

# THE MATHEMATICS TEACHER

*An Official Journal of  
The National Council of Teachers of Mathematics  
(Incorporated)*

## **Classified Index, Volume 66 1973**

### **Author Index**

- Abbas, Sallie W. Some Investigations of N-Dimensional Geometries. Feb., 126-30.
- Allen, Charles E. Mission—Calendar. May, 435-38.
- Allen, Charles E. Mission—Tangrams. Feb., 143-46.
- Allison, Ronald. Computer Programming for the Seventh Grade. Jan., 17-19.
- Alpart, Bruce Jay. Auxiliary Lines—A Testing Problem. Feb., 159-60.
- Andersen, Harold. Griefless Graphing for the Novice. Oct., 519-22.
- Atchison, William F. The Impact of Computer Science Education on the Curriculum. Jan., 7 et s.
- Begle, E. G. Some Lessons Learned by SMSG. Mar., 207-14.
- Berlinghoff, William P. Numeration Bases and Infinity. Jan., 67-70.
- Bidwell, James K. Pascal's Triangle Revisited. May, 448-52.
- Bolster, L. Carey. Denominate Number Slide Rule. Jan., 49-50.
- Bolster, L. Carey. Midpoints and Measures. Nov., 627-30.
- Bolster, L. Carey. Napier's Bones. Jan., 47-48.
- Bolster, L. Carey. Tessellations. Apr., 339-42.
- Bompart, Bill. Teaching Concepts Incorrectly. May, 431-34.
- Booth, Ada. Two-Thirds of the Most Successful. Nov., 593-97.
- Brieske, Thomas J. Functions, Mappings, and Mapping Diagrams. May, 463-68.
- Brown, Gerald G., and Herbert C. Rutemiller. Some Probability Problems Concerning the Game of Bingo. May, 403-6.
- Brown, Gerald W., and Lucien B. Kinney. Let's Teach Them about Ratio. Apr., 352-55.
- Brown, Lynn H. Discovery of Formulas through Patterns. Apr., 337-38.
- Burdick, David L. The Empirical Foundations of Probability Theory. Apr., 316-18.
- Carleton, Edward J., Jr. Geometric Incidence Postulates Revisited. May, 462.
- Carson, George S. Soma Cubes. Nov., 583-92.
- Chen, Kwang Y. Graphic Solution of  $\frac{1}{r} = \frac{1}{p} + \frac{1}{q}$ . May, 455-58.
- Clason, Robert G. Problem Solving and Multiplication of Rational Numbers—Three Old Devices. May, 414-19.
- Clemens, Stanley R. Fixed Point Theorems in Euclidean Geometry. Apr., 324-30.
- Collister, Larew M., and Thomas R. McCabe. But What If It Doesn't Factor? Feb., 155-57.
- Conklin, June. Mathematical Induction—Indirectly. Jan., 85-86.
- Crouse, Richard J. A Simple Trigonometric Pattern. Dec., 746.
- Crouse, Richard J., and Clyde Reese. Using Algebra to Solve an Interesting Card Trick. Nov., 653-54.
- Davidson, Neil, Ronald McKeen, and Theodore Eisenberg. Curriculum Construction with Student Input. Mar., 271-75.
- Deakin, Michael A. B. A Numerical Approach to Natural Logarithms. Mar., 239-42.
- Dittrich, Alan B. An Experiment in Teaching the History of Mathematics. Jan., 35-38.
- Draim, N. A. A General Algorithm for Factorization. Dec., 741-46.
- Duncan, David R., and Bonnie H. Litwiller. Mathematics in Sports: Examples for General Mathematics. Mar., 201-6.
- Duncan, David R., and Bonnie H. Litwiller. Trigonometric Ratios: Algebraic or Transcendental. Feb., 173-74.
- The Editorial Panel. Editorial. Oct., 489.
- The Editorial Panel. A New Statement of Purpose—A Letter from the Editors. Jan., 4-5.
- The Editorial Panel. Thanks from the Editorial Panel. Dec., 753-755.
- Einhorn, Erwin. A Method for Approximating the Value of  $\pi$  with a Computer Application. May, 427-30.
- Eisenberg, Theodore, Neil Davidson, and Ronald McKeen. Curriculum Construction with Student Input. Mar., 271-75.
- Ellison, Alfred. The Binary Adder: A Flow Chart for the Addition of Binary Numbers. Feb., 131-34.



