1970-2012 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:

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  0.3 Synthetic geometry
  0.4 Analytic geometry
  0.5 Conic sections
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  0.7 Elementary theory of equations
  0.8 Business mathematics
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1 Mathematics Education
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2 History of Mathematics
  2.1 History of mathematics before 1400
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3 Discrete Mathematics
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3.2 Combinatorics
3.3 Other topics in discrete mathematics (also see 6.3)
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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 variable (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
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   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 – 2012 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
Computation of Repeating Decimals, James E. McKenna, 7:2, 1976, 55-58
Smith Numbers, A. Wilansky, 13:1, 1982, 21, 9.3
Cryptography: From Caesar 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 #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
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
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
How Many Checks?, Ted Ridgway, 36:2, 2005, 113, C

Federal Money, Joseph Crukshank, 36:3, 2005, 208, C

Lighter than air, Marie S. Wilcox, 36:4, 2005, 316-317, F


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

Hot stuff in Canada, Neal Madras, 27:2, 2006, 123, F

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

Attributed to Vladimir Putin, Andre Toom, 38:1, 2007, 44, F

Freaky fractions, Rick Kreminsky, 38:1, 2007, 46, C, 9.3

Mising “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

Literature maybe, but numerate?, Alfimio Flores, 38:4, 2007, 277, C

Compound Addition, Joseph Crukshank, 38:5, 2007, 377 and 387, C

It Was Only a Sign Error, David Cox, 39:2, 2007, 135, C

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


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


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


Minuend & Subtrahend, Merriam-Webster Dictionary, 42:4, 2011, 316, C


Just Take the Limit!, Jody Picoult, 42:5, 2011, 431, C, 0.8, 9.10

A Numerical Challenge, Robert Wainwright, 43:1, 2012, 19, 63, C


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
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 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, 37-40, 9.10
Finding Super Accurate Integers, Pasquale Scopelliti and Herbert Peebles, 7:3, 1976, 14-15, 1.2
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
An Elementary Construction of the Common Log Tables, James H. Jordan, 8:5, 1977, 274-278
Applicable Mathematics in Two Year Colleges, Ralph Mansfield, 9:3, 1978, 148-153
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
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
Selection of a Fair Currency Exchange Rate, Allen J. Schwenk, 13:2, 1982, 154-155, C, 0.8


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


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)


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

A Geometric Approach to Linear Functions, Jack E. Graver, 26:5, 1995, 389-394, C, 0.4, 6.3


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 #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. 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

a^3 + b^3 >= a^2*b + ab^2 (Mathematics Without Words), Norman Schaumberger, 32:1, 2001, 38, C

FFF #169. Strengthening a theorem on linear fractional transformations, Peter M. Jarvis, 32:1, 2001, 49, F
Linear Relations Between Powers of Terms in Arithmetic Progression, Calvin Long and Boyd Henry, 32:2, 2001, 135-137, C, 3.2
Factoring Quadratics, Stephen Kaczkowski, 32:3, 2001, 203-204, C
There Are No New Word Problems, Charles Marion, 32:3, 2001, 238-239, C
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
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
What is This? F(g(hung)) = hung in effigy, Marvin Johnson, 33:3, 2002, 225, C
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
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. ab^k = (ab)^k, Carl Libis and Parviz Khaliili, 34:3, 2003, 225, F
For What Functions Is f'(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
A Rational Root Theorem for Imaginary Roots, Sharon Barrs, James Braselton, and Lorraine Braselton, 34:5, 2003, 380-382, 0.7, 9.4
An Inverse, Ted Ridgway, 35:2, 2004, 104, C
Heron’s Area Formula: What About a Tetrahedron?, Reuben Hersh, 35:2, 2004, 112-114, 0.4, 9.7
The root mean square of a and b (Mathematics Without Words), Ruma Falk, 35:3, 2004, 170, C
FFF #224. The square root of -1 is real, Teik-Cheng Lim, 35:3, 2004, 214, 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
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, F
FFF #266. The escaped criminal, Ed Barbeau, 38:3, 2007, 218, F
FFF #268. An algebra problem, anonymous, 38:3, 2007, 220, F
FFF #275. More striking results, Peter Schumer and Michael A. Jones, 39:1, 2008, 50, F, 5.1.1
Missteps in Mathematics Books, Jerome Dancis, 39:5, 2008, 380-382, 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
Dogs Don’t Need Calculus, Michael Bolt and Daniel C. Isaksen, 41:1, 2010, 58-63, 0.1, 9.2
Teaching Tip: How to Manipulate Test Scores, Colin Foster, 41:2, 2010, 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
Why the Faulhaber Polynomials Are Sums of Even or Odd Powers of (n + ½), Reuben Hersh, 43:4, 2012, 322-324, 9.3

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
Some Insight into the Convex Quadrilateral, Benjamin Greenberg, 5:3, 1974, 14-17
A Finite Field—A Finite Geometry and Triangles, Marc Swadener, 5:3, 1974, 22-26, 9.4
Polygons, Both Perfect and Regular, Richard L. Francis, 6:2, 1975, 20-21
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
Circles and Spheres, G. D. Chakerian, 11:1, 1980, 26-41
Inscribed Figures of Maximum Area: A Geometric Approach for a Geometric Problem, Peter Renz, 11:2, 1980, 147-149
The Pentagram and the Discovery of an Irrational Number, James R. Choike, 11:5, 1980, 312-316, 2.2
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
Ellipses from a Circular and Spherical Point of View, Alden R. Partridge, 14:5, 1983, 436-438, 0.5
Behold! The Arithmetic-Geometric Mean Inequality, Roland H. Eddy, 16:3, 1985, 208, C, 0.2
Hippocrates and Archytas Double the Cube: A Heuristic Interpretation, Barnabas B. Hughes, 20:1, 1989, 42-48, 2.1
Behold! The Vertex Angles of a Star Sum to 180 degrees, Fouad Nakhli, 17:4, 1986, 338, C
The International Mathematical Olympiad Training Session, Cecil Rousseau and Gregg Patruno, 16:5, 1985, 362-365, 2.2, 9.3
A Babylonian Geometrical Algebra, James K. Bidwell, 17:1, 1986, 22-31, 0.2
Three Ways to Maximize the Area of an Inscribed Quadrilateral, Leroy F. Meyers, 17:3, 1986, 238-239, 5.5
The Surface Area of a Cone, Herb Holden, 20:5, 1989, 432, C
The Trisection of an Angle in an Infinite Number of Steps, Eric Kincanon, 21:5, 1990, 393, C
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
Proof Without Words: The Pythagorean Theorem with Equilateral Triangles, Claudi Alsina and Roger B. Nelsen, 43:3, 2012, 226, C
On the Steiner Minimizing Point and the Corresponding Algebraic System, Ioannis M. Roussos, 43:4, 2012, 305-308, 0.2
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

