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Notes:

1. All entries are in the format:

Problem Number.

 Proposer,   Volume .Issue Number(Year)Page of publication

 Topic of problem as interpreted by the indexer

 Solution Title determined by the Problem Editors **Volume .Issue Number(Year)Page**

2. The Two Year College Mathematics Journal began publishing in 1970, but the problem
    section did not begin until Volume 4 in 1973.

3. Please report any errors or omissions to the indexer at   <charliecook29150@aim.com>.

4. ***** indicates problems for which a Solution is pending.

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204.
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239.
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245.
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268.
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  Solution: Formula for the difference of two tangents   16.5(1985)419
269.
  Proposer: Chico Problem Group   15.1(1984)69
  Topic: Find an asymptotic formula for a sum of ratios of binomial coefficients
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270.
  Proposer: Martin LaBar   15.1(1984)69
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271.
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272.
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273.
  Proposer: R. Shantaram   15.2(1984)164
  Topic: Equation involving the areas of faces of a tetrahedron
  Solution: Cosine law for tetrahedra   17.1(1986)93

274.
  Proposer: Edwart T. H. Wang   15.2(1984)164
  Topic: Determining 2 matrices whose squares are zero but whose products are not
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275.
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276.
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277.
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278.
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282.
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285.
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328.
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329.
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334.
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335.
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337.
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339.
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340.
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341.
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342.
  Proposer: Otto Bintz   18.1(1987)69
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343.
  Proposer: M. S. Klamkin   18.1(1987)69
  Topic: Algebraic division problem
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344.
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345.
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  Solution: Sequences of integers not representable as a sum of two squares   20.2(1989)168
346.
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347.
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348.
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350.
  Proposer: Florentine Smarandache   18.2(1987)161
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351.
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352.
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353.
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354.
  Proposer: Alvin Tirman   18.3(1987)248
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355.
  Proposer: Robert E. Shafer   18.3(1987)249
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357.
  Proposer: Chico Problem Group   18.4(1987)341
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358.
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359.
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362.
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363.
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364.
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365.
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368.
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369.
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370.
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371.
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372.
  Proposer: Eugene Levine   19.2(1988)186
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373.
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374.
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375.
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376.
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377.
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378.
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379.
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380.
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381.
  Proposer: Mohammad K. Azarian   19.4(1988)370
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382.
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383.
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384.
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388.
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  Proposer: M. S. Klamkin   19.5(1988)449
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390.
  Proposer: Roger B. Nelsen   19.5(1988)449
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391.
  Proposer: Murray S. Klamkin   20.1(1989)68
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392.
  Proposer: Robert Jones   20.1(1989)68
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393.
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  Proposer: Murray S. Klamkin   20.1(1989)69
  Topic: Inequality for the areas of a triangle and the one formed by extended altitudes
  Solution: An area inequality for two triangles   21.3(1990)249
396.
  Proposer: Alan Wayne   20.2(1989)163
  Topic: Alphanumeric puzzle
  Solution: 46933 = Gauss   21.3(1990)250
397.
  Proposer: Eugene Levine   20.2(1989)163
  Topic: Determinant of a matrix formed by adding 1 to the elements of another matrix
  Solution: The determinant of a sum   21.3(1990)251

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  Proposer: Brian Anderson & Barry Brunson   20.2(1989)163

  Topic: Does the sum of distances from equally spaced points on a circle to a diameter
               depend on the diameter selected?

   Solution: The independence of a circular sum   21.3(1990)252

399.

  Proposer: Norman Schaumberger   20.2(1989)164

  Topic: Evaluate a sum of arctangents

  Solution: An old arctangent series reappears   21.3(1990)253

400.

  Proposer: Murray Klamkin   20.2(1989)164

  Topic: Equality of simplexes formed from antipodal points on an n-dimensional sphere

  Solution: Simplicial volumes   21.4(1990)337

401.

  Proposer: Alan Wayne   20.3(1989)256

  Topic: Curve traced by highest point of water from a moving hose

  Solution: The path of water   21.4(1990)338

402.

  Proposer: Norman Schaumberger   20.3(1989)256

  Topic: Equality of sums of 5th and 7th roots of quantities involving square roots of 5

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403.

  Proposer: Howard Reinhardt   20.3(1989)256

  Topic: Bounds on the average number of children in families in a certain community

  Solution: Average children   21.4(1990)340

404.

  Proposer: Murray Klamkin   20.3(1989)256

  Topic: Prove a sequence of ratios of powers of natural numbers is increasing

  Solution: An increasing sequence   21.4(1990)340

405.

  Proposer: Bill Wardlaw   20.3(1989)257

  Topic: Necessary & sufficient condition for an inner product inequality of n-dim vectors

  Solution: A scalar product inequality   21.5(1990)424

406.

  Proposer: Murray Klamkin   20.4(1989)343

  Topic: Inequality involving ratios of 3 positive numbers

  Solution: A Muirhead inequality   21.5(1990)424

407.

  Proposer: Murray Klamkin   20.4(1989)343

  Topic: Evaluating an algebraic integral

  Solution: Integration by (almost any) substitution   21.5(1990)425

408.
  Proposer: Clark Kimberling   20.4(1989)343
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409.
  Proposer: S. A. Banawan   20.4(1989)344
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410.
  Proposer: Harry Sedinger   20.4(1989)344
  Topic: Characterizing certain sequences of odd integers
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411.
  Proposer: Murray Klamkin   20.5(1989)442
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412.
  Proposer: Edward F. Vitek   20.5(1989)442
  Topic: Find the limit of a sequence of ratios of positive numbers and their logarithms
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413.
  Proposer: K. R. S. Sastry   20.5(1989)442
  Topic: Two equalities arising from 2 lines and reflected rays
  Solution: Similar trapezoids   22.1(1991)71
414.
  Proposer: Norman Schaumberger   20.5(1989)443
  Topic: Squeezing ln 2 between 2 sums
  Solution: An inequality of ln 2   22.1(1991)71
415.
  Proposer: Eugene Levine   20.5(1989)443
  Topic: Evaluate the infinite product of the ratio of 2 algebraic quantities
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416.
  Proposer: Joanne Harris   21.1(1990)65
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417.
  Proposer: K. R. S. Sastry   21.1(1990)65
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418.
  Proposer: Norman Schaumberger   21.1(1990)65
  Topic: Inequalities on products of integral powers and the exponential function
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419.
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 Solution: A rational cosine   22.1(1991)75
420.
 Proposer: Edward T. H. Wang   21.1(1990)66
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421.
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422.
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 Topic: Probability that the roots of a quadratic equation are real
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423.
 Proposer: Mohammad K. Azarian   21.2(1990)150
 Topic: Improper integral involving logarithms of 2 algebraic functions
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424.
 Proposer: Robert E. Shafer   21.2(1990)150
 Topic: Hyperbolic cosine and sine inequality
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425.
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426.
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427.
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428.
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429.
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430.
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431.
  Proposer: R. S. Luthar   21.4(1990)334
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432.
  Proposer: Chico Problem Group   21.4(1990)334
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433.
  Proposer: Nicholas Passell   21.4(1990)334
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434.
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435.
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436.
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 437.
  Proposer: Bill Wardlaw   21.5(1990)423
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438.
  Proposer: K. R. S. Sastry   21.5(1990)424
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439.
  Proposer: Ken Gamon   21.5(1990)424
  Topic: Existence of 2 numbers satisfying an absolute value condition
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440.
 Proposer: Mohammad K. Azarian   21.5(1990)424
 Topic: Evaluating a sum of an algebraic expression depending on 2 indices of summation
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441.
 Proposer: Bill Wardlaw   22.1(1991)70
 Topic: Conditions that an element is in a given field if a matrix depending on it is singular
 Solution: The singularity of matrices   23.1(1992)70

442.
 Proposer: Samuel A. Truitt, Jr.   22.1(1991)70
 Topic: Values that determine if a give sequence is strictly increasing or decreasing
 Solution: The ups and downs of convergence   23.1(1992)71

443.
 Proposer: Eugene Levine   22.1(1991)70
 Topic: Evaluate a finite sum involving cosines
 Solution: A positive root approach to a sum   23.1(1992)72

444.
 Proposer: J. B. Romero   22.1(1991)71
 Topic: Inequality involving the perimeters and sides of 2 right or obtuse triangles
 Solution: A geometric inequality   23.1(1992)73

445.
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 Topic: Minimum dimension that permits a square matrix of order n with complex entries
 Solution: The Q-order of a matrix   23.1(1992)74

446.
 Proposer: Norman Schaumberger   22.2(1991)167
 Topic: Inequality involving sine functions of 3 variables
 Solution: Another triangle inequality   23.2(1992)163

447.
 Proposer: Francis J. Flanigan   22.2(1991)167
 Topic: Characterizing coefficients of a polynomial which allows it no positive roots
 Solution: Real polynomials with a single negative coefficient   23.2(1992)163

448.
 Proposer: Dumitru Acu   22.2(1991)167
 Topic: Inequality involving the product of 3 matrices
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449.
 Proposer: Irl C. Bivens   22.2(1991)168
 Topic: A group has a subgroup with members which deny another subgroup members
 Solution: A counter-closed subset of a group   23.2(1992)165

450.
 Proposer: R. Daniel Hurwitz   22.2(1991)168
 Topic: Hyperspheres tangent to ceilings and walls in the corner of a rectangular room
 Solution: Two spheres in a corner   23.2(1992)166

451.
  Proposer: Mohammad K. Azarian   22.3(1991)255
  Topic: Trig inequality involving sines, cosines, secants and cosecants
  Solution: AM-GM strikes again   23.3(1992)248
452.
  Proposer: David G. Hartz   22.3(1991)255
  Topic: Sums of k positive integers yield perfect squares for what k?
  Solution: Sums as m^{th} powers   23.3(1992)249
453.
  Proposer: Zeev Barel   22.3(1991)255
  Topic: Find cluster points in an infinite walking pattern
  Solution: A vacillating mathematician   23.3(1992)250
454.
  Proposer: Leonard Palmer   22.3(1991)256
  Topic: Necessary & sufficient condition on a matrix that 2 relatively prime members imply
                2 others are too
  Solution: J: relatively prime $\rightarrow$ relatively prime   23.3(1992)251
455.
  Proposer: R. S. Tiberio   22.3(1991)256
  Topic: What triangles have a concurrent median, altitude and angle bisector from 3 angles?
  Solution: A triangle with concurrent median, altitude, and angle bisector   23.3(1992)252
456.
  Proposer: David M. Bloom   22.4(1991)343
  Topic: Necessary & sufficient condition for divisibility in a base N expansion of a proper
                fraction
  Solution: A base-N expansion   23.4(1992)341
457.
  Proposer: Frank Schmidt   22.4(1991)343
  Topic: Inequality involving a vector function and a given matrix
  Solution: A coordinate-counting function   23.4(1992)342
458.
  Proposer: Ioan Sadoveanu   22.4(1991)343
  Topic: Algebraic inequality in n variables
  Solution: $x_1^{n+1} + x_2^{n+1} + \cdots + x_n^{n+1} \geq x_1 x_2 \cdots x_n (x_1 + x_2 + \cdots + x_n)$ 23.4(1992)344
459.
  Proposer: D. A. Moran   22.4(1991)344
  Topic: Location of the critical point of a cubic polynomial with 3 real zeroes
  Solution: Location of critical points of a cubic   23.4(1992)345
460.
  Proposer: William V. Webb   22.4(1991)344
  Topic: 2-variable difference equation
  Solution: $Y_{n+1} = a y_n^x$ 23.4(1992)347