- Epstein, Marion G. Standardized Tests Can Measure the Right Things. Apr., 294 et s.
- Ercolano, Joseph L. Remarks on the Neglected Mean. Mar., 253-55.
- Ewbank, William A. If Pythagoras Had a Geoboard. . . . Mar., 215-21.
- Farrell, Margaret A., and Ernest R. Ranucci. On the Occasional Incompatibility of Algebra and Geometry. Oct., 491-97.
- Fisch, Forest N., and Norman N. Nelson. The Classical Cake Problem. Nov., 659-61.
- Fox, Mary Lou, et al., *Editors*. New Publications. Jan., 54-55; Feb., 151-53; Mar., 250-52; Apr., 349-51; May, 441-46; Oct., 540-45; Nov., 636-42; Dec., 732-738.
- Gibb, E. Glenadine. The Computer—A Facilitator in Management and Instruction. Jan., 6 et s.
- Gibbs, Richard A. Euler, Pascal, and the Missing Region. Jan., 27-28.
- Gore, Norman, and Sidney Penner. An Absent-Minded Professor Builds a Kite. Feb., 184-85.
- Greitzer, Samuel L. The First U.S.A. Mathematical Olympiad. Mar., 223-27.
- Gridgeman, N. T. Coprimes and Randomness. Nov., 663-64.
- Grossman, Howard. Urquhart's Quadrilateral Theorem. Nov., 643-44.
- Hansen, Viggo P., et al., *Editors*. New Products. Jan., 51-53; Feb., 148-51; Mar., 247-49; Apr., 346-48; May, 439-40; Oct., 536-37; Nov., 631-33; Dec., 727-30.
- Hartung, P. G., and C. J. Oxenrider. A Note on the Teaching of Algebraic Properties. Dec., 722.
- Hatcher, Robert S. Some Little-Known Recipes for  $\pi$ . May, 470-74.
- Hemmerly, Howard. Polyhedral Numbers. Apr., 356-62.
- Henry, Boyd. Some Investigations for Students of Mathematics. Mar., 231-34.
- Hernandez, Norma G. Instructional Strategies in Mathematics Education. Nov., 607-12.
- Herr, Edwin L., and Thomas E. Long. Teacher Perceptions of Basic Mathematics Skill Needs in Secondary Vocational Education. Jan., 61-66.
- Hestwood, Diana L., and Ross Taylor. Big Bad Basic Skills. Dec., 687-93.
- Hight, Donald W., et al., *Editors*. New Programs. Mar., 249; May, 441; Oct., 538-39; Nov., 634-35; Dec., 731.
- Himmelberger, Warren J. Puzzle Problems and Diophantine Equations. Feb., 136-38.
- Hughes, Barnabas B., O.F.M. Mathematics Education in Basel. May, 409-12.
- Jansson, Lars C. Spaces, Functions, Polygons, and Pascal's Triangle. Jan., 71-77.
- Jencks, Stanley M., and Donald M. Peck. Providing Advantage to the Disadvantaged. May, 422-25.
- Johnson, David R. The Element of Surprise: An Effective Classroom Technique. Jan., 13-16.
- Johnson, Randall E., et al., *Editors*. New Products. Jan., 51-53; Feb., 148-51; Mar., 247-49; Apr., 346-48; May, 439-40; Oct., 536-37; Nov., 631-33; Dec., 727-30.
- Kansky, Robert J., et al., *Editors*. New Programs. Mar., 249; May, 441; Oct., 538-39; Nov., 634-35; Dec., 731.
- Kennison, Jane L. The Flippant Juror Revisited. May, 420-21.
- Kieren, Thomas E. Computer Programming for the Mathematics Laboratory. Jan., 9-11.
- King, James L., Jr. A Method for Solution of Nonlinear Inequalities. Dec., 739-40.
- Kingston, J. Maurice. The Unexpected Attracts Attention. Nov., 655-56.
- Kinney, Lucien B., and Gerald W. Brown. Let's Teach Them about Ratio. Apr., 352-55.
- Koetke, Walter J., et al., *Editors*. New Products. Jan., 51-53; Feb., 148-51; Mar., 247-49; Apr., 346-48; May, 439-40; Oct., 536-37; Nov., 631-33; Dec., 727-30.
- Krause, Eugene F. Taxicab Geometry. Dec., 695-706.
- Kulm, Gerald. Sources of Reading Difficulty in Elementary Algebra Textbooks. Nov., 649-52.
- Laing, Robert A., and John C. Peterson. Assignments: Yesterday, Today, and Tomorrow—Today. Oct., 508-18.
- Lenz, Jerry. Geometry and Other Science Fiction. Oct., 529.
- Leonard, Courtney A. Those Intriguing Binomial Coefficients Again! Nov., 665-66.
- Lepowsky, William L. Total Angular Deficiency of Polyhedra. Dec., 748-52.
- Lipsey, Sally Irene, and Wolfe Snow. The Appreciation of Radian Measure in Elementary Calculus. Jan., 31-32.
- Litwiller, Bonnie H., and David R. Duncan. Mathematics in Sports: Examples for General Mathematics. Mar., 201-6.
- Litwiller, Bonnie H., and David R. Duncan. Trigonometric Ratios: Algebraic or Transcendental. Feb., 173-74.
- Long, Thomas E., and Edwin L. Herr. Teacher Perceptions of Basic Mathematics Skill Needs in Secondary Vocational Education. Jan., 61-66.
- Maletsky, Evan M. Conics from Straight Lines and Circles: Ellipses and Hyperbolas. Mar., 245-46.
- Maletsky, Evan M. Conics from Straight Lines and Circles: Parabolas. Mar., 243-44.
- Maletsky, Evan M. Fun with Flips. Oct., 531-34.
- Patterns and Positions. Dec., 723-26.
- May, Kenneth O., and Henry S. Tropp. Some Algebraic Equations Do Not Have Exactly  $N$  Roots. Feb., 179-82.
- McCabe, Thomas R., and Larew M. Collister. But What If It Doesn't Factor? Feb., 155-57.
- McDonald, Sam. The Case of the Missing Nines and How It Grew. Oct., 555-59.
- McGuire, Bill. Mathematical Induction and a Programming Problem. Jan., 21-22.
- McIntosh, Jerry A. Determining the Area of a Parabola. Jan., 88-91.
- McKeen, Ronald, Neil Davidson, and Theodore Eisenberg. Curriculum Construction with Student Input. Mar., 271-75.



