

Bibliography

- [Ackerson] R. H. Ackerson, *A Note on Vector Spaces*, American Mathematical Monthly, vol. 62 no. 10 (Dec. 1955), p. 721.
- [Am. Math. Mon., Jun. 1931] C. A. Rupp (proposer), H. T. R. Aude (solver), problem 3468, American Mathematical Monthly, vol. 37 no. 6 (June-July 1931), p. 355.
- [Am. Math. Mon., Feb. 1933] V. F. Ivanoff (proposer), T. C. Esty (solver), problem 3529, American Mathematical Monthly, vol. 39 no. 2 (Feb. 1933), p. 118.
- [Am. Math. Mon., Jan. 1935] W. R. Ransom (proposer), Hansraj Gupta (solver), Elementary problem 105, American Mathematical Monthly, vol. 42 no. 1 (Jan. 1935), p. 47.
- [Am. Math. Mon., Jan. 1949] C. W. Trigg (proposer), R. J. Walker (solver), Elementary problem 813, American Mathematical Monthly, vol. 56 no. 1 (Jan. 1949), p. 33.
- [Am. Math. Mon., Jun. 1949] Don Walter (proposer), Alex Tytun (solver), Elementary problem 834, American Mathematical Monthly, vol. 56 no. 6 (June-July 1949), p. 409.
- [Am. Math. Mon., Nov. 1951] Albert Wilansky, *The Row-Sums of the Inverse Matrix*, American Mathematical Monthly, vol. 58 no. 9 (Nov. 1951), p. 614.
- [Am. Math. Mon., Feb. 1953] Norman Anning (proposer), C. W. Trigg (solver), Elementary problem 1016, American Mathematical Monthly, vol. 60 no. 2 (Feb. 1953), p. 115.
- [Am. Math. Mon., Apr. 1955] Vern Haggett (proposer), F. W. Saunders (solver), Elementary problem 1135, American Mathematical Monthly, vol. 62 no. 4 (Apr. 1955), p. 257.
- [Am. Math. Mon., Jan. 1963] Underwood Dudley, Arnold Lebow (proposers), David Rothman (solver), Elementary problem 1151, American Mathematical Monthly, vol. 70 no. 1 (Jan. 1963), p. 93.

- [Am. Math. Mon., Dec. 1966] Hans Liebeck, *A Proof of the Equality of Column Rank and Row Rank of a Matrix* American Mathematical Monthly, vol. 73 no. 10 (Dec. 1966), p. 1114.
- [Anton] Howard Anton, *Elementary Linear Algebra*, John Wiley & Sons, 1987.
- [Arrow] Kenneth J. Arrow, *Social Choice and Individual Values*, Wiley, 1963.
- [Austin] David Austin, *How Google Finds Your Needle in the Web's Haystack*, <http://www.ams.org/samplings/feature-column/fcarc-pagerank>, retrieved Feb. 2012.
- [Ball & Coxeter] W.W. Rouse Ball, *Mathematical Recreations and Essays*, revised by H.S.M. Coxeter, MacMillan, 1962.
- [Beck] Matthias Beck, Ross Geoghegan, *The Art of Proof*, <http://math.sfsu.edu/beck/papers/aop.noprint.pdf>, 2011-Aug-08.
- [Beardon] A.F. Beardon, *The Dimension of the Space of Magic Squares*, The Mathematical Gazette, vol. 87, no. 508 (Mar. 2003), p. 112-114.
- [Birkhoff & MacLane] Garrett Birkhoff, Saunders MacLane, *Survey of Modern Algebra*, third edition, Macmillan, 1965.
- [Blass 1984] A. Blass, *Existence of Bases Implies the Axiom of Choice*, pp. 31–33, *Axiomatic Set Theory*, J. E. Baumgartner, ed., American Mathematical Society, Providence RI, 1984.
- [Bridgman] P.W. Bridgman, *Dimensional Analysis*, Yale University Press, 1931.
- [Brin & Page] Sergey Brin and Lawrence Page, *The Anatomy of a Large-Scale Hypertextual Web Search Engine*, <http://infolab.stanford.edu/pub/papers/google.pdf>, retrieved Feb. 2012.
- [Bryan & Leise] Kurt Bryan, Tanya Leise, *The \$25,000,000,000 Eigenvector: the Linear Algebra Behind Google*, SIAM Review, Vol. 48, no. 3 (2006), p. 569-81.
- [Casey] John Casey, *The Elements of Euclid, Books I to VI and XI*, ninth edition, Hodges, Figgis, and Co., Dublin, 1890.
- [ChessMaster] User ChessMaster of StackOverflow, answer to *Python determinant calculation(without the use of external libraries)*, <http://stackoverflow.com/a/10037087/238366>, answer posted 2012-Apr-05, accessed 2012-Jun-18.
- [Chicken Scheme] Free software implementation, Felix L. Winkelmann and The Chicken Team, <http://wiki.call-cc.org/>, accessed 2013-Nov-20.
- [Clark & Coupe] David H. Clark, John D. Coupe, *The Bangor Area Economy Its Present and Future*, report to the city of Bangor ME, Mar. 1967.
- [Cleary] R. Cleary, private communication, Nov. 2011.
- [Clarke] Arthur C. Clarke, *Technical Error*, Fantasy, December 1946, reprinted in *Great SF Stories 8* (1946), DAW Books, 1982.
- [Con. Prob. 1955] *The Contest Problem Book*, 1955 number 38.