461.
  Proposer: Alex Necochea   22.5(1991)443
  Topic: Necessary & sufficient condition for a trigonometric inequality
  Solution: An inequality for the cosine and inverse sine   23.5(1992)436
462.
  Proposer: Jiro Fukuta   22.5(1991)443
  Topic: Minimizing the area and perimeter of a hexagon inscribed in a triangle
  Solution: Minimum area and perimeter   23.5(1992)437
463.
  Proposer: Jean-Marie Monier   22.5(1991)443
  Topic: Calculating matrix products given the entries in the product of 3 unknown matrices
  Solution: Idempotent matrix products   23.5(1992)438
464.
  Proposer: Frank Schmidt   22.5(1991)444
  Topic: Summation inequality involving the sgn function of permutations in a group
  Solution: A sum of signs of permutations   23.5(1992)439
465.
  Proposer: Norman Schaumberger   22.5(1991)444
  Topic: Inequality involving a sequence of positive numbers
  Solution: An inequality with powers of positive numbers   23.5(1992)439
466.
  Proposer: Ginger Bolton   23.1(1992)69
  Topic: Finding the area of a quadrilateral
  Solution: The area of a lattice quadrilateral   24.1(1993)96
467.
  Proposer: Stanley Rabinowitz   23.1(1992)69
  Topic: Given the ratios of the cosines of angles in a triangle, find ratios of the sides
  Solution: Cos A: cos B: cos C = 2:9:12 $\Rightarrow$ a:b:c: = 6:5:4   24.1(1993)97
468.
  Proposer: Murray Klamkin & Andy Liu   23.1(1992)69
  Topic: Inequalities involving logarithms and a sequence of improper integrals
  Solution: Bounds on $\int \{\text{from 1 to } \infty \}$ dx/(1 + x^{n+1})   24.1(1993)97
469.
  Proposer: K. R. S. Sastry   23.1(1992)70
  Topic: Arithmetic progression of length 49 and square sums of squares
  Solution: A sum of 49 squares   24.1(1993)99
470.
  Proposer: William Wardlaw   23.1(1992)70
  Topic: Finding if a trigonometric limit exists
  Solution: lim 1/(n sin n) does not exist   24.1(1993)99
471.
  Proposer: David Doster   23.2(1992)162
  Topic: Lebesgue measure of a set yielding an inequality of bracket functions
  Solution: The measure of a set   24.2(1993)184

472.
  Proposer: Ioan Sadoveanu   23.2(1992)162
  Topic: Limits of ratios of members of a decreasing set of real numbers
  Solution: Limits of ratios of positive real numbers   24.2(1993)185
473.
  Proposer: K. R. S. Sastry   23.2(1992)162
  Topic: Necessary & sufficient condition that a triangle is self-median
  Solution: A characteristic of self-median triangles   24.2(1993)186
474.
  Proposer: Zhang Zaiming   23.2(1992)163
  Topic: Find the determinant of a given matrix
  Solution: A "determinant" for Pascal's triangle   24.2(1993)188
475.
  Proposer: Seung-Jin Bang   23.2(1992)163
  Topic: Equality of 2 infinite sums of reciprocals of natural numbers
  Solution: $\Sigma \left(1 + 1/2 + \cdots + 1/(n+1)\right) 1/(n(n+1)) = 2$ from $\{n = 1$ to $\infty\}$ 24.2(1993)189
476.
  Proposer: Juan Bosco   23.3(1992)247
  Topic: Diophantine equation in 3 variables
  Solution: A somewhat symmetric Diophantine equation   24.3(1993)272
477.
  Proposer: Norman Schaumberger   23.3(1992)247
  Topic: Trig identity involving sines of 3 angles
  Solution: Another trigonometric identity   24.3(1993)272
478.
  Proposer: K. R. S. Sastry   23.3(1992)247
  Topic: Determining a cubic polynomial to guarantee zeroes in arithmetic progression
  Solution: Arithmetic progression of roots   24.3(1993)274
479.
  Proposer: David Hamilton & Pat Stewart   23.3(1992)247
  Topic: Determining if a given matrix is invertible
  Solution: A class of nonsingular matrices   24.3(1993)275
480.
  Proposer: Ioan Sadoveanu   23.3(1992)248
  Topic: Necessary & sufficient condition that certain triangle is equilateral
  Solution: Altitudes of an Equilateral Triangle   24.3(1993)275
481.
  Proposer: Leonard Gillman   23.4(1992)340
  Topic: Find an example satisfying restrictions on lower and upper Riemann sums
  Solution: $L_n > L_{n+1}$ and $U_n < U_{n+1}$ 24.4(1993)378
482.
  Proposer: Ioan Sadoveanu   23.4(1992)340
  Topic: Prove equality on products of distances from points on the incircle of a triangle
  Solution: An incircle invariant   24.4(1993)379

483.
  Proposer: Murray Klamkin   23.4(1992)340
  Topic: Determine the general term of a sequence of powers given n initial conditions
  Solution: Determinant of a power sum   24.4(1993)380
484.
  Proposer: S. A. Patil & D. S. Hawkins   23.4(1992)341
  Topic: Probability of real roots for a cubic with randomly chosen coefficients in [0,1]
  Solution: The probability that the roots of a cubic are real   24.4(1993)382
485.
  Proposer: Norman Schaumberger   23.4(1992)341
  Topic: Tower power inequalities on 2 positive numbers
  Solution: An inequality for composite powers   24.4(1993)384
486.
  Proposer: Jyotirmoy Sarkar   23.5(1992)435
  Topic: Equality of ratios of distances constructed in a triangle
  Solution: Constant ratios in a triangle   24.5(1993)475
487.
  Proposer: Greg Neumer   23.5(1992)435
  Topic: Finding values which permit a limit for a recurring sequence
  Solution: For what x_0 does $x_{n+1} = 1/(x_n + 1)$ converge?   24.5(1993)476
488.
  Proposer: Murray Klamkin & Andy Liu   23.5(1992)435
  Topic: Probability of 2 walkers meeting in a random walk exercise
  Solution: A random walk on a square lattice   24.5(1993)477
489.
  Proposer: Ioan Sadoveanu   23.5(1992)436
  Topic: Determine the convergence and bounds on the limit of a given sequence
  Solution: $e \leq \lim u_n \leq 1 + e$ 24.5(1993)478
490.
  Proposer: Jiro Fukuta   23.5(1992)436
  Topic: Find the extrema for the area of a quadrilateral inscribed in a circle
  Solution: Extremal inscribed quadrilateral   24.5(1993)479
491.
  Proposer: Michael Handelsman   24.1(1993)95
  Topic: Find a polynomial given the derivative of its ratio with x^n
  Solution: Polynomial palindromes   25.1(1994)65
492.
  Proposer: Norman J. Finizio & James T. Lewis   24.1(1993)95
  Topic: Finding the number of balanced arrangements of $\{1, 2, , ..., 2n\}$
  Solution: Balanced circular arrangements   25.1(1994)66
493.
  Proposer: K. R. S. Sastry   24.1(1993)95
  Topic: What points guarantee the sum of ratios of distance in a pentagon to be a constant?
  Solution: A constant from a pentagon   25.1(1994)66

494.
  Proposer: Frank Schmidt   24.1(1993)96
  Topic: Find a formula for the number of matrices with a fixed set of eignevalues
  Solution: Counting eigenvalues over Z/2Z   25.1(1994)67
495.
  Proposer: William R. Klinger   24.1(1993)96
  Topic: Critical points harmonically dividing the roots of a cubic polynomial
  Solution: An impossible harmonic division   25.1(1994)69
496.
  Proposer: Robert J. Blodgett   24.2(1993)183
  Topic: Determine positive integers whose digits reverse if added to itself in any base
  Solution: Double-reversing numbers   25.2(1994)158
497.
  Proposer: Edward Aboufadel   24.2(1993)183
  Topic: Quickly solve Arnold's limit problem concerning a ratio of sine and tangents
  Solution: $\lim \{$from $x \to 0\}$ (sin(tanx) - tan(sinx))/(sin^{-1}(tan^{-1}x) - tan^{-1}(sin^{-1}x))   25.2(1994)159
498.
  Proposer: David Callan   24.2(1993)184
  Topic: Find row sums in a Pascal-like triangle
  Solution: A Pascal-like triangle   25.2(1994)161
499.
  Proposer: Frank Schmidt   24.2(1993)184
  Topic: Do there exist an infinite number of finite graphs satisfying 3 given conditions?
  Solution: An infinite class of planar graphs   25.2(1994)162
500.
  Proposer: Michael Fatliff   24.2(1993)184
  Topic: Inequalities involving partial quotients of simple continued fractions
  Solution: An ordering of partial quotients   25.2(1994)163
501.
  Proposer: K. R. S. Sastry   24.3(1993)271
  Topic: Necessary & sufficient condition that the semi-perimeter of a right triangle is a
                triangular number
  Solution: A Triangle Semi-Perimeter   25.3(1994)241
502.
  Proposer: Zhang Zaiming   24.3(1993)271
  Topic: Finding values that guarantee the equality of 2 sums of integers
  Solution: Pell's equation - once again   25.3(1994)241
503.
  Proposer: Louis R. Bragg & Jerrold W. Grossman   24.3(1993)271
  Topic: Finding the different triangles with limited integral length of sides
  Solution: Counting "Diophantine" triangles   25.3(1994)243

504.
  Proposer: Gloria Olive   24.3(1993)272
  Topic: Expressing products of primes as the sum of consecutive positive integers
  Solution: Factorizations and sums   25.3(1994)244
505.
  Proposer: Parviz Khajeh-Khalili   24.3(1993)272
  Topic: Show that a sequence of logarithms is decreasing and find its limit
  Solution: Area above and below a hyperbola   25.3(1994)245
506
  Proposer: Heinz-Jürgen   24.4(1993)377
  Topic: Equality of 2 sums, one involving products of sums
  Solution: A sum of a product of a sum and a product   25.4(1994)335
507.
  Proposer: Jiro Fukuta   24.4(1993)377
  Topic: Inequality involving the lengths of sides of a quadrilateral
  Solution: An inequality for the perimeter of a quadrilateral   25.4(1994)336
508.
  Proposer: K. R. S. Sastry   24.4(1993)377
  Topic: Find all Pythagorean triangles with n-gonal sides and a common rank
  Solution: Polygonal Pythagorean triples   25.4(1994)337
509.
  Proposer: Norman Schaumberger   24.4(1993)378
  Topic: Diophantine equation in 5 variables
  Solution: A Diophantine equation with successive powers   25.4(1994)338
510.
  Proposer: Murray S. Klamkin   24.4(1993)378
  Topic: Comparing 2 multiple integrals of sines and cosines
  Solution: Trigonometric integral inequalities   25.4(1994)338
511.
  Proposer: Zhang Zaiming   24.5(1993)472
  Topic: Inequality involving the sides and areas of 2 triangles
  Solution: An inequality for two triangles   25.5(1994)463
512.
  Proposer: Richard Carpenter & Homer White   24.5(1993)472
  Topic: Find the determinant of a given matrix
  Solution: A determinant of subscript products   25.5(1994)464
513.
  Proposer: Frank J. Flanigan   24.5(1993)473
  Topic: Finding the constant term guaranteeing a cubic equation has 3 integral roots
  Solution: Cubics with no integer roots   25.5(1994)465
514.
  Proposer: David Doster   24.5(1993)473
  Topic: Finding the limit of a sequence of quotients of 2 other sequences
  Solution: $\lim_{n \to \infty} p_n / q_n = \sqrt[3]{2}$ 25.5(1994)465

