

General Mathematics and ACM II

Exercise 18

May 4, 2011

1. Let

$$v(x) = \sum_{k=-\infty}^{\infty} \hat{v}_k e^{ikx}.$$

Show that

$$\hat{v}_k = \frac{1}{2\pi} \int_0^{2\pi} e^{-ikx} v(x) dx.$$

(You may assume you can freely exchange summation and integration, and that all sums converge.)

2. Handout, Exercise 1.