

ADVANCED PROBLEMS

All solutions of Advanced Problems should be sent to J. Barlaz, Rutgers - The State University, New Brunswick, N.J. Solutions of Advanced Problems in this issue should be submitted on separate, signed sheets and should be mailed before December 31, 1964.

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5210. *Proposed by T. J. Kaczynski, Evergreen Park, Illinois*

Let K be an algebraic system with two binary operations (one written additively, the other multiplicatively), satisfying:

- (1) K is an abelian group under addition,
- (2) $K - \{0\}$ is a group under multiplication, and
- (3) $x(y + z) = xy + xz$ for all $x, y, z \in K$.

Suppose that for some n , $0 = 1 + 1 + \dots + 1$ (n times). Prove that, for all $x \in K$, $(-1)x = -x$.