515.
  Proposer: Larry Hoehn   24.5(1993)473
  Topic: Necessary & sufficient condition that a given quadrilateral is a parallelogram
  Solution: A parallelogram characterization   25.5(1994)466
516.
  Proposer: Ioan Sadoveanu   25.1(1994)64
  Topic: Given the roots of one polynomial, solve another
  Solution: Roots of related polynomials   26.1(1995)67
517.
  Proposer: Kazem S. Sadati   25.1(1994)64
  Topic: If squared sides of a triangle are in arithmetic progressions, so are the cotangents
  Solution: Cotangents in arithmetic progression   26.1(1995)68
518.
  Proposer: K. R. S. Sastry   25.1(1994)64
  Topic: Find a triple of triangular numbers analogous to a Pythagorean triple and having a
                Sum also a triangular number
  Solution: Pythagorean triples of triangular numbers   26.1(1995)69
519.
  Proposer: Jane Friedman   25.1(1994)65
  Topic: Express even powers of Fibonacci numbers as a linear combination of Lucas
numbers
  Solution: A linear combination of Lucas numbers   26.1(1995)70
520.
  Proposer: Murray S. Klamkin   25.1(1994)65
  Topic: Determine all positive integer pairs satisfying certain geometric progressions
  Solution: Integer-valued geometric progressions   26.1(1995)71
521.
  Proposer: Ioan Sadoveanu   25.2(1994)157
  Topic: Show a polynomial is constant given a root of another polynomial
  Solution: A constant polynomial   26.2(1995)158
522.
  Proposer: Frank Schmidt   25.2(1994)157
  Topic: Find the average weight of a vector over all bases in a vector space
  Solution: Averaging vector weights   26.2(1995)159
523.
  Proposer: Edward T. H. Wang   25.2(1994)157
  Topic: Find all natural numbers satisfying a binomial coefficient divisibility requirement
  Solution: Divisibility of binomial coefficients   26.2(1995)160
524.
  Proposer: Norman Schaumberger   25.2(1994)158
  Topic: Inequalities involving 3 positive numbers
  Solution: The a, b, c's of inequalities   26.2(1995)161

525.
  Proposer: Edwin Buchman   25.2(1994)158
  Topic: Probability involving eating 2 kinds of candy
  Solution: Probabilities for a candy jar   26.2(1995)162
526.
  Proposer: Frank Schmidt   25.3(1994)240
  Topic: Inequalities involving a real symmetric idempotent matrix
  Solution: Bounds for matrix sums   26.3(1995)245
527.
  Proposer: Murray S. Klamkin   25.3(1994)240
  Topic: Find the minimum degree of a 4-variable polynomial with a divisibility criterion
  Solution: The minimum degree of a symmetric polynomial   26.3(1995)246
528.
  Proposer: Gloria Olive   25.3(1994)240
  Topic: Evaluating a sum involving Stirling numbers of the first kind
  Solution: A Stirling series for $1/x$ 26.3(1995)246
529.
  Proposer: Jiro Fukuta   25.3(1994)241
  Topic: Find the locus of points of an interior point to a rectangle with distance requirements
  Solution: Hyperbola in a rectangle   26.3(1995)248
530.
  Proposer: K. R. S. Sastry   25.3(1994)241
  Topic: Find an integer depending of a multiple of its 4 proper divisors
  Solution: An equality for divisors   26.3(1995)249
531.
  Proposer: Murray S. Klamkin   25.4(1994)334
  Topic: Given 3 angles between consecutive vertices of a quadrilateral, find the 4th
  Solution: Solving a quadrilateral   26.4(1995)330
532.
  Proposer: Mike Chamberlain & Mark D. Meyerson   25.4(1994)334
  Topic: Finding the maximum distance between a viewer and a tilted billboard
  Solution: Tilting of billboards   26.4(1995)331
533.
  Proposer: K. R. S. Sastry   25.4(1994)334
  Topic: Find all natural numbers having the product of the sum of the first n squares and the
                next n squares which yield a perfect square
  Solution: Square products of sums of squares   26.4(1995)333
534.
  Proposer: Broderick Oluyede   25.4(1994)335
  Topic: Inequality involving products of sums of 2 sequences of positive numbers
  Solution: An inequality for positive sums   26.4(1995)333

535.
  Proposer: Harry Sedlinger   25.4(1994)335
  Topic: There exist an infinite number of right triangles whose semi-perimeter is triangular
  Solution: Triangular semi-perimeters ad infinitum   26.4(1995)334

536.
  Proposer: Murray S. Klamkin   25.5(1994)462
  Topic: Finding minimum values of algebraic expressions involving 4 positive numbers
  Solution: Three minima, with constraints   26.5(1995)406

537.
  Proposer: Herbert Gülicher   25.5(1994)462
  Topic: Concurrency of lines involving the cevian and distances in a triangle
  Solution: Concurrent constructions   26.5(1995)407

538.
  Proposer: Murray S. Klamkin   25.5(1994)462
  Topic: Maximum area of a quadrilateral given angles between consecutive vertices
  Solution: The maximum area of a quadrilateral   26.5(1995)407

539.
  Proposer: Neven Jurić   25.5(1994)463
  Topic: Number of ways to form equilateral triangles in an n-dimensional cube
  Solution: Equilateral triangles in a cube   26.5(1995)409

540.
  Proposer: Stephen Penrice   25.5(1994)463
  Topic: Limit involving the expected position of a numbered ball in a permutation
  Solution: An urn model for permutations   26.5(1995)410

541.
  Proposer: Victor Oxman   26.1(1995)66
  Topic: Constructing a line tangent to an ellipse from a point on a line off the ellipse
  Solution: Tangent ellipses   27.1(1996)75

542.
  Proposer: Jorge-Nuno O.   26.1(1995)66
  Topic: Congruence identity involving Euler's totient function
  Solution: Summing powers mod m   27.1(1996)75

543.
  Proposer: K. R. S. Sastry   26.1(1995)66
  Topic: Necessary & sufficient condition that 2 parallelograms are congruent
  Solution: Congruent self-diagonal parallelograms   27.1(1996)76

544.
  Proposer: Murray Klamkin   26.1(1995)67
  Topic: Evaluate a finite sum of polynomials divided by factorials
  Solution: An easy sum? No, just easily summed   27.1(1996)77

545.
  Proposer: Jiro Fukuta   26.1(1995)67
  Topic: Necessary & sufficient condition for the existence of a quadrilateral that admits a
                 Circumcircle
  Solution: An inscribed quadrilateral   27.1(1996)78
546.
  Proposer: K. R. S. Sastry   26.21(1995)157
  Topic: Prove that a certain triangle is isosceles
  Solution: An isosceles triangle problem   27.2(1996)150
547.
  Proposer: Curtis Cooper & Robert E. Kennedy   26.2(1995)157
  Topic: Identities involving the gcd and lcm of 2 numbers and the order of 10 mod k
  Solution: Order mod 10   27.2(1996)150
548.
  Proposer: Michael Golumb   26.2(1995)157
  Topic: Necessary & sufficient condition for a unique square circumscribing a parallelogram
  Solution: Circumscribing a square about a parallelogram   27.2(1996)151
549.
  Proposer: Alta Kellogg   26.2(1995)158
  Topic: Are there any graphs which are both self-complementary and self-dual?
  Solution: Self-dual and self-complementary graphs   27.2(1996)152
550.
  Proposer: Norman Schaumberger   26.2(1995)158
  Topic: Evaluate the sum of a series of reciprocals of products of 3 odd integers
  Solution: A Sum of (ln 3) /16   27.2(1996)154
551.
  Proposer: K. R. S. Sastry   26.3(1995)244
  Topic: The median of a Heronian triangle does not equal the length of any side
  Solution: An impossibility result for Heronian triangles   27.3(1996)232
552.
  Proposer: Hongwei Chen & Parviz Khajeh-Khalili   26.3(1995)244
  Topic: Find all C^2 functions satisfying a given functional equation
  Solution: A functional equation of quadratics   27.3(1996)232
553.
  Proposer: Michael Golumb   26.3(1995)244
  Topic: The sum of projections from a certain n-gon to a line is independent of the line
  Solution: Invariant projections   27.3(1996)233
554.
  Proposer: Juan-Bosco Romero Márquez   26.3(1995)244
  Topic: Bounds for the nth root of the product of row sums of a matrix Solution:
  Bounds for a matrix row-sum product   27.3(1996)234

555.
  Proposer: Can Anh Minh   26.3(1995)245
  Topic: Upper bound for a product and a sum involving the 1st 1995 integers
  Solution: Last year's inequality   27.3(1996)235
556.
  Proposer: Frank Schmidt   26.4(1995)329
  Topic: Find a matrix whose product with its transpose is a multiple of the identity matrix
  Solution: Orthogonal-like matrices   27.4(1996)313
557.
  Proposer: K. R. S. Sastry   26.4(1995)329
  Topic: Find primitive Pythagorean triangles sharing properties with (3,4,5) and (5,12,13)
  Solution: A plethora of pairs of primitive Pythagorean triples   27.4(1996)314
558.
  Proposer: Jiro Fukuta   26.4(1995)329
  Topic: For any triangle only one triplet has distances from vertices obeying 3 conditions
  Solution: A corollary of Ceva's theorem   27.4(1996)315
559.
  Proposer: Richard Johnsonbaugh   26.4(1995)329   Corrected: 27.4(1996)315
  Topic: Necessary & sufficient condition for denominations of coins of be orderly
  Solution: Orderly currencies   28.4(1997)316
560.
  Proposer: Filip Sajdak   26.4(1995)330
  Topic: Inequality involving 1995 and the 3 number theoretic functions $\sigma(n)$, $\tau(n)$, and $\pi(n)$
  Solution: An inequality with three arithmetic functions   27.4(1996)316
561.
  Proposer: Carlton Kellog   26.5(1995)405
  Topic: Convergence of a sequence of reciprocals of Euler's totient function
  Solution: Must $\Sigma\ 1/\varphi(a_n)$ converge when $\Sigma\ 1/a_n$ converges?   27.5(1996)405
562.
  Proposer: Murray S. Klamkin   26.5(1995)405
  Topic: Evaluation of a given $(n + 2) \times (n + 2)$ symmetric determinant
  Solution: A symmetric determinant   27.5(1996)406
563.
  Proposer: Frank Schmidt   26.5(1995)405
  Topic: Finding coefficients for surjective functions of 2 and 3 variables
  Solution: Linear combinations of squares   27.5(1996)407
564.
  Proposer: Can Anh Minh   26.5(1995)406
  Topic: Condition that a convex quadrilateral is cyclic or a trapezoid
  Solution: Angle tangents in a quadrilateral   27.5(1996)407