- Mizrahi, Abe, and Michael Sullivan. *Mathematical Models and Applications: Suggestions for the High School Classroom*. May, 394-402.
- Montague, Harriet F. *Let Your Students Write a Book*. Oct., 548-50.
- Moore, Thomas E. *Cayley's Color Groups*. Nov., 615-18.
- Morley, Arthur. *Mathematics as "Process."* Jan., 39-45.
- Morrow, Lorna J. *Flow Charts for Equation Solving and Maintenance of Skills*. Oct., 499-506.
- Moursund, David. *Selecting Goals for an Introductory Computer Programming Course*. Nov., 599-603.
- Munger, Ralph. *An Algebraic Treatment of Magic Squares*. Feb., 101-7.
- Munro, H. Bernice, et al., *Editors*. *New Publications*. Jan., 54-55; Feb., 151-53; Mar., 250-52; Apr., 349-51; May, 441-46; Oct., 540-45; Nov., 636-42; Dec., 732-38.
- Musser, Gary L. *A Transcendental Machine*. May, 407-8.
- Nadler, Maurice. *A Geometric Interpretation of the Simplex Method of Linear Programming*. Mar., 257-64.
- Nelson, Norman N., and Forest N. Fisch. *The Classical Cake Problem*. Nov., 659-61.
- Newell, Robert A. *The Twelve Days of Christmas*. Dec., 707-8.
- Niebaum, Jerome. *Numerical Solution of Linear Equations*. Jan., 87.
- Oerant, Ian. *A Guide to Mathematical Discovery*. Apr., 331-35.
- Odds, Frank C. *Spirolaterals*. Feb., 121-24.
- Olson, Alton T. *Some Suggestions for an Informal Discovery Unit on Plane Convex Sets*. Mar., 267-69.
- Olson, Edward L. *Common Summation Formulas before Induction*. May, 453-54.
- Oxenrider, C. J., and P. G. Hartung. *A Note on the Teaching of Algebraic Properties*. Dec., 722.
- Palagi, George H. *A Conversation on Factoring*. Nov., 671-72.
- Parker, John O. *A Proof of the Remainder Theorem*. Feb., 142.
- Peak, Philip, et al., *Editors*. *New Publications*. Jan., 54-55; Feb., 151-53; Mar., 250-52; Apr., 349-51; May, 441-46; Oct., 540-45; Nov., 636-42; Dec., 732-38.
- Peck, Donald M., and Stanley M. Jencks. *Providing Advantage to the Disadvantaged*. May, 422-25.
- Penner, Sidney, and Norman Gore. *An Absent-Minded Professor Builds a Kite*. Feb., 184-85.
- Peterson, John C., and Robert A. Laing. *Assignments: Yesterday, Today, and Tomorrow—Today*. Oct., 508-18.
- Price, H. Vernon. *The Organization, the Goals, and Some Activities of the National Council of Teachers of Mathematics*. May, 476-80.
- Prielipp, Robert W. *The Euler  $\phi$ -Function and a Problem of Chance*. Mar., 283-86.
- Ranucci, Ernest R., and Margaret A. Farrell. *On the Occasional Incompatibility of Algebra and Geometry*. Oct., 491-97.
- Raphael, Brother L., F.S.C. *In Search of the Perfect Scalene Triangle*. Jan., 57-60.
- Raphael, Brother L., F.S.C. *The Shoemaker's Knife*. Apr., 319-23.
- Reese, Clyde, and Richard J. Crouse. *Using Algebra to Solve an Interesting Card Trick*. Nov., 653-54.
- Richards, Don K., et al., *Editors*. *New Programs*. Mar., 249; May, 441; Oct., 538-39; Nov., 634-35; Dec., 731.
- Rutemiller, Herbert C., and Gerald G. Brown. *Some Probability Problems Concerning the Game of Bingo*. May, 403-6.
- Schaumberger, Norman. *Some Comments on e*. Mar., 236-38.
- Schaumberger, Norman, et al., *Editors*. *New Publications*. Jan., 54-55; Feb., 151-53; Mar., 250-52; Apr., 349-51; May, 441-46; Oct., 540-45; Nov., 636-42; Dec., 732-38.
- Schmalz, Rosemary, S.P. *Categorization of Questions That Mathematics Teachers Ask*. Nov., 619-26.
- Schult, Veryl. *A Giant Step for NCTM*. May, 391-93.
- Schwartz, Benjamin L. *A New Sliding Block Puzzle*. Mar., 277-80.
- Sherzer, Laurence. *McKay's Theorem*. Mar., 229-30.
- Shilgalis, Thomas W. *Graphical Solution of the Equation  $a^b = b^a$* . Mar., 235.
- Siner, Helen B. A. *Responsive Mathematics Program for Open Admissions*. Oct., 523-27.
- Skeen, Kenneth C., et al., *Editors*. *New Publications*. Jan., 54-55; Feb., 151-53; Mar., 250-52; Apr., 349-51; May, 441-46; Oct., 540-45; Nov., 636-42; Dec., 732-38.
- Smith, Eugene P. *A Look at Mathematics Education Today*. Oct., 565-70.
- Spangler, Richard. *Lower Columbia College Mathematics Learning Center*. May, 459-62.
- Spaulding, Raymond E. *Tac Tix*. Nov., 605-6, *Hexiamonds*. Dec., 709-11.
- Starr, Norton. *A Paradox in Probability Theory*. Feb., 166-68.
- Stern, Burton L. *Algebra in Card Tricks*. Oct., 547.
- Stover, Donald W. *A Student's Construction*. Feb., 172.
- Straley, H. W. *A Metric World*. Dec., 713-21.
- Sullivan, Michael, and Abe Mizrahi. *Mathematical Models and Applications: Suggestions for the High School Classroom*. May, 394-402.
- Swetz, Frank. *Mathematics Education: The People's Republic of China*. Feb., 113-20.
- Tanis, Elliot A. *A Statistical Hypothesis Test for the Classroom*. Nov., 657-58.
- Taylor, Ross, and Diana L. Hestwood. *Big Bad Basic Skills*. Dec., 687-93.
- Trigg, Charles W. *Collapsible Models of Isosceles Tetrahedrons*. Feb., 109-12.
- Tropp, Henry S., and Kenneth O. May. *Some Algebraic Equations Do Not Have Exactly  $N$  Roots*. Feb., 179-82.



Ulrich, Robert C. A Computational Confidence Builder. Nov., 613.

Van Engen, Henry. A Note on "An Algebraic Treatment of Magic Squares." Dec., 747.

Vervoort, Gerardus. Inching Our Way toward the Metric System. Apr., 297-302.

Watman, Michael X. A Simulation Game for General Mathematics. Jan., 23-25.

Weiss, Sol. Teaching Mathematics to the Disadvantaged, Israeli Style. Apr., 309-15.

Westwood, Jack R. Construction of a Slide Rule with Compass and Straightedge. Feb., 162-64.

Whirl, Robert J. Problem Solving—Solution or Technique. Oct., 551-53.

White, Paul A. An Application of Clock Arithmetic. Nov., 645-47.

Wilder, R. L. Mathematics and Its Relations to Other Disciplines. Dec., 679-85.

Willcutt, Robert. Paths on a Grid. Apr., 303-7.

Wilson, James W. Standardized Tests Very Often Measure the Wrong Things. Apr., 295 et s.

Woo, Norman. A Generalized Base for Integers. Feb., 169-70.

Zatzkis, Henry. Another View of the Optimal Length of Play of a Binomial Game. Nov., 667-69.

## Title Index

An Absent-Minded Professor Builds a Kite. Norman Gore and Sidney Penner. Feb., 184-85.

Activities. Jan., 47-50; Feb., 143-46; Mar., 243-46; Apr., 339-42; May, 435-38; Oct., 531-34; Nov., 627-30; Dec., 723-26.

An Algebraic Treatment of Magic Squares. Ralph Munger. Feb., 101-7.

Algebra in Card Tricks. Burton L. Stern. Oct., 547.

