

## ELEMENTARY PROBLEM INDEX

### Problems by Number, Topic & Location, & by Solution, Title & Location

\*\*\*\*\* indicates solutions pending

Edited by S.L. Basin

- B-1 To: Fibonacci summation and divisibility, 1.1(1963)73  
So: 1.3(1963)76
- B-2 To: Fibonacci summation, 1.1(1963)73  
So: 1.3(1963)77
- B-3 To: Mod 9 Fibonacci congruence, 1.1(1963)73  
So: 1.3(1963)78
- B-4 To: Fibonacci summation, 1.1(1963)74  
So: 1.3(1963)79; Corrected, 2.1(1964)79
- B-5 To: Number of ways to be paid n dollars, 1.1(1963)74  
So: 1.3(1963)79
- B-6 To: Light rays on parallel plates, 1.1(1963)74  
So: Some Reflections, 1.4(1963)75
- B-7 To: Fibonacci generating function, 1.1(1963)74,  
So: 1.3(1963)80; Errata, 2.2(1964)118
- B-8 To: Fibonacci congruence relations, 1.1(1963)75  
So: 1.3(1963)80
- B-9 To: Sums of Fibonacci reciprocals, 1.2(1963)85  
So: Fibonacci sums, 1.4(1963)76
- B-10 To: DeMoivre type identity involving  $F_n$  and  $L_n$ , 1.2(1963)85  
So: Lucas-Fibonacci Identity, 1.4(1963)77
- B-11 To: Hypergeometric and Fibonacci functions, 1.2(1963)85  
So: 1.4(1963)77
- B-12 To: Lucas determinant, 1.2(1963)86; Errata, 2.1(1964)66  
So: A Lucas Determinant, 1.4(1963)78
- B-13 To: Fibonacci determinants, 1.2(1963)86  
So: Fibonacci Continuant, 1.4(1963)79
- B-14 To: Fibonacci summation, 1.2(1963)86  
So: A Little Surprise, 1.4(1963)79
- B-15 To: Mod  $10^k$  Fibonacci congruences, 1.2(1963)87  
So: Fibonacci Sequence Periods [Announcement] 1.4(1963)80
- B-16 To: Fibonacci matrix, 1.2(1963)87; Errata, 2.1(1964)66  
So: Fibonacci and Pascal Again, 2.2(1964)155
- B-17 To: Fibonacci-Lucas identity, 1.3(1963)75  
So: Differences Made into Products, 2.1(1964)74
- B-18 To:  $F_n$  as a sine-cosine series, 1.3(1963)75  
So: A Trigonometric Sum, 2.1(1964)74
- B-19 To: Sums of Fibonacci reciprocals, 1.3(1963)75  
So: A Telescoping Sum, 2.1(1964)75
- B-20 To: Fibonacci summation identities, 1.3(1963)75  
So: Summing Generalized Fibonacci Numbers, 2.1(1964)76
- B-21 To: Generating formula and recursion, 1.3(1963)76  
So: Evens and Odds, 2.1(1964)77

## ELEMENTARY PROBLEM INDEX

### Edited by S.L. Basin

- B-22 To: Fibonacci and Lucas identities, 1.1(1963)76  
So: Lucas Analogues, 2.1(1964)78
- B-23 To: Fibonacci product and sum identities, 1.1(1963)76  
So: Telescoping Products and Sums, 2.1(1964)78  
So: Recursive Polynomial Sequences, 2.4(1964)325
- B-24 To: Fibonacci matrix, 1.4(1963)73  
So: Lambda Function of a Matrix, 2.2(1964)157
- B-25 To: Ratio recursion relation 1.4(1963)73  
So: Exponentials of Fibonacci Numbers, 2.2(1964)158
- B-26 To: Polynomial recursion relation, 1.4(1963)73;  
Errata, 2.1(1964)32; Corrected, 2.4(1964)325
- B-27 To: Recursion relation for  $\cos(n\phi)$  polynomials, 1.4(1963)74;  
Errata, 2.1(1964)32; Corrected & Restated, 2.4(1964)323  
So: Chebyshev Polynomials, 3.2(1965)154
- B-28 To: Determining a Fibonacci determinant, 1.4(1963)74  
So: Maximizing a determinant, 2.2(1964)159
- B-29 To: Characteristic number of a general Fibonacci sequence, 1.4(1963)75  
So: 2.2(1964)160

### Edited by A.P. Hillman

- B-30 To: The millionth term of a sequence, 2.1(1964)72  
So: A Periodic Recurrent Sequence, 2.3(1964)233
- B-31 To: Fibonacci summation and divisibility, 2.1(1964)72  
So: Sums of Consecutive Fibonacci Numbers, 2.3(1964)233
- B-32 To: Mod 5 Fibonacci-Lucas congruence, 2.1(1964)72  
So: A Congruence Relation, 2.3(1964)234
- B-33 To: Sequences satisfying a certain recurrence relation, 2.1(1964)72  
So: Term by Term Sums, 2.3(1964)234
- B-34 To: Second and third order recurrences, 2.1(1964)73  
So: Jarden Products, 2.3(1964)235
- B-35 To: Fibonacci summation identity, 2.1(1964)73  
So: An Alternating Binomial Transform, 2.3(1964)236
- B-36 To: Divisibility property of a recurring sequence, 2.1(1964)73  
So: The Pell Sequence, 2.3(1964)238
- B-37 To: Fibonacci numbers and simple harmonic ratio, 2.1(1964)73  
So: Harmonic Division, 2.3(1964)239
- B-38 To: Second order recurrence relation, 2.2(1964)154  
So: Arithmetic Progressions, 2.4(1964)326
- B-39 To: Fibonacci inequality, 2.2(1964)154  
So: Bounds for Fibonacci Numbers, 2.4(1964)327; Errata, 4.2(1966)191
- B-40 To: Generalized Fibonacci sequence summation formula, 2.2(1964)154  
So: A Summation Formula, 2.4(1964)327
- B-41 To: Fibonacci arithmetic progression, 2.2(1964)155  
So: An Impossible Condition, 2.4(1964)328
- B-42 To:  $F_{n+1}$  as a function of  $F_n$  and Lucas analogue, 2.2(1964)155  
So:  $F_{n+1}$  in terms of  $F_n$ , 2.4(1964)329
- B-43 To: Root functions of sequences, 2.2(1964)155  
So: Iteration for the Golden Mean, 2.4(1964)329

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-44 To: Fibonacci numbers between successive powers of  $n$ , 2.3(1964)231  
So: A Bound on Bounded Fibonacci Numbers, 3.1(1965)75
- B-45 To: Generalized Fibonacci identity, 2.3(1964)231  
So: Another Sum, 3.1(1965)76
- B-46 To:  $n^{\text{th}}$  order determinant, 2.3(1964)231  
So: A Continuuant Determinant, 3.1(1965)76
- B-47 To: Composite Fibonacci numbers, 2.3(1964)232  
So: Consecutive Composite Fibonacci Numbers, 3.1(1965)77
- B-48 To: Fibonacci and Lucas summation problem, 2.3(1964)232  
So: A Binomial Expansion, 3.1(1965)78
- B-49 To: Cryptarithm in base 14, 2.3(1964)232  
So: An Alphametic, 3.1(1965)79
- B-50 To: Fibonacci summation identity, 2.3(1964)232  
So: And Another Sum, 3.1(1965)80
- B-51 To: Eulers totient and Fibonacci numbers, 2.3(1964)232; 59.1(2021)82  
So: \*\*\*\*\*
- B-52 To: Fibonacci determinant identity, 2.4(1964)324  
So: A Special Case, 3.2(1965)156
- B-53 To: Fibonacci squares identity, 2.4(1964)324  
So: Summing Multiples of Squares, 3.2(1965)157
- B-54 To: Fibonacci determinant and recurrence, 2.4(1964)324  
So: Recurrence Relation for Determinants, 3.2(1965)158
- B-55 To: Equation with Fibonacci coefficients, 2.4(1964)324  
So: An Equation for the Golden Mean, 3.2(1965)158
- B-56 To: Sequential limit the  $n$ th root of a linear expression with Fibonacci coefficients, 2.4(1964)325  
So: Golden Mean as a Limit, 3.2(1965)159
- B-57 To: Fibonacci power-Lucas product relation, 2.4(1964)325  
So: A Fibonacci-Lucas Inequality, 3.2(1965)159; Errata, 4.2(1966)191
- B-58 To: Equality of Fibonacci and Lucas numbers, 3.1(1965)74  
So: One, Two, Three--Out, 3.3(1965)236
- B-59 To: Volume of a cone with Fibonacci slant height, 3.1(1965)74  
So: Untitled 3.3(1965)237
- B-60 To: Lucas-Fibonacci identity, 3.1(1965)74  
So: Untitled 3.3(1965)238
- B-61 To: Non-homogeneous recurrence relation congruence problem, 3.1(1965)74  
So: Modulo Three, 3.3(1965)238
- B-62 To: Fibonacci numbers as sums of squares of Fibonacci numbers, 3.1(1965)74  
So: Unique Sum of Squares, 3.3(1965)239
- B-63 To: Golden mean in a triangle, 3.1(1965)75  
So: An Isosceles Triangle, 3.3(1965)239
- B-64 To: Lucas identity, 3.2(1965)153  
So: A Lucas Number Identity, 3.4(1965)324
- B-65 To: Identity relating two sequences, 3.2(1965)153  
So: Operators, 3.4(1965)325
- B-66 To: Fourth order recursion relation, 3.2(1965)153  
So: Untitled 3.4(1965)325

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-67 To: Sum of product terms of two sequences, 3.2(1965)153  
So: Untitled 3.4(1965)326
- B-68 To: Fibonacci parallelopipeds, 3.2(1965)154  
So: Fibonacci Dimensions for Parallelopipeds, 3.4(1965)327
- B-69 To: System of equations with Fibonacci coefficients, 3.2(1965)154  
So: Simultaneous Equations, 3.4(1965)328
- B-70 To: Fibonacci ratios from exponential integrals, 3.3(1965)235  
So: An n-Tuple Integral, 4.1(1966)91
- B-71 To: Sums of negative powers of the golden number, 3.3(1965)235  
So: 4.1(1966)92
- B-72 To: Rabbit alphametic, 3.3(1965)235  
So: Adding Rabbits, 4.1(1966)92
- B-73 To: Double summation identity, 3.3(1965)235  
So: Double Sums, 4.1(1966)93
- B-74 To: Fibonacci polynomial identities, 3.3(1965)236  
So: Fibonacci Polynomials, 4.1(1966)94
- B-75 To: Derivative formula for Fibonacci polynomials, 3.3(1965)236  
So: Derivatives of Fibonacci Polynomials, 4.1(1966)96
- B-76 To: Lucas generating function, 3.4(1965)323  
So: Difference and Differential Equations, 4.3(1966)284
- B-77 To: Third order recurrence relation, 3.4(1965)323  
So: It Pays to Check, 4.3(1966)285
- B-78 To: Fibonacci numbers as sums of Lucas numbers with even subscripts,  
3.4(1965)323  
So: A Lucas Sum, 4.3(1966)286
- B-79 To: Sums of bracket function powers of the golden number, 3.4(1965)324  
So: An Almost Lucas Sum, 4.3(1966)287
- B-80 To: Pisa division alphametic, 3.4(1965)324  
So: Our Man of Pisa, 4.3(1966)287
- B-81 To: Fibonacci primes in the ring of Gaussian integers, 3.4(1965)324  
So: Gaussian Primes, 4.3(1966)288
- B-82 To: General term of a special sequence, 4.1(1966)90  
So: An Integer Valued Function, 4.4(1966)374
- B-83 To: Sums of squares of Fibonacci numbers, 4.1(1966)90  
So: A Recursion Relation for Squares, 4.4(1966)375
- B-84 To: Equation satisfied by a sum of Fibonacci polynomials, 4.1(1966)90  
So: Term-by-Term Sums, 4.4(1966)375
- B-85 To: Sums of squares of Fibonacci numbers, 4.1(1966)90  
So: Sums of Squares, 4.4(1966)376
- B-86 To: Some Fibonacci squares and a recursion relation, 4.1(1966)91;  
Corrected, 4.2(1966)192  
So: Recursion for Cubes, 4.4(1966)377
- B-87 To: Summation-product identity, 4.1(1966)91  
So: A Special Case of an Identity, 4.4(1966)377
- B-88 To: Lucas congruence mod 5, 4.2(1966)190  
So: Lucas Numbers Modulo 5, 5.1(1967)108

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-89 To: Lucas-Fibonacci bracket identity, 4.2(1966)190  
So: A Close Approximation, 5.1(1967)108
- B-90 To: Roots of a quadratic with recurring sequential coefficients, 4.2(1966)190  
So: 5.1(1967)109
- B-91 To: Convergence of some Fibonacci series, 4.2(1966)190  
So: Convergence of Series, 5.1(1967)110
- B-92 To: GCD properties of Fibonacci numbers, 4.2(1966)191  
So: Greatest Common Divisor, 5.1(1967)111
- B-93 To: Lucas congruence mod  $n$ , 4.2(1966)191  
So:  $L_n$  Modulo  $n$ , 5.1(1967)111
- B-94 To: Fibonacci numbers and determinants, 4.3(1966)283  
So: Terms of a Determinant, 5.2(1967)203
- B-95 To: Highest power of 2 dividing the product of the first 100 Fibonacci numbers, 4.3(1966)283  
So: A Fibonacci Factorial, 5.2(1967)204; Corrected, 6.2(1968)186
- B-96 To: Recursion for the number of ways to express  $n$  as an ordered sum  
4.3(1966)283  
So: Limited Partitions, 5.2(1967)204
- B-97 To: Schnirelmann density of the Fibonacci sequence, 4.3(1966)284  
So: Density of the Fibonacci Numbers, 5.2(1967)205
- B-98 To: Sum of a polynomial with Fibonacci coefficients, 4.3(1966)284  
So: A Compact Finite Generating Function, 5.2(1967)206
- B-99 To: Partial sums of a polynomial with Fibonacci coefficients, 4.3(1966)284  
So: Compact Infinite Sum, 5.2(1967)206
- B-100 To: Non-Homogeneous recursion relation, 4.4(1966)373  
So: A Non-Homogeneous Difference Equation, 5.3(1967)288
- B-101 To: Double subscript recursion relation, 4.4(1966)373  
So: A Sequence of Sequences, 5.3(1967)289
- B-102 To: Pell numbers and right triangles, 4.4(1966)373  
So: Pell-Pythagorean Triples, 5.3(1967)289
- B-103 To: Sequence of sums of Fibonacci numbers, 4.4(1966)373  
So: An Increasing Sequence, 5.3(1967)290
- B-104 To: Series of ratios of Fibonacci and Lucas numbers, 4.4(1966)374  
So: Telescoping Series, 5.3(1967)292
- B-105 To: Sequence with subscripts satisfying an inequality, 4.4(1966)374  
So: A Periodic Sequence, 5.3(1967)292
- B-106 To: Two Lucas-Fibonacci identities, 5.1(1967)107  
So: Fibonacci-Lucas Addition Formulas, 5.5(1967)466
- B-107 To: Quadratic difference equation, 5.1(1967)107  
So: An Approximation, 5.5(1967)467
- B-108 To: Sums and identities of generalized Fibonacci numbers, 5.1(1967)107  
So: Generalized Fibonacci Numbers, 5.5(1967)468
- B-109 To: Sums and differences of roots of a generalized Fibonacci quadratic equation, 5.1(1967)107  
So: Second-Order Difference Equation, 5.5(1967)468
- B-110 To: Odd subscripted Fibonacci and Lucas reciprocals, 5.1(1967)108  
So: An Infinite Series Equality, 5.5(1967)469

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-111 To: Even subscripted Fibonacci and Lucas reciprocals, 5.1(1967)108  
So: Another Series Equality, 5.5(1967)470
- B-112 To: Generalized Fibonacci-Lucas identity, 5.2(1967)201  
So: Generalization of  $F_n L_n = F_{2n-1} + F_{2n-2}$ , 6.1(1968)90
- B-113 To: Fractional parts of powers of the golden number, 5.2(1967)201  
So: Cluster Points, 6.1(1968)91
- B-114 To: Fibonacci division alphametic, 5.2(1967)201  
So: Our Man of Pisa, 6.1(1968)92
- B-115 To: Several Fibonacci-Lucas identities, 5.2(1967)202  
So: Identities for  $F_{kn}$  and  $L_{kn}$ , 6.1(1968)92
- B-116 To: Series with Fibonacci-even subscripted coefficients, 5.2(1967)202  
So: A Generating Function, 6.1(1968)93
- B-117 To: Series with Fibonacci-odd subscripted coefficients, 5.2(1967)202  
So: Another Generating Function, 6.1(1968)94
- B-118 To: Fibonacci summation inequality, 5.3(1967)287  
So: A Partial Sum Inequality, 6.2(1968)186
- B-119 To: Trapezoid with Fibonacci length sides, 5.3(1967)287  
So: A Fibonacci Trapezoid, 6.2(1968)187
- B-120 To: Two parameter difference equation, 5.3(1967)287  
So: A Triangular Numbers Relation, 6.2(1968)188
- B-121 To: Fibonacci congruence mod Fibonacci, 5.3(1967)287  
So: A Congruence Modulo  $F_d$ , 6.2(1968)188
- B-122 To: Fibonacci ratio Lucas series expansion, 5.3(1967)288  
So: Analog of a Multiple Angle Formula, 6.2(1968)189
- B-123 To: Quadratic equation and Pell numbers, 5.3(1967)288  
So: Square Sum of Successive Squares, 6.2(1968)190
- B-124 To: Sum of a Fibonacci series, 5.5(1967)464  
So: Linear Combination of Geometric Series, 6.4(1968)289
- B-125 To: Sum of Fibonacci reciprocals, 5.5(1967)464  
So: A Non-Integral Sum, 6.4(1968)291; Errata, 6.6(1968)406
- B-126 To: Read FQ summation alphametic, 5.5(1967)465  
So: Good Advice, 6.4(1968)293
- B-127 To: Mod 5 Lucas and Fibonacci congruences, 5.5(1967)465  
So: Congruences, 6.4(1968)294
- B-128 To: Generalized Lucas and Fibonacci relationships, 5.5(1967)465  
So: Generalized Sequences, 6.4(1968)295; Correction, 7.3(1969)332
- B-129 To: Limit of a Fibonacci-Lucas ratio, 5.5(1967)465  
So: Modified Golden Ratio, 6.4(1968)296
- B-130 To: Power of a generating function, 5.5(1967)465  
So: Multinomial Coefficients, 6.4(1968)297
- B130a To: Circles covering circles, 6.1(1968)89  
So: Golden Ratio Again? 6.6(1968)401; Addendum, 7.3(1969)333
- B-131 To: Fibonacci-Lucas ratio relationships, 5.5(1967)466  
So: A Fibonacci-Lucas Identity, 6.4(1968)298
- B131a To: Generalized Fibonacci sequence with negative subscripts, 6.1(1968)89  
So: Even and Odd Sequences, 6.6(1968)401

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-132 To: Exponent of  $F_n$  modulo  $F_{n+1}$ , 6.1(1968)89  
So: Exponent Problem, 6.6(1968)402
- B-133 To: Comparison of powers of  $F_{1000}$  and  $F_{1001}$ , 6.1(1968)89  
So: An Old Problem in Fibonacci Clothes, 6.6(1968)403
- B-134 To: Summations of a special sequence, 6.1(1968)90  
So: A Telescoping Sum, 6.6(1968)404
- B-135 To: Some derived summation Fibonacci and Lucas identities, 6.1(1968)90  
So: Generalized Sums, 6.6(1968)405
- B-136 To: Identities and squares of Pell numbers, 6.2(1968)185  
So: A Pell Analogue, 7.1(1969)108
- B-137 To: Identities and squares of Pell numbers, 6.2(1968)185  
So: Another Pell Identity, 7.1(1969)109
- B-138 To: Fibonacci matrix with determinant 1, 6.2(1968)185  
So: Untitled 7.1(1969)109
- B-139 To: Complete sequences of Fibonacci squares, 6.2(1968)185  
So: Untitled 7.1(1969)110
- B-140 To: Fibonacci product inequality, 6.2(1968)185  
So: Untitled 7.1(1969)111
- B-141 To: No perfect Fibonacci or Lucas numbers, 6.2(1968)186  
So: Untitled 7.1(1969)112
- B-142 To: Special product sequence, 6.4(1968)288  
So: A Multiplicative Analogue, 7.2(1969)220
- B-143 To: Determinant of a Fibonacci-Lucas matrix, 6.4(1968)288  
So: The Determinant Vanishes, 7.2(1969)220
- B-144 To: Lucas summation alphametic, 6.4(1968)288  
So: Lucas Alphametic, 7.2(1969)221
- B-145 To: Permutations and Fibonacci numbers, 6.4(1968)289  
So: Binary N-Tuples, 7.2(1969)222
- B-146 To: Arctangents of Fibonacci numbers, 6.4(1968)289  
So: Angles of a Triangle, 7.2(1969)223
- B-147 To: Sum of reciprocals of twin primes, 6.4(1968)289  
So: Twin Primes, 7.2(1969)223
- B-148 To: Fibonacci-Lucas product identity, 6.6(1968)400  
So: Telescoping Product, 7.3(1969)333
- B-149 To: Fibonacci-Lucas identity, 6.6(1968)400  
So: A Quadratic Identity, 7.3(1969)333
- B-150 To: Fibonacci-Lucas identity, 6.6(1968)400  
So: Another Quadratic Identity, 7.3(1969)334
- B-151 To: Polynomial product with Lucas powers, 6.6(1968)400  
So: Missing Terms, 7.3(1969)335
- B-152 To: Fibonacci difference identity, 6.6(1968)401  
So: Fibonacci Addition Formula, 7.3(1969)336
- B-153 To: Fibonacci sum-product identity, 6.6(1968)401  
So: Untitled 7.3(1969)276
- B-154 To: Five by five magic square, 7.1(1969)107  
So: A Very Magic Square, 7.5(1969)546

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-155 To: Pell identity, 7.1(1969)107  
So: A Pell Numbers Identity, 7.5(1969)547
- B-156 To: Sequence defined from Fibonacci numbers, 7.1(1969)107  
So: Periodic Remainders, 7.5(1969)548
- B-157 To: Arbitrary sequence summation identity, 7.1(1969)108  
So: A Telescoping Sum, 7.5(1969)548
- B-158 To: Fibonacci squares summation identity, 7.1(1969)108  
So: Another Telescoping Sum, 7.5(1969)549
- B-159 To: Euler's totient of triangular numbers, 7.1(1969)108  
So: The Euler Totient, 7.5(1969)550
- B-160 To: Fibonacci-Pythagorean relation, 7.2(1969)218  
So: Fibonacci Pythagorean Triples, 8.1(1970)107
- B-161 To: Some Pell number summations, 7.2(1969)218  
So: Pell Number Identities, 8.1(1970)107
- B-162 To: Special summation sequence, 7.2(1969)218  
So: A Representation Theorem, 8.1(1970)108
- B-163 To: Divisors of powers of  $2^n$  times the golden number, 7.2(1969)219  
So: A Variant of the Euler-Binet Formula, 8.1(1970)110
- B-164 To: Generalized Fibonacci numbers and 11111, 7.2(1969)219  
So: A Generalized Sequence with Characteristic, 11,111, 8.1(1970)111
- B-165 To: Representations of Fibonacci and Lucas numbers, 7.2(1969)219  
So: A Monotonic Surjection from  $Z^+$  to  $Z^+$ , 8.1(1970)111
- B-166 To: Some Fibonacci-Lucas identities, 7.3(1969)331  
So: Generalizations of Second-Order Recurrences, 8.3(1970)326
- B-167 To: Lucas inequality, 7.3(1969)331  
So: A Lucas Inequality, 8.3(1970)328
- B-168 To: Multiples of a six digit number, 7.3(1969)331  
So: An Application of  $1/7$ , 8.3(1970)328
- B-169 To: Fibonacci  $4^{\text{th}}$  and  $5^{\text{th}}$  power identities, 7.3(1969)332  
So: A Sequence of Identities, 8.3(1970)329
- B-170 To: Binomial coefficient alternating series recurrence, 7.3(1969)332  
So: A Periodic Sequence, 8.3(1970)331
- B-171 To: Binomial series and a 4th order recurrence relation, 7.3(1969)332  
So: Averaging Fibonacci and Periodic Sequences, 8.3(1970)333
- B-172 To: Third power Fibonacci identity, 7.5(1969)545  
So: A Cubic Identity, 8.4(1970)444
- B-173 To: Identity for Fibonacci numbers with subscripts  $3n$ , 7.5(1969)545  
So: Another Cubic Identity, 8.4(1970)445
- B-174 To: Special sequence of Fibonacci numbers, 7.5(1969)545  
So: Modulo 10, 8.4(1970)445
- B-175 To: Generalized Fibonacci recursion formula, 7.5(1969)546  
So: A Generalized 2-by-2 Determinant, 8.4(1970)446
- B-176 To: Representation for third powers of Fibonacci numbers, 7.5(1969)546  
So: Cubes in Terms of Fibonomials on Diagonal 3, 8.4(1970)447
- B-177 To: Representation for fourth powers of Fibonacci numbers, 7.5(1969)546  
So: Fourth Powers in Terms of Fibonomials 8.4(1970)448



## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-178 To: Fibonacci sums and powers of two, 8.1(1970)105  
So: Doubling Need Not Be Troubling, 8.5(1970)544
- B-179 To: Special arithmetic function, 8.1(1970)105  
So: A Surjection (Not Monotonic), 8.5(1970)545
- B-180 To: Directed lines from(0,0)to(n,0), 8.1(1970)106  
So: Bunny Paths? 8.5(1970)547
- B-181 To: Minors of a special infinite matrix, 8.1(1970)106  
So: An Infinite Matrix, 8.5(1970)549
- B-182 To: Fibonacci and Lucas congruences modulo a prime, 8.1(1970)106  
So: Congruences, 8.5(1970)549
- B-183 To:  $n^3$  a palindrome, but  $n$  is not, 8.1(1970)106  
So: Palindrome Cubes [Comment], 8.5(1970)551
- B-184 To: Sequence related to Lucas numbers, 8.3(1970)325  
So: Contracting into a Square, 9.1(1971)107
- B-185 To: Ratio of Lucas numbers, 8.3(1970)325  
So: Lucas Ratio I, 9.1(1971)109
- B-186 To: Ratio of Lucas numbers, 8.3(1970)326  
So: Lucas Ratio II, 9.1(1971)109
- B-187 To: Sixth degree Diophantine equation, 8.3(1970)326  
So: A Diophantine Equation, 9.1(1971)110
- B-188 To: Circles and trapezoids, 8.3(1970)326  
So: Inscribed Circumscribed Quadrilateral, 9.1(1971)111
- B-189 To: Units digit of the 1000th number in a special sequence, 8.3(1970)326  
So: Fibonacci Exponents, 9.1(1971)111
- B-190 To: B-186 corrected: Ratio of Lucas numbers, 8.4(1970)443  
So: A Sixth-Order Fibonacci-Lucas Identity, 9.2(1971)218
- B-191 To: Hunter summation alphametic, 8.4(1970)443  
So: The Hunter Unveiled, 9.2(1971)219
- B-192 To: Fibonacci-Lucas identity, 8.4(1970)443  
So: A Fourth-Order F-L Identity, 9.2(1971)220
- B-193 To: Lucas sum and difference identities, 8.4(1970)444  
So: Another F-L Identity, 9.2(1971)221
- B-194 To: Lucas-Fibonacci identity, 8.4(1970)444  
So: Second Order in  $n$ , Fifth in  $k$ , 9.2(1971)223
- B-195 To: Lucas third power identity, 8.4(1970)444  
So: Generalized Fibonomials, 9.2(1971)223
- B-196 To: Two related sequences, 8.5(1970)542  
So: Inverting a Convolution, 9.4(1971)440
- B-197 To: Sequence related to the Pell sequence, 8.5(1970)542  
So: An Im-Pell-Ing Formula, 9.4(1971)441
- B-198 To: Recursion for coefficients in a product expansion, 8.5(1970)543  
So: Permutations, Derangements, and These Things, 9.4(1971)442
- B-199 To: Fibonacci-Pell number inequality, 8.5(1970)543  
So: A Fibonacci-Pell Inequality, 9.4(1971)444
- B-200 To: Fibonacci-Pell number inequality, 8.5(1970)543  
So: A Close Call, 9.4(1971)446

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-201 To: Even or odd Fibonacci subscript, 8.5(1970)543  
So: Parity of  $n$ , 9.4(1971)446
- B-202 To: Sequence based on 3 Fibonacci numbers, 9.1(1971)106  
So: A Sequence of Multiples of 12, 9.5(1971)546
- B-203 To: Fibonacci numbers and multiples of 168, 9.1(1971)106  
So: A Sequence of Multiples of 168, 9.5(1971)547
- B-204 To: Fibonacci generating function, 9.1(1971)106  
So: Generating Function for  $F_{2n-1}$ , 9.5(1971)548
- B-205 To: Lucas-Fibonacci summation formula, 9.1(1971)107  
So: Another Convolution for  $F_{2n-1}$ , 9.5(1971)549
- B-206 To: Golden number and a Fibonacci sum, 9.1(1971)107  
So: A Geometric Series, 9.5(1971)550
- B-207 To: Fibonacci reciprocal sum, 9.1(1971)107  
So: Another Geometric Series, 9.5(1971)551
- B-208 To: Fibonacci and Lucas square identities, 9.2(1971)217  
So: Generalized Fibonacci Identity, 10.2(1972)220
- B-209 To: Pell number square identities, 9.2(1971)217  
So: Further Generalization, 10.2(1972)221
- B-210 To: Inequality for the sum of Fibonacci reciprocals, 9.2(1971)217  
So: Summing of Fibonacci Reciprocals, 10.2(1972)222
- B-211 To: Recurrence with Fibonacci term, 9.2(1971)218  
So: Fibonacci with a Geometric Progression, 10.2(1972)222
- B-212 To: Finding examples of a two functions of two variables, 9.2(1971)218  
So: A Question with Many Answers, 10.2(1972)223
- B-213 To: Subset of points on a line or circle, 9.2(1971)218  
So: Unfriendly Subsets on a Line or Circle, 10.2(1972)224
- B-214 To: Probability of remainder 11 for  $L_n / 13$ , 9.4(1971)438  
So: Lucky 11 Modulo Unlucky 13, 10.3(1972)331
- B-215 To: Quadratic divisor of polynomial with Lucas coefficient, 9.4(1971)438  
So: Quotient of Polynomials, 10.3(1972)331
- B-216 To: Lucas related recursion relation, 9.4(1971)439  
So: A Nonhomogeneous Recursion, 10.3(1972)332
- B-217 To: Triangular array recurrence relation, 9.4(1971)439  
So: Modified Pascal Triangle, 10.3(1972)333
- B-218 To: Fibonacci and arctangents, 9.4(1971)439  
So: Arctan of a Sum Equals Sum of Arctans, 10.3(1972)335
- B-219 To: Linearly independent set of reciprocals, 9.4(1971)439  
So: Hilbert Matrix, 10.3(1972)336
- B-220 To: Conditions for twin primes, 9.5(1971)545  
So: Twin Primes Slightly Disguised, 10.6(1972)664
- B-221 To: Fibonacci-Lucas reciprocal sums, 9.5(1971)545  
So: Simple Substitution in a Convergent Series, 10.6(1972)664
- B-222 To: Sequence with a Fibonacci term, 9.5(1971)546  
So: A Nonhomogeneous Recursion, 10.6(1972)665
- B-223 To: Fibonacci-Lucas solution to a four variable equation, 9.5(1971)546  
So: Formidable Arithmetic, 10.6(1972)665