565.
  Proposer: K. R. S. Sastry   26.5(1995)406
  Topic: Find a rectangular box with volume equaling the sum of the edges and surface area
  Solution: New perfect boxes   27.5(1996)408
566.
  Proposer: K. R. S. Sastry   27.1(1996)74
  Topic: Integral coefficients in a cubic yielding linear factors with integral coefficients
  Solution: A characterization for integral roots   28.1(1997)68
567.
  Proposer: Heinz-Jürgen Seiffert   27.1(1996)74
  Topic: Inequalities in two variables involving the hyperbolic sine function
  Solution: An hyperbolic sine mean   28.1(1997)69
568.
  Proposer: Frank Schmidt   27.1(1996)74
  Topic: Characterize all bipartite graphs with chromatic polynomials having real roots
  Solution: Trees have real roots?   28.1(1997)70
569.
  Proposer: Can Anh Minh   27.1(1996)75
  Topic: Upper bound for the largest denominator in a unit sum of unit fractions
  Solution: A maximum denominator   28.1(1997)71
570.
  Proposer: Murray S. Klamkin   27.1(1996)75
  Topic: A triangle with angle bisectors intersecting an altitude is isosceles
  Solution: An isosceles triangle problem - again   28.1(1997)72
571.
  Proposer: Frank Schmidt   27.2(1996)149
  Topic: Find all cyclotomic polynomials whose coefficients are all nonzero
  Solution: Cyclotomic polynomials with nonzero coefficients   28.2(1997)146
572.
  Proposer: George Baloglou   27.2(1996)149
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  Solution: $\tanh \theta \le \tan \theta$ for $-\pi / 4 < \theta < \pi /4$ 28.2(1997)147
573.
  Proposer: Lewis Lum   27.2(1996)149
  Topic: Congruence classes for a set with subset members having sums never congruent to 0
  Solution: Restricted sums modulo n   28.2(1997)148
574.
  Proposer: Robert Patenaude   27.2(1996)149
  Topic: Locus of the foci of an ellipse inscribed in a non-square rectangle
  Solution: The loci of foci   28.2(1997)148

575.
  Proposer: Parviz Khajeh-Khalili   27.2(1996)149
  Topic: Identity involving sums and the Riemann zeta function
  Solution: Zeta sums   28.2(1997)149
576.
  Proposer: Peter Daffer   27.3(1996)231
  Topic: Convergence of a sum of n-fold compositions of a function with itself
  Solution: Almost everywhere divergence   28.3(1997)232
577.
  Proposer: K. R. S. Sastry   27.3(1996)231
  Topic: Identity involving the vertices and angles of a convex heptagon
  Solution: Ratios in a right heptagon   28.3(1997)233
578.
  Proposer: Robert Patenaude   27.3(1996)231
  Topic: Find the lengths of the sides of a given triangle
  Solution: Triangles with one angle twice another   28.3(1997)233
579.
  Proposer: Juan Ryan & Steve Pennell   27.3(1996)231
  Topic: Find the line minimizing the sum of distances to the line from 3 given points
  Solution: Least absolute deviation   28.3(1997)235
580.
  Proposer: M. L. Glasser   27.3(1996)232
  Topic: Definite integral involving the logarithm function
  Solution: An integral whose value is $(\ln 2)^2 / n$ 28.3(1997)235
581.
  Proposer: Farshid Arjomandi   27.4(1996)312
  Topic: Solve a system of equations in n variables
  Solution: A system of power equations   28.4(1997)317
582.
  Proposer: Can A. Minh   27.4(1996)312
  Topic: Evaluate the limit of a sum depending on sines
  Solution: A sine series with a linear limit   28.4(1997)318
583.
  Proposer: Murray Klamkin   27.4(1996)312
  Topic: Is a parabola the only curve satisfying a property about tangents to the curve?
  Solution: A characterization of parabolas   28.4(1997)319
584.
  Proposer: Monte J. Zerger   27.4(1996)313
  Topic: Find rationals with product of numerator and denominator repeating in its decimal
  Solution: A characterization of 1/3 and 2/3   28.4(1997)320

585.
  Proposer: K. R. S. Sastry   27.4(1996)313
  Topic: Triangles with relatively prime sides and one side square and another nonintegral
  Solution: Triangles with relatively prime sides   28.4(1997)321
586.
  Proposer: K. R. S. Sastry   27.5(1996)404
  Topic: A triangle must be equilateral if one formed by extending its sides is also
  Solution: Triangles within triangles   28.5(1997)407
587.
  Proposer: Herbert Gülicher   27.5(1996)404
  Topic: Necessary & sufficient condition that the determinant of a given matrix is zero
  Solution: A determinant of mostly 1's   28.5(1997)408
588.
  Proposer: Can A. Minh   27.5(1996)404
  Topic: Inequality involving the cotangents of the angles of a triangle
  Solution: Squared tangents   28.5(1997)408
589.
  Proposer: Tom Farmer   27.5(1996)404
  Topic: A given harmonic sequence must be dense and contain no integers
  Solution: Density of harmonic sums   28.5(1997)409
590.
  Proposer: F. Sajdak   27.5(1996)405
  Topic: Inequality involving the cardinality of a set of number theoretic functions
  Solution: Many n's with ($\varphi(n)$, $\tau(n)$, $\sigma(n)$) = 1   28.5(1997)410
591.
  Proposer: Wu Wei Chao   28.1(1997)67
  Topic: Inequality and a limit involving polynomial functions
  Solution: A bound and limit for quadratic iteration   29.1(1998)67
592.
  Proposer: F. J. Flanigan   28.1(1997)67
  Topic: Find complex functions with an infinite number of balanced values
  Solution: Balanced values of complex functions   29.1(1998)68
593.
  Proposer: James Duemmel   28.1(1997)68
  Topic: Probability that the eigenvalues of a real 2×2 matrix are nonreal
  Solution: Eigenvalues of a random matrix   29.1(1998)69
594.
  Proposer: Paul Bracken   28.1(1997)68
  Topic: Validity of an algebraic inequality
  Solution: A binomial inequality   29.1(1998)70

595.
  Proposer: Juan-Bosco Romeo Márquez   28.1(1997)67
  Topic: Limit of the ratio of differences of 2 medians and 2 angle bisectors of a triangle
  Solution: A geometric limit   29.1(1998)71
596.
  Proposer: David Doster   28.2(1997)145
  Topic: Summation identity involving the number theoretical number of divisors function
  Solution: Counting odd divisors of odd integers   29.2(1998)153
597.
  Proposer: Murray S. Klamkin   28.2(1997)145
  Topic: Find linear functions divisible by 19 given linear function of their coefficients
  Solution: A family of congruences   29.2(1998)154
598.
  Proposer: Kenichiro   28.2(1997)145
  Topic: Evaluate the sum of powers of some of the roots of unity
  Solution: From roots of unity to the Möbius function   29.2(1998)154
599.
  Proposer: Juan-Bosco Romeo Márquez   28.2(1997)145
  Topic: Necessary & sufficient condition that a specific triangle is a right triangle
  Solution: A geometric equality   29.2(1998)155
600.
  Proposer: Georgia M. Benkart, Mark D. Meyerson & William P. Wardlaw 28.2(1997)146
  Topic: Prove that there may or may not be an invertible element in a certain ring with 1
  Solution: Unit multiples   29.2(1998)156
601.
  Proposer: William P. Wardlaw   28.3(1997)231
  Topic: The numerator in the sum of consecutive terms in the harmonic sequence is odd
  Solution: A old numerator   29.3(1998)243
602.
  Proposer: Yi-chuan Pan   28.3(1997)231
  Topic: Prove that a sequence formed from Pell numbers is always square
  Solution: A Pell sequence of squares   29.3(1998)244
603.
  Proposer: Juan-Bosco Romeo Márquez   28.3(1997)231
  Topic: Inequalities involving n^{th} roots of ratios of functions of 2 positive numbers
  Solution: Consequences of convexity   29.3(1998)245
604.
  Proposer: Jiro Fukuta   28.3(1997)231
  Topic: Prove that the product of lengths from 2 points on the diagonals of a quadrilateral is
                independent of the points selected
  Solution: An invariant product   29.3(1998)246

605.
  Proposer: A. P. Stone   28.3(1997)232
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  Solution: Nearly isosceles Pythagorean quadruples   29.3(1998)247
606.
  Proposer: G. Trenkler, S. O. Troschke & J. Gross   28.4(1997)315
  Topic: Finding 2 matrices with equal traces
  Solution: Characterizing a trace identity   29.4(1998)331
607.
  Proposer: Noah Rosenberg   28.4(1997)315
  Topic: Describing a set of points on a sequence of convex m-gons
  Solution: Center of gravity   29.4(1998)332
608.
  Proposer: Daniel E. Penney   28.4(1997)315
  Topic: Determining convergence of an arrangement of the alternating harmonic series
  Solution: A rearrangement of the alternating harmonic series   29.4(1998)334
609.
  Proposer: Peter Schumer   28.4(1997)316
  Topic: Existence of a number modulo a prime p which is the sum of 2 squares
  Solution: Many sums of squares   29.4(1998)335
610.
  Proposer: Ken Korbin   28.4(1997)316
  Topic: Finding 3 term polynomials divisible by a given quadratic
  Solution: A polynomial factor   29.4(1998)336
611.
  Proposer: Frank J. Flanigan   28.5(1997)406
  Topic: Find the arithmetic mean of the zeroes of a rational function
  Solution: A mean of roots   29.5(1998)435
612.
  Proposer: Amir Sharoni   28.5(1997)406
  Topic: Find a function whose graph has a tangent of unit length in the first quadrant
  Solution: Tangents to an asteroid   29.5(1998)436
613.
  Proposer: Michael Scott McClendon   28.5(1997)406
  Topic: Find the length of an altitude in an isosceles triangle with unit inradius
  Solution: The altitude of an isosceles triangle   29.5(1998)437
614.
  Proposer: Peter Schumer   28.5(1997)406
  Topic: Are there many consecutive positive integers not expressible as a sum of squares?
  Solution: Long strings of sums of squares   29.5(1998)438

