Problem 1 (5 pts each).
   a. Determine if the function $f : \mathbb{Z} \times \mathbb{Z} \rightarrow \mathbb{Z}$ 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.