Homework
due on Monday, March 7

Read carefully the notes about functions linked on the course web page and sections 5.4 and 9.1 in the book. Solve the following problems.

Problem 1. Let $f : A \longrightarrow B$ and $g : B \longrightarrow C$ be functions.

a) Prove that if both f and g are surjective then gf is surjective.

b) Prove that if gf is injective then f is injective. Show by example that g need not be injective.

Problem 2. Let $f : \mathbb{Z} \longrightarrow \mathbb{Z}$ be a function defined as follows: $f(m)$ is the last digit in the decimal expansion of m. What is the domain, codomain, range of f? Find $f(S)$, where S is the set of all even numbers.

b) What is $f \circ f$?