

Problem of the Week

Proposed by Bernardo Ábrego and Silvia Fernández

February 20-27



There are 12 gnomes living in a forest. Each one has his own group of friends and his own house painted either blue or red. On the i th month of the year, the i th gnome visits all his friends. If more than half of his friends have their house painted of a different color than his own, then he joins them by repainting his house. Show that there is a moment (perhaps after many years) where no gnome will have to repaint his house. (Gnome friendship is mutual and it never changes overtime.)

This contest is sponsored by the Mathematics Department. Open to all CSUN students.

Winner gets \$5 or an equivalent prize. All complete and correct solutions get a certificate.

Type and send your solution before February 27th, 9:00PM to silvia.fernandez@csun.edu.

All steps of the solution must be clearly justified.

For rules, winners, solutions, and more information visit: www.csun.edu/math/probweek