.3
Proof Without Words: Limit of a Recursive Arithmetic Mean, Angel Plaza, 45:5, 2014, 364, C, 5.1.1, 5.4.1
Groupoid Cardinality and Egyptian Fractions, Julia E. Bergner and Christopher D. Walker, 46:2, 2015, 122-129, 9.3, 9.4
Partial Proof Without Words: Shaping Some Cases of the Erdos-Straus Conjecture, 46:3, 2015, 181, C, 9.3
Square-Sum Pair Partitions, Gordon Hamilton, Kiran S. Kedlaya, and Henri Picciotto, 46:4, 2015, 264-269, 9.2, 9.3
Proof Without Words: A Surprising Integer Result, Roger B. Nelsen, 47:2, 2016, 94, C, 0.3
Multiplying by 9, Arthur Benjamin and Rohan Chandra, 47:4, 2016, 281, C, 0.2
Divisibility Tests, Old and New, Sandy Ganzell, 48:1, 2017, 36-40, 9.3
Factoring Numbers with Conway's 150 Method, Arthur T. Benjamin, 49:2, 2018, 122-125, 9.3
Proof Without Words: Sums of Squares in a Thin Rectangle, Stephen Berendonk, 49:3, 2018, 180, C, 9.3
Marching in Squares, Burkard Polster and Marty Ross, 49:3, 2018, 181-186, 0.2, 9.3
Variations on the Binary Mind-Reading Trick, Jonathan Hoseana, 49:4, 2018, 262-268, 9.2, 9.3
Extrapolating Plimpton 322, Andrew J. Simoson, 50:3, 2019, 210-220, 0.2, 2.1, 9.3
Converting Between Dates in the Hebrew and Roman Calendars, John Conway , Gabrielle Agus & David Slusky , 51:5, 2020, 322-329, 9.2
An Infinite Family of Divisibility Tests, Darrin Frey and Adam Hammett, 52:1, 2021, 2-10, 9.3

0.2 Algebra

Mathematics, A Solitary Game, Olof Hanner, 1:2, 1970, 5-16, 4.1
Gog and Gug, Howard W. Eves, 1:1, 1970, 8, C
The Irrationality of Certain Numbers, Peter A. Lindstrom, 1:1, 1970, 30-31, 9.3
A Computer-Oriented Multiplication Algorithm, John Peterson, 1:2, 1970, 106, C
A Geometric Approach to the Orders of Infinity, Harold L. Schoen, 3:2, 1972, 74-76, C, 9.5
Pascal's k-Simplex, Dale Woods and Mary Jane Kohlenberg, 4:3, 1973, 38-43
Teaching Inequalities Involving Absolute Values, Frances W. Lewis, 4:2, 1973, 87-90, C
Maximize x(a-x), L. H. Lange, 5:1, 1974, 22-24, 0.7, 5.1.4
A Geometric Approach to Linear Programming in the Two-Year College, Pat Semmes, 5:1, 1974, 37-40, 9.10
A Further Note on the Orders of Infinity, Harold L. Schoen, 5:1, 1974, 80-81, C, 9.5
Investigations of Linear and Reciprocal Functions by the Line-to-Line Technique, David R. Duncan and Bonnie H. Litwiller, 6:2, 1975, 2-7, 0.7
Distributivity with Respect to All Four Rational Operations, Myles Greene, 6:2, 1975, 10-12
Mathematical Induction: If Student k Understands It, Will Student K + 1?, Judith L. Gersting, 6:2, 1975, 18-20, 0.9
Easter Revisited, Daniel T. Bleck, 6:3, 1975, 38-40
Functional Notation—An Intuitive Approach, Ann D. Holley, 7:3, 1976, 14-15, 1.2
Finding Super Accurate Integers, Pasquale Scopelliti and Herbert Peebles, 7:3, 1976, 52-54, 0.7, 9.6
Mathematics and Computing without Computers, William S. Dorn, 8:2, 1977, 101-105
The Perfect Curve: at Least for Grades, Lawrence Sher, 8:3, 1977, 148-152
Operational and Intuitive Algebra, Betsey Whitman and Donald Cook, 8:3, 1977, 155-161
Stirling's Triangle of the First Kind-Absolute Value Style, Hugh Ouellette and Gordon Bennett, 8:4, 1977, 195-202, 6.3
An Elementary Construction of the Common Log Tables, James H. Jordan, 8:5, 1977, 274-278
Fractions Without Quotients: Arithmetic of Repeating Decimals, Richard Plagge, 9:1, 1978, 11-15
Applicable Mathematics in Two Year Colleges, Ralph Mansfield, 9:3, 1978, 148-153

Completing the Square–A Laboratory Approach, Charles G. Moore, 9:4, 1978, 215-218
Stirling's Numbers of the Second Kind—Programming Pascal's and Stirling's Triangles, Satish K. Janardan and Konanur G. Janardan, 9:4, 1978, 243-248, 6.3
Some Pre-Calculus Algebra, John Staib, 10:2, 1979, 89-95
The Discovery of a Generalization: An Example in Problem Solving, Hugh Ouellette and Gordon Bennett, 10:2, 1979, 100-106, 0.3
Polygonal Roots, Barnabas B. Hughes, 10:5, 1979, 313-318, 0.7
Distance from a Point to a Line, Warren B. Gordon, 10:5, 1979, 348-349, C
A Technique for Determining When a General Quadratic Expression is Factorable, Leo Chosid, 10:5, 1979, 354-355, C, 0.7
Luddhar's Method of Solving a Cubic Equation with a Rational Root, R. S. Luthar, 11:2, 1980, 107-110, 0.7
Computer Solution of Alphametics, Sarah Brooks, 11:2, 1980, 111-114
Why Not Teach Synthetic Multiplication?, Kenneth R. Kundert, 11:2, 1980, 121-122, C
A Precalculus Approximation of n!, Norman Schaumberger, 11:3, 1980, 202-204, C, 5.4.2
An Error-Detecting Check by Substitution, Charles G. Moore, 11:5, 1980, 326-327, C
A "Proof" that M=N, W. Thurmon Whitley, 12:3, 1981, 211, C
Inventor's Paradox, Man-Keung Siu, 12:4, 1981, 267, C
Misguided Mathematical Maxim-Makers, Betsy Darken Smith, 12:5, 1981, 309-316, 1.2
A Classroom Approach to Pythagorean Triples, Norman Schaumberger, 13:1, 1982, 61-62, C
Selection of a Fair Currency Exchange Rate, Allen J. Schwenk, 13:2, 1982, 154-155, C, 0.8
An Alternate Method for Solving Radical Equations, Bill Bompart, 13:3, 1982, 198-199, C
The Thrills of Abstraction, P. R. Halmos, 13:4, 1982, 243, 1.2
Isomorphisms on Magic Squares, Ali R. Amir-Moez, 14:1, 1983, 48-51, 5.4.1, 9.2, 9.3, 9.4
A Logarithm Algorithm for Four-Function Calculators, David Cusick, 14:4, 1983, 322, 5.3.2
The Address Problem, Michael Tennor, 14:5, 1983, 407-414, 9.3
Approximation of Square Roots, Leon Wejntrob, 14:5, 1983, 427-430, 0.7, 9.6
Antisubmarine Warfare: Passive vs. Active Sonar, L. Whitt and K. Wilk, 14:5, 1983, 434-435, C
Is the Venn Diagram Good Enough?, Mou-Liang Kung and George C. Harrison, 15:1, 1984, 48-50, 9.1
A Geometrical Interpretation of the Weighted Mean, Larry Hoehn, 15:2, 1984, 135-139, 0.4, 7.3
On Problems with Solutions Attainable in More Than One Way, Jean Pedersen and George Polya, 15:3, 1984, 218-228, 0.4, 5.4.2
Complex Roots Made Visible, Alec Norton and Benjamin Lotto, 15:3, 1984, 248-249, C, 0.7
Pythagorean Systems of Numbers, Joseph Wiener, 15:4, 1984, 324-326, C, 0.4, 9.3
An Approach to Problem-Solving Using Equivalence Classes Modulo n, James E. Schultz and William F. Burger, 15:5, 1984, 401-405, 9.3
The Factorial Triangle and Polynomial Sequences, Steven Schwartzman, 15:5, 1984, 424-426, C, 5.4.1, 6.3
Right Triangles with Perimeter and Area Equal, William Parsons, 15:5, 1984, 429, C, 0.4
What Do I Know? A Study of Mathematical Self-Awareness, Philip J. Davis, 16:1, 1985, 22-41, 9.3
Nested Polynomials and Efficient Exponential Algorithms for Calculators, Dan Kalman and Warren Page, 16:1, 1985, 57-60, C, 0.7, 9.6
Behold! The Arithmetic-Geometric Mean Inequality, Roland H. Eddy, 16:3, 1985, 208, C, 0.3
Instances of Simpson's Paradox, Thomas R. Knapp, 16:3, 1985, 209-211, C, 7.3
Approximating Solutions for Exponential Equations, Norman Schaumberger, 16:3, 1985, 211-212, C
Graphing the Complex Roots of a Quadratic Equation, Floyd Vest, 16:4, 1985, 257-261, C , 0.7, 9.5
A New Divisibility Algorithm, Joseph Whittaker, 16:4, 1985, 268-276, 9.3
A Discrete Look at 1 + 2 + ... + n, Loren C. Larson, 16:5, 1985, 369-382, 0.9, 3.1, 3.2, 5.4.2, 6.3
Routine Problems, Sherman Stein, 16:5, 1985, 383-385, 5.1.5, 1.2
A Babylonian Geometrical Algebra, James K. Bidwell, 17:1, 1986, 22-31, 0.3
Irrationality Made Easy, Robert Bumcrot, 17:3, 1986, 243-244, C

The Change of Base Formula for Logarithms, Chris Freiling, 17:5, 1986, 413, C, 5.3.2
A Guide to Computer Algebra Systems, John M. Hosack, 17:5, 1986, 434-441, 4.1, 5.1.2, 5.1.5, 5.2.3, 5.2.4, 5.2.5
Behold! The Graphs of f and f inverse are Reflections about the Line y=x, Ayoub B. Ayoub, 18:1, 1987, 52, C, 5.3.2
Powers and Roots by Recursion, Joseph F. Aieta, 18:5, 1987, 411-416, 0.7, 6.3
FFF #1. The Zero Function, Ed Barbeau, 20:1, 1989, 49-50, F (also 20:2, 1989, 133)
FFF #5. A Howler about Products of Logarithms, Ed Barbeau, 20:3, 1989, 226, F (also 20:4, 1989, 318 and 21:3, 1990, 218)
FFF #7. An Exponential Equation, Ed Barbeau, 20:4, 1989, 317, F (also 20:5, 1989, 404)
Quick Function Evaluation, Daniel S. Yates, 21:1, 1990, 51, C, 5.1.5
FFF #25. Solving an Inequality, Ed Barbeau, 21:4, 1990, 303, F
Geometrical and Graphical Solutions of Quadratic Equations, E. John Hornsby, Jr., 21:5, 1990, 362-369, 0.4
China's 1989 National College Entrance Examination, Bart Braden, 21:5, 1990, 390-393, 0.4, 0.6, 1.2
FFF #38. How to Solve a Quadratic Equation, Ed Barbeau, 22:2, 1991, 132, F (also 24:4, 1993, 345 and 25:4, 1994, 310)
FFF #39. The End Justifies the Mean, Ed Barbeau, 22:3, 1991, 220, F
FFF #40. Perron's Paradox, Ed Barbeau, 22:3, 1991, 221, F, 9.1 (also 23:3, 1992, 205 and 24:3, 1993, 231)
FFF #42. A Characterization of Finite Geometric Sequences, Ed Barbeau, 22:3, 1991, 221, F
Positivity from Evaluation of a Single Point, Henry Mark Smith, 22:3, 1991, 230-231, C, 5.1.5
FFF #46. A Straightforward Cancellation, Ed Barbeau, 22:5, 1991, 403-404, F, 3.2
FFF #49. Two Transcendental Equations, Ed Barbeau, 23:1, 1992, 36, F, 5.3.2
FFF #52. An Application of the Cauchy-Schwartz Inequality, Ed Barbeau, 23:2, 1992, 142, F, 9.5
Infinitely Many Different Quartic Polynomial Curves, Nitsa Movshovitz-Hader and Alla Shmukler, 23:3, 1992, 186-195, 0.7
The Joy of Mathematics: A Mary P. Dolciani Lecture, Peter Hilton, 23:4, 1992, 274-281, 1.2
A Serendipitous Application of the Pythagorean Triplets, Susan Forman, 23:4, 1992, 312-314, C, 9.3
Commutativity of Polynomials, Shmuel Avital and Edward Barbeau, 23:5, 1992, 386-395, 6.3, 0.7
FFF. Matrices and the TI-81 Graphics Calculator, Constance J. Gardner, 24:1, 1993, 64, F, 4.1
FFF #58. A Rational Combination of Two Transcendentals, Ed Barbeau, 24:3, 1993, 229, F, 5.3.2
FFF #59. A Formula that Works Only for n=1, Ed Barbeau, 24:3, 1993, 229-230, F, 0.9
FFF #60. A Two-Valued Function, Ed Barbeau, 24:3, 1993, 230, F, 5.3.2
FFF #65. Solving a Cubic, Ed Barbeau, 24:4, 1993, 344, F, 0.7 (also 25:4, 1994, 311)
FFF #67. A Superficial Volume Problem, Randall K. Campbell-Wright, 25:1, 1994, 35, F
FFF #70. Reading a Calculator Display, Sandra Z. Keith, 25:1, 1994, 36, F, 5.1.3
Approaches to the Formula for the nth Fibonacci Number, Russell Jay Hendel, 25:2, 1994, 139-142, C, 4.5, 5.4.2, 9.3, 9.5
Extending Bernoulli's Inequality, Ronald L. Persky, 25:3, 1994, 230, C, 9.5
FFF #84. A Method for Solving a Cubic Equation, Ed Barbeau, 26:1, 1995, 35-36, F, 0.7
FFF #86. Watch Your Ears!, Bruce Yoshiwara, 26:1, 1995, 36, F
FFF #87. Do You Know How to Split the Atom?, Milt Eisner, 26:1, 1995, 37, F
The Product of Four (Positive) Numbers in Arithmetic Progression is Always the Difference of Two Squares (Proof Without Words), Roger B. Nelsen, 26:2, 1995, 131, C
A Geometric Approach to Linear Functions, Jack E. Graver, 26:5, 1995, 389-394, C, 0.4, 6.3
FFF #97. A Surd Equation, Ed Barbeau, 27:1, 1996, 45, F (see also 27:3, 1996, 204-205)
FFF #105. The Remainder Theorem, Richard Laatsch, 27:4, 1996, 282, F, 9.4
FFF #113. The Disappearing Solution, Ed Barbeau, 28:2, 1997, 120, F (see also 30:1, 1999, 40-43, 30:2, 1999, 132, 30:4, 1999, 307)
FFF #120. A Quick (?) Proof of Irrationality, Richard Askey, 28:4, 1997, 286, F

Visualizing the Complex Roots of Quadratics (Proof Without Words), Shaun Pieper, 28:5, 1997, 359, C, 0.7
FFF #124. The Number of Tickets Sold, Robert W. Vallin, 29:1, 1998, 34-35, F
FFF. Distributing Addition over Multiplication, S. R. S. Sastry, 29:3, 1998, 221, F
FFF #136. Surprising Symmetry, David Wells, 29:5, 1998, 407, F
FFF #137. Drenching a sphere, David Cantrell, 30:1, 1999, 39, F
Multiplying and Dividing Polynomials Using Geloxia, Jeff Suzuki, 30:1, 1999, 50-53, C
The Trinomial Triangle, James Chappell and Thomas Osler, 30:2, 1999, 141-142, C, 3.2
An Identity for n(n+1)(n+2)(n+3)+1, Alfinio Flores, 30:3, 1999, 247, C
FFF #148. An exponential mess, Eric Chander, 30:4, 1999, 306, F
FFF. Mathematical oxymorons, Richard Francis, 30:4, 1999, 308, F
Things I Have Learned at the AP Reading, Dan Kennedy, 30:5, 1999, 346-355, 5.1.1, 5.1.2, 5.2.1, 5.2.6, 5.4.2, 6.1
a^2+b^2 ≥ 2ab (Mathematics Without Words), Alfinio Flores, 31:2, 2000, 106, C
FFF #156. An Imaginary Absolute Value?, Peter M. Jarvis and Paul S. Shuette, 31:3, 2000, 207, F
Binomials to Binomials, Thomas Osler, 31:3, 2000, 211-212, C, 6.3
Colin Maclaurin's Quaint Word Problems, Bruce Hedman, 31:4, 2000, 286-289
Tangents without Calculus, Jorge Aarao, 31:5, 2000, 406-407, C, 0.7, 5.1.3
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There Are No New Word Problems, Charles Marion, 32:3, 2001, 238-239, C
Another Look at Factoring Polynomials, Scott J. Beslin and Douglas J. Baney, 32:4, 2001, 273-275, 9.4
FFF #181. Finding Asymptotes, Carl Libis, 32:5, 2001, 366, F, 5.1.5
FFF #183. Dimensions of a yard, a student, 33:1, 2002, 39, F
FFF #186. The illegal moves method for quadratics, John C. and Holly M. Hoover, 33:1, 2002, 40, F
FFF #187. Cancelling exponents, Ross Honsberger, 33:1, 2002, 41, F
Solutions to x+y=xy (Mathematics Without Words), Roger Nelsen, 33:2, 2002, 130, C, 0.6
FFF #188. An appeal to symmetry, a student, 33:2, 2002, 137, F
Sums of Roots and Poles of Rational Functions, Paul Deiermann, 33:2, 2002, 148-149, C
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The Roots of a Quadratic, Leonard Gillman, 33:3, 2002, 237-238, C, 0.7
FFF #198. An answer hard to get at, Li Zhou, 33:4, 2002, 310, F
The Exponential Formula, the Editor, 33:4, 2002, 349, C
Lewis Carroll's Amazing Number-Guessing Game, Richard F. McCoart, 33:5, 2002, 378-383, 9.2
Quadratic and Exponential Formulas, David Marcus, 34:1, 2003, 49, C
FFF #201. Solution of a rational equation, Carl Libis, 34:1, 2003, 50-51, F
FFF #203. Toothpicks, Elaine Simmt, 34:1, 2003, 52, F
FFF. Factoring quadratics, Ed Barbeau, 34:1, 2003, 53, F
Keyboard Inequalities, Monte Zerger, 34:1, 2003, 67, C, 9.5
How (Not) to Solve Quadratic Equations, Yves Nievergelt, 34:2, 2003, 90-104, 9.6
Clarifying Compositions with Cobwebs, Nial Neger and Michael Frame, 34:3, 2003, 196-204, 6.3
FFF #210. Summing squares by averages, Shailesh Shirali, 34:3, 2003, 224, F
FFF #211. A surd equation, Carl Libis, 34:3, 2003, 225, F
FFF #212. ab^k = (ab)^k, Carl Libis and Parviz Khalili, 34:3, 2003, 225, F
For What Functions Is $f^{-1}(x) = 1/f(x)$?, Sharon MacKendrick, 34:4, 2003, 304-311, 9.5
The Band Around a (non)Convex Set, Jack Stewart and Annalisa Crannell, 34:5, 2003, 377-379, 0.7, 9.4
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An Inverse, Ted Ridgway, 35:2, 2004, 104, C
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FFF #224. The square root of -1 is real, Teik-Cheng Lim, 35:3, 2004, 214, F
FFF #225. Extraneous roots, Ed Barbeau, 35:3, 2004, 214-215, F
FFF #227. Who needs exponents?, Carl Libis, 35:4, 2004, 297-298, F
Algebra in Respiratory Care, David F. Snyder, 35:4, 2004, 300-302, C, 9.10
Introducing the Sums of Powers, Jeff A. Suzuki, 35:4, 2004, 303-304, C
FFF #228. An exponential equation, Ed Barbeau, 35:5, 2004, 382, F, 5.3.2
Discovering Roots: Ancient, Medieval, and Serendipitous, Bryan Dorner, 36:1, 2005, 35-43, 2.1, 4.5, 9.3
A Perplexing Polynomial Puzzle, I. B. Keene, 36:2, 2005, 100, C
FFF #235. A lot of values, Ed Barbeau, 36:2, 2005, 141-142, F
Roots of Integers, Revisited, Andrea Rothbart, 36:4, 2005, 317, C (see also 36:1, 56)
Truck Drivers, a Straw, and Two Glasses of Water, Kevin Iga and Kendra Kilpatrick, 37:2, 2006, 82-92, 6.3
FFF. BEDMAS, Jack Weiner, 37:2, 2006, 123-124, F
FFF #258. Right on target!, Larry Braden, 37:5, 2006, 381-383, F
FFF #260. Increasing a square to a square, Chris Fisher, 38:1, 2007, 43, F, 9.3
FFF #263. Reciprocating for success, M. A. Khan, 38:2, 2007, 131-132, F
Quirky Quadratics, Christopher S. Withers and Saralees Nadarajah, 38:3, 2007, 178, C, 0.7
Teaching Tip: A Function is a Bow, Salvatore Anastasio, 38:3, 2007, 184, C
FFF #266. The escaped criminal, Ed Barbeau, 38:3, 2007, 218, F
FFF #268. An algebra problem, anonymous, 38:3, 2007, 220, F
FFF. An "Artifice" of Hall and Knight, John Webb, 38:4, 2007, 297-299, F
FFF #269. "Very funny, Peter", Ed Barbeau, 38:5, 2007, 375, F
FFF #275. More striking results, Peter Schumer and Michael A. Jones, 39:1, 2008, 50, F, 5.1.1
Quote: Math as Metaphor, Ayaan Hirsi Ali, 39:4, 2008, 300, C
Missteps in Mathematics Books, Jerome Dancis, 39:5, 2008, 280-382, F, 0.1
FFF #287. Logging the solutions of an equation, Ed Barbeau, 39:5, 2008, 383-384, F, 5.3.2
Sam Loyd's Courier Problem with Diophantus, Pythagoras, and Martin Gardner, Owen O'Shea, 39:5, 2008, 387-391, C, 0.7, 9.2
Short Division of Polynomials, Li Zhou, 40:1, 2009, 44-46, C
False Position, Double False Position and Cramer's Rule, Eugene C. Boman, 40:4, 2009, 279-283, 2.1, 4.2
Dogs Don't Need Calculus, Michael Bolt and Daniel C. Isaksen, 41:1, 2010, 10-16, 5.1.4, 9.5
Fermat's Last Theorem for Fractional and Irrational Exponents, Frank Morgan, 41:3, 2010, 182-185, 9.3
Cubic Polynomials with Rational Roots and Critical Points, Shiv K. Gupta and Waclaw Szymanski, 41:5, 2010, 365-369, 0.7, 9.3
One Problem, Nine Student-Produced Proofs, Geoffrey Birky, Connie M. Campbell, Manya Raman, James Sandefur, and Kay Somers, 42:5, 2011, 355-360, 0.9, 9.3
The Perfect Ploy?, Louise Wener, 42:5, 2011, 378, C
Squaring, Cubing, and Cube Rooting, Arthur T. Benjamin, 43:1, 2012, 58-63, 0.1, 9.2
Teaching Tip: How to Manipulate Test Scores, Colin Foster, 34:2, 2012, 121-122, C, 1.1
Proof Without Words: The Square of a Balancing Number is a Triangular Number, Michael A. Jones, 43:3, 2012, 212, C, 9.3
Teaching Tip: When does $f(g(x)) = x$ imply $g(f(x)) = x$?, Li Zhou, 43:4, 2012, 290, C
Teaching Tip: Are You Changing the Rules? Again?, Theodore Rice, 43:4, 2012, 304, C

On the Steiner Minimizing Point and the Corresponding Algebraic System, Ioannis M. Roussos, 43:4, 2012, 305-308, 0.3
Proof Without Words: Partial Sums of an Arithmetic Sequence, Anthony J. Crachiola, 43:4, 2012, 321, C
Why the Faulhaber Polynomials Are Sums of Even or Odd Powers of (n + ½), Reuben Hersh, 43:4, 2012, 322-324, 9.3
Proof Without Words: An Algebraic Inequality, Madeubek Kungozhin and Sidney Kung, 44:1, 2013, 16, C, 0.6, 9.5
Polynomial Graphs and Symmetry, Geoff Goehle and Mitsuo Kobayashi, 44:1, 2013, 37-42, 0.7, 9.5
Proof Without Words: Completing the Square via the Difference of Squares, Munir Mahmood and Ibtihal Mahmood, 45:1, 2014, 21, C
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Imbalance Puzzles, Raul Salomon, 45:4, 2014, 288, C, 9.2
Proof Without Words: Summing Squares by Counting Triangles, Roger B. Nelsen, 45:5, 2014, 349, C
Adjusting Child Support Payments in Michigan, Michael A. Jones and Jennifer Wilson, 46:1, 2015, 3-9, 0.8, 5.1.5
What Distributes Over Exponentiation?, Sherman Stein, 46:1, 2015, 11-14, 9.4, 9.5
Maxima and Minima Without Derivatives?, Lucio Cadeddu and Giampaolo Lai, 46:1, 2015, 15-22, 2.2, 5.1.3, 5.1.4, 5.1.5
Proof Without Words: A Trigonometric Proof of the Arithmetic Mean-Geometric Mean Inequality, Roger B. Nelsen, 46:1, 2015, 42, C, 0.6
Sequences of Power Lines, Ricardo Alfaro, 46:2, 2015, 113-120, 0.7, 3.2, 5.1.1, 5.4.1, 9.2, 9.3
A Very Elementary Proof of Bernoulli's Inequality, Cristinel Mortici, 46:2, 2015, 136-137, C, 9.5
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Proof Without Words: Centered Triangular Numbers, Roger B. Nelsen, 46:5, 2015, 335, C, 3.2, 9.2, 9.3
Waiter! One Classic Calculus Problem, Hold the Calculus, Ricardo E. Rojas, 47:1, 2016, 59-60, C, 5.1.4, 9.5
Proof Without Words: The Golden Ratio, Roger B. Nelsen, 47:2, 2016, 108, C, 0.3, 9.3
Proof Without Words: Arithmetic Mean of Two Means, Angel Plaza, 47:2, 2016, 125, C, 0.3, 9.5
Pedagogically Inconvenient Functions for Teaching Transformations, Todd Abel and Jeremy Brazas, 47:3, 2016, 200-206, 5.1.5, 9.5
Multiplying by 9, Arthur Benjamin and Rohan Chandra, 47:4, 2016, 281, C, 0.1
Pythagorean Triples for Easy Solutions of Certain Quadratics and a Newly Generated Tree, Edward R. Forringer, 48:2, 2017, 112-114, 9.3
Pythagorean Triples, Complex Numbers, and Perplex Numbers, Howard Sporn, 48:2, 2017, 115-122, 9.3
Proof Without Words: Sum of a Row in Pascal's Triangle, Angel Plaza, 48:3, 2017, 188, C, 3.2
Proof Without Words: Nested Square Roots, Roger B. Nelsen, 48:3, 2017, 204, C, 5.4.1
Did Elvis Know Cauchy-Schwarz?, Li Zhou, 48:5, 2017, 335-338, 5.1.4, 9.5, 9.10
Marching in Squares, Burkard Polster and Marty Ross, 49:3, 2018, 181-186, 0.1, 9.3
When Fractions Make Cycles, Mark Dalthorp, 50:1, 2019, 3-8, 6.3, 9.3, 9.5
Proof Without Words: Sophie Germain's Identity, Samuel G. Moreno, 50:3, 2019, 197, C, 9.3
Extrapolating Plimpton 322, Andrew J. Simoson, 50:3, 2019, 210-220, 0.1, 2.1, 9.3
Visual Decompositions of Polygonal Numbers, Tom Edgar, 51:1, 2020, 9-12, 4.3, 9.3
Limits on Legs of Pythagorean Triples and Fermat's Last Theorem, Richard Kaufman, 51:1, 2020, 53-56, 9.3
Chance Encounters with Large Polynomials, Brian D. Jones, 51:3, 2020, 174-181, 3.2, 7.2
Proof Without Words: Sums of Polygonal Numbers, Gunhan Caglayan, 51:4, 2020, 304, C, 9.3
Proof Without Words: Centered Nonagonal Numbers are Triangular, Günhan Caglayan*, 51:5, 2020, 371, C, 9.3

A Difference Equation Approach to Finite Differences of Polynomials, 51:5, 2020, Michael A. Jones, 375-377, C, 6.3, 9.6
Extending Extending Bernoulli's Inequality, Peter R. Mercer, 53:2, 2022, 149-150, C, 9.5
Tetration: Iterative Enjoyment, Abe Edwards & Brielle Komosinski, 53:3, 2022, 209-219, 5.3.2, 5.4.2, 9.5

0.3 Synthetic geometry

Kepler's explanation of the Timaeus associations, Howard Eves, 1:2, 1970, 31, C, 2.2
Shapes of the Future, Victor Klee, 2:2, 1971, 14-27, 3.1
Plaited Platonic Puzzles, Jean J. Pedersen, 4:2, 1973, 23-37
Partitions of the Plane, Nathan Hoffman, 5:2, 1974, 71-73, C, 3.1
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Some Consequences of a Property of the Centroid of a Triangle, Norman Schaumberger, 8:3, 1977, 142-144
Guessing and Proving, George Polya, 9:1, 1978, 21-27
The Discovery of a Generalization: An Example in Problem Solving, Hugh Ouellette and Gordon Bennett, 10:2, 1979, 100-106, 0.2
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On Sets of Points in the Plane and A Property of the Binomial Coefficients, Ross Honsberger, 11:2, 1980, 116-119, 9.3
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Euclid's 'Elements' -excerpts from a 1660 edition, 12:2, 1981, 117, 5.3.2, 5.3.3
From an Inequality to Inversion, Man-Keung Siu, 12:2, 1981, 149-151, C
A Space-Filling Torus, Dan Wheeler and David Sklar, 12:4, 1981, 246-248
An Equal Ratio Property for Convex Polygons, K. R. S. Sastry, 13:4, 1982, 270, C
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The Butterfly Problem and Other Delicacies from the Noble Art of Euclidean Geometry—Part I, Ross Honsberger, 14:1, 1983, 2-8, 0.4
The Steiner-Lehmus Theorem as a Challenge problem, Ken Seydel and Carl Newman, 14:1, 1983, 72-75, 0.4, 0.6
Some Unusual Locus Problems, Shephen B. Maurer, 14:2, 1983, 146-153
The Butterfly Problem and Other Delicacies from the Noble Art of Euclidean Geometry—Part 2, Ross Honsberger, 14:2, 1983, 154-158, 0.4
How to Make a Bank Shot, Richard C. Bollinger, 14:2, 1983, 169-170, C
How Big is a Point?, Richard J. Trudeau, 14:4, 1983, 295-300
The Construction of Integral Cevians, Charles G. Moore, 14:4, 1983, 301-308
A Tiling of the Plane with Triangles, Paul T. Mielke, 14:5, 1983, 377-381, 9.2, 9.3
On the Radii of the Inscribed and Escribed Circles of Right Triangles—A Second Look, Calvin T. Long, 14:5, 1983, 382-389
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Behold! The Vertex Angles of a Star Sum to 180 degrees, Fouad Nakhli, 17:4, 1986, 338, C
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Surface Area of a Cone, Herb Holden, 20:5, 1989, 432, C
FFF #23. A Luney Way to Square the Circle, Ed Barbeau, 21:4, 1990, 302-303, F (also 22:1, 1991, 41 and 22:5, 1991, 405)
Trisection of an Angle in an Infinite Number of Steps, Eric Kincanon, 21:5, 1990, 393, C
FFF #27. Trisecting an Angle with Ruler and Compasses, Ed Barbeau, 21:5, 1990, 394-395, F (also 22:1, 1991, 41 and 23:2, 1992, 143)
Two Surprising Theorems on Cavalieri Congruence, Howard Eves, 22:2, 1991, 118-124, 2.2
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Misconceptions about the Golden Ratio, George Markowsky, 23:1, 1992, 2-19, 2.1, 2.2
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Nothing New Under the Sun (The "Three-Circle Theorem"), H. Guggenheimer, 26:1, 1995, 10
FFF. The Spirit Is Willing But the Ham Is Rotten, John Kinloch and Rick Norwood, 26:1, 1995, 37, F
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FFF #89. A Case of Irregularity, Herb Bailey, 26:3, 1995, 221-222, F (see also 27:4, 1996, 284)
Inductive Tiling of the Plane by Penrose Aperiodic Rhombi (by picture), Dean Clark and E. R. Suryanarayan, 26:4, 1995, 266-267, C
The 9-Point Circle Is in Fact a 12-Point Circle (by picture), Jingcheng Tong and Sidney H. Kung, 26:5, 1995, 371, C
Volume of a Frustrum of a Square Pyramid (Proof Without Words), S. H. Kung, 27:1, 1996, 32, C
Geometry Class (Peom), JoAnne Growney, 27:2, 1996, 143, C
The Moise Plane, James R. Boone, 27:3, 1996, 182-185, 9.7
Behold: The Pythagorean Theorem, Frank Burk, 27:5, 1996, 407, C
A Concurrency Theorem and Geometer's Sketchpad, Larry Hoehn, 28:2, 1997, 129-132, C
Tiling with Squares and Parallelograms (proof by picture), Alfinio Flores, 28:3, 1997, 171, C
Putting the Pieces Together: Understanding Robinson's Nonperiodic Tilings, Aimee Johnson and Kathleen Madden, 28:3, 1997, 172-181, 3.3
FFF. The Pup Tent Problem, Ed Barbeau, 29:3, 1998, 220-221, F
A Law of Sines (proof without words), Sidney H. Kung, 29:3, 1998, 221, C
Prelude to Musical Geometry, Brian J. McCartin, 29:5, 1998, 354-370, 9.4, 9.7

FFF #139. A Counterexample to Morley's Theorem, William Watkins, 30:2, 1999, 129, F
A Far-reaching Formula, Kil S. Lee, 30:2, 1999, 138-140, C
A Simple Geometric Solution to De l'Hospital's Pulley Problem, Raymond Boute, 30:4, 1999, 311-314, C, 0.6
FFF #152. A geometry problem, Ho Juan Beng, 30:5, 1999, 383-384, F
The Pop-up Cuboctahedron, Hans Walser, 31:2, 2000, 89-92
On Lunda-Designs and the Construction of Associated Magic Squares of Order 4p, Paulus Gerdes, 31:3, 2000, 182-188, 9.2
Sum of Perpendicular Distances (Proof Without Words), Raymond Spaulding, 31:3, 2000, 244, C
The Pascal Pyramid, Hans Walser, 31:5, 2000, 383-392, 3.2
FFF #168. How to approximate a sphere, Robert Foote, 32:1, 2001, 48, F
Barrow's Fundamental Theorem, Jack Wagner, 32:1, 2001, 58-59, C, 5.2.1
Slippery Centroids, John M. Alongi and Steve Kennedy, 32:3, 2001, 197-199, F
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Lost Horizon, Richard Kubelka, 34:3, 2003, 238, C
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Another Pythagorean-like Theorem (Proof Without Words), Roger B. Nelsen, 35:3, 2004, 215, C
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The Golden Ratio-A Contrary Viewpoint, Clement Falbo, 36:2, 2005, 123-134, 6.3
A Non-Visual Counterexample in Elementary Geometry, Marita Barabash, 26:5, 2005, 397-400, C
FFF #246. There are no isosceles triangles, Ed Barbeau, 37:1, 2006, 41, F
Conviction With an Angle is Upheld by Court of Appeals By Michael Cooper, Jerry Porter, 37:5, 2006, 343, C
The Converse of Viviani's Theorem, Zhibo Chen and Tian Liang, 37:5, 2006, 390-391, C
A New Method of Trisection, David Alan Brooks, 38:2, 2007, 78-81
Rectangles, Parallelograms, or Trapezoids, Richard Syverson, 38:2, 2007, 81, 105, C (see also 38:4, 2007, 259)
An Iterative Angle Trisection, Donald L. Muench, 38:2, 2007, 82-84
A New and Improved Method for Finding the Center of Gravity of a Quadrilateral, Behzad Khorshidi, 38:3, 2007, 225-226, C
Christiaan Huygens and the Problem of the Hanging Chain, John Bukowski, 39:1, 2008, 2-11, 2.2, 5.3.3
The *Right* Right Triangle on the Sphere, William Dickinson and Mohammad Salmassi, 39:1, 2008, 24-33, 9.7
Universal Stoppers Are Rupert, Richard P. Jerrard and John E. Wetzel, 39:2, 2008, 90-94, 9.7
Proof Without Words: Carnot's Theorem for Acute Triangles, Claudi Alsina and Roger B. Nelsen, 39:2, 2008, 111, C, 9.7
The Perimeter of a Polyomino and the Surface Area of a Polycube, Wiley Williams and Charles Thompson, 39:3, 2008, 233-237, C, 9.7
Designing a Table Both Swinging and Stable, Greg N. Frederickson, 39:4, 2008, 258-266, 9.7
Factoring Heron, Vaughan Pratt, 40:1, 2009, 15-16
Diametric Quadrilaterals with Two Equal Sides, Raymond A. Beauregard, 40:1, 2009, 17-21, 0.4
Proving that Three Lines Are Concurrent, Daniel Maxin, 40:2, 2009, 128-130, C, 9.7
Pompeiu's Theorem Revisited, Arpad Benyi and Ioan Casu, 40:4, 2009, 252-258, 9.7
The Helen of Geometry, John Martin, 41:1, 2010, 17-28, 2.2, 5.6.1

Proof Without Words: Area of a Cycloidal Arch, John Martin, 41:1, 2010, 28, C, 5.2.6
Proof Without Words: Harmonic Mean < Geometric Mean < Arithmetic Mean < Root Mean Square < Contraharmonic Mean, Sidney Kung, 41:2, 2010, 112, C, 9.5
When Are Two Figures Congruent?, John E. Wetzel, 41:3, 2010, 193-196, 9.7
Viviani's Theorem and Its Extension, Elias Abboud, 41:3, 2010, 203-211, 9.7
Lewis Carroll, Voting, and the Taxicab Metric, Thomas C. Ratliff, 41:4, 2010, 303-311, 3.1, 3.3
Visualizing Elections using Saari Triangles, Mariah Birgen, 41:4, 2010, 325-328, 0.1, 3.3
How Bound Tetrahedron Wraps a Real Tetrahedron, Roger Berry, 41:5, 2010, 356, C, 9.2
Proof Without Words: New Pythagorean-like Theorems, Claudi Alsina and Roger B. Nelsen, 41:5, 2010, 370, C
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Hexaflexagons, Martin Gardner, 43:1, 2012, 2-5, 3.2, 9.2, 9.4, 9.8
The V-flex, Triangle Orientation, and Catalan Numbers in Hexaflexagons, Ionut E. Iacob, Bruce McLean, and Hua Wang, 43:1, 2012, 6-10, 3.1, 3.2, 9.2, 5.4.1, 9.8
From Hexaflexagons to Edge Flexagons to Point Flexagons, Les Pook, 43:1, 2012, 11-14, 3.1, 9.2, 9.4, 9.8
Bracing Regular Polygons As We Race into the Future, Greg N. Frederickson, 43:1, 2012, 51-57, 9.2
A Platonic Sextet for Strings, Karl Schaffer, 3:1, 2012, 64-69, 3.1, 9.2
Polyomino Dissections, Tiina Hohn and Andy Liu, 43:1, 2012, 88-94, 9.2
Rediscovering Pascal's Mystic Hexagon, Michael Augros, 43:3, 2012, 194-202, 9.7
Proof Without Words: The Pythagorean Theorem with Equilateral Triangles, Claudi Alsina and Roger B. Nelsen, 43:3, 2012, 226, C
Viete's Product Proved in the Finest Ancient Style, Oscar Ciaurri, Emilio Fernandez, Rodolfo Larrea, and Luz Roncal, 43:4, 2012, 291-296
On the Steiner Minimizing Point and the Corresponding Algebraic System, Ioannis M. Roussos, 43:4, 2012, 305-308, 0.2
Viviani Polytopes and Fermat Points, Li Zhou, 43:4, 2012, 309-312, 9.7
A Different Angle on Perspective, Marc Frantz, 43:5, 2012, 354-360, 9.7
Proof Without Words: Ptolemy's Theorem, William Derrick and James Hirstein, 43:5, 2012, 386, C
Proof Without Words: A Variation on Thebault's First Problem, Purna Patel and Raymond Viglione, 44:2, 2013, 135, C, 9.7
Archimedes Curves, Gordon A. Swain, 44:3, 2013, 185-189, 0.5, 2.1
Soccer's beauty, Jere Longman, 44:3, 2013, 192, C
Circular Inclusion, James Sandefur and John Mason, 44:3, 2013, 193-201, 9.7
Proof Without Words: Componendo et Dividendo, a Theorem on Proportions, Yukio Kobayashi, 45:2, 2014, 115, C, 0.2
Proof Without Words: An Infinite Series Using Golden Triangles, Steven Edwards, 45:2, 2014, 120, C, 5.4.2
Proof Without Words: Pythagoras for a Right Trapezoid, Guanshen Ren, 45:3, 2014, 198, C
Proof Without Words: Pythagoras for a Clipped Rectangle, Guanshen Ren, 45:3, 2014, 216, C
Johnson's Three Circles Theorem Revisited, O. A. S. Karamzadeh, 45:3, 2014, 217-218, C, 0.4
Proof Without Words: The Area of a Regular Dodecagon, Roger B. Nelsen, 46:1, 2015, 10, C
Proof Without Words: The Maximum Sum of Inradii, David Richeson, 46:1, 2015, 23, C, 9.7
Proof Without Words: The Pythagorean Theorem, Nam Gu Heo, 46:1, 2015, 51, C

