E. Ascher and H. Grimmer Nagoya Math. J. Vol. 48 (1972), 203

COMMENT ON A PAPER BY TAHARA ON THE FINITE SUBGROUPS OF GL(3, Z)

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Tahara [1] has concretely determined the conjugate classes of finite subgroups of $GL(3, \mathbb{Z})$. The group W_5 in his list of groups of order 24 is in fact of order 12 and consists of the same matrices as the group W_6 in his list of groups order 12. Hence, there are only 10 conjugate classes of subgroups of order 24 in $GL(3, \mathbb{Z})$ and the total number of conjugate classes of finite subgroups is reduced to 73.

Zassenhaus [2] proved that there is a one-to-one correspondence between conjugate classes of finite subgroups of $GL(n, \mathbb{Z})$ and arithmetic equivalence classes of point groups of crystals in n dimensions. The 73 arithmetic equivalence classes of point groups of crystals in 3 dimensions were first determined by Niggli and Nowacki [3]. Wondratschek, Bülow, and Neubüser [4] solved the analogous problem for n = 4 and found that there are 710 classes in this case.

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Received May 8, 1972.

https://doi.org/10.1017/S0027763000015208 Published online by Cambridge University Press