1048-20-339 **Esther Beneish***, Department of Mathematics, Mount Pleasant, MI 48859. *Lattice invariants over cyclic groups and Noether settings.*

Let F be a field of characteristic zero containing primitive m^{th} roots of 1 for all natural numbers m. Let ω_m be a primtive m^{th} root of 1 for some positive integer m, and let p be a prime such that m divides $p-1$. Let a be an integer which is a primitive m^{th} root of 1 mod p, and let $I_{p,m}$ be the ideal in $Z[\omega_m]$ generated by p and $\omega_m - a$. Let G be a cyclic group of order n with the following property. For each class C in the class group of ZG, which contains a maximal ideal, there exists a maximal ideal U in C with ZG/U of exponent p, such that n divides $p-1$, and such that for all m dividing n, $I_{p,m}$ is principal. This condition is satisfied by all finite cyclic groups for which the class group of ZG is zero. We show that for any ZG-lattice M, $F(M)^G$, the fixed subfield of $F(M)$, is stably rational over F. As a direct consequence of this, we obtain the following result. For any finite G-module T, $F(G')^{G'}$, the fixed subfield of the Noether setting of the group $G' = T \rtimes G$, is stably rational over F. (Received February 10, 2009)