Another View of the Optimal Length of Play of a Binomial Game. Henry Zatzkis. Nov., 667-69.

An Application of Clock Arithmetic. Paul A. White. Nov., 645-47.

The Appreciation of Radian Measure in Elementary Calculus. Sally Irene Lipsey and Wolfe Snow. Jan., 31-32.

Assignments: Yesterday, Today, and Tomorrow—Today. Robert A. Laing and John C. Peterson. Oct., 508-18.

Auxiliary Lines—A Testing Problem. Bruce Jay Alpart. Feb., 159-60.

Big Bad Basic Skills. Diana L. Hestwood and Ross Taylor. Dec., 687-93.

The Binary Adder: A Flow Chart for the Addition of Binary Numbers. Alfred Ellison. Feb., 131-34.

But What If It Doesn't Factor? Larew M. Collister and Thomas R. McCabe. Feb., 155-57.

The Case of the Missing Nines and How It Grew. Sam McDonald. Oct., 555-59.

Categorization of Questions That Mathematics Teachers Ask. Rosemary Schmalz, S. P. Nov., 619-26.

Cayley's Color Groups. Thomas E. Moore. Nov., 615-18.

The Classical Cake Problem. Forest N. Fisch and Norman N. Nelson. Nov., 659-61.

Collapsible Models of Isosceles Tetrahedrons. Charles W. Trigg. Feb., 109-12.

Common Summation Formulas before Induction. Edward L. Olson. May, 453-54.

A Computational Confidence Builder. Robert C. Ulrich. Nov., 613.

The Computer—A Facilitator in Management and Instruction. E. Glenadine Gibb. Jan., 6 et s.

Computer Programming for the Mathematics Laboratory. Thomas E. Kieren. Jan., 9-11.

Computer Programming for the Seventh Grade. Ronald Allison. Jan., 17-19.

Conics from Straight Lines and Circles: Ellipses and Hyperbolas. Evan M. Maletsky. Mar., 245-46.

Conics from Straight Lines and Circles: Parabolas. Evan M. Maletsky. Mar., 243-44.

Construction of a Slide Rule with Compass and Straightedge. Jack R. Westwood. Feb., 162-64.

A Conversation on Factoring. George H. Palagi. Nov., 671-72.

Coprimes and Randomness. N. T. Gridgeman. Nov., 663-64.

Curriculum Construction with Student Input. Neil Davidson, Ronald McKeen, and Theodore Eisenberg. Mar., 271-75.

Denominate Number Slide Rule. L. Carey Bolster. Jan., 49-50.

Determining the Area of a Parabola. Jerry A. McIntosh. Jan., 88-91.

Discovery of Formulas through Patterns. Lynn H. Brown. Apr., 337-38.

Editorial. The Editorial Panel. Oct., 489.

The Element of Surprise: An Effective Classroom Technique. David R. Johnson. Jan., 13-16.

The Empirical Foundations of Probability Theory. David L. Burdick. Apr., 316-18.

The Euler  $\phi$ -Function and a Problem of Chance. Robert W. Prielipp. Mar., 283-86.

Euler, Pascal, and the Missing Region. Richard A. Gibbs. Jan., 27-28.

An Experiment in Teaching the History of Mathematics. Alan B. Dittrich. Jan., 35-38.

The First U. S. A. Mathematical Olympiad. Samuel L. Greitzer. Mar., 223-27.