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Proof Without Words: The Vertex Angle Sum of a Regular Star Polygon, Matthew Jakubowski and Raymond Viglione, 46:2, 2015, 109, C, 0.4
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Rational and Implicit Equations for Some Polar Curves, Dave Boyles, 46:3, 2015, 189-196, 5.4.3, 5.6.1, 9.7, 9.8
Proof Without Words: The Pentagon-Hexagon-Decagon Identity, Roger B. Nelsen, 47:1, 2016, 10, C
Proof Without Words: A Surprising Integer Result, Roger B. Nelsen, 47:2, 2016, 94, C, 0.1
Proof Without Words: Integer Right Triangle Hypotenuses Without Pythagoras, Colin Foster, 47:2, 2016, 101, C
Proof Without Words: The Golden Ratio, Roger B. Nelsen, 47:2, 2016, 108, C, 0.2, 9.3
Proof Without Words: Arithmetic Mean of Two Means, Angel Plaza, 47:2, 2016, 125, C, 0.2, 9.5
Do the Twist! (on Polygon-Base Boxes), sarah-marie belcastro and Tamara Veenstra, 47:5, 2016, 340-345, 0.6, 9.2
Proof Without Words: The Lateral Surface Area of a Conical Frustrum, Miyeon Kwon, 47:5, 2016, 346, C
Proof Without Words: A Right Triangle Identity, Roger B. Nelsen, 47:5, 2016, 355, C
A New and Rather Long Proof of the Pythagorean Theorem by Way of a Proposition on Isosceles Triangles, Kaushik Basu, 47:5, 2016, 356-360
Leonardo da Vinci's Proof of the Pythagorean Theorem, Franz Lemmermeyer, 47:5, 2016, 361-364, 2.2
Proof Without Words: The Triangle with Maximum Area for a Given Base and Perimeter, Angel Plaza, 48:1, 2017, 51, C, 0.5, 5.1.4
Proof Without Words: The Pythagorean Theorem, John Molokach, 48:5, 2017, 334, C
Proof Without Words: Varignon's Theorem, Alik Palatnik, 48:5, 2017, 354, C, 9.7
The Centroid as a Nontrivial Area Bisecting Center of a Triangle, Allan Berele and Stefan Catoiu, 49:1, 2018, 27-34, 9.7
Proof Without Words: Volume of a Pedestal Prismoid, Lucas Amiras, 49:2, 2018, 92, C
Why the Centroid is the Centroid: Modern Variations on a Theme of Archimedes, William C. Mercier, 49:2, 2018, 93-102, 5.4.2, 9.7
Dividing the Circle, Pedro J. Freitas and Hugo Tavares, 49:3, 2018, 187-194, 0.6, 5.3.1, 9.3
A New Angle on the Fermat-Toricelli Point, David Benko and Dan Coroian, 49:3, 2018, 195-199, 5.1.4, 9.7
Proof Without Words: Elvis Trades Running for Swimming, Li Zhou, 49:5, 2018, 366, C, 5.1.4, 9.10
Reframing the Pythagorean Theorem, Ian M. Adelstein and George L. Ashline, 50:1, 2019, 28-35, 2.1
The Many Sides of the Pythagorean Theorem, Vlastimil Dlab and Kenneth S. Williams, 50:3, 2019, 162-172, 9.7
Unfoldings of the Cube, Richard Goldstone and Robert Suzzi Valli, 50:3, 2019, 173-184, 3.1, 3.2, 9.7
Bisecting Horn Angles, Sergiy Koshkin, 51:2, 2020, 124-131, 0.5, 9.7
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Shortest Paths on Cubes, Richard Goldstone, Rachel Roca & Robert Suzzi Valli, 52:2, 2021, 121-132, 0.4, 3.2, 9.7, 9.8
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Report on the 12th Annual USA Junior Mathematical Olympiad, Bela Bajnok & Evan Chen, 53:1, 2022, 13-20, 3.2, 5.4.1, 9.1, 9.2, 9.3, 9.5

Proof Without Words: Another Pythagorean Theorem, Claudi Alsina & Roger Nelsen, 53:1, 2022, 38, C
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The Law of Cosines with Differential Calculus and Without, Zsolt Lengvarszky & Tibor Szarvas, 53:2, 2022, 98-103, 0.6, 5.1.3
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Proof Without Words: A Property of a Cyclic Polygon with an Even Number of Vertices, Alik Palatnik & Moshe Stupel, 53:2, 2022, 146, C, 0.5, 9.7
A Variant of the Eyeball Theorem, Emmanuel Antonio Jose Garcia, 53:2, 2022, 147-148, C, 9.7
Why is it that the Ratio of Any Circle's Circumference to its Diameter is a Constant?, F. M. S. Lima & P. G. F. Jordao, 53:3, 2022, 171-182, 2.1, 5.2.8
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0.4 Analytic geometry

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Investigating Spirolaterals Through LOGO, William Fisher and Richard Campbell, 22:2, 1991, 148-159
Triangles in a Lattice Parabola, K. R. S. Sastry, 22:4, 1991, 301-306
FFF #66. An Equilateral Property of Altitudes, Ed Barbeau, 24:4, 1993, 344, F
The *Geometer's Sketchpad* and *Cabri-Geometre* (software review), Dennis DeTurck, 24:4, 1993, 370-376, 0.3, 0.10
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A Geometric Approach to Linear Functions, Jack E. Graver, 26:5, 1995, 389-394, C, 0.2, 6.3
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Paths of Minimum Length in a Regular Tetrahedron, Richard A. Jacobson, 28:5, 1997, 394-397, C, 5.7.1
The Brahmagupta Triangles, Raymond A. Beauregard and E. R. Surynarayan, 29:1, 1998, 13-17, 9.3
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The Theorem of Cosines for Pyramids, Alexander Kheyfits, 35:5, 2004, 385-388, C, 0.6
FFF #237. The area of a cross section, Ed Barbeau, 36:2, 2005, 142-143, F
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FFF #270. Maximizing an area, Ed Barbeau, 38:5, 2007, 375, F, 5.1.4
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Johnson's Three Circles Theorem Revisited, O. A. S. Karamzadeh, 45:3, 2014, 217-218, C, 0.3
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The Sine of a Single Degree, Travis Kowalski, 47:5, 2016, 322-332, 0.6, 2.2, 9.5
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Statistical Significance of the Median of a Set of Points on the Plane, Antonio J. Moreno Verdejo, Abraham Lopez Viveros & Rafael Ramirez Ucles, 52:3, 2021, 205-218, 0.3, 7.3, 9.7

0.5 Conic sections

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Responses to the Introductory Mathematics Curriculum, William F. Lucas and R. W. Hamming and David Tall and Robert E. Davis and Wade Ellis, Jr. and Patrick Thompson and John Mason and Richard K. Guy, 15:5, 1984, 386-397
FORUM: The Algorithmic Way of Life is Best, Stephen B. Maurer, 16:1, 1985, 2-5
Responses to the FORUM on the Algorithmic Way of Life, R. G. Douglas and Bernhard Korte and Peter Hilton and Peter Renz and Craig Smorynski and J. M. Hammersley and P. R. Halmos, 16:1, 1985, 5-21
Testing Understanding and Understanding Testing, Jean Pedersen and Peter Ross, 16:3, 1985, 178-185, 0.2, 5.1.2, 5.2.2
Routine Problems, Sherman Stein, 16:5, 1985, 383-385, 0.2, 5.1.5
Interactive Graphics for Multivariable Calculus, Michael E. Frantz, 17:2, 1986, 172-181, 5.1.1, 5.1.4, 5.7.1

A Mathematics Software Database, R. S. Cunningham and David Smith, 17:3, 1986, 255-266
Computer Algebra Systems in Undergraduate Mathematics, Don Small, John Hosack and Kenneth Lane, 17:5, 1986, 423-433, 5.1.4, 5.1.5, 5.2.2, 5.4.2
Should Mathematicians Teach Statistics?, David S. Moore, 19:1, 1988, 3-7, 7.3
Should Mathematicians Teach Statistics (2)?, A. Blanton Godfrey, 19:1, 1988, 8-11, 7.3
No! But Who Should Teach Statistics?, Judith Tanur, 19:1, 1988, 11-12, 7.3
Statistics Teachers need Experience With Data, R. Gnanadesikan and J. R. Kettenring, 19:1, 1988, 12-14, 7.3
The Mathematicians' Statistics Has a Subsidiary Role, Barbara A. Bailar, 19:1, 1988, 14-15, 7.3
Growth and Advances in Statistics, Frederick Mosteller, 19:1, 1988, 15-16, 7.3
Statistician, Examine Thyself: Response, Gudmund R. Iversen, 19:1, 1988, 16-18, 7.3
It's Not "By Whom" But Rather "How", John E. Freund, 19:1, 1988, 18-19, 7.3
The Need for Good Teaching of Statistics, Henry L. Alder, 19:1, 1988, 20-21, 7.3
Let the Experts Teach and Judge, David L. Hanson, 19:1, 1988, 21-24, 7.3
Who Teaches What to Whom?, Michael Reed, 19:1, 1988, 24-26, 7.3
What Should the Introductory Statistics Course Contain?, Gerald J. Hahn, 19:1, 1988, 26-30, 7.3
Mathematics is Only One Tool that Statisticians Use, Ronald D. Snee, 19:1, 1988, 30-32, 7.3
Reaction to Responses to "Should Mathematicians Teach Statistics?", David S. Moore, 19:1, 1988, 32-35, 7.3
Readers' Responses to the January 1988 Forum: "Should Mathematicians Teach Statistics?", Joseph B. Kadane and William A. Golomsky and Daniel A. Sankowsky and Benjamin M. Perles, 19:2, 1988, 164-165, 7.3
A Computer in the Classroom: The Time is Right, David P. Kraines and David A. Smith, 19:3, 1988, 261-267
Teaching with CAL: A Mathematics Teaching and Learning Environment, James E. White, 19:5, 1988, 424-443, 5.1.5
The Simplex Method of Linear Programming on Microcomputer Spreadsheets, Frank S. T. Hsiao, 20:3, 1989, 153-160, 9.9
Copyright Law As It Applies to Computer Software, Michael Gemignani, 20:4, 1989, 332-338
Learning Mathematics Through Writing: Some Guidelines, J. J. Price, 20:5, 1989, 393-401
Notational Collisions, J. Hillel, 20:5, 1989, 418-422, C, 4.1
Graphing with the HP-28S, John Selden and Annie Selden, 20:5, 1989, 423-432, 5.1.5
Sum the Alternating Harmonic Series, Dave P. Kraines and Vivian Y. Kraines and David A. Smith, 20:5, 1989, 433-435, C, 5.4.2
Taylor Polynomials, David P. Kraines and Vivian Y. Kraines and David A. Smith, 20:5, 1989, 435-436, C, 5.4.2
Calculus Quiz, David P. Kraines and Vivian Y. Kraines and David A. Smith, 20:5, 1989, 437-438, C, 5.1.5
What's an Assignment Like You Doing in a Course Like This? Writing to Learn Mathematics, George D. Gopen and David A. Smith, 21:1, 1990, 2-19
Let's Teach Philosophy of Mathematics!, Reuben Hersh, 21:2, 1990, 105-111
Proofs by -Tion, John S. Robertson, 21:3, 1990, 220-222, C
Student Research Projects: Self-esteem in Mathematics, Herbert S. Wilf, 21:4, 1990, 274-277, 9.3
Recruitment and Retention of Students in Undergraduate Mathematics, Miriam P. Cooney and Jacqueline M. Dewar and Patricia Clark Kenschaft and Vivian Kraines and Brenda Latka and Barbara LiSanti, 21:4, 1990, 294-301
A Mathematical Field Day, S. C. Althoen and M. F. Wyneken, 21:5, 1990, 379-383
China's 1989 National College Entrance Examination, Bart Braden, 21:5, 1990, 390-393, 0.2, 0.4, 0.6
Forward Homework, Raymond A. McGivney, 21:5, 1990, 400-402, C
Teaching about Fractals, Stephen J. Willson, 22:1, 1991, 56-59

Physical Demonstrations in the Calculus Classroom, Tom Farmer and Fred Gass, 23:2, 1992, 146-148, C, 5.2.1, 6.1
The Joy of Mathematics: A Mary P. Dolciani Lecture, Peter Hilton, 23:4, 1992, 274-281, 0.2
How Should We Introduce Integration?, David M. Bressoud, 23:4, 1992, 296-298, 5.2.1
Gems of Exposition in Elementary Linear Algebra, David Carlson and Charles R. Johnson and David Lay and A. Duane Porter, 23:4, 1992, 299-303, 4.1, 4.5, 4.7
Studying Students Studying Calculus: A Look at the Lives of Minority Mathematics Students in College, Uri Treisman, 23:5, 1992, 362-372
The Growing Importance of Linear Algebra in Undergraduate Mathematics, Alan Tucker, 24:1, 1993, 3-9
Teaching Linear Algebra: Must the Fog Always Roll In?, David Carlson, 24:1, 1993, 29-40, 4.1
The Linear Algebra Curriculum Study Group Recommendations for the First Course in Linear Algebra, David Carlson and Charles R. Johnson and David C. Lay and A. Duane Porter, 24:1, 1993, 41-46, 4.1, 4.3, 4.2, 4.5
A Computer Lab for Multivariate Calculus, Casper R. Curjel, 24:2, 1993, 175-177, C, 5.7.1, 8.3
Old Calculus Chestnuts: Roast, or Light a Fire?, Margaret Cibes, 24:3, 1993, 241-243, C, 5.1.4
Great Problems of Mathematics: A Summer Workshop for High School Students, Reinhard C. Laubenbacher and Michael Siddoway, 25:2, 1994, 112-114
A Note from the Guest Editor and other ODE Resources, Beverly H. West, 25:5, 1994, 362-363
New Directions in Elementary Differential Equations, William E. Boyce, 25:5, 1994, 364-371, 6.2, 6.4
What It Means to Understand A Differential Equation, John H. Hubbard, 25:5, 1994, 372-384, 6.1, 6.2, 6.4
Teaching Differential Equations with a Dynamical Systems Viewpoint, Paul Blanchard, 25:5, 1994, 385-393, 6.1, 6.2, 6.4
Asking Good Questions about Differential Equations, Paul Davis, 25:5, 1994, 394-400, 1.1, 6.1
The Computer-oriented Calculus Course at Rensselaer Polytechnic Institute, William E. Boyce and Joseph G. Ecker, 26:1, 1995, 45-50
Mathematics Education: A Case for Balance, George E. Andrews, 27:5, 1996, 341-348
Mathematics Education: A Response to Andrews, David M. Mathews, 27:5, 1996, 349-353
George Andrews Replies, George Andrews, 27:5, 1996, 354-355
Is Mathematics Necessary?, Underwood Dudley, 28:5, 1997, 360-364
On “Rethinking Rigor in Calculus …,” or Why We Don’t Do Calculus on the Rational Numbers, Scott E. Brodie, 30:2, 1999, 135-138, C, 5.1.2
Verse, Marylou Zapf, 34:2, 2003, 169-170, C
A Survey of Online Mathematics Course Basics, G. Donald Allen, 34:4, 2003, 270-279
Mathematics, Sustainability, and a Bridge to Decision Support, Mary Lou Zeeman, 44:5, 2013, 346-349, C, 1.1
Commentary: The MAA and Environmental Mathematics, Ben Fusaro, 44:5, 2013, 448-449, C, 2.2

2 History of Mathematics

2.1 History of mathematics before 1400

The origin of our word "sine", Howard Eves, 1:1, 1970, 93, C
On the origin of ">" and "<", Howard Eves, 1:1, 1970, 94, C
The Genesis and Development of Set Theory, Phillip E. Johnson, 3:1, 1972, 55-62
An Informal History of Formal Proofs: From Vigor to Rigor?, Klaus Galda, 12:2, 1981, 126-140
Hippocrates and Archytas Double the Cube: A Heuristic Interpretation, Barnabas B. Hughes, 20:1, 1989, 42-48, 0.3
Misconceptions about the Golden Ratio, George Markowsky, 23:1, 1992, 2-19
The Algorists vs. the Abacists: An Ancient Controversy on the Use of Calculators, Barbara E. Reynolds, 24:3, 1993, 218-223

An Early Iterative Method for the Determination of Sine of One Degree, Farhad Riahi, 26:1, 1995, 16-21, 0.6
Did Plutarch Get Archimedes' Wishes Right?, Lester H. Lange, 26:3, 1995, 199-204, 5.2.7
Mathematics and the Liberal Arts, Hardy Grant, 30:2, 1999, 96-105
Mathematics and the Liberal Arts II, Hardy Grant, 30:3, 1999, 197-203, 2.2
Where Do Functions Come From?, Leigh Atkinson, 33:2, 2002, 107-112, 2.2
The "Origin" of Geometry, Reuben Hersh, 33:3, 2002, 207-211, 0.3, 9.2
Discovering Roots: Ancient, Medieval, and Serendipitous, Bryan Dorner, 36:1, 2005, 35-43, 0.2, 4.5, 9.3
When the Pope was a Mathematician, Leigh Atkinson, 36:5, 2005, 354-362
Fibonacci's Forgotten Number, Ezra Brown and Jason C. Brunson, 39:2, 2008, 112-120, 0.7, 9.6
Solomon's Sea and Pi, Andrew J. Simoson, 40:1, 2009, 22-32, 0.4, 9.2
Fibonacci's Forgotten Number Revisited, Richard Maruszewski, 40:4, 2009, 248-251, 0.7, 5.1.3, 9.6
False Position, Double False Position and Cramer's Rule, Eugene C. Boman, 40:4, 2009, 279-283, 0.2, 4.2
Archimedes Curves, Gordon A. Swain, 44:3, 2013, 185-189, 0.3, 0.5
Circular Reasoning: Who First Proved That *C* Divided by *d* Is a Constant?, David Richeson, 46:3, 2015, 162-171, 0.3
Five Families Around a Well: A New Look at an Old Problem, Ezra Brown and Matthew Crawford, 49:3, 2018, 162-168, 3.2, 4.1, 4.2
The Oldest Trig in the Book, Harlod P. Boas, 50:1, 2019, 9-20, 0.6, 2.2
Reframing the Pythagorean Theorem, Ian M. Adelstein and George L. Ashline, 50:1, 2019, 28-35, 0.3
Extrapolating Plimpton 322, Andrew J. Simoson, 50:3, 2019, 210-220, 0.1, 0.2, 9.3
Why is it that the Ratio of Any Circle's Circumference to its Diameter is a Constant?, F. M. S. Lima & P. G. F. Jordao, 53:3, 2022, 171-182, 0.3, 5.2.8

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The History of the Calculus, Carl B. Boyer, 1:1, 1970, 60-86
Kepler's Explanation of the Timaeus Associations, Howard Eves, 1:2, 1970, 31, C, 0.3
Mathematics of the Yoruba People and of Their Neighbors in Southern Nigeria, Claudia Zaslavsky, 1:2, 1970, 76-79
Terminology: logarithm, Howard Eves, 2:2, 1971, 27, C
Mathematician, Violinist, Fencer—Bolyai, Howard Eves, 3:1, 1972, 41, C
How Gauss was Won to Mathematics, Howard Eves, 3:1, 1972, 65, C
Eighteenth Century British Mathematics, Phillip E. Johnson, 7:2, 1976, 22-27
A Brief History of Logarithms, R. C. Pierce, Jr., 8:1, 1977, 22-26
Women Mathematicians, Debra Charpentier, 8:2, 1977, 73-79
Martin Gardner: Defending the Honor of the Human Mind, Irving Joshua Matrix, 10:4, 1979, 227-244
The Pentagram and the Discovery of an Irrational Number, James R. Choike, 11:5, 1980, 312-316, 0.3
On the History and Solution of the Four-Color Map Problem, John Mitchem, 12:2, 1981, 108-119, 3.1
An Informal History of Formal Proofs: From Vigor to Rigor?, Klaus Galda, 12:2, 1981, 126-140
The Universal Domination of Geometry, J. Dieudonne, 12:4, 1981, 227-231
Structure vs. Substance: The Fall and Rise of Geometry, Robert Osserman, 12:4, 1981, 239-246
A Profile of Ronald L. Graham, Gina Bari Kolata, 12:5, 1981, 290-301
A Machine as Smart as God, Rudy Rucker, 13:2, 1982, 115-121, 9.1
Paul Halmos: Maverick Mathologist, Donald J. Albers, 13:4, 1982, 226-242
John Horton Conway: Mathematical Magus, Richard K. Guy, 13:5, 1982, 290-299
The Thread, Philip J. Davis, 14:2, 1983, 98-104
Solomon Lefschetz: A Reminescence, Albert W. Tucker, 14:3, 1983, 225-227
A Glimpse at the Polya Picture Album, G. L. Alexanderson, 14:4, 1983, 274-294
Shiing-shen Chern: A Man and His Times, Willian G. Chinn and John Lewis, 14:5, 1983, 370-376

A Historical Sketch of Olympiads: USA and International, Nura D. Turner, 16:5, 1985, 330-335
The International Mathematical Olympiad Training Session, Cecil Rousseau and Gregg Patruno, 16:5, 1985, 362-365, 0.3, 9.3
The Autobiography of Julia Robinson, Constance Reid, 17:1, 1986, 2-21
Teaching Elementary Probability through its History, Sharon Kunoff and Sylvia Pines, 17:3, 1986, 210-219, 7.2
The Bernoullis and the Harmonic Series, William Dunham, 18:1, 1987, 18-23, 5.4.2
Charlotte Angas Scott 1858-1931, Patricia C. Kenschaft, 18:2, 1987, 98-110
Isaac Newton: Man, Myth, and Mathematics, V. Frederick Rickey, 18:5, 1987, 362-389
Evolution of the Function Concept: A Brief Survey, Israel Kleiner, 20:4, 1989, 282-300, 9.5
FFF #12. The Authority of the Written Word, Ed Barbeau, 20:5, 1989, 404, F
The Function sin x / x, William B. Gearhart and Harris S. Shultz, 21:2, 1990, 90-99, 5.1.2, 5.1.5
The Birth of the Eotvos Competition, Agnes Arvai Wieschenberg, 21:4, 1990, 286-293, 9.3
Two Surprising Theorems on Cavalieri Congruence, Howard Eves, 22:2, 1991, 118-124, 0.3
Reading Bombelli's x-purgated Algebra, Abraham Arcavi and Maxim Bruckheimer, 22:3, 1991, 212-219, 0.7
Euler and the Fundamental Theorem of Algebra, William Dunham, 22:4, 1991, 282-293, 0.7
Misconceptions about the Golden Ratio, George Markowsky, 23:1, 1992, 2, 0.3
The Algorists vs. the Abacists: An Ancient Controversy on the Use of Calculators, Barbara E. Reynolds, 24:3, 1993, 218-223
A "Very Pleasant Theorem", Roger Herz-Fischler, 24:4, 1993, 318-324, 0.3
Euler and Differentials, Anthony P. Ferzola, 25:2, 1994, 102-111, 5.1.3
Isaac Newton: Credit Where Credit Won't Do, Robert Weinstock, 25:3, 1994, 179-192, 0.5, 5.1.3, 5.4.3, 5.6.1
Newton's Orbit Problem: A Historian's Response, Curtis Wilson, 25:3, 1994, 193-200, 0.5, 6.4
In Defense of Newton: His Biographer Replies, Richard S. Westfall, 25:3, 1994, 201-205, 5.4.3
In Defense of Newton: A Physicist's View, A. P. French, 25:3, 1994, 206-209, 0.5, 5.6.1
Robert Weinstock Replies, Robert Weinstock, 25:3, 1994, 209-211
Newton's *Principia* and Inverse-Square Orbits, N. Nauenberg, 25:3, 1994, 212-221, 0.5, 6.4, 6.5
Robert Weinstock's Response to Nauenberg, Robert Weinstock, 25:3, 1994, 221-222, 0.5
Leibniz and the Spell of the Continuous, Hardy Grant, 25:4, 1994, 291-294, 9.5
An Invitation to Integration in Finite Terms, Elena Anne Marchisotto and Gholam-Ail Zakeri, 25:4, 1994, 295-308, 5.2.4, 5.2.5, 5.2.9
Functions of a Curve: Leibniz's Original Notion of Functions and Its Meaning for the Parabola, David Dennis and Jere Confrey, 26:2, 1995, 124-131, 0.3, 0.5
Mathematics and the Liberal Arts II, Hardy Grant, 30:3, 1999, 197-203, 2.1
The Witch of Agnesi, S. I. B. Gray and Tagui Malakyan, 30:4, 1999, 258-268, 5.1.3
Artemas Martin: An Amateur Mathematician of the Nineteenth Century, Patricia R. Allaire and Antonella Cupillari, 31:1, 2000, 22-34
On “The Witch of Agnesi”, Antonella Cupillari, 31:2, 2000, 144-145, C
Against the Odds, Martin Gardner, 32:1, 2001, 39-43, 3.2
Was Calculus Invented in India?, David Bressoud, 33:1, 2002, 2-13, 0.6, 5.4.3
Where Do Functions Come From?, Leigh Atkinson, 33:2, 2002, 107-112, 2.1
Spanish Colonial Mathematics: A Window on the Past, Ed Sandifer, 33:4, 2002, 266-278
A Very Brief History of Statistics, Howard W. Eves, 33:4, 2002
How Simple is Gravitation?, Paul Wolfson, 33:4, 2002, 350-352, C
The Bicentennial of American Mathematics Journals, David E. Zitarelli, 36:1, 2005, 2-15
Phoebe Floats!, Ezra Brown, 36:2, 2005, 114-122, 6.3, 9.6
Taylor Series – A Matter of Life or Death, The Observer (U.K.), 36:3, 2005, 237, C, 5.4.3
Jan Hudde and the Quotient Rule before Newton and Leibniz, Daniel J. Curtin, 36:4, 2005, 262-272
The Origins of Finite Mathematics: The Social Science Connection, Walter Meyer, 38:2, 2007 106-118

Mathematical Streets, Charles Marion, 38:4, 2007, 264, C
Pursuit Curves for the Man in the Moone, Andrew J. Simoson, 38:5, 2007, 330-338, 6.4, 9.10 (see also A Smoother Flight to the Moon, Stan Wagon, 39:1, 2008, 48)
Christiaan Huygens and the Problem of the Hanging Chain, John Bukowski, 39:1, 2008, 2-11, 0.3, 5.3.3
Tuning with Triangles, Leon Harkleroad, 39:5, 2008, 367-373, 9.2
Under-represented Then Over-represented: A Memoir of Jews in American Mathematics, Reuben Hersh, 41:1, 2010, 2-9
The Helen of Geometry, John Martin, 41:1, 2010, 17-28, 0.3, 5.6.1
Emmy Noether?, Michael Henle, 41:1, 2010, 27, C, 9.4
Biangular Coordinates Redux: Descovering a New Kind of Geometry, Michael Naylor and Brian Winkel, 41:1, 2010, 29-41, 9.7
Augustus De Morgan Behind the Scenes, Charlotte Simmons, 42:1, 2011, 33-39
Eradicating a Disease: Lessons from Mathematical Epidemiology, Matthew Glomski and Edward Ohanian, 43:2, 2012, 123-132, 6.4, 9.10
Women and Mathematics in the Time of Euler, Betty Mayfield, 44:2, 2013, 82-88
Who Solved the Bernoulli Differential Equation and How Did They Do It?, Adam Parker, 44:2, 2013, 89-97, 6.1
How Inge Lehmann Discovered the Inner Core of the Earth, Christiane Rousseau, 44:5, 2013, 399-408, 0.4, 9.10
Descartes' Calculus of Subnormals: What Might Have Been, Gregory Mark Boudreaux and Jess E. Wells, 44:5, 2013, 409-420, 0.4, 5.1.3
Commentary: The MAA and Environmental Mathematics, Ben Fusaro, 44:5, 2013, 448-449, C, 1.2
Projective Geometry for All, Meighan Dillon, 45:3, 2014, 169-178, 9.7
A Prehistory of Nim, Lisa Rougetet, 45:5, 2014, 358-363, 3.2, 9.2
Maxima and Minima Without Derivatives?, Lucio Cadeddu and Giampaolo Lai, 46:1, 2015, 15-22, 0.2, 5.1.3, 5.1.4, 5.1.5
The Origin of Quaternions, Thomas Bannon, 46:1, 2015, 43-50, 5.6.2, 9.4
William Neile's Contribution to Calculus, Andrew Leahy, 47:1, 2016, 42-49, 5.2.8
How to Find the Logarithm of Any Number Using Nothing but a Piece of String, Viktor Blasjo, 47:2, 2016, 95-100, 0.4, 5.3.2, 5.3.3
What's in a Name: Why Cauchy and Euler Share the Cauchy-Euler Equation, Adam E. Parker, 47:3, 2016, 191-198, 6.2
The Sine of a Single Degree, Travis Kowalski, 47:5, 2016, 322-332, 0.4, 0.6, 9.5
Leonardo da Vinci's Proof of the Pythagorean Theorem, Franz Lemmermeyer, 47:5, 2016, 361-364, 0.3
A Visual Validation of Viete's Verification, Tom Edgar and N. Chris Meyer, 48:2, 2017, 90-96, 0.7, 5.1.5
A Systematic Treatment of "Linear Algebra" in 17th-Century China, Jiang-Ping Jeff Chen, 49:3, 2018, 169-179, 4.1
The Oldest Trig in the Book, Harlod P. Boas, 50:1, 2019, 9-20, 0.6, 2.1
50 Years of CMJ: The First Decade, Dominic Klyve, 51:1, 2020, 51-52
The (Two-Year) College Mathematics Journal during the1980s, Warren Page, 51:2, 2020, 144-145, C
The College Mathematics Journal during the 1990s, Ann E. Watkins and William Watkins, 51:3, 2020, 216-217
The College Mathematics Journal during the Decade of the 2000s, Lowell Beineke, 51:4, 2020, 302-303
The Fifth Decade of the CMJ, Brian Hopkins, 51:5, 2020, 358-359
The Equivalence of Definitions of the Natural Logarithm Function, Henry Ricardo, 53:3, 2022, 190-196, 5.1.1, 5.3.2, 5.4.1, 9.5

2.3 Interviews

George Polya, Interviewed on His Ninetieth Birthday, G. L. Alexanderson, 10:1, 1979, 13-19
An Interview with Morris Kline: Part 1, G. L. Alexanderson, 10:3, 1979, 172-178

A Conversation with Martin Gardner, Anthony Barcellos, 10:4, 1979, 233-244
An Interview with Morris Kline: Part 2, G. L. Alexanderson, 10:4, 1979, 259-264
An Interview with H. S. M. Coxeter, Dave Logothetti, 11:1, 1980, 2-19
An Interview with Constance Reid, G. L. Alexanderson, 11:4, 1980, 226-238
An Interview with Stan Ulam, Anthony Barcellos, 12:3, 1981, 182-189
An Interview with Paul Erdos, G. L. Alexanderson, 12:4, 1981, 249-259
A Conversation with Don Knuth: Part I, Donald J. Albers and Lynn Arthur Steen, 13:1, 1982, 2-18
A Conversation with Don Knuth, Part 2, Donald J. Albers and Lynn Arthur Steen, 13:2, 1982, 128-141
John G. Kemeny: Computer Pioneer, Lynn Arthur Steen, 14:1, 1983, 18-35
A Conversation with Garrett Birkhoff, G. L. Alexanderson and Carroll Wilde, 14:2, 1983, 126-145
An Interview with Albert W. Tucker, Stephen B. Maurer, 14:3, 1983, 210-214
An Interview with Herbert Robbins, Warren Page, 15:1, 1984, 2-24
A Conversation with Henry Pollak, Donald J. Albers and Michael J. Thibodeaux, 15:3, 1984, 194-219
An Interview with the 1985 USA Team to the International Mathematical Olympiad, Warren Page, 16:5, 1985, 336-360
An Interview with George B. Dantzig: The Father of Linear Programming, Donald J. Albers and Constance Reid, 17:4, 1986, 292-304, 9.6
An Interview with Lipman Bers, Donald J. Albers and Constance Reid, 18:4, 1987, 266-290
An Interview with Mary Ellen Rudin, Donald J. Albers and Constance Reid, 19:2, 1988, 114-137
A Conversation with Saunders Mac Lane, Gerald L. Alexanderson, 20:1, 1989, 2-26
A Conversation with Robin Wilson, D. J. Albers and G. L. Alexanderson, 21:3, 1990, 178-195
Interview with Irving Kaplansky, Donald J. Albers, 22:2, 1991, 98-117
A Conversation with Ivan Niven, Donald J. Albers and G. L. Alexanderson, 22:5, 1991, 370-402
A Conversation with Leon Bankoff, G. L. Alexanderson, 23:2, 1992, 98-117
A Conversation with Richard K. Guy, Donald J. Albers and Gerald L. Alexanderson, 24:2, 1993, 122-148
Freeman Dyson: Mathematician, Physicist, and Writer, Donald J. Albers, 25:1, 1994, 2-21
Still Questioning Authority: An Interview with Jean Taylor, Don Albers, 27:4, 1996, 250-266
An Interview with Tom Apostol, Donald J. Albers, 28:4, 1997, 250-270
An Interview with Lars V. Ahlfors, Donald J. Albers, 29:2, 1998, 82-92
In Love with Geometry, Dan Pedoe, 29:3, 1998, 170-188
Coming to America: The Journey of an Immigrant Scholar, Clifford H. Wagner, 30:1, 1999, 2-17
An Interview with Dame Mary L. Cartwright, D.B.E., F.R.S., James Tattersall and Shawnee McMurran, 32:4, 2001, 242-254
An Interview with Dirk Struik on the Eve of His One Hundredth Birthday, James J. Tattersall, 33:3, 2002, 178-187
In Touch With God: An Interview with Paul Halmos, Don Albers, 35:1, 2004, 2-14
Saari, with no Apologies, Deanna Haunsperger, 36:2, 2005, 90-100
On the Way to “Mathematical Games”; Part I of an Interview with Martin Gardner, Don Albers, 36:3, 2005, 178-190
“Mathematical Games” and Beyond: Part II of an Interview with Martin Gardner, Don Albers, 36:4, 2005, 301-314
David Gale: Restless Pioneer, Walter Meyer, 37:1, 2006, 29-38
An Interview with H. W. Gould, Scott H. Brown, 37:5, 2006, 370-379
John Todd – Numerical Mathematics Pioneer, Don Albers, 38:1, 2007, 2-23
A Break for Mathematics: An Interview with Joe Gallian, Deanna Haunsperger, 39:3, 2008, 174-190
Interview with Martin Gardner, Michael Henle, 40:3, 2009, 158-161
An Interview with Steven J. Brams, Michael A. Jones, 41:4, 2010, 262-267
Excerpts From MAA Interviews, 46:5, 2015, 377-384, 10
A Plea for Finite Calculus, Michael Schmitz, 52:2, 2021, 94-105, 1.1, 3.3, 5.1.2