0.4 Analytic geometry

Geometry via Physics, Ross Honsberger, 10:4, 1979, 271-276
Distance from a Point to a Line, K. R. S. Sastry, 12:2, 1981, 146-147, C
A Classroom Approach to \( x^2 + y^2 + z^2 = w^2 \), Norman Schaumberger, 12:5, 1981, 331-332, C
An Analytic Approach to the Euler Line, Johathan W. Lewin, 15:1, 1984, 52-53, C
The Fractal Geometry of Mandelbrot, Anthony Barcellos, 15:2, 1984, 98-114, 9.8
A Geometrical Interpretation of the Weighted Mean, Larry Hoehn, 15:2, 1984, 135-139, 0.2, 7.3
On Problems with Solutions Attainable in More Than One Way, Jean Pedersen and George Polya, 15:3, 1984, 218-228, 0.2, 5.4.2
Proving Heron's Formula Tangentially, David E. Dobbs, 15:3, 1984, 252-253, C, 0.6
Pythagorean Systems of Numbers, Joseph Wiener, 15:4, 1984, 324-326, C, 0.2, 9.3
Distance From a Point to a Line, Abdus Sattar Gazdar, 15:4, 1984, 328-329, C
Right Triangles with Perimeter and Area Equal, William Parsons, 15:5, 1984, 429, C, 0.2
A Nonstandard Solution to a Standard Problem, Florence S. Gordon, 17:1, 1986, 74, C
Angling for Pythagorean Triples, Dan Kalman, 17:2, 1986, 167-168, C, 9.3
Geometric Parametrization of Pythagorean Triples, Alvin Tirman, 17:2, 1986, 168, C
Three Ways to Maximize the Area of an Inscribed Quadrilateral, Leroy F. Meyers, 17:3, 1986, 238-239, 5.5
A Pretrigonometry Proof of the Reflection Property of the Ellipse, Zalman P. Usiskin, 17:5, 1986, 418, C
Behold! The Pythagorean Theorem via Mean Proportions, Michael Hardy, 17:5, 1986, 422, C
Drawing the Line Segment Connecting Two Points, Harley Flanders, 18:1, 1987, 53-57, 3.3, 8.1
Heron's Area Formula, Roger C. Alperin, 18:2, 1987, 137-138, C
Equiangular Lattice Polygons and Semiregular Lattice Polyhedra, Paul R. Scott, 18:4, 1987, 300-306
Some Properties of Polygons Inside a Circle, Larry Hoehn, 18:5, 1987, 397-401
Newton's nth Root Method Without Derivatives, David A. Smith, 18:5, 1987, 403-406, C, 0.7
An Unexpected Appearance of the Golden Ratio, George Manuel and Amalia Santiago, 19:2, 1988, 168-170, C, 5.1.1
Ruma Falk, 33:2, 2002, 168-169, C
Mathematics Without Words: A Property of Centroids, Norman Schaumberger, 33:4, 2002, 324, C
Euler’s Theorem for Generalized Quadrilaterals, Geoffrey A. Kandall, 33:5, 2002, 403-404, C
Predicting Sunrise and Sunset Times, Donald A. Teets, 34:4, 2003, 317-321, C, 0.6
Heron’s Area Formula: What About a Tetrahedron?, Reuben Hersh, 35:2, 2004, 112-114, 0.2, 9.7
The Pythagorean Theorem and Beyond: a Classification of Shapes and Triangles, Guansh Ren, 35:4, 2004, 305-307, C
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
Making a Bed, Anthony Wexler and Sherman Stein, 36:3, 2005, 213-221, 5.1.4
FFF #240. Clipping the corners off, Ed Barbeau, 36:4, 2005, 315, F
Straw in a Box, Richard Jerrard, Joel Schneider, Ralph Smallberg, and John Wetzel, 37:2, 2006, 93-102, 9.10
How To View A Flatland Painting, Mark Schlatter, 37:2, 2006, 114-120, 9.7
As the Crow Flies?, Linda Greenhouse, 38:4, 2007, 271, C (see also 37:5, 343)
The Normals to a Parabola and the Real Roots of a Cubic, Manjinder S. Bains and J. B. Thoo, 38:4, 2007, 272-277, 0.5, 9.7
FFF #270. Maximizing an area, Ed Barbeau, 38:5, 2007, 375, F, 5.1.4
Conic Sections from the Plane Point of View, Sidney H. Kung, 38:5, 2007, 383-384, C, 0.5
Hermit Points on a Box, Richard Hess, Charles Grinstead, Marshall Grinstead, and Deborah Bergstrand, 39:1, 2008, 12-23, 5.7.1, 9.2
Two Problems with Table Saws, William R. Vautaw, 39:2, 2008, 121-128, 0.6, 5.1.3
Squaring a Circular Segment, Russell A. Gordon, 39:3, 2008, 212-220, 5.4.2, 9.6
How to Measure Angles with a Ruler, Travis Kowalski, 39:4, 2008, 273-279, 5.1.4
Diametric Quadrilaterals with Two Equal Sides, Raymond A. Beauregard, 40:1, 2009, 17-21, 0.3
Solomon’s Sea and Pi, Andrew J. Simoson, 40:1, 2009, 22-32, 2.1, 9.2
Lattice Triangles for Mathematicians, James Tanton, 40:5, 2009, 336, 360, 369, 375, C
A Pi Curiosity, David W. Hoffman, 40:5, 2009, 399, C, 9.6
POEM’s and Newton’s Aerodynamic Frustrum, Jaime Cruz-Sampredo and Margarita Tetlalmatzi-Montiel, 41:2, 2010, 145-153, 0.5, 5.1.4, 9.10
How Spherical Are the Archimedean Solids and Their Duals?, P. K. Aravind, 42:2, 2011, 98-107, 0.3
The Symmedian Point: Constructed and Applied, Robert K. Smither, 42:2, 2011, 115-117, 0.3, 9.7
The Shad-Fack Transom, Annalisa Crannell, 42:4, 2011, 309-316, 0.3, 5.4.2
Three Equal Lines, Two Midpoints - |AG|/|AB|=? , Jo Niemeyer, 43:2, 2012, 151, C
The Spider and the Fly, Keith E. Mellinger and Raymond Viglione, 43:2, 2012, 169-172, C, 9.2
Geometry of Sum-Difference Numbers, Paul Yiu, 43:5, 2012, 408-409, C, 9.3