- Fixed Point Theorems in Euclidean Geometry. Stanley R. Clemens. Apr., 324-30.
- The Flippant Juror Revisited. Jane L. Kennison. May, 420-21.
- Flow Charts for Equation Solving and Maintenance of Skills. Lorna J. Morrow. Oct., 499-506.
- The Forum. The Computer in Secondary Mathematics, Jan., 6 et s.; Do Standardized Tests Measure the Wrong Things?, Apr., 294 et s.
- Functions, Mappings, and Mapping Diagrams. Thomas J. Brieske. May, 463-68.
- Fun with Flips. Evan M. Maletsky. Oct., 531-34.
- A General Algorithm for Factorization. N. A. Draim. Dec., 741-46.
- A Generalized Base for Integers. Norman Woo. Feb., 169-70.
- Geometric Incidence Postulates Revisited. Edward J. Carleton, Jr. May, 462.
- A Geometric Interpretation of the Simplex Method of Linear Programming. Maurice Nadler. Mar., 257-64.
- Geometry and Other Science Fiction. Jerry Lenz. Oct., 529.
- A Giant Step for NCTM. Veryl Schult. May, 391-93.
- Graphical Solution of the Equation  $a^b = b^a$ . Thomas W. Shilgalis. Mar., 235.
- Graphic Solution of  $\frac{1}{r} = \frac{1}{p} + \frac{1}{q}$ . Kwang Y. Chen. May, 455-58.
- Griefless Graphing for the Novice. Harold Andersen. Oct., 519-22.
- The Guidelines for the Preparation of Teachers of Mathematics. NCTM Commission on Preservice Education of Teachers of Mathematics. Dec., 756-60.
- A Guide to Mathematical Discovery. Ian Ocrant. Apr., 331-35.
- Hexiamonds. Raymond E. Spaulding. Dec., 709-11.
- If Pythagoras Had a Geoboard. . . . William A. Ewbank. Mar., 215-21.
- The Impact of Computer Science Education on the Curriculum. William F. Atchison. Jan., 7 et s.
- Inching Our Way toward the Metric System. Gerardus Vervoort. Apr., 297-302.
- In Search of the Perfect Scalene Triangle. Brother L. Raphael, F. S. C. Jan., 57-60.
- Instructional Strategies in Mathematics Education. Norma G. Hernandez. Nov., 607-12.
- Let's Teach Them about Ratio. Gerald W. Brown and Lucien B. Kinney. Apr., 352-55.
- Let Your Students Write a Book. Harriet F. Montague. Oct., 548-50.
- A Look at Mathematics Education Today. Eugene P. Smith. Oct., 565-70.
- Lower Columbia College Mathematics Learning Center. Richard Spangler. May, 459-62.
- Mathematical Induction and a Programming Problem. Bill McGuire. Jan., 21-22.
- Mathematical Induction—Indirectly. June Conklin. Jan., 85-86.
- Mathematical Models and Applications: Suggestions for the High School Classroom. Abe Mizrahi and Michael Sullivan. May, 394-402.
- Mathematics and Its Relations to Other Disciplines. R. L. Wilder. Dec., 679-85.
- Mathematics as "Process." Arthur Morley. Jan., 39-45.
- Mathematics Education in Basel. Barnabas B. Hughes, O. F. M. May, 409-12.
- Mathematics Education: The People's Republic of China. Frank Swetz. Feb., 113-20.
- Mathematics in Sports: Examples for General Mathematics. David R. Duncan and Bonnie H. Litwiller. Mar., 201-6.
- McKay's Theorem. Laurence Sherzer. Mar., 229-30.
- A Method for Approximating the Value of  $\pi$  with a Computer Application. Erwin Einhorn. May, 427-30.
- A Method for Solution of Nonlinear Inequalities. James L. King, Jr. Dec., 739-40.
- A Metric World. H. W. Straley. Dec., 713-21.
- Midpoints and Measures. L. Carey Bolster. Nov., 627-30.
- Mission—Calendar. Charles E. Allen. May, 435-38.
- Mission—Tangrams. Charles E. Allen. Feb., 143-46.
- Napier's Bones. L. Carey Bolster. Jan., 47-48.
- National Council of Teachers of Mathematics. See under NCTM in the Subject Index.
- New Products. Viggo P. Hansen, Randall E. Johnson, Walter J. Koetke, *Editors*. Jan., 51-53; Feb., 148-51; Mar., 247-49; Apr., 346-48; May, 439-40; Oct., 536-37; Nov., 631-33; Dec., 727-30.
- New Programs. Donald W. Hight, Robert J. Kansky, and Don K. Richards, *Editors*. Mar., 249; May, 441; Oct., 538-39; Nov., 634-35; Dec., 731.
- New Publications. Mary Lou Fox, H. Bernice Munro, Philip Peak, Norman Schaumberger, Kenneth C. Skeen, *Editors*. Jan., 54-55; Feb., 151-53; Mar., 250-52; Apr., 349-51; May, 441-46; Oct., 540-45; Nov., 636-42; Dec., 732-38.
- A New Sliding Block Puzzle. Benjamin L. Schwartz. Mar., 277-80.
- A New Statement of Purpose—A Letter from the Editors. The Editorial Panel. Jan., 4-5.
- A Note on "An Algebraic Treatment of Magic Squares." Henry Van Engen. Dec., 747.
- A Note on the Teaching of Algebraic Properties. C. J. Oxenrider and P. G. Hartung. Dec., 722.
- Numeration Bases and Infinity. William P. Berlinghoff. Jan., 67-70.
- A Numerical Approach to Natural Logarithms. Michael A. B. Deakin. Mar., 239-42.
- Numerical Solution of Linear Equations. Jerome Niebaum. Jan., 87.
- On the Occasional Incompatibility of Algebra and Geometry. Margaret A. Farrell and Ernest R. Ranucci. Oct., 491-97.
- The Organization, the Goals, and Some Activities of the National Council of Teachers of Mathematics. H. Vernon Price. May, 476-80.



- A Paradox in Probability Theory. Norton Starr. Feb., 166-68.
- Pascal's Triangle Revisited. James K. Bidwell. May, 448-52.
- Paths on a Grid. Robert Willcutt. Apr., 303-7.
- Patterns and Positions. Evan M. Maletsky. Dec., 723-26.
- Polyhedral Numbers. Howard Hemmerly. Apr., 356-62.
- Problem Solving and Multiplication of Rational Numbers—Three Old Devices. Robert G. Clason. May, 414-19.
- Problem Solving—Solution or Technique. Robert J. Whirl. Oct., 551-53.
- A Proof of the Remainder Theorem. John O. Parker. Feb., 142.
- Providing Advantage to the Disadvantaged. Donald M. Peck and Stanley M. Jencks. May, 422-25.
- Puzzle Problems and Diophantine Equations. Warren J. Himmelberger. Feb., 136-38.
- Recreation. Raymond E. Spaulding. Nov., 605-6, Dec., 709-11.
- Remarks on the Neglected Mean. Joseph L. Ercolano. Mar., 253-55.
- A Responsive Mathematics Program for Open Admissions. Helen B. Siner. Oct., 523-27.
- Selecting Goals for an Introductory Computer Programming Course. David Moursund. Nov., 599-603.
- The Shoemaker's Knife. Brother L. Raphael. F. S. C. Apr., 319-23.
- A Simple Trigonometric Pattern. Richard J. Crouse. Dec., 746.
- A Simulation Game for General Mathematics. Michael X. Watman. Jan., 23-25.
- Soma Cubes. George S. Carson. Nov., 583-92.
- Some Algebraic Equations Do Not Have Exactly  $N$  Roots. Kenneth O. May, and Henry S. Tropp. Feb., 179-82.
- Some Comments on  $e$ . Norman Schaumberger. Mar., 236-38.
- Some Investigations for Students of Mathematics. Boyd Henry. Mar., 231-34.
- Some Investigations of  $N$ -Dimensional Geometries. Sallie W. Abbas. Feb., 126-30.
- Some Lessons Learned by SMSG. E. G. Begle. Mar., 207-14.
- Some Little-Known Recipes for  $\pi$ . Robert S. Hatcher. May, 470-74.
- Some Probability Problems Concerning the Game of Bingo. Gerald G. Brown and Herbert C. Rutemiller. May, 403-6.
- Some Suggestions for an Informal Discovery Unit on Plane Convex Sets. Alton T. Olson. Mar., 267-69.
- Sources of Reading Difficulty in Elementary Algebra Textbooks. Gerald Kulm. Nov., 649-52.
- Spaces, Functions, Polygons, and Pascal's Triangle. Lars C. Jansson. Jan., 71-77.
- Spirolaterals. Frank C. Odds. Feb., 121-24.
- Standardized Tests Can Measure the Right Things. Marion G. Epstein. Apr., 294 et s.
- Standardized Tests Very Often Measure the Wrong Things. James W. Wilson. Apr., 295 et s.
- A Statistical Hypothesis Test for the Classroom. Elliot A. Tanis. Nov., 657-58.
- A Student's Construction. Donald W. Stover. Feb., 172.
- Tac Tix. Raymond E. Spaulding. Nov., 605-6.
- Taxicab Geometry. Eugene F. Krause. Dec., 695-706.
- Teacher Perceptions of Basic Mathematics Skill Needs in Secondary Vocational Education. Thomas E. Long and Edwin L. Herr. Jan., 61-66.
- Teaching Concepts Incorrectly. Bill Bompert. May, 431-34.
- Teaching Mathematics to the Disadvantaged, Israeli Style. Sol Weiss. Apr., 309-15.
- Tessellations. L. Carey Bolster. Apr., 339-42.
- Thanks from the Editorial Panel. The Editorial Panel. Dec., 753-55.
- Those Intriguing Binomial Coefficients Again! Courtney A. Leonard. Nov., 665-66.
- Total Angular Deficiency of Polyhedra. William L. Lepowsky. Dec., 748-52.
- A Transcendental Machine. Gary L. Musser. May, 407-8.
- Trigonometric Ratios: Algebraic or Transcendental. David R. Duncan and Bonnie H. Litwiller. Feb., 173-74.
- The Twelve Days of Christmas. Robert A. Newell. Dec., 707-8.
- Two-Thirds of the Most Successful. Ada Booth. Nov., 593-97.
- The Unexpected Attracts Attention. J. Maurice Kingston. Nov., 655-56.
- Urquhart's Quadrilateral Theorem. Howard Grossman. Nov., 643-44.
- Using Algebra to Solve an Interesting Card Trick. Richard J. Crouse and Clyde Reese. Nov., 653-54.

