

# Math 204- Discrete Mathematics, Spring 2010

Quiz 2, March 15, 2010, 15:40 group

Time: 25 minutes

*Write your solutions clearly, provide explanation, etc.*

*Do not forget to write your name and ID No on top of the page!*

## Problem 1 (5 pts each).

a. Determine if the function  $f : \mathbb{Z} \times \mathbb{Z} \longrightarrow \mathbb{Z}$  defined by  $f(m, n) = m^2 + n^2$  is one-to-one.

b. Determine if the function  $f$  above is onto.

## Problem 2 (8+2 pts).

a. Write an algorithm for finding the first and second largest elements in a list consisting of distinct integers. (Write a pseudocode and remember things we look for in an algorithm: general, precise, ends in finitely many steps, ...)

b. Check your algorithm by running it on the list 3,4,13,25,37,12. Clearly write down how it proceeds.