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-224 To: Divisibility of Fibonacci numbers with odd subscripts, 9.5(1971)546  
So: Quadratic Nonresidues, 10.6(1972)666
- B-225 To: Divisors of a special sequence, 9.5(1971)546  
So: Still Uncharacterized Sequences [Editorial note], 10.6(1972)666
- B-226 To: Fibonacci as sum of three squares, 10.2(1972)218  
So: Fibonacci Sum of Four Squares, 11.1(1973)106
- B-227 To: Generalized Fibonacci identity, 10.2(1972)218  
So: Generalization of Recke's Formula, 11.1(1973)107
- B-228 To: Negative subscript Fibonacci identity, 10.2(1972)218  
So: A Cyclically Symmetric Formula, 11.1(1973)108
- B-229 To: Fibonacci-Lucas identity, 10.2(1972)219  
So: An Analogue of B-228 Generalized, 11.1(1973)109
- B-230 To: Fourth-order difference equation, 10.2(1972)219  
So: A Simple Result, Generalized, 11.1(1973)109
- B-231 To: Abel-type sequence and recursion, 10.2(1972)219  
So: Generalized Fibonacci Sequences, 11.1(1973)110
- B-232 To: FQ multiplication alphametic, 10.3(1972)329  
So: Slight Misprint, Otherwise Fine, 11.2(1973)221
- B-233 To: Quadratic with Fibonacci coefficients, 10.3(1972)229  
So: A Fibonacci Quadratic, 11.2(1973)221
- B-234 To: Cubed Lucas numbers identity, 10.3(1972)330  
So: Duplicating a Cube? 11.2(1973)222
- B-235 To: Cubed digits of Fibonacci numbers, 10.3(1972)330  
So: A Property of  $F_{16}$ , 11.2(1973)222
- B-236 To: Fibonacci and probability, 10.3(1972)330  
So: Two Heads Not Better Than One, 11.2(1973)223
- B-237 To: GCD of a special pair of numbers, 10.3(1972)330  
So: G.C.D. Problem, 11.2(1973)224
- B-238 To: Summation alphametic, 10.4(1972)447  
So: Of Three, Who is She? 11.3(1973)334
- B-239 To: Fibonomial coefficient inequality, 10.4(1972)447  
So: Inequality on Generalized Binomials, 11.3(1973)334
- B-240 To: Divisor of a sum of Fibonacci cubes, 10.4(1972)447  
So: The Missing Lucas Factor, 11.3(1973)335
- B-241 To: Some prime Fibonacci expressions, 10.4(1972)447  
So: Three Faces of a Possible Prime, 11.3(1973)335
- B-242 To: Fibonacci and binomial coefficient ratios, 10.4(1972)448  
So: Fibonacci-Pascal Proportion, 11.3(1973)336
- B-243 To: Fibonacci and binomial coefficient ratios, 10.4(1972)448  
So: Another Elusive Pleasing Proportion, 11.3(1973)336
- B-244 To: Sums of powers of the Q matrix, 10.6(1972)663  
So: Polynomials in the Q Matrix, 11.5(1973)551
- B-245 To: Fibonacci numbers as sums/differences of two squares, 10.6(1972)663  
So: Sum and Differences of Fibonacci Squares, 11.5(1973)552
- B-246 To: Sums of reciprocals of Fibonacci/Lucas numbers, 10.6(1972)663  
So: At Most One is Rational, 11.5(1973)552

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-247 To: Fibonacci divisors of Lucas numbers, 10.6(1972)664  
So: Lucas Multiples of Fibonacci Numbers, 11.5(1973)552
- B-248 To:  $5^k$  divisors of Fibonacci numbers, 10.6(1972)664  
So: Some Cases of  $n|F_n$ , 11.5(1973)553
- B-249 To:  $2 \cdot 3^k$  divisors of Fibonacci numbers, 10.6(1972)664  
So: Examples of  $n|L_n$ , 11.5(1973)553
- B-250 To: Summation alphametic, 11.1(1973)105  
So: Seven Do's for Two Suzy's, 12.1(1974)102
- B-251 To: Probability and a sequence of games, 11.1(1973)105  
So: Fair Game, 12.1(1974)102
- B-252 To: Series for  $1/n!$ , 11.1(1973)105  
So: Somewhat Alternating Sum of Trinomials, 12.1(1974)104
- B-253 To: Some Fibonacci and Lucas zero sums, 11.1(1973)106  
So: Trinomial Expansion with F's and L's, 12.1(1974)104
- B-254 To: Recursion for the zeros of two cubic equations, 11.1(1973)106  
So: More or Less Lucas, 12.1(1974)105
- B-255 To: Fibonacci summation formula, 11.1(1973)106  
So: Fibonacci Convolution Revisited, 12.1(1974)106
- B-256 To: Product of two Lucas numbers, 11.2(1973)220  
So: A Lucas Product, 12.2(1974)221
- B-257 To: Product of two Fibonacci numbers, 11.2(1973)220  
So: A Fibonacci Product, 12.2(1974)222
- B-258 To: Golden number-Fibonacci identities, 11.2(1973)220  
So: Golden Ratio Formula, 12.2(1974)222
- B-259 To: Progression of binomial coefficients, 11.2(1973)220  
So: A.P. of Binomial Coefficients, 12.2(1974)223
- B-260 To:  $(n)$  inequality, 11.2(1973)221  
So: Sums of Divisors, 12.2(1974)223
- B-261 To: Special set of integers in progression, 11.2(1973)221  
So: Cyclic Group Modulo D, 12.2(1974)224
- B-262 To: Divisibility and sums of Lucas numbers, 11.3(1973)333  
So: Lucas Sum Multiples of 5 and 10, 12.3(1974)314
- B-263 To: Recursion and the zeros of a quartic equation, 11.3(1973)333  
So: Lucaslike Sequence, 12.3(1974)314
- B-264 To: Fibonacci factorization problem 11.3(1973)333  
So: Fibonacci Product, 12.3(1974)314
- B-265 To: Fibonacci numbers from Lucas products, 11.3(1973)333  
So: Fibonacci Numbers for Powers of 3, 12.3(1974)315
- B-266 To: Lucas numbers from Lucas products, 11.3(1973)334  
So: Lucas Numbers for Powers of 3, 12.3(1974)315
- B-267 To: Polygons inscribed in a circle, 11.3(1973)334  
So: Regular Polygon Relation, 12.3(1974)316
- B-268 To: Complex Fibonacci numbers, 11.5(1973)550  
So: Fibonacci Complex Numbers, 12.4(1974)404
- B-269 To: Diagonal matrix similar to Q matrix, 11.5(1973)550  
So: Diagonalizing the Q Matrix, 12.4(1974)404

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-270 To: Fibonacci difference divisible by a Lucas number, 11.5(1973)550  
So: A Multiple of  $L_{2m+1}$ , 12.4(1974)405
- B-271 To: Fibonacci combinations divisible by a Lucas number, 11.5(1973)550  
So: Find the Multiple of  $L_{2m} - 2$ , 12.4(1974)405
- B-272 To: Third-order difference equation, 11.5(1973)551  
So: A Nonlinear Recurrence, 12.4(1974)405
- B-273 To: Perimeter of a triangle inscribed in another triangle, 11.5(1973)551  
So: Golden Minimum Perimeter, 12.4(1974)406
- B-274 To: Representation of  $-\beta$  with 3 symbols, 12.1(1974)101  
So: 3 Symbol Golden Mean, 13.1(1975)95; Correction, 14.1(1976)94
- B-275 To: Fibonacci-Lucas identity, 12.1(1974)101  
So: Two in One, 13.1(1975)95
- B-276 To: Perfect power Fibonacci numbers, 12.1(1974)101  
So: Only Two Solutions, 13.1(1975)96
- B-277 To: Lucas congruence mod Fibonacci, 12.1(1974)101  
So: A Lucas-Fibonacci Congruence, 13.1(1975)96
- B-278 To: Lucas congruence mod Fibonacci, 12.1(1974)101  
So: Another Lucas-Fibonacci Congruence, 13.1(1975)96
- B-279 To: Coefficients in a generating function, 12.1(1974)101  
Correction, 12.3(1974)313; 13.1(1975)96  
So: Differentiating Fibonacci Generating Function, 13.3(1975)286
- B-280 To: Hoggatt multiplication alphametic, 12.2(1974)220  
So: The Editor's Digits, 13.2(1975)191
- B-281 To: Triangular numbers and bases  $b$  and  $b^2$ , 12.2(1974)220  
So: Ones for Tee, 13.2(1975)191
- B-282 To: Triangles with Lucas length sides, 12.2(1974)220  
So: Lucas Right Triangles, 13.2(1975)192
- B-283 To: Pythagorean triple, 12.2(1974)221  
So: Rational Approximation of  $\cos \pi/6$  and  $\sin \pi/6$ , 13.2(1975)192
- B-284 To: Three variable polynomial equation, 12.2(1974)221;  
Corrected version in B-309, 13.2(1975)191  
So: Corrected and Reinserted [Note], 13.2(1975)192
- B-285 To: Fibonacci ratio as a Lucas summation, 12.2(1974)221  
So: Very Slight Variation on a Previous Problem, 13.2(1975)192
- B-286 To: Golden ratio and a binomial expansion, 12.3(1974)313  
So: Golden Powers of 2, 13.3(1975)286
- B-287 To: Fibonacci numbers and the golden ratio, 12.3(1974)313  
So: Simplified, 13.3(1975)286
- B-288 To: Even subscript Fibonacci-Lucas congruence, 12.3(1974)313  
So: A Multiple of  $L_{2n}$ , 13.3(1975)287
- B-289 To: Odd subscript Fibonacci-Lucas congruence, 12.3(1974)313  
So: A Multiple of  $L_{2n+1}$ , 13.3(1975)287
- B-290 To: Series of Fibonacci numbers, 12.3(1974)313  
So: Convolved  $F_{2n}$ , 13.3(1975)287
- B-291 To: Second-order Recurrence relation, 12.3(1974)313  
So: Translated Recursion, 13.3(1975)288

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-292 To: Multinomial expansion formula, 12.4(1974)403  
So: A Combinatorial Problem, 13.4(1975)374
- B-293 To: Fibonacci number summation alphametic, 12.4(1974)403  
So: The First Six Fibonacci Terms, 13.4(1975)374
- B-294 To: Fibonacci-Lucas identity, 12.4(1974)403  
So: A Formula Symmetric in  $k$  and  $n$ , 13.4(1974)375
- B-295 To: Fibonacci summation identity, 12.4(1974)403  
So: Convolution or Double Sum, 13.4(1975)375
- B-296 To: Transcendental solution to a difference equation, 12.4(1974)403  
So: A Most Challenging Problem, 13.4(1975)376
- B-297 To: Fibonacci-Lucas generating function, 12.4(1974)404  
So: Partial Fractions, 13.4(1975)377
- B-298 To: Fibonacci-Lucas identity, 13.1(1975)94  
So: An Application of the Binet Formulas, 14.1(1976)94
- B-299 To: Fibonacci summation identity, 13.1(1975)94  
So: A Convolution Formula, 14.1(1976)94
- B-300 To: Lucas-Fibonacci summation identity, 13.1(1975)94  
So: Another Convolution, 14.1(1976)94
- B-301 To: Two function recursion relation, 13.1(1975)94  
So: Greatest Integer Identity, 14.1(1976)95
- B-302 To: Fibonacci numbers between composites, 13.1(1975)94  
So: Composite Fibonacci Neighbors, 14.1(1976)95
- B-303 To: Observations on  $\sigma(mn)$ , 13.1(1975)95  
So: A Sigma Function Inequality, 14.1(1976)96
- B-304 To: Ancestors in the bee tree, 13.2(1975)190  
So: So Bee It, 14.2(1976)188
- B-305 To: Fibonacci numbers from Lucas sums, 13.2(1975)190  
So: A Telescoping Sum, 14.2(1976)189
- B-306 To: Fibonacci numbers from Lucas sums, 13.2(1975)190  
So: Something Special, 14.2(1976)189
- B-307 To: Coefficients from a given generating function, 13.2(1975)190  
So: Modularly Moving Maverick, 14.2(1976)190
- B-308 To: Difference equation for cosines, 13.2(1975)190  
So: A Garbled Hint, 14.2(1976)191
- B-309 To: Corrected version of B-284, 13.2(1975)191  
So: An Analogue of  $a^n = aF_n + F_{n-1}$ , 14.2(1976)191
- B-310 To: Divisibility of binomial coefficients, 13.3(1975)285  
So: Special Binomial Coefficients, 14.3(1976)287
- B-311 To: Limits and a difference equation, 13.3(1975)285  
So: A Nonhomogeneous Recurrence, 14.3(1976)287
- B-312 To: Doubly-true summation alphametic, 13.3(1975)285  
So: Doubly-True Fibonacci Alphametic, 14.3(1976)287
- B-313 To: Lucas/Fibonacci numbers and Maclaurin expansions, 13.3(1975)285  
So: Exponentiating Lucas into Fibonacci, 14.3(1976)288
- B-314 To: Lucas Congruence relation, 13.3(1975)285  
So: Lucas Numbers Ending in Three, 14.3(1976)288
- B-315 To: No Problem Printed

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-316 To: Fibonacci number summation alphametic, 13.4(1975)373  
So: A Fibonacci Alphametic, 14.5(1976)470
- B-317 To: Lucas divisors, 13.4(1975)373  
So: Lucas Divisor, 14.5(1976)471
- B-318 To: Fibonacci perfect square expressions, 13.4(1975)373  
So: Fibonacci Square, 14.5(1976)471
- B-319 To: Fibonacci-Lucas reciprocal sums, 13.4(1975)373  
So: Rerun, 14.5(1976)472
- B-320 To: Fibonacci product summation formula, 13.4(1975)373  
So: A Sum, 14.5(1976)472
- B-321 To: Fibonacci product summation formula, 13.4(1975)373  
So: A Related Sum, 14.5(1976)472
- B-322 To: Author summation alphametic, 14.1(1976)93  
So: Front Page Alphametic, 15.1(1977)94
- B-323 To: Fibonacci identity, 14.1(1976)93  
So: Variations on an Old Theme, 15.1(1977)94
- B-324 To: Mod 5 Fibonacci congruence, 14.1(1976)93  
So: Fibonacci Congruence, 15.1(1977)95
- B-325 To: Functions and roots of the Fibonacci equation, 14.1(1976)93  
So: Impossible Functional Equation, 15.1(1977)95
- B-326 To: Inequality for  $\sigma(mn)$ , 14.1(1976)93  
So: On the Sum of Divisors, 15.1(1977)95
- B-327 To: Alternating Lucas binomial expansion, 14.1(1976)93  
So: Finishing Touches on a Lucas Identity, 15.1(1977)95
- B-328 To: Summing squares of integers, 14.2(1976)188  
So: Sum of Squares as A.P., 15.2(1977)190
- B-329 To: Fibonacci divisors of Lucas sums, 14.2(1976)188  
So: Unveiling an Identity, 15.2(1977)190
- B-330 To: GCD of set of Fibonacci combinations, 14.2(1976)188  
So: Finding a G.C.D., 15.2(1977)191
- B-331 To: Fibonacci quadratic congruence, 14.2(1976)188  
So: Some Fibonacci Squares Mod 24, 15.2(1977)191
- B-332 To: Generating function from ordered pairs, 14.2(1976)188  
So: One Single and One Triple Part, 15.2(1977)191
- B-333 To: Bijection for sets of ordered pairs, 14.2(1976)188  
So: Bijection in  $Z^+ \times Z^+$ , 15.2(1977)192
- B-334 To: Prime terms of a given sequence, 14.3(1976)286  
So: The Primes Peter Out, 15.3(1977)286
- B-335 To: Fibonacci Lucas summation problem, 14.3(1976)286  
So: Fibonacci-Lucas Sum, 15.3(1977)286
- B-336 To: Perfect squares from a given sequence, 14.3(1976)286  
So: Pell Squares, 15.3(1977)286
- B-337 To: Rational coordinates on an ellipse, 14.3(1976)286  
So: Rational Points on an Ellipse, 15.3(1977)286
- B-338 To: Even divisors of a special sum, 14.3(1976)286  
So: Difference of Binomial Expansions, 15.3(1977)287

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-339 To: Cesàro symbolic Fibonacci-Lucas identity, 14.3(1976)286  
So: Operational Identity, 15.3(1977)288
- B-340 To: Sequence of years, 14.5(1976)470  
So: Bicentennial Sequence, 15.4(1977)376
- B-341 To: Product of three Fibonacci numbers, 14.5(1976)470  
So: Close Factoring, 15.4(1977)376
- B-342 To: Cubes from Lucas combinations, 14.5(1976)470  
So: Perfect Cubes, 15.4(1977)376
- B-343 To: Fibonacci summation problem, 14.5(1976)470  
So: Closed Form, 15.4(1977)376
- B-344 To: Limit of a recursively defined sequence, 14.5(1976)470  
So: Averaging Gives G.P.'s, 15.4(1977)377
- B-345 To: Limit of a recursively defined sequence, 14.5(1976)470  
So: Another Limit, 15.4(1977)377
- B-346 To: Fibonacci-triangular number sum, 15.1(1977)93  
So: Triangular Convolution, 16.1(1978)89
- B-347 To: Properties of roots of a cubic equation, 15.1(1977)93  
So: A Third-Order Analogue of the F's, 16.1(1978)89
- B-348 To: Ratios of lengths in a regular pentagon, 15.1(1977)93  
So: Pentagon Ratio, 16.1(1978)90
- B-349 To: Recursion and generating function for a given sequence, 15.1(1977)93  
So: Generating Twins, 16.1(1978)90
- B-350 To: Closed form for a given sum, 15.1(1977)93  
So: Cubes and Triple Sums of Squares, 16.1(1978)91
- B-351 To: Fibonacci congruence, 15.1(1977)94  
So: Non-Fibonacci Primes, 16.1(1978)91
- B-352 To: Fibonacci numbers and recurrence, 15.2(1977)189  
So: C is Easy to See, 16.2(1978)185
- B-353 To: New recursion from old, 15.2(1977)189  
So: Recursive Sums, 16.2(1978)185
- B-354 To: Fibonacci-Lucas identity, 15.2(1977)189  
So: A Vanishing Factor, 16.2(1978)185
- B-355 To: Fibonacci-Lucas identity, 15.2(1977)189  
So: Cubic Identity, 16.2(1978)186
- B-356 To: Property relating to a Fibonacci sum, 15.2(1977)189  
So: Some Solutions, 16.2(1978)186
- B-357 To: Fibonacci and golden number inequality, 15.2(1977)189  
So: Golden Ration Inequality Count, 16.2(1978)186
- B-358 To: Primes from an inequality, 15.3(1977)285  
So: Almost Always Composite, 16.5(1978)474
- B-359 To: Series of Tribonacci-type numbers, 15.3(1977)285  
So: Tribonacci Sequence, 16.5(1978)474
- B-360 To: Twelve variable identity, 15.3(1977)285  
So: Applying Quaternion Norms, 16.5(1978)474
- B-361 To: Four variable sum, 15.3(1977)285  
So: A Rational Function, 16.5(1978)475



## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-362 To: Triangular residues and repeating palindromic blocks, 15.3(1977)285  
So: Triangular Number Residues, 16.5(1978)475
- B-363 To: Pentagonal residues and repeating palindromic blocks, 15.3(1977)285  
So: Overlapping Palindromic Blocks, 16.5(1978)476
- B-364 To: Numbers without consecutive zeros in base 2, 15.4(1977)375  
So: Incontiguous Zero Digits, 16.6(1978)563
- B-365 To: Lucas-Fibonacci number congruence, 15.4(1977)375  
So: Congruent to a G.P., 16.6(1978)563
- B-366 To: Mod 5 Lucas congruence, 15.4(1977)375  
So: Lucas Congruence, 16.6(1978)563
- B-367 To: Fibonacci-golden number identities, 15.4(1977)375  
So: Rounding Down, 16.6(1978)564
- B-368 To: Fibonacci-Lucas congruences, 15.4(1977)375  
So: Convoluting for Congruences, 16.6(1978)564
- B-369 To: Lucas number sets and squares, 15.4(1977)375  
So: No Longer Unsolved, 16.6(1978)565
- B-370 To: Difference equation with non-homogeneous Fibonacci term, 16.1(1978)88  
So: Nonhomogeneous Difference Equation, 17.1(1979)91
- B-371 To: Double sum of triangular numbers, 16.1(1978)88  
So: No, No, Not always, 17.1(1979)91; Correction, 18.1(1980)85
- B-372 To: Double sum of triangular numbers, 16.1(1978)88  
So: Still No, 17.1(1979)92
- B-373 To: Chebyshev polynomials and recurrence, 16.1(1978)88  
So: Golden Cosine, 17.1(1979)92
- B-374 To: Cosines, sines and Fibonacci numbers, 16.1(1978)88  
So: Fibonacci in Trigonometric Form, 17.1(1979)93
- B-375 To: Cosines, sines and Fibonacci numbers, 16.1(1978)89  
So: Fibonacci or Nil, 17.1(1979)93
- B-376 To: New primes from old, 16.2(1978)184  
So: Complementary Primes, 17.2(1979)185
- B-377 To: Equality of sums of radicals, 16.2(1978)184  
So: Counting Lattice Points, 17.2(1979)185
- B-378 To: Mod 3 Fibonacci congruence, 16.2(1978)184  
So: Congruence Mod 3, 17.2(1979)185
- B-379 To: Mod 5 Fibonacci congruence, 16.2(1978)184  
So: Congruence Mod 5, 17.2(1979)186
- B-380 To: Binomial coefficients from sums, 16.2(1978)184  
So: Binomial Convolution, 17.2(1979)186
- B-381 To: Series with Fibonacci coefficients, 16.2(1978)184  
So: Generating Function, 17.2(1979)187
- B-382 To: Lucas numbers, last digits and a geometric progression, 16.5(1978)473  
So: Lucky L Units Digit, 17.3(1979)282
- B-383 To: Difference equation with non-homogeneous Fibonacci term, 16.5(1978)473  
So: Reappearance [Note], 17.3(1979)283
- B-384 To: Fibonacci identity, 16.5(1978)473  
So: A Recursion for  $(F_{2n})^4$  or  $(F_{2n+1})^4$ , 17.3(1979)283

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-385 To: Triangle number inequality, 16.5(1978)473  
So: Counting Some Triangular Numbers, 17.3(1979)283
- B-386 To: Fibonacci-Lucas congruence relation, 16.5(1978)473  
So: Elusive Generalization, 17.3(1979)284
- B-387 To: Three variable Diophantine equation, 16.5(1978)473  
So: One's Own Infinitude, 17.3(1979)284
- B-388 To: Triangle number summation identity, 16.6(1978)562  
So: Partitioning Squares Near the Diagonal, 17.4(1979)370
- B-389 To: Difference equation, 16.6(1978)562  
So: Transformed Arithmetic Progression, 17.4(1979)371
- B-390 To: Closed form of a generating function, 16.6(1978)562  
So: Generating Diagonals of Pascal's Triangle, 17.4(1979)371
- B-391 To: Recurrence for solutions of a Diophantine equation, 16.6(1978)562  
So: Approximations to Root Five, 17.4(1979)372
- B-392 To: Non-homogeneous Fibonacci and Lucas difference equation, 16.6(1978)562  
So: Half-Way Application of  $(E^2 - E - 1)^2$ , 17.4(1979)373
- B-393 To: Sequence related to triangle numbers, 16.6(1978)562  
So: Triangle of Triangular Factorials, 17.4(1979)373
- B-394 To: Polynomial expression, 17.1(1979)90  
So: Triple Products and Binomial Coefficients, 18.1(1980)85
- B-395 To: Fibonacci inequality, 17.1(1979)90  
So: Reciprocals of Golden Powers, 18.1(1980)86
- B-396 To: Divisibility of a Fibonacci function, 17.1(1979)90  
So: Multiples of Ten, 18.1(1980)87
- B-397 To: Closed form of a Fibonacci sum, 17.1(1979)90  
So: Semi-Closed Form, 18.1(1980)87
- B-398 To: Multiplicity and a Fibonacci sum, 17.1(1979)90  
So: The Added Ingredient, 18.1(1980)88
- B-399 To: Third-order difference equations, 17.1(1979)90; Correction, 18.1(1980)89  
So: Not Quite Tribonacci, 18.1(1980)89
- B-400 To: Sum of squares of triangular numbers, 17.2(1979)184  
So: Multiples of Some Triangular Numbers, 18.2(1980)187
- B-401 To: Factorial ratio limit, 17.2(1979)184  
So: Change of Pace for F.Q., 18.2(1980)187
- B-402 To: Fibonacci-Lucas Pythagorean triple, 17.2(1979)184  
So: Pythagorean Triple, 18.2(1980)188
- B-403 To: Lucas congruence mod  $5m^2$ , 17.2(1979)184  
So: Lucas Congruence, 18.2(1980)188
- B-404 To: Upper and lower golden approximations, 17.2(1979)184  
So: Golden Approximations, 18.2(1980)188
- B-405 To: Convergents for golden approximations, 17.2(1979)184  
So: Good Rational Approximations, 18.2(1980)189
- B-406 To: Lucas-Fibonacci differences, 17.3(1979)281  
So: First Term as GCD, 18.3(1980)274
- B-407 To: Double sum generating function, 17.3(1979)281  
So: Generator of Pascal Triangle, 18.3(1980)274

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-408 To: Fibonacci congruence generalization, 17.3(1979)281, 58.4(2020)367  
So: \*\*\*\*\*
- B-409 To: Difference of Fibonacci products, 17.3(1979)281  
So: Exact Divisor, 18.3(1980)275
- B-410 To: Golden Diophantine recurrence relation, 17.3(1979)282  
So: Golden Limit, 18.3(1980)275
- B-411 To: Properties of tridiagonal matrices, 17.3(1979)282  
So: Tridiagonal Determinants, 18.3(1980)276
- B-412 To: LCM of a set of integers, 17.4(1979)369  
So: GCD Not LCM, 18.4(1980)371
- B-413 To: Triangles with vertices in a given set, 17.4(1979)369  
So: Counting Equilateral Triangles, 18.4(1980)371
- B-414 To: Sequence of Lucas sums, 17.4(1979)369  
So: 18.4(1980)372
- B-415 To: Coloring arcs of a circle, 17.4(1979)369 58.3(2020)274  
So: The Fifth Oldie from the Vault 59.3(2021)274
- B-416 To: Integers as a special sum of Fibonacci numbers, 17.4(1979)370; 58.2(2020)178  
So: The Fourth Oldie from the Vault 59.2(2021)177
- B-417 To: Fibonacci cubic polynomial function, 17.4(1979)370  
So: Not a Bracket Function, 18.4(1980)373
- B-418 To:  $n^{15} - n^3$  multiples of  $2^{15} - 2^3$ , 18.1(1980)84  
So: Consequence of the Euler-Fermat Theorem, 19.1(1981)88
- B-419 To: Fibonacci-Lucas congruence, 18.1(1980)84  
So: Symmetric Congruence, 19.1(1981)88
- B-420 To: Fibonacci-Lucas function representation, 18.1(1980)84  
So: Finding Fibonacci Factors, 19.1(1981)89
- B-421 To: Sums of solutions of a third-order difference equation, 18.1(1980)84  
So: Unique Representation, 19.1(1981)89
- B-422 To: Sums of solutions of a third-order difference equation, 18.1(1980)85  
So: Lexicographic Ordering of Coefficients, 19.1(1981)91
- B-423 To: Infinite product of Fibonacci numbers, 18.1(1980)85  
So: Telescoping Infinite Product, 19.1(1981)92
- B-424 To: Five card poker hands, 18.2(1980)186  
So: Counting Hands, 19.2(1981)185
- B-425 To: Average of an increasing sequence, 18.2(1980)186  
So: Average in a Fixed Rank, 19.2(1981)185
- B-426 To: Fibonacci squares and Fibonacci Pythagorean triples, 18.2(1980)186  
So: Fibonacci Pythagorean Triples, 19.2(1981)186
- B-427 To: Closed form of a sum, 18.2(1980)186  
So: Closed Form, Ingeniously, 19.2(1981)186
- B-428 To: Closed form of a Fibonacci sum, 18.2(1980)186  
So: Closed Form, Industriousy, 19.2(1981)187
- B-429 To: Fibonacci-Lucas function, 18.2(1980)187  
So: Yes, When Boiled Down, 19.2(1981)187
- B-430 To: Product of consecutive integers, 18.3(1980)273  
So: Double a Triangular Number, 19.4(1981)378

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-431 To: Possible Fibonacci identity, 18.3(1980)273  
So: Making it an Identity, 19.4(1981)378
- B-432 To: Alternating Fibonacci sequence, 18.3(1980)273  
So: Alternating Signs, 19.4(1981)379
- B-433 To: Sequence as a bracket function, 18.3(1980)273  
So: Alternate Definition of a Sequence, 19.4(1981)379
- B-434 To: Perfect square Lucas combination, 18.3(1980)274  
So: Never a Square, 19.4(1981)379
- B-435 To: Divisors of a quadratic expression, 18.3(1980)274  
So: Restricted Divisors of a Quadratic, 19.4(1981)380
- B-436 To: General term of a sequence, 18.4(1980)370  
So: Sequence Identified and Summed, 19.5(1981)467
- B-437 To: Star of David property for  $[m,n]$ , 18.4(1980)370  
So: Hoggatt-Hansell Property, 19.5(1981)467
- B-438 To: Possible Fibonacci-Lucas identity, 18.4(1980)370  
So: Problem Editor's Error, 19.5(1981)468
- B-439 To: Possible Fibonacci-Lucas identity, 18.4(1980)370  
So: Companion Problem, 19.5(1981)468
- B-440 To: Congruence for the sum of two squares, 18.4(1980)370  
So: Converse Does Not Hold, 19.5(1981)468
- B-441 To: Base-b palindrome reciprocal sums, 18.4(1980)370  
So: Sum of Base-b Palindrome Reciprocals, 19.5(1981)469
- B-442 To: Lucas-cosine identities, 19.1(1981)87  
So: Lucas Analogue of Cosine Identity, 20.1(1982)90
- B-443 To: Lucas identity, 19.1(1981)87  
So: Lucas Products Identity, 20.1(1982)90
- B-444 To: New palindromes from old, 19.1(1981)87  
So: Generating Palindromes, 20.1(1982)91
- B-445 To: Fibonacci-Lucas squares identity, 19.1(1981)87  
So: Simple Form, 20.1(1982)92
- B-446 To: Divisibility test for 27, 19.1(1981)87  
So: Casting Out 27's, 20.2(1982)180
- B-447 To: Divisibility test for powers of 5, 19.1(1981)88  
So: Casting Out Eights, 20.2(1982)182
- B-448 To: Mod 5 Fibonacci-Lucas congruence, 19.2(1981)184  
So: Sum of Products Modulo 5, 20.2(1982)183
- B-449 To: Mod 7 Fibonacci-Lucas congruence, 19.2(1981)184  
So: Sum of Products Modulo 7, 20.2(1982)183
- B-450 To: Sequence of sums even-subscripted Fibonacci numbers, 19.2(1981)184  
So: Lucas Quadratic Residue, 20.2(1982)184
- B-451 To: Units digit in base  $2p$ ,  $p$  prime, 19.2(1981)184  
So: Consequence of the Euler-Fermat Theorem, 20.2(1982)184
- B-452 To: Generating functions for  $(F_n)^2$  and  $(L_n)^2$ , 19.2(1981)184  
So: Generating  $(F_n)^2$  and  $(L_n)^2$ , 20.3(1982)280
- B-453 To: Fibonacci-Lucas Diophantine equations, 19.2(1981)184  
So: FiFibonacci and LuLucas Equations, 20.3(1982)281

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-454 To: 3 x 3 magic square, 19.4(1981)377  
So: Magic Corners, 20.3(1982)282
- B-455 To: Sequence of sums of Fibonacci-Lucas products, 19.4(1981)377  
So: Simplified Convolution, 20.3(1982)282
- B-456 To: Coprime Fibonacci numbers, 19.4(1981)377  
So: Fibonacci Products of Two Primes, 20.3(1982)283
- B-457 To: Fibonacci-Lucas Pythagorean type relationship, 19.4(1981)377  
So: Pythagorean Triples, 20.4(1982)367
- B-458 To: Prime triangular number difference, 19.4(1981)377  
So: Prime Difference of Triangular Numbers, 20.4(1982)367
- B-459 To: Residue set and primitive root of an odd prime, 19.4(1981)378  
So: Incongruent Differences, 20.4(1982)368
- B-460 To: Fibonacci identity, 19.5(1981)466  
So: First of a Pair, 20.4(1982)368
- B-461 To: Fibonacci-Lucas identity, 19.5(1981)466  
So: Companion Identity, 20.4(1982)369
- B-462 To: Lucas-Triangular number identity, 19.5(1981)466  
So: Typographical Monstrosity, 20.4(1982)369
- B-463 To: Lucas-Triangular number congruence, 19.5(1981)466  
So: Casting Out Fives, 20.4(1982)370
- B-464 To: Possible Fibonacci-Lucas identity, 19.5(1981)466  
So: Consequence of a Hoggatt Identity, 20.4(1982)370
- B-465 To: Fibonacci-Lucas ratio, 19.5(1981)466  
So: Evenly Proportioned, 20.4(1982)371
- B-466 To: Properties of an alternating sequence, 20.1(1982)89  
So: Squares and Products of Consecutive Integers, 21.1(1983)68
- B-467 To: Alternating and double sum sequences, 20.1(1982)89  
So: A's into B's, 21.1(1983)69
- B-468 To: Sequence of a sum of square roots, 20.1(1982)89  
So: Fibonacci Sines, 21.1(1983)69; Correction, 21.4(1983)307
- B-469 To: Reciprocals in base  $F_n$ , 20.1(1982)89  
So: Base  $F_n$  Expansions, 21.1(1983)70
- B-470 To: Arithmetic progression of Fibonacci and Lucas numbers, 20.1(1982)89  
So: 3 Term A.P., 21.1(1983)70
- B-471 To: Arithmetic progression of Fibonacci and Lucas numbers, 20.1(1982)90  
So: 4 Term A.P., 21.1(1983)72
- B-472 To: Sequence containing perfect numbers, 20.2(1982)179  
So: Where to Find Perfect Numbers, 21.2(1983)148
- B-473 To: Large Lucas numbers as exponents, 20.2(1982)179  
So: Primitive Fifth Roots of Unity, 21.2(1983)148
- B-474 To: Lucas numbers in a congruence, 20.2(1982)179  
So: Sequence of Congruences, 21.2(1983)149
- B-475 To: Alternating sequence & multiples of triangular numbers, 20.2(1982)179  
So: Wrong Sign, 21.2(1983)150
- B-476 To: Alternating sequence and squares of triangular numbers, 20.2(1982)180  
So: Multiples of Triangular Numbers, 21.2(1983)151

