

# Applied Mathematics Report 2

Isao Sasano

2016 June 14

**Deadline** 23:59 on July 5

**Submission** Solve the following problem, write the answers in word or pdf format, make a folder of your ID number like XL15000 in the folder of `kadai2` in the folder of **Submission** in the folder of **Applied Mathematics**, which can be accessed on the computers in this institute, and put the file in the folder you made.

**Note** Write the date when you made the file, your ID number, and your name in the file. As for the graphs, use some drawing software like gnuplot to depict graphs and embed them in the file of the report. Write the process of calculation. You may hand-write the process of calculation and scan it, but even in that case use some drawing software to depict graphs. If you submit the report after the deadline, I do not guarantee the point of the report to be included in the total score.

**Problem** Calculate the Fourier series of the function  $f(x) = x^2 + x$  on the range  $[-\pi, \pi]$  and then depict a graph of the partial sum up to the terms  $\cos 5x$  and  $\sin 5x$

$$\frac{1}{2}a_0 + a_1 \cos x + b_1 \sin x + \cdots + a_5 \cos 5x + b_5 \sin 5x$$

and the function  $f(x)$ .