Exercise 1. Let $A_2 = A \cdot \log A + A * A$. Prove that Selberg’s asymptotic formula (Theorem 4.18) is equivalent to the statement

$$\sum_{n \leq x} A_2(n) = 2x \log x + O(x).$$

Exercise 2. Let $g(x)$ and $h(x)$ be continuous at $x = 0$ with $g(0) = h(0) = L$. Suppose $f(x)$ is a function with the following property: for any $\epsilon > 0$ there exists an $x_0$ so that $g(\epsilon) \leq f(x) \leq h(\epsilon)$ for all $x \geq x_0$. Prove that $\lim_{x \to \infty} f(x) = L$. What choices of $g$ and $h$ are used in Levinson to prove the prime number theorem (see page 244)?