615.
  Proposer: Western Maryland College Problem Group   28.5(1997)407
  Topic: Find points on and off an ellipse related to tangent lines from a given point
  Solution: The orthoptic circle   29.5(1998)439
616.
  Proposer: Michael Golumb   29.1(1998)66
  Topic: Comparing areas in regions enclosed by convex curves
  Solution: Quadrants in closed convex curves   30.1(1999)61
617.
  Proposer: Kenichiro Kashihara   29.1(1998)66
  Topic: Solving a Diophantine equation with one variable an exponent
  Solution: A Diophantine equation   30.1(1999)62
618.
  Proposer: Frank Schmidt   29.1(1998)66
  Topic: Inequality involving alternating reciprocals of factorials
  Solution: A deranged alternating exponential inequality
619.
  Proposer: Götz Trenkler   29.1(1998)66
  Topic: Finding a generalized inverse of a quasi-idempotent matrix
  Solution: A generalized inverse for quasi-idempotent matrices   30.1(1999)65
620.
  Proposer: Sam Speed   29.1(1998)67
  Topic: Find the minimum value of the number of partitions of n added to its maximum
  Solution: A "minimal" partition   30.1(1999)65
621.
  Proposer: Jedd Beall, Lenny Jones, Mike Seyfried & Kathryn Seyfried   29.2(1998)152
  Topic: Find positive integer pairs with the square of one's digit sums equal the other integer
  Solution: Squares as sums of digits   30.2(1999)144
622.
  Proposer: Michael Golumb   29.2(1998)152
  Topic: Properties about the number of beads distributed at the vertices of an n-gon
  Solution: Balancing polygons   30.2(1999)145
623.
  Proposer: Alexander Kheyfits   29.2(1998)152
  Topic: Evaluating a double sum of reciprocals of integers > 1
  Solution: A series whose sum is ln k   30.2(1999)145
624.
  Proposer: Harry Sedinger   29.2(1998)153
  Topic: Existence of a point which maximizes the angle made from it to 2 points on a line
  Solution: Maximum viewing angle   30.2(1999)146

625.
  Proposer: Sining Zheng & Yuyue Song   29.2(1998)153
  Topic: Finding power series having the radius of convergence of another power series
  Solution: Extending the radius of congruence   30.2(1999)147
626.
  Proposer: Juan Mártin Mombelli   29.3(1998)242
  Topic: Equation involving the number theoretic functions $\tau(n)$, $\sigma(n)$ and $\varphi(n)$
  Solution: Two and the arithmetic functions   30.3(1999)231
627.
  Proposer: George Mackiw   29.3(1998)242
  Topic: Divisibility of a given polynomial sum by powers of 2
  Solution: Divisibility by powers of two   30.3(1999)231
628.
  Proposer: Frank Schmidt   29.3(1998)242
  Topic: Find n so that the symmetric group S_n is a subgroup of GL(2,n)
  Solution: Embedding S_n in GL(2,p)   30.3(1999)232
629.
  Proposer: David Beran   29.3(1998)242
  Topic: Conditions on 2 angle bisectors of a triangle which guarantees it being isosceles
  Solution: An isosceles triangle   30.3(1999)233
630.
  Proposer: Michael Andreoli   29.3(1998)243
  Topic: Expected number of corrected guesses in a card game
  Solution: Guessing card colors   30.3(1999)234
631.
  Proposer: K. R. S. Sastry   29.4(1998)330
  Topic: Finding an odd integer which shares certain properties enjoyed by the integer 5
  Solution: An unusual sum of squares   30.4(1999)319
632.
  Proposer: Frank Schmidt   29.4(1998)330
  Topic: Finding graphs which share certain properties enjoyed by a pentagon
  Solution: A 4-regular, 3-chromatic, self-complementary graph   30.4(1999)320
633.
  Proposer: Zun Shan & Edward T. H. Wang   29.4(1998)330
  Topic: Seeking cyclic permutations of points on a circle
  Solution: Permutations on a circle   30.4(1999)321
634.
  Proposer: Juan Mártin Mombelli   29.4(1998)331
  Topic: Solving a 2 variable functional equation
  Solution: Functions defined by an identity   30.4(1999)322

635.
  Proposer: Seth Zimmerman   29.4(1998)331
  Topic: Sums of squares of chords forming a right angle with a point inside a circle
  Solution: Orthogonal chords in a circle   30.4(1999)323
636.
  Proposer: K. R. S. Sastry   29.5(1998)434
  Topic: Identity involving the number and sum of unitary divisors of natural numbers
  Solution: A convolving sum   30.5(1999)407
637.
  Proposer: Doug Ensley   29.5(1998)434
  Topic: Finding the limit of a sequence of square roots
  Solution: A quadratic recursion limit   30.5(1999)408
638.
  Proposer: Manjul Bhjargava   29.5(1998)434
  Topic: Evaluate the sum of reciprocals of binomial coefficients
  Solution: The sum of reciprocals of binomial coefficients   30.5(1999)409
639.
  Proposer: Alan H. Rapoport   29.5(1998)435
  Topic: Number of ways of aligning 25 people by height in a 5×5 matrix array
  Solution: A square Young tableau   30.5(1999)410
640.
  Proposer: Michael Golumb   29.5(1998)435
  Topic: Inequality involving non-square integers whose square begins with the integer
  Solution: Square root leader   30.5(1999)421
641.
  Proposer: Arthur L. Holshouser   30.1(1999)60
  Topic: Finding functions with graphs satisfying properties about line symmetries
  Solution: From one symmetry many   31.1(2000)63
642.
  Proposer: Kwnichiro Kashihara   30.1(1999)60
  Topic: Diophantine-type equation involving powers as sums of factorials
  Solution: A sum of factorials   31.1(2000)65
643.
  Proposer: William F. Trench   30.1(1999)60
  Topic: Finding limits of sequences defined by double sums of a given positive sequence
  Solution: Two double sums   31.1(2000)65
644.
  Proposer: Lawrence Spence and Charles Vanden Eynden   30.1(1999)61
  Topic: Finding certain polynomials expressible as the product of 2 such polynomials
  Solution: Products of polynomials   31.1(2000)64

645.
  Proposer: James Graham-Eagle   30.1(1999)61
  Topic: Summing a series of terms from a logarithm sequence for odd integers
  Solution: Stirling's approximation to the rescue   31.1(2000)67
646.
  Proposer: Parviz Khalili   30.2(1999)143
  Topic: Necessary & sufficient condition that the graph of a 5th degree polynomial has a point
                of symmetry
  Solution: Quintic symmetry   31.2(2000)138
647.
  Proposer: K. R. S. Sastry   30.2(1999)143
  Topic: Number of triangles having certain properties on the area and sides of the triangle
  Solution: A family of Heron triangles   31.2(2000)139
648.
  Proposer: Ayoub B. Ayoub   30.2(1999)143
  Topic: Condition for which an integer exists guaranteeing a Pythagorean triple
  Solution: A family of Pythagorean triples   31.2(2000)140
649.
  Proposer: Todd Will   30.2(1999)144
  Topic: Existence of "power special" sequences of non-integer reals
  Solution: Power special sequences   31.2(2000)138
650.
  Proposer: Kenneth Korbin   30.2(1999)144
  Topic: Express the side of a triangle in terms of radii of 2 inscribed circles
  Solution: Radii of inscribed circles   31.2(2000)142
651.
  Proposer: Frank Schmidt   30.3(1999)230
  Topic: Existence of 3 matrices with trace > 0 having mutual products with trace < 0
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652.
  Proposer: Seth Zimmerman   30.3(1999)230
  Topic: Maximum number of points in a plane with any 3 having 2 one unit apart
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653.
  Proposer: Răzvan Tudoran   30.3(1999)230
  Topic: Recurring sequence with the nth term divisible by the nth prime
  Solution: A well known sequence   31.3(2000)223
654.
  Proposer: Ice B. Risteski   30.3(1999)230
  Topic: Dimensions of subspaces of a vector space over various fields
  Solution: The dimension of a subspace over different fields   31.3(2000)224

655.
  Proposer: Charles Vanden Eynden   30.3(1999)231
  Topic: Finding values which guarantee a graph has a Hamilton circuit
  Solution: A Hamiltonian circuit on a box   31.3(2000)225
656.
  Proposer: Frank Schmidt   30.4(1999)318
  Topic: Convergence of a sum and other properties of a sequence of integrals
  Solution: A sequence of integrals   31.4(2000)316
657.
  Proposer: Zengxiang Tong   30.4(1999)318
  Topic: Primes that divide the numerator of finite sums of the alternating harmonic series
  Solution: A divisibility relation in the alternating harmonic series   31.4(2000)317
658.
  Proposer: Roger B. Nelsen   30.4(1999)318
  Topic: Possible independence criteria for random variables
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659.
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660.
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661.
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662.
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663.
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664.
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665.
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666.
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667.
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672.
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673.
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674.
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675.
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677.
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678.
  Proposer: David Atkinson   31.3(2000)219
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679.
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684.
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690.
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715.
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716.
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717.
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718.
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719.
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720.
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721.
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722.
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                right or left hand limit of the function as x approaches 1, and find the limit.
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723.
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  Solution: Untitled   34.2(2003)156
724.
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725.
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726.
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728.
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734.
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735.
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737.
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739.
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740.
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743.
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748.
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753.
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755.
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756.
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757.
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758.
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759.
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760.
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761.
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762.
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764.
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765.
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766.
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777.
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779.
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780.
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782.
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798.
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799.
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801.
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803.
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804.
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807.
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808.
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809.
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810.
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811.
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812.
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813.
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814.
  Proposer: Josè Luis Díaz-Barrero   36.5(2005)414
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815.
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816.
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817.
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  Solution: Slopes of tangents   38.1(2007)63
818.
  Proposer: Angelo S. DiDomenico   37.1(2006)60
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819.
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820.
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821.
  Proposer: Andrew Cusumano   37.2(2006)143
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822.
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823.
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824.
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825.
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826.
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827.
  Proposer: Syrous Marivani   37.3(2006)229
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828.
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829.
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  Topic: Finding distances between 2 parallelopipeds cut by a plane
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830.
  Proposer: Roger Bilisoly   37.3(2006)230;   Corrected: 37.4(2006)308;   37.5(2006)392
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  Solution: Area of an alternating 2n-gon   38.5(2007)389
831.
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832.
  Proposer: Ken Holing   37.4(2006)309
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833.
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834.
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835.

  Proposer: Juan-Bosco Romero Márquez   37.4(2006)309

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836.

  Proposer: Josè Luis Díaz-Barrero   37.5(2006)392

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837.

  Proposer: Juan-Bosco Romero Márquez   37.5(2006)392

  Topic: Inequalities involving the sides and inradius of a triangle

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838.

  Proposer: Arkady Alt   37.5(2006)393

  Topic: Inequality for reciprocals of sums and differences of squared sides of a triangle

  Solution: An acute triangle inequality   38.5(2007)392

839.

  Proposer: Andrew Cusumano   37.5(2006)393

  Topic: Find the general term and limit of a sequence of sums of reciprocals of integers

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840.

  Proposer: Ruthven Murgatroyd   37.5(2006)393

  Topic: Moving circular segments around a right angled hallway

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841.

  Proposer: Mohammad K. Azarian   38.1(2007)60

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842.

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843.

  Proposer: P. R. Parthasarathy   38.1(2007)60

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844.

