California State University
Northridge

Department of Mathematics

Problem of the Week

Let n be a positive integer. Suppose that $a_1, a_2, \ldots, a_n$ is a permutation of $1, 2, \ldots, n$. Prove that

$$\sum_{k=1}^{n} \frac{a_k}{k^2} \geq \sum_{k=1}^{n} \frac{1}{k}.$$

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.

Special prizes will be given to the three people solving the most number of problems correctly during the semester.

Type and send your solution before February 19th, 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**