3.1 Graph theory

Shapes of the Future, Victor Klee, 2:2, 1971, 14-27, 0.3
Topological Regular Solids, Stewart S. Cairns, 4:1, 1973, 74-76, C
Partitions of the Plane, Nathan Hoffman, 5:2, 1974, 71-73, C, 0.3
Mathematics—Is It Any of Your Business?, Ralph Mansfield, 6:3, 1975, 20-26, 1.2, 9.1
The Game of Sprouts, Gordon D. Prichett, 7:4, 1976, 21-25, 9.2
Binary Grids and a Related Counting Problem, Nathan Hoffman, 9:4, 1978, 267-272, 6.3
The Pigeonhole Principle, Kenneth R. Rebman, 10:1, 1979, 3-13, 9.3
Who Stole the Apples and The Sticks?, Ross Honsberger, 10:1, 1979, 30-32, 3.3
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Colored Polygon Triangulations, Duane W. DeTemple, 29:1, 1998, 43-47, C
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An Algorithm for Drawing the n-Cube, Van Bain, 29:4, 1998, 320-322, C
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Best-Laid Plans: Pigeonhole Principle, Allen J. Schwenk, 38:1, 2007, 36, C
Proof Without Words: A Graph Theoretic Summation of the First *n* Integers, Joe DeMaio and Joey Tyson, 38:4, 2007, C, 3.2
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Flipping Triangles!, Marc Zucker, 40:3, 2009, 189-193, 9.2
Lewis Carroll, Voting, and the Taxicab Metric, Thomas C. Ratliff, 41:4, 2010, 303-311, 0.3, 3.3
Student Research Project: Graphs and Zero-Divisors, M. Axtell and J. Stickles, 41:5, 2010, 396-399, 9.4
Guards, Galleries, Fortresses, and the Octoplex, T. S. Michael, 42:3, 2011, 191-200, 3.2, 9.7
The V-flex, Triangle Orientation, and Catalan Numbers in Hexaflexagons, Ionut E. Iacob, Bruce McLean, and Hua Wang, 43:1, 2012, 6-10, 0.3, 3.2, 9.2, 5.4.1, 9.8
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A Platonic Sextet for Strings, Karl Schaffer, 3:1, 2012, 64-69, 0.3, 9.2
The Continuing Saga of Snarks, sarah-marie belcastro, 43:1, 2012, 82-87
RATWYT, Aviezri S. Fraenkel, 43:2, 2012, 160-164, 3.2, 9.2
Counting Triangles to Sum Squares, Joe DeMaio, 43:4, 2012, 297-303, 3.2
The Combinatorial Trace Method in Action, Mike Krebs and Natalie C. Martinez, 44:1, 2013, 32-36, 3.2, 4.5, 9.3
Proof Without Words: An Alternating Sum of Squares, Joe DeMaio, 44:3, 2013, 170, C, 3.2
Instant Insanity II, Tom Richmond and Aaron Young, 44:4, 2013, 265-272, 3.2, 9.2
Boggle Logic Puzzles: Minimal Solutions, Jonathan Needleman, 44:4, 2013, 293-299, 3.2, 9.2
Domination and Independence on a Triangular Honeycomb Chessboard, Joe DeMaio and Hong Lien Tran, 44:4, 2013, 307-314, 3.2, 9.2
Matroids on Groups?, Jeremy S. LeCrone and Nancy Ann Neudauer, 45:2, 2014, 121-128, 3.2, 9.1, 9.4
On God's Number(s) for Rubik's Slide, Michael A. Jones, Brittany C. Shelton, and Miriam E. Weaverdyck, 45:4, 2014, 267-275, 3.2, 9.2, 9.4
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Technology Review: Illustrating Planar Graphs and Kuratowski's Theorem on Smartphone Apps, 47:1, 2016, 67-72, reviewed by Anne Quinne, 10
An Introduction to Lazy Cops and Robbers on Graphs, Brendan W. Sullivan, Nikolas Townsend, and Mikayla L. Werzanski, 48:5, 2017, 322-333, 9.2
Proof Without Words: A Sum Computed by Self-Similarity, Yukio Kobayashi, 49:1, 2018, 10, C, 3.2, 5.4.2
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Unfoldings of the Cube, Richard Goldstone and Robert Suzzi Valli, 50:3, 2019, 173-184, 0.3, 3.2, 9.7
A Fast-Growing Sequence Inspired by TREE*(k)*, Kevin Y. Du, 51:1, 2020, 43-50, 3.2, 5.4.1
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The Sock Problem Revisited, William Paulsen, 52:3, 2021, 193-203, 3.2, 5.4.1, 6.3, 7.2, 9.6
Counting Christmas Trees, Tiffany N. Kolba and Jonathan Beagley, 52:5, 2021, 338-344, 3.2
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Factoring Functions, J. C. Bodenrader, 2:1, 1971, 23-26, 0.6, 5.1.2, 9.1
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On the Probability that the Better Team Wins the World Series, James L. Kepner, 16:4, 1985, 250-256, 7.2
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Ties at Rotation, Howard Lewis Penn, 19:3, 1988, 230-239, 9.10
Musical Notes, Angela B. Shiflet, 19:4, 1988, 345-347, C, 7.2, 9.2
A Chessboard Coloring Problem, May Beresin and Eugene Levine and John Winn, 20:2, 1989, 106-114
On-Line Partitioning of Partially Ordered Sets, William T. Trotter, 20:2, 1989, 124-131
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Remarks Concerning "Square-Free Sets on Square Grids": Student Research Project, H. L. Abbott, 24:4, 1993, 353-355
Lottery Drawings Often Have Consecutive Numbers, David M. Berman, 25:1, 1994, 45-47, C
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Eulerian Polynomials and Faulhaber's Result on Sums of Powers of Integers, H. K. Krishnapriyan, 26:2, 1995, 118-123
Pizza Combinatorics, Griffin Weber and Glenn Weber, 26:2, 1995, 141-143, C
Sums of Selected Binomial Coefficients, David R. Guichard, 26:3, 1995, 209-213
A Combinatorial Queueing Model, Shahar Boneh and David C. Ogden, 26:5, 1995, 346-357, 3.1
Pascal's Triangle Gets Its Genes from Stirling Numbers of the First Kind, Tommy Wright, 26:5, 1995, 368-371
A Master Key for Ten Locks, Stephen R. Cavior, 27:1, 1996, 33-36
Generalizations of a Mathematical Olympiad Problem, Joe Klerlein and Scott Sportsman, 27:4, 1996, 296-297, 9.3
Multiple Derivatives of Compositions: Investigating Some Special Cases, Irl C. Bivens, 28:4, 1997, 299-300, 5.7.1
FFF #127. Arranging a Collection of Objects, Montie Monzingo, 29:2, 1998, 134, F
Nothing Counts for Something, Norton Starr, 29:4, 1998, 308-309, C
The Trinomial Triangle, James Chappell and Thomas Osler, 30:2, 1999, 141-142, C, 0.2
Relating Geometry and Algebra in the Pascal Triangle, Hexagon, Tetrahedron, and Cuboctahedron I, Peter Hilton and Jean Pedersen, 30:3, 1999, 170-186
FFF #144. Spoiled for Choice, Norton Starr, 30:3, 1999, 210, F, 0.1
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Minimizing Aroma Loss, Robert Barrington Leigh and Richard Travis Ng, 30:5, 1999, 356-358, 9.10
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A Rational Solution to *Cootie*, Arthur Benjamin and Matthew Fluet, 31:2, 2000, 124-125, C, 7.2
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Some New Results on Magic Hexagrams, Martin Gardner, 31:4, 2000, 274-280, 9.2
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The Sum of min(i,j) Equals the Sum of the First k Integers Squared (Mathematics Without Words), Abraham Arcavi and Alfinio Flores, 31:5, 2000, 392, C
Against the Odds, Martin Gardner, 32:1, 2001, 39-43, 2.2
Slicing Space, Seth Zimmerman, 32:2, 2001, 126-128, C
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The Interior Diagonals of a Polygon, Margaux Marie Siegel, 32:3, 2001, 239-240, C
Generating Functions and the Electoral College, Christopher Stuart, 32:5, 2001, 380, C
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Sums of Uniformly Distributed Variables: A Combinatorial Approach, Jeanne Albert, 33:3, 2002, 201-206, 7.2
Introducing Binary and Ternary Codes via Weighings, James Tanton, 33:4, 2002, 313-314, C, 0.1
Two Quick Combinatorial Proofs of the Sum of the First *n* Cubes, Arthur T. Benjamin and Michael E. Orrison, 33:5, 2002, 406-408, C
A Codeword Proof of the Binomial Theorem, Mark Ramras, 34:2, 2003, 144, C
Taking the Sting out of Wasp Nests: A Dialogue on Modeling in Mathematical Biology, Jennifer C. Klein and Thomas Q. Sibley, 34:3, 2003, 207-215, 9.10
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The Old Hats Problem Revisited, Heba Hathout, 35:2, 2004, 97-102
Tiling with Dominoes, Nathan S. Mendelsohn, 35:2, 2004, 115-120, 3.1
Combinatorial Proofs via Flagpole Arrangements, Duane DeTemple, 35:2, 2004, 129-133, C
How Do You Stack Up?, John P. Bonomo and Carolyn K. Cuff, 35:5, 2004, 351-361
The Probability that an Amazing Card Trick Is Dull, Christopher Swanson, 36:3, 2005, 209-212, 7.2
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FFF #243. Funky Yahtzee, Dale R. Buske, 37:1, 2006, 39-40, F
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Pizza Combinatorics Revisited, Griffin Weber and Glen Weber, 37:1, 2006, 43-44, C
Parity and Primality of Catalan Numbers, Thomas Koshy and Mohammad Salmassi, 37:1, 2006, 52-53, C, 9.3
Streaks and Generalized Fibonacci Sequences, Shahla Ahdout, Sheldon Rothman, and Helen Strassberg, 37:3, 2006, 221-223, C
Names in Boxes Puzzle, Peter Winkler, 37:4, 2006, 260, 285, 289, C, 9.4
More Combinatorial Proofs via Flagpole Arrangements, Duane DeTemple and H. David Reynolds II, 37:4, 2006, 279-285
Fibonacci Identities via the Determinant Sum Property, Michael Z. Spivey, 37:4, 2006, 286-289, 4.2, 9.3
Exhaustive sampling and related binomial identities, Jim Ridenhour and David Grimmett, 37:4, 2006, 296-299, C, 7.2
Summing Cubes by Counting Rectangles, Arthur T. Benjamin, Jennifer J. Quinn and Calyssa Wurtz, 37:5, 2006, 387-389, C
Not Just Hats Anymore: Binomial Inversion and the Problem of Multiple Coincidences, Leith Hathout, 38:3, 2007, 179-184, 7.2
Some Half-Row Sums from Pascal's Triangle via Laplace Transforms, Thomas P. Dence, 38:3, 2007, 205-209, 6.4
Proof Without Words: A Graph Theoretic Summation of the First *n* Integers, Joe DeMaio and Joey Tyson, 38:4, 2007, C, 3.1
Finding All Solutions to the Magic Hexagram, Alexander Karabegov and Jason Holland, 39:2, 2008, 102-106, 9.2
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FFF #286. Lines of cubes in a block, Ed Barbeau, 39:5, 2008, 383, F, 9.2
Sums of Integer Powers via the Stolz-Cesaro Theorem, Sidney H. Kung, 40:1, 2009, 42-44, C, 5.4.1
Lobb's Generalization of Catalan's Parenthesization Problem, Thomas Koshy, 40:2, 2009, 99-107
n-Card Tricks, Hang Chen and Curtis Cooper 40:3, 2009, 196-201, 9.2
Reflections on the $N + k$ Queens Problem, R. Douglas Chatham, 40:3, 2009, 204-210, 4.1, 9.2
Summations Involving Binomial Coefficients, Hidefumi Katsuura, 40:4, 2009, 275-278
Bijective Proof Without Words, Martin Griffiths, 41:2, 2010, 100, C

Deranged Exams, Michael Z. Spivey, 41:3, 2010, 197-202
Counting Squares to Sum Squares, Duane W. DeTemple, 41:3, 2010, 214-219
Taking Turns, Brian Hopkins, 41:4, 2010, 289-297, 3.3, 9.4
The Tower and Glass Marbles Problem, Richard Denman, David Hailey, and Michael Rothenberg, 41:5, 2010, 350-356, 8.1
The Rascal Triangle, Alif Anggoro, Eddy Liu, and Angus Tulloch, 41:5, 2010, 393-395, 0.1
Guards, Galleries, Fortresses, and the Octoplex, T. S. Michael, 42:3, 2011, 191-200, 3.1, 9.7
An Application of Group Theory to Change Ringing, Michele Intermont and Aileen Murphy, 42:3, 2011, 223-228, 9.4
Student Research Project: Making Change Efficiently, Jack E. Graver, 42:4, 2011, 317-322, 0.1, 5.1.4, 9.9
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Averaging Sums of Powers of Integers, Thomas J. Pfaff, 42:5, 2011, 402-403, C, 9.2, 9.3
Hexaflexagons, Martin Gardner, 43:1, 2012, 2-5, 0.3, 9.2, 9.4, 9.8
The V-flex, Triangle Orientation, and Catalan Numbers in Hexaflexagons, Ionut E. Iacob, Bruce McLean, and Hua Wang, 43:1, 2012, 6-10, 0.3, 3.1, 5.4.1, 9.2, 9.8
Cups and Downs, Ian Stewart, 43:1, 2012, 15-19, 4.1, 9.2
Mad Tea Party Cyclic Partitions, Robert Bekes, Jean Pedersen, and Bin Shao, 43:1, 2012, 25-36, 9.2, 9.3
The Secretary Problem from the Applicant's Point of View, Darren Glass, 43:1, 2012, 76-81, 7.2
30 Years of Bulgarian Solitaire, Brian Hopkins, 43:2, 2012, 135-140, 9.2, 9.3
Convergence of a Catalan Series, Thomas Koshy and Zhenguang Gao, 43:2, 2012, 141-146, 5.4.2, 9.3
RATWYT, Aviezri S. Fraenkel, 43:2, 2012, 160-164, 3.1, 9.2
Ben-Hur Staircase Climbs, John Dodge and Andrew Simoson, 43:4, 2012, 274-284
Counting Triangles to Sum Squares, Joe DeMaio, 43:4, 2012, 297-303, 3.1
The Combinatorial Trace Method in Action, Mike Krebs and Natalie C. Martinez, 44:1, 2013, 32-36, 3.1, 4.5, 9.3
A Family of Identities via Arbitrary Polynomials, Dong Fengming, Ho Weng Kin, and Lee Tuo Yeong, 44:1, 2013, 43-46
Multi-Peg Tower of Hanoi, Paul Isihara and Doeke Buursma, 44:2, 2013, 110-116, 9.2
Proof Without Words: An Alternating Sum of Squares, Joe DeMaio, 44:3, 2013, 170, C, 3.1
Instant Insanity II, Tom Richmond and Aaron Young, 44:4, 2013, 265-272, 3.1, 9.2
Mancala Matrices, L. Taalman, A. Tongen, B. Warren, F. Wyrick-Flax, and I. Yoon, 44:4, 2013, 273-283, 4.1, 9.2
Chomp in Disguise, Andrew MacLaughlin and Alex Meadows, 44:4, 2013, 284-292, 9.2
Tetris Sudoku, Philip Riley and Laura Taalman, 44:4, 2013, 292, C, 9.2
Boggle Logic Puzzles: Minimal Solutions, Jonathan Needleman, 44:4, 2013, 293-299, 3.1, 9.2
Domination and Independence on a Triangular Honeycomb Chessboard, Joe DeMaio and Hong Lien Tran, 44:4, 2013, 307-314, 3.1, 9.2
Are Stupid Dice Necessary?, Frank Bermudez, Anthony Medina, Amber Rosin, and Eren Scott, 44:4, 2013, 315-322, 7.2, 9.2, 9.3
Power Series for Up-Down Min-Max Permutations, Fiacha Heneghan and T. Kyle Petersen, 45:2, 2014, 83-91, 5.4.3
Matroids on Groups?, Jeremy S. LeCrone and Nancy Ann Neudauer, 45:2, 2014, 121-128, 3.1, 9.1, 9.4
Cookie Monster Devours Naccis, Leigh Marie Braswell and Tanya Khovanova, 45:2, 2014, 129-135, 9.2
On God's Number(s) for Rubik's Slide, Michael A. Jones, Brittany C. Shelton, and Miriam E. Weaverdyck, 45:4, 2014, 267-275, 3.1, 9.2, 9.4
Chutes and Ladders with Large Spinners, Darcie Connors and Darren Glass, 45:4, 2014, 289-295, 7.2, 9.2
Mancala as Nim, Whitney Rhianna Fillers, Bill Linderman, and Andrew Simoson, 45:5, 2014, 350-356, 3.3, 9.2, 9.3
A Prehistory of Nim, Lisa Rougetet, 45:5, 2014, 358-363, 2.2, 9.2

A Combinatorial Proof of a Theorem of Katsuura, Brian K. Miceli, 45:5, 2014, 365-369, 9.4
Proof Without Words: Sums of Every Third Triangular Number, Roger B. Nelsen, 46:2, 2015, 98, C, 9.3
When is the Generating Function of the Fibonacci Numbers an Integer?, Dae S. Hong, 46:2, 2015, 110-112, 9.3
Sequences of Power Lines, Ricardo Alfaro, 46:2, 2015, 113-120, 0.2, 0.7, 5.1.1, 5.4.1, 9.2, 9.3
On an Identity Involving Powers of Binomial Coefficients, Ulrich Abel, 46:2, 2015, 138, C
Proof Without Words: Each But Two Triangular Numbers Is a Sum of Three Triangular Numbers, Roger B. Nelsen, 46:3, 2015, 172, C, 9.2, 9.3
How to Win at (One-Round) War, Richard E. Chatwin and Dana MacKenzie, 46:4, 2015, 242-253, 4.1, 9.2, 9.5, 9.9
Candy Crush Combinatorics, Dana Rowland, 46:4, 2015, 255-262, 9.2
The Uniqueness of Rock-Paper-Scissors-Lizard-Spock, Brian J. Birgen, 46:4, 2015, 270-273, 9.2
A Magic Trick Leads to an Identity: Some Induction Fun, Robert W. Vallin, 46:4, 2015, 295-298, C, 0.9, 9.2
Proof Without Words: Centered Triangular Numbers, Roger B. Nelsen, 46:5, 2015, 335, C, 0.2, 9.2, 9.3
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Proof Without Words: Powers of Three and Triangular Numbers, C. David Leach, 47:2, 2016, 120, C
Lattice Paths and Harmonic Means, Marc Zucker, 47:2, 2016, 121-124
The Chu-Vandermonde Identity via Leibniz's Identity for Derivatives, Michael Spivey, 47:3, 2016, 219-220, C
The FA Cup Draw and Pairing Up Probabilities, Patrick Sullivan, 47:4, 2016, 282-292, 7.2, 9.2
Integral Value of the Generating Functions of Fibonacci and Lucas Numbers, Prapanpong Pongsriiam, 48:2, 2017, 97-101, 9.3
On the Arithmetic Mean of the Square Roots of the First *n* Positive Integers, Mircea Merca, 48:2, 2017, 129-133, 9.3
Proof Without Words: Sum of a Row in Pascal's Triangle, Angel Plaza, 48:3, 2017, 188, C, 0.2
Partitioning the Natural Numbers to Prove the Infinitude of Primes, Arpan Sadhukhan, 48:3, 2017, 217-218, C, 9.3
Minimal Tilings of a Unit Square, Iwan Praton, 48:4, 2017, 242-247, 9.5, 9.7
UFOs in the game SET: Looking for Airplanes and Spaceships, Jonathan Needleman and Felicia Sciortino, 48:4, 2017, 249-257, 9.1, 9.2, 9.7
Tiling Squares with Big Holes with L-triominoes, Patrick J. Costello, 48:4, 2017, 259-263, 9.2, 9.7
Proof Without Words: A Pascal-Like Triangle With Pell Number Row Sums, Angel Plaza, 48:5, 2017, 346, C, 5.4.1, 6.3, 9.3
Bet(ch)a my Team Wins the Playoffs, Roger W. Johnson, 48:5, 2017, 347-353, 7.2
Proof Without Words: A Sum Computed by Self-Similarity, Yukio Kobayashi, 49:1, 2018, 10, C, 3.1, 5.4.2
Proof Without Words: Sum of Squares of Consecutive Fibonacci Numbers, Tim Price, 49:2, 2018, 121, C, 9.3
Combinatorics: A Very Short Introduction, Robin Wilson and Infinity: A Very Short Introduction, Ian Stewart, 49:2, 2018, 147-152, reviewed by Brian Hopkins, 10
Five Families Around a Well: A New Look at an Old Problem, Ezra Brown and Matthew Crawford, 49:3, 2018, 162-168, 2.1, 4.1, 4.2
Strange Spinners and Diversity of Dice in Chutes and Ladders, Erin Frasetto, Michael Gableman, McKenzie Lamb, Tyler Shimek, and Andrea Young, 49:4, 2018, 251-260, 4.7, 7.2, 9.2, 9.10
Probabilities of Qwirkle Hand Values, 49:4, 2018, 270-276, 7.2, 9.2, 9.10
Tactile Tools for Teaching: Implementing Knuth's Algorithm for Mastering Mastermind, Thomas M. Fiore, Alexander Lang, and Antonella Perucca, 49:4, 2018, 278-286, 8.1, 9.1, 9.2

Bringing Calculus into Discrete Math via the Discrete Derivative, Christopher J. Catone, 50:1, 2019, 21-27, 3.3, 5.1.2, 5.1.3, 5.4.1

A Birthday in St. Petersburg, Enrique Trevino, 50:1, 2019, 36-40, 7.2

The Barycenter Theorem: Averaging Possible-Paths to Produce Optimal Discrete Straight-line Segments, Robert M. French and Patrick Gehant, 50:2, 2019, 103-114, 8.3, 9.7

Unfoldings of the Cube, Richard Goldstone and Robert Suzzi Valli, 50:3, 2019, 173-184, 0.3, 3.1, 9.7

Coloring a 1-by-n Chessboard, Elias Abboud, Rathi Saleh, and Amal-Sharif Rassian, 49:5, 2019, 322-330, 5.4.2, 9.2

Sums of Powers of Consecutive Integers and Pascal's Triangle, Semyon Litvinov and Frantisek Marko, 51:1, 2020, 25-31, 4.1, 5.2.1, 9.3

Connected Subsets of an $n \times 2$ Rectangle, Samuel Durham and Tom Richmond, 51:1, 2020, 32-42, 5.4.1, 8.3, 9.7

A Fast-Growing Sequence Inspired by TREE(k), Kevin Y. Du, 51:1, 2020, 43-50, 3.1, 5.4.1

Randomly Generated Identities, David Treeby, 51:2, 2020, 90-94, 5.4.2, 7.2

The Proportion of Comets in the Card Game SET, Dan May and Dan Swenson, 51:3, 2020, 162-172, 4.3, 6.3, 7.2, 9.1, 9.2, 9.4

Counting Connected Sets of Squares, Stan Wagon, 51:3, 2020, 173, 9.7

Chance Encounters with Large Polynomials, Brian D. Jones, 51:3, 2020, 174-181, 0.2, 7.2

A Tour of Discrete Probability Guided by a Problem in Genomics, Leonid Hanin, 51:4, 2020, 284-294, 7.2, 9.10

When Rooks Miss: Probability Through Chess, Stephen J. Miller, Haoyu Sheng & Daniel Turek, 52:2, 2021, 82-93, 5.1.1, 7.2, 7.3, 9.2, 9.10

Visual Proofs for the Sums of Fourth and Fifth Powers of the First n Natural Numbers, Sanja Stevanovi & Dragan Stevanovic, 52:2, 2021, 115-120, 5.4.2, 9.3

Shortest Paths on Cubes, Richard Goldstone, Rachel Roca & Robert Suzzi Valli, 52:2, 2021, 121-132, 0.3, 0.4, 9.7, 9.8

Visual Triangular Number Identities from Positional Number Systems, Tom Edgar, 52:2, 2021, 133-136, 6.3, 9.3

Distances Between Factorizations of the Chicken McNugget Monoid, Scott Chapman, Pedro Garcia-Sanchez & Christopher O'Neill, 52:3, 2021, 158-176, 3.1, 9.2, 9.4

The Sock Problem Revisited, William Paulsen, 52:3, 2021, 193-203, 3.1, 5.4.1, 6.3, 7.2, 9.6

An Unusual Recursive Formula to Answer a Question Regarding Fixed Points in Permutations, Melanie Tian & Enrique Trevino, 52:3, 2021, 219-220, C, 6.3, 7.2

Parking Functions: Choose Your Own Adventure, Joshua Carlson, Alex Christensen, Pamela E. Harris, Zakiya Jones & Andrés Ramos Rodríguez, 52:4, 2021, 254-26, 7.2, 9.2

Back to the Tower, John P. Bonomo, 52:4, 2021, 265-273, 6.3, 9.2

Fano, Galois, Hamming and a Card Trick, Richard Ehrenborg, 52:4, 2021, 274-280, 9.2, 9.4, 9.7

Counting Christmas Trees, Tiffany N. Kolba and Jonathan Beagley, 52:5, 2021, 338-344, 3.1

Arranging Beetles, Robert Gallant & Georg Gunther, 53:1, 2022, 3-12, 3.1, 9.2

Report on the 12th Annual USA Junior Mathematical Olympiad, Bela Bajnok & Evan Chen, 53:1, 2022, 13-20, 0.3, 5.4.1, 9.1, 9.2, 9.3, 9.5

Connections Between Partitions and Divisors Related to the Parity of the Partition Function, Mircea Merca, 53:1, 2022, 33-37, 9.3

On the Sum of k-th Powers in Terms of Earlier Sums, Steven J. Miller & Enrique Trevino, 53:3, 2022, 220-225, 9.3

3.3 Other topics in discrete mathematics (also see 6.3)

Who Stole the Apples and The Sticks?, Ross Honsberger, 10:1, 1979, 30-32, 3.1

Computer-Generated Knight Tours, Michael Gilpin, 13:4, 1982, 252-259, 3.1, 9.2

Drawing the Line Segment Connecting Two Points, Harley Flanders, 18:1, 1987, 53-57, 0.4, 8.1

Card Shuffling in Discrete Mathematics, Steve M. Cohen and Paul R. Coe, 26:3, 1995, 224-227, C, 9.4
Exploring Fibonacci Numbers Mod M, Jack Ryder, 27:2, 1996, 122-124, C, 9.3
A Better Draft: Fair Division of the Talent Pool, Bryan Dawson, 28:2, 1997, 82-88
Putting the Pieces Together: Understanding Robinson's Nonperiodic Tilings, Aimee Johnson and Kathleen Madden, 28:3, 1997, 172-181, 0.3
Weighing Coins: Divide and Conquer to Detect a Counterfeit, Mario Martelli and Gerald Gannon, 28:5, 1997, 365-367, 0.9
A Discrete Intermediate Value Theorem, Richard Johnsonbaugh, 29:1, 1998, 42, C, 0.9
FFF #134. Hockey Ranking, Dave Trautman, 29:5, 1998, 406-407, F
Recursion in Action, Peter Ross, 31:1, 2000, 68, C
Ten into Eight Won't Go?, Marc Brodie, 32:4, 2001, 296, C
In Search of a Missing Link: A Case Study in Error-Correcting Codes, Andy Liu, 32:5, 2001, 343-347
Centering, Jim Sauerberg and Alan Tarr, 33:1, 2002, 24-31, 0.4, 6.3
Miscellanea: A Ballot Count Surprise, N. S. Mendelsohn, 33:5, 2002, 431-432, C, 7.2
Apportionment and the 2000 Election, Michael G. Neubauer and Joel Zeitlin, 34:1, 2003, 2-10
Simmons' Subliminal Channel, Hector Rosario, 35:3, 2004, 208-212
A Geometric Approach to Fair Division, Julius Barbanel, 41:4, 2010, 268-280, 9.5, 9.7
Taking Turns, Brian Hopkins, 41:4, 2010, 289-297, 3.2, 9.4
Who Does the Housework?, Angela Vierling-Claassen, 41:4, 2010, 298-302
Lewis Carroll, Voting, and the Taxicab Metric, Thomas C. Ratliff, 41:4, 2010, 303-311, 0.3, 3.1
Visualizing Elections using Saari Triangles, Mariah Birgen, 41:4, 2010, 325-328, 0.1, 0.3
A Talmudic Fair-Division Problem, Theodore Hill, 41:4, 2010, 338, C, 0.1
Two-Person Pie-Cutting: The Fairest Cuts, Julius B. Barbanel and Steven J. Brams, 42:1, 2011, 25-32
Retrolife and the Pawns Neighbors, Yossi Elran, 43:2, 2012, 147-151, 9.2, 9.10
Lake Wobegon Dice, Jorge Moraleda and David G. Stork, 43:2, 2012, 152-159, 7.2, 9.2, 9.9
Mancala as Nim, Whitney Rhianna Fillers, Bill Linderman, and Andrew Simoson, 45:5, 2014, 350-356, 3.2, 9.2, 9.3
Balanced Nontransitive Dice, Alex Schaefer and Jay Schweig, 48:1, 2017, 10-16, 7.1, 7.2, 9.2
The Solution to a Hanoi-ing Little Problem, John P. Bonomo, 49:4, 2018, 288-291, 6.3, 8.1, 9.2
Bringing Calculus into Discrete Math via the Discrete Derivative, Christopher J. Catone, 50:1, 2019, 21-27, 3.2, 5.1.2, 5.1.3, 5.4.1
A Plea for Finite Calculus, Michael Schmitz, 52:2, 2021, 94-105, 1.1, 2.2, 5.1.2

3.4 Software for discrete mathematics

A Mathematics Software Database, R. S. Cunningham and David A. Smith, 17:3, 1986, 255-266, 0.10, 4.8, 5.8, 6.7, 7.4, 9.11
A Mathematics Software Database Update, R. S. Cunningham and David A. Smith, 18:3, 1987, 242-247, 0.10, 4.8, 5.8, 6.7, 7.4, 9.11
The Compleat Mathematics Software Database, R. S. Cunningham and David A. Smith, 19:3, 1988, 268-289, 0.10, 4.8, 5.8, 6.7, 7.4, 9.11
EDUCOM Higher Education Software Awards for 1991: Combinatorica@, Bruce E. Sagan, 23:4, 1992, 334-339, 3.2
Using PROLOG in Discrete Mathematics, Antonio M. Lopez, Jr., 24:4, 1993, 357-365, 3.1, 9.1
Forget Not the Lowly Spreadsheet, Michael G. Henle, 26:4, 1995, 320-328, 6.7
Fibonacci Powers and a Fascinating Triangle, Dale K. Hathaway and Stephen L. Brown, 28:2, 1997, 124-128, C, 6.3, 9.3

4 Linear Algebra

4.1 Matrices, systems of linear equations, and matrix algebra

Mathematics, A Solitary Game, Olof Hanner, 1:2, 1970, 5-16, 0.2
On One-Sided Inverses of Matrices, Elmar Zemgalis, 2:1, 1971, 45-48
On Transformations and Matrices, Marc Swadener, 4:3, 1973, 44-51, 4.4
Computer-Generated Problem Sets: Simultaneous Equations and Matrices, Samuel W. Spero and Mary Koehler, 8:3, 1977, 182-187
Binomial Matrices, Jay E. Strum, 8:5, 1977, 260-266
Integer Matrices Whose Inverses Contain Only Integers, Robert Hanson, 13:1, 1982, 18-21
Mathematics in Archaeology, Gareth Williams, 13:1, 1982, 56-58, C
The Mathematics of Tucker: A Sampler, Albert W. Tucker, 14:3, 1983, 228-232
Basic Null Space Calculations, Dan Kalman, 15:1, 1984, 42-47
The Electronic Spreadsheet and Mathematical Algorithms, Deane E. Arganbright, 15:2, 1984, 148-157, 5.4.1, 7.3, 9.6
Visual Thinking about Rotations and Reflections, Tom Brieske, 15:5, 1984, 406-410, 4.4
Classifying Row-reduced Echelon Matrices, Stewart Venit and Wayne Bishop, 17:2, 1986, 169-170, C
Self-Inverse Integer Matrices, Robert Hanson, 16:3, 1985, 190-198
Using Minitab in Linear Algebra, Raymond N. Greenwell, 16:3, 1985, 216-218
Harvesting a Grizzly Bear Population, Michael Caulfield and John Kent and Daniel McCaffrey, 17:1, 1986, 34-46, 4.6, 9.10
Teaching Mathematics Using APL, Edward J. LeCuyer, Jr., 17:4, 1986, 344-357
On Polynomial Matrix Equations, Harley Flanders, 17:5, 1986, 388-391, 4.5
A Guide to Computer Algebra Systems, John M. Hosack, 17:5, 1986, 434-441, 0.2, 5.1.2, 5.1.5, 5.2.3, 5.2.4, 5.2.5
Why Should We Pivot in Gaussian Elimination?, Edward Rozema, 19:1, 1988, 63-72, 4.6
Notational Collisions, J. Hillel, 20:5, 1989, 418-422, C, 1.2
Minimum Dimension for a Square Matrix of Order n, Robert Hanson, 21:1, 1990, 28-34, 9.4
A Tool for Teaching Linear Programming within MATLAB, David R. Hill, 21:1, 1990, 55-56, C, 9.9
Software Review: Linear Algebra Software for the IBM PC, David P. Kraines and Vivian Y. Kraines, 21:1, 1990, 57-64, 4.8
FFF #16. Nonsquare Invertible Matrices, Ed Barbeau, 21:2, 1990, 127, F (also 22:3, 1991, 223 and 23:3, 1992, 204)
A Zero-Row Reduction Algorithm for Obtaining the gcd of Polynomials, Sidney H. Kung and Yap S. Chua, 21:2, 1990, 138-141, 0.7, 9.4
Elementary Row Operations and LU Decomposition, David P. Kraines and Vivian Y. Kraines and David A. Smith, 21:5, 1990, 418-419, C
Rotations in Space and Orthogonal Matrices, David P. Kraines, 22:3, 1991, 245-247, C, 4.3, 4.4, 4.5
Number Theory and Linear Algebra: Exact Solutions of Integer Systems, George Mackiw, 23:1, 1992, 52-58, 9.3
Gems of Exposition in Elementary Linear Algebra, David Carlson and Charles R. Johnson and David Lay and A. Duane Porter, 23:4, 1992, 299-303, 1.2, 4.5, 4.7
A Random Ladder Game: Permutations, Eigenvalues, and Convergence of Markov Chains, Lester H. Lange and James W. Miller, 23:5, 1992, 373-385, 4.5, 9.10
Graphs, Matrices, and Subspaces, Gilbert Strang, 24:1, 1993, 20-28, 3.1, 4.3
Teaching Linear Algebra: Must the Fog Always Roll In?, David Carlson, 24:1, 1993, 29-40, 1.2
The Linear Algebra Curriculum Study Group Recommendations for the First Course in Linear Algebra, David Carlson and Charles R. Johnson and David C. Lay and A. Duane Porter, 24:1, 1993, 41-46, 1.2, 4.2, 4.3, 4.5
Linear Algebra and Affine Planar Transformations, Gerald J. Porter, 24:1, 1993, 47-51, 0.4, 4.4
FFF. Matrices and the TI-81 Graphics Calculator, Constance J. Gardner, 24:1, 1993, 64, F, 0.2
Gaussian Elimination in Integer Arithmetic: An Application of the L-U Factorization, Thomas Hern, 24:1, 1993, 67-71, C

Iterative Methods in Introductory Linear Algebra, Donald R. LaTorre, 24:1, 1993, 79-88, 4.5, 9.6
Software Review: Spreadsheets in Linear Algebra, Deane Arganbright, 24:1, 1993, 89-94, 4.8
How Does the NFL Rate the Passing Ability of Quarterbacks?, Roger W. Johnson, 24:5, 1993, 451-453, C (also 25:4, 1994, 340)
Using Computer Algebra Systems to Teach Linear Algebra (software review), Maurino P. Bautista, 24:5, 1993, 462-471, 4.5, 4.8
Round-off, Batting Averages, and Ill-Conditioning, Edward Rozema, 25:4, 1994, 314-317, C, 4.6
Matrix Patterns and Undertermined Coefficients, Herman Gollwitzer, 25:5, 1994, 444-448, C, 6.2
For matrices: AB transpose equals B transpose times A transpose (proof by picture), James G. Simmonds, 26:3, 1995, 250, C
Linear Algebra on the Gridiron, Daniel C. Isaksen, 26:5, 1995, 358-360
Using the *College Mathematics Journal* Topic Index in Undergraduate Courses, Donald E. Hooley, 28:2, 1997, 106-109, 4.2, 5.1.4, 5.7.1
FFF #114. An Inversion Conundrum, Barry D. Ganapol, 28:2, 1997, 120, F
A Diagonal Perspective on Matrices, Eugene C. Boman and Margaret A. Misconish, 29:1, 1998, 37-38, C
Using Consistence Condition to Solve Linear Systems, Geza Schay, 30:3, 1999, 226-229, C
N-Site Insights, Bret Draayer, 31:4, 2000, 250-258, 5.5
FFF #172. Creating an idempotent, Douglas W. Mitchell, 32:1, 2001, 50, F
The Profit in Being Unbalanced, Wolf von Ronik, 32:5, 2001, 348-351, 0.8
A Ramanujan Result Viewed From Matrix Algebra, Raymond A. Beauregard and E. R. Suryanarayan, 33:3, 2002, 212-214, 9.3, 9.4
When is 1/(a-b) = 1/a + 1/b, Anyway?, Eugene Boman and Frank Uhlig, 33:4, 2002, 296-300, 9.5
Obtaining the QR Decomposition by Pairs of Row and Column Operations, Sidney H. Kung, 33:4, 2002, 320-321, C, 4.6
An Underdetermined Linear System for GPS, Dan Kalmar, 33:5, 2002, 384-390
FFF. Matrix Inverses and the Great Injustice, Zoran Sunik, 33:5, 2002, 395-398, F
Parrondo's Paradox – Hope for Losers!, Darrell P. Minor, 34:1, 2003, 15-20, 7.2
On the Square Root of aa^T + bb^T, Dietrich Trenkler and Gotz Trenkler, 34:1, 2003, 39-41
A Class of Exponential Matrices, M. A. Khan, 34:3, 2003, 194-195
The Chain Rule for Matrix Exponential Functions, Jay A. Wood, 35:3, 2004, 220-222, C
The Cross Product as a Polar Decomposition, Gotz Trenkler, 39:3, 2008, 237-239, C, 4.3, 5.5
Reflections on the $N + k$ Queens Problem, R. Douglas Chatham, 40:3, 2009, 204-210, 3.2, 9.2
Finding Matrices that Satisfy Functional Equations, Scott Duke Kominers, 40:4, 2009, 289-292, C, 5.4.3
Student Research Project: Golden Matrix Families, Anne Fontaine and Susan Hurley, 42:2, 2011, 140-147, 4.5, 9.4
The Easiest Lights Out Games, Bruce Torrence, 42:5, 2011, 361-371, 4.3, 9.2
Cups and Downs, Ian Stewart, 43:1, 2012, 15-19, 3.2, 9.2
Push-To Telescope Mathematics, Donald Teets, 43:3, 2012, 227-231, 4.4
Asset Pricing, Financial Markets, and Linear Algebra, Marcio Diniz, 44:1, 2013, 2-8, 4.3, 7.2, 9.9
Teaching Tip: When a Matrix and Its Inverse Are Stochastic, J. Ding and N. H. Rhee, 44:2, 2013, 108-109, C
Understanding Singular Vectors, David James and Cynthia Botteron, 44:3, 2013, 220-226, 4.5, 4.6, 4.7, 9.6
Mancala Matrices, L. Taalman, A. Tongen, B. Warren, F. Wyrick-Flax, and I. Yoon, 44:4, 2013, 273-283, 3.2, 9.2
American Roulette: A Gambler's Ruin, Louis Bohorquez and Jennifer Switkes, 45:1, 2014, 33-40, 7.1, 7.2
The Rank of Recurrence Matrices, Christopher Lee and Valerie Peterson, 45:3, 2014, 207-215, 6.3
How to Win at (One-Round) War, Richard E. Chatwin and Dana MacKenzie, 46:4, 2015, 242-253, 3.2, 9.2, 9.5, 9.9

Predicting Wins and Losses: A Volleyball Case Study, Elizabeth Knapper and Hope McIlwain, 46:5, 2015, 352-358, 7.3, 9.10
The Advantage of the Coin Toss for the New Overtime System in the National Football League, Jacqueline Leake and Nicholas Pritchard, 47:1, 2016, 2-9, 7.2, 9.9
Abbott-and-Costello Numbers, Howard Sporn, 47:2, 2016, 126-132, 9.2, 9.3
Horse Racing Odds: Can You Beat the Track by Hedging Your Bets?, Joel Pasternack and Stewart Venit, 47:4, 2016, 275-280, 7.2, 9.2
A Lagrangian Simulation of the Floating-Arm Trebuchet, Eric Constans, 48:3, 2017, 179-187, 5.7.1, 6.2, 6.5, 9.10
A Curious Feature of Regression, Carl V. Lutzer, 48:3, 2017, 189-198, 7.3
A Short and Elementary Proof of the Two-Sidedness of the Matrix Inverse, Pietro Paparella, 48:5, 2017, 366-367, C
A Short Introduction to Optimal Line Packings, Dustin G. Mixon and James Solazzo, 49:2, 2018, 82-91, 4.3, 4.5
The Double-Sidedness of Matrix Inverses; Yet Another Proof, Esther M. Garcia-Caballero and Samuel G. Moreno, 49:2, 2018, 136-137, C
Five Families Around a Well: A New Look at an Old Problem, Ezra Brown and Matthew Crawford, 49:3, 2018, 162-168, 2.1, 3.2, 4.2
A Systematic Treatment of “Linear Algebra” in 17th-Century China, Jiang-Ping Jeff Chen, 49:3, 2018, 169-179, 2.2
Sums of Powers of Consecutive Integers and Pascal's Triangle, Semyon Litvinov and Frantisek Marko, 51:1, 2020, 25-31, 3.2, 5.2.1, 9.3
The Last Two Days in Elementary Linear Algebra, Donald L. Muench, 51:3, 2020, 222-224, C, 4.3, 4.5
How to Win at Tenzi, Steve Bacinski and Timothy Pennings, 51:4, 2020, 242-253, 7.1, 7.2, 9.2, 9.9
Flattening the Curve, Gary Kennedy, 51:4, 2020, 254-259, 9.10
Formula for the Computation of the Matrix Exponential, João Teixeira & Maria João Borges, 51:5, 2020, 345-350, 4.5, 6.2
Matrix Solution to Gergonne’s Pile Problem, Mervlyn Moodley, 51:5, 2020, 351-357, 9.2
An Excursion Through the Double Sidedness of the Matrix Inverse, Jose Angel Cid, 52:1, 2021, 54-56, C, 4.3
Magic Card Tricks on Hamming Codes over Finite Fields, Hideo Nagahashi, 52:4, 2021, 281-288, 9.2, 9.4
Being Rational About Algebraic Numbers, Matt David, Adam E. Parker, and Daniel A. N. Vargas, 52:5, 2021, 327-337, 4.5, 5.4.1, 6.3, 9.4, 9.6
The Associativity of Infinite Matrix Multiplication, Revisited, Michael Maltenfort, 53:1, 2022, 39-44

4.2 Determinants (also see 5.5)

On the Evaluation of Determinants by Chio's Method, L. E. Fuller and J. D. Logan, 6:1, 1975, 8-10
A Geometrical Proof of Cramer's Rule, R. R. Baldino, 9:2, 1978, 106-107, C
Determinants: A Short Program, Alban J. Roques, 10:5, 1979, 340-343
Predetermined Determinants, David C. Buchtal, 16:4, 1985, 277-279, C
The Surveyor's Area Formula, Bart Braden, 17:4, 1986, 326-337, 5.2.6, 5.2.8
Computing Determinants, Clyde Dubbs and David Siegel, 18:1, 1987, 48-50, C
Cramer's Rule via Selective Annihilation, Dan Kalman, 18:2, 1987, 136-137, C, 4.3
Convex Coordinates, Probabilities, and the Superposition of States, J. N. Boyd and P. N. Raychowdhury, 18:3, 1987, 186-194, 9.7
A Nonstandard Approach to Cramer's Rule, Sidney H. Kung, 19:1, 1988, 59-60, C
An Alternative Proof of Cramer's Rule, Stephen H. Friedberg, 19:2, 1988, 171, C
Apropos Predetermined Determinants, Antal E. Fekete, 19:3, 1988, 254-257, C
Evaluating "Uniformly Filled" Determinants, Simon M. Goberstein, 19:4, 1988, 343-345, C

