$i=1, \cdots, c$, and $c \leqq 2$, r_1 or $r_2=1$. But this implies that A is a permutation matrix.

CONJECTURE. *If $A=(a_{ij})$ is an n-square* (0, 1)*-matrix then*

$$p(A) \leqq \prod_{i=1}^{n} (r_i!)^{1/r_i} \tag{3}$$

with equality if and only if there exist permutation matrices P and Q such that PAQ is a direct sum of matrices all of whose entries are 1.

The conjecture is known to be true for all (0, 1)-matrices whose row sums do not exceed 6.

REFERENCE

1. H. J. Ryser, *Combinatorial mathematics*, Carus Math. Monograph No. 14, Math. Assoc. Amer., 1963.

UNIVERSITY OF FLORIDA

THE COLLINEATION GROUPS OF DIVISION RING PLANES. I. JORDAN ALGEBRAS

BY ROBERT H. OEHMKE AND REUBEN SANDLER

Communicated by Nathan Jacobson, July 17, 1963

In this note, we outline a method which reduces the determination of the collineation group of a division ring plane to the solution of certain algebraic problems—in particular, to the question of when two rings of a certain type are isomorphic. This method is then applied to planes coordinatized by finite dimensional Jordan algebras of characteristic $\neq 2, 3$, and their collineation groups are determined. Complete arguments and detailed proofs will appear elsewhere.

1. Let $\mathfrak{R}$ be a nonalternative division ring, let $\pi(\mathfrak{R})$ be the projective plane coordinatized by $\mathfrak{R}$, and let $G(\pi)$ be the collineation group of π. Then (see [1]) $G(\pi)$ possesses a solvable normal subgroup whose structure is known, the elementary subgroup, such that the factor group is isomorphic with the group of *autotopisms* of $\mathfrak{R}$, $A(\mathfrak{R})$. Also, $A(\mathfrak{R}) \approx H(\pi)$, where $H(\pi)$ consists of those elements of $G(\pi)$ which leave fixed the points (∞), (0), and (0, 0). (See [2], Chapter 20 for the coordinatization of projective planes.)

Let $B(\mathfrak{R})$ be the *automorphism* group of $\mathfrak{R}$. Then $B(\mathfrak{R}) \approx H_1(\pi)$, where $H_1(\pi)$ consists of those elements of $H_1(\pi)$ which leave the point