  Proposer: Ovidui Furdui   38.1(2007)61

  Topic: Identity for the sum of a sequence involving Euler's constant

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845.
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846.
  Proposer: Josè Luis Díaz-Barrero
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847.
  Proposer: Juan-Bosco Romero Márquez
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848.
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849.
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850.
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851.
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852.
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854.
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  Topic: Equality for an infinite sum involving harmonic numbers
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855.
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856.
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858.
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859.
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860.
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861.
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862.
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863.
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864.
  Proposer: Dennis Walsh   38.5(2007)389
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865.
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868.
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872.
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873.
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874.
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876.
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877.
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878.
  Proposer: Josè Luis Díaz-Barrero   39.3(2008)241
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879.
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            sufficient condition that equality holds
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881.
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882.
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883.
  Proposer: Brian Bradie   39.4(2008)308
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884.
  Proposer: Josè Luis Díaz-Barrero   39.4(2008)308
  Topic: Evaluate the limit of a double sum involving products of integers
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885.
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886.
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887.
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888.
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889.
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890.
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891.
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892.
  Proposer: Greg Oman   40.1(2009)55
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893.
  Proposer: Ovidui Furdui   40.1(2009)56
  Topic: Summing products of x^n and the difference of a function and its Taylor polynomial
  Solution: An infinite sum of a function with its Taylor polynomial   41.1(2010)67
894.
  Proposer: Juan-Bosco Romero Márquez   40.1(2009)56
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895.
  Proposer: Ovidui Furdui   40.1(2009)56
  Topic: Evaluation of a product of powers of a ratio of integers
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896.
  Proposer: Darij Grinberg   40.2(2009)131
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897.
  Proposer: R. S. Tiberio   40.2(2009)131
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898.
  Proposer: Mihály Bencze   40.2(2009)131
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899.
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  Solution: A definite integral involving a geometric series   41.2(2010)167
900.
  Proposer: Michel Bataille   40.2(2009)132
  Topic: Summation equality involving the finite harmonic series and its square
  Solution: An identity with the harmonic series   41.2(2010)169
901.
  Proposer: Cezar Lupu   40.3(2009)215
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902.
  Proposer: Mohsen Soltanifar   40.3(2009)215; Clarified: 41.3(2010)242
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903.
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  Solution: An inequality with telescoping summation   41.3(2010)244
904.
  Proposer: Ovidiu Furdui   40.3(2009)216
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905.
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906.
  Proposer: Ovidiu Furdui   40.4(2009)293
  Topic: Infinite product of a product of fractions
  Solution: The Gamma function and an infinite product   41.4(2010)330
907.
  Proposer: Brian Bradie   40.4(2009)293
  Topic: Sum involving Pell-Lucas numbers
  Solution: An infinite sum with the Pell-Lucas numbers   41.4(2010)332
908.
  Proposer: Scott Duke   40.4(2009)294
  Topic: Sequence whose convergence depends on the Riemann zeta function
  Solution: Limit of a recursive sequence   41.4(2010)333
909.
  Proposer: Francisco Javier Garcia   40.4(2009)294
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  Solution: Reflection and cyclic quadrilateral   41.4(2010)333
910.
  Proposer: Michael Goldenberg & Mark Kaplan   40.4(2009)294
  Topic: Show that a ratio of determinants of Tribonacci numbers is a perfect square
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911.
  Proposer: Michael Scott McClendon   40.5(2009)376
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912.
  Proposer: Kenneth W. Fogarty   40.5(2009)376
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913.
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914.
  Proposer: Y. N. Aliyev   40.5(2009)377
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915.
  Proposer: Will Gosnell & Herb Bailey   40.5(2009)377
  Topic: Expressing the hypotenuse of a certain right triangle in terms of the gold ratio
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916.
  Proposer: Kim McInturff   41.1(2010)64
  Topic: An integral involving the gamma function
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917.
  Proposer: José Luis Díaz-Barrero   41.1(2010)64
  Topic: Inequalities involving the sides, inradius and the circumradius of a triangle
  Solution: An inequality of a triangle with its circumradius and inradius   42.1(2011)66
918.
  Proposer: Cezar Lupu   41.1(2010)64
  Topic: When is an expression involving three integers a perfect cube?
  Solution: Conditions for a perfect cube   42.1(2011)67
919.
  Proposer: Michel Bataille   41.1(2010)65
  Topic: Identities involving the sides, inradius and the radii of the excircles of a triangle
  Solution: Two triangle identities   42.1(2011)68
920.
  Proposer: Ovidiu Furdui   41.1(2010)65
  Topic: Absolute convergence of a series involving products of cosines
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921.
  Proposer: Ovidiu Furdui   41.2(2010)160
  Topic: Inequalities involving sequences of towers
  Solution: Bounes for two subsequences of {1/k [towered by 1/k, k times]}   42.2(2011)152
922.
  Proposer: Sadi Abu-Saymeh & Mowaffag Hajja   41.2(2010)161
  Topic: Equality of distances arising from angle bisectors of angles of a triangle
  Solution: An isosceles triangle problem again   42.2(2011)155
923.
  Proposer: Eugen J. Ionascu   41.2(2010)161
  Topic: Construct a sequence of numbers and determine the limit of the mean of their sums
  Solution: Constructing a sequence satisfying certain properties   42.2(2011)156
924.
  Proposer: Joe Howard   41.2(2010)161
  Topic: Inequality involving a finite sequence whose terms have a product equal to unity
  Solution: A result from the AM-GM inequality   42.2(2011)157

925.
  Proposer: Cezar Lupu & Tudorel Lupu   41.2(2010)161
  Topic: Existence of a vanishing point of the 2nd derivative of a function satisfying integrals
  Solution: Conditions for f''© = 0 with c ε (0,1)   42.2(2011)158
926.
  Proposer: Mowaffaq Hajja   41.3(2010)242
  Topic: Constructing cevians which make equal angles with the base of a triangle
  Solution: Equal cevian intercepts   42.3(2011)235
927.
  Proposer: Cezar Lupu & Tudorel Lupu   41.3(2010)242
  Topic: Inequality involving the difference of two integrals of a differentiable function
  Solution: An inequality of a function with continuous first derivative   42.3(2011)236
928.
  Proposer: Michel Bataille   41.3(2010)243
  Topic: Necessary and sufficient conditions that the rank of two special matrices are equal
  Solution: Conditions for Rank(A) = Rank(B0   42.3(2011)237
929.
  Proposer: Cezar Lupu & Vlad Matei   41.3(2010)243
  Topic: Inequality involving the sum of the cubes of three real numbers
  Solution: A constrained ineqiality   42.3(2011)238
930.
  Proposer: Ovidui Furdui   41.3(2010)243
  Topic: Evaluating the integral of a function with a given finite limit as x approaches infinity
  Solution: An application of the Weierstrass Approximation Theorem   42.3(2011)239
931.
  Proposer: Sam Vandervelde   41.4(2010)329
  Topic: Equality involving two polynomials and the form of the remainder of their ratio
  Solution: Composition and product of polynomials   42.4(2011)330
932.
  Proposer: Cezar Lupu & Tudorel Lupu   41.4(2010)329
  Topic: Integral inequality involving the 4th power of a continuous function on [0,1]
  Solution: A simple inequality for a definite integral   42.4(2011)332
933.
  Proposer: Cosmin Pohoață   41.4(2010)329
  Topic: Inequality involving the inradii of triangles formed from the orthocenter of a triangle
  Solution: An inequality with inradii   42.4(2011)332
934.
  Proposer: José Luis Díaz-Barrero   41.4(2010)330
  Topic: Summation inequality involving the sides and semi-perimeter of an n-gon
  Solution: An inequality of n-gons   42.4(2011)334

935.
  Proposer: Tom Beatty   41.4(2010)330
  Topic: Two person game where players alternately select irrational numbers and integers
  Solution: Winning strategy   42.4(2011)335
936.
  Proposer: Cezar Lupu & Tudorel Lupu   41.5(2010)409
  Topic: Inequality involving 3 positive real numbers
  Solution: A symmetric inequality in three variables   42.5(2011)408
937.
  Proposer: Panagiote Ligouras   41.5(2010)409
  Topic: Inequality involving medians, angle bisectors and the circumradius of a triangle
  Solution: Inequality from a triangle   42.5(2011)409
938.
  Proposer: Ovidiu Furdui   41.5(2010)409
  Topic: Integral limit of involving integers n and polynomials times an integrable function
  Solution: The limit related to a definite integral   42.5(2011)410
939.
  Proposer: Cezar Lupu   41.5(2010)410
  Topic: Necessary and sufficient conditions that the trace of the adjugate of a matrix is zero
  Solution: An adjugate problem   42.5(2011)411
940.
  Proposer: Greg Oman   41.5(2010)410
  Topic: Find rings that require the product of members of a sequence be in the sequence
  Solution: Identification of some nonzero rings   42.5(2011)412
941.
  Proposer: Ovidiu Furdui   42.1(2011)62
  Topic: Evaluating the limit of an integral of a product of two functions
  Solution: Evaluating and integral limit   43.1(2012)96
942.
  Proposer: Geoffrey Kandall   42.1(2011)62
  Topic: Sum of ratios involving angle bisectors intersecting at the incenter of a triangle
  Solution: An equation in geometry   43.1(2012)98
943.
  Proposer: Juan-Bosco Romero Márquez & Francisco Javier García Capitán   42.1(2011)62
  Topic: Locating points on an internal bisector in a triangle which satisfy a given cross ratio
  Solution: A cross ratio problem   43.1(2012)99
944.
  Proposer: Duong Viet Thong   42.1(2011)63
  Topic: Inequalities involving the integral of a continuously differentiable function
  Solution: The bounds of a definite integral   43.1(2012)100

945.
  Proposer: Erwin Just   42.1(2011)63
  Topic: Existence of an integer in a ring which satisfies a given equation and 3 conditions
  Solution: Properties of some rings   43.1(2012)103
946.
  Proposer: Greg Oman   42.2(2011)151
  Topic: For a function, f, defined on a countable set find a sequence satisfying $f(x_n)\, x_{n+1}$
  Solution: Ordering a countably infinite set with a function   43.2(2012)175
947.
  Proposer: Ovidiu Furdui   42.2(2011)151
  Topic: Finding all polynomials, P and Q such that for i = 1,...,n, $\prod P(i) = Q\left(\prod i\right)$
  Solution: Identifying some polynomials   43.2(2012)176
948.
  Proposer: Duong Viet Thong   42.2(2011)151
  Topic: Inequality involving the integral of a continuously differentiable function
  Solution: An integral inequality   43.2(2012)177
949.
  Proposer: Cezar Lupu   42.2(2011)152
  Topic: Identities involving integrals of continuously differentiable functions
  Solution: Forming integral equations   43.2(2012)178
950.
  Proposer: José Luis Díaz-Barrero   42.2(2011)152
  Topic: Inequality involving ratios three numbers summed over all their cyclic permutations
Solution: A constrained inequality   43.2(2012)179
951.
  Proposer: Duong Viet Thong   42.3(2011)232
  Topic: Existence of a number relating to the derivative of a function satisfying 3 integrals
  Solution: Mean value theorem for integral   43.3(2012)258
952.
  Proposer: Michel Bataille   42.3(2011)232
  Topic: Summing a product of binomial coefficients and powers of two
  Solution: A binomial coefficient identity   43.3(2012)260
953.
  Proposer: Tom Beatty   42.3(2011)232
  Topic: Summing a sequence of numbers satisfying a given non-linear recurrence
  Solution: A recursively defined series   43.3(2012)261
954.
  Proposer: Edwin Just   42.3(2011)233
  Topic: Determining two counterfeit coins in a set of twelve
  Solution: Detecting two fake coins   43.3(2012)262