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-477 To: Arctangents and Fibonacci numbers, 20.2(1982)180  
So: Telescoping series, 21.2(1983)151
- B-478 To: Two special congruence equations, 20.3(1982)279  
So: Fibonacci Norm Identity, 21.3(1983)231
- B-479 To: Possible multiples of Lucas numbers, 20.3(1982)279  
So: Divisibility from a Lucas Sum, 21.3(1983)232
- B-480 To: Two less than a Lucas number, 20.3(1982)280  
So: Even Case, 21.3(1983)232
- B-481 To: Flipping pennies, 20.3(1982)280  
So: Matching Pennies, 21.3(1983)233
- B-482 To: Roots, sums and limits of a sequence, 20.3(1982)280  
So: Distinct Limits, 21.3(1983)234
- B-483 To: Roots, sums and limits of a sequence, 20.3(1982)280  
So: Limit, No Limit, 21.3(1983)235
- B-484 To: Complexity of a multiplication process, 20.4(1982)366  
So: Efficient Raising to Powers, 21.4(1983)308
- B-485 To: Difference equation with Fibonacci nonhomogeneous terms, 20.4(1982)366  
So: Difference Equation, 21.4(1983)309
- B-486 To: Inequality chain of Fibonacci ratios, 20.4(1982)366  
So: Monotonic Sequence of Ratios, 21.4(1983)309
- B-487 To: Fibonacci-Lucas congruence, 20.4(1982)367  
So: Multiple of 50, 21.4(1983)310
- B-488 To: Mod Lucas, Lucas congruence, 20.4(1982)367  
So: Odd Difference, 21.4(1983)310
- B-489 To: Mod Fibonacci, Fibonacci congruence, 20.4(1982)367  
So: Even Difference, 21.4(1983)311
- B-490 To: Fibonacci, Lucas and arithmetic means, 21.1(1983)67  
So: Lucas Addition Formula, 22.1(1984)85
- B-491 To: Fibonacci-Lucas number identity, 21.1(1983)67  
So: Application of the Addition Formula, 22.1(1984)85
- B-492 To: Fibonacci-Lucas number identity, 21.1(1983)67  
So: New Look at Previous Application, 22.1(1984)86
- B-493 To: Largest power of 2 dividing a sum, 21.1(1983)67  
So: Exponent of 2 in Sum, 22.1(1984)86
- B-494 To: Two sequence sum as multiples of 101, 21.1(1983)68  
So: Sum of Consecutive Integers, 22.1(1984)87
- B-495 To: Generalize a sequence given 24 terms, 21.1(1983)68  
So: Sum of Consecutive Squares, 22.1(1984)87
- B-496 To: Centroid of a triangle with Fibonacc-Lucas vertices, 21.2(1983)147  
So: Fibonacci-Lucas Centroid, 22.2(1984)184
- B-497 To: Area of a triangle with Fibonacc-Lucas vertices, 21.2(1983)147  
So: Area of Fibonacci-Lucas Triangle, 22.2(1984)184
- B-498 To: Fibonacci congruence mod 10, 21.2(1983)147  
So: Fibonacci Recursions Modulo 10, 22.2(1984)185
- B-499 To: Lucas congruence mod 10, 21.2(1983)147  
So: Lucas Recursions Modulo 10, 22.2(1984)186

## ELEMENTARY PROBLEM INDEX

**Edited by A.P. Hillman**

- B-500 To: Products of polynomials, 21.2(1983)148  
So: Two Kinds of Divisibility, 22.2(1984)186
- B-501 To: Length  $k$  sequences from length  $2k$  sequences, 21.2(1983)148  
So: Doubling Back on a Sequence, 22.2(1984)186

**Edited by A.P. Hillman & G.C. Padilla**

- B-502 To: Even Fibonacci sum, 21.3(1983)230  
So: Even Sum of Fibonacci Products, 22.3(1984)274
- B-503 To: Perfect numbers and congruences, 21.3(1983)230  
So: Even Perfect Numbers Mod 7, 22.3(1984)274
- B-504 To: Triangular and Fibonacci numbers and congruences, 21.3(1983)230  
So: Triangular Fibonacci Numbers Mod 24, 22.3(1984)275
- B-505 To: Lucas expressions and divisibility, 21.3(1983)230  
So: Sum of Lucas Products, 22.3(1984)275
- B-506 To: Fibonacci-Lucas summation identities, 21.3(1983)231  
So: Fibonacci and Lucas Convolutions, 22.3(1984)276
- B-507 To: Fibonacci-Lucas summation identities, 21.3(1983)231  
So: Mixed Convolution, 22.3(1984)278

**Edited by A.P. Hillman, G.C. Padilla & C.R. Wall**

- B-508 To: Squares and sums of factorials, 21.4(1983)306  
So: Application of the Bertrand-Chebyshev Theorem, 22.4(1984)370
- B-509 To: Composite Dedekind function inequality, 21.4(1983)306  
So: Dedekind Function Inequality, 22.4(1984)370
- B-510 To: Euler-Dedekind function inequality, 21.4(1983)306  
So: Inequality on Euler and Dedekind Functions, 22.4(1984)371
- B-511 To: Fibonacci-Lucas identity, 21.4(1983)307  
So: Telescoping Fibonacci Products, 22.4(1984)372
- B-512 To: Fibonacci-Lucas identity, 21.4(1983)307  
So: Telescoping Fibonacci-Lucas Products, 22.4(1984)372
- B-513 To: Fibonacci summation identity, 21.4(1983)307  
So: Fibonacci Convolution and Rising Pascal Diagonals, 22.4(1984)373
- B-514 To: Binomial coefficient congruence, 22.1(1984)84  
So: Same Parity, 23.1(1985)86
- B-515 To: Quadratic difference equation, 22.1(1984)84  
So: Disguised Lucas Number, 23.1(1985)86
- B-516 To: Diophantine equation and divisibility, 22.1(1984)84  
So: Pell Equation Multiples of 36, 23.1(1985)87
- B-517 To: Square factorial sum, 22.1(1984)84  
So: Square Sum of Adjacent Factorials, 23.1(1985)87
- B-518 To: Fibonacci numbers and right triangles, 22.1(1984)85  
So: Fibonacci Inradius, 23.1(1985)88
- B-519 To: Lucas numbers and right triangles, 22.1(1984)85  
So: Lucas Inradius, 23.1(1985)88
- B-520 To: Mod 10 and mod 12 decodings, 22.2(1984)183  
So: Coded Multiplication Modulo 10 or 12, 23.2(1985)182
- B-521 To: Unique decoding mod  $m$ , 22.2(1984)183  
So: Unique Decoding, 23.2(1985)183

## ELEMENTARY PROBLEM INDEX

**Edited by A.P. Hillman, G.C. Padilla & C.R. Wall**

- B-522 To: Sequences with consecutive odd differences, 22.2(1984)183  
So: Alternating Even and Odd, 23.2(1985)183
- B-523 To: Congruence equations and residue sets, 22.2(1984)183  
So: Reversing Coefficients of a Polynomial, 23.2(1985)184
- B-524 To: Fibonacci square representation, 22.2(1984)184  
So: Disguised Fibonacci Squares, 23.2(1985)184
- B-525 To: Representation of  $2^x - 1$ , 22.2(1984)184  
So: Diophantine Equation, 23.2(1985)185
- B-526 To: Fibonacci quadratic equation, 22.3(1984)273  
So: Quadratic with an Integer Solution, 23.3(1985)278
- B-527 To: Fibonacci quadratic equation, 22.3(1984)273  
So: Another Quadratic with an Integer Solution, 23.3(1985)278
- B-528 To: Fibonacci identity, 22.3(1984)273  
So: Special Case of a Sum, 23.3(1985)279
- B-529 To: Binomial sum of Fibonacci squares, 22.3(1984)274  
So: Compact Form for a Sum, 23.3(1985)279
- B-530 To: Lucas numbers in a continued fraction, 22.3(1984)274  
So: Lucas Continued Fraction, 23.3(1985)280
- B-531 To: Lucas numbers in a continued fraction, 22.3(1984)274  
So: Even case of Lucas Continued Fraction, 23.3(1985)280

**Edited by A.P. Hillman & G.C. Padilla**

- B-532 To: Product of four Fibonacci numbers, 22.4(1984)369  
So: Double Product of 4 Consecutive Fibonacci Numbers, 23.4(1985)372
- B-533 To: Product of five Fibonacci numbers, 22.4(1984)369  
So: Product of 5 Fibonacci Numbers, 23.4(1985)372
- B-534 To: Fibonacci right triangles and area, 22.4(1984)369  
So: No Pythagorean Triangle with Square Area, 23.4(1985)373
- B-535 To: Fibonacci sum and  $16!$ , 22.4(1984)369  
So: Impossible Sum, 23.4(1985)373
- B-536 To: Quartic Diophantine equation, 22.4(1984)370  
So: Diophantine Equation, 23.4(1985)374
- B-537 To: Quartic Diophantine equation, 22.4(1984)370  
So: Another Diophantine Equation, 23.4(1985)374

**Edited by A.P. Hillman, G.C. Padilla & C.R. Wall**

- B-538 To: Golden ratio and Lucas numbers, 23.1(1985)85  
So: Lucas Geometric Progression, 24.1(1986)85
- B-539 To: Golden ratio summation identity, 23.1(1985)85  
So: Not Necessarily Golden GP's, 24.1(1986)85
- B-540 To: Nonsquare Fibonacci Lucas product, 23.1(1985)85  
So: Product of 3 Successive Integers, 24.1(1986)86
- B-541 To: Pell-Lucas congruence, 23.1(1985)85  
So: Congruence Modulo 9, 24.1(1986)86
- B-542 To: Third-order recurrence relation, 23.1(1985)86  
So: 3<sup>rd</sup> Order Nonhomogeneous Recursion, 24.1(1986)87
- B-543 To: Closed form of a generating function, 23.1(1985)86  
So: Fibonacci Exponential Generating Function, 24.1(1986)87



## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman, G.C. Padilla & C.R. Wall

- B-544 To: Mod 12 Fibonacci-Lucas congruence, 23.2(1985)181  
So: Congruence Modulo 12, 24.2(1986)181
- B-545 To: Mod 5 Fibonacci congruences, 23.2(1985)181  
So: Congruence Modulo 5, 24.2(1986)181
- B-546 To: Finite sequence terminating in one, 23.2(1985)181  
So: Fibonacci combinatorial Problem, 24.2(1986)182
- B-547 To: Lucas congruence mod a prime, 23.2(1985)182  
So: Return Engagement, 24.2(1986)183
- B-548 To: Recursion algorithm for a sequence, 23.2(1985)182  
So: Number of Squares Needed, 24.2(1986)183
- B-549 To: Identity for a special sequence, 23.2(1985)182  
So: Generalized Fibonacci Numbers, 24.2(1986)184
- B-550 To: Powers of -13 mod 181, 23.3(1985)277  
So: A Specific Fibonacci-Like Sequence, 24.3(1986)278
- B-551 To: Generalization of B-550, 23.3(1985)277  
So: A Generalization, 24.3(1986)278
- B-552 To: Set of integers and divisibility by 11, 23.3(1985)277  
So: Permutations of 9876543210 by 11, 24.3(1986)279
- B-553 To: Closed form of a Lucas sum, 23.3(1985)277  
So: Lucas Summation, 24.3(1986)280
- B-554 To: Fibonacci product as a sum of two squares, 23.3(1985)278  
So: Sum of Two Squares, 24.3(1986)280
- B-555 To: Fibonacci product as a sum of three squares, 23.3(1985)278  
So: Sum of Three Squares, 24.3(1986)281
- B-556 To: Pattern from perfect squares, 23.4(1985)371  
So: Pattern for squares, 24.4(1986)372
- B-557 To: Fibonacci product non-identity, 23.4(1985)371  
So: Not True Any Year, 24.4(1986)373
- B-558 To: Fibonacci quadratic non-identity, 23.4(1985)371  
So: Impossible Equation, 24.4(1986)373
- B-559 To: Golden ratio-Lucas number identity, 23.4(1985)371  
So: Golden Mean Identity, 24.4(1986)373
- B-560 To: Golden ratio-Fibonacci number identity, 23.4(1985)372  
So: Another Greatest Integer Identity, 24.4(1986)374
- B-561 To: Q-matrix-Lucas number identity, 23.4(1985)372  
So: Q-Matrix Identity, 24.4(1986)374
- B-562 To: Lucas-Bracket function congruence, 24.1(1986)84  
So: Constant Modulo 5, 25.1(1987)86
- B-563 To: Lucas product-sum and divisibility by 4, 24.1(1986)84  
So: 2 of 3 Are Multiples of 4, 25.1(1987)86
- B-564 To: Golden-bracket Fibonacci identity, 24.1(1986)84  
So: Summing  $[\alpha F_k]$ , 25.1(1987)87
- B-565 To: Pell-Fibonacci number identity, 24.1(1986)84  
So: Fibonacci-Pell Products Summed, 25.1(1987)87
- B-566 To: Pell-Fibonacci number identity, 24.1(1986)85  
So: Lucas-Pell Products Summed, 25.1(1987)88

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman, G.C. Padilla & C.R. Wall

- B-567 To: Recurrence for a generating function, 24.1(1986)85  
So: Relatives of Hermite Polynomials, 25.1(1987)89
- B-568 To: Curve from Fibonacci-Lucas coordinates, 24.2(1986)180  
So: Fibonacci-Lucas Hyperbola for Odd  $n$ , 25.2(1987)181
- B-569 To: Curve from Fibonacci-Lucas coordinates, 24.2(1986)180  
So: Fibonacci-Lucas Hyperbola for Even  $n$ , 25.2(1987)181
- B-570 To: Fibonacci square root identity, 24.2(1986)180  
So: Fibonacci Squareroot Triangle with Fixed Area, 25.2(1987)182
- B-571 To: Closed form for a finite sum, 24.2(1986)180  
So: Weighted Rising Diagonal Sum, 25.2(1987)182
- B-572 To: Value for a continued fraction, 24.2(1986)181  
So: Continued Fraction, 25.2(1987)183
- B-573 To: Fibonacci-Lucas summation identity, 24.2(1986)181  
So: {No title} 25.2(1987)184
- B-574 To: Square roots of partial sums, 24.3(1986)277  
So: Downrounded Square Roots, 25.3(1987)280
- B-575 To: Identity relating two sequences, 24.3(1986)277  
So: Summing Products, 25.3(1987)280
- B-576 To: Lucas-Fibonacci product relation, 24.3(1986)277  
So: Product of Three Fibonacci Numbers, 25.3(1987)281
- B-577 To: Lucas-Fibonacci difference relation, 24.3(1986)277  
So: Difference of Squares, 25.3(1987)281
- B-578 To: F-addends in golden-Fibonacci Zeckendorf representation, 24.3(1986)278  
So: Zeckendorf Representation for  $[\alpha F]$ , 25.3(1987)282
- B-579 To: F-addends in golden-Fibonacci Zeckendorf representation, 24.3(1986)278  
So: Zeckendorf Representation, Even Case, 25.3(1987)282
- B-580 To: Lucas numbers and multiplicity, 24.4(1986)371  
So: Nondivisors of the  $L_n$ , 25.4(1987)371
- B-581 To: Fibonacci 6-tuple representation, 24.4(1986)371  
So: Third Degree Representations for  $F$ , 25.4(1987)371
- B-582 To: F-addends in golden-square Fibonacci Zeckendorf representation, 24.4(1986)371  
So: Zeckendorf Representations, 25.4(1987)373
- B-583 To: Recurrence relation for a sum, 24.4(1986)372  
So: Recursion for a Triangle of Sums, 25.4(1987)374
- B-584 To: Shift property of a 3 parameter sum, 24.4(1986)372  
So: Product of Exponential Generating Functions, 25.4(1987)374
- B-585 To: Fibonacci representation formula, 24.4(1986)372  
So: Combinatorial Interpretation of the  $F_n$ , 25.4(1987)375
- B-586 To: Fibonacci summation identity, 25.1(1987)85  
So: Fibonacci Convolution, 26.1(1988)86
- B-587 To: Differential equations for Fibonacci/Lucas generating functions, 25.1(1987)85  
So: D.E. for Fibonacci Generating Function, 26.1(1988)86
- B-588 To: Closed form for Fibonacci/Lucas generating functions, 25.1(1987)85  
So: Closed Form Exponential Generating Function, 26.1(1988)87
- B-589 To: Permutations of the digits of a number, 25.1(1987)85  
So: Periodic Decimal Expansion, 26.1(1988)87

## ELEMENTARY PROBLEM INDEX

**Edited by A.P. Hillman, G.C. Padilla & C.R. Wall**

- B-590 To: Permutations property of the digits in a given number, 25.1(1987)85  
So: Leftmost Digit, 26.1(1988)88
- B-591 To: Non-zeros of an infinite series, 25.1(1987)86  
So: Interval with No Zeros, 26.1(1988)88
- B-592 To: Possible Fibonacci-Lucas multiple of 5, 25.2(1987)180  
So: No Such Constants, 26.2(1988)182
- B-593 To: Fibonacci-Lucas multiples of 1220, 25.2(1987)180  
So: Multiple of 1220, 26.2(1988)182
- B-594 To: Fibonacci-Lucas congruence, 25.2(1987)180  
So: Congruence Mod 60, 26.2(1988)183
- B-595 To: Square-cube products congruence, 25.2(1987)180  
So: Convolution Congruence, 26.2(1988)183
- B-596 To: Closed form of a Fibonacci sum, 25.2(1987)181  
So: X, Y, Z Affair, 26.2(1988)184
- B-597 To: Closed form of a Fibonacci sum, 25.2(1987)181  
So: More X, Y, Z Relations, 26.2(1988)184
- B-598 To: Lucas Pythagorean triples, 25.3(1987)279  
So: 2 Problems on Pythagorean Triples [Included in B-599], 26.3(1988)279
- B-599 To: Lucas Pythagorean triples, 25.3(1987)279  
So: 2 Problems on Pythagorean Triples, 26.3(1988)279
- B-600 To: Fibonacci multiples of 30290, 25.3(1987)279  
So: Fibonacci Multiples of 121160, 26.3(1988)280
- B-601 To: Integral averages of Fibonacci sums, 25.3(1987)279  
So: Integral Arithmetic Means, 26.3(1988)280
- B-602 To: Fibonacci reciprocal sums, 25.3(1987)279  
So: Fibonacci Infinite Series, 26.3(1988)281
- B-603 To: Lucas reciprocal sums, 25.3(1987)280  
So: Lucas Analogue, 26.3(1988)282

**Edited by A.P. Hillman**

- B-604 To: Linear-quadratic difference equations, 25.4(1987)370  
So: Recurrence Relation for Squares, 26.4(1988)373
- B-605 To: Prime Lucas sums, 25.4(1987)370  
So: Never Prime, 26.4(1988)374
- B-606 To: Simplifying a Fibonacci-Lucas sum, 25.4(1987)370  
So: Very Much Simplified, 26.4(1988)374
- B-607 To: Fibonacci-Lucas sum divisible by 2, 25.4(1987)370  
So: Product of Exponential Generating Functions, 26.4(1988)374
- B-608 To: Integral Fibonacci quadratic means, 25.4(1987)371  
So: Integral Average of squares, 26.4(1988)375
- B-609 To: Sum of  $(kF_k)^2$ , 25.4(1987)371  
So: Sum of Squares, 26.4(1988)376
- B-610 To: Fibonacci non-Pythagorean triples, 26.1(1988)85  
So: No Fibonacci Pythagorean Triples, 27.1(1989)88
- B-611 To: Lucas sums as multiples of 3, 26.1(1988)85  
So: Each Term a Multiple of 3, 27.1(1989)88
- B-612 To: Fibonacci sums as multiples of 7, 26.1(1988)85  
So: When the Sum is a Multiple of 7, 27.1(1989)89

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-613 To: Quadratic Fibonacci identity, 26.1(1988)85  
So: Finding the Constants, 27.1(1989)89
- B-614 To: Fibonacci-Lucas product congruence, 26.1(1988)86  
So: Quadruple Products Mod 8, 27.1(1989)90
- B-615 To: Lucas composites and recursion, 26.1(1988)86  
So: Identity for Iterated Lucas Numbers, 27.1(1989)90
- B-616 To: Fibonacci-Lucas congruences, 26.2(1988)181  
So: Cyclic Permutations Modulo 6 and Modulo 5, 27.2(1989)182
- B-617 To: Rectangles with Fibonacci coordinates, 26.2(1988)181  
So: Fibonacci Parallelograms, 27.2(1989)182
- B-618 To: Lucas sums as multiples of 10, 26.2(1988)181  
So: Multiples of 40, 27.2(1989)183
- B-619 To: Fibonacci sums as multiples of 10, 26.2(1988)181  
So: More Multiples of 10, 27.2(1989)184
- B-620 To: Mod 9 Fibonacci congruence, 26.2(1988)182  
So: Congruence Modulo 9, 27.2(1989)184
- B-621 To: Mod Fibonacci Fibonacci congruence, 26.2(1988)182  
So: Powers of  $F_{2n}$  Modulo  $F_{2n-1}$ , 27.2(1989)185
- B-622 To: Fibonacci-Lucas identity, 26.3(1988)278  
So: Relationship between Variables, 27.4(1989)374
- B-623 To: Lucas sum multiples of Lucas numbers, 26.3(1988)278  
So: Multiples of  $L_n$ , 27.4(1989)375
- B-624 To: Fibonacci or Lucas divisors of a Lucas sum, 26.3(1988)278  
So: Multiples of  $(F_n)^2$  or  $(L_n)^2$ , 27.4(1989)375
- B-625 To: Lucas-Pell difference equation, 26.3(1988)278  
So: Recurrences for  $F_n P_n$  and  $L_n P_n$ , 27.4(1989)376
- B-626 To: Lucas-Pell generating function, 26.3(1988)279  
So: Generating Functions for  $F_n P_n$  and  $L_n P_n$ , 27.4(1989)376
- B-627 To: Sum of Fibonacci cubes, 26.3(1988)279  
So: Integral Mean of Consecutive Cubes, 27.4(1989)377
- B-628 To: Age of Fibonacci's rabbits, 26.4(1988)372  
So: Average Age of Fibonacci Rabbits, 27.5(1989)468
- B-629 To: Five parameter quadratic equation, 26.4(1988)372  
So: Always at Least One Solution, 27.5(1989)469
- B-630 To: Two sequences and golden numbers, 26.4(1988)372  
So: Golden Geometric Progression, 27.5(1989)470
- B-631 To: Closed form for a sum of products, 26.4(1988)373  
So: Closed Form, 27.5(1989)470
- B-632 To: Determinants and golden numbers, 26.4(1988)373  
So: Golden Determinant, 27.5(1989)471
- B-633 To: Ratio of Fibonacci and Lucas sums, 26.4(1988)373  
So: Ratio of Series, 27.5(1989)471
- B-634 To: Mod 5 congruence for powers of 2, 27.1(1989)87  
So: When Is  $2^n \equiv n \pmod{5}$ ?, 28.1(1990)86
- B-635 To: Sum of factorials and an inequality, 27.1(1989)87  
So: Application of the Inequality on the Means, 28.1(1990)86

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-636 To: Factorials in a difference equation, 27.1(1989)87  
So: Difference Equation, 28.1(1990)87
- B-637 To: Golden mean and Fibonacci reciprocals, 27.1(1989)87  
So: Golden Geometric Series, 28.1(1990)88
- B-638 To: Fibonacci sum-product identity, 27.1(1989)88  
So: Summing Every Fourth Fibonacci Number, 28.1(1990)88
- B-639 To: Lucas-Fibonacci sum-product identity, 27.1(1989)88  
So: Lucas Analogue, 28.1(1990)89
- B-640 To: Determinant with entries  $\pm 1$  or 0, 27.2(1989)181  
So: Circulant Determinant for  $F_{n+1}$ , 28.2(1990)183
- B-641 To: Binet-type identities for  $L_{mn}$  and  $F_{mn}$ , 27.2(1989)181  
So:  $F_{mn}$  and  $L_{mn}$  as Polynomials in  $F_m$  and  $L_m$ , 28.2(1990)183
- B-642 To: Lucas numbers as Lucas polynomials, 27.2(1989)181  
So:  $L_{k(2n+1)}$  as a Polynomial in  $L_{2n+1}$ , 28.2(1990)184
- B-643 To: Congruence for binomial coefficients, 27.2(1989)181  
So: Binomial Coefficient Congruence, 28.2(1990)185
- B-644 To: Probability and playing catch, 27.2(1989)182  
So: Markov Chain, 28.2(1990)185
- B-645 To: Binomial coefficient Fibonacci numbers representations, 27.2(1989)182  
So: Not True Asymptotically, 28.3(1990)278
- B-646 To: Triangular number identity, 27.4(1989)373  
So: Triangular Number Analogue, 28.3(1990)278
- B-647 To: Simplifying a Lucas expression, 27.4(1989)373  
So: Much Ado about Zero, 28.3(1990)279
- B-648 To: Pell numbers and Pythagorean triples, 27.4(1989)373  
So: Pell Primitive Pythagorean Triples, 28.3(1990)279
- B-649 To: Pell numbers and Pythagorean triples, 27.4(1989)373  
So: Sides Differing by 17, 28.3(1990)280
- B-650 To: Rabbits and average ages, 27.4(1989)374  
So: Average Age of Generalized Rabbits, 28.3(1990)281
- B-651 To: Summation congruence mod a prime, 27.4(1989)374  
So: Multiples of a Prime  $p$ , 28.3(1990)281
- B-652 To: Golden sums and golden reciprocal sums, 27.5(1989)467  
So: Golden Geometric Progressions, 28.4(1990)372
- B-653 To: Fibonacci triangles, 27.5(1989)467  
So: Pythagorean Triples, 28.4(1990)372
- B-654 To: Fibonacci infinite series, 27.5(1989)467  
So: Infinite Series, 28.4(1990)373
- B-655 To: Fibonacci ratios and inequalities, 27.5(1989)468  
So: Farey Fractions, 28.4(1990)373
- B-656 To: Difference equation and a sum, 27.5(1989)468  
So: Closed Form, 28.4(1990)374
- B-657 To: Two parameter Fibonacci sum, 27.5(1989)468  
So: Disjoint Increasing sequences, 28.4(1990)375
- B-658 To: Sums of square Pell numbers, 28.1(1990)85  
So: Pell Parity Problem, 29.1(1991)85

## ELEMENTARY PROBLEM INDEX

Edited by A.P. Hillman

- B-659 To: Radical multiples of Fibonacci numbers, 28.1(1990)85  
So: Nearest Integer, 29.1(1991)85
- B-660 To: Closed forms for binomial sums, 28.1(1990)85  
So: Binomial Expansions, 29.1(1991)86
- B-661 To: Composites of triangular numbers, 28.1(1990)86  
So: Integral Divisor, 29.1(1991)86
- B-662 To: Pell-Fibonacci congruences, 28.1(1990)86  
So: Congruences Modulo 9, 29.1(1991)87
- B-663 To: Lim sup of a recursive sequence, 28.1(1990)86  
So: Dense in an Interval, 29.1(1991)88
- B-664 To: Sequence of nested square roots of 2, 28.2(1990)182  
So: Limit of Nested Square roots, 29.2(1991)182
- B-665 To: Product of sums of cube roots, 28.2(1990)182  
So: Unique Real Solutions of Cubics, 29.2(1991)183
- B-666 To: Mod prime binomial-bracket congruence, 28.2(1990)182  
So: Diagonal p of Pascal Triangle Modulo p, 29.2(1991)183
- B-667 To: Permuting digits and a congruence, 28.2(1990)182  
So: Cyclic Permutation of Digits, 29.2(1991)184
- B-668 To: Base 9 numerals and divisibility, 28.2(1990)183  
So: Base 9 Modular Arithmetic Progression, 29.2(1991)184
- B-669 To: Fibonacci-Lucas equations, 28.2(1990)183  
So: Fibonacci and Lucas Identities, 29.2(1991)185
- B-670 To: Sum of a Fibonacci related series, 28.3(1990)277  
So: Application of Generating Functions, 29.3(1991)278
- B-671 To: Hexagonal, triangular perfect numbers, 28.3(1990)277  
So: Even Perfect Numbers Are Hexagonal and Triangular, 29.3(1991)278
- B-672 To: Arithmetic progression from a set with adjacent terms a multiple of 10 and 11,  
respectively, 28.3(1990)277  
So: Proposal in 10·199, Solution in 11·181, 29.3(1991)279
- B-673 To: Infinite product of Fibonacci ratios, 28.3(1990)277  
So: Fibonacci Infinite Product, 29.3(1991)279
- B-674 To: Golden number, cosines and a sequence, 28.3(1990)277  
So: Trigonometric Recursion, 29.3(1991)280
- B-675 To: Square roots, cosines and a sequence, 28.3(1990)278  
So: Another Sine Recursion, 29.3(1991)281
- B-676 To: Triangular divisors of triangular sums, 28.4(1990)371  
So: Triangular Divisibility, 29.4(1991)372
- B-677 To: Triangular sum divisors of a sum of squares of triangular numbers, 28.4(1990)371  
So: More Triangular Divisibility, 29.4(1991)372
- B-678 To: Lucas non-triangular numbers, 28.4(1990)371  
So: Nontriangular Numbers, 29.4(1991)373
- B-679 To: Polynomial for a Lucas product, 28.4(1990)371  
So: Product of 4 Lucas Numbers, 29.4(1991)374
- B-680 To: Square root multiples of a sequence, 28.4(1990)372  
So: Fibonacci Analogues, 30.1(1992)86
- B-681 To: Fibonacci congruence mod  $L_k - 2$ , 28.4(1990)372  
So: Congruence, 29.4(1991)374

## ELEMENTARY PROBLEM INDEX

**Edited by A.P. Hillman**

- B-682 To: Lucas and triangular numbers, 29.1(1991)84  
So: Lucas Triangular Numbers, 29.4(1991)375
- B-683 To: Lucas and triangular numbers, 29.1(1991)84  
So: LT-Composite, 29.4(1991)375
- B-684 To: Straight lines separating Fibonacci pairs, 29.1(1991)84  
So: Straight Line Separating  $(F_n, F_{n+1})$  from  $(F_{n+1}, F_{n+2})$ , 30.1(1992)86
- B-685 To: Fibonacci numbers and an inequality, 29.1(1991)84  
So: Approximation to  $k$  as a Function of  $F_k$ , 30.1(1992)87
- B-686 To: Closed form from increasing ratios from a sequence, 29.1(1991)85  
So: Some Nearly Geometric Progressions, 30.1(1992)88
- B-687 To: Closed form from increasing ratios from a sequence, 29.1(1991)85  
So: 30.1(1992)88
- B-688 To: Sequences with differences of 1 or 2, 29.2(1991)181  
So: Differences in  $\{1, 2\}$ , 30.2(1992)183
- B-689 To: One less than a Fibonacci square, 29.2(1991)181  
So: Numbers with Even Zeckendorf Representations, 30.2(1992)184
- B-690 To: Sums of powers of the golden number, 29.2(1991)181  
So: Golden Geometric Progressions, 30.2(1992)184
- B-691 To: Inscribed golden rectangles, 29.2(1991)181  
So: Rectangles in Similar Rectangles, 30.2(1992)184
- B-692 To: Fibonacci divisors of a Lucas sum, 29.2(1991)182  
So: A Fibonacci Factorization, 30.2(1992)185
- B-693 To: Properties of pairs from 3 sets, 29.2(1991)182  
So: A Combinatorial Problem, 30.2(1992)186

**Edited by S. Rabinowitz & A.P. Hillman**

- B-694 To: Lucas congruence mod 40, 29.3(1991)277  
So: A Congruence for  $L_m$  [ $m=2^n$ ], 30.3(1992)276
- B-695 To: Some related Pell sequences, 29.3(1991)277  
So: Pell Relations, 30.3(1992)277
- B-696 To: Fibonacci hypotenuse and Lucas leg, 29.3(1991)277  
So: A Nonprimitive Pythagorean Triple, 30.3(1992)279
- B-697 To: Closed form for a sum, 29.3(1991)277  
So: A Sum of Quotients, 30.3(1992)280
- B-698 To: Quadratic difference equation, 29.3(1991)278  
So: A Radical Limit, 30.4(1992)369
- B-699 To: Divisibility of an arithmetic function, 29.3(1991)278  
So: A Solution Using Periodic Orbits, 30.4(1992)371
- B-700 To: Possible Lucas identity, 29.4(1991)371  
So: But It Doesn't Look Symmetric, 30.4(1992)372
- B-701 To: Angles in a Lucas-Fibonacci triangle, 29.4(1991)371  
So: A Pair of Triangles with Common Sides, 30.4(1992)372
- B-702 To: Fibonacci-Lucas continued fractions, 29.4(1991)371  
So: A Comparison of Continued Fractions, 30.4(1992)374
- B-703 To: Fibonacci summation identity, 29.4(1991)372  
So: A Sum Involving  $(F_m)^4$  [where  $m=2^k$ ], 31.1(1993)84
- B-704 To: Invariance of quadratic forms, 29.4(1991)372  
So: Products of Terms of the Form  $ax^2 + by^2$ , 31.1(1993)84

