

Problem of the Week

Proposed by Bernardo Ábrego and Silvia Fernández.

February 14-21

Let $P(x) = x^3 + c_2x^2 + c_1x + c_0$ be a cubic polynomial with real coefficients and with three different real roots. Let w be the average of the three roots. Prove that $P(x)$ is decreasing in some interval around w .

Rules:

1. Open to all enrolled undergraduate and graduate CSUN students.
2. The first complete and correct solution will be awarded a diploma and the choice of a "Brain Benders" wood puzzles set or a five dollar prize.
3. The winner solution and the names of the authors of all correct solutions will be published in our web site (www.csun.edu/math/probweek). All authors whose solutions are complete and correct will receive certificates.
4. All solutions must be typed and sent electronically. PDF, Latex, or Word files are preferred.
5. All steps of the solution must be clearly justified.
6. Email your solution with subject "Problem of the week" to Bernardo.Abrego@csun.edu.
7. Late solutions will not be considered.
8. For any questions contact the organizers
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