Determinants of Sums, Marvin Marcus, 21:2, 1990, 130-134, C
On 'Uniformly Filled' Determinants, Carsten Thomassen and Herbert S. Wilf, 21:2, 1990, 135-137, C
Determinantal Loci, Marvin Marcus, 23:1, 1992, 44-47, C
FFF #55. Even and Odd Permutations, Ed Barbeau, 23:3, 1992, 204, F, 9.4 (also 23:4, 1992, 305 and 24:4, 1993, 346 and 25:4, 1994, 310)
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Roots of Cubics via Determinants, Robert Y. Suen, 25:2, 1994, 115-117, 0.7
Using the *College Mathematics Journal* Topic Index in Undergraduate Courses, Donald E. Hooley, 28:2, 1997, 106-109, 4.1, 5.1.4, 5.7.1
Cramer's Rule (proof by picture), The Mathematica Initiative, 28:2, 1997, 118, C
Finding a Determinant and Inverse Matrix by Bordering, Yong-Zhuo Chen and Richard F. Melka, 29:1, 1998, 38-39, C
Taylor's Formula via Determinants, K. S. Sarkaria, 32:1, 2001, 53, C, 5.4.3
Fibonacci Determinants, Nathan D. Cahill, John R. D'Errico, Darren A. Narayan and Jack Y. Narayan, 33:3, 2002, 221-225
FFF #207. Evaluating a determinant, Michel Bataille, 34:2, 2003, 135-136, F
Fibonacci Identities via the Determinant Sum Property, Michael Z. Spivey, 37:4, 2006, 286-289, 3.2, 9.3
"Shutting up like a telescope": Lewis Carroll's "Curious" Condensation Method for Evaluating Determinants, Adrian Rice and Eve Torrence, 38:2, 2007, 85-95
A Tricky Linear Algebra Example, David Sprows, 39:1, 2008, 54-56, C, 4.3
False Position, Double False Position and Cramer's Rule, Eugene C. Boman, 40:4, 2009, 279-283, 0.2, 2.1
Computing Determinants by Double-Crossing, Deanna Leggett, John Perry, and Eve Torrence, 42:1, 2011, 43-53
Teaching Tip: Correcting Cramer's Rule, Vagarshak Vardanyan, 42:1, 2011, 54-55
An *n*-dimensional Pythagorean Theorem, William J. Cook, 44:2, 2013, 0.4, 5.5
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A Geometric View of Complex Trigonometric Functions, Richard Hammack, 38:3, 2007, 210-217, 0.6, 9.5
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Constructing a Map from a Table of Intercity Distances, Richard J. Pulskamp, 19:2, 1988, 154-163, 3.1, 9.10
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Complex Eigenvalues and Rotations: Are Your Students Going in Circles?, James Duemmel, 27:5, 1996, 378-381, C
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Take a Walk on the Boardwalk, Stephen D. Abbott and Matt Richey, 28:3, 1997, 162-171, 9.10
Clock Hands Pictures for 2x2 Real Matrices, Charles R. Johnson and Brenda K. Kroschel, 29:2, 1998, 148-150, C
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The Eigenvalues of an Infinite Matrix, Bobette Thorsen, 31:2, 2000, 107-110
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Discovering Roots: Ancient, Medieval, and Serendipitous, Bryan Dorner, 36:1, 2005, 35-43, 0.2, 2.1, 9.3
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Why Should We Pivot in Gaussian Elimination?, Edward Rozema, 19:1, 1988, 63-72, 4.1
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The Generalized Spectral Decomposition of a Linear Operator, Garret Sobczyk, 28:1, 1997, 27-38, 9.4
Gaussian Elimination and Dynamical Systems, Kathie Yerion, 28:2, 1997, 89-97, 9.6
A Fresh Approach to the Singular Value Decomposition, Colm Mulcahy and John Rossi, 29:3, 1998, 199-207
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Surface Approximation and Interpolation via Matrix SVD, Andrew E. Long and Clifford A. Long, 32:1, 2001, 20-25
Obtaining the QR Decomposition by Pairs of Row and Column Operations, Sidney H. Kung, 33:4, 2002, 320-321, C, 4.1
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5 Calculus

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Another Note on Epsilons and Deltas, Larry F. Bennett, 7:3, 1976, 18
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An Interesting Approach to Delta, Epsilon Proofs, Allen R. Angel, 8:5, 1977, 278-280
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A Neglected Approach to the Logarithm, Bruce S. Babcock and John W. Dawson, Jr., 9:3, 1978, 136-140, 5.3.2
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Calculator-Demonstrated Math Instruction, George McCarty, 11:1, 1980, 42-48, 5.2.2, 5.4.2, 9.6
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An Unexpected Appearance of the Golden Ratio, George Manuel and Amalia Santiago, 19:2, 1988, 168-170, C, 0.4
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A Geometric Proof of the limit as d approaches 0 from the positive side of -d ln d equals 0, John H. Mathews, 23:3, 1992, 209-210, C
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FFF #69. Calculation of a Limit, Cherie D'Mello, 25:1, 1994, 36, F (also 26:5, 1995, 382-383)
Some Extensions of a Ubiquitous Geometric Limit Problem, David N. Adler, 27:4, 1996, 290-291, C
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Geometric Evaluation of a Limit (proof by picture), Guanshen Ren, 28:3, 1997, 186, C
Order Relations and a Proof of l'Hopital's Rule, Leonard Gillman, 28:4, 1997, 288-292, C
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The Logarithm Function and Riemann Sums, Frank Burk, 32:5, 2001, 369-370, C, 5.2.1
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A Class of Multivariable Limits, Yingfan Liu and Youguo Wang, 41:2, 2010, 154-156, C, 5.7.1
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A Topological Definition of Limits for Use in Elementary Calculus, Charles L. Cooper, 45:4, 2014, 313-315, C, 9.5, 9.8
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5.1.2 The derivative and mean value theorems

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A Note on Derivatives of Polynomials, Aron Pinker, 3:2, 1972, 77-78, C
Generalizing Rolle's Theorem in Elementary Calculus, Rodney D. Gentry, 4:3, 1973, 11-17
Calculus by Mistake, Louise S. Grinstein, 5:4, 1974, 49-53, C, 5.1.4, 5.2.2, 5.2.3, 5.2.5, 5.2.3, 5.7.2, 5.2.10, 5.4.2, 5.6.1
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An Elementary Result on Derivatives, David A. Birnbaum and Northrup Fowler III, 8:1, 1977, 10-11
Some Elementary Results Related to the Mean Value Theorem, Roy E. Myers, 8:1, 1977, 51-53, C
Differentiating Area and Volume, Jay I. Miller, 9:1, 1978, 47-49, C
Some Functional Equations for the Calculus Student, Stephen J. Milles and Henry J. Schultz, 9:4, 1978, 205-209
Differentiation and Synthetic Division, Dan Kalman, 10:1, 1979, 37, C
Travelers' Surprises, R. P. Boas, 10:2, 1979, 82-88
Another Application of the Mean Value Theorem, Norman Schaumberger, 10:2, 1979, 114-115, C
An Alternate Approach to the Derivative of the Trigonometric Functions, Norman Schaumberger, 10:4, 1979, 276-277, C
Derivatives Without Limits, Harry Sedinger, 11:1, 1980, 54-55, C, 5.1.3
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A Geometric Proof of Cauchy's Generalized Law of the Mean, Mary Powderly, 11:5, 1980, 329-330, C
A Mean Generating Function, Jack C. Slay and J. L. Solomon, 12:1, 1981, 27-29, 7.3
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The Sums of Zeros of Polynomial Derivatives, Michael W. Ecker, 13:5, 1982, 328-329, C
Exactly n-Times Differentiable Functions, Robert Bumcrot, 14:3, 1983, 258-259, C
The Derivatives of Sin x and Cos x, Norman Schaumberger, 15:2, 1984, 143-145, C
Another Look at x^(1/x), Norman Schaumberger, 15:3, 1984, 249-250, C, 5.4.1
Alternate Approaches to Two Familiar Results, Norman Schaumberger, 15:5, 1984, 422-423, C, 5.1.1
A Self-Contained Derivation of the Formula of the Derivative with Respect to x of x^r for Rational r, Peter A. Lindstrom, 16:2, 1985, 131-132, C
Average Values and Linear Functions, David E. Dobbs, 16:2, 1985, 132-135, 5.2.1
Testing Understanding and Understanding Testing, Jean Pedersen and Peter Ross, 16:3, 1985, 178-185, 0.2, 1.2, 5.2.2
More Applications of the Mean Value Teorem, Norman Schaumberger, 16:5, 1985, 397-398, C
Rolle over Lagrange—Another Shot at the Mean Value Theorem, Robert S. Smith, 17:5, 1986, 403-406
A Guide to Computer Algebra Systems, John M. Hosack, 17:5, 1986, 434-441, 0.4, 4.1, 5.1.5, 5.2.3, 5.2.4, 5.2.5
The Derivatives of the Sine and Cosine Functions, Barry A. Cipra, 18:2, 1987, 139-140, C, 5.2.1
A General Form of the Arithmetic-Geometric Mean Inequality via the Mean Value Theorem, Norman Schaumberger, 19:2, 1988, 172-173, C, 9.5
A Direct Proof of the Integral Formula for Arctangent, Arnold J. Insel, 20:3, 1989, 235-237, C, 5.2.6, 5.2.3
Automatic Differentiation and APL, Richard D. Neidinger, 20:3, 1989, 238-251, 5.1.3
The Power Rule and the Binomial Formula, Stephen H. Friedberg, 20:4, 1989, 322, C, 5.4.2
A Simple Auxiliary Function for the Mean Value Theorem, Herb Silverman, 20:4, 1989, 323, C
The Function sin x / x, William B. Gearhart and Harris S. Shultz, 21:2, 1990, 90-99, 2.2, 5.1.5

FFF #26. Differentiating the Square of x, Ed Barbeau, 21:4, 1990, 304, F
The Derivative of x^n = nx^(n-1): Six Proofs, Russell Jay Hendel, 21:4, 1990, 312-313, C
FFF #37. 3 Equals 2, Ed Barbeau, 22:2, 1991, 132, F
The Differentiability of Sin x, David A. Rose, 22:2, 1991, 139-142, C
FFF #45. All Powers of x are Constant, Ed Barbeau, 22:5, 1991, 403, F, 0.9
FFF #47. A Natural Way to Differentiate an Exponential, Ed Barbeau, 22:5, 1991, 404, F, 5.1.3 (also 23:3, 1992, 206 and 24:3, 1993, 231)
Summation by Parts, Gregory Fredricks and Roger B. Nelsen, 23:1, 1992, 39-42, C, 5.4.1, 5.4.2, 9.3
FFF #56. Yet Another Proof that 3 Equals 2, Ed Barbeau, 23:3, 1992, 204, F (also 23:4, 1992, 306)
Another Proof of the Formula e equals the infinite sum of reciprocals of n!, Norman Schaumberger, 25:1, 1994, 38-39, C, 5.3.2
Why Polynomials Have Roots, Javier Gomez-Calderon and David M. Wells, 27:2, 1996, 90-94, 5.7.1, 9.5
Newton's Method for Resolving Affected Equations, Chris Christensen, 27:5, 1996, 330-340, 0.7, 5.4.3
FFF #132. The Increment of a Product, Robert Weinstock, 29:4, 1998, 302-303, F
On “Rethinking Rigor in Calculus …,” or Why We Don’t Do Calculus on the Rational Numbers, Scott E. Brodie, 30:2, 1999, 135-138, C, 1.2
FFF #142. Calculating the Average Speed, Bill Simpson, 30:3, 1999, 209, F, 6.1
A Natural Proof of the Chain Rule, Stephen Kenton, 30:3, 1999, 216-218, C
Things I Have Learned at the AP Reading, Dan Kennedy, 30:5, 1999, 346-355, 0.2, 5.1.1, 5.2.1, 5.2.6, 5.4.2, 6.1
From Square Roots to n-th Roots: Newton’s Method in Disguise, W. M. Priestley, 30:5, 1999, 387-388, C, 9.6
Amortization: An Applications of Calculus, Richard E. Klima and Robert G. Donnelly, 30:5, 1999, 388-391, C, 0.8
Can We Improve the Teaching of Calculus?, Hugh Thurston, 31:4, 2000, 262-267, 1.1, 5.7.1
Meta-Problems in Mathematics, Al Cuoco, 31:5, 2000, 373-378, 0.7, 9.3
FFF #174. A Strong Differentiability Conclusion, Sarah V. Cook, 32:4, 2001, 281-282, F
Hat Derivatives, Stephen B. Maurer, 33:1, 2002, 32-37, 5.3.2
On a Mean Value Theorem, Peter R. Mercer, 33:1, 2002, 46-48, C
The Mean Value Theorem for Parabolas (Mathematics Without Words), Lance E. Hemlow, 33:2, 2002, 136, C
Adding Fractions, Dan Kalman, 34:1, 2003, 41, C, 0.1
Higher Derivatives and Economics, Charlie Marion, 37:2, 2006, 124, C
Controlling the discrepancy in marginal analysis calculations, Michael W. Ecker, 37:4, 2006, 299-300, C
How to Differentiate an Integer Modulo n, Caleb Emmons, Mike Krebs, and Anthony Shaheen, 40:5, 2009, 345-353, 9.4
The Intermediate Value Theorem is NOT Obvious – and I Am Going to Prove It to You, Stephen M. Walk, 42:4, 2011, 254-259, 5.1.5
Derivative Sign Patterns, Jeffrey Clark, 42:5, 2011, 379-381, C, 5.4.3, 9.5
Derivative Sign Patterns in Two Dimensions, Kenneth Schilling, 44:2, 2013, 102-108, 5.7.1, 9.5
Mathematical Minute: Rotating a Function Graph, Daniel Bravo and Joseph Fera, 44:2, 2013, 124-125, C, 5.1.5, 9.5
Calculus from a Statistics Perspective, Kimberly Leung, Chris Rasmussen, Samuel S. P. Shen, and Dov Zazkis, 45:5, 2014, 377-386, 5.2.1, 7.3
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The Fastest Path Between Two Points, with a Symmetric Obstacle, Kathleen Bell, Shania Polson, and Tom Richmond, 46:2, 2015, 92-97, 5.1.4, 9.10
Rubber Band Calculus, Fred Kuczmarski, 47:2, 2016, 82-93, 5.2.1, 5.2.3, 5.6.2, 5.7.3
Trigonometric Derivatives Made Easy, Piotr Josevich, 47:5, 2016, 365-366, C, 0.6, 5.1.1
Normal Limit of the Binomial via the Discrete Derivative, Ajoy Thamattoor, 49:3, 2018, 216-217, C, 7.2

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A Plea for Finite Calculus, Michael Schmitz, 52:2, 2021, 94-105, 1.1, 2.2, 3.3

5.1.3 Tangents, differentials, and differentiation

A Simple Proof of the Reflection Property for Parabolas, R. H. Cowen, 7:2, 1976, 59-60, C, 0.5
Mappings, Diagrams, Continuous Functions and Derivatives, Thomas J. Brieske, 9:2, 1978, 67-72
A Note on the Derivative of a Composite Function, V. N. Murty, 11:1, 1980, 50, C
Derivatives Without Limits, Harry Sedinger, 11:1, 1980, 54-55, C, 5.1.2
Intuition Out to Sea, William A. Leonard, 13:3, 1983, 195-196, C
Related Rates and the Speed of Light, Steven C. Althoen and John F. Weidner, 16:3, 1985, 186-189
What a Tangent Line is When it isn't a Derivative, Irl C. Bivens, 17:2, 1986, 133-143
Transitions, Jeanne L. Agnew and James R. Choike, 18:2, 1987, 124-133, 0.7, 5.6.1, 9.10
Differentials and Elementary Calculus, D. F. Bailey, 20:1, 1989, 52-53, C
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A Chaotic Search for i, Gilbert Strang, 22:1, 1991, 3-12, 6.3, 9.5
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Who Needs the Sine Anyway?, Carlos C. Huerta, 23:1, 1992, 43-44, C, 5.4.2
Visualization of Limits and Limits of Visualization: Student Research Projects, Lee H. Minor, 23:1, 1992, 48-51, 0.4, 0.5
FFF #54. A Degree of Differentiation, Ed Barbeau, 23:3, 1992, 203, F, 0.6 (also 23:4, 1992, 306 and 24:4, 1993, 345)
An Exponential Rule, G. E. Bilodeau, 24:4, 1993, 350-351, C
A Useful Notation for Rules of Differentiation, Robert B. Gardner, 24:4, 1993, 351-352, C
FFF #70. Reading a Calculator Display, Sandra Z. Keith, 25:1, 1994, 36, F, 0.2
Euler and Differentials, Anthony P. Ferzola, 25:2, 1994, 102-111, 2.2
Isaac Newton: Credit Where Credit Won't Do, Robert Weinstock, 25:3, 1994, 179-192, 0.5, 2.2, 5.4.3, 5.6.1
The Dynamics of Newton's Method for Cubic Polynomials, James A. Walsh, 26:1, 1995, 22-28, 6.3
The Spider's Spacewalk Derivation of sin' and cos', Tim Hesterberg, 26:2, 1995, 144-145, C
The Falling Ladder Paradox, Paul Scholten and Andrew Simoson, 27:1, 1996, 49-54, C, 6.2
Bond Duration: An Application of Calculus, John C. Hegarty, 27:1, 1996, 47-49, C
FFF #110. The Speeder's Delight, Carl E. Crockett, 27:5, 1996, 370-371, F (see also 30:2, 1999, 131)
Area and Perimeter, Volume and Surface Area, Jingcheng Tong, 28:1, 1997, 57, C, 0.4
A Continuous Version of Newton's Method, Steven M. Hetzler, 28:5, 1997, 348-351, 6.3
The Witch of Agnesi, S. I. B. Gray and Tagui Malakyan, 30:4, 1999, 258-268, 2.2
The Derivative of Sin theta, Selvaratnam Sridharma, 30:4, 1999, 314-315, C
Normal Lines and Curvature, Kirby C. Smith, 31:1, 2000, 54-56, C, 9.8
Related Rates Collide with Vectors, Stephen Fulling, 31:2, 2000, 116-119, 5.5
Normal Lines and the Evolute Curve, David Sanchez and Kirby C. Smith, 31:5, 2000, 397-403, C, 5.6.1
Tangents without Calculus, Jorge Aarao, 31:5, 2000, 406-407, C, 0.2, 0.7
Derivative of the Tangent (Mathematics Without Words), Yukio Kobayashi, 32:1, 2001, 14, C
On the Tangent Lines of a Parabola, Mikko Stenlund, 32:3, 2001, 194-196
Magic Squares, Finite Planes, and Points of Inflection on Elliptic Curves, Ezra Brown, 32:4, 2001, 260-267, 9.2, 9.3
Applications of Differentials, Li Feng, 33:4, 2002, 295, C, 9.5
Off on a Tangent, Russell A. Gordon and Brian C. Dietel, 34:1, 2003, 62-63, C, 9.5
Tangent Line Transformations, Steven Butler, 34:2, 2003, 105-106

FFF #214. The area under a tangent, Ed Barbeau, 34:4, 2003, 312-313, F, 5.1.4
FFF #216. A simple way to differentiate a quotient, Anand Kumar, 34:4, 2003, 313-314, F
Finding the Tangent to a Conic Section Without Calculus, Sidney H. Kung, 34:5, 2003, 394-395, C, 0.2
On Determining the Non-Circularity of a Plane Curve, Lane F. Burgette and Russell A. Gordon, 35:2, 2004, 74-83, 5.2.8, 9.7
A Property Possessed by Every Differentiable Function, Jingcheng Tong, 35:3, 2004, 216-217, C
Tangent Lines and the Inverse Function Differentiation Rule, Maurizio Trombetta, 35:4, 2004, 258-261, 9.5
Successive Differentiation and Leibniz's Theorem, P. K. Subramanian, 35:4, 2004, 274-282, 5.4.3, 6.2
Logarithmic Differentiation: Two Wrongs Make a Right, Noah Samuel Brannen and Ben Ford, 35:5, 2004, 388-390, C
The Computation of Derivatives of Trigonometric Functions via the Fundamental Theorem of Calculus, Horst Martini and Walter Wenzel, 36:2, 2005, 154-158, C, 5.2.1, 5.3.1
Intersections of Tangent Lines of Exponential Functions, Timothy G. Feeman and Osvaldo Marrero, 36:3, 2005, 205-208, 0.5, 5.3.2
FFF #247. Tangent howlers, Carl Libis, 37:1, 2006, 41, F
Descartes Tangent Lines, William Barnier and James Jantosciak, 38:1, 2007, 47-49, C
An Area Approach to the Second Derivative, Vania Mascioni, 38:5, 2007, 378-380, C, 9.5
Two Problems with Table Saws, William R. Vautaw, 39:2, 2008, 121-128, 0.4, 0.6
The Naïve Chain Rule, M. Leigh Lunsford, Marcus Pendergrass, Phillip Poplin and David Shoenthal, 39:2, 2008, 142-145, C
The Naïve Product Rule for Derivatives, Carter C. Gay, Akalu Tefera and Aklilu Zeleke, 39:2, 2008, 145-148, C
Fibonacci's Forgotten Number Revisited, Richard Maruszewski, 40:4, 2009, 248-251, 0.7, 2.1, 9.6
Putting Differentials Back into Calculus, Tevian Dray and Corinne A. Manogue, 41:2, 2010, 90-100
A Characterization of a Quadratic Function in R^n, Conway Xu, 41:3, 2010, 212-214, 5.7.1
The Product and Quotient Rules Revisited, Roger Eggleton and Vladimir Kustov, 42:4, 2011, 323-325, C
A Generalization of the Parabolic Chord Property, John Mason, 42:4, 2011, 326-328, C, 5.4.3
Sometimes Newton's Method *Always* Cycles, Joe Latulippe and Jennifer Switkes, 43:5, 2012, 365-370, 9.6
Using Differentials to Differentiate Trigonometric and Exponential Functions, Tevian Day, 44:1, 2013, 17-23, 5.3.2, 5.3.3, 9.7
Descartes' Calculus of Subnormals: What Might Have Been, Gregory Mark Boudreaux and Jess E. Wells, 44:5, 2013, 409-420, 0.4, 2.2
Maxima and Minima Without Derivatives?, Lucio Cadeddu and Giampaolo Lai, 46:1, 2015, 15-22, 0.2, 2.2, 5.1.4, 5.1.5
Secants, Tangents, Rotations, and Reflections, Michael Maltenfort, 46:1, 2015, 24-34, 5.1.5, 9.5
Proving the Pythagorean Theorem by Letting the Sides Vary, Zsolt Lengvarszky, 46:1, 2015, 52-55, 0.3
When You Wander off on a Tangent, Where Do You End Up?, Melissa Mark and Michael Schramm, 47:5, 2016, 334-339, 9.5
The Falling Ladder Paradox Revisited, Brittany A. Burke, Zach Jackson and Steven J. Kifowit, 49:1, 2018, 36-40, 6.2
Bringing Calculus into Discrete Math via the Discrete Derivative, Christopher J. Catone, 50:1, 2019, 21-27, 3.2, 3.3, 5.1.2, 5.4.1
Truck Versus Human 2.0: Mathematical Follow-Up Under Increasing Pressure, and How Kepler's Laws Come to the Rescue, Miguel A. Lerma, 52:1, 2021, 22-30, 6.1, 9.10
Chain Rule Note, Peter A. Loeb, 52:1, 2021, 57-58, C, 9.5
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5.1.4 Maxima and minima

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Some Socially Relevant Applications of Elementary Calculus, Colin Clark, 4:2, 1973, 1-15, 6.1
An Interpolation Question Resolved by Calculus, Martin D. Landau and William R. Jones, 4:1, 1973, 36-39
Four Theorems About Montana, H. E. Reinhardt, 4:1, 1973, 76-78, C
Construction of an Exercise Involving Minimum Time, Robert Owen Armstrong, 5:2, 1974, 12-14
Maximize x(a-x), L. H. Lange, 5:1, 1974, 22-24, 0.2
A Set of Trigonometric Inequalities with Applications to Maxima and Minima, Norman Schaumberger, 5:3, 1974, 26-30, 0.6
Calculus by Mistake, Louise S. Grinstein, 5:4, 1974, 49-53, C, 5.1.2, 5.2.2, 5.2.3, 5.2.5, 5.2.10, 5.4.2, 5.6.1, 5.7.2
What Is an Application of Mathematics?, Clifford Sloyer, 7:3, 1976, 19-26, 9.10
A Calculus Proof of the Arithmetic-Geometric Mean Inequality, Norman Schaumberger, 9:1, 1978, 16-17
On the "Rule of 72", Warren B. Gordon and Harold D. Shane, 10:2, 1979, 117-118, C
An interesting way to test students' understanding of the first derivative test, Dick A. Wood, 10:2, 1979, 118, C
How Good is the "Rule of 72"?, Alan Kroopnick, 10:4, 1979, 279-280, C
Another way to test understanding of the first derivative test, Thomas M. Greene, 10:4, 1979, 282-283, C
Must a "Dud" Necessarily Be an Inflection Point?, Michael W. Ecker, 12:5, 1981, 332-333, C
A Bifurcation Problem in First Semester Calculus, W. L. Perry, 14:1, 1983, 57-60, C
When Does a Square Give Maximum Area?, Ray C. Shiflett and Harris S. Shultz, 14:3, 1983, 194-196
Some Maximal Rectangles and the Realities of Applied Mathematics, Michael R. Latina, 14:3, 1983, 248-252
To Build a Better Box, Kay Dundas, 15:1, 1984, 30-36
The Maximum and Minimum of Two Numbers Using the Quadratic Formula, Dan Kalman, 15:4, 1984, 329-330, C, 9.5
The Problem of Managing a Strategic Reserve, David Cole, Loren Haarsma and Jack Snoeyink, 17:1, 1986, 48-60, 6.1, 9.10
A Note on Differentiation, Russell Euler, 17:2, 1986, 166-167, C
Interactive Graphics for Multivariable Calculus, Michael E. Frantz, 17:2, 1986, 172-181, 1.2, 5.1.1, 5.7.1
Coloring Points in the Unit Square, Charles H. Jepsen, 17:3, 1986, 231-237, 3.1
Computer Algebra Systems in Undergraduate Mathematics, Don Small and John Hosack and Kenneth Lane, 17:5, 1986, 423-433, 1.2, 5.1.5, 5.2.2, 5.4.2
A Surprising Max-Min Result, Herbert Bailey, 18:3, 1987, 225-229, C
Fibonacci Numbers and Computer Algorithms, John Atkins and Robert Geist, 18:4, 1987, 328-336, 6.3, 8.1
On Partitioning a Real Number, William Staton, 19:1, 1988, 53-54, C, 9.3
Behold! Two Extremum Problems (and the Arithmetic-Geometric Mean Inequality), Paolo Montuchi and Warren Page, 19:4, 1988, 347, C, 0.4
Hanging a Bird Feeder: Food for Thought, John W. Dawson, Jr., 21:2, 1990, 129-130, C
Using a Computer Algebra System to Solve for Maxima and Minima, Robert Lopez and John Mathews, 21:5, 1990, 410-414
Extrema and Saddle Points, David P. Kraines and Vivian Y. Kraines and David A. Smith, 21:5, 1990, 416-418, C, 5.7.1
FFF #34. The Shortest Distance from a Point to a Parablola, Ed Barbeau, 22:2, 1991, 131, F (also 23:1, 1992, 38)
The Isoperimetric Quotient: Another Look at an Old Favorite, G.D.Chakerian, 22:4, 1991, 313-315, C
Using Computer Graphics to Help Analyze Complicated Functions, Paul B. Massell, 22:4, 1991, 327-331, 5.1.5

Individualized Computer Investigations for Calculus, Sheldon P. Gordon, 23:5, 1992, 426-428, C, 5.1.5, 0.7
The Best Shape for a Tin Can, P. L. Roe, 24:3, 1993, 233-236, C, 9.10 (see also Rectangular Cans, 28:3, 1997, 200, F)
The Curious 1/3, James E. Duemmel, 24:3, 1993, 236-237, C
What is the Biggest Rectangle You Can Put Inside a Given Triangle?, Lester H. Lange, 24:3, 1993, 237-240, C
Old Calculus Chestnuts: Roast, or Light a Fire?, Margaret Cibes, 24:3, 1993, 241-243, C, 1.2
An Optimization Oddity, R. H. Eddy and R. Fritsch, 25:3, 1994, 227-229, C, 9.5
A Visual Proof of Eddy and Fritsch's Minimal Area Property, Robert Pare, 26:1, 1995, 43-44, C, 5.7.2
The Chair, the Area Rug, and the Astroid, Mark Schwartz, 26:3, 1995, 229-231, C, 5.6.1
The Rental Car Problem, Gary D. White and Kirby Smith, 27:5, 1996, 374-378, C, 5.2.1
Halley's Gunnery Rule, C. W. Groetsch, 28:1, 1997, 47-50, C
Using the *College Mathematics Journal* Topic Index in Undergraduate Courses, Donald E. Hooley, 28:2, 1997, 106-109, 4.1, 4.2, 5.7.1
The Pen and the Barn, Peter Schumer, 28:3, 1997, 205-206, C
FFF #123. A Foot by Any Other Name, David Protas, 29:1, 1998, 34, F (see also 30:2, 1999, 132)
Two Historical Applications of Calculus, Alexander J. Hahn, 29:2, 1998, 93-103, 5.2.9
Minimal Pyramids, Michael Scott McClendon, 29:3, 1998, 224-226, C
FFF #146. Maximizing a Subtended Angle, Richard Askey, 30:3, 1999, 210-211, F
Measuring the Curl of Paper, Joseph Paullet and Richard Bertram, 30:4, 1999, 315-317, C, 0.6
Cable-laying and Intuition, Yael Roitboerg and Joseph Roitberg, 32:1, 2001, 52-54, C
FFF #177. A Standard Box Problem, Dale R. Buske, 32:4, 2001, 282, F
Research Questions from Elementary Calculus (Student Research Projects), Jack E. Graver and Lawrence J. Lardy, 32:5, 2001, 388-393
It’s Perfectly Rational, Philip K. Hotchkiss, 33:2, 2002, 113-117, 9.3
FFF #189. A gradation of problems, Karl Havlak, 33:2, 2002, 137-138, F
The Distance Between Two Graphs, Rhonda Huettenmueller, 33:2, 2002, 142-143, C
Moving a Couch Around a Corner, Christopher Moretti, 33:3, 2002, 196-200, 9.5
A Generalization of a Minimum Area Problem, Russell A. Gordon, 34:1, 2003, 21-23
A Dozen Minima for a Parabola, Leon M. Hall, 34:2, 2003, 139-141, C
Constrained Optimization with Implicit Differentiation, Gary W. DeYoung, 34:2, 2003, 148-152, C
Do Dogs Know Calculus?, Timothy J. Pennings, 34:3, 2003, 178-182 (see also 37:1, 2006, 19)
Rational Boxes, Sidney Kung, 34:3, 2003, 182, C, 9.3
A New Wrinkle on an Old Folding Problem, Greg N. Frederickson, 34:4, 2003, 258-263, 5.2.7
FFF #214. The area under a tangent, Ed Barbeau, 34:4, 2003, 312-313, F, 5.1.3
Maximizing the Area of a Quadrilateral, Thomas Peter, 34:4, 2003, 315-316, C
A Hairy Parabola, Aaron Montgomery, 34:5, 2003, 395-397, C
Maximal Revenue With Minimal Calculus, Byron L. Walden, 34:5, 2003, 402-404, C
FFF #222. Falling ball, Karl Havlak, 35:2, 2004, 122-123, F
An Apothem Apparently Appears, Pat Cade and Russell A. Gordon, 36:1, 2005, 52-55, C
Making a Bed, Anthony Wexler and Sherman Stein, 36:3, 2005, 213-221, 0.4
The Flip-Side of a Lagrange Multiplier Problem, Angelo Segalla and Saleem Watson, 36:3, 2005, 232-235, C, 5.7.1
Differentiate Early, Differentiate Often!, Robert Dawson, 36:5, 2005, 404-407, C
Do Dogs Know Related Rates Rather than Optimization?, Pierre Perruchet and Jorge Gallego, 37:1, 2006, 16-18, 9.10
Do Dogs Know Calculus of Variations?, Leonid A. Dickey, 37:1, 2006, 20-23
The Tippy Trough, Donald Francis Young, 37:3, 2006, 205-213, 9.10
An Exceptional Exponential Function, Branko Curgus, 37:5, 2006, 344-354, 5.3.2, 5.3.4
An Introduction to Simulated Annealing, Brian Albright, 38:1, 2007, 37-42, 9.9

Do Dogs Know Bifurcations?, Roland Minton and Timothy J. Pennings, 38:5, 2007, 356-361, 9.10
FFF #270. Maximizing an area, Ed Barbeau, 38:5, 2007, 375, F, 0.4
FFF #271. Two distributivity howlers, John A. Quintanilla, 38:5, 2007, 375-376, F, 5.2.1
How to Measure Angles with a Ruler, Travis Kowalski, 39:4, 2008, 273-279, 0.4
FFF #287. Criticizing a critical point, Ollie Nanyes, 39:5, 2008, F, 383, 5.3.2
FFF #288. Maximizing a rational function, Ed Barbeau, 39:5, 2008, 385-386, F, 9.5
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Minimal Solutions to the Box Problem, Jer-Chin (Luke) Chuang, 40:5, 2009, 354-360, 9.3
Dogs Don't Need Calculus, Michael Bolt and Daniel C. Isaksen, 41:1, 2010, 10-16, 0.2, 9.5
The Hardest Straight-In Pool Shot, Rick Mabry, 41:1, 2010, 49-56, 0.6, 9.5
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Teaching Tip: A Slippery Slope, R. A. Beauregard, 42:3, 2011, 206, C
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Teaching Tip: Consider a Circular Cow, Ezra Halleck, 43:2, 2012, 133, C
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Slouching in the Rain, Herb Bailey, 44:2, 2013, 136-138, C, 9.10
Truck Versus Human: Mathematics Under Pressure, Elizabeth Field, Rachael Ivison, Amanda Reyher, and Steven Warner, 45:2, 2014, 116-120, 9.10
Integer Solutions to Box Optimization Problems, Vincent Coll, Jeremy Davis, Martin Hall, Colton Magnant, James Stankewicz, and Hua Wang, 45:3, 2014, 180-190, 9.3
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Proof Without Words: The Triangle with Maximum Area for a Given Base and Perimeter, Angel Plaza, 48:1, 2017, 51, C, 0.3, 0.5
Optimizing Prisms of All Shapes and Dimensions, Maria Nogin, 48:3, 2017, 199-203, 5.2.7
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The Geometer Dog Who Did Not Know Calculus, Alda Carvalho, Carlos Pereira dos Santos, and Jorge Nuno Silva, 48:5, 2017, 339-345, 0.4, 9.10
The Calculus Behind Generic Drug Equivalence, Stanley R. Huddy and Michael A. Jones, 49:1, 2018, 2-9, 5.2.6, 5.2.10, 5.3.4
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Calculus with Curtains, Tom Richmond, 49:5, 2018, 369-370, C
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The Quadratic Polynomial and Its Zeroes, C. A. Long, 3:1, 1972, 23-29, 0.7, 9.5
Graphing a Cubic Using Calculus and a Computer, Roland E. Larsen, 6:1, 1975, 32-40, 0.7
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A Flexible Model for Peak, Ridge, and Pass, Cliff Long, 7:3, 1976, 16-17
Discovering a Calculus Theorem, John Taylor Varner III, 8:5, 1977, 304, C
Income Tax Averaging and Convexity, Michael Henry and G. E. Trapp, Jr., 15:3, 1984, 253-255, C, 0.8, 5.7.1, 9.5
Geometrically Asymptotic Curves, Dan Kalman, 16:3, 1985, 199-206, 9.5
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A Guide to Computer Algebra Systems, John M. Hosack, 17:5, 1986, 434-441, 0.2, 4.1, 5.1.2, 5.2.3, 5.2.4, 5.2.5
Problem Solving Using Microcomputers, Franklin Demana and Bert Waits, 18:3, 1987, 236-241
Pitfalls in Graphical Computation, or Why a Single Graph Isn't Enough, Franklin Demana and Bert K. Waits, 19:2, 1988, 177-183, 0.6
Parameter-generated Loci of Critical Points of Polynomials, F. Alexander Norman, 19:3, 1988, 223-229, 0.7, 9.5
Teaching with CAL: A Mathematics Teaching and Learning Environment, James E. White, 19:5, 1988, 424-443, 1.2
Graphing the Complex Zeros of Polynomials Using Modulus Surfaces, Clff Long and Thomas Hern, 20:2, 1989, 98-105, 0.7, 9.5
The Curious Fate of an Applied Problem, Alan H. Schoenfeld, 20:2, 1989, 115-123, 8.3, 9.5
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Calculus Quiz, David P. Kraines and Vivian Y. Kraines and David A. Smith, 20:5, 1989, 437-438, C, 1.2
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Quick Function Evaluation, Daniel S. Yates, 21:1, 1990, 51, C, 0.2
The Function sin x / x, William B. Gearhart and Harris S. Shultz, 21:2, 1990, 90-99, 2.2, 5.1.2
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Positivity from Evaluation of a Single Point, Henry Mark Smith, 22:3, 1991, 230-231, C, 0.2
Using Computer Graphics to Help Analyze Complicated Functions, Paul B. Massell, 22:4, 1991, 327-331, 5.1.4
Graphs of Rational Functions for Computer Assisted Calculus, Stan Byrd and Terry Walters, 22:4, 1991, 332-334, C
Individualized Computer Investigations for Calculus, Sheldon P. Gordon, 23:5, 1992, 426, C, 0.7, 5.1.4
Does a Parabola Have an Asymptote?, David Bange and Linda Host, 24:4, 1993, 331-342, 5.1.1, 5.6.1
Computer-Aided Delusions, Richard L. Hall, 24:4, 1993, 366-369
FFF #75. The Wilting Lines, Randall K. Campbell-Wright, 25:3, 1994, 223, F (also 26:4, 1995, 304)

Using the Sign Function to Analyze Graphs, Richard J. Pulskamp and William J. Larkin III, 25:4, 1994, 327-328, C

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FFF #181. Finding Asymptotes, Carl Libis, 32:5, 2001, 366, F, 0.2

FFF #230. The function y = x^(6/7) has a node at the origin, Robert J. MacG. Dawson, 35:5, 2004, 383-384, F

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Spraying a Wall with a Garden Hose, James Alexander, 36:2, 2005, 149-152, C, 9.10

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Saddle Points and Inflection Points, Felix Martinez de la Rosa, 38:5, 2007, 380-383, C, 5.2.1

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5.2 Integration

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Evaluating the integral from a to b of x^k dx Where k Is Any Negative Integer Other Than -1, Norman Schaumberger, 4:2, 1973, 91-93, C

Some Comments on the Exceptional Case in a Basic Integral Formula, Norman Schaumberger, 5:3, 1974, 58, C, 5.3.2

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Inverse Functions, Ralph P. Boas, 16:1, 1985, 42-47, 5.3.2, 5.4.2
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Two Simple Recursive Formulas for Summing 1^k + 2^k + ... + n^k, Michael Carchidi, 18:5, 1987, 406-409, C, 6.3
FFF #6. Cauchy's Negative Definite Integral, Ed Barbeau, 20:3, 1989, 226, F (also 20:4, 1989, 318)
Riemann Integral of cos x, John H. Mathews and Haines S. Schultz, 20:3, 1989, 237, C
FFF #8. A Positive Vanishing Integral, Ed Barbeau, 20:4, 1989, 317, F (also 20:5, 1989, 404)
Sums and Differences vs. Integrals and Derivatives, Gilbert Strang, 21:1, 1990, 20-27
Teaching Riemann Sums Using Computer Symbolic Algebra Systems, John H. Mathews, 21:1, 1990, 51-55, C, 5.2.2
Using the Finite Difference Calculus to Sum Powers of Integers, Lee Zia, 22:4, 1991, 294-300, 5.4.1, 5.4.2
Physical Demonstrations in the Calculus Classroom, Tom Farmer and Fred Gass, 23:2, 1992, 146-148, C, 1.2, 6.1
How Should We Introduce Integration?, David M. Bressoud, 23:4, 1992, 296-298, 1.2
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The Point-Slope Formula Leads to the Fundamental Theorem of Calculus, Anthony J. Macula, 26:2, 1995, 135-139, C
The Rental Car Problem, Gary D. White and Kirby Smith, 27:5, 1996, 374-378, C, 5.1.4
An Example Demonstrating the Fundamental Theorem of Calculus, Bob Palais, 29:4, 1998, 311-312, C
FFF #150. Average chord length, Bernard C. Anderson, 30:4, 1999, 306-307, F
Things I Have Learned at the AP Reading, Dan Kennedy, 30:5, 1999, 346-355, 0.2, 5.1.1, 5.1.2, 5.2.6, 5.4.2, 6.1
Barrow's Fundamental Theorem, Jack Wagner, 32:1, 2001, 58-59, C, 0.3
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The Depletion Ratio, C. W. Groetsch, 39:1, 2008, 43-48, 5.1.1, 9.10
FFF #274. The generality of the trapezoid rule, M. A. Khan, 39:1, 2008, 50, F, 5.2.2
Sledge-Hammer Integration, Henry F. Ahner, 40:1, 2009, 6-9, 5.2.2
Computing Definite Integrals using the Definition, Jim Hartman, 41:1, 2010, 58-60, C
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Teaching Tip: Is This Integral Zero?, Ken Luther, 42:5, 2011, 373, C, 5.7.2
A Power Rule Proof without Limits, Colin Day, 44:4, 2013, 323-324, C

