## PROBLEM OF THE WEEK Solution of Problem No. 1 (Spring 2013 Series)

## Problem:

# Show that every set of n+1 positive integers, chosen from a set of 2n consecutive integers, contains at least one pair of relatively prime numbers.

Solution: (by Kilian Cooley, Senior, Math & AAE, Purdue University)

The 2n consecutive integers can be split into n disjoint pairs where the elements of each pair are consecutive. Therefore at least two of the n + 1 chosen integers are in the same pair and are consecutive. The greatest common divisor of those two integers must also divide their difference, which is 1, so those two integers are relatively prime.

## The problem was also solved by:

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