- [Cost Of Tolls] *Cost of Tolls*, http://costoftolls.com/Tolls_in_New_York.html, 2012-Jan-07.
- [Coxeter] H.S.M. Coxeter, *Projective Geometry*, second edition, Springer-Verlag, 1974.
- [Courant & Robbins] Richard Courant, Herbert Robbins, *What is Mathematics?*, Oxford University Press, 1978.
- [Cullen] Charles G. Cullen, *Matrices and Linear Transformations*, second edition, Dover, 1990.
- [Dalal, et. al.] Siddhartha R. Dalal, Edward B. Fowlkes, & Bruce Hoadley, *Lesson Learned from Challenger: A Statistical Perspective*, Stats: the Magazine for Students of Statistics, Fall 1989, p. 3.
- [Davies] Thomas D. Davies, *New Evidence Places Peary at the Pole*, National Geographic Magazine, vol. 177 no. 1 (Jan. 1990), p. 44.
- [de Mestre] Neville de Mestre, *The Mathematics of Projectiles in Sport*, Cambridge University Press, 1990.
- [De Parville] De Parville, *La Nature*, Paris, 1884, part I, p. 285–286 (citation from [Ball & Coxeter]).
- [Ebbing] Darrell D. Ebbing, *General Chemistry*, fourth edition, Houghton Mifflin, 1993.
- [Ebbinghaus] H. D. Ebbinghaus, *Numbers*, Springer-Verlag, 1990.
- [Einstein] A. Einstein, *Annals of Physics*, v. 35, 1911, p. 686.
- [Eggar] M.H. Eggar, *Pinhole Cameras, Perspective, and Projective Geometry*, *American Mathematical Monthly*, August-September 1998, p. 618–630.
- [Falbo] Clement Falbo, *The Golden Ratio — a Contrary Viewpoint*, *College Mathematics Journal*, vol. 36, no. 2, March 2005, p. 123–134.
- [Feller] William Feller, *An Introduction to Probability Theory and Its Applications* (vol. 1, 3rd ed.), John Wiley, 1968.
- [Fuller & Logan] L.E. Fuller & J.D. Logan, *On the Evaluation of Determinants by Chiò's Method*, p 49-52, in *Linear Algebra Gems*, Carlson, et al, Mathematical Association of America, 2002.
- [Gardner] Martin Gardner, *The New Ambidextrous Universe*, third revised edition, W. H. Freeman and Company, 1990.
- [Gardner 1957] Martin Gardner, *Mathematical Games: About the remarkable similarity between the Icosian Game and the Tower of Hanoi*, *Scientific American*, May 1957, p. 150–154.
- [Gardner, 1970] Martin Gardner, *Mathematical Games, Some mathematical curiosities embedded in the solar system*, *Scientific American*, April 1970, p. 108–112.