Conic sections

Three-D Pictures from Your Computer-Linked Plotter, Charles John Acker and Joe Frank Allison, 9:5,
1978, 303-308
An Ellipse Problem Beyond the Reach of Calculus, Ivan Niven, 10:3, 1979, 162-168, 0.6
Stories in Combinatorial Geometry, Ross Honsberger, 10:5, 1979, 344-347, 3.2
The Curve Parallel to a Parabola is not a Parabola: Parallel Curves, F. Max Stein, 11:4, 1980, 239-246, 0.7
Conic Section or Degenerate Form—A Simple Test, Stewart Venit, 11:5, 1980, 316-319
The Curve Parallel to a Parabola is not a Parabola: Parallel Curves, F. Max Stein, 13:3, 1982, 186-190
Ellipses from a Circular and Spherical Point of View, Alden R. Partridge, 14:5, 1983, 436-438, 0.3
Deriving the Equations of the Ellipse and Hyperbola, John C. Huber and Joseph Wiener, 15:1, 1984, 58-59, C
Reflection Property of the Ellipse and the Hyperbola, Michael K. Brozinsky, 15:2, 1984, 140-142, C
Geometric Procedures for Graphing the General Quadratic Equation, Duane W. DeTemple, 15:4, 1984, 313-323, 0.7
Constructing the Foci and Directrices of a Given Ellipse, Charles G. Moore, 16:2, 1985, 122-128
Area of a Parabolic Region, R. Rozen and A. Sofo, 16:5, 1985, 400-402, C, 5.2.6
A Pretrigonometry Proof of the Reflection Property of the Ellipse, Zalman P. Usiskin, 17:5, 1986, 418, C, 0.4
To View an Ellipse in Perspective, Charles G. Moore, 20:2, 1989, 134-136, C, 0.4
Moire Fringes and the Conic Sections, M. R. Cullen, 21:5, 1990, 370-378, 5.7.1
Single Equations Can Draw Pictures, Keith M. Kendig, 22:2, 1991, 134-139, C, 0.4, 5.1.5, 5.6.1, 5.6.2
Visualization of Limits and Limits of Visualization: Student Research Projects, Lee H. Minor, 23:1, 1992, 48-51, 0.4, 5.1.3
Isaac Newton: Credit Where Credit Won't Do, Robert Weinstock, 25:3, 1994, 179-192, 2.2, 5.1.3, 5.4.3, 5.6.1
In Defense of Newton: A Physicist's View, A. P. French, 25:3, 1994, 206-209, 2.2, 5.6.1
Newton's Principia and Inverse-Square Orbits, N. Nauenberg, 25:3, 1994, 212-221, 2.2, 6.4, 6.5
Robert Weinstock's Response to Nauenberg, Robert Weinstock, 25:3, 1994, 221-222, 2.2
Cutting Corners: A Four-gon Conclusion, S. C. Althoen and K. E. Schilling and M. F. Wyneken, 25:4, 1994, 266-279, 0.4, 9.5
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, 2.2
Cylinder and Cone Cutting, Michael R. Cullen, 28:2, 1997, 122-123, C
Construction Without Words: Focus and Directrix, Michel Bataille, 30:3, 1999, 212, C
The Average Distance of the Earth from the Sun, David Deever, 30:3, 1999, 218-220, C, 5.2.3, 5.2.8
A Quick Construction of Tangents to an Ellipse, Arthur Segal, 31:2, 2000, 131, C
Elliptical Tangents, I, Barnabas Hughes, 32:1, 2001, 69, C
Miscellanea: Tangents to an Ellipse, David Bloom, 32:4, 2001, 317-318, C
Miscellanea: The Center of an Ellipse, Sidney Kung, 32:4, 2001, 318, C
Using Differential Equations to Describe Conic Sections, Ranjith Munasinghe, 33:2, 2002, 145-148, C, 6.4
The Eccentricity of a Conic Section, Ayoub B. Ayoub, 34:2, 2003, 116-121
The Tangent Lines of a Conic Section, Daniel Wilkins, 34:4, 2003, 296-303, 9.5
Intersections of Tangent Lines of Exponential Functions, Timothy G. Feeman and Osvaldo Marrero, 36:3, 2005, 205-208, 5.1.3, 5.3.2
Archimedes’ Quadrature of the Parabola: A Mechanical View, Thomas J. Osler, 37:1, 2006, 24-28, 5.2.6
Folding Beauties, Leah Wrenn Berman, 37:3, 2006, 176-186, 5.6.1, 9.7
Conic Sections from the Plane Point of View, Sidney H. Kung, 38:5, 2007, 383-384, C, 0.4
Proof Without Words: The Volume of an Ellipsoid via Cavalieri’s Principle, Sidney H. Kung, 39:3, 2008, 190, C, 5.2.7
The Dance of the Foci, David Seppala-Holatzman, 41:2, 2010, 122-128, 5.6.1
The Locus of the Foci of a Rolling Parabola, Anurag Agarwal and James Marengo, 41:2, 2010, 129-133, 5.2.8
POEM’s and Newton’s Aerodynamic Frustrum, Jaime Cruz-Sampedro and Margarita Tetlalmatzi-Montiel, 41:2, 2010, 145-153, C, 0.4, 5.1.4, 9.10
Generalized Parabolas, Dan Joseph, Gregory Hartman, and Caleb Gibson, 42:4, 2011, 275-282, 5.6.1, 5.7.3, 9.8 (see also 43:5, 429)
From the Dance of the Foci to a Strophoid, Andrew Joblings, 42:4, 2011, 289-298, 5.6.1