## Subject Index

### ABILITY GROUPING

See Individual Differences or Teaching Methods, Individualized Instruction

### ALGEBRA

#### Miscellaneous

Algebra in Card Tricks, 547.



- The Twelve Days of Christmas, 707-8.
- Teaching Methods**
- A Conversation on Factoring, 671-72.
- Curriculum Construction with Student Input, 271-75.
- Discovery of Formulas through Patterns, 337-38.
- Flow Charts for Equation Solving and Maintenance of Skills, 499-506.
- Graphic Solution of  $\frac{1}{r} = \frac{1}{p} + \frac{1}{q}$ , 455-58.
- Lower Columbia College Mathematics Learning Center, 459-62.
- A Method for Solution of Nonlinear Inequalities, 739-40.
- A Note on the Teaching of Algebraic Properties, 722.
- Some Investigations for Students of Mathematics, 231-34.
- Teaching Concepts Incorrectly, 431-34.
- Topics in**
- An Algebraic Treatment of Magic Squares, 101-7.
- But What If It Doesn't Factor?, 155-57.
- Cayley's Color Groups, 615-18.
- Common Summation Formulas before Induction, 453-54.
- Determining the Area of a Parabola, 88-91.
- Euler, Pascal, and the Missing Region, 27-28.
- Functions, Mappings, and Mapping Diagrams, 463-68.
- A Geometric Interpretation of the Simplex Method of Linear Programming, 257-64.
- Graphical Solution of the Equation  $a^b = b^a$ , 235.
- Mathematical Induction—Indirectly, 85-86.
- A Note on "An Algebraic Treatment of Magic Squares," 747.
- A Numerical Approach to Natural Logarithms, 239-42.
- Numerical Solution of Linear Equations, 87.
- On the Occasional Incompatibility of Algebra and Geometry, 491-97.
- Pascal's Triangle Revisited, 448-52.
- Problem Solving—Solution or Technique, 551-53.
- A Proof of the Remainder Theorem, 142.
- Some Algebraic Equations Do Not Have Exactly  $N$  Roots, 179-82.
- Some Comments on  $e$ , 236-38.
- Some Investigations for Students of Mathematics, 231-34.
- Those Intriguing Binomial Coefficients Again! 665-66.

#### APPLICATIONS

- Business and Consumer**
- Let's Teach Them about Ratio, 352-55.
- Mathematical Models and Applications:**
- Suggestions for the High School Classroom, 394-402.
- Mathematics and Its Relation to Other Disciplines, 679-85.**
- Mathematics in Sports: Examples for General Mathematics, 201-6.**
- A Simulation Game for General Mathematics, 23-25.**

#### Miscellaneous

- Some Probability Problems Concerning the Game of Bingo, 403-6.
- Science and Engineering**
- Mathematical Models and Applications:**
- Suggestions for the High School Classroom, 394-402.
- Mathematics and Its Relation to Other Disciplines, 679-85.**
- Social Science**
- Two-Thirds of the Most Successful, 593-97.

#### ARITHMETIC

##### Teaching Methods

- Big Bad Basic Skills, 687-93.
- Flow Charts for Equation Solving and Maintenance of Skills, 499-506.
- Let's Teach Them about Ratio, 352-55.
- Problem Solving and Multiplication of Rational Numbers—Three Old Devices, 414-19.

##### Topics in

- A General Algorithm for Factorization, 741-46.
- McKay's Theorem, 229-30.

#### AUDIOVISUAL MATERIALS

- See Visual Aids and Audiovisual Materials

#### BIBLIOGRAPHY

- See particular subject

#### CALCULATORS

- See Computers and Calculators

#### CALCULUS

##### Topics in

- The Appreciation of Radian Measure in Elementary Calculus, 31-32.
- Determining the Area of a Parabola, 88-91.

#### CALENDARS

- Mission—Calendar, 435-38.

#### COMPUTERS AND CALCULATORS

- The Binary Adder: A Flow Chart for the Addition of Binary Numbers, 131-34.
- But What If It Doesn't Factor?, 155-57.
- The Computer—A Facilitator in Management and Instruction, 6 et s.
- Computer Programming for the Mathematics Laboratory, 9-11.
- Computer Programming for the Seventh Grade, 17-19.
- Denominate Number Slide Rule, 49-50.
- A Guide to Mathematical Discovery, 331-35.
- The Impact of Computer Science Education on the Curriculum, 7 et s.
- Mathematical Induction and a Programming Problem, 21-22.
- A Method for Approximating the Value of  $\pi$  with a Computer Application, 427-30.
- Napier's Bones, 47-48.
- New Products, 52-53, 150-51, 248-49, 347-48, 439-40, 537, 632-33, 727-30.
- New Programs, 441, 731.

