

General Mathematics and CPS II

Exercise 20

April 25, 2014

1. Recall the definition of the Fourier series,

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

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.
3. Handout, Exercise 2.