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Area of a Circle via the Second Fundamental Theorem of Calculus, Denis Bell, 46:4, 2015, 299, C, 5.2.6
A Note on the Fundamental Theorem of Calculus, Zengxiang Tong, 46:5, 2015, 367-368, C, 5.2.9
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A Riemann Sum Approach to Buffon's Needle, Stephen Kaczkowski, 50:2, 2019, 93-102, 7.2, 7.3
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Visualization of the Riemann-Stieltjes Integral, Trienko Grobler, 50:3, 2019, 198-209, 5.2.9, 9.5
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5.2.2 Numerical integration

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Calculus by Mistake, Louise S. Grinstein, 5:4, 1974, 49-53, C, 5.1.2, 5.1.4, 5.2.3, 5.2.5, 5.2.10, 5.4.2, 5.6.1, 5.7.2
An Integral Approximation Exact for Fifth-Degree Polynomials, Burt M. Rosenbaum, 7:3, 1976, 10-14, 9.6
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Calculator-Demonstrated Math Instruction, George McCarty, 11:1, 1980, 42-48, 5.1.1, 5.4.2, 9.6
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Behold! The Midpoint Rule is Better than the Trapezoidal Rule for Concave Functions, Frank Burk, 16:1, 1985, 56, C
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Numerical Integration via Integration by Parts, Frank Burk, 17:5, 1986, 418-422, C, 5.2.5
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Archimedes' Quadrature and Simpson's Rule, Frank Burk, 18:3, 1987, 222-223, C
A Clamped Simpson's Rule, James A. Uetrecht, 19:1, 1988, 43-52, 9.6
Applications of Transformation to Numerical Integration, Chris W. Avery and Frank D. Soler, 19:2, 1988, 166-168, C
Teaching Riemann Sums Using Computer Symbolic Algebra Systems, John H. Mathews, 21:1, 1990, 51-55, C, 5.2.1
Circumference of a Circle—The Hard Way, David P. Kraines and Vivian Y. Kraines and David A. Smith, 21:2, 1990, 142-144, C, 5.2.10
Determining Sample Sizes for Monte Carlo Integration, David Neal, 24:3, 1993, 254-259, C, 7.3, 9.10
Cubic Splines from Simpson's Rule, Nishan Krikorian and Mark Ramras, 27:2, 1996, 124-126, C, 9.6
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Estimating Large Integrals: The Bigger They Are, The Harder They Fall, Ira Rosenholtz, 32:5, 2001, 322-329, 9.6
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Haste Makes Waste: An Optimization Problem, William Q. Erikson, 53:2, 2022, 122-133, 5.1.4, 5.1.5, 5.2.1, 9.10

5.2.3 Change of variable (substitution)

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Formal Integration: Dangers and Suggestions, S. K. Stein, 5:1, 1974, 1-7, 5.2.8
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Another Approach to the integral of sec x dx, Norman Schaumberger, 10:3, 1979, 202, C
A Standard Integral Formula, R. S. Luthar, 12:5, 1981, 329-330, C
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Lattices of Trigonometric Identities, William E. Rosenthal, 20:3, 1989, 232-234, C, 0.6
A Direct Proof of the Integral Formula for Arctangent, Arnold J. Insel, 20:3, 1989, 235-237, C, 5.1.2, 5.2.6
Four Crotchets on Elementary Integration, Leroy F. Meyers, 22:5, 1991, 410-413, C, 5.2.5, 5.3.2, 6.1
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Does What Goes Up Take the Same Time to Come Down?, P. Glaister, 24:2, 1993, 155-158, C, 9.10
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FFF #102. Why Integrate?, James C. Kirby, 27:2, 1996, 118, F (see also Donald E. Hooley, 35:1, 2004, 42)
Antiderivative Formulas, Jingcheng Tong, 29:1, 1998, 32, C
The Average Distance of the Earth from the Sun, David Deever, 30:3, 1999, 218-220, C, 0.5, 5.2.8
FFF #165. Two separate answers?, Ken Taylor, 31:5, 2000, 396, F, 5.2.5
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FFF #281. Making an integrand completely imaginary, John K. Osoinach, 39:4, 2008, 299, F
FFF #284. A funky change of variables, Allen J. Schwenk, 39:5, 2008, 382, F
Four Ways to Skin a Definite Integral, Joseph B. Dence and Thomas P. Dence, 41:2, 2010, 134-144, 5.2.4, 9.5
Teaching Tip: Practice Integration on Problem Triplets, Meg B. Huddleston, 42:3, 2011, 214, C, 5.2.4, 5.2.5
A Fifth Way to Skin a Definite Integral, Satyanand Singh, 43:5, 2012, 377-378, 5.2.4, 5.2.10
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Further Integral Skinning with Applications, Roger B. Nelsen, 49:5, 2018, 327-332, 5.2.4, 5.2.5, 5.2.9, 5.2.10
An Unorthodox Approach to Skinning a Definite Integral, Yusuf Z. Gurtas, 53:2, 2022, 134-139, 5.2.4, 5.2.5, 5.2.10, 9.5

5.2.4 Partial fraction decomposition

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5.4 Sequences and series

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5.4.2 Numerical series (convergence tests and summation)

Encouraging Mathematical Inquisitiveness, Carl L. Main, 1:1, 1970, 32-36, 5.2.2
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Calculator-Demonstrated Math Instruction, George McCarty, 11:1, 1980, 42-48, 5.1.1, 5.2.2, 9.6
An Investment Approach to Geometric Series, Robert Donaghey and Warren Gordon, 11:2, 1980, 120-121, C
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Taxes on Taxes, Thomas E. Eisner, 13:4, 1982, 266-269
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A Case of True Interest, Soo Tang Tan, 17:3, 1986, 247-248, C, 0.8
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Generating Functions, William Watkins, 18:3, 1987, 195-211, 6.3, 9.3
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Sum of Alternating Series (proof by picture), Guanshen Ren, 26:3, 1995, 213, 0.9
Divergence of a Series (by picture), Sidney H. Kung, 26:4, 1995, 301, C
Sums of General Geometric Series (by picture), John Mason, 26:5, 1995, 381, C
FFF #106. The Derivative of the Sum Is the Sum of the Derivatives, Ed Barbeau, 27:4, 1996, 282, F

Bargaining Theory, or Zeno's Used Cars, James C. Kirby, 27:4, 1996, 285-286, C, 6.3
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FFF #141. Evaluation of a Sum, Joe Howard, 30:2, 1999, 130-131, F
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FFF #182. New exponent laws, Carl Libis, 33:1, 2002, 38, F
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An Application of Condensation, Sidney Kung, 33:2, 2002, 168, C
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FFF #200. A lopsided interval of convergence, Ed Barbeau, 34:1, 2003, 50, F
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A Visual Approach to Geometric Series, Beata Randrianantoanina, 35:1, 2004, 43-47, C
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Another Proof for the *p*-Series Test, Yang Hansheng and Bin Lu, 36:3, 2005, 235-237, C
In Need of Analysis, Kevin Ferland, 26:5, 2005, 365, C
Series for the Square Root of 2, Sidney Kung, 36:5, 2005, 387, C
FFF #245. The harmonic series converges, Hongwei Chen, 37:1, 2006, 40-41, F
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The Divergence of Balanced Harmonic-like Series, Carl V. Lutzer and James E. Marengo, 37:5, 2006, 364-369
Another Look at Some *p*-Series, Ethan Berkove, 37:5, 2006, 385-386, C
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On the Convergence of Some Modified *p*-Series, Dongling Deng, 38:3, 2007, 223-225, C
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Squaring a Circular Segment, Russell A. Gordon, 39:3, 2008, 212-220, 0.4, 9.6
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Proof Without Words: An alternating Series, Roger B. Nelsen, 43:5, 2012, 370, C
A New Ratio Test for Positive Monotone Series, Hongwei Chen, 44:2, 2013, 139-141, C, 9.5
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Rankings Over Time, Michael A. Jones, Alexander Webb, and Jennifer Wilson, 47:4, 2016, 242-248, 9.2, 9.8
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Euler's Sine Product Formula: An Elementary Proof, David Salwinski, 49:2, 2018, 126-135, 5.2.5, 5.3.3, 9.5
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Riemann Sums for Generalized Integrals, Jean-Paul Truc, 50:2, 2019, 123-132, 5.2.1, 5.2.9, 5.2.10, 8.4
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Randomly Generated Identities, David Treeby, 51:2, 2020, 90-94, 3.2, 7.2
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Geometric Series in an Equilateral Triangle – Three Proofs Without Words, 51:5, 2020, Stephan Berenkonk, 385, C, 0.4
Atypical Series Representations of Riemann-Integrable Functions, Andrzej Piotrowski, 52:1, 2021, 31-38, 5.2.9, 9.5, 9.6
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An Elementary Derivation of the Duration of Play in the Gambler's Ruin Problem, Greg Orosi, Ricardo Alfaro, Lixing Han & Kenneth Schilling, 52:4, 2021, 299-301, C, 7.1, 7.2
Tetration: Iterative Enjoyment, Abe Edwards & Brielle Komosinski, 53:3, 2022, 209-219, 0.2, 5.3.2, 9.5

5.4.3 Taylor polynomials and power series

Uniqueness of Power Series Representations, Garfield C. Schmidt, 12:1, 1981, 54-56, C, 9.5
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More on the Series for ln 2, Leonard Gillman, 19:3, 1988, 252-253, C
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Who Needs the Sine Anyway?, Carlos C. Huerta, 23:1, 1992, 43-44, C

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FFF #83. Power Series Thinning, David Rose, 26:1, 1995, 35, F (also 26:5, 1995, 384)

Newton's Method for Resolving Affected Equations, Chris Christensen, 27:5, 1996, 330-340, 0.7, 5.1.2

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Teaching Tip: An Introduction to e^{ix} without Series, James Tanton, 39:1, 2008, 23, C, 5.3.2, 6.1

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5.5 Vector algebra and geometry (including 2x2 and 3x3 determinants)

Correlation—A Vector Approach, Kenneth R. Kundert, 11:1, 1980, 52, C, 7.3
A Note on the Vector Triple Product, Thomas A. McCullough, 11:3, 1980, 206-207, C
From an Inequality to Inversion, Man-Keung Siu, 12:2, 1981, 149-151, C, 0.4
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Tetrahedra, Skew Lines and Volume, James Smith and Mason Henderson, 16:2, 1985, 138-140, C
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Formulas of Linear Geometry, Heinrich W. Guggenheimer, 27:1, 1996, 24-32
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The Self-Limiting Partisan Gerrymander: An Optimization Approach, Jeff Suzuki, 45:5, 2014, 338-348, 9.5, 9.9

The Settlers of Catan: Using Settlement Placement Strategies in the Probability Classroom, Jathan Austin and Susanna Molitoris-Miller, 46:4, 2015, 275-282, 7.2

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The Sticker Collector's Problem, M. A. Diniz, D. Lopes, A. Polpo, and L. E. B. Salasar, 47:4, 2016, 255-263, 9.2, 9.10

Horse Racing Odds: Can You Beat the Track by Hedging Your Bets?, Joel Pasternack and Stewart Venit, 47:4, 2016, 275-280, 4.1, 9.2

The FA Cup Draw and Pairing Up Probabilities, Patrick Sullivan, 47:4, 2016, 282-292, 3.2, 9.2

The Generalized Birthday Problem, Stephen Scheinberg, 47:4, 2016, 294-296, C, 9.3

Algebraic Characterization of Two Independent Events, Armen Bagdasaryan and Josep Batle, 47:5, 2016, 367-368, C

The Bizarre World of Nontransitive Dice: Games for Two or More Players, James Grime, 48:1, 2017, 2-9, 7.1, 9.2

Balanced Nontransitive Dice, Alex Schaefer and Jay Schweig, 48:1, 2017, 10-16, 3.3, 7.1, 9.2

Two Short Proofs of the Infinitude of Primes, Sam Northshield, 48:3, 2017, 214-216, C, 5.4.1, 9.3

Carcassonne in the Classroom, Mindy Capaldi and Tiffany Kolba, 48:4, 2017, 265-273, 9.2

Bet(ch)a my Team Wins the Playoffs, Roger W. Johnson, 48:5, 2017, 347-353, 3.2

Fakin' Flips, C. Ray Rosentrater, 49:3, 2018, 201-204

Derivation of the Black-Scholes Equation from Basic Principles, Granville Sewell, 49:3, 2018, 212-215, 6.6, 9.10

Normal Limit of the Binomial via the Discrete Derivative, Ajoy Thamattoor, 49:3, 2018, 216-217, C, 5.1.2

It's Puzzling, C. Douglas Howard, 49:4, 2018, 242-249, 4.7, 9.2, 9.10

Strange Spinners and Diversity of Dice in Chutes and Ladders, Erin Frasetto, Michael Gableman, McKenzie Lamb, Tyler Shimek, and Andrea Young, 49:4, 2018, 251-260, 3.2, 4.7, 9.2, 9.10

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A Simple Probability Paradox, Timothy McDevitt and Angela Wesneski, 49:4, 2018, 292-294, C, 7.1, 9.2

The Probability of Winning a Racquetball Game with Deuce, Poontarika Khotmongkon, Nahahai Rerkruthairat, Sujittra Suriwong, and Kornkanok Watcharakarn, 49:5, 2018, 353-358, 9.2

A Birthday in St. Petersburg, Enrique Trevino, 50:1, 2019, 36-40, 3.2

A Riemann Sum Approach to Buffon's Needle, Stephen Kaczkowski, 50:2, 2019, 93-102, 5.2.1, 7.3

The n-Children Problem, John Engbers and Adam Hammett, 49:4, 2019, 242-249, 9.2

Developing an Optimal Strategy for a Maximization Dice Game, Kevin L. T. Chan and Wai-Sum Chan, 49:4, 2019, 272-279, 7.1, 9.2, 9.10

Modeling Emergency Room Arrivals Using the Poisson Process, Lindsey Bell and Rachel Wagner, 49:5, 2019, 343-350, 7.3, 9.10

Triangle Inscribed-Triangle Picking, Arman Maesumi, 49:5, 2019, 364-371, 0.4, 9.7, 9.10

Randomly Generated Identities, David Treeby, 51:2, 2020, 90-94, 3.2, 5.4.2

To Replace or Not to Replace – That is the Question, John Engbers and Adam Hammett, 51:2, 2020, 117-123, 7.3
The Proportion of Comets in the Card Game SET, Dan May and Dan Swenson, 51:3, 2020, 162-172, 3.2, 4.3, 6.3, 9.1, 9.2, 9.4
Chance Encounters with Large Polynomials, Brian D. Jones, 51:3, 2020, 174-181, 0.2, 3.2
How to Win at Tenzi, Steve Bacinski and Timothy Pennings, 51:4, 2020, 242-253, 4.1, 7.1, 9.2, 9.9
Some Probability Calculations Concerning the Egyptian Game Senet, Joaquim Noqueira, Fatima Rodrigues, and Luis Trabucho, 51:4, 2020, 271-283, 5.2.6, 9.10
A Tour of Discrete Probability Guided by a Problem in Genomics, Leonid Hanin, 51:4, 2020, 284-294, 3.2, 9.10
When Rooks Miss: Probability Through Chess, Stephen J. Miller, Haoyu Sheng & Daniel Turek, 52:2, 2021, 82-93, 3.2, 5.1.1, 7.3, 9.2, 9.10
The Sock Problem Revisited, William Paulsen, 52:3, 2021, 193-203, 3.1, 3.2, 5.4.1, 6.3, 9.6
An Unusual Recursive Formula to Answer a Question Regarding Fixed Points in Permutations, Melanie Tian & Enrique Trevino, 52:3, 2021, 219-220, C, 3.2, 6.3
Parking Functions: Choose Your Own Adventure, Joshua Carlson, Alex Christensen, Pamela E. Harris, Zakiya Jones & Andrés Ramos Rodríguez, 52:4, 2021, 254-26, 3.2, 9.2
Classroom and Computational Investigations of Camel Up, Thomas J. Clark, 52:4, 2021, 289-296, 7.1, 9.2, 9.10
An Elementary Derivation of the Duration of Play in the Gambler's Ruin Problem, Greg Orosi, Ricardo Alfaro, Lixing Han & Kenneth Schilling, 52:4, 2021, 299-301, C, 5.4.2, 7.1

7.3 Statistics (also see 9.10)

Cauchy's Inequality and the Least Squares Line, William Stenger, 6:1, 1975, 2-4
Random Charity: A Stochastic Sieving Problem and its Connection with the Euclidean Algorithm, Roland Engdahl and Karl Greger, 6:4, 1975, 4-9
Statistical Inference for the General Education Student—It Can Be Done, Allen H. Holmes, Walter Sanders and John LeDuc, 8:4, 1977, 223-230
The Use of Sports Data for Integrating Topics in Introductory Statistics, Robert L. Heiny, 9:1, 1978, 28-33
Classroom Demonstration of a Confidence Interval, Wayne Andrepont and Peter Dickinson, 9:1, 1978, 34-36
The Range of the Standard Deviation, Lawrence Sher, 10:1, 1979, 33, C
How Close are the Mean and the Median?, Stephen A. Book, 10:3, 1979, 202-204, C
An Expected Value Problem, Harris S. Schultz, 10:4, 1979, 277-278, C
Why n-1 in the Formula for the Sample Standard Deviation?, Stephen A. Book, 10:5, 1979, 330-333
Bounds for the Sum of Absolute Standard Scores, Lawrence Sher, 10:5, 1979, 351-353, C
Correlation—A Vector Approach, Kenneth R. Kundert, 11:1, 1980, 52, C, 5.5
An Expected Value Problem Revisited, W. J. Hall, 11:3, 1980, 204-205
An Analytic Geometry Approach to the Least Squares Line of Best Fit, Stewart Venit and Richard Katz, 11:4, 1980, 270-272, C, 0.5
A Bound for Standard Scores, Lawrence Sher, 11:2, 1980, 334-335, C
A Mean Generating Function, Jack C. Slay and J. L. Solomon, 12:1, 1981, 27-29, 5.1.2
Partial and Semipartial Correlation—A Vector Approach, John Huber, 12:2, 1981, 151-153, C
Another Look at the Mean, Median, and Standard Deviation, Ruma Falk, 12:3, 1981, 207-208, C
Bounds for the Ratio of the Arithmetic Mean to the Geometric Mean, M. Perisastry and V. N. Murty, 13:2, 1982, 160-161, C
Nearness Relations Among Measures of Central Tendency and Dispersion: Part 1, Warren Page and V. N. Murty, 13:5, 1982, 315-326

Nearness Relations Among Measures of Central Tendency and Dispersion: Part 2, Warren Page and V. N. Murty, 14:1, 1983, 8-17
Another Proof of the Inequality (n^2)(sigma)^2 < (n^2/4)(R^2), V. N. Murty and M. Perisastry, 14:1, 1983, 61-63, C
Interfractile Ranges, Warren Page, 14:2, 1983, 170-172, C
Uncertainty in Science and Statistics, Clifford H. Wagner, 14:4, 1983, 360-363
Computer Simulations to Clarify Key Ideas of Statistics, Thomas Kersten, 14:5, 1983, 416-420
Some Breakthroughs in Statistical Methodology, Herbert Robbins, 15:1, 1984, 25-29
On the Mean and Standard Deviation of a Random Sample, Vedula N. Murty, 15:1, 1984, 60-62
A Geometrical Interpretation of the Weighted Mean, Larry Hoehn, 15:2, 1984, 135-139, 0.2, 0.4
The Electronic Spreadsheet and Mathematical Algorithms, Deane E. Arganbright, 15:2, 1984, 148-157, 4.1, 5.4.1, 9.6
On the Natural Density of the Niven Numbers, Robert E. Kennedy and Curtis N. Cooper, 15:4, 1984, 309-312, 9.3
Accurate Computation of Variance, Jerry A. Roberts, 16:2, 1985, 149-150
Instances of Simpson's Paradox, Thomas R. Knapp, 16:3, 1985, 209-211, C, 0.2
The Probability that the "Sum of the Rounds" Equals the "Round of the Sum", Roger B. Nelsen and James E. Schultz, 18:5, 1987, 390-396, 7.2, 9.10
Should Mathematicians Teach Statistics?, David S. Moore, 19:1, 1988, 3-7, 1.2
Should Mathematicians Teach Statistics? (Response), A. Blanton Godfrey, 19:1, 1988, 8-32, 1.2
No! But Who Should Teach Statistics?, Judith Tanur, 19:1, 1988, 8-32, 1.2
Statistics Teachers need Experience With Data, R. Gnanadesikan and J. R. Kettenring, 19:1, 1988, 8-32, 1.2
The Mathematicians' Statistics Has a Subsidiary Role, Barbara A. Bailar, 19:1, 1988, 8-32, 1.2
Growth and Advances in Statistics, Frederick Mosteller, 19:1, 1988, 8-32, 1.2
Statistician, Examine Thyself, Gudmund R. Iversen, 19:1, 1988, 8-32, 1.2
It's Not "By Whom" But Rather "How", John E. Freund, 19:1, 1988, 8-32, 1.2
The Need for Good Teaching of Statistics, Henry L. Alder, 19:1, 1988, 8-32, 1.2
Let the Experts Teach and Judge, David L. Hanson, 19:1, 1988, 8-32, 1.2
Who Teaches What to Whom?, Michael Reed, 19:1, 1988, 8-32, 1.2
What Should the Introductory Statistics Course Contain?, Gerald J. Hahn, 19:1, 1988, 8-32, 1.2
Mathematics is Only One Tool that Statisticians Use, Ronald D. Snee, 19:1, 1988, 8-32, 1.2
Reaction to Responses to "Should Mathematicians Teach Statistics?", David S. Moore, 19:1, 1988, 32-34, 1.2
Readers' Responses to the January 1988 Forum: "Should Mathematicians Teach Statistics?", Joseph B. Kadane and William A. Golomsky and Daniel A. Sankowsky and Benjamin M. Perles, 19:2, 1988, 164-165, 1.2
Theory, Simulation and Reality, Peter Flusser, 19:3, 1988, 210-222, 9.10, 7.2
Using Leverage and Influence to Introduce Regression Diagnostics, David C. Hoaglin, 19:5, 1988, 387-401
Conditional Expectations and the Correlation Function, Barthel W. Huff, 20:1, 1989, 55-57, C
A Note on Pascal's Triangle and Simple Random Sampling, Tommy Wright, 20:1, 1989, 59-66
Using Median Splits to Motivate Learning, David P. Doane, 20:3, 1989, 228-229, C
Sensitive Questions and Randomized Response Techniques, Kenneth R. Kundert, 20:5, 1989, 409-411, C
The Longest Run of Heads, Mark F. Schilling, 21:3, 1990, 196-207
Bernoulli Trials and the Central Limit Theorem, David P. Kraines and Vivian Y. Kraines and David A. Smith, 21:5, 1990, 415-416, C
Using Simulation to Study Linear Regression, LeRoy A. Franklin, 23:4, 1992, 290-295, 9.10
Least Squares and Quadric Surfaces, Donald Teets, 24:3, 1993, 243-244, C, 5.7.1, 5.6.2
Determining Sample Sizes for Monte Carlo Integration, David Neal, 24:3, 1993, 254-262, C, 5.2.2, 9.10
Quadratic Confidence Intervals, Neil C. Schwertman and Larry R. Dion, 24:5, 1993, 453-457, C

Chebyshev's Theorem: A Geometric Approach, Pat Touhey, 26:2, 1995, 139-141, C
MAD Property of Medians: An Induction Proof, Eugene F. Schuster, 26:5, 1995, 387-389, C, 0.9
Will the Real Best Fit Curve Please Stand Up?, Helen Skala, 27:3, 1996, 220-223, C, 5.7.1
What is the Margin of Error of a Poll?, Bennett Eisenberg, 28:3, 1997, 201-203, C
Student's t and Crackers, Paul M. Sommers, 30:1, 1999, 32-34
Recommendations for Teaching the Reasoning of Statistical Inference, Allan Rossman and Beth Chance, 30:4, 1999, 297-305, 1.1
Getting Normal Probability Approximations Without Using Normal Tables, Peter Thompson and Lorrie Lendvoy, 31:1, 2000, 51-54, C
The Super Bowl Theory: Fourth and Long, Paul Sommers, 31:3, 2000
The Geometry of Statistics, David Farnsworth, 31:3, 2000, 200-204
t-Probabilities as Finite Sums, Neil Eklund, 31:3, 2000, 217-218, C
The Lognormal Distribution, Brian E. Smith and Francis Merceret, 31:4, 2000, 259-261
Food and Drug Interaction: What Role Does Statistics Play?, Thomas Bradstreet, 31:4, 2000, 268-273
Well-Rounded Figures, Yves Nievergelt, 32:1, 2001, 30-32, 9.6
The Average Speed on the Highway, Larry Clevenson, Mark Schilling, Ann Watkins, and William Watkins, 32:3, 2001, 169-171
Is Presidential Greatness Related to Height?, Paul M. Sommers, 33:1, 2002, 14-16
Symmetric or Skewed?, Joseph G. Eisenhauer, 33:1, 2002, 48-51, C
Winning Games in Canadian Football: A Logistic Regression Analysis, Keith A. Willoughby, 33:3, 2002, 215-220
Almost-Binomial Random Variables, Peter Thompson, 33:3, 2002, 235-237, C
Chasing Hank Aaron's Home Run Record, Steven P. Bisgaier, Benjamin S. Bradley, Peter D. Harwood, and Paul M. Sommers, 33:4, 2002, 293-295
Observations on the Indeterminacy of the Sample Correlation Coefficient, Owen Byer, 33:4, 2002, 316-318, C
Baseball's All-Stars: Birthplace and Distribution, Paul M. Sommers, 34:1, 2003, 24-30
A Calculus Theorem Motivated by a Statistics Problem, David L. Farnsworth, 35:2, 2004, 126-129, C
FFF. Teenagers, Sex and Accidents, Joseph G. Eisenhauer, 35:3, 2004, 213-214, F
A Quick Proof that the Least Squares Formulas Give a Local Minimum, W. M. Dunn III, 36:1, 2005, 64-65, C, 5.7.1
A Painless Approach to Least Squares, Eric S. Key, 36:1, 2005, 65-67, C
A Recursive Formula for Moments of a Binomial Distribution, Arpad Benyi and Saverio M. Manago, 36:1, 2005, 68-72, C
The Sample Correlation Coefficient from a Linear Algebra Perspective, C. Ray Rosentrater, 37:1, 2006, 47-50, C, 4.3
An Elegant Mode for Determining the Mode, D. S. Broca, 37:2, 2006, 134-137, C
FFF #252. A snafu, Kenneth Schilling, 37:4, 2006, 290, F
Distortion of average class size: The Lake Wobegon effect, Allen Schwenk, 37:4, 2006, 293-296, C
More Mathematics in the Bedroom: A Paradoxical Probability, Paul K. Stockmeyer, 38:5, 2007, 339-344, 9.4
A Waiting-Time Surprise, Richard Parris, 39:1, 2008, 59-63, C
The Pearson and Cauchy-Schwarz Inequalities, David Rose, 39:1, 2008, 64, C, 5.5, 9.5
Average Perceived Class Size and Average Perceived Population Density, Clifford H. Wagner, 40:4, 2009, 284-287, C
Teaching Tip: The Median is a Balance Point, Mark Lynch, 40:4, 2009, 292, C
Correlation of the Union of Two Bivariate Data Sets, Robert A. Fontenot, 40:5, 2009, 370-373, C
An Upper Bound for the Expected Range of a Random Sample, Manuel Lopez and James Marengo, 41:1, 2010, 42-48
The Distribution of the Sum of Signed Ranks, Brian Albright, 43:3, 2012, 232-236
Suspense at the Ballot Box, Nat Kell and Matt Kretchmar, 44:1, 2013, 9-16, 7.2, 9.10

Gender Bias?, Elizabeth A. Burroughs and Jessica M. Deshler, 44:2, 2013, 88, C
Quiz Today: Should I Skip Class?, Peter Zizler, 44:3, 2013, 166-170
Seasonal Variation in Epidemiology, Osvaldo Marrero, 44:5, 2013, 386-398, 9.10
Student Research Project: About the Pace of Climate Change: Write a Report to the President, Lily Khadjavi, 44:5, 2013, 428-432, C, 5.1.5, 9.10
Calculus from a Statistics Perspective, Kimberly Leung, Chris Rasmussen, Samuel S. P. Shen, and Dov Zazkis, 45:5, 2014, 377-386, 5.1.2, 5.2.1
Predicting Wins and Losses: A Volleyball Case Study, Elizabeth Knapper and Hope McIlwain, 46:5, 2015, 352-358, 4.1, 9.10
Simplified Expectations in the Birthday Problem, Leonard Littleton and Russell May, 47:1, 2016, 50-55, 5.3.4, 5.4.3
Empirical Modeling: Choosing Models and Fitting Them to Data, Glenn Ledder, 47:2, 2016, 109-119, 9.10
Statistics on the Bonus Round of Wheel of Fortune, Kathleen Ryan and Brittany Shelton, 47:4, 2016, 250-253, 7.3, 9.2
Covariances Between Transient States in finite Absorbing Markov Chains, Michael A. Carchidi and Robert L. Higgins, 48:1, 2017, 42-50, 9.9
A Very Short Proof that the Sum of Independent Normal Random Variables Is Normal, Bennett Eisenberg, 48:2, 2017, 137, C
A Curious Feature of Regression, Carl V. Lutzer, 48:3, 2017, 189-198, 4.1
A Riemann Sum Approach to Buffon's Needle, Stephen Kaczkowski, 50:2, 2019, 93-102, 5.2.1, 7.2
The Choking Index: An Analysis of Performance Under Pressure on the PGA Tour, William W. Miles and Sammi E. Smith, 49:4, 2019, 260-271, 9.2
A Two-Dimensional Perspective on Simpson's Paradox and Its Likelihood, Michael A. Jones, 49:4, 2019, 295-297, C, 0.4, 9.2, 9.10
Modeling Emergency Room Arrivals Using the Poisson Process, Lindsey Bell and Rachel Wagner, 49:5, 2019, 343-350, 7.2, 9.10
To Replace or Not to Replace – That is the Question, John Engbers and Adam Hammett, 51:2, 2020, 117-123, 7.2
Extremal Correlation Coefficients for Bivariate Probability Distributions with Specified Marginal Distributions, Anurag Agarwal, David L. Farnsworth, Carl V. Lutzer, James E. Marengo, and J. A. Stephen Viggiano, 52:1, 2021, 45-53
When Rooks Miss: Probability Through Chess, Stephen J. Miller, Haoyu Sheng & Daniel Turek, 52:2, 2021, 82-93, 3.2, 5.1.1, 7.2, 9.2, 9.10
Statistical Significance of the Median of a Set of Points on the Plane, Antonio J. Moreno Verdejo, Abraham Lopez Viveros & Rafael Ramirez Ucles, 52:3, 2021, 205-218, 0.3, 0.4, 9.7
Proof Without Words: Convex Hulls and Jensen’s Inequality, Dennis L. Sun, 52:4, 2021, 298, C, 9.5
Optimal Pooling of COVID-19 Samples, Edward A. Roualdes and Neil C. Schwertman, 52:5, 2021, 380-384, 5.1.4
Correlation and Subtraction, Hanumant Singh Shekhawat, 53:3, 2022, 233-234, C

7.4 Software for probability and statistics

A Mathematics Software Database, R. S. Cunningham and David A. Smith, 17:3, 1986, 255-266, 0.10, 3.4, 4.8, 5.8, 6.7, 9.11
A Mathematics Software Database Update, R. S. Cunningham and David A. Smith, 18:3, 1987, 242-247, 0.10, 3.4, 4.8, 5.8, 6.7, 9.11
The Compleat Mathematics Software Database, R. S. Cunningham and David A. Smith, 19:3, 1988, 268-289, 0.10, 3.4, 4.8, 5.8, 6.7, 9.11
Software Reviews: *Activstats*, Norman Preston, 32:2, 2001, 138-140

SAGE: Open Source Mathematics Software System, reviewed by J. K. Denny, 44:2, 2013, 149-155, C, 4.8, 5.8, 6.7, 9.11
Statistics Web Apps, Anne Quinn, 48:5, 2017, 378-382

8 Computer Science

8.1 Programming and algorithms

Drawing the Line Segment Connecting Two Points, Harley Flanders, 18:1, 1987, 53-57, 0.4, 3.3
Enhancing the Value of Graphics Programs, Clifford H. Wagner, 18:2, 1987, 142-152, 8.3
Controlling Roundoff Errors in Sums, Harley Flanders, 18:2, 1987, 153-156, 9.6
Computing Pi, Harley Flanders, 18:3, 1987, 230-235, 5.2.3, 5.4.2
Fibonacci Numbers and Computer Algorithms, John Atkins and Robert Geist, 18:4, 1987, 328-336, 5.1.4, 6.3
Computing mth Roots, Keith Mathews, 19:2, 1988, 174-176
Sieving Primes on a Micro, Harley Flanders and Alan F. Tomala, 19:4, 1988, 364-367, 9.3
How Mathematicians Know What Computers Can't Do, Leon Harkleroad, 27:1, 1996, 37-42
CORDIC: Elementary Function Computation Using Recursive Sequences, Neil Eklund, 32:5, 2001, 330-333, 9.6
FFF #234. Multiplication algorithms, Yves Nievergelt, 39:2, 2008, 137-138, F, 0.1
The Tower and Glass Marbles Problem, Richard Denman, David Hailey, and Michael Rothenberg, 41:5, 2010, 350-356, 3.2
Winning a Pool is Harder Than You Thought, John P. Bonomo, 47:5, 2016, 347-354
Tactile Tools for Teaching: Implementing Knuth’s Algorithm for Mastering Mastermind, Thomas M. Fiore, Alexander Lang, and Antonella Perucca, 49:4, 2018, 278-286, 3.2, 9.1, 9.2
The Solution to a Hanoi-ing Little Problem, John P. Bonomo, 49:4, 2018, 288-291, 3.3, 6.3, 9.2

8.2 Data structures

Generating Posets, Harley Flanders, 18:4, 1987, 323-327, 9.4
The Flowering of String Rewriting Systems, Anne M. Burns, 23:3, 1992, 225-235, 8.3

8.3 Computer graphics

Enhancing the Value of Graphics Programs, Clifford H. Wagner, 18:2, 1987, 142-152, 8.1
Drawing a Circle, Harley Flanders, 19:1, 1988, 72-78
Parametric Surfaces, Harley Flanders, 19:5, 1988, 444-447, 5.6.1
The Curious Fate of an Applied Problem, Alan H. Schoenfeld, 20:2, 1989, 115-123, 5.1.5, 9.5
The Matrix of a Rotation, Roger C. Alperin, 20:3, 1989, 230, C, 4.3
Image Expansion in Integer Arithmetic, Mark Bridger, 22:5, 1991, 429-435
Calculus and Computer Vision, Mark Bridger, 23:2, 1992, 132-141, 5.7.1
The Flowering of String Rewriting Systems, Anne M. Burns, 23:3, 1992, 225-236, 8.2
Fireworks, J. M. A. Danby, 23:3, 1992, 237-240, C, 6.2
Complex Vectors and Image Identification, Lyndell Kerley and Jeff Knisley, 24:2, 1993, 166-174, 9.6
A Computer Lab for Multivariate Calculus, Casper R. Curjel, 24:2, 1993, 175-177, C, 1.2, 5.7.1
Making Mountains from a Sum of Molehills, Anne M. Burns, 26:1, 1995, 51-57
Modeling Trees with a Stochastic Matrix, Anne M. Burns, 29:3, 1998, 230-236, 3.1
Breaking the Holiday Inn Priority Club CAPTCHA, Edward Aboufadel, Julia Olsen, and Jesse Windle, 36:2, 2005, 101-108, 4.7, 9.10
The Barycenter Theorem: Averaging Possible-Paths to Produce Optimal Discrete Straight-line Segments, Robert M. French and Patrick Gehant, 50:2, 2019, 103-114, 3.2, 9.7

Fitting a Cubic Bezier to a Parametric Function, Alvin Penner, 50:3, 2019, 185-196, 5.5, 5.6.1, 5.7.3, 5.8, 9.6
Connected Subsets of an $n \times 2$ Rectangle, Samuel Durham and Tom Richmond, 51:1, 2020, 32-42, 3.2, 5.4.1, 9.7
Visualizing the Complex Roots of Quadratic and Cubic Polynomial Functions in Three Dimensions, Aniket Sanghi, 52:5, 2021, 373-379, 0.7, 5.1.5, 9.6

8.4 Other topics in computer science

Of Memories, Neurons, and Rank-One Corrections, Kevin G. Kirby, 28:1, 1997, 2-19, 4.6
Riemann Sums for Generalized Integrals, Jean-Paul Truc, 50:2, 2019, 123-132, 5.2.1, 5.2.9, 5.2.10, 5.4.2
Idempotent Factorizations in the Cryptography Classroom, Barry S. Fagin, 51:3, 2020, 195-203, 9.3

9 Other Topics

9.1 Set theory and logic (also see 0.9)

If...Some Suggestions on Presenting the Connector "if...then", Aaron Seligman, 1:2, 1970, 22-26, 0.9
Factoring Functions, J. C. Bodenrader, 2:1, 1971, 23-26, 0.6, 5.1.2, 3.2
Some Applications of the Law of the Contrapositive, Morton J. Hellman, 4:3, 1973, 86-88, C, 0.9
The Equivalence of the Well-Ordering Principle and Dirichlet's Box Principle, Aron Pinker, 5:1, 1974, 76-77, C
Who Dunnit?, Lawrence G. Gilligan and Robert B. Nenno, 5:1, 1974, 78-79, C
Godel's Theorem (Part I), Richard Wiebe, 6:2, 1975, 13-17
Godel's Theorem (Part II), Richard Wiebe, 6:3, 1975, 4-7
Mathematics—Is It Any of Your Business?, Ralph Mansfield, 6:3, 1975, 20-26, 3.1, 1.2
Solving Whodunits by Symbolic Logic, Lawrence Sher, 6:4, 1975, 36-38
On the Definition of Implication: Classroom Discussion and Justification, Ray F. Snipes, 8:4, 1977, 247-252, C
Types of Relations, Kenneth Slonneger, 8:5, 1977, 267-269
Boolean Algebra as a Proof Paradigm, Lawrence Sher, 9:3, 1978, 186-190
Analogies and Metaphors to Explain Godel's Theorem, Douglas R. Hofstadter, 13:2, 1982, 98-114
A Machine as Smart as God, Rudy Rucker, 13:2, 1982, 115-121, 2.2
The Asylum of Doctor Tarr and Professor Fether, Raymond Smullyan, 13:2, 1982, 142-146
Probabilistic Dependence Between Events, Ruma Falk and Maya Bar-Hillel, 14:3, 1983, 240-247, 7.2
A Computational Approach to Logical Statements, J. N. Boyd and P. N. Raychowdhury, 14:4, 1983, 326-341
Is the Venn Diagram Good Enough?, Mou-Liang Kung and George C. Harrison, 15:1, 1984, 48-50, 0.2
The Construction of Venn Diagrams, Branko Grunbaum, 15:3, 1984, 238-247
An Odd Induction Proof, Karl David, 15:3, 1984, 251, C
How to Live to be 100, Robert Geist, 15:4, 1984, 256-263
On Venn Diagrams and the Counting of Regions, Branko Grunbaum, 15:5, 1984, 433-435, C
Satan, Cantor, and Infinity, Raymond M. Smullyan, 16:2, 1985, 118-121
FFF #9. The Countability of the Reals, Ed Barbeau, 20:5, 1989, 403, F, 9.5 (also 21:1, 1990, 36 and 22:5, 1991, 405)
FFF # 10. The Uncountability of the Plane, Ed Barbeau, 20:5, 1989, 403-404, F, 9.5 (also 21:1, 1990, 36)
FFF #36. A Logical "Paradox", Ed Barbeau, 22:2, 1991, 132, F (also 23:3, 1992, 205)
FFF #40. Perron's Paradox, Ed Barbeau, 22:3, 1991, 221, F, 0.2 (also 23:3, 1992, 205 and 24:3, 1993, 231)
Programs for a Logic Course, Richard F. Maruszewski, Jr., 22:3, 1991, 235-240
FFF. Red Hats, Ed Barbeau, 22:4, 1991, 307, F

