SHORTER NOTES

The purpose of this department is to publish very short papers of an unusually elegant and polished character, for which there is no other outlet.

THE CENTER OF A COMPLETE RELATIVELY COMPLEMENTED LATTICE IS A COMPLETE SUBLATTICE

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1. **Introduction.** The purpose of this note is to prove the assertion of its title. The notion of the *center* of a continuous geometry was introduced by J. von Neumann [**7**, p. 240] who established the fact that the center of such a lattice is a complete sublattice. It is well known [**1**, p. 27] that the center of any lattice with 0 and 1 is a Boolean sublattice, but it is not known if the center of a complete lattice must be a complete sublattice. Several authors have, however, established this result for various classes of relatively complemented lattices. Specifically, Kaplansky [**5**, Theorem 5, p. 558] proved it for complemented modular lattices, Foulis [**2**, Lemma 3, p. 67] as well as Holland [**4**, p. 72] for orthomodular lattices, and S. Maeda [**6**, Theorem 3, p. 158] verified it for a relatively semi-orthocomplemented lattice. Our theorem will include all of the above results as special cases.

2. **Proof of the theorem.** The author wishes to thank the referee for suggesting the following proof. Let L be a complete relatively complemented lattice, and let $\{Z_i: i \in I\}$ be a family of central elements of L. Then $Z = \bigwedge_i Z_i$ generates an ideal which is obviously the kernel of a congruence relation. Therefore by Theorems 8 and 11 of [**3**], Z is neutral. Since L is complemented, Z is in the center of L.

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ADDENDUM TO *SOME QUARTIC DIOPHANTINE EQUATIONS OF GENUS* 3

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I am indebted to Mr. K. Kloss of the Bureau of Standards, Washington, D. C., for many numerical instances of Theorem III applied to the equation

$$L^3x^3 + M^3y^3 + N^3z^3 = 0.$$

For example, when $a=7$, $b=15$, $c=23$, we can take

p	q	r	L	M	N
8280	4991	13335	12176	6473	−3881
8280	16583	15855	−20512	5297	−353
11040	3703	14175	18208	10313	−6073

These equations, which have no solutions, cannot be proved impossible by taking congruences mod 16.

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