

AoPS Community

www.artofproblemsolving.com/community/c2013468 by parmenides51, jasperE3

Problem 1 Let $a_1, a_2, ..., a_n$ be *n* different positive integers where $n \ge 1$. Show that

$$\sum_{i=1}^n a_i^3 \ge \left(\sum_{i=1}^n a_i\right)^2$$

Problem 2 Find all integers n with 1 < n < 1979 having the following property: If m is an integer coprime with n and 1 < m < n, then m is a prime number.

Problem 3 There are two circles of perimeter 1979. Let 1979 points be marked on the first circle, and several arcs with the total length of 1 on the second. Show that it is possible to place the second circle onto the first in such a way that none of the marked points is covered by a marked arc.

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