

Analytic Number Theory

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Problem Sheet 2

Due date: Tuesday, 01.03.2016

Problem 1. (The asymptotic formula in the prime number theorem)

We define Mertens' function as

$$M(x) = \sum_{n \leq x} \mu(n).$$

Modify the proof of the prime number theorem to show that

$$M(x) \ll x \exp(-c(\log x)^{1/10})$$

for some constant $c > 0$.