FFF. Equal Unions, Ed Barbeau, 23:4, 1992, 304-305, F
The Linear Transformation Associated with a Graph: Student Research Project, Irl C. Bivens, 24:1, 1993, 76-78, 3.1, 4.3
Using PROLOG in Discrete Mathematics, Antonio M. Lopez, Jr., 24:4, 1993, 357-365, 3.1, 3.4
FFF #93. An Invalid Argument, Annie Selden and John Selden, 27:1, 1996, 43-44, F
FFF #98. Doggedly Bisexual, Ed Catherall, 27:2, 1996, 116, F
A New Theorem on Cardinality, Charles J. Kicey, 30:1, 1999, 66, C
FFF. There are no contradictions, Theodore G. Ammon, 31:1, 2000, 48-49, F
A Game-Like Activity for Learnng Cantor's Theorem, Shay Gueron, 32:2, 2001, 122-125, C
Comment on *There are no contradictions*, Calvin Jongma, 32:3, 2001, 199-200, F
Comparing Sets of the Empty Set, Allen J. Schwenk, 33:3, 2002, 232-233, C, 9.5
Sets of Sets: A Cognitive Obstacle, Lawrence Brenton, 34:1, 2003, 31-38, 9.4
What Did Lincoln Really Mean?, Paul K. Stockmeyer, 35:2, 2004, 103-104
An Elementary Resolution of the Liar Paradox, James S. Walker, 35:2, 2004, 105-111
Mind Your $\forall$'s and $\exists$'s, Stephen M. Walk, 35:5, 2004, 362-369, 4.3
Mathematics in *War and Peace*, Arthur Neuman, 39:3, 2008, 202, C
Dinner Tables and Concentric Circles: A Harmony of Mathematics, Music, and Physics, Jack Douthett and Richard J. Krantz, 39:3, 2008, 203-211, 3.2, 9.10
Dependent Probability Spaces, William F. Edwards, Ray C. Shiflett, and Harris S. Shultz, 39:3, 2008, 221-226, 7.2
Two Applications of a Hamming Code, Andy Liu, 40:1, 2009, 2-5, 9.2, 9.3
Flaws, Fallacies, and Flimflam: The Limits of Reason, Andrea Rothbart, 42:4, 2011, 264, F
Is Parallelism an Equivalence Relation?, Andy Liu, 42:5, 2011, 372, C, 0.3
Sets, Planets, and Comets, Mark Baker, Jane Beltran, Jason Buell, Brian Conrey, Tom Davis, Brianna Donaldson, Jeanne Detorre-Ozeki, Leila Dibble, Tom Freeman, Robert Hammie, Julie Montgomery, Avery Pickford, and Justine Wong, 44:4, 2013, 258-264, 7.2, 9.2
Matroids on Groups?, Jeremy S. LeCrone and Nancy Ann Neudauer, 45:2, 2014, 121-128, 3.1, 3.2, 9.4
Story Puzzles, Oscar Levin, 45:4, 2014, 296, C, 9.2
Knights, Knaves, Normals, and Neutrals, Jason Rosenhouse, 45:4, 2014, 297-306, 9.2
A Powerful Method of Non-Proof, John Beam, 48:1, 2017, 52-54, C, 9.3
UFOs in the game SET: Looking for Airplanes and Spaceships, Jonathan Needleman and Felicia Sciortino, 48:4, 2017, 249-257, 3.2, 9.2, 9.7
Basic Theorems in the Language of Maximal Intervals, Haryono Tandra, 49:1, 2018, 41-45, 9.5
Can a Subset's Topology Detect Continuous Extensions?, Mike Krebs, 49:2, 2018, 138-139, C, 9.8
Tactile Tools for Teaching: Implementing Knuth's Algorithm for Mastering Mastermind, Thomas M. Fiore, Alexander Lang, and Antonella Perucca, 49:4, 2018, 278-286, 3.2, 8.1, 9.2
A Concise Proof of the Triangle Inequality for the Jaccard Distance, Artur Grygorian and Ionut E. Iacob, 49:5, 2018, 363-365
The Art of Logic in an Illogical World, Eugenia Cheng, 49:5, 2019, 385-388, Reviewed by Jean Marie Linhart, 10
Solving Knights-and-Knaves with One Equation, Francesco Ciraulo and Samuele Maschio, 51:2, 2020, 82-89, 9.2, 9.4, 9.10
The Proportion of Comets in the Card Game SET, Dan May and Dan Swenson, 51:3, 2020, 162-172, 3.2, 4.3, 6.3, 7.2, 9.2, 9.4
What's in the Bag?, Aaron Montgomery, 52:3, 2021, 177-184, 9.4, 9.5, 9.8
Puzzles of Cardinality, Oscar Levin & Tyler Markkanen, 52:4, 2021, 243-25, 9.2
Report on the 12th Annual USA Junior Mathematical Olympiad, Bela Bajnok & Evan Chen, 53:1, 2022, 13-20, 0.3, 3.2, 5.4.1, 9.2, 9.3, 9.5

9.2 Recreational mathematics (also see 7.1)

The Game of Sprouts, Gordon D. Prichett, 7:4, 1976, 21-25, 3.1
Connect-It Games, Frank Harry and Robert W. Robinson, 15:5, 1984, 411-419, 3.1
Pascal's Triangle, Karl J. Smith, 4:1, 1973, 1-13, 0.6, 3.2
Fibonacci Numbers and Pineapple Phyllotaxy, Judithlynne Carson, 9:3, 1978, 132-136, 5.4.1
Computer-Generated Knight Tours, Michael Gilpin, 13:4, 1982, 252-259, 3.1, 3.3
Isomorphisms on Magic Squares, Ali R. Amir-Moez, 14:1, 1983, 48-51, 0.2, 9.3, 9.4
Sequences, Series, and Pascal's Triangle, Lenny K. Jones, 14:3, 1983, 253-256, C, 5.4.2, 6.3
Paths and Pascal Numbers, John F. Lucas, 14:4, 1983, 329-341, 3.2
A Tiling of the Plane with Triangles, Paul T. Mielke, 14:5, 1983, 377-381, 0.3, 9.3
Pascal's Triangle, Difference Tables and Arithmetic Sequences of Order N, Calvin Long, 15:4, 1984, 290-298, 3.2, 5.4.1, 6.3
The Pascal Polytope: An Extension of Pascal's Triangle to N Dimensions, John F. Putz, 17:2, 1986, 144-155, 3.2, 5.4.1, 6.3
Pascal Triangles and Combinations Where Repetitions Are Allowed, Kendell Hyde, 19:1, 1988, 60-62, C, 3.2
Musical Notes, Angela B. Shiflet, 19:4, 1988, 345-347, C, 7.2, 3.2
It's Magic! Multiplication Theorems for Magic Squares, Daniel Widdis and R. Bruce Richter, 20:4, 1989, 301-306, 3.2, 9.3
A Complete Solution to the Magic Hexagram Problem, Harold Reiter and David Ritchie, 20:4, 1989, 307-316, 9.2, 9.4
Permutation Puzzles: Student Research Project, John H. Wilson, 24:2, 1993, 163-165, 3.2
FFF. A Centennial Tribute to Sam Loyd, Dean Clark, 23:5, 1992, 402-404, F
A Mathematical Crossword Puzzle, James Leslie, 29:4, 1998, 295, C
Digits in Triangular Squares, Dipendra Sengupta, 30:1, 1999, 31, C
Modeling Mathematics With Playing Cards, Martin Gardner, 31:3, 2000, 173-177
On Lunda-Designs and the Construction of Associated Magic Squares of Order 4p, Paulus Gerdes, 31:3, 2000, 182-188, 0.3
Numerology Marches On, David Singmaster, Lawrence Braden, Peter Y. Woo and Brian Stewart Watts, 31:3, 2000, 236-237, C
Some New Results on Magic Hexagrams, Martin Gardner, 31:4, 2000, 274-280, 3.2
Analyzing Games of Information, Randall McCutcheon, 32:2, 2001, 82-90
The Lord Over Better and Worse Births, John Fossa and Glenn Erickson, 32:3, 2001, 185-193, 9.3
Magic Squares, Finite Planes, and Points of Inflection on Elliptic Curves, Ezra Brown, 32:4, 2001, 260-267, 5.1.3, 9.3
Miscellanea: Clock Arithmetic, Carlton A. Lane, 32:4, 2001, 317, C
A Visit With Six, Monte J. Zerger, 33:2, 2002, 74-87, 9.3
A Poem: A Meeting with Sunya, V. V. Dixit, 33:2, 2002, 166-167, C
Nine Cubits or Simple Soma, Richard K. Guy and Marc M. Paulhus, 33:3, 2002, 188-195, 9.7
The “Origin” of Geometry, Reuben Hersh, 33:3, 2002, 207-211, 0.3, 2.1
Alice in Numberland: An Informal Dramatic Presentation in 8 fits, Robin Wilson, 33:5, 2002, 354-377
Lewis Carroll’s Amazing Number-Guessing Game, Richard F. McCoart, 33:5, 2002, 378-383, 0.2
A 51-star U. S. Flag, Gary Kennedy, 34:2, 2003, 170-171, C
Linearizing Mile Run Times, Garrett I. Ash, J. Marshall Ash, and Stefan Catoiu, 35:5, 2004, 370-374, 0.1
FFF #233. Measuring humour, Timandra Harkness and Helen Pilcher, 36:1, 2005, 50-51, F
How to Ensure That Level Heads Prevail, Shmuel Zamir and Ruma Falk, 36:5, 2005, 396, 418, C
Graeco-Latin Squares and a Mistaken Conjecture of Euler, Dominic Klyve and Lee Stemkoski, 37:1, 2006, 2-15, 3.2, 9.4
A Card Trick and the Mathematics Behind It, Gabriela R. Sanchis, 37:2, 2006, 103-109, 9.5
The Non-Attacking Queens Game, Hassan Noon and Glen Van Brummelen, 37:3, 2006, 223-227, C
We Didn’t Start Mathematics (song lyrics), Brian Beasley, 38:3, 2007, 204, 209, C
The Number-Pad Game, Alex Fink and Richard Guy, 38:4, 2007, 260-264

Hermit Points on a Box, Richard Hess, Charles Grinstead, Marshall Grinstead, and Deborah Bergstrand, 39:1, 2008, 12-23, 0.4, 5.7.1
Number Place – The First Sudoku, Ed Pegg, Jr., 39:1, 2008, 33, C
Finding All Solutions to the Magic Hexagram, Alexander Karabegov and Jason Holland, 39:2, 2008, 102-106, 3.2
They Say Mathematics is Beautiful (poem), Kung-Ming Tiong, 39:2, 2008, 128, C
Poem: Mathematical Slumber, Lee Ann Leung, 39:4, 2008, 298, C
Fetching Water with Least Residues, Herb Bailey, 39:4, 2008, 304-306, C, 9.3
You *Can* Teach an Old Magician New Tricks, John P. Bonomo, 39:5, 2008, 346-356
Tuning with Triangles, Leon Harkleroad, 39:5, 2008, 367-373, 2.2
FFF #286. Lines of cubes in a block, Ed Barbeau, 39:5, 2008, 383, F, 3.2
Sam Loyd's Courier Problem with Diophantus, Pythagoras, and Martin Gardner, Owen O'Shea, 39:5, 2008, 387-391, C, 0.2, 0.7
Two Applications of a Hamming Code, Andy Liu, 40:1, 2009, 2-5, 9.1, 9.3
Solomon's Sea and Pi, Andrew J. Simoson, 40:1, 2009, 22-32, 0.4, 2.1
Winning at Rock-Paper-Scissors, Derek Eyler, Zachary Shalla, Andrew Doumaux, and Tim McDevitt, 40:2, 2009, 125-128, C, 7.1, 7.2
L-Tromino Tiling of Mutilated Chessboards, Martin Gardner, 40:3, 2009, 162-168, 9.7
Polyomino Problems to Confuse Computers, Stewart Coffin, 40:3, 2009, 169-172, 9.7
Puzzling Mechanisms, M. Oskar van Deventer, 40:3, 2009, 173, 180-181, 193-195, 201-203, 211
Set of Mutually Orthogonal Sudoku Latin Squares, Ryan M. Pedersen and Timothy L. Vis, 40:3, 2009, 174-180, 9.4
Jeeps Penetrating a Hostile Desert, Herb Bailey, 40:3, 2009, 182-188, 9.9, 9.10
Three Poems, Caleb Emmons, 40:3, 2009, 188, 0.1
Flipping Triangles!, Marc Zucker, 40:3, 2009, 189-193, 3.1
n-Card Tricks, Hang Chen and Curtis Cooper 40:3, 2009, 196-201, 3.2
Reflections on the $N + k$ Queens Problem, R. Douglas Chatham, 40:3, 2009, 204-210, 3.2, 4.1
Crossword Puzzle: $\pi_1 \cong Z \oplus Z$, Gary Kennedy, 40:3, 2009, 212
We shall find the Cube of the Rainbow (poem), Emily Dickinson, 40:5, 2009, 336, C
MoonPi, Bathsheba Grossman, 40:5, 2009, 344, C
To Divine Proportion (poem), Rafael Alberti, 40:5, 2009, 375, C
Brown Sharpie: Advanced Frisbee Calculus, Courtney ??, 41:1, 2010, 16, C
Grobner Basis Representations of Sudoku, Elizabeth Arnold, Stephen Lucas, and Laura Taalman, 41:2, 2010, 101-111, 9.4
Sonnet (poem), Susan Colley, 41:2, 2010, 144, C
Three Poems, Nicole Yunger Halpern, 41:3, 2010, 233-234, C
How Bound Tetrahedron Wraps a Real Tetrahedron, Roger Berry, 41:5, 2010, 356, C, 0.3
Poem: A Little Love Story, Bonnie Shulman, 41:5, 2010, C
Chutes and Ladders for the Impatient, Leslie A. Cheteyan, Stewart Hengeveld, and Michael A. Jones, 42:1, 2011, 2-8, 6.3, 7.2, 9.10
How *Iterated Mobius* was constructed, Anne Burns, 42:1, 2011, 14, C
Mathematical Jeopardy?, Andy Liu, 42:1, 2011, 24, C
Boundary Conditions (poem), Ursula Whitcher, 42:1, 2011, 56, C
Mathematics at the Movies, Martin J. Erickson, 42:3, 2011, 228, C
Folding Polyominoes from One Level to Two, Greg N. Frederickson, 42:4, 2011, 265-274, 0.3, 9.7
The Easiest Lights Out Games, Bruce Torrence, 42:5, 2011, 361-371, 4.1, 4.3
Student Research Project: One-dimensional Czedli-type Islands, Eszter K. Horvath, Attila Mader, and Andreja Tepavcevic, 42:5, 2011, 374-378, C, 0.9, 3.2, 9.3
Averaging Sums of Powers of Integers, Thomas J. Pfaff, 42:5, 2011, 402-403, C, 3.2, 9.3
Hexaflexagons, Martin Gardner, 43:1, 2012, 2-5, 0.3, 3.2, 9.4, 9.8

The V-flex, Triangle Orientation, and Catalan Numbers in Hexaflexagons, Ionut E. Iacob, Bruce McLean, and Hua Wang, 43:1, 2012, 6-10, 0.3, 3.1, 3.2, 5.4.1, 9.8
From Hexaflexagons to Edge Flexagons to Point Flexagons, Les Pook, 43:1, 2012, 11-14, 0.3, 3.1, 9.4, 9.8
Cups and Downs, Ian Stewart, 43:1, 2012, 15-19, 3.2, 4.1
Martin Gardner's Mistake, Tanya Khovanova, 43:1, 2012, 20-24, 7.2
Mad Tea Party Cyclic Partitions, Robert Bekes, Jean Pedersen, and Bin Shao, 43:1, 2012, 25-36, 3.2, 9.3
Triangular Numbers, Gaussian Integers, and KenKen, John J. Watkins, 43:1, 2012, 37-42, 0.1, 9.3
Carryless Arithmetic Mod 10, David Applegate, Marc LeBrun, and N. J. A. Sloane, 43:1, 2012, 43-50, 0.1, 5.4.1, 9.4
Bracing Regular Polygons As We Race into the Future, Greg N. Frederickson, 43:1, 2012, 51-57, 0.3
Squaring, Cubing, and Cube Rooting, Arthur T. Benjamin, 43:1, 2012, 58-63, 0.1, 0.2
A Platonic Sextet for Strings, Karl Schaffer, 3:1, 2012, 64-69, 0.3, 3.1
The Play's the Thing! (crossword puzzle), Gary Kennedy and Stephen Kennedy, 43:1, 2012, 70-71, 9.2
Magic Knight's Tours, John D. Beasley, 43:1, 2012, 72-75, 9.2
Polyomino Dissections, Tiina Hohn and Andy Liu, 43:1, 2012, 88-94, 0.3
30 Years of Bulgarian Solitaire, Brian Hopkins, 43:2, 2012, 135-140, 3.2, 9.3
Retrolife and the Pawns Neighbors, Yossi Elran, 43:2, 2012, 147-151, 3.3, 9.10
Lake Wobegon Dice, Jorge Moraleda and David G. Stork, 43:2, 2012, 152-159, 3.3, 7.2, 9.9
RATWYT, Aviezri S. Fraenkel, 43:2, 2012, 160-164, 3.1, 3.2
The Spider and the Fly, Keith E. Mellinger and Raymond Viglione, 43:2, 2012, 169-172, C, 0.4
Huxstep's Calculations from *The Once and Future Spy: A Novel of Obsession*, Robert Littell, 43:5, 2012, 400, 404, 419, 430, C, 9.3
Multi-Peg Tower of Hanoi, Paul Isihara and Doeke Buursma, 44:2, 2013, 110-116, 3.2
Sets, Planets, and Comets, Mark Baker, Jane Beltran, Jason Buell, Brian Conrey, Tom Davis, Brianna Donaldson, Jeanne Detorre-Ozeki, Leila Dibble, Tom Freeman, Robert Hammie, Julie Montgomery, Avery Pickford, and Justine Wong, 44:4, 2013, 258-264, 7.2, 9.1
Instant Insanity II, Tom Richmond and Aaron Young, 44:4, 2013, 265-272, 3.1, 3.2
Mancala Matrices, L. Taalman, A. Tongen, B. Warren, F. Wyrick-Flax, and I. Yoon, 44:4, 2013, 273-283, 3.2, 4.1
Chomp in Disguise, Andrew MacLaughlin and Alex Meadows, 44:4, 2013, 284-292, 3.2
Tetris Sudoku, Philip Riley and Laura Taalman, 44:4, 2013, 292, C, 3.2
Boggle Logic Puzzles: Minimal Solutions, Jonathan Needleman, 44:4, 2013, 293-299, 3.1, 3.2
Domination and Independence on a Triangular Honeycomb Chessboard, Joe DeMaio and Hong Lien Tran, 44:4, 2013, 307-314, 3.1, 3.2
Are Stupid Dice Necessary?, Frank Bermudez, Anthony Medina, Amber Rosin, and Eren Scott, 44:4, 2013, 315-322, 3.2, 7.2, 9.3
Challenging Magic Squares for Magicians, Arthur T. Benjamin and Ethan J. Brown, 45:2, 2014, 92-100, 9.3
Cookie Monster Devours Naccis, Leigh Marie Braswell and Tanya Khovanova, 45:2, 2014, 129-135, 3.2
Towards God's Number for Rubik's Cube in the Quarter-Turn Metric, Tomas Rokicki, 45:4, 2014, 242-253, 9.4
Beyond Rubik's Cube Exhibit, reviewed by Calvin Armstrong and Susan Goldstine, 45:4, 2014, 254-257, 9.4
The Man Who Found God's Number, David Joyner, 45:4, 2014, 258-266, 9.4
On God's Number(s) for Rubik's Slide, Michael A. Jones, Brittany C. Shelton, and Miriam E. Weaverdyck, 45:4, 2014, 267-275, 3.1, 3.2, 9.4
Math Frenzy Crossword Puzzle, Charlie Smith, 45:4, 2014, 276-277, C
Graph Theory Problems from Hexagonal and Traditional Chess, Stan Wagon, 45:4, 2014, 278-287, 3.1
Imbalance Puzzles, Raul Salomon, 45:4, 2014, 288, C, 0.2
Chutes and Ladders with Large Spinners, Darcie Connors and Darren Glass, 45:4, 2014, 289-295, 3.2, 7.2

Story Puzzles, Oscar Levin, 45:4, 2014, 296, C, 9.1
Knights, Knaves, Normals, and Neutrals, Jason Rosenhouse, 45:4, 2014, 297-306, 9.1
Permudoku Puzzle, David Nacin, 45:4, 2014, 307, C, 9.4
Mancala as Nim, Whitney Rhianna Fillers, Bill Linderman, and Andrew Simoson, 45:5, 2014, 350-356, 3.2, 3.3, 9.3
A Prehistory of Nim, Lisa Rougetet, 45:5, 2014, 358-363, 2.2, 3.2
Sequences of Power Lines, Ricardo Alfaro, 46:2, 2015, 113-120, 0.2, 0.7, 3.2, 5.1.1, 5.4.1, 9.3
Proof Without Words: Each But Two Triangular Numbers Is a Sum of Three Triangular Numbers, Roger B. Nelsen, 46:3, 2015, 172, C, 3.2, 9.3
How to Win at (One-Round) War, Richard E. Chatwin and Dana MacKenzie, 46:4, 2015, 242-253, 3.2, 4.1, 9.5, 9.9
MAA 100th Anniversary CMJ Puzzle A, David Nacin, 46:4, 2015, 254, C
Candy Crush Combinatorics, Dana Rowland, 46:4, 2015, 255-262, 3.2
MAA 100th Anniversary CMJ Puzzle C, David Nacin, 46:4, 2015, 263, C
Square-Sum Pair Partitions, Gordon Hamilton, Kiran S. Kedlaya, and Henri Picciotto, 46:4, 2015, 264-269, 0.1, 9.3
The Uniqueness of Rock-Paper-Scissors-Lizard-Spock, Brian J. Birgen, 46:4, 2015, 270-273, 3.2
MAA 100th Anniversary CMJ Puzzle J, David Nacin, 46:4, 2015, 274, C
The Settlers of Catan: Using Settlement Placement Strategies in the Probability Classroom, Jathan Austin and Susanna Molitoris-Miller, 46:4, 2015, 275-282, 7.2
MAA 100th Anniversary CMJ Puzzle M, David Nacin, 46:4, 2015, 294, C
A Magic Trick Leads to an Identity: Some Induction Fun, Robert W. Vallin, 46:4, 2015, 295-298, C, 0.9, 3.2
Proof Without Words: Centered Triangular Numbers, Roger B. Nelsen, 46:5, 2015, 335, C, 0.2, 3.2, 9.3
Abbott-and-Costello Numbers, Howard Sporn, 47:2, 2016, 126-132, 4.1, 9.3
Phillip Larkin's Koan, Paisley Rekdal, 47:2, 2016, 133, C
Proof Without Words: Matchstick Triangles, Tom Edgar, 47:3, 2016, 207, C, 9.3
Babbage and Carroll in the Silent Workshop, 1867, Neil Aitken, 47:3, 2016, 215, C
Rankings Over Time, Michael A. Jones, Alexander Webb, and Jennifer Wilson, 47:4, 2016, 242-248, 5.4.2, 9.8
MAA 101st Anniversary CMJ Puzzle A, David Nacin, 47:4, 2016, 249, C
Statistics on the Bonus Round of Wheel of Fortune, Kathleen Ryan and Brittany Shelton, 47:4, 2016, 250-253, 7.3
MAA 101st Anniversary CMJ Puzzle C, David Nacin, 47:4, 2016, 254, C
The Sticker Collector's Problem, M. A. Diniz, D. Lopes, A. Polpo, and L. E. B. Salasar, 47:4, 2016, 255-263, 7.2, 9.10
MAA 101st Anniversary CMJ Puzzle J, David Nacin, 47:4, 2016, 264, C
Algebra From Geometry in the Card Game SET, Timothy E. Goldberg, 47:4, 2016, 265-273, 9.4, 9.7
MAA 101st Anniversary CMJ Puzzle M, David Nacin, 47:4, 2016, 274, C
Horse Racing Odds: Can You Beat the Track by Hedging Your Bets?, Joel Pasternack and Stewart Venit, 47:4, 2016, 275-280, 4.1, 7.2
The FA Cup Draw and Pairing Up Probabilities, Patrick Sullivan, 47:4, 2016, 282-292, 3.2, 7.2
MAA 101st Anniversary CMJ Puzzles Solutions, David Nacin, 47:4, 2016, 293, C
Form (poem), Sarah Blake, 47:5, 2016, 333, C, 9.8
Do the Twist! (on Polygon-Base Boxes), sarah-marie belcastro and Tamara Veenstra, 47:5, 2016, 340-345, 0.3, 0.6
The Bizarre World of Nontransitive Dice: Games for Two or More Players, James Grime, 48:1, 2017, 2-9, 7.1, 7.2
Balanced Nontransitive Dice, Alex Schaefer and Jay Schweig, 48:1, 2017, 10-16, 3.3, 7.1, 7.2
A Plane Angle Poem, Jordie Albiston, 48:1, 2017, 30, C
Forgotten Equations (poem), Kazim Ali, 48:2, 2017, 111, C

Water Mathematics (poem), Donald Illich, 48:3, 2017, 170, C
Dihedoku Puzzle 1, David Nacin, 48:4, 2017, 248, C, 9.4
UFOs in the game SET: Looking for Airplanes and Spaceships, Jonathan Needleman and Felicia Sciortino, 48:4, 2017, 249-257, 3.2, 9.1, 9.7
Dihedoku Puzzle 2, David Nacin, 48:4, 2017, 258, C, 9.4
Tiling Squares with Big Holes with L-triominoes, Patrick J. Costello, 48:4, 2017, 259-263, 3.2, 9.7
Dihedoku Puzzle 3, David Nacin, 48:4, 2017, 264, C, 9.4
Carcassonne in the Classroom, Mindy Capaldi and Tiffany Kolba, 48:4, 2017, 265-273, 7.2
On a Complex KenKen Problem, David Nacin, 48:4, 2017, 274-282, 9.4
Dihedoku Puzzles Solutions, David Nacin, 48:4, 2017, 283, C, 9.4
An Introduction to Lazy Cops and Robbers on Graphs, Brendan W. Sullivan, Nikolas Townsend, and Mikayla L. Werzanski, 48:5, 2017, 322-333, 3.1
It's Puzzling, C. Douglas Howard, 49:4, 2018, 242-249, 4.7, 7.2, 9.10
Knightdoku Puzzle 1, David Nacin, 49:4, 2018, 250, C
Strange Spinners and Diversity of Dice in Chutes and Ladders, Erin Frasetto, Michael Gableman, McKenzie Lamb, Tyler Shimek, and Andrea Young, 49:4, 2018, 251-260, 3.2, 4.7, 7.2, 9.10
Knightdoku Puzzle 2, David Nacin, 49:4, 2018, 261, C
Variations on the Binary Mind-Reading Trick, Jonathan Hoseana, 49:4, 2018, 262-268, 0.1, 9.3
Knightdoku Puzzle 3, David Nacin, 49:4, 2018, 269, C
Probabilities of Qwirkle Hand Values, 49:4, 2018, 270-276, 3.2, 7.2, 9.10
Knightdoku Puzzle 4, David Nacin, 49:4, 2018, 277, C
Tactile Tools for Teaching: Implementing Knuth's Algorithm for Mastering Mastermind, Thomas M. Fiore, Alexander Lang, and Antonella Perucca, 49:4, 2018, 278-286, 3.2, 8.1, 9.1
Knightdoku Puzzles Solutions, David Nacin, 49:4, 2018, 287, C
The Solution to a Hanoi-ing Little Problem, John P. Bonomo, 49:4, 2018, 288-291, 3.3, 6.3, 8.1
A Simple Probability Paradox, Timothy McDevitt and Angela Wesneski, 49:4, 2018, 292-294, C, 7.1, 7.2
The Probability of Winning a Racquetball Game with Deuce, Poontarika Khotmongkon, Nahahai Rerkruthairat, Sujittra Suriwong, and Kornkanok Watcharakarn, 49:5, 2018, 353-358, 7.2
Geek Tragedy (Poem), Kenneth Mulder, 50:2, 2019, 133, C, 5.4.2
The n-Children Problem, John Engbers and Adam Hammett, 49:4, 2019, 242-249, 7.2
The Choking Index: An Analysis of Performance Under Pressure on the PGA Tour, William W. Miles and Sammi E. Smith, 49:4, 2019, 260-271, 7.3
Developing an Optimal Strategy for a Maximization Dice Game, Kevin L. T. Chan and Wai-Sum Chan, 49:4, 2019, 272-279, 7.1, 7.2, 9.10
By the Numbers, David Richeson, 49:4, 2019, 286-287, 300(sol.), C
Greedy Queens on an Infinite Chessboard, William Paulsen, 49:4, 2019, 288-294, 5.1.1, 5.4.1
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Polar Summation, Loretta McCarty, 21:5, 1990, 397-398, C
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Secrets of the Faro: Student Research Project, Irl C. Bivens, 22:2, 1991, 144-147, 9.4
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Convergence of a Catalan Series, Thomas Koshy and Zhenguang Gao, 43:2, 2012, 141-146, 3.2, 5.4.2

Proof Without Words: The Square of a Balancing Number is a Triangular Number, Michael A. Jones, 43:3, 2012, 212, C, 0.2

Partitioning Pythagorean Triangles Using Pythagorean Angles, Carl E. Swenson and Andre L. Yandl, 43:3, 2012, 220-225, 0.6, 0.7

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Geometry of Sum-Difference Numbers, Paul Yiu, 43:5, 2012, 408-409, C, 0.4

Huxstep's Calculations from *The Once and Future Spy: A Novel of Obsession*, Robert Littell, 43:5, 2012, 400, 404, 419, 430, C, 9.2
The Combinatorial Trace Method in Action, Mike Krebs and Natalie C. Martinez, 44:1, 2013, 32-36, 3.1, 3.2, 4.5
Irrational Square Roots, Micha Misiurewicz, 44:1, 2013, 53-55, C
Proof Without Words: Triangular Sums, Yuko Kobayashi, 44:3, 2013, 189, C, 0.1
How Weird are Weird Fractions?, Ryan Stuffelbeam, 44:3, 2013, 202-209
Proof Without Words: Squares Modulo 3, Roger B. Nelsen, 44:4, 2013, 283, C
Are Stupid Dice Necessary?, Frank Bermudez, Anthony Medina, Amber Rosin, and Eren Scott, 44:4, 2013, 315-322, 3.2, 7.2, 9.2
Not All Numbers Can Be Created Equally, John P. Bonomo, 45:1, 2014, 3-10
Proof Without Words: Alternating Sums of Consecutive Squares, Roger Nelsen, 45:1, 2014, 16, C
Zbikowski's Divisibility Criterion, Yonah Cherniavsky and Artour Mouftakhov, 45:1, 2014, 17-21, 0.1
Second-Order Recurrences with Nonconsecutive Initial Conditions, Vincent J. Matsko, 45:1, 2014, 41-49, 6.3
Challenging Magic Squares for Magicians, Arthur T. Benjamin and Ethan J. Brown, 45:2, 2014, 92-100, 9.2
Proof Without Words: The Difference of Consecutive Integer Cubes is Congruent to 1 Modulo 6, Claudi Alsina, Roger Nelsen, and Hasan Unal, 45:2, 2014, 135, C
Locating Unimodular Roots, Michael A. Brilleslyper and Lisbeth E. Schaubroeck, 45:3, 2014, 162-168, 9.5
Proof Without Words: Pythagorean Quadruples, Roger Nelsen, 45:3, 2014, 179, C
Integer Solutions to Box Optimization Problems, Vincent Coll, Jeremy Davis, Martin Hall, Colton Magnant, James Stankewicz, and Hua Wang, 45:3, 2014, 180-190, 5.1.4
Mancala as Nim, Whitney Rhianna Fillers, Bill Linderman, and Andrew Simoson, 45:5, 2014, 350-356, 3.2, 3.3, 9.2
Unexpected Conjectures about -5 Modulo Primes, David Lowry-Duda, 46:1, 2015, 56-57, C
Proof Without Words: Sums of Every Third Triangular Number, Roger B. Nelsen, 46:2, 2015, 98, C, 3.2
When is the Generating Function of the Fibonacci Numbers an Integer?, Dae S. Hong, 46:2, 2015, 110-112, 3.2
Sequences of Power Lines, Ricardo Alfaro, 46:2, 2015, 113-120, 0.2, 0.7, 3.2, 5.1.1, 5.4.1, 9.2
Groupoid Cardinality and Egyptian Fractions, Julia E. Bergner and Christopher D. Walker, 46:2, 2015, 122-129, 0.1, 9.4
Goldbach's Pigeonhole, Edward Early, Patrick Kim, and Michael Prouix, 46:2, 2015, 131-135
Proof Without Words: Each But Two Triangular Numbers Is a Sum of Three Triangular Numbers, Roger B. Nelsen, 46:3, 2015, 172, C, 3.2, 9.2
Partial Proof Without Words: Shaping Some Cases of the Erdos-Straus Conjecture, 46:3, 2015, 181, C, 0.1
Square-Sum Pair Partitions, Gordon Hamilton, Kiran S. Kedlaya, and Henri Picciotto, 46:4, 2015, 264-269, 0.1, 9.2
Saints and Scoundrels and Two Theorems That Are Really the Same, Ezra Brown, 46:5, 2015, 326-334, 9.4, 9.6
Proof Without Words: Centered Triangular Numbers, Roger B. Nelsen, 46:5, 2015, 335, C, 0.2, 3.2, 9.2
Journal Problems Sections: Modern Challenges and Teaching Tools, Brian D. Beasley and David R. Stone, 46:5, 2015, 336-346, 0.7, 3.2, 5.2.9, 5.6.1, 6.1
Proof Without Words: The Golden Ratio, Roger B. Nelsen, 47:2, 2016, 108, C, 0.2, 0.3
Abbott-and-Costello Numbers, Howard Sporn, 47:2, 2016, 126-132, 4.1, 9.2
A Short and Elementary Proof of the Basel Problem, Samuel G. Moreno, 47:2, 2016, 134-135, C, 5.2.9
Proof Without Words: Perfect Numbers and Triangular Numbers, Roger B. Nelsen, 47:3, 2016, 171, C
Proof Without Words: Square Triangular Numbers and Almost Isosceles Pythagorean Triples, Roger B. Nelsen, 47:3, 2016, 179, C

Proof Without Words: Nearly Cubic Pythagorean Boxes, Roger B. Nelsen, 47:3, 2016, 190, C
Proof Without Words: Matchstick Triangles, Tom Edgar, 47:3, 2016, 207, C, 9.2
The Generalized Birthday Problem, Stephen Scheinberg, 47:4, 2016, 294-296, C, 7.2
Proof Without Words: Perfect Numbers Modulo 7, Roger B. Nelsen, 48:1, 2017, C
Divisibility Tests, Old and New, Sandy Ganzell, 48:1, 2017, 36-40, 0.1
A Powerful Method of Non-Proof, John Beam, 48:1, 2017, 52-54, C, 9.1
The Chinese Remainder Clock, Antonella Perucca, 48:2, 2017, 82-89
Integral Value of the Generating Functions of Fibonacci and Lucas Numbers, Prapanpong Pongsriiam, 48:2, 2017, 97-101, 3.2
Pythagorean Triples for Easy Solutions of Certain Quadratics and a Newly Generated Tree, Edward R. Forringer, 48:2, 2017, 112-114, 0.2
Pythagorean Triples, Complex Numbers, and Perplex Numbers, Howard Sporn, 48:2, 2017, 115-122, 0.2
If a Prime Divides a Product …, Steven J. Miller and Cesar E. Silva, 48:2, 2017, 123-128
On the Arithmetic Mean of the Square Roots of the First *n* Positive Integers, Mircea Merca, 48:2, 2017, 129-133, 3.2
Two Short Proofs of the Infinitude of Primes, Sam Northshield, 48:3, 2017, 214-216, C, 5.4.1, 7.2
Partitioning the Natural Numbers to Prove the Infinitude of Primes, Arpan Sadhukhan, 48:3, 2017, 217-218, C, 3.2
Proof Without Words: A Pascal-Like Triangle With Pell Number Row Sums, Angel Plaza, 48:5, 2017, 346, C, 3.2, 5.4.1, 6.3
Proof Without Words: Sum of Squares of Consecutive Fibonacci Numbers, Tim Price, 49:2, 2018, 121, C, 3.2
Factoring Numbers with Conway's 150 Method, Arthur T. Benjamin, 49:2, 2018, 122-125, 0.1
Proof Without Words: Sums of Squares in a Thin Rectangle, Stephen Berendonk, 49:3, 2018, 180, C, 0.1
Marching in Squares, Burkard Polster and Marty Ross, 49:3, 2018, 181-186, 0.1, 0.2
Dividing the Circle, Pedro J. Freitas and Hugo Tavares, 49:3, 2018, 187-194, 0.3, 0.6, 5.3.1
Variations on the Binary Mind-Reading Trick, Jonathan Hoseana, 49:4, 2018, 262-268, 0.1, 9.2
An Inclusion-Exclusion Proof of Wilson's Theorem, Enrique Trevino, 49:5, 2018, 367-368, C
When Fractions Make Cycles, Mark Dalthorp, 50:1, 2019, 3-8, 0.2, 6.3, 9.5
Proof Without Words: Sophie Germain's Identity, Samuel G. Moreno, 50:3, 2019, 197, C, 0.2
Extrapolating Plimpton 322, Andrew J. Simoson, 50:3, 2019, 210-220, 0.1, 0.2, 2.1
Proof Without Words: Pythagorean Primes and Triangular Numbers, Roger B. Nelsen, 49:5, 2019, 378, C
Visual Decompositions of Polygonal Numbers, Tom Edgar, 51:1, 2020, 9-12, 0.2, 4.3
Sums of Powers of Consecutive Integers and Pascal's Triangle, Semyon Litvinov and Frantisek Marko, 51:1, 2020, 25-31, 3.2, 4.1, 5.2.1
Limits on Legs of Pythagorean Triples and Fermat's Last Theorem, Richard Kaufman, 51:1, 2020, 53-56, 0.2
Idempotent Factorizations in the Cryptography Classroom, Barry S. Fagin, 51:3, 2020, 195-203, 8.4
Unimodular Roots of Quadrinomials, Michael A. Brilleslyper, 51:3, 2020, 219-221, C, 9.5
On the Sum of Powers of Consecutive Integers, Chungwu Ho, Gregory Mellblom, and Marc Frodyma, 51:4, 2020, 295-301
Proof Without Words: Sums of Polygonal Numbers, Gunhan Caglayan, 51:4, 2020, 304, C, 0.2
Proof Without Words: Centered Nonagonal Numbers are Triangular, Gunhan Caglayan, 51:5, 2020, 371, C, 0.2
An Infinite Family of Divisibility Tests, Darrin Frey and Adam Hammett, 52:1, 2021, 2-10, 0.1
Visual Proofs for the Sums of Fourth and Fifth Powers of the First *n* Natural Numbers, Sanja Stevanovi & Dragan Stevanovic, 52:2, 2021, 115-120, 3.2, 5.4.2
Visual Triangular Number Identities from Positional Number Systems, Tom Edgar, 52:2, 2021, 133-136, 3.2, 6.3
Exploring and Extending the Impossible Card Location Trick, Samantha Pezzimenti, Geovanni DiCicco, Aditya Kommoju, and Dhanush Rajesh, 52:5, 2021, 356-363, 9.2

Report on the 12th Annual USA Junior Mathematical Olympiad, Bela Bajnok & Evan Chen, 53:1, 2022, 13-20, 0.3, 3.2, 5.4.1, 9.1, 9.2, 9.5
Connections Between Partitions and Divisors Related to the Parity of the Partition Function, Mircea Merca, 53:1, 2022, 33-37, 3.2
Visual Sums of Integers in Polygonal Arrays, Tom Edgar, 53:1, 2022, 45-51, 3.2, 6.3
A Short Generalized Proof of Infinitude of Primes, Jay Mehta, 53:1, 2022, 52-53, C
Are We Ever Our Best Possible Selves? An Application of Bezout's Identity to Find Coincident Peaks of Multiple Sine Curves, James Blackburn-Lynch, 53:3, 2022, 183-189, 0.6, 9.10
Integer Solutions to Angle Optimization Problems, James N. Brawner & Nadou Lawson, 53:3, 2022, 197-208, 0.3, 5.1.4, 5.3.1
On the Sum of *k*-th Powers in Terms of Earlier Sums, Steven J. Miller & Enrique Trevino, 53:3, 2022, 220-225, 3.2

