

Weekly Problem Competition

Friday, October 23, 2009

Four 1's and five 0's are written on a circle in no particular order. We perform the following operation with these numbers: between same numbers we write a 0, and between different numbers we write an 1; then all original numbers are erased. With obtained numbers we perform the same operation again. Prove that after several such operations it is impossible to get nine zeros.

Remarks:

The rules and results of the competition can be found at <http://www.math.iit.edu/~weeklyproblem>
You have to submit the solution by email, to weeklyproblem@math.iit.edu
Please feel free to tell any IIT undergraduate student about the competition.

**Thank you for your participation
Good Luck !**