## ELEMENTARY PROBLEM INDEX

### Edited by S. Rabinowitz & A.P. Hillman

- B-705 To: Some Lucas and Fibonacci sums, 29.4(1991)372  
So: An Application of a Series Expansion for  $(\arcsin x)^2$ , 31.1(1993)85
- B-706 To: Fibonacci inequality, 30.1(1992)85  
So: An Exponential Inequality, 31.1(1993)86
- B-707 To: Fibonacci-Pythagorean triples, 30.1(1992)85  
So: Simple Pythagorean Triple, 31.1(1993)87
- B-708 To: Fibonacci-Lucas series, 30.1(1992)85  
So: Exponential Summation, 31.1(1993)87

### Edited by S. Rabinowitz

- B-709 To: Fibonacci numbers as derivatives, 30.1(1992)85  
So: Coefficients of a Maclaurin series, 31.2(1993)182
- B-710 To: Pell-Lucas congruences, 30.1(1992)86  
So: Pell-Lucas Congruences, 31.2(1993)183
- B-711 To: Lucas numbers in an infinite product, 30.1(1992)86  
So: Cosh, What a Product, 31.2(1993)184
- B-712 To: Lucas number representation, 30.2(1992)182  
So: Another Lucas Number, 31.2(1993)185
- B-713 To: Pythagorean triples, areas and Fibonacci numbers, 30.2(1992)182  
So: Complex Pythagorean Triple, 31.2(1993)185
- B-714 To: Sequence in terms of Fibonacci and/or Lucas numbers, 30.2(1992)182  
So: Recurrence with a Twist, 31.3(1993)278
- B-715 To: Fibonacci congruence, 30.2(1992)183  
So: Divisibility by Fibonacci squares, 31.3(1993)278
- B-716 To: Non-prime Lucas combinations, 30.2(1992)183  
So: The Sum of Two Lucas Numbers, 31.3(1993)279
- B-717 To: Arctangents and Lucas numbers, 30.2(1992)183  
So: Expanding Arctan as a Lucas Series, 31.3(1993)280
- B-718 To: Powers of the golden ratio, 30.3(1992)275  
So: Golden Power, 31.3(1993)281
- B-719 To: Pell numbers and factoring, 30.3(1992)275  
So: A Pell Factorization, 31.3(1993)282
- B-720 To: Closed form for a sum of products of Fibonacci numbers, 30.3(1992)275  
So: Convolution solution, 31.4(1993)372
- B-721 To: Probability of strides on a staircase, 30.3(1992)276  
So: Brittany Climbs Some stairs, 31.4(1993)373
- B-722 To: Fibonacci polynomials and integration, 30.3(1992)276  
So: Fibonacci Integrand, 31.4(1993)375
- B-723 To: Divisibility of Fibonacci expressions, 30.3(1992)276  
So: The Great Divide, 31.4(1993)376
- B-724 To: Fibonacci/Lucas arithmetic progression, 30.4(1992)368  
So: A 7-Term Arithmetic Progression, 32.1(1994)86

### Edited by S. Rabinowitz

- B-725 To: Right triangles, Fibonacci and Lucas numbers, 30.4(1992)368  
So: An Infinite Set of Right Triangles, 32.1(1994)87
- B-726 To: Reciprocals of differences of primes, 30.4(1992)368  
So: A Diverting Sum, 32.1(1994)87



## ELEMENTARY PROBLEM INDEX

Edited by S. Rabinowitz

- B-727 To: Recurrence relation with initial conditions involving  $e^2$ , 30.4(1992)369  
So: It's A Truth, 32.1(1994)88
- B-728 To: Lucas congruences(mod p), for p prime, 30.4(1992)369  
So: When Does Mod p Imply Mod  $p^2$ ? 32.1(1994)89
- B-729 To: Recurrence relations and congruences, 30.4(1992)369  
So: Binet to the Rescue Again, 32.1(1994)89
- B-730 To:  $\phi$  and roots of a quadratic with a Lucas coefficient, 31.1(1993)82  
So: A Golden Quadratic, 32.1(1994)90
- B-731 To: Fibonacci determinant, 31.1(1993)82  
So: The Determination, 32.2(1994)181
- B-732 To: Horadam equation mod 4, 31.1(1993)82  
So: The Mod Squad, 32.2(1994)182
- B-733 To: Pell numbers and a difference triangle, 31.1(1993)83  
So: No title given 32.2(1994)182
- B-734 To: Lucas congruence mod a power of 5, 31.1(1993)83  
So: Powers of 5, 32.2(1994)183
- B-735 To: Fifteenth order recurrence relation, 31.1(1993)83  
So: Square Root of a Recurrence, 32.2(1994)185, 32.4(1994)374
- B-736 To: Fibonacci-Lucas identity, 31.2(1993)181  
So: No title given 32.4(1994)376
- B-737 To: Inradii of right triangles, 31.2(1993)181  
So: Golden Radii, 32.4(1994)376
- B-738 To: Fibonacci-Lucas polynomial identity, 31.2(1993)181  
So: A Dozen Identities, 32.4(1994)377
- B-739 To: Dense set of Fibonacci ratios, 31.2(1993)181  
So: Fibonacci Fractions, 32.5(1994)468
- B-740 To: Divisibility and  $n!$ , 31.2(1993)181  
So: Smarandache in Reverse, 32.5(1994)468
- B-741 To: Fibonacci expression divisible by 54, 31.2(1993)182  
So: Factor 54 Where Are You?, 32.5(1994)469
- B-742 To: Pell number and trigonometric products, 31.3(1993)277  
So: Pell's Triggy Product, 32.5(1994)470
- B-743 To: Complex numbers and roots of the Fibonacci equation, 31.3(1993)277  
So: Golden argument of Tenth Roots of Unity, 32.5(1994)471
- B-744 To: Lucas sum divisible by a Lucas number, 31.3(1993)277  
So: A Sum Divisible, 32.5(1994)472
- B-745 To: Fibonacci reciprocal sums, 31.3(1993)277  
So: Fun with Unit Fractions, 33.1(1995)86
- B-746 To: First order cubic recurrence relation, 31.3(1993)278  
So:  $L_k \{k=3^n\}$  Recurs, 33.1(1995)87, Errata 33.5(1995)471
- B-747 To: Lucas reciprocal sums, 31.3(1993)278  
So: Great Sums from Partial Sums, 33.1(1995)87
- B-748 To: Recurrence for a given Fibonacci ratio, 31.4(1993)371  
So: A Recurrence for  $F_{kn}$ , 33.1(1995)88
- B-749 To: Divisibility of a polynomial equation with Fibonacci coefficients, 31.4(1993)371  
So: No Remainder, 33.1(1995)88

## ELEMENTARY PROBLEM INDEX

Edited by S. Rabinowitz

- B-750 To: Fibonacci-Lucas linear transformation, 31.4(1993)371  
So: A Linear Transformation that Shifts, 33.1(1995)89
- B-751 To: Lucas expressions and divisibility, 31.4(1993)371  
So: Divisibility by 25, 33.1(1995)90
- B-752 To: Coupled recurrences for two sequences, 31.4(1993)371  
So: Inequality for All, 33.2(1995)182
- B-753 To: Fibonacci determinant, 31.4(1993)372  
So: An Old Determinant, 33.2(1995)182
- B-754 To: Sums of Pell and Pell-Lucas numbers, 32.1(1994)85  
So: A Summing of Pell's, 33.2(1995)184, Errata 33.5(1995)471
- B-755 To: Equality of Pell and Pell-Lucas numbers, 32.1(1994)85  
So: An Interleaving of Pell's, 33.2(1995)185
- B-756 To: Expressing Pell numbers in terms of Fibonacci and Lucas numbers, 32.1(1994)85  
So: A Fibonacci Formula for  $P_n$ , 33.2(1995)185 No solution accepted  
To: Restated 57.1(2019)81  
So: An Oldie from the Vault, 58.1(2020)82
- B-757 To: Pell and Fibonacci numbers mod 13, 32.1(1994)86  
So: Fibonacci-Pell Congruences, 33.2(1995)185
- B-758 To: Sum Pell-Lucas numbers, 32.1(1994)86  
So: Another Pell Sum, 33.2(1995)186
- B-759 To: Sum of a Pell-Fibonacci product, 32.1(1994)86  
So: A Cauchy Convolution, 33.4(1995)372; Errata 33.5(1995)471
- B-760 To: Fibonacci inequality, 32.2(1994)180  
So: A Simple Inequality, 33.4(1995)372
- B-761 To: Lucas determinants, 32.2(1994)180  
So: L Determinants, 33.4(1995)373
- B-762 To: Arithmetic progressions, 32.2(1994)180  
So: Taylor's Series, 33.4(1995)374
- B-763 To: Matrix with Fibonacci and Lucas entries, 32.2(1994)181  
So: Matrix Power, 33.4(1995)375
- B-764 To: Pascal triangle sums, 32.2(1994)181  
So: Secret Treasures Hidden in Pascal's Triangle, 33.4(1995)376
- B-765 To: Fibonacci reciprocal double sum, 32.2(1994)181  
So: An Expansion of  $e$ , 33.4(1995)377
- B-766 To: Lucas congruence mod  $p$ , 32.4(1994)373  
So: A Lucas Congruence, 33.5(1995)467
- B-767 To: Mutual recurrences and Fibonacci numbers, 32.4(1994)373  
So: Mutual Admiration Fibonacci Society, 33.5(1995)467
- B-768 To: Mutual recurrences, Fibonacci and Lucas numbers, 32.4(1994)373  
So: A Radical Approach to Fibonacci Numbers, 33.5(1995)468
- B-769 To: First order cubic recurrence relation, 32.4(1994)373  
So: The Recurrence of  $F_k \{k=3^n\}$ , 33.5(1995)468
- B-770 To: Unit's digit and generalized Fibonacci sequences, 32.4(1994)374  
So: Unit Digit Madness, 33.5(1995)469
- B-771 To: Fibonacci summation problem, 32.4(1994)374  
So: More Sums, 33.5(1995)470

## ELEMENTARY PROBLEM INDEX

Edited by S. Rabinowitz

- B-772 To: Lucas-Fibonacci ratio, 32.5(1994)467  
So: An Integral Ratio, 34.1(1996)82
- B-773 To: Zeckendorf representation of a Fibonacci sum, 32.5(1994)467  
So: Zecky Would Be Proud, 34.1(1996)82
- B-774 To: Sum of consecutive terms in Fibonacci-like sequences, 32.5(1994)467  
So: A Congruence for the Period, 34.1(1996)83
- B-775 To: Power of a golden sum, 32.5(1994)468  
So: Golden Powers, 34.1(1996)83
- B-776 To: Even Fibonacci sum, 32.5(1994)468  
So: An Even Sum, 34.1(1996)85
- B-777 To: Lucas congruence mod 5, 32.5(1994)468  
So: A Tricky Congruence, 34.1(1996)85
- B-778 To: Fibonacci's Last Theorem, 33.1(1995)85  
So: Fibonacci's Last Theorem, 34.1(1996)86
- B-779 To: Fibonacci identity, 33.1(1995)85  
So: Find the Identity, 34.1(1996)87
- B-780 To: Exponential Fibonacci inequalities, 33.1(1995)85  
So: Production Inequality, 34.1(1996)87
- B-781 To: Sum of selected Fibonacci numbers, 33.1(1995)86  
So: A Floored Sum, 34.2(1996)182
- B-782 To: Fibonacci expression as the sum of three squares, 33.1(1995)86  
So: Sum of Three Squares, 34.2(1996)183
- B-783 To: Rational function of Fibonacci numbers, 33.1(1995)86  
So: Crazy Rational Functions, 34.2(1996)184
- B-784 To: Lucas identity, 33.2(1995)181  
So: Lucas in Disguise, 34.2(1996)184
- B-785 To: Recurrence relation, 33.2(1995)181  
So: It's a Multiple of  $a_n a_{n+1}$ , 34.2(1996)185
- B-786 To: Fibonacci identity, 33.2(1995)181  
So: Finding Coefficients of an Identity, 34.2(1996)185
- B-787 To: Congruence of Fibonacci and Pell ratios, 33.2(1995)181  
So: Generalizing a Pell Congruence, 34.4(1996)374
- B-788 To: Asymptotic behavior of some Fibonacci numbers, 33.2(1995)182  
So: Asymptotic Analysis, 34.4(1996)375
- B-789 To: Lucas polynomial differential equations, 33.2(1995)182  
So: Differential Equation Involving Lucas Polynomials, 34.4(1996)376
- B-790 To: Fibonacci inequality, 33.4(1995)371  
So: Even Inequality, 34.4(1996)376
- B-791 To: Divisibility of a Fibonacci Sum, 33.4(1995)371  
So: Divisibility by 18, 34.3(1996)377
- B-792 To: Recurrence relation and a reciprocal sum, 33.4(1995)371  
So: Reciprocal Sum, 34.4(1996)377
- B-793 To: Lucas congruence, 33.4(1995)371  
So: A Congruence for  $2^n L_n$ , 34.4(1996)378
- B-794 To: Fibonacci inequality, 33.4(1995)371  
So: Exponential Inequality, 34.4(1996)378

## ELEMENTARY PROBLEM INDEX

Edited by S. Rabinowitz

- B-795 To: Lucas sum, 33.4(1995)371  
So: A Disguise for Zero, 34.5(1996)468
- B-796 To: Ratio of Lucas and Fibonacci sums, 33.5(1995)466  
So: A Disguise for Five, 34.5(1996)469
- B-797 To: Generalized Fibonacci number congruence, 33.5(1995)466  
So: Decomal Congruence, 34.5(1996)469
- B-798 To: Fibonacci divisibility, 33.5(1995)466  
So: Powers of 5, 34.5(1996)470
- B-799 To: Linear recurrence relation, 33.5(1995)466  
So: A Recurrence, 34.5(1996)470
- B-800 To: Fibonacci-Pell inequality, 33.5(1995)466  
So: Pell/Fibonacci Inequality, 34.5(1996)471
- B-801 To: Fibonacci congruence, 33.5(1995)467  
So: Congruence mod 40, 34.5(1996)472
- B-802 To: Triangular number formula, 34.1(1996)81  
So: Double, Double, Triangular Numbers and Trouble, 35.1(1997)86
- B-803 To: Lucas combinatoric sum, 34.1(1996)81  
So: Half a Lucas Sum, 35.1(1997)87
- B-804 To: Fibonacci identity, 34.1(1996)81  
So: Finding an Identity without a Crystal Ball, 35.1(1997)88
- B-805 To: Sixth order linear recurrence relation, 34.1(1996)81  
So: A Slightly Perturbed Fibonacci Sequence, 35.1(1997)88
- B-806 To: Generating functions for Fibonacci differences/products, 34.1(1996)81  
So: Power Series with Fibonacci Features, 35.1(1997)89
- B-807 To: Congruence equation for difference equation solutions, 34.1(1996)82  
So: Generalized Mod Squad, 35.1(1997)89
- B-808 To: Mr. Feta's Lost Theorem(Diophantine equation), 34.2(1996)181  
So: Mr. Feta's Lost Theorem, 35.2(1997)182
- B-809 To: Integer recurrence relation, 34.2(1996)181  
So: It Keeps on Going, 35.2(1997)183
- B-810 To: Generalized Fibonacci number determinant, 34.2(1996)181  
So: Divisible Determinant, 35.2(1997)184
- B-811 To: Fibonacci/Lucas summation identities, 34.2(1996)182  
So: Alternating Lucas, 35.2(1997)185
- B-812 To: Area of a triangle with Fibonacci sides, 34.2(1996)182  
So: A Triangle in Space, 35.2(1997)185
- B-813 To: Determinant for three sequences satisfying the Horadam linear recurrence relation, 34.2(1996)182  
So: A Very General Determinant, 35.2(1997)186
- B-814 To: Fibonacci perfect square identities, 34.4(1996)373; Corrected, 35.1(1997)85  
So: Perfect Squares, 35.3(1997)278
- B-815 To: Six variable cubic equation, 34.4(1996)373  
So: Ternary Cubic Forms, 35.3(1997)278
- B-816 To: Fibonacci inequality, 34.4(1996)373  
So: Triple Rational Inequality, 35.3(1997)279
- B-817 To: Integers as the  $k^{\text{th}}$  root of a difference of Fibonacci sums, 34.4(1996)373  
So: Radical Integer, 35.3(1997)280

## ELEMENTARY PROBLEM INDEX

Edited by S. Rabinowitz

- B-818 To: Alternating sum of finite harmonic series, 34.4(1996)374  
So: Binomial Harmonic Sum, 35.3(1997)280
- B-819 To: Pell number identity, 34.4(1996)374  
So: Finding a Pellian Identity, 35.3(1997)282
- B-820 To: New Fibonacci recurrence relations, 34.5(1996)468  
So: Nonstandard Recurrence, 35.4(1997)372
- B-821 To: Area of Fibonacci rectangles, 35.1(1997)85  
So: Fibonacci Rectangle, 35.4(1997)373
- B-822 To: Roots of Fibonacci expressions, 35.1(1997)85  
So: A Tricky  $n^{\text{th}}$  Root, 35.4(1997)374
- B-823 To: Recurrence relation and Fibonacci and Lucas numbers, 35.1(1997)85  
So: Solving a Simple Recurrence, 35.4(1997)374
- B-824 To: Recurrence relation and Fibonacci and Lucas numbers, 35.1(1997)85  
So: Solving a Harder Recurrence, 35.4(1997)375
- B-825 To: Recurrence relation and divisors, 35.1(1997)86  
So: Divisors of Lucas Sequences, 35.4(1997)376
- B-826 To: Finding a recurrence relation, 35.2(1997)181  
So: It Keeps on Growing, 36.1(1998)86
- B-827 To: Recurrence relation and Fibonacci and Lucas numbers, 35.2(1997)181  
So: A Simple Third-Order Recurrence, 36.1(1998)87
- B-828 To: Combinatorial sum inequality, 35.2(1997)181  
So: Semi Fibonacci, 36.1(1998)87
- B-829 To: Fibonacci products and powers of 2, 35.2(1997)181  
So: Powers of 2, 36.1(1998)88
- B-830 To: Divisibility of Fibonacci numbers, 35.2(1997)181  
So: Offset Entries, 36.1(1998)89; Errata 36.2(1998)186
- B-831 To: Fibonacci/Lucas solution to a polynomial equation, 35.3(1997)277  
So: Minimal Polynomial, 36.1(1998)90
- B-832 To: Numerical identities, 35.3(1997)277  
So: Pattern Detective, 36.2(1998)182
- B-833 To: Lucas number solution to a polynomial, 35.3(1997)277  
So: Newton Meets Lucas, 36.2(1998)183
- B-834 To: Inequality relating to Fibonacci sums, 35.3(1997)278  
So: Radical Inequality, 36.2(1998)184; 36.4(1998)374
- B-835 To: Coin tosses and singles, 35.3(1997)278 Restated 58.1(2020)81  
So: The Third Oldie from the Vault (with comments; see B-899) 59.1(2021)83
- B-836 To: Fibonacci and Lucas identities, 35.4(1997)371  
So: Cryptarithmic Identity, 36.2(1998)185
- B-837 To: Divisibility of a polynomial remainder by a Fibonacci number, 35.4(1997)371;  
Corrected, 36.1(1998)86  
So: Polynomial Remainder, 36.2(1998)185
- B-838 To: Sequence of linear polynomials, 35.4(1997)371  
So: Composite Linear Recurrence, 36.2(1998)186
- B-839 To: Combinatorial sum in terms of Fibonacci numbers, 35.4(1997)372  
So: Weighted Binomial Sum, 36.4(1998)375
- B-840 To: Fibonacci/Lucas matrix, 35.4(1997)372  
So: An Arcane Formula for a Curious Matrix, 36.4(1998)376

## ELEMENTARY PROBLEM INDEX

Edited by S. Rabinowitz

- B-841 To: Sum of squares of solutions of recurrence relations, 35.4(1997)372  
So: Integer Quotient, 36.4(1998)376
- B-842 To: Lucas polynomials and divisibility, 36.1(1998)85  
So: Divisibility by  $x - 1$ , 36.4(1998)377
- B-843 To: Last three digits in  $L_{1998}$ (114), 36.1(1998)85  
So: It Repeats! 36.5(1998)468
- B-844 To: Fibonacci polynomial identity, 36.1(1998)85  
So: A Polynomial Identity, 36.5(1998)469
- B-845 To: Lucas polynomial identity, 36.1(1998)86  
So: Curious Commuting Composition, 36.5(1998)470
- B-846 To: Fibonacci polynomial sum, 36.1(1998)86  
So: Integer Sum, 36.5(1998)471
- B-847 To: Polynomial GCD for Fibonacci polynomial sums, 36.1(1998)86  
So: Polynomial GCD, 36.5(1998)472
- B-848 To: A Fibonacci identity, 36.2(1998)181  
So: Class Identity, 37.1(1999)86
- B-849 To: Fibonacci arithmetic progression, 36.2(1998)181  
So: Fibonacci Arithmetic Progression, 37.1(1999)86
- B-850 To: A Fibonacci identity, 36.2(1998)181  
So: Unknown Subscripts, 37.1(1999)87
- B-851 To: Finding a recurrence formula for a given sequence, 36.2(1998)181  
So: Repeating Series, 37.1(1999)87
- B-852 To: Determinant with Fibonacci entries, 36.2(1998)181  
So: The Determinant Vanishes, 37.1(1999)88
- B-853 To: Summing terms of a given sequence, 36.2(1998)181  
So: A Deranged Sequence, 37.1(1999)90
- B-854 To: Seeking an arctangent identity, 36.4(1998)373  
So: The Right Angle to Success, 37.2(1999)181
- B-855 To: Fibonacci ratio recurrence, 36.4(1998)373  
So: Recurrence for a Ratio, 37.2(1999)181
- B-856 To: Fibonacci inequality, 36.4(1998)373  
So: Weak Inequality, 37.2(1999)182
- B-857 To: Second order recurrence relation, 36.4(1998)373  
So: Linear Number of Digits, 37.2(1999)183
- B-858 To: Fibonacci convolutions, 36.4(1998)373  
So: Calculating Convolutions, 37.2(1999)183
- B-859 To: Fibonacci determinant, 36.4(1998)374  
So: Fun Determinant, 37.2(1999)184
- B-860 To: Second order recurrence and a perfect square, 36.5(1998)467  
So: A Perfect Square, 37.3(1999)278
- B-861 To: Second order recurrence relation, 36.5(1998)467  
So: Integer Coefficients?, 37.3(1999)279
- B-862 To: Fibonacci-Lucas LCM, 36.5(1998)467  
So: Large LCM, 37.3(1999)280
- B-863 To: Simplifying a matrix expression, 36.5(1998)468  
So: Matrix Lucas Sequence, 37.3(1999)280

## ELEMENTARY PROBLEM INDEX

Edited by S. Rabinowitz

- B-864 To: Properties of a second order recurrence, 36.5(1998)468  
So: Confound Those Congruences, 37.3(1999)281
- B-865 To: Derivatives in terms of Fibonacci and or Lucas numbers, 36.5(1998)468  
So:  $n^{\text{th}}$  Derivative, 37.4(1999)372
- B-866 To: Divisibility of a Lucas sum, 37.1(1999)85  
So: Divisibility by 25, 37.4(1999)372
- B-867 To: 1999 in a second order recursive sequence, 37.1(1999)85  
So: 1999 Belongs, 37.4(1999)373
- B-868 To: Fibonacci congruence, 37.1(1999)85  
So: Congruence Mod 25, 37.4(1999)373
- B-869 To: Fibonacci polynomial congruence, 37.1(1999)85  
So: A Polynomial for F, 37.4(1999)375
- B-870 To: Arctangent equation, 37.1(1999)85  
So: Trigonometric Diophantine Equation, 37.4(1999)376
- B-871 To: Combinatoric as a sum of combinatorics, 37.1(1999)85  
So: Absolute Sum, 38.1(2000)86
- B-872 To: Recurrence for a Fibonacci ratio, 37.2(1999)180  
So: Rational Recurrence, 38.1(2000)87
- B-873 To: Prime as a Lucas combination, 37.2(1999)180  
So: A Property of 3, 38.1(2000)87
- B-874 To: Fibonacci Mersenne numbers, 37.2(1999)180  
So: Another Property of 3, 38.1(2000)88
- B-875 To: Triangular Fermat numbers, 37.2(1999)180  
So: A Third Property of 3, 38.1(2000)88
- B-876 To: Sum of sine products of Fibonacci ratios, 37.2(1999)180  
So: Trigonometric Sum, 38.1(2000)88
- B-877 To: Determinant of Fibonacci products, 37.2(1999)181  
So: Determining the Determinant, 38.1(2000)89
- B-878 To: Harmonic mean of a Fibonacci and Lucas number, 37.3(1999)277  
So: Harmonic Inequality, 38.1(2000)90
- B-879 To: Fourth order linear recurrence relation, 37.3(1999)277  
So: A Recurrence of  $nF_n$ , 38.2(2000)182
- B-880 To: Fibonacci and/or Lucas sum, 37.3(1999)277  
So: A Sum for  $F_{2m+2}$ , 38.2(2000)182
- B-881 To: Simultaneous Fibonacci/Lucas equations, 37.3(1999)277  
So: Diophantine Pair, 38.2(2000)183
- B-882 To: Sum of members of a second order sequence, 37.3(1999)278  
So: A Multiple of  $F_{n+1}$ , 38.2(2000)184
- B-883 To: Number of values in the period of a Fibonacci sequence, 37.3(1999)278  
So: Property of a Periodic Sequence, 38.2(2000)185
- B-884 To: Fibonacci identity, 37.4(1999)371  
So: A Constant Summation, 38.4(2000)373
- B-885 To: Fibonacci combinatoric sum, 37.4(1999)371  
So: A Unit Summation, 38.4(2000)373
- B-886 To: Fibonacci fourth root identity, 37.4(1999)371; 57.4(2019)367  
So: \*\*\*\*\*

## ELEMENTARY PROBLEM INDEX

**Edited by S. Rabinowitz**

- B-887 To: Fibonacci combinatoric sum, 37.4(1999)371  
So: Some Sum, 38.4(2000)375
- B-888 To: Symmetric matrix sequence, 37.4(1999)372  
So: Determine the Determinant, 38.4(2000)376
- B-889 To: Consecutive Fibonacci numbers, 38.1(2000)85  
So: A Fibonacci Average Which is a Lucas Number 38.5(2000)468
- B-890 To: Fibonacci identity, 38.1(2000)85  
So: A Sum of Products Equals Zero 38.5(2000)469
- B-891 To: Lucas-Pell congruence, 38.1(2000)85  
So: A Lucas-Pell congruence 38.5(2000)470
- B-892 To: Fibonacci squares mod 47, 38.1(2000)85  
So: A Perfect Square Only When Modulo 47 38.5(2000)471
- B-893 To: Fibonacci identity, 38.1(2000)85  
So: A Sum of Product of Fibonacci Numbers That Is Identically Zero  
38.5(2000)471
- B-894 To: Fibonacci identity, 38.1(2000)85  
So: An Exponential Equation With Fibonacci Base 39.1(2001)86
- B-895 To: Recurrence for  $F_{n^2}$ , 38.2(2000)181  
So: A Recurrence for  $F_{n^2}$  39.1(2001)87
- B-896 To: Fibonacci identity, 38.2(2000)181  
So: An Independent Constant Fibonacci Sum 39.1(2001)88
- B-897 To: Recurrence relation with Fibonacci/Lucas solutions, 38.2(2000)181  
So: An Initial Value Problem 39.1(2001)89
- B-898 To: Fibonacci combinatorial sum, 38.2(2000)181  
So: Some Fibonacci Sum 39.1(2001)89
- B-899 To: Coin tossing congruence, 38.2(2000)181  
So: It's A Toss 39.2(2001)182

**Edited by Russ Euler & Jawad Sadek**

- B-900 To: Arctangents and rational numbers, 38.4(2000)372  
So: Always Rational 39.2(2001)183
- B-901 To: Limit from a second order sequence, 38.4(2000)372  
So: Back to Euler 39.2(2001)184
- B-902 To: Combinatorial sums of Pell polynomials, 38.4(2000)372  
So: A Pell Polynomials Identity 39.2(2001)185
- B-903 To: Summing a polynomial with square Fibonacci coefficients, 38.4(2000)372  
So: An Old Generation Function 39.2(2001)185
- B-904 To: Finding equal Fibonacci and Lucas numbers, 38.4(2000)373  
So: A Fibonacci-Lucas Equality 39.2(2001)186
- B-905 To: Finding a Fibonacci summation identity, 38.4(2000)373  
So: A Three-Term sum 39.2(2001)186
- B-906 To: Determinant representation of Fibonacci numbers 38.5(2000)467  
So: Determine the Determinant 39.4(2001)374
- B-907 To: Fibonacci inequality 38.5(2000)468  
So: Fibonacci Bases and Exponents 39.4(2001)375
- B-908 To: Fibonacci polynomial identity 38.5(2000)468  
So: A fibonacci Polynomial Identity 39.4(2001)376



## ELEMENTARY PROBLEM INDEX

**Edited by Russ Euler & Jawad Sadek**

- B-909 To: Fibonacci summation identity 38.5(2000)468  
So: Some Product 39.4(2001)376
- B-910 To: Triangular numbers and primes 38.5(2000)468  
So: A Diophantine Equation 39.4(2001)377
- B-911 To: Divisibility of a Lucas expression by 5 39.1(2001)85  
So: Divisible or Not Divisible; That Is by 5, 39.5(2001)468
- B-912 To: Lucas product as a Fibonacci sum 39.1(2001)85  
So: From a Product to a Sum 39.5(2001)468
- B-913 To: Fibonacci "accelerated" sequence identities 39.1(2001)85  
So: A "Constant" Search 39.5(2001)469
- B-914 To: Fibonacci product/sum inequality 39.1(2001)86  
So: A "Product and Sum" Identity 39.5(2001)470
- B-915 To: Fibonacci summation inequality 39.1(2001)86  
So: A "Double Sum" Inequality 39.5(2001)471
- B-916 To: Lucas product 39.2(2001)181  
So: Subscript Is Power 40.1(2002)86
- B-917 To: Lucas Sums 39.2(2001)181  
So: A Two Sum Problem 40.1(2002)87
- B-918 To: Fibonacci sum 39.2(2001)181  
So: Divisible or Not Divisible; That Is, by 2, 40.1(2002)87
- B-919 To: Fibonacci Lucas product 39.2(2001)182  
So: A Prime equation 40.1(2002)88
- B-920 To: Fibonacci sine cosine sum 39.2(2001)182  
So: A Trigonometric Sum 40.1(2002)89
- B-921 To: Relatively prime Fibonacci numbers 39.4(2001)373  
So: A relatively Prime Fibonacci Couple 40.2(2002)182
- B-922 To: Primes and Fibonacci residues 39.4(2001)373  
So: A Prime Search 40.2(2002)183
- B-923 To: Continued fractions, sums and a Fibonacci inequality 39.4(2001)373  
So: The Fraction Continues 40.2(2002)183
- B-924 To: Fibonacci Lucas polynomial identities 39.4(2001)374  
So: A Generalization of a Lucas Numbers Identity 40.2(2002)184
- B-925 To: Fibonacci sums and divisibility 39.5(2001)467  
So: Some Sums Divide Another 40.4(2002)373
- B-926 To: Fibonacci reciprocal sums as exponents 39.5(2001)467  
So: Find the Limit 40.4(2002)374
- B-927 To: Generalized Fibonacci identity 39.5(2001)467  
So: A More General Identity 40.4(2002)374
- B-928 To: Fibonacci polynomial summation identity 39.5(2001)468  
So: A Complex Fibonacci Polynomial 40.4(2002)375
- B-929 To: Legendre polynomial sums as Fibonacci and Lucas numbers 39.5(2001)468  
So: Between Fibonacci, Lucas, and Legendre 40.4(2002)376
- B-930 To: Fibonacci inequality 40.1(2002)85  
So: An Inequality and an Equality Case 40.5(2002)468
- B-931 To: Fibonacci Lucas gcd 40.1(2002)85  
So: A Relatively Prime Couple 40.5(2002)469

