

**Weekly Problem Competition**

**Friday, March 07, 2008**

In front of a sergeant there is a row of  $N$  soldiers. The sergeant commands “Turn Left”. Some of the soldiers turn left the rest of them turn right. After that, every second, any two soldiers that are neighbors and stay face to face are turning by 180 degree. Prove that the movement of the soldiers will stop in finite time. Estimate the amount of time after which for sure there are no movements.

**Remarks:**

The rules of the competition <http://www.math.iit.edu/~weeklyproblem>

You have to submit the solution by email, to [weeklyproblem@math.iit.edu](mailto:weeklyproblem@math.iit.edu)

Please feel free to tell to any undergraduate student about the competition.

**Good Luck !**