Selecting Goals for an Introductory Computer Programming Course, 599-603.  
Some Little-Known Recipes for  $\pi$ , 470-74.

## CURRICULUM

### College

New Programs, 249, 731.  
A Responsive Mathematics Program for Open Admissions, 523-27.

### Elementary

New Programs, 538-39, 731.

### High School

New Programs, 538-39, 731.

### Miscellaneous

Curriculum Construction with Student Input, 271-75.  
Mathematics Education: The People's Republic of China, 113-20.  
Some Lessons Learned by SMSG, 207-14.

## DEVICES

See also Visual Aids and Audiovisual Materials

Construction of a Slide Rule with Compass and Straightedge, 162-64.  
Denominate Number Slide Rule, 49-50.  
Flow Charts for Equation Solving and Maintenance of Skills, 499-506.  
If Pythagoras Had a Geoboard..., 215-21.  
Napier's Bones, 47-48.

## FILMS AND FILMSTRIPS

See Visual Aids and Audiovisual Materials

## GENERAL MATHEMATICS

A Simulation Game for General Mathematics, 23-25.

## GEOMETRY

### Miscellaneous

Collapsible Models of Isosceles Tetrahedrons, 109-12.  
Fun with Flips, 531-34.  
Geometry and Other Science Fiction, 529.  
Hexiamonds, 709-11.  
Midpoints and Measures, 627-30.  
Mission—Tangrams, 143-46.  
New Products, 631, 727-30.

### Teaching Methods

Assignments: Yesterday, Today, and Tomorrow—Today, 508-18.

Auxiliary Lines—A Testing Problem, 159-60.

Conics from Straight Lines and Circles: Ellipses and Hyperbolas, 245-46.

Conics from Straight Lines and Circles: Parabolas, 243-44.

If Pythagoras Had a Geoboard..., 215-21.

New Products, 149-50, 727-30.

Tessellations, 339-42.

### Topics in

An Absent-Minded Professor Builds a Kite, 184-85.

The Classical Cake Problem, 659-61.

Fixed Point Theorems in Euclidean Geometry, 324-30.

Functions, Mappings, and Mapping Diagrams, 463-68.

Geometric Incidence Postulates Revisited, 462.

In Search of the Perfect Scalene Triangle, 57-60.

Mathematics in Sports: Examples for General Mathematics, 201-6.

A Metric World, 713-21.

On the Occasional Incompatibility of Algebra and Geometry, 491-97.

Remarks on the Neglected Mean, 253-55.

The Shoemaker's Knife, 319-23.

Some Investigations of  $N$ -Dimensional Geometries, 126-30.

Some Suggestions for an Informal Discovery Unit on Plane Convex Sets, 267-69.

Spaces, Functions, Polygons, and Pascal's Triangle, 71-77.

Spirolaterals, 121-24.

A Student's Construction, 172.

Taxicab Geometry, 695-706.

Total Angular Deficiency of Polyhedra, 748-52.

Urquhart's Quadrilateral Theorem, 643-44.

## GRAPHS AND GRAPHING

Cayley's Color Groups, 615-18.

Conics from Straight Lines and Circles: Ellipses and Hyperbolas, 245-46.

Conics from Straight Lines and Circles: Parabolas, 243-44.

Functions, Mappings, and Mapping Diagrams, 463-68.

Graphic Solution of  $\frac{1}{r} = \frac{1}{p} + \frac{1}{q}$ , 455-58.

Griefless Graphing for the Novice, 519-22.

## HISTORY OF MATHEMATICS

### Miscellaneous

An Experiment in Teaching the History of Mathematics, 35-38.

### Topics in

Problem Solving and Multiplication of Rational Numbers—Three Old Devices, 414-19.

Remarks on the Neglected Mean, 253-55.

The Shoemaker's Knife, 319-23.

## INDIVIDUAL DIFFERENCES

Teaching Mathematics to the Disadvantaged, Israeli Style, 309-15.

## INDIVIDUALIZED INSTRUCTION

See Teaching Methods, Individualized Instruction

## INDUCTION, MATHEMATICAL

Common Summation Formulas before Induction, 453-54.

Mathematical Induction and a Programming Problem, 21-22.

Mathematical Induction—Indirectly, 85-86.

## LIMITS

A Numerical Approach to Natural Logarithms, 239-42.



Some Comments on  $e$ , 236-38.

## LITERATURE

Geometry and Other Science Fiction, 529.  
New Publications, 54-55, 151-53, 250-52,  
349-51, 441-46, 540-45, 636-42, 732-38.

## MATHEMATICS IN GENERAL

Cultural Values of  
Mathematics and Its Relation to Other  
Disciplines, 679-85.

Education  
A Look at Mathematics Education Today,  
565-70.  
Some Lessons Learned by MSG, 207-14.

## MATHEMATICS IN OTHER COUNTRIES

Mathematics Education in Basel, 409-12.  
Mathematics Education: The People's Repu-  
blic of China, 113-20.  
Teaching Mathematics to the Disadvantaged,  
Israeli Style, 309-15.

## MEASUREMENT

The Appreciation of Radian Measure in  
Elementary Calculus, 31-32.  
Big Bad Basic Skills, 687-93.  
Inching Our Way toward the Metric System,  
297-302.  
Standardized Tests Can Measure the Right  
Things, 294 et s.  
Standardized Tests Very Often Measure the  
Wrong Things, 295 et s.

## NCTM

Affiliated Groups  
Board Action on 1972 Delegate Assembly  
Resolutions, 187-89.  
NCTM Affiliated Group Officers, 372-84.  
Committee Reports  
The Guidelines for the Preparation of  
Teachers of Mathematics, 756-58.  
Nominations for the 1974 Election, 576.  
Nominees for 1974 Election, 93.  
Vote, 192.

### Meetings

Registration at NCTM Conventions, 673-74.  
Your Professional Dates, 94-95, 190-91,  
288-91, 384-86, 481-83, 577-79, 674-75,  
759-60.

### Membership

Membership and Subscriptions, 673.

### Minutes

Minutes of the Annual Business Meeting,  
570-72.

### Miscellaneous

Building Dedication Plans, 387.  
A Giant Step for NCTM, 391-93.  
The Organization, the Goals, and Some  
Activities of the National Council of  
Teachers of Mathematics, 476-80.

