MATH 330-05 Quiz 3 Your name _____

Show all answers and work on this paper. Show all the work necessary to solve the problem. (That could be zero work.)

(1) (15 points) Write a complete proof *using mathematical induction* of the following proposition.

Proposition Q3. $n^2 > n$ for all natural numbers $n \geq 2$.

TURN OVER FOR QUESTION 2.

(2) (10 points) Define the relation R on the set $\mathbb{Z}$ by xRy if $x^2 = y^2$. It is a fact (don't prove it) that R is an equivalence relation. Find the equivalence classes of R. Prove the correctness of your answer.