Bilkent University
Department of Mathematics

Problem Of The Month

Term: February 2007

Let P be the product of the positive real numbers $a_1, a_2, \ldots, a_{1024}$. Prove that

$$\prod_{i=1}^{1024} \left(1 + \frac{1}{a_i^{1024} + a_i^{2048}}\right) \geq \left(1 + \frac{1}{P + P^2}\right)^{1024}$$