Officers, Committees, Projects, and Represen-  
tatives

Directors, Committees, and Representatives,  
1972-73—Supplemental List, 189-90.

NCTM Officers and Directors Elected in  
1973, 561-64.

Officers, Directors, Committees, Projects,  
and Representatives (1973-74), 572-76.

### President's Messages

A Look at Mathematics Education Today,  
565-70.

## NUMBERS AND NUMBER SYSTEMS, THEORY

An Application of Clock Arithmetic, 645-47.  
The Binary Adder: A Flow Chart for the  
Addition of Binary Numbers, 131-34.  
The Case of the Missing Nines and How It  
Grew, 555-59.

Coprimes and Randomness, 663-64.

The Euler  $\phi$ -Function and a Problem of  
Chance, 283-86.

A General Algorithm for Factorization, 741-  
46.

A Generalized Base for Integers, 169-70.

A Method for Approximating the Value of  
 $\pi$  with a Computer Application, 427-30.

Numeration Bases and Infinity, 67-70.

Polyhedral Numbers, 356-62.

Puzzle Problems and Diophantine Equations,  
136-38.

Some Little-Known Recipes for  $\pi$ , 470-74.  
A Transcendental Machine, 407-8.

The Unexpected Attracts Attention, 655-56.

## OPINIONS AND PHILOSOPHIES

Editorial, 489.

A New Statement of Purpose—A Letter from  
the Editors, 4-5.

Some Lessons Learned by MSG, 207-14.  
Thanks from the Editorial Panel, 753-55.

## PHILOSOPHY

See Opinions and Philosophies

## PROBABILITY

Another View of the Optimal Length of  
Play of a Binomial Game, 667-69.

Coprimes and Randomness, 663-64.

The Empirical Foundations of Probability  
Theory, 316-18.

The Flippant Juror Revisited, 420-21.

A Paradox in Probability Theory, 166-68.

Some Probability Problems Concerning the  
Game of Bingo, 403-6.

A Statistical Hypothesis Test for the Class-  
room, 657-58.

Two-Thirds of the Most Successful, 593-97.

## PROBLEM SOLVING

Mathematics as "Process," 39-45.

Paths on a Grid, 303-7.

Problem Solving and Multiplication of  
Rational Numbers—Three Old Devices,  
414-19.

Problem Solving—Solution or Technique,  
551-53.



## RECREATIONAL MATHEMATICS

- Algebra in Card Tricks, 547.
- A Computational Confidence Builder, 613.
- Fun with Flips, 531-34.
- Hexiamonds, 709-11.
- New Products, 149, 439, 632, 727-30.
- A New Sliding Block Puzzle, 277-80.
- Puzzle Problems and Diophantine Equations, 136-38.
- Soma Cubes, 583-92.
- Tac Tix, 605-6.
- The Twelve Days of Christmas, 707-8.
- Using Algebra to Solve an Interesting Card Trick, 653-54.

## RESEARCH

- Teacher Perceptions of Basic Mathematics Skill Needs in Secondary Vocational Education, 61-66.

## STATISTICS

- Mathematics in Sports: Examples for General Mathematics, 201-6.
- A Statistical Hypothesis Test for the Classroom, 657-58.
- Two-Thirds of the Most Successful, 593-97.

## SYMBOLISM

- Mathematics as "Process," 39-45.
- Sources of Reading Difficulty in Elementary Algebra Textbooks, 649-52.

## TEACHER

- Education
  - The Guidelines for the Preparation of Teachers of Mathematics, 756-58.
  - The Impact of Computer Science Education on the Curriculum, 7 et s.
- Evaluation of
  - Categorization of Questions That Mathematics Teachers Ask, 619-26.
- Miscellaneous
  - Some Lessons Learned by SMSG, 207-14.

## TEACHING METHODS

- Discovery
  - Discovery of Formulas through Patterns, 337-38.
  - A Guide to Mathematical Discovery, 331-35.
  - Some Suggestions for an Informal Discovery Unit on Plane Convex Sets, 267-69.
  - Spaces, Functions, Polygons, and Pascal's Triangle, 71-77.
- Expository
  - Instructional Strategies in Mathematics Education, 607-12.
- Individualized Instruction
  - The Computer—A Facilitator in Management and Instruction, 6 et s.

A Look at Mathematics Education Today, 565-70.

Mathematics as "Process," 39-45.

## Miscellaneous

- Assignments: Yesterday, Today, and Tomorrow—Today, 508-18.
- Categorization of Questions That Mathematics Teachers Ask, 619-26.
- Computer Programming for the Mathematics Laboratory, 9-11.
- Computer Programming for the Seventh Grade, 17-19.
- The Element of Surprise: An Effective Classroom Technique, 13-16.
- Instructional Strategies in Mathematics Education, 607-12.
- Let Your Students Write a Book, 548-50.
- Paths on a Grid, 303-7.
- Patterns and Positions, 723-26.
- Providing Advantage to the Disadvantaged, 422-25.
- Teaching Concepts Incorrectly, 431-34.
- Teaching Mathematics to the Disadvantaged, Israeli Style, 309-15.

## Programmed Instruction

- The Binary Adder: A Flow Chart for the Addition of Binary Numbers, 131-34.
- Lower Columbia College Mathematics Learning Center, 459-62.

## TESTS

- The First U.S.A. Mathematical Olympiad, 223-27.
- Standardized Tests Can Measure the Right Things, 294 et s.
- Standardized Tests Very Often Measure the Wrong Things, 295 et s.

## TEXTBOOKS

- A Metric World, 713-21.
- Sources of Reading Difficulty in Elementary Algebra Textbooks, 649-52.

## TRIGONOMETRY

- A Simple Trigonometric Pattern, 746.
- Some Little-Known Recipes for  $\pi$ , 470-74.
- Those Intriguing Binomial Coefficients Again!, 665-66.
- Trigonometric Ratios: Algebraic or Transcendental, 173-74.

## VISUAL AIDS AND AUDIOVISUAL MATERIALS

- Collapsible Models of Isosceles Tetrahedrons, 109-12.
- New Products, 51-52, 148-49, 247-48, 346-48, 439, 536-37, 631, 727-30.

## VOCATIONAL MATHEMATICS

- Teacher Perceptions of Basic Mathematics Skill Needs in Secondary Vocational Education, 61-66.