0.6 Trigonometry (also see 5.3)

Factoring Functions, J. C. Bodenrader, 2:1, 1971, 23-26, 5.1.2, 3.2, 9.1
An Interesting Correspondence and Its Consequence, Sidney Penner, 2:1, 1971, 40-44
A "Doodling" Inequality, Benjamin Greenberg, 4:1, 1973, 78-79, C
A Classroom Theorem on Trigonometric Irrationalities, Norman Schaumberger, 5:1, 1974, 73-76, C
Square Functions, Helmer Junghans, 5:2, 1974, 15-18, 0.7
A Set of Trigonometric Inequalities with Applications to Maxima and Minima, Norman Schaumberger, 5:3, 1974, 26-30, 5.1.4
A Generator of Trigonometric Identities, Aron Pinker, 5:4, 1974, 54-55, C
Mathematical Astronomy, Vincent J. Motto, 6:1, 1975, 21-26
Closing the Loopholes, Morton Bloomfield and Frank Lasak, 6:2, 1975, 42-44, C
An Interesting Use of Generating Functions, Aron Pinker, 6:4, 1975, 39-45, 5.4.2, 9.5
Closing the Loopholes in "Closing the Loopholes", Gene Zirkel, 7:3, 1976, 55-58, C
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Quasi-Pythagorean Triples for an Oblique Triangle, Kay Dundas, 8:3, 1977, 152-155, 9.3
Geometric Proofs of the Formulas for Sin(x+y) and Cos(x+y), Norman Schaumberger, 10:1, 1979, 35, C
An Ellipse Problem Beyond the Reach of Calculus, Ivan Niven, 10:3, 1979, 162-168, 0.5
Why Can't We Trisect an Angle This Way?, David Beran, 10:3, 1979, 199-200, C
Products of Sines, Zalman Usiskin, 10:5, 1979, 334-340
Geometric Interpretations of Sin(\phi_1)+Sin(\phi_2)=1, Charles Muses, 10:5, 1979, 350-351, C
A Formula for Sin (A+B), Simon J. Lawrence, 11:2, 1980, 125-126, C
Formulas for sin(x+y) and cos(x+y), Robert Geist, 11:2, 1980, 126, C
Trigonometric Solutions to the Quadratic Equation, Leo Chosid, 11:5, 1980, 330-331, C
Visual Application of Sin(theta1 + theta2) = Sin(theta1)Cos(theta2) + Cos(theta1)Sin(theta2), Gerald E. Gannon, 12:3, 1981, 206, C
Sum Formulas for Sine and Cosine, Dan Kalman, 14:1, 1983, 55-56, C
The Steiner-Lehmus Theorem as a Challenge Problem, Ken Seydel and Carl Newman, 14:1, 1983, 72-75, 0.4
Approximation to an Angle Trisection, Glen Peterson, 14:2, 1983, 166-167, C
Integer-Sided Triangles with One Angle Twice Another, R. S. Luthar, 15:1, 1984, 5-56, C, 9.3
Proving Heron's Formula Tangentially, David E. Dobbs, 15:3, 1984, 252-253, C, 0.4
Approximate Angle Trisection, David Gauld, 15:5, 1984, 420-422, C, 5.4.2
Generalized Pythagorean Triples, W. J. Hildebrand, 16:1, 1985, 48-52, 5.5, 9.3
Pitfalls in Graphical Computation, or Why a Single Graph Isn't Enough, Franklin Demana and Bert K. Waits, 19:2, 1988, 177-183
The Double-Angles Formulas, Roger B. Nelsen, 20:1, 1989, 51, C
Where There is Pattern, There is Significance, Lloyd Olson, 20:4, 1989, 321, C
(Sin x)^2: A Sheep in Wolf's Clothing, Mark E. Saul, 21:1, 1990, 43-44, C, 5.1.5
China's 1989 National College Entrance Examination, Bart Braden, 21:5, 1990, 390-393, 0.2, 0.4, 1.2
Trigonometric Identities through Calculus, Herb Silverman, 21:5, 1990, 403, C, 5.3.1
Cos(s-t) from the Distance Formula, Gilbert Strang, 23:4, 1992, 333, C
The Half-Angle Formulas for the Tangent, Sidney H. Kung, 25:3, 1994, 205, C
A Simple Geometric Proof of the Addition Formula for the Sine, Jeffrey Li-chieh Ho, 25:3, 1994, 229-230, C
An Early Iterative Method for the Determination of Sine of One Degree, Farhad Riahi, 26:1, 1995, 16-21, 2.1
cos(x+y) (Proof Without Words), Sidney H. Kung, 26:2, 1995, 145, C
The Double-Angle Formulas via the Laws of Sines and Cosines, Sidney H. Kung, 27:2, 1996, 155, C
Trigonometric Identity: The Difference of Two Sines or Two Cosines (proof without words), Yukio Kubayashi, 29:2, 1998, 133, C
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FFF #133. Identifying the Angle, K. R. S. Sastry, 29:5, 1998, 405-406, F
Proof Without Words: tan(a-b), Guanshen Ren, 30:3, 1999, 212, C
0.7 Elementary theory of equations

