

### Homework 10, due on Wednesday, April 22

Read carefully chapter 3 in the book. Solve problems 4, 14, 15, 39, 40, 47, 61, 64, 66 in chapter 3.

Also solve the following problem.

**Problem 1.** For two arithmetic functions  $f, g$  we can define their usual product  $f \cdot g$  by  $(f \cdot g)(n) = f(n)g(n)$  for every positive integer  $n$ . Prove that  $f$  has the property that  $f \cdot (g * h) = (f \cdot g) * (f \cdot h)$  for any arithmetic functions  $g, h$  if and only if  $f$  is completely multiplicative.