PROBLEM OF THE WEEK

12/1/09   **due   NOON**   12/14/09

CAN YOU GIVE US A SOLUTION?

Problem No. 14 (Fall 2009 Series)

A set F is called countable if either F is finite or there is a one–to–one correspondence between the elements of F and the natural numbers. Two sets A and B are called almost–disjoint if $A \cap B$ is finite.

Prove or disprove: There are uncountably many pairwise almost–disjoint sets of natural numbers (positive integers). In more formal language: Does there exist an uncountable set F such that each element of F is a set of natural numbers and each two elements of F are almost–disjoint?