1046-11-1349 **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 $\mathrm{GL}_3(\mathbb{Z})$, a small set of generators is desired for an ideal in the group ring, $\mathbb{Z}[\mathrm{GL}_3(\mathbb{Z})]$. 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)