## ELEMENTARY PROBLEM INDEX

**Edited by Russ Euler & Jawad Sadek**

- B-932 To: Fibonacci inequalities 40.1(2002)85  
So: A Strict Inequality and a Serious Series 40.5(2002)469
- B-933 To: Fibonacci inequality 40.1(2002)85  
So: A Special Case of a More General Inequality 40.5(2002)470
- B-934 To: Fibonacci sine cosine identity 40.1(2002)86  
So: A Trigonometric Fibonacci Equality 40.5(2002)471
- B-935 To: Fibonacci sine inequality 40.2(2002)181  
So: A Fibonacci Sine 41.1(2003)86
- B-936 To: Fibonacci equation 40.2(2002)181  
So: Exclusive Roots 41.1(2003)87
- B-937 To: Fibonacci Lucas equations 40.2(2002)181  
So: Some Identities 41.1(2003)87
- B-938 To: Fibonacci Lucas summation formulas 40.2(2002)182  
So: Series Problem 41.1(2003)88
- B-939 To: Fibonacci binomial coefficients summation formulas 40.2(2002)182  
So: Identities Problem 41.1(2003)89
- B-940 To: Perfect squares and sums of Fibonacci factorials 40.4(2002)372  
So: Circle Squares 41.2(2003)182
- B-941 To: Fibonacci inequality 40.4(2002)372  
So: It is Always Negative 41.2(2003)183
- B-942 To: Fibonacci approximations to Lucas numbers 40.4(2002)372  
So: As Close As It Gets 41.2(2003)183
- B-943 To: Fibonacci Lucas inequality 40.4(2002)372  
So: Inequality, Equality Matters 41.2(2003)184
- B-944 To: Fibonacci Lucas congruence 40.4(2002)373  
So: A Prime Congruence 41.2(2003)185
- B-945 To: Fibonacci binomial product sum 40.4(2002)372  
So: A Simplier Expression 41.2(2003)186
- B-946 To: Fibonacci Lucas sums 40.5(2002)467  
So: When Do They Converge? 41.4(2003)375
- B-947 To: Polynomials with Fibonacci arguments 40.5(2002)467  
So: Integral and Nonsquare! 41.4(2003)376
- B-948 To: Logarithmic inequalities with Fibonacci bases 40.5(2002)467  
So: A Series Inequality 41.4(2003)377
- B-949 To: Fibonacci and Lucas summation identities 40.5(2002)468  
So: Couples Congruence 41.4(2003)378
- B-950 To: Fibonacci summation congruence 40.5(2002)468  
So: Primes ... Again 41.4(2003)379
- B-951 To: Nonlinear recurrence relation 41.1(2003)85  
So: Another Fibonacci Sequence 41.5(2003)467
- B-952 To: Fibonacci identity 41.1(2003)85  
So: And ... a Fibonacci Identity 41.5(2003)468
- B-953 To: Fibonacci non square relation 41.1(2003)85  
So: Never Perfect! 41.5(2003)469
- B-954 To: Fibonacci-Lucas identity 41.1(2003)86  
So: A Fibonacci floor-and-ceiling Equality 41.5(2003)470

## ELEMENTARY PROBLEM INDEX

**Edited by Russ Euler & Jawad Sadek**

- B-955 To: Fibonacci inequality 41.1(2003)86  
So: A Strict Inequality 41.5(2003)470
- B-956 To: Bounds for sums of reciprocals of Lucas numbers 41.2(2003)181  
So: Estimate Even Lucas 42.1(2004)88
- B-957 To: Lucas identities 41.2(2003)181  
So: Two Lucas Equalities 42.1(2004)88
- B-958 To: GCD of sums of Lucas and squared Lucas numbers 41.2(2003)182  
So: The Greatest Common Divisor Is... 42.1(2004)89
- B-959 To: Summing an infinite series 41.2(2003)182  
So: Sum the Sum 42.1(2004)90
- B-960 To: Fibonacci identity 41.2(2003)182  
So: A Fibonacci Identity 42.1(2004)90
- B-961 To: A Lucas identity 41.4(2003)374  
So: A Constant Sum 42.2(2004)182
- B-962 To: A product of Fibonacci ratios 41.4(2003)374  
So: An Infinite Fibonacci Product 42.2(2004)182
- B-963 To: A Fibonacci inequality 41.4(2003)374  
So: A Simple Lower Bound for a Fibonzcci Fraction 42.2(2004)183
- B-964 To: Fibonacci-Lucas recurrence relation 41.4(2003)375  
So: Fibonacci to Lucas 42.2(2004)184
- B-965 To: A ratio of Fibonacci factorials 41.4(2003)375  
So: A Fancy Integer 42.2(2004)184
- B-966 To: A reciprocal Fibonacci recurrence relation 41.5(2003)466  
So: A recurrence Relation 42.3(2004)279
- B-967 To: A Fibonacci triangle number relation 41.5(2003)466  
So: A Fibonacci Integral Pattern 42.3(2004)279
- B-968 To: A Fibonacci ratio summation identity 41.5(2003)466  
So: Find its Limit! 42.3(2004)280
- B-969 To: A Fibonacci ratio summation identity 41.5(2003)467  
So: Much Ado About  $\frac{4}{3}$  42.3(2004)280
- B-970 To: Four second-order recurrence relation interrelationships 41.5(2003)467  
So: Three Formulas 42.3(2004)280
- B-971 To: Areas under curves on Fibonacci number intervals 42.1(2004)86  
So: A Golden Area 42.4(2004)371
- B-972 To: Trace recurrence for powers of a  $3 \times 3$  matrix 42.1(2004)87  
So: Trace the "Trace" 42.4(2004)372
- B-973 To: Fibonacci ratio summation inequality 42.1(2004)87  
So: A Series Estimate 42.4(2004)373
- B-974 To: Fibonacci Lucas inequality 42.1(2004)87  
So: Minkowski Meets Fibonacci 42.4(2004)373
- B-975 To: Closed forms for Fibonacci and Lucas finite sums 42.1(2004)87  
So: Close Them Up! 42.4(2004)374
- B-976 To: Lucas identity 42.2(2004)181  
So: A Pythagorean-Like Inequality 43.1(2005)86
- B-977 To: Golden powers 42.2(2004)181  
So: The Integral Connection 43.1(2005)87

## ELEMENTARY PROBLEM INDEX

**Edited by Russ Euler & Jawad Sadek**

- B-978 To: Determinant of a matrix with sequential elements 42.2(2004)181  
So: Determine the Determinant 43.1(2005)88
- B-979 To: Limit of a difference of Fibonacci roots 42.2(2004)181  
So: The Limit Vanishes 43.1(2005)89
- B-980 To: Ratio of Lucas sums 42.2(2004)182  
So: Always One 43.1(2005)90
- B-981 To: Fibonacci summation identity 42.3(2004)277  
So: A Simplified Sum 43.2(2005)182
- B-982 To: Fibonacci and Lucas sums 42.3(2004)277  
So: Odd Sums! 43.2(2005)183
- B-983 To: Fibonacci numbers in a system of equations 42.3(2004)277  
So: Integral Solutions to a Nonlinear System 43.2(2005)184
- B-984 To: A Diophantine equation with Fibonacci/Lucas solutions 42.3(2004)278  
So: A Lucas-Fibonacci-Diophantine Connection 43.2(2005)185
- B-985 To: Recurrences with Pellian subscripts 42.3(2004)278  
So: Two Recurrence Relations 43.2(2005)186
- B-986 To: Fibonacci summation identity 42.4(2004)370; 43.4(2005)372  
So: A Closed Form for a Fibonacci Sum 43.3(2005)279
- B-987 To: Probability and Fibonacci numbers 42.4(2004)370  
So: Another Toss 43.3(2005)279
- B-988 To: Lucas and Fibonacci product identities 42.4(2004)370  
So: It's All in the Parity 43.3(2005)280
- B-989 To: Fibonacci summation inequality 42.4(2004)371  
So: A Lower Bound for a Fibonacci Sum 43.3(2005)281
- B-990 To: Fibonacci and Lucas bivariate polynomial identities 42.4(2004)371  
So: Two Binomial-Type Identities 43.3(2005)282
- B-991 To: Fibonacci magic square 43.1(2005)85  
So: A Magic Square 43.4(2005)373
- B-992 To: Lucas congruence equation 43.1(2005)85  
So: In the End, It's Just 4, 43.4(2005)3734
- B-993 To: Fibonacci-Lucas identities 43.1(2005)86  
So: Much Ado About Zeroes! 43.4(2005)374
- B-994 To: Fibonacci-Lucas divisibility relation 43.1(2005)86  
So: A Divisor's Condition 43.4(2005)375
- B-995 To: Lucas polynomial identities 43.1(2005)86  
So: Two Lucas Polynomial Identities 43.4(2005)375
- B-996 To: Lucas congruence equations 43.2(2005)181  
So: Two Lucas Congruences 44.1(2006)87
- B-997 To: Lucas summation identity 43.2(2005)181  
So: Simplify the Sum 44.1(2006)87
- B-998 To: Fibonacci, Lucas, Pell rational expression as an integer 43.2(2005)182  
So: Easier Than How It Looks 44.1(2006)88
- B-999 To: Exponential Fibonacci summation inequalities 43.2(2005)182  
So: Fibonacci Exponentiated 44.1(2006)89
- B-1000 To: Fibonacci divisibility property 43.2(2005)182  
So: A Divisibility Issue 44.1(2006)89

## ELEMENTARY PROBLEM INDEX

**Edited by Russ Euler & Jawad Sadek**

- B-1001 To: Pythagorean triangles and a Fibonacci/Lucas/trig identity 43.3(2005)277  
So: Inverse Sines, Fibonacci and Pi! 44.2(2006)182
- B-1002 To: Fibonacci reciprocal summation identity 43.3(2005)278  
So: A Series Identity 44.2(2006)184
- B-1003 To: Fibonacci- Lucas identity 43.3(2005)278  
So: The Index is Odd, The Number is Squared 44.2(2006)185
- B-1004 To: Limit of a rational fraction of Fibonacci sums 43.3(2005)278  
So: Double the Trouble 44.2(2006)186
- B-1005 To: Fibonacci binomial summation identity 43.3(2005)278  
So: A Tough Sum 44.3(2006)278
- B-1006 To: Sequences for legs of Pythagorean triangles 43.4(2005)371  
So: A Sequence of Pythagorean Triangles 44.3(2006)279
- B-1007 To: Summation leading to golden powers maybe? 43.4(2005)371  
So: Evaluate the Infinite Sum 44.3(2006)280
- B-1008 To: 4 by 4 system of equations 43.4(2005)372  
So: An Odd Type system 44.3(2006)281
- B-1009 To: Fibonacci summation inequality 43.4(2005)372  
So: A Fibonacci Inequality 44.3(2006)282
- B-1010 To: Fibonacci congruence 44.1(2006)85  
So: An Identity Problem! 44.4(2006)372
- B-1011 To: Fibonacci-Lucas identity 44.1(2006)85; Corrected 44.2(2006)181  
So: A Binomial Type Identity 44.4(2006)372
- B-1012 To: Sums of arctangents of Fibonacci reciprocals 44.1(2006)86  
So: A Sum of ArcTangents 44.4(2006)373
- B-1013 To: Fibonacci inequality 44.1(2006)86  
So: A Convex Inequality 44.4(2006)374
- B-1014 To: Sums of negative powers of golden numbers 44.1(2006)86;  
Corrected 44.2(2006)181  
So: A Geometric Series 44.4(2006)375
- B-1015 To: Fibonacci-Lucas inequality 44.1(2006)86; Corrected 44.3(2006)277  
So: It Follows from Hölder 45.1(2007)86
- B-1016 To: Fibonacci-Lucas determinant 44.2(2006)182  
So: A Fibonacci-Lucas Determinant 45.1(2007)87
- B-1017 To: Fourth order recursion and Fibonacci numbers 44.2(2006)182;  
Corrected 44.3(2006)277  
So: A Recurrence Relation for Fibonacci Numbers 45.1(2007)88
- B-1018 To: Function of Fibonacci and Lucas nrs and binomial coefficients 44.2(2006)182  
So: It Only Looks Complicated! 45.1(2007)89
- B-1019 To: 2<sup>nd</sup> order recursion with golden limit ratio of successive terms 44.3(2006)278  
So: Another Recursive Relation and Fibonacci 45.2(2007)182
- B-1020 To: Fibonacci sum-product identities and a second order recursion 44.3(2006)278  
So: Two Fibonacci Identities 45.2(2007)183
- B-1021 To: Fibonacci sum identity format for arbitrary integers 44.4(2006)370  
So: A Sum as a Product 45.2(2007)185
- B-1022 To: Identity for the product of two consecutive identities 44.4(2006)370  
So: A Quartic as a Sum of Two Squares 45.2(2007)185

## ELEMENTARY PROBLEM INDEX

Edited by Russ Euler & Jawad Sadek

- B-1023 To: Pythagorean-like Fibonacci identity 44.4(2006)371  
So: And a Cubic as a Sum of Two Squares 45.2(2007)186
- B-1024 To: Fibonacci-Lucas inequality 44.4(2006)371  
So: A Difference of Two Geometric Means 45.3(2007)279
- B-1025 To: Fibonacci-binomial coefficient inequality 44.4(2006)371  
So: An Exponential Inequality 45.3(2007)279
- B-1026 To: Golden number and the area of a pentagon 45.1(2007)85  
So: Area of Regular Pentagon 45.3(2007)280
- B-1027 To: Pell numbers and a third order recurrence relation 45.1(2007)85  
So: A Constant Ratio 45.3(2007)281
- B-1028 To: Pythagorean equation with alpha and beta 45.1(2007)85  
So: No Solution for this Equation! 45.3(2007)282
- B-1029 To: Square root of a sum of fourth powers of Pell numbers 45.1(2007)856  
So: A Square Root of a Pell Number Polynomial 45.4(2007)370
- B-1030 To: Pell-Fibonacci congruences and the gcd of a Pell-Fibonacci string 45.1(2007)856  
So: Pell and Fibonacci Number Equalities 45.4(2007)370
- B-1031 To: Limit of a ratio of Fibonacci numbers 45.2(2007)181  
So: There Is a Limit! 45.4(2007)371
- B-1032 To: Fibonacci identity 45.2(2007)181  
So: One Term is 1 More Than the Other 45.4(2007)372
- B-1033 To: Sum of entries in a triangular array 45.2(2007)181  
So: A Fibonacci Array 45.4(2007)374
- B-1034 To: Polynomials with a Lucas/Fib sum, difference or product as variable 45.2(2007)182  
So: One Functional Identity 46/47.1(2008/2009)86
- B-1035 To: Mod 6 recursion relation 45.2(2007)182  
So: An Identity ... (mod 6)! 46/47(2008/2009)86
- B-1036 To: Inequality for sums of reciprocals of Fibonacci numbers 45.3(2007)277  
So: An Inequality with inverse Fibonacci Numbers 46/47.1(2008/2009)87
- B-1037 To: Divisibility of Fibonacci and Lucas products 45.3(2007)277  
So: Fibonacci and Lucas Numbers Modulo A Prime 46/47.1(2008/2009)88
- B-1038 To: Divisibility of sums of powers of Fibonacci numbers 45.3(2007)278  
So: A Matter of Regrouping! 46/47.1(2008/2009)88
- B-1039 To: Inequality for reciprocal products of Fibonacci numbers 45.3(2007)278  
So: A Sum of Inverse of Fibonacci Numbers 46/47.1(2008/2009)88
- B-1040 To: Summation identities for binomial coefficients 45.4(2007)368  
So: Three Vanishing Sums 46/47.2(2008/2009)182
- B-1041 To: Limit of a ratio of square roots of Fibonacci numbers 45.4(2007)369  
So: A Simple Limit 46/47.2(2008/2009)183
- B-1042 To: Inequality for ratios of triangular and Fibonacci numbers 45.4(2007)369  
So: Triangular and Fibonacci Number Inequality 46/47.2(2008/2009)184
- B-1043 To: Inequalities for powers and products of Fibonacci numbers 45.4(2007)369  
So: Estimate for a Weighted Product 46/47.2(2008/2009)185
- B-1044 To: Fibonacci-Lucas identities 46/47.1(2008/2009)85  
So: Lucas and Fibonacci Squares 46/47.3(2008/2009)280
- B-1045 To: Fibonacci-Lucas sum-product identity 46/47.1(2008/2009)85  
So: Sum of a Product 46/47.3(2008/2009)281
- B-1046 To: Fibonacci congruence equation 46/47.1(2008/2009)85  
So: A Lot of Zeros! 46/47.3(2008/2009)280

## ELEMENTARY PROBLEM INDEX

Edited by Russ Euler & Jawad Sadek

- B-1047 To: Fibi-Lucas inequality 46/47.2(2008/2009)181; Corrected: 46/47.3(2008/2009)279  
So: A Radical Inequality 46/47.4(2008/2009)370
- B-1048 To: Fibonacci-Lucas-tangent inequality 46/47.2(2008/2009)181  
So: A Squeezed Fibonacci Fraction 46/47.4(2008/2009)371
- B-1049 To: Fibonacci-Lucas identities 46/47.2(2008/2009)182  
So: Two Cubic Identities 46/47.4(2008/2009)371
- B-1050 To: Q-matrix formula for generalized Fibonacci numbers 46/47.2(2008/2009)182  
So: A Recurrence Relation 46/47.4(2008/2009)372
- B-1051 To: Fibonacci-Lucas inequality 46/47.3(2008/2009)279  
So: A Quartic Inequality 48.3(2010)279
- B-1052 To: Sum of ratios of convolved Fibonacci numbers 46/47.3(2008/2009)280  
So: A Convoluted Identity 48.3(2010)279
- B-1053 To: Inequality of cube roots of products of Fibonacci nrs 46/47.3(2008/2009)280  
So: Cubic root Inequality 48.3(2010)280
- B-1054 To: Convergence of a sequence of ratios of Fibonacci nrs 46/47.3(2008/2009)280  
So: a Converging Fibonacci quotient 48.3(2010)281
- B-1055 To: Diophantine quadratic equation in two variables 46/47.3(2008/2009)280  
So: Diophantine Equation But Fibonacci Solutions 48.3(2010)281
- B-1056 To: Fibonacci, Lucas, Pell inequality 46/47.4(2008/2009)369  
So: Fibonacci, Lucas and Pell Numbers Inequality 48.4(2010)367
- B-1057 To: Lucas congruence identity 46/47.4(2008/2009)369  
So: A Mod Power 48.4(2010)368
- B-1058 To: Fibonacci Lucas identities 46/47.4(2008/2009)370  
So: Two Identities for Quartic Fibonacci and Lucas Numbers 48.4(2010)369
- B-1059 To: Fibonacci Lucas identities 46/47.4(2008/2009)370  
So: Linear Combinations of Squares of Fibonacci and Lucas Numbers 48.4(2010)370
- B-1060 To: Fibonacci Lucas summation inequality 46/47.4(2008/2009)370  
So: A Putative Inequality! 48.4(2010)371
- B-1061 To: Fibonacci summation-product identity 48.1(2010)87  
So: Sum of Products 49.1(2011)84
- B-1062 To: Identity involving the sum of the squares of 3 Fibonacci numbers 48.1(2010)87  
So: A Lot of Sums! 49.1(2011)84
- B-1063 To: Fibonacci-Lucas inequality 48.1(2010)88  
So: Another Sum and a Product 49.1(2011)85
- B-1064 To: Sum of the cubes of generalized Fibonacci numbers 48.1(2010)88  
So: Generalized Fibonacci Polynomials ... Again! 49.1(2011)86
- B-1065 To: Evaluating the sum of ratios of Pell numbers 48.1(2010)88  
So: A Sum of Pell Numbers 49.1(2011)87
- B-1066 To: Nested square roots of 1 + even subscripted Fibonacci numbers 48.2(2010)182  
So: A Sequence of Nested Radicals 49.2(2011)182
- B-1067 To: Find the closed form for a fine sum of  $k(F_k)^3$  48.2(2010)183  
So: Close the Sum! 49.2(2011)183
- B-1068 To: Find the limit of a 2<sup>nd</sup> order recurrence in terms of Lucas numbers 48.2(2010)183  
So: Limit of a Sequence 49.2(2011)184
- B-1069 To: Find a matrix whose n<sup>th</sup> power contains Fibonacci and Lucas terms 48.2(2010)183  
So: A Fibonacci "Dis-array"! 49.2(2011)184
- B-1070 To: Tangent/arctangent identity 48.2(2010)183  
So: A Trigonometric Identity 49.2(2011)185

## ELEMENTARY PROBLEM INDEX

Edited by Russ Euler & Jawad Sadek

- B-1071 To: Fibonacci identities 48.3(2010)277  
So: Higher Powers Equalities 49.3(2011)275
- B-1072 To: Fibonacci summation inequality 48.3(2010)278  
So: Weighted Averages Type Inequalities 49.3(2011)275
- B-1073 To: Fibonacci Diophantine triple 48.3(2010)278  
So: A Diophantine Triple in Fibonacci Numbers 49.3(2011)276
- B-1074 To: Inequality involving radicals of ratios of Fibonacci and Lucas nrs 48.3(2010)278  
So: A HM-GM Inequality Application 49.3(2011)277
- B-1075 To: Inverse relation for Fibonacci polynomials 48.3(2010)278  
So: An “Inverse” Relation 49.4(2011)369
- B-1076 To: Find a closed form for a product involving Lucas numbers 48.4(2010)366  
So: A Closed Form For a finite Product 49.3(2011)279
- B-1077 To: Identity involving 4<sup>th</sup> powers of Fibonacci numbers 48.4(2010)367  
So: One of Many! 49.4(2011)370
- B-1078 To: Inequality involving sums of logs of Fibonacci numbers 48.4(2010)367  
So: Logarithmic Sum 49.4(2011)371
- B-1079 To: Fibonacci congruence mod Lucas numbers 48.4(2010)367  
So: True but Not Strong Enough! 49.4(2011)372
- B-1080 To: Identity involving 2<sup>nd</sup> and 3<sup>rd</sup> powers of Fibonacci numbers 48.4(2010)367  
So: The Cubic Factor 49.4(2011)372
- B-1081 To: Fibonacci-Lucas identity 49.1(2011)82  
So: From Cassini’s Identity 50.1(2012)84
- B-1082 To: k-Fibonacci summation identity 49.1(2011)83  
So: An “Odd” Equality 50.1(2012)84
- B-1083 To: Closed form for a finite binomial-Fibonacci sum 49.1(2011)83  
So: Much Ado About  $F_n$  50.1(2012)86
- B-1084 To: Fibonacci sum/product inequality 49.1(2011)83  
So: And by the AM-GM Inequality... 50.1(2012)87
- B-1085 To: Fibi inequality involving a sequence with sequential coefficients 49.1(2011)83  
So: A Fibonacci Fraction 50.1(2012)87
- B-1086 To: Proving a ratio of sums of Fibonacci nrs is an integer and finding it 49.2(2011)180  
So: It Is Two! 50.2(2012)182
- B-1087 To: Evaluating a product of ratios of sums of fibonacci numbers 49.2(2011)181  
So: It Is Two, Too! 50.2(2012)183
- B-1088 To: Inequality involving Lucas nrs and a first order non linear sequence 49.2(2011)181  
So: A “Well-Connected” Sequence 50.2(2012)183
- B-1089 To: Divisibility and products of sums of permutations of a sequence 49.2(2011)181  
So: A “Loaded Divisibility” Problem 50.2(2012)184
- B-1090 To: Sums for 2<sup>nd</sup> kind Stirling nrs, Fib nrs and the falling factorial  $f_{tn}$  49.2(2011)181  
So: A “Sterling” Sum 50.2(2012)185
- B-1091 To: Verify a limit of a sequence of inverses of inverses of Fibonacci nrs 49.3(2011)273  
So: A Rate of Growth of Sum of Reciprocal Fibonacci Numbers Sum 50.3(2012)274
- B-1092 To: Double summation involving products of Fibonacci numbers 49.3(2011)274  
So: Back Again!“Snake Oiled” Identity 50.3(2012)274
- B-1093 To: Combinatorial sum leading to a Fibonacci identity 49.3(2011)274  
So: “Snake Oiled” Identity 50.3(2012)275
- B-1094 To: Another combinatorial sum leading to a Fibonacci identity 49.3(2011)274  
So: The “Snake Oil Method” Again 50.3(2012)276



## ELEMENTARY PROBLEM INDEX

Edited by Russ Euler & Jawad Sadek

- B-1095 To: Identity for the sum of matrices satisfying the Fibonacci Recursion 49.3(2011)274  
So: A Linear Combination of  $k$ -Fibonacci Nrs “Snake Oiled” Identity 50.3(2012)278
- B-1096 To: Fibonacci-Lucas double sum identity 49.4(2011)367  
So: An Identity Involving Sums of Ratios of Fibonacci and Lucas Nrs 50.4(2012)368
- B-1097 To: Sums of inverse tangents of a ratio of Fibonacci-Lucas expressions 49.4(2011)368  
So: An Infinite Arctangent Series 50.4(2012)368
- B-1098 To: Lucas product -sum inequality 49.4(2011)368  
So: By Means of the Geometric and Arithmetic Means 50.4(2012)369
- B-1099 To: Three Fibonacci-Lucas summation identities 49.4(2011)368  
So: On  $k$ -Fibonacci and  $k$ -Lucas Numbers 50.4(2012)370
- B-1100 To: Four Fibonacci-Lucas summation identities 49.4(2011)368  
So: More of  $k$ -Fibonacci and  $k$ -Lucas Numbers 50.4(2012)371
- B-1101 To: Fibonacci arctangent inequality 50.1(2012)82  
So: The Ubiquitous AM-GM Inequality 51.1(2013)86
- B-1102 To: Cube roots of Fibonacci and Lucas numbers inequality 50.1(2012)83  
So: From the Weighted AM-GM Inequality 51.1(2013)86
- B-1103 To: Finding the value of a Fibonacci-Lucas expression 50.1(2012)83  
So: An Extension to Negative Subscripts 51.1(2013)87
- B-1104 To: Fibonacci-Lucas summation identity 50.1(2012)83  
So: A Symmetrical Identity 51.1(2013)88
- B-1105 To: Proving identities involving Fibonomial coefficients in a sum 50.1(2012)83  
So: Fibonomial Coefficients 51.1(2013)89
- B-1106 To: Fibonacci summ congruence identity 50.2(2012)180  
So: It Adds Up to Naught 51.2(2013)179
- B-1107 To: Sums of powers of Fibonacci reciprocals 50.2(2012)181  
So: Evaluating a Double Sum with Inverse Fibonacci Numbers 51.2(2013)180
- B-1108 To: Fibonacci number-triangle number inequality 50.2(2012)181  
So: A Fibonacci and Triangular Numbers Inequality 51.2(2013)181
- B-1109 To: Proving several Fibonacci inequalities 50.2(2012)181  
So: Candido’s Identity Inspired Inequalities 51.2(2013)182
- B-1110 To: Identities involving  $k$ -Fibonacci and  $k$ -Lucas numbers 50.2(2012)181  
So: Closed Forms for Sums of Squares 51.2(2013)183
- B-1111 To: Sum identity involving the ceiling function and Fibonacci nrs 50.3(2012)272  
So: Fibonacci Numbers Divided by 11 51.3(2013)276
- B-1112 To: A fifth power Fibonacci expression 50.3(2012)273  
So: The Fifth and Seventh Powers of Fibonacci Numbers 51.3(2013)277
- B-1113 To: Fibonacci inequality 50.3(2012)273  
So: Nesbitt Type Inequality with Fibonacci Numbers 51.3(2013)278
- B-1114 To: Inequality involving the sum of a tangent of Fibonacci numbers 50.3(2012)273  
So: A Simple Inequality 51.3(2013)279
- B-1115 To: Limit of a product of Fibonacci sums 50.3(2012)273  
So: A Product Involving a Series with Inverse Fibonacci numbers 51.3(2013)280
- B-1116 To: Mod 5 combinations of Fibonacci, Lucas and triangular numbers 50.4(2012)366  
So: Another Division by 5 51.4(2013)369
- B-1117 To: Summation inequalities involving Fibonacci and Lucas numbers 50.4(2012)367  
So: Two Sums with Square Roots 51.4(2013)369
- B-1118 To: Identities involving squares of Fibonacci numbers 50.4(2012)367  
So: Quadratic Inequalities 51.4(2013)370

## ELEMENTARY PROBLEM INDEX

Edited by Russ Euler & Jawad Sadek

- B-1119 To: Inequality involving Fibonacci numbers and trigonometric functions 50.4(2012)367  
So: A Trig and Fibonacci Amalgam 51.4(2013)371
- B-1120 To: Prove or disprove a mod 5 Fibonacci congruence 50.4(2012)367  
So: Periodic Sequences 51.4(2013)373
- B-1121 To: Fibonacci and Lucas inequalities 51.1(2013)85  
So: Inequalities with 4's 52.1(2014)82
- B-1122 To: Congruence for Fibonacci numbers with Euler function subscripts 51.1(2013)85  
So: An Odd Mod 52.1(2014)82
- B-1123 To: Fibonacci summation and square root inequality 51.1(2013)85  
So: Square Roots and Cubes of Fibonacci Numbers 52.1(2014)83
- B-1124 To: Fibonacci summation inequalities 51.1(2013)85  
So: Greater Than Half the Number of Terms 52.1(2014)84
- B-1125 To: Inequality involving Lucas number expressions 51.1(2013)85  
So: A Lucas Sum 52.1(2014)85
- B-1126 To: Inequality involving roots of products of Fibonacci expressions 51.2(2013)177  
So: Nth Root of a Product 52.2(2014)179
- B-1127 To: Fibonacci identities 51.2(2013)178  
So: A Part of a Bigger Problem! 52.2(2014)180
- B-1128 To: Inequality involving Fibonacci expressions 51.2(2013)178  
So: It Could Be A Rational Bound 52.2(2014)181
- B-1129 To: Fibonacci-Lucas inequalities 51.2(2013)178  
So: Inequalities Generalized 52.2(2014)182
- B-1130 To: Inequality involving Fibonacci expressions 51.2(2013)178  
So: Almost Déjà vu! 52.2(2014)183
- B-1131 To: Fibonacci summation identities 51.3(2013)274  
So: Tedious But Pretty Identities 52.3(2014)276
- B-1132 To: Fibonacci inequalities 51.3(2013)275  
So: The AM-GM Inequality Paves the Way 52.3(2014)276
- B-1133 To: Summing a series of inverse products of integers 51.3(2013)275  
So: The Value of a Series of Reciprocal Fibonacci Numbers 52.3(2014)277
- B-1134 To: Product and sum inequality of Fibonacci numbers 51.3(2013)275  
So: Easier Than It Looks 52.3(2014)278
- B-1135 To: Inequality involving reciprocal sums of Fib and Lucas expressions 51.3(2013)275  
So: A General Inequality Applied to Fibonacci and Lucas numbers 52.3(2014)279
- B-1136 To: Fibonacci summation identity 51.4(2013)367  
So: Sum of Cubes and the Square of Sums of Cubes 52.4(2014)369
- B-1137 To: Fibonacci and Lucas summation identities 51.4(2013)368  
So: By the Binomial Theorem 52.4(2014)370
- B-1138 To: Fibonacci and Lucas summation inequalities 51.4(2013)368  
So: A Lower Bound for a Product of Sums 52.4(2014)371
- B-1139 To: Fibonacci and Lucas summation inequality 51.4(2013)368  
So: A Lot of Waste 52.4(2014)372
- B-1140 To: Finding the integral value of a sum of three Fibonacci ratios 51.4(2013)368  
So: It Adds Up to  $F_{n+2}$  52.4(2014)372
- B-1141 To: Finding a sum involving sines, cosines and Lucas numbers 52.3(2014)80  
So: Easily seen by "Telescoping" 53.1(2015)83
- B-1142 To: Fibonacci summation identity 52.3(2014)81  
So: Summing every fourth Fibonacci 53.1(2015)84

