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Autore	Savchev Svetoslav
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Nota di contenuto	; 1. A telescoping sum -- ; 2. Lagrange's identity -- ; 3. Perfect squares -- ; 4. Lest common multiples -- ; 5. Trig substitutions -- Coffee break 1 -- ; 6. Popoviciu's theorem -- ; 7. Catalan's identity -- ; 8. Several inequalities -- ; 9. Vectors -- ; 10. Mathematical induction at work -- Coffee break 2 -- ; 11. A highly divisible determinant -- ; 12. Hermite's identity -- ; 13. Complete sequences -- ; 14. Three polynomials -- ; 15. More about induction -- Coffee break 3 -- ; 16. A classical identity -- ; 17. Multiplicative functions -- ; 18. The "arbitrary" Proizvolov -- ; 19. Holder's inequality -- ; 20. Symmetry -- Coffee break 4 -- ; 21. He knows I know he knows -- ; 22. A special inequality -- ; 23. Two inductive constructions -- ; 24. Some old-fashioned geometry -- ; 25. Extremal arguments -- Coffee break 5 -- ; 26. The AMS inequality -- ; 27. Helly's theorem for one dimension -- ; 28. Two approaches -- ; 29. Radical axis -- ; 30. The pigeonhole principle -- Coffee break 6 -- ; 31. The three jug problem -- ; 32. Rectifying trajectories -- ; 33. Numerical systems -- ; 34. More on polynomials -- ; 35. Geometric transformations -- Coffee break 7 -- ; 36. The Game of life problem -- ; 37. Tetrahedra with a point in common -- ; 38. Should we count -- ; 39. Let's count now -- ; 40. Some elementary number theory -- Coffee break 8 -- ; 41. Euclid's game -- ; 42. Perfect powers -- ; 43. The $2n-1$ problem -- ; 44. The $2n+1$ problem -- ; 45. The $3n$ problem -- Coffee break -- ; 46. Pairwise sums -- ; 47. Integer progressions -- ; 48.

Incomparable sets -- ; 49. Morse's sequence -- ; 50. A favorite of Erdos.

Sommario/riassunto

Mathematical Miniatures is a problem collection of arresting mathematical insight and ingenuity. The authors brought together materials from mathematical competitions, books, research papers, discussions, and their own work. Such mathematical substance went far beyond the purposes of a traditional problem-solving book. The most attractive results refused to fit into the schemes of an instruction manual meant to exemplify typical problem solving techniques. A broader interpretation of these problems had to be identified, and this book is the fruit of that effort. Savchev and Andreescu detach certain statements or groups of related statements into independent sections. Treating these gems separately, in self-contained essays, emphasizes the source of their natural charm---connections with genuine mathematical experience. The essays are of impressive diversity, enlivened by fresh and original ideas. They involve concepts not only useful but also beautiful and nonstandard, with lots of esthetic appeal. The book is thus not so much a mathematical toolchest: it is an anthology of mathematical verse.