955.
  Proposer: José Luis Díaz-Barrero   42.3(2011)233
  Topic: Inequality involving ratios three numbers summed over all their cyclic permutations
  Solution: Another constrained inequality   43.3(2012)263
956.
  Proposer: Duong Viet Thong   42.4(2011)329
  Topic: Existence of 3 numbers related to a function whose definite integral is 1
  Solution: Guaranteeing three function values whose products is 1   43.4(2012)338
957.
  Proposer: Michel Bataille   42.4(2011)329
  Topic: Divisibility and a summation involving Fibonacci numbers
  Solution: Properties of Fibonacci numbers   43.4(2012)339
958.
  Proposer: Mohammad Azarian   42.4(2011)330
  Topic: Summation involving a sequence defined by a 2nd order nonlinear recurrence relation
  Solution: Sylvester's sequence and the infinite Egyptian fraction decomposition of 1
             43.4(2012)340
959.
  Proposer: Michael Goldberg & Mark Kaplan   42.4(2011)330
  Topic: Identity involving a sequence defined by a 3rd order recurrence relation
  Solution: An identity for a Fibonacci-like sequence   43.4(2012)342
960.
  Proposer: Peter Ash   42.4(2011)330
  Topic: Identity of products of square roots involving three positive numbers
  Solution: de Gua's theorem   43.4(2012)343
961.
  Proposer: Andrew Simoson   42.5(2011)407
  Topic: Proving the difference of two inverse sine functions is a constant
  Solution: A constant function with arcsin   43.5(2012)411
962.
  Proposer: Juan-Bosco Romero Màrquez   42.5(2011)407
  Topic: Inequalities involving the inradius and circumradius of a triangle
  Solution: Inequalities of a non-acute angle   43.5(2012)413
963.
  Proposer: Duong Viet Thong   42.5(2011)407
  Topic: Inequality involving definite integrals
  Solution: An integral inequality   43.5(2012)414
964.
  Proposer: Jerry Minkus   42.5(2011)408
  Topic: Identities involving the angles and internal points of a triangle
  Solution: Equalities with incenter, circumcenter, and orthocenter   43.5(2012)416

965.
  Proposer: James Duemmel   42.5(2011)408
  Topic: Properties of a sequence formed from a well-known inequality
  Solution: Properties of a sequence   43.5(2012)417
966
  Proposer: Tahani Fraiwan & Mowaffaq Hajja   43.1(2012)95
  Topic: Necessary and sufficient conditions relating to the cevians of a triangle
  Solution: Cevians, midpoint and equal areas   44.1(2013)66
967
  Proposer: Elias Lampakis   43.1(2012)95
  Topic: Prove the tangent lines to a parabola and a polynomial intersect in irrational points
  Solution: Irrational intersecting points   44.1(2013)67
968
  Proposer: Greg Oman   43.1(2012)95
  Topic: Prove or disprove that all members of a ring of monotone functions are constant
  Solution: Rings of monotonic functions   44.1(2013)68
969
  Proposer: Panagiote Ligouras   43.1(2012)96
  Topic: Inequality relating to the sides of a given hexagon
  Solution: Hexagon inequality   44.1(2013)69
970
  Proposer: Xiang-Qian Chang   43.1(2012)96
  Topic: Inequality relating to the traces of a symmetric matrix
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971
  Proposer: George Apostolopoulos   43.2(2012)174
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972
  Proposer: Elias Lampakis   43.2(2012)174
  Topic: Summation inequality involving a finite cyclic sequence
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973
  Proposer: Ion Pătraşcu & Florentine Smarandache   43.2(2012)174
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974
  Proposer: Michael Woltermann   43.2(2012)175
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  Solution: An expression for cos $(2\pi/7)$ 44.2(2013)146

975
  Proposer: Cezar Lupu   43.2(2012)175
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976
  Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu   43.3(2012)257
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  Solution: An inequality with a triangle   44.3(2013)234
977
  Proposer: Greg Oman   43.3(2012)257
  Topic: Proving a property involving subsets which are closed under a given function
  Solution: Functions and Countable Sets   44.3(2013)235
978
  Proposer: Michel Bataille   43.3(2012)257
  Topic: Limits involving the nth harmonic number
  Solution: A limit with harmonic numbers   44.3(2013)235
979
  Proposer: Steven Finch   43.3(2012)258
  Topic: Chordal triangle formed from points on a sphere and the probability that it is acute
  Solution: The probability of an acute chordal triangle   44.3(2013)237
980
  Proposer: George Apostolopoulos   43.3(2012)258
  Topic: Finding the angles of a triangle formed from points on a square
  Solution: Minimum area of a triangle andits angles   44.3(2013)238
981
  Proposer: Michael Bataille   43.4(2012)337
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982
  Proposer: Elias Lampakis   43.4(2012)337
  Topic: Inequality involving the orthocenter, the circumradius and altitudes of a triangle
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983
  Proposer: George Apostolopoulous 43.4(2012)337
  Topic: Finding triangles of equal area constructed inside a give triangle
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984
  Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu 43.4(2012)338
  Topic: Inequality involving sums of logarithms
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985
  Proposer: Greg Oman 43.4(2012)338
  Topic: Proving that a certain infinite commutative ring is a principal ideal domain
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986
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987
  Proposer: Ovidia Furdui 43.5(2012)410
  Topic: Limit of the nth root of an integral involving logarithmic and exponential functions
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988
  Proposer: José Luis Díaz-Barrero   43.5(2012)410
  Topic: Inequality involving a set of nonzero real numbers
  Solution: Applications of Radon and Bergstrom inequalities   44.5(2013)441
989
  Proposer: Yagub N. Aliyev   43.5(2012)411
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990
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  Solution: A limit with the number of perfect squares   44.5(2013)444
991
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  Topic: Limits relating to a given sequence
  Solution: The limits of two sequencesec   45.1(2014)58
992
  Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanciu   44.1(2013)65
  Topic: Sums relating to the inscribed and circumscribed circles of a polygon
  Solution: An inequality fo a regular polygon   45.1(2014)60
993
  Proposer: Michael Woltermann   44.1(2013)66
  Topic: Establishing an inequality for the integral of a continuous function
  Solution: A concave function inequality   45.1(2014)61
994
  Proposer: Elias Lampakis   44.1(2013)66
  Topic: Establish an inequality involving the cosines of three angles
  Solution: An inequality with cosines   45.1(2014)62

995
  Proposer: George Apostolopoulos   44.1(2013)66
  Topic: Inequality involving the square root of a sum of products of three fractions
  Solution: A constrained inequality   45.1(2014)63
996
  Proposer: Perfetti Paolo   44.2(2013)142
  Topic: Evaluating a trigonometric integral
  Solution: evaluation of an improper integral   45.2(2014)146
997
  Proposer: Ovidiu Furdui   44.2(2013)142
  Topic: An infinite sum of squares of alternating harmonic series
  Solution: An expression of ln 2   45.2(2014)147
998
  Proposer: Elias Lampakis   44.2(2013)142
  Topic: Establishing a trigonometric inequality
  Solution: An inequality with even powers of sine and cosine   45.2(2014)148
999
  Proposer: Cezar Lupu & Ştefan Spătaru   44.2(2013)143
  Topic: Inequality involving powers, roots products and sums of two finite sequences
  Solution: An application of Poppvocou's theorem   45.2(2014)149
1000
  Proposer: Michel Bataille   44.2(2013)143
  Topic: Prove that certain set with an associative binary operation is a group
  Solution: A sufficient condition for a group   45.2(2014)150
1001
  Proposer: Michel Bataille   44.3(2013)233
  Topic: Limit of integrals involving a function of sines and cosines
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1002
  Proposer: Mowaffaq Hajja   44.3(2013)233;   Corrected   44.5(2013)437;   45.3(2014)224
  Topic: Proving the equality of areas of triangles inside a convex quadrilateral
  Solution: Area and diagonal bisector of a convex quadrilateral 45.5(2014)394
1003
  Proposer: D. M. Bătinetu-Giurgiu and Neculai Stanciu   44.3(2013)233
  Topic: Inequality involving the lengths of angle bisectors and semiperimeter of a triangle
  Solution: An inequality with the angle bisectors of a triangle 45.3(2014)225
1004
  Proposer: Ángel Plaza and Sergio Falcón   44.3(2013)234
  Topic: Sums of binomial coefficients multiplied by (-1) to a triangular number power
  Solution: A combinatorial sum   45.3(2014)227

1005
 Proposer: Elias Lampakis   44.3(2013)234
 Topic: Summation inequality involving a triangle's inradius, circumradius and excirle radius
 Solution: An inequality with the radii of the excircles   45.3(2014)228
1006
 Proposer: Greg Oman   44.4(2013)325
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 Solution: Identifying some finite commutative rings with identity   45.4(2014)319
1007
 Proposer: George Apostolopoulos   44.4(2013)325
 Topic: Inequality involving three variables and three constants whose product is one
 Solution: An inequality with two constraints   45.4(2014)319
1008
 Proposer: Cezar Lupo   44.4(2013)325
 Topic: Integral inequality involving a differentiable function with a continuous derivative
 Solution: An application of Cauchy-Schwarz inequality   45.4(2014)320
1009
 Proposer: Valery Karachik   44.4(2013)326
 Topic: Finding the limit of a sum of ratios involving a sequence with a know limit
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1010
 Proposer: George Apostolopoulos   44.4(2013)326
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1011
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1012
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 Topic: Inequalities involving circumradii and incenters of three triangles
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1013
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1014
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 Topic: The inverse points of two circles are not the limit points of their coaxial family
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1015

  Proposer: Michael Goldberg & Mark Kaplan 44.5(2013)438

  Topic: Symmetry of median extensions of a triangle with respect to an angle bisector

  Solution: Bilateral symmetry 45.5(2014)399

1016

  Proposer: Wei-Kai Lai 45.1(2014)57

  Topic: Finding the limit of a sum of inner products of vectors in a triangle

  Solution: A limit built on a triangle 46.1(2015)62

1017

  Proposer: Götz Trenkler & Dietrich Trenkler 45.1(2014)57

  Topic: Finding an algebraic expression for a sum of skew symmetric matrices

  Solution: Simplifying a matrix expression 46.1(2015)63

1018

  Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu 45.1(2014)58;
               corrected 45.3(2014)222, 46.1(2015)64

  Topic: Inequality involving the inradius of a triangle and one involving the inradius
               of the sphere of a tetrahedron

  Solution: Heights in a triangle 46.3(2015)226

1019

  Proposer: George Apostolopoulous 45.1(2014)58

  Topic: Proving the orthogonality of circles relating to the diagonals of a parallelogram