Maximize x(a-x), L. H. Lange, 5:1, 1974, 22-24, 0.2, 5.1.4
Square Functions, Helmer Junghans, 5:2, 1974, 15-18, 0.6
Investigations of Linear and Reciprocal Functions by the Line-to-Line Technique, David R. Duncan and Bonnie H. Litwiller, 6:2, 1975, 2-7, 0.2
A Precalculus Unit on Area Under Curves, Samuel Goldberg, 6:4, 1975, 29-35, 5.4.2
Several Hyperbolic Encounters, L. H. Lange, 7:1, 1976, 2-6
Finding Super Accurate Integers, Pasquale Scopelliti and Herbert Peebles, 7:3, 1976, 52-54, 0.2, 9.6
Can This Polynomial Be Factored?, Harold L. Dorwart, 8:2, 1977, 67-72, 9.4
Polygonal Roots, Barnabas B. Hughes, 10:5, 1979, 313-318, 0.2
Luddhar's Method of Solving a Cubic Equation with a Rational Root, R. S. Luthar, 11:2, 1980, 107-110, 0.2
Approximation of Square Roots, Leon Weintrob, 14:5, 1983, 427-430, 0.2, 9.6
Complex Roots Made Visible, Alec Norton and Benjamin Lotto, 15:3, 1984, 248-249, C, 0.2
Nested Polynomials and Efficient Exponential Algorithms for Calculators, Dan Kalman and Warren Page, 16:1, 1985, 57-60, C, 0.2, 9.6
Graphing the Complex Roots of a Quadratic Equation, Floyd Vest, 16:4, 1985, 257-261, C, 0.2, 9.5
Newton's nth Root Method Without Derivatives, David A. Smith, 18:5, 1987, 403-406, C, 0.4
Powers and Roots by Recursion, Joseph F. Aieta, 18:5, 1987, 411-416, 0.2, 6.3
Finding Rational Roots of Polynomials, Don Redmond, 20:2, 1989, 139-141, C, 9.3
A Zero-Row Reduction Algorithm for Obtaining the gcd of Polynomials, Sidney H. Kung and Yap S. Chua, 21:2, 1990, 138-141, 4.1, 9.4
Reading Bombelli's x-purgated Algebra, Abraham Arcavi and Maxim Bruckheimer, 22:3, 1991, 212-219, 2.2
Euler and the Fundamental Theorem of Algebra, William Dunham, 22:4, 1991, 282-293, 2.2
Infinitely Many Different Quartic Polynomial Curves, Nitsa Movshovitz-Hader and Alla Shmukler, 23:3, 1992, 186-195, 0.2
Commutativity of Polynomials, Shmuel Avital and Edward Barbeau, 23:5, 1992, 386-395, 0.2, 6.3
FFF #65. Solving a Cubic, Ed Barbeau, 24:4, 1993, 344, F, 0.2
Roots of Cubics via Determinants, Robert Y. Suen, 25:2, 1994, 115-117, 4.2
FFF #84. A Method for Solving a Cubic Equation, Ed Barbeau, 26:1, 1995, 35-36, F, 0.2
A Genuine Application of Synthetic Division, Descartes' Rule of Signs, and All That Stuff, Dwight D. Freund, 26:2, 1995, 106-110, 0.8
The Hyperbolic Number Plane, Garret Sobczyk, 26:4, 1995, 268-280, 9.5
Critical Points of Polynomial Families, Elias Y. Deeba, Dennis M. Rodriguez, and Ibrahim Wazir, 27:4,
1996, 291-295, C, 5.1.5
Visualizing the Complex Roots of Quadratics (Proof Without Words), Shaun Pieper, 28:5, 1997, 359, C, 0.2
Who Cares if X^2 + 1 = 0 Has a Solution?, Viet Ngo and Saleem Watson, 29:2, 1998, 141-144, C, 5.2.5, 5.4.2, 6.2
A Simple Solution of the Cubic, Dan Kalman and James White, 29:5, 1998, 415-418, C
Do Most Cubic Graphs Have Two Turning Points?, Robert Fakler, 30:5, 1999, 367-369, 5.2.6, 7.2
Meta-Problems in Mathematics, Al Cuoco, 31:5, 2000, 373-378, 5.1.2, 9.3
Tangents without Calculus, Jorge Aarao, 31:5, 2000, 406-407, C, 0.2, 5.1.3
The Roots of a Quadratic, Leonard Gillman, 33:3, 2002, 237-238, C, 0.2
The Band Around a (non)Convex Set, Jack Stewart and Annalisa Crannell, 34:5, 2003, 377-379, 0.2, 9.4
A Rational Root Theorem for Imaginary Roots, Sharon Barrs, James Braselton, and Lorraine Braselton, 34:5, 2003, 380-382, 0.2, 9.4
Quirky Quadratics, Christopher S. Withers and Saralees Nadarajah, 38:3, 2007, 178, C, 0.2
Fibonacci's Forgotten Number, Ezra Brown and Jason C. Brunson, 39:2, 2008, 112-120, 2.1, 9.6
Sam Loyd's Courier Problem with Diophantus, Pythagoras, and Martin Gardner, Owen O'Shea, 39:5, 2008, 387-391, C, 0.2, 9.2
Cubic Polynomials with Rational Roots and Critical Points, Shiv K. Gupta and Waclaw Szymanski, 41:5, 2010, 365-369, 0.2, 9.3
On a Perplexing Polynomial Puzzle, Bettina Richmond, 41:5, 2010, 400-403, C, 9.3
Partitioning Pythagorean Triangles Using Pythagorean Angles, Carl E. Swenson and Andre L. Yandl, 43:3, 2012, 220-225, 0.6, 9.3

0.8 Business mathematics

A Question of Interest, Ann D. Holley, 9:2, 1978, 81-83
Another Question of Interest, Stanley G. Wayment, 11:4, 1980, 252-254
Compounding Energy Savings, Leo Chosid, 12:1, 1981, 56-57, C
Guessing and Algorithm—A Case for Interpolation, Denis R. Lichtman, 12:3, 1981, 199-203
Selection of a Fair Currency Exchange Rate, Allen J. Schwenk, 13:2, 1982, 154-155, C, 0.2
Income Averaging Can Increase your Tax Liability, Gino T. Fala, 16:1, 1985, 53-55, C, 9.5
Both a Borrower and a Lender Be, William Miller, 16:4, 1985, 284, C, 6.1
Arithmetic Progression and the Consumer, John D. Baildon, 16:5, 1985, 395-397, C, 5.4.1
A Case of True Interest, Soo Tang Tan, 17:3, 1986, 247-248, C, 5.4.2
A Hidden Case of Negative Amortization, Bert K. Waits and Franklin Demana, 21:2, 1990, 121-126, 6.3
FFF. Dollars and Sense, Stuart E. Mills, 22:4, 1993, 446-448, F (also 25:5, 1994, 435)
A Genuine Application of Synthetic Division, Descartes' Rule of Signs, and All That Stuff, Dwight D. Freund, 26:2, 1995, 106-110, 0.7
How Much Should You Pay for a Derivative?, Bennett Eisenberg, 29:5, 1998, 412-414, C
Amortization: An Applications of Calculus, Richard E. Klima and Robert G. Donnelly, 30:5, 1999, 388-
Techniques of proof (including mathematical induction)

Good Induction versus Bad Induction, from Howard Eves, 1:2, 1970, 16, C

If...Some Suggestions on Presenting the Connector "if...then", Aaron Seligman, 1:2, 1970, 22-26, 9.1


Mathematical Induction: If Student k Understands It, Will Student k + 1?, Judith L. Gersting, 6:2, 1975, 18-20, 0.2

The Well-Ordering Principle as an Alternative to Mathematical Induction in Our Lower Division

Recursive Formula Proofs, Orrin G. Cocks, 7:1, 1976, 13-14

A Helpful Device: or One More Use for Pascal's Triangle, Robert Rosenfeld, 8:3, 1977, 188-191, C, 5.4.2

A Note on the Principle of Mathematical Induction, Charles M. Bundrick and David L. Sherry, 9:1, 1978, 17-18

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A Discrete Look at 1 + 2 + ... + n, Loren C. Larson, 16:5, 1985, 369-382, 0.2, 3.1, 3.2, 5.4.2, 6.3