9.4 Abstract algebra

A Condition Equivalent to Associativity for Finite Groups, Roy Dobyns, 3:1, 1972, 10-13
Sneaking Up On a Group, Jean J. Pedersen, 3:2, 1972, 9-12
Complex Numbers as Residue Classes of Polynomials mod(x^2+1), Rosemary Schmalz, S.P., 3:2, 1972, 78-80, C
Rings, Subrings, Identities and Homomorphisms, Pasquale J. Arpaia, 5:1, 1974, 25-28
An Alternative to Euclidean Algorithm, Sidney H. L. Kung, 5:2, 1974, 8-11
A Finite Field—A Finite Geometry and Triangles, Marc Swadener, 5:3, 1974, 22-26, 0.3
Factoring Functions and Relations, Thomas J. Brieske, 6:3, 1975, 8-12, 1.2
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An Algorithm and Its Connection with Abelian Groups, W. G. Leavitt, 7:2, 1976, 16-21
Counterexamples from the Algebra of Polynomials over a Nonfield, Janet B. Pomeranz, 8:1, 1977, 11-14
Can This Polynomial Be Factored?, Harold L. Dorwart, 8:2, 1977, 67-72, 0.7
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Compounding Energy Savings, Leo Chosid, 12:1, 1981, 56-57, C, 0.8
Vector Identities from Quaternions, William C. Schultz, 12:4, 1981, 271-273, C, 5.5
Constructing "Different" Examples for Beginning Abstract Algebra Students, Eddie Boyd, Jr., 12:5, 1981, 333-334, C
Teaching Mathematics with Rubik's Cube, Tom Davis, 13:3, 1982, 178-185
Isomorphisms on Magic Squares, Ali R. Amir-Moez, 14:1, 1983, 48-51, 0.2, 5.4.1, 9.2, 9.3
Doubling: Real, Complex, Quaternion and Beyond ... Well, Maybe, Robert C. Moore, 17:4, 1986, 342-343, C
Generating Posets, Harley Flanders, 18:4, 1987, 323-327, 8.2
Is the Distributive Property Redundant?, Douglas L. Cashing, 18:5, 1987, 402-403, C
Rencontres Reencountered, Karl David, 19:2, 1988, 133-148, 3.2
Codes that Detect and Correct Errors, Chester J. Salwach, 19:5, 1988, 402-416, 9.5
Simple Groups (poem), Anonymous, 20:1, 1989, 26
A Complete Solution to the Magic Hexagram Problem, Harold Reiter and David Ritchie, 20:4, 1989, 307-316, 9.2
Minimum Dimension for a Square Matrix of Order n, Robert Hanson, 21:1, 1990, 28-34, 4.1
A Zero-Row Reduction Algorithm for Obtaining the gcd of Polynomials, Sidney H. Kung and Yap S. Chua, 21:2, 1990, 138-141, 0.7, 4.1
FFF #21. Groups with Separate Identities, Ed Barbeau, 21:3, 1990, 217, F (also 21:5, 1990, 396)
FFF #22. The Least Common Multiple Order, Ed Barbeau, 21:3, 1990, 217, F (also 21:5, 1990, 396)
Binary Operations, David P. Kraines and Vivian Y. Kraines and David A. Smith, 21:3, 1990, 240-241, C, 9.11
Secrets of the Faro: Student Research Project, Irl C. Bivens, 22:2, 1991, 144-147, 9.3

The Mathematics of Identification Numbers, Joseph A. Gallian, 22:3, 1991, 194-202, 9.3
FFF #43. The Number of Conjugates of a Group Element, Ed Barbeau, 22:3, 1991, 222, F
Coset Products in Rings: Student Research Projects, Dennis Kletzing, 22:4, 1991, 323-326
FFF #48. All Groups are Simple, Ed Barbeau, 22:5, 1991, 404, F
Reward of the Rings: Student Research Projects, Irl C. Bivens, 22:5, 1991, 418-420, 9.3
A Number-Theoretic Approach to Counting Subgroups of Dihedral Groups: Student Research Project, David W. Jensen and Eric R. Bussian, 23:2, 1992, 150-152
FFF #55. Even and Odd Permutations, Ed Barbeau, 23:3, 1992, 204, F, 4.2 (also 23:4, 1992, 305 and 24:4, 1993, 346 and 26:4, 1995, 303-304)
A Sliding Block Problem: Student Research Project, George T. Gilbert and Loren C. Larson, 23:4, 1992, 315-319
FFF #80. Factoring Homogeneous Polynomials, John Webb and Graeme West, 25:5, 1994, 433, F
Visualizing the Group Homomorphism Theorem, Robert C. Moore, 26:2, 1995, 143, C
Card Shuffling in Discrete Mathematics, Steve M. Cohen and Paul R. Coe, 26:3, 1995, 224-227, C, 3.3
FFF #90. The Impossibility of Angle Bisection, Eric Chandler, 26:4, 1995, 302, F
Computing in Abstract Algebra, George Mackiw, 27:2, 1996, 136-142
Pythagorean Triples: The Hyperbolic View, Raymond A. Beauregard and E. R. Suryanarayan, 27:3, 1996, 170-181, 9.3
FFF #105. The Remainder Theorem, Richard Laatsch, 27:4, 1996, 282, F, 0.2
The Generalized Spectral Decomposition of a Linear Operator, Garret Sobczyk, 28:1, 1997, 27-38, 4.6
Adventure Games, Permutations, and Spreadsheets, Paul Vodola, 28:4, 1997, 301-309
A Class of Pleasing Periodic Designs, Federico Fernandez, 29:1, 1998, 18-26, 4.3, 9.3
An Application of Elementary Group Theory to Central Solitaire, Arie Bialostocki, 29:3, 1998, 208-212
Prelude to Musical Geometry, Brian J. McCartin, 29:5, 1998, 354-370, 0.3, 9.7
An Attempt to Foster Students' Construction of Knowledge During a Semester Course in Abstract Algebra, Thomas G. Edwards and Lawrence Brenton, 30:2, 1999, 120-128, 1.1
Group Operation Tables and Normalizers, Colonel Johnson Jr., 31:1, 2000, 50-51, C
A Project for Discovery, Extension, and Generalization in Abstract Algebra, Bo Green, 31:4, 2000, 329-332
FFF #159. Reciprocals in finite rings, Michelle Manes, 31:5, 2000, 393, F
A Polynomial with a Root Mod *m* for Every *m*, Allen J. Schwenk, 31:5, 2000, 403-405, C, 9.3
On a Theorem of Clay, Hassan Azad and A. Laradji, 31:5, 2000, 405-406, C
Another Look at Factoring Polynomials, Scott J. Beslin and Douglas J. Baney, 32:4, 2001, 273-275, 0.2
Elementary Linear Algebra and the Division Algorithm, Airton von Sohsten de Medeiros, 33:1, 2002, 51-52, C, 4.3
A Ramanujan Result Viewed From Matrix Algebra, Raymond A. Beauregard and E. R. Suryanarayan, 33:3, 2002, 212-214, 4.1, 9.3
Extensions of a Logarithmic Equation, Bill Frederick and N. S. K. Hellerstein, 33:4, 2002, 348, C
Sets of Sets: A Cognitive Obstacle, Lawrence Brenton, 34:1, 2003, 31-38, 9.1
Another Exercise, Monte Zerger, 34:3, 2003, 204, C
More Binary Operations, Nathaniel Hellerstein, 34:5, 2003, 366, C
The Band Around a (non)Convex Set, Jack Stewart and Annalisa Crannell, 34:5, 2003, 377-379, 0.2, 0.7
A Rational Root Theorem for Imaginary Roots, Sharon Barrs, James Braselton, and Lorraine Braselton, 34:5, 2003, 380-382, 0.2, 0.7
When Does a Quadratic Extension Field Contain the Square Root of –1?, Walden Freedman, 35:1, 2004, 52-54, C
To a ***Z*** (poem), Jeff Suzuki, 35:2, 2004, 124, C
The Arithmetic of Algebraic Numbers: an Elementary Approach, Chi-Kwong Li, 35:4, 2004, 307-309, C
The Platonic Solids from their Rotation Groups, Larry Grove, 36:4, 2005, 278-283
A Paper-and-Pencil gcd Algorithm for Gaussian Integers, Sandor Szabo, 36:5, 2005, 374-380, 9.3

Graeco-Latin Squares and a Mistaken Conjecture of Euler, Dominic Klyve and Lee Stemkoski, 37:1, 2006, 2-15, 3.2, 9.2
The Existence of Multiplicative Inverses, Ricardo Alfaro and Steven C. Althoen, 37:3, 2006, 227-228, C
Names in Boxes Puzzle, Peter Winkler, 37:4, 2006, 260, 285, 289, C, 3.2
More Mathematics in the Bedroom: A Paradoxical Probability, Paul K. Stockmeyer, 38:5, 2007, 339-344, 7.3
Partial Fractions in Calculus, Number Theory, and Algebra, C. A. Yackel and J. K. Denny, 38:5, 2007, 362-374, 5.2.4, 9.3
Remainder Wheels and Group Theory, Lawrence Brenton, 39:2, 2008, 129-135, 0.1, 9.3
Leftist Numbers, Andrew Rich, 39:5, 2008, 330-336, 9.3
The Probability that Two Semigroup Elements Commute Can Be Almost Anything, Berit Givens, 39:5, 2008, 399-400
An Independent Axiom System for the Real Numbers, Greg Oman, 40:2, 2009, 78-86
Student Research Projects: Goursat's Other Theorem, Joseph Petrillo, 40:2, 2009, 119-124
Set of Mutually Orthogonal Sudoku Latin Squares, Ryan M. Pedersen and Timothy L. Vis, 40:3, 2009, 174-180, 9.2
Fundamental Theorems of Algebra for the Perplexes, Robert D. Poodiack and Kevin J. LeClair, 40:5, 2009, 322-336
How to Differentiate an Integer Modulo n, Caleb Emmons, Mike Krebs, and Anthony Shaheen, 40:5, 2009, 345-353, 5.1.2
Emmy Noether?, Michael Henle, 41:1, 2010, 27, C, 2.2
The Other Reason Why *Not* Unique Factorization, Andrea Rothbart, 41:1, 2010, 76, C
Grobner Basis Representations of Sudoku, Elizabeth Arnold, Stephen Lucas, and Laura Taalman, 41:2, 2010, 101-111, 9.2
Taking Turns, Brian Hopkins, 41:4, 2010, 289-297, 3.2, 3.3
Finding Rational Parametric Curves of Relative Degree One or Two, Dave Boyles, 41:5, 2010, 371-382, 5.6.1, 9.3
Student Research Project: Graphs and Zero-Divisors, M. Axtell and J. Stickles, 41:5, 2010, 396-399, 3.1
The Symmetry Group of the Permutahedron, Karl-Dieter Crisman, 42:2, 2011, 135-138
Student Research Project: Golden Matrix Families, Anne Fontaine and Susan Hurley, 42:2, 2011, 140-147, 4.1, 4.5
Counting Subgroups in a Direct Product of Finite Cyclic Groups, Joseph Petrillo, 42:3, 2011, 215-222
An Application of Group Theory to Change Ringing, Michele Intermont and Aileen Murphy, 42:3, 2011, 223-228, 3.2
Uncountably Generated Ideals of Functions, B. Sury, 42:5, 2011, 404-406, C, 9.5
Hexaflexagons, Martin Gardner, 43:1, 2012, 2-5, 0.3, 3.2, 9.2, 9.8
From Hexaflexagons to Edge Flexagons to Point Flexagons, Les Pook, 43:1, 2012, 11-14, 0.3, 3.1, 9.2, 9.8
Carryless Arithmetic Mod 10, David Applegate, Marc LeBrun, and N. J. A. Sloane, 43:1, 2012, 43-50, 0.1, 5.4.1, 9.2
The Finite Lamplighter Groups: A Guided Tour, Jacob A. Siehler, 43:3, 2012, 203-211
When Abelian = Hausdorff, Timothy Kohl, 43:3, 2012, 213-215, 9.8
Two Semigroup Elements Can Commute with Any Positive Rational Probability, Vadim Ponomarenko and Natalie Selinski, 43:4, 2012, 334-336, C, 9.3
Student Research Project: Idempotents a la Mod, Thomas Q. Sibley, 43:5, 2012, 401-404
The Number of Group Homomorphisms from D_m into D_m, Jeremiah William Johnson, 44:3, 2013, 190-192
Student Research Project: A Typology for Finite Groups, Eric R. Tou, 44:5, 2013, 432-436, C
Matroids on Groups?, Jeremy S. LeCrone and Nancy Ann Neudauer, 45:2, 2014, 121-128, 3.1, 3.2, 9.1
A Single Family of Semigroups with Every Positive Rational Commuting Probability, Michelle Soule, 45:2, 2014, 136-139

Towards God's Number for Rubik's Cube in the Quarter-Turn Metric, Tomas Rokicki, 45:4, 2014, 242-253, 9.2
Beyond Rubik's Cube Exhibit, reviewed by Calvin Armstrong and Susan Goldstine, 45:4, 2014, 254-257, 9.2
The Man Who Found God's Number, David Joyner, 45:4, 2014, 258-266, 9.2
On God's Number(s) for Rubik's Slide, Michael A. Jones, Brittany C. Shelton, and Miriam E. Weaverdyck, 45:4, 2014, 267-275, 3.1, 3.2, 9.2
Permudoku Puzzle, David Nacin, 45:4, 2014, 307, C, 9.2
A Combinatorial Proof of a Theorem of Katsuura, Brian K. Miceli, 45:5, 2014, 365-369, 3.2
What Distributes Over Exponentiation?, Sherman Stein, 46:1, 2015, 11-14, 0.2, 9.5
The Origin of Quaternions, Thomas Bannon, 46:1, 2015, 43-50, 2.2, 5.6.2
Groupoid Cardinality and Egyptian Fractions, Julia E. Bergner and Christopher D. Walker, 46:2, 2015, 122-129, 0.1, 9.3
Saints and Scoundrels and Two Theorems That Are Really the Same, Ezra Brown, 46:5, 2015, 326-334, 9.3, 9.6
A Sufficient Condition for Subgroups with Prime Indices to Be Normal, Cosmin Pohoata and Richard Stong, 46:5, 2015, 348-351
A Characterization of the Cyclic Groups by Subgroup Indices, Greg Oman and Victoria Slattum, 47:1, 2016, 29-33
Algebra From Geometry in the Card Game SET, Timothy E. Goldberg, 47:4, 2016, 265-273, 9.2, 9.7
The Fundamental Theorem on Symmetric Polynomials: History's First Whiff of Galois Theory, Ben Blum-Smith and Samuel Coskey, 48:1, 2017, 18-29
Dihedoku Puzzle 1, David Nacin, 48:4, 2017, 248, C, 9.2
Dihedoku Puzzle 2, David Nacin, 48:4, 2017, 258, C, 9.2
Dihedoku Puzzle 3, David Nacin, 48:4, 2017, 264, C, 9.2
On a Complex KenKen Problem, David Nacin, 48:4, 2017, 274-282, 9.2
Dihedoku Puzzles Solutions, David Nacin, 48:4, 2017, 283, C, 9.2
Solving Knights-and-Knaves with One Equation, Francesco Ciraulo and Samuele Maschio, 51:2, 2020, 82-89, 9.1, 9.2, 9.10
The Proportion of Comets in the Card Game SET, Dan May and Dan Swenson, 51:3, 2020, 162-172, 3.2, 4.3, 6.3, 7.2, 9.1, 9.2
Distances Between Factorizations of the Chicken McNugget Monoid, Scott Chapman, Pedro Garcia-Sanchez & Christopher O'Neill, 52:3, 2021, 158-176, 3.1, 3.2, 9.2
What's in the Bag?, Aaron Montgomery, 52:3, 2021, 177-184, 9.1, 9.5, 9.8
Why Hamilton Couldn't Multiply Triples, Adrian Rice & Ezra Brown, 52:3, 2021, 185-192, 4.3, 4.4, 5.5
Fano, Galois, Hamming and a Card Trick, Richard Ehrenborg, 52:4, 2021, 274-280, 3.2, 9.2, 9.7
Magic Card Tricks on Hamming Codes over Finite Fields, Hideo Nagahashi, 52:4, 2021, 281-288, 4.1, 9.2
Being Rational About Algebraic Numbers, Matt David, Adam E. Parker, and Daniel A. N. Vargas, 52:5, 2021, 327-337, 4.1, 4.5, 5.4.1, 6.3, 9.6

9.5 Analysis

On the Sum of Two Periodic Functions, John M. H. Olmsted and Carl G. Townsend, 3:1, 1972, 33-38
The Quadratic Polynomial and Its Zeroes, C. A. Long, 3:2, 1972, 23-29, 5.1.5
On the Use of Functions, William E. Hartnett, 3:2, 1972, 25-28, 9.8
A Geometric Approach to the Orders of Infinity, Harold L. Schoen, 3:2, 1972, 74-76, C, 0.2
A Construction of the Real Numbers, E. A. Maier and David Maier, 4:1, 1973, 31-35
Riemann Integration in Ordered Fields, John M. Olmsted, 4:2, 1973, 34-40
A Further Note on the Orders of Infinity, Harold L. Schoen, 5:1, 1974, 80-81, C, 0.2
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Can the Complex Numbers Be Ordered?, Richard C. Weimer, 7:4, 1976, 10-12
Newton's Inequality and a Test for Imaginary Roots, Carl G. Wagner, 8:3, 1977, 145-147
Another Proof of the Arithmetic-Geometric Mean Inequality, Elmar Zemgalis, 10:2, 1979, 112-113, C
The Generalized Arithmetic-Geometric Mean Inequality, David H. Anderson, 10:2, 1979, 113-114, C
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A Rational Approximation to SQR(n), Carl P. McCarty, 11:2, 1980, 123-124, C
Extending Bernoulli's Inequality, Ervin Y. Rodin, 11:2, 1980, 124-125, C
Elementary Derivation of a Formula for Approximating n!, David H. Anderson, 11:3, 1980, 201-202, C
A Quick Test for Rational Roots of a Polynomial, Leo Chosid, 11:3, 1980, 205-206, C, 0.7
How Close are the Riemann Sums to the Integral They Approximate?, V. N. Murty, 11:4, 1980, 268-270, C
Altitudes ad Infinitum, Martin Berman, 11:5, 1980, 300-304
Uniqueness of Power Series Representations, Garfield C. Schmidt, 12:1, 1981, 54-56, C, 5.4.2
Applying Complex Arithmetic, Herbert L. Holden, 12:3, 1981, 190-194, 0.6, 5.3.1, 9.3
Corrections to an Earlier Capsule, Richard Johnsonbaugh, 12:3, 1981, 204-206, C
A Note on Parallel Curves, Allan J. Kroopnick, 13:1, 1982, 59-61, C
Continued Fractions and Iterative Processes, Jean H. Bevis and Jan L. Boal, 13:2, 1982, 122-127, 0.7
Still Another Proof of the Arithmetic-Geometric Mean Inequality, Norman Schaumberger, 13:2, 1982, 159-160, C
Power Series for Practical Purposes, Ralph Boas, 13:3, 1982, 191-195, 5.4.2
A First Course in Continuous Simulation, Richard Bronson, 13:5, 1982, 300-310, 1.2
Products of Sets of Complex Numbers, Byron L. McAllister, 14:5, 1983, 390-397
Mean Inequalities, Frank Burk, 14:5, 1983, 431-434, C
Convexity in Elementary Calculus: Some Geometric Equivalences, Victor A. Belfi, 15:1, 1984, 37-41
Income Tax Averaging and Convexity, Michael Henry and G. E. Trapp, Jr., 15:3, 1984, 253-255, 0.8, 5.1.5, 5.7.1
The Maximum and Minimum of Two Numbers Using the Quadratic Formula, Dan Kalman, 15:4, 1984, 329-330, C, 5.1.4
Income Averaging Can Increase Your Tax Liability, Gino T. Fala, 16:1, 1985, 53-55, C, 0.8
Picturing Functions of a Complex Variable, Bart Braden, 16:1, 1985, 63-73
Geometrically Asymptotic Curves, Dan Kalman, 16:3, 1985, 199-206, 5.1.5
Graphing the Complex Roots of a Quadratic Equation, Floyd Vest, 16:4, 1985, 257-261, 0.2, 0.7
On Hypocycloids and their Diameters, I. J. Schoenberg, 16:4, 1985, 262-267, 5.6.1
Relating Differentiability and Uniform Continuity, Irl C. Bivens and L. R. King, 16:4, 1985, 283, C
Why is a Restaurant's Business Worse in the Owner's Eyes Than in the Customers'?, Wong Ngoi Ying, 18:4, 1987, 315-316, C
Another Proof of the Inequality Between Power Means, Norman Schaumberger, 19:1, 1988, 56-58, C
A General Form of the Arithmetic-Geometric Mean Inequality via the Mean Value Theorem, Norman Schaumberger, 19:2, 1988, 172-173, C, 5.1.2
Parameter-generated Loci of Critical Points of Polynomials, F. Alexander Norman, 19:3, 1988, 223-229, 0.7, 5.1.5
A Classroom Approach to Involutions, Joseph Wiener and Will Watkins, 19:3, 1988, 247-250, C
Involutions and Problems Involving Perimeters and Area, Joseph Wiener and Henjin Chi and Hushang Poorkarimi, 19:3, 1988, 250-252, C, 9.3
A Discrete l'Hopital's Rule, Xun-Cheng Huang, 19:4, 1988, 321-329, 5.1.1
Random Walks on Z, Robert I. Jewett and Kenneth A. Ross, 19:4, 1988, 330-342, 7.2
Bounds on the Perimeter of an Ellipse via Minkowski Sums, Richard E. Pfiefer, 19:4, 1988, 348-350, C
Equivalent Inequalities, Jim Howard and Joe Howard, 19:4, 1988, 350-352, C

Looking at the Mandelbrot Set, Mark Bridger, 19:4, 1988, 353-363, 9.8
Codes that Detect and Correct Errors, Chester J. Salwach, 19:5, 1988, 402-416, 9.4
The Fundamental Periods of Sums of Periodic Functions, James Caveny and Warren Page, 20:1, 1989, 32-41, 0.6
Another Proof of Jensen's Inequality, Norman Schaumberger and Bert Kabak, 20:1, 1989, 57-58, C
Graphing the Complex Zeros of Polynomials Using Modulus Surfaces, Clff Long and Thomas Hern, 20:2, 1989, 98-105, 0.7, 5.1.5
The Curious Fate of an Applied Problem, Alan H. Schoenfeld, 20:2, 1989, 115-123, 5.1.5, 8.3
Another Proof of Chebysheff's Inequality, Norman Schaumberger, 20:2, 1989, 141-142, C
Subharmonic Series, Arthul C. Sogal, 20:3, 1989, 194-200, 5.4.2
Two Elementary Proofs of an Inequality (and 1 1/2 Better Ones), William C. Waterhouse, 20:3, 1989, 201-205
The Root Mean Square—Arithmetic Mean—Geometric Mean—Harmonic Mean Inequality, Roger B. Nelsen, 20:3, 1989, 231, C, 0.4
Evolution of the Function Concept: A Brief Survey, Israel Kleiner, 20:4, 1989, 282-300, 2.2
The AM-GM Inequality via x^(1/x), Norman Schaumberger, 20:4, 1989, 320, C
Discrete Dirichlet Problems, Convex Coordinates, and a Random Walk on a Triangle, J. N. Boyd and P. N. Raychowdhury, 20:5, 1989, 385-392
FFF #9. The Countability of the Reals, Ed Barbeau, 20:5, 1989, 403, F, 9.1
FFF # 10. The Uncountability of the Plane, Ed Barbeau, 20:5, 1989, 403-404, F, 9.1
Power Series and Exponential Generating Functions, G. Ervynck and P. Igodt, 20:5, 1989, 411-415, C, 5.4.2
Generalizations of a Complex Number Identity, M. S. Klamkin and V. N. Murty, 20:5, 1989, 415-416, C
A Generalization of the limit of [(n!)^(1/n)]/n = e^(-1), Norman Schaumberger, 20:5, 1989, 416-418, C, 5.1.1
FFF #15. Another Proof that 1 = 0, Ed Barbeau, 21:1, 1990, 36, F (also 21:2, 1990, 128)
Ways of Looking at n!, Diane Johnson and Roy Dowling, 21:3, 1990, 219-220, C
Harmonic, Geometric, Arithmetic, Root Mean Inequality, Sidney Kung, 21:3, 1990, 227, C, 0.4
Tabular Integration by Parts, David Horowitz, 21:4, 1990, 307-313, C, 5.2.5, 5.4.2
The Cauchy Integral Formula, David P. Kraines and Vivian Y. Kraines and David A. Smith, 21:4, 1990, 327-329, C
A Chaotic Search for i, Gilbert Strang, 22:1, 1991, 3-12, 6.3, 5.1.3
FFF #29. A Simple Description of Sets of Reals, Ed Barbeau, 22:1, 1991, 39, F
FFF #30. Is There a Nonmeasurable Set?, Ed Barbeau, 22:1, 1991, 39, F
FFF #31. Is There a Nonmeasurable Set (Part 2)?, Ed Barbeau, 22:1, 1991, 40, F
FFF #32. A Function Continuous only on the Rationals, Ed Barbeau, 22:1, 1991, 40, F (Also 23:3, 1992, 204)
The Root-Finding Route to Chaos, Richard Parris, 22:1, 1991, 48-55, 6.3, 5.4.1
Fractals Illustrate the Mathematical Way of Thinking, Yves Nievergelt, 22:1, 1991, 60-64, C
Sofware Review: Chaos and Fractal Software, Jonathan Choate, 22:1, 1991, 65-69, 6.3, 6.7
Another Proof of a Familiar Inequality, Norman Schaumberger, 22:3, 1991, 229-230, C
FFF #51. The Converse to Euler's Theorem on Homogeneous Functions, Ed Barbeau, 23:1, 1992, 37-38, F
FFF #52. An Application of the Cauchy-Schwartz Inequality, Ed Barbeau, 23:2, 1992, 142, F, 0.2
FFF #53. Opening the Floodgates, Ed Barbeau, 23:2, 1992, 142-143, F
Weighted Means of Order r and Related Inequalities: An Elementary Approach, Francois Dubeau, 23:3, 1992, 211-213, C
FFF. Surjective Functions, Ed Barbeau, 23:4, 1992, 305, F
Inverse Problems and Torricelli's Law, C. W. Groetsch, 24:3, 1993, 210-217, 9.10
Local Conditions for Convexity and Upward Concavity, Donald Francis Young, 24:3, 1993, 224-228
Six Ways to Sum a Series, Dan Kalman, 24:5, 1993, 402-421, 5.4.3

Strictly Increasing Differentiable Functions, Massimo Furi and Mario Martelli, 25:2, 1994, 125-127
Approaches to the Formula for the nth Fibonacci Number, Russell Jay Hendel, 25:2, 1994, 139-142, C, 0.2, 4.5, 5.4.2, 9.3
The Chebyshev Inequality for Positive Monotone Sequences, Roger B. Nelsen, 25:3, 1994, 192, C
Extending Bernoulli's Inequality, Ronald L. Persky, 25:3, 1994, 230, C, 0.2
An Optimization Oddity, R. H. Eddy and R. Fritsch, 25:3, 1994, 227-229, C, 5.1.4
Cutting Corners: A Four-gon Conclusion, S. C. Althoen and K. E. Schilling and M. F. Wyneken, 25:4, 1994, 266-279, 0.4, 0.5
Leibniz and the Spell of the Continuous, Hardy Grant, 25:4, 1994, 291-294, 2.2
A New Look at an Old Function, e to the i theta, J. G. Simmonds, 26:1, 1995, 6-10
Continuity on a Set, R. Bruce Crofoot, 26:1, 1995, 29-30
Can We See the Mandelbrot Set?, John Ewing, 26:2, 1995, 90-99, 6.3
FFF #88. A Consequence of the Nearness of Rationals to Reals, Mark Lynch, 26:3, 1995, 221, F (see also 28:4, 1997, 286-287)
The Hyperbolic Number Plane, Garret Sobczyk, 26:4, 1995, 268-280, 0.7
More Mathematical Gems, Ross A. Honsberger, 26:4, 1995, 281-283, 9.3
The Mean of the Squares Exceeds the Square of the Means (Proof Without Words), Roger B. Nelsen, 26:5, 1995, 368, C
Recursive Formulas for zeta(2k) and the Dirichlet function L(2k-1), Xuming Chen, 26:5, 1995, 372-376
A Complex Approach to the Laws of Sines and Cosines, William V. Grounds, 27:2, 1996, 108, C, 0.6
Why Polynomials Have Roots, Javier Gomez-Calderon and David M. Wells, 27:2, 1996, 90-94, 5.1.2, 5.7.1
A Terminally Discontinuous Function, James L. Hartman, 27:3, 1996, 211-212, C
A Serendipitous Encounter with the Cantor Ternary Function, L. F. Martins and I. W. Rodrigues, 27:3, 1996, 193-198
FFF #107. All Complex Numbers Are Real, Walter Reno, 27:4, 1996, 283, F
Dynamic Function Visualization, Mark Bridger, 27:5, 1996, 361-369, 5.1.5, 5.8
Countability via Bases Other Than 10, Pat Touhey, 27:5, 1996, 382-384, C
When Is a Function's Inverse Equal to Its Reciprocal?, Robert Anschuetz II and H. Sherwood, 27:5, 1996, 388-393
An Application of Elementary Geometry in Functional Analysis, Ji Gao, 28:1, 1997, 39-42, 0.4
A Proof that Polynomials Have Roots, Uwe F. Mayer, 28:1, 1997, 58, C
FFF #116. Life at Infinity and Beyond, Albert Eagle, 28:3, 1997, 198-199, F
Exploiting a Factorization of x^n-y^n, Richard E. Bayne, James E. Joseph, Myung H. Kwack, and Thomas H. Lawson, 28:3, 1997, 206-209, C
The World's Biggest Taco, David D. Bleecker and Lawrence J. Wallen, 29:1, 1998, 2-12, 5.2.7, 5.3.4
The Fundamental Theorem of Algebra, Michael D. Hirschhorn, 29:4, 1998, 276-277
Galileo’s Ratios (Proof Without Words), Alfinio Flores, 29:4, 1998, 300, C
FFF #131. A New Identity for the Ceiling Function, Ed Barbeau, 29:4, 1998, 302, F
Interval Arithmetic and Analysis, James Case, 30:2, 1999, 106-111, 0.1
From Euler to Fermat, Hidefumi Katsuura, 30:2, 1999, 118-119, 9.3
Continuous Versions of the (Dirichlet) Drawer Principle, Pawel Strzelecki, 30:3, 1999, 195-196
Computers and Advanced Mathematics in the Calculus Classroom, Kurt Cogswell, 30:3, 1999, 213-216, C, 5.2.9
FFF #154. How the factorial works, Norton Starr, 30:5, 1999, 385, F (see also Seymour Haber, 35:1, 2004, 42)
FFF #155. Floored by an Olympiad problem, the editor, 30:5, 1999, 386, F
Partially Differentiable, Yes; Continuous, No, David Calvis, 31:1, 2000, 42-47
AM $\geq$ GM (Mathematics Without Words), Norman Schaumberger, 31:1, 2000, 68, C
A Child’s Garden of Fractional Derivatives, Thomas Osler and Marcia Kleinz, 31:2, 2000, 82-88
π is the Minimum Value for Pi, C. L. Adler and James Tanton, 31:2, 2000, 102-106

Linear Functions and Rounding, Jack E. Graver and Lawrence J. Lardy, 31:2, 2000, 132-136
FFF #157. Fourier Analysis is Trivial, Peter M. Jarvis, 31:3, 2000, 207, F
A Variety of Triangle Inequalities, Herbert Bailey and Yanir Rubinstein, 31:5, 2000, 350-355, 9.7
Sequences of Chords and of Parabolic Segments Enclosing Proportional Areas, Timothy Feeman and Osvaldo Marrero, 31:5, 2000, 379-382, 5.2.6, 5.2.8
Tension in Generalized Geometric Sequences, Bill Goldbloom-Block, 32:1, 2001, 44-47
FFF #170. Strange dependence, Ollie Nanyes, 32:1, 2001, 49, F
The Cantor Set Contains ¼? Really?, sarah-marie belcastro and Michael Green, 32:1, 2001, 55-56, C
A Proof That Proves, A Proof That Explains, and A Proof That Works, Seannie Dar, Shay Gueron, and Oran Lang, 32:2, 2001, 115-117, F, 0.9
Algebraic Cantor Numbers?, Edwin Rosenberg, 32:3, 2001, 200, C
Rational Approximations to Power Expansions, Maria Cecilia K. Aguilera-Navarro, Valdir C. Aguilera-Navarro, Ricardo C. Ferreira and Neuza Teramon, 32:4, 2001, 276-278, 5.4.3
FFF #178. Not Many Real Sets, Ed Barbeau, 32:5, 2001, 363, F
FFF #179. A Wrong Version of Stirling's Formula, Keith Brandt, 32:5, 2001, 363-365, F, 5.1.1
Cantor, 1/4, and its Family and Friends, Ioana Mihaila, 33:1, 2002, 21-23
FFF #184. Spreading the continuity, Russ Euler, 33:1, 2002, 39, F
FFF #185. Integrating around a closed contour, Dale Buske, 33:1, 2002, 39-40, F
Mixed Partial Derivatives and Fubini's Theorem, Asuman Aksoy and Mario Martelli, 33:2, 2002, 126-130
Moving a Couch Around a Corner, Christopher Moretti, 33:3, 2002, 196-200, 5.1.4
FFF #195. Infectious continuity, Russ Euler and Jawad Sadek, 33:3, 2002, 227, F
Comparing Sets of the Empty Set, Allen J. Schwenk, 33:3, 2002, 232-233, C, 9.1
Applications of Differentials, Li Feng, 33:4, 2002, 295, C, 5.1.3
When is 1/(a-b) = 1/a + 1/b, Anyway?, Eugene Boman and Frank Uhlig, 33:4, 2002, 296-300, 4.1
Cartoon: Justice Scores, John Schommer and Steve Campbell, 33:4, 2002, 331, C
Irrationals in the Cantor Set, Edwin Rosenberg, 33:5, 2002, 394, C
Investigating Possible Boundaries Between Convergence and Divergence, Frederick Hartmann and David Sprows, 33:5, 2002, 405-406, C, 5.4.2
Off on a Tangent, Russell A. Gordon and Brian C. Dietel, 34:1, 2003, 62-63, C, 5.1.3
Odd-like (Even-like) Functions on (a, b), Zhibo Chen, Peter Hammond and Lisa Hazinski, 34:1, 2003, 64-67, C, 5.2.9
Keyboard Inequalities, Monte Zerger, 34:1, 2003, 67, C, 0.2
FFF #204. An inequality, Ed Barbeau, 34:2, 2003, 134, F
FFF #205. Another inequality, Michel Bataille, 34:2, 2003, 134-135, F
On the Monotonicity of (1+1/n)^n and (1+1/n)^(n+1), Peter R. Mercer, 34:3, 2003, 236-238, C
Generalizations of the Arithmetic-Geometric Mean Inequality and a Three Dimensional Puzzle, Hidefumi Katsuura, 34:4, 2003, 280-282
The Tangent Lines of a Conic Section, Daniel Wilkins, 34:4, 2003, 296-303, 0.5
For What Functions Is $f^{-1}(x) = 1/f(x)$?, Sharon MacKendrick, 34:4, 2003, 304-311, 0.2
FFF #215. Consequences of an integral equality, Ed Barbeau, 34:4, 2003, 313, F, 5.2.9
FFF #217. A Riemann sum, Holly M. Hoover, 34:4, 2003, 314, F, 5.4.2
The Rationals are Countable – Euclid's Proof, Jerzy Czyz and William Self, 34:5, 2003, 367-369
The HM-GM-AM-QM Inequalities, Philip Wagala Gwanyama, 35:1, 2004, 47-50, C, 5.7.1
Cauchy's Mean Value Theorem Involving *n* Functions, Jingcheng Tong, 35:1, 2004, 50-51, C (see also Richard Beck, 35:5, 2004, 384)
On the Values of Pi for Norms on $\boldsymbol{R}^2$, J. Duncan, Daniel H. Luecking, and C. M. McGregor, 35:2, 2004, 84-92
A Generalized Magic Trick from Fibonacci: Designer Decimals, Mrjorie Bicknell-Johnson, 35:2, 2004, 125-126, C, 0.1
Periodic Points for the Tent Function, David Sprows, 35:2, 2004, 133-135, C

Almost Alternating Harmonic Series, Curtis Feist and Ramin Naimi, 35:3, 2004, 183-191, 5.4.2
The Rationals of the Cantor Set, Ioana Mihaila, 35:4, 2004, 251-255
Tangent Lines and the Inverse Function Differentiation Rule, Maurizio Trombetta, 35:4, 2004, 258-261, 5.1.3
The Taxicab distance is a metric (Proof Without Words), Angelo Segalla, 35:4, 2004, 261, C
FFF #229. An Asian-Pacific inequality, Ed Barbeau, 35:5, 2004, 382-383, F
Approaching *ln x*, James V. Peters, 36:2, 2005, 146-147, C, 5.3.2
An Elementary Proof of the Monotonicity of (1+1/*n*)^*n* and (1+1/*n*)^(*n*+1), Duane W. DeTemple, 36:2, 2005, 147-149, C, 5.3.2
Proofs Without Words: Galileo's Ratios Revisited, Alfinio Flores, 36:3, 2005, 198, C, 5.4.1
If *F(x)* equals the integral from *x* to 2*x* of *f(t) dt* is Constant, Must *f(t) = c/t*?, Tian-Ziao He, Zachariah Sinkala, and Xiaoya Zha, 36:3, 2005, 199-204, 5.2.1
FFF #239. Big and little hyperplanes, Elliott Cohen, 36:4, 2005, 315, F
Self-Integrating Polynomials, Jeffrey A. Graham, 36:4, 2005, 318-320, C, 5.2.1
A Paradoxical Paint Pail, Mark Lynch, 36:5, 2005, 402-404, C, 5.2.6, 5.2.7
A Two-Parameter Trigonometry Series, Xiang-Qian Chang, 36:5, 2005, 408-412, C, 9.3
Pythagoreas by the Cross Ratio, Rebecca M. Conley and John H. Jaroma, 37:1, 2006, 50-52, C
A Card Trick and the Mathematics Behind It, Gabriela R. Sanchis, 37:2, 2006, 103-109, 9.2
From Chebyshev to Bernstein: A Tour of Polynomials Small and Large, Matthew Boelkins, Jennifer Miller, and Benjamin Vugteveen, 37:3, 2006, 194-204, 5.1.5
FFF #255. Maximum distance between circumference points, Evangelos N. Panagiotou, 37:4, 2006, 291-292, F
Stirling's formula via Riemann sums, R. B. Burckel, 37:4, 2006, 300-307, C
FFF #256. Ptolemy's inequality in space, Ed Barbeau, 37:5, 2006, 380-381, F
FFF #265. The kinematics of jogging, Ralph Boas and Hanxiang Chen, 38:2, 2007, 133-134, F
Newton's Method and the Wada Property: A Graphical Approach, Michael Frame and Nial Neger, 38:3, 2007, 192-204, 6.3, 9.7
A Geometric View of Complex Trigonometric Functions, Richard Hammack, 38:3, 2007, 210-217, 0.6, 4.3
An Elementary Proof of an Oscillation Theorem for Differential Equations, Robert Gethner, 38:4, 2007, 301-303, C, 6.2
An Area Approach to the Second Derivative, Vania Mascioni, 38:5, 2007, 378-380, C, 5.1.3
The Convergence Behavior of $f_\alpha(x) = (1+1/x)^{x+\alpha}$, Cong X. Kang and Eunjeong Yi, 38:5, 2007, 385-387, C, 5.1.1, 5.3.2
FFF #273. A functional equation, Ed Barbeau, 39:1, 2008, 49-50, F
The Pearson and Cauchy-Schwarz Inequalities, David Rose, 39:1, 2008, 64, C, 5.5, 7.3
FFF #279. A plausible inequality, Ed Barbeau, 39:3, 2008, 228, F
From Mixed Angles to Infinitesimals, Jacques Bair and Valerie Henry, 39:3, 2008, 230-233, C, 9.7
Centaurs: Here, There, Everywhere!, Dimitri Dziabenko and Oleg Ivrii, 39:4, 2008, 267-272, 6.3, 9.3
FFF #283. A counterexample to Liouville's Theorem, Mark Lynch, 39:4, 2008, 300, F
Report from the Ambassador to Cida-2, Clifton Cunningham, 39:5, 2008, 337-345, 9.3
FFF #288. Maximizing a rational function, Ed Barbeau, 39:5, 2008, 385-386, F, 5.1.4
Eighty-eight Thousand, Four Hundred and Eighteen (More) Ways to Fill Space, Anderson Norton, 40:2, 2009, 108-112
Ways to Fill Space #76,142: Rabbits (cartoon), Courtney Gibbars, 40:2, 2009, 112, C
An Interesting Property of $x/\pi(x)$, Robert T. Harger and William L. Hightower, 40:3, 2009, 213-214, 9.3
The Fresnel Integrals Revisited, Hongwei Chen, 40:4, 2009, 259-262, 5.2.9
Proof Without Words: An Inequality, Guanshen Ren, 40:4, 2009, 274, C
Dynamics of Exponential Functions, Jiu Ding and Zizhong Wang, 40:5, 2009, 361-368, 6.3

