

ALGEBRA THROUGH PROBLEM SOLVING BOOK REVIEW

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A paperback entitled Algebra Through Problem Solving, written by Abraham P. Hillman, University of New Mexico, and Gerald L. Alexanderson, University of Santa Clara (1966, Allyn and Bacon) has appeared as one of a series entitled Topics in Contemporary Mathematics. The following sequence of topics is covered.

1. The Pascal Triangle
2. The Fibonacci and Lucas Numbers
3. Factorials
4. Arithmetic and Geometric Progressions
5. Mathematical Induction
6. The Binomial Theorem
7. Combinations and Permutations
8. Polynomial Equations
9. Determinants
10. Inequalities.

The manner of treatment is to give a presentation of the basic ideas in a succinct and cogent fashion and then allow the student to become familiar with these ideas by solving numerous and varied problems. This approach, it seems to the present reviewer, is highly commendable.

Of particular interest is the role given the Fibonacci and Lucas numbers. Note that these sequences are introduced early in the book. In Chapter 2, they are used in the main to provide the student with an opportunity to make mathematical conjectures on new and unfamiliar material. But the authors do not stop there. As might be expected, they play a key role in the chapter on mathematical induction and are brought in occasionally in other portions of the book as well.

An unofficial and rapid count of these loci apart from Chapter 2 is given below.

In the chapter on mathematical induction, p. 35, No. 4; p. 37, No. 17, p. 38, Nos. 19-25 inclusive; in the chapter on the binomial theorem, Nos. 33-36, pp. 49-50; in the chapter on determinants, No. 17, pp. 94-95; in the chapter on inequalities, No. 5, p. 107, No. 28, p. 117.

(Text continued on p. 269.)