Behold! (1x2)+(2x3)+ ... +nx(n+1) = (1/3)((n+1)^3 - (n+1)], Ali R. Amir-Moez, 18:4, 1987, 318, C

Sum of Squares (Proof by Picture), Pi-Chun Chuang, 20:2, 1989, 123, C

Product of k^k times k! (Proof by Picture), Edward T. A. Wang, 20:2, 1989, 152, C

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FFF. Four Weighings, Ed Barbeau, 22:2, 1991, 133, F

FFF #45. All Powers of x are Constant, Ed Barbeau, 22:5, 1991, 403, F, 5.1.2

FFF #59. A Formula that Works Only for n=1, Ed Barbeau, 24:3, 1993, 229-230, F, 0.2

FFF. Which Balls are Actually There?, Ruma Falk, 26:1, 1995, 37, F

Count the Dots: 1+2+...+n = [n(n+1)]/2 (proof by picture), S. J. Farlow, 26:3, 1995, 190, C

Sum of Alternating Series (proof by picture), Guanshen Ren, 26:3, 1995, 213, 5.4.2

FFF #92. An Inductive Fallacy, Adrian Riskin and William Stein, 26:5, 1995, 382, F


FFF #94. Every Second Square is the Same, Allen J. Schwenk, 27:1, 1996, 44, F

FFF #103. Polynomial Detection, Ed Barbeau, 27:2, 1996, 118, F

FFF #118. Rabbits Reproduce; Integers Don't, Annie and John Selden, 28:4, 1997, 285, F


Weighing Coins: Divide and Conquer to Detect a Counterfeit, Mario Martelli and Gerald Gannon, 28:5, 1997, 365-367, 3.3


The End of Aviation, Peter Ross, 30:5, 1999, C

Yet Another Refreshing Induction Fallacy, Shay Gueron, 31:3, 2000, 205-207, F, 3.1


Leapfrogs: The Mathematical Details, Matt Wyneken, Steve Althoen, and John Berry, 36:2, 2005, 144-146, C
Towers of Hanoi Puzzle Revisited, Steve Althoen, 40:3, 2009, 225, C
One Problem, Nine Student-Produced Proofs, Geoffrey Birky, Connie M. Campbell, Manya Raman, James Sandefur, and Kay Somers, 42:5, 2011, 355-360, 0.2, 9.3

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A Mathematics Software Database, R. S. Cunningham and David A. Smith, 17:3, 1986, 255-266, 3.4, 4.8, 5.8, 6.7, 7.4, 9.11
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The Compleat Mathematics Software Database, R. S. Cunningham and David A. Smith, 19:3, 1988, 268-289, 3.4, 4.8, 5.8, 6.7, 7.4, 9.11
Mathematics by Machine with Mathematica®, Alan Hoenig, 21:2, 1990, 146-149
Derive®, A Mathematical Assistant, Jeanette R. Palmeter, 23:2, 1992, 158-161
The Geometer's Sketchpad and Cabri-Geometre (software review), Dennis DeTurck, 24:4, 1993, 370-376, 0.3, 0.4
Converge, Version 4.0 (Software Review), Lawrence G. Gilligan, 26:1, 1995, 58-63, 5.8
Toolkit for Interactive Mathematics, review by L. Carl Leinbach, 26:2, 1995, 152-156, 5.8
Software Review: f(g) Scholar, David C. Arney and Daniel J. Arney, 26:5, 1995, 401-403, 4.8, 5.8
Software Review: StudyWorks III Mathematics, Pat Stone, 31:4, 2000, 310-313, 5.8

1 Mathematics Education

1.1 Teaching techniques and research reports

Programmed Instruction in Elementary Algebra: An Experiment, Margaret L. Lial, 1:2, 1970, 17-21
New Results of Research Comparing Programmed and Lecture-Text Instruction, Maurice E. Nott, 2:1, 1971, 19-22
Two-Year College Faculty Participation in Professional Mathematics Organizations, John B. Davis and T. J. Pignani, 2:1, 1971, 53-57
An Experiment in Teaching Elementary Algebra, Donald Perry, 2:2, 1971, 40-46
The Crossover Mathematics Program at Milwaukee Area Technical College, Keith J. Roberts and Leo E. Michels, 2:2, 1971, 47-50
Academic Qualifications of North Carolina's Community College Professors, Phillip E. Johnson, 3:2, 1972, 33-36
Do Students Learn From and Like An Audio-Tutorial Course in Freshman Mathematics?, Peter M. Wilson, 3:2, 1972, 37-41
A Look at That 1971 MAA Information Services Survey, Lester H. Lange, 3:2, 1972, 56-69
The Effects of a Laboratory on Achievement in College Freshman Mathematics, Cameron Douthitt, 4:1, 1973, 55-59
A Study: Using CUPM Recommendations As Criteria of the Academic Preparation of Two-Year College Teachers, Donald Perry, 4:2, 1973, 67-71
Achivement, Aptitude and Attitude in Mathematics, Anthony N. Behr, 4:2, 1973, 72-74
An Audio-Tutorial Method of Instruction vs. the Traditional Lecture-Discussion Method, Shelba Jean Morman, 4:3, 1973, 56-61
The Contract Method vs. the Traditional Method of Teaching Developmental Mathematics to Underachievers: A Comparative Analysis, Wayne L. Miller, 5:2, 1974, 45-49
Some Research Support for A Second Chance for Beginning Algebra Students, Paul W. Merritt, 5:2, 1974, 50-54
A Mastery Approach to Mathematical Literacy, Judith Harle Hector, 6:2, 1975, 22-27
Research and Development of Synchronized Slide-Tape Units for a Mathematics Laboratory, Eddie R. Williams and Harold W. Mick, 7:2, 1976, 28-33
Flow Charts in Mathematics Classes for Elementary School Teachers, Janet E. Ford and Douglas B. McLeod, 8:1, 1977, 15-19
A Look at General Education Mathematics Programs, Charles D. Friesen, 9:4, 1978, 218-221
The Two-Year Colleges and the Graduate Schools: The Teachers' Perspective, Robert McKelvey, 10:2, 1979, 136
1978 AMS Survey: Two-Year College Report, Wendell Fleming, 10:2, 1979, 143
A Classroom Experiment Involving Basic Mathematics and Women, Pansy Waycaster Brunson, 14:4, 1983, 318-324
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Determinants: A Short Program, Alban J. Roques, 10:5, 1979, 340-343
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A Simple Proof of the Reflection Property for Parabolas, R. H. Cowen, 7:2, 1976, 59-60, C, 0.5
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An Exponential Rule, G. E. Bilodeau, 24:4, 1993, 350-351, C
FFF #70. Reading a Calculator Display, Sandra Z. Keith, 25:1, 1994, 36, F, 0.2
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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
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The Falling Ladder Paradox, Paul Scholten and Andrew Simoson, 27:1, 1996, 49-54, C, 6.2
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A Continuous Version of Newton's Method, Steven M. Hetzler, 28:5, 1997, 348-351, 6.3
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
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Some Socially Relevant Applications of Elementary Calculus, Colin Clark, 4:2, 1973, 1-15, 6.1
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The Curious 1/3, James E. Duemmel, 24:3, 1993, 236-237, C