## ELEMENTARY PROBLEM INDEX

Edited by Russ Euler & Jawad Sadek

- B-1143 To: Inequality for products of Fibonacci numbers 52.3(2014)81  
So: Just apply the AM-GM! 53.1(2015)85
- B-1144 To: Fibonacci and Lucas product inequalities 52.3(2014)81  
So: It is not strict when  $n = 1!$  53.1(2015)85
- B-1145 To: Fibonacci and Lucas product inequalities 52.3(2014)81  
So: Squares of “Almost Squares” terms 53.1(2015)86
- B-1146 To: Inequality for squares of Fibonacci numbers 52.2(2014)178  
So: It Can Be Sharpened 53.2(2015)181
- B-1147 To: Sum for a product of Fibonacci numbers divided by a product of factorials 52.2(2014)178  
So: Close This sum 53.2(2015)182
- B-1148 To: Sum of a ratio of Fibonacci and Lucas numbers 52.2(2014)179  
So: The Exact Value of an Infinite Series 53.2(2015)183
- B-1149 To: Inequalities for  $k$ -Fibonacci and  $k$ -Lucas numbers 52.2(2014)179  
So: Inequalities with  $k$ -Fibonacci and  $k$ -Lucas Sequences 53.2(2015)184
- B-1150 To: Find the max value of the ratio of a Lucas number and a product of Fibonacci numbers 52.2(2014)179  
So: Maximum of a Fibonacci Lucas Ratio 53.2(2015)185
- B-1151 To: Find several limits of general roots of Fibonacci numbers 52.3(2014)274  
So: Radicals and factorials! 53.3(2015)273
- B-1152 To: Finding a closed form for the sum of a ratio of Fibonacci and Lucas numbers 52.3(2014)275  
So: A Closed Form for an Infinite Sum 53.3(2015)274
- B-1153 To: Summation identity for  $k$ -Fibonacci and  $k$ -Lucas numbers 52.3(2014)275  
So: Evaluate a Lucas Sum 53.3(2015)275
- B-1154 To: Finding a closed form for the sum of a product of Lucas squares 52.3(2014)275  
So: Sum...of Products...of Squares... 53.3(2015)277
- B-1155 To: Verifying the sums of Fibonacci and Lucas ratios 52.3(2014)275  
So: Evaluate Two More Infinite Series 53.3(2015)277
- B-1156 To: Summing arctangents of Lucas numbers 52.4(2014)367  
So: A Trig Trick 53.4(2015)366
- B-1157 To: Fibonacci inequality 52.4(2014)368  
So: A Cyclic Sum 53.4(2015)367
- B-1158 To: Fibonacci and Lucas summation inequalities 52.4(2014)368  
So: Inequality of Powers 53.4(2015)368
- B-1159 To: Three variable Fibonacci and Lucas inequalities 52.4(2014)368  
So: Inequality With sum of Inverse 53.4(2015)369
- B-1160 To: Computing limits for Fibonacci and Lucas differences of involving  $e$  52.4(2014)368  
So: More Nuances Than the Limits in B-1151
- B-1161 To: Fibonacci and Lucas sum identity and a Fibonacci arctangent sum identity 53.1(2015)81  
So: Powered Index Series and Inverse Tangent of an Inverse Series 54.1(2016)83
- B-1162 To: Inequality involving square roots of Fibonacci numbers 53.1(2015)82  
So: Based on Binomial Coefficients and Cauchy-Schwartz 54.1(2016)83
- B-1163 To: A Fibonacci and a Lucas summation inequality 53.1(2015)82  
So: Two Partial Sums Involving  $k$ -Fibonacci and  $k$ -Lucas Sequence and One Lower Bound 54.1(2016)84
- B-1164 To: Sums of reciprocal of Lucas products with Fibonacci and Lucas subscripts 53.1(2015)82  
So: The Values of Two Alternating Series 54.1(2016)85
- B-1165 To: Evaluate a sum of reciprocal Fibonacci/Lucas ratios with F/L subscripts 53.1(2015)82  
So: Fibonacci Indices 54.1(2016)85
- B-1166 To: Fibonacci/Lucas ratio sum 53.2(2015)180  
So: Series of Reciprocals 54.2(2016)179

## ELEMENTARY PROBLEM INDEX

**Edited by Russ Euler & Jawad Sadek**

- B-1167 To: area of polygons with Fibonacci numbers as vertices 53.2(2015)180  
So: Polygons with Fibonacci Number Coordinates 54.2(2016)180
- B-1168 To: Find the minimum of a sum of three Fibonacci/Lucas ratios 53.2(2015)181  
So: The Minimum Value of a Sum 54.2(2016)181
- B-1169 To: Inequalities involving  $n^{\text{th}}$  roots of Fibonacci ratios 53.2(2015)181  
So: A  $p$ -Radical Inequality 54.2(2016)182
- B-1170 To: Finding limits of differences of ratios of Fibonacci and Lucas roots 53.2(2015)181  
So: Limits of Radicals Equality 54.2(2016)183
- B-1171 To: Computing a ratio of sums of cubes of binomial Fibonacci sums 53.3(2015)272  
So: All Is One! 54.3(2016)273
- B-1172 To: Area of triangle with Fibonacci coordinates 53.3(2015)273  
So: Area of Triangles with Generalized Fibonacci Number Coordinates 54.3(2016)273
- B-1173 To: Proving a Fibonacci and a Lucas inequality 53.3(2015)273  
So: By Induction 54.3(2016)276
- B-1174 To: Alternating sum involving fourth powers of Fibonacci numbers 53.3(2015)273  
So: A Summation of Reciprocals 54.3(2016)277
- B-1175 To: Inequality involving  $m^{\text{th}}$  powers of Fibonacci numbers 53.3(2015)273  
So: Based on the AM-GM or PM Inequality 54.3(2016)278
- B-1176 To: Finding a closed form for two sums of Lucas numbers 53.4(2015)365  
So: Closure! 54.4(2016)368
- B-1177 To: Verify the limits of a ratio of Fibonacci nrs and a ratio of Lucas nrs 53.4(2015)366  
So: Find Their Limits 54.4(2016)368
- B-1178 To: Inequality involving square roots of powers of Fibonacci numbers 53.4(2015)366  
So: The Ubiquitous AM-GM Inequality 54.4(2016)369
- B-1179 To: Inequality involving sines, cosines and Fibonacci numbers 53.4(2015)366  
So: Sine, Cosine, and a Fibonacci Inequality 54.4(2016)370
- B-1180 To: Find the sum of reciprocals of Fibonacci numbers added to complex  $i$  53.4(2015)366  
So: A Complex One! 54.4(2016)371
- B-1181 To: Evaluate an infinite sum of ratios of Fibonacci numbers 54.1(2016)80  
So: Adding Two Terms at a Time 55.1(2017)83
- B-1182 To: Prove the product of the roots of a cubic eq and Fib nrs is a sum of squares 54.1(2016)81  
So: Vieta's Formulas 55.1(2017)84
- B-1183 To: Express a binomial sum involving Fib and Lucas nrs as a function of them 54.1(2016)81  
So: A Binomial Series 55.1(2017)85
- B-1184 To: Computing a finite product of matrices of Fibonacci and Lucas numbers 54.1(2016)81  
So: Matrices of Ones 55.1(2017)86
- B-1185 To: Inequality involving a finite sum of a ratio of Fibonacci numbers 54.1(2016)81  
So: Chebyshev, Jensen or Nesbitt? 55.1(2017)87
- B-1186 To: Prove that an alternating infinite sum involving Lucas numbers vanishes 54.2(2016)178  
So: A Telescoping Lucas Sum 55.2(2017)179
- B-1187 To: Solve a system of three equations with Fib and Lucas number coefficients 54.2(2016)179  
So: The Same Fibonacci Number 55.2(2017)180
- B-1188 To: Find the difference of two finite sums involving Fibonacci numbers 54.2(2016)179  
So: A Telescoping Fibonacci Sum 55.2(2017)180
- B-1189 To: Find a closed form for a finite sum involving Lucas numbers 54.2(2016)179  
So: Our Old Friend Binomial Theorem 55.2(2017)181
- B-1190 To: Compute the sum of three ratios of powers of Fibonacci numbers 54.2(2016)179  
So: A Cyclic Sum 55.2(2017)182

## ELEMENTARY PROBLEM INDEX

### Edited by Russ Euler & Jawad Sadek

- B-1191 To: Find the alternating binomial sum involving ratios of Lucas numbers 54.3(2016)271  
So: Binet! Binet! Binet! 55.3(2017)278
- B-1192 To: Evaluate the determinant of a matrix with Fibonacci number entries 54.3(2016)272  
So: Lower Hessenberg Matrix 55.3(2017)278
- B-1193 To: Inequality for a sequence of numbers larger than squares of Fib numbers 54.3(2016)272  
So: Picking the Right Numbers 55.3(2017)280
- B-1194 To: Inequality involving ratios of Lucas numbers 54.3(2016)272; Corrected 55.3(2017)276  
So: Errors! 55.3(2017)280; Corrected: A Lucas Inequality 56.3(2018)276
- B-1195 To: Find the area of polygons with generalized Fibonacci number coordinates 54.3(2016)272  
So: Polygon with Generalized Fibonacci Numbers as Its Vertices 55.3(2017)280
- B-1196 To: Identity involving 3<sup>rd</sup> and 5<sup>th</sup> powers of Fibonacci and Lucas numbers 54.4(2016)366  
So: Symmetric Functions 55.4(2017)368
- B-1197 To: Two inequalities involving powers of Fibonacci numbers 54.4(2016)366  
So: Bergström and Cauchy-Schwarz 55.4(2017)369
- B-1198 To: Two infinite sums of arctangents and products of Fibonacci or Lucas ratios 54.4(2016)367  
So: An Infinite Sum of Arctangents 55.4(2017)370
- B-1199 To: Finite sums involving  $k$ -Lucas or  $k$ -Fibonacci numbers 54.4(2016)367  
So: Another Sury-Type Identity 55.4(2017)371
- B-1200 To: Infinite sums of products of harmonic numbers and Fibonacci or Lucas nrs. 54.4(2016)367  
So: Harmonic and Fibonacci/Lucas Numbers 55.4(2017)372

### Edited by Harris Kwong

- B-1201 To: Inequalities involving Fibonacci, Lucas and three positive numbers 55.1(2017)82  
So: Cauchy-Schwarz or Bergström Again 56.1(2018)82
- B-1202 To: Identities for Fib nrs with Fib subscripts and Lucas nrs with Lucas subscripts 55.1(2017)83  
So: Root and Ratio Tests 56.1(2018)84
- B-1203 To: Finding limits of the difference of Fibonacci  $n^{\text{th}}$  roots and Lucas  $n^{\text{th}}$  root 55.1(2017)83  
So: Fibonacci Numbers with Fibonacci Numbers as Subscripts 56.1(2018)85
- B-1204 To: Express two sums of products of combinatorics in terms of Fibonacci nbrs 55.1(2017)83  
So: A Double Binomial Sum 56.1(2018)86
- B-1205 To: Inequality involving sums, products and powers of Fibonacci numbers 55.1(2017)83  
So: Power-Mean and Jensen's Inequalities 56.1(2018)87
- B-1206 To: Inequality involving sums of differences of square roots of Fibonacci nmbms 55.2(2017)178  
So: Two Doses of AM-GM Inequality 56.2(2018)178
- B-1207 To: Inequality involving fourth powers and squares of Fibonacci numbers 55.2(2017)178  
So: Bergström on a Cyclic Sum 56.2(2018)179
- B-1208 To: Solving a linear system of equations involving Fibonacci numbers 55.2(2017)179  
So: Row Reduction on an Augmented Matrix 56.2(2018)180
- B-1209 To: Tribonacci number summation identity 55.2(2017)179  
So: A Bijective Argument on a Tribonacci Sum 56.2(2018)182
- B-1210 To: establishing the sum of products of powers of Fibonacci numbers 55.2(2017)179  
So: Faà di Bruno to the Rescue! 56.2(2018)183
- B-1211 To: Establishing a sum of third powers of Fibonacci numbers 55.3(2017)276  
So: A Problem with Many Solutions 56.3(2018)277
- B-1212 To: Inequality involving fourth powers and squares of Fibonacci numbers 55.3(2017)277  
So: A Cyclic Sum in Disguise 56.3(2018)279
- B-1213 To: Inequality involving the fourth root of a reciprocal sum of fibonacci nmbms 55.3(2017)277  
So: An Intriguing Telescoping Product 56.3(2018)280

## ELEMENTARY PROBLEM INDEX

**Edited by Harris Kwong**

- B-1214 To: Find the infinite sum of a ratio of products of Fibonacci numbers 55.3(2017)277  
So: Telescoping Sum Again! 56.3(2018)281
- B-1215 To: Establishing the sum of arctangents of Fibonacci and Lucas numbers 55.3(2017)277  
So: An Infinite Series of Arctangents 56.3(2018)281
- B-1216 To: Inequality involving Fibonacci/Lucas sums and Lucas products 55.4(2017)367  
So: Another Application of the AM-GM Inequality 56.4(2018)367
- B-1217 To: Find a closed form for a sum of Fibonacci/Lucas numbers and factorials 55.4(2017)367  
So: Help From Exponential Generating Function 56.4(2018)369
- B-1218 To: Find a closed form for a Fibonacci/Lucas sum 55.4(2017)368  
So: Simplifying a Complicated Expression 56.4(2018)369
- B-1219 To: Inequality involving sums of Fibonacci numbers 55.4(2017)368  
So: An Inequality with a Cyclic Sum 56.4(2018)371
- B-1220 To: Infinite product involving 4<sup>th</sup> powers of Fibonacci numbers 55.4(2017)368  
So: Galin-Cesàro Identity Yields a Telescoping Product 56.4(2018)372
- B-1221 To: Evaluating a determinant involving Fibonacci numbers 56.1(2018)81  
So: Determinant of a Symmetric Matrix 57.1(2019)82
- B-1222 To: Infinite sums involving harmonic, Fibonacci and Lucas numbers 56.1(2018)81  
So: The Generating Function for Harmonic Numbers 57.1(2019)83
- B-1223 To: Fibonacci summation inequality 56.1(2018)82  
So: An Inequality with a Geometric Twist 57.1(2019)84
- B-1224 To: Binomial sums involving Fibonacci and Lucas numbers 56.1(2018)82  
So: An Intriguing Binomial Sum 57.1(2019)86
- B-1225 To: Constructing a sequence of matrices satisfying special properties 56.1(2018)82  
So: A Sequence of Matrices with Special Properties 57.1(2019)87
- B-1226 To: Sum involving products of  $k$ -Fibonacci numbers 56.2(2018)177  
So: Catalan Identity for the  $k$ -Fibonacci Numbers 57.2(2019)177
- B-1227 To: Sums involving products of Catalan and Fibonacci or Lucas numbers 56.2(2018)177  
So: Generating Function of the Catalan Numbers 57.2(2019)178
- B-1228 To: Double sums involving products of Lucas or Fibonacci numbers 56.2(2018)178  
So: A Double Sum of Triple Products 57.2(2019)179
- B-1229 To: Evaluating limits for differences of roots of Fibonacci or Lucas numbers 56.2(2018)178  
So: Stirling Approximations of Double Factorial 57.2(2019)181
- B-1230 To: Verifying that a sum involving factorials and powers of 2 result in a Fibonacci number  
56.2(2018)177  
So: Another Hassenberg Matrix Problem 57.2(2019)182
- B-1231 To: Find the sums involving binomials and Fibonacci or Lucas numbers 56.3(2018)275  
So: Two Fibonacci-Lucas Identities with Central Binomial Coefficient 57.3(2019)277
- B-1232 To: Inequality involving products of sums of squares of Fibonacci numbers 56.3(2018)275  
So: An Application of Kantorovich's Inequality 57.3(2019)278
- B-1233 To: Verifying two Fibonacci summation identities 56.3(2018)276  
So: A Recursive Technique 57.3(2019)279
- B-1234 To: Solving a system of equations involving Fibonacci numbers 56.3(2018)276  
So: A Convoluted System of Equations 57.3(2019)281
- B-1235 To: Summation Identity of products of three consecutive Fibonacci numbers 56.3(2018)276  
So: Solution From an Old Problem 57.3(2019)282
- B-1236 To: Two inequalities involving powers of Fibonacci numbers 56.4(2018)366  
So: An Easy Consequence of Radon's Inequality 57.4(2019)368

## ELEMENTARY PROBLEM INDEX

Edited by Harris Kwong

- B-1237 To: Two infinite products involving alpha 56.4(2018)366  
So: A Telescoping Product 57.4(2019)369
- B-1238 To: Conditions for the sum of some terms of a 2<sup>nd</sup> order recurrence to be rational 56.4(2018)367  
So: Telescopic Property Again! 57.4(2019)370
- B-1239 To: Identity involving 4<sup>th</sup> powers of sums of reciprocals of Lucas numbers 56.4(2018)367  
So: How to Prove It? 57.4(2019)371
- B-1240 To: Inequality involving Fibonacci numbers and one for Lucas numbers 56.4(2018)367  
So: A Trusted Friend: the AM-HM Inequality 57.4(2019)372
- B-1241 To: Fibonacci/Lucas Inequality 57.1(2019)81  
So: A Not-So-Obvious Application of Cauchy-Schwarz Inequality 58.1(2020)84
- B-1242 To: A sum involving Fibonacci numbers and one for Lucas numbers 57.1(2019)82  
So: Generalizing a Curious Sum 58.1(2020)85
- B-1243 To: Summation identity for  $k$ -Fibonacci numbers 57.1(2019)82  
So: In Need of a More Complicated Formula 58.1(2020)86
- B-1244 To: Three summation identities for Fibonacci and/or Lucas numbers 57.1(2019)82  
So: Making It Easier with Lagrange 58.1(2020)87
- B-1245 To: An identity for sums involving cubes of Lucas numbers 57.1(2019)82  
So: The Sum of Multiples of Cubes of Lucas Numbers 58.1(2020)88
- B-1246 To: Prove an identity involving Fibonacci numbers and deduce another 57.2(2019)176  
So: Rationalize the Denominators 58.2(2020)180
- B-1247 To: Identity involving sums of powers of Lucas numbers 57.2(2019)176  
So: Sums of Products of Cubes of Consecutive Lucas Numbers 58.2(2020)181
- B-1248 To: Lucas numbers summation inequality 57.2(2019)177  
So: An Inequality derived from the Trapezoid Rule 58.2(2020)182
- B-1249 To: Summation identity involving Fibonacci numbers and powers of  $\alpha$  57.2(2019)177  
So: The Tails of Two Series 58.2(2020)183
- B-1250 To: Sum involving arctangents of Fibonacci expressions 57.2(2019)177  
So: Make it Telescopic! 58.2(2020)183
- B-1251 To: A Fibonacci and a Lucas-Fibonacci summation identity 57.3(2019)276  
So: A Binomial Sum of Generalize Fibonacci Numbers 58.3(2020)275
- B-1252 To: Identity involving products of three Fibonacci numbers 57.3(2019)276  
So: Catalan and an Old elementary Problem 58.3(2020)276
- B-1253 To: Inequality involving sines and cosines of Fibonacci numbers 57.3(2019)277  
So: A Trigonometric Inequality 58.3(2020)277
- B-1254 To: Congruence identity involving balancing numbers 57.3(2019)277  
So: Reducing the Balancing Numbers Modulo  $n$  58.3(2020)279
- B-1255 To: Inequality involving square roots of Fibonacci and Lucas expressions raised to Fibonacci or Lucas powers 57.3(2019)277  
So: Another Solution Using Jensen's Inequality 58.3(2020)280
- B-1256 To: Finding Fibonacci roots of a second order equation in two variables 57.4(2019)367  
So: Solving a Quadratic Equation 58.4(2020)370
- B-1257 To: Finding closed forms for finite sums of Fibonacci and Lucas products 57.4(2019)368  
So: Make it Telescope 58.4(2020)371
- B-1258 To: Inequalities involving sines and cosines of Fibonacci numbers 57.4(2019)368  
So: Another Trigonometric Inequality 58.4(2020)372
- B-1259 To: Summation inequalities involving  $k$ -Fibonacci numbers 57.4(2019)368  
So: Jensen's Inequality on a Convex Function 58.4(2020)373

## ELEMENTARY PROBLEM INDEX

**Edited by Harris Kwong**

- B-1260 To: Finding a closed form for a sum involving bracket function of a Fibonacci expression 57.4(2019)368  
So: From Floor to Fibonacci Number 58.4(2020)364
- B-1261 To: Verifying the equality of infinite products of Fibonacci and Lucas expressions and finding their limit 58.1(2020)81  
So: Powers of Three in the Subscripts 59.1(2021)84
- B-1262 To: Finding the limit of the difference of roots involving Fibonacci numbers 58.1(2020)82  
So: Stirling Approximation for Double Factorials 59.1(2021)85
- B-1263 To: Finding a recurrence relation of a sum of Pell and Fibonacci numbers 58.1(2020)82  
So: Pairing Up Fibonacci and Lucas with Pell and Pell-Lucas 59.1(2021)86
- B-1264 To: Verifying three infinite product involving Fibonacci squares 58.1(2020)82  
So: It's All About Catalan 59.1(2021)87
- B-1265 To: Finding a closed form for the sum of products of two Lucas numbers 58.1(2020)82  
So: Fun with Powers of Two 59.1(2021)88
- B-1266 To: Inequality involving Fibonacci numbers and nested root of sums of ones 58.2(2020)179  
So: A Nested Radical of Ones 59.2(2021)178
- B-1267 To: Summation identity involving the Riemann zeta function and Fibonacci and Lucas numbers 58.2(2020)179  
So: The Zeta Riemann Function and the Cotangent Function 59.2(2021)179
- B-1268 To: Proving two Lucas number identities 58.2(2020)179  
So: Prove It in Any Way You Can 59.2(2021)180
- B-1269 To: A Lucas, Fibonacci numbers inequality 58.2(2020)179  
So: An Inequality in Two Variables 59.2(2021)183
- B-1270 To: Evaluating infinite products involving Lucas numbers 58.2(2020)179  
So: Four Telescopic Infinite Products 59.2(2021)183
- B-1271 To: Inequality involving alpha and beta 58.3(2020)274  
So: Three Atypical Solutions 59.3(2021)275
- B-1272 To: Two beta/trigonometric summation problems 58.3(2020)275  
So: A Binomials Sum of Cosine and Sine Functions 59.3(2021)276
- B-1273 To: Summation involving Fibonacci numbers and an arithmetic progression 58.3(2020)275  
So: A Summation Formula for an Arithmetic Progression 59.3(2021)277
- B-1274 To: Inequality involving square roots of Fibonacci number expressions 58.3(2020)275  
So: Apply the Triangle Inequality 59.3(2021)278
- B-1275 To: Sum of products of reciprocals of an expression of Lucas numbers 58.3(2020)275  
So: An Unusual Sum of Products 59.3(2021)279
- B-1276 To: Verifying an infinite sum involving Fibonacci and Lucas numbers 58.4(2020)367  
So: \*\*\*\*\*
- B-1277 To: Proving a string of inequalities involving Fibonacci numbers 58.4(2020)368  
So: \*\*\*\*\*
- B-1278 To: Show an infinite product involving Fibonacci and Lucas numbers is divisible by a Lucas number 58.4(2020)368  
So: \*\*\*\*\*
- B-1279 To: Verifying the values of 2 infinite products involving Fibonacci numbers 58.4(2020)368  
So: \*\*\*\*\*
- B-1280 T: Find a closed form for a sum involving tetranacci numbers 58.4(2020)368  
So: \*\*\*\*\*
- B-1281 T: Fibonacci-Lucas inequality 59.1(2021)82  
So: \*\*\*\*\*



## ELEMENTARY PROBLEM INDEX

**Edited by Harris Kwong**

- B-1282 T: Finding closed forms for sums of products of Fibonacci numbers 59.1(2021)83  
So: \*\*\*\*\*
- B-1283 T: Finding a closed form for a sum involving Fibonacci numbers and a binomial coefficient  
59.1(2021)83  
So: \*\*\*\*\*
- B-1284 T: Inequality involving sums of a second order sequence 59.1(2021)83  
So: \*\*\*\*\*
- B-1285 T: Prove that sums involving exponential functions yield Lucas numbers 59.1(2021)83  
So: \*\*\*\*\*
- B-1286 T: Identity using a ratio of binomial sums and Fibonacci and Lucas numbers 59.2(2021)176  
So: \*\*\*\*\*
- B-1287 T: Evaluate a sum of the ratio of Fibonacci powers and a given sequence 59.2(2021)176  
So: \*\*\*\*\*
- B-1288 T: Identity using the floor function of roots of Fibonacci and Lucas numbers 59.2(2021)177  
So: \*\*\*\*\*
- B-1289 T: Sums of squares of Fibonacci numbers as divisors of a 3-variable product 59.2(2021)177  
So: \*\*\*\*\*
- B-1290 T: Fibonacci summation identity 59.2(2021)177  
So: \*\*\*\*\*
- B-1291 T: Infinite sum of alpha ratios and products 59.3(2021)273  
So: \*\*\*\*\*
- B-1292 T: Inequality sum in three variables with Fibonacci and Lucas denominators 59.3(2021)273  
So: \*\*\*\*\*
- B-1293 T: A Fibonacci and a Lucas nested inequality 59.3(2021)274  
So: \*\*\*\*\*
- B-1294 T: Evaluating a polynomial with Fibonacci and Lucas values 59.3(2021)274  
So: \*\*\*\*\*
- B-1295 T: Infinite sum with a Lucas ratio and a binomial denominator 59.3(2021)274  
So: \*\*\*\*\*

### Proposers

A

Alexanderson, G.L.: B-34,57,102,123  
Alexandrescu, D.: B-1102  
Alford, C.O.: B-693,738  
Alfred, Br. U.: B-22,24,25,28,37,59,62,79,95  
Allen, H.D.: B-293  
Amunategui, G.I.: B-437  
Anderson, P.G.: B-838,970  
Anderson, S.: B-546  
André-Jeannin, R.: B-656,659,674,675,678,679,697,698,732,743,745,749,752,761,766,789,807,  
B-868,870,875,900,901,904,910,919  
Andrica, D.: B-583,584 Anglin, R.H.: B-160  
Arya, A.: B-888  
Atanassov, K. T.: B-706  
Austin, J.: B-1225  
Azarian, M.K.: B-629,635,636,664,765,806,816,881,915,968,1018,1068,1089,1133

## ELEMENTARY PROBLEM INDEX

### Proposers (Continued)

#### B

Bakinova, V.: B-486,493,548,556,574,580  
Bang, S-J.: B-746,750,798  
Barley, W.C.: B-234,240  
Bartz, J.: B-1195  
Basin, S.L.: B-4,11,13,23,26,42  
Bataille, M.: B-1283,1286  
Băţineţu-Giurgiu, D.M.: B-1101,1108,1109,1113,1114,1117,1118,1121,1124,1125,1129,1130,1132,  
B-1135,1137,1138,1139,1142,1144,1145,1151,1158-1160,1170,1173,1175,1178,1179,1184,1185,  
B-1194,1197,1202,1205,1207,1212,1216,1219,1229,1232,1236,1240,1253,1258,1262,1292  
Beasley, B.D.: B-824,897  
Bege, A.: B-581  
Bencze, M.: B-468,591,711,1000,1123  
Bergum, G.E.: B-367,472  
Berzsenyi, G.: B-320,321,327,330,331,338,351,364,369,378,387  
Bicknell, M.: B-16,267,273  
Blaine, L.: B-699  
Blazej, R.: B-294,298  
Bloom, D.M.: B-835,839,874,899  
Blumberg, W.: B-515,516,525  
Butchart, J.H.: B-124  
Byrd, P.F.: B-12  
Boblétt, A.P.: B-29  
Bowron, M.: B-764  
Brady, W.G.: B-228,229,252,253,319,337,366,406,445,568,569,793,795  
Brennan, T.: B-16  
Bridger, C.A.: B-94,254  
Brökling, L.G.: B-20  
Brooke, M.: B-14,80,280  
Brown, S.H.: B-952  
Bruckman, P.S.: B-236,251,258,277,278,288,289,297,377,396,453,477,602,603,673,704,734,  
B-792,808,815,854,871,937,944,950,996,1001,1003,1006,1022,1023,1028, 1040,1041,  
B-1044,1075.1091,1093,1094,1105

#### C

Carlitz, L.: B-19,21,110,111,116,117,135,185,186,190,213,217,239,246,255,259,361  
Carroll, T.B.: B-263  
Castellanos, D.: B-641  
Catalani, M.: B-946,972,985,990,995  
Cheves, W.: B-192,268,269,275  
Church, C.A., Jr.: B-46,54  
Cigler, J.: B-909  
Clarke, G.: B-1118  
Cook, C.K.: B-862,938,1047,1051,1056  
Cooper, C.: B-735,742  
Corley, H.W.: B-644  
Cortés, J.S. B-1104  
Corvin, J.: B-546  
Costello, P.: B-1057

## ELEMENTARY PROBLEM INDEX

### Proposers (Continued)

#### C

Cross, D.C.: B-27  
Cseh, L.: B-523,526,527,535,554,555,559,560,564,782  
Cusumano, A.: B-770,779,791,797,832,896,1007,1031,1032

#### D

Davenport, K.B.: B-859,1188,1222,1227,1231,1235,1245,1247  
Davlianidze, P.: B-1264,1270,1279  
Dearden, B.: B-723  
DeLeon, M.J.: B-199,200  
Dence, T.P.: B-101,129  
DeNobili, M.: B-844,879,889  
Deshpande, M.N.: B-814,884,911,918,987,1017,1027,1033,1058,1062,1073,1116  
Desmond, J.E.: B-178,182  
Díaz-Barrero, J.L.: B-905,914,917,923,925,930,936,943,948,958,965,969,973,974,983,989,  
B-993,998,1004,1009,1011,1015,1024,1025,1029,1036,1039,1042,1043,1048,1053,  
B-1060,1063,1069,1072,1074,1078,1080,1084,1086,1088,1092,1097,1102,1112,1123,  
B-1126,1128,1134,1140,1143,1162,1168,1171,1182,1187,1190,1193,1206,1221,1255,1294  
DiPorto, A.: B-609  
Djerverson, T.: B-212,219  
Dorp, A.: B-802,830,833,836,850,891,893  
Drake, R.C.: B-180  
Dresel, L.A.G.: B-575,728,821,878,883

#### E

Edgar, G.: B-112  
Editor: B-1008  
Edwards, S.: B-961,962,980,981,988,1014,1026,1154,1172,1204  
Egozcue, J.J.: B-925,930,936,943,948,958,965,973,1042  
Eisenstein, M.: B-530,531,615  
Elsner, D.: B-1085  
Englund, D.: B-148  
Euler, R.: B-640, 670,688,695,758,760,811,903,921,992,1013,1038,1120

#### F

Falcón, S.: B-1082,1095,1098,1099,1100,1110,1149,1152,1153,1163,1177,1199,1215,1226,1259  
Fedak, I.V.: B-1201,1208,1213,1218,1223,1234,1239,1241,1256,1269,1271,1274,1277,1281,1289,  
B-1293  
Fellingham, J.: B-888  
Ferns, H.H.: B-48,104,106,115  
Ferraro, P.J.: B-886,1288  
Field, R.S.: B-359  
Felder, D.C.: B-693,738  
Filipponi, P.: B-561,578,579,582,596,597,601,608,609,613,614,621,627,633,642,650,715,  
B-720,733,747,769,828,846  
Finkel, D.: B-310  
Finkelstein, R.: B-143  
Fisk, S.: B-10  
Ford, G.G.: B-272, 296

# ELEMENTARY PROBLEM INDEX

## Proposers (Continued)

### F

Freitag, H.T.: B-256,257,262,270,271,282,286,287,292,314,317,318,324,329,335,336,356,,362,363,  
B-368,371,372,379,385,388,398,400,413,414,418,426,434,444,448,449,455,457,462,463,466,  
B-467,475,476,479,480,487,488,489,490,498,499,502,505,518,519,524,528,529,532,533,538,  
B-539,544,545,562,563,570,576,577,589,590,592,593,594,598,599,605,611,612,618,619,623,  
B-624,630,638,639,652,653,660,661,667,671,676,677,690,696,700,701,707,712,713,718,719,  
B-725,730,736,737,744,748,772-777, 784,803,810,860,873  
Friedman, J.E.: B-785  
Frontczak, R.: B-1244,1254,1257,1261,1267,1273,1278,1290  
Fuchs, J.A.: B-33,39  
Furdui, O.: B-926,931,932,933,935,955,956,963,979,999

### G

Garfield, R.: B-221  
Gauthier, N.: B-876,906,920,924,934,939,945,949,975,1064,1067,1090  
Geller, S.: B-15  
Gibergans-Báguena, J.: B-1126  
Giuli, R.M.: B-407  
Glaser, A.: B-49  
Glover, J.: B-888  
Goggins, J.R.: B-714  
Gonciulea, C.: B-585  
Gould, H.W.: B-7  
Goy, T.: B-1192,1210,1230  
Graham, R.L. B-9  
Grassl, R.M.: B-196,202,203,214,226,245,264,279,349,350,417,424,425  
Grau, N.: B-993  
Grau-Sánchez, M.: B-1015,1024,1036,1043,1053,1078  
Greubel, G.C.: B-1055  
Griffith, G.: B-685  
Gronemeijer, C.: B-187  
Guillotte, G.A.R.: B-191,206,207,210,218,220,232,238,241,250

### H

Hansell, W.: B-328  
Harborth, H.: B-691  
Haukkanen, P.: B-809,823,827,851  
Hein, J.L.: B-767  
Hendel, R.J.: B-666,680,721,725,755,788  
Hewitt, P.: B-971  
Higgins, F.: B-305,306,344,345,357  
Hillman, A.P.: B-87,439,646,668  
Hindin, H.J.: B-929,953  
Hisert, G.A.: B-1059,1127  
Hoggatt, V.E., Jr.: B-2,30,52,53,60,64,65,69,86,108,109,139,149,150,162,193,204,205,208,  
B-209,211,216,222,230,231,237,248,249,281,290,295,299,300,302,307,313,325,343,  
B-346,347,352,353,373,375,375,381,390,393,395,399,415,416,421,422,431,432,798  
Horner, W.W.: B-68,146  
Householder, J.E.: B-3

# ELEMENTARY PROBLEM INDEX

## Proposers (Continued)

### H

Hsu, L.C.: B-818  
Hughes, J.: B-482,483  
Hunsucker, J.L.: B-244,260  
Hunter, J.A.H.: B-61,72,100,126,144,164,312,316,323

### I

Ivanoff, V.: B-4  
Ivie, J.: B-161,225

### J

Jacobson, E.: B-778  
Jackson, W.D.: B-142  
Jakubowski, G.: B-416  
Janous, W.: B-916,941,977  
Jaroma, J.H.: B-959  
Jebreel, M.: B-957  
Jemison, M.: B-1046  
Jeske, J.A.: B-76,77  
Jeuck, P.: B-813,991  
Johnson, B.: B-960