- [Gardner, 1980] Martin Gardner, *Mathematical Games, From counting votes to making votes count: the mathematics of elections*, Scientific American, October 1980.
- [Gardner, 1974] Martin Gardner, *Mathematical Games, On the paradoxical situations that arise from nontransitive relations*, Scientific American, October 1974.
- [Giordano, Wells, Wilde] Frank R. Giordano, Michael E. Wells, Carroll O. Wilde, *Dimensional Analysis*, UMAP Unit 526, in *UMAP Modules, 1987*, COMAP, 1987.
- [Giordano, Jaye, Weir] Frank R. Giordano, Michael J. Jaye, Maurice D. Weir, *The Use of Dimensional Analysis in Mathematical Modeling*, UMAP Unit 632, in *UMAP Modules, 1986*, COMAP, 1986.
- [Google Maps] *Directions — Google Maps*, <http://maps.google.com/help/maps/directions/>, 2012-Jan-07.
- [Goult, et al.] R.J. Goult, R.F. Hoskins, J.A. Milner, M.J. Pratt, *Computational Methods in Linear Algebra*, Wiley, 1975.
- [Graham, Knuth, Patashnik] Ronald L. Graham, Donald E. Knuth, Oren Patashnik, *Concrete Mathematics*, Addison-Wesley, 1988.
- [Halmos] Paul R. Halmos, *Finite Dimensional Vector Spaces*, second edition, Van Nostrand, 1958.
- [Hamming] Richard W. Hamming, *Introduction to Applied Numerical Analysis*, Hemisphere Publishing, 1971.
- [Hanes] Kit Hanes, *Analytic Projective Geometry and its Applications*, UMAP Unit 710, UMAP Modules, 1990, p. 111.
- [Heath] T. Heath, *Euclid's Elements*, volume 1, Dover, 1956.
- [Hefferon] J Hefferon, *Introduction to Proofs, an Inquiry-Based approach*, <http://joshua.smcvt.edu/proofs/>, 2013.
- [Hoffman & Kunze] Kenneth Hoffman, Ray Kunze, *Linear Algebra*, second edition, Prentice-Hall, 1971.
- [Hofstadter] Douglas R. Hofstadter, *Metamagical Themas: Questing for the Essence of Mind and Pattern*, Basic Books, 1985.
- [Iosifescu] Marius Iofescu, *Finite Markov Processes and Their Applications*, John Wiley, 1980.
- [Kahan] William Kahan, *Chi's Trick for Linear Equations with Integer Coefficients*, <http://www.cs.berkeley.edu/~wkahan/MathH110/chio.pdf>, 1998, retrieved 2012-Jun-18.
- [Kelton] Christina M.L. Kelton, *Trends on the Relocation of U.S. Manufacturing*, UMI Research Press, 1983.
- [Kemeny & Snell] John G. Kemeny, J. Laurie Snell, *Finite Markov Chains*, D. Van Nostrand, 1960.

- [Kemp] Franklin Kemp *Linear Equations*, American Mathematical Monthly, volume 89 number 8 (Oct. 1982), p. 608.
- [Leontief 1951] Wassily W. Leontief, *Input-Output Economics*, Scientific American, volume 185 number 4 (Oct. 1951), p. 15.
- [Leontief 1965] Wassily W. Leontief, *The Structure of the U.S. Economy*, Scientific American, volume 212 number 4 (Apr. 1965), p. 25.
- [Macdonald & Ridge] Kenneth Macdonald, John Ridge, *Social Mobility*, in *British Social Trends Since 1900*, A.H. Halsey, Macmillan, 1988.
- [Math. Mag., Sept. 1952] Dewey Duncan (proposer), W. H. Quelch (solver), Mathematics Magazine, volume 26 number 1 (Sept-Oct. 1952), p. 48.
- [Math. Mag., Jan. 1957] M. S. Klamkin (proposer), Trickie T-27, Mathematics Magazine, volume 30 number 3 (Jan-Feb. 1957), p. 173.
- [Math. Mag., Jan. 1963, Q237] D. L. Silverman (proposer), C. W. Trigg (solver), Quickie 237, Mathematics Magazine, volume 36 number 1 (Jan. 1963).
- [Math. Mag., Jan. 1963, Q307] C. W. Trigg (proposer). Quickie 307, Mathematics Magazine, volume 36 number 1 (Jan. 1963), p. 77.
- [Math. Mag., Nov. 1967] Clarence C. Morrison (proposer), Quickie, Mathematics Magazine, volume 40 number 4 (Nov. 1967), p. 232.
- [Math. Mag., Jan. 1973] Marvin Bittinger (proposer), Quickie 578, Mathematics Magazine, volume 46 number 5 (Jan. 1973), p. 286, 296.
- [Munkres] James R. Munkres, *Elementary Linear Algebra*, Addison-Wesley, 1964.
- [Neimi & Riker] Richard G. Neimi, William H. Riker, *The Choice of Voting Systems*, Scientific American, June 1976, p. 21–27.
- [Oakley & Baker] Cletus O. Oakley, Justine C. Baker, *Least Squares and the 3 : 40 Mile*, Mathematics Teacher, Apr. 1977.
- [Ohanian] Hans O'Hanian, *Physics*, volume one, W. W. Norton, 1985.
- [Onan] Michael Onan, *Linear Algebra*, Harcourt, 1990.
- [Online Encyclopedia of Integer Sequences] *Number of different magic squares of order n that can be formed from the numbers $1, \dots, n^2$* , <http://oeis.org/A006052>, 2012-Feb-17.
- [Petersen] G. M. Petersen, *Area of a Triangle*, American Mathematical Monthly, volume 62 number 4 (Apr. 1955), p. 249.
- [Polya] G. Polya, *Mathematics and Plausible Reasoning*, Princeton University Press, 1954.
- [Poundstone] W. Poundstone, *Gaming the Vote*, Hill and Wang, 2008. ISBN-13: 978-0-8090-4893-9
- [Putnam, 1990, A-5] William Lowell Putnam Mathematical Competition, Problem A-5, 1990.