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The Pen and the Barn, Peter Schumer, 28:3, 1997, 205-206, C
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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, 315-317, C, 0.6
Measuring the Curl of Paper, Joseph Paulet and Richard Bertram, 30:4, 1999, 315-317, C, 0.6
Ca\-ble\-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, 282-283, F
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Do Dogs Know Calculus?, Timothy J. Pennings, 34:3, 2003, 148-152, C
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A Hairy Parabola, Aaron Montgomery, 34:5, 2003, 395-397, C
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The Tippy Trough, Donald Francis Young, 37:3, 2006, 205-213, 9.10
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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
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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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Inverse Functions, Ralph P. Boas, 16:1, 1985, 42-47, 5.3.2, 5.4.2
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6 Differential Equations and Dynamical Systems

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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
Well-Rounded Figures, Yves Nievergelt, 32:1, 2001, 30-32, 9.6
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
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 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
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

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
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8 Computer Science

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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
Computing mth Roots, Keith Mathews, 19:2, 1988, 174-176
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

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
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
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

8.4 Other topics in computer science

Of Memories, Neurons, and Rank-One Corrections, Kevin G. Kirby, 28:1, 1997, 2-19, 4.6

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
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
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
The Linear Transformation Associated with a Graph: Student Research Project, Irl C. Bivens, 24:1, 1993, 76-78, 3.1, 4.3
FFF #93. An Invalid Argument, Annie Selden and John Selden, 27:1, 1996, 43-44, 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 Learning 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
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 ∀’s and ∃’ s, Stephen M. Walk, 35:5, 2004, 362-369, 4.3
Mathematics in War and Peace, Arthur Neuman, 39:3, 2008, 202, C
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

9.2 Recreational mathematics (also see 7.1)
The Game of Sprouts, Gordon D. Pritchett, 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
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
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
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
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
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
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
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
Tuning with Triangles, Leon Harkleroad, 39:5, 2008, 367-373, 2.2
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
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: \( \pi_1 \cong \mathbb{Z} \oplus \mathbb{Z} \), 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
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 Tepavecic, 42:5, 2011, 374-378, C, 0.9, 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, 0.3, 3.2, 4.1
A Platonic Sextet for Strings, Karl Schaffer, 3:1, 2012, 64-69, 0.3, 3.1
Magic Knight's Tours, Iain T. Adamson, 11:4, 1980, 272-273, C, 3.2
Pythagorean Triples by Geometry, Steven L. Kleiman, 3:1, 1972, 39-41
Anomalous Cancellation, R. P. Boas, Jr., 3:2, 1972, 21-24
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Fermat Numbers, W. G. Leavitt, 4:3, 1973, 7-10
Random Sieving and the Prime Number Theorem, Karl Greger, 5:1, 1974, 41-46, 5.3.2
The Computer as an Aid to Discovery, Frederick H. Young, 5:3, 1974, 55-57
On Generalized h-Base, Norman Woo, 6:3, 1975, 16-17
Quasi-Pythagorean Triples for an Oblique Triangle, Kay Dundas, 8:3, 1977, 152-155, 0.6
Methods of Random Number Generation, Edwin G. Landauer, 8:5, 1977, 296-303
A Note on Angle Construction, Richard L. Francis, 9:2, 1978, 73-75
The Pigeonhole Principle, Kenneth R. Reisman, 10:1, 1979, 3-13, 3.1
Triangular Squares, Bill Leonard and Harris S. Schultz, 10:3, 1979, 169-171
Two Distinguished Integers, Ross Honsberger, 10:3, 1979, 195-197
Billiard Balls and a Number Theory Result, Charles H. Jepsen, 10:5, 1979, 306-312
The Use of Generating Functions to Discover and Prove Partition Identities, Henry L. Alder, 10:5, 1979, 318-329
On Sets of Points in the Plane and a Property of the Binomial Coefficients, Ross Honsberger, 11:2, 1980, 116-119, 0.3
Another Derivation of a Double Inequality, Norman Schaumberger, 11:4, 1980, 273, C
An Elementary Gem Concerning p(n), the Number of Primes less than or equal to n, Ross Honsberger, 11:5, 1980, 305-312

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Factoring Factorials, Richard J. Friedlander, 12:1, 1981, 12-20
Short Stories in Number Theory, Ross Honsberger, 12:1, 1981, 34-40
Some Conjectures on Fermat's Last Conjecture, Lawrence Sher and David Sher, 12:1, 1981, 51-52
Applying Complex Arithmetic, Herbert L. Holden, 12:3, 1981, 190-194
Forward and Backward with Euclid, Gary E. Stevens, 12:5, 1981, 302-306
A Classroom Approach to x^2 + y^2 + z^2 = w^2, Norman Schaumberger, 12:5, 1981, 331-332
Applying Complex Arithmetic, Herbert L. Holden, 12:3, 1981, 190-194, 0.6, 5.3.1, 9.5
Synthetic Division Shortened, Warren Page and Leo Chosid, 12:5, 1981, 334-336, C, 0.7
Smith Numbers, A. Wilansky, 13:1, 1982, 21, 0.1
Semi-Regular Lattice Polygons, Ross Honsberger, 13:1, 1982, 36-44, 3.1
A Simple Divisibility Algorithm, David Y. Hsu, 13:1, 1982, 58-59, C, 0.2
The Alluring Lore of Cyclic Numbers, Michael W. Ecker, 14:2, 1983, 105-109
License Numbers and Divisibility Rules, Harry Hutchins, 14:2, 1983, 122-125
Repeating Decimals, W. G. Leavitt, 15:4, 1984, 299-308
On the Natural Density of the Niven Numbers, Robert E. Kennedy and Curtis N. Cooper, 15:4, 1984, 309-312, 7.3
Pythagorean Systems of Numbers, Joseph Wiener, 15:4, 1984, 324-326, C, 0.2, 0.4
An Approach to Problem-Solving Using Equivalence Classes Modulo n, James E. Schultz and William F. Burger, 15:5, 1984, 401-405, 0.2
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Generalized Pythagorean Triples, W. J. Hildebrand, 16:1, 1985, 48-52, 0.6, 5.5
Medical Cozenage on Fermat's Last Theorem, Lee Whitt, 16:1, 1985, 55-56, C
The House Number Problem and its Variations, Joey Paul, 16:2, 1985, 108-117
A New Divisibility Algorithm, Joseph Whittaker, 16:4, 1985, 268-276, 0.2
The International Mathematical Olympiad Training Session, Cecil Rousseau and Gregg Patruno, 16:5, 1985, 362-365, 0.3, 2.2
Computing Large Factorials, Gerard Kiernan, 16:5, 1985, 403-412, 9.6
From None to Infinity: Challenging Problems in Cardinality Classification, Richard L. Francis, 17:3, 1986, 226-230
Cryptology: From Caesar Ciphers to Public-Key Cryptosystems, Dennis Luciano and Gordon Prichett, 18:1, 1987, 2-17, 7.2, 0.1


