

Problem of the Week

Proposed by Bernardo Ábrego and Silvia Fernández

October 20-27

Let $n > 0$ be a natural number. Determine all n -degree polynomials $P(x)$ with n positive real roots such that

$$P(x) = x^n + a_{n-1}x^{n-1} + a_{n-2}x^{n-2} + \cdots + a_2x^2 + a_1x + 1,$$

and $a_1 = a_{n-1} = n - 10$.

This contest is sponsored by the Mathematics Department. Open to all CSUN students. Winner gets \$10 or an equivalent prize. All complete and correct solutions get a certificate. Type and send your solution before October 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