- [Rice] John R. Rice, *Numerical Methods, Software, and Analysis*, second edition, Academic Press, 1993.
- [Rucker] Rudy Rucker, *Infinity and the Mind*, Birkhauser, 1982.
- [Ryan] Patrick J. Ryan, *Euclidean and Non-Euclidean Geometry: an Analytic Approach*, Cambridge University Press, 1986.
- [Sandifer] Ed Sandifer, *How Euler Did It*,
<http://www.maa.org/news/howeulerdidit.html>, 2012-Dec-27.
- [Schmidt] Jack Schmidt, <http://math.stackexchange.com/a/98558/12012>,
 2012-Jan-12.
- [Shepelev] Anton Shepelev, private communication, Feb 19, 2011.
- [Seidenberg] A. Seidenberg, *Lectures in Projective Geometry*, Van Nostrand, 1962.
- [Strang 93] Gilbert Strang *The Fundamental Theorem of Linear Algebra*, American Mathematical Monthly, Nov. 1993, p. 848–855.
- [Strang 80] Gilbert Strang, *Linear Algebra and its Applications*, second edition, Harcourt Brace Jovanovich, 1980.
- [Taylor] Alan D. Taylor, *Mathematics and Politics: Strategy, Voting, Power, and Proof*, Springer-Verlag, 1995.
- [Tilley] Burt Tilley, private communication, 1996.
- [Trono] Tony Trono, compiler, *University of Vermont Mathematics Department High School Prize Examinations 1958-1991*, mimeographed printing, 1991.
- [USSR Olympiad no. 174] *The USSR Mathematics Olympiad*, number 174.
- [Velleman] Dan Velleman, private communication.
- [Velleman2] Daniel J Velleman, *How to Prove It: A Structured Approach*, Cambridge University Press, 2006.
- [Weston] J. D. Weston, *Volume in Vector Spaces*, American Mathematical Monthly, volume 66 number 7 (Aug./Sept. 1959), p. 575–577.
- [Ward] James E. Ward III, *Vector Spaces of Magic Squares*, Mathematics Magazine, vol 53 no 2 (Mar 1980), p 108–111.
- [Weyl] Hermann Weyl, *Symmetry*, Princeton University Press, 1952.
- [Wickens] Thomas D. Wickens, *Models for Behavior*, W.H. Freeman, 1982.
- [Wilkinson 1965] *The Algebraic Eigenvalue Problem*, J. H. Wilkinson, Oxford University Press, 1965
- [Wikipedia, Lo Shu Square] *Lo Shu Square*,
http://en.wikipedia.org/wiki/Lo_Shu_Square, 2012-Feb-17.
- [Wikipedia, Magic Square] *Magic square*,
http://en.wikipedia.org/wiki/Magic_square, 2012-Feb-17.
- [Wikipedia, Mens Mile] *Mile run world record progression*,
http://en.wikipedia.org/wiki/Mile_run_world_record_progression,
 2011-Apr-09.

- [Wikipedia, Square-cube Law] *The Square-cube law*,
http://en.wikipedia.org/wiki/Square-cube_law, 2011-Jan-17.
- [Wikipedia, Google Page Rank] *Page Rank*,
<http://en.wikipedia.org/wiki/PageRank>, 2012-Feb-27.
- [Wills] Rebecca S. Wills, *Google's Page Rank*, *Mathematical Intelligencer*, vol. 28, no. 4, Fall 2006.
- [Wohascum no. 2] *The Wohascum County Problem Book* problem number 2.
- [Wohascum no. 47] *The Wohascum County Problem Book* problem number 47.
- [Yaglom] I. M. Yaglom, *Felix Klein and Sophus Lie: Evolution of the Idea of Symmetry in the Nineteenth Century*, translated by Sergei Sossinsky, Birkhäuser, 1988.
- [Yuster] Thomas Yuster, *The Reduced Row Echelon Form of a Matrix is Unique: a Simple Proof*, *Mathematics Magazine*, vol. 57, no. 2 (Mar. 1984), pp. 93-94.
- [Zwicker] William S. Zwicker, *The Voters' Paradox, Spin, and the Borda Count*, *Mathematical Social Sciences*, vol. 22 (1991), p. 187–227.