$\begin{array}{c} {\rm Number\ Theory\ II} \\ {\rm Fall\ 2008} \end{array}$

Assignment 9 (cont.)

Exercise 1. Prove that

$$\sum_{n \le x} \frac{\Lambda(n)}{n} = \int_1^x \frac{\psi(t)}{t^2} dt + O(1).$$

Use this to conclude that

$$\int_1^x \frac{\psi(t)}{t^2} dt = \log x + O(1).$$