1054-42-34 **Joe Adams*** (jdfadams@gmail.com), 7399 Magnolia Ave. #2, Riverside, CA 92504. *Finite Fourier Analysis and Polynomial Multiplication.* Preliminary report.

We begin with a discussion of characters and a development of Fourier analysis on a finite abelian group. Then using Z/nZ as a special case, we introduce the discrete Fourier transform (DFT) and associated identities. The circular convolution and the circular convolution property provide an efficient means of polynomial multiplication. We conclude with some applications of finite Fourier analysis. (Received August 13, 2009)