  Solution: Conditions for orthogonal circles in a parallelogram 46.1(2015)64

1020

  Proposer: Elias Lampakis 45.1(2014)58

  Topic: Inequality involving the circumradius and inradius of a triangle

  Solution: An inequality with semiperimeter, inradius, and circumradius 46.1(2015)65

1021

  Proposer: George Apostolopoulos 45.2(2014)145

  Topic: Inequality involving the cosines of angles in an acute triangle

  Solution: An inequality with cosines aon an acute angle 46.2(2015)143

1022

  Proposer: Elias Lampakis 45.2(2014)145

  Topic: Inequality involving sides and the cosines of angles in an acute triangle

  Solution: Another inequality with cosines on an acute triangle 46.2(2015)144

1023

  Proposer: George Apostolopoulos 45.2(2014)145

  Topic: Identity involving the sides and tangent of one of the angles in a specific triangle

  Solution: An identity on a 45-60-75 triangle 46.2(2015)145

1024

  Proposer: Ovidiu Furdui 45.2(2014)146

  Topic: Powers of integrals equaling integrals of powers of a continuous function

  Solution: Conditions for a constant function 46.2(2015)146

1025

  Proposer: Yanus Tunçbilek 45.2(2014)146

  Topic: Inequality involving positive numbers and their logarithms

  Solution: A straight-forward inequality 46.2(2015)146

1026

  Proposer: Elias Lampakis 45.3(2014)222

  Topic: Inequality involving three positive real numbers

  Solution: Another algebraic inequality 46.3(2015)221

1027

  Proposer: George Apostolopoulos 45.3(2014)223

  Topic: Inequality involving three non-zero real numbers

  Solution: Another constrained inequality 46.3(2015)222

1028

  Proposer: George Apostolopoulos 45.3(2014)223

  Topic: Find the ratio of areas inside a convex quadrilateral

  Solution: Areas in a convex quadrilateral 46.3(2015)223

1029

  Proposer: José Luis Díaz-Barrero & Ángel Plaza 45.3(2014)223

  Topic: Inequality involving Fibonacci and Lucas numbers

  Solution: Connecting three sequences 46.3(2015)224

1030

  Proposer: Elias Lampakis 45.3(2014)223

  Topic: Solving six equations in six non-zero variables

  Solution: An interesting system of equations 46.3(2015)225

1031

  Proposer: George Apostolopoulos 45.4(2014)318

  Topic: Inequality for areas of internal triangle in a triangle and a sum of squares of sides

  Solution: An inequality for areas 46.4(2015)301

1032

  Proposer: George Apostolopoulos 45.4(2014)318

  Topic: Inequality involving sines and cosines of angles in an acute triangle

  Solution: A trigonometric inequality 46.4(2015)303

1033

  Proposer: Michel Bataille 45.4(2014)318

  Topic: Sum of reciprocals of a product of sines of non-multiplies of π

  Solution: A finite trigonometric sum 46.4(2015)304

1034

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  Topic: Evaluating an integral of even powers of a differentiable function

  Solution: Integral of an involution 46.4(2015)305

1035
Proposer: Michel Bataille 45.4(2014)319
Topic: Inequality involving the sides, incenter and an interior point of a triangle
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1036
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1037
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Topic: Inequality involving a point inside a triangle and its projections to the sides
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1038
Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu 45.5(2014)393
Topic: Inequality for the area and sides of a triangle and three non-negative real numbers
Solution: An inequality for triangles 46.5(2015)372

1039
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Topic: Inequality involving a finite sequence of positive real numbers whose product is 1
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1040
Proposer: Michael Goldenberg & Mark Kaplan 45.5(2014)394
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1041
Proposer: George Apostolopoulos 46.1(2015)61
Topic: Inequality involving three variables and fifth powers
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1042
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Topic: limit of the nth root of an integral
Solution: The limit of an integral 47.1(2016)63

1043
Proposer: Peter Nüesch 46.1(2015)61
Topic: Inequality involving the sides, semiperimeter and circumradius of a triangle
Solution: An inequality for triangles 47.1(2016)64

1044
Proposer: Spiros P. Andriopoulos 46.1(2015)62
Topic: Inequality involving the angles (in radians) and sines of the angles of a triangle
Solution: An inequality for the angles of a triangle 47.1(2016)65

1045
 Proposer: George Apostolopoulos 46.1(2015)62
 Topic: Inequality involving the medians and inradius of a triangle
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1046
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1047
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1048
 Proposer: Michel Bataille 46.2(2015)143
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1049
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1050
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1051
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1052
 Proposer: Michel Bataille 46.3(2015)220
 Topic: Proving a relationship involving a point on a perpendicular bisector in a triangle
 Solution: Projections of the symmetric in a scalene triangle 47.3(2016)223
1053
 Proposer: Ovidiu Furdui 46.3(2015)220
 Topic: Proving a property involving a matrix and its transpose
 Solution: A determinant 47.3(2016)224
1054
 Proposer: Greg Oman 46.3(2015)221
 Topic: Determining if two rings of sequences are isomorphic
 Solution: Sequences which are ultimately constant 47.3(2016)225

1055
 Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu 46.3(2015)221
 Topic: Relationships of the radii of three inscribed circles of three triangles in a triangle
 Solution: Radii of inscribed circles 47.3(2016)226
1056
 Proposer: Stan Byrd & Roger Nichols 46.4(2015)300
 Topic: Find the coefficients which minimize a definite integral of a cubic polnomial
 Solution: Optimizing a cubic polynomial and its integral 47.4(2016)301
1057
 Proposer: Spiro Andriopoulos 46.4(2015)300
 Topic: Inequality involving sums of two converging sequences of integers and their limits
 Solution: Estimating an infinite sum 47.4(2016)302
1058
 Proposer: George Apostolopoulos 46.4(2015)300
 Topic: A string of inequalities involving the cosines and sine of the angles of triangle
 Solution: A product of sums of sines and cosines 47.4(2016)303
1059
 Proposer: Minh Can 46.4(2015)301
 Topic: Inequality involving the sines of the angles of a triangle
 Solution: An inequality involving sines 47.4(2016)304
1060
 Proposer: George Apostolopoulos 46.4(2015)301
 Topic: Inequality involving cosines, circumradius, inradius and semiperimeter of a triangle
 Solution: A sum with cotangents 47.4(2016)305
1061
 Proposer: Arkady Alt 46.5(2015)369
 Topic: Inequality involving two positive real numbers
 Solution: An inequality between Hölder and Lehner means 47.5(2016)370
1062
 Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu 46.5(2015)369; 47.2(2016)138
 Topic: Inequalities involving the sides and semiperimeter of a nonisosceles triangle
           Corrected 47.5(2016)372
 Solution: *****
1063
 Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu 46.5(2015)369
 Topic: Inequality involving the sides and inradius of a nonisosceles triangle
 Solution: An inequality for nonisosceles triangles 47.5(2016)372
1064
 Proposer: Mircea Merca 46.5(2015)370; 47.2(2016)138
 Topic: Inequality for a sum of cosines of a rational expression involving positive integers
           Corrected 47.5(2016)373
 Solution: *****

1065

Proposer: José Luis Díaz-Barrero José Luis Díaz-Barrero 46.5(2015)370
Topic: Inequalities involving the real parts of sums of sets of complex numbers
Solution: Two inequalities for complex numbers
Corrected 47.5(2016)373

1066

Proposer: George Apostolopoulos 47.1(2016)61
Topic: Identity involving tangents of angles, and the in-and-circum radii of a triangle
Solution: *****

1067

Proposer: Greg Oman 47.1(2016)61
Topic: find all commutative Artinian rings with the only units 1 an -1
Solution: *****

1068

Proposer: Spiros P.Andriopoulos 47.1(2016)61
Topic: Inequality involving a product of integrals of ratios of continuous positive functions
Solution: *****

1069

Proposer: Ángel Plaza 47.1(2016)61
Topic: Finding the limit of a recursive sequence in terms of its initial conditions
Solution: *****

1070

Proposer: Stephen Kaczkowski 47.1(2016)62
Topic: Find a closed form of the limit of a sequence involving the sum of powers of a ratio
Solution: *****

1071

Proposer: Xiang Qian Chang 47.2(2016)138
Topic: Inequality involving a determinant and its trace
Solution: *****

1072

Proposer: Spiros P.Andriopoulos 47.2(2016)139
Topic: Inequality for the sum of a ratio involving powers of three positive numbers
Solution: *****

1073

Proposer: George Apostolopoulos 47.2(2016)139
Topic: Formula for the tangent of the acute angle of the diagonals of a quadrilateral
Solution: *****

1074

Proposer: Panagiote Ligouras 47.2(2016)139
Topic: Two inequalities for expression involving six positive real numbers
Solution: *****

1075

  Proposer: Elias Lampakis 47.2(2016)139
  Topic: Inequality for sums of expressions involving the sides of a triangle
  Solution: *****

1076

  Proposer: D. M. Bătinetu-Giurgiu & Neculai Stanicu 47.3(2016)221
  Topic: Inequality involving the sides and circumradius of a triangle
  Solution: *****

1077

  Proposer: Spiros P.Andriopoulos 47.3(2016)221
  Topic: Inequality for the sum of sequence of a ratio of logarithms
  Solution: *****

1078

  Proposer: Greg Oman 47.3(2016)221
  Topic: Does there exist a well ordered uncountable set a function satisfying an inequality?
  Solution: *****

1079

  Proposer: Valeriy Karachic & Leonid Menikhes 47.3(2016)222
  Topic: Find and prove the limit for the fractional part of a sum of square roots
  Solution: *****

1080

  Proposer: George Apostolopoulos 47.3(2016)222
  Topic: Five inequalities of expressions involving three positive numbers whose sum is three
  Solution: *****

1081

  Proposer: Michel Bataille 47.4(2016)300
  Topic: Finding three numbers that relate to the definite integral of a ratio of polynomials
  Solution: *****

1082

  Proposer: Michael Goldenberg & Mark Kaplan 47.4(2016)300
  Topic: Three conjectures involving a hyperbola related to a certain triangle
  Solution: *****

1083

  Proposer: Alina Sîntămărian 47.4(2016)301
  Topic: Find the sum of a ratio of polynomials of integers
  Solution: *****

1084

  Proposer: George Apostolopoulos 47.4(2016)301
  Topic: Finding the maximum area of a certain triangle
  Solution: *****

1085

Proposer: Eugen J. Ionascu 47.4(2016)301

Topic: Two conjectures involving quadruples of numbers relating to area in a quadrilateral

Solution: *****

1086

Proposer: Michel Bataille 47.5(2016)369

Topic: Constructing a triangle with conditions on its legs with a set square

Solution: *****

1087

Proposer: Ian Cavey 47.5(2016)369

Topic: Two properties concerning the Center(n) in a regular n-gon

Solution: *****

1088

Proposer: Eugen J. Ionascu 47.5(2016)369

Topic: Inequality for the absolute value of the integral of a differentiable function

Solution: *****

1089

Proposer: Ángel Plaza 47.5(2016)370

Topic: Proving a string of inequalities in three variables

Solution: *****

1090

Proposer: Ovidiu Furdui 47.5(2016)370

Topic: Solving a functional equation in two variables

Solution: *****