### K

Kaplansky, I.: B-922  
Karamah, M.J.: B-976  
Karst, E.: B-147,223  
Kawata, K.: B-1019,1035  
Kennedy, R.E.: B-735,742  
Kessler, G.: B-849  
Kimberling, C.: B-657,663  
King, B.W.: B-184  
Klamkin, M.S.: B-872  
Klauser, H.: B-430,458  
Kocher, F.: B-376  
Košťál, J.J.: B-658,682,683,708,754,837  
Kravitz, S.: B-58,63,130a,304,322,348  
Krishna, A.J.: B-572  
Krishna, H.V.: B-227  
Kuipers, L.: B-536,537,606,610,631,647,655,684,702,717  
Kung, S.H.L.: B-154, 168  
Kwong, H.: B-982,1021,1122

### L

Lang, L.: B-247  
Lang, W.: B-858  
Leonard, H.: B-151  
Liba, O.: B-1167  
Libis, C.: B-978  
Lind, D.: B-31,44,50,51,70,71,73,78,81,85,91,97,98,99,103,113,125,130,133,134,138,140,145,165,179  
Lindstrom, P.A.: B-341  
Litvack, B.: B-47  
Lord, G.: B-276

## ELEMENTARY PROBLEM INDEX

### Proposers (Continued)

#### L

Lupas, A.: B-865,898

### Proposers (Continued)

#### M

Mahon, Br. J.M.: B-986,997,1012,1016,1052,1065,1081,1083,1087

Mana, P.: B-90,96,105,120,121,136,137,152,163,170,171,176,177,189,194,197,198,215,235,  
B-261,283,284,291,301,308,309,332,333,334,340,354,358,365,392,394,404,405,412,417,  
B-427,442,452,473,474,484,494,495,500,508,514,547,552,595,600,620,622,634,672,689

Martin, T.: B-740

Matsui, H.: B-1019,1035

Maxwell, J. A.: B-8

McDonnell, E.E.: B-459

McNutt, R.H.: B-843

Mead, D.G.: B-66,67

Melham, R.S.: B-927

Merca, M.: B-1111

Merenyi(Merény), I.: B-523,526,527,535,554,555,557,558,782

Metzger, J.M.: B-446,447,481,723

Mitchell, R.D.: B-1050

Miyadera, R.: B-1019,1035

Monteferrante, S.A.: B-680

Montleaf, A.J.: B-122

Moser, L.: B-5,6

Most, M.: B-174,201

Muench, D.L.: B-553

Mullen, G.L.: B-376,401

Mullin, A.A.: B-456

#### N

Nebb, J.: B-260

Necochea, A.: B-654,709

Number Theory Class (F1997) of R. Euler: B-848

#### O

O'Callahan, T.: B-360

Ohtsuka, H.: B-1066,1071,1076,1077,1096,1103,1106,1107,1115,1131,1136,1141,1147,1148,  
B-1150,1155-1157,1161,1164-1166,1174,1176,1180,1181,1186,1191,1196,1198,1200,1203  
B-1209,1211,1214,1217,1220,1224,1228,1233,1237,1242,1249,1252,1260,1266,1272,1275,  
B-1276,1280,1282,1285,1287,1295

#### P

Padilla, G.C.: B-114,172,173

Padnakumar, T.V.: B-643

Patel, A.B.: B-534,540

Patel, J.M.: B-741,751,753,786

Patel, V.S.: B-534,540

Peck, C.B.A.: B-274

Peters, J.F.: B-433

Pettet, M.: B-93

Philippou, A.N.: B-513

Philippou, G.N.: B-549

## ELEMENTARY PROBLEM INDEX

### Proposers (Continued)

#### P

Pla, J.: B-763,768,967,984,994  
Plaza, Á.: B-1082,1095,1098,1099,1100,1110,1149,1152,1153,1163,1169,1177,1183,1189,1199,1215,  
B-1226,1238,1243,1248,1250,1251,1259,1268,1284,1294  
Pletcher, R.: B-433  
Pletser, V.: B-1037  
Popescu, P.G.: B-1025,1039,1069,1074  
Pullen, K.A.: B-451

#### R

Rabinowitz, S.: B-496,497,616,617,685,716,756,804,820,826,831,840,842,852,855,857,861,  
B-863,864,866,867,890,894,942,947,951,964,966,1010,1034,1263  
Rao, G.S.: B-572  
Rattaggi, D.: B-1291  
Recke, K.G.: B-153,157,158  
Rice, B.: B-411  
Roberts, J.B.: B-181  
Rubio, P.: B-543,567  
Ruggles, I.D.: B-1

#### S

Sadek, J.: B-903,912,921,1013  
Sadoveanu, I.: B-727  
Saita, N.: B-1019,1035  
Sakurama, Y.: B-1019,1035  
Sánchez, F.G.: b-1134,1143  
Schmutz, E.: B-430  
Schroeder, D.: B-888  
Schumacher, R.: B-1246  
Scott, A.: B-156  
Scoville, R.: B-255  
Seamons, R.S.: B-89,107  
Segers, J.G.: B-829  
Seiffert, H.-J.: B-506,507,541,565,566,571,586,604,625,626,632,662,681,703,705,710,722,  
B-731,757,759,771,781,787,790,800,902,928,954,1002,1005,1020,1030,1045,1054,1061  
Shallit, J.O.: B-311,423,440,441,459,482,483,501,686,687  
Shannon, A.G.: B-167,188,382  
Shiwalkar, J.P.: B-987,1033  
Shriki, A.: B-1167  
Silverman, D.L.: B-41  
Simmons, G.J.: B-183  
Singh, S.: B-436,694  
Singmaster, D.: B-303,628,650  
Slota, D.: B-1070  
Smarandache, F.: B-726  
Smith, G.W.: B-845,B-847,B-853  
Smith, N.: B-82  
Sofa, A.: B-822  
Somers, L.: B-224,386,408,450,666,729,825  
Stam, A.J.: B-880,882,885,887

# ELEMENTARY PROBLEM INDEX

## Proposers (Continued)

### S

Stanciu, N.: B-1101,1108,1109,1113,1114,1117,1118,1121,1124,1125,1129,1130,1132,1135,1137-9,  
B-1142,1144,1145,1151,1158-1160,1170,1173,1175,1178,1179,1184,1185,1194,1197,1202,  
B-1205,1207,1212,1216,1219,1229,1232,1236,1240,1253,1258,1262,1292  
Stănică, G: B-940  
Stănică, P: B-940  
Starc, Z.F.: B-780,794,834,856,907  
Stein, M.: B-1085  
Stern, F.: B-374  
Strazdins, I.: B-877,895,908  
Street, C.C.: B-665  
Swamy, M.N.S.: B-74,75,83,84,128,155,796

### T

Tallman, M.: B-148  
Taylor, L.: B-460,461,470,471,491,492,511,512,724,762,801,869  
Thomas, R.: B-739  
Tica, G.: B-1130,1202  
Tomescu, I.: B-522,542  
Torretto, R.: B-36,38  
Tošić, R.: B-645  
Trigg, C.W.: B-454  
Turner, J.C.: B-637,812

### U

Umansky, H.L.: B-233  
Usiskin, Z.: B-265,266

### V

Van Hamme, L.: B-651  
Vespe, C.A.: B-155

### W

Wachtel, M.: B-391,410,430,435,648,649  
Wall, C.R.: B-17,32,40,43,45,55,56,127,131,131a,132,141,159,469,503,504,509,510,517,520,  
B-521,550, 551,573,587,588,607  
Wallace, R.B.: B-15  
Wessner, J.: B-88  
Wilf, H.S.: B-913  
Witula, R.: B-1070,1079  
Wlodarski, J.: B-242,243  
Wolk, B.: B-285  
Wollum, J.: B-119  
Wulczyn, G.: B-339,342,355,370,383,384,389,397,402,403,409,419,420,428,429,438,443,  
B-464,465,478, 485,669,692  
Wyman, M.: B-6

### Y

Yalavigi, C.C.: B-169  
Yamron, J.P.: B-501  
Yamuchi, T.: B-1035  
Yang, K-W: B-817



## ELEMENTARY PROBLEM INDEX

### Proposers (Continued)

#### Z

Zeitlin, D.: B-166,175,195,326,783,799,805,819,841  
Zimmerman, L.: B-849  
Zvonaru, T.: B-1146  
Zwillinger, D.: B-380

### Solvers other than Proposers

#### A

Abdel-Jaber, L.Q.:B-961,964  
Abel, U.: B-1237,1251  
Acevedo, C.A.R.:B-1142,1146  
Achammer, T.:B-1271,1274  
Adams, J.M.: B-1165  
Addy, S.: B-1237  
Agrawal, M.D.: B-317,318,320,321,431,432  
Ahuja, M.: B-394,395  
Akkus, I.: B-1105  
Alexanderson, G.L.: B-55,56  
Alford, C.O.: B-725  
Ali, A.: B-1146,1154,1159,1176-1180,1182,1183,1185  
Allen, H.D.: B-109,126,238  
Allen, D.: B-144  
Al-Naffouri, T.: B-690,727  
Al-Pasari, I.: B-904  
Alptekin, E.G.: B-1011,1012  
Anderson, C.: B-142,148,164  
Anderson, M.: B-775  
Anderson, P.A.: B-122  
Anderson, P.G.: B-814,820,821,947  
André-Jeannin, R.: B-634-643,646,652,654,655,658,660,661,663,664,666,667,669-673,676,677,680,  
B-712,714,717,727,728,730,731,733,734,760,854-866,868,869,889,891,892,897,902,903,905  
Andrea, P.: B-1211  
Andres, S.: B-432  
Andrews, A.M.: B-1222  
Annulis, J.: B-430  
Antypenko, I.:B-1267,1269  
Antzoulakos, D.: B-571,575,576,577,586,587,588,604,606,607  
Areford, S.M.: B-1081,1098  
Aristizabal, M.: B-1205  
Arora, G.: B-926,941,956,957,959-961,976,977,980,1047,1051,1081,1114,1121,1124,1146  
Arslahagic, S.: B-780  
Asci, M.: B-1131,1132  
Ashbacher, C.: B-574,587,589,610,628,630,634,635,640,645,658,659,668,671,672,676,677,682,  
B-684,688,694-696,702,706,707,710,712,713,716,718,719,736,740,749,750,751,760,761,776,  
B-777,790,791,793,796,797,837,838,852,907,941,961,987,992  
Atim, A.: B-1226  
Ataoğlu, A: B-1264

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### A

Avila, J.H.: B-19  
Azarian, M.K.:

### B

Ba, H.V.: B-312  
Bachick, K.: B-238  
Bacon, M.R.: B-1026,1033,1035,1116,1177  
Balizer, E.: B-2  
Ballieu, M.A.: B-700,707,712,718,719,724,730,736,743,748,750,760,769,772-776,784,790,791,  
B-816,821,823,947  
Bang, S.J.: B-712,714,717,718,722,724,727,730-734,736,737,754,758,769,771  
Bania, C.: B-59  
Barile, M.: B-736,737,738,739,740  
Barley, W.C.: B-172,173,184-187,189,190-195  
Barrientos, V.: B-1211  
Barrington, C.: B-63  
Barta, N.: B-316  
Bartel, G.E.: B-39  
Bartz, J.: B-1167,1172,1180,1181,1184,1186,1192  
Basin, S.L.: B-11,20  
Bataille, M.: B-415,1231,1235-1242,1244-1247,1249-1275  
Bătineț-Giurgiu, D.M.: B-1163  
Beasley, B.D.: B-696,700,714,718,724,727,730,749,754,755,760,763,768,769,784-786,790,791,  
B-797-799,802,805,814-816,821-823,827,829,836-838,840,842-844,848,850-852,854,855,  
B-857,860,862-864,866-869,872,889-894,904-906,908,911-913,916,919,925,927,956,958,  
B-959,966,967,986-988,992,993,1003,1006-1009,1026,1028,1044,1049,1062,1073,1077,  
B-1081,1086,1097,1112,1114,1121,1123,1136,1139,1140,1142,1144,1146,1167,1171,1175,  
B-1177,1180,1182,1187,1193,1196,1209,1211,1218,1219,1221,1226,1235,1241,1256,1261,1263,  
B-1264,1266,1269-1271,  
Becker, M.S.: B-901,987  
Beiter, Sr. M.: B-213,232,233,304  
Bentley, A.E.: B-83  
Berg, M.: B-72  
Bergum, G.E.: B-298,299,300,302,317,318,320,321,341,342,343,344,345  
Berselli, B.: B-1211  
Berzsenyi, G.: B-293-295,298-300,302,304-307,311,312,317,318,323-325,334,336,341,342,  
B-344-350,352,356,358,359,362,365-367  
Beverage, D.G.: B-334,335,336,337,338,339  
Beyer, W. A.: B-12  
Bicknell-Johnson, M.R.: B-1-3,8,12,13,24,28,29,52-54,528,529,589,590,610,753,802,804  
Biggs, J.H.: B-106,109  
Blazej, R.: B-208,244,245,250,254,282,312,316,317,318,322,323,341  
Blom, E.: B-1227  
Blumberg, W.: B-496,497  
Bookout, G.: B-688,690,695,700,706,708,709,712,716,731,736,754,758-760,771,775,784,791,793,795  
Booth, A.: B-494,495  
Booth, J.: B-1140  
Booton, B.: B-670

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### B

Boyadzhiev, K.N.: B-1200,1222,1224,1227,1231,1251,1272  
Boyd, A.R.: B-694  
Bracken, P.: B-388,390,392  
Bradie, B.: B-1156,1158,1159,1161,1162,1164-1168,1171,1174-1177,1179,1180,1181,1183,1185,1186,  
B-1188-1193,1197,1199-1201,1203-1207,1209,1211,1212,1214,1216,1217,1219,1220,1236-1248,  
B-1250-1265,1267-1273,1275  
Brady, W.G.: B-155,157,166,169,172-175,184-187,189-195,220,221,240,244,245,248,256,257,259,  
B-260,261,268,270,275,279,282,286,290,291,298-300,305,306,317,318,323,325,328.330,332,  
B-334-336,338,339,341,342,344,345,347,348,349,352,354,356,388-391,436,437,441,485,496  
B-497,502,528-530,532,533,538-540,542-545,646,654,658,659,660,676,706-709,771,796-8  
Braffitt, D.: B-250  
Breault, D.A.: B-1,2,3,14,23,30,36,38,39,40,70,71  
Breisch, R.L.: B-142,144,187,188,189  
Brenner, J.L.: B-46  
Bridger, C.A.: B-46,76,77,83-85,136,137,149,150,152,153,197,263,279,288,289,347,395,460-463,465  
Brietzke, E.H.M.: B-1090,1120  
Briggs, W.E.: B-7  
Brodin, L.: B-436  
Broline, D.: B-567  
Brown, J.L., Jr.: B-1-8,23,30-32,36,38-48,50,52,53,55,58,60,62,71,75,79,142,145,196,219,236,367  
Brown, S.H.: B-682,694,700,707,708,712,718,724,731,736,775,821,862,905,908,935,937,940,942,  
B-961,976,1026,1044,1062,1081,1116  
Brozinsky, M.: B-341,344,351,359,364  
Bruckman, P.S.: B-214-222,224,226-235,,238,240,241,244-246,248-250,252-257,259,260-267,  
B-274-276,279-283,285-287,290-295,298-309,311-314,316,317,319-321,334-339,341-376,  
B-378-407,409-414, 417-452,454-476,478-483,485-540,542-600,604-672,674-692,694-703,  
B-705,706-720,722-733,735-791,793-807,810-814,816-834,836-853,855-866,872,874-882,  
B-884,885,887-931,933-936,938-949,951-995,-997-1000,1002,1004,1005,1007-1021,  
B-1024-1027,1029-1039,1042,1043,1045-1048,1050-1074,1076-1088,1090,1092,1095-1104,  
B-1106-1125  
Brugia, O.: B-525,542,543,547,567,571,583,584,586,591,620,625,626,631,632,765  
Bryant, J.D.: B-234,240,241,256,257  
Buckmarter, M.J.: B-1120  
Burke, J.R.: B-543  
Burnette, C.: B-1209,1262,1263  
Burns, T.: B-136,142,144  
Burton, D.M.: B-600,601,618,619,661,682,683,791,793  
Byrd, P.F.: B-442

### C

Caboz, R.: B-799  
Cacic, N.: B-839  
Cannell, J.: B-628,634,637  
Capobianco, M.: B-252  
Carlitz, L.: B-16,81,98-100,104,120,134,169,176,177,180,197,198,215,218,222,224,240,319,394,  
B-432,468,469  
Carroll, A.: B-227  
Carroll, T.B.: B-252-257,259-261

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### C

Carter, K.S.: B-454  
Castellanos, D.: B-567  
Castrillón, A.C.: B-1257,1264  
Castown, R.W.: B-47,72  
castrillón, A.C.: H-1250  
Castro, B.: B-1128,1130,1133  
Catalani, M.: B-937,938,941-943,945,948,949,951-954,956-961,964,977,978,980  
Chan, J.D.: B-250,254,256,257  
Chance, J.E.: B-635,637,706-709,726,730,732,733  
Chang, D.K.: B-430,437,440,454,460  
Chandra, A.K.: B-232,233,234,235,236,237  
Chen, K.J.: B-885  
Chen, J-Y: B-885  
Cheves, W.: B-168,185,189,190,195,220,234,238,240,244,245,248-250,256,257,261,264,267,  
B-293,294,298,798  
Ching, H-Y: B-1192,1208  
Chouteau, C.: B-279,311,313,344  
Cho, B.: B-416  
Cho, D.: B-416  
Cho, Y.D.: B-416  
Church, C.A., Jr.: B-46  
Cianfero, P.: B-344  
Cidras, M.: B-1176,1177,1179  
Cigler, J.: B-898,902  
Civciv, H.: B-935,936,937,938  
Clark, C.: B-695  
Clark, E.M.: B-118,120  
Clark, J.: B-905  
Clarke, E.: B-168  
Clarke, M.: B-168  
Clary, S.: B-815  
Clifford, J.: B-1081  
Con Amore Problem Group: B-730,731,732,733,734,735  
Cook, C.K.: B-718,724,725,727,730,732,736,737,747,750,752,754,755,758,760,761,763,767,768,  
B-772,775,776,780,783-785,789-791,793,795,802,806,821,823,824, 827,829,831,833,836,  
B-838-840,848,851-855,860,863,870,873,875-880,882,873,875,877,896,897,901,903,905,907,  
B-910,912,925,930-933,936,937,942,946,951,956,957,958,959,961,962,964,968,972,973,976,  
B-977,980,988,991-993,998,1008,1017,1019,1021,1022,1023,1026,1027,1029,1031-1033,  
B-1035,1038,1039,1041,1044,1049,1053,1055,1058,1062,1064,1067,1070,1071,1073,1077,  
B-1080,1081,1101-1103,1112,1114,1116-1118,1120,1121,1124,1125,1139,1140,1142,1144,  
B-1146,1166,1167,1172,1176,1177,1182,1211,1218,1234,1261,1263,1264,1270

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### C

Cooper, C.: B-819  
Cooper, D.A.: B-418  
Correll, B., Jr.: B-754,755,757,758,760,761,765  
Costa, G.B.: B-587  
Costello, P.: B-664  
Covas, M.A.: B-736,737  
Creech, R.L.: B-708  
Cseh, L.: B-496,498,499,502,503,505,508-519,522,525,526,528-530,531,532,533,534,536-539,  
B-541-543,556-558,561-563,567,575,578,579,586-588,652-654,656  
Cullen, T.J.: B-167,172-177,196,197,213  
Cunliffe, F.H.: B-592,593,598-600,605-608

### D

Daiev, V.: B-25,30  
Daugomah, M.: B-1273  
Davala, R.K.: B-1167,1172  
Davenport, J.: B-149,150,152,163  
Davenport, K.B.: B-897,916,920,925,929,937,938,941,945,946,950-952,954,957,959,961,967,968,  
B-969,971,975,981-983,985,986,988,990,992,995,997,1008,1011,1015-1018,1021-1023,1026,  
B-1027,1029,1042,1044,1048,1049,1053,1062,1065-1067,1070,1077,1078,1080-1084,1087,  
B-1088,1090-1095,1097-1102,1104,1109,1112,1116-1121,1124,1125,1127,1133,1135-1142,  
B-1144-1146,1151,1153-1156,1160,1162,1164,1165,1171,1173-1180,1182,1183,1186,  
B-1189-1194,1199,1200,1203,1205,1207,1209,1211-1213,1215,1216,1218-20,1226,1228,1229  
B-1241,1244,1254,1263,1264,1269-1272,1274  
Davis, A.: B-1093,1094  
Davlianidze, P.: B-1235-1237,1256,1263  
DeLeon, M.J.: B-418,419,426,430-433,435,440,494,502,503,505  
Dence, T.P.: B-83,92,112  
DeNobili, M.: B-843,855,876  
Desautel, E.: B-730  
Deshpande, M.N.: B-760,802,803,806,900,901,903,905,935-938,1011,1012,1086,1087,1091,1093,  
B-1094,1136,1137  
Desmond, J.E.: B-70,72,83,84,85,86,88,89,90,92,641,645  
De Urioste, I.: B-1176,1178,1179,1182,1188-1190  
Diamantis, N.D.: B-634,635,636,637,646,648  
Dias, A.: B-172  
Diaz-Barrero, J.L.: B-908,932,933,935,937,938,941,960-962,966,968,971,997,1012,1013,1026,1161  
DiPorto, A.: B-514-519,526,527,530,531,540,543,575,598,599,664  
Dorp, A.: B-823,837,843,849,857  
Dresel, L.A G.: B-496-499,501,504,514-519,522-525,528-563,565-571,573,574,576-580,582-585,  
B-712-717,724-727,729,730-738,741-753,766-776,778-781,783-791,793-799,801-805,807,  
B-808,810-813,820,822-825,814-816,819,826-833,836-838,840-845,847-852,854-864,  
B-866-870,872,873-877,879-882,884,888-893,895-898,900-913,916-922,925-927,930-937,  
B-939,941-944,946-948,950,952-954,956-960  
Dry, R.: B-598,599  
Dujella, A.: B-772-777,782-801  
Duncan, D.C.: B-95,98,99,124,125

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### E

Eckert, E.J.: B-648,649  
Edgar, G.: B-101,103  
Edgar, T.: B-756,1263  
Edwards, A.: B-1051  
Edwards, S.: B-748-750,754,755,758,760,763,765,767-769,771,802,806,810,812,821,824,837,840,  
B-842,844,854,855,858,860-862,900,906,916,917,920,936-938,951,956,966-969,971,972,  
B-976-978,986,987,989,991-993,997,1021,1031,1041,1044,1045,1069,1070,1136,1137,1140,  
B-1142,1144,1167,1174,1176,1177,1179-1183,1184,1186,1188-1193,1209,1211,1218,1220,1257  
Egozcue, J.J.: B-932,933,935,937,938,941,1081,1086,1235,1237,1252,1264,1266,1268-1275  
Ek, B.: B-1142  
Engle, R.: B-358,359,360,361,362,363  
Englund, D.: B-150,152,172,173,174  
Erbacher, J.: B-4  
Eespinoza, P.F.F.: B-1142,1146  
Estrin, D.L.: B-121  
Ethridge, W.D.: B-1175  
Euler, R.: B-538,539,542,543,583,586-588,607,630,632,633,635,637,641,646,648,654,656,658,659,  
B-661,671,676,677,679,682,683,685,700,702,705,708,709,712,714,717-720,724,730,733,736,  
B-737,743,754,772,773,775,784,785,788,790,791,793-799,802,803,806,814,821,823,824,837,  
B-842,844,845,849,851

### F

Facchini, A.: B-509,510,567,587,588,634  
Fain, C.G.: B-430  
Falcón, S.: B-951-955,1051,1055,1058,1061-1065,1071,1075,1078,1083-1085,1088,1093,1094,  
B-1105,1116,1118,1147  
Farnsworth, D.L.: B-1167  
Fecke, R.: B-226  
Fedak, I.V.: B-756,1182,1186-1194,1195-1200,1201-1207,1209-1212,1214,1215,1216,1219-1222,  
B-1224-1228,1230,1231-1233,1235-1238,1240,1242-1255,1257-1266,1268,1270,1273,1275  
Fernández, E.A.E.: B-400,401  
Ferns, H.H.: B-35,36,42,50,88-90  
Fielder, D.C.: B-725  
Filipponi, P.: B-514-519,525-531,534,535,538,540,542-547,549,553,554,556-560,562-564,567,570,  
B-571,573-577,580,583,584,586-595,598-600,602-607,610-612,615-620,622-626,628,  
B-630-632,634,635,637-641,643-646,648,652-662,664,682-685,712,714,736,741,743-746,  
B-758,760,763,765,772,773,775,776,808  
Flanigan, F.J.: 704,730,743,744,746,749,750,775,815  
Fleischman, D.: B-1106-1121,1123-112-1135-1140,1142-1147,1149,1150,1151,1154-1161,1165,1166,  
B-1168-1171,1174-1180,1182,1184-1194,1196-1209,1211-1213,1215,1216,1218-1227,1229  
B-1232-1248,1250-1255,1257-1264.1266-1274  
Foster, J.: B-556,557,559,560,561,567  
Franusich, M.: B-192  
Freed, B.: B-359,546

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

Freitag, H.T.: B-52,63,100-102,119,127,131,131a,134-137,142,146,149,150,152,153,155-161,163-165,  
B-167,172-178,185-190,192-198,202,203,206-209,211-213,215,216,220-222,227-230,233,234,  
B-237,238,240,245,248-250,252-255,259,261,263-268,272,275,276,281,290,294,295,298-300,  
B-304-307,309,311,313,320,321,323,326-328,330,331,333,338,339,341-346,348-353,355,358,  
B-366,369,374,375,378,382,390,392-395,402,406,430-433,437,438,440,442,443,445,450,451,  
B-453,456,458,460,461,464,465,472,478,491,492,494,496,497,503,511,512,515,-522,526,527,  
B-530,531,541,549-551,553,556,568,569,571,573,578-580,583,586,595,596,597,604,606-609,  
B-613-617,620,622,633,637,641,642,646-648,654,658,659,669,674,675,679,682,683,686,689,  
B-691,694,695,702,703,708,710,714,716,732,733,738,749,754,766-770,785,791,793,796-799,  
B-802,811, 812,814,820-822,824,827,829,841,841,848,855

Friedman, J.: B-712-714,718,732,736,740

Frontczak, R.: B-756,1209,1222,1226,1227,1231,1233,1235,1237,1239,1242,1246,1247,1250-1252,  
B-1255,1256,1260,1264,1265,1268-1272

Fuchs, J.A.: B-32,64

Fults, D.A.: B-374,375

Furdui, O.: B-911-913,915-917,919,920,929,930,932,934,936-938,940-943,945-948,951-954,957,958,  
B-959,961,964,966-969,971-977,981-983,985,986,988-998,1000,1011-1013

## G

Galante, D. B-1211

Galinda, A.: B-1098

Gao, G.G.: B-636,637,641,676,679-683

Garcia, O.: B-1089

Gardner, C.L.: B-442,443,445

Garfield, R.: B-208-211,215,216,220,227-234,236,250-257,262-266,268,286-291,298-300,305,306,  
B-311,313,317,318,323,324,327,335,336,339,344-346,348,349,352-355,381,383,388-390,392

Gauthier, N.: B-754,758,860,871,879,882,913,952

Georghiou, C.: B-473,474,477,485,486,490-493,502,503,505-507,509-519,528-531,538,539,541-543,  
B-550,551,553,559-573,598-615,622-627,658-669,682-687,700-711,724-727,748-755,757-761,  
B-763,765,767-769,771-776,778-783,790-801

Gera, A.: B-1094,1097,1099-1104,1109,1110,1114,1116-1118,1120,1121,1124

Giaccai, G. J.: B-180

Gibergans-Báguena, J.: B-1013,1026

Gilbert, P.: B-706,784,785,786

Girse, R.: B-430

Giuli, R.M.: B-361,390,418

Gommel, A.: B-126,144,191

Gordon, J.C.: B-190,191,192,193

Gould, H.W.: B-239

Gould, L.D.: B-75,118,119,252,514,517-519

Goy, T.: B-756

Grassl, R.M.: B-24,177

Grau-Sanchez, M.: B-1012

Graves, R.: B-1130

Grayson, F.: B-20

Green, T.M.: B-556,598,599,802

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### G

Greubel, G.C.: B-756,886,971-977,979-998,1003-1009,1011,1012,1015,1017,1019,1027-1029,  
B-1031-1033,1035-1041,1044-1046,1049-1051,1054,1058,1059,1062,1064,1067,1070,1077-1080,  
B-1091,1093-1100,1136-1140,1151,1153-1155,1171,1172,1175,1182,1183,1185-1190,1218,  
B-1221,1222,1224,1231,1232,1235,1241,1242,1244,1245,1256, 1257,1259,1262-1265,1271,1272,  
B-1275  
Griffith, M.: B-713,714  
Griffith, P.: B-721  
Grimaldi, R.P.: B-996,997,1003,1008,1011,1012,1014,1044,1047,1110,1116,1120,1142,1144,1146,  
B-1189,1190,1235  
Guillotte, G.A.R.: B-154,155,159,215,216  
Gupta, A.K.: B-170,171,184,195  
Gurjar, K.K.: B-1263,1264,1266-1268  
Gurel, E.: B-1131,1132

### H

Habil, A.: B-1097  
Halton, J. H.: B-30,31,32,33,34,35,36,37  
Hamelin, S.: B-148-153,155-159  
Hanson, D.: B-35  
Harbol, M.: B-1190  
Harborth, H.: B-334,376  
Hartz, S.M.: B-1221  
Haskell, R.: B-1008,1014  
Hatzenbuehler, M.: B-312  
Haukkanen, P.: B-695,700,706,712,718,724,730,731,736,740,743,748,754,758,759,780,784,787,791,  
B-793,797-799,803,805,806,810,811,822,837,848,852,858,866,868,882,903,906,907,912,931,  
B-932,936,937,945,956-958,961,966,968,972,976,977,980,987,1041  
Hawkins, J.: B-1010,1012,1026-1028,1102,1106,1111,1116,1120,1121,1128,1142,1144,1167,1168,  
B-1176,1177,1184,1192,1193  
He, F.: B-516,517,583,584  
Heisert, G.A.: B-1047,1049,1118,1136,1196  
Hendel, R.J.: B-633,634,637,638,640-643,646,648,654,658,659,663,664,667,670,671,676,679,682,  
B-692,694-697,699-704,706-710,712-714,716-720,722,724,726-728,730-733,736,738-745,  
B-747-751,753,754,757,758,760,761,763,765,772-776,779,780-786,789-793,795-797,799-806,  
B-809-811,813-816,819-823,836-844,848-852,854,855,859,896,911,912,916,917,921,925-927,  
B-956-959,966,968,976-981,986-989,991-993,1001-1010,1012-1014,1017-1019,1021-1026,  
B-1028,1029,1031-1036,1038-1042,1044,1046,1048-1051,1053-1059,1061-1064,1066,1067,  
B-1069-1071,1073,1074,1077,1078,1080-1082,1084-1086,1091,1093,1095,1098-1100,1106,  
B-1108-1112,1116-1118,1120,1121,1124,1127,1128,1131-1133,1135,1137,1139,1140,1142,  
B-1144-1146,1148,1150,1153-1157,1159,1161,1162,1166,1167,1174,1176,1182,1189,1263,  
B-1264,1271  
Hendrix, C.: B-63  
Hennagin, S.: B-906,912  
Herring, T.: B-1142,1145,1146,1148  
Herrmann, E.: B-956,957,958,960  
Hesse, D.: B-214  
Heuer, G.A.: B-792,793,797,802,805,808,809,826,827,857,884,941,961,964,966,1008  
Heuer, K.W.: B-808



## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### H

Higgins, F.: B-286-292,294,295,297-300,303,311,314,317,318,320,321,323-328,330-333,430-434,  
B-454,455,457-459  
Higuita, R.: B-1081,1084,1086-1091,1101-1104,1106-1108,1112,1116,1117,1119,1120,1126,  
B-1128-1130,1132,1133  
Hilbert, N.: B-1126,1128,1129  
Hillman, A.P.: B-697  
Hillman, R.A.: B-1008,1019,1031,1032,1038,1039,1041,1044,1062  
Hindin, H.J.: B-252,253,311,313  
Hirschhorn, M.D.: B-1022,1023  
Hisert, G.A.: B-1058,1071,1077,1080,1190  
Hitchcock, J.A.: B-190,192  
Hlynka, M.: B-250,252  
Ho, C.Y.: B-1197  
Hobbs, S.: B-192  
Hofer, E.T.: B-279  
Hoerbelt, B.G.: B-172,173  
Hoffman, M.: B-294,295,311,313,317-319,328-333  
Hoggatt, V.E., Jr.: B-22  
Homer, J.E., Jr.: B-52-54,64,70,71,92,136-138,140,150,152,157,158,163,164,172,173,176,177,256,257  
Horadam, A.F.: B-426,544,545,549  
Howard, F.T.: B-514,860  
Howard, J.: B-670,695,736,879,882  
Hung, D.T.: B-334-336,341,342,344,348,351-354  
Hunsucker, J.L.: B-268  
Hunter, J.A.H.: B-25,29,30,36,38,49,52,60,63,88,119,120,136,142,187,189,191,208,226,232-234,  
B-238,240,250,293  
Hursey, R.J., Jr.: B-61,70,71