Dogs Don't Need Calculus, Michael Bolt and Daniel C. Isaksen, 41:1, 2010, 10-16, 0.2, 5.1.4
The Hardest Straight-In Pool Shot, Rick Mabry, 41:1, 2010, 49-56, 0.6, 5.1.4
Proof Without Words: Harmonic Mean < Geometric Mean < Arithmetic Mean < Root Mean Square < Contraharmonic Mean, Sidney Kung, 41:2, 2010, 112, C, 0.3
What's My Domain?, Dan Curtis, 41:2, 2010, 113-121, 6.1
Four Ways to Skin a Definite Integral, Joseph B. Dence and Thomas P. Dence, 41:2, 2010, 134-144, 5.2.3, 5.2.4
Taylor's Theorem: The Elusive *c* is Not So Elusive, Rick Kreminski, 41:3, 2010, 186-192, 5.4.3
The FedEx Problem, Kent E. Morrison, 41:3, 2010, 222-232, 9.7, 9.10
Suspension Bridge Profiles, Charles Groetsch, 41:3, 2010, 237-241, C, 9.10
A Geometric Approach to Fair Division, Julius Barbanel, 41:4, 2010, 268-280, 3.3, 9.7
Cutting Cakes Carefully, Theodore P. Hill and Kent E. Morrison, 41:4, 2010, 281-288, 7.2
Gerrymandering and Convexity, Jonathan K. Hodge, Emily Marshall, and Geoff Patterson, 41:4, 2010, 312-324, 7.2
Sprinkler Bifurcations and Stability, Jody Sorensen and Elyn Rykken, 41:5, 2010, 383-391, 6.3
The Band Around a Convex Body, David Swanson, 42:1, 2011, 15-24, 5.7.3
Cantor Groups, Ben Mathes, 42:1, 2011, 60-61, C
An Arithmetic Metric, Diego Dominici, 42:3, 2011, 207-214
Using Continuity Induction, Dan Hathaway, 42:3, 2011, 229-231, C
Series with Inverse Function Terms, Sergei Ovchinnikov, 42:4, 2011, 283-288, 5.3.1, 5.3.3, 5.4.2
Derivative Sign Patterns, Jeffrey Clark, 42:5, 2011, 379-381, C, 5.1.2, 5.4.3
The Cobb-Douglas Function and Holder's Inequality, Thomas E. Goebeler, Jr., 42:5, 2011, 387-388, C, 5.2.9
Uncountably Generated Ideals of Functions, B. Sury, 42:5, 2011, 404-406, C, 9.4
Harmonic Series Meets Fibonacci Sequence, Hongwei Chen and Chris Kennedy, 43:3, 2012, 237-243, 5.4.2
A Strong Kind of Riemann Integrability, Brian S. Thomson, 43:4, 2012, 313-320
Extending the Alternating Series Test, Hidefumi Katsuura, 43:4, 2012, 325-330, 5.4.2
Series that Converge Absolutely but Don't Converge, Robert Kantrowitz and Michael Schramm, 43:4, 2012, 331-333, C, 5.4.2
Euler's Identity, Leibniz Tables, and the Irrationality of Pi, Timothy W. Jones, 43:5, 2012, 361-364
Proof Without Words: An Algebraic Inequality, Madeubek Kungozhin and Sidney Kung, 44:1, 2013, 16, C, 0.2, 0.6
When Can One Expect a Stronger Triangle Inequality?, Valerii Faiziev, Robert Powers and Prasanna Sahoo, 44:1, 2013, 24-31, 0.4, 0.6, 9.7
Polynomial Graphs and Symmetry, Geoff Goehle and Mitsuo Kobayashi, 44:1, 2013, 37-42, 0.2, 0.7
Old Tails and New Trails in High Dimensions, Avner Halevy, 44:1, 2013, 48-52
Derivative Sign Patterns in Two Dimensions, Kenneth Schilling, 44:2, 2013, 102-108, 5.1.2, 5.7.1
Mathematical Minute: Rotating a Function Graph, Daniel Bravo and Joseph Fera, 44:2, 2013, 124-125, C, 5.1.2, 5.1.5
A New Ratio Test for Positive Monotone Series, Hongwei Chen, 44:2, 2013, 139-141, C, 5.4.2
The Basel Problem as a Rearrangement of Series, David Benko and John Molokach, 44:3, 2013, 171-176, 5.4.2
Series of Reciprocal Triangular Numbers, Paul Bruckman, Joseph B. Dence, Thomas P. Dence, and Justin Young, 44:3, 2013, 177-184, 5.4.2, 5.4.3
Proof Without Words: Monotonicity of (sin x)/x on (0, π/2), Xiaoxue Li, 44:5, 2013, 408, C, 0.4
Proof Without Words: Monotonicity of (tan x)/x on (0, π/2), Xiaoxue Li, 44:5, 2013, 420, C, 0.4
An Acute Case of Discontinuity, Sam Vendervelde, 45:1, 2014, 22-28
Continuously Differentiable Curves Detect Limits of Functions of Two Variables, Ollie Nanyes, 45:1, 2014, 54-56, C

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What Distributes Over Exponentiation?, Sherman Stein, 46:1, 2015, 11-14, 0.2, 9.4
Secants, Tangents, Rotations, and Reflections, Michael Maltenfort, 46:1, 2015, 24-34, 5.1.3, 5.1.5
Weak Contractions and Fixed Points, Daniel Acosta and Terry Lawson, 46:1, 2015, 35-41
A Very Elementary Proof of Bernoulli's Inequality, Cristinel Mortici, 46:2, 2015, 136-137, C, 0.2
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How to Win at (One-Round) War, Richard E. Chatwin and Dana MacKenzie, 46:4, 2015, 242-253, 3.2, 4.1, 9.2, 9.9
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Waiter! One Classic Calculus Problem, Hold the Calculus, Ricardo E. Rojas, 47:1, 2016, 59-60, C, 0.2, 5.1.4
Proof Without Words: Arithmetic Mean of Two Means, Angel Plaza, 47:2, 2016, 125, C, 0.2, 0.3
Pedagogically Inconvenient Functions for Teaching Transformations, Todd Abel and Jeremy Brazas, 47:3, 2016, 200-206, 0.2, 5.1.5
The Sine of a Single Degree, Travis Kowalski, 47:5, 2016, 322-332, 0.4, 0.6, 2.2
When You Wander off on a Tangent, Where Do You End Up?, Melissa Mark and Michael Schramm, 47:5, 2016, 334-339, 5.1.3
Existence of Limits and Continuity, Julie Millett and Xingping Sun, 48:1, 2017, 31-34
On a Genocchi-Peano Example, Krzysztof Chris Ciesielski and David Miller, 48:3, 2017, 205-213, 5.1.1
Minimal Tilings of a Unit Square, Iwan Praton, 48:4, 2017, 242-247, 3.2, 9.7
A Short Proof of the Bolzano-Weierstrass Theorem, Katrina Eidolon and Greg Oman, 48:4, 2017, 288-289, C
Did Elvis Know Cauchy-Schwarz?, Li Zhou, 48:5, 2017, 335-338, 0.2, 5.1.4, 9.10
Basic Theorems in the Language of Maximal Intervals, Haryono Tandra, 49:1, 2018, 41-45, 9.1
Is a Taylor Series also a generalized Fourier Series?, Wojciech Kossek, 49:1, 2018, 54-56, C, 5.4.3
Euler's Sine Product Formula: An Elementary Proof, David Salwinski, 49:2, 2018, 126-135, 5.2.5, 5.3.3, 5.4.2
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Proof Without Words: Riemann Meets Euler-Mascheroni, Gerald E. Bilodeau, 49:5, 2018, 341, C, 5.4.2
Proof of a Conjecture of Merca on an Average of Square Roots, John Zacharias, 49:5, 2018, 342-345, 5.4.1
When Fractions Make Cycles, Mark Dalthorp, 50:1, 2019, 3-8, 0.2, 6.3, 9.3
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Unimodular Roots of Quadrinomials, Michael A. Brilleslyper, 51:3, 2020, 219-221, C, 9.3
Euler's Limit and Stirling's Estimate, Adam Hammett , 51:5, 2020, 330-336, 5.1.1, 5.3.2, 5.4.2
Discontinuous Functions as Limits of Compactly Supported Formulas, J. Marshall Ash, 51:5, 2020, 337-344, 5.4.1
Two Friends and a Bike, Phillip H. Schmidt, 52:1, 2021, 11-21, 5.1.4, 9.10
Atypical Series Representations of Riemann-Integrable Functions, Andrzej Piotrowski, 52:1, 2021, 31-38, 5.2.9, 5.4.2, 9.6
Chain Rule Note, Peter A. Loeb, 52:1, 2021, 57-58, C, 5.1.3
What's in the Bag?, Aaron Montgomery, 52:3, 2021, 177-184, 9.1, 9.4, 9.8
On a Counterexample in Connection with the Picard-Lindelof Theorem, Georgios Passias & Sven-Ake Wegner, 52:3, 2021, 221-223, C, 6.1, 6.5
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Report on the 12th Annual USA Junior Mathematical Olympiad, Bela Bajnok & Evan Chen, 53:1, 2022, 13-20, 0.3, 3.2, 5.4.1, 9.1, 9.2, 9.3
Constructing Continuous Functions, Judit Kardos, 53:1, 2022, 21-32
Elementary Functions, Angel S. Muleshkov & Kurt R. Sweat, 53:1, 2022, 54-63, 5.1.5, 5.3.1, 5.3.2
An Unorthodox Approach to Skinning a Definite Integral, Yusuf Z. Gurtas, 53:2, 2022, 134-139, 5.2.3, 5.2.4, 5.2.5, 5.2.10
Extending Extending Bernoulli's Inequality, Peter R. Mercer, 53:2, 2022, 149-150, C, 0.2
The Equivalence of Definitions of the Natural Logarithm Function, Henry Ricardo, 53:3, 2022, 190-196, 2.2, 5.1.1, 5.3.2, 5.4.1
Tetration: Iterative Enjoyment, Abe Edwards & Brielle Komosinski, 53:3, 2022, 209-219, 0.2, 5.3.2, 5.4.2
Less Mundane Applications of the Most Mundane Functions, Pisheng Ding, 53:3, 2022, 230-232, C, 5.5, 5.7.1

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Using Fourier Analysis in Digital Signal Processing, Lyndell M. Kerley and William P. Dotson, 23:4, 1992, 320-328
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Pompeiu's Theorem Revisited, Arpad Benyi and Ioan Casu, 40:4, 2009, 252-258, 0.3
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Euclidean, Spherical, and Hyperbolic Shadows, Ryan Hoban, 44:2, 2013, 126-134
Proof Without Words: A Variation on Thebault's First Problem, Purna Patel and Raymond Viglione, 44:2, 2013, 135, C, 0.3
Circular Inclusion, James Sandefur and John Mason, 44:3, 2013, 193-201, 0.3
Green Jello World and Escher's World, Ruth I. Berger, 45:1, 2014, 50-53, C
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Proof Without Words: Varignon's Theorem, Alik Palatnik, 48:5, 2017, 354, C, 0.3
Variations on an Archimedean Ground: The Generalized Salinon, Oscar Ciaurri and Emilio Fernandez, 48:5, 2017, 355-365, 0.4
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Why the Centroid is the Centroid: Modern Variations on a Theme of Archimedes, William C. Mercier, 49:2, 2018, 93-102, 0.3, 5.4.2
A New Angle on the Fermat-Toricelli Point, David Benko and Dan Coroian, 49:3, 2018, 195-199, 0.3, 5.1.4
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A Canonical Conical Function, D. N. Seppala-Holtzman, 49:5, 2018, 359-362, 0.5
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The Barycenter Theorem: Averaging Possible-Paths to Produce Optimal Discrete Straight-line Segments, Robert M. French and Patrick Gehant, 50:2, 2019, 103-114, 3.2, 8.3
Conics as Envelopes of Families of Plane Curves, Juan Carlos Ponce Campuzano, 50:2, 2019, 115-122, 0.4, 0.5, 5.6.1
The Many Sides of the Pythagorean Theorem, Vlastimil Dlab and Kenneth S. Williams, 50:3, 2019, 162-172, 0.3
Unfoldings of the Cube, Richard Goldstone and Robert Suzzi Valli, 50:3, 2019, 173-184, 0.3, 3.1, 3.2
Triangle Inscribed-Triangle Picking, Arman Maesumi, 49:5, 2019, 364-371, 0.4, 7.2, 9.10
Connected Subsets of an $n \times 2$ Rectangle, Samuel Durham and Tom Richmond, 51:1, 2020, 32-42, 3.2, 5.4.1, 8.3
A Closer Look at the Compensating Polar Planimeter, John Eggers, 51:2, 2020, 105-116, 5.2.6, 5.7.3, 6.6
Bisecting Horn Angles, Sergiy Koshkin, 51:2, 2020, 124-131, 0.3, 0.5
Counting Connected Sets of Squares, Stan Wagon, 51:3, 2020, 173, 3.2
Proof Without Words: Magic of Tangential Polygons, Francesco Laudano, 51:3, 2020, 218, C, 0.3
The Explicit Expression of Axis and Angle of a Rotation Matrix, Wenjie Wang, 52:1, 2021, 39-44, 4.4, 4.5, 5.5
Shortest Paths on Cubes, Richard Goldstone, Rachel Roca & Robert Suzzi Valli, 52:2, 2021, 121-132, 0.3, 0.4, 3.2, 9.8
Statistical Significance of the Median of a Set of Points on the Plane, Antonio J. Moreno Verdejo, Abraham Lopez Viveros & Rafael Ramirez Ucles, 52:3, 2021, 205-218, 0.3, 0.4, 7.3
Fano, Galois, Hamming and a Card Trick, Richard Ehrenborg, 52:4, 2021, 274-280, 3.2, 9.2, 9.4
Proof Without Words: Center of Mass, Xiaoyan Hu, 52:4, 2021, 297, C, 0.3
Using the Intermediate Value Theorem to Circumscribe Hyperbolic Triangles, Brian Johnson & Lorna Wenzel, 53:2, 2022, 116-121, 0.3
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A Variant of the Eyeball Theorem, Emmanuel Antonio Jose Garcia, 53:2, 2022, 147-148, C, 0.3

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One-Sided Surfaces and Orientability, John W. Woll, Jr., 2:1, 1971, 5-18
On the Use of Functions, William E. Hartnett, 3:2, 1972, 25-28, 9.5
Approximations of Square Roots, Leon Wejntrob, 14:5, 1983, 427-430, 0.2, 0.7
The Fractal Geometry of Mandelbrot, Anthony Barcellos, 15:2, 1984, 98-114, 0.4
Antoine's Necklace or How to Keep a Necklace From Falling Apart, Beverly L. Brechner and John C. Mayer, 19:4, 1988, 306-320

Looking at the Mandelbrot Set, Mark Bridger, 19:4, 1988, 353-363, 9.5
FFF #33. A Topological Spoof, Ed Barbeau, 22:1, 1991, 41, F (also 22:5, 1991, 405)
Zorn's Llama (cartoon), David Egley, 22:3, 1991, 234, C
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Independence of Path and All That, Robert E. Terrell, 27:4, 1996, 272-276, 5.7.3
Mobius or Almost Mobius, Cliff Long, 27:4, 1996, 277, C
Visualizing the Geometry of Lissajous Knots, John Meier and Jessica Wolfson, 28:3, 1997, 211-216, 5.6.1
Numerically Parametrizing Curves, Steven Wilkinson, 29:2, 1998, 104-119, 5.6.1, 5.6.2
Looking at Order of Integration and a Minimal Surface, Thomas Hern and Cliff Long and Andy Long, 29:2, 1998, 128-133, 5.7.2
Normal Lines and Curvature, Kirby C. Smith, 31:1, 2000, 54-56, C, 5.1.3
Conformality, the Exponential Function, and World Map Projections, Timothy G. Feeman, 32:5, 2001, 334-342, 9.7
Lissajous Figures and Chebyshev Polynomials, Julio Castineira Merino, 34:2, 2003, 122-127, 5.6.1
An Illuminating Example of the Gauss Map, David Richeson, 35:1, 2004, 14, C
The Growth of Trees (Student Research Projects), Philip K. Hotchkiss and John Meier, 35:2, 2004, 143-151, 3.1
Revisiting Spherical Trigonometry with Orthogonal Projectors, Sudipto Banerjee, 35:5, 2004, 375-381, 9.7
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Which Way Is Jerusalem? Navigating on a Spheroid, Murray Schechter, 38:2, 2007, 96-105, 5.7.3
Pairs of Equal Surface Functions, Daniel Cass and Gerald Wildenberg, 30:1, 2008, 51-54, C, 5.2.6, 5.6.2
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A Midsummer Knot’s Dream, A. Henrich, N. MacNaughton, S. Narayan, O. Pechenik, R. Silversmith, and J. Townsend, 42:2, 2011, 126-134
Generalized Parabolas, Dan Joseph, Gregory Hartman, and Caleb Gibson, 42:4, 2011, 275-282, 0.3, 0.5, 5.6.1, 5.7.3
Hexaflexagons, Martin Gardner, 43:1, 2012, 2-5, 0.3, 3.2, 9.2, 9.4
The V-flex, Triangle Orientation, and Catalan Numbers in Hexaflexagons, Ionut E. Iacob, Bruce McLean, and Hua Wang, 43:1, 2012, 6-10, 0.3, 3.1, 3.2, 5.4.1, 9.2
From Hexaflexagons to Edge Flexagons to Point Flexagons, Les Pook, 43:1, 2012, 11-14, 0.3, 3.1, 9.2, 9.4
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A Topological Definition of Limits for Use in Elementary Calculus, Charles L. Cooper, 45:4, 2014, 313-315, C, 5.1.1, 9.5
On Combining and Convolving Fractals, Nicholas Cotton, Cam McLeman, and Daneil Pinchock, 46:2, 2015, 99-108, 0.3, 9.7
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Rational and Implicit Equations for Some Polar Curves, Dave Boyles, 46:3, 2015, 189-196, 0.3, 5.4.3, 5.6.1, 9.7
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On the Inverse Curvature Problem, Adam Glesser, James Shade, and Bogdan D. Suceava, 46:3, 2015, 207-214, 5.2.9, 5.5, 5.6.1, 6.4

An Inductive Proof of the Compactness of the Closed Unit Ball of an Arbitrary Dimension, Haryono Tandra, 46:3, 2015, 218-219, C
Discrete and Smooth Bicycle “Unicyle” Paths, Amy Nesky and Clara Redwood, 47:3, 2016, 180-189, 9.10
Rankings Over Time, Michael A. Jones, Alexander Webb, and Jennifer Wilson, 47:4, 2016, 242-248, 5.4.2, 9.2
Form (poem), Sarah Blake, 47:5, 2016, 333, C, 9.2
Can a Subset’s Topology Detect Continuous Extensions?, Mike Krebs, 49:2, 2018, 138-139, C, 9.1
Euler's Insignia: Some Admirable Curves Having a Simple Trigonometric Equation in a Natural Form, Zarema Seidametova and Valerii Temnenko, 50:2, 2019, 134-139, 0.6, 5.6.1
Linking Numbers of Klein Links, Steven Beres, Vesta Coufal, Kate Kearney, Ryan Lattanzi & Hayley Olson, 52:2, 2021, 106-114, 3.1
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What’s in the Bag?, Aaron Montgomery, 52:3, 2021, 177-184, 9.1, 9.4, 9.5

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A Strategy for a Class of Games, R. S. Pierce, 2:2, 1971, 55-62
A Coin Game, Thomas P. Dence, 8:4, 1977, 244-246, 5.4.2, 9.10
The Mathematics of Tucker: A Sampler, Albert W. Tucker, 14:3, 1983, 228-232, 4.1, 9.10
Three Person Winner-Take-All Games with McCarthy's Revenge Rule, Philip D. Straffin, Jr., 16:5, 1985, 386-394
A Division Game: How Far Can You Stretch Mathematical Induction?, William H. Ruckle, 18:3, 1987, 212-218, 0.9, 3.2
The Simplex Method of Linear Programming on Microcomputer Spreadsheets, Frank S. T. Hsiao, 20:2, 1989, 153-160, 1.2
A Tool for Teaching Linear Programming within MATLAB, David R. Hill, 21:1, 1990, 55-56, C, 4.1
Optimal Locations, Bennett Eisenberg and Samir Khabbaz, 23:4, 1992, 282-289, 0.4, 3.1
Integer Programming, Joe F. Wampler and Stephen E. Newman, 27:2, 1996, 95-100
Presenting the Kuhn-Tucker Conditions Using a Geometric Approach, Patrick J. Driscoll and William P. Fox, 27:2, 1996, 101-108, 5.7.1
How to Pump a Swing, Stephen Wirkus and Richard Rand and Andy Ruina, 29:4, 1998, 266-275, 6.6
The Bus Driver’s Sanity Problem, Todd G. Will, 30:3, 1999, 187-194
FFF #226. Braess’ Paradox, Eva Tardos, 35:4, 2004, 297, F
Win, Lose, or Draw: A Markov Chain Analysis of Overtime in the National Football League, Michael A. Jones, 35:5, 2004, 330-336
An Introduction to Simulated Annealing, Brian Albright, 38:1, 2007, 37-42, 5.1.4
Tennis with Markov, Roman Wong and Megan Zigarovich, 38:1, 2007, 53-55, C, 4.5, 7.2, 9.10
Jeeps Penetrating a Hostile Desert, Herb Bailey, 40:3, 2009, 182-188, 9.2, 9.10
Student Research Project: Making Change Efficiently, Jack E. Graver, 42:4, 2011, 317-322, 0.1, 3.2, 5.1.4
Lake Wobegon Dice, Jorge Moraleda and David G. Stork, 43:2, 2012, 152-159, 3.3, 7.2, 9.2
Asset Pricing, Financial Markets, and Linear Algebra, Marcio Diniz, 44:1, 2013, 2-8, 4.1, 4.3, 7.2
The Self-Limiting Partisan Gerrymander: An Optimization Approach, Jeff Suzuki, 45:5, 2014, 338-348, 7.2, 9.5
How to Win at (One-Round) War, Richard E. Chatwin and Dana MacKenzie, 46:4, 2015, 242-253, 3.2, 4.1, 9.2, 9.5
The Advantage of the Coin Toss for the New Overtime System in the National Football League, Jacqueline Leake and Nicholas Pritchard, 47:1, 2016, 2-9, 4.1, 7.2

Covariances Between Transient States in finite Absorbing Markov Chains, Michael A. Carchidi and Robert L. Higgins, 48:1, 2017, 42-50, 7.3
Fold-over Regions in Nonlinear First Order PDEs, Milton F. Maritz and Marèt Cloete, 51:3, 2020, 204-215, 6.4, 6.6, 9.10
How to Win at Tenzi, Steve Bacinski and Timothy Pennings, 51:4, 2020, 242-253, 4.1, 7.1, 7.2, 9.2

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A Program for Keno, Karl J. Smith, 3:2, 1972, 16-20, 7.1
Dividing Inheritances, Howard E. Reinhardt, 4:2, 1973, 30-33
A Geometric Approach to Linear Programming in the Two-Year College, Pat Semmes, 5:1, 1974, 37-40, 0.2
Some Applications of Modeling in Mathematics for Two-Year Colleges, Robert S. Fisk, 6:4, 1975, 10-13
What is an Application of Mathematics?, Clifford Sloyer, 7:3, 1976, 19-26, 5.1.4
Some Effects of Rationing, James A. Burns, 8:4, 1977, 203-206
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An Environmental Problem, Roland H. Lamberson, 8:4, 1977, 252-253
Biorythms: A Computer Program, James G. Troutman, 9:2, 1978, 101-103
Foresight-Insight-Hindsight, James C. Frauenthal and Thomas L. Saaty, 10:4, 1979, 245-254
Binomial Baseball, Eugene M. Levin, 12:4, 1981, 260-266, 7.2
Minimally Favorable Games, Michael W. Chamberlain, 14:2, 1983, 159-164, 7.2
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Harvesting a Grizzly Bear Population, Michael Caulfield and John Kent and Daniel McCaffery, 17:1, 1986, 34-46, 4.1, 4.6
The Problem of Managing a Strategic Reserve, David Cole and Loren Haarsma and Jack Snoeyink, 17:1, 1986, 48-60, 5.1.4, 6.1
How to Balance a Yardstick on an Apple, Herbert R. Bailey, 17:3, 1986, 220-225, 6.5
Facility Location Problems, Fred Buckley, 18:1, 1987, 24-32, 3.1
Positioning of Emergency Facilities in an Obstructed Traffic Grid, Jeff Cronk and Duff Howell and Keith Saints, 18:1, 1987, 34-43, 7.2
Transitions, Jeanne L. Agnew and James R. Choike, 18:2, 1987, 124-133, 0.7, 5.1.3, 5.6.1
The Probability that the "Sum of the Rounds" Equals the "Round of the Sum", Roger B. Nelsen and James E. Schultz, 18:5, 1987, 390-396, 7.2, 7.3
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Theory, Simulation and Reality, Peter Flusser, 19:3, 1988, 210-222, 7.2, 7.3
Ties at Rotation, Howard Lewis Penn, 19:3, 1988, 230-239, 3.2
Pseudorandom Number Generators and a Four-Bit Computer System, James C. Reber, 20:1, 1989, 54-55, C, 6.3, 9.3
Spiders, Computers, and Markov Chains, Jim R. Ridenhour, 21:4, 1990, 323-326, 8.1
Discrete Dynamical Modeling, James T. Sandefur, 22:1, 1991, 13-22, 6.3
The Orbit Diagram and the Mandelbrot Set, Robert L. Devaney, 22:1, 1991, 23-38, 6.3
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Using Simulation to Study Linear Regression, LeRoy A. Franklin, 23:4, 1992, 290-295, 7.3
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The Best Shape for a Tin Can, P. L. Roe, 24:3, 1993, 233-236, C, 5.1.4
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A Progression of Projectiles: Examples from Sports, Roland Minton, 25:5, 1994, 436-442, C, 6.2, 6.4
A Balloon Experiment in the Classroom, Thomas Gruszka, 25:5, 1994, 442-444, C, 6.1, 6.4
Experiments with Probes in the Differential Equations Classroom, David O. Lomen, 25:5, 1994, 453-457, 6.2, 6.4
Projectile Motion with Arbitrary Resistance, Tilak de Alwis, 26:5, 1995, 361-367, 6.2
The Meeting of the Plows: A Simulation, Jerome L. Lewis, 26:5, 1995, 395-400
A Home Heating Model for Calculus Students, Prashant S. Sansgiry and Constance C. Edwards, 27:5, 1996, 394-397, C, 6.2
Take a Walk on the Boardwalk, Stephen D. Abbott and Matt Richey, 28:3, 1997, 162-171, 4.5
The Average Distance Between Points in Geometric Figures, Steven R. Dunbar, 28:3, 1997, 187-197, 7.2
Discovering Differential Equations in Optics, William Mueller and Richard Thompson, 28:3, 1997, 217-223, 6.1
The Long Arm of Calculus, Ethan Berkove and Rich Marchand, 29:5, 1998, 376-386, 5.7.1
The Probability of Passing a Multiple-Choice Test, Milton P. Eisner, 29:5, 1998, 421-426, 7.2
Spirals and Conchospirals in the Flight of Insects, Khristo N. Boyadzhiev, 30:1, 1999, 23-31, 5.6.1
Minimizing Aroma Loss, Robert Barrington Leigh and Richard Travis Ng, 30:5, 1999, 356-358, 3.2
Optimal Card-Collecting Strategies for Magic: The Gathering, Robert A. Bosch, 31:1, 2000, 15-21
Modeling the Gaitpath of a Running Animal, John Lorch, 31:2, 2000, 93-97
Punxsutawney's Phenomenal Phorecaster, Michael A. Aaron, Brewster B. Boyd, Jr., Melanie J. Curtis, and Paul M. Sommers, 32:1, 2001, 26-29
Perfecting the Analog of a Deck of Cards or Why Evolution Can't Be Left to Chance, J. G. Simmonds, 33:1, 2002, 17-20, 7.2
On Running in the Rain, Herb Bailey, 33:2, 2002, 88-92
Why cars in the next lane seem to go faster, Sung Soo Kim, 33:3, 2002, 228-229, C
Can a Bicycle Create a Unicycle Track?, David L. Finn, 33:4, 2002, 283-292, 5.6.1
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A Modified Discrete SIR Model, Jennifer M. Switkes, 34:5, 2003, 399-402, C
First Order Differential Equations and the Atmosphere, Gerhard Strohmer, 35:2, 2004, 93-96, 6.1
Rocket Math, Daniel Plath, Cliff Stoll, and Stan Wagon, 35:4, 2004, 262-273, 4.7
Recirculation Models, Homogenized Milk, and Biotech Applications, Mark Bailey, Mike Hilgert, and Herb Bailey, 35:4, 2004, 283-288, 6.3
Algebra in Respiratory Care, David F. Snyder, 35:4, 2004, 300-302, C, 0.2
Projectile Motion with Resistance and the Lambert W Function, Edward W. Packel and David S. Yuen, 35:5, 2004, 337-350, 5.3.4, 6.2
Musical Analysis and Synthesis in Matlab, Mark R. Petersen, 35:5, 2004, 396-401, C, 6.6
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Snapshots of a Rotating Water Stream, Steven L. Siegel, 36:2, 2005, 152-154, C, 5.6.1
Do Dogs Know Related Rates Rather than Optimization?, Pierre Perruchet and Jorge Gallego, 37:1, 2006, 16-18, 5.1.4

Straw in a Box, Richard Jerrard, Joel Schneider, Ralph Smallberg, and John Wetzel, 37:2, 2006, 93-102, 0.4
Synchronizing Fireflies, Ying Zhou, Walter Gall, and Karen Mayumi Nabb, 37:3, 2006, 187-193, 6.4
The Tippy Trough, Donald Francis Young, 37:3, 2006, 205-213, 5.1.4
Group Testing: Four Student Solutions to a Classic Optimization Problem, Daniel J. Teague, 37:4, 2006, 261-268
Playing Ball in a Space Station, Andrew Simoson, 37:5, 2006, 334-343, 5.6.1
Tennis with Markov, Roman Wong and Megan Zigarovich, 38:1, 2007, 53-55, C, 4.5, 7.2, 9.9
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Follow-up on Disease Detection, Witold Jarnicki, Michael Schweitzer, and Stan Wagon, 38:2, 2007, 134, C
Epidemic Models for SARS and Measles, Edward Rozema, 38:4, 2007, 246-259, 5.3.4, 6.1
Pursuit Curves for the Man in the Moone, Andrew J. Simoson, 38:5, 2007, 330-338, 2.2, 6.4 (see also A Smoother Flight to the Moon, Stan Wagon, 39:1, 2008, 48)
Do Dogs Know Bifurcations?, Roland Minton and Timothy J. Pennings, 38:5, 2007, 356-361, 5.1.4
The Depletion Ratio, C. W. Groetsch, 39:1, 2008, 43-48, 5.1.1, 5.2.1
Dinner Tables and Concentric Circles: A Harmony of Mathematics, Music, and Physics, Jack Douthett and Richard J. Krantz, 39:3, 2008, 203-211, 3.2, 9.1
Variations of the Sliding Ladder Problem, Stelios Kapranidis and Reginald Koo, 39:5, 2008, 374-379
Evolutionary Stability in the Traveler's Dilemma, Andrew T. Barker, 40:1, 2009, 33-38
Moody's Mega math Challenge: A Modeling Competition, Warren Page, 40:1, 2009, 47, C
Ethanol: Not All It Seems To Be, Thomas Jackson, Kelly Roache, Afanasiy Yermakov, Jason Zukus, and Raymond Eng, 40:1, 2009, 48-54, C
Jeeps Penetrating a Hostile Desert, Herb Bailey, 40:3, 2009, 182-188, 9.2, 9.9
Mechanical Circle-Squaring, Barry Cox and Stan Wagon, 40:4, 2009, 238-247, 0.4, 5.6.1, 9.7
Maximizing the Spectacle of Water Fountains, Andrew J. Simoson, 40:4, 2009, 263-274, 5.1.4, 5.2.6, 5.2.7, 5.2.8
The Draining Cylinder, James Graham-Eagle, 40:5, 2009, 337-343, 6.1
Waiting to Turn Left?, Maureen T. Carroll, Elyn K. Rykken, and Jody M. Sorensen, 41:1, 2010, 60-63, C, 5.2.1
POEM's and Newton's Aerodynamic Frustrum, Jaime Cruz-Sampedro and Margarita Tetlalmatzi-Montiel, 41:2, 2010, 145-153, 0.4, 0.5, 5.1.4
Application of the Lambert *W* Function to the SIR Epidemic Model, Frank Wang, 41:2, 2010, 156-159, C, 5.3.4, 6.3, 6.4
The FedEx Problem, Kent E. Morrison, 41:3, 2010, 222-232, 9.5, 9.7
Suspension Bridge Profiles, Charles Groetsch, 41:3, 2010, 237-241, C, 9.5
Chutes and Ladders for the Impatient, Leslie A. Cheteyan, Stewart Hengeveld, and Michael A. Jones, 42:1, 2011, 2-8, 6.3, 7.2, 9.2
Newton's Radii, Maupertuis' Arc Length, and Voltaire's Giant, Andrew J. Simoson, 42:3, 2011, 183-190, 5.2.8, 5.6.1
Random Breakage of a Rod into Unit Lengths, Joe Gani and Randall Swift, 42:3, 2011, 201-205, 7.2
An Empirical Approach to the St. Petersburg Paradox, Dominic Klyve and Anna Lauren, 42:4, 2011, 260-263, 5.4.2, 7.1, 7.2
Do Dogs Know the Trammel of Archimedes?, Mark Schwartz, 42:4, 2011, 299-308, 0.3, 0.5, 5.1.4, 5.6.1
The Center of Mass of a Soft Spring, Juan D. Serna and Amitabh Joshi, 42:5, 2011, 389-393, C, 5.2.5, 5.2.9
Just Take the Limit!, Jody Picoult, 42:5, 2011, 431, C, 0.1, 0.8
An Exactly Solvable Model for the Spread of Disease, Ronald E. Mickens, 43:2, 2012, 114-120, 6.4
Eradicating a Disease: Lessons from Mathematical Epidemiology, Matthew Glomski and Edward Ohanian, 43:2, 2012, 123-132, 2.2, 6.4
Retrolife and the Pawns Neighbors, Yossi Elran, 43:2, 2012, 147-151, 3.3, 9.2

Student Research Project: The optimal level of insulation in a home attic, Paul Martin and Kirthi Premadasa, 43:2, 2012, 165-168, 5.1.4
Designing Medical Tests: The Other Side of Bayes' Theorem, Andrew M. Ross, 43:3, 2012, 251-253, C, 7.2
An Optimal Basketball Free Throw, D. N. Seppala-Holtzman, 43:5, 2012, 387-394
Winning a Racquetball Match, Tom Brown and Brian Pasko, 43:5, 2012, 395-400, 7.2
Suspense at the Ballot Box, Nat Kell and Matt Kretchmar, 44:1, 2013, 9-16, 7.2, 7.3
Modeling Terminal Velocity, Neal Brand and John A. Quintanilla, 44:1, 2013, 57-61, C, 6.2
Slouching in the Rain, Herb Bailey, 44:2, 2013, 136-138, C, 5.1.4
System Lifetimes, The Memoryless Property, Euler's Constant, and Pi, Anurag Agarwal, James E. Marengo, and Likin C. Simon Romero, 44:3, 2013, 210-219, 5.2.10, 7.2
Sharing the Work, Walden Freedman, 44:3, 2013, 229-232, C, 5.2.9
Modeling Climate Dynamically, James Walsh and Richard McGehee, 44:5, 2013, 350-363, 6.1, 6.3, 6.5
Underground Mathematics, Charles Hadlock, 44:5, 2013, 364-375, 6.5
Collaborative Understanding of Cyanobacteria in Lake Ecosystems, Meredith L. Greer, Holly A. Ewing, Kathryn L. Cottingham and Kathleen C. Weathers, 44:5, 2013, 376-385, 6.2, 6.5
Seasonal Variation in Epidemiology, Osvaldo Marrero, 44:5, 2013, 386-398, 7.3
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Traveling Waves and Taylor Series: Do They Have Something in Common?, Adam Besenyei, 45:1, 2014, 29-32, 5.4.3
The Fastest Way Not to Run a Four-Minute Mile, Michael Bolt, Anthony Meyer, and Nicholas Visser, 45:2, 2014, 101-107, 9.5
Truck Versus Human: Mathematics Under Pressure, Elizabeth Field, Rachael Ivison, Amanda Reyher, and Steven Warner, 45:2, 2014, 116-120, 5.1.4
Elvis Lives: Mathematical Surprises Inspired by Elvis, the Welsh Corgi, Steve J. Bacinski, Mark J. Panaggio, and Timothy J. Pennings, 46:2, 2015, 82-91, 5.1.2, 5.1.4, 5.7.1
The Fastest Path Between Two Points, with a Symmetric Obstacle, Kathleen Bell, Shania Polson, and Tom Richmond, 46:2, 2015, 92-97, 5.1.2, 5.1.4
Predicting Wins and Losses: A Volleyball Case Study, Elizabeth Knapper and Hope McIlwain, 46:5, 2015, 352-358, 4.1, 7.3
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The Sticker Collector's Problem, M. A. Diniz, D. Lopes, A. Polpo, and L. E. B. Salasar, 47:4, 2016, 255-263, 7.2, 9.2
Mathematical Models for Global Mean Sea Level Rise, Stephen Kaczkowski, 48:3, 2017, 162-169, 5.2.7
A Lagrangian Simulation of the Floating-Arm Trebuchet, Eric Constans, 48:3, 2017, 179-187, 4.1, 5.7.1, 6.2, 6.5
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9.11 Software for advanced topics

A Mathematics Software Database, R. S. Cunningham and David A. Smith, 17:3, 1986, 255-266, 0.10, 3.4, 4.8, 5.8, 6.7, 7.4
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A Model for Your Curriculum?, Douglas Campbell, 22:2, 1991, 163-166
EXP, Version 3.02 for Windows, Jon Wilkin, 27:1, 1996, 68-73, 0.10

Scientific WorkPlace, Jerry Thornhill, 27:4, 1996, 305-311
Standard Math Interactive, William C. Bauldry, 29:3, 1998, 237-241
Mathematica Sortware Review, Steven Wilkinson, 29:4, 1998, 323-329, 5.8
Cyclone the Implicit 3D Plotter, Jon Wilkin, 30:1, 1999, 54-59, 5.8
SAGE: Open Source Mathematics Software System, reviewed by J. K. Denny, 44:2, 2013, 149-155, C, 4.8, 5.8, 6.7, 7.4

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The History of the Calculus, Carl Boyer, 1:1, 1970, 60-86, summarized by Carl Boyer
Intermediate Algebra, Joseph Newmyer and Gus Klentes, 5:1, 1974, 60-61, reviewed by Edward B. Wright
Elementary Linear Algebra, Paul C. Shields, 5:1, 1974, 61-62, reviewed by Frank Hacker
Elementary Functions with Coordinate Geometry, Earl Swokowski, 5:1, 1974, 62, reviewed by Harry L. Hancock
Basic Technical Mathematics with Calculus, Allyn J. Washington, 5:1, 1974, 62-63, reviewed by Judith Gersting
Programmed Mathematics for Nurses, George Sackheim and Lewis Robins, 5:1, 1974, 63-64, reviewed by Allen P. Angel
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Essentials of College Algebra, 2nd ed., E. F. Beckenbach and I. Drooyer and William Wooten, 5:2, 1974, 58-59, reviewed by Olene C. Zacher
Elementary Statistics, Robert R. Johnson, 5:2, 1974, 59, reviewed by Philip F. Reichmeider
Basic Algebra Techniques: Concepts and Manipulations, W. Burryl McWaters and Anita McWaters and Robert L. Drennen, 5:3, 1974, 41-42, reviewed by Eugene P. Cooper
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Applied Mathematics for Technical Programs (Trigonometry), Robert G. Moon, 5:3, 1974, 42-43, reviewed by Amogene F. DeVaney
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