Becky E Hall* (bhall@wesleyan.edu). Membership in an Ideal in the Group Ring, \( \mathbb{Z}[GL_3(\mathbb{Z})] \).

In an effort to improve upon a computation for modular forms for \( GL_3(\mathbb{Z}) \), a small set of generators is desired for an ideal in the group ring, \( \mathbb{Z}[GL_3(\mathbb{Z})] \). The notion of a Gröbner basis can be extended to such a group ring. It will be shown that under certain conditions, membership in a group ring ideal can be determined. (Received September 15, 2008)