#### I

Iannucci, D.E.: B-688,689,706,708,709,935,938  
Irmak, N.: B-1196  
Ivie, J.: B-118,119,131a,134,136,137,142,146,163,172,173,302,352,353,448-450,452,453,460,  
B-461,718,724,730,736

#### J

Jackson, R.: B-713,714  
Jackson, W.D.: B-100  
Jackson, W.T.: B-133  
Jaiswal, D.V.: B-112,116,117,131a,132,134,135,136,137,140,143,146,148,149,150,151,153,214,  
B-215,216,217,218,219  
Jakubczyk, Z.: B-1058,1070-1072,1074,1081-1084,1086,1088,1092-1095,1098,1100-1102,1109  
B-1110,1116-1118,1132,1136,1137,1139,1140,1161,1162,1166  
James, E.: B-1254  
Janous, W.: B-454,458-464,473,476,479,480,482-489,502,503,505,508-519,526-531,534-543,  
B-854-859,900-908,910-919,925-938,940,942,943,946-948,951-965,971-980  
Jarden, D.: B-15  
Jaroma, J.: B-931,935,938,941,942  
Jay, G.: B-1142  
Jemreel, M.: B-937

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### J

Jensen, N.: B-664-667,669,688-690,692,742-753,760,761,763-788  
Jeong, W.K.: B-1271  
Jeuck, P.: B-974  
Johnson, N.R.: B-1237  
Johnson, V.P.: B-1172  
Joscelyne, C.: B-376,379  
Joyner, R.N.: B-708  
Juhlke, C.: B-118  
Junes, L.: B-1176

### K

Kaplar, R., Jr.: B-238  
Kappus, H.: B-538,542,543,545,546,548,550,551,553,556,559-561,605-607,609,632-637,640,641,  
B-644,663-665,670,674-677,684,695,697,698,702-705,718,719,722,742,743,746,747,749,  
B-750,752,754,755,758,763,765,768,769,771,784-786,790,792-795,814,815,818,821-824,  
B-833,837,848,851-853,858,860,863  
Karst, E.: B-144,185,190-192,233,234,238,240,241  
Kotronis, A.: B-116,1120  
Kavuklis, C.: B-714  
Kegel, J.: B-184,186,192,193,194,195  
Kenney, C.: B-185,187  
Khalili, P.: B-1116,1117  
Kiliç, E.: B-951,952,992,993,997,998,1105  
Killian, C.: B-1112  
King, B.W.: B-118,119,124,128,129,131a,134-137,142,145,146,148-150,152,155,157,158,160,161,  
B-163,167,173  
King, S.: B-192  
Klamkin, M.S.: B-196-198,514-519,745,746,755,763,769,771,775, 809,810,812,813,848-851,854,  
B-855,858  
Klarner, D.: B-60  
Klauser, H.: B-388,433,436,440,441,466,467,476,494,503,514,516-519,525,534,537,556,634  
Klein, E.M.: B-508,516,517  
Klein, L.M.: B-142  
Knight, G.: B-1142,1144,1146,1148  
Kober, B.: B-454  
Kocic, V.: B-926  
Kominers, S.D.: B-1031  
Konhauser, J.D.E.: B-82-88,92,124,130a,188  
Korntved, E.: B-730-732  
Koshy, T.: B-1233,1235,1252,1264,1270  
Košťál, J.J.: B-583,606,607,634,637,643,646,648,654,660-662,670,673,676,677,689,700,707,709,710,  
B-718,724,736,738,740,742,745,748-750,758,760,763,773,774,776,780,783,784,791-797,799  
B-801,802,996  
Kotronis, A.: B-1091  
Koutsoukellis, G.: B-576,577,586,592,593  
Královè, H.: B-890,893,986-990  
Kravitz, S.: B-47,71,72,81,95,334,336  
Krigens, D.A.: B-799,804,814,819,821,823,824,836,850,855,862

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### K

Krishna, H.V.: B-149,150,152,160,161,163  
Krishnapriyan, H.K.: B-695,749,750,754,758  
Krogt, E.: B-472  
Kubicek, M.: B-1126,1128,1129  
Kuenzi, N.J.: B-202,380,585,849  
Kuhapatanakul, K.: B-1192,1199,1209,1210,1218,1220  
Kuipers, L.: B-478-480,482-491,493,494,496-503,505-534,536,538-554,556-576,578-580,582-584,  
B-586,587,589,591-595,597-602,604,605,607-609,611,613-616,618-627,629,630,632-634,  
B-636-643,645,646,648,652-656,658-663,665,667,669,671,674,676,677,682,683  
Kumar das, M.:  
Kwong, Y.H.H.: B-625,626,630-632,634-643,645,647,652-654,656,658-663,665-667,  
B-670-672,682-684,712,714,716,717,724,727-729,731-733,748-750,760,761,780,781,784,785,  
B-802,805,806,807,810,811-814,821,823,824,827,829,831-833,837,842-845,848,851,860,  
B-878-882,896,897,900-903,905,906,908,910-913,927,930-932,936-938,942,946,948,951-954,  
B-956-965,967-980,986-993,995-998,1010-1020,1026,1027,1031-1033,1035,1041,1042,1044,  
B-1045,1047-1050,1062,1064,1081,1084,1086,1089-1091,1093-1096,1101,1104-1106,1110,  
B-1112,1116-1118,1120,1136,1137,1139,1140,1142,1144,1147,1151,1153-1155,1161-1167,  
B-1169,1172,1176,1178-1183,1188,1189,1208,1221

#### L

Lai, W-K.: B-1142,1144,1146,1157,1165,1169,1171,1175,1179,1190,1194,1197,1207,1209,1211,  
B-1212,1216,1218,1219,1221,1223,1236,1239-1241,1244,1247,1248  
Wei-Kai-Lai: B-1157,1226,1233,1235,1271,1274  
Landers, V.A.: B-1136  
Lake Superior Problem Solving Group: B-904,921  
Lang, C.L.: B-1127  
Lang, C.M.: B-1127  
Laquer, H.T.: B-334-345  
Laskowski, K.S.: B-83,84  
Latchman, S.: B\_1142,1144,1146,1148  
Lau, K-W.: B-896,900-902  
Laurie, D.P.: B-334  
Ledin, G., Jr.: B-30,38-40,43,70-72  
Lee, D.: B-1207,1211  
Lee, G.: B-118,119  
Lee, J.: B-646  
Lee, J.S.: B-562-573,586-590,592-597  
Lee, J.Z.: B-562-573,592-597  
Lee, S.H.: B-1071  
Lehotsy, M.: B-1128  
Leissner, J.: B-63  
Leong, T.: B-784,785  
Lewis, J.: B-903  
Lewis, K.E.: B-866,872,896,899,938,951,961,962,964,978,980,987,991,992,1003,1112,  
B-1116,1117,1120,1142,1144,1146,1154,1211  
Li, D.: B-1266  
Li, Z.: B-958,959,960

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### L

- Libis, C.: B-583,586-588,628,630,632-635,637,640,646,647,658,662,664,665,676,677,682,686,688,  
B-695,702,712,714,724,727,730-732,736,743,748,791,793,796,797,799,802,806,810,811,814,  
B-818,819,821,824,836-838,840,848,851,853,858,859,862,863,790,791,793,911,912,941,942,  
B-951,953,,961,977,1036,1086,1112,1118,1120,1263,1268,1270
- Liggins, K.: B-1081
- Lind, D.: B-17,22,23,25,27,29,30,32,35,36,38-40,42,43,45-49,52,53,54-68,74-77,83,84,86-90,92,93,  
B-100,101,104-109,112,116-121,136,148-150,152,159-161,163
- Lindberg, K.M.: B-1154
- Lindstrom, P.A.: B-157,158,163,167,168,172,173,176,210,220,221,226,230,233,234,236,294,295,  
B-299,300,317,318,388,393,458
- Lisi, N.: B-684,696
- Litvack, B.: B-30,31,33,36
- Liu, S.W.-W.: B-750
- Lombard, W.C.: B-100,101,106-109
- Long, C.: B-608,611,744,746,866
- Lopez, C.M.: B-1144
- Lord, G.: B-198,202-205,220-222,224,233,234,236,237,239,240,244,245,248,249,252-254,256-267,  
B-275,281,286,288-290,292,294,295,298-307,311,313,314,317,318,320,321,323-326,328,  
B-330-332,334-336,339,341,342,346,347,349-356,358,359,361-369,376,378,379,382,388,390,  
B-394,395,402,403,425-427,430,432,433,445,466,467,469,472,474-476,497,502,503,392,505,  
B-514,515,517,528,533,538,539,543,546,553-556,559,676,677,700,702,703,712,714,717,718,  
B-720,724,727,731,736,760,781,784,785,799,809,815,816,818,829,860,943,987,1017,1044
- Lowerre, G. F.: B-133,134
- Luca, F.: B-919
- Lynn, B.: B-172

#### M

- Madchengymnasium Essen-Borbeck [Anonymous solver]: B-466,467
- Mahmood, H.: B-1202
- Mahon, Br. J.M.: B-611-613,615
- Makri, F.S.: B-571
- Malraison, P.J., Jr.: B-227
- Mana, P.: B-112,123,133,151,167,190,200,202,204,205,212,214,240,247,370,380,383,388,390,571,  
B-608,617,657,693
- Mandal, S.: B-1202,1205
- Maner, D.E.: B-808-814,818,819,946,947,972,992,993,1003,1010,1012
- Manin, M.: B-1147
- Mansour, T.: B-920,930-933,946,947
- Maple, F.: B-1103
- Marafino, K.: B-60,63
- Marks, S.: B-1144,1146,1147
- Marshall, A.: B-133,142
- Martin, R.: B-900-907,909,916-918,920,951,953,1146-1148,1150
- Martinsen, G.: B-1146
- Mascioni, V.D.: B-484,486,510,514,515,517-519
- Mayorga, S.: B-1081,1084
- Mcanany, L.G.: B-1227
- McCaslin, Z.: B-1116

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### M

McCraken, C.: B-1121  
McDaniel, W.L.: B-755  
McDonald, G.C.: B-52,58,59,60,61  
McGee, R.: B-52-54,61,62,254,344,345  
McGuffin, R.: B-744  
McNabb, Sr. M.D.: B-24  
McNutt, R.H.: B-826,833,837,845  
Mead, D.G.: B-48  
Means, R.: B-21  
Melham, R.: B-688-690,694,695,700-704  
Melo, A.D.G.: B-1264  
Mercer, R.L.: B-105,118,124-127,129,130  
Mercer, R.W.: B-130  
Merenyi, I.: B-496,498,499,502,503,508-512,514-519,524,525,530-532, 534,538,539,541-543,556,  
B-559,560,562,564,567,578,579  
Metcalf, E.: B-1218,1221,1225,1228,1233,1235,1239,1241,1244,1245,1247  
Metzger, J.M.: B-376,377,508-510,522-525,534,536,537,548  
Miller, E.R.: B-388  
Miller, P.: B-83  
Milsom, J.W.: B-71,72,83,84,101,119,126,144,149,150,152,153,157,158,160,168,172,173,176,184,  
B-185,187,191,192,195,212,220,227,230,232-234,238,250,268,275,280,293,294,298,311,312,  
B-312,316,322,323,334,342,352-355,392,394,402,406,424,426,430,431,434,450,454,460-462,  
B-485,490-492,495-497  
Minh, C.A.: B-780,784,786,788,789,791,793,795-799  
Mitchell, D.: B-1049  
Moghaddamfar, K.: B-1221,1224  
Mohnsam, J.C.: B-1253  
Monteferrante, S.A.: B-659  
Montoya, C.: B-1209  
Mooney, J.D.: B-53  
Moore, C.F.: B-293-,297,317-321,323,326,341,342,344  
Moore, S.D.: B-484  
Morrison, J.F.: B-872,876,903,906,956,957,959,960,970,1010,1012,1044,1049,1081  
Morton, L.: B-26  
Moser, W.O.J.: B-407,413,522,937,952,987,988  
Muench, D.L.: B-529,530,531  
Murillo, L.: B-1142,1144,1146,1148  
Murty, P.V.S.: B-466,467

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### N

Natian, A.: B-1222,1224  
Ndimande, Z.: B-1142,1144,1146,1148  
Necochea, A.: B-635,637,640,641,670,689  
Neel, A.: B-143  
Nemoyer, J.: B-646,648  
Newcomer, K.E.: B-45,46,59  
Newman, H.: B-184,186,189  
Ngwane, F.: B\_1142  
Northern State College Problems Group: B-437

#### O

Obaid, S.A.: B-727,753  
Ohio Northern Univ Problem Solving group: B-1074,1078,1101-1103,1106,1166  
Ohtsuka, H.: B-1072,1137-1140,1142,1144,1151,1154,1158,1162,1168-1171,1175,1177-1179,  
B-1182-1185,1188-1190,1197,1201,1202,1204-1207,1212,1215,1216,1218,1219,1222,1235,  
B-1236,1238-1241,1244,1246,1247,1250,1251,1253,1255,1257,1258,1261,1263,1264,1268-1271,  
B-1273,1274  
Oman, J.: B-484,537,812  
Orjehouski, J.A.: B-6  
Oxford Running Club of U of Mississippi, B-637

#### P

Padilla, G.C.: B-98  
Padmaja, N.: B-1153  
Padrón, M.A.: B-842,850,851,854,855  
Paluso, L.: B-415,1266-1269,1271-1275  
Pantoja, P.H.O.: B-1077,1078  
Panwar, Y.K.: B-1058,1077,1080  
Park, P-S.: B-1180,1181  
Parker, F.D.: B-9,19,24,29,46,47,83,88,94,98,100,101,104,108,109,118,119,124,143,170,201,240,  
B-256,257,294,430,432,434,445  
Park, H.: B-416  
Park, J.: B-416  
Peck, C.B.A.: B-46,50,52-55,58-63,70,71,86,88-92,97,100,106-109,118-120,124-129,131,131a  
B-133-137,139,140,142-146,148-153, 155-159,166-168,170-178,184-189,191,192,194,  
B-206-208,210,220-222,226-231,244-246,250,252,253,255-258,260,262,264-268,270,271,  
B-275,280-282,285,298-300,303,305,306,311,312,316-323,325,341-343,346,348,352-355,  
B-364,370,383,388-396  
Perdomo, F.: B-1068,1165-1168,1170  
Perry, D.: B-191,192  
Peters, J.F.: B-436  
Peterson, J.: B-1081  
Pettke, U.: B-664-667,669  
Philippou, A.N.: B-490,575-577  
Philippou, G.N.: B-490-492,514,515,517,528,529,538,539,541,575  
Pla, J.: B-719,746

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### P

Plaza, Á.: B-842,850,851,854,855,951-955,971,973,886,1051,1055,1061-1065,1068,1071,1075,1078,  
B-1080,1081,1083-1086,1088,1093,1094,1101,1103,1104,1112-1114,1116-1118,1121,  
B-1123-1140,1142-1148,1151,1154-1162,1165-1168,1170-1175,1178-1180,1182,1184,1186  
B-1188,1191-1193,1196-1198,1200-1203,1205,1207,1209,1211,1212,1214,1216,1218-20,  
B-1222-1224,1227,1231-1237,1239,1242,1245-1247,1252,1254,1255,1256,1260,1262-1264,  
B-1266-1274  
Plotz, R.D.: B-280  
Pond, J.C.: B-66,67,69,79,82-86,88-92  
Ponnudurai, T.: B-334,336,366,369  
Pope, J.F.: B-250,293,316,320,321,342  
Popov, B.S.: B-455,654-656,695,697,698,700,703  
Popov, I.O.: B-707-709,711,717,722,724,725,727,779-781,784,786,789,796,797  
Popova, D.O.: B-712,714,718-720,787,790,793,799  
Pradhan, S.S.: B-1183  
Prielipp, R.W.: B-202,203,236,281,282,305,306,317,318,320,321,323,324,326,328,330,331,334,336  
B-337,341-344,346,347,351-356,358,360,362-367,369-380,382,383,387,388,392,393,395,398,  
B-400,402,403,406,409,414,418-420,423,424,426-,430,432,434-4380,440,442,443,445,  
B-448-451,454,455,457-467,469,470,471,472-476,478-480,484-492,494,496-499,502,503,  
B-505,508,510-512,514-519,523-542,544,545,547,549-551,553-556,559-564,568-571,573,  
B-575-580,583,585-590,592-595,598-603,605-609,611-616,618-625,627 630,632,633,635,  
B-637-641,643,646-648,652,653,658-661,664,666,667,669-673,676-679,681-683,686,  
B-688-690,692,694-696,700-703,705-710,712-720,724,725,728,731,734,736,737,741,  
B-743-750,754,758,760,763,766-775,778-780,783-785,790,791,793-799,801,802,811-815,  
B-821-823,827,829,831,836,837,839,848,849  
Priest, D.B.: B-70,71  
Primrose, E.: B-450,452  
Prodinger, H.: B-550, 551,553,901,902,903  
Pulido, J.: B-1055

#### R

Rabinowitz, S.: B-112,115,484,486,487,496,710,786,839,859  
Race, B.: B-1273  
Rajpurohit, H. B:-1191  
Ramanna, J.: B-118,120  
Ramirez, A.: B-1101  
Ramirez,O.C.: B-960,961,962  
Ravoson, V.: B-799,1182,1184  
Rayaguru, S.G.: B-1186,1188-1190,1239  
Rayport, S.: B-226  
Reales, V.M.: B-1218  
Reavis, A.: B-1154  
Recke, K.G.: B-172-177  
Redmond, D.: B-660,670,676,682,683,708,709,712,714,717,730,732,734,749,750,767,771,784-786,  
B-791,810,811,821,824,860,869,878,880,882,897,898,900,903,916,936,938,982  
Reiner, M: B-940,942  
Rennie, M.: B-172  
Ricardo, H.: B-1176,1179,1197,1201,1205,1207,1236  
Rico, C.: B-1081

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### R

Risher, J.: B-1175,1190,1197,1207,1209,1211,1212,1216,1219,1236,1240,1241,1247  
Rivera, P.J.R.: B-1239  
Robbins, N.: B-508  
Robins, W.: B-333  
Robinson, E.D.: B-395,637  
Rodríguez, K.D.L.: B-1226,1229,1230-1232,1234,1235  
Roehl, J.: B-805  
Roelants, H.: B-1037,1055  
Rose, M.A.: B-821,823,827,848,854,860,863,872,876,878,884,897,898,900,903,916,931,937,957,  
B-958,960,981,987,988,1041,1044,1080  
Rosenfeld, A.: B-72,191  
Rousseau, C.: B-1081,1083,1093,1094,1142  
Roy, C.: B-1106  
Rubenstein, M.: B-706  
Ruggles, I.D.: B-17,22  
Rumov, A.: B-742,744-746

### S

Sadek, J.: B-814,821,823,824,837,842,844,845  
Sadoveanu, I.: B-694,695,697,698  
St. Michel, S.: B-436  
Sahukar, M.K.: B-1183  
Salomaa, P.: B-233-237  
Sanchez, C.A.M.: b-1211  
Sands, P.: B-147  
Santos, L.: B-1055  
Satlow, G.: B-150,167,172,344,345  
Scarborough, S.: B-821,822,866  
Scheelbeek, P.A.J.: B-520,521  
Schmutz, E.: B-376,406,436,494,495,525  
Schumacher, R.: B-415,416,756,835,886,1202,1203,1209,1211,1214,1217,1218,1220-1222,1224,1227,  
B-1229,1231,1233,1235,1237,1239,1242,1245,1247,1249-1252,1254,1256,1257,1260-1275  
Schumaker, J.A.: B-802  
Schumann, M.R.: B-544  
Scott, B.: B-38,39,41  
Seader, L.: B-1144,1146,1147  
Sealy, R.P.: B-778,780,784,785,791,793,795,797,802,803  
Seaman, D.J.: B-8,29  
Seibert, J.: B-854-856,858,859,872,873,875-877,906-908,910,916-920,936-938,940-943,956-964,  
B-971-978,980-983,1001-1004,1016,1018-1020,1031-1033,1037-1039,1044-1046,1048-1051,  
B-1053,1055,1058,1059,1061,1062,1065,1067,1070-1072,1077,1078,1080,1081,1083,1086,  
B-1088,1097,1099,1100.1136-1140,1166,1167,1170,1176-1180,1186,1188-1190,1203,1204,  
B-1221,1222



# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### S

- Seiffert, H.-J.: B-452,460,487,490-492,502,510-516,538,539,542,544,545,550,551,553,554,562-565,  
B-567,575-577,580,583,584,587,588,591-593,596,597-603,605-609,611-616,618,619,622-624,  
B-630,633,635-642,646-648,652-654,656,658-661,664,670-673,676-679,680,,682,683,686,  
B-688-690,695,696,700-702,704,706-709,711-720,723-730,732-755,758,760-770,772-780,  
B-782-786,788,789,792,794-799,801-824,826-829,831-833,836-866,868-882,884,885,887-882,  
B-884,885,887,889-893,895-898,900,901,903-921,923-926,929-944,948,950-953,956-964,  
B-966-974,976,977,980-1000,1003,1004,1006-1015,1017-1019,1021-1027,1029,1031-1035,  
B-1041-1044,1047-1050,1101-1104,1121,1124
- Sellers, J.A.: B-827,878,879,882,884,896,897,905,906,911,912,936-938,946,949,951,959,961,962,  
B-966,967,976,977,980,987,988,991-993,996,997,1006,1010,1012,1032,1033,1044.1051,1086
- Senadheera, J.N.: B-415,1266-1270
- Sertbas, D.C.: B-416
- Shaikh, M.P.: B-682,684
- Shallit, J.: B-263,292,294,295,298-300,305,306,317,318,320,321,323,324,326,328,330,334,336,  
B-340-342,344,345,469
- Shannon, A.G.: B-100,104,106-109,112,118,119,122-124,127-132,134-138,140,143,146,148-150,  
B-152,153,155,157,158,160,163,172-176,178,184,196,208,209,275,279,286,288-295,297-300,  
B-302,304-306,311-314,317,318,320,321,335,336,339,344-347,352-357,364-367,369,373-375,  
B-380,388,390-393,406,407,426,428,430-437,450,452,460,461,485,486,511-513,515,516,528,  
B-529,538,539,540-545,549,637,718-720,724,725,727-729,733,736,738,748,749,784-789
- Shapiro, L.: B-742
- Sharpe, B.: B-60,64
- Shay, P.: B-192
- Shi, L.-L.: B-960
- Shields, C.B: B-359,394,395,418,424,426,430,431,436,448
- Shin, D-c.: B-1211
- Shiue, P.J.S.: B-542,572
- Shuayto, F.K.: B-45,50
- Siafarikas, P.D.: B-549
- Sielaff, R.W.: B-167,172,189,220,221,230,236,238,244,250,261
- Sikhwal, O.: B-1031,1044
- Sikltal, O.P.: B-1031
- Siler, K.: B-17,22
- Silvio, M.: B-1111,1117,1120
- Singh, G.: B-26
- Singh, S.: B-313,317,318,320,321,323,324,326,328,330-332,334,335,337,341-345,358-379,  
B-381-396,398,400,402-407, 409,412,414,418,419,421,422,426,427,429-435,437,438,440,  
B-442,443,445,448-455,457-476,478-480,484-494,496-498,502,503,505,508,510-512,  
B-514-519,522-536,544-551,553-561,568-570,573,575-579,586-590,592-616,618-627,629,  
B-630,632-635,637-642,646-648,650,652-655,658-661,664,666,667,670-672,676-679,682,  
B-683,686,688-690,700,702,703,707-709,712-716,718,720,724-728,730-734,736,737,740,  
B-741,754,755,758,760,772-776,784-786,791,793,795-799,821,823
- Singmaster, D.: B-310
- Sinnamon, G.: B-351
- Sivasubramanian, A.: B-227,230
- Şlak, Ü.I.: B-1091,1093,1095
- Smith G.W.: B-844,846

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### S

- Smith, J.L.: B-1136,1142,1146,1154,1167,1181-1184,1189,1191,1208,1211,1214,1218,1221,1222,1224,  
B-1226,1227,1231,1235,1237,1239,1245,1246,1250-1252,1254,1261,1263-1265,1267,1268,1270,  
B-1272
- Smith, P.: B-127,129,259,261,263,267,281,283,294,295,334,337,388-393,472,475,514-517,642,661,  
B-676,677,679
- Smith, Z.R.: B-1207
- Somer, L.: B-351,382,383,385,388,395,396,403,406,412,418,424,426,430,432,434,435,437,440,441,  
B-448,449,451,453,454,456-459,474,496,498,499,509,510,515,516,518,519,534,538-541,544,  
B-547,550,551,556,558-561,568-570,576-580,587,588,592,593,598-601,608,610-613,615,616,  
B-618-624,630,634,641,643,646,648,658-660,662,667,670-672,676,679,680,682-689,694-696,  
B-700,706,707,710,712,713,715,718,719,724,725,728,730,732,734,736,740,744,748,750,752,  
B-760,766,767,769,772-777,784,785,787,790,793,796-802,807,809-814,821-824,842,844,1142
- Sonntag, R.: B-364,376,388,392
- Spickerman, W.R.: B-708
- Spilker, J.: B-951
- Spoehel, E.S.: B-1218
- Spraggon, J.: B-452,477
- Stadler, A.: B-415,416,886,1209-1211,1221,1222,1224,1227,1230-1233,1235,1237-1240,1246,1247,  
B-1250,1251,1255,1257-1261,1263-1275
- Stam, A.J.: B-853
- Stamp, S.: B-688
- Stănică, G.: B-921
- Stănică, P.: B-903,905,908,910-913,921,922,933,1146
- Stanciu, N.: B-1163,1206
- Stanley, T.E.: B-202, 203
- Staples, D. : B-251
- Stevens, D.C.: B-192
- Stinchcomb, A.: B-769,771,815,816,941
- Stockmeyer, P.: B-1055
- Stone, D.R.: B-821,824,951,992,1010,1012,1026-1028,1102,1109,1111,1116,1120,1121,1128,1142,  
B-1144,1167,1168,1176,1177,1184,1192,1193
- Stoner, T.: B-1112
- Strazdins, I.: B-814,821,823,827,828,831,833,836-838,842-845,847-855,858-860,862,  
B-866-871,878-882,884,885,888,884,885,888,889,894,898,900,901,903-906
- Stutson, D.: B-941
- Suárez, S.A.: B-1222,1226,1227,1231,1233,1235,1246
- Subramanyam, D.: B-643,646,648
- Suck, J.: B-454,458,472-495,506-519,522,524,525,528,529,535-537,544-547,549-554,556,557,  
B-559-564,566-571,573-580,582-586,730-734,736-740,742-753,951,952,956
- Swamy, M.N.S.: B-52-54,59,60,64-67,69-71,85,94,98,99,106,108,109,112,116-119,134-137,140,  
B-256,257,263-268,760,767,772,774-776,784,785,789,799
- Stadler, A.: B-1156
- Stutson, D.: B-956,957,959
- Szilárd, A.: B-860,861,862-864

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### T

Tadlock, S.B.: B-45,50  
Tarekegn, E.: B-1142,1144,1146,1148  
Taylor, J.M.: B-820  
Terr, D.C.: B-415, 416,748,750,754,755,757,760,766,768,769,772,773,775,777,802,815,1062,1067,1070,  
B-1182, 1183,1186,1188,1189,1191,1196,1199,1200,1211,1226,1227,1229,1237,1238,1245,1247,  
B-1251,1254,1255,1260,1261,1264,1265-1267,1270,1272  
Thomas, R.: B-706-710,712,714,716-718,724,727,730-734,736,738,740,741  
Thomas, W.E., Jr.: B-256,257  
Thompson, C.C.: B-400  
Thrimurthy, P.: B-268,269,272  
Tiscareno, L.: B-1190  
Topley, B.: B-190,192  
Toroitich, D.: B-1081  
Torretto, R.: B-31  
Tracy, P.: B-255,260,276  
Treitzenberg, N.: B-583,584  
Trigg, C.W.: B-71,72,95,109,126,144,172-174,176,177,232,235,250,312,316,322,348,376,382,385  
Tripathi, A.: B-622-627,629,630,632-639,658,659,664,666  
Trojovský, P. B-991,992,993,994,995,996,997,998,999,1000  
Trutzenberg, N.: B-586,589  
Tugler, N.: B-926  
Tuglu, N.: 936,938  
Tuller, D.: B-733  
Türe, M.:B-1264  
't Woord, A.N.: B-730-735,738,745,748-750,752,753  
Tzermias, P.: B-583-585,598,599,602,603

#### U

Uchiyama, S.: B-482,483  
Unnithan, S.: B-960,1114,1121,1124  
Utz, W.R.: B-454,514,516,538,676

#### V

Văcaru, D.: H-1246,1247,1250,1253,1258,1268,1273  
Vasaturo, A.: B-1232,1233,1235-1237  
Vawter, R.N.: B-24,25,29,  
Vespe, C.: B-137,148-153  
Viggiani, T.A.: B-83  
Vogel, J.W.: B-381  
Vogel, R.L.: B-490-492,528,529,530,531  
Vucenic, W.: B-199,200,201

## ELEMENTARY PROBLEM INDEX

### Solvers other than Proposers (Continued)

#### W

- Wachtel, M.: B-376,400,401,406,426,431,434,442,443,445,464,476,478,494,495,503,508,515,516,  
B-532-534,536,537,557,558,574,634,647
- Walker, T.: B-1140
- Wall, C.R.: B-10,14,18,20-25,30,31,33-37,46-50,52-54,60,61,106,108,109,134,135,448-451,468,  
B-490-493,753
- Walton, H.L.: B-24,39,40,45,52,53,55,59,60,70,71,76,83,84,98,134
- Wang, B.: B-956,957,960
- Wang, J.F.: B-554
- Wang, W.: B-1196
- Wasutharat, R.: B-1124,1139,1140
- Waters, T.: B-244
- Watson, J.: B-1133
- Weiner, D.: B-1142,1161,1166,1176,1177,1179,1180,1186,1188,1192,1227,1250,,1257,1266,1269  
B-1272
- Weinshenk, R.: B-30
- Weiss, M.C.: B-286,311-314
- Weitsman, J.: B-399-401,437,441
- Wessner, J.: B-39,52,59-61,63,64,70,71,90,106,109,118,119,124,127,129,131,142,144,146,167,  
B-170-172,174,185,186,188,189
- White, C.: B-910
- White, T.P.: B-534,550-554,568,569,571,573,583-585
- Whiten, J.: B-956
- Whitney, R.: B-24,38,39,250,252,254
- Wickett, K.M.: B-60,63
- Wijers, H.J.M.: B-611,612
- Williams, L.: B-250
- Woroty nec, S.: B-448,449
- Wulczyn, G.: B-136,137,142,146,155,159-161,164,172,173,175-177,202,203,206,207,221,222,244,  
B-245,248,249,254,256,257,262-268,270,271,277,278,281-283,288-290,292,294,297,311,314,  
B-317,318,320,321,323,324,328,330-332,334-337,341,343-347,352,354,356,360,362-366,368,  
B-371,372,376,378,379,382,385-388, 390,392-394,396,398,400,401,404,406,418,423,424,426,  
B-427,436,437,440,442,448-452,454,455,458,460-463,466,472,475,476,496-499,506,507,  
B-515-519,586,592-597,606,607,611-614,634,635,637-639,646-649,658,659,661,662,798
- Wyatt, A.: B-190,192

#### Y

- Yalavigi, C.C.: B-149,152,153
- Yang, C.S.: B-554
- Yilmaz, N.: B-1142,1166
- Yoder, M.: B-136-138,140,142-146,148-150,152-155,157-177

# ELEMENTARY PROBLEM INDEX

## Solvers other than Proposers (Continued)

### Z

Zeitlin, D.: B-45,46,50,53,57,60,61,65-67,70,71,73-75,78,83-90,92,98-101,104, 106-109,112,115-118,  
B-120,124,126-128,130,131a,133-135,142,143,148-150,153,155,157,158,163,166,170,171,  
B-173-177,185,187,189,191-194,197-199, 208,209,215-219, 222,227-230,232-234,238,240,244,  
B-245,249,250,252-254,256,257,259,261-272, 277,278,286,288,289,291,297,298,301-303,307,  
B-309,311,313,314,317,318,320,321,328,330,331,334-336,338,339,341,342,344,345,347,349,  
B-352,353,356,515,567,601,608,614,615,738,741,742,745,746,748,749,751,753,757,758,767-776,  
B-779-782,802-804,806,809,810,812,817,818

Zelator, K.: B-1028

Zemba, K. :B-1111,1117,1120

Zhao, H-X.: B-841,951,952,954

Ziegenfus, C.: B-39,45,49,52-54,59,60

Zimmerman, L.: B-311

Zimmerman, S.L. B-1222

Zinkle, M.: B-1120

Zitarelli, D.E.: B-30

Zlota, N.: B-1158,1159,1162,1169,1171,1175,1178,1179,1201,1205,1221,1232

Zuparko, R.: B-190,192

\*\*\*\*\*