

MATH 350 ASSIGNMENT 9, SPRING 2017

Due in class on Monday, March 27

Part 1. From the textbook *A friendly introduction to number theory*.

- Exercise 15.1
- Exercise 16.3
- Exercise 17.3
- Exercise 17.4

Part 2. Extra credit problems.

- E1. Exercise 19.7 (a)
- E2. Exercise 15.7 (b) of Silverman, 4th edition (= Exercise 15.6 (b) of Silverman, 3rd edition)
- E3. Exercise 19.2 of Silverman.
- E4. (a) Determine the range of s for which the infinite series

$$\sum_{n \geq 1} \sigma(n) n^{-s}$$

converges.

(b) Find an explicit expression for the above function in s (in the domain of convergence) in terms of the Riemann zeta function

$$\zeta(s) = \sum_{n \geq 1} n^{-s} = \prod_{p \text{ prime}} (1 - p^{-s})^{-1}$$