

### Homework 13

due on Wednesday, April 11

Study carefully Chapter 3 of the book. Solve problems 43, 44, 50, 51, 56, 59, 65, 66 in Chapter 3.

Also solve the following problem.

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