Generating Functions, William Watkins, 18:3, 1987, 195-211, 6.3, 5.4.2


On Partitioning a Real Number, William Staton, 19:1, 1988, 53-54, C, 5.1.4

Mathematical Haystacks: Another Look at Repunit Numbers, Richard L. Francis, 19:3, 1988, 240-246

Involutions and Problems Involving Perimeters and Area, Joseph Wiener and Henjin Chi and Hushang Poorkarimi, 19:3, 1988, 250-252, C, 9.5

Sieving Primes on a Micro, Harley Flanders and Alan F. Tomala, 19:4, 1988, 364-367, 8.1

Amalgamation fo Formulae for Sequences, N. S. Mendelsohn, 19:5, 1988, 421-424, C

Finding Rational Roots of Polynomials, Don Redmond, 20:2, 1989, 139-141, C, 0.7


Strings of Strongly Composite Integers and Invisible Lattice Points, Peter Schumer, 21:1, 1990, 37-40, C

Computer-Aided or Analytic Proof?, Herve Lehning, 21:3, 1990, 228-239


Triangles with Integer Sides and Sharing Barrels, David Singmaster, 21:4, 1990, 278-285, 0.4

The Birth of the Eotvos Competition, Agnes Arvai Wieschenberg, 21:4, 1990, 286-293, 2.2

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Summation by Parts, Gregory Fredricks and Roger B. Nelsen, 23:1, 1992, 39-44, C, 5.1.2, 5.4.1, 5.4.2

The Probability that (a, b)=1, Aaron D. Abrams and Matteo J. Paris, 23:1, 1992, 47, C

Number Theory and Linear Algebra: Exact Solutions of Integer Systems, George Mackiw, 23:1, 1992, 52-58, 4.1

A Serendipitous Application of the Pythagorean Triples, Susan Forman, 23:4, 1992, 312-314, C, 0.2


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Geometry: A Gateway to Understanding, Peter Hilton and Jean Pedersen, 24:4, 1993, 298-317, 0.3

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Eisenstein's Misunderstood Geometric Proof of the Quadratic Reciprocity Theorem, Reinhard C. Laubenbacher and David J. Pengelley, 25:1, 1994, 29-34

Frequencies of Digits in Factorials: An Experimental Approach, Michael L. Treuden, 25:1, 1994, 48-55

Euclid's (Gaussian) Algorithm: A Lattice Approach, Steve Benson, 25:2, 1994, 118-124

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, 9.5

Sums of Odd Squares, Roger B. Nelsen, 25:3, 1994, 246, C


The Repeating Integer Paradox, Paul Fjelstad, 26:1, 1995, 11-15
A Taylor-made Plug for Wiles' Proof, Nigel Boston, 26:2, 1995, 100-105
A Surprise Regarding the Equation $\phi(x) = 2(6n+1)$, Joseph B. Dence and Thomas P. Dence, 26:4, 1995, 297-301
The Square of Any Odd Number is the Difference Between Two Triangular Numbers (Proof Without Words), Roger B. Nelsen, 27:2, 1996, 118, C, 0.1
Fractions with Cycling Digit Patterns, Dan Kalman, 27:2, 1996, 109-115, 0.1
Generalizations of a Mathematical Olympiad Problem, Joe Klerlein and Scott Sportsman, 27:4, 1996, 296-297, 3.2
Digital Permutations, Bryan Dawson, 28:1, 1997, 26, C
A Long Sequence of Composite Numbers, Ed Pegg, Jr., 28:2, 1997, 121, C
Two Identities for Triangular Numbers (proof by picture), Roger B. Nelsen, 28:3, 1997, 197, C
On Dividing Coconuts: A Linear Diophantine Problem, Sahib Singh and Dip Bhattacharya, 28:3, 1997, 203-204, C, 5.4.3
Are There Functions That Generate Prime Numbers?, Paulo Ribenboim, 28:5, 1997, 352-359
The Brahmagupta Triangles, Raymond A. Beauregard and E. R. Suryanarayan, 29:1, 1998, 13-17, 0.4
A Class of Pleasing Periodic Designs, Federico Fernandez, 29:1, 1998, 18-26, 4.3, 9.4
Egyptian Fractions and the Inheritance Problem, Premchand Anne, 29:4, 1998, 296-300
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From Euler to Fermat, Hidefumi Katsuura, 30:2, 1999, 118-119, 9.5
Palindromic Primes, Harvey Dubner, 30:4, 1999, 292, C
Powers as Uniform Sums of Positive Squares, Robert J. Wisner, 30:4, 1999, 293-296
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Recursions That Produce Pythagorean Triples, Peter W. Wade and William R. Wade, 31:2, 2000, 98-101
General Arithmetic Triangles and Bhaskara’s Equation, Raymond Beauregard and E. R. Suryanarayan, 31:2, 2000, 111-115
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Meta-Problems in Mathematics, Al Cuoco, 31:5, 2000, 373-378, 0.7, 5.1.2
A Polynomial with a Root Mod m for Every m, Allen J. Schwenk, 31:5, 2000, 403-405, C, 9.4
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Close!, Noam Elkies, 33:1, 2002, 16, C
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It's Perfectly Rational, Philip K. Hotchkiss, 33:2, 2002, 113-117, 5.1.4
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